

Cables, Wires and Accessories for Industrial Applications

**Cables, Wires and Accessories
for Industrial Applications**



**Be certain.
Belden.**

**Signal Transmission Solutions
for Reliable, Mission-Critical
Applications**



Keep productivity high and downtime low with Belden industrial cables. From industrial automation and process control to wind turbines and robotics, Belden has the cable that combines reliability, ruggedness, and performance.

**Be certain.
Belden.**



Trust Belden Cable to Ensure Clear, Uninterrupted Signal Transmission

Today's industrial applications cannot afford transmission errors that cause downtime, delays, and even safety concerns. Belden quality provides the performance and reliability needed to keep your connections strong and your automation up and running, even in the harshest operating environments.

- Patented, proven technology for maximum uptime
- Broad portfolio to meet any need
- Above-and-beyond service and support

Designing Solutions for Unmatched Reliability

Noise, vibration, humidity, temperature, sunlight, flexing, chemicals and so many other factors can impact signal performance. The consequences can be significant, depending on the scope of the resulting shutdown, the mission-critical level of the application and the vertical market or industry involved. Whatever the cost, your bottom line suffers.

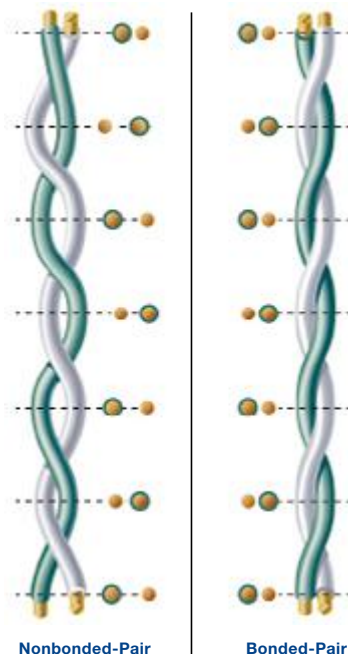


That's why so many project designers write Belden cables into their project specs. The experts know that when it comes to reliability, Belden has no equal.

Belden's Bonded-Pair technology, a patented cable construction that affixes the conductor insulation of the cable pairs along their longitudinal axes, ensures that no performance-robbing gaps can develop. The design also prevents noise interference with the signal in the cable.

- Conductor-to-conductor spacing, or centricity, is always uniform – no gaps
- With uniform centricity, cable delivers consistently reliable electrical performance
- Superior electrical performance, even after cable is subjected to bending, pulling and twists

Installed and manipulated Nonbonded-pairs (left) have a tendency to gap, varying the centricity of the two conductors. Belden Bonded-Pairs (right) do not gap so the physical integrity of the pair is maintained.



Belden is a dynamic and an innovative company with a vast product portfolio.

Top of Class Performance

Belden has developed the most comprehensive line of industrial cables, wires and accessories in the world today.



Operating as a lean enterprise, Belden puts a high priority on what you need. Our manufacturing sites and products meet or exceed the certification requirements of multiple, independent certification agencies, including:

- **UL (Underwriters Laboratories)**
UL Standards are used to assess products; test components, materials, systems and performance; and evaluate environmentally sustainable products, renewable energies, food and water products, recycling systems and other innovative technologies in order to fulfill its mission to create a safer, more sustainable world.
- **ISO (International Organization for Standardization)**
ISO Standards give world-class specifications for products, services and systems, to ensure quality, safety and efficiency. They are instrumental in facilitating international trade.
- **RoHS (Restriction on Hazard Substances)**
Nearly all Belden cables contain none of the restricted substances under the European Directives of 2002/2003 or California Proposition 65.

Plus, we've built our entire corporate culture around continuous improvement. Every action is taken to earn your trust and protect your mission-critical applications.

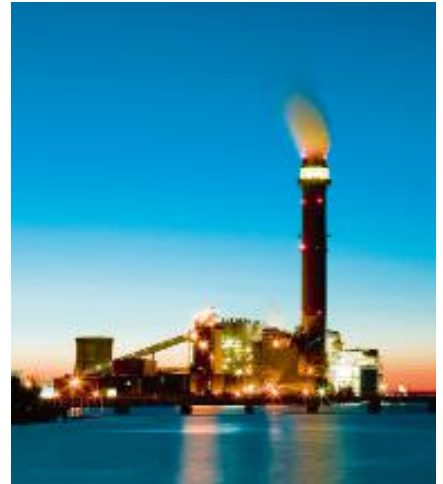


Delivering the Right Product for Every Application

From copper to fiber. From fieldbus to Ethernet. From unshielded to armored. From on-machine to buried underground. No matter what you need, you'll find a solution in the Belden portfolio.

In business since 1902, Belden has grown into a worldwide enterprise with more than 25 sales offices and manufacturing facilities spread across North and South America, Europe, Asia Pacific, Africa and the Middle East. That means worldwide market access and global distribution to supply any project you have.

You'll also find experience and expertise across diverse industries and vertical markets. Having introduced more than 250,000 products to the market and earned more than 600 patents for innovation, we've successfully completed projects in:



| Markets | Applications |
|------------------------------------|----------------------------------|
| Automotive | Network/Fieldbus Infrastructure |
| Machine Building/Manufacturing | Sensor/Actuator Connectivity |
| Food & Beverage | Ethernet Automation |
| Consumer Packaging | Physical Security & Surveillance |
| Chemical & Petrochemical | Industrial Internet of Things |
| Transportation | Smart Factory/Industrie 4.0 |
| Oil & Gas | Smart Grids |
| Power, Transmission & Distribution | Cybersecurity |
| Utilities/Energy | Robotics/Automation |
| Medical & Healthcare | Multi-protocol |
| & More | |



Bringing Added Value with Industry-leading Support

When you choose Belden, you can operate with confidence. Our entire industrial cable portfolio is backed by our 10-year extended warranty – FREE. That's unmatched coverage you can only get from Belden.

In every region of the world, you have access to a Commercial Engineering "Coach" who can guide you through any project, from planning and design to implementation and troubleshooting. We can also connect you to certified partners and authorized systems integrators to ensure your success and satisfaction.

Plus, we invest in you. Every year, we offer countless opportunities to expand your knowledge – from our highly rated annual Design Seminar and formal certification courses to interactive webinars, a weekly blog, and a bi-monthly newsletter.

The more you know, the more you'll agree: Belden is the right choice for your industrial project.



Belden is leading the way in the transformation to a connected world.



Section Index

| | Page |
|--|------|
| Table of Contents | 8-14 |
| Power & Control | |
| ■ Multi-Conductor Cables | 15 |
| ■ Variable Frequency Drive (VFD) Cables | 149 |
| ■ Sensor & Actuator Cables | 165 |
| ■ Hook-up & Lead Wire | 171 |
| ■ Portable Cordage | 203 |
| ■ SpaceMaker™ Series Electronic Cables | 212 |
| Control & Instrumentation | |
| ■ Paired and Triads Cables | 217 |
| Data Communication Systems | |
| ■ Computer Cables | 315 |
| Industrial Data and Process Automation | |
| ■ Serial Fieldbus | 343 |
| ■ DataTuff® Industrial Ethernet Cables | 379 |
| ■ DataTuff® Industrial Ethernet Patch Cords | 401 |
| ■ RailTuff™ Railway Approved Industrial Ethernet | 407 |
| Fire Survival & Circuit Integrity | |
| ■ Classic Cables | 412 |
| ■ Control & Power Cables | 414 |
| ■ Instrumentation & Signal Cables | 425 |
| ■ Serial Fieldbus | 449 |
| ■ Optical Fiber | 453 |
| Optical Fiber | |
| ■ Central and Multi Loose Tube | 471 |
| Patching and Termination | |
| ■ MIPP: The Industrial-strength Patch Panel | 547 |
| Technical Information | |
| | 559 |
| Part Number Index | |
| | 581 |

Table of Contents

| | Page |
|---|----------|
| Table of Contents | 8 |
| Power & Control | |
| Multi-Conductor Cables | |
| Classic Multi-Conductor Cables 15 | |
| Overview | 16 |
| Audio, Control and Instrumentation Cables | 18 |
| High-Temperature Control and Instrumentation Cables | 26 |
| Special Audio, Communication and Instrumentation Cables | 29 |
| Fire Alarm Power-Limited Fire Protective Signaling Circuit Cables | 31 |
| Plenum-Rated Fire Alarm Power-Limited | 33 |
| Circuit Integrity (CI) SAFE-T-Line® Cables | 34 |
| Computer, Instrumentation and Medical Electronics Cables | 38 |
| MIL-W-16878 (Type B) Conductors | 39 |
| Security Systems and Duplex Primary Wire | 40 |
| Antenna Rotor Cables | 41 |
| Rubber SO Power and Control Cables | 41 |
| MachFlex Flexible Control Cables 42 | |
| Overview and Application Guide | 42 |
| MachFlex 350 Control Cable 300/500 V YY, CY, SY | 43 |
| MachFlex 375 Control Cable 300/750 V YY, CY, SY | 56 |
| MachFlex 610 Control Cable 600/1000 V CY, SY, YY | 68 |
| 600 V MachFlex Super 360TC for Extreme Flexing (10 Million Flex Cycles) | 80 |
| 600 V MachFlex 360TC for Moderate Flexing (1 Million Flex Cycles) | 82 |
| MachFlex LiYY PVC Cables | 85 |
| MachFlex LiYCY PVC Cables | 89 |
| MachFlex ONE | 93 |
| Overview 95 | |
| EN 50288-7 Control Cables 96 | |
| 300/500 V Control Cables | 96 |
| IEC 60502-1 Power Cables 100 | |
| 600/1000 V Power Cables | 100 |
| IEC 60092-376 Marine Approved Control Cables 102 | |
| 150/250 V Control Cables | 102 |
| IEC 60092-353 Marine Approved Power Cables 104 | |
| 600/1000 V Power Cables | 104 |
| UL Control Cables 106 | |
| 600 V Type TC Cables | 107 |
| 600 V Type MC Metal Clad and Teck-Style® Cables | 114 |
| Dual Rated UL/CSA Control Cables 118 | |
| 600 V Teck-Style® Cables: Dual-Rated Type MC/TECK 90 | 118 |
| CSA Control and Power Cables 120 | |
| 600 V and 1000 V TC/CIC Multi-Conductor Cables | 120 |
| CSA Control Cables 122 | |
| 600 V CIC Multi-Conductor Cables | 122 |



| Power & Control | Page |
|--|-------------|
| Multi-Conductor Cables | |
| 600 V ACIC Cables and TECK 90 Cables | 124 |
| 600 V TECK 90 Composite Cables | 128 |
| 1000 V teck 90 Cables | 129 |
| MarineTuff™ Marine Approved UL Control Cables | 131 |
| Overview | 131 |
| 600 V Type TC (or MC) Control Cables | 132 |
| Technical Information | 146 |
| Variable Frequency Drive (VFD) Cables | |
| Overview | 150 |
| Cross Reference Guide | 152 |
| Classic and Symmetrical VFD Cables | 155 |
| Low Smoke Zero Halogen VFD Cables | 157 |
| Armored VFD Cables | 159 |
| CSA VFD Cables | 160 |
| MarineTuff™ Marine Approved VFD Cables | 161 |
| Overview | 161 |
| Classic Foil/Braid Design Thermoset LSZH VFD Cables | 162 |
| Classic Symmetrical Design Thermoset LSZH VFD Cables | 163 |
| Sensor & Actuator Cables | |
| Overview | 166 |
| PVC Sensor & Actuator Cables | 167 |
| PUR Sensor & Actuator Cables | 168 |
| PUR Distribution Boxes Cables | 169 |
| Hook - up & Lead Wire | |
| Overview | 172 |
| Introduction: UL Style & CSA Type Listings | 173 |
| PVC | 174 |
| MachFlex ONE (PVC) | 178 |
| PVC Wire Dispenser Kits | 179 |
| GreenChoice™ PPO | 180 |
| TFE | 181 |
| EPDM | 183 |
| XL-DUR® | 185 |
| XL-DUR® (High-Temperature) and SIS (Switchboard) Wire | 186 |
| MachFlex ONE (XLP) | 187 |
| Chlorosulfonated Polyethylene | 188 |
| Neoprene | 190 |
| Silicone Rubber | 191 |

| Power & Control | Page |
|---|-------------|
| Hook-up & Lead Wire | |
| Mercury Switch | 193 |
| High-Voltage Leads | 193 |
| Test Prod Wire | 193 |
| Magnet Wire | 194 |
| Shielding and Bonding Cable, Direct Burial Cable, Bus Bar, and Antenna Wire | 195 |
| Technical Information | 196 |
| Portable Cordage | |
| Overview | 204 |
| Introduction | 205 |
| 2-Conductor | 206 |
| 3-Conductor | 208 |
| 4-, 5- and Multi-Conductor | 210 |
| UL Cordage Types: Designation, Construction and Rating | 211 |
| SpaceMaker™ Series Electronic Cables | |
| Overview | 212 |
| SpaceMaker™ Series Electronic Cables | 213 |
| Control & Instrumentation | |
| Paired and Triads Cables | |
| Overview | 218 |
| Classic Paired Cables | 219 |
| Overview and Selection Guide | 220 |
| Special Audio, Communication and Instrumentation Cables | 228 |
| Audio, Control, and Instrumentation Cables | 230 |
| Overview | 246 |
| EN 50288-7 Instrumentation and Signal Cables | 247 |
| 300/500 V Instrumentation and Signal Cables | 247 |
| IEC 60502-1 Instrumentation and Signal Cables | 261 |
| 600/1000 V Instrumentation and Signal Cables | 261 |
| IEC 60092-376 Marine Approved Instrumentation and Signal Cables | 265 |
| 150/250 V Instrumentation and Signal Cables | 265 |
| UL Instrumentation Cables | 271 |
| 300 V Power-Limited Tray Cables | 271 |
| Thermocouple Extension Cable and Thermocouple Wire | 286 |
| 600 V Tray Cables | 289 |
| CSA Instrumentation and Thermocouple Tray Cable | 299 |
| 300 V TC/CIC | 299 |
| CSA Instrumentation Cables | 301 |
| 300 V CIC | 301 |
| 300 V ACIC Armored Cables | 303 |



| Control & Instrumentation | | Page |
|---|--|-------------|
| MarineTuff™ Marine Approved UL Instrumentation Cables | | 306 |
| Overview | | 306 |
| 600 V Type TC (or MC) Instrumentation Cables | | 307 |
| Data Communication Systems | | |
| Computer Cables | | |
| Overview | | 316 |
| Multi-Conductor Computer Cables | | 318 |
| Computer Cables for RS-232 Applications | | 318 |
| Computer Cables for RS-232, RS-423 and IEEE 488 | | 319 |
| Low-Capacitance Computer Cables for RS-432 Applications | | 320 |
| Low-Capacitance Computer Cables for RS-232 and RS-423 Applications | | 321 |
| Paired Computer Cables | | 322 |
| Computer Cables for RS-232 Applications | | 322 |
| Low-Capacitance Computer Cables for RS-232 and RS-422 Applications | | 324 |
| Low-Capacitance 100 Ohm Computer Cables for RS-422 and Digital Audio Applications | | 325 |
| Low-Capacitance Computer Cables for RS-232 Applications | | 327 |
| Low-Capacitance Computer Cables for RS-232 and RS-422 Applications | | 328 |
| Low-Capacitance Computer Cables for RS-232, RS-422 and RS-485 Applications | | 330 |
| Low-Capacitance Computer Cables for RS-485 Applications | | 331 |
| Computer POS Cables | | 332 |
| Low-Capacitance Computer Cables for RS-232, RS-422 and Digital Audio Applications | | 333 |
| Industrial Data and Process Automation | | |
| Overview | | 336 |
| Introduction | | 336 |
| PLC/DCS-to-Cable Cross Reference Guide | | 338 |
| Protocol-to-Cable Cross Reference Guide | | 341 |
| Serial Fieldbus | | |
| Overview | | 344 |
| Foundation Fieldbus Type A | | 345 |
| Foundation Fieldbus Type B | | 350 |
| Foundation Fieldbus MarineTuff™ Marine Approved | | 351 |
| PROFIBUS | | 354 |
| PROFIBUS MarineTuff™ Marine Approved | | 356 |
| CANopen RS-485 | | 357 |
| CANopen RS-485 MarineTuff™ Marine Approved | | 359 |
| DeviceBus® for ODVA DeviceNet™ | | 361 |
| DeviceBus® for Honeywell Smart Distributed System | | 363 |
| DeviceBus® for Square D/Seriplex® and Phoenix Contact INTERBUS®-S | | 364 |
| DeviceBus® for ODVA DeviceNet™ MarineTuff™ Marine Approved | | 365 |
| ControlNet™ | | 366 |
| ControlNet™ MarineTuff™ Marine Approved | | 367 |

| Industrial Data and Process Automation | | Page |
|--|--|-------------|
| ControlBus™ | | 368 |
| MODBUS for RS-232 | | 371 |
| MODBUS II for RG-6 Type Coaxial Cables | | 371 |
| LonWorks | | 372 |
| DataTray® 600 V Twinaxial | | 373 |
| Blue Hose DataTray® 600 V Twinaxial MarineTuff™ Marine Approved | | 374 |
| CC Link | | 375 |
| KNX/EIB Approved Cables | | 376 |
| Coaxial Ethernet | | 377 |
| MachFlex Flexible Automation Cables | | 378 |
| 300 V MachFlex Data Cables (1 Million Flex Cycles) | | 378 |
| MachFlex Vision 75 Ohm Coax Cables (1 Million Flex Cycles) | | 378 |
| Industrial Data and Process Automation | | |
| DataTuff® Industrial Ethernet Cables | | |
| Overview | | 380 |
| Introduction and Cable Selection Guide | | 381 |
| DataTuff® Industrial Ethernet | | 385 |
| Permanent Installation Cables | | 386 |
| Moderate Flexing Cables | | 391 |
| Continuous Flexing Cables | | 394 |
| MarineTuff™ Marine Approved Industrial Ethernet Cables | | 396 |
| Overview | | 396 |
| MarineTuff™ Marine Approved LSZH Industrial Ethernet Cables | | 397 |
| DataTuff® PROFINET | | 398 |
| Permanent Installation Cables | | 398 |
| Moderate Flexing Cables | | 399 |
| Continuous Flexing Cables | | 400 |
| DataTuff® Industrial Ethernet Patch Cords | | |
| Overview | | 402 |
| DataTuff® Industrial Ethernet Patch Cords | | 403 |
| Twisted Pair Cables | | 403 |
| Bonded Pair Cables | | 405 |
| RailTuff™ Railway Approved Industrial Ethernet | | |
| Overview | | 408 |
| RailTuff™ Railway Approved Industrial Ethernet | | 409 |



| Fire Survival and Circuit Integrity Cables | | Page |
|---|---|-------------|
| Overview | | 412 |
| Classic Cables | | 413 |
| | Circuit Integrity(CI) Industrial Data Solution® SensorNet / Manchester | 413 |
| Overview | | 414 |
| Control & Power Cables | | 415 |
| | EN 50288-7 300/500 V Fire Resistant Control Cables | 415 |
| | IEC 60502-1 600/1000 V Fire Resistant Power Cables | 419 |
| | IEC 60092-376 150/250 V Fire Resistant Control Cables | 421 |
| | IEC 60092-353 600/1000 V Marine Fire Resistant Power Cables | 423 |
| Instrumentation & Signal Cables | | 425 |
| | EN 50288-7 300/500 V Fire Resistant Instrumentation & Signal Cables | 425 |
| | IEC 60502-1 600/1000 V Fire Resistant Instrumentation & Signal Cables | 439 |
| | IEC 60092-376 150/250 V Marine Fire Resistant Instrumentation & Signal Cables | 443 |
| Serial Fieldbus | | 449 |
| | Foundation Fieldbus Marine Approved Fire Resistant Cables | 450 |
| | CANopen RS-485 Marine Approved Fire Resistant Cables | 451 |
| Optical Fiber | | 453 |
| | Fire Resistant Optical Fiber Cables | 454 |
| Optical Fiber | | |
| Overview | | 472 |
| | Loose Tube Optical Characteristics | 473 |
| | Construction Lookup Table | 474 |
| | Part Number Coding | 475 |
| Central Loose Tube | | 476 |
| Multi Loose Tube | | 510 |
| Technical Information | | 544 |
| Patching and Termination | | |
| MIPP – The Industrial-strength Patch Panel | | |
| Overview | | 548 |
| MIPP Fiber Splice Box | | 549 |
| | Overview | 549 |
| | Standard Part Number Reference Guide | 551 |
| | Standard Part Number Reference List | 552 |
| MIPP Copper Patch Panel | | 554 |
| | Overview | 554 |

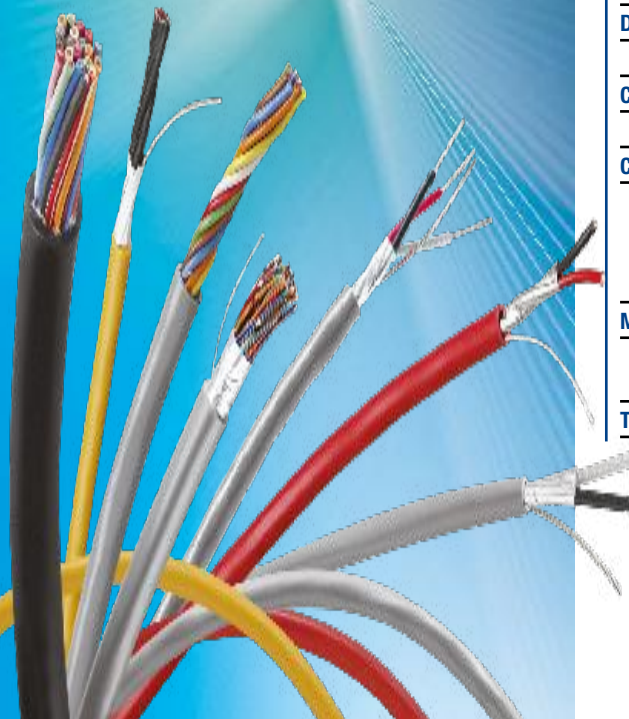
| Patching and Termination | | Page |
|---|--|----------------|
| Standard Part Number Reference Guide | | 555 |
| Standard Part Number Reference List | | 555 |
| MIPP Mix | | 556 |
| Overview | | 556 |
| Standard Part Number Reference List | | 557 |
| Accessories | | 558 |
| Technical Information | | |
| Belden Conductor Color Code Charts | | 560 |
| Conductors | | 562 |
| Insulations and Jackets | | 565 |
| Shielding | | 569 |
| Cables Standards Reference Guide | | 572 |
| Cables Substitution Chart | | 573 |
| Canadian Substitution Hierarchy and Catalog Terms of Use | | 574 |
| Glossary | | 575 |
| Part Number Index | | 581-630 |



Power & Control Multi-Conductor Cables

Section Table of Contents

| Power & Control | Page |
|---|------------|
| Multi-Conductor Cables | |
| Classic Multi-Conductor Cables | 15 |
| Overview | 16 |
| Audio, Control and Instrumentation Cables | 18 |
| High-Temperature Control and Instrumentation Cables | 26 |
| Special Audio, Communication and Instrumentation Cables | 29 |
| Fire Alarm Power-Limited Fire Protective Signaling Circuit Cables | 31 |
| Plenum-Rated Fire Alarm Power-Limited | 33 |
| Circuit Integrity (CI) SAFE-T-Line® Cables | 34 |
| Computer, Instrumentation and Medical Electronics Cables | 38 |
| MIL-W-16878 (Type B) Conductors | 39 |
| Security Systems and Duplex Primary Wire | 40 |
| Antenna Rotor Cables | 41 |
| Rubber SO Power and Control Cables | 41 |
| MachFlex Flexible Control Cables | 42 |
| Overview and Application Guide | 42 |
| MachFlex 350 Control Cable 300/500 V YY, CY, SY | 43 |
| MachFlex 375 Control Cable 300/750 V YY, CY, SY | 56 |
| MachFlex 610 Control Cable 600/1000 V CY, SY, YY | 68 |
| 600 V MachFlex Super 360TC for Extreme Flexing (10 Million Flex Cycles) | 80 |
| 600 V MachFlex 360TC for Moderate Flexing (1 Million Flex Cycles) | 82 |
| MachFlex LiYY PVC Cables | 85 |
| MachFlex LiYCY PVC Cables | 89 |
| MachFlex ONE | 93 |
| Overview | 95 |
| EN 50288-7 Control Cables | 96 |
| 300/500 V Control Cables | 96 |
| IEC 60502-1 Power Cables | 100 |
| 600/1000 V Power Cables | 100 |
| IEC 60092-376 Marine Approved Control Cables | 102 |
| 150/250 V Control Cables | 102 |
| IEC 60092-353 Marine Approved Power Cables | 104 |
| 600/1000 V Power Cables | 104 |
| UL Control Cables | 106 |
| 600 V Type TC Cables | 107 |
| 600 V Type MC Metal Clad and Teck-Style® Cables | 114 |
| Dual Rated UL/CSA Control Cables | 118 |
| 600 V Teck-Style® Cables: Dual-Rated Type MC/TECK 90 | 118 |
| CSA Power and Control Cables | 120 |
| 600 V and 1000 V TC/CIC Multi-Conductor Cables | 120 |
| CSA Control Cables | 122 |
| 600 V CIC Multi-Conductor Cables | 122 |
| 600 V ACIC Cables and TECK 90 Cables | 123 |
| 600 V TECK 90 Composite Cables | 128 |
| 1000 V TECK 90 Cables | 129 |
| MarineTuff™ Marine Approved UL Control Cables | 131 |
| Overview | 131 |
| 600 V Type TC (or MC) Control Cables | 132 |
| Technical Information | 146 |



Multi-Conductor Cables



Product Features

Belden multi-conductor products deliver low voltage analog data signals within enclosures, from controllers and I/Os to devices such as temperature and pressure sensors, relays, valves, meters, thermocouples, solenoids, actuators, contacts, push buttons, and alarms. They also are applicable for computers, communications, instrumentation, sound, control, audio, data transmission, and many more applications.

- Unsurpassed quality and reliability
- Robust designs that meet or exceed UL standards
- Proven performance in installations worldwide
- Broad range of AWG sizes, shielding options, and conductor counts
- Convenient put-up options
- Polyolefin insulations provide lower capacitance performance when compared to PVC insulated cables

Applications

Belden's multi-conductor line includes a select number of high-quality, high-reliability cables that meet or exceed UL standards and have been used worldwide for decades.

Multi-conductor Computer Cable is suitable for process control networks, industrial automation and building automation systems such as heating, ventilation, air conditioning (HVAC) and security systems. It is ideal for data transmission between multiple systems and often in long distance links (up to 4,000 ft/1,219 m).

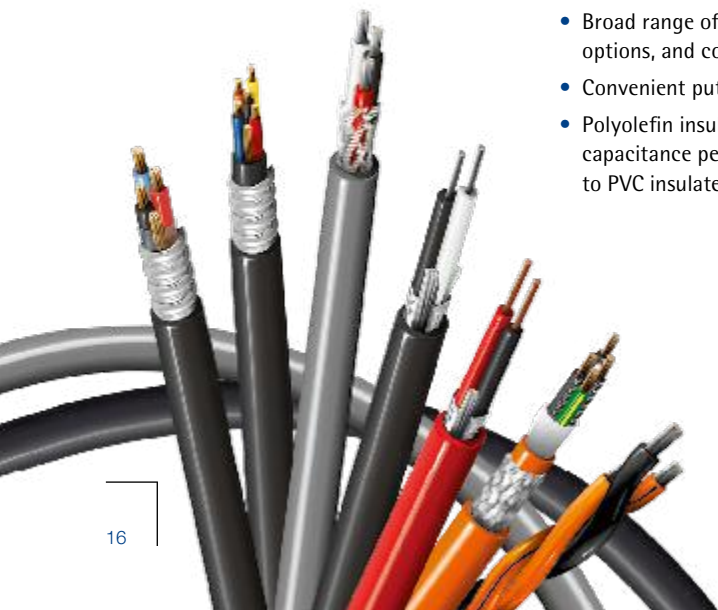
Fire protective control and circuit integrity cables ensure the continued operation of a building's EVAC systems in the event of fire are suitable for a wide range of applications, including security systems, sound and intercom systems, power-limited controls, fire and burglar alarm systems, single-line telephones, and more.

The Fire Alarm range is approved by NEC/CEC and California State Fire Marshall for commercial fire alarms, monitoring and detection systems, audio and control and notification circuits.

When the application demands highly flexible cables offering exceptional cable life and performance, Belden MachFlex offers the best solution.

For installation in wet or dry locations the UL control cables are recommended. Cable jackets are resistant to sunlight, moisture and vapor penetration. The cables can be used in raceways, outdoor applications and direct burial applications.

CSA Control cables are general-purpose cables used in the oil and gas, pulp and paper, mining, petroleum and chemical industries as well as in commercial buildings.



Classic Multi-Conductor Cables

Shielding

Belden meets the demand for highly effective shielding technology with innovative, EMI/RFI-protective foil and braid designs like Beldfoil®. Belden's patented Beldfoil shield is an aluminum/polyester foil construction that yields a lightweight, strong, flexible and thin shield that provides extra insulation and 100% shield coverage. Beldfoil is ideally suited for multiple-pair, individually shielded audio, communication, and data cables.

Product Consistency

By manufacturing our products in ISO-certified, state-of-the-art manufacturing facilities, Belden assures that quality is built into each and every product. Precise diameter control of insulation and jacket diameters and concentric wall thickness assures fast, reliable manufacturing in high-speed automated equipment, and ease of termination and assembly in the field.

Find the Right Product for Your Application

Belden Classic products are available from stock from Belden distributors. If the products above do not fit your application, Belden can also engineer specific constructions for your application.

Audio, Control and Instrumentation Cables

600 V, +80 °C • Unshielded



- C(UL) FT4
- VW-1

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Stranded (19 x 29) TC Conductors • PVC Insulation • Cabled • Chrome PVC Jacket

16 AWG • 19 x 29 • PVC/PVC

| | | | | | | | | |
|------|----|---------|------|-------|------|-----|------|------|
| 8620 | 4 | Chart 2 | .376 | 9.55 | | | | |
| 9620 | 5 | Chart 2 | .411 | 10.44 | 0.31 | .79 | .042 | 1.07 |
| 8621 | 7 | Chart 2 | .458 | 11.63 | | | | |
| 9721 | 8 | Chart 2 | .496 | 12.60 | 0.31 | .79 | 0.45 | 1.14 |
| 9621 | 9 | Chart 2 | .533 | 13.54 | | | | |
| 8622 | 12 | Chart 2 | .627 | 15.93 | | | | |
| 8623 | 15 | Chart 2 | .694 | 17.63 | 0.31 | .79 | .060 | 1.52 |
| 8624 | 19 | Chart 2 | .740 | 18.80 | | | | |
| 9622 | 25 | Chart 2 | .879 | 22.33 | 0.31 | .79 | .065 | 1.65 |

14 AWG • 19 x 27 • PVC/PVC

| | | | | | | | | |
|------|----|---------|------|-------|------|------|------|------|
| 8627 | 4 | Chart 2 | .490 | 12.45 | .045 | 1.14 | .045 | 1.14 |
| 9623 | 5 | Chart 2 | .573 | 14.55 | .045 | 1.14 | .060 | 1.62 |
| 8628 | 7 | Chart 2 | .623 | 15.82 | .045 | 1.14 | .060 | 1.62 |
| 8629 | 12 | Chart 2 | .824 | 20.93 | .045 | 1.14 | .065 | 1.65 |

Audio, Control and Instrumentation Cables

300 V, +60 °C • Unshielded



- UL AWM Style

- NEC: CM
- CEC: CM
- NEC: MP (9794 Only)

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

22 AWG • Polyolefin/PVC

| Solid BC Conductors • Polyolefin Insulation • Cabled • Rose or Gray PVC Jacket | | | | | | | | |
|--|---|---------------------------|------|------|------|-----|------|-----|
| 8795 | 2 | Green, Red | .168 | 4.27 | | | | |
| 8794 | 3 | Green, Red, Yellow | .178 | 4.52 | .018 | .46 | .022 | .56 |
| 9794 | 4 | Green, Red, Yellow, Black | .200 | 5.08 | | | | |
| 1242A | 4 | Green, Red, Yellow, Black | .154 | 3.91 | .018 | .46 | .025 | .64 |

300 V, +60 °C • Unshielded



- PVC/PVC
- AWM Style

- NEC: CMG
- CEC: CMG FT4

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Stranded TC Conductors • PVC Insulation • Cabled • Chrome PVC Jacket

20 AWG • 7 x 28 • PVC/PVC

| | | | | | | | | |
|------|----|----------|------|------|------|-----|------|-----|
| 9444 | 4 | Chart 1 | .217 | 5.51 | | | | |
| 9445 | 5 | Chart 1 | .239 | 6.07 | .015 | .38 | .032 | .81 |
| 9439 | 7 | Chart 1 | .260 | 6.60 | | | | |
| 9455 | 9 | Chart 1 | .317 | 8.05 | | | | |
| 9457 | 15 | Chart 2R | .389 | 9.88 | .015 | .38 | .035 | .89 |

18 AWG • 19 x 30 • PVC/PVC

| | | | | | | | | |
|------|----|----------|------|-------|------|-----|------|------|
| 8489 | 4 | Chart 1 | .257 | 6.53 | .017 | .43 | .032 | .81 |
| 8465 | 5 | Chart 1 | .282 | 7.16 | .017 | .43 | .033 | .84 |
| 8467 | 7 | Chart 1 | .309 | 7.85 | .017 | .43 | | .94 |
| 8469 | 9 | Chart 1 | .364 | 9.25 | .017 | .43 | .037 | |
| 8466 | 12 | Chart 2R | .412 | 10.46 | .017 | .43 | .040 | 1.02 |
| 8468 | 15 | Chart 2R | .500 | 12.70 | .017 | .43 | | |
| 8619 | 19 | Chart 2R | .490 | 12.45 | .017 | .43 | .045 | .500 |
| 9626 | 25 | Chart 2R | .612 | 15.54 | .017 | .43 | .060 | 1.52 |

300 V, +80 °C • Unshielded



- Unjacketed
- AWM Style
- VW-1

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

16 AWG • PVC

| Stranded (19 x 29) TC Conductors • PVC Insulation • Cabled | | | | | | | | |
|--|---|---|------|------|------|-----|---|---|
| 9498 | 3 | Orange, Black, Orange with Black Stripe | .243 | 6.17 | .027 | .69 | - | - |

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control and Instrumentation Cables

150 V, +80 °C • Unshielded



- UL AWM Style (Except 8442)
- NEC: CMG
- CEC: CMG FT4

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

22 AWG • PVC/PVC

| Stranded (7 x 30) TC Conductors • PVC Insulation • Cabled • Chrome PVC Jacket | | | | | | | | |
|---|----|-------------------|------|-------|------|-----|------|------|
| 8442 | 2 | Black, Red | .170 | 4.32 | .016 | .41 | 0.25 | .64 |
| 8443 | 3 | Black, Red, Green | .172 | 4.37 | | | | |
| 8444 | 4 | Chart 1 | .185 | 4.70 | | | | |
| 8445 | 5 | Chart 1 | .194 | 4.93 | | | | |
| 9430 | 7 | Chart 1 | .214 | 5.44 | | | | |
| 9421 | 8 | Chart 1 | .229 | 5.82 | .011 | .28 | .032 | .81 |
| 9423 | 9 | Chart 1 | .244 | 6.20 | | | | |
| 8456 | 10 | Chart 1 | .264 | 6.71 | | | | |
| 8457 | 12 | Chart 1 | .272 | 6.91 | | | | |
| 8458 | 15 | Chart 1 | .315 | 8.00 | | | | |
| 9431 | 20 | Chart 1 | .345 | 8.76 | | | | |
| 8459 | 25 | Chart 1 | .387 | 9.83 | .011 | .28 | .040 | 1.02 |
| 9432 | 30 | Chart 1 | .400 | 10.16 | | | | |
| 9433 | 40 | Chart 1 | .455 | 11.56 | | | | |
| 9434 | 50 | Chart 1 | .500 | 12.70 | .011 | .28 | .045 | 1.14 |

300 V, +60 °C • Foil Shield



- Polyolefin/PVC
- AWM Style
- NEC: CM
- CEC: CM
- NEC: CL3 (8618)
- Polyolefin/LSZH
- IEC 60332-3-24
- Smoke IEC6103

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

Stranded TC Conductors • Polyolefin Insulation • Cabled • Overall Beldfoil® Shield • Stranded TC Drain Wire • Chrome PVC Jacket

| | | | | | | | | | | |
|--|---|---------------------|------|------|------|-----|------|-----|----|-----|
| 22 AWG • 7 x 30 • 22 AWG Drain Wire • Polyolefin/PVC | | | | | | | | | | |
| 8771 | 3 | Black, White, Clear | .199 | 5.05 | .017 | .43 | .033 | .84 | 41 | 134 |
| 20 AWG • 7 x 28 • 22 AWG Drain Wire • Polyolefin/PVC | | | | | | | | | | |
| 8772 | 3 | Black, White, Clear | .218 | 5.54 | .017 | .43 | .033 | .84 | 51 | 167 |
| 18 AWG • 16 x 30 • 20 AWG Drain Wire • Polyolefin/PVC | | | | | | | | | | |
| 8770 | 3 | Black, White, Clear | .246 | 6.25 | .018 | .46 | .033 | .84 | 48 | 157 |
| 16 AWG • 19 x 29 • 18 AWG Drain Wire • Polyolefin/PVC | | | | | | | | | | |
| 8618 | 3 | Black, White, Clear | .327 | 8.3 | .032 | .81 | .031 | .79 | 50 | 164 |

Stranded TC Conductors • Polyolefin Insulation • Cabled • Overall Beldfoil® Shielding • Stranded TC Drain Wire • Chrome LSZH Jacket

| | | | | | | | | | | |
|---|---|---------------------|------|------|------|-----|------|-----|----|-----|
| 22 AWG • 7 x 30 • 22 AWG Drain Wire • Polyolefin/LSZH | | | | | | | | | | |
| 8771NH | 3 | Black, White, Clear | .210 | 5.30 | .015 | .38 | .035 | .89 | 41 | 134 |
| 20 AWG • 7 x 28 • 22 AWG Drain Wire • Polyolefin/LSZH | | | | | | | | | | |
| 8772NH | 3 | Black, White, Clear | .220 | 5.65 | .015 | .38 | .035 | .89 | 41 | 134 |
| 18 AWG • 16 x 30 • 20 AWG Drain Wire • Polyolefin/LSZH | | | | | | | | | | |
| 8770NH | 3 | Black, White, Clear | .250 | 6.25 | .015 | .38 | .035 | .89 | 41 | 134 |

* One conductor to other conductors connected to shield.

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control and Instrumentation Cables

300 V, +75 °C • Foil Shield



- AWM Style

- NEC: CM, CL3
- CEC: CM

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

22 AWG • Polyolefin/PVC

| Stranded (19 x 34) TC Conductors • Polyolefin Insulation • Cabled • Overall Beldfoil® Shield • Three 23 AWG and One 25 AWG Stranded TC Drain Wires • White PVC Jacket | | | | | | | | | | |
|---|---|--------------------------|------|------|------|-----|------|------|----|-----|
| 8729 | 4 | Black, Red, Green, Clear | .257 | 6.53 | .016 | .41 | .051 | 1.30 | 42 | 138 |

* One conductor to other conductors connected to shield.

300 V, +80 °C • Foil Shield



- AWM Style

- NEC: CMG
- CEC: CMG FT4

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

18 AWG • SR-PVC/PVC

| Stranded (19 x 30) TC Conductors • Semi-Rigid PVC Insulation • Cabled • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wires • Chrome PVC Jacket | | | | | | | | | | |
|---|---|--------------------------|------|------|------|-----|------|-----|-----|-----|
| 9418 | 4 | Red, Green, Black, White | .245 | 6.22 | .010 | .25 | .035 | .89 | 120 | 394 |

* One conductor to other conductors connected to shield.

300 V, +80 °C • Foil Shield



- AWM Style

- NEC: CMP
- CEC: CMP FT4

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

18 AWG • FEP/Flamarrest

| Stranded (19 x 30) • FEP Insulation • Cabled • Overall Beldfoil® Shield • 20 AWG TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | |
|--|---|--------------------------|------|------|------|-----|------|-----|----|-----|
| 82418 | 4 | Black, White, Red, Green | .172 | 4.37 | .007 | .18 | .015 | .38 | 57 | 187 |

* One conductor to other conductors connected to shield.

300 V, +90 °C • Foil Shield



- NEC: CM
- CEC: CM

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

22 AWG • Polyolefin/PVC

| Stranded (7 x 30) TC Conductors • Polyolefin Insulation • Cabled • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Brown PVC Jacket | | | | | | | | | | |
|--|---|-------------------|------|------|------|-----|------|-----|----|-----|
| 9770 | 3 | Black, Red, White | .145 | 3.68 | .009 | .23 | .020 | .51 | 60 | 197 |

* One conductor to other conductors connected to shield.

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride

Audio, Control and Instrumentation Cables

200 V, +105 °C • Braid Shield



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

30 AWG • Polyolefin/PVC

| Stranded (7 x 38) TC Conductors • Polyolefin Insulation • Cabled • Central Textile Strength Member • Paper Separator • 95% TC Braid Shielding • Chrome PVC Jacket | | | | | | | | | | |
|---|---|-------------------|------|------|------|-----|------|-----|----|-----|
| 8643 | 3 | Black, Red, White | .096 | 2.44 | .006 | .15 | .014 | .36 | 43 | 141 |

* One conductor to other conductors connected to shield.

200 V, +105 °C • Braid Shield



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

22 AWG • PVC/PVC

| Stranded (7 x 38) TC Conductors • PVC Insulation • Cabled • 70% TC Braid Shielding • Chrome PVC Jacket | | | | | | | | | | |
|--|---|-------------------|------|------|------|-----|------|-----|----|-----|
| 8735 | 3 | Black, Red, White | .202 | 5.13 | .016 | .41 | .025 | .64 | 60 | 197 |

* One conductor to other conductors connected to shield.

200 V, +80 °C • Braid Shield

• AWM Style

- NEC: CMG
- CEC: CMG FT4



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

20 AWG • PVC/PVC

| Stranded (7 x 30) TC Conductors • PVC Insulation • Cabled • 85% TC Braid Shielding • Chrome PVC Jacket | | | | | | | | | | |
|--|----|----------|------|-------|------|-----|------|------|----|-----|
| 9260 | 6 | Chart 2R | .305 | 7.75 | .017 | .43 | .032 | .82 | 50 | 164 |
| 9261 | 12 | Chart 2R | .396 | 10.06 | .017 | .43 | .040 | 1.02 | 57 | 187 |

* One conductor to other conductors connected to shield.

Audio, Control and Instrumentation Cables

450 V, +80 °C • Spiral Shield



- AWM Style
- VW-1

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

18 AWG • PVC/PVC

| Stranded (7 x 26) TC Conductors • PVC Insulation • Cabled • 80% Spiral Wrap TC Shielding • Chrome PVC Jacket | | | | | | | | | | |
|--|---|-------------------|------|------|------|-----|------|-----|----|-----|
| 8791 | 3 | Black, Red, White | .260 | 6.60 | .022 | .56 | .028 | .56 | 79 | 259 |

* One conductor to other conductors connected to shield.

300 V, +80 °C • Braid Shield/Unshielded



- AWM Style
- NEC: CM

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

22 AWG • PVC/PVC

| Stranded (7 x 30) TC Conductors • PVC Insulation • Cabled • 80% TC Braid Shielding Over One Conductor • Chrome PVC Jacket | | | | | | | | | | |
|---|---------------------------------------|-------------------|------|------|------|-----|------|-----|--|--|
| 8734 | 3 Total 1 Shielded 2 Unshielded | Black, Red, White | .194 | 4.93 | .016 | .41 | .025 | .64 | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride

Audio, Control and Instrumentation Cables

Plenum-Rated

300 V • Plenum • Unshielded



- Non-conduit
- Suitable for Outdoor and Direct Burial Applications
- NEC: CMP
- CEC: CMP FT6

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Stranded TC Conductors • FEP Insulation • Cabled • Red FEP Jacket

22 AWG • 7 x 30 • FEP/FEP

| | | | | | | | | |
|-------|---|--------------------------|------|------|------|-----|------|-----|
| 88442 | 2 | Black, Red | .102 | 2.59 | .007 | .18 | .012 | .30 |
| 88444 | 4 | Black, White, Red, Green | .121 | 3.07 | .007 | .18 | .010 | .25 |

18 AWG • 19 x 30 • FEP/FEP

| | | | | | | | | |
|-------|---|--------------------------|------|------|------|-----|------|-----|
| 88489 | 4 | Black, White, Red, Green | .161 | 4.09 | .007 | .18 | .009 | .23 |
|-------|---|--------------------------|------|------|------|-----|------|-----|

Stranded TC Conductors • FEP Insulation • Cabled • Natural Flamarrest® Jacket

22 AWG • 7 x 30 • FEP/Flamarrest

| | | | | | | | | |
|-------|---|--------------------------|------|------|------|-----|------|-----|
| 82442 | 2 | Black, Red | .102 | 2.59 | .006 | .15 | .015 | .38 |
| 82444 | 4 | Black, White, Red, Green | .121 | 3.07 | | | | |

18 AWG • 19 x 30 • FEP/Flamarrest

| | | | | | | | | |
|-------|---|--------------------------|------|------|------|-----|------|-----|
| 82489 | 4 | Black, White, Red, Green | .170 | 4.32 | .007 | .18 | .014 | .36 |
|-------|---|--------------------------|------|------|------|-----|------|-----|

300 V • Plenum • Foil Shield



- Non-conduit
- Suitable for Outdoor and Direct Burial Applications
- NEC: CMP
- CEC: CMP FT6

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

18 AWG • FEP/FEP

Stranded (19 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 20 AWG Stranded TC Dain Wires • Red FEP Jacket

| | | | | | | | | | | |
|-------|---|--------------------------|------|------|------|-----|------|-----|----|-----|
| 88770 | 3 | Black, White, Red | .155 | 3.94 | .007 | .18 | .014 | .36 | 96 | 315 |
| 89418 | 4 | Black, White, Red, Green | .177 | 4.50 | .007 | .18 | .014 | .36 | 57 | 187 |

18 AWG • FEP/Flamarrest

Stranded (19 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 20 AWG Stranded TC Dain Wires • Natural Flamarrest Jacket

| | | | | | | | | | | |
|-------|---|--------------------------|------|------|------|-----|------|-----|----|-----|
| 82418 | 4 | Black, White, Red, Green | .176 | 4.47 | .007 | .18 | .014 | .36 | 63 | 207 |
|-------|---|--------------------------|------|------|------|-----|------|-----|----|-----|

* One conductor to other conductors connected to shield.

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene

Audio, Control and Instrumentation Cables
Plenum-Rated

300 V • Plenum • Foil/Braid Shield



- Non-conduit
- Suitable for Outdoor and Direct Burial Applications
- -70 °C to +200 °C
- NEC: CMP
- CEC: CMP FT6

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

Stranded TC Conductors • FEP Insulation • Cabled • Overall Beldfoil® + 85% TC Braid Shielding • Red FEP Jacket

24 AWG • 7 x 32 • FEP/FEP

| | | | | | | | | | | |
|-------|----|---------|------|------|------|-----|------|-----|----|-----|
| 83503 | 3 | Chart 2 | .135 | 3.43 | | | | | | |
| 83504 | 4 | Chart 2 | .144 | 3.66 | | | | | | |
| 83506 | 6 | Chart 2 | .165 | 4.19 | | | | | | |
| 83509 | 9 | Chart 2 | .188 | 4.78 | .006 | .15 | .014 | .36 | 36 | 118 |
| 83512 | 12 | Chart 2 | .207 | 5.26 | | | | | | |
| 83515 | 15 | Chart 2 | .227 | 5.77 | | | | | | |

22 AWG • 7 x 30 • FEP/FEP

| | | | | | | | | | | |
|-------|----|---------|------|------|------|-----|------|-----|----|-----|
| 83552 | 2 | Chart 2 | .141 | 3.58 | | | | | | |
| 83553 | 3 | Chart 2 | .148 | 3.76 | | | | | | |
| 83554 | 4 | Chart 2 | .159 | 4.04 | .006 | .15 | .014 | .36 | | |
| 83556 | 6 | Chart 2 | .183 | 4.65 | | | | | 40 | 132 |
| 83559 | 9 | Chart 2 | .209 | 5.31 | | | | | | |
| 83562 | 12 | Chart 2 | .234 | 5.94 | .006 | .15 | .015 | .38 | | |
| 83569 | 19 | Chart 2 | .269 | 6.83 | | | | | | |

20 AWG • 7 x 28 • FEP/FEP

| | | | | | | | | | | |
|-------|----|---------|------|------|------|-----|------|-----|----|-----|
| 83602 | 2 | Chart 2 | .157 | 3.99 | | | | | | |
| 83604 | 4 | Chart 2 | .178 | 4.52 | | | | | | |
| 83606 | 6 | Chart 2 | .207 | 5.26 | .006 | .15 | .014 | .36 | 51 | 167 |
| 83609 | 9 | Chart 2 | .238 | 6.05 | | | | | | |
| 83612 | 12 | Chart 2 | .265 | 6.73 | | | | | | |

18 AWG • 19 x 30 • FEP/FEP

| | | | | | | | | | | |
|-------|----|---------|------|------|------|-----|------|-----|----|-----|
| 83652 | 2 | Chart 2 | .175 | 4.45 | | | | | | |
| 83653 | 3 | Chart 2 | .184 | 4.67 | | | | | | |
| 83654 | 4 | Chart 2 | .199 | 5.05 | .007 | .18 | .014 | .36 | | |
| 83656 | 6 | Chart 2 | .234 | 5.94 | | | | | 60 | 197 |
| 83659 | 9 | Chart 2 | .293 | 7.44 | .007 | .18 | .015 | .38 | | |
| 83662 | 12 | Chart 2 | .308 | 7.82 | | | | | | |

16 AWG • 19 x 29 • FEP/FEP

| | | | | | | | | | | |
|-------|----|---------|------|-------|------|-----|------|-----|----|-----|
| 83702 | 2 | Chart 2 | .196 | 4.98 | | | | | | |
| 83703 | 3 | Chart 2 | .206 | 5.23 | | | | | | |
| 83704 | 4 | Chart 2 | .223 | 5.66 | | | | | | |
| 83706 | 6 | Chart 2 | .265 | 6.73 | | | | | | |
| 83709 | 9 | Chart 2 | .307 | 7.80 | .007 | .18 | .014 | .36 | 63 | 207 |
| 83712 | 12 | Chart 2 | .344 | 8.74 | | | | | | |
| 83715 | 15 | Chart 2 | .407 | 10.34 | | | | | | |
| 83719 | 19 | Chart 2 | .403 | 10.24 | | | | | | |

* One conductor to other conductors connected to shield.

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene | Belden Color Code Charts can be found at page 560.

High-Temperature Control and Instrumentation Cables

300 V, +150 °C • Unshielded

- VW-1



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Stranded (7 x 28) TC Conductors • Cabled • ETFE Insulation • Clear ETFE Jacket

20 AWG • 7 x 28 • ETFE/ETFE

| | | | | | | | | |
|-------|---|------------|------|------|------|-----|------|-----|
| 85220 | 2 | Black, Red | .185 | 4.70 | .015 | .38 | .020 | .51 |
|-------|---|------------|------|------|------|-----|------|-----|

16 AWG • 19 x 29 • ETFE/ETFE

| | | | | | | | | |
|-------|---|------------|------|------|------|-----|------|-----|
| 85221 | 2 | Black, Red | .215 | 5.46 | .014 | .36 | .020 | .51 |
| 85102 | 2 | Chart 2R | .211 | 5.36 | .014 | .36 | .019 | .48 |
| 85103 | 3 | Chart 2R | .223 | 5.66 | .014 | .36 | | |
| 85109 | 9 | Chart 2R | .354 | 8.99 | .014 | .36 | .024 | .61 |

ETFE insulated and jacketed cables are particularly well suited for harsh environments due to outstanding mechanical toughness of the material, as well as its high-temperature and radiation resistant characteristics.

ETFE cables are used extensively in chemical plants, nuclear plants, and fossil fuel power plants. Typical applications are data recording, communication, telemetry, and monitoring pressure or material flow.

High-Temperature Control and Instrumentation Cables

600 V, +150 °C • Silicone Rubber • Foil Shield



- AWM Style
- -70 °C to +150 °C
- VW-1

- 2999 V DC Jacket Working Voltage (Shield to Ground)

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

Stranded TC Conductors • FEP Insulation • Cabled • Noise-Reducing Tape • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Red Silicone Rubber Jacket

22 AWG • 7 x 30 • FEP/Silicone Rubber

| | | | | | | | | | | |
|-------|---|--------------------------|------|------|------|-----|------|-----|----|-----|
| 83394 | 2 | Black, White | .199 | 5.05 | .015 | .38 | .030 | .76 | 22 | 72 |
| 83395 | 3 | Black, Red, White | .208 | 5.28 | .015 | .38 | .031 | .79 | 40 | 131 |
| 83396 | 4 | Black, White, Red, Green | .217 | 5.51 | .015 | .38 | .030 | .76 | | |

20 AWG • 7 x 28 • FEP/Silicone Rubber

| | | | | | | | | | | |
|-------|---|------------|------|------|------|-----|------|-----|----|----|
| 83393 | 2 | Black, Red | .242 | 6.15 | .020 | .51 | .030 | .76 | 22 | 72 |
|-------|---|------------|------|------|------|-----|------|-----|----|----|

* For 2-conductor cables, capacitance is measured conductor to conductor. For 3 conductors and higher, capacitance is measured as one conductor to other conductors connected to shield.

300 V, +150 °C • Foil Shield



- VW-1

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

Stranded TC Conductors • ETFE Insulation • Cabled • Beldfoil® Shield • Stranded TC Drain Wire • Clear ETFE Jacket

20 AWG • 7 x 28 • ETFE/ETFE

| | | | | | | | | | | |
|-------|---|-------------------|------|------|------|-----|------|-----|----|-----|
| 85230 | 2 | Black, Red | .182 | 4.62 | .015 | .38 | .020 | .51 | 31 | 102 |
| 85240 | 3 | Black, Red, Green | .193 | 4.90 | .015 | .38 | .020 | .51 | 48 | 157 |

16 AWG • 19 x 29 • ETFE/ETFE

| | | | | | | | | | | |
|-------|---|-------------------|------|------|------|-----|------|-----|----|-----|
| 85231 | 2 | Black, Red | .210 | 5.33 | .014 | .36 | .020 | .51 | 44 | 144 |
| 85241 | 3 | Black, Red, Green | .223 | 5.66 | .014 | .36 | .020 | .51 | 48 | 157 |

* For 2-conductor cables, capacitance is measured conductor to conductor. For 3 conductors and higher, capacitance is measured as one conductor to other conductors connected to shield.

TC = Tinned Copper • ETFE = Ethylene/Tetrafluoroethylene • FEP = Fluorinated Ethylene Propylene

High-Temperature Control and Instrumentation Cables

MIL-W16878/4 (Type E) Conductors

600 V, +200 °C • TFE • Braid Shield

- -65 °C to +200 °C
- VW-1

- MIL-W16878/4 (Type E) Conductors



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

Stranded Silver-Plated Conductors • Extruded TFE Insulation • Cabled • 85% Silver-Plated Braid Shielding • White Tape-Wrapped TFE Jacket

26 AWG • 7 x 34 • TFE/TFE

| | | | | | | | | | | |
|--------|---|--------------------------|------|------|------|-----|------|-----|------|-----|
| 83303E | 1 | White | .076 | 1.93 | .010 | .25 | .010 | .25 | 44.6 | 146 |
| 83317E | 2 | White, Black | .121 | 3.07 | .010 | .25 | .011 | .28 | 35.5 | 116 |
| 83332E | 3 | White, Black, Red | .127 | 3.23 | .010 | .25 | .011 | .28 | 31.5 | 103 |
| 83347E | 4 | White, Black, Red, Green | .137 | 3.48 | .010 | .25 | .011 | .28 | 30.5 | 100 |

24 AWG • 19 x 36 • TFE/TFE

| | | | | | | | | | | |
|--------|---|--------------------------|------|------|------|-----|------|-----|------|-----|
| 83304E | 1 | White | .085 | 2.16 | .010 | .25 | .010 | .25 | 46 | 151 |
| 83318E | 2 | White, Black | .131 | 3.33 | .010 | .25 | .011 | .28 | 42.4 | 139 |
| 83333E | 3 | White, Black, Red | .137 | 3.48 | .010 | .25 | .011 | .28 | 36.8 | 121 |
| 83348E | 4 | White, Black, Red, Green | .149 | 3.79 | .010 | .25 | .011 | .28 | 36.8 | 121 |

22 AWG • 19 x 34 • TFE/TFE

| | | | | | | | | | | |
|--------|---|--------------------------|------|------|------|-----|------|-----|------|-----|
| 83305E | 1 | White | .091 | 2.31 | .010 | .25 | .010 | .25 | 57.9 | 190 |
| 83319E | 2 | White, Black | .143 | 3.63 | .010 | .25 | .011 | .28 | 49.2 | 161 |
| 83334E | 3 | White, Black, Red | .150 | 3.81 | .010 | .25 | .011 | .28 | 45.7 | 150 |
| 83349E | 4 | White, Black, Red, Green | .163 | 4.14 | .010 | .25 | .011 | .28 | 45.7 | 150 |

20 AWG • 19 x 32 • TFE/TFE

| | | | | | | | | | | |
|--------|---|--------------------------|------|------|------|-----|------|-----|----|-----|
| 83306E | 1 | White | .099 | 2.52 | .010 | .25 | .011 | .25 | 69 | 226 |
| 83320E | 2 | White, Black | .159 | 4.04 | .010 | .25 | .010 | .28 | 51 | 167 |
| 83335E | 3 | White, Black, Red | .168 | 4.27 | .010 | .25 | .010 | .28 | 51 | 167 |
| 83350E | 4 | White, Black, Red, Green | .183 | 4.65 | .011 | .28 | .011 | .25 | 51 | 167 |

18 AWG • 19 x 30 • TFE/TFE

| | | | | | | | | | | |
|--------|---|--------------------------|------|------|------|-----|------|-----|------|-----|
| 83307E | 1 | White | .109 | 2.77 | .011 | .28 | .010 | .25 | 71.5 | 135 |
| 83321E | 2 | White, Black | .179 | 4.55 | .011 | .28 | .011 | .28 | 52.8 | 173 |
| 83336E | 3 | White, Black, Red | .189 | 4.80 | .010 | .25 | .011 | .28 | 52.8 | 173 |
| 83351E | 4 | White, Black, Red, Green | .207 | 5.26 | .010 | .25 | .011 | .28 | 52.8 | 173 |

16 AWG • 19 x 29 • TFE/TFE

| | | | | | | | | | | |
|--------|---|--------------------------|------|------|------|-----|------|-----|------|-----|
| 83308E | 1 | White | .120 | 3.05 | .011 | .28 | .011 | .28 | 72.5 | 238 |
| 83322E | 2 | White, Black | .197 | 5.00 | .011 | .28 | .011 | .28 | 60 | 197 |
| 83337E | 3 | White, Black, Red | .209 | 5.31 | .011 | .28 | .011 | .28 | 53 | 174 |
| 83352E | 4 | White, Black, Red, Green | .229 | 5.82 | .011 | .28 | .011 | .28 | 50.8 | 167 |

* One conductor to other conductors connected to shield.

Special Audio, Communication and Instrumentation Cables

300 V, +80 °C • Shielded • Triads

- VW-1

- NEC: CM
- NEC: Article 800
- CEC: CM



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

22 AWG • Polyolefin/PVC

Stranded (7 x 30) TC Conductors • Polyolefin Insulation • White PVC Jacket Over Triads • Overall Beldfoil® Shield • 22 AWG TC Drain Wires • Overall Chrome PVC Jacket

| | | | | | | | | | | |
|-------------|-------------------|---------------------------|------|-------|------|-----|------|------|----|-----|
| 9772 | 36 (12 Triads) | Triads: Black, Red, Green | .725 | 18.42 | .009 | .23 | .060 | 1.52 | 67 | 220 |
|-------------|-------------------|---------------------------|------|-------|------|-----|------|------|----|-----|

* One conductor to other conductors connected to shield.

350 V, +80 °C • Foil Shielded Quads • Unshielded Conductors

- VW-1



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

24 AWG and 22 AWG • Polyolefin/PVC

Stranded (7 x 32 and 7 x 30) TC Conductors • Polyolefin Insulation (24 AWG), PVC Insulation (22 AWG) • Green Beldfoil® Shield on One Quad, Red Beldfoil® Shield on One Quad • 24 AWG Stranded TC Drain Wire • Chrome PVC Jacket

| | | | | | | | | |
|-------------|---|---|------|------|--------------|------------|------|-----|
| 8787 | 10 Total 8 (24 AWG Shielded: 2 Quads) 2 (22 AWG Unshielded) | Quad 1: Gray, White, Green, Blue Quad 2: Brown, Red, Yellow, Orange Unshielded: Blue, White | .290 | 7.87 | .012 .016 | .30 .41 | .030 | .76 |
|-------------|---|---|------|------|--------------|------------|------|-----|

TC = Tinned Copper • PVC = Polyvinyl Chloride

Special Audio, Communication and Instrumentation Cables

300 V, +60 °C • Foil Shielded and Unshielded

• VW-1

• NEC: CM



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

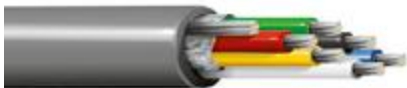
22 AWG • PVC/PVC

Stranded (7 x 30) TC Conductors • PVC Insulation • Individually Beldfoil® Shielded Conductors • Tinned Cadmium Bronze Ribbon Drain Wire • Chrome PVC Jacket

| | | | | | | | | |
|-------------|---------------------------------------|--|------|------|------|-----|------|-----|
| 8788 | 5 Total 3 Shielded 2 Unshielded | Shielded: Black, Red, Green Unshielded: Yellow, Blue | .236 | 5.99 | .016 | .41 | .028 | .71 |
|-------------|---------------------------------------|--|------|------|------|-----|------|-----|

300 V, +90 °C • Foil Shielded and Unshielded

- NEC: CM
- NEC: Article 800
- CEC: CM



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

24 AWG and 22 AWG • PVC/PVC

Stranded (7 x 32 and 7 x 30) TC Conductors • PVC Insulation • Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Chrome PVC Jacket

| | | | | | | | | |
|-------------|---|--|------|------|------|-----|------|-----|
| 8786 | 6 Total 4 (24 AWG Shielded) 2 (22 AWG Unshielded) | Shielded: Black, Green, Red, Yellow Unshielded: White, Blue | .236 | 5.99 | .016 | .41 | .028 | .71 |
|-------------|---|--|------|------|------|-----|------|-----|

TC = Tinned Copper • PVC = Polyvinyl Chloride

Fire Alarm Power-Limited Fire Protective Signaling Circuit Cables

Subject 1424 (NEC Article 760, Type FPLR)

300 V, +105 °C • Unshielded

- AWM Style

- NEC: MPR, FPLR
- CEC: FAS 105 FT4



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

22 AWG • PVC/PVC

Solid TC Conductors • PVC Insulation • Cabled • Black PVC Jacket

| | | | | | | | | |
|------|---|---------------------------------------|------|------|------|-----|------|-----|
| 9576 | 6 | Black, White, Red, Green, Brown, Blue | .234 | 5.94 | .013 | .33 | .039 | .99 |
|------|---|---------------------------------------|------|------|------|-----|------|-----|

300 V, +105 °C • Unshielded

- AWM Style

- NEC: MPR, FPLR
- CEC: FAS 105 FT4



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Solid BC Conductors • PVC Insulation • Cabled • Red PVC Jacket

18 AWG • PVC/PVC

| | | | | | | | | |
|------|---|------------|------|------|------|-----|------|-----|
| 9571 | 2 | Black, Red | .228 | 5.79 | .017 | .43 | .037 | .94 |
|------|---|------------|------|------|------|-----|------|-----|

16 AWG • PVC/PVC

| | | | | | | | | |
|------|---|------------|------|------|------|-----|------|-----|
| 9572 | 2 | Black, Red | .238 | 6.05 | 0.16 | .41 | .036 | .91 |
|------|---|------------|------|------|------|-----|------|-----|

14 AWG • PVC/PVC

| | | | | | | | | |
|------|---|------------|------|------|------|-----|------|------|
| 9580 | 2 | Black, Red | .303 | 7.70 | .022 | .56 | .042 | 1.07 |
|------|---|------------|------|------|------|-----|------|------|

12 AWG • PVC/PVC

| | | | | | | | | |
|------|---|------------|------|------|------|-----|------|------|
| 9582 | 2 | Black, Red | .340 | 8.64 | .022 | .56 | .042 | 1.07 |
|------|---|------------|------|------|------|-----|------|------|

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride

Fire Alarm Power-Limited Fire Protective Signaling Circuit Cables

Subject 1424 (NEC Article 760, Type FPLR)

300 V, +105 °C • Foil Shielded

• AWM Style

- NEC: MPR, FPLR
- CEC: FAS 105 FT4



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Solid BC Conductors • PVC Insulation • Cabled • Overall Beldfoil® Shield • Red PVC Jacket

18 AWG • PVC/PVC

| | | | | | | | | |
|------|---|--------------------------------|------|------|------|-----|------|-----|
| 9574 | 2 | Black, Red | .231 | .587 | | | | |
| 9578 | 4 | Black, Red, Yellow, Light Blue | .263 | 6.68 | .017 | .43 | .037 | .94 |

16 AWG • PVC/PVC

| | | | | | | | | |
|------|---|--------------------------------|------|------|------|-----|------|------|
| 9575 | 2 | Black, Red | .241 | 6.12 | .016 | .41 | .036 | .91 |
| 9579 | 4 | Black, Red, Yellow, Light Blue | .301 | 7.65 | .018 | .46 | .042 | 1.07 |

14 AWG • PVC/PVC

| | | | | | | | | |
|------|---|------------|------|------|------|-----|------|------|
| 9581 | 2 | Black, Red | .306 | 7.77 | .022 | .56 | .042 | 1.07 |
|------|---|------------|------|------|------|-----|------|------|

12 AWG • PVC/PVC

| | | | | | | | | |
|------|---|------------|------|------|------|-----|------|------|
| 9583 | 2 | Black, Red | .343 | 8.71 | .022 | .56 | .042 | 1.07 |
|------|---|------------|------|------|------|-----|------|------|

BC = Bare Copper • PVC = Polyvinyl Chloride

**Plenum-Rated Fire Alarm Power-Limited
Fire Protective Control and Instrumentation Cables**
Subject 1424 (NEC Article 760, Type FPLR)

300 V, +200 °C • Foil/Braid Shield • Plenum

• AWM Style

• NEC: FPLR, CMP
• CEC: CMP FT6



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Stranded TC Conductors • FEP Insulation • Cabled • Overall Beldfoil® + 85% TC Braid Shielding • Red FEP Jacket

14 AWG • 7 x 22 • FEP/FEP

| | | | | | | | | |
|-------|---|--|------|------|------|-----|------|-----|
| 83752 | 2 | Black, White | .267 | 6.78 | | | | |
| 83753 | 3 | Black, White, Red | .284 | 7.21 | .016 | .41 | .015 | .38 |
| 83754 | 4 | Black, White, Red, Green | .311 | 7.90 | | | | |
| 83756 | 6 | Black, White, Red, Green, Orange, Blue | .376 | 9.55 | .016 | .41 | .017 | .43 |

12 AWG • 7 x 20 • FEP/FEP

| | | | | | | | | |
|-------|---|--|------|-------|------|-----|------|-----|
| 83802 | 2 | Black, White | .303 | 7.70 | | | | |
| 83803 | 3 | Black, White, Red | .323 | 8.20 | .016 | .41 | .015 | .38 |
| 83804 | 4 | Black, White, Red, Green | .359 | 9.12 | | | | |
| 83806 | 6 | Black, White, Red, Green, Orange, Blue | .430 | 10.92 | .016 | .41 | .017 | .43 |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene

Circuit Integrity (CI) SAFE-T-Line® Cables
 Commercial Application, Addressable Systems

300 V, +105 °C • Unshielded



- Riser Rated
 - BS 6387 CWZ (3 hours)
 - EN 50200: PH 120 (2 hours)
 - IEC 60754-1/2 & EN 50267-2-1/2
- NEC: FPLR

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance (Nom)* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

Solid BC Conductors • Ceramifiable Silicone Rubber Insulation • Red Flame-Retardant Polyethylene Jacket

18 AWG • Silicone Rubber/FR-Polyethylene

| | | | | | | | | | | |
|---------|---|-----------------|-----|-------|------|------|------|-----|----|----|
| 5320UME | 2 | Black, Red | .31 | 7.87 | | | | | | |
| 5322UME | 4 | Black, Numbered | .35 | 8.89 | .045 | 1.14 | .034 | .86 | 17 | 56 |
| 5324UME | 6 | Black, Numbered | .42 | 10.67 | | | | | | |
| 5326UME | 8 | Black, Numbered | .45 | 11.43 | | | | | | |

16 AWG • Silicone Rubber/FR-Polyethylene

| | | | | | | | | | | |
|---------|---|-----------------|-----|------|------|------|------|-----|----|----|
| 5220UME | 2 | Black, Red | .33 | 8.38 | .045 | 1.14 | .034 | .86 | 19 | 62 |
| 5222UME | 4 | Black, Numbered | .38 | 9.65 | | | | | | |

14 AWG • Silicone Rubber/FR-Polyethylene

| | | | | | | | | | | |
|---------|---|-----------------|-----|-------|------|------|------|-----|----|----|
| 5120UME | 2 | Black, Red | .36 | 9.14 | .045 | 1.14 | .034 | .86 | 21 | 69 |
| 5122UME | 4 | Black, Numbered | .41 | 10.41 | | | | | | |

12 AWG • Silicone Rubber/FR-Polyethylene

| | | | | | | | | | | |
|---------|---|-----------------|-----|-------|------|------|------|-----|----|----|
| 5020UME | 2 | Black, Red | .39 | 9.91 | .045 | 1.14 | .034 | .86 | 23 | 75 |
| 5022UME | 4 | Black, Numbered | .45 | 11.43 | | | | | | |

* For 2-conductor cables, capacitance is measured conductor to conductor. For 3 conductors and higher, capacitance is measured as one conductor to other conductors.

Circuit Integrity (CI) SAFE-T-Line® Cables
Commercial Application, Addressable Systems

300 V, +105 °C • Foil Shielded

- Riser Rated
- BS 6387 CWZ (3 hours)
- EN 50200: PH 120 (2 hours)
- IEC 60754-1/2 & EN 50267-2-1/2
- NEC: FPLR

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance (Nom)* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |



18 AWG • Solid • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | |
|--|---|-----------------|-----|-------|------|------|------|-----|----|----|
| 5320FME | 2 | Black, Red | .31 | 7.87 | .045 | 1.14 | .034 | .86 | 27 | 89 |
| 5322FME | 4 | Black, Numbered | .36 | 9.14 | | | | | | |
| 5324FME | 6 | Black, Numbered | .42 | 10.67 | | | | | | |
| 5326FME | 8 | Black, Numbered | .46 | 11.61 | | | | | | |



18 AWG • 7 x 26 • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | |
|--|---|-----------------|-----|-------|------|------|------|-----|----|----|
| 5300FME | 2 | Black, Red | .32 | 8.13 | .045 | 1.14 | .034 | .86 | 27 | 89 |
| 5302FME | 4 | Black, Numbered | .37 | 9.40 | | | | | | |
| 5304FME | 6 | Black, Numbered | .44 | 11.18 | | | | | | |
| 5306FME | 8 | Black, Numbered | .47 | 11.94 | | | | | | |



16 AWG • Solid • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | |
|--|---|-----------------|-----|------|------|------|------|-----|----|-----|
| 5220FME | 2 | Black, Red | .33 | 8.38 | .045 | 1.14 | .034 | .86 | 31 | 102 |
| 5222FME | 4 | Black, Numbered | .38 | 9.65 | | | | | | |



16 AWG • 7 x 24 • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | |
|--|---|-----------------|-----|-------|------|------|------|-----|----|-----|
| 5200FME | 2 | Black, Red | .35 | 8.89 | .045 | 1.14 | .034 | .86 | 31 | 102 |
| 5202FME | 4 | Black, Numbered | .40 | 10.16 | | | | | | |

* For 2-conductor cables, capacitance is measured conductor to conductor. For 3 conductors and higher, capacitance is measured as one conductor to other conductors connected to shield.

BC = Bare Copper

Circuit Integrity (CI) SAFE-T-Line® Cables

Commercial Application, Addressable Systems

300 V, +105 °C • Foil Shielded

- Riser Rated
- BS 6387 CWZ (3 hours)
- EN 50200: PH 120 (2 hours)
- IEC 60754-1/2 & EN 50267-2-1/2
- NEC: FPLR

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance (Nom)* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |



14 AWG • Solid • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | |
|--|---|-----------------|-----|-------|------|------|------|-----|----|-----|
| 5120FME | 2 | Black, Red | .36 | 9.14 | .045 | 1.14 | .034 | .86 | 33 | 108 |
| 5122FME | 4 | Black, Numbered | .41 | 10.41 | | | | | | |



14 AWG • 7 x 22 • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | |
|--|---|-----------------|-----|-------|------|------|------|-----|----|-----|
| 5100FME | 2 | Black, Red | .38 | 9.65 | .045 | 1.14 | .034 | .86 | 33 | 108 |
| 5102FME | 4 | Black, Numbered | .44 | 11.18 | | | | | | |



12 AWG • Solid • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | |
|--|---|-----------------|-----|-------|------|------|------|-----|----|-----|
| 5020FME | 2 | Black, Red | .39 | 9.91 | .045 | 1.14 | .034 | .86 | 37 | 121 |
| 5022FME | 4 | Black, Numbered | .46 | 11.68 | | | | | | |



12 AWG • 7 x 20 • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | |
|--|---|-----------------|-----|-------|------|------|------|-----|----|-----|
| 5000FME | 2 | Black, Red | .42 | 10.67 | .045 | 1.14 | .034 | .86 | 40 | 131 |
| 5002FME | 4 | Black, Numbered | .48 | 12.19 | | | | | | |

* For 2-conductor cables, capacitance is measured conductor to conductor. For 3 conductors and higher, capacitance is measured as one conductor to other conductors connected to shield.

Circuit Integrity (CI) SAFE-T-Line® Cables
Commercial Application, Addressable Systems

300 V, +105 °C • Foil Shielded



- Riser Rated
- BS 6387 CWZ (3 hours)
- EN 50200: PH 120 (2 hours)
- IEC 60754-1/2 & EN 50267-2-1/2
- NEC: PLTC, FPLR

| Part No. | Conductors | Stranding | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance (Nom)* | |
|----------|------------|-----------|------------|----------|----|----------------------|----|------------------|----|--------------------|------|
| | | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

14 AWG • Solid • Silicone Rubber/FR-Polyethylene

| Solid or Stranded BC Conductors • Ceramifiable Silicone Rubber Insulation • Overall Beldfoil® Shield • Red Flame-Retardant Polyethylene Jacket | | | | | | | | | | | |
|--|---|--------|--------------|-----|------|------|-----|------|------|----|-----|
| 5240FRE | 2 | 7 x 24 | Black, White | .35 | 8.89 | | | | | | |
| 5201FRE | 3 | 7 x 24 | Red, White | .37 | 9.40 | .034 | .86 | .364 | 1.10 | 31 | 102 |

* For 2-conductor cables, capacitance is measured conductor to conductor. For 3 conductors and higher, capacitance is measured as one conductor to other conductors connected to shield.

BC = Bare Copper

Computer, Instrumentation and Medical Electronics Cables

Data Cables AMP SDL Connectors

350 V, +80 °C • Foil Shield

- Direct Burial
- NEC:CL2X



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

20 AWG • Polyolefin/Polyethylene

| Solid TC Conductors • Polyolefin Insulation • Cabled • Overall Beldfoil® Shield • 22 AWG Solid TC Drain Wire • Black High-Density Polyethylene Jacket | | | | | | | | | | |
|---|----|----------|------|------|------|-----|------|------|----|-----|
| 9802 | 2 | Chart 1 | .190 | 4.83 | .013 | .33 | .035 | .89 | | |
| 9803 | 3 | Chart 1 | .205 | 5.21 | .013 | .33 | .035 | .89 | | |
| 9890 | 10 | Chart 1 | .310 | 7.87 | .013 | .33 | .040 | 1.02 | 42 | 138 |
| 9894 | 15 | Chart 2R | .390 | 9.91 | .013 | .38 | .045 | 1.14 | | |

* One conductor to other conductors connected to shield.

300 V, +80 °C • Shielded

- AWM Style
- VW-1
- NEC: CL2X



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

26 AWG • PVC/PVC

| Stranded (7 x 34) TC Conductors • PVC Insulation • Overall Duofoil® Shielding • 26 AWG Stranded TC Drain Wire • Black PVC Jacket | | | | | | | | | | |
|--|----|---|------|------|------|-----|------|-----|--|--|
| 1211A | 4 | White, Yellow, Orange, Green | .195 | 4.95 | .015 | .38 | .036 | .91 | | |
| 1212A | 6 | Red, Blue, Green, Blue, Yellow, Orange, White | .220 | 5.59 | .015 | .38 | .037 | .93 | | |
| 1213A | 8 | Black, Purple, Red, Blue, Green, Blue, Orange, Yellow, White | .239 | 6.07 | .015 | .38 | .039 | .98 | | |
| 1214A | 66 | White/Red, White/Brown, White/Black, Black, Red, Brown, Purple, Blue, Green, Gray, Aqua, Tan, Pink, Orange, White, Yellow | .301 | 7.65 | .015 | .38 | .035 | .89 | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

MIL-W-16878 (Type B) Conductors

600 V, +105 °C • Braid Shield

• VW-1

• MIL-W-16878 (Type B) Conductors



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

Stranded TC Conductors • PVC Insulation • Clear Nylon Skin Over Insulation • Cabled • 90% TC Braid Shielding • PVC Jacket

22 AWG • 19 x 34 • PVC-Nylon/PVC

| | | | | | | | | | | |
|------|---|--------------------------|------|------|-----------|---------|------|-----|-----|-----|
| 9965 | 1 | White | .100 | 2.54 | .010/.003 | .25/.08 | .010 | .25 | 100 | 328 |
| 9966 | 2 | White, Black | .176 | 4.47 | .010/.003 | .25/.08 | .020 | .51 | 87 | 285 |
| 9967 | 3 | White, Black, Red | .184 | 4.67 | .010/.003 | .25/.08 | .020 | .51 | 88 | 289 |
| 9968 | 4 | White, Black, Red, Green | .200 | 5.08 | .010/.003 | .25/.08 | .020 | .51 | 69 | 226 |

20 AWG • 19 x 32 • PVC-Nylon/PVC

| | | | | | | | | | | |
|------|---|--------------------------|------|------|-----------|---------|------|-----|-----|-----|
| 9961 | 1 | White | .109 | 2.77 | .011/.003 | .27/.08 | .010 | .25 | 103 | 388 |
| 9962 | 2 | White, Black | .192 | 4.88 | .011/.003 | .27/.08 | .020 | .51 | 91 | 299 |
| 9963 | 3 | White, Black, Red | .210 | 5.33 | .011/.003 | .27/.08 | .025 | .64 | 84 | 276 |
| 9964 | 4 | White, Black, Red, Green | .226 | 5.74 | .011/.003 | .27/.08 | .025 | .64 | 100 | 328 |

16 AWG • 19 x 29 • PVC-Nylon/PVC

| | | | | | | | | | | |
|------|---|--------------------------|------|------|-----------|---------|------|-----|-----|-----|
| 9951 | 1 | White | .143 | 3.63 | .012/.003 | .30/.08 | .016 | .41 | 138 | 453 |
| 9952 | 2 | White, Black | .250 | 6.35 | .012/.003 | .30/.08 | .025 | .64 | 95 | 312 |
| 9953 | 3 | White, Black, Red | .264 | 6.71 | .012/.003 | .30/.08 | .027 | .69 | 101 | 331 |
| 9954 | 4 | White, Black, Red, Green | .291 | 7.39 | .012/.003 | .30/.08 | .027 | .69 | 94 | 308 |

* One conductor to other conductors connected to shield.

TC = Tinned Copper • PVC = Polyvinyl Chloride

Security Systems and Duplex Primary Wire

Security/Audio/Power-Limited Control Cable • 200 V, +75 °C • Unshielded

• VW-1



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

20 AWG • PVC/PVC

Stranded (7 x 28) BC Conductors • PVC Insulation • Parallel • Chrome PVC Jacket

| | | | | | | | | |
|-------------|---|--------------------------|------|------|------|-----|------|-----|
| 8484 | 4 | Black, Green, Red, White | .173 | 4.39 | .010 | .25 | .020 | .51 |
|-------------|---|--------------------------|------|------|------|-----|------|-----|

Duplex Primary Wire • 300 V, +75 °C • Nonplenum • Unshielded

• VW-1



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Stranded BC Conductors • PVC Insulation • Parallel • Chrome PVC Jacket

16 AWG • 19 x 29 • PVC/PVC

| | | | | | | | | |
|-------------|---|------------|-------------|-------------|------|-----|------|-----|
| 8677 | 2 | Brown, Red | .149 x .254 | 3.78 x 6.45 | .024 | .61 | .022 | .56 |
|-------------|---|------------|-------------|-------------|------|-----|------|-----|

14 AWG • 19 x 27 • PVC/PVC

| | | | | | | | | |
|-------------|---|------------|-------------|-------------|------|-----|------|-----|
| 8675 | 2 | Brown, Red | .168 x .290 | 4.27 x 7.37 | .023 | .58 | .023 | .58 |
|-------------|---|------------|-------------|-------------|------|-----|------|-----|

12 AWG • 19 x 25 • PVC/PVC

| | | | | | | | | |
|-------------|---|------------|-------------|-------------|------|-----|------|-----|
| 8673 | 2 | Brown, Red | .186 x 3.28 | 4.72 x 8.33 | .026 | .66 | .022 | .56 |
|-------------|---|------------|-------------|-------------|------|-----|------|-----|

10 AWG • 19 x 23 • PVC/PVC

| | | | | | | | | |
|-------------|---|------------|-------------|--------------|------|-----|------|-----|
| 8678 | 2 | Brown, Red | .225 x .400 | 5.72 x 10.16 | .032 | .81 | .025 | .64 |
|-------------|---|------------|-------------|--------------|------|-----|------|-----|

Antenna Rotor Cables

300 V, +80 °C • Unshielded



- AWM Style
- VW-1
- NEC: CM

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

18 and 16 AWG • PVC/PVC

| Stranded (16 x 30 and 19 x 28) TC Conductors • PVC Insulation • Cabled • Chrome PVC Jacket | | | | | | | | |
|--|------------|---|------|------|------|-----|------|-----|
| 9405 | 6 (18 AWG) | Brown, Red, Yellow, Blue, Orange, Green | .345 | 8.76 | .019 | .48 | .032 | .81 |
| | 2 (16 AWG) | Black, White | | | | | | |

150 V, +80 °C • Unshielded



- AWM Style
- NEC: CMG
- CEC: CMG FT4

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

22 and 18 AWG • PVC/PVC

| Stranded (7 x 30 and 16 x 30) TC Conductors • PVC Insulation • Cabled • Chrome PVC Jacket | | | | | | | | |
|---|------------|---|------|------|------|-----|------|-----|
| 8446 | 4 (22 AWG) | Red, Green, Brown, Blue | .236 | 5.99 | .011 | .28 | .032 | .81 |
| | 2 (18 AWG) | Black, White | | | | | | |
| 8448 | 6 (22 AWG) | Brown, Red, Yellow, Blue, Orange, Green | .259 | 6.58 | .011 | .28 | .032 | .81 |
| | 2 (18 AWG) | Black, White | | | | | | |

Rubber SO Power and Control Cables

600 V, +60 °C • Unshielded



- Oil Res
- UL: SO
- CSA: SO
- CSA: FT2

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

16 AWG • EPDM/Rubber

| Stranded (65 x 34) BC Conductors • EPDM Insulation • Cabled • Paper Tape Separator • Fillers Added • Black Rubber Jacket | | | | | | | | |
|--|----|---------|------|-------|------|------|------|------|
| 9420 | 5 | Chart 2 | .506 | 12.85 | .033 | 8.38 | .084 | 2.13 |
| 9422 | 7 | Chart 2 | .581 | 14.76 | | | | |
| 9424 | 9 | Chart 2 | .720 | 18.29 | .033 | 8.38 | .100 | 2.54 |
| 9425 | 12 | Chart 2 | .720 | 18.29 | | | | |
| 9427 | 16 | Chart 2 | .787 | 19.99 | | | | |
| 9429 | 20 | Chart 2 | .862 | 21.29 | | | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride • BC = Bare Copper • EPDM = Ethylene-Propylene Diene Elastomer | Belden Color Code Charts can be found at page 560.

MachFlex Flexible Control Cables

Customer Challenge

Machines are becoming highly systemized, smaller & compact day by day due to the special requirements of end users & customers. These special requirements are becoming a challenge for the machine builders as they need to stay competitive while ensuring a robust performance for their machine. Belden is introducing a new line of machine builder choice cables to help the machine builders tackle this challenge by offering cables in smaller sizes to save installation space & highly durable to meet the flexibility, physical and mechanical requirement.

Overview and Application Guide

Belden MachFlex is a complete line of control, data, video, and power cables specifically designed to handle the rigorous speeds and near-constant motion encountered in automated equipment such as robots, pick and place machines, automatic handling systems, multi-axis machine tools, and conveyor systems.

When the application demands highly flexible cables offering exceptional cable life and performance, specify Belden MachFlex.

Belden MachFlex Means More Performance and Longer Life

Reduced Cable Memory – Belden MachFlex's unique design and neutralized cabling results in cables that are relaxed, with almost no memory.

Greater Flex Life – Belden MachFlex cables offer superior flexibility and are able to handle the vigorous motions and high speeds encountered in automated equipment.

Application Advantage

Belden's machine builder choice MachFlex cables have the following advantages which ensures greater performance level for the machine builders and a higher uptime for the end users:

- Flexible conductor, insulation & sheath Material.
- Oil resistant DIN EN 50290-2-22(TMS4).
- Optional flame retardant & non corrosive (FRNC).
- Wider fixed temperature range (- 40°C To +80°C)
- Good shield effectiveness.
- Good Sunlight (UV) & Chemical Resistant.
- Environmental friendly cables(RoHS).

Greater System Uptime – Belden MachFlex cables combine specialized manufacturing techniques with precision copper stranding and rugged insulation and jacketing compounds to maximize flex life and reliability.

CE Conformity – All Belden MachFlex cables are CE marked per the Conformité Européenne low voltage directive, allowing trade of product in Europe.

Custom Conductor Counts – Available upon request.

Applications

Machine builders are continuously looking to improve the performance of their machines used in industries such as food & beverage, health care, manufacturing, pharmaceuticals, automotive, semiconductors and many more. Some of the main applications where these cables can be used, but not restricted to are:

- Precision control sensors.
- Multi axis motion control.
- Temperature controllers.
- Control panels.
- Machine cutting tools.
- Auxiliary equipment.
- Motor speed controls.
- Product on machinery.
- Blade pitch control (WT).
- Control & instrumentation.

Product Series Descriptions

- **MachFlex Control Cables (350 Series, 375 Series, 610 Series)** – Major features of the new machine builder choice MachFlex Cables include:
 - Various conductor sizes from 0.14 mm² to 35.00 mm².
 - Bare or tinned copper conductors (DIN VDE 0295).
 - PVC or LSZH insulation & jacket/sheath.
 - Optional ground wire in green / yellow color.
 - Optional foil & braid shield.
 - Optional tinned copper braid shield (CY).
 - Optional steel wire braid armor (SY).
 - Variety of insulation & jacket color options.
 - Coils or drum packaging.
- **600 V MachFlex Super 360TC for Extreme Flexing (10 Million Flex Cycles), C-TC+** – The C-TC+ series is designed for C-track and extreme flex applications up to 10 million flex cycles*. This series utilizes super fine stranding and some of the tightest lay lengths allowed by UL, providing outstanding flex life. *(at pages 80–81)*
- **600 V MachFlex 360TC for Moderate Flexing (1 Million Flex Cycles), FCC** – The FCC series is a cost-effective alternative for C-track and moderate flexing applications rated up to 1 million flex cycles. *(at pages 82–84)*
- **300 V MachFlex Data Cables (1 Million Flex Cycles), Flex Data Cables** – Belden MachFlex Data cables are designed for industrial applications where precise data transmission is combined with high-flexing. These cables are ideal for effective operation of computer controlled equipment or other automated production processes, even in harsh environments. *(at page 378)*
- **MachFlex Vision 75 Ohm Coax Cables (1 Million Flex Cycles), Flex Vision** – Belden MachFlex Vision cables are continuous flex video cables designed for machine vision applications. They are ideal for motion-controlled video and with inspection and measurement equipment. *(at page 378)*

* Based on proper installation techniques in a C-track cable guide.

Application Guide

| Belden MachFlex Series | C-Track Systems | Multi-Axis Machining | Robotics | Auto-mated Assembly Systems | Material Handling Systems | Pick & Place Systems | Auto-mated Storage Retrieval | Gantry Systems | Machine Vision | Motion-Controlled Video | Inspection & Measure Equip. | Fes-tooning | Servo | Power | Wind |
|--|-----------------|----------------------|----------|-----------------------------|---------------------------|----------------------|------------------------------|----------------|----------------|-------------------------|-----------------------------|-------------|-------|-------|------|
| MachFlex 350 and 375 Series Oil & abrasion resistant 350-300/500V 375-300/750V | ● | ● | | ● | ● | ● | ● | ● | | | ● | ● | ● | ● | ● |
| MachFlex 610 Series Oil & abrasion resistant 600/1000V | ● | ● | | ● | ● | ● | ● | ● | | | ● | ● | ● | ● | ● |
| FCC Oil & abrasion resistant 600 V UL & CSA rated Life Expectancy: Over 1 million flex cycles* | ● | ● | | ● | ● | ● | ● | ● | | | ● | ● | ● | ● | ● |
| C-TC+ Oil & abrasion resistant 600 V UL & CSA rated Life Expectancy: Over 10 million flex cycles* | ★ | ★ | ● | ★ | ★ | ★ | ★ | ★ | | | ★ | ★ | ★ | ★ | ★ |
| DATA Oil & abrasion resistant 300 V UL & CSA rated Life Expectancy: Over 1 million flex cycles* | ● | ● | | ● | ● | ● | ● | ● | | | ● | ● | | | |
| VISION 30 V UL & CSA rated Life Expectancy: Over 1 million flex cycles* | ● | ● | | ● | ● | ● | ● | ● | ★ | + | + | ● | | | |

* Based on proper installation techniques in a C-track cable guide.

MachFlex 350YY

300/500V Flexible Control Cables

Flexible PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.50mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| 2X0.5 | 2 | X | 0.72 | 18.4 | 0.18 | 4.6 | 28 |
| 3G0.5 | 3 | G | 0.77 | 19.6 | 0.19 | 4.9 | 35 |
| 3X0.5 | 3 | X | 0.77 | 19.6 | 0.19 | 4.9 | 35 |
| 4G0.5 | 4 | G | 0.83 | 21.2 | 0.21 | 5.3 | 44 |
| 4X0.5 | 4 | X | 0.83 | 21.2 | 0.21 | 5.3 | 44 |
| 5G0.5 | 5 | G | 0.93 | 23.6 | 0.23 | 5.9 | 53 |
| 5X0.5 | 5 | X | 0.93 | 23.6 | 0.23 | 5.9 | 53 |
| 12G0.5 | 12 | G | 1.35 | 34.4 | 0.34 | 8.6 | 114 |
| 12X0.5 | 12 | X | 1.35 | 34.4 | 0.34 | 8.6 | 114 |
| 20G0.5 | 20 | G | 1.70 | 43.2 | 0.43 | 10.8 | 186 |
| 20X0.5 | 20 | X | 1.70 | 43.2 | 0.43 | 10.8 | 186 |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| 2X0.75 | 2 | X | 0.79 | 20.0 | 0.20 | 5.0 | 36 |
| 3G0.75 | 3 | G | 0.85 | 21.6 | 0.21 | 5.4 | 46 |
| 3X0.75 | 3 | X | 0.85 | 21.6 | 0.21 | 5.4 | 46 |
| 4G0.75 | 4 | G | 0.93 | 23.6 | 0.23 | 5.9 | 58 |
| 4X0.75 | 4 | X | 0.93 | 23.6 | 0.23 | 5.9 | 58 |
| 5G0.75 | 5 | G | 1.02 | 26.0 | 0.26 | 6.5 | 70 |
| 5X0.75 | 5 | X | 1.02 | 26.0 | 0.26 | 6.5 | 70 |
| 12G0.75 | 12 | G | 1.51 | 38.4 | 0.38 | 9.6 | 154 |
| 12X0.75 | 12 | X | 1.51 | 38.4 | 0.38 | 9.6 | 154 |
| 20G0.75 | 20 | G | 1.91 | 48.4 | 0.48 | 12.1 | 251 |
| 20X0.75 | 20 | X | 1.91 | 48.4 | 0.48 | 12.1 | 251 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 0.5 | _PVC | 3G0.5 | G | |
| | | X | | | 3X0.5 | | |
| LSZH Version | 3 | G | 0.5 | L=LSZH | 3G0.5L | X | |
| | | X | | | 3X0.5L | | |

MachFlex 350YY

300/500V Flexible Control Cables

Flexible PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|---|------------|------------|-------------------|------|----------|------|----------------------------|
| | | | Inch | mm | Inch | mm | |
| 1.0mm² | | | | | | | |
| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
| 2X1.0 | 2 | X | 0.85 | 21.6 | 0.21 | 5.4 | 44 |
| 3G1.0 | 3 | G | 0.91 | 23.2 | 0.23 | 5.8 | 57 |
| 3X1.0 | 3 | X | 0.91 | 23.2 | 0.23 | 5.8 | 57 |
| 4G1.0 | 4 | G | 1.01 | 25.6 | 0.25 | 6.4 | 72 |
| 4X1.0 | 4 | X | 1.01 | 25.6 | 0.25 | 6.4 | 72 |
| 5G1.0 | 5 | G | 1.12 | 28.4 | 0.28 | 7.1 | 89 |
| 5X1.0 | 5 | X | 1.12 | 28.4 | 0.28 | 7.1 | 89 |
| 12G1.0 | 12 | G | 1.65 | 42.0 | 0.41 | 10.5 | 195 |
| 12X1.0 | 12 | X | 1.65 | 42.0 | 0.41 | 10.5 | 195 |
| 20G1.0 | 20 | G | 2.08 | 52.8 | 0.52 | 13.2 | 319 |
| 20X1.0 | 20 | X | 2.08 | 52.8 | 0.52 | 13.2 | 319 |

| | | | | | | | |
|---|----|---|------|------|------|------|-----|
| 1.5mm² | | | | | | | |
| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
| 2X1.5 | 2 | X | 0.94 | 24.0 | 0.24 | 6.0 | 55 |
| 3G1.5 | 3 | G | 1.01 | 25.6 | 0.25 | 6.4 | 71 |
| 3X1.5 | 3 | X | 1.01 | 25.6 | 0.25 | 6.4 | 71 |
| 4G1.5 | 4 | G | 1.10 | 28.0 | 0.28 | 7.0 | 91 |
| 4X1.5 | 4 | X | 1.10 | 28.0 | 0.28 | 7.0 | 91 |
| 5G1.5 | 5 | G | 1.23 | 31.2 | 0.31 | 7.8 | 112 |
| 5X1.5 | 5 | X | 1.23 | 31.2 | 0.31 | 7.8 | 112 |
| 12G1.5 | 12 | G | 1.81 | 46.0 | 0.45 | 11.5 | 247 |
| 12X1.5 | 12 | X | 1.81 | 46.0 | 0.45 | 11.5 | 247 |
| 20G1.5 | 20 | G | 2.28 | 58.0 | 0.57 | 14.5 | 405 |
| 20X1.5 | 20 | X | 2.28 | 58.0 | 0.57 | 14.5 | 405 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 1.0 | _=PVC | 3G1.0 | G | |
| | | X | | | 3X1.0 | | |
| LSZH Version | 3 | G | 1.0 | L=LSZH | 3G1.0L | X | |
| | | X | | | 3X1.0L | | |

MachFlex 350YY

300/500V Flexible Control Cables

Flexible PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| 2X2.5 | 2 | X | 1.20 | 30.8 | 0.30 | 7.7 | 91 |
| 3G2.5 | 3 | G | 1.31 | 33.2 | 0.33 | 8.3 | 118 |
| 3X2.5 | 3 | X | 1.31 | 33.2 | 0.33 | 8.3 | 118 |
| 4G2.5 | 4 | G | 1.45 | 36.8 | 0.36 | 9.2 | 152 |
| 4X2.5 | 4 | X | 1.45 | 36.8 | 0.36 | 9.2 | 152 |
| 5G2.5 | 5 | G | 1.59 | 40.4 | 0.40 | 10.1 | 188 |
| 5X2.5 | 5 | X | 1.59 | 40.4 | 0.40 | 10.1 | 188 |
| 12G2.5 | 12 | G | 2.39 | 60.8 | 0.60 | 15.2 | 417 |
| 12X2.5 | 12 | X | 2.39 | 60.8 | 0.60 | 15.2 | 417 |
| 20G2.5 | 20 | G | 3.02 | 76.8 | 0.76 | 19.2 | 688 |
| 20X2.5 | 20 | X | 3.02 | 76.8 | 0.76 | 19.2 | 688 |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| 3X4 | 3 | X | 1.54 | 39.2 | 0.39 | 9.8 | 182 |
| 3G4 | 3 | G | 1.54 | 39.2 | 0.39 | 9.8 | 182 |
| 4X4 | 4 | X | 1.72 | 43.6 | 0.43 | 10.9 | 235 |
| 4G4 | 4 | G | 1.72 | 43.6 | 0.43 | 10.9 | 235 |
| 12X4 | 12 | X | 2.85 | 72.4 | 0.71 | 18.1 | 655 |
| 12G4 | 12 | G | 2.85 | 72.4 | 0.71 | 18.1 | 655 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|-----|
| 3X6 | 3 | X | 1.86 | 47.2 | 0.46 | 11.8 | 269 |
| 3G6 | 3 | G | 1.86 | 47.2 | 0.46 | 11.8 | 269 |
| 4X6 | 4 | X | 2.06 | 52.4 | 0.52 | 13.1 | 349 |
| 4G6 | 4 | G | 2.06 | 52.4 | 0.52 | 13.1 | 349 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 2.5 | _PVC | 3G2.5 | G | |
| | | X | | | 3X2.5 | | |
| LSZH Version | 3 | G | 2.5 | L=LSZH | 3G2.5L | X | |
| | | X | | | 3X2.5L | | |

MachFlex 350YY

300/500V Flexible Control Cables

Flexible PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|---|------------|------------|-------------------|-------|----------|------|----------------------------|
| | | | Inch | mm | Inch | mm | |
| 10mm² | | | | | | | |
| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
| 3G10 | 3 | X | 2.33 | 59.2 | 0.58 | 14.8 | 427 |
| 3X10 | 3 | G | 2.33 | 59.2 | 0.58 | 14.8 | 427 |
| 4G10 | 4 | X | 2.60 | 66.0 | 0.65 | 16.5 | 555 |
| 4X10 | 4 | G | 2.60 | 66.0 | 0.65 | 16.5 | 555 |
| 16mm² | | | | | | | |
| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
| 3X16 | 3 | X | 2.85 | 72.4 | 0.71 | 18.1 | 668 |
| 3G16 | 3 | G | 2.85 | 72.4 | 0.71 | 18.1 | 668 |
| 4X16 | 4 | X | 3.18 | 80.8 | 0.80 | 20.2 | 870 |
| 4G16 | 4 | G | 3.18 | 80.8 | 0.80 | 20.2 | 870 |
| 25mm² | | | | | | | |
| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
| 3X25 | 3 | X | 3.51 | 89.2 | 0.88 | 22.3 | 1038 |
| 3G25 | 3 | G | 3.51 | 89.2 | 0.88 | 22.3 | 1038 |
| 4X25 | 4 | X | 3.92 | 99.6 | 0.98 | 24.9 | 1354 |
| 4G25 | 4 | G | 3.92 | 99.6 | 0.98 | 24.9 | 1354 |
| 35mm² | | | | | | | |
| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
| 3X35 | 3 | X | 4.08 | 103.6 | 1.02 | 25.9 | 1365 |
| 3G35 | 3 | G | 4.08 | 103.6 | 1.02 | 25.9 | 1365 |
| 4X35 | 4 | X | 4.55 | 115.6 | 1.14 | 28.9 | 1780 |
| 4G35 | 4 | G | 4.55 | 115.6 | 1.14 | 28.9 | 1780 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|--------------|------------|-------------------------|
| PVC Version | 3 | G | 10 | _ =PVC | 3G10 | G | |
| | | X | | | 3X10 | | |
| LSZH Version | 3 | G | 10 | L=LSZH | 3G10L | X | |
| | | X | | | 3X10L | | |

MachFlex 350CY

300/500V Flexible Shielded Control Cables

Flexible Tinned Copper Braid Shielded PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| 2X0.5CY | 2 | X | 1.63 | 41.4 | 0.27 | 6.9 | 71 |
| 3G0.5CY | 3 | G | 1.70 | 43.2 | 0.28 | 7.2 | 80 |
| 3X0.5CY | 3 | X | 1.70 | 43.2 | 0.28 | 7.2 | 80 |
| 4G0.5CY | 4 | G | 1.82 | 46.2 | 0.30 | 7.7 | 93 |
| 4X0.5CY | 4 | X | 1.82 | 46.2 | 0.30 | 7.7 | 93 |
| 5G0.5CY | 5 | G | 1.96 | 49.8 | 0.33 | 8.3 | 107 |
| 5X0.5CY | 5 | X | 1.96 | 49.8 | 0.33 | 8.3 | 107 |
| 12G0.5CY | 12 | G | 2.69 | 68.4 | 0.45 | 11.4 | 205 |
| 12X0.5CY | 12 | X | 2.69 | 68.4 | 0.45 | 11.4 | 205 |
| 20G0.5CY | 20 | G | 3.24 | 82.2 | 0.54 | 13.7 | 296 |
| 20X0.5CY | 20 | X | 3.24 | 82.2 | 0.54 | 13.7 | 296 |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| 2X0.75CY | 2 | X | 1.75 | 44.4 | 0.29 | 7.4 | 82 |
| 3G0.75CY | 3 | G | 1.82 | 46.2 | 0.30 | 7.7 | 95 |
| 3X0.75CY | 3 | X | 1.82 | 46.2 | 0.30 | 7.7 | 95 |
| 4G0.75CY | 4 | G | 1.96 | 49.8 | 0.33 | 8.3 | 112 |
| 4X0.75CY | 4 | X | 1.96 | 49.8 | 0.33 | 8.3 | 112 |
| 5G0.75CY | 5 | G | 2.17 | 55.2 | 0.36 | 9.2 | 141 |
| 5X0.75CY | 5 | X | 2.17 | 55.2 | 0.36 | 9.2 | 141 |
| 12G0.75CY | 12 | G | 2.93 | 74.4 | 0.49 | 12.4 | 255 |
| 12X0.75CY | 12 | X | 2.93 | 74.4 | 0.49 | 12.4 | 255 |
| 20G0.75CY | 20 | G | 3.54 | 90.0 | 0.59 | 15.0 | 374 |
| 20X0.75CY | 20 | X | 3.54 | 90.0 | 0.59 | 15.0 | 374 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 0.5 | Y=PVC | 3G0.5CY | G | |
| | | X | | | 3X0.5CY | | |
| LSZH Version | 3 | G | 0.5 | H=LSZH | 3G0.5CH | X | |
| | | X | | | 3X0.5CH | | |

MachFlex 350CY

300/500V Flexible Shielded Control Cables

Flexible Tinned Copper Braid Shielded PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

1mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| 2X1.0CY | 2 | X | 1.84 | 46.8 | 0.31 | 7.8 | 94 |
| 3G1.0CY | 3 | G | 1.94 | 49.2 | 0.32 | 8.2 | 110 |
| 3X1.0CY | 3 | X | 1.94 | 49.2 | 0.31 | 8.2 | 110 |
| 4G1.0CY | 4 | G | 2.15 | 54.6 | 0.36 | 9.1 | 141 |
| 4X1.0CY | 4 | X | 2.15 | 54.6 | 0.36 | 9.1 | 141 |
| 5G1.0CY | 5 | G | 2.31 | 58.8 | 0.39 | 9.8 | 164 |
| 5X1.0CY | 5 | X | 2.31 | 58.8 | 0.39 | 9.8 | 164 |
| 12G1.0CY | 12 | G | 3.14 | 79.8 | 0.52 | 13.3 | 305 |
| 12X1.0CY | 12 | X | 3.14 | 79.8 | 0.52 | 13.3 | 305 |
| 20G1.0CY | 20 | G | 3.80 | 96.6 | 0.63 | 16.1 | 454 |
| 20X1.0CY | 20 | X | 3.80 | 96.6 | 0.63 | 16.1 | 454 |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|-----|
| 2X1.5CY | 2 | X | 1.96 | 49.8 | 0.33 | 8.3 | 109 |
| 3G1.5CY | 3 | G | 2.13 | 54.0 | 0.35 | 9.0 | 135 |
| 3X1.5CY | 3 | X | 2.13 | 54.0 | 0.35 | 9.0 | 135 |
| 4G1.5CY | 4 | G | 2.29 | 58.2 | 0.38 | 9.7 | 165 |
| 4X1.5CY | 4 | X | 2.29 | 58.2 | 0.38 | 9.7 | 165 |
| 5G1.5CY | 5 | G | 2.48 | 63.0 | 0.41 | 10.5 | 194 |
| 5X1.5CY | 5 | X | 2.48 | 63.0 | 0.41 | 10.5 | 194 |
| 12G1.5CY | 12 | G | 3.40 | 86.4 | 0.57 | 14.4 | 362 |
| 12X1.5CY | 12 | X | 3.40 | 86.4 | 0.57 | 14.4 | 362 |
| 20G1.5CY | 20 | G | 4.13 | 105.0 | 0.69 | 17.5 | 554 |
| 20X1.5CY | 20 | X | 4.13 | 105.0 | 0.69 | 17.5 | 554 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 1.0 | Y=PVC | 3G1.0CY | G | |
| | | X | | | 3X1.0CY | | |
| LSZH Version | 3 | G | 1.0 | H=LSZH | 3G1.0CH | X | |
| | | X | | | 3X1.0CH | | |

MachFlex 350CY

300/500V Flexible Shielded Control Cables

Flexible Tinned Copper Braid Shielded PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|-----|
| 2X2.5CY | 2 | X | 2.46 | 62.4 | 0.41 | 10.4 | 172 |
| 3G2.5CY | 3 | G | 2.60 | 66.0 | 0.43 | 11.0 | 205 |
| 3X2.5CY | 3 | X | 2.60 | 66.0 | 0.43 | 11.0 | 205 |
| 4G2.5CY | 4 | G | 2.81 | 71.4 | 0.47 | 11.9 | 248 |
| 4X2.5CY | 4 | X | 2.81 | 71.4 | 0.47 | 11.9 | 248 |
| 5G2.5CY | 5 | G | 3.05 | 77.4 | 0.51 | 12.9 | 295 |
| 5X2.5CY | 5 | X | 3.05 | 77.4 | 0.51 | 12.9 | 295 |
| 12G2.5CY | 12 | G | 4.30 | 109.2 | 0.72 | 18.2 | 581 |
| 12X2.5CY | 12 | X | 4.30 | 109.2 | 0.72 | 18.2 | 581 |
| 20G2.5CY | 20 | G | 5.36 | 136.2 | 0.89 | 22.7 | 916 |
| 20X2.5CY | 20 | X | 5.36 | 136.2 | 0.89 | 22.7 | 916 |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|-----|
| 3X4CY | 3 | X | 2.98 | 75.6 | 0.50 | 12.6 | 285 |
| 3G4CY | 3 | G | 2.98 | 75.6 | 0.50 | 12.6 | 285 |
| 4X4CY | 4 | X | 3.24 | 82.2 | 0.54 | 13.7 | 350 |
| 4G4CY | 4 | G | 3.24 | 82.2 | 0.54 | 13.7 | 350 |
| 12X4CY | 12 | X | 5.08 | 129.0 | 0.85 | 21.5 | 880 |
| 12G4CY | 12 | G | 5.08 | 129.0 | 0.85 | 21.5 | 880 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|-----|
| 3X6CY | 3 | X | 3.45 | 87.6 | 0.57 | 14.6 | 394 |
| 3G6CY | 3 | G | 3.45 | 87.6 | 0.57 | 14.6 | 394 |
| 4X6CY | 4 | X | 3.78 | 96.0 | 0.63 | 16.0 | 488 |
| 4G6CY | 4 | G | 3.78 | 96.0 | 0.63 | 16.0 | 488 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 2.5 | Y=PVC | 3G2.5CY | G | |
| | | X | | | 3X2.5CY | | |
| LSZH Version | 3 | G | 2.5 | H=LSZH | 3G2.5CH | X | |
| | | X | | | 3X2.5CH | | |

MachFlex 350CY

300/500V Flexible Shielded Control Cables

Flexible Tinned Copper Braid Shielded PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

10mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|-----|
| 3X10CY | 3 | X | 4.20 | 106.8 | 0.70 | 17.8 | 587 |
| 3G10CY | 3 | G | 4.20 | 106.8 | 0.70 | 17.8 | 587 |
| 4X10CY | 4 | X | 4.68 | 118.8 | 0.78 | 19.8 | 758 |
| 4G10CY | 4 | G | 4.68 | 118.8 | 0.78 | 19.8 | 758 |

16mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| 3X16CY | 3 | X | 5.08 | 129.0 | 0.85 | 21.5 | 892 |
| 3G16CY | 3 | G | 5.08 | 129.0 | 0.85 | 21.5 | 892 |
| 4X16CY | 4 | X | 5.57 | 141.6 | 0.93 | 23.6 | 1123 |
| 4G16CY | 4 | G | 5.57 | 141.6 | 0.93 | 23.6 | 1123 |

25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| 3X25CY | 3 | X | 6.12 | 155.4 | 1.02 | 25.9 | 1322 |
| 3G25CY | 3 | G | 6.12 | 155.4 | 1.02 | 25.9 | 1322 |
| 4X25CY | 4 | X | 6.76 | 171.6 | 1.13 | 28.6 | 1676 |
| 4G25CY | 4 | G | 6.76 | 171.6 | 1.13 | 28.6 | 1676 |

35mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| 3X35CY | 3 | X | 6.99 | 177.6 | 1.17 | 29.6 | 1700 |
| 3G35CY | 3 | G | 6.99 | 177.6 | 1.17 | 29.6 | 1700 |
| 4X35CY | 4 | X | 7.68 | 195.0 | 1.28 | 32.5 | 2169 |
| 4G35CY | 4 | G | 7.68 | 195.0 | 1.28 | 32.5 | 2169 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 10 | Y=PVC | 3G10CY | G | |
| | | X | | | 3X10CY | | |
| LSZH Version | 3 | G | 10 | H=LSZH | 3G10CH | X | |
| | | X | | | 3X10CH | | |

MachFlex 350SY

300/500V Flexible Armored Control Cables

Flexible Steel Wire Braid Armored PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|------|------|------|-----|
| 2X0.5SY | 2 | X | 1.68 | 42.6 | 0.28 | 7.1 | 55 |
| 3X0.5SY | 3 | X | 1.77 | 45.0 | 0.30 | 7.5 | 79 |
| 3G0.5SY | 3 | G | 1.77 | 45.0 | 0.30 | 7.5 | 79 |
| 4X0.5SY | 4 | X | 1.89 | 48.0 | 0.31 | 8.0 | 92 |
| 4G0.5SY | 4 | G | 1.89 | 48.0 | 0.31 | 8.0 | 92 |
| 5X0.5SY | 5 | X | 2.01 | 51.0 | 0.33 | 8.5 | 106 |
| 5G0.5SY | 5 | G | 2.01 | 51.0 | 0.33 | 8.5 | 106 |
| 12X0.5SY | 12 | X | 2.69 | 68.4 | 0.45 | 11.4 | 190 |
| 12G0.5SY | 12 | G | 2.69 | 68.4 | 0.45 | 11.4 | 190 |
| 20X0.5SY | 20 | X | 3.28 | 83.4 | 0.55 | 13.9 | 288 |
| 20G0.5SY | 20 | G | 3.28 | 83.4 | 0.55 | 13.9 | 288 |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|------|------|------|-----|
| 2X0.75SY | 2 | X | 1.82 | 46.2 | 0.30 | 7.7 | 81 |
| 3G0.75SY | 3 | G | 1.89 | 48.0 | 0.31 | 8.0 | 94 |
| 3X0.75SY | 3 | X | 1.89 | 48.0 | 0.31 | 8.0 | 94 |
| 4G0.75SY | 4 | G | 2.03 | 51.6 | 0.34 | 8.6 | 111 |
| 4X0.75SY | 4 | X | 2.03 | 51.6 | 0.34 | 8.6 | 111 |
| 5G0.75SY | 5 | G | 2.17 | 55.2 | 0.36 | 9.2 | 129 |
| 5X0.75SY | 5 | X | 2.17 | 55.2 | 0.36 | 9.2 | 129 |
| 12G0.75SY | 12 | G | 2.93 | 74.4 | 0.49 | 12.4 | 239 |
| 12X0.75SY | 12 | X | 2.93 | 74.4 | 0.49 | 12.4 | 239 |
| 20G0.75SY | 20 | G | 3.59 | 91.2 | 0.60 | 15.2 | 365 |
| 20X0.75SY | 20 | X | 3.59 | 91.2 | 0.60 | 15.2 | 365 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 0.5 | Y=PVC | 3G0.5SY | G | |
| | | X | | | 3X0.5SY | | |
| LSZH Version | 3 | G | 0.5 | H=LSZH | 3G0.5SH | X | |
| | | X | | | 3X0.5SH | | |

MachFlex 350SY

300/500V Flexible Armored Control Cables

Flexible Steel Wire Braid Armored PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|--|------------|------------|-------------------|------|----------|------|----------------------------|
| | | | Inch | mm | Inch | mm | |
| 1mm² | | | | | | | |
| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
| 2X1.0SY | 2 | X | 1.91 | 48.6 | 0.32 | 8.1 | 93 |
| 3G1.0SY | 3 | G | 1.98 | 50.4 | 0.33 | 8.4 | 109 |
| 3X1.0SY | 3 | X | 1.98 | 50.4 | 0.33 | 8.4 | 109 |
| 4G1.0SY | 4 | G | 2.15 | 54.6 | 0.36 | 9.1 | 129 |
| 4X1.0SY | 4 | X | 2.15 | 54.6 | 0.36 | 9.1 | 129 |
| 5G1.0SY | 5 | G | 2.31 | 58.8 | 0.39 | 9.8 | 152 |
| 5X1.0SY | 5 | X | 2.31 | 58.8 | 0.39 | 9.8 | 152 |
| 12G1.0SY | 12 | G | 3.14 | 79.8 | 0.52 | 13.3 | 287 |
| 12X1.0SY | 12 | X | 3.14 | 79.8 | 0.52 | 13.3 | 287 |
| 20G1.0SY | 20 | G | 3.85 | 97.8 | 0.64 | 16.3 | 442 |
| 20X1.0SY | 20 | X | 3.85 | 97.8 | 0.64 | 16.3 | 442 |

| | | | | | | | |
|--|----|---|------|------|------|------|-----|
| 1.5mm² | | | | | | | |
| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
| 2X1.5SY | 2 | X | 2.03 | 34.4 | 0.34 | 8.6 | 108 |
| 3G1.5SY | 3 | G | 2.13 | 36.0 | 0.35 | 9.0 | 124 |
| 3X1.5SY | 3 | X | 2.13 | 36.0 | 0.35 | 9.0 | 124 |
| 4G1.5SY | 4 | G | 2.29 | 38.8 | 0.38 | 9.7 | 153 |
| 4X1.5SY | 4 | X | 2.29 | 38.8 | 0.38 | 9.7 | 153 |
| 5G1.5SY | 5 | G | 2.48 | 42.0 | 0.41 | 10.5 | 181 |
| 5X1.5SY | 5 | X | 2.48 | 42.0 | 0.41 | 10.5 | 181 |
| 12G1.5SY | 12 | G | 3.45 | 58.4 | 0.57 | 14.6 | 352 |
| 12X1.5SY | 12 | X | 3.45 | 58.4 | 0.57 | 14.6 | 352 |
| 20G1.5SY | 20 | G | 4.18 | 70.8 | 0.70 | 17.7 | 543 |
| 20X1.5SY | 20 | X | 4.18 | 70.8 | 0.70 | 17.7 | 543 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 1.0 | Y=PVC | 3G1.0SY | G | |
| | | X | | | 3X1.0SY | | |
| LSZH Version | 3 | G | 1.0 | H=LSZH | 3G1.0SH | X | |
| | | X | | | 3X1.0SH | | |

MachFlex 350SY

300/500V Flexible Armored Control Cables

Flexible Steel Wire Braid Armored PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|-----|
| 2X2.5SY | 2 | X | 2.46 | 62.4 | 0.41 | 10.4 | 159 |
| 3G2.5SY | 3 | G | 2.60 | 66.0 | 0.43 | 11.0 | 191 |
| 3X2.5SY | 3 | X | 2.60 | 66.0 | 0.43 | 11.0 | 191 |
| 4G2.5SY | 4 | G | 2.81 | 71.4 | 0.47 | 11.9 | 233 |
| 4X2.5SY | 4 | X | 2.81 | 71.4 | 0.47 | 11.9 | 233 |
| 5G2.5SY | 5 | G | 3.05 | 77.4 | 0.51 | 12.9 | 278 |
| 5X2.5SY | 5 | X | 3.05 | 77.4 | 0.51 | 12.9 | 278 |
| 12G2.5SY | 12 | G | 4.35 | 110.4 | 0.72 | 18.4 | 568 |
| 12X2.5SY | 12 | X | 4.35 | 110.4 | 0.72 | 18.4 | 568 |
| 20G2.5SY | 20 | G | 5.34 | 135.6 | 0.89 | 22.6 | 873 |
| 20X2.5SY | 20 | X | 5.34 | 135.6 | 0.89 | 22.6 | 873 |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|-----|
| 3X4SY | 3 | X | 2.98 | 75.6 | 0.50 | 12.6 | 268 |
| 3G4SY | 3 | G | 2.98 | 75.6 | 0.50 | 12.6 | 268 |
| 4X4SY | 4 | X | 3.28 | 83.4 | 0.55 | 13.9 | 341 |
| 4G4SY | 4 | G | 3.28 | 83.4 | 0.55 | 13.9 | 341 |
| 12X4SY | 12 | X | 5.08 | 129.0 | 0.85 | 21.5 | 839 |
| 12G4SY | 12 | G | 5.08 | 129.0 | 0.85 | 21.5 | 839 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|------|------|------|-----|
| 3X6SY | 3 | X | 3.52 | 84.9 | 0.59 | 14.9 | 384 |
| 3G6SY | 3 | G | 3.52 | 84.9 | 0.59 | 14.9 | 384 |
| 4X6SY | 4 | X | 3.83 | 97.2 | 0.64 | 16.2 | 477 |
| 4G6SY | 4 | G | 3.83 | 97.2 | 0.64 | 16.2 | 477 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 2.5 | Y=PVC | 3G2.5SY | G | |
| | | X | | | 3X2.5SY | | |
| LSZH Version | 3 | G | 2.5 | H=LSZH | 3G2.5SH | X | |
| | | X | | | 3X2.5SH | | |

MachFlex 350SY

300/500V Flexible Armored Control Cables

Flexible Steel Wire Braid Armored PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -30 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

10mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|-----|
| 3X10SY | 3 | X | 4.25 | 108.0 | 0.71 | 18.0 | 574 |
| 3G10SY | 3 | G | 4.25 | 108.0 | 0.71 | 18.0 | 574 |
| 4X10SY | 4 | X | 4.68 | 118.8 | 0.78 | 19.8 | 721 |
| 4G10SY | 4 | G | 4.68 | 118.8 | 0.78 | 19.8 | 721 |

16mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| 3X16SY | 3 | X | 5.06 | 128.4 | 0.84 | 21.4 | 851 |
| 3G16SY | 3 | G | 5.06 | 128.4 | 0.84 | 21.4 | 851 |
| 4X16SY | 4 | X | 5.57 | 141.6 | 0.93 | 23.6 | 1077 |
| 4G16SY | 4 | G | 5.57 | 141.6 | 0.93 | 23.6 | 1077 |

25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| 3X25SY | 3 | X | 6.12 | 155.4 | 1.02 | 25.9 | 1273 |
| 3G25SY | 3 | G | 6.12 | 155.4 | 1.02 | 25.9 | 1273 |
| 4X25SY | 4 | X | 6.76 | 171.6 | 1.13 | 28.6 | 1622 |
| 4G25SY | 4 | G | 6.76 | 171.6 | 1.13 | 28.6 | 1622 |

35mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| 3X35SY | 3 | X | 6.97 | 177.0 | 1.16 | 29.5 | 1644 |
| 3G35SY | 3 | G | 6.97 | 177.0 | 1.16 | 29.5 | 1644 |
| 4X35SY | 4 | X | 7.61 | 193.2 | 1.27 | 32.2 | 2072 |
| 4G35SY | 4 | G | 7.61 | 193.2 | 1.27 | 32.2 | 2072 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 10 | Y=PVC | 3G10SY | G | |
| | | X | | | 3X10SY | | |
| LSZH Version | 3 | G | 10 | H=LSZH | 3G10SH | X | |
| | | X | | | 3X10SH | | |

MachFlex 375YY

300/750V Flexible Control Cables

Flexible PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C2X0.5 | 2 | X | 0.76 | 19.2 | 0.19 | 4.8 | 30 |
| C3G0.5 | 3 | G | 0.80 | 20.4 | 0.20 | 5.1 | 38 |
| C3X0.5 | 3 | X | 0.80 | 20.4 | 0.20 | 5.1 | 38 |
| C4G0.5 | 4 | G | 0.88 | 22.4 | 0.22 | 5.6 | 48 |
| C4X0.5 | 4 | X | 0.88 | 22.4 | 0.22 | 5.6 | 48 |
| C5G0.5 | 5 | G | 0.98 | 24.8 | 0.24 | 6.2 | 59 |
| C5X0.5 | 5 | X | 0.98 | 24.8 | 0.24 | 6.2 | 59 |
| C12G0.5 | 12 | G | 1.43 | 36.4 | 0.36 | 9.1 | 125 |
| C12X0.5 | 12 | X | 1.43 | 36.4 | 0.36 | 9.1 | 125 |
| C20G0.5 | 20 | G | 1.80 | 45.6 | 0.45 | 11.4 | 203 |
| C20X0.5 | 20 | X | 1.80 | 45.6 | 0.45 | 11.4 | 203 |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C2X0.75 | 2 | X | 0.83 | 21.2 | 0.21 | 5.3 | 39 |
| C3G0.75 | 3 | G | 0.88 | 22.4 | 0.22 | 5.6 | 49 |
| C3X0.75 | 3 | X | 0.88 | 22.4 | 0.22 | 5.6 | 49 |
| C4G0.75 | 4 | G | 0.98 | 24.8 | 0.24 | 6.2 | 62 |
| C4X0.75 | 4 | X | 0.98 | 24.8 | 0.24 | 6.2 | 62 |
| C5G0.75 | 5 | G | 1.07 | 27.2 | 0.27 | 6.8 | 77 |
| C5X0.75 | 5 | X | 1.07 | 27.2 | 0.27 | 6.8 | 77 |
| C12G0.75 | 12 | G | 1.59 | 40.4 | 0.40 | 10.1 | 165 |
| C12X0.75 | 12 | X | 1.59 | 40.4 | 0.40 | 10.1 | 165 |
| C20G0.75 | 20 | G | 2.00 | 50.8 | 0.50 | 12.7 | 270 |
| C20X0.75 | 20 | X | 2.00 | 50.8 | 0.50 | 12.7 | 270 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 5 | G | 0.5 | PVC | C5G0.5 |
| | | X | | | C5X0.5 |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 375YY

300/750V Flexible Control Cables

Flexible PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

1mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C2X1.0 | 2 | X | 0.90 | 22.8 | 0.22 | 5.7 | 47 |
| C3G1.0 | 3 | G | 0.96 | 24.4 | 0.24 | 6.1 | 60 |
| C3X1.0 | 3 | X | 0.96 | 24.4 | 0.24 | 6.1 | 60 |
| C4G1.0 | 4 | G | 1.06 | 26.8 | 0.26 | 6.7 | 77 |
| C4X1.0 | 4 | X | 1.06 | 26.8 | 0.26 | 6.7 | 77 |
| C5G1.0 | 5 | G | 1.17 | 29.6 | 0.29 | 7.4 | 95 |
| C5X1.0 | 5 | X | 1.17 | 29.6 | 0.29 | 7.4 | 95 |
| C12G1.0 | 12 | G | 1.72 | 43.6 | 0.43 | 10.9 | 208 |
| C12X1.0 | 12 | X | 1.72 | 43.6 | 0.43 | 10.9 | 208 |
| C20G1.0 | 20 | G | 2.17 | 55.2 | 0.54 | 13.8 | 340 |
| C20X1.0 | 20 | X | 2.17 | 55.2 | 0.54 | 13.8 | 340 |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C2X1.5 | 2 | X | 0.98 | 24.8 | 0.24 | 6.2 | 58 |
| C3G1.5 | 3 | G | 1.04 | 26.4 | 0.26 | 6.6 | 75 |
| C3X1.5 | 3 | X | 1.04 | 26.4 | 0.26 | 6.6 | 75 |
| C4G1.5 | 4 | G | 1.15 | 29.2 | 0.29 | 7.3 | 96 |
| C4X1.5 | 4 | X | 1.15 | 29.2 | 0.29 | 7.3 | 96 |
| C5G1.5 | 5 | G | 1.28 | 32.4 | 0.32 | 8.1 | 119 |
| C5X1.5 | 5 | X | 1.28 | 32.4 | 0.32 | 8.1 | 119 |
| C12G1.5 | 12 | G | 1.89 | 48.0 | 0.47 | 12.0 | 261 |
| C12X1.5 | 12 | X | 1.89 | 48.0 | 0.47 | 12.0 | 261 |
| C20G1.5 | 20 | G | 2.38 | 60.4 | 0.59 | 15.1 | 429 |
| C20X1.5 | 20 | X | 2.38 | 60.4 | 0.59 | 15.1 | 429 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 5 | G | 1.0 | PVC | C5G1.0 | G | |
| | | X | | | C5X1.0 | | |

MachFlex 375YY

300/750V Flexible Control Cables

Flexible PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C2X2.5 | 2 | X | 1.43 | 36.4 | 0.36 | 9.1 | 114 |
| C3G2.5 | 3 | G | 1.54 | 39.2 | 0.39 | 9.8 | 147 |
| C3X2.5 | 3 | X | 1.54 | 39.2 | 0.39 | 9.8 | 147 |
| C4G2.5 | 4 | G | 1.72 | 43.6 | 0.43 | 10.9 | 189 |
| C4X2.5 | 4 | X | 1.72 | 43.6 | 0.43 | 10.9 | 189 |
| C5G2.5 | 5 | G | 1.89 | 48.0 | 0.47 | 12.0 | 234 |
| C5X2.5 | 5 | X | 1.89 | 48.0 | 0.47 | 12.0 | 234 |
| C12G2.5 | 12 | G | 2.61 | 66.4 | 0.65 | 16.6 | 516 |
| C12X2.5 | 12 | X | 2.61 | 66.4 | 0.65 | 16.6 | 516 |
| C20G2.5 | 20 | G | 2.85 | 72.4 | 0.71 | 18.1 | 852 |
| C20X2.5 | 20 | X | 2.85 | 72.4 | 0.71 | 18.1 | 852 |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C3X4 | 3 | X | 1.78 | 45.2 | 0.44 | 11.3 | 216 |
| C3G4 | 3 | G | 1.78 | 45.2 | 0.44 | 11.3 | 216 |
| C4X4 | 4 | X | 1.98 | 50.4 | 0.50 | 12.6 | 278 |
| C4G4 | 4 | G | 1.98 | 50.4 | 0.50 | 12.6 | 278 |
| C12X4 | 12 | X | 3.31 | 84.0 | 0.83 | 21.0 | 772 |
| C12G4 | 12 | G | 3.31 | 84.0 | 0.83 | 21.0 | 772 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|-----|
| C3X6 | 3 | X | 2.02 | 51.2 | 0.50 | 12.8 | 297 |
| C3G6 | 3 | G | 2.02 | 51.2 | 0.50 | 12.8 | 297 |
| C4X6 | 4 | X | 2.24 | 56.8 | 0.56 | 14.2 | 384 |
| C4G6 | 4 | G | 2.24 | 56.8 | 0.56 | 14.2 | 384 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 5 | G | 2.5 | PVC | C5G2.5 |
| | | X | | | C5X2.5 |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 375YY

300/750V Flexible Control Cables

Flexible PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

10mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|-----|
| C3X10 | 3 | X | 2.41 | 61.2 | 0.60 | 15.3 | 447 |
| C3G10 | 3 | G | 2.41 | 61.2 | 0.60 | 15.3 | 447 |
| C4X10 | 4 | X | 2.69 | 68.4 | 0.67 | 17.1 | 580 |
| C4G10 | 4 | G | 2.69 | 68.4 | 0.67 | 17.1 | 580 |

16mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|-----|
| C3X16 | 3 | X | 3.09 | 78.4 | 0.77 | 19.6 | 730 |
| C3G16 | 3 | G | 3.09 | 78.4 | 0.77 | 19.6 | 730 |
| C4X16 | 4 | X | 3.45 | 87.6 | 0.86 | 21.9 | 949 |
| C4G16 | 4 | G | 3.45 | 87.6 | 0.86 | 21.9 | 949 |

25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|------|
| C3X25 | 3 | X | 3.51 | 89.2 | 0.88 | 22.3 | 1048 |
| C3G25 | 3 | G | 3.51 | 89.2 | 0.88 | 22.3 | 1048 |
| C4X25 | 4 | X | 3.92 | 99.6 | 0.98 | 24.9 | 1367 |
| C4G25 | 4 | G | 3.92 | 99.6 | 0.98 | 24.9 | 1367 |

35mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| C2X35 | 3 | X | 3.78 | 96.0 | 0.94 | 24.0 | 1022 |
| C3G35 | 3 | G | 4.08 | 103.6 | 1.02 | 25.9 | 1378 |
| C3X35 | 4 | X | 4.08 | 103.6 | 1.02 | 25.9 | 1378 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|--------------|
| PVC Version | 3 | G | 10 | PVC | C3G10 |
| | | X | | | C3X10 |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 375CY

300/750V Flexible Shielded Control Cables

Flexible Tinned Copper Braid Shielded PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C2X0.5CY | 2 | X | 1.63 | 41.4 | 0.27 | 6.9 | 66 |
| C3G0.5CY | 3 | G | 1.70 | 43.2 | 0.28 | 7.2 | 75 |
| C3X0.5CY | 3 | X | 1.70 | 43.2 | 0.28 | 7.2 | 75 |
| C4G0.5CY | 4 | G | 1.82 | 46.2 | 0.30 | 7.7 | 88 |
| C4X0.5CY | 4 | X | 1.82 | 46.2 | 0.30 | 7.7 | 88 |
| C5G0.5CY | 5 | G | 1.96 | 49.8 | 0.33 | 8.3 | 102 |
| C5X0.5CY | 5 | X | 1.96 | 49.8 | 0.33 | 8.3 | 102 |
| C12G0.5CY | 12 | G | 2.67 | 67.8 | 0.44 | 11.3 | 190 |
| C12X0.5CY | 12 | X | 2.67 | 67.8 | 0.44 | 11.3 | 190 |
| C20G0.5CY | 20 | G | 3.28 | 83.4 | 0.55 | 13.9 | 289 |
| C20X0.5CY | 20 | X | 3.28 | 83.4 | 0.55 | 13.9 | 289 |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C2X0.75CY | 2 | X | 1.75 | 44.4 | 0.29 | 7.4 | 76 |
| C3G0.75CY | 3 | G | 1.82 | 46.2 | 0.30 | 7.7 | 89 |
| C3X0.75CY | 3 | X | 1.82 | 46.2 | 0.30 | 7.7 | 89 |
| C4G0.75CY | 4 | G | 1.96 | 49.8 | 0.33 | 8.3 | 106 |
| C4X0.75CY | 4 | X | 1.96 | 49.8 | 0.33 | 8.3 | 106 |
| C5G0.75CY | 5 | G | 2.13 | 54.0 | 0.35 | 9.0 | 125 |
| C5X0.75CY | 5 | X | 2.13 | 54.0 | 0.35 | 9.0 | 125 |
| C12G0.75CY | 12 | G | 2.93 | 74.4 | 0.49 | 12.4 | 239 |
| C12X0.75CY | 12 | X | 2.93 | 74.4 | 0.49 | 12.4 | 239 |
| C20G0.75CY | 20 | G | 3.59 | 91.2 | 0.60 | 15.2 | 370 |
| C20X0.75CY | 20 | X | 3.59 | 91.2 | 0.60 | 15.2 | 370 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 5 | G | 0.5 | PVC | C5G0.5CY |
| | | X | | | C5X0.5CY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 375CY

300/750V Flexible Shielded Control Cables

Flexible Tinned Copper Braid Shielded PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight |
|----------|------------|------------|-------------------|----|----------|----|-------------------|
| | | | Inch | mm | Inch | mm | kg/km |

1mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| C2X1.0CY | 2 | X | 1.84 | 46.8 | 0.31 | 7.8 | 87 |
| C3G1.0CY | 3 | G | 1.94 | 49.2 | 0.32 | 8.2 | 104 |
| C3X1.0CY | 3 | X | 1.94 | 49.2 | 0.32 | 8.2 | 104 |
| C4G1.0CY | 4 | G | 2.08 | 52.8 | 0.35 | 8.8 | 125 |
| C4X1.0CY | 4 | X | 2.08 | 52.8 | 0.35 | 8.8 | 125 |
| C5G1.0CY | 5 | G | 2.27 | 57.6 | 0.38 | 9.6 | 148 |
| C5X1.0CY | 5 | X | 2.27 | 57.6 | 0.38 | 9.6 | 148 |
| C12G1.0CY | 12 | G | 3.17 | 80.4 | 0.53 | 13.4 | 293 |
| C12X1.0CY | 12 | X | 3.17 | 80.4 | 0.53 | 13.4 | 293 |
| C20G1.0CY | 20 | G | 3.85 | 97.8 | 0.64 | 16.3 | 450 |
| C20X1.0CY | 20 | X | 3.85 | 97.8 | 0.64 | 16.3 | 450 |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|-----|
| C2X1.5CY | 2 | X | 1.96 | 49.8 | 0.33 | 8.3 | 102 |
| C3G1.5CY | 3 | G | 2.08 | 52.8 | 0.35 | 8.8 | 118 |
| C3X1.5CY | 3 | X | 2.08 | 52.8 | 0.35 | 8.8 | 118 |
| C4G1.5CY | 4 | G | 2.24 | 57.0 | 0.37 | 9.5 | 148 |
| C4X1.5CY | 4 | X | 2.24 | 57.0 | 0.37 | 9.5 | 148 |
| C5G1.5CY | 5 | G | 2.43 | 61.8 | 0.41 | 10.3 | 176 |
| C5X1.5CY | 5 | X | 2.43 | 61.8 | 0.41 | 10.3 | 176 |
| C12G1.5CY | 12 | G | 3.43 | 87.0 | 0.57 | 14.5 | 347 |
| C12X1.5CY | 12 | X | 3.43 | 87.0 | 0.57 | 14.5 | 347 |
| C20G1.5CY | 20 | G | 4.18 | 106.2 | 0.70 | 17.7 | 551 |
| C20X1.5CY | 20 | X | 4.18 | 106.2 | 0.70 | 17.7 | 551 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 5 | G | 1.0 | PVC | C5G1.0CY | G | |
| | | X | | | C5X1.0CY | | |
| | | | | | | X | |

MachFlex 375CY

300/750V Flexible Shielded Control Cables

Flexible Tinned Copper Braid Shielded PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|------|
| C2X2.5CY | 2 | X | 2.69 | 68.4 | 0.45 | 11.4 | 179 |
| C3G2.5CY | 3 | G | 2.83 | 72.0 | 0.47 | 12.0 | 217 |
| C3X2.5CY | 3 | X | 2.83 | 72.0 | 0.47 | 12.0 | 217 |
| C4G2.5CY | 4 | G | 3.14 | 79.8 | 0.52 | 13.3 | 272 |
| C4X2.5CY | 4 | X | 3.14 | 79.8 | 0.52 | 13.3 | 272 |
| C5G2.5CY | 5 | G | 3.43 | 87.0 | 0.57 | 14.5 | 328 |
| C5X2.5CY | 5 | X | 3.43 | 87.0 | 0.57 | 14.5 | 328 |
| C12G2.5CY | 12 | G | 4.54 | 115.2 | 0.76 | 19.2 | 666 |
| C12X2.5CY | 12 | X | 4.54 | 115.2 | 0.76 | 19.2 | 666 |
| C20G2.5CY | 20 | G | 4.91 | 124.8 | 0.82 | 20.8 | 1068 |
| C20X2.5CY | 20 | X | 4.91 | 124.8 | 0.82 | 20.8 | 1068 |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|-----|
| C3X4CY | 3 | X | 3.24 | 82.2 | 0.54 | 13.7 | 303 |
| C3G4CY | 3 | G | 3.24 | 82.2 | 0.54 | 13.7 | 303 |
| C4X4CY | 4 | X | 3.57 | 90.6 | 0.59 | 15.1 | 377 |
| C4G4CY | 4 | G | 3.57 | 90.6 | 0.59 | 15.1 | 377 |
| C12X4CY | 12 | X | 5.67 | 144.0 | 0.94 | 24.0 | 966 |
| C12G4CY | 12 | G | 5.67 | 144.0 | 0.94 | 24.0 | 966 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|-----|
| C3X6CY | 3 | X | 3.61 | 91.8 | 0.60 | 15.3 | 397 |
| C3G6CY | 3 | G | 3.61 | 91.8 | 0.60 | 15.3 | 397 |
| C4X6CY | 4 | X | 3.97 | 100.8 | 0.66 | 16.8 | 497 |
| C4G6CY | 4 | G | 3.97 | 100.8 | 0.66 | 16.8 | 497 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 5 | G | 2.5 | PVC | C5G2.5CY |
| | | X | | | C5X2.5CY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 375CY

300/750V Flexible Shielded Control Cables

Flexible Tinned Copper Braid Shielded PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

10mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|-----|
| C3X10CY | 3 | X | 4.23 | 107.4 | 0.70 | 17.9 | 571 |
| C3G10CY | 3 | G | 4.23 | 107.4 | 0.70 | 17.9 | 571 |
| C4X10CY | 4 | X | 4.68 | 118.8 | 0.78 | 19.8 | 720 |
| C4G10CY | 4 | G | 4.68 | 118.8 | 0.78 | 19.8 | 720 |

16mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| C3X16CY | 3 | X | 5.31 | 135.0 | 0.89 | 22.5 | 909 |
| C3G16CY | 3 | G | 5.31 | 135.0 | 0.89 | 22.5 | 909 |
| C4X16CY | 4 | X | 5.88 | 149.4 | 0.98 | 24.9 | 1153 |
| C4G16CY | 4 | G | 5.88 | 149.4 | 0.98 | 24.9 | 1153 |

25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| C3X25CY | 3 | X | 6.00 | 152.4 | 1.00 | 25.4 | 1257 |
| C3G25CY | 3 | G | 6.00 | 152.4 | 1.00 | 25.4 | 1257 |
| C4X25CY | 4 | X | 6.64 | 168.6 | 1.11 | 28.1 | 1606 |
| C4G25CY | 4 | G | 6.64 | 168.6 | 1.11 | 28.1 | 1606 |

35mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| C2X35CY | 2 | X | 6.40 | 162.6 | 1.07 | 27.1 | 1251 |
| C3G35CY | 3 | G | 6.85 | 174.0 | 1.14 | 29.0 | 1629 |
| C3X35CY | 3 | X | 6.85 | 174.0 | 1.14 | 29.0 | 1629 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 10 | PVC | C3G10CY | G | |
| | | X | | | C3X10CY | | |
| | | | | | | X | |

MachFlex 375SY

300/750V Flexible Armored Control Cables

Flexible Steel Wire Braid Armored PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|------|------|------|-----|
| C2X0.5SY | 2 | X | 1.75 | 44.4 | 0.29 | 7.4 | 78 |
| C3G0.5SY | 3 | G | 1.82 | 46.2 | 0.30 | 7.7 | 87 |
| C3X0.5SY | 3 | X | 1.82 | 46.2 | 0.30 | 7.7 | 87 |
| C4G0.5SY | 4 | G | 1.96 | 49.8 | 0.33 | 8.3 | 101 |
| C4X0.5SY | 4 | X | 1.96 | 49.8 | 0.33 | 8.3 | 101 |
| C5G0.5SY | 5 | G | 2.08 | 52.8 | 0.35 | 8.8 | 116 |
| C5X0.5SY | 5 | X | 2.08 | 52.8 | 0.35 | 8.8 | 116 |
| C12G0.5SY | 12 | G | 2.81 | 71.4 | 0.47 | 11.9 | 209 |
| C12X0.5SY | 12 | X | 2.81 | 71.4 | 0.47 | 11.9 | 209 |
| C20G0.5SY | 20 | G | 3.43 | 87.0 | 0.57 | 14.5 | 317 |
| C20X0.5SY | 20 | X | 3.43 | 87.0 | 0.57 | 14.5 | 317 |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|------|------|------|-----|
| C2X0.75SY | 2 | X | 1.87 | 47.4 | 0.31 | 7.9 | 89 |
| C3G0.75SY | 3 | G | 1.96 | 49.8 | 0.33 | 8.3 | 102 |
| C3X0.75SY | 3 | X | 1.96 | 49.8 | 0.33 | 8.3 | 102 |
| C4G0.75SY | 4 | G | 2.10 | 53.4 | 0.35 | 8.9 | 120 |
| C4X0.75SY | 4 | X | 2.10 | 53.4 | 0.35 | 8.9 | 120 |
| C5G0.75SY | 5 | G | 2.24 | 57.0 | 0.37 | 9.5 | 140 |
| C5X0.75SY | 5 | X | 2.24 | 57.0 | 0.37 | 9.5 | 140 |
| C12G0.75SY | 12 | G | 3.05 | 77.4 | 0.51 | 12.9 | 259 |
| C12X0.75SY | 12 | X | 3.05 | 77.4 | 0.51 | 12.9 | 259 |
| C20G0.75SY | 20 | G | 3.76 | 95.4 | 0.63 | 15.9 | 401 |
| C20X0.75SY | 20 | X | 3.76 | 95.4 | 0.63 | 15.9 | 401 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 5 | G | 0.5 | PVC | C5G0.5SY |
| | | X | | | C5X0.5SY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 375SY

300/750V Flexible Armored Control Cables

Flexible Steel Wire Braid Armored PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

1mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|-----|
| C2X1.0SY | 2 | X | 1.96 | 49.8 | 0.33 | 8.3 | 100 |
| C3G1.0SY | 3 | G | 2.06 | 52.2 | 0.34 | 8.7 | 117 |
| C3X1.0SY | 3 | X | 2.06 | 52.2 | 0.34 | 8.7 | 117 |
| C4G1.0SY | 4 | G | 2.22 | 56.4 | 0.37 | 9.4 | 139 |
| C4X1.0SY | 4 | X | 2.22 | 56.4 | 0.37 | 9.4 | 139 |
| C5G1.0SY | 5 | G | 2.39 | 60.6 | 0.40 | 10.1 | 164 |
| C5X1.0SY | 5 | X | 2.39 | 60.6 | 0.40 | 10.1 | 164 |
| C12G1.0SY | 12 | G | 3.31 | 84.0 | 0.55 | 14.0 | 320 |
| C12X1.0SY | 12 | X | 3.31 | 84.0 | 0.55 | 14.0 | 320 |
| C20G1.0SY | 20 | G | 3.99 | 101.4 | 0.67 | 16.9 | 483 |
| C20X1.0SY | 20 | X | 3.99 | 101.4 | 0.67 | 16.9 | 483 |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|-----|
| C2X1.5SY | 2 | X | 2.08 | 52.8 | 0.35 | 8.8 | 116 |
| C3G1.5SY | 3 | G | 2.20 | 55.8 | 0.37 | 9.3 | 133 |
| C3X1.5SY | 3 | X | 2.20 | 55.8 | 0.37 | 9.3 | 133 |
| C4G1.5SY | 4 | G | 2.36 | 60.0 | 0.39 | 10.0 | 164 |
| C4X1.5SY | 4 | X | 2.36 | 60.0 | 0.39 | 10.0 | 164 |
| C5G1.5SY | 5 | G | 2.55 | 64.8 | 0.43 | 10.8 | 193 |
| C5X1.5SY | 5 | X | 2.55 | 64.8 | 0.43 | 10.8 | 193 |
| C12G1.5SY | 12 | G | 3.57 | 90.6 | 0.59 | 15.1 | 376 |
| C12X1.5SY | 12 | X | 3.57 | 90.6 | 0.59 | 15.1 | 376 |
| C20G1.5SY | 20 | G | 4.35 | 110.4 | 0.72 | 18.4 | 587 |
| C20X1.5SY | 20 | X | 4.35 | 110.4 | 0.72 | 18.4 | 587 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 5 | G | 1.0 | PVC | C5G1.0SY | G | |
| | | X | | | C5X1.0SY | | |

MachFlex 375SY

300/750V Flexible Armored Control Cables

Flexible Steel Wire Braid Armored PVC Control Cables



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- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|------|
| C2X2.5SY | 2 | X | 2.81 | 71.4 | 0.47 | 11.9 | 198 |
| C3G2.5SY | 3 | G | 2.98 | 75.6 | 0.50 | 12.6 | 238 |
| C3X2.5SY | 3 | X | 2.98 | 75.6 | 0.50 | 12.6 | 238 |
| C4G2.5SY | 4 | G | 3.28 | 83.4 | 0.55 | 13.9 | 300 |
| C4X2.5SY | 4 | X | 3.28 | 83.4 | 0.55 | 13.9 | 300 |
| C5G2.5SY | 5 | G | 3.57 | 90.6 | 0.59 | 15.1 | 358 |
| C5X2.5SY | 5 | X | 3.57 | 90.6 | 0.59 | 15.1 | 358 |
| C12G2.5SY | 12 | G | 4.70 | 119.4 | 0.78 | 19.9 | 709 |
| C12X2.5SY | 12 | X | 4.70 | 119.4 | 0.78 | 19.9 | 709 |
| C20G2.5SY | 20 | G | 5.06 | 128.4 | 0.84 | 21.4 | 1105 |
| C20X2.5SY | 20 | X | 5.06 | 128.4 | 0.84 | 21.4 | 1105 |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|------|
| C3X4SY | 3 | X | 3.40 | 86.4 | 0.57 | 14.4 | 331 |
| C3G4SY | 3 | G | 3.40 | 86.4 | 0.57 | 14.4 | 331 |
| C4X4SY | 4 | X | 3.71 | 94.2 | 0.62 | 15.7 | 407 |
| C4G4SY | 4 | G | 3.71 | 94.2 | 0.62 | 15.7 | 407 |
| C12X4SY | 12 | X | 5.79 | 147.0 | 0.96 | 24.5 | 1000 |
| C12G4SY | 12 | G | 5.79 | 147.0 | 0.96 | 24.5 | 1000 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|-----|
| C3X6SY | 3 | X | 3.76 | 95.4 | 0.63 | 15.9 | 428 |
| C3G6SY | 3 | G | 3.76 | 95.4 | 0.63 | 15.9 | 428 |
| C4X6SY | 4 | X | 4.11 | 104.4 | 0.69 | 17.4 | 532 |
| C4G6SY | 4 | G | 4.11 | 104.4 | 0.69 | 17.4 | 532 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 5 | G | 2.5 | PVC | C5G2.5SY |
| | | X | | | C5X2.5SY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 375SY

300/750V Flexible Armored Control Cables

Flexible Steel Wire Braid Armored PVC Control Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- IEC 60227-5, EN 50525-2-51, VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

10mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|-----|
| C3X10SY | 3 | X | 4.39 | 111.6 | 0.73 | 18.6 | 607 |
| C3G10SY | 3 | G | 4.39 | 111.6 | 0.73 | 18.6 | 607 |
| C4X10SY | 4 | X | 4.82 | 122.4 | 0.80 | 20.4 | 760 |
| C4G10SY | 4 | G | 4.82 | 122.4 | 0.80 | 20.4 | 760 |

16mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| C3X16SY | 3 | X | 5.43 | 138.0 | 0.91 | 23.0 | 940 |
| C3G16SY | 3 | G | 5.43 | 138.0 | 0.91 | 23.0 | 940 |
| C4X16SY | 4 | X | 5.98 | 151.8 | 1.00 | 25.3 | 1189 |
| C4G16SY | 4 | G | 5.98 | 151.8 | 1.00 | 25.3 | 1189 |

25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| C3X25SY | 3 | X | 6.12 | 155.4 | 1.02 | 25.9 | 1293 |
| C3G25SY | 3 | G | 6.12 | 155.4 | 1.02 | 25.9 | 1293 |
| C4X25SY | 4 | X | 6.76 | 171.6 | 1.13 | 28.6 | 1647 |
| C4G25SY | 4 | G | 6.76 | 171.6 | 1.13 | 28.6 | 1647 |

35mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| C2X35SY | 2 | X | 6.52 | 165.6 | 1.09 | 27.6 | 1288 |
| C3G35SY | 3 | G | 6.97 | 177.0 | 1.16 | 29.5 | 1670 |
| C3X35SY | 3 | X | 6.97 | 177.0 | 1.16 | 29.5 | 1670 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 10 | PVC | C3G10SY | G | |
| | | X | | | C3X10SY | | |
| | | | | | | X | |

MachFlex 610YY

600/1000V Flexible Control & Power Cables

Flexible PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| H2X0.75 | 2 | X | 1.43 | 36.4 | 0.36 | 9.1 | 96 |
| H3G0.75 | 3 | G | 1.50 | 38.0 | 0.37 | 9.5 | 111 |
| H3X0.75 | 3 | X | 1.50 | 38.0 | 0.37 | 9.5 | 111 |
| H4G0.75 | 4 | G | 1.61 | 40.8 | 0.40 | 10.2 | 133 |
| H4X0.75 | 4 | X | 1.61 | 40.8 | 0.40 | 10.2 | 133 |
| H5G0.75 | 5 | G | 1.73 | 44.0 | 0.43 | 11.0 | 156 |
| H5X0.75 | 5 | X | 1.73 | 44.0 | 0.43 | 11.0 | 156 |
| H12G0.75 | 12 | G | 2.36 | 60.0 | 0.59 | 15.0 | 287 |
| H12X0.75 | 12 | X | 2.36 | 60.0 | 0.59 | 15.0 | 287 |
| H20G0.75 | 20 | G | 2.87 | 72.8 | 0.72 | 18.2 | 437 |
| H20X0.75 | 20 | X | 2.87 | 72.8 | 0.72 | 18.2 | 437 |

1mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| H2X1.0 | 2 | X | 1.48 | 37.6 | 0.37 | 9.4 | 106 |
| H3G1.0 | 3 | G | 1.56 | 39.6 | 0.39 | 9.9 | 125 |
| H3X1.0 | 3 | X | 1.56 | 39.6 | 0.39 | 9.9 | 125 |
| H4G1.0 | 4 | G | 1.67 | 42.4 | 0.42 | 10.6 | 150 |
| H4X1.0 | 4 | X | 1.67 | 42.4 | 0.42 | 10.6 | 150 |
| H5G1.0 | 5 | G | 1.80 | 45.6 | 0.45 | 11.4 | 177 |
| H5X1.0 | 5 | X | 1.80 | 45.6 | 0.45 | 11.4 | 177 |
| H12G1.0 | 12 | G | 2.47 | 62.8 | 0.62 | 15.7 | 333 |
| H12X1.0 | 12 | X | 2.47 | 62.8 | 0.62 | 15.7 | 333 |
| H20G1.0 | 20 | G | 3.01 | 76.4 | 0.75 | 19.1 | 512 |
| H20X1.0 | 20 | X | 3.01 | 76.4 | 0.75 | 19.1 | 512 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 0.75 | PVC | H3G0.75 |
| | | X | | | H3X0.75 |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610YY

600/1000V Flexible Control & Power Cables

Flexible PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| H2X1.5 | 2 | X | 1.54 | 39.2 | 0.39 | 9.8 | 119 |
| H3G1.5 | 3 | G | 1.62 | 41.2 | 0.41 | 10.3 | 142 |
| H3X1.5 | 3 | X | 1.62 | 41.2 | 0.41 | 10.3 | 142 |
| H4G1.5 | 4 | G | 1.76 | 44.8 | 0.44 | 11.2 | 172 |
| H4X1.5 | 4 | X | 1.76 | 44.8 | 0.44 | 11.2 | 172 |
| H5G1.5 | 5 | G | 1.89 | 48.0 | 0.47 | 12.0 | 204 |
| H5X1.5 | 5 | X | 1.89 | 48.0 | 0.47 | 12.0 | 204 |
| H12G1.5 | 12 | G | 2.61 | 66.4 | 0.65 | 16.6 | 391 |
| H12X1.5 | 12 | X | 2.61 | 66.4 | 0.65 | 16.6 | 391 |
| H20G1.5 | 20 | G | 3.18 | 80.8 | 0.80 | 20.2 | 606 |
| H20X1.5 | 20 | X | 3.18 | 80.8 | 0.80 | 20.2 | 606 |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| H2X2.5 | 2 | X | 1.70 | 43.2 | 0.43 | 10.8 | 151 |
| H3G2.5 | 3 | G | 1.78 | 45.2 | 0.44 | 11.3 | 184 |
| H3X2.5 | 3 | X | 1.78 | 45.2 | 0.44 | 11.3 | 184 |
| H4G2.5 | 4 | G | 1.94 | 49.2 | 0.48 | 12.3 | 225 |
| H4X2.5 | 4 | X | 1.94 | 49.2 | 0.48 | 12.3 | 225 |
| H5G2.5 | 5 | G | 2.09 | 53.2 | 0.52 | 13.3 | 269 |
| H5X2.5 | 5 | X | 2.09 | 53.2 | 0.52 | 13.3 | 269 |
| H12G2.5 | 12 | G | 2.91 | 74.0 | 0.73 | 18.5 | 533 |
| H12X2.5 | 12 | X | 2.91 | 74.0 | 0.73 | 18.5 | 533 |
| H20G2.5 | 20 | G | 3.57 | 90.8 | 0.89 | 22.7 | 682 |
| H20X2.5 | 20 | X | 3.57 | 90.8 | 0.89 | 22.7 | 682 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 1.5 | PVC | H3G1.5 |
| | | X | | | H3X1.5 |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610YY

600/1000V Flexible Control & Power Cables

Flexible PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|----|---|------|------|------|------|-----|
| H3X4 | 3 | X | 2.13 | 54.0 | 0.53 | 13.5 | 274 |
| H3G4 | 3 | G | 2.13 | 54.0 | 0.53 | 13.5 | 274 |
| H4X4 | 4 | X | 2.31 | 58.8 | 0.58 | 14.7 | 341 |
| H4G4 | 4 | G | 2.31 | 58.8 | 0.58 | 14.7 | 341 |
| H12X4 | 12 | X | 3.57 | 90.8 | 0.89 | 22.7 | 840 |
| H12G4 | 12 | G | 3.57 | 90.8 | 0.89 | 22.7 | 840 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|-----|
| H3X6 | 3 | X | 2.33 | 59.2 | 0.58 | 14.8 | 355 |
| H3G6 | 3 | G | 2.33 | 59.2 | 0.58 | 14.8 | 355 |
| H4X6 | 4 | X | 2.54 | 64.4 | 0.63 | 16.1 | 446 |
| H4G6 | 4 | G | 2.54 | 64.4 | 0.63 | 16.1 | 446 |

10mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|-----|
| H3X10 | 3 | X | 2.68 | 68.0 | 0.67 | 17.0 | 503 |
| H3G10 | 3 | G | 2.68 | 68.0 | 0.67 | 17.0 | 503 |
| H4X10 | 4 | X | 2.93 | 74.4 | 0.73 | 18.6 | 637 |
| H4G10 | 4 | G | 2.93 | 74.4 | 0.73 | 18.6 | 637 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 4 | PVC | H3G4 |
| | | X | | | H3X4 |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610YY

600/1000V Flexible Control & Power Cables

Flexible PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight |
|----------|------------|------------|-------------------|----|----------|----|-------------------|
| | | | Inch | mm | Inch | mm | kg/km |

16mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|------|------|------|-----|
| H3X16 | 3 | X | 3.12 | 79.2 | 0.78 | 19.8 | 739 |
| H3G16 | 3 | G | 3.12 | 79.2 | 0.78 | 19.8 | 739 |
| H4X16 | 4 | X | 3.43 | 87.2 | 0.86 | 21.8 | 944 |
| H4G16 | 4 | G | 3.43 | 87.2 | 0.86 | 21.8 | 944 |

25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| H3X25 | 3 | X | 3.62 | 92.0 | 0.91 | 23.0 | 1078 |
| H3G25 | 3 | G | 3.62 | 92.0 | 0.91 | 23.0 | 1078 |
| H4X25 | 4 | X | 4.00 | 101.6 | 1.00 | 25.4 | 1386 |
| H4G25 | 4 | G | 4.00 | 101.6 | 1.00 | 25.4 | 1386 |

35mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| H2X35 | 2 | X | 3.72 | 94.4 | 0.93 | 23.6 | 1000 |
| H3G35 | 3 | G | 3.97 | 100.8 | 0.99 | 25.2 | 1340 |
| H3X35 | 3 | X | 3.97 | 100.8 | 0.99 | 25.2 | 1340 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 16 | PVC | H3G16 |
| | | X | | | H3X16 |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610CY

600/1000V Flexible Shielded Control & Power Cables

Flexible Tinned Copper Braid Shielded PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|-----|
| H2X0.75CY | 2 | X | 2.76 | 70.2 | 0.46 | 11.7 | 175 |
| H3G0.75CY | 3 | G | 2.88 | 73.2 | 0.48 | 12.2 | 194 |
| H3X0.75CY | 3 | X | 2.88 | 73.2 | 0.48 | 12.2 | 194 |
| H4G0.75CY | 4 | G | 3.05 | 77.4 | 0.51 | 12.9 | 221 |
| H4X0.75CY | 4 | X | 3.05 | 77.4 | 0.51 | 12.9 | 221 |
| H5G0.75CY | 5 | G | 3.21 | 81.6 | 0.54 | 13.6 | 251 |
| H5X0.75CY | 5 | X | 3.21 | 81.6 | 0.54 | 13.6 | 251 |
| H12G0.75CY | 12 | G | 4.23 | 107.4 | 0.70 | 17.9 | 432 |
| H12X0.75CY | 12 | X | 4.23 | 107.4 | 0.70 | 17.9 | 432 |
| H20G0.75CY | 20 | G | 5.03 | 127.8 | 0.84 | 21.3 | 630 |
| H20X0.75CY | 20 | X | 5.03 | 127.8 | 0.84 | 21.3 | 630 |

1mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|-----|
| H2X1.0CY | 2 | X | 2.86 | 72.6 | 0.48 | 12.1 | 188 |
| H3G1.0CY | 3 | G | 2.95 | 75.0 | 0.49 | 12.5 | 211 |
| H3X1.0CY | 3 | X | 2.95 | 75.0 | 0.49 | 12.5 | 211 |
| H4G1.0CY | 4 | G | 3.14 | 79.8 | 0.52 | 13.3 | 242 |
| H4X1.0CY | 4 | X | 3.14 | 79.8 | 0.52 | 13.3 | 242 |
| H5G1.0CY | 5 | G | 3.33 | 84.6 | 0.56 | 14.1 | 276 |
| H5X1.0CY | 5 | X | 3.33 | 84.6 | 0.56 | 14.1 | 276 |
| H12G1.0CY | 12 | G | 4.39 | 111.6 | 0.73 | 18.6 | 484 |
| H12X1.0CY | 12 | X | 4.39 | 111.6 | 0.73 | 18.6 | 484 |
| H20G1.0CY | 20 | G | 5.24 | 133.2 | 0.87 | 22.2 | 715 |
| H20X1.0CY | 20 | X | 5.24 | 133.2 | 0.87 | 22.2 | 715 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 0.75 | PVC | H3G0.75CY |
| | | X | | | H3X0.75CY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610CY

600/1000V Flexible Shielded Control & Power Cables

Flexible Tinned Copper Braid Shielded PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|-----|
| H2X1.5CY | 2 | X | 2.95 | 75.0 | 0.49 | 12.5 | 205 |
| H3G1.5CY | 3 | G | 3.07 | 78.0 | 0.51 | 13.0 | 225 |
| H3X1.5CY | 3 | X | 3.07 | 78.0 | 0.51 | 13.0 | 225 |
| H4G1.5CY | 4 | G | 3.26 | 82.8 | 0.54 | 13.8 | 269 |
| H4X1.5CY | 4 | X | 3.26 | 82.8 | 0.54 | 13.8 | 269 |
| H5G1.5CY | 5 | G | 3.52 | 89.4 | 0.59 | 14.9 | 321 |
| H5X1.5CY | 5 | X | 3.52 | 89.4 | 0.59 | 14.9 | 321 |
| H12G1.5CY | 12 | G | 4.16 | 117.0 | 0.77 | 19.5 | 538 |
| H12X1.5CY | 12 | X | 4.16 | 117.0 | 0.77 | 19.5 | 538 |
| H20G1.5CY | 20 | G | 5.53 | 140.4 | 0.92 | 23.4 | 823 |
| H20X1.5CY | 20 | X | 5.53 | 140.4 | 0.92 | 23.4 | 823 |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|------|
| H2X2.5CY | 2 | X | 3.17 | 80.4 | 0.53 | 13.4 | 244 |
| H3G2.5CY | 3 | G | 3.31 | 84.0 | 0.55 | 14.0 | 282 |
| H3X2.5CY | 3 | X | 3.31 | 84.0 | 0.55 | 14.0 | 282 |
| H4G2.5CY | 4 | G | 3.59 | 91.2 | 0.60 | 15.2 | 344 |
| H4X2.5CY | 4 | X | 3.59 | 91.2 | 0.60 | 15.2 | 344 |
| H5G2.5CY | 5 | G | 3.83 | 97.2 | 0.64 | 16.2 | 398 |
| H5X2.5CY | 5 | X | 3.83 | 97.2 | 0.64 | 16.2 | 398 |
| H12G2.5CY | 12 | G | 5.10 | 129.6 | 0.85 | 21.6 | 731 |
| H12X2.5CY | 12 | X | 5.10 | 129.6 | 0.85 | 21.6 | 731 |
| H20G2.5CY | 20 | G | 6.09 | 154.8 | 1.02 | 25.8 | 1080 |
| H20X2.5CY | 20 | X | 6.09 | 154.8 | 1.02 | 25.8 | 1080 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number | Color Code | Cross Sectional Diagram |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|------------|-------------------------|
| PVC Version | 3 | G | 1.5 | PVC | H3G1.5CY | G | |
| | | X | | | H3X1.5CY | | |
| | | | | | | X | |

MachFlex 610CY

600/1000V Flexible Shielded Control & Power Cables

Flexible Tinned Copper Braid Shielded PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|----|---|------|-------|------|------|------|
| H3X4CY | 3 | X | 3.87 | 98.4 | 0.65 | 16.4 | 405 |
| H3G4CY | 3 | G | 3.87 | 98.4 | 0.65 | 16.4 | 405 |
| H4X4CY | 4 | X | 4.16 | 105.6 | 0.69 | 17.6 | 483 |
| H4G4CY | 4 | G | 4.16 | 105.6 | 0.69 | 17.6 | 483 |
| H12X4CY | 12 | X | 6.09 | 154.8 | 1.02 | 25.8 | 1082 |
| H12G4CY | 12 | G | 6.09 | 154.8 | 1.02 | 25.8 | 1082 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|-----|
| H3X6CY | 3 | X | 4.18 | 106.2 | 0.70 | 17.7 | 498 |
| H3G6CY | 3 | G | 4.18 | 106.2 | 0.70 | 17.7 | 498 |
| H4X6CY | 4 | X | 4.49 | 114.0 | 0.75 | 19.0 | 601 |
| H4G6CY | 4 | G | 4.49 | 114.0 | 0.75 | 19.0 | 601 |

10mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|-----|
| H3X10CY | 3 | X | 4.75 | 120.6 | 0.79 | 20.1 | 684 |
| H3G10CY | 3 | G | 4.75 | 120.6 | 0.79 | 20.1 | 684 |
| H4X10CY | 4 | X | 5.13 | 130.2 | 0.85 | 21.7 | 835 |
| H4G10CY | 4 | G | 5.13 | 130.2 | 0.85 | 21.7 | 835 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 4 | PVC | H3G4CY |
| | | X | | | H3X4CY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610CY

600/1000V Flexible Shielded Control & Power Cables

Flexible Tinned Copper Braid Shielded PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

16mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| H3X16CY | 3 | X | 5.41 | 137.4 | 0.90 | 22.9 | 952 |
| H3G16CY | 3 | G | 5.41 | 137.4 | 0.90 | 22.9 | 952 |
| H4X16CY | 4 | X | 5.88 | 149.4 | 0.98 | 24.9 | 1176 |
| H4G16CY | 4 | G | 5.88 | 149.4 | 0.98 | 24.9 | 1176 |

25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| H3X25CY | 3 | X | 6.19 | 157.2 | 1.03 | 26.2 | 1321 |
| H3G25CY | 3 | G | 6.19 | 157.2 | 1.03 | 26.2 | 1321 |
| H4X25CY | 4 | X | 6.76 | 171.6 | 1.13 | 28.6 | 1664 |
| H4G25CY | 4 | G | 6.76 | 171.6 | 1.13 | 28.6 | 1664 |

35mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • TC Braid shield • PVC Sheath | | | | | | | |
|--|---|---|------|-------|------|------|------|
| H2X35CY | 2 | X | 6.31 | 160.2 | 1.05 | 26.7 | 1252 |
| H3G35CY | 3 | G | 6.73 | 171.0 | 1.12 | 28.5 | 1616 |
| H3X35CY | 3 | X | 6.73 | 171.0 | 1.12 | 28.5 | 1616 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 16 | PVC | H3G16CY |
| | | X | | | H3X16CY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610SY

600/1000V Flexible Armored Control & Power Cables

Flexible Steel Wire Braid Armored PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

0.75mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|-----|
| H2X0.75SY | 2 | X | 2.83 | 72.0 | 0.47 | 12.0 | 182 |
| H3G0.75SY | 3 | G | 2.88 | 73.2 | 0.48 | 12.2 | 201 |
| H3X0.75SY | 3 | X | 2.88 | 73.2 | 0.48 | 12.2 | 201 |
| H4G0.75SY | 4 | G | 3.05 | 77.4 | 0.51 | 12.9 | 229 |
| H4X0.75SY | 4 | X | 3.05 | 77.4 | 0.51 | 12.9 | 229 |
| H5G0.75SY | 5 | G | 3.21 | 81.6 | 0.54 | 13.6 | 259 |
| H5X0.75SY | 5 | X | 3.21 | 81.6 | 0.54 | 13.6 | 259 |
| H12G0.75SY | 12 | G | 4.23 | 107.4 | 0.70 | 17.9 | 437 |
| H12X0.75SY | 12 | X | 4.23 | 107.4 | 0.70 | 17.9 | 437 |
| H20G0.75SY | 20 | G | 5.03 | 127.8 | 0.84 | 21.3 | 618 |
| H20X0.75SY | 20 | X | 5.03 | 127.8 | 0.84 | 21.3 | 618 |

1mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|-----|
| H2X1.0SY | 2 | X | 2.91 | 73.8 | 0.48 | 12.3 | 195 |
| H3G1.0SY | 3 | G | 2.95 | 75.0 | 0.49 | 12.5 | 218 |
| H3X1.0SY | 3 | X | 2.95 | 75.0 | 0.49 | 12.5 | 218 |
| H4G1.0SY | 4 | G | 3.14 | 79.8 | 0.52 | 13.3 | 250 |
| H4X1.0SY | 4 | X | 3.14 | 79.8 | 0.52 | 13.3 | 250 |
| H5G1.0SY | 5 | G | 3.33 | 84.6 | 0.56 | 14.1 | 284 |
| H5X1.0SY | 5 | X | 3.33 | 84.6 | 0.56 | 14.1 | 284 |
| H12G1.0SY | 12 | G | 4.39 | 111.6 | 0.73 | 18.6 | 491 |
| H12X1.0SY | 12 | X | 4.39 | 111.6 | 0.73 | 18.6 | 491 |
| H20G1.0SY | 20 | G | 5.24 | 133.2 | 0.87 | 22.2 | 703 |
| H20X1.0SY | 20 | X | 5.24 | 133.2 | 0.87 | 22.2 | 703 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 0.75 | PVC | H3G0.75SY |
| | | X | | | H3X0.75SY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610SY

600/1000V Flexible Armored Control & Power Cables

Flexible Steel Wire Braid Armored PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|-----|
| H2X1.5SY | 2 | X | 3.00 | 76.2 | 0.50 | 12.7 | 212 |
| H3G1.5SY | 3 | G | 3.07 | 78.0 | 0.51 | 13.0 | 233 |
| H3X1.5SY | 3 | X | 3.07 | 78.0 | 0.51 | 13.0 | 233 |
| H4G1.5SY | 4 | G | 3.26 | 82.8 | 0.54 | 13.8 | 277 |
| H4X1.5SY | 4 | X | 3.26 | 82.8 | 0.54 | 13.8 | 277 |
| H5G1.5SY | 5 | G | 3.52 | 89.4 | 0.59 | 14.9 | 327 |
| H5X1.5SY | 5 | X | 3.52 | 89.4 | 0.59 | 14.9 | 327 |
| H12G1.5SY | 12 | G | 4.61 | 117.0 | 0.77 | 19.5 | 545 |
| H12X1.5SY | 12 | X | 4.61 | 117.0 | 0.77 | 19.5 | 545 |
| H20G1.5SY | 20 | G | 5.53 | 140.4 | 0.92 | 23.4 | 808 |
| H20X1.5SY | 20 | X | 5.53 | 140.4 | 0.92 | 23.4 | 808 |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|------|
| H2X2.5SY | 2 | X | 3.24 | 82.2 | 0.54 | 13.7 | 252 |
| H3G2.5SY | 3 | G | 3.31 | 84.0 | 0.55 | 14.0 | 290 |
| H3X2.5SY | 3 | X | 3.31 | 84.0 | 0.55 | 14.0 | 290 |
| H4G2.5SY | 4 | G | 3.59 | 91.2 | 0.60 | 15.2 | 350 |
| H4X2.5SY | 4 | X | 3.59 | 91.2 | 0.60 | 15.2 | 350 |
| H5G2.5SY | 5 | G | 3.83 | 97.2 | 0.64 | 16.2 | 404 |
| H5X2.5SY | 5 | X | 3.83 | 97.2 | 0.64 | 16.2 | 404 |
| H12G2.5SY | 12 | G | 5.10 | 129.6 | 0.85 | 21.6 | 718 |
| H12X2.5SY | 12 | X | 5.10 | 129.6 | 0.85 | 21.6 | 718 |
| H20G2.5SY | 20 | G | 6.09 | 154.8 | 1.02 | 25.8 | 1064 |
| H20X2.5SY | 20 | X | 6.09 | 154.8 | 1.02 | 25.8 | 1064 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 1.5 | PVC | H3G1.5SY |
| | | X | | | H3X1.5SY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610SY

600/1000V Flexible Armored Control & Power Cables

Flexible Steel Wire Braid Armored PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

4mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|----|---|------|-------|------|------|------|
| H3X4SY | 3 | X | 3.87 | 98.4 | 0.65 | 16.4 | 411 |
| H3G4SY | 3 | G | 3.87 | 98.4 | 0.65 | 16.4 | 411 |
| H4X4SY | 4 | X | 4.16 | 105.6 | 0.69 | 17.6 | 489 |
| H4G4SY | 4 | G | 4.16 | 105.6 | 0.69 | 17.6 | 489 |
| H12X4SY | 12 | X | 6.09 | 154.8 | 1.02 | 25.8 | 1065 |
| H12G4SY | 12 | G | 6.09 | 154.8 | 1.02 | 25.8 | 1065 |

6mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|-----|
| H3X6SY | 3 | X | 4.18 | 106.2 | 0.70 | 17.7 | 505 |
| H3G6SY | 3 | G | 4.18 | 106.2 | 0.70 | 17.7 | 505 |
| H4X6SY | 4 | X | 4.49 | 114.0 | 0.75 | 19.0 | 608 |
| H4G6SY | 4 | G | 4.49 | 114.0 | 0.75 | 19.0 | 608 |

10mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|-----|
| H3X10SY | 3 | X | 4.75 | 120.6 | 0.79 | 20.1 | 673 |
| H3G10SY | 3 | G | 4.75 | 120.6 | 0.79 | 20.1 | 673 |
| H4X10SY | 4 | X | 5.13 | 130.2 | 0.85 | 21.7 | 823 |
| H4G10SY | 4 | G | 5.13 | 130.2 | 0.85 | 21.7 | 823 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 4 | PVC | H3G4SY |
| | | X | | | H3X4SY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex 610SY

600/1000V Flexible Armored Control & Power Cables

Flexible Steel Wire Braid Armored PVC Control & Power Cables



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- VDE 0281-13
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Color Code | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|------------|-------------------|----|----------|----|----------------------------|
| | | | Inch | mm | Inch | mm | |

16mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| H3X16SY | 3 | X | 5.41 | 137.4 | 0.90 | 22.9 | 937 |
| H3G16SY | 3 | G | 5.41 | 137.4 | 0.90 | 22.9 | 937 |
| H4X16SY | 4 | X | 5.88 | 149.4 | 0.98 | 24.9 | 1161 |
| H4G16SY | 4 | G | 5.88 | 149.4 | 0.98 | 24.9 | 1161 |

25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| H3X25SY | 3 | X | 6.17 | 156.6 | 1.03 | 26.1 | 1306 |
| H3G25SY | 3 | G | 6.17 | 156.6 | 1.03 | 26.1 | 1306 |
| H4X25SY | 4 | X | 6.76 | 171.6 | 1.13 | 28.6 | 1646 |
| H4G25SY | 4 | G | 6.76 | 171.6 | 1.13 | 28.6 | 1646 |

35mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Bedding • Steel Wire Braid Armor • PVC Sheath | | | | | | | |
|---|---|---|------|-------|------|------|------|
| H2X35SY | 2 | X | 6.31 | 160.2 | 1.05 | 26.7 | 1235 |
| H3G35SY | 3 | G | 6.71 | 170.4 | 1.12 | 28.4 | 1598 |
| H3X35SY | 3 | X | 6.71 | 170.4 | 1.12 | 28.4 | 1598 |

| Product Version | Number of Cores | Insulation Color Code | Conductor Size (mm ²) | Sheath Material | Part Number |
|-----------------|-----------------|-----------------------|-----------------------------------|-----------------|-------------|
| PVC Version | 3 | G | 16 | PVC | H3G16SY |
| | | X | | | H3X16SY |

| Color Code | Cross Sectional Diagram |
|------------|-------------------------|
| G | |
| X | |

MachFlex Flexible Control Cables

600V MachFlex Super 360TC for Extreme Flexing (10 Million Flex Cycles)

C-TC+ Control Cables • Unshielded



- UL AWM 2587 (600 V, +90 °C)
- CSA AWM I/II A/B 600 V +105 °C
- Sunlight Res
- Oil Res I/II
- UL Direct Burial
- IEEE 1202/383 FT4
- -40 °C to +90 °C (Cold Impact)
- -5 °C to +90 °C (Flexing)

| Part No. | Conductors | | Pull Tension (Max) | | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Additional Features/Ratings |
|----------|------------|------------------|--------------------|---|----------|----|----------------------|----|------------------|----|-----------------------------|
| | Circuit | Ground (Grn/Yel) | Lbs | N | Inch | mm | Inch | mm | Inch | mm | |

Stranded BC Conductors • PVC Insulation • Abrasion Resistant Orange Belflex® TPE Jacket

20 AWG • 74 x 38

| | | | | | | | | | | | |
|-------|----|---|-----|------|------|-------|------|-----|------|------|---------|
| 7101W | 2 | 1 | 45 | 200 | .237 | 6.02 | | | | | |
| 7102W | 3 | 1 | 59 | 262 | .256 | 6.50 | .015 | .38 | .037 | .94 | |
| 7105W | 8 | 1 | 130 | 578 | .376 | 9.55 | .015 | .38 | .042 | 1.07 | UL PLTC |
| 7106W | 11 | 1 | 178 | 792 | .417 | 10.59 | | | | | |
| 7107W | 17 | 1 | 260 | 1156 | .480 | 12.19 | .015 | .38 | .053 | 1.35 | |
| 7108W | 24 | 1 | 370 | 1645 | .563 | 14.30 | | | | | |

Stranded BC Conductors • PVC/Nylon Insulation • Abrasion Resistant Orange Belflex® TPE Jacket

18 AWG • 114 x 38

| | | | | | | | | | | | |
|-------|----|---|-----|------|------|-------|------|-----|------|------|--|
| 7110W | 2 | 1 | 69 | 307 | .289 | 7.34 | | | | | |
| 7111W | 3 | 1 | 92 | 409 | .313 | 7.95 | .020 | .51 | .047 | 1.19 | |
| 7113W | 6 | 1 | 161 | 716 | .390 | 9.91 | | | | | |
| 7116W | 17 | 1 | 400 | 1779 | .576 | 14.63 | .020 | .51 | .063 | 1.60 | |
| 7117W | 24 | 1 | 575 | 2558 | .678 | 17.22 | | | | | |

16 AWG • 190 x 38

| | | | | | | | | | | | |
|-------|----|---|-----|------|------|-------|------|-----|------|------|---|
| 7122W | 2 | 1 | 114 | 507 | .333 | 8.46 | | | | | |
| 7125W | 6 | 1 | 266 | 1183 | .460 | 11.68 | .020 | .51 | .047 | 1.19 | UL AWM 21486 (1000 V, +90 °C) UL TC-ER UL WTTC 1000 V C(UL) Type TC & CIC FT4 |
| 7126W | 8 | 1 | 342 | 1521 | .561 | 14.25 | | | | | |
| 7127W | 11 | 1 | 456 | 2028 | .582 | 14.78 | .020 | .51 | .063 | 1.60 | |
| 7129W | 24 | 1 | 950 | 4226 | .800 | 20.32 | | | | | |

12 AWG • 413 x 38

| | | | | | | | | | | | |
|-------|---|---|-----|------|------|-------|------|-----|------|------|--|
| 7145W | 3 | 1 | 330 | 1468 | .446 | 11.33 | .020 | .51 | .047 | 1.19 | |
|-------|---|---|-----|------|------|-------|------|-----|------|------|--|

Conductor Color Coding: Black, Numbered, Green/Yellow Ground

MachFlex Flexible Control Cables

600V MachFlex Super 360TC for Extreme Flexing (10 Million Flex Cycles)

C-TC+ Control Cables • Braid Shielded • Double Jacketed



- UL AWM 2587 (600 V, +90 °C)
- CSA AWM I/II A/B 600 V +105 °C
- Sunlight Res
- Oil Res. I/II
- UL Direct Burial
- IEEE 1202/383 FT4
- -40 °C to +90 °C (Cold Impact)
- -5 °C to +90 °C (Flexing)

| Part No. | Conductors | | Pull Tension (Max) | | OD (Nom) | | Insulation Thickness | | Inner Jacket Thickness | | Outer Jacket Thickness | | Additional Features/Ratings |
|----------|------------|------------------|--------------------|---|----------|----|----------------------|----|------------------------|----|------------------------|----|-----------------------------|
| | Circuit | Ground (Grn/Yel) | Lbs | N | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

Stranded BC Conductors • PVC Insulation • TPE Inner Jacket • 85% TC Braid Shield • Abrasion Resistant Orange Belflex® TPE Jacket

20 AWG • 74 x 38

| | | | | | | | | | | | | | |
|---------------|----|---|-----|-----|------|-------|------|-----|------|-----|------|------|---------|
| 7106WS | 11 | 1 | 194 | 863 | .489 | 12.42 | .015 | .38 | .025 | .64 | .053 | 1.35 | UL PLTC |
|---------------|----|---|-----|-----|------|-------|------|-----|------|-----|------|------|---------|

Stranded BC Conductors • PVC/Nylon Insulation • TPE Inner Jacket • 85% TC Braid Shield • Abrasion Resistant Orange Belflex® TPE Jacket

18 AWG Stranded • 114 x 38

| | | | | | | | | | | | | | |
|---------------|---|---|----|-----|------|------|------|-----|------|-----|------|------|--|
| 7111WS | 3 | 1 | 92 | 409 | .391 | 9.93 | .021 | .53 | .025 | .64 | .047 | 1.19 | |
|---------------|---|---|----|-----|------|------|------|-----|------|-----|------|------|--|

16 AWG Stranded • 190 x 38

| | | | | | | | | | | | | | |
|---------------|----|---|-----|------|------|-------|------|-----|------|------|------|------|---|
| 7123WS | 3 | 1 | 152 | 676 | .435 | 11.05 | .021 | .53 | .025 | .64 | .047 | 1.19 | UL AWM 21486 (1000 V, +90 °C) UL TC-ER UL WTTC 1000 V C(UL) Type TC & CIG FT4 |
| 7129WS | 24 | 1 | 950 | 4226 | .918 | 23.32 | .021 | .53 | 0.63 | 1.60 | .083 | 2.11 | |

14 AWG Stranded • 266 x 38

| | | | | | | | | | | | | | |
|---------------|---|---|-----|-----|------|-------|------|-----|------|-----|------|------|--|
| 7136WS | 3 | 1 | 208 | 925 | .488 | 12.40 | .021 | .53 | .030 | .76 | .053 | 1.35 | |
|---------------|---|---|-----|-----|------|-------|------|-----|------|-----|------|------|--|

Conductor Color Coding: Black, Numbered, Green/Yellow Ground.

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride

MachFlex Flexible Control Cables

600V MachFlex 360TC for Moderate Flexing (1 Million Flex Cycles)

FCC Control Cable • Unshielded



- UL AWM 2587 (600 V, +90 °C)
- CSA AWM I/II A/B 600 V +105 °C
- Sunlight Res
- Oil Res I/II
- UL Direct Burial
- IEEE 1202/383 FT4
- -40 °C to +90 °C (Cold Impact)
- -5 °C to +90 °C (Flexing)

| Part No. | Conductors | | Pull Tension (Max) | | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Additional Features/Ratings |
|----------|------------|------------------|--------------------|---|----------|----|----------------------|----|------------------|----|-----------------------------|
| | Circuit | Ground (Grn/Yel) | Lbs | N | Inch | mm | Inch | mm | Inch | mm | |

Stranded BC Conductors • PVC Insulation • Abrasion Resistant Chrome Belflex® TPE Jacket

20 AWG • 10 x 30

| | | | | | | | | | | | |
|-------|----|---|-----|------|------|-------|------|-----|------|------|---------|
| 7400W | 2 | — | 26 | 116 | .211 | 5.36 | | | | | |
| 7401W | 2 | 1 | 39 | 173 | .221 | 5.61 | .015 | .38 | .037 | .94 | |
| 7402W | 3 | 1 | 52 | 231 | .238 | 6.05 | | | | | |
| 7403W | 4 | 1 | 65 | 289 | .257 | 6.53 | | | | | |
| 7404W | 6 | 1 | 91 | 405 | .309 | 7.85 | | | | | UL PLTC |
| 7405W | 8 | 1 | 117 | 520 | .345 | 8.76 | .015 | .38 | .042 | 1.07 | |
| 7406W | 11 | 1 | 156 | 693 | .363 | 9.22 | | | | | |
| 7407W | 17 | 1 | 234 | 1041 | .441 | 11.20 | | | | | |
| 7408W | 24 | 1 | 325 | 1445 | .517 | 13.13 | .015 | .38 | .053 | 1.35 | |

Stranded BC Conductors • PVC/Nylon Insulation • Abrasion Resistant Chrome Belflex® TPE Jacket

18 AWG • 16 x 30

| | | | | | | | | | | | |
|-------|----|---|-----|------|------|-------|------|-----|------|------|--|
| 7409W | 2 | — | 50 | 222 | .264 | 6.71 | .022 | .56 | .040 | 1.02 | |
| 7410W | 2 | 1 | 69 | 307 | .289 | 7.34 | | | | | |
| 7411W | 3 | 1 | 92 | 409 | .313 | 7.95 | | | | | |
| 7412W | 4 | 1 | 115 | 511 | .339 | 8.61 | .020 | .51 | .047 | 1.19 | |
| 7413W | 6 | 1 | 161 | 716 | .390 | 9.91 | | | | | |
| 7414W | 8 | 1 | 252 | 1121 | .451 | 11.46 | | | | | |
| 7415W | 11 | 1 | 276 | 1227 | .468 | 11.89 | | | | | |
| 7416W | 17 | 1 | 414 | 1841 | .576 | 14.63 | | | | | |
| 7417W | 24 | 1 | 575 | 2557 | .678 | 17.22 | .020 | .51 | .063 | 1.60 | |
| 7418W | 33 | 1 | 782 | 3478 | .762 | 19.36 | | | | | |

UL AWM 21486
(1000 V, +90 °C)
UL TC-ER
UL WTTC 1000 V
C(UL) Type TC & CIC FT4

16 AWG • 26 x 30

| | | | | | | | | | | | |
|-------|----|---|------|------|------|-------|------|-----|------|------|--|
| 7421W | 2 | — | 76 | 338 | .301 | 7.65 | | | | | |
| 7422W | 2 | 1 | 105 | 467 | .316 | 8.03 | | | | | |
| 7423W | 3 | 1 | 140 | 623 | .342 | 8.69 | .020 | .51 | .047 | 1.19 | |
| 7424W | 4 | 1 | 175 | 778 | .371 | 9.42 | | | | | |
| 7425W | 6 | 1 | 245 | 1090 | .434 | 11.02 | | | | | |
| 7426W | 8 | 1 | 315 | 1401 | .498 | 12.65 | | | | | |
| 7427W | 11 | 1 | 420 | 1868 | .550 | 13.97 | | | | | |
| 7428W | 17 | 1 | 630 | 2802 | .636 | 16.15 | .020 | .51 | .063 | 1.60 | |
| 7429W | 24 | 1 | 875 | 3892 | .752 | 19.10 | | | | | |
| 7430W | 33 | 1 | 1190 | 5293 | .882 | 22.40 | .020 | .51 | .085 | 2.16 | |

Conductor Color Coding: Black, Numbered, Green/Yellow Ground

BC = Bare Copper • PVC = Polyvinyl Chloride

MachFlex Flexible Control Cables

600V MachFlex 360TC for Moderate Flexing (1 Million Flex Cycles)

FCC Control Cable • Unshielded



- UL AWM 2587 (600 V, +90 °C)
- CSA AWM I/II A/B 600 V +105 °C
- Sunlight Res
- Oil Res I/II
- UL Direct Burial
- IEEE 1202/383 FT4
- -40 °C to +90 °C (Cold Impact)
- -5 °C to +90 °C (Flexing)

| Part No. | Conductors | | Pull Tension (Max) | | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Additional Features/Ratings |
|----------|------------|------------------|--------------------|---|----------|----|----------------------|----|------------------|----|-----------------------------|
| | Circuit | Ground (Grn/Yel) | Lbs | N | Inch | mm | Inch | mm | Inch | mm | |

Stranded BC Conductors • PVC/Nylon Insulation • Abrasion Resistant Chrome Belflex® TPE Jacket

14 AWG • 41 x 30

| | | | | | | | | | | | |
|--------------|----|---|------|------|------|-------|------|-----|------|------|--|
| 7435W | 2 | 1 | 201 | 894 | .329 | 8.36 | | | | | |
| 7436W | 3 | 1 | 268 | 1192 | .381 | 9.68 | .020 | .51 | .047 | 1.19 | |
| 7438W | 6 | 1 | 469 | 2086 | .487 | 12.37 | | | | | |
| 7439W | 8 | 1 | 603 | 2682 | .593 | 15.06 | .020 | .51 | .063 | 1.60 | |
| 7440W | 11 | 1 | 804 | 3576 | .617 | 15.67 | | | | | |
| 7442W | 24 | 1 | 1675 | 7451 | .895 | 22.73 | .020 | .51 | .085 | 2.16 | |

12 AWG • 65 x 30

| | | | | | | | | | | | |
|--------------|---|---|-----|------|------|-------|------|-----|------|------|--|
| 7444W | 2 | 1 | 253 | 1125 | .389 | 9.88 | .020 | .51 | .047 | 1.19 | |
| 7445W | 3 | 1 | 338 | 1503 | .424 | 10.77 | | | | | |

UL AWM 21486
(1000 V, +90 °C)
UL TC-ER
UL WTTC 1000 V
C(UL) Type TC & CIC FT4

10 AWG • 105 x 30

| | | | | | | | | | | | |
|--------------|---|---|-----|------|------|-------|------|-----|------|------|--|
| 7447W | 3 | 1 | 672 | 2989 | .546 | 13.87 | .025 | .64 | .063 | 1.60 | |
|--------------|---|---|-----|------|------|-------|------|-----|------|------|--|

6 AWG • 266 x 30

| | | | | | | | | | | | |
|--------------|---|---|------|------|------|-------|------|------|------|------|--|
| 7453W | 3 | 1 | 1472 | 6548 | .875 | 22.23 | .040 | 1.02 | .085 | 2.16 | |
|--------------|---|---|------|------|------|-------|------|------|------|------|--|

Conductor Color Coding: Black, Numbered, Green/Yellow Ground

BC = Bare Copper • PVC = Polyvinyl Chloride

MachFlex Flexible Control Cables

600V MachFlex 360TC for Moderate Flexing (1 Million Flex Cycles)

FCC Control Cables • Braid Shielded • Double Jacketed



- UL AWM 2587 (600 V, +90 °C)
- CSA AWM I/II A/B 600 V +105 °C
- Sunlight Res
- Oil Res I/II
- UL Direct Burial
- IEEE 1202/383 FT4
- -40 °C to +90 °C (Cold Impact)
- -5 °C to +90 °C (Flexing)

| Part No. | Conductors | | Pull Tension (Max) | | OD (Nom) | | Insulation Thickness | | Inner Jacket Thickness | | Outer Jacket Thickness | | Additional Features/Ratings |
|----------|------------|------------------|--------------------|---|----------|----|----------------------|----|------------------------|----|------------------------|----|-----------------------------|
| | Circuit | Ground (Grn/Yel) | Lbs | N | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

Stranded BC Conductors • PVC Insulation • TPE Inner Jacket • 85% TC Braid Shield • Abrasion Resistant Chrome Belflex® TPE Jacket

20 AWG • 10 x 30

| | | | | | | | | | | | | | | |
|--------|----|---|-----|------|------|-------|--|------|-----|------|-----|------|------|---------|
| 7401WS | 2 | 1 | 39 | 173 | .303 | 7.70 | | .015 | .38 | .025 | .64 | .040 | 1.02 | UL PLTC |
| 7403WS | 4 | 1 | 65 | 289 | .339 | 8.61 | | | | | | | | |
| 7404WS | 6 | 1 | 91 | 405 | .409 | 10.39 | | | | | | | | |
| 7408WS | 24 | 1 | 325 | 1445 | .595 | 15.11 | | .015 | .38 | .025 | .64 | .053 | 1.35 | |

Stranded BC Conductors • PVC/Nylon Insulation • TPE Inner Jacket • 85% TC Braid Shield • Abrasion Resistant Chrome Belflex® TPE Jacket

18 AWG • 16 x 30

| | | | | | | | | | | | | | | |
|--------|----|---|-----|------|------|-------|------|-----|------|-----|------|------|--|--|
| 7410WS | 2 | 1 | 69 | 307 | .367 | 9.32 | | | | | | | | UL AWM 21486 (1000 V, +90 °C) CSA AWM I/II A/B UL TC-ER UL WTTC 1000 V C(UL) Type TC & C/C FT4 |
| 7411WS | 3 | 1 | 92 | 409 | .391 | 9.93 | .020 | .51 | .025 | .64 | .047 | 1.19 | | |
| 7413WS | 6 | 1 | 161 | 716 | .468 | 11.89 | | | | | | | | |
| 7415WS | 11 | 1 | 276 | 1227 | .578 | 14.68 | .020 | .51 | .025 | .64 | .060 | 1.52 | | |
| 7416WS | 17 | 1 | 414 | 1842 | .654 | 16.61 | | | | | | | | |
| 7417WS | 24 | 1 | 575 | 2557 | .756 | 19.20 | .020 | .51 | .025 | .64 | .063 | 1.60 | | |

16 AWG • 26 x 30

| | | | | | | | | | | | | | | |
|--------|----|---|-----|------|------|-------|------|------|------|------|------|------|------|--|
| 7422WS | 2 | 1 | 105 | 467 | .394 | 10.01 | | .020 | .51 | .025 | .64 | .047 | 1.19 | UL AWM 21486 (1000 V, +90 °C) CSA AWM I/II A/B UL TC-ER UL WTTC 1000 V C(UL) Type TC & C/C FT4 |
| 7423WS | 3 | 1 | 140 | 623 | .420 | 10.67 | | | | | | | | |
| 7427WS | 11 | 1 | 420 | 1868 | .628 | 15.95 | .020 | .51 | .025 | .64 | .063 | 1.60 | | |
| 7428WS | 17 | 1 | 630 | 2802 | .714 | 18.14 | | | | | | | | |
| 7429WS | 24 | 1 | 875 | 3892 | .870 | 22.10 | .020 | .51 | .025 | .64 | .080 | 2.03 | | |

14 AWG • 41 x 30

| | | | | | | | | | | | | | |
|--------|---|---|-----|------|------|-------|------|-----|------|-----|------|------|--|
| 7435WS | 2 | 1 | 201 | 894 | .407 | 10.34 | .020 | .51 | .025 | .64 | .047 | 1.19 | UL AWM 21486 (1000 V, +90 °C) CSA AWM I/II A/B UL TC-ER UL WTTC 1000 V C(UL) Type TC & C/C FT4 |
| 7438WS | 6 | 1 | 469 | 2086 | .598 | 15.19 | .020 | .51 | .025 | .64 | .060 | 1.52 | |

12 AWG • 65 x 30

| | | | | | | | | | | | | | |
|--------|---|---|-----|------|------|-------|------|-----|------|-----|------|------|--|
| 7445WS | 3 | 1 | 338 | 1503 | .544 | 13.82 | .020 | .51 | .030 | .76 | .060 | 1.52 | |
|--------|---|---|-----|------|------|-------|------|-----|------|-----|------|------|--|

10 AWG • 105 x 30

| | | | | | | | | | | | | | |
|--------|---|---|-----|------|------|-------|------|-----|------|-----|------|------|--|
| 7447WS | 3 | 1 | 546 | 2429 | .644 | 16.36 | .025 | .64 | .035 | .89 | .063 | 1.60 | |
|--------|---|---|-----|------|------|-------|------|-----|------|-----|------|------|--|

8 AWG • 168 x 30

| | | | | | | | | | | | | | |
|--------|---|---|-----|------|------|-------|------|-----|------|------|------|------|--|
| 7450WS | 3 | 1 | 872 | 3879 | .910 | 23.11 | .025 | .64 | .040 | 1.02 | .085 | 2.16 | |
|--------|---|---|-----|------|------|-------|------|-----|------|------|------|------|--|

Conductor Color Coding: Black, Numbered, Green/Yellow Ground.

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride

MachFlex LiYY

Flexible Control & Signal Cables

Flexible PVC Control & Signal Cables



- VDE 0812, DIN 47100
- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|-------------------|----|----------|----|----------------------------|
| | | Inch | mm | Inch | mm | |

0.14mm²

Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath

| | | | | | | |
|-----------|----|------|------|------|------|-----|
| 2C0.14YY | 2 | 0.52 | 13.2 | 0.13 | 3.3 | 12 |
| 3C0.14YY | 3 | 0.55 | 14.0 | 0.14 | 3.5 | 14 |
| 4C0.14YY | 4 | 0.60 | 15.2 | 0.15 | 3.8 | 17 |
| 5C0.14YY | 5 | 0.65 | 16.4 | 0.16 | 4.1 | 21 |
| 10C0.14YY | 10 | 0.90 | 22.8 | 0.22 | 5.7 | 38 |
| 12C0.14YY | 12 | 0.93 | 23.6 | 0.23 | 5.9 | 42 |
| 18C0.14YY | 18 | 1.09 | 27.6 | 0.27 | 6.9 | 61 |
| 20C0.14YY | 20 | 1.15 | 29.2 | 0.29 | 7.3 | 68 |
| 36C0.14YY | 36 | 1.46 | 37.2 | 0.37 | 9.3 | 113 |
| 50C0.14YY | 50 | 1.72 | 43.6 | 0.43 | 10.9 | 152 |

0.25mm²

Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath

| | | | | | | |
|-----------|----|------|------|------|------|-----|
| 2C0.25YY | 2 | 0.60 | 15.2 | 0.15 | 3.8 | 17 |
| 3C0.25YY | 3 | 0.63 | 16.0 | 0.16 | 4.0 | 20 |
| 4C0.25YY | 4 | 0.69 | 17.6 | 0.17 | 4.4 | 25 |
| 5C0.25YY | 5 | 0.74 | 18.8 | 0.19 | 4.7 | 30 |
| 10C0.25YY | 10 | 1.09 | 27.6 | 0.27 | 6.9 | 60 |
| 12C0.25YY | 12 | 1.12 | 28.4 | 0.28 | 7.1 | 67 |
| 18C0.25YY | 18 | 1.13 | 33.2 | 0.33 | 8.3 | 96 |
| 20C0.25YY | 20 | 1.35 | 34.4 | 0.34 | 8.6 | 107 |
| 36C0.25YY | 36 | 1.76 | 44.8 | 0.44 | 11.2 | 179 |
| 50C0.25YY | 50 | 2.11 | 53.6 | 0.53 | 13.4 | 251 |

| Product Version | Jacket Type | Number of Cores | Conductor Size (mm ²) | Sheath Material | Part Number | Conductor Configuration | Cross Sectional Diagram |
|-----------------|-------------|-----------------|-----------------------------------|-----------------|-------------|-------------------------|-------------------------|
| PVC Version | LIYY | 3 | 0.14 | PVC | 3C0.14YY | LIYY/LIHH | |
| | LIYY(TP) | | | | 3P0.14YY | | |
| LSZH Version | LIHH | 3 | 0.14 | LSZH | 3C0.14HH | LIYY(TP)/LIHH (TP) | |
| | LIHH(TP) | | | | 3P0.14HH | | |

MachFlex LiYY

Flexible Control & Signal Cables

Flexible PVC Control & Signal Cables



- VDE 0812, DIN 47100
- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|-------------------|----|----------|----|----------------------------|
| | | Inch | mm | Inch | mm | |

0.34mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | |
|--|----|------|------|------|------|-----|
| 2C0.34YY | 2 | 0.66 | 16.8 | 0.17 | 4.2 | 22 |
| 3C0.34YY | 3 | 0.69 | 17.6 | 0.17 | 4.4 | 25 |
| 4C0.34YY | 4 | 0.79 | 20.0 | 0.20 | 5.0 | 33 |
| 5C0.34YY | 5 | 0.85 | 21.6 | 0.21 | 5.4 | 40 |
| 10C0.34YY | 10 | 1.21 | 30.8 | 0.30 | 7.7 | 78 |
| 12C0.34YY | 12 | 1.23 | 31.2 | 0.31 | 7.8 | 87 |
| 18C0.34YY | 18 | 1.43 | 36.4 | 0.36 | 9.1 | 123 |
| 20C0.34YY | 20 | 1.51 | 38.4 | 0.38 | 9.6 | 136 |
| 36C0.34YY | 36 | 1.95 | 49.6 | 0.49 | 12.4 | 233 |
| 50C0.34YY | 50 | 2.36 | 60.0 | 0.59 | 15.0 | 328 |

0.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | |
|--|----|------|------|------|------|-----|
| 2C0.5YY | 2 | 0.74 | 18.8 | 0.19 | 4.7 | 28 |
| 3C0.5YY | 3 | 0.79 | 20.0 | 0.20 | 5.0 | 33 |
| 4C0.5YY | 4 | 0.88 | 22.4 | 0.22 | 5.6 | 44 |
| 5C0.5YY | 5 | 0.96 | 24.4 | 0.24 | 6.1 | 54 |
| 10C0.5YY | 10 | 1.39 | 35.2 | 0.35 | 8.8 | 105 |
| 12C0.5YY | 12 | 1.42 | 36.0 | 0.35 | 9.0 | 118 |
| 18C0.5YY | 18 | 1.72 | 43.6 | 0.43 | 10.9 | 179 |
| 20C0.5YY | 20 | 1.18 | 46.0 | 0.45 | 11.5 | 198 |
| 25C0.5YY | 25 | 2.02 | 51.2 | 0.50 | 12.8 | 239 |

| Product Version | Jacket Type | Number of Cores | Conductor Size (mm ²) | Sheath Material | Part Number | Conductor Configuration | Cross Sectional Diagram |
|-----------------|-------------|-----------------|-----------------------------------|-----------------|-------------|-------------------------|-------------------------|
| PVC Version | LiYY | 3 | 0.34 | PVC | 3C0.34YY | LiYY/LiHH | |
| | LiYY(TP) | | | | 3P0.34YY | | |
| LSZH Version | LiHH | 3 | 0.34 | LSZH | 3C0.34HH | LiYY(TP)/LiHH(TP) | |
| | LiHH(TP) | | | | 3P0.34HH | | |

MachFlex LiYY

Flexible Control & Signal Cables

Flexible PVC Control & Signal Cables



- VDE 0812, DIN 47100
- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|-------------------|----|----------|----|----------------------------|
| | | Inch | mm | Inch | mm | |

0.75mm²

Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath

| | | | | | | |
|-----------|----|------|------|------|------|-----|
| 2C0.75YY | 2 | 0.80 | 20.4 | 0.22 | 5.1 | 36 |
| 3C0.75YY | 3 | 0.90 | 22.8 | 0.22 | 5.7 | 45 |
| 4C0.75YY | 4 | 0.98 | 24.8 | 0.24 | 6.2 | 57 |
| 5C0.75YY | 5 | 1.12 | 28.4 | 0.28 | 7.1 | 76 |
| 10C0.75YY | 10 | 1.51 | 38.4 | 0.38 | 9.6 | 137 |
| 12C0.75YY | 12 | 1.62 | 41.2 | 0.41 | 10.3 | 163 |
| 18C0.75YY | 18 | 1.87 | 47.6 | 0.47 | 11.9 | 233 |
| 20C0.75YY | 20 | 1.98 | 50.4 | 0.50 | 12.6 | 259 |
| 25C0.75YY | 25 | 2.25 | 57.2 | 0.56 | 14.3 | 320 |

1mm²

Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath

| | | | | | | |
|----------|----|------|------|------|------|-----|
| 2C1.0YY | 2 | 0.90 | 22.8 | 0.22 | 5.7 | 46 |
| 3C1.0YY | 3 | 0.94 | 24.0 | 0.24 | 6.0 | 55 |
| 4C1.0YY | 4 | 1.04 | 26.4 | 0.26 | 6.6 | 70 |
| 5C1.0YY | 5 | 1.17 | 29.6 | 0.29 | 7.4 | 89 |
| 10C1.0YY | 10 | 1.69 | 42.8 | 0.42 | 10.7 | 179 |
| 12C1.0YY | 12 | 1.73 | 44.0 | 0.43 | 11.0 | 201 |
| 18C1.0YY | 18 | 2.02 | 51.2 | 0.50 | 12.8 | 291 |
| 20C1.0YY | 20 | 2.13 | 54.0 | 0.53 | 13.5 | 323 |
| 25C1.0YY | 25 | 2.41 | 61.2 | 0.60 | 15.3 | 399 |

| Product Version | Jacket Type | Number of Cores | Conductor Size (mm ²) | Sheath Material | Part Number | Conductor Configuration | Cross Sectional Diagram |
|-----------------|-------------|-----------------|-----------------------------------|-----------------|-------------|-------------------------|-------------------------|
| PVC Version | LIYY | 3 | 0.75 | PVC | 3C0.75YY | LIYY/LIHH | |
| | LIYY(TP) | | | | 3P0.75YY | | |
| LSZH Version | LIHH | 3 | 0.75 | LSZH | 3C0.75HH | LIYY(TP)/LIHH (TP) | |
| | LIHH(TP) | | | | 3P0.75HH | | |

MachFlex LiYY
Flexible Control & Signal Cables

Flexible PVC Control & Signal Cables



- VDE 0812, DIN 47100
- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|-------------------|----|----------|----|----------------------------|
| | | Inch | mm | Inch | mm | |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | |
|--|----|------|------|------|------|-----|
| 2C1.5YY | 2 | 1.02 | 26.0 | 0.26 | 6.5 | 60 |
| 3C1.5YY | 3 | 1.09 | 27.6 | 0.27 | 6.9 | 72 |
| 4C1.5YY | 4 | 1.23 | 31.2 | 0.31 | 7.8 | 96 |
| 5C1.5YY | 5 | 1.37 | 34.8 | 0.34 | 8.7 | 122 |
| 10C1.5YY | 10 | 1.95 | 49.6 | 0.49 | 12.4 | 236 |
| 12C1.5YY | 12 | 2.02 | 51.2 | 0.50 | 12.8 | 267 |
| 18C1.5YY | 18 | 2.47 | 62.8 | 0.62 | 15.7 | 416 |
| 20C1.5YY | 20 | 2.60 | 66.0 | 0.65 | 16.5 | 461 |
| 25C1.5YY | 25 | 2.87 | 72.8 | 0.72 | 18.2 | 548 |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • PVC Sheath | | | | | | |
|--|----|------|------|------|------|-----|
| 2C2.5YY | 2 | 1.17 | 29.6 | 0.29 | 7.4 | 84 |
| 3C2.5YY | 3 | 1.24 | 31.6 | 0.31 | 7.9 | 104 |
| 4C2.5YY | 4 | 1.40 | 35.6 | 0.35 | 8.9 | 139 |
| 5C2.5YY | 5 | 1.56 | 39.6 | 0.39 | 9.9 | 176 |
| 10C2.5YY | 10 | 2.30 | 58.4 | 0.57 | 14.6 | 356 |
| 12C2.5YY | 12 | 2.44 | 62.0 | 0.61 | 15.5 | 418 |
| 18C2.5YY | 18 | 2.83 | 72.0 | 0.71 | 18.0 | 606 |
| 20C2.5YY | 20 | 3.06 | 77.6 | 0.76 | 19.4 | 691 |

| Product Version | Jacket Type | Number of Cores | Conductor Size (mm ²) | Sheath Material | Part Number | Conductor Configuration | Cross Sectional Diagram |
|-----------------|-------------|-----------------|-----------------------------------|-----------------|-------------|-------------------------|-------------------------|
| PVC Version | LiYY | 3 | 1.5 | PVC | 3C1.5YY | LiYY/LiHH | |
| | LiYY(TP) | | | | 3P1.5YY | | |
| LSZH Version | LiHH | 3 | 1.5 | LSZH | 3C1.5HH | LiYY(TP)/LiHH (TP) | |
| | LiHH(TP) | | | | 3P1.5HH | | |

MachFlex LiYCY

Flexible Shielded Control & Signal Cables

Flexible Tinned Copper Braid Shielded PVC Control & Signal Cables



- VDE 0812, DIN 47100
- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|-------------------|----|----------|----|----------------------------|
| | | Inch | mm | Inch | mm | |

0.14mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • TC Braid Shield • PVC Sheath | | | | | | |
|--|----|------|------|------|------|-----|
| 2C0.14YCY | 2 | 0.92 | 23.4 | 0.15 | 3.9 | 20 |
| 3C0.14YCY | 3 | 0.97 | 24.6 | 0.16 | 4.1 | 22 |
| 4C0.14YCY | 4 | 1.04 | 26.4 | 0.17 | 4.4 | 26 |
| 5C0.14YCY | 5 | 1.13 | 28.8 | 0.19 | 4.8 | 31 |
| 10C0.14YCY | 10 | 1.49 | 37.8 | 0.25 | 6.3 | 51 |
| 12C0.14YCY | 12 | 1.54 | 39.0 | 0.26 | 6.5 | 56 |
| 18C0.14YCY | 18 | 1.77 | 45.0 | 0.30 | 7.5 | 78 |
| 20C0.14YCY | 20 | 1.87 | 47.4 | 0.31 | 7.9 | 86 |
| 36C0.14YCY | 36 | 2.34 | 59.4 | 0.39 | 9.9 | 136 |
| 50C0.14YCY | 50 | 2.74 | 69.6 | 0.46 | 11.6 | 183 |

0.25mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • TC Braid Shield • PVC Sheath | | | | | | |
|--|----|------|------|------|------|-----|
| 2C0.25YCY | 2 | 1.09 | 27.6 | 0.18 | 4.6 | 28 |
| 3C0.25YCY | 3 | 1.16 | 29.4 | 0.19 | 4.9 | 31 |
| 4C0.25YCY | 4 | 1.23 | 31.2 | 0.20 | 5.2 | 37 |
| 5C0.25YCY | 5 | 1.32 | 33.6 | 0.22 | 5.6 | 44 |
| 10C0.25YCY | 10 | 1.80 | 45.6 | 0.30 | 7.6 | 76 |
| 12C0.25YCY | 12 | 1.84 | 46.8 | 0.31 | 7.8 | 84 |
| 18C0.25YCY | 18 | 2.10 | 53.4 | 0.35 | 8.9 | 115 |
| 20C0.25YCY | 20 | 2.22 | 56.4 | 0.37 | 9.4 | 127 |
| 36C0.25YCY | 36 | 2.83 | 72.0 | 0.47 | 12.0 | 211 |
| 50C0.25YCY | 50 | 3.35 | 85.2 | 0.56 | 14.2 | 288 |

| Product Version | Jacket Type | Number of Cores | Conductor Size (mm ²) | Sheath Material | Part Number | Conductor Configuration | Cross Sectional Diagram |
|-----------------|-------------|-----------------|-----------------------------------|-----------------|-------------|-------------------------|-------------------------|
| PVC Version | LiYCY | 3 | 0.14 | PVC | 3C0.14YCY | LiYCY/ LiHCH | |
| | LiYCY(TP) | | | | 3P0.14YCY | | |
| LSZH Version | LiHCH | 3 | 0.14 | LSZH | 3C0.14HCH | LiYCY(TP)/ LiHCH(TP) | |
| | LiHCH(TP) | | | | 3P0.14HCH | | |

MachFlex LiYCY

Flexible Shielded Control & Signal Cables

Flexible Tinned Copper Braid Shielded PVC Control & Signal Cables



- VDE 0812, DIN 47100
- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|-------------------|----|----------|----|----------------------------|
| | | Inch | mm | Inch | mm | |

0.34mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • TC Braid Shield • PVC Sheath | | | | | | |
|--|----|------|------|------|------|-----|
| 2C0.34YCY | 2 | 1.18 | 30.0 | 0.20 | 5.0 | 33 |
| 3C0.34YCY | 3 | 1.25 | 31.8 | 0.21 | 5.3 | 37 |
| 4C0.34YCY | 4 | 1.32 | 33.6 | 0.22 | 5.6 | 45 |
| 5C0.34YCY | 5 | 1.51 | 38.4 | 0.25 | 6.4 | 58 |
| 10C0.34YCY | 10 | 1.96 | 49.8 | 0.33 | 8.3 | 96 |
| 12C0.34YCY | 12 | 2.03 | 51.6 | 0.34 | 8.6 | 105 |
| 18C0.34YCY | 18 | 2.46 | 62.4 | 0.41 | 10.4 | 158 |
| 20C0.34YCY | 20 | 2.57 | 65.4 | 0.43 | 10.9 | 173 |
| 36C0.34YCY | 36 | 3.21 | 81.6 | 0.54 | 13.6 | 279 |
| 50C0.34YCY | 50 | 3.76 | 91.4 | 0.63 | 15.9 | 377 |

0.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • TC Braid Shield • PVC Sheath | | | | | | |
|--|----|------|------|------|------|-----|
| 2C0.5YCY | 2 | 1.37 | 34.8 | 0.23 | 5.8 | 44 |
| 3C0.5YCY | 3 | 1.42 | 36.0 | 0.24 | 6.0 | 50 |
| 4C0.5YCY | 4 | 1.54 | 39.0 | 0.26 | 6.5 | 60 |
| 5C0.5YCY | 5 | 1.70 | 43.2 | 0.28 | 7.2 | 75 |
| 10C0.5YCY | 10 | 2.27 | 57.6 | 0.38 | 9.6 | 130 |
| 12C0.5YCY | 12 | 2.34 | 59.4 | 0.39 | 9.9 | 143 |
| 18C0.5YCY | 18 | 2.76 | 70.2 | 0.46 | 11.7 | 209 |
| 20C0.5YCY | 20 | 2.91 | 73.8 | 0.48 | 12.3 | 230 |
| 25C0.5YCY | 25 | 3.33 | 84.6 | 0.56 | 14.1 | 293 |

| Product Version | Jacket Type | Number of Cores | Conductor Size (mm ²) | Sheath Material | Part Number | Conductor Configuration | Cross Sectional Diagram |
|-----------------|-------------|-----------------|-----------------------------------|-----------------|-------------|-------------------------|-------------------------|
| PVC Version | LiYCY | 3 | 0.34 | PVC | 3C0.34YCY | LiYCY/ LiHCH | |
| | LiYCY(TP) | | | | 3P0.34YCY | | |
| LSZH Version | LiHCH | 3 | 0.34 | LSZH | 3C0.34HCH | LiYCY(TP)/ LiHCH(TP) | |
| | LiHCH(TP) | | | | 3P0.34HCH | | |

MachFlex LiYCY

Flexible Shielded Control & Signal Cables

Flexible Tinned Copper Braid Shielded PVC Control & Signal Cables



- VDE 0812, DIN 47100
- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|-------------------|----|----------|----|----------------------------|
| | | Inch | mm | Inch | mm | |

0.75mm²

Stranded Class-5 • BC Conductors • PVC Insulation • TC Braid Shield • PVC Sheath

| | | | | | | |
|------------|----|------|------|------|------|-----|
| 2C0.75YCY | 2 | 1.46 | 37.2 | 0.24 | 6.2 | 53 |
| 3C0.75YCY | 3 | 1.54 | 39.0 | 0.26 | 6.5 | 61 |
| 4C0.75YCY | 4 | 1.65 | 42.0 | 0.28 | 7.0 | 74 |
| 5C0.75YCY | 5 | 1.82 | 46.2 | 0.30 | 7.7 | 92 |
| 10C0.75YCY | 10 | 2.50 | 63.6 | 0.42 | 10.6 | 168 |
| 12C0.75YCY | 12 | 2.60 | 66.0 | 0.43 | 11.0 | 186 |
| 18C0.75YCY | 18 | 3.12 | 79.2 | 0.52 | 13.2 | 279 |
| 20C0.75YCY | 20 | 3.28 | 83.4 | 0.55 | 13.9 | 312 |
| 25C0.75YCY | 25 | 3.59 | 91.2 | 0.60 | 15.2 | 365 |

1mm²

Stranded Class-5 • BC Conductors • PVC Insulation • TC Braid Shield • PVC Sheath

| | | | | | | |
|-----------|----|------|------|------|------|-----|
| 2C1.0YCY | 2 | 1.54 | 39.0 | 0.26 | 6.5 | 62 |
| 3C1.0YCY | 3 | 1.63 | 41.4 | 0.27 | 6.9 | 72 |
| 4C1.0YCY | 4 | 1.75 | 44.4 | 0.29 | 7.4 | 89 |
| 5C1.0YCY | 5 | 1.89 | 48.0 | 0.31 | 8.0 | 107 |
| 10C1.0YCY | 10 | 2.62 | 66.6 | 0.44 | 11.1 | 198 |
| 12C1.0YCY | 12 | 2.72 | 69.0 | 0.45 | 11.5 | 221 |
| 18C1.0YCY | 18 | 3.19 | 81.0 | 0.53 | 13.5 | 325 |
| 20C1.0YCY | 20 | 3.40 | 86.4 | 0.57 | 14.4 | 366 |
| 25C1.0YCY | 25 | 3.83 | 97.2 | 0.64 | 16.2 | 447 |

| Product Version | Jacket Type | Number of Cores | Conductor Size (mm ²) | Sheath Material | Part Number | Conductor Configuration | Cross Sectional Diagram |
|-----------------|-------------|-----------------|-----------------------------------|-----------------|-------------|-------------------------|-------------------------|
| PVC Version | LiYCY | 3 | 0.75 | PVC | 3C0.75YCY | LiYCY/ LiHCH | |
| | LiYCY(TP) | | | | 3P0.75YCY | | |
| LSZH Version | LiHCH | 3 | 0.75 | LSZH | 3C0.75HCH | LiYCY(TP)/ LiHCH(TP) | |
| | LiHCH(TP) | | | | 3P0.75HCH | | |

MachFlex LiYCY

Flexible Shielded Control & Signal Cables

Flexible Tinned Copper Braid Shielded PVC Control & Signal Cables



- VDE 0812, DIN 47100
- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-22, DIN VDE 0207-363-4-1
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2
- RoHS, REACH & CE Directives
- -5 °C to +70 °C (Occasional movement)
- -40 °C to +80 °C (Fixed installation)
- Oil Resistant
- Sunlight Resistant

| Part No. | Conductors | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km |
|----------|------------|-------------------|----|----------|----|----------------------------|
| | | Inch | mm | Inch | mm | |

1.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • TC Braid Shield • PVC Sheath | | | | | | |
|--|----|------|-------|------|------|-----|
| 2C1.5YCY | 2 | 1.70 | 43.2 | 0.28 | 7.2 | 75 |
| 3C1.5YCY | 3 | 1.80 | 45.6 | 0.30 | 7.6 | 88 |
| 4C1.5YCY | 4 | 1.94 | 49.2 | 0.32 | 8.2 | 110 |
| 5C1.5YCY | 5 | 2.10 | 53.4 | 0.35 | 8.9 | 134 |
| 10C1.5YCY | 10 | 2.91 | 73.8 | 0.48 | 12.3 | 246 |
| 12C1.5YCY | 12 | 3.00 | 76.2 | 0.50 | 12.7 | 277 |
| 18C1.5YCY | 18 | 3.59 | 91.2 | 0.60 | 15.2 | 415 |
| 20C1.5YCY | 20 | 3.78 | 96.0 | 0.63 | 16.0 | 460 |
| 25C1.5YCY | 25 | 4.18 | 106.2 | 0.70 | 17.7 | 547 |

2.5mm²

| Stranded Class-5 • BC Conductors • PVC Insulation • TC Braid Shield • PVC Sheath | | | | | | |
|--|----|------|-------|------|------|-----|
| 2C2.5YCY | 2 | 1.96 | 49.8 | 0.33 | 8.3 | 105 |
| 3C2.5YCY | 3 | 2.13 | 54.0 | 0.35 | 9.0 | 130 |
| 4C2.5YCY | 4 | 2.29 | 58.2 | 0.38 | 9.7 | 164 |
| 5C2.5YCY | 5 | 2.55 | 64.8 | 0.43 | 10.8 | 204 |
| 10C2.5YCY | 10 | 3.57 | 90.6 | 0.59 | 15.1 | 389 |
| 12C2.5YCY | 12 | 3.73 | 94.8 | 0.62 | 15.8 | 444 |
| 18C2.5YCY | 18 | 4.37 | 111.0 | 0.73 | 18.5 | 646 |
| 20C2.5YCY | 20 | 4.61 | 117.0 | 0.77 | 19.5 | 715 |

| Product Version | Jacket Type | Number of Cores | Conductor Size (mm ²) | Sheath Material | Part Number | Conductor Configuration | Cross Sectional Diagram |
|-----------------|-------------|-----------------|-----------------------------------|-----------------|-------------|-------------------------|-------------------------|
| PVC Version | LiYCY | 3 | 1.5 | PVC | 3C1.5YCY | LiYCY/ LiHCH | |
| | LiYCY(TP) | | | | 3P1.5YCY | | |
| LSZH Version | LiHCH | 3 | 1.5 | LSZH | 3C1.5HCH | LiYCY(TP)/ LiHCH(TP) | |
| | LiHCH(TP) | | | | 3P1.5HCH | | |

MachFlex ONE PVC Hookup Wire

Flexible PVC Single Core Wire



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-21, DIN VDE 0207-363-4-1
- UL 758
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2
- -20 °C to +105 °C (Occasional movement)
- -30 °C to +105 °C (Fixed installation)
- RoHS & CE Directives

| Part No. | Conductor Area (mm ²) | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km | Additional Features |
|----------|-----------------------------------|-------------------|-----------------|----------|----|-------------------------|---------------------|
| | | For general use | For extreme use | Inch | mm | | |

Machflex ONE 350 YY

300/500V • Stranded Class - 5 • BC Conductors • PVC Insulation

| | | | | | | | |
|---------|------|--------|--------|------|-----|-------|----------------------|
| HK30.5 | 0.50 | 4 x OD | 2 x OD | 0.08 | 2.1 | 8.79 | |
| HK30.75 | 0.75 | 4 x OD | 2 x OD | 0.09 | 2.3 | 11.56 | H05V-K • UL AWM 1569 |
| HK31.0 | 1.00 | 4 x OD | 2 x OD | 0.10 | 2.5 | 13.85 | |
| HK31.5 | 1.50 | 4 x OD | 2 x OD | 0.11 | 2.7 | 18.76 | |
| HK32.5 | 2.50 | 4 x OD | 2 x OD | 0.13 | 3.2 | 28.47 | UL AWM 1569 |
| HK34 | 4.00 | 4 x OD | 2 x OD | 0.15 | 3.8 | 44.97 | |

Machflex ONE 475 YY

450/750V • Stranded Class - 5 • BC Conductors • PVC Insulation

| | | | | | | | |
|--------|-------|--------|--------|------|------|--------|-----------------------|
| HK41.5 | 1.50 | 4 x OD | 2 x OD | 0.13 | 3.2 | 22.44 | |
| HK42.5 | 2.50 | 4 x OD | 2 x OD | 0.15 | 3.7 | 32.71 | |
| HK44 | 4.00 | 4 x OD | 2 x OD | 0.17 | 4.3 | 49.96 | |
| HK46 | 6.00 | 4 x OD | 2 x OD | 0.19 | 4.8 | 70.33 | |
| HK410 | 10.00 | 8 x OD | 4 x OD | 0.24 | 6.2 | 109.33 | H07V-K • UL AWM 10669 |
| HK416 | 16.00 | 8 x OD | 4 x OD | 0.30 | 7.5 | 177.81 | |
| HK425 | 25.00 | 8 x OD | 4 x OD | 0.36 | 9.0 | 264.14 | |
| HK435 | 35.00 | 8 x OD | 4 x OD | 0.40 | 10.0 | 343.61 | |

Machflex ONE 610 YY

600/1000V • Stranded Class - 5 • BC Conductors • PVC Insulation

| | | | | | | | |
|---------|-------|--------|--------|------|------|--------|---------------|
| HK60.5 | 0.50 | 4 x OD | 2 x OD | 0.10 | 2.5 | 10.99 | |
| HK60.75 | 0.75 | 4 x OD | 2 x OD | 0.11 | 2.1 | 13.94 | |
| HK61.0 | 1.00 | 4 x OD | 2 x OD | 0.11 | 2.8 | 16.37 | |
| HK64 | 4.00 | 4 x OD | 2 x OD | 0.18 | 4.5 | 52.92 | |
| HK66 | 6.00 | 4 x OD | 2 x OD | 0.20 | 5.1 | 73.67 | |
| HK610 | 10.00 | 8 x OD | 4 x OD | 0.24 | 6.2 | 109.33 | AS/NZS 5000.1 |
| HK616 | 16.00 | 8 x OD | 4 x OD | 0.30 | 7.5 | 177.81 | |
| HK625 | 25.00 | 8 x OD | 4 x OD | 0.36 | 9.0 | 264.14 | |
| HK635 | 35.00 | 8 x OD | 4 x OD | 0.40 | 10.0 | 343.39 | |

MachFlex ONE LSZH (XLP) Hookup Wire

Flexible XLP Single Core Wire



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-26
- UL 758
- IEC 60332-3A
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2
- -20 °C to +105 °C (Occasional movement)
- -30 °C to +105 °C (Fixed installation)
- RoHS & CE Directives

| Part No. | Conductor Area (mm ²) | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km | Additional Features |
|----------|-----------------------------------|-------------------|-----------------|----------|----|-------------------------|---------------------|
| | | For general use | For extreme use | Inch | mm | | |

Machflex ONE 350 2X

300/500V • Stranded Class - 5 • BC Conductors • XLP Insulation

| | | | | | | | |
|----------|------|--------|--------|------|-----|-------|----------------------|
| HKX30.5 | 0.50 | 4 x OD | 2 x OD | 0.08 | 2.1 | 8.95 | H05Z-K • UL AWM 3286 |
| HKX30.75 | 0.75 | 4 x OD | 2 x OD | 0.09 | 2.3 | 11.74 | |
| HKX31.0 | 1.00 | 4 x OD | 2 x OD | 0.10 | 2.5 | 14.04 | |
| HKX31.5 | 1.50 | 4 x OD | 2 x OD | 0.11 | 2.7 | 18.98 | UL AWM 3286 |
| HKX32.5 | 2.50 | 4 x OD | 2 x OD | 0.13 | 3.2 | 28.74 | |
| HKX34 | 4.00 | 4 x OD | 2 x OD | 0.15 | 3.8 | 45.31 | |

Machflex ONE 475 2X

450/750V • Stranded Class - 5 • BC Conductors • XLP Insulation

| | | | | | | | |
|---------|-------|--------|--------|------|------|--------|-----------------------|
| HKX41.5 | 1.50 | 4 x OD | 2 x OD | 0.13 | 3.2 | 22.76 | H07Z-K • UL AWM 10369 |
| HKX42.5 | 2.50 | 4 x OD | 2 x OD | 0.15 | 3.6 | 33.08 | |
| HKX44 | 4.00 | 4 x OD | 2 x OD | 0.17 | 4.3 | 50.42 | |
| HKX46 | 6.00 | 4 x OD | 2 x OD | 0.19 | 4.8 | 70.87 | |
| HKX410 | 10.00 | 8 x OD | 4 x OD | 0.24 | 6.2 | 112.39 | |
| HKX416 | 16.00 | 8 x OD | 4 x OD | 0.30 | 7.5 | 181.62 | |
| HKX425 | 25.00 | 8 x OD | 4 x OD | 0.36 | 9.1 | 269.80 | |
| HKX435 | 35.00 | 8 x OD | 4 x OD | 0.40 | 10.1 | 349.98 | |

Machflex ONE 610 2X

600/1000V • Stranded Class - 5 • BC Conductors • XLP Insulation

| | | | | | | | |
|----------|-------|--------|--------|------|-----|--------|---------------|
| HKX60.5 | 0.50 | 4 x OD | 2 x OD | 0.09 | 2.3 | 10.04 | AS/NZS 5000.1 |
| HKX60.75 | 0.75 | 4 x OD | 2 x OD | 0.10 | 2.5 | 12.93 | |
| HKX61.0 | 1.00 | 4 x OD | 2 x OD | 0.11 | 2.6 | 15.30 | |
| HKX64 | 4.00 | 4 x OD | 2 x OD | 0.16 | 4.0 | 47.22 | |
| HKX66 | 6.00 | 4 x OD | 2 x OD | 0.18 | 4.6 | 67.21 | |
| HKX610 | 10.00 | 8 x OD | 4 x OD | 0.22 | 5.6 | 103.69 | |
| HKX616 | 16.00 | 8 x OD | 4 x OD | 0.27 | 6.9 | 171.01 | |
| HKX625 | 25.00 | 8 x OD | 4 x OD | 0.33 | 8.4 | 255.64 | |
| HKX635 | 35.00 | 8 x OD | 4 x OD | 0.37 | 9.4 | 334.20 | |

Power & Control, Multi-Conductor Cables



Reliability - even in the harshest of environments - is the hallmark of Belden® control & power cables. No matter what type of insulation, conductor count & size, jacket, armor or standard, we can meet your needs.

Full Range Of Choice

Belden offers a full range of control & power cables based on international standards to ensure that your critical application needs are addressed. These cables are designed in metric conductor sizes, have the most suitable insulation material to ensure the key electrical performance, steel wire armoring option & variety of jacketing materials to meet the rigorous installation requirements. These multi-core cables offer high performance & reliability in various verticals ensuring higher uptime & precise operations.

Shielding

Belden meets the demand for highly effective shielding technology with innovative, EMI/RFI protective foil and braid designs like Beldfoil. Belden's patented Beldfoil shield is an aluminum/polyester foil construction that yields a lightweight, strong, flexible and 100% shield coverage. For low frequency coupling noise. Belden offers low resistance path to ground by using tinned copper braid shield which ensures the elimination of this noise while also providing high flexibility to the cables.

Product Description

This range of control & power cables include cables which are suitable for 300 V all the way upto 1000 V applications. You can now design your own cable by selecting :

- Cable type
- Conductor size and material
- Insulation and jacket material
- Flame rating
- Insulation and jacket color codes
- Shielding options

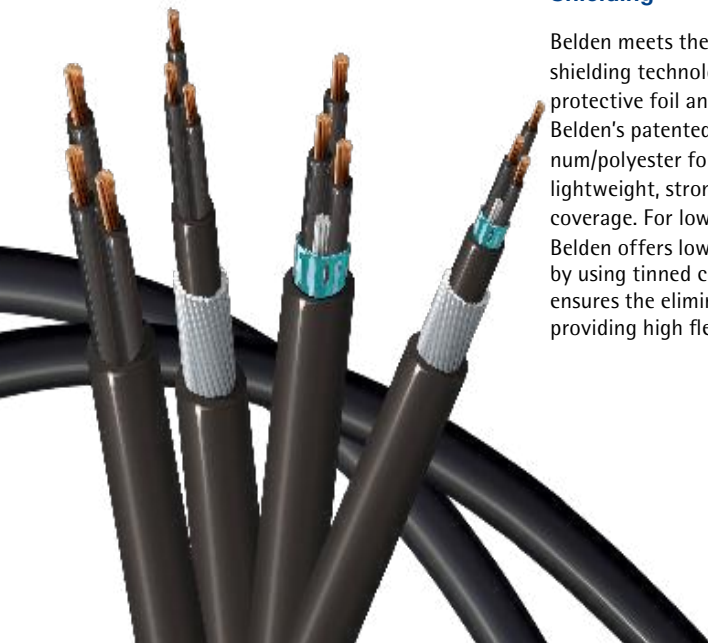
Cable Standards

- EN 50288-7
- IEC 60502-1
- IEC 60092-376
- IEC 60092-353

Verticals

Belden control & power cables meet the highest electrical, mechanical and physical requirements which are required in today's fast growing verticals such as

- Oil & Gas (upstream, midstream & downstream)
- Power (generation transmission & distribution)
- Auto-manufacturing
- Machine Building
- Petrochemical complex
- Mining industry
- Manufacturing (steel, cement, pulp & paper, food & beverages.
- Waste water treatment
- Intelligent transport & traffic system
- Wind energy



EN 50288-7 Control Cables

300V Control Cables

Control Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|-----|
| B4075FF02 | 2 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.19 | 5.0 |
| B4075FF04 | 4 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.22 | 5.7 |
| B4075FF06 | 6 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.26 | 6.7 |
| B4075FF08 | 8 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.29 | 7.5 |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|-----|
| B4115FF02 | 2 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.23 | 5.8 |
| B4115FF04 | 4 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.26 | 6.7 |
| B4115FF06 | 6 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.31 | 7.9 |
| B4115FF08 | 8 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.35 | 8.9 |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| B4135FF02 | 2 | Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.27 | 6.8 |
| B4135FF04 | 4 | Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.31 | 7.9 |
| B4135FF06 | 6 | Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.37 | 9.4 |
| B4135FF08 | 8 | Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.42 | 10.6 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: B4 07 5 F F 02

| Code | | Size | Class | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|--------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | B | Tinned Copper Braid shield |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | |
| 31 | 32 | 0.75 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | |
| 8A | 8B | 18 AWG | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

EN 50288-7 Control Cables
300V SWA Armored Control Cables

Steel Wire Armor (SWA) Control Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| B7075FF02 | 2 | Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.37 | 9.4 |
| B7075FF04 | 4 | Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.40 | 10.1 |
| B7075FF06 | 6 | Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.44 | 11.2 |
| B7075FF08 | 8 | Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.47 | 12.0 |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| B7115FF02 | 2 | Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.40 | 10.2 |
| B7115FF04 | 4 | Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.44 | 11.1 |
| B7115FF06 | 6 | Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.49 | 12.4 |
| B7115FF08 | 8 | Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.53 | 13.4 |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| B7135FF02 | 2 | Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.44 | 11.3 |
| B7135FF04 | 4 | Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.49 | 12.4 |
| B7135FF06 | 6 | Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.55 | 14.0 |
| B7135FF08 | 8 | Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.60 | 15.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: **B7 07 5 F F 02**

| Code | | Size | Class | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|--------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | B | Tinned Copper Braid shield |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | |
| 31 | 32 | 0.75 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | |
| 8A | 8B | 18 AWG | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

EN 50288-7 Control Cables
500V Control Cables

Control Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|-----|
| B5075FF02 | 2 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.23 | 6.0 |
| B5075FF04 | 4 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.27 | 7.0 |
| B5075FF06 | 6 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.32 | 8.2 |
| B5075FF08 | 8 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.36 | 9.3 |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| B5115FF02 | 2 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.27 | 6.8 |
| B5115FF04 | 4 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.31 | 7.9 |
| B5115FF06 | 6 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.37 | 9.5 |
| B5115FF08 | 8 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.42 | 10.6 |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| B5135FF02 | 2 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.29 | 7.3 |
| B5135FF04 | 4 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.33 | 8.5 |
| B5135FF06 | 6 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.40 | 10.2 |
| B5135FF08 | 8 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.45 | 11.5 |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| B5155FF02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.34 | 8.8 |
| B5155FF04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.40 | 10.3 |
| B5155FF06 | 6 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.48 | 12.4 |
| B5155FF08 | 8 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.55 | 14.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: B5 07 5 F F 02

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|--|--------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | B | Tinned Copper Braid shield | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | |

EN 50288-7 Control Cables
500V SWA Armored Control Cables

Steel Wire Armor (SWA) Control Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| B8075FF02 | 2 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.41 | 10.4 |
| B8075FF04 | 4 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.45 | 11.4 |
| B8075FF06 | 6 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.50 | 12.8 |
| B8075FF08 | 8 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.54 | 13.8 |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| B8115FF02 | 2 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.44 | 11.3 |
| B8115FF04 | 4 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.49 | 12.4 |
| B8115FF06 | 6 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.55 | 14.0 |
| B8115FF08 | 8 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.60 | 15.3 |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| B8135FF02 | 2 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.46 | 11.8 |
| B8135FF04 | 4 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.51 | 13.1 |
| B8135FF06 | 6 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.58 | 14.8 |
| B8135FF08 | 8 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.63 | 16.2 |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| B8155FF02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.44 | 11.2 |
| B8155FF04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.49 | 12.4 |
| B8155FF06 | 6 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.55 | 13.9 |
| B8155FF08 | 8 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.60 | 15.1 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: **B8 07 5 F F 02**

| Code | | Size | Conductor Class | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|----------------------|-----------------|-------------------|------------|--------|--------------|-------------------|--------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | B | Tinned Copper Braid shield |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

IEC 60502-1 Power Cables
600/1000V Power & Control Cables

Power & Control Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30 °C to +90 °C
- Oil Resistant
- UV Resistant

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • FRPVC Sheath-IEC 60502-1 | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|
| B6139BU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.37 | 9.5 |
| B6139BU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.39 | 10.0 |
| B6139BU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.43 | 10.8 |
| B6139BU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.46 | 11.6 |
| B6139BU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.49 | 12.5 |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • FRPVC Sheath-IEC 60502-1 | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|
| B6159BU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.41 | 10.5 |
| B6159BU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.43 | 11.0 |
| B6159BU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.47 | 11.9 |
| B6159BU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.50 | 12.8 |
| B6159BU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.54 | 13.8 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: **B6 13 9 B U 02**

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|--|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +80°C | U | Unshielded | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +80°C | F | Overall foil shield with TC drain wire | | | |
| 4C | 4D | 14 AWG | 5 | 9 | XLPE | FRPVC | IEC 60332-3C | -30°C to +90°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 15 | 16 | 2.50 mm ² | 5 | A | XLPE | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | C | XLPE | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 4A | 4B | 14 AWG | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

IEC 60502-1 Power Cables

600/1000V SWA Armored Power & Control Cables

Steel Wire Armor (SWA) Power & Control Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3

- -30 °C to +90 °C
- Oil Resistant
- UV Resistant

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath-IEC 60502-1 | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| B9139BU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.52 | 13.2 |
| B9139BU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.54 | 13.6 |
| B9139BU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.57 | 14.4 |
| B9139BU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.60 | 15.2 |
| B9139BU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.63 | 16.1 |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath-IEC 60502-1 | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| B9159BU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.56 | 14.1 |
| B9159BU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.57 | 14.6 |
| B9159BU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.61 | 15.5 |
| B9159BU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.65 | 16.4 |
| B9159BU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.72 | 18.4 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: B9 13 9 B U 02

| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
|-------------|---------------|----------------------|-------|------|------------|--------|--------------|-------------------|------|--|
| Bare Copper | Tinned Copper | | | | | | | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +80°C | U | Unshielded |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +80°C | F | Overall foil shield with TC drain wire |
| 4C | 4D | 14 AWG | 5 | 9 | XLPE | FRPVC | IEC 60332-3C | -30°C to +90°C | T | Overall foil shield + Tinned Copper braid shield |
| 15 | 16 | 2.50 mm ² | 5 | A | XLPE | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | C | XLPE | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 4A | 4B | 14 AWG | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

IEC 60092-376 Marine Control Cables
150/250V (300V) Control Cables



ABS Certificate No. 15-HS1327197-PDA

Control Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|-----|
| MC07TRF02 | 2 | Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.25 | 6. |
| MC07TRF04 | 4 | Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.28 | 7.2 |
| MC07TRF06 | 6 | Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.33 | 8.5 |
| MC07TRF08 | 8 | Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.37 | 9.5 |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| MC13TRF02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.31 | 8.0 |
| MC13TRF03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.37 | 9.4 |
| MC13TRF04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.44 | 11.2 |
| MC13TRF05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.49 | 12.6 |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| MC15TRF02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.35 | 9.0 |
| MC15TRF03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.41 | 10.6 |
| MC15TRF04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.50 | 12.7 |
| MC15TRF05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.56 | 14.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: MC 07 T R F 02

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|-------------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|--|
| Code | | Size (mm ²) | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | B | Tinned Copper Braid Shield |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 15 | 16 | 2.50 | 5 | | | | | | | |
| 29 | 30 | 0.50 | 2 | | | | | | | |
| 31 | 32 | 0.75 | 2 | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | |

IEC 60092-376 Marine Control Cables
150/250V (300V) SWA Armored Control Cables



ABS Certificate No. 15-HS1327197-PDA

Steel Wire Armor (SWA) Control Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| ML07TRF02 | 2 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.37 | 9.5 |
| ML07TRF04 | 4 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.41 | 10.4 |
| ML07TRF06 | 6 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.46 | 11.8 |
| ML07TRF08 | 8 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.50 | 12.9 |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| ML13TRF02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.44 | 11.3 |
| ML13TRF03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.50 | 12.7 |
| ML13TRF04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.57 | 14.6 |
| ML13TRF05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.63 | 16.1 |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| ML15TRF02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.48 | 12.3 |
| ML15TRF03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.55 | 13.9 |
| ML15TRF04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.63 | 16.1 |
| ML15TRF05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.70 | 17.9 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ML 07 T R F 02

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|-------------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|--|
| Code | | Size (mm ²) | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | B | Tinned Copper Braid Shield |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 15 | 16 | 2.50 | 5 | | | | | | | |
| 29 | 30 | 0.50 | 2 | | | | | | | |
| 31 | 32 | 0.75 | 2 | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)

IEC 60092-353 Marine Power & Control Cables
600/1000V Power & Control Cables



ABS Certificate No. 15-HS1327197-PDA

Power & Control Cables



- IEC 60092-353
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • SHF1 Sheath | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| MM11WTU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.29 | 7.4 |
| MM11WTU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.31 | 7.9 |
| MM11WTU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.34 | 8.6 |
| MM11WTU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.37 | 9.5 |
| MM11WTU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.40 | 10.3 |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • SHF1 Sheath | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| MM13WTU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.31 | 7.9 |
| MM13WTU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.33 | 8.4 |
| MM13WTU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.36 | 9.2 |
| MM13WTU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.40 | 10.1 |
| MM13WTU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.43 | 11.1 |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • SHF1 Sheath | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|
| MM15WTU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.35 | 8.9 |
| MM15WTU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.37 | 9.5 |
| MM15WTU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.41 | 10.5 |
| MM15WTU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.45 | 11.5 |
| MM15WTU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.49 | 12.6 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: **MM 11 W T U 02**

| Conductor | | | | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|-------------------------|-------|-------------------|------------|--------------|--------------|-------------------|--------|--|
| Code | | Size (mm ²) | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 15 | 16 | 2.50 | 5 | | | | | | B | Tinned Copper Braid Shield |
| 17 | 18 | 4.00 | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 19 | 20 | 6.00 | 5 | | | | | | | |
| 21 | 22 | 10.00 | 5 | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | |
| 39 | 40 | 4.00 | 2 | | | | | | | |
| 41 | 42 | 6.00 | 2 | | | | | | | |
| 43 | 44 | 10.00 | 2 | | | | | | | |

IEC 60092-353 Marine Power & Control Cables
600/1000V SWA Armored Power & Control Cables



ABS Certificate No. 15-HS1327197-PDA

Steel Wire Armor (SWA) Control Cables



- IEC 60092-353
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| MP11WTU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.42 | 10.6 |
| MP11WTU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.43 | 11.1 |
| MP11WTU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.46 | 11.8 |
| MP11WTU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.50 | 12.7 |
| MP11WTU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.53 | 13.5 |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| MP13WTU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.43 | 11.1 |
| MP13WTU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.45 | 11.6 |
| MP13WTU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.49 | 12.4 |
| MP13WTU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.52 | 13.3 |
| MP13WTU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.56 | 14.3 |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| MP15WTU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.47 | 12.1 |
| MP15WTU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.50 | 12.7 |
| MP15WTU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.53 | 13.7 |
| MP15WTU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.58 | 14.7 |
| MP15WTU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.62 | 15.8 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: MP 15 W T U 02

| Conductor | | | | Insulation/Jacket | | | | | Shield | |
|-----------|-------------|---------------|-------|-------------------|------------|--------------|--------------|-------------------|--------|--|
| Code | Bare Copper | Tinned Copper | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 15 | 16 | 2.50 | 5 | | | | | | B | Tinned Copper Braid Shield |
| 17 | 18 | 4.00 | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 19 | 20 | 6.00 | 5 | | | | | | | |
| 21 | 22 | 10.00 | 5 | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | |
| 39 | 40 | 4.00 | 2 | | | | | | | |
| 41 | 42 | 6.00 | 2 | | | | | | | |
| 43 | 44 | 10.00 | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)

UL Control Cables

600 V Type TC Cables – Overview

Introduction

Belden offers a wide selection of UL-rated 600 V Tray Cable for a variety of control applications.

Multi-conductor versions are available as standards from 18 to 4/0 AWG. These are unshielded and shielded versions that come with various insulation and jacket combinations.

These TC cables are installed in cable trays, ducts and conduit and can be used in direct burial applications. They are extensively used in manufacturing facilities, especially in the process industries such as petrochemical, steel, pulp and paper, cement and mining.

These flexible, space efficient cables can be substantially more economical than traditional wiring methods.

Construction

Soft annealed bare or tinned copper conductors, with various insulation and jacketing options as seen in chart below.

Application

These cables are suitable for installation in wet or dry locations. Cable jackets are resistant to sunlight, moisture and vapor penetration. The cables can be used in raceways (supported by messenger wire), outdoor applications and direct burial applications.

Unshielded

Cabled non-shielded conductors provide a minimal O.D. allowing greater tray and conduit fill. Non-shielded control cable may be utilized when recommended by the equipment manufacturer and used in a metallic conduit.

Overall Shield

Recommended for use in control applications where signals are transmitted in excess of 100 millivolts, except in areas where high voltage and current sources create excessive noise interference. The Beldfoil® shield with drain wire provides 100% coverage for maximum shield effectiveness. Copper tape shield available upon request.

Only 2-conductor round constructions can be shielded. Flat constructions cannot be shielded.

Tray Cable Construction Options

| Insulation/Jacket | UL Listed for MC and TC | | Flame Tests | Ratings* |
|---|-------------------------|--------|---|------------------------------------|
| | Max. Temp Rating | | | |
| | Wet | Dry | | |
| PVC-Nylon/PVC (THHN or THWN) 14 AWG & larger | +75 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 ICEA T-29-520 | ICEA S-73-532 ICEA S-61-402 |
| PVC-Nylon/PVC (TFN or TFFN) 16 & 18 AWG | +75 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 ICEA T-29-520 | ICEA S-73-532 ICEA S-61-402 |
| XLP/PVC or CPE (XHHW-2) 14 AWG & larger | +90 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 VW-1 rated singles ICEA T-29-520 | ICEA S-73-532 ICEA S-66-524 |
| XLP/PVC or CPE (RFH-2) 16 & 18 AWG | +90 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 VW-1 rated singles ICEA T-29-520 | ICEA S-73-532 ICEA S-82-552 |
| XLP/Haloarrest® (Thermoplastic) (XHHW-2) 14 AWG & larger (RFH-2) 16 & 18 AWG | +90 °C | +90 °C | UL 1685 | TC-LS |
| XLP/HaloarrestXLink™-1 and -2 (Thermoset) (XHHW-2) 14 AWG & larger (RFH-2) 16 & 18 AWG | +90 °C | +90 °C | UL 1685 ICEA T-29-520 FT4/IEEE 1202/383 | TC-ER ICEA S-73-532 T-33-655 |

* Applicable to TC-rated cables only.

Ground Wire

- Non-insulated, bare copper ground wires are included for constructions 8 through 4/0 AWG. Non-insulated, bare copper, full sized ground wires may be requested on other constructions.
- All shielded PVC-Nylon/PVC constructions, over three conductors, include full sized ground (drain) wires.
- Approved for cable tray use in Class 1, Division 2 areas, per NEC Articles 340, 318 and 501, and for Class 1 circuits as permitted in Article 725
- PVC-Nylon/PVC, XLP/PVC and XLP/CPE constructed cables meet IEEE 1202/IEEE 383-2003/FT4 (70,000 BTU/hr) Flame Test

Color Code

Multi-conductor control cables (10 AWG to 18 AWG) are printed alpha-numerically in addition to being color coded per ICEA Table E2.

8 AWG and larger are black and numbered per ICEA Method 4.

Refer to Technical Information Section for ICEA color code charts.

Specifications

- UL Subject 1277 Type TC and TC-ER
- XLP/Haloarrest (thermoplastic) jacketed cables are UL 1277 TC-LS rated
- XLP/HaloarrestXLink™-1 and -2 are TC-ER rated
- UL Subject 1424 (per outline for NPLF requirements dated May 3, 1979)
- UL 1685 (UL 1581) Vertical Flame Test

TC-ER Rated Cables

Belden offers all PVC-nylon/PVC, XLP/PVC and XLP/CPE jacketed tray cables with a TC-ER (Exposed Run) rating, formerly referred to as Open Wiring.

Per NEC Article 336, a TC-ER rated cable may be installed in an industrial establishment between a cable tray and the utilization equipment or device. A TC-ER rated cable must meet the crush and impact requirements of UL Type MC cable. By eliminating the need for metal conduit and/or armor, using a TC-ER rated cable results in savings in both installation and maintenance.

Standard lengths may be subject to tolerance. Custom lengths may be available upon request. Contact the Belden Electronics Division Customer Service Department for additional information. 1-800-BELDEN1.

UL Control Cables
600 V Type TC Cables



- UL TC-ER
- UL TC (2-Conductor Cables)
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|----|----------|----|------------------|----|
| | | | Lbs | Inch | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Unshielded

| Stranded (7 x 26) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-----|--------|-------------|-------------|------|------|--|
| 27916A | 2 | E2 | 44 | 2.7 | 68.58 | .180 x .266 | 4.57 x 6.76 | | | |
| 27325A | 2 | E2 | 44 | 2.7 | 68.58 | .270 | 6.86 | | | |
| 28334A | 3 | E2 | 66 | 2.8 | 71.12 | .280 | 7.11 | | | |
| 28326A | 4 | E2 | 88 | 3.1 | 78.74 | .310 | 7.87 | | | |
| 28335A | 5 | E2 | 110 | 3.3 | 83.82 | .330 | 8.38 | .045 | 1.14 | |
| 28600A | 6 | E2 | 132 | 3.5 | 88.90 | .350 | 8.89 | | | |
| 28327A | 7 | E2 | 154 | 3.5 | 88.90 | .350 | 8.89 | | | |
| 28601A | 8 | E2 | 176 | 3.8 | 96.52 | .390 | 9.83 | | | |
| 28336A | 9 | E2 | 198 | 4.1 | 104.14 | .410 | 10.41 | | | |
| 28328A | 10 | E2 | 220 | 4.5 | 114.30 | .450 | 11.43 | | | |
| 28602A | 11 | E2 | 242 | 4.5 | 114.30 | .450 | 11.43 | | | |
| 28329A | 12 | E2 | 264 | 4.5 | 114.30 | .450 | 11.43 | | | |
| 28603A | 13 | E2 | 286 | 4.7 | 119.38 | .470 | 11.94 | | | |
| 28604A | 14 | E2 | 308 | 4.8 | 121.92 | .480 | 12.19 | | | |
| 28605A | 15 | E2 | 330 | 5.1 | 129.54 | .510 | 12.95 | | | |
| 28606A | 16 | E2 | 352 | 5.0 | 127.00 | .500 | 12.70 | .060 | 1.52 | |
| 28607A | 17 | E2 | 374 | 5.7 | 144.78 | .570 | 14.48 | | | |
| 28608A | 18 | E2 | 396 | 5.7 | 144.78 | .570 | 14.48 | | | |
| 28609A | 19 | E2 | 418 | 5.7 | 144.78 | .570 | 14.48 | | | |
| 28610A | 20 | E2 | 440 | 5.9 | 149.86 | .600 | 15.24 | | | |
| 28611A | 25 | E2 | 550 | 6.6 | 167.64 | .660 | 16.76 | | | |
| 28612A | 30 | E2 | 660 | 6.6 | 167.64 | .690 | 17.53 | | | |
| 28613A | 37 | E2 | 814 | 7.4 | 187.96 | .740 | 18.80 | | | |
| 28614A | 50 | E2 | 1100 | 9.1 | 231.14 | .910 | 23.11 | .080 | 2.03 | |
| 28632A | 60 | E2 | 1320 | 9.6 | 243.84 | .960 | 24.38 | | | |

18 AWG • Overall Beldfoil® Shield

| Stranded (7 x 26) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|------|-------|------|------|------|------|--|
| 27325AS | 2 | E2 | 67 | 2.70 | 68.58 | .270 | 6.86 | | | |
| 28334AS | 3 | E2 | 90 | 2.80 | 71.12 | .280 | 7.11 | .045 | 1.14 | |
| 28326AS | 4 | E2 | 112 | 3.10 | 81.28 | .300 | 7.62 | | | |

| To Specify Conductor, Insulation and Jacket Options: | | |
|--|--|---------------------------------------|
| 12345 | A | S |
| Start with Base Part No. | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add "S" for Optional Beldfoil® Shield |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLink™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLink-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

UL Control Cables
600 V Type TC Cables



- UL TC-ER
- UL TC (2-Conductor Cables)
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|------------|------------|--------------------|--|-------------------|----|----------|----|------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Unshielded

| Stranded (7 x 24) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|--|------|--------|-------------|-------------|------|------|
| 27917A | 2 | E2 | 70 | | 2.9 | 73.66 | .190 x .290 | 4.83 x 7.37 | | |
| 27337A | 2 | E2 | 70 | | 2.9 | 73.66 | .299 | 7.60 | | |
| 28331A | 3 | E2 | 105 | | 3.1 | 78.74 | .307 | 7.80 | | |
| 28338A | 4 | E2 | 140 | | 3.3 | 83.82 | .332 | 8.18 | | |
| 28339A | 5 | E2 | 175 | | 3.6 | 91.44 | .360 | 9.14 | | |
| 28615A | 6 | E2 | 210 | | 3.9 | 99.06 | .390 | 9.91 | | |
| 28323A | 7 | E2 | 245 | | 3.9 | 99.06 | .390 | 9.91 | | |
| 28616A | 8 | E2 | 280 | | 4.2 | 106.68 | .420 | 10.67 | .045 | 1.14 |
| 28340A | 9 | E2 | 315 | | 4.5 | 114.30 | .450 | 11.43 | | |
| 28617A | 10 | E2 | 350 | | 4.9 | 124.46 | .490 | 12.45 | | |
| 28618A | 11 | E2 | 385 | | 4.9 | 124.46 | .490 | 12.45 | | |
| 28341A | 12 | E2 | 420 | | 5.0 | 127.00 | .500 | 12.70 | | |
| 28619A | 13 | E2 | 455 | | 5.7 | 144.78 | .570 | 14.48 | | |
| 28620A | 14 | E2 | 490 | | 5.7 | 144.78 | .570 | 14.48 | | |
| 28621A | 15 | E2 | 525 | | 5.9 | 149.86 | .590 | 14.99 | .060 | 1.52 |
| 28330A | 16 | E2 | 560 | | 6.0 | 152.40 | .600 | 15.24 | .045 | 1.14 |
| 28622A | 17 | E2 | 595 | | 6.3 | 160.02 | .630 | 16.00 | | |
| 28623A | 18 | E2 | 630 | | 6.3 | 160.02 | .630 | 16.00 | .060 | 1.52 |
| 28624A | 19 | E2 | 665 | | 6.3 | 160.02 | .630 | 16.00 | | |
| 28625A | 20 | E2 | 700 | | 6.6 | 167.64 | .660 | 16.76 | | |
| 28324A | 25 | E2 | 875 | | 7.3 | 185.42 | .730 | 18.54 | | |
| 28626A | 30 | E2 | 1050 | | 7.7 | 195.58 | .770 | 19.56 | | |
| 28627A | 37 | E2 | 1295 | | 8.3 | 210.82 | .830 | 21.08 | .080 | 2.03 |
| 28628A | 50 | E2 | 1750 | | 10.0 | 254.00 | 1.000 | 25.40 | | |
| 28633A | 60 | E2 | 2100 | | 11.0 | 279.40 | 1.100 | 27.94 | | |

16 AWG • Overall Beldfoil® Shield

| Stranded (7 x 24) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|--|------|-------|------|------|------|------|
| 27337AS | 2 | E2 | 94 | | 3.00 | 76.20 | .302 | 7.67 | .045 | 1.14 |
| 28331AS | 3 | E2 | 130 | | 3.20 | 81.28 | .320 | 8.13 | | |

14 AWG • Unshielded

| Stranded (7 x 22) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|--|-----|-------|-------------|-------------|------|------|
| 27080A | 2 | E2 | 108 | | 3.5 | 88.90 | .210 x .320 | 5.33 x 8.13 | | |
| 27636A | 2 | E2 | 108 | | 3.2 | 81.28 | .320 | 8.13 | .045 | 1.14 |
| 28081A | 3 | E2 | 162 | | 3.4 | 86.36 | .340 | 8.64 | | |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

UL Control Cables
600 V Type TC Cables



- UL TC-ER
- UL TC (2-Conductor Cables)
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

14 AWG • Unshielded (continued)

| Stranded (7 x 22) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|--------|-------|-------|------|------|--|
| 28082A | 4 | E2 | 216 | 3.6 | 91.44 | .360 | 9.14 | | | |
| 28083A | 5 | E2 | 270 | 3.9 | 99.06 | .400 | 10.16 | | | |
| 28084A | 6 | E2 | 324 | 4.3 | 109.22 | .434 | 11.02 | | | |
| 28085A | 7 | E2 | 378 | 4.3 | 109.22 | .433 | 11.00 | .045 | 1.14 | |
| 28086A | 8 | E2 | 432 | 4.7 | 119.38 | .480 | 12.19 | | | |
| 28087A | 9 | E2 | 486 | 5.1 | 129.54 | .510 | 12.95 | | | |
| 28088A | 10 | E2 | 540 | 5.7 | 144.78 | .588 | 14.94 | | | |
| 28089A | 11 | E2 | 594 | 5.9 | 149.86 | .595 | 15.11 | | | |
| 28090A | 12 | E2 | 648 | 5.9 | 149.86 | .595 | 15.11 | | | |
| 28091A | 13 | E2 | 702 | 6.3 | 160.02 | .640 | 16.26 | | | |
| 28092A | 14 | E2 | 756 | 6.3 | 160.02 | .640 | 16.26 | | | |
| 28093A | 15 | E2 | 810 | 6.7 | 170.18 | .670 | 17.02 | | | |
| 28094A | 16 | E2 | 864 | 6.6 | 167.64 | .671 | 17.04 | | | |
| 28095A | 17 | E2 | 918 | 7.0 | 177.80 | .700 | 17.78 | | | |
| 28096A | 18 | E2 | 972 | 7.0 | 177.80 | .700 | 17.78 | .060 | 1.52 | |
| 28097A | 19 | E2 | 1026 | 7.0 | 177.80 | .705 | 17.91 | | | |
| 28098A | 20 | E2 | 1080 | 7.4 | 187.96 | .735 | 18.67 | | | |
| 28099A | 21 | E2 | 1134 | 7.4 | 187.96 | .740 | 18.80 | | | |
| 28100A | 22 | E2 | 1188 | 7.6 | 193.04 | .760 | 19.30 | | | |
| 28101A | 23 | E2 | 1242 | 7.6 | 193.04 | .760 | 19.30 | | | |
| 28102A | 24 | E2 | 1296 | 8.1 | 205.74 | .810 | 20.57 | | | |
| 28103A | 25 | E2 | 1350 | 8.1 | 205.74 | .810 | 20.57 | | | |
| 28104A | 26 | E2 | 1404 | 8.1 | 205.74 | .810 | 20.57 | | | |
| 28105A | 27 | E2 | 1458 | 8.7 | 220.98 | .870 | 22.10 | | | |
| 28106A | 28 | E2 | 1512 | 9.1 | 231.14 | .910 | 23.11 | | | |
| 28107A | 29 | E2 | 1566 | 9.1 | 231.14 | .910 | 23.11 | | | |
| 28108A | 30 | E2 | 1620 | 9.0 | 228.60 | .902 | 22.91 | .080 | 2.03 | |
| 28629A | 37 | E2 | 1998 | 9.7 | 246.38 | .975 | 24.77 | | | |
| 28912A | 50 | E2 | 2700 | 11.3 | 287.02 | 1.138 | 28.91 | | | |



- UL TC-ER
- UL TC (2-Conductor Cables)
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

14 AWG • Overall Beldfoil® Shield

| Stranded (7 x 22) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|-----|-------|------|------|------|------|--|
| 28081AS | 3 | E2 | 99 | 3.4 | 86.36 | .340 | 8.64 | | | |
| 28082AS | 4 | E2 | 273 | 3.9 | 99.06 | .391 | 9.93 | .045 | 1.14 | |

BC = Bare Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

UL Control Cables
600 V Type TC Cables



- UL TC-ER
- UL TC (2-Conductor Cables)
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|------------|------------|--------------------|--|-------------------|----|----------|----|------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

12 AWG • Unshielded

| Stranded (7 x 20) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|--------|-------------|-------------|------|------|--|
| 27109A | 2 | E2 | 172 | 3.5 | 88.90 | .220 x .350 | 5.59 x 8.89 | | | |
| 27641A | 2 | E2 | 172 | 3.6 | 91.44 | .360 | 9.14 | | | |
| 28110A | 3 | E2 | 258 | 3.7 | 93.98 | .374 | 9.50 | | | |
| 28111A | 4 | E2 | 344 | 4.1 | 104.14 | .410 | 10.41 | .045 | 1.14 | |
| 28112A | 5 | E2 | 430 | 4.5 | 114.30 | .450 | 11.43 | | | |
| 28113A | 6 | E2 | 516 | 4.8 | 121.92 | .480 | 12.19 | | | |
| 28114A | 7 | E2 | 602 | 4.8 | 121.92 | .480 | 12.19 | | | |
| 28115A | 8 | E2 | 688 | 5.6 | 142.24 | .560 | 14.22 | | | |
| 28116A | 9 | E2 | 774 | 6.0 | 152.40 | .600 | 15.24 | | | |
| 28117A | 10 | E2 | 860 | 6.6 | 167.64 | .660 | 16.76 | | | |
| 28118A | 11 | E2 | 946 | 6.7 | 170.18 | .670 | 17.02 | | | |
| 28119A | 12 | E2 | 1032 | 6.7 | 170.18 | .670 | 17.02 | | | |
| 28120A | 13 | E2 | 1118 | 7.0 | 177.80 | .700 | 17.78 | .060 | 1.52 | |
| 28121A | 14 | E2 | 1204 | 7.0 | 177.80 | .700 | 17.78 | | | |
| 28122A | 15 | E2 | 1290 | 7.4 | 187.96 | .740 | 18.80 | | | |
| 28123A | 16 | E2 | 1376 | 7.5 | 190.50 | .750 | 19.05 | | | |
| 28124A | 17 | E2 | 1462 | 7.7 | 195.58 | .770 | 19.56 | | | |
| 28125A | 18 | E2 | 1548 | 7.7 | 195.58 | .770 | 19.56 | | | |
| 28126A | 19 | E2 | 1634 | 7.9 | 200.66 | .790 | 20.07 | | | |
| 28127A | 20 | E2 | 1720 | 8.7 | 220.98 | .870 | 22.10 | | | |
| 28128A | 21 | E2 | 1806 | 8.7 | 220.98 | .870 | 22.10 | | | |
| 28129A | 22 | E2 | 1892 | 8.9 | 226.06 | .890 | 22.61 | | | |
| 28130A | 23 | E2 | 1978 | 8.9 | 226.06 | .890 | 22.61 | | | |
| 28131A | 24 | E2 | 2064 | 9.4 | 238.76 | .940 | 23.88 | | | |
| 28132A | 25 | E2 | 2150 | 9.6 | 243.84 | .960 | 24.38 | | | |
| 28133A | 26 | E2 | 2236 | 9.6 | 243.84 | .960 | 24.38 | .080 | 2.03 | |
| 28134A | 27 | E2 | 2322 | 9.6 | 243.84 | .960 | 24.38 | | | |
| 28135A | 28 | E2 | 2408 | 9.9 | 251.46 | .990 | 25.15 | | | |
| 28136A | 29 | E2 | 2494 | 9.9 | 251.46 | .990 | 25.15 | | | |
| 28137A | 30 | E2 | 2580 | 10.2 | 259.08 | 1.020 | 25.91 | | | |
| 28630A | 37 | E2 | 3182 | 10.9 | 276.86 | 1.090 | 27.69 | | | |
| 28634A | 50 | E2 | 4300 | 13.0 | 330.20 | 1.300 | 33.02 | | | |

| To Specify Conductor, Insulation and Jacket Options: | | |
|--|--|---------------------------------------|
| 12345 | A | S |
| Start with Base Part No. | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add "S" for Optional Beldfoil® Shield |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLink™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLink-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

UL Control Cables
600 V Type TC Cables



- UL TC-ER
- UL TC (2-Conductor 10 AWG Cables)
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|------------|------------|--------------------|--|-------------------|----|----------|----|------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

10 AWG • Unshielded

| Stranded (7 x 18) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-----|--------|-------------|--------------|------|------|--|
| 27138A | 2 | E2 | 296 | 4.2 | 106.68 | .260 x .420 | 6.60 x 10.67 | | | |
| 27643A | 2 | E2 | 296 | 4.2 | 106.68 | .420 | 10.67 | | | |
| 28139A | 3 | E2 | 444 | 4.5 | 114.30 | .450 | 11.43 | .045 | 1.14 | |
| 28140A | 4 | E2 | 592 | 4.9 | 124.46 | .490 | 12.45 | | | |
| 28141A | 5 | E2 | 740 | 5.7 | 144.78 | .570 | 14.48 | | | |
| 28142A | 6 | E2 | 888 | 6.2 | 157.48 | .620 | 15.75 | | | |
| 28143A | 7 | E2 | 1036 | 6.2 | 157.48 | .620 | 15.75 | | | |
| 28144A | 8 | E2 | 1184 | 6.8 | 172.72 | .680 | 17.27 | .060 | 1.52 | |
| 28145A | 9 | E2 | 1332 | 7.2 | 182.88 | .720 | 18.29 | | | |
| 28146A | 10 | E2 | 1480 | 7.9 | 200.66 | .790 | 20.07 | | | |
| 28147A | 11 | E2 | 1628 | 7.9 | 200.66 | .790 | 20.07 | | | |
| 28148A | 12 | E2 | 1776 | 8.2 | 208.28 | .820 | 20.83 | .080 | 2.03 | |

8 AWG • Unshielded • 10 AWG Uninsulated Ground Wire

| Stranded (7 x 16) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|-----|--------|------|-------|------|------|--|
| 28149A | 2 | M4 | 384 | 5.6 | 142.24 | .560 | 14.22 | | | |
| 28150A | 3 | M4 | 576 | 5.9 | 149.86 | .590 | 14.99 | .060 | 1.52 | |
| 28151A | 4 | M4 | 768 | 6.5 | 165.10 | .650 | 16.51 | | | |

6 AWG • Unshielded • 8 AWG Uninsulated Ground Wire

| Stranded (7 x 14) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|------|-----|--------|------|-------|------|------|--|
| 28152A | 2 | M4 | 610 | 6.3 | 160.02 | .630 | 16.00 | | | |
| 28153A | 3 | M4 | 915 | 6.7 | 170.18 | .670 | 17.02 | .060 | 1.52 | |
| 28154A | 4 | M4 | 1220 | 7.3 | 185.42 | .730 | 18.54 | | | |

| To Specify Conductor, Insulation and Jacket Options: | | |
|--|--|---------------------------------------|
| 12345 | A | S |
| Start with Base Part No. | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add "S" for Optional Beldfoil® Shield |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLink™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLink-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

UL Control Cables
600 V Type TC Cables



- UL TC-ER
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|------------|------------|--------------------|--|-------------------|----|----------|----|------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

4 AWG • Unshielded • 8 AWG Uninsulated Ground Wire

| Stranded (7 x 12) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|------|-----|--------|------|-------|------|------|--|
| 28155A | 2 | M4 | 970 | 7.7 | 195.58 | .770 | 19.56 | .060 | 1.52 | |
| 28156A | 3 | M4 | 1455 | 8.2 | 208.28 | .820 | 20.83 | .080 | 2.03 | |
| 28157A | 4 | M4 | 1940 | 9.5 | 241.30 | .950 | 24.13 | | | |

2 AWG • Unshielded • 6 AWG Uninsulated Ground Wire

| Stranded (7 x 10) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|------|------|--------|-------|-------|------|------|--|
| 28158A | 2 | M4 | 1544 | 9.7 | 246.38 | .970 | 24.64 | | | |
| 28159A | 3 | M4 | 2316 | 9.9 | 251.46 | .990 | 25.15 | .080 | 2.03 | |
| 28160A | 4 | M4 | 3088 | 10.9 | 276.86 | 1.090 | 27.69 | | | |

1 AWG • Unshielded • 6 AWG Uninsulated Ground Wire

| Stranded (19 x 14) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|------|------|--------|-------|-------|------|------|--|
| 28165A | 2 | M4 | 1340 | 10.7 | 271.78 | 1.060 | 26.92 | .080 | 2.03 | |
| 28161A | 3 | M4 | 2919 | 11.2 | 284.48 | 1.120 | 28.45 | .080 | 2.03 | |
| 28166A | 4 | M4 | 2680 | 12.5 | 317.5 | 1.250 | 31.75 | .080 | 2.03 | |

1/0 AWG • Unshielded • 6 AWG Uninsulated Ground Wire

| Stranded (19 x 12) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|------|------|--------|------|-------|------|------|--|
| 28167A | 2 | M4 | 1690 | 11.4 | 289.56 | 1.13 | 28.70 | .080 | 2.03 | |
| 28168A | 3 | M4 | 2535 | 12.1 | 307.34 | 1.21 | 30.73 | .083 | 2.11 | |
| 28169A | 4 | M4 | 3380 | 13.4 | 340.36 | 1.33 | 33.78 | | | |

2/0 AWG • Unshielded • 6 AWG Uninsulated Ground Wire

| Stranded (19 x 11) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|------|------|--------|------|-------|------|------|--|
| 28170A | 2 | M4 | 2130 | 12.2 | 309.88 | 1.22 | 30.99 | | | |
| 28171A | 3 | M4 | 3195 | 13.0 | 330.20 | 1.30 | 33.02 | .083 | 2.11 | |
| 28172A | 4 | M4 | 4260 | 14.4 | 365.76 | 1.44 | 36.58 | | | |

3/0 AWG • Unshielded • 4 AWG Uninsulated Ground Wire

| Stranded (19 x 10) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|------|------|--------|------|-------|------|------|--|
| 28173A | 2 | M4 | 2686 | 13.1 | 332.74 | 1.31 | 33.27 | | | |
| 28174A | 3 | M4 | 4029 | 14.2 | 360.68 | 1.42 | 36.07 | .083 | 2.11 | |
| 28175A | 4 | M4 | 5372 | 15.6 | 396.24 | 1.56 | 39.62 | | | |

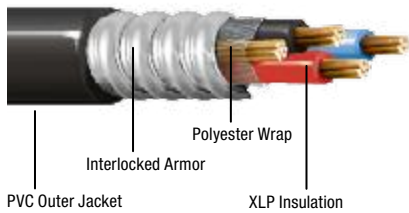
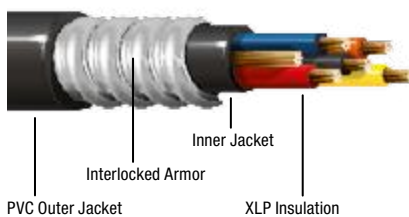
4/0 AWG • Unshielded • 4 AWG Uninsulated Ground Wire

| Stranded (19 x 9.5) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|------|------|--------|------|-------|------|------|--|
| 28176A | 2 | M4 | 3386 | 14.2 | 360.68 | 1.42 | 36.07 | .083 | 2.11 | |
| 28177A | 3 | M4 | 5078 | 15.4 | 391.16 | 1.54 | 39.12 | | | |
| 28178A | 4 | M4 | 6771 | 17.7 | 449.58 | 1.77 | 44.96 | .116 | 2.95 | |

| To Specify Conductor, Insulation and Jacket Options: | | |
|--|--|---------------------------------------|
| 12345 | A | S |
| Start with Base Part No. | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add "S" for Optional Beldfoil® Shield |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLink™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLink-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

UL Control Cables**600 V Type MC Metal Clad and Teck-Style® Cables – Overview****Metal Clad****Teck-Style****Introduction**

Belden Metal Clad (MC) and Teck-Style cables are designed to meet demanding industrial needs by combining rugged durability and corrosion resistance with flexibility and easy handling.

MC and Teck-Style cables are available in a wide range of constructions for installation in demanding industrial environments including oil and gas, mining, utility, chemical, pulp and paper, and others. They are ideal for use in wet or dry areas, ventilated or non-ventilated, ladder-type cable troughs and flexible cableways. Custom cables are available to meet exacting requirements.

Belden Type MC Cable is sunlight-resistant and appropriate for outdoor use, installation in cable trays, and direct burial.

Teck-Style cables are price-competitive, high-performance, UL and CSA dual-rated cables with a flame-retardant XHHW insulated conductor and an inner PVC jacket for mechanical moisture and corrosion protection.

Construction

Class B stranded bare copper conductors, XLP insulation, bare copper ground wire, standard aluminum or optional galvanized steel interlocking armor, PVC outer jacket.

- Thermoset insulation – XHHW-2 conductors
- NEC conductor temperature +90 °C dry and +90 °C wet

Voltage Rating

14 AWG – 2 AWG: 600 Volt

Application

Type MC Cable is a general-purpose cable used in the pulp and paper, mining, petroleum and chemical industries as well as in commercial buildings.

MC Cable may be used under the following conditions:

- Exposed or concealed wiring in dry or wet conditions
- In ventilated, non-ventilated or ladder-type cable trays in dry or wet conditions
- On walls or beams
- Directly buried
- Class I and II Div. 2 and Class III Div. 1 and 2 hazardous locations

Minimum Bending Radius

12 times the overall cable diameter

Pulling Tensions

The combined use of Kellems grips and pulling eyes is recommended.

Design Advantages**Insulation Properties**

- High tensile strength
- Impact- and crush-resistant
- Heat-resistant
- Excellent elongation
- Moisture-resistant
- Good low temperature properties
- +90 °C dry and +90 °C wet

Electrical Properties

- High insulation resistance
- Low dielectric loss
- High dielectric strength

Other Features

- Corrosion-resistant
- Versatile and flexible
- Provides cost savings as conduit and ducts are not required

Specifications

- UL 44
- UL 1569
- UL 1685 (UL 1581) Vertical Tray Flame Test (70,000 BTU/hr)

Teck-Style CSA Specifications

- CSA C22.2 No. 131
- FT4 Flame Test
- HAZ LOC
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas

UL Control Cables

600 V Type MC Metal Clad Cables

Interlocked Armor



- UL MC
- UL Sun Res
- Oil Res
- Direct Burial

| Part No. | | Conductors | Color Code | Armor OD | | OD (Nom) | | Bend Radius (Min) | | Insulation Thickness | | Jacket Thickness | |
|----------|-------|------------|------------|----------|----|----------|----|-------------------|----|----------------------|----|------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

Stranded (7 x 22) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

14 AWG • 14 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|----|----|------|-------|------|-------|------|-----|------|-----|------|------|
| 27243 | 28243 | 2 | E2 | .48 | 12.19 | .58 | 14.73 | 7.3 | 185 | | | | |
| 27244 | 28244 | 3 | E2 | .50 | 12.70 | .61 | 15.49 | 7.6 | 193 | | | | |
| 27245 | 28245 | 4 | E2 | .54 | 13.72 | .64 | 16.26 | 7.9 | 200 | | | | |
| 27246 | 28246 | 5 | E2 | .57 | 14.48 | .68 | 17.27 | 8.4 | 213 | | | | |
| 27247 | 28247 | 6 | E2 | .62 | 15.75 | .72 | 18.29 | 8.9 | 226 | | | | |
| 27248 | 28248 | 7 | E2 | .62 | 15.75 | .72 | 18.29 | 8.9 | 226 | | | | |
| 27269 | 28269 | 8 | E2 | .69 | 17.53 | .80 | 20.32 | 9.4 | 238 | | | | |
| 27535 | 28535 | 9 | E2 | .70 | 17.78 | .80 | 20.32 | 10.0 | 254 | | | | |
| 27249 | 28249 | 10 | E2 | .75 | 19.05 | .85 | 21.59 | 10.5 | 266 | .030 | .76 | .050 | 1.27 |
| 27250 | 28250 | 12 | E2 | .77 | 19.56 | .87 | 22.10 | 10.8 | 274 | | | | |
| 27251 | 28251 | 15 | E2 | .87 | 22.10 | .98 | 24.89 | 11.6 | 294 | | | | |
| 27969 | 28969 | 19 | E2 | 1.00 | 25.40 | 1.11 | 28.19 | 12.1 | 307 | | | | |
| 27252 | 28252 | 20 | E2 | 1.03 | 26.16 | 1.14 | 28.96 | 13.3 | 337 | | | | |
| 27270 | 28270 | 25 | E2 | 1.10 | 27.94 | 1.21 | 30.73 | 14.4 | 365 | | | | |
| 27253 | 28253 | 30 | E2 | 1.18 | 29.97 | 1.29 | 32.77 | 15.1 | 383 | | | | |
| 27292 | 28292 | 37 | E2 | 1.14 | 28.96 | 1.24 | 31.50 | 16.1 | 408 | | | | |
| 27433 | 28433 | 40 | E2 | 1.28 | 32.51 | 1.40 | 35.56 | 16.7 | 424 | | | | |
| 27434 | 28434 | 50 | E2 | 1.40 | 35.56 | 1.52 | 38.61 | 18.4 | 467 | | | | |

Stranded (7 x 20) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

12 AWG • 12 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|----|----|-----|-------|------|-------|------|-----|------|-----|------|------|
| 27254 | 28254 | 2 | E2 | .52 | 13.21 | .62 | 15.75 | 7.8 | 198 | | | | |
| 27255 | 28255 | 3 | E2 | .54 | 13.72 | .64 | 16.26 | 8.0 | 203 | | | | |
| 27256 | 28256 | 4 | E2 | .58 | 14.73 | .68 | 17.22 | 8.5 | 215 | | | | |
| 27271 | 28271 | 5 | E2 | .62 | 15.75 | .72 | 18.29 | 9.1 | 231 | | | | |
| 27272 | 28272 | 6 | E2 | .67 | 17.02 | .77 | 19.56 | 9.6 | 243 | | | | |
| 27273 | 28273 | 7 | E2 | .67 | 17.02 | .77 | 19.56 | 9.6 | 243 | | | | |
| 27274 | 28274 | 8 | E2 | .77 | 19.56 | .88 | 22.35 | 10.2 | 259 | | | | |
| 27538 | 28538 | 9 | E2 | .76 | 19.30 | .86 | 21.84 | 10.8 | 274 | | | | |
| 27275 | 28275 | 10 | E2 | .80 | 20.32 | .91 | 23.11 | 11.5 | 292 | .030 | .76 | .050 | 1.27 |
| 27276 | 28276 | 12 | E2 | .84 | 21.34 | .94 | 23.88 | 11.7 | 297 | | | | |
| 27277 | 28277 | 15 | E2 | .94 | 23.88 | 1.05 | 26.67 | 13.4 | 340 | | | | |
| 27539 | 28539 | 19 | E2 | .05 | 26.67 | 1.16 | 29.46 | 14.0 | 355 | | | | |
| 27278 | 28278 | 20 | E2 | .16 | 29.46 | 1.27 | 32.26 | 14.6 | 370 | | | | |
| 27279 | 28279 | 25 | E2 | .26 | 32.00 | 1.37 | 34.80 | 15.8 | 401 | | | | |
| 27280 | 28280 | 30 | E2 | .29 | 32.77 | 1.40 | 35.56 | 16.8 | 426 | | | | |
| 27540 | 28540 | 37 | E2 | .44 | 36.58 | 1.55 | 39.37 | 17.8 | 452 | | | | |
| 27432 | 28432 | 40 | E2 | .50 | 38.10 | 1.63 | 41.40 | 18.4 | 467 | | | | |

BC = Bare Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

UL Control Cables
600 V Type MC Metal Clad Cables

Interlocked Armor



- UL MC
- UL Sun Res
- Oil Res
- Direct Burial

| Part No. | | Conductors | Color Code | Armor OD | | OD (Nom) | | Bend Radius (Min) | | Insulation Thickness | | Jacket Thickness | |
|----------|-------|------------|------------|----------|----|----------|----|-------------------|----|----------------------|----|------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

Stranded (7 x 18) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

10 AWG • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|----|----|------|-------|------|-------|------|-----|------|-----|------|------|
| 27257 | 28257 | 2 | E2 | .56 | 14.22 | .67 | 17.02 | 8.4 | 213 | | | | |
| 27258 | 28258 | 3 | E2 | .58 | 14.73 | .69 | 17.53 | 8.6 | 218 | | | | |
| 27259 | 28259 | 4 | E2 | .62 | 15.75 | .74 | 18.80 | 9.2 | 233 | | | | |
| 27281 | 28281 | 5 | E2 | .68 | 17.27 | .79 | 20.07 | 12.8 | 325 | | | | |
| 27282 | 28282 | 6 | E2 | .74 | 18.80 | .84 | 21.34 | 10.4 | 264 | | | | |
| 27283 | 28283 | 7 | E2 | .74 | 18.80 | .84 | 21.34 | 10.4 | 264 | .030 | .76 | .050 | 1.27 |
| 27284 | 28284 | 8 | E2 | .81 | 20.57 | .92 | 23.37 | 11.2 | 284 | | | | |
| 27541 | 28541 | 9 | E2 | .87 | 22.10 | .98 | 24.89 | 11.8 | 299 | | | | |
| 27285 | 28285 | 10 | E2 | .89 | 22.61 | 1.03 | 26.16 | 13.3 | 337 | | | | |
| 27286 | 28286 | 12 | E2 | 1.01 | 25.65 | 1.12 | 28.45 | 13.7 | 347 | | | | |
| 27287 | 28287 | 15 | E2 | 1.09 | 27.69 | 1.22 | 30.99 | 14.8 | 375 | | | | |
| 27288 | 28288 | 20 | E2 | 1.22 | 30.99 | 1.35 | 34.29 | 16.2 | 411 | | | | |
| 27289 | 28289 | 25 | E2 | 1.32 | 33.53 | 1.47 | 37.34 | 17.8 | 452 | .030 | .76 | .055 | 1.40 |
| 27290 | 28290 | 30 | E2 | 1.42 | 36.07 | 1.55 | 39.37 | 18.6 | 472 | | | | |

Stranded (7 x 16) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

8 AWG • 8 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|---|----|-----|-------|-----|-------|------|-----|------|------|------|------|
| 27291 | 28291 | 2 | M4 | .70 | 17.78 | .81 | 20.57 | 9.8 | 248 | | | | |
| 27260 | 28260 | 3 | M4 | .72 | 18.29 | .82 | 20.83 | 10.2 | 259 | .045 | 1.14 | .050 | 1.27 |
| 27261 | 28261 | 4 | M4 | .78 | 19.81 | .88 | 22.35 | 10.9 | 276 | | | | |

Stranded (7 x 14) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

6 AWG • 8 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|---|----|-----|-------|-----|-------|------|-----|------|------|------|------|
| 27293 | 28293 | 2 | M4 | .76 | 19.30 | .87 | 22.10 | 10.7 | 271 | | | | |
| 27262 | 28262 | 3 | M4 | .80 | 20.32 | .90 | 22.86 | 11.2 | 284 | .045 | 1.14 | .050 | 1.27 |
| 27263 | 28263 | 4 | M4 | .87 | 22.10 | .97 | 24.64 | 12.1 | 307 | | | | |

Stranded (7 x 12) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

4 AWG • 8 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|---|----|------|-------|------|-------|------|-----|------|------|------|------|
| 27264 | 28264 | 3 | M4 | 1.90 | 22.86 | 1.00 | 25.40 | 13.1 | 332 | .045 | 1.14 | .050 | 1.27 |
| 27265 | 28265 | 4 | M4 | 1.97 | 50.04 | 1.08 | 27.43 | 14.2 | 360 | | | | |

Stranded (7 x 10) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

2 AWG • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|---|----|------|-------|------|-------|------|-----|------|------|------|------|
| 27267 | 28267 | 3 | M4 | 1.02 | 25.91 | 1.13 | 28.70 | 14.7 | 373 | .045 | 1.14 | .050 | 1.27 |
| 27268 | 28268 | 4 | M4 | 1.11 | 28.19 | 1.22 | 30.99 | 16.0 | 406 | | | | |

BC = Bare Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

UL Control Cables

600 V Type MC Metal Clad Cables

Interlocked Armor • Composite Cables



- UL MC
- UL Sun Res
- Oil Res
- Direct Burial

| Part No. | | Conductors | Color Code | Armor OD | | OD (Nom) | | Bend Radius (Min) | | Insulation Thickness | | Jacket Thickness | |
|----------|-------|------------|------------|----------|----|----------|----|-------------------|----|----------------------|----|------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

Stranded (7 x 22 and 7 x 20) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

14 AWG and 12 AWG • 12 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|-------|--------|-----|-------|-----|-------|-----|------|------|-----|------|------|
| 27428 | 28428 | 3 + 3 | Note 1 | .70 | 17.78 | .81 | 20.57 | 9.7 | 2468 | .030 | .76 | .050 | 1.27 |
|-------|-------|-------|--------|-----|-------|-----|-------|-----|------|------|-----|------|------|

Stranded (7 x 22 and 7 x 18) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

14 AWG and 10 AWG • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|-------|--------|-----|-------|-----|-------|------|-----|------|-----|------|------|
| 27429 | 28429 | 3 + 3 | Note 1 | .74 | 18.80 | .85 | 21.59 | 10.2 | 259 | .030 | .76 | .050 | 1.27 |
|-------|-------|-------|--------|-----|-------|-----|-------|------|-----|------|-----|------|------|

Stranded (7 x 22 and 7 x 16) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

14 AWG and 8 AWG • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|-------|--------|-----|-------|-----|-------|------|-----|----------|------|------|------|
| 27430 | 28430 | 3 + 3 | Note 1 | .83 | 21.08 | .94 | 23.88 | 11.2 | 284 | .030 | .76 | .050 | 1.27 |
| | | | | | | | | | | (14 AWG) | | | |
| | | | | | | | | | | .045 | 1.14 | | |
| | | | | | | | | | | (8 AWG) | | | |

Stranded (7 x 22 and 7 x 14) BC Conductors • XLP Insulation • Interlocked Armor • PVC Jacket

14 AWG and 6 AWG • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | |
|-------|-------|-------|--------|-----|-------|------|-------|------|-----|----------|------|------|------|
| 27431 | 28431 | 3 + 3 | Note 1 | .89 | 22.61 | 1.01 | 25.65 | 12.0 | 304 | .030 | .76 | .050 | 1.27 |
| | | | | | | | | | | (14 AWG) | | | |
| | | | | | | | | | | .045 | 1.14 | | |
| | | | | | | | | | | (8 AWG) | | | |

Note 1: 14, 12, and 10 AWG use ICEA Table E2 with printed numbers. 8 AWG and larger, use ICEA M4 with printed numbers.

BC = Bare Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

Dual Rated UL/CSA Control Cables
 600 V Teck-Style® Cables: Dual-Rated Type MC/TECK 90

Interlocked Armor



- UL MC
- CSA C22.2 No.131 FT4 Flame Test, HAZ LOC
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas
- Direct Burial

| Part No. | | Conductors | Color Code | Inner Jacket OD | | Armor OD | | OD (Nom) | | Pull Tension (Max) | | Bend Radius (Min) | | Insulation Thickness | |
|----------|-------|------------|------------|-----------------|----|----------|----|----------|----|--------------------|---|-------------------|----|----------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm | Inch | mm |

Stranded (7 x 22) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

14 AWG • 14 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|----|----|------|-------|------|-------|------|-------|------|------|------|-----|------|-----|
| 27840 | 28840 | 2 | E2 | .37 | 9.40 | .56 | 14.22 | .67 | 17.02 | 66 | 294 | 8.0 | 203 | | |
| 27841 | 28841 | 3 | E2 | .39 | 9.91 | .58 | 14.73 | .69 | 17.53 | 98 | 436 | 8.3 | 211 | | |
| 27842 | 28842 | 4 | E2 | .43 | 10.92 | .62 | 15.75 | .73 | 18.54 | 131 | 583 | 8.7 | 221 | | |
| 27843 | 28843 | 5 | E2 | .47 | 11.94 | .66 | 16.76 | .77 | 19.56 | 164 | 730 | 9.2 | 234 | | |
| 27844 | 28844 | 6 | E2 | .51 | 12.95 | .70 | 17.78 | .81 | 20.57 | 191 | 850 | 9.7 | 246 | | |
| 27845 | 28845 | 7 | E2 | .51 | 12.95 | .70 | 17.78 | .81 | 20.57 | 225 | 1001 | 9.7 | 246 | | |
| 27846 | 28846 | 8 | E2 | .58 | 14.73 | .77 | 19.56 | .88 | 22.35 | 260 | 1157 | 10.5 | 267 | | |
| 27847 | 28847 | 10 | E2 | .67 | 17.02 | .93 | 23.62 | 1.04 | 26.42 | 321 | 1428 | 12.5 | 318 | .030 | .76 |
| 27848 | 28848 | 12 | E2 | .69 | 17.53 | .95 | 24.13 | 1.06 | 26.92 | 388 | 1726 | 10.9 | 277 | | |
| 27849 | 28849 | 15 | E2 | .77 | 19.56 | 1.03 | 26.16 | 1.14 | 28.96 | 481 | 2140 | 13.7 | 348 | | |
| 27850 | 28850 | 20 | E2 | .86 | 21.84 | 1.12 | 28.45 | 1.23 | 31.24 | 649 | 2887 | 15.3 | 389 | | |
| 27851 | 28851 | 25 | E2 | .92 | 23.37 | 1.18 | 29.97 | 1.30 | 33.02 | 810 | 3603 | 16.3 | 414 | | |
| 27852 | 28852 | 30 | E2 | .98 | 24.89 | 1.24 | 31.50 | 1.36 | 34.54 | 975 | 4337 | 17.0 | 432 | | |
| 27885 | 28885 | 40 | E2 | 1.09 | 27.69 | 1.35 | 34.29 | 1.47 | 37.34 | 1301 | 5787 | 18.5 | 470 | | |
| 27886 | 28886 | 50 | E2 | 1.19 | 30.23 | 1.45 | 36.83 | 1.57 | 39.88 | 1630 | 7251 | 19.8 | 503 | | |

Stranded (7 x 20) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

12 AWG • 12 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|----|----|------|-------|------|-------|------|-------|------|------|------|-----|------|-----|
| 27853 | 28853 | 2 | E2 | .41 | 10.41 | .60 | 15.24 | .71 | 18.03 | 104 | 463 | 8.5 | 216 | | |
| 27854 | 28854 | 3 | E2 | .43 | 10.92 | .62 | 15.75 | .73 | 18.54 | 156 | 694 | 8.8 | 224 | | |
| 27855 | 28855 | 4 | E2 | .47 | 11.94 | .66 | 16.76 | .77 | 19.56 | 207 | 921 | 9.2 | 234 | | |
| 27856 | 28856 | 5 | E2 | .52 | 13.21 | .71 | 18.03 | .82 | 20.83 | 260 | 1157 | 9.8 | 249 | | |
| 27857 | 28857 | 6 | E2 | .59 | 14.99 | .78 | 19.81 | .89 | 22.61 | 310 | 1379 | 10.7 | 272 | | |
| 27858 | 28858 | 7 | E2 | .59 | 14.99 | .78 | 19.81 | .89 | 22.61 | 361 | 1606 | 10.7 | 272 | | |
| 27859 | 28859 | 8 | E2 | .64 | 16.26 | .83 | 21.08 | .94 | 23.88 | 415 | 1846 | 11.3 | 287 | | |
| 27860 | 28860 | 10 | E2 | .75 | 19.05 | 1.01 | 25.65 | 1.12 | 28.45 | 520 | 2313 | 13.4 | 340 | .030 | .76 |
| 27861 | 28861 | 12 | E2 | .77 | 19.56 | 1.03 | 26.16 | 1.14 | 28.96 | 619 | 2753 | 13.7 | 348 | | |
| 27862 | 28862 | 15 | E2 | .87 | 22.10 | 1.13 | 28.70 | 1.25 | 31.75 | 718 | 3194 | 15.0 | 381 | | |
| 27863 | 28863 | 20 | E2 | .96 | 24.38 | 1.22 | 30.99 | 1.33 | 33.78 | 1040 | 4626 | 15.9 | 404 | | |
| 27864 | 28864 | 25 | E2 | 1.04 | 26.42 | 1.30 | 33.02 | 1.42 | 36.07 | 1301 | 5787 | 17.0 | 432 | | |
| 27865 | 28865 | 30 | E2 | 1.15 | 29.21 | 1.41 | 35.81 | 1.53 | 38.86 | 1560 | 6939 | 18.3 | 465 | | |
| 27887 | 28887 | 40 | E2 | 1.20 | 30.48 | 1.54 | 39.12 | 1.67 | 42.42 | 2020 | 8985 | 20.0 | 508 | | |

BC = Bare Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

Dual Rated UL/CSA Control Cables

600 V Teck-Style® Cables: Dual-Rated Type MC/TECK 90

Interlocked Armor



- UL MC
- CSA C22.2 No.131 FT4 Flame Test, HAZ LOC
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas
- Direct Burial

| Part No. | | Conductors | Color Code | Inner Jacket OD | | Armor OD | | OD (Nom) | | Pull Tension (Max) | | Bend Radius (Min) | | Insulation Thickness | |
|----------|-------|------------|------------|-----------------|----|----------|----|----------|----|--------------------|---|-------------------|----|----------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm | Inch | mm |

Stranded (7 x 18) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

10 AWG • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|----|----|------|-------|------|-------|------|-------|------|-------|------|-----|------|-----|
| 27866 | 28866 | 2 | E2 | .46 | 11.68 | .65 | 16.51 | .74 | 18.80 | 166 | 738 | 9.1 | 231 | | |
| 27867 | 28867 | 3 | E2 | .48 | 12.19 | .67 | 17.02 | .77 | 19.56 | 249 | 1108 | 9.4 | 239 | | |
| 27868 | 28868 | 4 | E2 | .56 | 14.22 | .75 | 19.05 | .84 | 21.34 | 330 | 1468 | 10.3 | 262 | | |
| 27869 | 28869 | 5 | E2 | .67 | 17.02 | .86 | 21.84 | .96 | 24.38 | 415 | 1846 | 11.6 | 295 | | |
| 27870 | 28870 | 6 | E2 | .67 | 17.02 | .86 | 21.84 | .96 | 24.38 | 491 | 2184 | 11.6 | 295 | | |
| 27877 | 28877 | 7 | E2 | .70 | 17.78 | .90 | 22.86 | 1.00 | 25.40 | 560 | 2491 | 12.1 | 307 | | |
| 27878 | 28878 | 8 | E2 | .75 | 19.05 | .95 | 24.13 | 1.05 | 26.67 | 640 | 2847 | 12.7 | 323 | .030 | .76 |
| 27879 | 28879 | 10 | E2 | .78 | 19.81 | 1.04 | 26.42 | 1.15 | 29.21 | 801 | 3563 | 13.8 | 351 | | |
| 27880 | 28880 | 12 | E2 | .89 | 22.61 | 1.15 | 29.21 | 1.26 | 32.00 | 960 | 4270 | 15.1 | 384 | | |
| 27881 | 28881 | 15 | E2 | .93 | 23.62 | 1.19 | 30.23 | 1.30 | 33.02 | 1195 | 5316 | 15.6 | 396 | | |
| 27882 | 28882 | 20 | E2 | 1.06 | 26.92 | 1.32 | 33.53 | 1.44 | 36.58 | 1600 | 7117 | 17.3 | 439 | | |
| 27883 | 28883 | 25 | E2 | 1.12 | 28.45 | 1.44 | 36.58 | 1.58 | 40.13 | 1990 | 8852 | 19.0 | 483 | | |
| 27884 | 28884 | 30 | E2 | 1.28 | 32.51 | 1.54 | 39.12 | 1.67 | 42.42 | 2355 | 10476 | 20.0 | 508 | | |

Stranded (7 x 16) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

8 AWG • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|---|----|-----|-------|-----|-------|------|-------|-----|------|------|-----|------|------|
| 27871 | 28871 | 2 | M4 | .59 | 14.99 | .78 | 19.81 | .89 | 22.61 | 264 | 1174 | 10.7 | 272 | | |
| 27872 | 28872 | 3 | M4 | .62 | 15.75 | .81 | 20.57 | .91 | 23.11 | 396 | 1762 | 10.9 | 277 | .045 | 1.14 |
| 27873 | 28873 | 4 | M4 | .68 | 17.27 | .94 | 23.88 | 1.05 | 26.67 | 528 | 2349 | 12.6 | 320 | | |

Stranded (7 x 14) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

6 AWG • 8 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|---|----|-----|-------|------|-------|------|-------|-----|------|------|-----|------|------|
| 27874 | 28874 | 2 | M4 | .71 | 18.03 | .97 | 24.64 | 1.08 | 27.43 | 420 | 1868 | 13.0 | 330 | | |
| 27875 | 28875 | 3 | M4 | .76 | 19.30 | 1.02 | 25.91 | 1.13 | 28.70 | 630 | 2802 | 13.5 | 343 | .060 | 1.52 |
| 27876 | 28876 | 4 | M4 | .88 | 22.35 | 1.14 | 28.96 | 1.25 | 31.75 | 840 | 3737 | 15.0 | 381 | | |

Stranded (7 x 12) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

4 AWG • 8 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|---|----|-----|-------|------|-------|------|-------|------|------|------|-----|------|------|
| 27894 | 28894 | 3 | M4 | .91 | 23.11 | 1.17 | 29.72 | 1.29 | 32.77 | 1002 | 4457 | 15.5 | 394 | | |
| 27895 | 28895 | 4 | M4 | .99 | 25.15 | 1.25 | 31.75 | 1.37 | 34.80 | 1335 | 5938 | 16.4 | 417 | .060 | 1.52 |

Stranded (7 x 11) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

3 AWG • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|---|----|-----|-------|------|-------|------|-------|------|------|------|-----|------|------|
| 27896 | 28896 | 3 | M4 | .96 | 24.38 | 1.22 | 30.99 | 1.33 | 33.78 | 1263 | 5618 | 16.0 | 406 | .060 | 1.52 |
|-------|-------|---|----|-----|-------|------|-------|------|-------|------|------|------|-----|------|------|

Stranded (7 x 10) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

2 AWG • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|---|----|------|-------|------|-------|------|-------|------|------|------|-----|------|------|
| 27888 | 28888 | 3 | M4 | 1.08 | 27.43 | 1.28 | 32.51 | 1.40 | 35.56 | 1593 | 7086 | 16.8 | 427 | | |
| 27889 | 28889 | 4 | M4 | 1.12 | 28.45 | 1.38 | 35.05 | 1.50 | 38.10 | 2124 | 9448 | 18.0 | 457 | .060 | 1.52 |

BC = Bare Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

Dual Rated UL/CSA Control Cables
 600 V Teck-Style® Cables: Dual-Rated Type MC/TECK 90

Interlocked Armor • Composite Cables



- UL MC
- CSA C22.2 No.131 FT4 Flame Test, HAZ LOC
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas
- Direct Burial

| Part No. | | Conductors | Color Code | Inner Jacket OD | | Armor OD | | OD (Nom) | | Pull Tension (Max) | | Bend Radius (Min) | | Insulation Thickness | |
|----------|-------|------------|------------|-----------------|----|----------|----|----------|----|--------------------|---|-------------------|----|----------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm | Inch | mm |

Stranded (7 x 22 and 7 x 20) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

14 AWG and 12 AWG • 12 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|-------|---------|-----|-------|-----|-------|-----|-------|-----|-----|------|-----|------|-----|
| 27890 | 28890 | 3 + 3 | Note 1: | .56 | 14.22 | .75 | 19.05 | .86 | 21.84 | 202 | 899 | 10.3 | 262 | .030 | .76 |
|-------|-------|-------|---------|-----|-------|-----|-------|-----|-------|-----|-----|------|-----|------|-----|

Stranded (7 x 22 and 7 x 18) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

14 AWG and 10 AWG • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|-------|---------|-----|-------|-----|-------|-----|-------|-----|------|------|-----|------|-----|
| 27891 | 28891 | 3 + 3 | Note 1: | .61 | 15.49 | .80 | 20.32 | .91 | 23.11 | 305 | 1357 | 10.9 | 277 | .030 | .76 |
|-------|-------|-------|---------|-----|-------|-----|-------|-----|-------|-----|------|------|-----|------|-----|

Stranded (7 x 22 and 7 x 16) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

14 AWG and 8 AWG • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|-------|---------|-----|-------|-----|-------|------|-------|-----|------|------|-----|------------------|------|
| 27892 | 28892 | 3 + 3 | Note 1: | .70 | 17.78 | .96 | 24.38 | 1.07 | 27.18 | 435 | 1935 | 12.8 | 325 | .030 (14 AWG) | 0.76 |
| | | | | | | | | | | | | | | .045 (8 AWG) | 1.14 |

Stranded (7 x 22 and 7 x 14) BC Conductors • XLP Insulation • PVC Inner Jacket • Interlocked Armor • PVC Outer Jacket

14 AWG and 6 AWG • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | | | | |
|-------|-------|-------|---------|-----|-------|------|-------|------|-------|-----|------|------|-----|------------------|------|
| 27893 | 28893 | 3 + 3 | Note 1: | .90 | 22.86 | 1.15 | 29.21 | 1.26 | 32.00 | 655 | 2914 | 15.1 | 384 | .030 (14 AWG) | 0.76 |
| | | | | | | | | | | | | | | .060 (6 AWG) | 1.52 |

Note 1: 14, 12, and 10 AWG use ICEA Table E2 with printed numbers. 8 AWG and larger, use ICEA M4 with printed numbers.

BC = Bare Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Poly | Belden Color Code Charts can be found at page 561.

CSA Control and Power Cables

600 V and 1000 V TC/CIC Multi-Conductor Cables

Unshielded



- CEC Part 1, Suitable for Use in Hazardous Locations: Class 1, Zone 2 and Class 2, Division 2
- +90 °C Dry & Wet
- -40 °C Cold Bend
- -25 °C Cold Impact
- CSA C22.2 No. 230 Type TC
- CSA C22.2 No. 239 Type CIC (600 V only)
- CSA C22.2 No. 38 Type TC (1000 V only)
- CSA FT4 70,000 BTU Flame test

| Conductors | Part No. | | | | | |
|------------|----------|--------|--------|--------|--------|--------|
| | 14 AWG | | 12 AWG | | 10 AWG | |
| | 600 V | 1000 V | 600 V | 1000 V | 600 V | 1000 V |

Unshielded • For Foil Shielding, add "S" as a Suffix to the Part Number

| 7-Strand BC Conductors • Flame Resistant Cross-Linked Poly Insulation • Uninsulated BC Ground Conductor • Optional Foil Shielding • Flame Resistant PVC Jacket | | | | | | |
|--|-------|-------|-------|-------|-------|-------|
| 2 | 21500 | 21300 | 21550 | 21350 | 21600 | 21400 |
| 3 | 21501 | 21301 | 21551 | 21351 | 21601 | 21401 |
| 4 | 21502 | 21302 | 21552 | 21352 | 21602 | 21402 |
| 5 | 21503 | 21303 | 21553 | 21353 | 21603 | 21403 |
| 6 | 21504 | 21304 | 21554 | 21354 | 21604 | 21404 |
| 7 | 21505 | 21305 | 21555 | 21355 | 21605 | 21405 |
| 8 | 21506 | 21306 | 21556 | 21356 | 21606 | 21406 |
| 9 | 21507 | 21307 | 21557 | 21357 | 21607 | 21407 |
| 10 | 21508 | 21308 | 21558 | 21358 | 21608 | 21408 |
| 11 | 21509 | 21309 | 21559 | 21359 | 21609 | 21409 |
| 12 | 21510 | 21310 | 21560 | 21360 | 21610 | 21410 |
| 13 | 21511 | 21311 | 21561 | 21361 | 21611 | 21411 |
| 14 | 21512 | 21312 | 21562 | 21362 | 21612 | 21412 |
| 15 | 21513 | 21313 | 21563 | 21363 | 21613 | 21413 |
| 16 | 21514 | 21314 | 21564 | 21364 | 21614 | 21414 |
| 17 | 21515 | 21315 | 21565 | 21365 | 21615 | 21415 |
| 18 | 21516 | 21316 | 21566 | 21366 | 21616 | 21416 |
| 19 | 21517 | 21317 | 21567 | 21367 | 21617 | 21417 |
| 20 | 21518 | 21318 | 21568 | 21368 | 21618 | 21418 |
| 21 | 21519 | 21319 | 21569 | 21369 | 21619 | 21419 |
| 22 | 21520 | 21320 | 21570 | 21370 | 21620 | 21420 |
| 23 | 21521 | 21321 | 21571 | 21371 | 21621 | 21421 |
| 24 | 21522 | 21322 | 21572 | 21372 | 21622 | 21422 |
| 25 | 21523 | 21323 | 21573 | 21373 | 21623 | 21423 |
| 26 | 21524 | 21324 | 21574 | 21374 | 21624 | 21424 |
| 27 | 21525 | 21325 | 21575 | 21375 | 21625 | 21425 |
| 28 | 21526 | 21326 | 21576 | 21376 | 21626 | 21426 |
| 29 | 21527 | 21327 | 21577 | 21377 | 21627 | 21427 |
| 30 | 21528 | 21328 | 21578 | 21378 | 21628 | 21428 |
| 31 | 21529 | 21329 | 21579 | 21379 | 21629 | 21429 |
| 32 | 21530 | 21330 | 21580 | 21380 | 21630 | 21430 |
| 33 | 21531 | 21331 | 21581 | 21381 | 21631 | 21431 |
| 34 | 21532 | 21332 | 21582 | 21382 | 21632 | 21432 |
| 35 | 21533 | 21333 | 21583 | 21383 | 21633 | 21433 |
| 36 | 21534 | 21334 | 21584 | 21384 | 21634 | 21434 |
| 37 | 21535 | 21335 | 21585 | 21385 | 21635 | 21435 |
| 38 | 21536 | 21336 | 21586 | 21386 | 21636 | 21436 |
| 39 | 21537 | 21337 | 21587 | 21387 | 21637 | 21437 |
| 40 | 21538 | 21338 | 21588 | 21388 | 21638 | 21438 |

BC = Bare Copper • PVC = Polyvinyl Chloride

CSA Control and Power Cables (continued)
600 V and 1000 V TC/CIC Multi-Conductor Cables

Unshielded



- CEC Part 1, Suitable for Use in Hazardous Locations: Class 1, Zone 2 and Class 2, Division 2
- +90 °C Dry & Wet
- -40 °C Cold Bend
- -25 °C Cold Impact
- CSA C22.2 No. 230 Type TC
- CSA C22.2 No. 239 Type CIC (600 V only)
- CSA C22.2 No. 38 Type TC (1000 V only)
- CSA FT4 70,000 BTU Flame test

| Conductors | Part No. | | | | | |
|------------|----------|--------|--------|--------|--------|--------|
| | 14 AWG | | 12 AWG | | 10 AWG | |
| | 600 V | 1000 V | 600 V | 1000 V | 600 V | 1000 V |

Unshielded • For Foil Shielding, add "S" as a Suffix to the Part Number

| 7-Strand BC Conductors • Flame Resistant Cross-Linked Poly Insulation • Uninsulated BC Ground Conductor • Optional Foil Shielding • Flame Resistant PVC Jacket | | | | | | |
|--|-------|-------|-------|-------|-------|-------|
| 41 | 21539 | 21339 | 21589 | 21389 | 21639 | 21439 |
| 42 | 21540 | 21340 | 21590 | 21390 | 21640 | 21440 |
| 43 | 21541 | 21341 | 21591 | 21391 | 21641 | 21441 |
| 44 | 21542 | 21342 | 21592 | 21392 | 21642 | 21442 |
| 45 | 21543 | 21343 | 21593 | 21393 | 21643 | 21443 |
| 46 | 21544 | 21344 | 21594 | 21394 | 21644 | 21444 |
| 47 | 21545 | 21345 | 21595 | 21395 | 21645 | 21445 |
| 48 | 21546 | 21346 | 21596 | 21396 | 21646 | 21446 |
| 49 | 21547 | 21347 | 21597 | 21397 | 21647 | 21447 |
| 50 | 21548 | 21348 | 21598 | 21398 | 21648 | 21448 |

| Conductors | Part No. | | | | | | | | | |
|------------|----------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| | 8 AWG | | 6 AWG | | 4 AWG | | 3 AWG | | 2 AWG | |
| | 600 V | 1000 V | 600 V | 1000 V | 600 V | 1000 V | 600 V | 1000 V | 600 V | 1000 V |

Unshielded • For Foil Shielding, add "S" as a Suffix to the Part Number

| 7-Strand BC Conductors • Flame Resistant Cross-Linked Poly Insulation • Optional Foil Shielding • Flame Resistant PVC Jacket | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2 | 21650 | 21450 | 21653 | 21453 | 21656 | 21456 | 21659 | 21459 | 21662 | 21462 |
| 3 | 21651 | 21451 | 21654 | 21454 | 21657 | 21457 | 21660 | 21460 | 21663 | 21463 |
| 4 | 21652 | 21452 | 21655 | 21455 | 21658 | 21458 | 21661 | 21461 | 21664 | 21464 |

| Conductors | Part No. | | | | | | | | | |
|------------|----------|--------|---------|--------|---------|--------|---------|--------|---------|--------|
| | 1 AWG | | 1/0 AWG | | 2/0 AWG | | 3/0 AWG | | 4/0 AWG | |
| | 600 V | 1000 V | 600 V | 1000 V | 600 V | 1000 V | 600 V | 1000 V | 600 V | 1000 V |

Unshielded • For Foil Shielding, add "S" as a Suffix to the Part Number

| 19-Strand BC Conductors • Flame Resistant Cross-Linked Poly Insulation • Optional Foil Shielding • Flame Resistant PVC Jacket | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2 | 21665 | 21465 | 21668 | 21468 | 21671 | 21471 | 21674 | 21474 | 21677 | 21477 |
| 3 | 21666 | 21466 | 21669 | 21469 | 21672 | 21472 | 21675 | 21475 | 21678 | 21478 |
| 4 | 21667 | 21467 | 21670 | 21470 | 21673 | 21473 | 21676 | 21476 | 21679 | 21479 |

Conductor Color Codes

| Conductors | Colors |
|------------|-------------------------|
| 2 | Black, White |
| 3 | Black, White, Blue |
| 4 | Black, Red, White, Blue |
| 5 or More | Black and Numbered |

BC = Bare Copper • PVC = Polyvinyl Chloride

CSA Control Cables

600 V CIC Multi-Conductor Cables

Unshielded



- -40 °C to +90 °C Dry
- -40 °C to +90 °C Wet
- -25 °C Cold Impact
- CSA C22.2 No. 231 Type CIC
- CSA FT4 Flame Test

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Stranded BC Conductors • Stranded BC Drain Wire • Cross-Linked Poly Insulation • Black PVC Jacket

14 AWG • 7 x 22 • Unshielded

| | | | | | | | | |
|-------|----|--------------|------|-------|------|-----|------|------|
| 22100 | 2 | Blk, Numberd | .367 | 9.32 | | | | |
| 22101 | 3 | Blk, Numberd | .388 | 9.86 | | | | |
| 22102 | 4 | Blk, Numberd | .423 | 10.74 | | | | |
| 22103 | 5 | Blk, Numberd | .462 | 11.74 | .030 | .76 | .045 | 1.14 |
| 22104 | 6 | Blk, Numberd | .504 | 12.80 | | | | |
| 22105 | 7 | Blk, Numberd | .504 | 12.80 | | | | |
| 22106 | 8 | Blk, Numberd | .576 | 14.63 | | | | |
| 22107 | 9 | Blk, Numberd | .618 | 15.70 | | | | |
| 22108 | 10 | Blk, Numberd | .669 | 17.00 | .030 | .76 | .060 | 1.52 |
| 22110 | 12 | Blk, Numberd | .689 | 17.50 | | | | |
| 22114 | 16 | Blk, Numberd | .764 | 19.41 | | | | |
| 22118 | 20 | Blk, Numberd | .886 | 22.50 | .030 | .76 | .080 | 2.03 |

12 AWG • 7 x 20 • Unshielded

| | | | | | | | | |
|-------|----|--------------|------|-------|------|-----|------|------|
| 22120 | 2 | Blk, Numberd | .405 | 10.29 | | | | |
| 22121 | 3 | Blk, Numberd | .429 | 10.90 | | | | |
| 22122 | 4 | Blk, Numberd | .469 | 11.91 | .030 | .76 | .045 | 1.14 |
| 22123 | 5 | Blk, Numberd | .515 | 13.08 | | | | |
| 22124 | 6 | Blk, Numberd | .591 | 15.01 | | | | |
| 22125 | 7 | Blk, Numberd | .591 | 15.01 | | | | |
| 22126 | 8 | Blk, Numberd | .639 | 16.23 | .030 | .76 | .060 | 1.52 |
| 22127 | 9 | Blk, Numberd | .687 | 17.45 | | | | |
| 22128 | 10 | Blk, Numberd | .745 | 18.92 | | | | |
| 22130 | 12 | Blk, Numberd | .768 | 19.51 | | | | |
| 22134 | 16 | Blk, Numberd | .893 | 22.68 | .030 | .76 | .080 | 2.03 |
| 22138 | 20 | Blk, Numberd | .992 | 25.20 | | | | |

10 AWG • 7 x 18 • Unshielded

| | | | | | | | | |
|-------|----|--------------|-------|-------|------|-----|------|------|
| 22140 | 2 | Blk, Numberd | .736 | 18.69 | | | | |
| 22141 | 3 | Blk, Numberd | .763 | 19.38 | .030 | .76 | .045 | 1.14 |
| 22142 | 4 | Blk, Numberd | .839 | 21.31 | | | | |
| 22143 | 5 | Blk, Numberd | .891 | 22.63 | | | | |
| 22144 | 6 | Blk, Numberd | .944 | 23.98 | .030 | .76 | .060 | 1.52 |
| 22145 | 7 | Blk, Numberd | .944 | 23.98 | | | | |
| 22146 | 8 | Blk, Numberd | .999 | 25.38 | | | | |
| 22147 | 9 | Blk, Numberd | 1.074 | 27.28 | | | | |
| 22148 | 10 | Blk, Numberd | 1.182 | 30.02 | | | | |
| 22150 | 12 | Blk, Numberd | 1.209 | 30.71 | .030 | .76 | .080 | 2.03 |
| 22152 | 14 | Blk, Numberd | 1.255 | 31.88 | | | | |
| 22154 | 16 | Blk, Numberd | 1.307 | 33.20 | | | | |

BC = Bare Copper • PVC = Polyvinyl Chloride

CSA Control Cables
600 V CIC Multi-Conductor Cables

Unshielded



- -40 °C to +90 °C Dry
- -40 °C to +90 °C Wet
- -25 °C Cold Impact
- CSA C22.2 No. 231 Type CIC
- CSA FT4 Flame Test

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Stranded BC Conductors • Stranded BC Drain Wire • Cross-Linked Poly Insulation • Black PVC Jacket

8 AWG • 7 x 16 • Unshielded

| | | | | | | | | |
|--------------|---|---------------|------|-------|------|------|------|------|
| 22160 | 2 | Blk, Numbered | .863 | 21.92 | | | | |
| 22161 | 3 | Blk, Numbered | .898 | 22.81 | .045 | 1.14 | .060 | 1.52 |
| 22162 | 4 | Blk, Numbered | .957 | 24.31 | | | | |

6 AWG • 7 x 14 • Unshielded

| | | | | | | | | |
|--------------|---|---------------|------|-------|------|------|------|------|
| 22170 | 2 | Blk, Numbered | .711 | 18.06 | .060 | 1.52 | .060 | 1.52 |
| 22171 | 3 | Blk, Numbered | .756 | 19.20 | | | | |

4 AWG • 7 x 12 • Unshielded

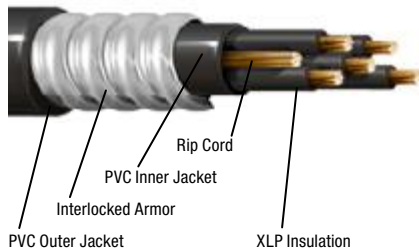
| | | | | | | | | |
|--------------|---|---------------|------|-------|------|------|------|------|
| 22180 | 2 | Blk, Numbered | .800 | 20.32 | .060 | 1.52 | .060 | 1.52 |
| 22181 | 3 | Blk, Numbered | .891 | 22.63 | | | | |

BC = Bare Copper • PVC = Polyvinyl Chloride

CSA Control Cables

600 V ACIC and TECK 90 Cables – Overview

Belden TECK 90 and ACIC cables are designed to meet demanding industrial needs by combining rugged durability and corrosion resistance with flexibility and easy handling.



Introduction

TECK 90 and ACIC Cables are available in a wide range of standard and custom constructions to meet the needs of oil and gas, pulp and paper, chemical, petroleum and other demanding industrial and resource industry environments. They are ideal for use in wet or dry areas, ventilated or non-ventilated, ladder-type cable troughs, flexible cableways and direct burial installations.

Belden TECK 90 Cable is marked with "FT4," "HL" designations, and cable constructions are certified to CSA Standard C22.2 No. 131 and C22.2 No. 174 for use in a wide range of hazardous locations. Both inner and outer jackets meet the acid gas evolution requirement of 14% maximum required by CSA Standard C22.2 No. 0.3 Clause 4.31.

Custom cables are available upon request.

Construction

Class B stranded bare copper conductors, cross-link polyethylene insulation, bare copper ground wire, PVC inner jacket, aluminum steel interlocking armor, PVC outer jacket.

- Galvanized steel interlocking armor available as an option.

Voltage Rating

- 18 to 16 AWG – 600 V ACIC
- 14 to 8 AWG – 600 V
- 14 to 4/0 AWG – 1000 V

Temperature Rating

- 40 °C to +90 °C (Dry/Wet)
- 25 °C installed

Application

TECK 90 and ACIC are general-purpose cables used in the oil and gas, pulp and paper, mining, petroleum and chemical industries as well as in commercial buildings.

TECK 90 and ACIC may be used under the following conditions:

- Exposed or concealed wiring in dry or wet conditions
- In ventilated, non-ventilated or ladder-type cable trays in dry or wet conditions
- On walls or beams
- Directly buried
- CEC Class I, Division I locations

Minimum Bending Radius

12 times the overall cable diameter

Pulling Tensions

The combined use of Kellems grips and pulling eyes is recommended.

Design Advantages

Insulation Properties

- High tensile strength
- Impact- and crush-resistant
- Heat-resistant
- Excellent elongation
- Moisture-resistant
- Good low temperature properties

Electrical Properties

- High insulation resistance
- Low dielectric loss
- High dielectric strength

Other Features

- Corrosion-resistant
- Versatile and flexible
- Provides cost savings as conduit and ducts are not required
- ACIC has a blue jacket
- Rip cord for inner jacket

Specifications

- CSA Standard C22.2 No. 131
- CSA Standard C22.2 No. 174 "Cables and Cable Glands for Use in Hazardous Locations"
- CSA Standard C22.2 No. 0.3 Clause 4.31 "Low Acid Gas"
- CSA Standard C22.2 No. 0.3 Clause 4.11.4 "Cables with FT4 Marking"

CSA Control Cables
600 V ACIC Cables

Armored • Unshielded



- CSA C22.2 No. 239 CIC
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas
- HAZ LOC

| Part No. | Conductors | Inner Jacket OD | | Armor OD | | Outer Jacket OD | | Pull Tension (Max) | | Bend Radius (Min) | |
|----------|------------|-----------------|----|----------|----|-----------------|----|--------------------|---|-------------------|----|
| | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm |

Stranded BC Conductors • Cross-Linked Poly Insulation • Uninsulated BC Ground Wire • PVC Inner Jacket • Armor • Blue PVC Outer Jacket

18 AWG • 7 x 26

| | | | | | | | | | | | |
|-------|----|------|-------|------|-------|------|-------|------|------|------|--------|
| 29030 | 2 | .32 | 8.13 | .52 | 13.21 | .62 | 15.75 | 44 | 196 | 7.4 | 187.96 |
| 29031 | 3 | .34 | 8.64 | .54 | 13.72 | .64 | 16.26 | 66 | 294 | 7.6 | 193.04 |
| 29032 | 4 | .37 | 9.40 | .57 | 14.48 | .67 | 17.02 | 88 | 392 | 8.0 | 203.20 |
| 29033 | 5 | .41 | 10.41 | .61 | 15.49 | .71 | 18.03 | 110 | 490 | 8.5 | 215.90 |
| 29034 | 6 | .45 | 11.43 | .65 | 16.51 | .75 | 19.05 | 132 | 587 | 9.0 | 228.60 |
| 29035 | 7 | .45 | 11.43 | .65 | 16.51 | .75 | 19.05 | 154 | 685 | 9.0 | 228.60 |
| 29036 | 8 | .48 | 12.19 | .68 | 17.27 | .78 | 19.81 | 176 | 783 | 9.3 | 236.22 |
| 29038 | 10 | .56 | 14.22 | .76 | 19.30 | .87 | 22.10 | 220 | 979 | 10.6 | 269.24 |
| 29040 | 12 | .62 | 15.75 | .82 | 20.83 | .93 | 23.62 | 264 | 1175 | 11.1 | 281.94 |
| 29043 | 15 | .65 | 16.51 | .85 | 21.59 | .96 | 24.38 | 330 | 1469 | 11.5 | 292.10 |
| 29048 | 20 | .73 | 18.54 | .93 | 23.62 | 1.04 | 26.42 | 440 | 1958 | 12.4 | 314.96 |
| 29053 | 25 | .79 | 20.07 | 1.05 | 26.67 | 1.16 | 29.46 | 550 | 2448 | 13.9 | 353.06 |
| 29058 | 30 | .88 | 22.35 | 1.14 | 28.96 | 1.25 | 31.75 | 660 | 2937 | 15.0 | 381.00 |
| 29068 | 40 | .97 | 24.64 | 1.23 | 31.24 | 1.35 | 34.29 | 880 | 3916 | 16.2 | 411.48 |
| 29078 | 50 | 1.09 | 27.69 | 1.35 | 34.29 | 1.47 | 37.34 | 1100 | 4895 | 17.6 | 447.04 |

16 AWG • 7 x 24

| | | | | | | | | | | | |
|-------|----|------|-------|------|-------|------|-------|------|------|------|--------|
| 29017 | 2 | .34 | 8.64 | .54 | 13.72 | .65 | 16.51 | 70 | 312 | 7.7 | 195.58 |
| 29004 | 3 | .36 | 9.14 | .56 | 14.22 | .66 | 16.76 | 105 | 467 | 7.9 | 200.66 |
| 29018 | 4 | .39 | 9.91 | .59 | 14.99 | .70 | 17.78 | 140 | 623 | 8.3 | 210.82 |
| 29019 | 5 | .42 | 10.67 | .62 | 15.75 | .73 | 18.54 | 175 | 779 | 8.6 | 218.44 |
| 29005 | 6 | .46 | 11.68 | .66 | 16.76 | .77 | 19.56 | 210 | 935 | 9.1 | 231.14 |
| 29020 | 7 | .47 | 11.94 | .67 | 17.02 | .77 | 19.56 | 245 | 1090 | 9.2 | 233.68 |
| 29021 | 8 | .50 | 12.70 | .70 | 17.78 | .80 | 20.32 | 280 | 1246 | 9.6 | 243.84 |
| 29022 | 10 | .61 | 15.49 | .81 | 20.57 | .92 | 23.37 | 350 | 1558 | 10.9 | 276.86 |
| 29006 | 12 | .63 | 16.00 | .83 | 21.08 | .94 | 23.88 | 420 | 1869 | 11.2 | 284.48 |
| 29023 | 15 | .68 | 17.27 | .88 | 22.35 | 1.00 | 25.40 | 525 | 2336 | 11.9 | 302.26 |
| 29007 | 20 | .77 | 19.56 | 1.03 | 26.16 | 1.13 | 28.70 | 700 | 3115 | 13.7 | 347.98 |
| 29024 | 25 | .89 | 22.61 | 1.15 | 29.21 | 1.26 | 32.00 | 875 | 3894 | 15.1 | 383.54 |
| 29008 | 30 | .94 | 23.88 | 1.20 | 30.48 | 1.30 | 33.02 | 1050 | 4673 | 15.8 | 401.32 |
| 29009 | 40 | 1.06 | 26.92 | 1.32 | 33.53 | 1.41 | 35.81 | 1400 | 6230 | 17.3 | 439.42 |
| 29016 | 50 | 1.19 | 30.23 | 1.45 | 36.83 | 1.54 | 39.12 | 1750 | 7788 | 18.8 | 477.52 |
| 29025 | 60 | 1.27 | 32.26 | 1.53 | 38.86 | 1.66 | 42.16 | 2100 | 9345 | 19.9 | 505.46 |

Conductor Color Codes

| Conductors | Colors |
|------------|-------------------------|
| 2 | Black, White |
| 3 | Black, White, Blue |
| 4 | Black, Red, White, Blue |
| 5 or More | Black and Numbered |

BC = Bare Copper • PVC = Polyvinyl Chloride

CSA Control Cables

600 V TECK 90 Cables

Armored • Unshielded



- CSA C22.2 No. 239 CIC
- CSA C22.2 No. 0.3 Clause 4.31
Low Acid Gas
- HAZ LOC

| Part No. | Conductors | Inner Jacket OD | | Armor OD | | Outer Jacket OD | | Pull Tension (Max) | | Bend Radius (Min) | |
|----------|------------|-----------------|----|----------|----|-----------------|----|--------------------|---|-------------------|----|
| | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm |

Stranded BC Conductors • Cross-Linked Poly Insulation • Uninsulated BC Ground Wire • PVC Inner Jacket • Armor • Black PVC Outer Jacket

14 AWG • 7 x 22

| | | | | | | | | | | | |
|-------|----|------|-------|------|-------|------|-------|------|--------|------|--------|
| C5500 | 2 | .36 | 9.14 | .56 | 14.22 | .66 | 16.76 | 108 | 481 | 7.8 | 198.12 |
| C5501 | 3 | .39 | 9.91 | .58 | 14.73 | .66 | 16.76 | 162 | 721 | 8.2 | 208.28 |
| C5502 | 4 | .42 | 10.67 | .62 | 15.75 | .71 | 18.03 | 216 | 961 | 8.5 | 215.90 |
| C5503 | 5 | .47 | 11.94 | .66 | 16.76 | .74 | 18.80 | 270 | 1202 | 9.0 | 228.60 |
| C5504 | 6 | .51 | 12.95 | .70 | 17.78 | .78 | 19.81 | 324 | 1442 | 9.5 | 241.30 |
| C5505 | 7 | .51 | 12.95 | .70 | 17.78 | .78 | 19.81 | 378 | 1682 | 9.5 | 241.30 |
| C5506 | 8 | .58 | 14.73 | .77 | 19.56 | .86 | 21.84 | 432 | 1922 | 10.4 | 264.16 |
| C5508 | 10 | .67 | 17.02 | .93 | 23.62 | .95 | 24.13 | 540 | 2403 | 12.3 | 312.42 |
| C5510 | 12 | .69 | 17.53 | .95 | 24.13 | .97 | 24.64 | 648 | 2884 | 12.6 | 320.04 |
| C5513 | 15 | .77 | 19.56 | 1.03 | 26.16 | 1.11 | 28.19 | 810 | 3605 | 14.1 | 358.14 |
| C5518 | 20 | .90 | 22.86 | 1.16 | 29.46 | 1.24 | 31.50 | 1080 | 4806 | 15.1 | 383.54 |
| C5523 | 25 | .90 | 22.86 | 1.24 | 31.50 | 1.33 | 33.78 | 1350 | 6008 | 16.1 | 408.94 |
| C5528 | 30 | 1.05 | 26.67 | 1.30 | 33.02 | 1.40 | 35.56 | 1620 | 7209 | 16.8 | 426.72 |
| C5529 | 40 | 1.20 | 30.48 | 1.42 | 36.07 | 1.51 | 38.35 | 2160 | 9612 | 18.3 | 464.82 |
| C6064 | 50 | 1.35 | 34.29 | 1.60 | 40.64 | 1.66 | 42.16 | 2700 | 12,015 | 20.5 | 520.70 |

12 AWG • 7 x 20

| | | | | | | | | | | | |
|-------|----|------|-------|------|-------|------|-------|------|--------|------|--------|
| C5530 | 2 | .41 | 10.41 | .60 | 15.24 | .69 | 17.53 | 172 | 765 | 8.3 | 210.82 |
| C5531 | 3 | .43 | 10.92 | .62 | 15.75 | .70 | 17.78 | 258 | 1148 | 8.6 | 218.44 |
| C5532 | 4 | .47 | 11.94 | .66 | 16.76 | .73 | 18.54 | 344 | 1531 | 9.1 | 231.14 |
| C5533 | 5 | .52 | 13.21 | .71 | 18.03 | .78 | 19.81 | 430 | 1914 | 9.1 | 231.14 |
| C5534 | 6 | .59 | 14.99 | .78 | 19.81 | .86 | 21.84 | 516 | 2296 | 10.5 | 266.70 |
| C5535 | 7 | .59 | 14.99 | .78 | 19.81 | .86 | 21.84 | 602 | 2679 | 10.5 | 266.70 |
| C5536 | 8 | .64 | 16.26 | .83 | 21.08 | .92 | 23.37 | 688 | 3062 | 11.1 | 281.94 |
| C5538 | 10 | .75 | 19.05 | 1.01 | 25.65 | 1.02 | 25.91 | 860 | 3827 | 13.3 | 337.82 |
| C5540 | 12 | .77 | 19.56 | 1.03 | 26.16 | 1.12 | 28.45 | 1032 | 4592 | 13.5 | 342.90 |
| C5543 | 15 | .90 | 22.86 | 1.16 | 29.46 | 1.24 | 31.50 | 1290 | 5741 | 15.1 | 383.54 |
| C5548 | 20 | .99 | 25.15 | 1.25 | 31.75 | 1.34 | 34.04 | 1720 | 7654 | 16.5 | 419.10 |
| C5553 | 25 | 1.10 | 27.94 | 1.36 | 34.54 | 1.45 | 36.83 | 2150 | 9568 | 17.6 | 447.04 |
| C5558 | 30 | 1.20 | 30.48 | 1.46 | 37.08 | 1.51 | 38.35 | 2580 | 11,481 | 17.6 | 447.04 |

Conductor Color Codes

| Conductors | Colors |
|------------|-------------------------|
| 2 | Black, White |
| 3 | Black, White, Blue |
| 4 | Black, Red, White, Blue |
| 5 or More | Black and Numbered |

BC = Bare Copper • PVC = Polyvinyl Chloride

CSA Control Cables
600 V TECK 90 Cables

Armored • Unshielded



- CSA C22.2 No. 239 CIC
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas
- HAZ LOC

| Part No. | Conductors | Inner Jacket OD | | Armor OD | | Outer Jacket OD | | Pull Tension (Max) | | Bend Radius (Min) | |
|----------|------------|-----------------|----|----------|----|-----------------|----|--------------------|---|-------------------|----|
| | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm |

Stranded BC Conductors • Cross-Linked Poly Insulation • Uninsulated BC Ground Wire • PVC Inner Jacket • Armor • Black PVC Outer Jacket

10 AWG • 7 x 18

| | | | | | | | | | | | |
|--------------|----|------|-------|------|-------|------|-------|------|--------|------|--------|
| C5560 | 2 | .48 | 12.19 | .66 | 16.76 | .72 | 18.29 | 296 | 1317 | 8.9 | 226.06 |
| C5561 | 3 | .50 | 12.70 | .70 | 17.78 | .75 | 19.05 | 444 | 1976 | 9.2 | 233.68 |
| C5562 | 4 | .57 | 14.48 | .77 | 19.56 | .79 | 20.07 | 592 | 2634 | 10.1 | 256.64 |
| C5563 | 5 | .63 | 16.00 | .83 | 21.08 | .93 | 23.62 | 740 | 3293 | 11.5 | 292.10 |
| C5564 | 6 | .68 | 17.27 | .88 | 22.35 | .93 | 23.62 | 888 | 3952 | 11.5 | 292.10 |
| C5565 | 7 | .69 | 17.53 | .89 | 22.61 | .99 | 25.15 | 1036 | 4610 | 11.8 | 299.72 |
| C5566 | 8 | .74 | 18.80 | .94 | 23.88 | 1.00 | 25.40 | 1184 | 5269 | 12.4 | 314.96 |
| C5568 | 10 | .84 | 21.34 | 1.10 | 27.94 | 1.24 | 31.50 | 1480 | 6586 | 14.4 | 365.76 |
| C5570 | 12 | .93 | 23.62 | 1.19 | 30.23 | 1.26 | 32.00 | 1776 | 7903 | 15.6 | 396.24 |
| C5573 | 15 | .99 | 25.15 | 1.25 | 31.75 | 1.37 | 34.80 | 2220 | 9879 | 16.3 | 414.02 |
| C5578 | 20 | 1.13 | 28.70 | 1.39 | 35.31 | 1.47 | 37.34 | 2960 | 13,172 | 16.9 | 429.26 |
| C5579 | 25 | 1.26 | 32.00 | 1.52 | 38.61 | 1.60 | 40.64 | 3700 | 16,465 | 19.7 | 500.38 |
| C5580 | 30 | 1.34 | 34.04 | 1.60 | 40.64 | 1.66 | 42.16 | 4440 | 19,758 | 20.6 | 523.24 |

8 AWG • 7 x 16

| | | | | | | | | | | | |
|--------------|---|-----|-------|-----|-------|-----|-------|-----|------|------|--------|
| C5583 | 2 | .59 | 14.99 | .78 | 19.81 | .86 | 21.84 | 384 | 1709 | 10.6 | 269.24 |
| C5581 | 3 | .63 | 16.00 | .83 | 21.08 | .90 | 22.86 | 576 | 2563 | 10.8 | 274.32 |
| C5582 | 4 | .69 | 17.53 | .89 | 22.61 | .97 | 24.64 | 768 | 3418 | 12.5 | 317.50 |

Conductor Color Codes

| Conductors | Colors |
|------------|-------------------------|
| 2 | Black, White |
| 3 | Black, White, Blue |
| 4 | Black, Red, White, Blue |
| 5 or More | Black and Numbered |

BC = Bare Copper • PVC = Polyvinyl Chloride

CSA Control Cables

600 V TECK 90 Composite Cables

Composite • Armored • Unshielded



- Sunlight Res
- CSA C22.2 No. 131 Type TECK 90
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas
- HAZ LOC

| Part No. | Conductors | Color Code | Inner Jacket OD | | Armor OD | | Outer Jacket OD | | Pull Tension (Max) | | Bend Radius (Min) | |
|----------|------------|------------|-----------------|----|----------|----|-----------------|----|--------------------|---|-------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm |

Stranded BC Conductors • Cross-linked Poly Insulation • PVC Inner Jacket • Armor • Black PVC Outer Jacket

14 and 12 AWG • 7 x 22 and 7 x 20 • 14 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | |
|------|-------|----|------|-------|-----|-------|-----|-------|-----|------|-----|--------|
| 6054 | 3 + 3 | E2 | .560 | 14.22 | .75 | 19.05 | .89 | 22.61 | 424 | 1886 | 8.4 | 213.36 |
|------|-------|----|------|-------|-----|-------|-----|-------|-----|------|-----|--------|

14 and 10 AWG • 7 x 22 and 7 x 18 • 12 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | |
|------|-------|----|------|-------|-----|-------|-----|-------|-----|------|-----|--------|
| 6051 | 3 + 3 | E2 | .600 | 15.24 | .82 | 20.83 | .92 | 23.37 | 608 | 2705 | 9.0 | 228.60 |
|------|-------|----|------|-------|-----|-------|-----|-------|-----|------|-----|--------|

14 and 8 AWG • 7 x 22 and 7 x 16 • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | |
|------|-------|----|------|-------|-----|-------|-----|-------|------|------|-----|--------|
| 6059 | 3 + 3 | E2 | .700 | 17.78 | .89 | 22.51 | .98 | 24.92 | 1160 | 5160 | 9.8 | 248.92 |
|------|-------|----|------|-------|-----|-------|-----|-------|------|------|-----|--------|

14 and 6 AWG • 7 x 22 and 7 x 14 • 8 AWG Uninsulated Ground Wire

| | | | | | | | | | | | | |
|------|-------|----|------|-------|------|-------|------|-------|------|------|------|--------|
| 6060 | 3 + 3 | E2 | .810 | 20.57 | 1.06 | 27.00 | 1.16 | 29.41 | 1700 | 7562 | 11.6 | 294.64 |
|------|-------|----|------|-------|------|-------|------|-------|------|------|------|--------|

BC = Bare Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

CSA Control Cables
1000 V TECK 90 Cables

Armored • Unshielded



- CSA C22.2 No. 131 Type TECK 90
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas
- HAZ LOC

| Part No. | Conductors | Inner Jacket OD | | Armor OD | | Outer Jacket OD | | Pull Tension (Max) | | Bend Radius (Min) | |
|----------|------------|-----------------|----|----------|----|-----------------|----|--------------------|---|-------------------|----|
| | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm |

Stranded BC Conductors • Cross-linked Poly Insulation • PVC Inner Jacket • Armor • Black PVC Outer Jacket

14 AWG • 7 x 22 • 14 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|-----|-------|-----|-------|-----|-------|-----|-----|-----|--------|
| C5701 | 3 | .47 | 11.94 | .67 | 17.02 | .73 | 18.54 | 162 | 721 | 9.2 | 233.68 |
| C5702 | 4 | .51 | 12.95 | .71 | 18.03 | .81 | 20.57 | 216 | 961 | 9.7 | 246.38 |

12 AWG • 7 x 20 • 14 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|-----|-------|-----|-------|-----|-------|-----|------|------|--------|
| C5730 | 2 | .48 | 12.19 | .68 | 17.27 | .74 | 18.80 | 172 | 765 | 9.3 | 236.22 |
| C5731 | 3 | .51 | 12.95 | .71 | 18.03 | .76 | 19.30 | 258 | 1148 | 9.7 | 246.38 |
| C5732 | 4 | .59 | 14.99 | .75 | 19.05 | .85 | 21.59 | 344 | 1531 | 10.8 | 274.32 |

10 AWG • 7 x 18 • 12 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|-----|-------|-----|-------|-----|-------|-----|------|------|--------|
| C5760 | 2 | .56 | 14.22 | .79 | 19.99 | .70 | 17.71 | 296 | 1317 | 10.3 | 261.62 |
| C5761 | 3 | .59 | 14.99 | .79 | 20.07 | .85 | 21.59 | 444 | 1976 | 10.3 | 261.62 |
| C5762 | 4 | .65 | 16.51 | .85 | 21.59 | .90 | 22.86 | 592 | 2634 | 11.5 | 292.10 |

8 AWG • 7 x 16 • 10 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|-----|-------|-----|-------|-----|-------|-----|------|------|--------|
| C5583 | 2 | .59 | 14.99 | .78 | 19.81 | .86 | 21.84 | 384 | 1709 | 10.6 | 269.24 |
| C5581 | 3 | .63 | 16.00 | .83 | 21.08 | .90 | 22.86 | 576 | 2563 | 10.8 | 274.32 |
| C5582 | 4 | .69 | 17.53 | .89 | 22.61 | .97 | 24.64 | 768 | 3418 | 12.5 | 317.50 |

6 AWG • 7 x 14 • 8 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|-----|-------|------|-------|------|-------|------|------|------|--------|
| C5590 | 2 | .73 | 18.54 | .99 | 25.15 | 1.10 | 27.94 | 610 | 2713 | 12.8 | 325.12 |
| C5591 | 3 | .78 | 19.81 | 1.04 | 26.42 | 1.15 | 29.21 | 915 | 4072 | 13.4 | 340.36 |
| C5592 | 4 | .89 | 22.61 | 1.15 | 29.21 | 1.24 | 31.50 | 1220 | 5429 | 14.9 | 378.46 |

Conductor Color Codes

| Conductors | Colors |
|------------|-------------------------|
| 2 | Black, White |
| 3 | Black, White, Blue |
| 4 | Black, Red, White, Blue |

BC = Bare Copper • PVC = Polyvinyl Chloride

CSA Control Cables
1000 V TECK 90 Cables

Armored • Unshielded



- CSA C22.2 No. 131 Type TECK 90
- CSA C22.2 No. 0.3 Clause 4.31
Low Acid Gas
- HAZ LOC

| Part No. | Conductors | Inner Jacket OD | | Armor OD | | Outer Jacket OD | | Pull Tension (Max) | | Bend Radius (Min) | |
|----------|------------|-----------------|----|----------|----|-----------------|----|--------------------|---|-------------------|----|
| | | Inch | mm | Inch | mm | Inch | mm | Lbs | N | Inch | mm |

Stranded BC Conductors • Cross-linked Poly Insulation • PVC Inner Jacket • Armor • Black PVC Outer Jacket

4 AWG • 7 x 12 • 8 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|-----|-------|------|-------|------|-------|------|------|------|--------|
| C5601 | 3 | .91 | 23.11 | 1.17 | 29.72 | 1.23 | 31.24 | 1455 | 6475 | 15.2 | 386.08 |
| C5602 | 4 | .91 | 23.11 | 1.25 | 31.75 | 1.33 | 33.78 | 1940 | 8633 | 16.2 | 411.48 |

3 AWG • 7 x 11 • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|-----|-------|------|-------|------|-------|------|------|------|--------|
| C5611 | 3 | .97 | 24.64 | 1.23 | 31.24 | 1.30 | 33.02 | 1836 | 8170 | 15.8 | 401.32 |
|--------------|---|-----|-------|------|-------|------|-------|------|------|------|--------|

2 AWG • 7 x 10 • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|------|-------|------|-------|------|-------|------|--------|------|--------|
| C5621 | 3 | 1.02 | 25.91 | 1.28 | 32.51 | 1.37 | 34.80 | 2316 | 10,302 | 16.5 | 419.10 |
| C5622 | 4 | 1.12 | 28.45 | 1.38 | 35.05 | 1.48 | 37.59 | 3088 | 13,736 | 17.7 | 449.58 |

1 AWG • 19 x 14 • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|------|-------|------|-------|------|-------|------|--------|------|--------|
| C5625 | 3 | 1.25 | 31.75 | 1.51 | 38.35 | 1.59 | 40.39 | 1980 | 8807 | 19.1 | 485.14 |
| C5626 | 4 | 1.34 | 34.04 | 1.57 | 39.88 | 1.68 | 42.67 | 2680 | 11,921 | 20.2 | 513.08 |

1/0 AWG • 19 x 12 • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|------|-------|------|-------|------|-------|------|--------|------|--------|
| C5627 | 3 | 1.34 | 34.04 | 1.60 | 40.64 | 1.67 | 42.42 | 3582 | 15,940 | 20.0 | 508.0 |
| 6164 | 4 | 1.44 | 36.58 | 1.67 | 42.42 | 1.78 | 45.21 | 4700 | 20,906 | 21.4 | 543.56 |

2/0 AWG • 19 x 11 • 6 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|--------------|---|------|-------|------|-------|------|-------|------|--------|------|--------|
| C5635 | 3 | 1.40 | 35.56 | 1.63 | 41.40 | 1.74 | 44.20 | 4200 | 12010 | 20.9 | 530.86 |
| 6157 | 4 | 1.55 | 39.37 | 1.84 | 46.74 | 1.95 | 49.53 | 5500 | 24,465 | 23.4 | 594.36 |

3/0 AWG • 19 x 10 • 4 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|-------------|---|------|-------|------|-------|------|-------|------|--------|------|--------|
| 6163 | 3 | 1.51 | 38.10 | 1.80 | 45.72 | 1.91 | 48.26 | 5020 | 11,121 | 22.9 | 579.12 |
| 6179 | 4 | 1.67 | 42.42 | 1.96 | 49.78 | 2.07 | 52.58 | 6500 | 28,913 | 24.8 | 629.92 |

4/0 AWG • 19 x 9.5 • 4 AWG Uninsulated Ground Wire

| | | | | | | | | | | | |
|-------------|---|------|-------|------|-------|------|-------|------|--------|------|--------|
| 6193 | 3 | 1.63 | 41.40 | 1.92 | 48.77 | 2.03 | 51.56 | 6650 | 29,580 | 24.4 | 619.76 |
|-------------|---|------|-------|------|-------|------|-------|------|--------|------|--------|

Conductor Color Codes

| Conductors | Colors |
|------------|-------------------------|
| 3 | Black, White, Blue |
| 4 | Black, Red, White, Blue |

BC = Bare Copper • PVC = Polyvinyl Chloride

MarineTuff™ UL Control Cables



MarineTuff certified Belden instrumentation and control cables bring reliable, safety conscious wiring solutions to offshore platforms, equipment suppliers and commercial shipbuilders. These ABS-certified cables offer physical toughness and the safety benefits of low smoke and zero halogen (LSZH) jackets to provide a no-compromise solution that can withstand the harshest offshore environments. Belden's MarineTuff certified cables are highly reliable, rugged solutions that will function in a variety of challenging offshore activities: mobile drilling, fixed platform, floating production, storage and offloading (FPSO), marine vessels.

Product Features

- Type P rated insulations on all cables and options.
- LSZH jackets on all cables and options.
- Bronze braid or continuous aluminum armoring available.
- ABS and DNV certified.
- 10 year warranty.
- Sunlight and Oil Resistant.

Cable Specifications

Belden cables have been designed and tested to the highest of standards :

- IEEE 45 Electrical Installations on Shipboard.
- IEEE 1580 Type P insulations (recommended practice for marine cables for use on shipboard in fixed or floating facilities).
- UL 1309 Marine Shipboard Cables.
- IEC 60811-2-1 compliant for Hydrocarbon Resistance.
- IEC 60754-1 compliant jacket for Halogen content.
- IEC 60754-2 compliant jacket for Acid Gas Emissions.
- IEC 60092-350 Electrical Installations on Ships.
- UL 1277 TC-ER Crush and Impact Resistant (UL TC for 2-conductor cables).
- IEEE 1202 and FT4 Flame-Resistant.
- IEC 60332-3-22.

Applications

Oil and Gas platforms must continuously achieve optimal performance, while operating in harsh environments under mission-critical conditions. Demands on communication networks include safety, availability, reliability and durability in environments where vibration, corrosion, fluctuating temperature, splash water, and pollution occur. The MarineTuff instrumentation and control cables are designed to operate in these conditions.



MarineTuff™ Marine Approved UL Control Cables

600V Type TC (or MC) Control Cables



UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

18 AWG • Unshielded

| Flexible Stranded (16 X 30) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|----|----|------|-------|-------|-------------|-----------|------|-----|--|
| 27916Z | 2 | E2 | 44 | 3.20 | 81.3 | 0.21 X 0.31 | 5.3 X 7.9 | 0.05 | 1.1 | |
| 27325Z | 2 | E2 | 44 | 3.10 | 78.7 | 0.31 | 7.9 | 0.05 | 1.1 | |
| 28329Z | 12 | E2 | 264 | 5.80 | 147.3 | 0.58 | 14.7 | 0.06 | 1.5 | |
| 28611Z | 25 | E2 | 550 | 8.00 | 203.2 | 0.80 | 20.3 | 0.06 | 1.5 | |
| 28613Z | 37 | E2 | 814 | 9.40 | 238.8 | 0.93 | 23.6 | 0.08 | 2.0 | |
| 28632Z | 60 | E2 | 1320 | 11.70 | 297.2 | 1.17 | 29.7 | 0.08 | 2.0 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

18 AWG • Shielded

| Flexible Stranded (16 X 30) TC Conductors • XLPE Insulation • Shielded 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|--|---|----|-----|------|------|------|-----|------|-----|--|
| 27325ZS | 2 | E2 | 67 | 3.13 | 79.5 | 0.31 | 8.0 | 0.05 | 1.1 | |
| 28334ZS | 3 | E2 | 90 | 3.33 | 84.6 | 0.33 | 8.5 | 0.05 | 1.1 | |
| 28326ZS | 4 | E2 | 112 | 3.63 | 92.2 | 0.36 | 9.2 | 0.05 | 1.1 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

18 AWG • Unshielded • Armored

| Flexible Stranded (16 X 30) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | | |
|--|----|----|------|-------|-------|------|------|------|-----|------|-----|--|
| Z27916Z | 2 | E2 | 44 | 4.13 | 105.0 | 0.45 | 8.7 | 0.05 | 1.1 | 0.05 | 1.4 | |
| Z27325Z | 2 | E2 | 44 | 5.45 | 105.0 | 0.45 | 8.7 | 0.05 | 1.1 | 0.05 | 1.4 | |
| Z28329Z | 12 | E2 | 264 | 8.90 | 192.5 | 0.74 | 16.0 | 0.06 | 1.5 | 0.05 | 1.4 | |
| Z28611Z | 25 | E2 | 550 | 11.54 | 259.6 | 0.96 | 21.6 | 0.06 | 1.5 | 0.05 | 1.4 | |
| Z28613Z | 37 | E2 | 814 | 13.10 | 299.2 | 1.09 | 24.9 | 0.08 | 2.0 | 0.05 | 1.4 | |
| Z28632Z | 60 | E2 | 1320 | 15.98 | 372.4 | 1.33 | 31.0 | 0.08 | 2.0 | 0.05 | 1.4 | |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.



MarineTuff™ Marine Approved UL Control Cables
600V Type TC (or MC) Control Cables

UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

16 AWG • Unshielded

| Flexible Stranded (26 X 30) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|----|----|------|-------|-------|-------------|-----------|------|------|--|
| 27917Z | 2 | E2 | 44 | 3.30 | 83.8 | 0.21 X 0.33 | 5.4 X 8.4 | 0.05 | 1.10 | |
| 27337Z | 2 | E2 | 44 | 3.50 | 88.9 | 0.34 | 8.60 | 0.05 | 1.10 | |
| 28341Z | 12 | E2 | 264 | 6.30 | 160.0 | 0.63 | 16.00 | 0.05 | 1.10 | |
| 28623Z | 18 | E2 | 396 | 7.40 | 188.0 | 0.73 | 18.50 | 0.06 | 1.50 | |
| 28624Z | 25 | E2 | 550 | 9.20 | 233.7 | 0.91 | 23.10 | 0.08 | 2.00 | |
| 28628Z | 50 | E2 | 1100 | 11.90 | 302.3 | 1.19 | 30.20 | 0.08 | 2.00 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

16 AWG • Shielded

| Flexible Stranded (26 X 30) TC Conductors • XLPE Insulation • Shielded 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|--|---|----|-----|------|------|------|-----|------|-----|--|
| 27337ZS | 2 | E2 | 94 | 3.43 | 87.1 | 0.34 | 8.7 | 0.05 | 1.1 | |
| 28331ZS | 2 | E2 | 130 | 3.53 | 89.7 | 0.35 | 9.0 | 0.05 | 1.1 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

16 AWG • Unshielded • Armored

| Flexible Stranded (26 X 30) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|----|----|------|-------|-------|------|------|------|------|------|-----|
| Z27917Z | 2 | E2 | 44 | 5.69 | 144.6 | 0.47 | 12.0 | 0.05 | 1.1 | 0.06 | 1.4 |
| Z27337Z | 2 | E2 | 44 | 5.81 | 147.7 | 0.48 | 12.3 | 0.05 | 1.1 | 0.06 | 1.4 |
| Z28341Z | 12 | E2 | 264 | 9.50 | 241.3 | 0.79 | 20.1 | 0.05 | 1.10 | 0.06 | 1.4 |
| Z28623Z | 18 | E2 | 396 | 10.70 | 271.8 | 0.89 | 22.6 | 0.06 | 1.5 | 0.06 | 1.4 |
| Z28624Z | 25 | E2 | 550 | 12.86 | 236.6 | 1.07 | 27.2 | 0.08 | 2.0 | 0.06 | 1.4 |
| Z28628Z | 50 | E2 | 1100 | 16.55 | 420.3 | 1.38 | 35.0 | 0.08 | 2.0 | 0.06 | 1.5 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff Marine Approved UL Control Cables

600V Type TC (or MC) Control Cables



UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

14 AWG • Unshielded

| Flexible Stranded (41 X 30) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|----|----|------|-------|-------|-------------|-----------|------|-----|--|
| 27080Z | 2 | E2 | 108 | 3.70 | 94.0 | 0.24 X 0.37 | 6.1 X 9.4 | 0.05 | 1.1 | |
| 27636Z | 2 | E2 | 108 | 3.70 | 94.0 | 0.36 | 9.1 | 0.05 | 1.1 | |
| 28090Z | 12 | E2 | 648 | 6.90 | 175.3 | 0.68 | 17.3 | 0.06 | 1.5 | |
| 28096Z | 18 | E2 | 972 | 8.00 | 203.2 | 0.80 | 20.3 | 0.06 | 1.5 | |
| 28103Z | 25 | E2 | 1350 | 10.00 | 254.0 | 0.99 | 25.1 | 0.06 | 2.0 | |
| 28912Z | 50 | E2 | 2700 | 13.00 | 330.2 | 1.30 | 33.0 | 0.08 | 2.0 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

14 AWG • Shielded

| Flexible Stranded (41 X 30) TC Conductors • XLPE Insulation • Shielded 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|--|---|----|-----|------|-------|------|------|------|-----|--|
| 28081ZS | 3 | E2 | 99 | 3.83 | 97.3 | 0.38 | 9.7 | 0.05 | 1.1 | |
| 28082ZS | 4 | E2 | 273 | 4.23 | 107.4 | 0.42 | 10.7 | 0.05 | 1.1 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

14 AWG • Shielded

| Flexible Stranded (41 X 30) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | | |
|--|----|----|------|-------|-------|------|------|------|-----|------|-----|--|
| Z27080Z | 2 | E2 | 108 | 6.17 | 156.8 | 0.51 | 13.1 | 0.05 | 1.1 | 0.06 | 1.4 | |
| Z27636Z | 2 | E2 | 108 | 6.05 | 156.8 | 0.50 | 12.8 | 0.05 | 1.1 | 0.06 | 1.4 | |
| Z28090Z | 12 | E2 | 648 | 10.10 | 256.5 | 0.84 | 21.4 | 0.06 | 1.5 | 0.06 | 1.4 | |
| Z28096Z | 18 | E2 | 972 | 11.54 | 293.1 | 0.96 | 24.4 | 0.06 | 1.5 | 0.06 | 1.4 | |
| Z28103Z | 25 | E2 | 1350 | 13.82 | 351.0 | 1.15 | 29.3 | 0.06 | 2.0 | 0.06 | 1.4 | |
| Z28912Z | 50 | E2 | 2700 | 17.87 | 453.8 | 1.49 | 37.8 | 0.08 | 2.0 | 0.06 | 1.5 | |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.



MarineTuff™ Marine Approved UL Control Cables
600V Type TC (or MC) Control Cables

UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

12 AWG • Unshielded

| Flexible Stranded (65 X 30) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|----|----|------|-------|-------|------|-------|------|------|--|
| 27109Z | 2 | E2 | 172 | 4.10 | 104.1 | 0.40 | 10.20 | 0.05 | 1.10 | |
| 27641Z | 2 | E2 | 172 | 4.10 | 104.1 | 0.40 | 10.20 | 0.05 | 1.10 | |
| 28119Z | 12 | E2 | 1032 | 7.70 | 195.6 | 0.77 | 19.60 | 0.06 | 1.50 | |
| 28125Z | 18 | E2 | 1548 | 9.50 | 241.3 | 0.95 | 24.10 | 0.06 | 1.50 | |
| 28132Z | 25 | E2 | 2150 | 11.30 | 287.0 | 1.12 | 28.40 | 0.08 | 2.00 | |
| 28634Z | 50 | E2 | 4300 | 14.80 | 375.9 | 1.47 | 37.30 | 0.08 | 2.00 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

12 AWG • Unshielded • Armored

| Flexible Stranded (65 X 30) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | | |
|--|----|----|------|-------|-------|------|------|------|-----|------|-----|--|
| Z27109Z | 2 | E2 | 172 | 6.64 | 171.2 | 0.55 | 14.3 | 0.05 | 1.1 | 0.06 | 1.4 | |
| Z27641Z | 2 | E2 | 172 | 6.64 | 171.2 | 0.55 | 14.3 | 0.05 | 1.1 | 0.06 | 1.4 | |
| Z28119Z | 12 | E2 | 1032 | 11.01 | 284.0 | 0.92 | 23.7 | 0.06 | 1.5 | 0.06 | 1.4 | |
| Z28125Z | 18 | E2 | 1548 | 13.13 | 338.8 | 1.09 | 28.2 | 0.06 | 1.5 | 0.06 | 1.4 | |
| Z28132Z | 25 | E2 | 2150 | 15.14 | 390.7 | 1.26 | 32.6 | 0.08 | 2.0 | 0.06 | 1.4 | |
| Z28634Z | 50 | E2 | 4300 | 19.72 | 508.7 | 1.64 | 42.4 | 0.08 | 2.0 | 0.07 | 1.7 | |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff Marine Approved UL Control Cables

600V Type TC (or MC) Control Cables



UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

10 AWG • Unshielded

| Flexible Stranded (105 X 30) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|--|----|----|------|------|-------|------|------|------|-----|--|
| 27138Z | 2 | E2 | 296 | 4.50 | 114.3 | 0.44 | 11.2 | 0.04 | 1.1 | |
| 27643Z | 2 | E2 | 296 | 4.50 | 114.3 | 0.44 | 11.2 | 0.04 | 1.1 | |
| 28140Z | 4 | E2 | 592 | 5.20 | 132.0 | 0.51 | 13.0 | 0.04 | 1.1 | |
| 28144Z | 8 | E2 | 1184 | 7.10 | 180.3 | 0.71 | 18.0 | 0.06 | 1.5 | |
| 28148Z | 12 | E2 | 1776 | 9.00 | 228.6 | 0.90 | 22.9 | 0.08 | 2.0 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

10 AWG • Unshielded • Armored

| Flexible Stranded (105 X 30) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|---|----|----|------|-------|-------|------|------|------|-----|------|-----|
| Z27138Z | 2 | E2 | 296 | 7.22 | 183.4 | 0.60 | 15.3 | 0.04 | 1.1 | 0.06 | 1.4 |
| Z27643Z | 2 | E2 | 296 | 7.22 | 183.4 | 0.60 | 15.3 | 0.04 | 1.1 | 0.06 | 1.4 |
| Z28140Z | 4 | E2 | 592 | 8.06 | 204.7 | 0.67 | 17.1 | 0.04 | 1.1 | 0.06 | 1.4 |
| Z28144Z | 8 | E2 | 1184 | 10.46 | 265.7 | 0.87 | 22.1 | 0.06 | 1.5 | 0.06 | 1.4 |
| Z28148Z | 12 | E2 | 1776 | 12.74 | 323.6 | 1.06 | 27.0 | 0.08 | 2.0 | 0.06 | 1.4 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.



MarineTuff™ Marine Approved UL Control Cables
600V Type TC (or MC) Control Cables

UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

8 AWG • Unshielded

| Flexible Stranded (7 X 19 X 29) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|-----|------|-------|------|------|------|-----|--|
| 28149Z | 2 | E2 | 384 | 6.00 | 152.4 | 0.60 | 15.2 | 0.06 | 1.5 | |
| 28150Z | 3 | E2 | 576 | 6.40 | 162.6 | 0.63 | 16.0 | 0.06 | 1.5 | |
| 28151Z | 4 | E2 | 768 | 7.00 | 177.8 | 0.69 | 17.5 | 0.06 | 1.5 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

8 AWG • Unshielded • Armored

| Flexible Stranded (7 X 19 X 29) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|---|----|-----|-------|-------|------|------|------|-----|------|-----|
| Z28149Z | 2 | E2 | 296 | 9.14 | 232.2 | 0.76 | 19.3 | 0.06 | 1.5 | 0.06 | 1.4 |
| Z28150Z | 3 | E2 | 296 | 9.50 | 241.3 | 0.79 | 20.1 | 0.06 | 1.5 | 0.06 | 1.4 |
| Z28151Z | 4 | E2 | 444 | 10.22 | 259.6 | 0.85 | 21.6 | 0.06 | 1.5 | 0.06 | 1.4 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff Marine Approved UL Control Cables

600V Type TC (or MC) Control Cables



UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

6 AWG • Unshielded - 8 AWG Uninsulated Ground Wire

| Flexible Stranded (7 X 19 X 27) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|------|------|-------|------|------|------|-----|--|
| 28152Z | 2 | E2 | 610 | 6.80 | 172.7 | 0.67 | 17.0 | 0.06 | 1.5 | |
| 28153Z | 3 | E2 | 915 | 7.20 | 182.9 | 0.71 | 18.0 | 0.06 | 1.5 | |
| 28154Z | 4 | E2 | 1220 | 7.90 | 200.7 | 0.78 | 19.8 | 0.06 | 1.5 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

6 AWG • Unshielded - 8 AWG Uninsulated Ground Wire • Armored

| Flexible Stranded (7 X 19 X 27) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|---|----|-----|-------|-------|------|------|------|-----|------|-----|
| Z28152Z | 2 | E2 | 296 | 9.98 | 253.5 | 0.83 | 21.1 | 0.06 | 1.5 | 0.06 | 1.4 |
| Z28153Z | 2 | E2 | 296 | 10.46 | 265.7 | 0.87 | 22.1 | 0.06 | 1.5 | 0.06 | 1.4 |
| Z28154Z | 3 | E2 | 444 | 11.30 | 287.0 | 0.94 | 23.9 | 0.06 | 1.5 | 0.06 | 1.4 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.



MarineTuff™ Marine Approved UL Control Cables
600V Type TC (or MC) Control Cables

UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

4 AWG • Unshielded - 8 AWG Uninsulated Ground Wire

| Flexible Stranded (7 X 19 X 25) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|------|------|-------|------|------|------|-----|--|
| 28155Z | 2 | E2 | 970 | 7.70 | 195.6 | 0.77 | 19.6 | 0.06 | 1.5 | |
| 28156Z | 3 | E2 | 1455 | 8.20 | 208.3 | 0.81 | 20.6 | 0.08 | 2.0 | |
| 28157Z | 4 | E2 | 1940 | 9.50 | 241.3 | 0.94 | 23.9 | 0.08 | 2.0 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

4 AWG • Unshielded - 8 AWG Uninsulated Ground Wire • Armored

| Flexible Stranded (7 X 19 X 25) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|---|----|------|-------|-------|------|------|------|-----|------|-----|
| Z28155Z | 2 | E2 | 970 | 11.18 | 284.0 | 0.93 | 23.7 | 0.06 | 1.5 | 0.06 | 1.4 |
| Z28156Z | 2 | E2 | 1455 | 11.66 | 296.2 | 0.97 | 24.7 | 0.06 | 2.0 | 0.06 | 1.4 |
| Z28157Z | 3 | E2 | 1940 | 13.22 | 335.8 | 1.10 | 28.0 | 0.08 | 2.0 | 0.06 | 1.4 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff Marine Approved UL Control Cables

600V Type TC (or MC) Control Cables



UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

2 AWG • Unshielded - 8 AWG Uninsulated Ground Wire

| Flexible Stranded (7 X 19 X 23) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|------|-------|-------|------|------|------|-----|--|
| 28158Z | 2 | E2 | 1544 | 9.30 | 236.2 | 0.93 | 23.6 | 0.08 | 2.0 | |
| 28159Z | 3 | E2 | 2316 | 9.80 | 248.9 | 0.98 | 24.9 | 0.08 | 2.0 | |
| 28160Z | 4 | E2 | 3088 | 10.90 | 276.9 | 1.09 | 27.7 | 0.08 | 2.0 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

2 AWG • Unshielded - 8 AWG Uninsulated Ground Wire • Armored

| Flexible Stranded (7 X 19 X 23) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|---|----|------|-------|-------|------|------|------|-----|------|-----|
| Z28158Z | 2 | E2 | 1544 | 13.10 | 322.7 | 1.09 | 27.7 | 0.08 | 2.0 | 0.06 | 1.4 |
| Z28159Z | 2 | E2 | 2316 | 13.70 | 348.0 | 1.14 | 29.0 | 0.08 | 2.0 | 0.06 | 1.4 |
| Z28160Z | 3 | E2 | 3088 | 15.02 | 381.5 | 1.25 | 31.8 | 0.08 | 2.0 | 0.06 | 1.4 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.



MarineTuff™ Marine Approved UL Control Cables
600V Type TC (or MC) Control Cables

UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|--|-------------------|----|----------|----|-----------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

1 AWG • Unshielded - 6 AWG Uninsulated Ground Wire

| Flexible Stranded (7 X 19 X 22) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|------|-------|-------|------|------|------|-----|--|
| 28161Z | 2 | E2 | 2919 | 12.00 | 304.8 | 1.19 | 30.2 | 0.08 | 2.0 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|--|-------------------|----|----------|----|-----------------------|----|------------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

1 AWG • Unshielded - 6 AWG Uninsulated Ground Wire • Armored

| Flexible Stranded (7 X 19 X 22) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|---|----|------|-------|-------|------|------|------|-----|------|-----|
| Z28161Z | 2 | E2 | 2919 | 16.55 | 420.3 | 1.38 | 35.0 | 0.08 | 2.0 | 0.06 | 1.4 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff Marine Approved UL Control Cables

600V Type TC (or MC) Control Cables



UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

1/0 AWG • Unshielded - 6 AWG Uninsulated Ground Wire

| Flexible Stranded (7 X 19 X 21) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|------|-------|-------|------|------|------|-----|--|
| 28167Z | 2 | E2 | 1690 | 11.40 | 289.6 | 1.13 | 28.7 | 0.08 | 2.0 | |
| 28168Z | 3 | E2 | 2535 | 1.21 | 307.3 | 1.21 | 30.7 | 0.08 | 2.1 | |
| 28169Z | 4 | E2 | 3380 | 13.20 | 335.3 | 1.32 | 33.5 | 0.08 | 2.1 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

1/0 AWG • Unshielded - 6 AWG Uninsulated Ground Wire • Armored

| Flexible Stranded (7 X 19 X 21) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | | |
|--|---|----|------|-------|-------|------|------|------|-----|------|-----|--|
| Z28167Z | 2 | E2 | 1690 | 15.50 | 393.7 | 1.29 | 32.8 | 0.08 | 2.0 | 0.06 | 1.4 | |
| Z28168Z | 2 | E2 | 2535 | 16.79 | 426.4 | 1.40 | 35.5 | 0.08 | 2.1 | 0.06 | 1.5 | |
| Z28169Z | 3 | E2 | 3380 | 18.11 | 459.9 | 1.51 | 38.3 | 0.08 | 2.1 | 0.06 | 1.5 | |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.



MarineTuff™ Marine Approved UL Control Cables
600V Type TC (or MC) Control Cables

UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

2/0 AWG • Unshielded - 6 AWG Uninsulated Ground Wire

| Flexible Stranded (7 X 19 X 20) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|------|-------|-------|------|------|------|-----|--|
| 28170Z | 2 | E2 | 2919 | 12.00 | 309.9 | 1.21 | 30.7 | 0.08 | 2.1 | |
| 28171Z | 3 | E2 | 3195 | 13.00 | 330.2 | 1.30 | 33.0 | 0.08 | 2.1 | |
| 28172Z | 4 | E2 | 4260 | 14.30 | 363.2 | 1.43 | 36.3 | 0.08 | 2.1 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

2/0 AWG • Unshielded - 6 AWG Uninsulated Ground Wire • Armored

| Flexible Stranded (7 X 19 X 20) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|---|----|------|-------|-------|------|------|------|-----|------|-----|
| Z28170Z | 2 | E2 | 2130 | 16.79 | 426.4 | 1.40 | 35.5 | 0.08 | 2.1 | 0.06 | 1.5 |
| Z28171Z | 3 | E2 | 3195 | 17.87 | 453.8 | 1.49 | 37.8 | 0.08 | 2.1 | 0.06 | 1.5 |
| Z28172Z | 4 | E2 | 4260 | 19.43 | 493.4 | 1.62 | 41.1 | 0.08 | 2.1 | 0.06 | 1.5 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff Marine Approved UL Control Cables

600V Type TC (or MC) Control Cables



UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

3/0 AWG • Unshielded - 6 AWG Uninsulated Ground Wire

| Flexible Stranded (7 X 19 X 19) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|------|-------|-------|------|------|------|-----|--|
| 28173Z | 2 | E2 | 2686 | 14.20 | 360.7 | 1.41 | 35.8 | 0.08 | 2.1 | |
| 28174Z | 3 | E2 | 4029 | 15.20 | 386.1 | 1.51 | 38.4 | 0.08 | 2.1 | |
| 28175Z | 4 | E2 | 5372 | 15.50 | 393.7 | 1.55 | 39.4 | 0.08 | 2.1 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

3/0 AWG • Unshielded - 6 AWG Uninsulated Ground Wire • Armored

| Flexible Stranded (7 X 19 X 19) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | | |
|--|---|----|------|-------|-------|------|------|------|-----|------|-----|--|
| Z28173Z | 2 | E2 | 2686 | 19.19 | 487.3 | 1.60 | 40.6 | 0.08 | 2.1 | 0.06 | 1.5 | |
| Z28174Z | 2 | E2 | 4029 | 20.51 | 520.9 | 1.71 | 43.4 | 0.08 | 2.1 | 0.07 | 1.7 | |
| Z28175Z | 3 | E2 | 5372 | 20.99 | 533.1 | 1.75 | 44.4 | 0.08 | 2.1 | 0.07 | 1.5 | |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.



MarineTuff™ Marine Approved UL Control Cables
600V Type TC (or MC) Control Cables

UL Control Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- UL 1277 TC-ER
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- IEEE 1202 and CSA FT4 Flame Resistant
- UL 1309 marine shipboard cables
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | |

4/0 AWG • Unshielded - 6 AWG Uninsulated Ground Wire

| Flexible Stranded (7 X 19 X 18) TC Conductors • XLPE Insulation • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|---|----|------|-------|-------|------|------|------|-----|--|
| 28170Z | 2 | E2 | 3386 | 13.20 | 335.3 | 1.31 | 33.3 | 0.08 | 2.1 | |
| 28171Z | 3 | E2 | 5078 | 15.20 | 386.1 | 1.51 | 38.4 | 0.08 | 2.1 | |
| 28172Z | 4 | E2 | 6771 | 17.50 | 444.5 | 1.75 | 44.5 | 0.12 | 3.0 | |



| Part No. | Conductors | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|------------|--------------------|------|-------------------|------|----------|------|-----------------------|------|------------------------|--|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |

4/0 AWG • Unshielded - 6 AWG Uninsulated Ground Wire • Armored

| Flexible Stranded (7 X 19 X 18) TC Conductors • XLPE Insulation • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|---|----|------|-------|-------|------|------|------|-----|------|-----|
| Z28176Z | 2 | E2 | 3386 | 17.99 | 456.9 | 1.50 | 38.1 | 0.08 | 2.1 | 0.06 | 1.5 |
| Z28177Z | 3 | E2 | 5078 | 20.51 | 520.9 | 1.71 | 43.4 | 0.08 | 2.1 | 0.07 | 1.7 |
| Z28178Z | 4 | E2 | 6771 | 23.39 | 594.0 | 1.95 | 49.5 | 0.12 | 3.0 | 0.07 | 1.7 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

Technical Information
Gland Information for Armored Cables

Thomas and Betts

| Part No. | Hub Size NPT | Range Over Jacket | | | |
|-----------|--------------|-------------------|--------|---------|--------|
| | | Minimum | | Maximum | |
| | | Inch | mm | Inch | mm |
| ST050-462 | 1/2 | .525 | 13.34 | .650 | 16.51 |
| ST050-464 | 1/2 | .600 | 15.24 | .760 | 19.30 |
| ST050-465 | 1/2 | .725 | 18.42 | .885 | 22.48 |
| ST050-466 | 1/2 | .825 | 20.96 | .985 | 25.02 |
| ST075-467 | 3/4 | .880 | 22.35 | 1.065 | 27.05 |
| ST075-468 | 3/4 | 1.025 | 26.04 | 1.205 | 30.61 |
| ST100-469 | 1 | 1.187 | 30.15 | 1.375 | 34.93 |
| ST125-470 | 1-1/4 | 1.350 | 34.29 | 1.625 | 41.28 |
| ST125-550 | 1-1/4 | 1.500 | 38.10 | 1.625 | 41.28 |
| ST125-471 | 1-1/4 | 1.600 | 40.64 | 1.875 | 47.63 |
| ST150-472 | 1-1/2 | 1.700 | 43.18 | 1.965 | 49.91 |
| ST150-473 | 1-1/2 | 1.900 | 48.26 | 2.187 | 55.55 |
| ST200-551 | 2 | 1.900 | 48.26 | 2.187 | 55.55 |
| ST200-474 | 2 | 2.100 | 53.34 | 2.375 | 60.33 |
| ST200-475 | 2 | 2.300 | 58.42 | 2.565 | 65.15 |
| ST200-476 | 2 | 2.500 | 63.50 | 2.750 | 69.85 |
| ST250-477 | 2-1/2 | 2.380 | 60.45 | 2.640 | 67.06 |
| ST250-478 | 2-1/2 | 2.580 | 65.53 | 2.840 | 72.14 |
| ST300-479 | 3 | 2.790 | 70.87 | 3.060 | 77.72 |
| ST300-480 | 3 | 3.000 | 76.20 | 3.270 | 83.06 |
| ST300-481 | 3 | 3.210 | 81.53 | 3.480 | 88.39 |
| ST350-482 | 3-1/2 | 3.420 | 86.67 | 3.690 | 93.73 |
| ST350-483 | 3-1/2 | 3.610 | 91.69 | 3.870 | 98.30 |
| ST400-484 | 4 | 3.810 | 96.77 | 4.030 | 102.36 |
| ST400-485 | 4 | 3.965 | 100.71 | 4.185 | 106.30 |
| ST400-486 | 4 | 4.120 | 104.65 | 4.340 | 110.24 |

Crouse Hinds

| NPT Thread Size | Armor OD Range (Inch) | Non-Hazardous Part No. | Hazardous Part No. |
|-----------------|-----------------------|------------------------|--------------------|
| 1/2 | .440 to .650 | TMC165 | TMCX165* |
| 3/4 | .600 to .850 | TMC285 | TMCX285* |
| 1 | .800 to 1.120 | TMC3112 | TMCX3112* |
| 1-1/4 | 1.100 to 1.400 | TMC4140 | TMCX4140* |
| 1-1/2 | 1.330 to 1.610 | TMC5161 | TMCX5161* |
| 2 | 1.570 to 2.060 | TMC6206 | TMCX6206 |
| 2-1/2 | 1.930 to 2.470 | TMC7247 | TMCX7247* |
| 3 | 2.450 to 3.020 | TMC8302 | TMCX8302 |
| 3-1/2 | 2.950 to 3.520 | TMC9352 | TMCX9352 |
| 4 | 3.500 to 4.020 | TMC10402 | TMCX10402 |

* TMCX Catalog numbers listed are suitable for use with Type TC tray cable in hazardous locations when installed in accordance with NEC Articles 501-5(e) and 502-5. TMCX series is not suitable for use in Class III locations when used with tray cable.

| Hawke Size Ref. | Standard Seal 1348 Diameter | | | | Alternative Seal 1498 Diameter | | | | NPT Size |
|-----------------|-----------------------------|-------|---------|--------|--------------------------------|-------|---------|-------|----------|
| | Minimum | | Maximum | | Minimum | | Maximum | | |
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm | |
| 711-A | .590 | 14.99 | .820 | 20.83 | .470 | 11.94 | .610 | 15.49 | 1/2 |
| 711-B | .790 | 20.07 | .060 | 26.92 | .630 | 16.00 | .840 | 21.34 | 3/4 |
| 711-C | .930 | 23.62 | 1.310 | 33.27 | .830 | 21.08 | 1.090 | 27.69 | 1 |
| 711-C2 | 1.260 | 32.00 | 1.690 | 42.93 | 1.100 | 27.94 | 1.340 | 34.04 | 1-1/4 |
| 711-D | 1.690 | 42.93 | 2.060 | 52.32 | 1.300 | 33.02 | 1.610 | 40.89 | 2 |
| 711-E | 2.050 | 52.07 | 2.560 | 65.02 | 1.810 | 45.97 | 2.160 | 54.86 | 2-1/2 |
| 711-F | 2.560 | 65.02 | 3.070 | 77.98 | 2.240 | 56.90 | 2.640 | 67.06 | 3 |
| 711-H | 2.990 | 75.95 | 3.520 | 89.41 | Special Order | | | | 3-1/2 |
| 711-J | 3.500 | 88.90 | 4.110 | 104.39 | Special Order | | | | 4 |

Adalet - PLM

| Part No. | Diameter Over Jacket | | | | Conduit Size |
|---------------|----------------------|--------|---------|--------|--------------|
| | Minimum | | Maximum | | |
| | Inch | mm | Inch | mm | |
| PS/PSX 45-05 | .350 | 8.89 | .450 | 11.43 | 1/2 |
| PS/PSX 55-05 | .450 | 11.43 | .550 | 13.97 | 1/2 |
| PS/PSX 65-05 | .550 | 13.97 | .650 | 16.51 | 1/2 |
| PS/PSX 75-05 | .650 | 16.51 | .750 | 19.05 | 1/2 |
| PS/PSX 85-05 | .750 | 19.05 | .850 | 21.59 | 1/2 |
| PS/PSX 95-05 | .850 | 21.59 | .950 | 24.13 | 1/2 |
| PS/PSX 99-07 | .850 | 21.59 | .990 | 25.15 | 3/4 |
| PS/PSX 107-07 | .920 | 23.37 | 1.070 | 27.18 | 3/4 |
| PS/PSX 113-07 | .980 | 24.89 | 1.130 | 28.70 | 3/4 |
| PS/PSX 121-07 | 1.070 | 27.18 | 1.210 | 30.73 | 3/4 |
| PS/PSX 112-10 | 1.000 | 25.40 | 1.120 | 28.45 | 1 |
| PS/PSX 125-10 | 1.120 | 28.45 | 1.250 | 31.25 | 1 |
| PS/PSX 138-10 | 1.220 | 30.99 | 1.380 | 35.05 | 1 |
| PS/PSX 138-12 | 1.280 | 32.51 | 1.380 | 35.05 | 1-1/4 |
| PS/PSX 156-12 | 1.380 | 35.05 | 1.560 | 39.62 | 1-1/4 |
| PS/PSX 174-12 | 1.560 | 39.62 | 1.740 | 44.20 | 1-1/4 |
| PS/PSX 188-12 | 1.740 | 44.20 | 1.880 | 47.75 | 1-1/4 |
| PS/PSX 174-15 | 1.600 | 40.64 | 1.740 | 44.20 | 1-1/2 |
| PS/PSX 188-15 | 1.740 | 44.20 | 1.880 | 47.75 | 1-1/2 |
| PS/PSX 200-15 | 1.880 | 47.75 | 2.000 | 50.80 | 1-1/2 |
| PS/PSX 218-15 | 2.000 | 50.80 | 2.180 | 55.37 | 1-1/2 |
| PS/PSX 219-20 | 2.050 | 52.07 | 2.190 | 55.63 | 2 |
| PS/PSX 236-20 | 2.190 | 55.63 | 2.360 | 59.94 | 2 |
| PS/PSX 247-20 | 2.350 | 59.69 | 2.470 | 62.74 | 2 |
| PS/PSX 261-20 | 2.470 | 62.74 | 2.610 | 66.29 | 2 |
| PS/PSX 263-25 | 2.460 | 62.48 | 2.630 | 66.80 | 2-1/2 |
| PS/PSX 280-25 | 2.620 | 66.55 | 2.800 | 71.12 | 2-1/2 |
| PS/PSX 296-25 | 2.800 | 71.12 | 2.960 | 75.18 | 2-1/2 |
| PS/PSX 297-30 | 2.800 | 71.12 | 2.970 | 75.44 | 3 |
| PS/PSX 311-30 | 2.950 | 74.93 | 3.110 | 78.99 | 3 |
| PS/PSX 327-30 | 3.100 | 78.74 | 3.270 | 83.06 | 3 |
| PS/PSX 343-30 | 3.260 | 82.80 | 3.430 | 87.12 | 3 |
| PS/PSX 359-30 | 3.420 | 86.87 | 3.590 | 91.19 | 3 |
| PS/PSX 375-35 | 3.520 | 89.41 | 3.750 | 95.25 | 3-1/2 |
| PS/PSX 392-35 | 3.750 | 95.25 | 3.920 | 99.57 | 3-1/2 |
| PS/PSX 412-35 | 3.900 | 99.06 | 4.120 | 104.65 | 3-1/2 |
| PS/PSX 423-40 | 4.050 | 102.87 | 4.230 | 107.44 | 4 |
| PS/PSX 437-40 | 4.200 | 106.68 | 4.370 | 111.00 | 4 |
| PS/PSX 451-40 | 4.340 | 110.24 | 4.510 | 114.55 | 4 |
| PS/PSX 462-40 | 4.430 | 112.52 | 4.620 | 117.35 | 4 |

** Use PS for non-hazardous locations and PSX for hazardous locations.

Technical Information

LSZH Jacketed Cables and Hazardous Locations Reference

Approvals and Standards/Performance Data for Low-Smoke, Zero-Halogen Jacketed Cable

XLP Insulation

| Physical: (per UL-44) | | | |
|-----------------------|----------|-------------------|------|
| Tensile (min) | 1500 psi | Deformation (max) | 3.35 |
| Elongation (min) | 150% | LOI | 27 |

| | Haloarrest® | HaloarrestXLink-1 | HaloarrestXLink-2 |
|--------------------------|--------------------------------------|--------------------------------------|--------------------|
| Physical | | | |
| Tensile (min) | 1500 psi | 1500 psi | 1500 psi |
| Elongation (min) | 100% | 150% | 150% |
| Tear Resistance | 74 lbs/inch | — | — |
| LOI | 38 | 39 | 45 |
| Halogen Content | | | |
| IEC 754-1 | 0% | 0% | 0% |
| BS6425 | 0% | — | — |
| MIL-C-24643 | <0.2% | — | — |
| NBS Smoke Chamber | | | |
| Flaming Mode | 141 D _m corrected typical | 164 D _m corrected typical | — |
| Smoldering Mode | 311 D _m corrected typical | 417 D _m corrected typical | — |
| Acid Gas | | | |
| IEC 754-2 | 4.3 pH, 28 µS/cm | 4.9 pH, 0.7 µS/cm | <4.5 pH, 0.4 µS/cm |
| VDE 0472 Part 813 | 4.3 pH, 27 µS/cm | — | — |
| Toxicity Index | | | |
| NES 713 | 1 | 4.6 | — |
| EN50305-2 | — | — | 2 |

Low-Smoke, Zero-Halogen Jacketed Cable Specifications

600 V, +90 °C TC-LC NEC 340/UL 1277 & 1685

Instrumentation

- 18 to 12 AWG, BC or TC
- +90 °C XLP insulation
- UL 44 XHHW-2 – +90 °C dry/wet
- Shielded or unshielded
- Haloarrest® jacket

Control or Power

- 14 to 4/0 AWG, BC or TC
- +90 °C XLP insulation
- UL 44 XHHW-2 – +90 °C dry/wet
- Shielded or unshielded
- Haloarrest® jacket

Hazardous Locations Cable Reference

Article 500

Class I Division 1 Hazards

- Locations where flammable gases or vapors may exist under normal operating conditions, under frequent repair or maintenance operations, or where break-down or faulty operation of process equipment might also cause simultaneous failure of electrical equipment.
- Use conduit or MI cable with approved termination fittings.

Class I Division 2 Hazards

- Locations where flammable gases, vapors or volatile liquids are handled either in a closed system, or confined within suitable enclosures, or where hazardous concentrations are normally prevented by positive mechanical ventilation. Areas adjacent to Division 1 areas belong in Division 2.
- Use PLTC, ITC, TC, MC, MV, MI with approved termination fittings.

Class II Division 1

- Locations where combustible dusts exist under normal conditions.
- Use conduit or MI with approved termination fittings.

Class II Division 2

- Locations where combustible dusts exist under abnormal conditions.
- Use conduit or PLTC, ITC, TC, MC with ventilated channel cable trays.
- Use conduit or MC, MI with approved termination fittings.

Class III Division 1

- Locations where easily ignitable fibers and flyings exist under normal conditions.
- Use conduit or MC, MI with approved termination fittings.

Class III Division 2

- Locations where easily ignitable fibers and flyings exist under abnormal conditions.
- Use conduit or MC, MI with approved termination fittings.

Article 504

Intrinsically Safe

- Equipment and wiring that are incapable of releasing sufficient electrical energy under normal or abnormal conditions to cause ignition of a specific hazardous atmospheric mixture in its most easily ignited concentration.
- Use CL3, CL2, PLTC, TC or CM cable, colored light blue, with approved sealing and separation.

Hazardous Location Cable Reference per Canadian Electrical Code CEC Section 18

All Armored cables printed "HL" per CSA C22.2 #174 are rated for all Hazardous Location Classes and Divisions (i.e., Class 1, Div. 1).

All Tray Cables printed "TC" per CSA C22.2 #230 are rated for all Hazardous Location Classes and Division 2 or lower. (i.e., Class 1, Div. 2 or lower).

Technical Information

UL Approved Insulation/Jacketing Options

| Insulation/Jacket | UL Listed for MC and TC | | Flame Tests |
|--|-------------------------|--------|---|
| | Max. Temp Rating | | |
| | Wet | Dry | |
| PVC-Nylon/PVC (THHN or THWN) 14 AWG & larger | +75 °C | +90 °C | UL 1685 FT4/ IEEE 1202/383 ICEA T-29-520 |
| PVC-Nylon/PVC (TFN or TFFN) 16 & 18 AWG | +75 °C | +90 °C | UL 1685 FT4/ IEEE 1202/383 ICEA T-29-520 |
| XLP/PVC or CPE (XHHW-2) 14 AWG & larger | +90 °C | +90 °C | UL 1685 FT4/ IEEE 1202/383 VW-1 rated singles ICEA T-29-520 |
| XLP/PVC or CPE (RFH-2) 16 & 18 AWG | +90 °C | +90 °C | UL 1685 FT4/ IEEE 1202/383 VW-1 rated singles ICEA T-29-520 |
| FRPO/PVC 18 AWG & larger | — | +75 °C | UL 1685 |
| FRPO/PVC | +75 °C | +90 °C | UL 1685 |
| XLP/Haloarrest® (XHHW-2) 14 AWG & larger | +90 °C | +90 °C | UL 1685 |
| XLP/Haloarrest (RFH-2) 16 & 18 AWG | +90 °C | +90 °C | UL 1685 ICEA T-29-520 |
| XLP/HaloarrestXLink™-1 18 AWG & larger | +90 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 VW-1 rated singles |
| XLP/HaloarrestXLink-2 (XHHW-2) 18 AWG & larger | +90 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 VW-1 rated singles |
| FEP/PVC | +90 °C | +90 °C | UL 1685 |

| UL Listed for PLTC | |
|--------------------|------------------|
| Insulation/Jacket | Max. Temp Rating |
| XLP/PVC | +90 °C |
| XLP/CPE | +90 °C |
| PVC/PVC | +105 °C |
| PVC/CPE | +105 °C |
| PE/PVC | +75 °C |
| FPE/PVC | +75 °C |
| XLP/Haloarrest | +90 °C |
| FEP/FEP | +200 °C |

| Abbreviations Key | |
|-------------------|--|
| CPE | Chlorinated Polyethylene |
| FEP | Fluorinated Ethylene-propylene |
| FPE | Foam Polyethylene |
| FRPO | Flame-Retardant Polyolefin |
| PE | Polyethylene |
| PVC | Polyvinyl Chloride Nylon insulated singles are type THHN or THWN for conductors 14 AWG or larger. Conductor sizes 16 and 18 AWG are Type TFN or TFFN singles. |
| XLP | Cross-Linked Poly Cross-Linked Poly (XLP) insulated singles are type XHHW-2 for conductors 14 AWG or larger. Conductor sizes 16 and 18 AWG are RFH-2. |

Vertical Tray Flame Test Comparison

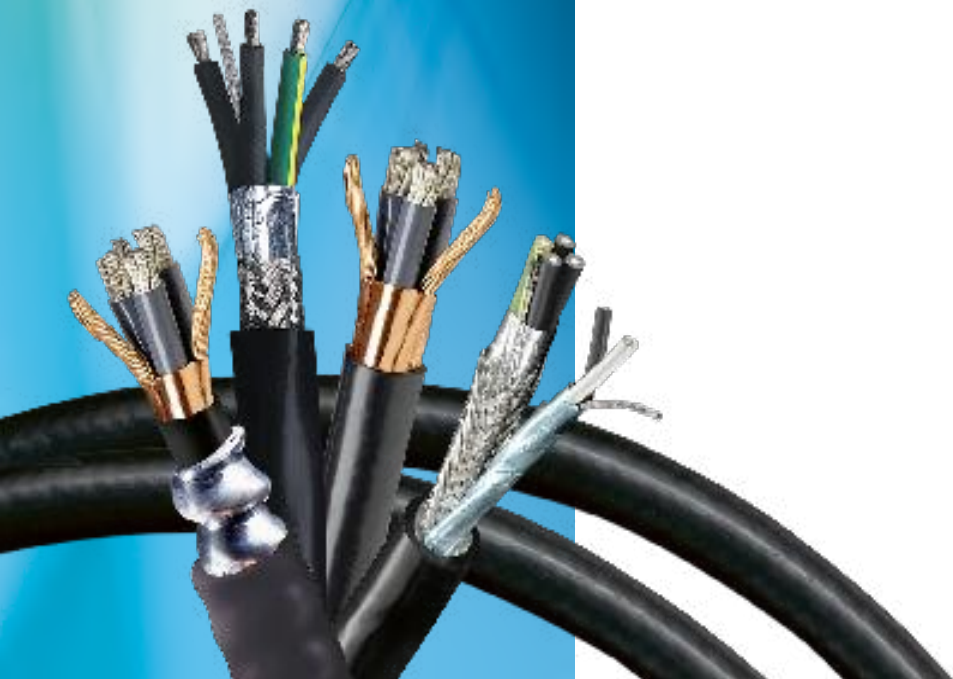
| Test | UL 1685 (UL 1581) | FT4/IEEE 1202/IEEE 383-2003 | IEEE 383-1974 | IEC 60332-3 | ICEA T-29-520 |
|--------------------------------------|---|---|---|---|---|
| Flame Test Chamber | Vertical Tray | Vertical Tray | Vertical Tray | Vertical Tray | Vertical Tray |
| Burner Type | Ribbon gas burner | Ribbon gas burner | Ribbon gas burner | Ribbon gas burner | Ribbon gas burner |
| Theoretical Heat Input | 70,000 BTU/hr | 70,000 BTU/hr | 70,000 BTU/hr | 70,000 BTU/hr | 210,000 BTU/hr |
| Burner Positioning | horizontal 3" (8 cm) from samples 18" (46 cm) from tray base | +20 °C up from horizontal 2.95" (7.5 cm) from cable surface 11.8" (30 cm) above floor | horizontal 3" (8 cm) from samples 18" (46 cm) above tray bottom | horizontal 2.95" (7.5 cm) from cable surface 23.6" (60 cm) above floor | horizontal 8-1/4" (20-3.6 cm) from cable surface 12-1/4" (30-3.6 cm) above tray base |
| Tray Dimensions | 8' (2.4 m) length, 12" (30 cm) width, 3" (8 cm) side flanges | 9.84' (3 m) length, 11.81" (30 cm) width, 2.85" (7 cm) side flanges | 8' (2.4 m) length, 12" (30 cm) width, 3" (8 cm) side flanges | 11.5' (3.5 m) length, 19.7" (50 cm) width, side flanges: none | 8' (2.4 m) length, 12" (30 cm) width, 3" (8 cm) side flanges |
| Sample Spacing | 1/2 cable diameter | 1/2 cable diameter | 1/2 cable diameter | lesser of 1/2 cable diameter and .78" (2 cm) | 1/2 cable diameter |
| Duration of Flame Application | 20 minutes | 20 minutes | 20 minutes | 20 minutes | 20 minutes |
| Mode of Failure | Cable blistering or charring has reached the top of the sample after the cable has self-extinguished. | Cable char has exceeded a length of 4.92' (1.5 m). | Cable blistering or charring has reached the top of the sample after the cable has self-extinguished. | Cable charring has reached a height of 98.4" (250 cm) above the bottom of the burner. | Cable blistering or charring has reached the top of the sample after the cable has self-extinguished. |

Power & Control Variable Frequency Drive (VFD) Cables



Section Table of Contents

| Power & Control | Page |
|--|------|
| Variable Frequency Drive (VFD) Cables | |
| Overview | 150 |
| Cross Reference Guide | 152 |
| Classic and Symmetrical VFD Cables | 155 |
| Low Smoke Zero Halogen VFD Cables | 157 |
| Armored VFD Cables | 159 |
| CSA VFD Cables | 160 |
| MarineTuff™ Marine Approved VFD Cables | 161 |
| Overview | 161 |
| Classic Foil/Braid Design Thermoset LSZH VFD Cables | 162 |
| Classic Symmetrical Design Thermoset LSZH VFD Cables | 163 |



Variable Frequency Drive (VFD) Cables



Variable frequency AC motor drive output cables are subject to harsh operating environments characterized by high voltage spikes, high noise levels and adverse environmental conditions. Typical cabling solutions for this application have been unshielded tray cables, single-conductor lead wire installed in conduit or continuously-welded armored cable. These solutions suffer from complex, costly installation and potential reliability problems. Belden Variable Frequency Drive (VFD) Cables were designed and engineered to overcome these challenges.

Product Features

Jacket Options

- Industrial-grade PVC (Sunlight and oil-resistant)
- Haloarrest Jackets – Halogen-free LSZH

Insulation

- XLP – lower capacitance resulting in reduced voltage spikes and corona discharge

Shielding

- 100% coverage foil shield along with an 80% braid shield or Dual 5 mm Copper Tape

Grounding

- Full-sized insulated ground allows lower resistance path to ground

AWG Sizes

- From 16 to 4/0 AWG

Benefits

Thicker, Industrial-grade XLPE Insulation

- Provides more stable electrical performance than PVC
- Lower capacitance resulting in
 - Longer cable runs
 - Reduced peak motor terminal voltage for extended motor life
 - Reduced likelihood of corona discharge
 - Reduced magnitude of standing waves
 - Increased efficiency of power transfer

High-strand Tinned Copper Circuit Conductors

- More flexible for ease of installation
- Better vibration resistance
- Numbered for ease of identification

Industrial-grade PVC or Haloarrest Low Smoke Zero Halogen Jackets

- Sunlight Resistant
- Oil Resistant (PVC only)

Applications

VFD drives are utilized in all industrial vertical markets and are used to:

- Run process equipment and machinery
- Power pumps to move fluids
- Drive fans to move air
- Run conveyors to transport a wide range of materials

Variable Frequency Drive (VFD) Cables

Overview

Belden VFD Cables are Designed to Deliver Top Performance in Any Type of Environment

All Cables

- Thicker, industrial-grade XLP insulations provide low capacitance for extended motor life, reduced likelihood of corona discharge, reduced magnitude of standing waves, increased efficiency of power transfer
- Robust ground and shielding system to minimize radiated and conducted noise that can disrupt plant control and instrumentation systems
- Reliably carry power from AC drive systems to AC motors
- Effectively handle the overall high power levels of pulse-width modulated (PWM) signals
- Reliably handle high voltage spikes – eliminating potential damage to the cable, motors, bearings, drives and related equipment – potentially extending their life
- Industrial-grade PVC jackets provide sunlight and oil-resistance; Haloarrest® jackets are halogen-free and provide sunlight-resistance in LSZH versions
- HaloarrestXLink™ jackets are thermoset and low smoke zero halogen for exposure in harsh environments
- Resistant to adverse or harsh environments
- ER rating allows for the elimination of conduit for easier and less expensive installations
- Effectively eliminate downtime due to cable failure

Classic Foil/Braid Designs

- High-strand conductors ease installation; enable better vibration resistance
- Full-sized insulated ground allows lower resistance path to ground
- Tinned copper conductors to prevent against corrosion
- Low capacitance and low impedance of the cables closely matches the drive and electrical values
- Round configuration for reliable sealing

Classic Symmetrical Designs

- Available with high-strand conductors in large AWG sizes
- Design features a copper tape shield with segmented ground
- Smaller OD than the Classic Designs with Foil/Braid

Classic Designs with Signal Pair

- Overall jackets provide more protection for the integrated signal pair
- Easier, lower cost installation than pulling the signal pair separately

Termination Guide

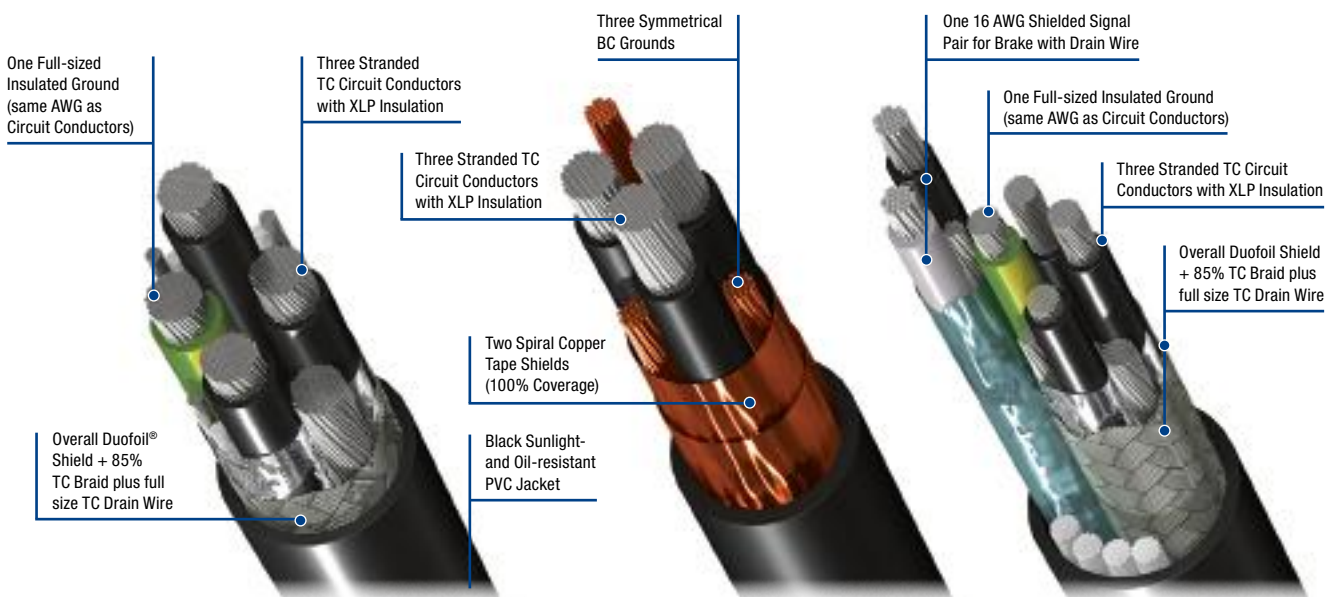
See our Unarmored VFD Cable Termination Guide (Lit No. VFDCDG) for a step-by-step look at best practices for installing and terminating unarmored VFD cables, available on-line at www.belden.com.

Applicable for Use With:

- Rockwell Automation AC drives
- ABB/Baldor
- Danfoss
- Eaton/Cutler-Hammer
- Emerson
- General Electric
- Hitachi
- Magnetek
- Mitsubishi Electric Automation
- OMRON
- Robicon
- Schneider Electric
- Siemens
- Toshiba
- Vacon (TB Wood's)
- WEG
- Yaskawa

Belden VFD Cables versus Tray Cables or Single Conductor Products

- Superior radiated and conducted noise protection with robust shield and ground design
- XLP insulation provides lower capacitance resulting in reduced voltage spikes and corona discharge
- Extended motor life
- Longer cable runs



VFD Cross Reference Guide

| Voltage | HP | kW | Sizes | Classic VFD Part No. | Classic with Signal Pair Part No. | 2 kV VFD Part No. | CSA VFD Part No. | LSZH VFD Part No. | Thermoset LSZH VFD, Marine Approvals Part No. |
|-----------------|----------|-------------|---------|----------------------|-----------------------------------|-------------------|------------------|-------------------|---|
| 230 V 3Ø | .25 to 3 | 0.75 to 2.2 | 16 | 29500 | 29510 | — | — | 29500T | 29500X |
| | 5 | 3.7 | 14 | 29501 | 29511 | 29536 | 29550C | 29501T | 29501X |
| | | | 12 | 29502 | 29512 | 29537 | 29551C | 29502T | 29502X |
| | 7.5 | 5.6 | 12 | 29502 | 29512 | 29537 | 29551C | 29502T | 29502X |
| | 10 | 7.5 | 10 | 29503 | 29513 | 29538 | 29552C | 29503T | 29503X |
| | 15 | 11.2 | 8 | 29504 | — | 29539 | 29553C | 29504T | 29504X |
| | 20 | 14.9 | 6 | 29505 | — | 29540 | 29554C | 29505T | 29505X |
| | 25 | 18.6 | 4 | 29506 | — | 29541 | 29555C | 29506T | 29506X |
| | 40 | 29.8 | 2 | 29507 | — | 29542 | 29556C | 29507T | 29507X |
| | | | 1 | 29528 | — | 29543 | 29557C | 29528T | 29528X |
| | 50 | 37.3 | 1/0 | 29529 | — | 29544 | 29558C | 29529T | 29529X |
| | 60 | 44.7 | 2/0 | 29530 | — | 29545 | 29559C | 29530T | 29530X |
| | | | 3/0 | 29531 | — | 29546 | 29560C | 29531T | 29531X |
| | 75 | 55.9 | 4/0 | 29532 | — | 29547 | 29561C | 29532T | 29532X |
| | | | 250 MCM | — | — | 29533 | 29533 | — | — |
| | 100 | 74.6 | 350 MCM | — | — | 29534 | 29534 | — | — |
| 125 | 93.2 | 500 MCM | — | — | 29535 | 29535 | — | — | |
| 460 V 3Ø | 10 | 7.5 | 16 | 29500 | 29510 | — | — | 29500T | 29500X |
| | | | 14 | 29501 | 29511 | 29536 | 29550C | 29501T | 29501X |
| | | | 12 | 29502 | 29512 | 29537 | 29551C | 29502T | 29502X |
| | 15 | 11.2 | 12 | 29502 | 29512 | 29537 | 29551C | 29502T | 29502X |
| | | | 10 | 29503 | 29513 | 29538 | 29552C | 29503T | 29503X |
| | 20 | 14.9 | 10 | 29503 | 29513 | 29538 | 29552C | 29503T | 29503X |
| | 30 | 22.4 | 8 | 29504 | — | 29539 | 29553C | 29504T | 29504X |
| | 40 | 29.8 | 6 | 29505 | — | 29540 | 29554C | 29505T | 29505X |
| | 50 | 37.3 | 4 | 29506 | — | 29541 | 29555C | 29506T | 29506X |
| | 75 | 55.9 | 2 | 29507 | — | 29542 | 29556C | 29507T | 29507X |
| | | | 1 | 29528 | — | 29543 | 29557C | 29528T | 29528X |
| | 100 | 74.6 | 1/0 | 29529 | — | 29544 | 29558C | 29529T | 29529X |
| | 125 | 93.2 | 2/0 | 29530 | — | 29545 | 29559C | 29530T | 29530X |
| | | | 3/0 | 29531 | — | 29546 | 29560C | 29531T | 29531X |
| | 150 | 111.9 | 4/0 | 29532 | — | 29547 | 29561C | 29532T | 29532X |
| | | | 250 MCM | — | — | 29533 | 29533 | — | — |
| 200 | 149.1 | 350 MCM | — | — | 29534 | 29534 | — | — | |
| 250 | 186.4 | 500 MCM | — | — | 29535 | 29535 | — | — | |

Values based on typical Full-Load Current (FLC) ratings of three-phase AC motors as published in NEC Table 430.250 (2011) multiplied by 125% per NEC article 430-22 (A) (2011). The ampacity ratings of the cables are based on NEC Table 310.15(B)(16) (2011). The VFD w/Signal ampacity values were de-rated to 80% per NEC Table 310.15 (B)(2)(a) (2011) due to the increased number of current-carrying conductors included in these cable(s).

Values based on typical Full-Load Current (FLC) ratings of three-phase AC motors as published in CEC Table 44 (2012) multiplied by 125% per CEC Section 28-112 (2012). The ampacity ratings of the cables are based on CEC Table 2 (2012). The VFD w/Signal ampacity values were de-rated to 80% per CEC Table 5C (2012) due to the increased number of current-carrying conductors included in these cable(s).

Consult drive/motor manufacturer for exact FLC ratings. Ampacity interpretations subject to user's local authority having jurisdiction.

VFD Cross Reference Guide (continued)

| Voltage | HP | kW | Sizes | Classic VFD Part No. | Classic with Signal Pair Part No. | 2 kV VFD Part No. | CSA VFD Part No. | LSZH VFD Part No. | Thermoset LSZH VFD, Marine Approvals Part No. |
|-----------------|-----|-------|---------|----------------------|-----------------------------------|-------------------|------------------|-------------------|---|
| 575 V 3Ø | 10 | 7.5 | 16 | 29500 | 29510 | — | — | 29500T | 29500X |
| | | | 14 | 29501 | 29511 | 29536 | 29550C | 29501T | 29501X |
| | 15 | 11.2 | 14 | 29501 | 29511 | 29536 | 29550C | 29501T | 29501X |
| | | | 12 | 29502 | 29512 | 29537 | 29551C | 29502T | 29502X |
| | 20 | 14.9 | 12 | 29502 | 29512 | 29537 | 29551C | 29502T | 29502X |
| | | | 10 | 29503 | 29513 | 29538 | 29552C | 29503T | 29503X |
| | 30 | 22.4 | 10 | 29503 | 29513 | 29538 | 29552C | 29503T | 29503X |
| | 40 | 29.8 | 8 | 29504 | — | 29539 | 29553C | 29504T | 29504X |
| | 50 | 37.3 | 6 | 29505 | — | 29540 | 29554C | 29505T | 29505X |
| | 60 | 44.7 | 4 | 29506 | — | 29541 | 29555C | 29506T | 29506X |
| | 100 | 74.6 | 2 | 29507 | — | 29542 | 29556C | 29507T | 29507X |
| | | | 1 | 29528 | — | 29543 | 29557C | 29528T | 29528X |
| | 125 | 93.2 | 1/0 | 29529 | — | 29544 | 29558C | 29529T | 29529X |
| | | | 2/0 | 29530 | — | 29545 | 29559C | 29530T | 29530X |
| | 150 | 111.9 | 3/0 | 29531 | — | 29546 | 29560C | 29531T | 29531X |
| | | | 4/0 | 29532 | — | 29547 | 29561C | 29532T | 29532X |
| | 200 | 149.1 | 250 MCM | — | — | 29533 | 29533 | — | — |
| | 250 | 186.4 | 350 MCM | — | — | 29534 | 29534 | — | — |
| | 350 | 261.0 | 500 MCM | — | — | 29535 | 29535 | — | — |

Values based on typical Full-Load Current (FLC) ratings of three-phase AC motors as published in NEC Table 430.250 (2011) multiplied by 125% per NEC article 430-22 (A) (2011). The ampacity ratings of the cables are based on NEC Table 310.15(B)(16) (2011). The VFD w/Signal ampacity values were de-rated to 80% per NEC Table 310.15 (B)(2)(a) (2011) due to the increased number of current-carrying conductors included in these cable(s).

Values based on typical Full-Load Current (FLC) ratings of three-phase AC motors as published in CEC Table 44 (2012) multiplied by 125% per CEC Section 28-112 (2012). The ampacity ratings of the cables are based on CEC Table 2 (2012). The VFD w/Signal ampacity values were de-rated to 80% per CEC Table 5C (2012) due to the increased number of current-carrying conductors included in these cable(s).

Consult drive/motor manufacturer for exact FLC ratings. Ampacity interpretations subject to user's local authority having jurisdiction.

VFD Cross Reference Guide (continued)

| VFD Supplier | VFD Name | VFD Supplier | VFD Name | VFD Supplier | VFD Name | |
|-------------------|----------------------------------|-----------------------------|-------------------|---------------------------|----------------|-------------|
| ABB/Baldor | AC S | Easton/Cutler-Hammer | CFX | Rockwell/A-B | PowerFlex® | |
| | ACH 501 (480 V AC, 208/230 V AC) | | CPX | | 1336 | |
| | ACH550 | | H-Max | | 1305 | |
| | ACS 6000c | | HVX | Schneider Electric | Altivar® | |
| | ACQ | | LCX | | E-flex™ | |
| | Cascade | | M-Max | | M-Flex™ | |
| | Cyclo (Analog) | | MVX | | PowerGard™ | |
| | Cyclo (PSR) | | NFX | S-Flex™ | Siemens | MICROMASTER |
| | MEGADRIVE-LCI | | SC 9000 | SINAMICS | | |
| | MEGASTAR A | | SLX | SED2 | | |
| | SAMI MEGASTAR (W) | SPX | Mitsubishi | VBA | | |
| | TYRAK-LCI | SVX | | A500 Series | WEG | CFW |
| | VS1SP | A700 Series | | EDP | | |
| | VS1GV | A701 Series | | MVW | | |
| | VS1PM | D700 Series | Yaskawa | A1000 | | |
| Danfoss | AHF | E500 Series | | AC7 | | |
| | VLT® 12-Pulse | E700 Series | | E7 | | |
| | VLT 2800 | E700SC Series | | F7 | | |
| | VLT 2800 | F700Series | | G5HHP | | |
| | VLT AQUA FC 200 | S500 Series | | G7 | | |
| | VLT FC 100 | V500 Drives | | J1000 | | |
| | VLT FC 300 | OMRON | | 3G3JX | P1000 | |
| | VLT High Power | | | 3G3MX2 | P7 | |
| | VLT Low Harmonic | | | 3G3RX | V1000 | |
| | VLT Micro | | | VS mini | | |
| | | | Z1000 | | | |

Encoder Cables

Belden also offers the following standard cables for encoder applications. Encoder cables help feed information to the micro-processor regarding both the speed and the position of the rotor.

| Part No. | Pairs | AWG |
|-------------|------------------|-----|
| 8790 | 1 (Power Supply) | 18 |
| 9729 | 2 | 24 |
| 9730, 89730 | 3 | 24 |
| 9728 | 4 | 24 |
| 9892 | 4 | 20 |
| 9860 | 1 (Signal) | 16 |

Classic and Symmetrical VFD Cables

Classic Foil/Braid Design



- Four-Conductor Cable (3 Circuit + Ground)
- Full-Size Insulated Ground
- Foil + Braid Shield
- 1000 V UL Flexible Motor Supply Cable
- 600 V UL TC-ER
- 1000 V CSA AWM I/II A/B FT4
- C(UL) 600 V Type CIC TC

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|--|-----------|-----------------|-------------|----------|-------|-----------------------|--------|-------------------|-------|--|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC Conductors • XLP Insulation (PVC for Ground) • Overall Beldfoil® + 85% TC Braid Shielding • Black PVC Jacket • TC Drain Wire (Sized Same as Conductors) | | | | | | | | | | |
| 29500 | 16 | 1.3 | 26 x 30 | .53 | 13.46 | 128 | 570 | 4.3 | 109.2 | +90 °C Wet/Dry Sunlight Res Oil Res UL Direct Burial IEEE 1202/383 XHHW-2, RHW-2 Conductors (16 AWG: XHHW-2 only) MSHA* P-07-KA070003 |
| 29501 | 14 | 2.0 | 41 x 30 | .60 | 15.24 | 212 | 943 | 4.8 | 121.9 | |
| 29502 | 12 | 3.3 | 65 x 30 | .65 | 16.51 | 336 | 1495 | 5.2 | 132.0 | |
| 29503 | 10 | 5.4 | 105 x 30 | .69 | 17.53 | 592 | 2634 | 5.5 | 139.7 | |
| 29504 | 8 | 8.6 | 7 x 19 x 29 | .93 | 23.61 | 768 | 3418 | 7.5 | 190.5 | |
| 29505 | 6 | 13.8 | 7 x 19 x 27 | 1.02 | 25.91 | 1220 | 5429 | 8.2 | 203.2 | |
| 29506 | 4 | 21.6 | 7 x 19 x 25 | 1.16 | 29.46 | 1940 | 8633 | 9.3 | 236.2 | |
| 29507 | 2 | 34.4 | 7 x 19 x 23 | 1.31 | 33.27 | 3088 | 13,742 | 10.8 | 273.1 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

Classic Symmetrical Design



- Three-Conductor Cable (3 Circuit + 3 Ground)
- Dual Spiral Copper Tape Shield
- 1000 V UL Flexible Motor Supply Cable
- 600 V UL 1277 Type TC-ER
- 1000 V CSA AWM I/II A/B FT4
- C(UL) 600 V Type RW90 TC

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|--|-----------|-----------------|-------------|----------|-------|-----------------------|--------|-------------------|-------|--|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC Conductors • XLP Insulation (PVC for Ground) • Dual Spiral Copper Tape Shield • Black PVC Jacket • BC Drain Wire (Sized Same as Conductors) | | | | | | | | | | |
| 29528 | 1 | 43.2 | 7 x 19 x 22 | 1.20 | 30.48 | 2650 | 11,788 | 12.0 | 304.8 | +90 °C Wet/Dry Sunlight Res Oil Res UL Direct Burial IEEE 1202/383 XHHW-2 Conductors MSHA* P-07-KA070003 |
| 29529 | 1/0 | 53.5 | 7 x 19 x 21 | 1.29 | 32.77 | 3537 | 15,733 | 12.9 | 327.7 | |
| 29530 | 2/0 | 69.0 | 7 x 19 x 20 | 1.40 | 35.56 | 4200 | 18,682 | 14.0 | 355.6 | |
| 29531 | 3/0 | 85.0 | 7 x 19 x 19 | 1.52 | 38.61 | 5025 | 22,352 | 15.2 | 386.1 | |
| 29532 | 4/0 | 107.2 | 7 x 19 x 18 | 1.68 | 42.67 | 6670 | 29,670 | 16.8 | 426.7 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

Classic Foil/Braid Design • Signal Pair



- Four-Conductor Cable (3 Circuit + Ground)
- Full-Size Insulated Ground
- 16 AWG Stranded (26 x 30) Shielded Signal Pair
- Foil + Braid Shield
- 1000 V UL Flexible Motor Supply Cable
- 600 V UL TC-ER
- 1000 V CSA AWM I/II A/B FT4
- C(UL) 600 V Type CIC TC

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|---|-----------|-----------------|-----------|----------|-------|-----------------------|------|-------------------|-------|--|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC Conductors • XLP Insulation (PVC for Ground) • Overall Duofoil® + 85% TC Braid Shielding • Black PVC Jacket • TC Drain Wire (Sized Same as Conductors) | | | | | | | | | | |
| 29510 | 16 | 1.3 | 26 x 30 | .75 | 19.05 | 272 | 1210 | 7.5 | 190.5 | IEEE 1202/383 +90 °C Wet/Dry Sunlight Res Oil Res UL Direct Burial XHHW-2, RHW-2 Conductors (16 AWG: XHHW-2 only) MSHA* P-07-KA070003 |
| 29511 | 14 | 2.1 | 41 x 30 | .82 | 20.83 | 368 | 1638 | 8.2 | 208.3 | |
| 29512 | 12 | 3.3 | 65 x 30 | .90 | 22.86 | 527 | 2345 | 9.0 | 228.6 | |
| 29513 | 10 | 5.4 | 105 x 30 | .99 | 25.15 | 718 | 3195 | 9.9 | 251.5 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | * MSHA = Mine Safety and Health Administration

Classic and Symmetrical VFD Cables

Classic Foil/Braid Design • 2kV



- Four-Conductor Cable (3 Circuit + Ground)
- Full-Size Insulated Ground
- Foil + Braid Shield
- 2000 V UL Flexible Motor Supply Cable
- 2000 V UL TC-ER
- 1000 V CSA AWM I/II A/B FT4
- C(UL) 600 V Type CIC TC

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|--|-----------|-----------------|-------------|----------|-------|-----------------------|--------|-------------------|--------|--|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC Circuit Conductors • XLP Insulation (PVC for Ground) • Overall Duofoil + 85% TC Braid Shielding • Black PVC Jacket • TC Drain Wire (Sized Same as Conductors) | | | | | | | | | | |
| 29536 | 14 | 2.1 | 41 x 30 | .68 | 17.30 | 212 | 943 | 6.8 | 172.72 | |
| 29537 | 12 | 3.3 | 65 x 30 | .72 | 18.30 | 336 | 1495 | 7.3 | 185.42 | +90 °C Wet/Dry Sunlight Res Oil Res UL Direct Burial IEEE 1202/3837 XHHW-2, RHW-2 Conductors MSHA* P-07-KA070003 |
| 29538 | 10 | 5.4 | 105 x 30 | .79 | 20.10 | 592 | 2634 | 7.9 | 200.70 | |
| 29539 | 8 | 8.6 | 7 x 19 x 29 | .96 | 24.40 | 768 | 3418 | 9.6 | 243.84 | |
| 29540 | 6 | 13.8 | 7 x 19 x 27 | 1.07 | 26.92 | 1220 | 5429 | 10.6 | 269.24 | |
| 29541 | 4 | 21.6 | 7 x 19 x 25 | 1.21 | 30.50 | 1940 | 8633 | 12.1 | 307.34 | |
| 29542 | 2 | 34.4 | 7 x 19 x 23 | 1.36 | 34.54 | 3088 | 13,742 | 13.6 | 345.44 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

Classic Symmetrical Design • 2kV



- Three-Conductor Cable (3 Circuit + 3 Ground)
- Dual Spiral Copper Tape Shield
- 2000 V UL Flexible Motor Supply Cable
- 2000 V UL TC-ER
- 1000 V CSA AWM I/II A/B FT4
- C(UL) 2000 V Type RW90 TC

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|---|-----------|-----------------|-------------|----------|-------|-----------------------|--------|-------------------|--------|---|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC Conductors • XLP Insulation • Dual Spiral Copper Tape Shield • Black PVC Jacket • BC Ground Conductors | | | | | | | | | | |
| 29543 | 1 | 43.2 | 7 x 19 x 22 | 1.36 | 34.54 | 2650 | 11,788 | 13.6 | 345.44 | IEEE 1202/383 Sunlight Res Oil Res UL Direct Burial XHHW-2, RHW-2 Conductors +90 °C Wet/Dry MSHA* P-07-KA070003 |
| 29544 | 1/0 | 53.5 | 7 x 19 x 21 | 1.45 | 36.83 | 3537 | 15,733 | 14.5 | 368.30 | |
| 29545 | 2/0 | 69.0 | 7 x 19 x 29 | 1.56 | 39.62 | 4200 | 18,682 | 15.6 | 396.24 | |
| 29546 | 3/0 | 85.0 | 7 x 19 x 19 | 1.75 | 44.50 | 5025 | 22,352 | 17.5 | 444.50 | |
| 29547 | 4/0 | 107.2 | 7 x 19 x 18 | 1.88 | 47.80 | 6670 | 29,670 | 18.8 | 477.52 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered.

Symmetrical Design • 2kV MCM Size



- Three-Conductor Cable (3 Circuit + 3 Ground)
- Dual Spiral Copper Tape Shield
- 2000 V UL TC-ER
- 1000 V CSA 22.2 No. 230 TC

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|---|-----------|-----------------|------------|----------|-------|-----------------------|--------|-------------------|------|---|
| | MCM | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded BC Conductors • XLP Insulation • Dual Spiral Copper Tape Shield • Black PVC Jacket • BC Ground Conductors | | | | | | | | | | |
| 29533 | 250 | 125 | 37 x .0822 | 1.91 | 48.56 | 6000 | 26,688 | 34.4 | 873 | IEEE 1202/383 Sunlight Res Oil Res UL Direct Burial CSA FT4 RHW-2, RW90 Conductors +90 °C Wet/Dry |
| 29534 | 350 | 185 | 37 x .0973 | 2.13 | 54.18 | 8400 | 37,363 | 38.4 | 975 | |
| 29535 | 500 | 240 | 37 x .1162 | 2.41 | 61.16 | 12,000 | 53,376 | 43.4 | 1102 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered.

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | * MSHA = Mine Safety and Health Administration

Low Smoke Zero Halogen VFD Cables

Classic Foil/Braid Design • Low Smoke Zero Halogen



- Four-Conductor Cable (3 Circuit + Ground)
- Full-Size Insulated Ground
- Foil + Braid Shield
- 1000 V UL Flexible Motor Supply Cable
- 600 V UL TC-ER
- 1000 V CSA AWM I/II A/B FT4

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|---|-----------|-----------------|-------------|----------|-------|-----------------------|--------|-------------------|-------|---|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC (Circuit), TC (Ground) Conductors • XLP Insulation • Overall Beldfoil® + 85% TC Braid Shielding • Black Haloarrest® Jacket | | | | | | | | | | |
| 29500T | 16 | 1.3 | 26 x 30 | .53 | 13.46 | 128 | 570 | 4.3 | 109.2 | IEEE 1202/383 Sunlight Res UL Direct Burial XHHW-2, RHW-2 Conductors (16 AWG: XHHW-2 only) +90 °C Wet/Dry MSHA* P-07-KA070003 |
| 29501T | 14 | 2.1 | 41 x 30 | .60 | 15.24 | 212 | 943 | 4.8 | 121.9 | |
| 29502T | 12 | 3.3 | 65 x 30 | .65 | 16.51 | 336 | 1495 | 5.2 | 132.0 | |
| 29503T | 10 | 5.4 | 105 x 30 | .69 | 17.53 | 592 | 2634 | 5.5 | 139.7 | |
| 29504T | 8 | 8.6 | 7 x 19 x 29 | .93 | 23.62 | 768 | 3418 | 7.5 | 190.5 | |
| 29505T | 6 | 13.8 | 7 x 19 x 27 | 1.02 | 25.91 | 1220 | 5429 | 8.2 | 203.2 | |
| 29506T | 4 | 21.6 | 7 x 19 x 25 | 1.16 | 29.46 | 1940 | 8633 | 9.3 | 236.2 | |
| 29507T | 2 | 34.4 | 7 x 19 x 23 | 1.31 | 33.27 | 3088 | 13,742 | 10.8 | 273.1 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

Classic Symmetrical Design • Low Smoke Zero Halogen



- Three-Conductor Cable (3 Circuit + 3 Ground)
- Dual Spiral Copper Tape Shield
- 1000 V UL Flexible Motor Supply Cable
- 600 V UL TC-ER
- 1000 V CSA AWM I/II A/B FT4

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|---|-----------|-----------------|-------------|----------|-------|-----------------------|--------|-------------------|-------|---|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC (Circuit), BC (Ground) Conductors • XLP Insulation • Dual Spiral Copper Tape Shield • Black PVC Jacket | | | | | | | | | | |
| 29528T | 1 | 43.2 | 7 x 19 x 22 | 1.20 | 30.48 | 2650 | 11,788 | 12.0 | 304.8 | IEEE 1202/383 Sunlight Res UL Direct Burial XHHW-2 Conductors +90 °C Wet/Dry MSHA* P-07-KA070003 |
| 29529T | 1/0 | 53.5 | 7 x 19 x 21 | 1.29 | 32.77 | 3537 | 15,733 | 12.9 | 327.7 | |
| 29530T | 2/0 | 69.0 | 7 x 19 x 20 | 1.40 | 35.56 | 4200 | 18,682 | 14.0 | 355.6 | |
| 29531T | 3/0 | 85.0 | 7 x 19 x 19 | 1.52 | 38.61 | 5025 | 22,352 | 15.2 | 386.1 | |
| 29532T | 4/0 | 107.2 | 7 x 19 x 18 | 1.68 | 42.67 | 6670 | 29,670 | 16.8 | 426.7 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | * MSHA = Mine Safety and Health Administration

Low Smoke Zero Halogen VFD Cables

Classic Foil/Braid Design • Thermoset Low Smoke Zero Halogen • Marine Certified



- Four-Conductor Cable (3 Circuit + Ground)
- Full-Size Insulated Ground
- Foil + Braid Shield
- 1000 V UL Flexible Motor Supply Cable
- 600 V UL TC-ER
- CSA FT4
- Marine Approvals: ABS, UL 1309, IEEE 45, IEEE 1580 Type P

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|---|-----------|-----------------|-------------|----------|-------|-----------------------|--------|-------------------|-------|---|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC Conductors • XLP Insulation • Overall Beldfoil® + 85% TC Braid Shielding • Black HaloarrestXLink™-2 Jacket | | | | | | | | | | |
| 29500X | 16 | 1.3 | 26 x 30 | .53 | 13.46 | 128 | 570 | 4.3 | 109.2 | IEEE 1202/383 Sunlight Res Oil Res II IEC 60811-2-1 Hydrocarbon Resistant XHHW-2, RHW-2 Conductors (16 AWG: XHHW-2 only) +90 °C Wet/Dry MSHA Approved* Suitable for Class I, II & III, Division 2 Hazardous Locations |
| 29501X | 14 | 2.1 | 41 x 30 | .60 | 15.24 | 212 | 943 | 4.8 | 121.9 | |
| 29502X | 12 | 3.3 | 65 x 30 | .65 | 16.51 | 336 | 1495 | 5.2 | 132.0 | |
| 29503X | 10 | 5.4 | 105 x 30 | .69 | 17.53 | 592 | 2634 | 5.5 | 139.7 | |
| 29504X | 8 | 8.6 | 7 x 19 x 29 | .93 | 23.62 | 768 | 3418 | 7.5 | 190.5 | |
| 29505X | 6 | 13.8 | 7 x 19 x 27 | 1.02 | 25.91 | 1220 | 5429 | 8.2 | 203.2 | |
| 29506X | 4 | 21.6 | 7 x 19 x 25 | 1.16 | 29.46 | 1940 | 8633 | 9.3 | 236.2 | |
| 29507X | 2 | 34.4 | 7 x 19 x 23 | 1.31 | 33.27 | 3088 | 13,742 | 10.8 | 273.1 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

Classic Symmetrical Design • Thermoset Low Smoke Zero Halogen • Marine Certified



- Three-Conductor Cable (3 Circuit + 3 Ground)
- Dual Spiral Copper Tape Shield
- 1000 V UL Flexible Motor Supply Cable
- 600 V UL TC-ER
- CSA FT4
- Marine approvals: ABS, UL 1309 Type, IEEE 45, IEEE 1580 Type P

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|---|-----------|-----------------|-------------|----------|-------|-----------------------|--------|-------------------|-------|--|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded TC (Circuit), BC (Ground) Conductors • XLP Insulation • Dual Spiral Copper Tape Shield • Black HaloarrestXLink-2 Jacket | | | | | | | | | | |
| 29528X | 1 | 43.2 | 7 x 19 x 22 | 1.20 | 30.48 | 2650 | 11,788 | 12.0 | 304.8 | IEEE 1202/383 Sunlight Res Oil Res II IEC 60811-2-1 Hydrocarbon Resistant XHHW-2 Conductors +90 °C Wet/Dry MSHA Approved* Suitable for Class I, II & III, Division 2 hazardous locations |
| 29529X | 1/0 | 53.5 | 7 x 19 x 21 | 1.29 | 32.77 | 3537 | 15,733 | 12.9 | 327.7 | |
| 29530X | 2/0 | 69.0 | 7 x 19 x 20 | 1.40 | 35.56 | 4200 | 18,682 | 14.0 | 355.6 | |
| 29531X | 3/0 | 85.0 | 7 x 19 x 19 | 1.52 | 38.61 | 5025 | 22,352 | 15.2 | 386.1 | |
| 29532X | 4/0 | 107.2 | 7 x 19 x 18 | 1.68 | 42.67 | 6670 | 29,670 | 16.8 | 426.7 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered.

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | * MSHA = Mine Safety and Health Administration

Armored VFD Cables

Interlocked Armor

Belden armored VFD cables are available in interlocked aluminum or steel type metal clad (MC) constructions. Belden MC cables are designed to meet demanding industrial needs with rugged durability and corrosion resistance with flexibility and easy handling.

The products use Belden Classic or Classic Symmetrical designs.

Classic Foil/Braid Design • Armored



- Four-Conductor Cable (3 Circuit + Ground)
- Foil + Braid Shield
- 600 V UL MC
- NEC Hazardous Location: Classes I and II, Div. II

| Part No. | | Conductor | | Additional Features/Ratings |
|---|---------|-----------|-----------------|--|
| Aluminum | Steel | AWG | mm ² | |
| Stranded TC Conductors • XLP Insulation (PVC for Ground) • Overall Beldfoil® + 85% TC Braid Shielding • Black PVC Jacket | | | | |
| 1229500 | 1329500 | 16 | 1.3 | IEEE 1202/383 (70,000 BTU) Sunlight Res Oil Res UL Direct Burial XHHW-2, RHW-2 Conductors (16 AWG, XHHW-2 Only) +90 °C Wet/Dry |
| 1229501 | 1329501 | 14 | 2.1 | |
| 1229502 | 1329502 | 12 | 3.3 | |
| 1229503 | 1329503 | 10 | 5.4 | |
| 1229504 | 1329504 | 8 | 8.6 | |
| 1229505 | 1329505 | 6 | 13.8 | |
| 1229506 | 1329506 | 4 | 21.6 | |
| 1229507 | 1329507 | 2 | 34.4 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

Classic Symmetrical Design • Armored



- Three-Conductor Cable (3 Circuit + 3 Ground)
- Dual Spiral Copper Tape Shield
- 600 V UL MC
- NEC Hazardous Location: Classes I and II, Div. II

| Part No. | | Conductor | | Additional Features/Ratings |
|---|---------|-----------|-----------------|--|
| Aluminum | Steel | AWG | mm ² | |
| Stranded TC (Circuit), BC (Ground) Conductors • XLP Insulation (PVC for Ground) • Dual Copper Tape Shield • Black PVC Jacket | | | | |
| 1229528 | 1329528 | 1 | 43.2 | IEEE 1202/383 (70,000 BTU) Sunlight Res Oil Res UL Direct Burial XHHW-2 Rated Circuit Conductors +90 °C Wet/Dry |
| 1229529 | 1329529 | 1/0 | 53.5 | |
| 1229530 | 1329530 | 2/0 | 69.0 | |
| 1229531 | 1329531 | 3/0 | 85.0 | |
| 1229532 | 1329532 | 4/0 | 107.2 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene

CSA VFD Cables
1000 V CSA Cables

CSA Symmetrical Design



- Three-Conductor Cable (3 Circuit + 3 Ground)
- Dual Spiral Copper Tape Shield
- 1000 V CSA TC
- CSA C22.2 #230
- CSA C22.2 #38
- CSA FT-4

| Part No. | Conductor | | | OD (Nom) | | Pulling Tension (Max) | | Bend Radius (Min) | | Additional Features/Ratings |
|---|-----------|-----------------|-----------|----------|-------|-----------------------|------|-------------------|-------|--|
| | AWG | mm ² | Stranding | Inch | mm | Lbs | N | Inch | mm | |
| Stranded BC Conductors • XLP Insulation • Dual Spiral Copper Cable Shield • Black PVC Jacket | | | | | | | | | | |
| 29550C | 14 | 2.1 | 7 x 22 | 0.43 | 10.92 | 162 | 75 | 4.3 | 109.2 | IEEE 1202/383 Sunlight Res Oil Res Direct Burial RW90 Conductors +90 °C Wet/Dry |
| 29551C | 12 | 3.3 | 7 x 20 | 0.46 | 11.68 | 258 | 117 | 4.6 | 116.8 | |
| 29552C | 10 | 5.4 | 7 x 18 | 0.51 | 12.95 | 444 | 201 | 5.1 | 129.5 | |
| 29553C | 8 | 8.6 | 7 x 16 | 0.65 | 16.51 | 576 | 261 | 6.5 | 165.1 | |
| 29554C | 6 | 13.8 | 7 x 14 | 0.72 | 18.28 | 915 | 415 | 7.3 | 185.4 | |
| 29555C | 4 | 21.6 | 7 x 12 | 0.83 | 21.08 | 1450 | 658 | 8.3 | 210.8 | |
| 29556C | 2 | 34.4 | 7 x 10 | 0.99 | 25.15 | 2300 | 1043 | 10.0 | 254.0 | |
| 29557C | 1 | 43.2 | 19 x 14 | 1.13 | 28.70 | 2650 | 1202 | 11.5 | 292.1 | |
| 29558C | 1/0 | 53.5 | 19 x 13 | 1.21 | 30.73 | 3537 | 1604 | 12.3 | 312.4 | |
| 29559C | 2/0 | 69.0 | 19 x 12 | 1.31 | 33.27 | 4200 | 1905 | 13.3 | 337.8 | |
| 29560C | 3/0 | 85.0 | 19 x 11 | 1.42 | 36.07 | 5025 | 2279 | 14.3 | 363.2 | |
| 29561C | 4/0 | 107.2 | 19 x 10 | 1.54 | 39.12 | 6670 | 3025 | 15.5 | 393.7 | |

Conductor Color Coding: ICEA Method 4: Black and Numbered.

MarineTuff™ Variable Frequency Drive (VFD) Cables



Applications

It is important to select a motor drive cable that has been properly designed and engineered to address all the key technical issues that such a component faces.

In offshore environments with multiple drives, increased vulnerability to noise exists. This noise emission can sometimes be difficult to track down and eliminate and is likely the single most significant problem associated with VFD systems today. Unless a proper cable shielding design is present to control it, noise emission from a drive system cable can disrupt operations. Moreover, because a longer cable radiates more noise, the length of cable runs must be limited. That, in turn, puts a limitation on your shipboard layout. Choosing well-designed, robust VFD cables ensures motor uptime and reliability of the VFD system and also provides protection for any sensitive instrumentation and adjacent control systems.

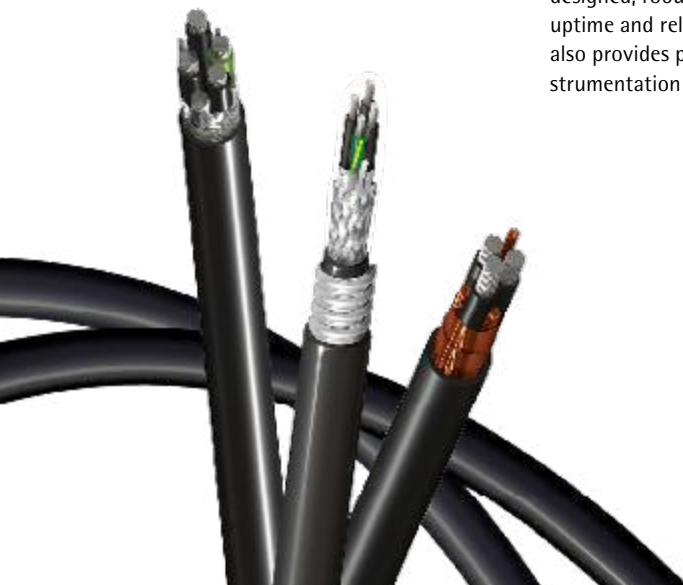
Cable Specifications

Belden cables have been designed and tested to the highest of standards :

- IEEE 45 Electrical Installation on Shipboard.
- IEEE 1580 Type P Insulations IEEE (recommended practice for use on shipboard in fixed or floating facilities).
- UL 1309 Marine Shipboard Cables.
- IEC 60811-2-1 Hydrocarbon Resistant.
- IEC 60754-1,-2 (Acid Gas Emissions).
- 600V UL 1277 Type TC-ER.
- 1000V UL Flexible Motor Supply.
- IEEE 1202/383, CSA FT4 Flame Tests.
- IEC 60332-3-22 Cat A Flame Test.
- -40°C Cold Bend.
- XHHW-2 Rated Conductors.
- 90°C Wet/Dry.
- Oil Resistant.
- Sunlight Resistant.

Product Features

- Low Smoke Zero Halogen (LSZH) jacketed, Type P insulations.
- 100% Ground - 3 Symmetrical Ground Conductors.
- Finely stranded tinned copper conductors for ease of cable installation, high frequency performance, vibration, corrosion and heat resistance.
- Low capacitance XLP insulation protects motor by reducing magnitude of reflected wave.
- 100% Dual copper tape shielding for enhanced flexibility and noise control.
- RoHS compliant and CE approved.
- Class I and II/ Division 2 hazardous location ratings.
- ABS (American Bureau of Shipping).
- DNV (Det Norske Veritas).



MarineTuff™ Marine Approved VFD Cables
Classic Foil/Braid Design VFD Cable



VFD Cables



- 600V UL 1277 Type TC-ER
- IEEE 45 Electrical Installation on Shipboard
- IEEE 1580 Type P Jacket IEEE
- IEEE 1202/383, CSA FT4
- -40°C Cold Bend & 90°C Wet / Dry
- IEC 60811-2-1 Hydrocarbon Resistant
- UL 1309 Marine Shipboard Cable
- IEC 60754-1,-2 (Acid Gas Emissions)
- IEC 60332-3-22 Cat A
- Oil Resistant
- Sunlight Resistant
- ABS (American Bureau of Shipping)
- 1000V UL Flexible Motor Supply
- DNV (Det Norske Veritas)

| Part No. | Conductors | | Pull Tension (Max) | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|-----------|--------------------|-------------------|----|----------|----|-----------------------|----|
| | AWG | Stranding | Lbs | Inch | mm | Inch | mm | Inch | mm |

16 to 2 AWG

| Flexible Stranded (16 X 30) • XLPE Insulation • Overall Shield 100% Duofoil + Tinned Copper Braid Shield • Thermoset LSZH Jacket | | | | | | | | | |
|--|----|---------|------|-------|-------|------|------|------|-----|
| 29500X | 16 | 26X30 | 128 | 4.30 | 109.2 | 0.53 | 13.5 | 0.07 | 1.8 |
| 29501X | 14 | 41X30 | 212 | 4.80 | 121.9 | 0.60 | 15.2 | 0.07 | 1.8 |
| 29502X | 12 | 65X30 | 336 | 5.20 | 132.0 | 0.65 | 16.5 | 0.07 | 1.8 |
| 29503X | 10 | 105X30 | 592 | 5.50 | 139.7 | 0.69 | 17.5 | 0.07 | 1.8 |
| 29504X | 8 | 7X19X29 | 768 | 7.50 | 190.5 | 0.93 | 23.6 | 0.09 | 2.3 |
| 29505X | 6 | 7X19X27 | 1220 | 8.00 | 203.2 | 1.02 | 25.9 | 0.09 | 2.3 |
| 29506X | 4 | 7X19X25 | 1940 | 9.30 | 236.2 | 1.16 | 29.5 | 0.09 | 2.3 |
| 29507X | 2 | 7X19X23 | 3088 | 10.80 | 273.1 | 1.31 | 33.3 | 0.09 | 2.3 |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.



| Part No. | Conductors | | Pull Tension (Max) | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|-----------|--------------------|-------------------|----|----------|----|-----------------------|----|------------------------|----|
| | AWG | Stranding | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

16 to 2 AWG

| Flexible Stranded (16 X 30) • XLPE Insulation • Overall Shield 100% Duofoil + Tinned Copper Braid Shield • Bronze Braid Armor • Double Thermoset LSZH Jackets | | | | | | | | | | | |
|---|----|---------|------|-------|-------|------|------|------|-----|------|-----|
| Z29500X | 16 | 26X30 | 128 | 8.30 | 210.8 | 0.69 | 17.6 | 0.07 | 1.8 | 0.05 | 1.4 |
| Z29501X | 14 | 41X30 | 212 | 9.14 | 232.2 | 0.76 | 19.3 | 0.07 | 1.8 | 0.05 | 1.4 |
| Z29502X | 12 | 65X30 | 336 | 9.74 | 247.4 | 0.81 | 20.6 | 0.07 | 1.8 | 0.05 | 1.4 |
| Z29503X | 10 | 105X30 | 592 | 10.22 | 259.6 | 0.85 | 21.6 | 0.07 | 1.8 | 0.05 | 1.4 |
| Z29504X | 8 | 7X19X29 | 768 | 13.10 | 332.7 | 1.09 | 27.7 | 0.09 | 2.3 | 0.05 | 1.4 |
| Z29505X | 6 | 7X19X27 | 1220 | 14.18 | 360.2 | 1.18 | 30.0 | 0.09 | 2.3 | 0.05 | 1.4 |
| Z29506X | 4 | 7X19X25 | 1940 | 15.86 | 402.8 | 1.32 | 33.6 | 0.09 | 2.3 | 0.05 | 1.5 |
| Z29507X | 2 | 7X19X23 | 3088 | 17.78 | 451.6 | 1.48 | 37.6 | 0.09 | 2.3 | 0.05 | 1.5 |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.



MarineTuff™ Marine Approved VFD Cables Classic Symmetrical Design VFD Cable

VFD Cables



- 600V UL 1277 Type TC-ER
- IEEE 45 Electrical Installation on Shipboard
- IEEE 1580 Type P Jacket IEEE
- IEEE 1202/383, CSA FT4
- -40°C Cold Bend & 90°C Wet / Dry
- IEC 60811-2-1 Hydrocarbon Resistant
- UL 1309 Marine Shipboard Cable
- IEC 60754-1,-2 (Acid Gas Emissions)
- IEC 60332-3-22 Cat A
- Oil Resistant
- Sunlight Resistant
- ABS (American Bureau of Shipping)
- 1000V UL Flexible Motor Supply
- DNV (Det Norske Veritas)

| Part No. | Conductors | | Pull Tension (Max) | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | |
|----------|------------|-----------|--------------------|-------------------|----|----------|----|-----------------------|----|
| | AWG | Stranding | Lbs | Inch | mm | Inch | mm | Inch | mm |

1 to 4/0 AWG

| Flexible Stranded TC Conductors • XLPE Insulation • Overall Shield 100% Spiral Copper Tape Shield • LSZH Thermoset Jacket | | | | | | | | | |
|---|-----|---------|------|-------|-------|------|------|------|-----|
| 29528X | 1 | 7X19X22 | 2650 | 12.00 | 304.8 | 1.20 | 30.5 | 0.08 | 2.1 |
| 29529X | 1/0 | 7X19X21 | 3537 | 12.90 | 327.7 | 1.29 | 32.8 | 0.08 | 2.1 |
| 29530X | 2/0 | 7X19X20 | 4200 | 14.00 | 355.6 | 1.40 | 35.6 | 0.08 | 2.1 |
| 29531X | 3/0 | 7X19X19 | 5025 | 15.20 | 386.1 | 1.52 | 38.6 | 0.08 | 2.1 |
| 29532X | 4/0 | 7X19X18 | 6670 | 16.80 | 426.7 | 1.68 | 42.7 | 0.08 | 2.1 |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.



| Part No. | Conductors | | Pull Tension (Max) | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|------------|-----------|--------------------|-------------------|----|----------|----|-----------------------|----|------------------------|----|
| | AWG | Stranding | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

1 to 4/0 AWG

| Flexible Stranded TC Conductors • XLPE Insulation • Overall Shield 100% Spiral Copper Tape Shield • Bronze Braid Armor • Double LSZH Thermoset Jackets | | | | | | | | | | | |
|--|-----|---------|------|-------|-------|------|------|------|-----|------|-----|
| Z29528X | 1 | 7X19X22 | 2650 | 16.67 | 423.3 | 1.39 | 35.3 | 0.08 | 2.1 | 0.06 | 1.5 |
| Z29529X | 1/0 | 7X19X21 | 3537 | 17.75 | 450.8 | 1.48 | 37.6 | 0.08 | 2.1 | 0.06 | 1.5 |
| Z29530X | 2/0 | 7X19X20 | 4200 | 19.07 | 484.3 | 1.59 | 40.4 | 0.08 | 2.1 | 0.06 | 1.5 |
| Z29531X | 3/0 | 7X19X19 | 5025 | 20.63 | 523.9 | 1.72 | 43.7 | 0.08 | 2.1 | 0.07 | 1.7 |
| Z29532X | 4/0 | 7X19X18 | 6670 | 22.55 | 572.7 | 1.88 | 47.7 | 0.08 | 2.1 | 0.07 | 1.7 |

Conductor Color Coding: ICEA Method 4: Black and Numbered, Green/Yellow Ground.



Enjoy the benefits of
our experience and
innovations.





Power & Control Sensor & Actuator Cables

Section Table of Contents

| Power & Control | Page |
|-------------------------------|------|
| Sensor & Actuator Cables | |
| Overview | 166 |
| PVC Sensor & Actuator Cables | 167 |
| PUR Sensor & Actuator Cables | 168 |
| PUR Distribution Boxes Cables | 169 |



Sensor & Actuator Cables



The sensor/actuator range are signal cables, connecting automation systems end points (e.g., sensors) to the next layer (e.g. I/O devices). These applications require cables with high flexibility and resistance to tough industrial environments (e.g., oil, temperature variation, chemicals), low data rates and reliable quality.

Product Features

- Drag chain suitability/trailing-resistant
 - Bending radius 10xD
 - Acceleration 5 m/s²
 - Path feed rate 200 m/min at 5 m horizontal path
 - Guaranteed from 2 million bending cycles to 10 million bending cycles
- Torsion-resistant
 - >5 million cycles guaranteed
 - ± 360° per 1 m length
- Resistance to coolants and lubricants
 - Polyurethane outer jacket for longer service life
 - Lower maintenance costs
- UL, ROHS compliant
- No halogens, LABS free, phosphorus free
- On-machine industrial resistance requirements: flexible, oil resistant, tough cable jackets, e.g. PURs
- High temperature resistance +80 °C
- Perfectly round cable for IP67 assemblies requirements
- Multiple put-up lengths (100 m, 3000 m, 5000 m, etc.)

Benefits

- With an experience of over 110 years, Belden evolved its manufacturing sites to deliver maximum performance and total reliability. High levels of quality in centricity, roundness, strippability and consistent jacket thickness are ensured through the production quality systems, in line management, centricity control systems, stripping force testing, UL and ISO 9001:2000 certified facilities.
- Belden guarantees the quality of its cables by using high quality materials, approved by international authorities such as IEC and UL.

Applications

On-machine applications & peripheral devices to PLC controllers:

- Sensor-Actuator links
- Sensors/Actuators to I/O Distributor Boxes
- Sensors/Actuators to Field Devices

Belden Sensor & Actuator Cables

Robust Cables for Sustainable Performance

Automation technologies make things move. They sense, they control, and they inspect. Automation also means intelligent networking of control systems, sensors and actuators. High performance cables have changed the face of modern factories, manufacturing processes and the industrial infrastructure. Today's industrialists expect reliability and take long lifecycles and high performance for granted. Very often this applies under even the most rugged conditions, which means in practice that they can concentrate on their own work.

Belden offers a wide range of industrial sensor cables, UL style and tested for 1 up to 5 million cycles trailing or torsion applications, have a durable outside sheath, extremely small bending radiuses and are highly resistant to oil and chemicals. They are particularly suitable for use in metal-cutting machines and installations.

PVC Sensor/Actuator Cables

PVC (Polyvinylchloride) is a general purpose thermoplastic jacketing material, which has good mechanical strength in dry, damp or wet rooms and outdoors (fixed installations).

- Outstanding resistance to chemicals
- PVC screened
- Cu screen: Wire Ø 0.10 mm, tinned/coverage 85% +/- 5%
- Recommended for applications in food processing equipment
- Recommended for applications in packaging, assembly and automatic production lines

PVC Sensor & Actuator Cable



| Part No. | Conductors | Stranding | OD (Nom) | | Voltage | Temperature Fixed Installation (°C) | UL Style | Additional Features/Ratings |
|--|------------|--------------|----------|-----|---------|-------------------------------------|-------------|---|
| | | | Inch | mm | | | | |
| Copper Section 0.25 mm² | | | | | | | | |
| Stranded BC Conductors • PVC Insulation • PVC Jacket • LABS Free | | | | | | | | |
| 70202E | 3 | 32 x 0.10 mm | 0.197 | 5.0 | 300 V | -40 to +80 | UL AWM 2464 | 1 Million Continuous Flex Cycles, Trailing Acids and Chemical Cleaning Agents Resistant |
| Copper Section 0.34 mm² | | | | | | | | |
| Stranded BC Conductors • PVC Insulation • PVC Jacket • LABS Free | | | | | | | | |
| 70201E | 3 | 42 x 0.10 mm | 0.197 | 5.0 | 300 V | -40 to +80 | UL AWM 2464 | 1 Million Continuous Flex Cycles, Trailing Acids and Chemical Cleaning Agents Resistant |
| 70203E | 4 | 42 x 0.10 mm | 0.224 | 5.7 | 300 V | -40 to +80 | UL AWM 2464 | |

BC = Bare Copper • PVC = Polyvinyl Chloride

Belden Sensor & Actuator Cables

PUR Sensor & Actuator Cables

Product Features

- Low outer diameter and tolerances
 - Process security during sensor production
 - Optimum processing in the sensor
- Drag chain suitability
 - Bending radius 10 x D
 - Acceleration 5 m/s²
 - Path feed rate 200 m/min at 5 m horizontal path
 - Guaranteed bending cycles 5 millions
- Free of halogen and substances detrimental to paint adhesion
 - Decrease in fire load
 - Can also be used in paint shops for example
- Resistance to coolants and lubricants
 - Polyurethane outer jacket for longer service life
 - Lower maintenance costs
- Color black – suitable for any device design
- UL approved
- Torsion-resistant
 - >5 million cycles guaranteed
 - ± 360° per 1 m length

PUR Sensor & Actuator Cable



| Part No. | Conductors | Stranding | OD (Nom) | | Voltage | Temperature Fixed Installation (°C) | UL Style | Additional Features/Ratings |
|--|------------|--------------|----------|-----|---------|-------------------------------------|--------------|---|
| | | | Inch | mm | | | | |
| Copper Section 0.14 mm² | | | | | | | | |
| Stranded BC Conductors • PP Insulation • PUR Jacket • Halogen Free • LABS Free | | | | | | | | |
| 70252PU | 3 | 72 x 0.05 mm | 0.114 | 2.9 | 300 V | -50 to +80 | UL AWM 20549 | 5 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |
| 70254PU | 3 | 72 x 0.05 mm | 0.114 | 2.9 | 300 V | -50 to +80 | UL AWM 20549 | 5 Million Continuous Flex Cycles, Trailing Weldsplatter Resistant Sunlight and Oil Resistant |
| 70251PU | 4 | 18 x 0.10 mm | 0.138 | 3.5 | 300 V | -50 to +80 | UL AWM 20549 | 5 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |
| Copper Section 0.25 mm² | | | | | | | | |
| Stranded BC Conductors • PP Insulation • PUR Jacket • Halogen Free • LABS Free | | | | | | | | |
| 70262PU | 6 | 32 x 0.10 mm | 0.200 | 5.1 | 300 V | -50 to +80 | UL AWM 20549 | 2 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |
| 70263PU | 8 | 32 x 0.10 mm | 0.236 | 6.0 | 300 V | -50 to +80 | UL AWM 20549 | |
| 70264PU | 10 | 32 x 0.10 mm | 0.248 | 6.3 | 300 V | -50 to +80 | UL AWM 20549 | |
| 70265PU | 12 | 32 x 0.10 mm | 0.251 | 6.4 | 300 V | -50 to +80 | UL AWM 20549 | |
| 70268PU | 14 | 32 x 0.10 mm | 0.283 | 7.2 | 300 V | -50 to +80 | UL AWM 20549 | |
| Copper Section 0.34 mm² | | | | | | | | |
| Stranded BC Conductors • PP Insulation • PUR Jacket • Halogen Free • LABS Free | | | | | | | | |
| 70256PU | 3 | 42 x 0.10 mm | 0.169 | 4.3 | 300 V | -50 to +80 | UL AWM 20549 | 5 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |
| 70257PU | 4 | 42 x 0.10 mm | 0.185 | 4.7 | 300 V | -50 to +80 | UL AWM 20549 | 5 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |
| 70261PU | 6 | 42 x 0.10 mm | 0.236 | 6.0 | 300 V | -50 to +80 | UL AWM 20549 | 2 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |
| Stranded BC Conductors • PETE Insulation • Special PUR • Halogen Free • LABS Free | | | | | | | | |
| 70269PU | 4 | 42 x 0.10 mm | 0.224 | 5.7 | 300 V | -50 to +80 | UL AWM 20549 | 5 Million Continuous Flex Cycles Robot Cable: Trailing and Torsion Weldsplatter Resistant Sunlight and Oil Resistant |
| Copper Section 0.50 mm² | | | | | | | | |
| Stranded BC Conductors • PP Insulation • PUR Jacket • Halogen Free • LABS Free | | | | | | | | |
| 70258PU | 3 | 16 x 0.20 mm | 0.181 | 4.6 | 300 V | -50 to +80 | UL AWM 20549 | 5 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |
| 70259PU | 5 | 16 x 0.20 mm | 0.213 | 5.4 | 300 V | -50 to +80 | UL AWM 20549 | 5 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |

BC = Bare Copper • PP = Polypropylene • PUR = Polyurethane • PETE = Polyethylene Terephthalate

Belden Sensor & Actuator Cables

PUR Distribution Boxes Cables



| Part No. | Conductors | Stranding | OD (Nom) | | Voltage | Temperature Fixed Installation (°C) | UL Style | Additional Features/Ratings |
|---|---|-------------------------------|----------|------|---------|-------------------------------------|--------------|---|
| | | | Inch | mm | | | | |
| Copper Section 0.50 mm² & 1.00 mm² | | | | | | | | |
| Stranded BC Conductors • PP Insulation • PUR Jacket • Halogen Free • LABS Free | | | | | | | | |
| 70260PU | 12 x 0.50 mm ² & 3 x 1.00 mm ² | 64 x 0.10 mm 128 x 0.10 mm | 0.358 | 9.1 | 300 V | -25 to +80 | UL AWM 20549 | 2 Million Continuous Flex Cycles, Trailing Sunlight and Oil Resistant |
| 70266PU | 16 x 0.50 mm ² & 3 x 1.00 mm ² | 64 x 0.10 mm 128 x 0.10 mm | 0.457 | 11.6 | 300 V | -25 to +80 | UL AWM 20549 | |
| 70267PU | 8 x 0.50 mm ² & 3 x 1.00 mm ² | 64 x 0.10 mm 128 x 0.10 mm | 0.366 | 9.3 | 300 V | -25 to +80 | UL AWM 20549 | |

BC = Bare Copper • PP = Polypropylene • PUR = Polyurethane



High performance cabling solutions have changed the face of modern production facilities.





Power & Control Hook-up & Lead Wire

Section Table of Contents

| Power & Control | Page |
|---|------|
| Hook-up & Lead Wire | |
| Overview | 172 |
| Introduction: UL Style & CSA Type Listings | 173 |
| PVC | 174 |
| MachFlex ONE (PVC) | 178 |
| PVC Wire Dispenser Kits | 179 |
| GreenChoice™ PPO | 180 |
| TFE | 181 |
| EPDM | 183 |
| XL-DUR® | 185 |
| XL-DUR® (High-Temperature) and SIS (Switchboard) Wire | 186 |
| MachFlex ONE (XLP) | 187 |
| Chlorosulfonated Polyethylene | 188 |
| Neoprene | 190 |
| Silicone Rubber | 191 |
| Mercury Switch | 193 |
| High-Voltage Leads | 193 |
| Test Prod Wire | 193 |
| Magnet Wire | 194 |
| Shielding and Bonding Cable, Direct Burial Cable, Bus Bar, and Antenna Wire | 196 |
| Technical Information | 197 |



Hook-up & Lead Wire



Belden hook-up and lead wire products are manufactured in a variety of materials, sizes and designs to meet rigid industry and government specifications. Manufactured in-house, our hook-up and lead wire manufacturing process begins with copper rod.

Product Features

- Variety of jacket materials: PVC, FEP, Teflon, EPDM, XL-DUR, CSPE, Neoprene, Silicone rubber
- Temperature range up to +200 °C silicon
- Color stability
- Fast stripping
- Oil resistant
- UL approval

Benefits

Belden's rubber formulation and plastic mixing facilities give us complete control of the product from start to finish. As a result, consistent quality of these products is always assured.

Applications

Belden's hook-up and lead wire products can be used in a wealth of applications, including interconnection circuits, internal wiring of computer and data processing equipment, appliances, lighting, motor leads, heating and cooling equipment, harness fabrication, and automotive.



Introduction

CSPE and Neoprene Constructions

These constructions may require a special topcoat to facilitate printing by customers. Minimum order is 5000 feet per AWG. Please order the standard item and specify "Top-Coated" and specify color. Orders must be in multiples of standard packages.

Price and delivery information is available upon request.

Manufacturer's Identification

Identification of the hook-up and lead wire is provided by our UL and CSA file numbers or printed name on the wire jacket.

Manufacturer's Identification

| UL/CSA | File Number | Style |
|--------|-------------|------------------------------|
| UL | E-12683 | 1XXX, 2XXX, 3XXX, 4XXX, 5XXX |
| | E-53518 | MTW |
| | E-6934 | SF-1, SFF-1, SF-2, SFF-2 |
| | E-3917 | SIS |
| CSA | LL-7874 | All Types |

Index by UL Voltage and Temperature Rating

| Hook-up & Lead Wire Section | Materials |
|-----------------------------|--------------------------------------|
| 300 V, +80 °C | PVC |
| 300 V, +90 °C | Neoprene |
| 300 V, +105 °C | Chlorosulfonated Polyethylene (CSPE) |
| | XL-DUR® |
| 300 V, +200 °C | TFE |
| 600 V, +90 °C | Neoprene |
| | SIS |
| | CSPE |
| 600 V, +105 °C | PPO |
| | PVC |
| | EPDM |
| | XL-DUR |
| 600 V, +150 °C | EPDM |
| | Silicone Rubber, Braidless |
| | Silicone Rubber, Glass Braid |
| | Silicone Rubber, Mercury Switch Wire |
| | XL-DUR |
| | Silicone Rubber, Braidless |
| 600 V, +200 °C | Silicone Rubber, Glass Braid |
| | CSPE |
| 5000 V | CSPE |
| 7500 V, +150 °C | EPDM |

Appliance Wiring Material (AWM)

Appliance Wiring Material is Underwriter Laboratories, Inc.'s recognized covering of insulated wire and cable intended for internal wiring of appliances and equipment. Each construction satisfies the requirements for use in particular applications. Wiring materials recognized under this classification bear the "Underwriters' Appliance Wiring Material Label".

UL and CSA Type by Belden Series

| UL Style | CSA Type | Belden Series Number | Temperature Rating, °C |
|----------|----------|----------------------|------------------------|
| 1007 | TR-64 | 328 | +80 |
| 1015 | TEW | 327, 99, 89 | +105 |
| 1028 | TEW | 99, 89 | +105 |
| 1061 | AWM | 99 | +80 |
| 1180 | — | 830 | +200 |
| 1213 | — | 830 | +105 |
| 1283 | TEW | 99 | +105 |
| 1371 | — | 830 | +105 |
| 1569 | TRSR-64 | 99 | +105 |
| 1855 | — | — | +80 |
| 3044 | CL902 | 315 | +90 |
| 3046 | CL903 | 315, 325 | +90 |
| 3048 | CL902 | 315 | +90 |
| 3049 | CL902 | 315 | +90 |
| 3069 | SEWF-2 | 308 | +150 |
| 3070 | SEWF-2 | 308 | +150 |
| 3071 | SEW-2 | 324 | +200 |
| 3074 | SEW-2 | 324 | +200 |
| 3075 | SEW-2 | 324 | +200 |
| 3101 | SEWF-2 | 308 | +150 |
| 3123 | — | 340 | +150 |
| 3125 | SEW-2 | 308 | +200 |
| 3126 | SEW-2 | 308 | +200 |
| 3135 | — | 334 | +200 |
| 3173 | CL1251 | 356 | +125 |
| 3190 | CL1052 | 349 | +105 |
| 3191 | CL1052 | 344 | +105 |
| 3192 | CL1052 | 344 | +105 |
| 3193 | CL1052 | 344 | +105 |
| 3195 | CL1251 | 356 | +125 |
| 3196 | CL1251 | 356 | +125 |
| 3199 | CL1054 | 357 | +105 |
| 3212 | AWM | 333 | +150 |
| 3213 | AWM | 333 | +150 |
| 3214 | AWM | 333 | +150 |
| 3239 | — | — | +80 |
| 3321 | AWM | 354 | +150 |
| 3340 | CL1254 | 371 | +150 |
| 3374 | CL1254 | 371 | +150 |
| 3436 | CL1251 | 354 | +150 |
| 3484 | AWM | 372 | +125 |
| 3499 | — | 375 | +150 |
| 11028 | — | 391 | +105 |
| SIS | — | 310 | +90 |

CSPE = Chlorosulfonated Polyethylene • EPDM = Ethylene-Propylene Diene Elastomer • PPO = Polyphenylene Oxide • PVC = Polyvinyl Chloride • PVDF = Polyvinylidene Fluoride • TFE = Tetrafluoroethylene

PVC

UL AWM Style 1061
300 V, +80 °C (UL & CSA)

- Tinned Copper Conductors
- Semi-rigid PVC Insulation
- CSA AWM



Solid conductors suitable for wire wrap applications

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 9978 | 30 | Solid | .030 | .76 | .010 | .25 |
| 9987 | 30 | 7 x 38 | .032 | .81 | .010 | .25 |
| 9977 | 28 | Solid | .033 | .84 | .010 | .25 |
| 9986 | 28 | 7 x 36 | .035 | .89 | .010 | .25 |
| 9976 | 26 | Solid | .036 | .91 | .010 | .25 |
| 9985 | 26 | 7 x 34 | .039 | .99 | .010 | .25 |
| 9975 | 24 | Solid | .040 | 1.02 | .010 | .25 |
| 9984 | 24 | 7 x 32 | .044 | 1.12 | .010 | .25 |
| 9979 | 22 | Solid | .047 | 1.19 | .010 | .25 |
| 9983 | 22 | 7 x 30 | .050 | 1.27 | .010 | .25 |
| 9982 | 20 | 7 x 28 | .057 | 1.45 | .010 | .25 |
| 9917 | 20 | 10 x 30 | .056 | 1.42 | .010 | .25 |
| 9911 | 18 | 16 x 30 | .067 | 1.70 | .010 | .25 |
| 9981 | 18 | 19 x 30 | .066 | 1.68 | .010 | .25 |
| 9980 | 16 | 19 x 28 | .078 | 1.98 | .010 | .25 |
| 9909 | 16 | 26 x 30 | .080 | 2.03 | .010 | .25 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

PVC

**UL AWM Style 1007
300 V, +80 °C (UL)**



- Tinned Copper Conductors
- PVC Insulation
- VW-1

Rated 2500 V peak for electronic circuits, and internal wiring of electronic and electrical equipment

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 9930 | 30 | 7 x 38 | .044 | 1.12 | .015 | .38 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

**UL AWM Style 1007, 1569 • CSA Type TR-64, TRSR-64
Dual-Rated Wire • 300 V, +80/+105 °C (UL) • 300 V, +90/+105 °C (CSA)**



- Tinned Copper Conductors
- PVC Insulation
- VW-1

Rated 600 V peak for electronic circuits, and internal wiring of electronic and electrical equipment

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 9928 | 28 | 7 x 36 | .047 | 1.19 | .015 | .38 |
| 9926 | 26 | 7 x 34 | .051 | 1.30 | .015 | .38 |
| 9923 | 24 | 7 x 32 | .056 | 1.42 | .015 | .38 |
| 9921 | 22 | 7 x 30 | .062 | 1.57 | .015 | .38 |
| 9919 | 20 | 7 x 28 | .069 | 1.75 | .015 | .38 |
| 9920 | 20 | 10 x 30 | .067 | 1.70 | .015 | .38 |
| 9918 | 18 | 16 x 30 | .079 | 2.01 | .015 | .38 |
| 9916 | 16 | 26 x 30 | .092 | 2.34 | .015 | .38 |
| 9989* | 14 | 41 x 30 | .110 | 2.79 | .015 | .38 |

* Not AWM Style 1007.

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

**UL AWM Style 1007 • CSA Type TR-64
300 V, +80 °C (UL) • 300 V, +90 °C (CSA)**



- Uni-Strand® Tinned Copper Conductors
- PVC Insulation
- VW-1

Recommended Maximum Baking Cycles: 24 Hours @ +300 °F (+149 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 32822 | 22 | 7 x 30 | .062 | 1.58 | .015 | .38 |
| 32820 | 20 | 7 x 28 | .068 | 1.73 | .015 | .38 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

PVC = Polyvinyl Chloride

PVC

**UL AWM Style 1015 or 1230 • CSA Type TEW
600 V, +105 °C (UL & CSA)**



- Tinned Copper Conductors
- PVC Insulation
- UL Type MTW (except 9924)
- VW-1

Rated 2500 V peak for electronic circuits, and internal wiring of electronic and electrical equipment

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 9924 | 24 | 7 x 32 | .088 | 2.24 | .030 | .76 |
| 8920 | 22 | 7 x 30 | .093 | 2.36 | .030 | .76 |
| 8919 | 20 | 10 x 30 | .100 | 2.54 | .030 | .76 |
| 8918 | 18 | 16 x 30 | .110 | 2.79 | .030 | .76 |
| 8915 | 18 | Solid | .105 | 2.67 | .030 | .76 |
| 8917 | 16 | 26 x 30 | .123 | 3.12 | .030 | .76 |
| 8916 | 14 | 41 x 30 | .138 | 3.51 | .030 | .76 |
| 9912 | 12 | 65 x 30 | .158 | 4.01 | .030 | .76 |
| 9910 | 10 | 65 x 28 | .180 | 4.57 | .030 | .76 |
| 8910 | 10 | 105 x 30 | .186 | 4.72 | .030 | .76 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

**UL AWM Style 1015 • CSA Type TEW
600 V, +105 °C (UL & CSA)**



- Uni-Strand Tinned Copper Conductors
- PVC Insulation
- VW-1

Recommended Maximum Baking Cycles: 48 Hours @ +275 °F (+135 °C), 24 Hours @ +300 °F (+149 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 32722 | 22 | 7 x 30 | .093 | 2.36 | .030 | .76 |
| 32720 | 20 | 7 x 28 | .099 | 2.52 | .030 | .76 |
| 32718 | 18 | 7 x 26 | .108 | 2.74 | .032 | .80 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

**UL AWM Style 1015, 1028 • CSA Type TEW
600 V, +105 °C (UL & CSA)**



- Tinned Copper Conductors
- PVC Insulation
- UL Type MTW
- VW-1

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| 9908 | 8 | 84 x 27 | .250 | 6.35 | .045 | 1.14 |
| 8908 | 8 | 133 x 29 | .262 | 6.65 | .045 | 1.14 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

PVC = Polyvinyl Chloride

PVC

**UL AWM Style 1015, 1283 • CSA Type TEW
600 V, +105 °C (UL & CSA)**



- Tinned Copper Conductors
- PVC Insulation
- UL Type MTW
- VW-1

PVC insulation hook-up wire for internal wiring of meters, panels, and electrical or electronic equipment

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| 9906 | 6 | 133 x 27 | .331 | 8.41 | .060 | 1.52 |
| 9904 | 4 | 133 x 25 | .392 | 9.96 | .060 | 1.52 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

**Type MW, MIL-W-76C-PVC
1000 V, +80 °C (MIL)**



- Tinned Copper Conductors
- PVC Insulation, Medium Wall
- Flame and Ozone Resistant
- Inert to Most Chemicals, Oils, and Solvents

PVC insulation hook-up wire for internal wiring of meters, panels, and electrical or electronic equipment

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 8538 | 24 | Solid | .055 | 1.40 | .017 | .43 |
| 8525 | 24 | 7 x 32 | .058 | 1.47 | .017 | .43 |
| 8530 | 22 | Solid | .059 | 1.50 | .017 | .43 |
| 8524 | 22 | 7 x 30 | .064 | 1.63 | .017 | .43 |
| 8529 | 20 | Solid | .066 | 1.68 | .017 | .43 |
| 8523 | 20 | 10 x 30 | .070 | 1.78 | .017 | .43 |
| 8522 | 18 | 16 x 30 | .080 | 2.03 | .017 | .43 |
| 8521 | 16 | 26 x 30 | .098 | 2.49 | .019 | .48 |
| 8520 | 14 | 41 x 30 | .111 | 2.82 | .018 | .46 |
| 8527 | 12 | 65 x 30 | .128 | 3.25 | .018 | .46 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

**Type B, MIL-W-16878/1-PVC
600 V, +105 °C (MIL)**



- Tinned Copper Conductors
- PVC Insulation

PVC insulation hook-up wire for internal wiring of meters, panels, and electrical or electronic equipment

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| 8597 | 28 | 7 x 32 | .035 | .89 | .010 | .035 |
| 8505 | 26 | 7 x 34 | .039 | .89 | .010 | .035 |
| 8504 | 24 | 7 x 32 | .044 | 1.12 | .010 | .035 |
| 8503 | 22 | 7 x 30 | .050 | 1.27 | .010 | .035 |
| 8502 | 20 | 7 x 28 | .058 | 1.47 | .010 | .035 |
| 8501 | 18 | 7 x 26 | .068 | 1.73 | .010 | .035 |
| 8500 | 16 | 19 x 29 | .079 | 2.01 | .010 | .035 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

PVC = Polyvinyl Chloride

MachFlex ONE PVC Hookup Wire

Flexible PVC Single Core Wire



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-21, DIN VDE 0207-363-4-1
- UL 758
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2
- -20 °C to +105 °C (Occasional movement)
- -30 °C to +105 °C (Fixed installation)
- RoHS & CE Directives

| Part No. | Conductor Area (mm ²) | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km | Additional Features |
|----------|-----------------------------------|-------------------|-----------------|----------|----|-------------------------|---------------------|
| | | For general use | For extreme use | Inch | mm | | |

Machflex ONE 350 YY

300/500V • Stranded Class - 5 • BC Conductors • PVC Insulation

| | | | | | | | |
|---------|------|--------|--------|------|-----|-------|----------------------|
| HK30.5 | 0.50 | 4 x OD | 2 x OD | 0.08 | 2.1 | 8.79 | H05V-K • UL AWM 1569 |
| HK30.75 | 0.75 | 4 x OD | 2 x OD | 0.09 | 2.3 | 11.56 | |
| HK31.0 | 1.00 | 4 x OD | 2 x OD | 0.10 | 2.5 | 13.85 | |
| HK31.5 | 1.50 | 4 x OD | 2 x OD | 0.11 | 2.7 | 18.76 | UL AWM 1569 |
| HK32.5 | 2.50 | 4 x OD | 2 x OD | 0.13 | 3.2 | 28.47 | |
| HK34 | 4.00 | 4 x OD | 2 x OD | 0.15 | 3.8 | 44.97 | |

Machflex ONE 475 YY

450/750V • Stranded Class - 5 • BC Conductors • PVC Insulation

| | | | | | | | |
|--------|-------|--------|--------|------|------|--------|-----------------------|
| HK41.5 | 1.50 | 4 x OD | 2 x OD | 0.13 | 3.2 | 22.44 | H07V-K • UL AWM 10669 |
| HK42.5 | 2.50 | 4 x OD | 2 x OD | 0.15 | 3.7 | 32.71 | |
| HK44 | 4.00 | 4 x OD | 2 x OD | 0.17 | 4.3 | 49.96 | |
| HK46 | 6.00 | 4 x OD | 2 x OD | 0.19 | 4.8 | 70.33 | |
| HK410 | 10.00 | 8 x OD | 4 x OD | 0.24 | 6.2 | 109.33 | |
| HK416 | 16.00 | 8 x OD | 4 x OD | 0.30 | 7.5 | 177.81 | |
| HK425 | 25.00 | 8 x OD | 4 x OD | 0.36 | 9.0 | 264.14 | |
| HK435 | 35.00 | 8 x OD | 4 x OD | 0.40 | 10.0 | 343.61 | |

Machflex ONE 610 YY

600/1000V • Stranded Class - 5 • BC Conductors • PVC Insulation

| | | | | | | | |
|---------|-------|--------|--------|------|------|--------|---------------|
| HK60.5 | 0.50 | 4 x OD | 2 x OD | 0.10 | 2.5 | 10.99 | AS/NZS 5000.1 |
| HK60.75 | 0.75 | 4 x OD | 2 x OD | 0.11 | 2.1 | 13.94 | |
| HK61.0 | 1.00 | 4 x OD | 2 x OD | 0.11 | 2.8 | 16.37 | |
| HK64 | 4.00 | 4 x OD | 2 x OD | 0.18 | 4.5 | 52.92 | |
| HK66 | 6.00 | 4 x OD | 2 x OD | 0.20 | 5.1 | 73.67 | |
| HK610 | 10.00 | 8 x OD | 4 x OD | 0.24 | 6.2 | 109.33 | |
| HK616 | 16.00 | 8 x OD | 4 x OD | 0.30 | 7.5 | 177.81 | |
| HK625 | 25.00 | 8 x OD | 4 x OD | 0.36 | 9.0 | 264.14 | |
| HK635 | 35.00 | 8 x OD | 4 x OD | 0.40 | 10.0 | 343.39 | |

PVC Wire Dispenser Kits

Wire Dispenser Kits



- Tinned Copper Conductors
- PVC Insulation

Great for R & D labs, engineers, service personnel, and hobbyists

| Part No. | No. of Spools | Wire Part No. | Temp Rating | AWG | Stranding | Spool Lengths | |
|-------------|---------------|---------------|-------------|-----|-----------|---------------|--------|
| | | | | | | Feet | Meters |
| 8816 | 8 | 8522 | +80 °C | 18 | 16 x 30 | 25 | 7.6 |
| 8824 | 8 | 8523 | +80 °C | 20 | 10 x 30 | | |
| 8825 | 5 | 8502 | +105 °C | 20 | 7 x 28 | 100 | 30.4 |
| 9531 | 5 | 8524 | +80 °C | 22 | 7 x 30 | | |
| 8800 | Rack Only | | | | | | |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

PVC = Polyvinyl Chloride

GreenChoice™ PPO

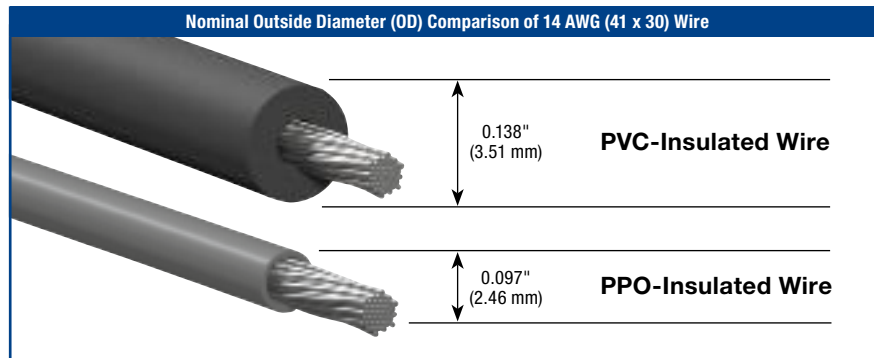
UL AWM Style 11028
600 V, +105 °C



- Stranded Tinned Copper Conductors
- Zero Halogen Polyphenylene Oxide (PPO) Insulation
- VW-1
- -40 °C

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| 39128 | 28 | 7 x 36 | .039 | 0.99 | .012 | 0.30 |
| 39126 | 26 | 7 x 34 | .043 | 1.09 | .012 | 0.30 |
| 39124 | 24 | 7 x 32 | .048 | 1.22 | .012 | 0.30 |
| 39122 | 22 | 7 x 30 | .053 | 1.35 | .012 | 0.30 |
| 39120 | 20 | 10 x 30 | .061 | 1.55 | .012 | 0.30 |
| 39118 | 18 | 16 x 30 | .069 | 1.75 | .012 | 0.30 |
| 39116 | 16 | 26 x 30 | .083 | 2.11 | .012 | 0.30 |
| 39114 | 14 | 41 x 30 | .097 | 2.46 | .012 | 0.30 |
| 39112 | 12 | 65 x 30 | .111 | 2.82 | .012 | 0.30 |
| 39110 | 10 | 105 x 30 | .144 | 3.66 | .012 | 0.30 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com



Polyphenylene oxide (PPO) insulation is nontoxic, nonpolluting, and recyclable. It has superior dielectric strength, and although it has thinner wall thickness than PVC, it provides a weight savings of up to 40%, 10 x better abrasion and pinch resistance, and a temperature rating of -40 °C to +105 °C.

PVC = Polyvinyl Chloride • PPO = Polyphenylene Oxide

TFE

High Temperature

UL AWM Style 1180 • Type EE, MIL-W-16878/5 TFE
300 V, +200 °C (UL) • 1000 V, +200 °C (MIL)



- Stranded Silver-Coated Conductors
- Extruded TFE Insulation
- VW-1

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 83023* | 24 | 19 x 36 | .053 | 1.35 | .015 | .38 |
| 83025 | 22 | 7 x 30 | .060 | 1.52 | .015 | .38 |
| 83026* | 22 | 19 x 34 | .059 | 1.50 | .015 | .38 |
| 83027* | 20 | 19 x 32 | .068 | 1.73 | .015 | .38 |
| 83028 | 20 | 7 x 28 | .068 | 1.73 | .015 | .38 |
| 83029* | 18 | 19 x 30 | .077 | 1.96 | .015 | .38 |
| 83030* | 16 | 19 x 29 | .088 | 2.24 | .015 | .38 |

* Complies with MIL-W-16878 except stranding.
 For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

UL AWM Style 1213 • Type E, MIL-W-16878/4 TFE
+105 °C (UL) • 600 V, +200 °C (MIL)



- Stranded Silver-Coated Conductors
- Extruded TFE Insulation
- VW-1

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 83000 | 30 | 7 x 38 | .032 | .81 | .010 | .25 |
| 83001* | 28 | 7 x 36 | .035 | .89 | .010 | .25 |
| 83002 | 26 | 7 x 34 | .039 | .99 | .010 | .25 |
| 83003* | 24 | 19 x 36 | .043 | 1.09 | .010 | .25 |
| 83004 | 24 | 7 x 32 | .043 | 1.09 | .010 | .25 |
| 83005 | 22 | 7 x 30 | .049 | 1.24 | .010 | .25 |
| 83006* | 22 | 19 x 34 | .048 | 1.22 | .010 | .25 |
| 83007* | 20 | 19 x 32 | .056 | 1.42 | .010 | .25 |
| 83008 | 20 | 7 x 28 | .058 | 1.47 | .010 | .25 |

* Complies with MIL-W-16878 except stranding.
 For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

TFE = Tetrafluoroethylene

TFE

High Temperature

**UL AWM Style 1371 • Type E, MIL-W-16878/4 TFE
+105 °C (UL) • 600 V, +200 °C (MIL)**



- Stranded Silver-Coated Copper Conductors
- Extruded TFE Insulation
- VW-1

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 83009* | 18 | 19 x 30 | .068 | 1.73 | .011 | .28 |
| 83010* | 16 | 19 x 29 | .076 | 1.93 | .012 | .30 |

* Complies with MIL-W-16878 except stranding.
For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

**UL AWM Style 1371 • Type ET, MIL-W-16878/6 TFE
+105 °C (UL) • 250 V, +200 °C (MIL)**



- Stranded Silver-Coated Copper Conductors
- Extruded TFE Insulation
- VW-1

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 83041 | 32 | 7 x 40 | .022 | .56 | .006 | .15 |
| 83043 | 30 | 7 x 38 | .024 | .61 | .006 | .15 |
| 83045 | 28 | 7 x 36 | .027 | .69 | .006 | .15 |
| 83046 | 26 | 7 x 34 | .031 | .79 | .006 | .15 |
| 83047 | 24 | 7 x 32 | .036 | .91 | .006 | .15 |
| 83048 | 24 | 19 x 36 | .036 | .91 | .006 | .15 |
| 83049 | 22 | 7 x 30 | .042 | 1.07 | .006 | .15 |
| 83050 | 22 | 19 x 34 | .042 | 1.07 | .006 | .15 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

EPDM

High Temperature

UL AWM Style 3340, 3374

600 V, +125 °C Flex, +150 °C No Flex • CSA Type CL1254



- Stranded Tinned Copper Conductors
- EPDM Insulation

Recommended for Class 130(B), 155(F) and also in some 180(H) systems
 Recommended maximum baking cycles: 24 hours @ +350 °F (+177 °C) • 4 hours @ +375 °F (+190 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|-------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| 37118 | 18 | 16 x 30 | .142 | 3.61 | .045 | 1.14 |
| 37116 | 16 | 26 x 30 | .154 | 3.91 | .045 | 1.14 |
| 37114 | 14 | 41 x 30 | .169 | 4.29 | .045 | 1.14 |
| 37112 | 12 | 65 x 30 | .190 | 4.83 | .045 | 1.14 |
| 37110 | 10 | 65 x 28 | .240 | 6.10 | .060 | 1.52 |
| 37108* | 8 | 84 x 27 | .327 | 8.31 | .080 | 2.03 |
| 37106* | 6 | 84 x 25 | .383 | 9.73 | .080 | 2.03 |
| 37104* | 4 | 105 x 24 | .432 | 10.97 | .080 | 2.03 |
| 37103* | 3 | 133 x 24 | .453 | 11.51 | .080 | 2.03 |
| 37102* | 2 | 163 x 24 | .494 | 12.55 | .080 | 2.03 |
| 37101* | 1 | 210 x 24 | .583 | 14.81 | .095 | 2.41 |
| 37190* | 1/0 | 262 x 24 | .633 | 16.08 | .095 | 2.41 |
| 37100* | 2/0 | 504 x 26 | .698 | 17.73 | .095 | 2.41 |
| 37130* | 3/0 | 630 x 26 | .758 | 19.25 | .095 | 2.41 |
| 37140* | 4/0 | 805 x 26 | .849 | 21.57 | .095 | 2.41 |

* Separator over conductor.
 For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

EPDM = Ethylene-Propylene Diene Elastomer

EPDM

High Temperature

**UL AWM Style 3484 • CSA Type AWM
600 V, +125 °C**



- Stranded Tinned Copper Conductors
- EPDM Insulation
- Special Order

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 37222 | 22 | 7 x 30 | .093 | 2.36 | .030 | .76 |
| 37220 | 20 | 10 x 30 | .102 | 2.59 | .030 | .76 |
| 37218 | 18 | 16 x 30 | .109 | 2.77 | .030 | .76 |
| 37216 | 16 | 26 x 30 | .123 | 3.12 | .030 | .76 |
| 37214 | 14 | 41 x 30 | .138 | 3.51 | .030 | .76 |
| 37212 | 12 | 65 x 30 | .158 | 4.01 | .030 | .76 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

EPDM

High Voltage/High Temperature

**UL AWM Style 3499
7500 V, +150 °C**



- Stranded Tinned Copper Conductors
- EPDM Insulation
- Separator Over Conductor

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|-------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| 37508 | 8 | 84 x 27 | .423 | 10.74 | .125 | 3.18 |
| 37506 | 6 | 84 x 25 | .470 | 11.94 | .125 | 3.18 |
| 37504 | 4 | 105 x 24 | .526 | 13.36 | .125 | 3.18 |
| 37502 | 2 | 163 x 24 | .581 | 14.76 | .125 | 3.18 |
| 37501 | 1 | 210 x 24 | .638 | 16.21 | .125 | 3.18 |
| 37590 | 1/0 | 262 x 24 | .688 | 17.48 | .125 | 3.18 |
| 37500 | 2/0 | 504 x 26 | .753 | 19.13 | .125 | 3.18 |
| 37530 | 3/0 | 630 x 26 | .813 | 20.65 | .125 | 3.18 |
| 37540 | 4/0 | 805 x 26 | .909 | 23.09 | .125 | 3.18 |

Separator over conductor.

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

EPDM = Ethylene-Propylene Diene Elastomer

XL-DUR®

XL-DUR insulation is a chemically cross-linked poly applied in a single extrusion, offering excellent thermal aging characteristics, moisture resistance, and solvent resistance. It provides an economic alternative to CSPE where extreme flexibility is not required. The insulation resists deformation when subjected to momentary high temperatures in customer assembly processes.

**UL AWM Style 3199 • CSA Type CL1054
300 V, +105 °C**



- Stranded Tinned Copper Conductors
- XL-DUR Insulation

Recommended maximum baking cycles: 24 hours @ +300 °F (+149°C), 12 hours @ +325 °F (+163°C), 8 hours @ +350 °F (+177°C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 35722 | 22 | 7 x 30 | .062 | 1.58 | .015 | .38 |
| 35720 | 20 | 10 x 30 | .073 | 1.85 | .015 | .38 |
| 35718 | 18 | 19 x 30.5 | .078 | 1.98 | .015 | .38 |
| 35716 | 16 | 19 x 29 | .091 | 2.31 | .015 | .38 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

**UL AWM Styles 3173, 3195, 3196 • CSA Type CL1251
600 V, +125 °C**



- Stranded Tinned Copper Conductors
- XL-DUR Insulation

The 356 series is recommended for Class 130(B) as motor leads

Recommended maximum baking cycles: 24 hours @ +300 °F (+149 °C), 12 hours @ +325 °F (+163 °C), 8 hours @ +350 °F (+177 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|---|-----|-----------|----------|------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| UL AWM Style 3173 | | | | | | |
| 35622 | 22 | 7 x 30 | .093 | 2.36 | .030 | .76 |
| 35620 | 20 | 10 x 30 | .101 | 2.57 | .030 | .76 |
| 35618 | 18 | 16 x 30 | .109 | 2.77 | .030 | .76 |
| 35616 | 16 | 26 x 30 | .122 | 3.10 | .030 | .76 |
| 35614 | 14 | 41 x 30 | .137 | 3.48 | .030 | .76 |
| 35612 | 12 | 65 x 30 | .153 | 3.89 | .030 | .76 |
| 35610 | 10 | 65 x 28 | .177 | 4.50 | .030 | .76 |
| UL AWM Style 3195 • Separator Over Conductor | | | | | | |
| 35608* | 8 | 133 x 29 | .263 | 6.68 | .045 | 1.14 |
| UL AWM Style 3196 • Separator Over Conductor | | | | | | |
| 35606* | 6 | 133 x 27 | .333 | 8.46 | .060 | 1.52 |

* Separator over conductor.

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

XL-DUR® (High-Temperature) and SIS (Switchboard) Wire

UL AWM Style 3436 and 3321 • CSA Type CL1251 •
CSA AWM • 600 V, +150 °C



- Stranded Tinned Copper Conductors
- XL-DUR Insulation

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 35420 | 20 | 10 x 30 | .102 | 2.59 | .030 | .76 |
| 35418 | 18 | 16 x 30 | .110 | 2.79 | .030 | .76 |
| 35416 | 16 | 26 x 30 | .123 | 3.12 | .030 | .76 |
| 35414 | 14 | 41 x 30 | .138 | 3.51 | .030 | .76 |
| 35412 | 12 | 65 x 30 | .153 | 3.89 | .030 | .76 |
| 35410 | 10 | 65 x 28 | .177 | 4.50 | .030 | .76 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

UL Type SIS
600 V, +150 °C



- Stranded Tinned Copper Conductors
- XL-DUR Insulation
- VW-1 only on 31014, 31012, 31010
- Separator Over Conductor

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| 31014 | 14 | 41 x 30 | .144 | 3.66 | .030 | .76 |
| 31012 | 12 | 65 x 30 | .167 | 4.24 | .030 | .76 |
| 31010 | 10 | 65 x 28 | .184 | 4.67 | .030 | .76 |
| 31014N | 14 | 41 x 30 | .144 | 3.66 | .030 | .76 |
| 31012N | 12 | 65 x 30 | .167 | 4.24 | .030 | .76 |
| 31010N | 10 | 65 x 28 | .184 | 4.67 | .030 | .76 |
| 31008N | 8 | 133 x 29 | .268 | 6.75 | .045 | 1.14 |

Separator over conductor.

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

MachFlex ONE LSZH (XLP) Hookup Wire

Flexible XLP Single Core Wire



- DIN VDE 0295, IEC 60228, BS 6360
- DIN EN 50290-2-26
- UL 758
- DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1-2
- -20 °C to +105 °C (Occasional movement)
- -30 °C to +105 °C (Fixed installation)
- RoHS & CE Directives

| Part No. | Conductor Area (mm ²) | Bend Radius (Min) | | OD (Nom) | | Nom. Cable Weight kg/km | Additional Features |
|--|-----------------------------------|-------------------|-----------------|----------|------|-------------------------|-----------------------|
| | | For general use | For extreme use | Inch | mm | | |
| Machflex ONE 350 2X | | | | | | | |
| 300/500V • Stranded Class - 5 • BC Conductors • XLP Insulation | | | | | | | |
| HKX30.5 | 0.50 | 4 x OD | 2 x OD | 0.08 | 2.1 | 8.95 | |
| HKX30.75 | 0.75 | 4 x OD | 2 x OD | 0.09 | 2.3 | 11.74 | H05Z-K • UL AWM 3286 |
| HKX31.0 | 1.00 | 4 x OD | 2 x OD | 0.10 | 2.5 | 14.04 | |
| HKX31.5 | 1.50 | 4 x OD | 2 x OD | 0.11 | 2.7 | 18.98 | |
| HKX32.5 | 2.50 | 4 x OD | 2 x OD | 0.13 | 3.2 | 28.74 | UL AWM 3286 |
| HKX34 | 4.00 | 4 x OD | 2 x OD | 0.15 | 3.8 | 45.31 | |
| Machflex ONE 475 2X | | | | | | | |
| 450/750V • Stranded Class - 5 • BC Conductors • XLP Insulation | | | | | | | |
| HKX41.5 | 1.50 | 4 x OD | 2 x OD | 0.13 | 3.2 | 22.76 | |
| HKX42.5 | 2.50 | 4 x OD | 2 x OD | 0.15 | 3.6 | 33.08 | |
| HKX44 | 4.00 | 4 x OD | 2 x OD | 0.17 | 4.3 | 50.42 | |
| HKX46 | 6.00 | 4 x OD | 2 x OD | 0.19 | 4.8 | 70.87 | |
| HKX410 | 10.00 | 8 x OD | 4 x OD | 0.24 | 6.2 | 112.39 | H07Z-K • UL AWM 10369 |
| HKX416 | 16.00 | 8 x OD | 4 x OD | 0.30 | 7.5 | 181.62 | |
| HKX425 | 25.00 | 8 x OD | 4 x OD | 0.36 | 9.1 | 269.80 | |
| HKX435 | 35.00 | 8 x OD | 4 x OD | 0.40 | 10.1 | 349.98 | |
| Machflex ONE 610 2X | | | | | | | |
| 600/1000V • Stranded Class - 5 • BC Conductors • XLP Insulation | | | | | | | |
| HKX60.5 | 0.50 | 4 x OD | 2 x OD | 0.09 | 2.3 | 10.04 | |
| HKX60.75 | 0.75 | 4 x OD | 2 x OD | 0.10 | 2.5 | 12.93 | |
| HKX61.0 | 1.00 | 4 x OD | 2 x OD | 0.11 | 2.6 | 15.30 | |
| HKX64 | 4.00 | 4 x OD | 2 x OD | 0.16 | 4.0 | 47.22 | |
| HKX66 | 6.00 | 4 x OD | 2 x OD | 0.18 | 4.6 | 67.21 | |
| HKX610 | 10.00 | 8 x OD | 4 x OD | 0.22 | 5.6 | 103.69 | |
| HKX616 | 16.00 | 8 x OD | 4 x OD | 0.27 | 6.9 | 171.01 | |
| HKX625 | 25.00 | 8 x OD | 4 x OD | 0.33 | 8.4 | 255.64 | |
| HKX635 | 35.00 | 8 x OD | 4 x OD | 0.37 | 9.4 | 334.20 | AS/NZS 5000.1 |

Chlorosulfonated Polyethylene

Chlorosulfonated polyethylene insulation has excellent heat resistance, color stability and electrical properties. CSPE is recommended for motor leads for Class 130(B) insulation systems. It may be considered as an alternative to silicone rubber to withstand +155 °C varnish baking temperatures, but is not suitable for operating temperatures above Class 130(B).

UL AWM Style 3191, 3192, 3193 CSA Type CL1053 (18–12 AWG), CL1052 (10–4/0 AWG) 600 V, +105 °C • 300 V, +105 °C (CL1052)



- Stranded Tinned Copper Conductors
- CSPE Insulation
- Separator Over Conductor (8 AWG & larger)

Recommended maximum baking cycles: 24 hours @ +300 °F (+149 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|---|-----|-----------|----------|-------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| UL AWM Style 3191 (600 V, +105 °C) • CSA Type CL1053 | | | | | | |
| 34418 | 18 | 16 x 30 | .142 | 3.61 | .045 | 1.14 |
| 34416 | 16 | 26 x 30 | 1.55 | 3.94 | .045 | 1.14 |
| 34414 | 14 | 41 x 30 | 1.70 | 4.32 | .045 | 1.14 |
| 34412 | 12 | 65 x 30 | 1.90 | 4.83 | .045 | 1.14 |
| UL AWM Style 3191 • CSA Type CL1052** | | | | | | |
| 34410 | 10 | 65 x 28 | .209 | 5.31 | .045 | 1.14 |
| UL AWM Style 3192 • CSA Type CL1052** | | | | | | |
| 34408* | 8 | 84 x 27 | .290 | 7.37 | .060 | 1.52 |
| 34406* | 6 | 84 x 25 | .343 | 8.71 | .060 | 1.52 |
| 34404* | 4 | 105 x 24 | .399 | 10.14 | .060 | 1.52 |
| 34403* | 3 | 133 x 24 | .420 | 10.69 | .060 | 1.52 |
| 34402* | 2 | 163 x 24 | .445 | 11.53 | .060 | 1.52 |
| UL AWM Style 3193 • CSA Type CL1052** | | | | | | |
| 34401* | 1 | 210 x 24 | .557 | 14.15 | .080 | 2.03 |
| 34490* | 1/0 | 262 x 24 | .607 | 15.42 | .080 | 2.03 |
| 34400* | 2/0 | 504 x 26 | .668 | 16.97 | .080 | 2.03 |
| 34430 | 3/0 | 630 x 26 | .732 | 18.59 | .080 | 2.03 |
| 34440 | 4/0 | 805 x 26 | .819 | 20.80 | .080 | 2.03 |

* Separator over conductor.

** CSA requires additional wall thickness in sizes 10 AWG and larger to meet CL1053 requirements.

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

UL AWM Style 3190 • CSA Type CL1052 300 V, +105 °C (UL & CSA)



- Stranded Tinned Copper Conductors
- CSPE Insulation

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 34922 | 22 | 7 x 30 | .093 | 2.36 | .030 | .76 |
| 34920 | 20 | 10 x 30 | .100 | 2.54 | .030 | .76 |
| 34918 | 18 | 16 x 30 | .110 | 2.79 | .030 | .76 |
| 34916 | 16 | 26 x 30 | .123 | 3.12 | .030 | .76 |
| 34914 | 14 | 41 x 30 | .138 | 3.51 | .030 | .76 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

CSPE = Chlorosulfonated Polyethylene

Chlorosulfonated Polyethylene

5000 V High Voltage



- Stranded Tinned Copper Conductors
- CSPE Insulation
- Separator Over Conductor

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|-------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| 36108 | 8 | 84 x 27 | .480 | 12.19 | .150 | 3.81 |
| 36106 | 6 | 84 x 25 | .532 | 13.51 | .150 | 3.81 |
| 36104 | 4 | 105 x 24 | .588 | 14.94 | .150 | 3.81 |
| 36102 | 2 | 163 x 24 | .643 | 16.33 | .150 | 3.81 |
| 36101 | 1 | 210 x 24 | .700 | 17.78 | .150 | 3.81 |
| 36190 | 1/0 | 262 x 24 | .750 | 19.05 | .150 | 3.81 |
| 36100 | 2/0 | 504 x 26 | .815 | 20.70 | .150 | 3.81 |
| 36140 | 4/0 | 805 x 26 | .959 | 24.36 | .150 | 3.81 |

Separator over conductor.

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Neoprene

UL AWM Style 3044 • CSA Type CL902 300 V, +90 °C (UL & CSA)



- Stranded Tinned Copper Conductors
- Neoprene Insulation

Recommended maximum baking cycles: 24 hours @ +300 °F (+149 °C), 8 hours @ +325 °F (+163 °C), 15 minutes @ +450 °F (+232 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 31520 | 20 | 10 x 30 | .100 | 2.54 | .030 | .76 |
| 31518 | 18 | 16 x 30 | .109 | 2.77 | .030 | .76 |
| 31516 | 16 | 26 x 30 | .122 | 3.10 | .030 | .76 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

UL AWM Style 3046, 3048 • CSA Type CL903 600 V, +90 °C (UL & CSA)



- Stranded Tinned Copper Conductors
- Neoprene Insulation
- Separator Over Conductor (8 AWG and Larger)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|---|-----|-----------|----------|-------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| UL AWM Style 3046 • CSA Type CL903 | | | | | | |
| 32518 | 18 | 16 x 30 | .142 | 3.61 | .045 | 1.14 |
| 32516 | 16 | 26 x 30 | .155 | 3.94 | .045 | 1.14 |
| 31514 | 14 | 41 x 30 | .169 | 4.29 | .045 | 1.14 |
| 31512 | 12 | 65 x 30 | .190 | 4.83 | .045 | 1.14 |
| UL AWM Style 3046 | | | | | | |
| 31510 | 10 | 65 x 28 | .209 | 5.31 | .045 | 1.14 |
| UL AWM Style 3048 | | | | | | |
| 31508 | 8 | 84 x 27 | .285 | 7.24 | .060 | 1.52 |
| 31506 | 6 | 84 x 25 | .343 | 8.71 | .060 | 1.52 |
| 31504 | 4 | 105 x 24 | .399 | 10.14 | .060 | 1.52 |
| 31502 | 2 | 163 x 24 | .454 | 11.53 | .060 | 1.52 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Silicone Rubber
Braidless

UL AWM Styles 3212, 3213, 3214 • CSA Type AWM
600 V, +150 °C (UL & CSA)



- Stranded Tinned Copper Conductors
- Silicone Rubber Insulation
- Separator Over Conductor (8 AWG and Larger)
- Easy and Clean Stripping
- Excellent Physical and Mechanical Strength

Recommended for applications requiring Class 155(F) or Class 180(H) materials and high-temperature applications in motors, lighting fixtures, clothes dryers, stoves, therapeutic and electronic devices. Recommended maximum baking cycles: 24 hours @ +410 °F (+210 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|---|-----|-----------|----------|-------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| UL AWM Style 3212 • CSA Type AWM | | | | | | |
| 33322** | 22 | 7 x 30 | .125 | 3.18 | .045 | 1.14 |
| 33320** | 20 | 10 x 30 | .132 | 3.53 | .045 | 1.14 |
| 33318 | 18 | 16 x 30 | .142 | 3.61 | .045 | 1.14 |
| 33316 | 16 | 26 x 30 | .155 | 3.94 | .045 | 1.14 |
| 33314 | 14 | 41 x 30 | .170 | 4.32 | .045 | 1.14 |
| 33312 | 12 | 65 x 30 | .190 | 4.83 | .045 | 1.14 |
| 33310 | 10 | 65 x 28 | .209 | 5.31 | .045 | 1.14 |
| UL AWM Style 3213 • CSA Type AWM | | | | | | |
| 33308* | 8 | 84 x 27 | .283 | 7.19 | .060 | 1.52 |
| 33306* | 6 | 84 x 25 | .334 | 8.48 | .060 | 1.52 |
| 33304* | 4 | 105 x 24 | .390 | 9.91 | .060 | 1.52 |
| 33302* | 2 | 163 x 24 | .457 | 11.61 | .060 | 1.52 |
| UL AWM Style 3214 • CSA Type AWM | | | | | | |
| 33390* | 1/0 | 262 x 24 | .594 | 15.09 | .080 | 2.03 |

* Separator over conductor.
** Special Order Only.

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

UL AWM Style 3135
600 V, +200 °C (UL)



- Stranded Tinned Copper Conductors
- Silicone Rubber Insulation
- Special Order Only

The 334 Series is for use only in totally enclosed systems. Recommended maximum baking cycles: 24 hours @ +410 °F (+210 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 33418 | 18 | 7 x 26 | .111 | 2.82 | .030 | .76 |
| 33416 | 16 | 7 x 24 | .123 | 3.12 | .030 | .76 |
| 33414 | 14 | 7 x 22 | .139 | 3.53 | .030 | .76 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Silicone Rubber

Glass Braid

UL AWM Styles 3069, 3070, 3101 • CSA Type SEWF-2 600 V, +150 °C (UL & CSA)



- Stranded Tinned Copper Conductors
- Glass Braided Silicone Rubber Insulation
- VW-1

Recommended maximum baking cycles: 24 hours @ +410 °F (+210 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|--|-----|-----------|----------|------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| UL AWM Style 3069 • CSA Type SEWF-2 | | | | | | |
| 30820 | 20 | 10 x 30 | .122 | 3.10 | .030 | .76 |
| UL AWM Style 3070 • CSA Type SEWF-2 | | | | | | |
| 30818 | 18 | 16 x 30 | .132 | 3.35 | .030 | .76 |
| 30816 | 16 | 26 x 30 | .145 | 3.68 | .030 | .76 |
| 30814 | 14 | 41 x 30 | .164 | 4.17 | .030 | .76 |
| 30812 | 12 | 65 x 30 | .186 | 4.72 | .030 | .76 |
| UL AWM Style 3101 • CSA Type SEWF-2 | | | | | | |
| 30810 | 10 | 65 x 28 | .239 | 6.07 | .045 | 1.14 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

UL AWM Styles 3071, 3074, 3075, 3125, 3126 • CSA Type SEW-2 600 V, +200 °C (UL & CSA)



- Stranded Tinned Copper Conductors
- Glass Braided Silicone Rubber Insulation
- Separator Over Conductors (8 AWG and Larger)
- VW-1
- Glass Braid Provides Additional Abrasion Resistance and Is Treated to Prevent Fraying

Recommended for high-temperature applications in motors, lighting fixtures, clothes dryers, stoves, therapeutic and electronic devices. These wires can be used with Class 130(B), 155(F) or 180(H) insulation systems.
Recommended maximum baking cycles: 24 hours @ +410 °F (+210 °C)

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|---|-----|-----------|----------|-------|----------------------|------|
| | | | Inch | mm | Inch | mm |
| UL AWM Style 3071 • CSA Type SEW-2 | | | | | | |
| 32418 | 18 | 7 x 26 | .133 | 3.38 | .030 | .76 |
| 32416 | 16 | 7 x 24 | .145 | 3.68 | .030 | .76 |
| 32414 | 14 | 7 x 22 | .167 | 4.24 | .030 | .76 |
| UL AWM Style 3074 • CSA Type SEW-2 | | | | | | |
| 32412 | 12 | 19 x 24.5 | .190 | 4.83 | .030 | .76 |
| UL AWM Style 3075 • CSA Type SEW-2 | | | | | | |
| 32410 | 10 | 19 x 22.5 | .238 | 6.05 | .045 | 1.14 |
| UL AWM Style 3125 • CSA Type SEW-2 | | | | | | |
| 30808 | 8 | 54 x 25 | .313 | 7.95 | .060 | 1.52 |
| 30806 | 6 | 84 x 25 | .368 | 9.35 | .060 | 1.52 |
| 30804 | 4 | 105 x 24 | .424 | 10.77 | .060 | 1.52 |
| 30802 | 2 | 163 x 24 | .496 | 12.60 | .060 | 1.52 |
| UL AWM Style 3126 • CSA Type SEW-2 | | | | | | |
| 30801 | 1 | 210 x 24 | .622 | 15.80 | .080 | 2.03 |
| 30890 | 1/0 | 262 x 24 | .670 | 17.02 | .080 | 2.03 |
| 30800 | 2/0 | 504 x 26 | .727 | 18.47 | .080 | 2.03 |
| 30830 | 3/0 | 630 x 26 | .795 | 20.19 | .080 | 2.03 |
| 30840 | 4/0 | 266 x 21 | .779 | 19.79 | .080 | 2.03 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Mercury Switch

UL AWM Style 3123 Mercury Switch • 600 V, +150 °C (UL)



- Stranded Tinned Copper Conductors
- Silicone Rubber Insulation

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|------|----------------------|-----|
| | | | Inch | mm | Inch | mm |
| 34020 | 20 | 105 x 40 | .110 | 2.79 | .030 | .76 |
| 34017 | 17 | 210 x 40 | .118 | 3.00 | .030 | .76 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

High-Voltage Leads



- Stranded Tinned Copper Conductors
- Polyethylene Insulation
- PVC Jacket, Red or Black
- Conductive Polyethylene (Korona-Guard) Over Inner Conductor Provides Uniform Distribution of Voltage Stresses
- +80 °C

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Suggested Working Voltage (VDC) | Breakdown Voltage (VDC) |
|----------|-----|-----------|----------|------|----------------------|------|---------------------------------|-------------------------|
| | | | Inch | mm | Inch | mm | | |
| 8868 | 22 | 7 x 30 | .150 | 3.81 | .044 | 1.12 | 24,000 | 48,000 |
| 8869 | 22 | 7 x 30 | .120 | 3.05 | .027 | .69 | 17,000 | 35,000 |
| 9867* | 20 | 7 x 28 | .191 | 4.85 | .046 | 1.17 | 30,000 | 60,000 |
| 8866 | 18 | 16 x 30 | .208 | 5.28 | .057 | 1.45 | 40,000 | 80,000 |

* UL AWM Style 3239 (30,000 V DC, +80 °C), VW-1.

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Test Prod Wire



- Stranded Tinned Copper Conductors

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Suggested Working Voltage (VDC) | Breakdown Voltage (VDC) |
|---|-----|-----------|----------|------|----------------------|------|---------------------------------|-------------------------|
| | | | Inch | mm | Inch | mm | | |
| 5000 V, +90 °C • Rubber Insulation | | | | | | | | |
| 8899 | 18 | 65 x 36 | .144 | 3.66 | .045 | 1.14 | 5000 | 20,000 |
| 5000 V, +80 °C • Rubber Insulation • Manufactured for MIL-W-13169B | | | | | | | | |
| 8897 | 18 | 65 x 36 | .144 | 3.66 | .045 | 1.14 | 5000 | 20,000 |
| 5000 V, +80 °C • PVC Insulation • UL AWM Style 1855 | | | | | | | | |
| 9899 | 18 | 65 x 36 | .144 | 3.66 | .048 | 1.22 | 5000 | — |
| 10,000 V, +90 °C • Rubber Insulation | | | | | | | | |
| 8898 | 18 | 65 x 36 | .229 | 5.82 | .088 | 2.24 | 10,000 | 29,000 |
| 1000 V, +90 °C • Rubber Insulation • Miniature Cable | | | | | | | | |
| 8890 | 24 | 45 x 40 | .066 | 1.68 | .019 | .48 | 1000 | 10,000 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

PVC = Polyvinyl Chloride

Magnet Wire

Class 200 • One Pound Spool



- Bare Copper Conductor
- Cross-Linked Polyester Base Coat
- Amide-imide Polymer Top Coat
- +200 °C
- LJ-W-1177/14
- MW 35-C (Heavy) or MW 74-C (Heavy)

Class 200 magnet wire offers exceptional ability to resist solvents and abuse in difficult windings

| Part No. | AWG (Solid) | Approximate Length | | Turns per Linear Inch | Turns per Square Inch |
|----------|-------------|--------------------|--------|-----------------------|-----------------------|
| | | Feet | Meters | | |
| 8085* | 38 | 19,300 | 5882.7 | 206.0 | 42,436 |
| 8083 | 34 | 7860 | 2395.8 | 133.1 | 17,716 |
| 8081 | 30 | 3140 | 957.1 | 86.2 | 7430 |
| 8080 | 28 | 1990 | 606.6 | 69.4 | 4816 |
| 8079 | 26 | 1260 | 384.1 | 55.7 | 3102 |
| 8078 | 24 | 793 | 241.7 | 44.7 | 1998 |
| 8077 | 22 | 501 | 152.7 | 36.0 | 1296 |
| 8076 | 20 | 315 | 96.0 | 28.9 | 835 |
| 8075 | 18 | 199 | 60.7 | 23.2 | 538 |
| 8074 | 16 | 126 | 38.4 | 18.6 | 346 |
| 8073 | 14 | 80 | 24.4 | 14.9 | 222 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Single Beldsol™ Solderable • Half Pound Spool



- Bare Copper Conductor
- Polyurethane Base Coat
- Nylon Top Coat
- J-W-1177/9
- MW 28-C (Single)
- Rated by IEEE Tests for +270 °F Usage
- Solders without Insulation Removal at +750 °F
- Solvent Resistant

| Part No. | AWG (Solid) | Approximate Length | | Turns per Linear Inch | Turns per Square Inch |
|----------|-------------|--------------------|--------|-----------------------|-----------------------|
| | | Feet | Meters | | |
| 8058 | 36 | 6400 | 1950.7 | 180.0 | 32,400 |
| 8057 | 34 | 4060 | 1237.5 | 144.0 | 20,736 |
| 8056 | 32 | 2515 | 766.6 | 114.0 | 12,996 |
| 8055 | 30 | 1615 | 492.3 | 91.7 | 8409 |
| 8054 | 28 | 1020 | 310.9 | 73.8 | 5446 |
| 8053 | 26 | 645 | 196.6 | 59.0 | 3481 |
| 8052 | 24 | 404 | 123.1 | 46.9 | 2200 |
| 8051 | 22 | 254 | 77.4 | 37.5 | 1406 |
| 8050 | 20 | 160 | 48.8 | 29.9 | 894 |
| 8049 | 18 | 100 | 30.5 | 23.9 | 571 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Shielding and Bonding Cable, Direct Burial Cable, Bus Bar, and Antenna Wire

Shielding and Bonding Cable

- Braided Tinned Copper



| Part No. | AWG | Stranding | Approximate Circular Area | | Nominal ID Tubular | | Recommended Max. Current (Amps) |
|----------|------|-----------|---------------------------|-----------------|--------------------|------------------|---------------------------------|
| | | | CMA | mm ² | Inch | mm | |
| 8660 | 14.3 | 96 x 34 | 3800 | 1.92 | .125 | 3.18 | 27.0 |
| 8668 | 13.3 | 120 x 34 | 4800 | 2.43 | .172 | 4.37 | 36.0 |
| 8663 | 11.9 | 168 x 34 | 6700 | 3.40 | .219 | 5.56 | 38.0 |
| 8661 | 11.3 | 192 x 34 | 7600 | 3.85 | .203 | 5.16 | 46.0 |
| 8669 | 8.9 | 336 x 34 | 13300 | 6.74 | .500 | 12.70 | 62.0 |
| 8662 | 6.6 | 576 x 34 | 22900 | 11.60 | .781 | 19.84 | 80.0 |
| 8670 | 3.4 | 480 x 30 | 48000 | 24.32 | .750 Flat Width | 19.05 Flat Width | 145.0 |

Note: Dimensions and wire gauge shown are approximate, due to pliable nature of braided cables.
For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Direct Burial

- Stranded Tinned Copper Conductors
- High-Density Polyethylene Insulation, Black



| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Suggested Working Voltage (VDC) |
|----------|-----|-----------|----------|------|----------------------|-----|---------------------------------|
| | | | Inch | mm | Inch | mm | |
| 9438 | 14 | 104 x 34 | .139 | 3.53 | .032 | .81 | 600 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Bus Bar Wire

- Solid Tinned Copper Conductors
- QQ-W-343G
- QQ-W-343S_S1T (on request)



| Part No. | AWG | OD (Nom) | | Circular Area | |
|----------|-----|----------|------|---------------|-----------------|
| | | Inch | mm | CMA | mm ² |
| 8025 | 30 | .010 | .26 | 102 | .05 |
| 8024 | 28 | .013 | .33 | 164 | .08 |
| 8023 | 26 | .016 | .41 | 262 | .13 |
| 8022 | 24 | .021 | .52 | 424 | .22 |
| 8021 | 22 | .026 | .65 | 650 | .33 |
| 8020 | 20 | .033 | .83 | 1056 | .54 |
| 8019 | 18 | .041 | 1.03 | 1648 | .84 |
| 8013 | 16 | .052 | 1.31 | 2673 | 1.35 |
| 8012 | 14 | .065 | 1.66 | 4251 | 2.15 |
| 8011 | 12 | .083 | 2.11 | 6872 | 3.48 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Antenna Wire

- Stranded Copper-Covered Steel



| Part No. | AWG | Stranding | OD (Nom) | |
|----------|-----|-----------|----------|------|
| | | | Inch | mm |
| 8000 | 14 | 7 x 22 | .076 | 1.93 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Technical Information

Conductor and Insulation Materials

Tough Cables for Tough Environments

The technical information provided in this section has been expanded to include additional graphs and supplementary data as an aid in specifying the hook-up and lead wire best suited to the needs of a particular application. If you require additional technical information, contact Belden Technical Support at 1-800-BELDEN1.

The tables on the following pages are offered as a guide to assist users in selecting the correct lead wire for their application.

Conductors

Uni-Strand®

Uni-Strand tinned copper conductor. In this type of construction, the bare copper wires are stranded, then tinned to coat the strands and also to fill in the interstices between strands. This allows for easier wire stripping with no re-twisting operation.

Insulation Materials

PVC

Vinyl plastic insulation is fast stripping, and resists oil, solvents, and ozone. The colors are bright and remain distinct after processing. Applications include motors, transformers, fluorescent ballasts and fixtures, switchboards, panels, controls, rectifiers and electronic circuits. Meets VW-1 Vertical Wire Flame Test in many cases.

TFE

TFE is a fluorinated thermoplastic with outstanding thermal, physical, and electrical properties. TFE is generally restricted to applications requiring its special characteristics because its basic resin and processing costs are relatively high.

Belden Teflon wire products are highly recommended for miniature cable applications because of their superior thermal and electrical properties. Teflon is especially suitable for internal wiring-soldering applications where insulation meltback is a specific problem. Belden wiring products insulated with Teflon are outstanding in their resistance to oil, oxidation, heat, sunlight and flame; and also in their ability to remain flexible at low temperatures. They have excellent resistance to ozone, water, alcohol, gasoline, acids, alkalis, aromatic hydrocarbons and solvents.

EPDM

EPDM (ethylene-propylene diene monomer) is a chemically cross-linked elastomer with excellent flexibility at high and low temperatures (+150 °C to -60 °C). It has good insulation and dielectric strength, as well as excellent abrasion resistance and mechanical properties. EPDM also has better cut-through resistance than silicone rubber, which it replaces in some applications.

EPDM is compatible with most varnishes. After the dip and bake cycle, however, the varnish tends to adhere to the insulation because EPDM, unlike some rubber insulations, does not exude oils or waxes.

As the lead wires are pulled apart for termination or flexed, the varnish cracks, sometimes tearing the insulation.

To help this problem, a stearic solution is applied to the lead wire during the manufacturing process. However, many varnishes may still bond to the insulation unless other special coatings are applied. (Other slip coats are available at additional cost.) Because most cleaning processes will remove these coatings from the EPDM lead wire, cleaning EPDM lead wire before using in the process is not recommended.

Due to the above, it is recommended that the compatibility between the individual lead wire size, the bake/varnish process and varnish used always be checked and, if possible, do not allow any varnish to extend beyond a point where the lead wire will be flexed or bent.

XL-DUR®

XL-DUR is a lead wire insulation using thermoset, chemically XLP. Because of its excellent physical and electrical properties, XL-DUR is highly desirable for a wide variety of applications.

CSPE

Chlorosulfonated polyethylene insulation has excellent heat resistance, color stability and electrical properties.

Neoprene

Neoprene insulation has good heat aging characteristics and is an excellent motor lead wire. It may be considered for use in hazardous locations and is being used in explosion-proof motors recognized by UL.

Silicone Rubber

Braidless silicone lead wire features easy and clean stripping without the problems associated with glass braid lead wire. It has excellent physical and mechanical strength properties. It is recommended for high-temperature applications in motors, lighting fixtures, clothes dryers, stoves, therapeutic, and electronic devices. Varnish compatibility should be checked before production. Some rigid varnishes may cause cracking when the wire is severely bent.

Silicone Rubber – Glass Braid

The silicone insulation strips clean and easy. The glass braid provides additional abrasion resistance and is treated to prevent fraying. Recommended for high-temperature applications in motors, lighting fixtures, clothes dryers, stoves, therapeutic and electronic devices.

PPO

Polyphenylene oxide (PPO) has superior dielectric properties to enable a thinner wall thickness and an outside diameter that is up to 45% smaller and significantly lighter than conventional PVC-insulated wire. PPO-based wires offer the same electrical properties as PVC wires with a voltage rating of 600 V. Strong and flexible, PPO offers 10x the abrasion and pinch resistance of PVC. In addition, PPO insulation contains no halogens, phthalates, or heavy metals, allowing it to be burned or easily recycled.

Technical Information

Insulation Characteristics and Color Codes

How to Use

The choice of an appropriate conductor, with respect to current carrying capacity, usually depends on one or more factors which vary according to application. These factors include the temperature in which the lead wire operates, temperature rise of equipment, limitations of insulation, voltage drop, and location of wires as in free air or enclosed, such as formed by a compartment, tubing, or a bundle of wires.

For these reasons it is not practical to provide a general chart showing the current carrying capacity of lead wire for all conditions. Accordingly, the values shown in Table 3 are MAXIMUM for a single conductor in free air, based on ambient temperature of +30 °C. For actual use temperatures above an ambient temperature of +30 °C, reduce the maximum ampacity by use of correction factor in Table 5 to correct the values in Table 3 and Table 4.

Table 1: Insulation Characteristics

| Insulation | Temperature Rating, °C | UL Voltage Rating (Volts) | Oil Resistance | Ozone Resistance | Abrasion | Flame Resistance |
|-----------------------------|------------------------|---------------------------|----------------|------------------|-----------|------------------|
| Neoprene | 90 | 300/600 | Good | Good | Good | Good |
| PVC | 80 | 300 | Good-Excellent | Good-Excellent | Good | Excellent |
| | 105 | 600 | Good-Excellent | Good-Excellent | Good | Excellent |
| CSPE | 105 | 300/600 | Good | Excellent | Good | Good |
| PPO | 105 | 600 | — | — | — | — |
| | 105 | 300 | Good | Good | Excellent | Fair-Good |
| XL-DUR® XLP | 125 | 600 | Good | Good | Excellent | Fair-Good |
| | 150 | 600 | Good | Good | Excellent | Fair-Good |
| EPDM | 125 | 600 | Fair-Poor | Good | Good | Fair |
| | 150 | 600 | Fair-Poor | Good | Good | Fair |
| Silicone Rubber | 150 | 300 | Fair | Good | Poor | Good |
| | 200 | 600 | Fair | Good | Poor | Good |
| Silicone Rubber Glass Braid | 150 | 600 | Fair | Excellent | Excellent | Good |
| | 200 | 600 | Fair | Excellent | Excellent | Good |
| TFE | 150 | 300 | Excellent | Excellent | Excellent | Excellent |
| | 200 | 300 | Excellent | Excellent | Excellent | Excellent |
| | 260 | 300 | Excellent | Excellent | Excellent | Excellent |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Table 2: Lead Wire Color Chart

| Color No. | Color Combination | Color No. | Color Combination | Color No. | Color Combination |
|-----------|-------------------|-----------|-------------------|-----------|----------------------|
| 1 | Brown | 13 | Dark Blue | 25 | White/Black/Yellow |
| 2 | Red | 14 | White/Black | 26 | White/Black/Blue |
| 3 | Orange | 15 | White/Red | 27 | White/Black/Brown |
| 4 | Yellow | 16 | White/Green | 28 | White/Black/Orange |
| 5 | Green | 17 | White/Yellow | 29 | White/Black/Gray |
| 6 | Light Blue | 18 | White/Blue | 30 | White/Black/Purple |
| 7 | Purple | 19 | White/Brown | 189 | Green/Yellow |
| 8 | Gray | 20 | White/Orange | 620 | Green/min 30% Yellow |
| 9 | White | 21 | White/Gray | 876 | Nickel Gray |
| 10 | Black | 22 | White/Purple | B02 | Purple |
| 11 | Tan | 23 | White/Black/Red | — | — |
| 12 | Pink | 24 | White/Black/Green | — | — |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Technical Information
Current Carrying Capacity

Table 3: Lead Wire Current Carrying Capacity

| AWG | +90 °C Neoprene, SIS | +105 °C Vinyl, CSPE, PPO | +125 °C XL-DUR® | +150 °C EPDM, XL-DUR®, Silicone | +200 °C Silicone |
|-----|----------------------|--------------------------|-----------------|---------------------------------|------------------|
| 22 | 10 | 11 | 12 | 14 | 16 |
| 20 | 13 | 14 | 15 | 18 | 21 |
| 18 | 18 | 20 | 22 | 24 | 28 |
| 16 | 24 | 26 | 28 | 31 | 35 |
| 14 | 35 | 39 | 42 | 46 | 54 |
| 12 | 40 | 51 | 55 | 60 | 68 |
| 10 | 55 | 67 | 72 | 80 | 90 |
| 8 | 80 | 90 | 97 | 106 | 124 |
| 6 | 105 | 121 | 131 | 155 | 165 |
| 4 | 140 | 160 | 172 | 190 | 220 |
| 3 | 165 | 180 | 194 | 214 | 252 |
| 2 | 190 | 215 | 232 | 255 | 293 |
| 1 | 220 | 247 | 266 | 293 | 344 |
| 1/0 | 260 | 286 | 309 | 339 | 399 |
| 2/0 | 300 | 329 | 355 | 390 | 467 |
| 3/0 | 350 | 380 | 410 | 451 | 546 |
| 4/0 | 405 | 446 | 481 | 529 | 629 |

Values (amperes) shown in this table are maximum for a single conductor in free air with an assumed ambient room temperature of +30 °C (+86 °F). For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Table 4: Current Carrying Capacity of 2 or 3 Conductors

| AWG | +90 °C Neoprene, SIS | +105 °C Vinyl, CSPE, PPO | +125 °C XL-DUR | +150 °C EPDM, XL-DUR, Silicone | +200 °C Silicone |
|-----|----------------------|--------------------------|----------------|--------------------------------|------------------|
| 22 | 6 | 7 | 8 | 9 | 10 |
| 20 | 8 | 9 | 10 | 10 | 15 |
| 18 | 14 | 15 | 16 | 17 | 20 |
| 16 | 18 | 19 | 20 | 22 | 25 |
| 14 | 25 | 29 | 31 | 34 | 36 |
| 12 | 30 | 36 | 39 | 43 | 45 |
| 10 | 40 | 46 | 50 | 55 | 60 |
| 8 | 55 | 64 | 69 | 76 | 83 |
| 6 | 75 | 81 | 87 | 96 | 110 |
| 4 | 95 | 109 | 118 | 120 | 125 |
| 3 | 110 | 129 | 139 | 143 | 152 |
| 2 | 130 | 143 | 154 | 160 | 171 |
| 1 | 150 | 168 | 181 | 186 | 197 |
| 1/0 | 170 | 193 | 208 | 215 | 229 |
| 2/0 | 195 | 229 | 247 | 251 | 260 |
| 3/0 | 225 | 263 | 284 | 288 | 297 |
| 4/0 | 260 | 301 | 325 | 332 | 346 |

Current carrying capacity of not more than three (3) conductors in a raceway, conduit or cable. The values (amperes) shown in this table are maximum at an assumed ambient room temperature of +30 °C (+86 °F). For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Technical Information
Current Carrying Capacity

Table 5: Correction Factors for Tables 3 & 4

| Ambient Temperature (°C) | Insulation Temperature Rating | | | | |
|--------------------------|-------------------------------|---------|---------|---------|---------|
| | +90 °C | +105 °C | +125 °C | +150 °C | +200 °C |
| 31-35 | .96 | 1.00 | 1.00 | 1.00 | 1.00 |
| 36-40 | .91 | 1.00 | 1.00 | 1.00 | 1.00 |
| 41-45 | .87 | .93 | .94 | .95 | .97 |
| 46-50 | .82 | .93 | .94 | .95 | .97 |
| 51-55 | .76 | .85 | .87 | .90 | .94 |
| 56-60 | .71 | .85 | .87 | .90 | .94 |
| 61-70 | .58 | .76 | .880 | .85 | .90 |
| 71-80 | .41 | .65 | .73 | .80 | .87 |
| 81-90 | — | .53 | .64 | .74 | .83 |
| 91-100 | — | .38 | .54 | .67 | .79 |
| 101-120 | — | — | .24 | .52 | .71 |
| 121-140 | — | — | — | .30 | .61 |
| 141-160 | — | — | — | — | .50 |
| 161-180 | — | — | — | — | .35 |
| 2/0 | 195 | 229 | 247 | 251 | 260 |
| 3/0 | 225 | 263 | 284 | 288 | 297 |
| 4/0 | 260 | 301 | 325 | 332 | 346 |

For ambient temperatures over +30 °C, multiply the ampacities shown in Table 3 or Table 4 by the appropriate correction factor to determine the maximum allowable load current. For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Correction Factors for Table 4

| Number of Conductors | Reduction Percentage | Number of Conductors | Reduction Percentage |
|----------------------|----------------------|----------------------|----------------------|
| 4 thru 6 | 80% | 21 thru 30 | 45% |
| 7 thru 9 | 70% | 31 thru 40 | 40% |
| 10 thru 20 | 50% | 41 and above | 35% |

For ambient temperatures over +30 °C, multiply the ampacities shown in Table 3 or Table 4 by the appropriate correction factor to determine the maximum allowable load current. For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Technical Information

Packaging



Drums

Conductor is available in three drum pack sizes:

- The #15 Beldpak® is 15" high and 23" in diameter.
- The #31 Beldpak is 30.5" high and 23" in diameter.
- The #42 Beldpak (pictured) is 42" high and 23" in diameter.
- Price and delivery information is available upon request.

Packaging: Drums

| OD of Wire | | #15 Beldpak | | #31 Beldpak | | #42 Beldpak | |
|------------|------|-------------|------|-------------|------|-------------|------|
| Inch | mm | 1000 | km | 1000 | km | 1000 | km |
| .070 | 1.78 | 35 | 10.7 | 70 | 21.3 | 85 | 25.9 |
| .080 | 2.03 | 27 | 8.2 | 55 | 16.8 | 70 | 21.3 |
| .090 | 2.29 | 21 | 6.4 | 43 | 13.1 | 55 | 16.8 |
| .100 | 2.54 | 17 | 5.2 | 35 | 10.7 | 48 | 14.6 |
| .110 | 2.79 | 12 | 3.7 | 25 | 7.6 | 40 | 12.2 |
| .120 | 3.05 | 10 | 3.0 | 20 | 6.1 | 34 | 10.4 |
| .130 | 3.30 | 9 | 2.7 | 18 | 5.5 | 30 | 9.1 |
| .140 | 3.56 | 8 | 2.4 | 15 | 4.6 | 20 | 6.1 |
| .150 | 3.81 | 7 | 2.1 | 14 | 4.3 | 18 | 5.5 |
| .160 | 4.06 | 6 | 1.8 | 12 | 3.7 | 16 | 4.9 |
| .170 | 4.32 | 5 | 1.5 | 10 | 3.0 | 14 | 4.3 |

For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com



Reels

Reel dimensions will vary by size, determined by AWG of wire.

Special Orders

Orders for special packages must be placed for footage mentioned or for multiples for these quantities per color.

Packaging: Spools

| OD of Wire | | Quantity | | Crate Reels | Head Diameter | | Barrel Diameter | | Height Transverse | |
|------------|-------|----------|------|-------------|---------------|-----|-----------------|-----|-------------------|-----|
| Inch | mm | 1000' | km | | Inch | mm | Inch | mm | Inch | mm |
| .080 | 2.03 | 10.0 | 3.05 | 1748 | 15-3/4 | 400 | 8 | 203 | 8 | 203 |
| .090 | 2.29 | 8.0 | 2.24 | 1748 | 15-3/4 | 400 | 8 | 203 | 8 | 203 |
| .100 | 2.54 | 6.5 | 1.98 | 1748 | 15-3/4 | 400 | 8 | 203 | 8 | 203 |
| .110 | 2.79 | 5.0 | 1.52 | 1748 | 15-3/4 | 400 | 8 | 203 | 8 | 203 |
| .120 | 3.05 | 6.0 | 1.83 | 1747 | 15-3/4 | 400 | 8 | 203 | 10-1/2 | 267 |
| .130 | 3.30 | 5.0 | 1.52 | 1747 | 15-3/4 | 400 | 8 | 203 | 10-1/2 | 267 |
| .140 | 3.56 | 6.0 | 1.83 | 1746 | 17-3/4 | 451 | 8 | 203 | 10-1/2 | 267 |
| .150 | 3.81 | 5.0 | 1.52 | 1746 | 17-3/4 | 451 | 8 | 203 | 10-1/2 | 267 |
| .160 | 4.06 | 4.5 | 1.37 | 1746 | 17-3/4 | 451 | 8 | 203 | 10-1/2 | 267 |
| .170 | 4.32 | 7.0 | 2.13 | 1744 | 22 | 559 | 10 | 254 | 14-1/4 | 362 |
| .180 | 4.57 | 6.0 | 1.83 | 1744 | 22 | 559 | 10 | 254 | 14-1/4 | 362 |
| .190 | 4.83 | 5.5 | 1.68 | 1744 | 22 | 559 | 10 | 254 | 14-1/4 | 362 |
| .200 | 5.08 | 5.0 | 1.52 | 1744 | 22 | 559 | 10 | 254 | 14-1/4 | 362 |
| .250 | 6.35 | 5.0 | 1.52 | 1743 | 26 | 660 | 10 | 254 | 14-1/4 | 362 |
| .300 | 7.62 | 3.5 | 1.07 | 1743 | 26 | 660 | 10 | 254 | 14-1/4 | 362 |
| .350 | 8.89 | 2.5 | .76 | 1743 | 26 | 660 | 10 | 254 | 14-1/4 | 362 |
| .400 | 10.16 | 2.0 | .61 | 1743 | 26 | 660 | 10 | 254 | 14-1/4 | 362 |
| .450 | 11.43 | 1.5 | .46 | 1743 | 26 | 660 | 10 | 254 | 14-1/4 | 362 |
| .500 | 12.70 | 1.2 | .37 | 1743 | 26 | 660 | 10 | 254 | 14-1/4 | 362 |
| .550 | 13.97 | 1.0 | .31 | 1743 | 26 | 660 | 10 | 254 | 14-1/4 | 362 |
| .600 | 15.24 | 1.2 | .37 | 1733 | 30 | 762 | 10 | 254 | 14-1/4 | 362 |

Crate Reel numbers are Belden's internal numbers. They are representative only to the extent of the dimensions shown. Weight of the wire may require another reel with dimensions identical to those shown. For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com

Conductors

Solid Copper Wire, American Wire Gage

| Gage (AWG) | Nominal OD | | Nominal Circular MIL Area | Nominal Weight (Inch per 1000') | Nominal Resistance @ +68 °F (Ω/1000') |
|---------------|------------|------|------------------------------|------------------------------------|--|
| | Inches | mm | | | |
| 10 | .1019 | 2.60 | 10380.0 | 31.43 | .9989 |
| 11 | .0907 | 2.30 | 8234.0 | 24.92 | 1.260 |
| 12 | .0808 | 2.05 | 6530.0 | 19.77 | 1.588 |
| 13 | .0720 | 1.83 | 5178.0 | 15.68 | 2.003 |
| 14 | .0641 | 1.63 | 4107.0 | 12.43 | 2.525 |
| 15 | .0571 | 1.45 | 3260.0 | 9.858 | 3.184 |
| 16 | .0508 | 1.29 | 2583.0 | 7.818 | 4.016 |
| 17 | .0453 | 1.15 | 2050.0 | 6.200 | 5.064 |
| 18 | .0403 | 1.02 | 1620.0 | 4.917 | 6.385 |
| 19 | .0359 | .912 | 1200.0 | 3.899 | 8.051 |
| 20 | .0320 | .813 | 1020.0 | 3.092 | 10.15 |
| 21 | .0285 | .724 | 812.1 | 2.452 | 12.80 |
| 22 | .0253 | .643 | 640.4 | 1.945 | 16.14 |
| 23 | .0226 | .574 | 511.5 | 1.542 | 20.36 |
| 24 | .0201 | .511 | 404.0 | 1.223 | 25.67 |
| 25 | .0179 | .455 | 320.4 | .9699 | 32.37 |
| 26 | .0159 | .404 | 253.0 | .7692 | 40.81 |
| 27 | .0142 | .361 | 201.5 | .6100 | 51.47 |
| 28 | .0126 | .320 | 159.8 | .4837 | 64.90 |
| 29 | .0113 | .287 | 126.7 | .3836 | 81.83 |
| 30 | .0100 | .254 | 100.5 | .3042 | 103.2 |
| 31 | .0089 | .226 | 79.7 | .2413 | 130.1 |
| 32 | .0080 | .203 | 63.21 | .1913 | 164.1 |
| 33 | .0071 | .180 | 50.13 | .1517 | 206.9 |
| 34 | .0063 | .160 | 39.75 | .1203 | 260.9 |
| 35 | .0056 | .142 | 31.52 | .09542 | 331.0 |
| 36 | .0050 | .127 | 25.00 | .07568 | 414.8 |
| 37 | .0045 | .114 | 19.83 | .0613 | 512.1 |

Information from National Bureau of Standards Copper Wire Tables – Handbook 100.

Unparalleled Performance Belden is one of only a very few cable manufacturers to draw and anneal its own conductors. This is a time-consuming process, but it allows us to ensure signal integrity, as well as proper physical characteristics.

In addition, the standards under which we design and manufacture our fiber optic cabling are among the strictest in the industry.

The result is a comprehensive offering of products which give unparalleled performance and can satisfy your most demanding operating and environmental challenges.

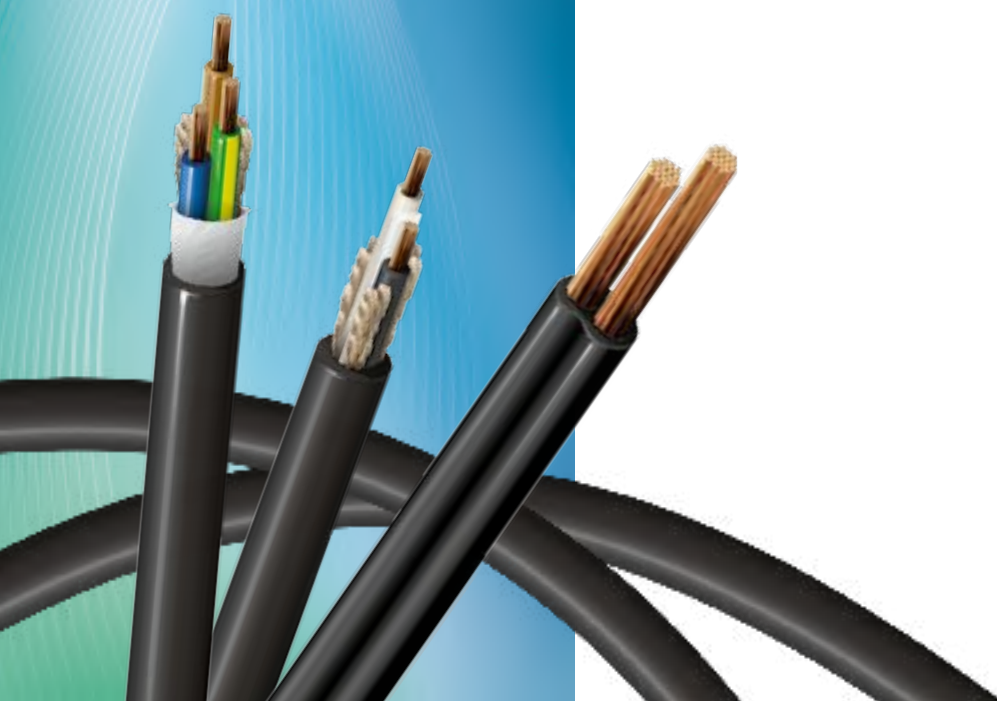
For available colors and put-ups, see the on-line Belden Technical Data Sheet for the part number at www.belden.com



Power & Control Portable Cordage

Section Table of Contents

| Power & Control | Page |
|--|------|
| Portable Cordage | |
| Overview | 204 |
| Introduction | 205 |
| 2-Conductor | 206 |
| 3-Conductor | 208 |
| 4-, 5- and Multi-Conductor | 210 |
| UL Cordage Types: Designation, Construction and Rating | 211 |



Portable Cordage



Belden portable cordage products are available in a wide assortment of styles, lengths and thicknesses. Products offered include 2, 3, 4 and 5-conductor, as well as multi-conductor constructions.

Jacket options include PVC, Rubber, Oil-resistant Rubber and Belflex®. Belflex is a premium PVC jacket compound (Class 43) that is superior to standard PVC for flexibility and durability.

Product Features

- Temperature range up to +105 °C (Belflex®)
- UL/CSA approvals
- Paper tape or cotton serve separator or conductor polarity
- Shielded and unshielded options
- Jacket material PVC, Rubber, Oil-resistant Rubber, Belflex®

Benefits

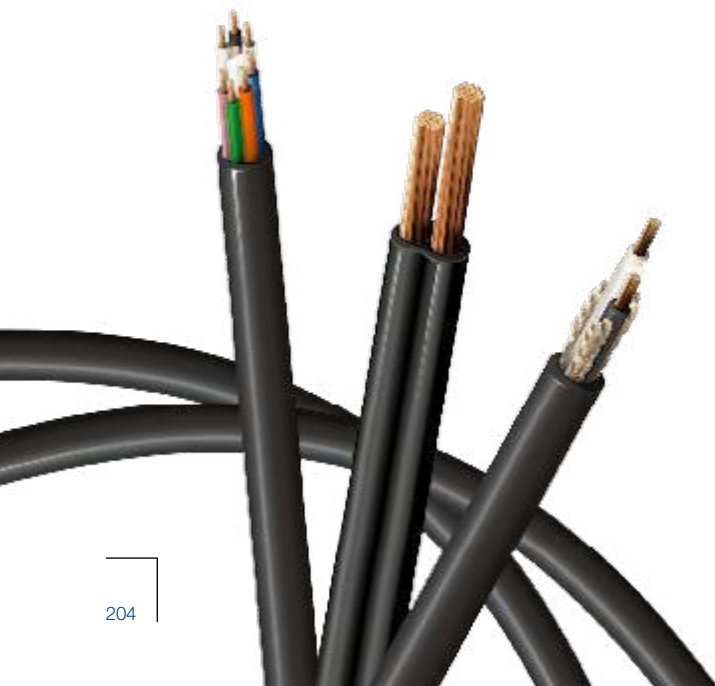
Belden portable cordage is listed by Underwriters Laboratories Inc. (UL). This approval signifies that UL has approved all elements of the cordage as meeting their applicable construction and performance standards. Certain Belden portable cordage products are certified to CSA (Canadian) standards.

Applications

Belden's portable cordage portfolio can be used for power in a wide range of applications, from operating motors to power extensions, home appliances and machinery.

Can be used in:

- Building management systems
- Industrial applications
- Audio applications



Introduction

Manufacturer's Identification

Identification of the flexible cord is provided by our UL and CSA file numbers or printed name on the cord jacket.

UL/CSA File Numbers

- UL: E-3462
- CSA: LL-7874

Portable Cordage Packaging

Belden's unique UnReel® cable dispenser is available for many of the portable cordage products listed in this section.

Color Code Comparison by Function

| Color Coding | | Function |
|---------------|--------------------------|-------------------|
| International | North American Standards | |
| Light Blue | White | N-Neutral |
| Brown | Black | L-Live |
| Green/Yellow | Green or Green/Yellow | E-Earth or Ground |

2-Conductor

UL/CSA Types: SPT -1, SPT -2, SP-1, HPN

Parallel Cordage



| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | |
|----------|-----|-----------|----------|----|----------------------|----|
| | | | Inch | mm | Inch | mm |

Type SPT-1 • PVC Insulation • 300 V, +60 °C • Parallel Lamp Cord

| BC Conductors • Brown, Black, White, or Silver Insulation • UL/CSA Listed • One Conductor Polarity Ribbed | | | | | | |
|---|----|---------|-------------|-------------|------|-----|
| 19122 | 18 | 42 x 34 | .110 x .207 | 2.79 x 5.26 | .032 | .81 |
| 8888* | 18 | 42 x 34 | .110 x .207 | 2.79 x 5.26 | .032 | .81 |

Type SPT-2 • PVC Insulation • 300 V, +60 °C • Parallel Lamp Cord

| BC Conductors • Brown or Black Insulation • UL/CSA Listed • One Conductor Polarity Ribbed | | | | | | |
|---|----|---------|-------------|-------------|------|------|
| 19123 | 18 | 42 x 34 | .144 x .277 | 3.66 x 7.04 | .049 | 1.24 |
| 19126 | 16 | 65 x 34 | .155 x .299 | 3.94 x 7.59 | .048 | 1.22 |

Type SP-1 • Rubber Insulation • 300 V, +60 °C • Parallel Lamp Cord

| BC Conductors • Black Insulation • UL Listed • One Conductor Polarity Ribbed | | | | | | |
|--|----|---------|-------------|-------------|------|-----|
| 19115 | 18 | 41 x 34 | .123 x .227 | 3.12 x 5.77 | .035 | .89 |

Type HPN • CPE Insulation • 300 V, +90 °C • Parallel Heater Cord

| BC Conductors • Black Insulation • UL/CSA Listed | | | | | | |
|--|----|----------|-------------|-------------|------|------|
| 19405 | 18 | 41 x 34 | .140 x 2.76 | 3.56 x 7.01 | .047 | 1.18 |
| 19404 | 16 | 105 x 36 | .152 x .300 | 3.86 x 7.62 | .047 | 1.18 |

* Not CSA listed

2-Conductor

UL/CSA Types: SJ, SJO, SJTOW, SO, STOW, SV, SVT



| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|-----|-----------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Type SJ • Rubber Jacket • 300 V, +60 °C

| BC Conductors • Paper Tape Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White | | | | | | | | |
|---|----|---------|------|------|------|-----|------|-----|
| 8478 | 18 | 42 x 34 | .290 | 7.37 | .032 | .81 | .035 | .89 |
| 8472 | 16 | 65 x 34 | .315 | 8.00 | .033 | .84 | .035 | .89 |

Type SJO • Oil-Resistant Rubber Jacket • 300 V, +90 °C

| BC Conductors • Paper Tape Separator • Smooth Matte Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White | | | | | | | | |
|---|----|---------|------|------|------|-----|------|-----|
| 19227 | 18 | 16 x 30 | .290 | 7.37 | .031 | .79 | .035 | .89 |
| 19228 | 16 | 26 x 30 | .315 | 8.00 | .031 | .79 | .035 | .89 |

Type SJTOW • Belflex® Premium PVC Jacket • 300 V, +105 °C

| BC Conductors • Paper Tape Separator • Smooth Matte Black Jacket • UL/CSA Listed • VW-1 • International Conductor Color Code: Light Blue, Brown | | | | | | | | |
|---|----|---------|------|------|------|-----|------|-----|
| 19506 | 18 | 42 x 34 | .290 | 7.37 | .032 | .81 | .035 | .89 |
| 19507 | 16 | 65 x 34 | .319 | 8.10 | .033 | .84 | .037 | .94 |
| 19508 | 14 | 41 x 30 | .348 | 8.84 | .033 | .84 | .032 | .81 |

Type SO • Oil-Resistant Rubber Jacket • 600 V, +90 °C

| BC Conductors • Smooth Black Jacket • Cotton Server Separator or Paper Tape (12 AWG Only) • UL/CSA Listed • Conductor Color Code: Black, White | | | | | | | | |
|--|----|---------|------|-------|------|------|------|------|
| 19204 | 18 | 42 x 34 | .360 | 9.14 | .032 | .81 | .065 | 1.65 |
| 19203 | 16 | 65 x 34 | .385 | 9.78 | .033 | .84 | .065 | 1.65 |
| 19202 | 14 | 41 x 30 | .523 | 13.28 | .048 | 1.22 | .085 | 2.16 |
| 19201 | 12 | 65 x 30 | .610 | 15.49 | .051 | 1.30 | 1.00 | 2.54 |

Type STOW • Belflex Premium PVC Jacket • 600 V, +105 °C

| BC Conductors • Paper Tape Separator • Smooth Black Jacket • UL/CSA Listed • VW-1 • International Conductor Color Code: Light Blue, Brown | | | | | | | | |
|---|----|---------|------|-------|------|------|------|------|
| 19500 | 18 | 42 x 34 | .360 | 9.14 | .032 | .81 | .070 | 1.78 |
| 19501 | 16 | 65 x 34 | .386 | 9.80 | .033 | .84 | .070 | 1.78 |
| 19502 | 14 | 41 x 30 | .524 | 13.31 | .049 | 1.24 | .089 | 2.26 |

Type SV • Rubber Jacket • 300 V, +60 °C • Serrated Jacket

| BC Conductors • Cotton Serve Separator • Serrated Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White | | | | | | | | |
|---|----|---------|------|------|------|-----|------|-----|
| 8452 | 18 | 42 x 34 | .245 | 6.22 | .017 | .43 | .037 | .94 |

Type SV • Rubber Jacket • 300 V, +60 °C • Smooth Jacket

| BC Conductors • Cotton Serve Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White | | | | | | | | |
|---|----|---------|------|------|------|-----|------|-----|
| 19120 | 18 | 42 x 34 | .245 | 6.22 | .017 | .43 | .037 | .94 |

Type SVT • PVC Jacket • 300 V, +60 °C

| BC Conductors • Paper Tape Separator • Serrated Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White | | | | | | | | |
|---|----|---------|------|------|------|-----|------|-----|
| 19140 | 18 | 42 x 34 | .243 | 6.17 | .018 | .46 | .036 | .91 |

BC = Bare Copper • PVC = Polyvinyl Chloride

3-Conductor

UL/CSA Types: S, SO, SJ, SJO, SJT



| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|-----|-----------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Type S • Rubber Jacket • 600 V, +60 °C

| BC Conductors • Cotton Serve (18 – 16 AWG) or Paper Tape (14 – 10 AWG) Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White, Green | | | | | | | | |
|--|----|----------|------|-------|------|------|------|------|
| 19109 | 18 | 42 x 34 | .380 | 9.65 | .032 | .81 | .065 | 1.65 |
| 19108 | 16 | 65 x 34 | .405 | 10.29 | .033 | .84 | .065 | 1.65 |
| 19107 | 14 | 41 x 30 | .535 | 13.59 | .048 | 1.22 | .085 | 2.16 |
| 19106 | 12 | 65 x 30 | .640 | 16.26 | .051 | 1.30 | .099 | 2.51 |
| 19105 | 10 | 105 x 30 | .681 | 17.30 | .050 | 1.27 | .099 | 2.51 |

Type SO • Oil-Resistant Rubber Jacket • 600 V, +90 °C

| BC Conductors • Cotton Serve (18 – 16 AWG) or Paper Tape (14 – 10 AWG) Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White, Green | | | | | | | | |
|--|----|----------|------|-------|------|------|------|------|
| 19209 | 18 | 42 x 34 | .380 | 9.65 | .032 | .81 | .065 | 1.65 |
| 19208 | 16 | 65 x 34 | .400 | 10.16 | .033 | .84 | .063 | 1.60 |
| 19207 | 14 | 41 x 30 | .538 | 13.67 | .048 | 1.22 | .086 | 2.18 |
| 19206 | 12 | 65 x 30 | .632 | 16.05 | .051 | 1.30 | .100 | 2.54 |
| 19205 | 10 | 105 x 30 | .681 | 17.30 | .050 | 1.27 | .099 | 2.51 |

Type SJ • Rubber Jacket • 300 V, +60 °C

| BC Conductors • Paper Tape Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White, Green | | | | | | | | |
|--|----|---------|------|------|------|-----|------|-----|
| 19129 | 18 | 16 x 30 | .315 | 8.00 | .031 | .79 | .039 | .99 |
| 19125 | 18 | 42 x 34 | .315 | 8.00 | .032 | .81 | .038 | .97 |
| 19130 | 16 | 26 x 30 | .340 | 8.64 | .031 | .79 | .038 | .97 |
| 19124 | 16 | 65 x 34 | .340 | 8.64 | .033 | .84 | .038 | .97 |
| 8479 | 14 | 41 x 30 | .380 | 9.65 | .031 | .79 | .039 | .99 |

Type SJO • Oil-Resistant Rubber Jacket • 300 V, +90 °C

| BC Conductors • Smooth Black Jacket • Paper Tape Separator • UL/CSA Listed • Conductor Color Code: Black, White | | | | | | | | |
|---|----|---------|------|------|------|-----|------|-----|
| 19229 | 18 | 16 x 30 | .315 | 8.00 | .031 | .79 | .039 | .99 |
| 19230 | 16 | 26 x 30 | .340 | 8.64 | .031 | .79 | .038 | .97 |

Type SJT • PVC Jacket • 300 V, +60 °C

| BC Conductors • Paper Tape Separator • Serrated Black or Gray Jacket • UL/CSA Listed • Conductor Color Code: Black, White, Green (18 AWG) or Green/Yellow (16 AWG) | | | | | | | | |
|--|----|---------|------|------|------|-----|------|------|
| 19348 | 18 | 42 x 34 | .328 | 8.33 | .032 | .81 | .046 | 1.17 |
| 19349 | 16 | 65 x 34 | .340 | 8.84 | .033 | .84 | .038 | .97 |

Type SJT • PVC Jacket • 300 V, +60 °C • International Conductor Color Code

| BC Conductors • Paper Tape Separator • Smooth Black or Brown Jacket • UL/CSA Listed • Conductor Color Code: Light Brown, Blue, Green/Yellow | | | | | | | | |
|---|----|---------|------|------|------|-----|------|------|
| 19352 | 18 | 42 x 34 | .328 | 8.33 | .032 | .81 | .046 | 1.17 |
| 19353 | 16 | 65 x 34 | .353 | 8.97 | .033 | .84 | .036 | .91 |
| 19354 | 14 | 41 x 30 | .380 | 9.65 | .033 | .84 | .038 | .97 |

BC = Bare Copper • PVC = Polyvinyl Chloride

3-Conductor

UL/CSA Types: SJT, SJTOW, STOW, SV, SVT



| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|-----|-----------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

Type SJT • PVC Jacket • Shielded • 300 V, +60 °C • International Conductor Color Code

| BC Conductors • Beldfoil® Shield • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Light Blue, Brown, Green/Yellow | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|------|
| 19362 | 18 | 42 x 34 | .340 | 8.64 | .032 | .81 | .050 | 1.27 |
| 19363 | 16 | 65 x 34 | .365 | 9.27 | .033 | .84 | .047 | 1.19 |
| 19364 | 14 | 41 x 30 | .402 | 10.21 | .033 | .84 | .042 | 1.07 |

Type SJT • PVC Jacket • Low Leakage • 300 V, +75 °C

| BC Conductors • Paper Tape Separator • Smooth Brown Jacket • UL Listed • Conductor Color Code: Black, White, Green | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|------|
| 9998 | 16 | 65 x 34 | .475 | 12.07 | .033 | .84 | .045 | 1.14 |

Type SJTOW • Belflex® Premium PVC Jacket • 300 V, +105 °C • International Conductor Color Code

| BC Conductors • Paper Tape Separator • Smooth Matte Black Jacket • UL/CSA Listed • VW1 • Conductor Color Code: Light Blue, Brown, Green/Yellow | | | | | | | | |
|--|----|---------|------|------|------|-----|------|------|
| 19509 | 18 | 42 x 34 | .315 | 8.00 | .032 | .81 | .038 | .97 |
| 19510 | 16 | 65 x 34 | .340 | 8.64 | .033 | .84 | .038 | .97 |
| 19511 | 14 | 41 x 30 | .380 | 9.65 | .032 | .81 | .040 | 1.02 |

Type STOW • Belflex® Premium PVC Jacket • 600 V, +105 °C • International Conductor Color Code

| BC Conductors • Paper Tape Separator • Smooth Black Matte Jacket • UL/CSA Listed • VW1 • Conductor Color Code: Light Blue, Brown, Green/Yellow | | | | | | | | |
|--|----|---------|------|-------|------|------|------|------|
| 19503 | 18 | 42 x 34 | .380 | 9.65 | .032 | .81 | .070 | 1.78 |
| 19504 | 16 | 65 x 34 | .405 | 10.29 | .033 | .84 | .070 | 1.78 |
| 19505 | 14 | 41 x 30 | .558 | 14.17 | .049 | 1.24 | .089 | 2.26 |

Type SV • Rubber Jacket • 300 V, +60 °C

| TC Conductors • Cotton Serve Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White, Green | | | | | | | | |
|--|----|---------|------|------|------|-----|------|-----|
| 8453 | 18 | 41 x 34 | .256 | 6.50 | .018 | .46 | .036 | .91 |

Type SVT • PVC Jacket • 300 V, +60 °C

| BC Conductors • Paper Tape Separator • Serrated Gray Jacket • UL/CSA Listed • Conductor Color Code: Black, White, Green | | | | | | | | |
|---|----|---------|------|------|------|-----|------|-----|
| 19350 | 18 | 42 x 34 | .253 | 6.43 | .018 | .46 | .038 | .97 |

Type SVT • PVC Jacket • 300 V, +60 °C • International Conductor Code

| BC Conductors • Paper Tape Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Light Blue, Brown, Green/Yellow | | | | | | | | |
|--|----|---------|------|------|------|-----|------|-----|
| 19402 | 18 | 42 x 34 | .253 | 6.43 | .018 | .46 | .034 | .86 |

Type SVT • PVC Jacket • Shielded • 300 V, +60 °C • International Conductor Color Codes

| BC Conductors • Beldfoil® Shield • 22 AWG (7 x 30) Drain Wire • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Light Blue, Brown, Green/Yellow | | | | | | | | |
|---|----|---------|------|------|------|-----|------|------|
| 19401 | 18 | 42 x 34 | .270 | 6.86 | .018 | .46 | .043 | 1.09 |

Type SVT • PVC Jacket • Shielded • 300 V, +60 °C • International Conductor Color Codes

| BC Conductors • Duofoil® Shield (100% Coverage) • Braid (88% Coverage) Smooth Black Jacket • UL/CSA Listed • Conductor Code: Light Blue, Brown, Green/Yellow | | | | | | | | |
|--|----|---------|------|------|------|-----|------|-----|
| 19403 | 18 | 42 x 34 | .307 | 7.80 | .018 | .46 | .038 | .97 |

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride

4-, 5-, and Multi-Conductor

UL/CSA Type SO and UL AWM Styles 4097 and 4256



4-Conductor

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|-----|-----------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

AWM Style 4097 • Rubber Jacket • 300 V, +60 °C

TC Conductors • Paper Tape Separator • Smooth Black Jacket • Conductor Color Code: Black, White, Brown, Red

| | | | | | | | | |
|------|----|---------|------|------|------|-----|------|-----|
| 8454 | 18 | 41 X 34 | .265 | 6.73 | .018 | .46 | .036 | .91 |
|------|----|---------|------|------|------|-----|------|-----|

Type SO • Oil-Resistant Rubber Jacket • 600 V, +90 °C

BC Conductors • Paper Tape Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Black, White, Green, Red

| | | | | | | | | |
|-------|----|---------|------|-------|------|------|------|------|
| 19217 | 14 | 41 x 30 | .603 | 15.32 | .048 | 1.22 | .087 | 2.21 |
| 19216 | 12 | 65 x 30 | .690 | 17.53 | .051 | 1.30 | .102 | 2.59 |

5-Conductor

| Part No. | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|-----|-----------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

AWM Style 4256 • Rubber Jacket • 300 V, +60 °C

TC Conductors • Paper Tape Separator • Smooth Black Jacket • Conductor Color Code: Brown, Green, White, Black, Red

| | | | | | | | | |
|------|--------|---------|------|------|------|-----|------|-----|
| 8455 | 20 (3) | 26 x 34 | .280 | 7.11 | .018 | .46 | .031 | .79 |
| | 18 (2) | 41 x 34 | | | | | | |

Multi-Conductor

| Part No. | Conductors | AWG | Stranding | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|-----|-----------|----------|----|----------------------|----|------------------|----|
| | | | | Inch | mm | Inch | mm | Inch | mm |

Type SO • 4256 • Oil-Resistant Rubber Jacket • 600 V, +60 °C

BC Conductors • Paper Tape Separator • Smooth Black Jacket • UL/CSA Listed • Conductor Color Code: Chart 2

| | | | | | | | | | |
|------|----|----|---------|------|-------|------|-----|------|------|
| 9420 | 5 | 16 | 65 x 34 | .506 | 12.85 | .033 | .84 | .084 | 2.13 |
| 9422 | 7 | 16 | 65 x 34 | .581 | 14.76 | .033 | .84 | .083 | 2.11 |
| 9424 | 9 | 16 | 65 x 34 | .720 | 18.29 | .033 | .84 | .100 | 2.54 |
| 9425 | 12 | 16 | 65 x 34 | .720 | 28.29 | .033 | .84 | .100 | 2.54 |
| 9427 | 16 | 16 | 65 x 34 | .787 | 19.99 | .033 | .84 | .100 | 2.54 |
| 9429 | 20 | 16 | 65 x 34 | .862 | 21.89 | .033 | .84 | .100 | 2.54 |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 560.

UL Cordage Type
Designation, Construction and Rating

| Cord Type* | Description | AWG Size Range | No. of Cond. | Conductor Insulation Material and Min. Average Thickness (inches/millimeters) | Jacket Material and Min. Average Thickness** (inches/millimeters) | Temperature Rating (°C)† | | Voltage Rating |
|------------|---|----------------|--------------|---|---|--------------------------|-------------|----------------|
| | | | | | | Standard | Other | |
| HPN | Heater Parallel Neoprene | 18-12 | 2 or 3†† | .045"/1.14 mm Rubber | — | 90 | 105 | 300 |
| HSJ | Heater Service Junior | 18-12 | 2, 3, 4 | .030"/0.76 mm Rubber†† | .030"/0.76 mm Rubber | 90 | — | 300 |
| HSJO | HSJO with Oil-Resistant Jacket | 18-12 | 2, 3, 4 | .030"/0.76 mm Rubber ▲ | .030"/0.76 mm Rubber | 90 | — | 300 |
| S | Service | 18-2 | 2 or more | .030"/0.76 mm Rubber ▲ | .060"/1.52 mm Rubbers | 60 | 75, 90 | 600 |
| SE | Service Elastomer | 18-2 | 2 or more | .030"/0.76 mm Elastomer | .060"/1.52 mm Elastomer | 105 | — | 600 |
| SEO | SE with Oil-Resistant Jacket | 18-2 | 2 or more | .030"/0.76 mm Elastomer | .060"/1.52 mm Elastomer | 105 | — | 600 |
| SJ | Service Junior | 18-10 | 2, 3, 4, 5 | .030"/0.76 mm Rubber | .030"/0.76 mm Rubber | 60 | 75, 90 | 300 |
| SJE | Service Junior Elastomer | 18-10 | 2, 3, 4, 5 | .030"/0.76 mm Elastomer†† | .030"/0.76 mm Elastomer | 105 | — | 300 |
| SJEO | SJE with Oil-Resistant Jacket | 18-10 | 2, 3, 4, 5 | .030"/0.76 mm Elastomer | .030"/0.76 mm Elastomer | 105 | — | 300 |
| SJO | SJ with Oil-Resistant Jacket | 18-10 | 2, 3, 4, 5 | .030"/0.76 mm Rubber ♦ | .030"/0.76 mm Rubber | 60 | 75, 90, 105 | 300 |
| SJT | Service Junior Thermoplastic | 18-10 | 2, 3, 4, 5 | .030"/0.76 mm Plastic ♦ | .030"/0.76 mm Plastic | 60 | 75, 90, 105 | 300 |
| SJTO | SJT with Oil-Resistant Jacket | 18-10 | 2, 3, 4, 5 | .030"/0.76 mm Plastic ♦ | .030"/0.76 mm Plastic | 60 | 75, 90, 105 | 300 |
| SO | Service with Oil-Resistant Jacket | 18-2 | 2 or more | .030"/0.76 mm Rubber ▲ | .060"/1.52 mm Rubber | 60 | 75, 90 | 600 |
| SP-1 | Service Parallel, 1/32" Insulation | 18 | 2 or 3†† | .030"/0.76 mm Rubber | — | 60 | — | 300 |
| SP-2 | Service Parallel, 3/64" Insulation | 18-16 | 2 or 3†† | .045"/1.14 mm Rubber | — | 60 | — | 300 |
| SP-3 | Service Parallel, 1/16" Insulation | 18-12 | 2 or 3†† | .060"/1.52 mm Rubber ▲ | — | 60 | — | 300 |
| SPT-1 | Service Thermoplastic, 1/32" Insulation | 18 | 2 or 3†† | .030"/0.76 mm Plastic | — | 60 | 75, 90, 105 | 300 |
| SPT-2 | Service Thermoplastic, 3/64" Insulation | 18-16 | 2 or 3†† | .045"/1.14 mm Plastic | — | 60 | 75, 90, 105 | 300 |
| SPT-3 | Service Thermoplastic, 1/16" Insulation | 18-10 | 2 or 3†† | .060"/1.52 mm Plastic ▲ | — | 60 | 75, 90, 105 | 300 |
| ST | Service Thermoplastic | 18-2 | 2 or more | .030"/0.76 mm Plastic ▲ | .060"/1.52 mm Plastics | 60 | 75, 90, 105 | 600 |
| STO | ST with Oil-Resistant Jacket | 18-2 | 2 or more | .030"/0.76 mm Plastic ▲ | .060"/1.52 mm Plastics | 60 | 75, 90, 105 | 600 |
| SV | Service Vacuum | 18 | 2 or 3†† | .015"/0.38 mm Rubber | .030"/0.76 mm Rubber | 60 | 75, 90 | 300 |
| SVE | Service Vacuum Elastomer | 18-17 | 2 or 3†† | .015"/0.38 mm Elastomer | .030"/0.76 mm Elastomer | 105 | — | 300 |
| SVEO | SVE with Oil-Resistant Jacket | 18-17 | 2 or 3†† | .015"/0.38 mm Elastomer | .030"/0.76 mm Elastomer | 105 | — | 300 |
| SVO | SVO with Oil-Resistant Jacket | 18 | 2 or 3†† | .015"/0.38 mm Rubber | .030"/0.76 mm Rubber | 60 | 75, 90 | 300 |
| SVT | Service Vacuum Thermoplastic | 18-17 | 2 or 3†† | .015"/0.38 mm Plastic | .030"/0.76 mm Plastic | 60 | 75, 90, 105 | 300 |
| SVTO | SVT with Oil-Resistant Jacket | 18-17 | 2 or 3†† | .015"/0.38 mm Plastic | .030"/0.76 mm Plastic | 60 | 75, 90, 105 | 300 |
| TPT | Tinsel Parallel Thermoplastic | 27 (Tinsel) | 2 | .030"/0.76 mm Plastic | — | 60 | — | 300 |
| TST | Tinsel Service Thermoplastic | 27 (Tinsel) | 2 | .015"/0.38 mm Plastic | .030"/0.76 mm Rubber | 60 | — | 300 |

* Types SVO, SVTO, SJO, SJTO, SO, STO and HSJO have jackets which are also recognized for oil resistance at maximum temperature of 60°C. Types SJ, SJO, SJT, SJTO, S, SO, ST and STO may also be made for outdoor use and will be indicated by adding a "W" suffix to the cord type. Similarly, types SJ, SJTO, SJO, SJT, S, SO, ST and STO may also be made in water-resistant grades with "Water-Resistant" printed on the jacket. 3-wire SJT may be made in special low-leakage constructions for medical equipment cords.

** Where no jacket is shown, the construction is integral or flat style with insulation also serving as jacket.

† For cordage ratings higher than 60°C, the temperature limit is printed on the outside of the jacket. This does not apply to heater cordage type HPN, rated 90°C, or 105°C.

†† Recognized in three conductors when third or center conductor (with Green or Green/Yellow stripe) is used for equipment grounding.

▲ Insulation and jacket thickness depend on cordage size. Thickness as shown are for 18 and 16 AWG.

♦ Insulation and jacket thickness depend on cordage size.
No. 12 AWG requires .030" conductor insulation thickness and .045" jacket thickness.
No. 10 AWG requires .045" conductor insulation thickness and .060" jacket thickness.

The term Elastomer refers to thermoplastic elastomer.

SpaceMaker™ Series Electronic Wire and Cable



Optimized Performance With Less Installation Frustration

You can easily thread these narrow, flexible cables in tight environments, worry free. Don't let the small size fool you - SpaceMaker cables provide exceptional strength and durability, even when your installation is exposed to the daily rigors of harsh, industrial operating conditions.

Plus, all SpaceMaker cables are backed by Belden's industry-leading 10-years warranty.

When You Need a Small-But-Mighty Solution

Enhance your system design and operating efficiency by reducing maintenance cost and protecting against downtime. SpaceMaker electronic cables provide:

- Up to 52% reduced cable area.
- Up to 74% tighter bend radius.
- The flex life to endure 1 million flex cycles.
- Suitable for use in NFPA 79 applications.

Thanks to the space savings provided by the compact design of this product, you have the freedom to either eliminate excess space or to run more cables through the existing space in your application designs.

Route cables with ease-even in hard-to-reach spaces-with the Belden SpaceMaker portfolio

Reduced Size with Increased Flexibility

From single conductor to multi conductor/multi paired products, space is no longer an issue. SpaceMaker's compact design offers up to a 52% smaller overall diameter(OD), up to a 74% tighter bend radius (compare to industry standard) and greater flexibility. Made for today's machines, SpaceMaker products connect more devices in less space to meet the market's ever-changing demands.

Advantages

- SpaceMaker hook-up wire outperforms standard PVC wire by proving superior dielectric strength. These products offers weight savings of up to 40% 10x better abrasion and pinch resistance and 45% smaller OD. SpaceMaker hook-up wire is perfect for meeting the needs of component and OEM manufacturers across a broad range of markets..
- Aside from space savings, SpaceMaker hook-up wire also features ecological benefits. These recyclable products offer a non-pollutant/non-toxic, construction, supporting responsible corporate environmental efforts.

SpaceMaker™ Series Electronic Cables
300V SpaceMaker Electronic Cables

Unshielded



- UL AWM Style 2937 (300V 80°C)
- UL AWM Style 10118 (300V 80°C)
- Upto 52% Reduced Cable Area
- Upto 74% Higher Bend Radius
- CSA FT2
- 1 Million Flexes
- -20°C to +80°C
- Suitable For NFPA 79 Applications

| Part No. | Conductors | OD (Nom) | | Bend Radius (Min) | |
|----------|------------|----------|----|-------------------|----|
| | | Inch | mm | Inch | mm |

18 AWG (41X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Industrial - Grade PVC Jacket | | | | | |
|---|----|------|-----|------|------|
| 9740MN | 2 | 0.16 | 4.2 | 0.66 | 16.8 |
| 8463MN | 3 | 0.17 | 4.4 | 0.70 | 17.8 |
| 8465MN | 5 | 0.21 | 5.4 | 0.85 | 21.6 |
| 8467MN | 7 | 0.23 | 5.9 | 0.93 | 23.6 |
| 8469MN | 9 | 0.27 | 6.9 | 1.10 | 27.9 |
| 8466MN | 12 | 0.31 | 7.8 | 1.24 | 31.5 |
| 8468MN | 15 | 0.34 | 8.8 | 1.38 | 35.2 |

20 AWG (26X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Industrial - Grade PVC Jacket | | | | | |
|---|----|------|-----|------|------|
| 8205MN | 2 | 0.14 | 3.7 | 0.58 | 14.8 |
| 9443MN | 3 | 0.15 | 3.9 | 0.62 | 15.7 |
| 9445MN | 5 | 0.18 | 4.7 | 0.74 | 18.9 |
| 9439MN | 7 | 0.20 | 5.1 | 0.81 | 20.6 |
| 9455MN | 9 | 0.23 | 6.0 | 0.95 | 24.1 |
| 9457MN | 12 | 0.26 | 6.8 | 1.07 | 27.3 |
| 9458MN | 15 | 0.30 | 7.6 | 1.20 | 30.4 |

22 AWG (19X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Industrial - Grade PVC Jacket | | | | | |
|---|----|------|-----|------|------|
| 8442MN | 2 | 0.13 | 3.3 | 0.52 | 13.4 |
| 8443MN | 3 | 0.14 | 3.5 | 0.56 | 14.2 |
| 8445MN | 5 | 0.16 | 4.2 | 0.66 | 16.9 |
| 9430MN | 7 | 0.18 | 4.6 | 0.72 | 18.4 |
| 9423MN | 9 | 0.21 | 5.4 | 0.85 | 21.6 |
| 8457MN | 12 | 0.24 | 6.1 | 0.96 | 24.3 |
| 8458MN | 15 | 0.26 | 6.7 | 1.06 | 27.1 |

SpaceMaker™ Series Electronic Cables

300V SpaceMaker Electronic Cables

Overall Foil Shield



- UL AWM Style 2937 (300V 80°C)
- UL AWM Style 10118 (300V 80°C)
- Upto 52% Reduced Cable Area
- Upto 74% Higher Bend Radius
- CSA FT2
- 1 Million Flexes
- -20°C to +80°C
- Suitable For NFPA 79 Applications

| Part No. | Conductors | OD (Nom) | | Bend Radius (Min) | |
|----------|------------|----------|----|-------------------|----|
| | | Inch | mm | Inch | mm |

18 AWG (41X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Overall Beldfoil® Shield (100% Coverage) • Industrial - Grade PVC Jacket | | | | | |
|--|----|------|-----|------|------|
| 8760MN | 2 | 0.16 | 4.2 | 0.67 | 17.1 |
| 8770MN | 3 | 0.18 | 4.6 | 0.72 | 18.3 |
| 8870MN | 5 | 0.21 | 5.5 | 0.86 | 22.0 |
| 8871MN | 7 | 0.23 | 6.0 | 0.94 | 24.0 |
| 8872MN | 9 | 0.27 | 7.0 | 1.11 | 28.3 |
| 8873MN | 12 | 0.31 | 7.9 | 1.25 | 31.9 |
| 8874MN | 15 | 0.35 | 8.9 | 1.40 | 35.6 |

20 AWG (26X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Overall Beldfoil® Shield (100% Coverage) • Industrial - Grade PVC Jacket | | | | | |
|--|----|------|-----|------|------|
| 8762MN | 2 | 0.14 | 3.7 | 0.59 | 15.1 |
| 8772MN | 3 | 0.15 | 4.0 | 0.63 | 16.1 |
| 8876MN | 5 | 0.19 | 4.8 | 0.76 | 19.3 |
| 8877MN | 7 | 0.20 | 5.2 | 0.82 | 21.0 |
| 8878MN | 9 | 0.24 | 6.1 | 0.97 | 24.6 |
| 8880MN | 12 | 0.27 | 6.9 | 1.09 | 27.7 |
| 8881MN | 15 | 0.30 | 7.7 | 1.21 | 30.8 |

22 AWG (19X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Overall Beldfoil® Shield (100% Coverage) • Industrial - Grade PVC Jacket | | | | | |
|--|----|------|-----|------|------|
| 8761MN | 2 | 0.13 | 3.4 | 0.54 | 13.7 |
| 8771MN | 3 | 0.14 | 3.6 | 0.57 | 14.6 |
| 8882MN | 5 | 0.17 | 4.3 | 0.68 | 17.3 |
| 8883MN | 7 | 0.18 | 4.7 | 0.74 | 18.9 |
| 8884MN | 9 | 0.21 | 5.5 | 0.86 | 22.0 |
| 8885MN | 12 | 0.24 | 6.2 | 0.97 | 24.7 |
| 8886MN | 15 | 0.27 | 6.8 | 1.08 | 27.5 |

SpaceMaker™ Series Electronic Cables
300V SpaceMaker Electronic Cables

Individually and Overall Shielded



- UL AWM Style 2937 (300V 80°C)
- UL AWM Style 10118 (300V 80°C)
- Upto 52% Reduced Cable Area
- Upto 74% Higher Bend Radius
- CSA FT2
- 1 Million Flexes
- -20°C to +80°C
- Suitable For NFPA 79 Applications

| Part No. | Pairs | OD (Nom) | | Bend Radius (Min) | |
|----------|-------|----------|----|-------------------|----|
| | | Inch | mm | Inch | mm |

18 AWG (41X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Individually Shielded Pairs and Overall Beldfoil® Shield (100% Coverage) • Industrial - Grade PVC Jacket | | | | | |
|--|---|------|------|------|------|
| 8875MN | 2 | 0.29 | 7.3 | 1.16 | 29.4 |
| 9773MN | 3 | 0.31 | 7.8 | 1.24 | 31.5 |
| 9779MN | 4 | 0.34 | 8.7 | 1.37 | 34.8 |
| 9780MN | 5 | 0.37 | 9.4 | 1.48 | 37.8 |
| 9774MN | 6 | 0.43 | 11.1 | 1.75 | 44.6 |

20 AWG (26X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Individually Shielded Pairs and Overall Beldfoil® Shield (100% Coverage) • Industrial - Grade PVC Jacket | | | | | |
|--|---|------|-----|------|------|
| 9402MN | 2 | 0.25 | 6.4 | 1.01 | 25.8 |
| 9873MN | 3 | 0.27 | 6.8 | 1.08 | 27.5 |
| 9882MN | 4 | 0.29 | 7.5 | 1.19 | 30.3 |
| 9884MN | 5 | 0.32 | 8.2 | 1.29 | 32.9 |
| 9874MN | 6 | 0.35 | 9.0 | 1.42 | 36.0 |

22 AWG (19X34)

| 300V • Stranded TC Conductors • Polypropylene (PP) Insulation • Individually Shielded Pairs and Overall Beldfoil® Shield (100% Coverage) • Industrial - Grade PVC Jacket | | | | | |
|--|---|------|-----|------|------|
| 8723MN | 2 | 0.22 | 5.7 | 0.91 | 23.1 |
| 8777MN | 3 | 0.24 | 6.1 | 0.97 | 24.6 |
| 8779MN | 4 | 0.26 | 6.1 | 1.07 | 27.2 |
| 8781MN | 5 | 0.28 | 8.3 | 1.15 | 29.3 |
| 8778MN | 6 | 0.31 | 8.0 | 1.27 | 32.3 |



Enjoy the benefits of
our experience and
innovations.





Control & Instrumentation Paired and Triads Cables

Section Table of Contents

| Control & Instrumentation | Page |
|--|------------|
| Paired and Triads Cables | |
| Overview | 218 |
| Classic Paired Cables | 219 |
| Overview and Selection Guide | 220 |
| Special Audio, Communication and Instrumentation Cables | 228 |
| Audio, Control, and Instrumentation Cables | 230 |
| Overview | 246 |
| EN 50288-7 Instrumentation and Signal Cables | 247 |
| 300/500V Instrumentation and Signal Cables | 247 |
| IEC 60502-1 Instrumentation and Signal Cables | 261 |
| 600/1000V Instrumentation and Signal Cables | 261 |
| IEC 60092-376 Marine Approved Instrumentation and Signal Cables | 265 |
| 150/250V Instrumentation and Signal Cables | 265 |
| UL Instrumentation Cables | 271 |
| 300V Power-Limited Tray Cables | 271 |
| Thermocouple Extension Cable and Thermocouple Wire | 286 |
| 600 V Tray Cables | 289 |
| CSA Instrumentation and Thermocouple Tray Cables | 299 |
| 300V TC/CIC | 299 |
| CSA Instrumentation Cables | 301 |
| 300 V CIC | 301 |
| 300 V ACIC Armored Cables | 303 |
| MarineTuff™ Marine Approved UL Instrumentation Cables | 306 |
| Overview | 306 |
| 600 V Type TC (or MC) Instrumentation Cables | 307 |



Paired and Triads Cables



Belden's Paired and Triads cable line includes a select number of high quality, high-reliability cables that meet or exceed UL standards and have been used worldwide for decades.

Belden's Classic paired cables offer one of the broadest lines of UL Listed, NEC and CEC cables available from any single source. Due to the improved noise immunity of twisted pairs, these designs generally permit higher data speeds than traditional multiconductor cables.

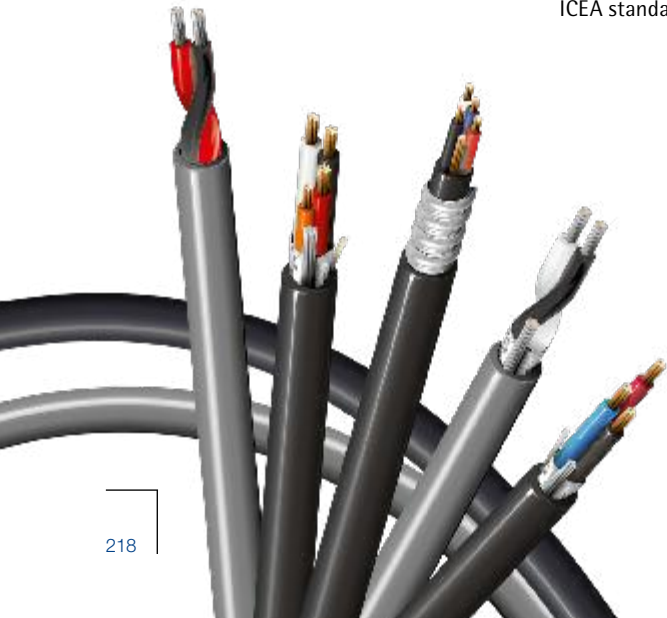
The Belden Instrumentation product line consists of 300 V Power Limited Tray (PLTC) instrumentation cables, thermocouple instrumentation cables, thermocouple extension cables and wire, and 600 V TC instrumentation cables, which comply with ICEA standards, TC-ER and TC-LS ratings.

Product Features

- Cable jackets are resistant to sunlight, moisture and vapor penetration
- Robust designs that meet or exceed UL standards, PLTC-ER, ITC-ER, TC-ER and NFPA rated
- Broad range of AWG sizes, shielding options, and pair counts
- Constructions with PVC/PVC that have three or more conductors and 20 AWG or larger conductors
- Insulation/jacket options to include
 - XLP/PVC
 - PE/PVC
 - XLP/CPE
 - PVC/PVC
 - PVC/CPE
 - XLP/Haloarrest
 - FEP/FEP
 - PVC/FRPVC
 - PE/LSZH
 - PVC/FRLS
 - PE/FRPVC
 - PE/FRLS
 - XLP/FRPVC
 - XLP/FRLS
 - XLP/LSZH
- Armoring capabilities to include steel wire armor (SWA), steel wire braided armor (SWB), interlock or continuous armor and Belclad® corrugated protective metal tapes.

Applications

Belden Classics paired products deliver low voltage analog data signals within enclosures, from controllers and I/Os to devices such as temperature and pressure sensors, relays, valves, meters, actuators, and alarms. They also are applicable for computers, communications, instrumentation, sound, control, audio, data transmission, and many more applications.



Classic Paired Cables

Belden's Classic paired cable line includes a select number of high-quality, high-reliability cables that meet or exceed UL standards and have been used worldwide for decades.

Belden paired products deliver low voltage analog data signals within enclosures, from controllers and I/Os to devices such as temperature and pressure sensors, relays, valves, meters, thermocouples, solenoids, actuators, contacts, push buttons, and alarms. They also are applicable for computers, communications, instrumentation, sound, control, audio, data transmission, and many more applications.

- Unsurpassed quality and reliability
- Robust designs that meet or exceed UL standards
- Proven performance in installations worldwide
- Broad range of AWG sizes, shielding options, and pair counts
- Convenient put-up options
- Polyolefin insulations provide lower capacitance performance when compared to cables

Shielding

Belden meets the demand for highly effective shielding technology with innovative, EMI/RFI-protective foil and braid designs like Beldfoil®. Belden's patented Beldfoil shield is an aluminum/polyester foil construction that yields a lightweight, strong, flexible and thin shield that provides extra insulation and 100% shield coverage. Beldfoil is ideally suited for multiple-pair, individually shielded audio, communication, and data cables.

Product Description

This range of control & power cables include cables which are suitable for 300V all the way upto to 1000V applications. You can now design your own cable by selecting:

- Cable type.
- Conductor material.
- Insulation & Jacket material.
- Flame rating.
- Insulation & Jacket color codes.
- Shielding options.

Product Consistency

By manufacturing our products in ISO-certified, state-of-the-art manufacturing facilities, Belden assures that quality is built into each and every product. Precise diameter control of insulation and jacket diameters and concentric wall thickness assures fast, reliable manufacturing in high-speed automated equipment, and ease of termination and assembly in the field.

Cable Performance Benefits

Belden offers one of the broadest lines of UL Listed, NEC and CEC cables available from any single source. Paired designs allow balanced signal transmission which results in lower crosstalk through common mode rejection. Due to the improved noise immunity of twisted pairs, they generally permit higher data speeds than traditional multiconductor cables.

Find the Right Product for Your Application

Belden Classic products are available from stock from Belden distributors. If the products above do not fit your application, Belden can also engineer specific constructions for your application.

Verticals

Belden control & power cables meet the highest electrical, mechanical & physical requirements which are required in today's fast growing verticals such as:

- Oil & Gas (upstream, midstream & downstream).
- Power (generation, transmission & distribution).
- Auto-manufacturing.
- Machine building.
- Petrochemical complex.
- Mining Industry.
- Manufacturing (Steel, cement, pulp & paper, food & beverage).
- Waste water treatment.
- Intelligent transport & traffic system.
- Wind energy.

Benefits

- Product Consistency – by manufacturing our products in ISO certified, state-of-the-art manufacturing facilities, Belden assures that quality is built into each and every product.
- Product Reliability – even in the harshest of environments – is the hallmark of Belden Instrumentation cables. No matter what type of insulation, conductor count, gauge size, jacket, armor or rating we can meet your needs.

Classic Paired Cables

Paired Computer Cable

| AWG | Overall Beldfoil® | | | Overall Foil/Braid | | | Individual Foil | Individual Foil + Overall Foil/Braid |
|-----|--------------------|------------------------|----------------------------------|--------------------|------------------------|----------------------------------|----------------------------------|--------------------------------------|
| | SR-PVC, PVC, [FEP] | PE | Datalene®, [FFEP] | SR-PVC | PE, PP, [FEP] | Datalene, PE, [FFEP] | Datalene, [FFEP] | Datalene |
| | | 15.5 pF/Ft (50.9 pF/m) | 11.0-13.5 pF/Ft (36.1-44.3 pF/m) | | 15.5 pF/Ft (50.9 pF/m) | 11.0-13.5 pF/Ft (36.1-44.3 pF/m) | 11.0-13.5 pF/Ft (36.1-44.3 pF/m) | 11.0-13.5 pF/Ft (36.1-44.3 pF/m) |
| 28 | — | — | RS-232/485 | — | RS-232/422 | RS-232/485 | — | — |
| 24 | RS-232 [RS-232] | RS-232/422 | RS-232/422 [RS-232/422] | RS-232 | RS-232/423 | RS-232/422 RS-485 [RS-485] | RS-422, DA [RS-232/422, DA] | RS-232/422, DA |
| 22 | — | — | — | RS-232 | POS | — | — | — |

DA = Digital Audio • POS = Point of Sale • [Brackets] = High-Temperature Cables.

Audio, Control, and Instrumentation Cables

| AWG | Unshielded | Overall Beldfoil® | Individual Foil | Overall Braid |
|-----|------------|---------------------------|-----------------|---------------|
| 24 | ACI | — | ACI | — |
| 22 | ACI [ACI] | ACI [ACI] | ACI [ACI] | — |
| 20 | ACI | ACI [Special Hi-Temp ACI] | ACI | — |
| 18 | ACI [ACI] | ACI [ACI] | ACI | ACI |
| 16 | ACI | ACI | — | — |
| 14 | ACI | ACI | — | — |
| 12 | ACI | ACI | — | — |

AIC = Audio, Control, and Instrumentation • DA = Digital Audio • POS = Point of Sale • [Brackets] = High-Temperature Cables.

Classic Paired Cables

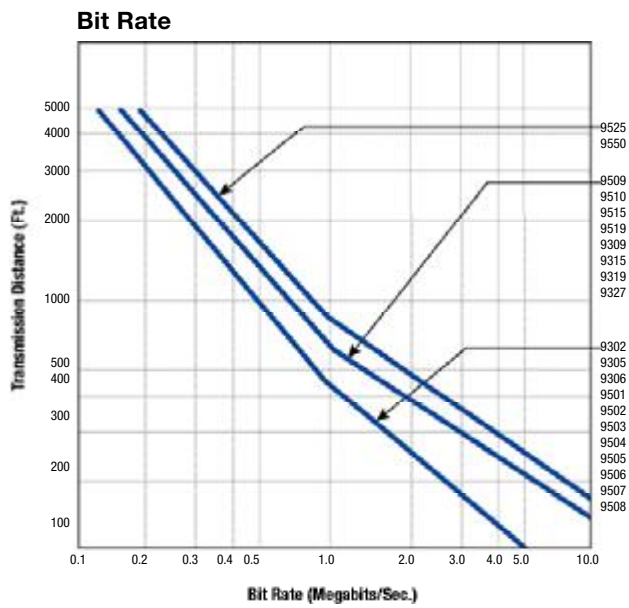
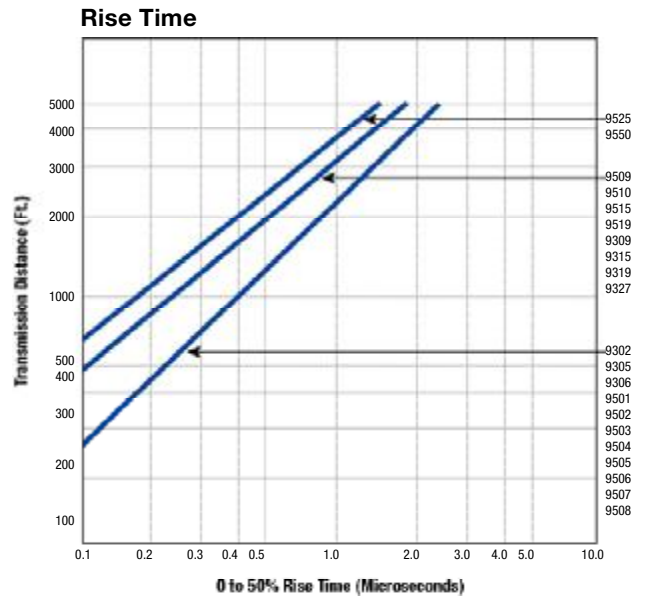
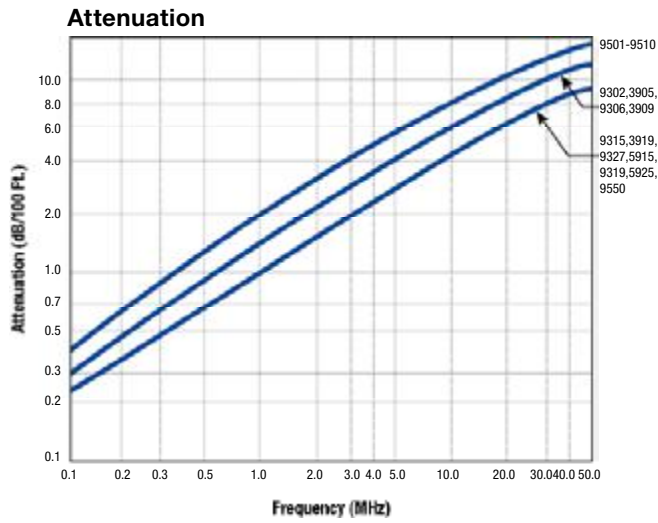
Selection Guide

Shielded Multi-Pair Computer Cables RS-232, RS-422, and RS-485 Applications. All Cables are UL Listed.

| Specifications | 9804 | 8132 | 9829 | 8332 | 9501 | 8102 | 9729 | 8162 | 9990 | 9841 | 9680 | 9302^ | 8302 | 8777 | 9873 | 9773 | 8132F0 | 1419A | |
|------------------------------|---------------------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|------|------|--------|-------|---|
| Conductor Size: (AWG) | 28 | ✓ | ✓ | | | | | | | | | | | | | | | ✓ | |
| | 24 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | ✓ | |
| | 22 | | | | | | | | | | | ✓ | ✓ | ✓ | | | | | |
| | 20 | | | | | | | | | | | | | | ✓ | | | | |
| | 18 | | | | | | | | | | | | | | | ✓ | | | |
| Page No.: | 226 | 226 | 224 | 224 | 219 | 225 | 221 | 229 | 209 | 227 | 220 | 207 | 223 | 211 | 214 | 214 | 220 | 220 | |
| Insulation: | S-R PVC | | | ✓ | ✓ | | | | | | | ✓ | ✓ | ✓ | | | | | |
| | Polyethylene | | | ✓ | | | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | | |
| | Polypropylene | ✓ | | | | | | | | | | | | | | | | | |
| | Datalene® HDPE | | ✓ | | | ✓ | ✓ | ✓ | | | | | | | | | ✓ | ✓ | |
| Shield: | Overall Foil | | | | ✓ | | | | | | ✓ | ✓ | | | | | ✓ | ✓ | |
| | Individual Foil | | | | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | | | |
| | Overall Foil/Braid | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | | ✓ | | | | | | |
| | Braid Coverage | 90% | 65% | 65% | 65% | 65% | | 65% | | 90% | | | 65% | | | | | | |
| Drain Wire: | Overall | • | • | • | x | • | • | □ | □ | □ | • | • | • | | □ | □ | □ | • | • |
| | Each Pair | | | | | | | • | • | • | | | | • | • | • | | | |
| Pairs Available: | 1 | | | | ✓ | | | | | ✓ | | | | | | | | | |
| | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | |
| | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | 4 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | |
| | 5 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | | | ✓ | | | | ✓ | ✓ | |
| | 6 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | 7 | ✓ | | ✓ | ✓ | ✓ | | ✓ | | | | | ✓ | | | | | | |
| | 8 | | ✓ | | ✓ | ✓ | | ✓ | | | | | ✓ | | | | | ✓ | |
| | 9 | ✓ | | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | |
| | 10 | | | ✓ | ✓ | ✓ | | ✓ | | | | | ✓ | | | | | | |
| | 11 | | | | | | ✓ | | | | | | | ✓ | ✓ | | | | |
| | 12 | ✓ | | ✓ | | | ✓ | | ✓ | | | | | ✓ | ✓ | ✓ | | | |
| | 12.5 | | ✓ | | ✓ | ✓ | | ✓ | | ✓ | | | ✓ | | | | ✓ | ✓ | |
| | 13 | ✓ | | | | | | | | | | | | | | | | | |
| | 15 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | v | | ✓ | |
| | 17 | | | | | | ✓ | | | | | | | ✓ | | | | | |
| | 18 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | | | ✓ | | | | ✓ | | |
| | 19 | | | | ✓ | | ✓ | | | | | ✓ | ✓ | | | | | | |
| | 25 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | ✓ | | | | ✓ | | |
| | 27 | | | | | | ✓ | | | | | ✓ | ✓ | | | | | | |
| | 31 | ✓ | | | | | | | | | | | | | | | | | |
| | 37 | | | | | | | | | | | | | ✓ | | | | | |
| | 50 | | | | ✓ | | | | | | | | | | | | | | |
| Capacitance* (pF/Ft) | 15.5 | 11.0 | 15.5 | 30.0 | 30.0 | 12.5 | 12.5 | 12.5 | 25.0 | 12.8 | 15.5 | 35.0 | 35.0 | 30.0 | 30.0 | 30.0 | 11.0 | 13.0 | |
| Capacitance* (pF/m) | 50.9 | 36.1 | 50.9 | 98.4 | 98.4 | 41.0 | 41.0 | 41.0 | 82.0 | 42.0 | 50.9 | 114.8 | 114.8 | 98.4 | 98.4 | 98.4 | 36.1 | 42.7 | |

HDPE = High-Density Polyethylene • PVC = Polyvinyl Chloride

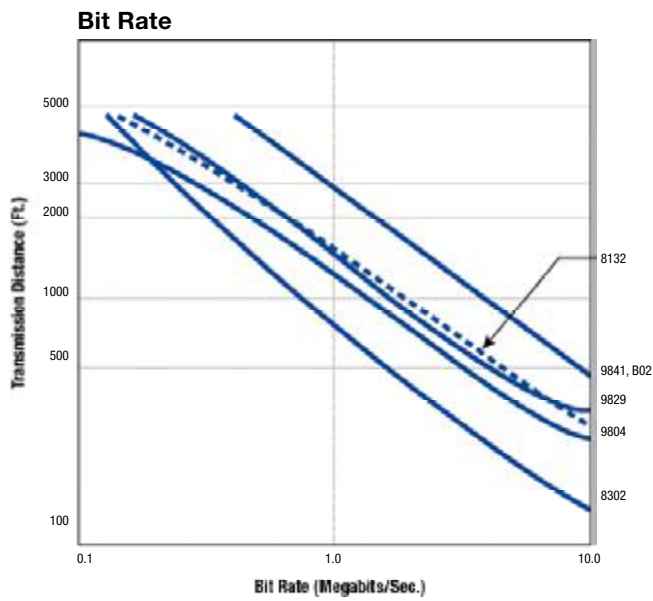
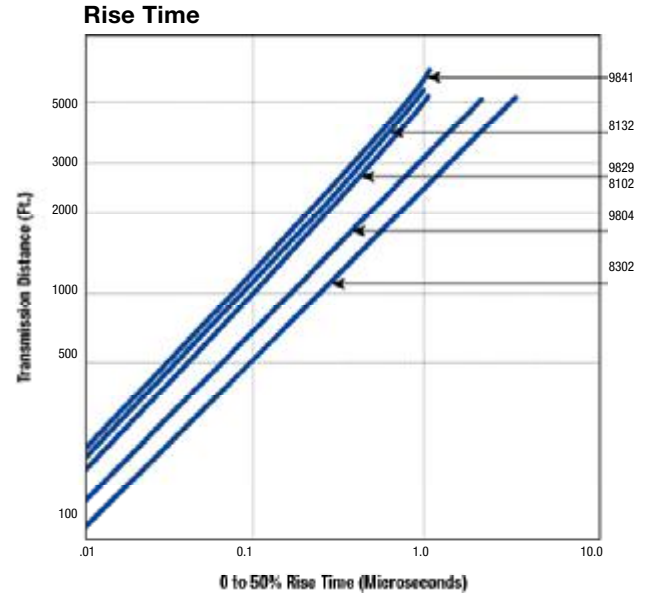
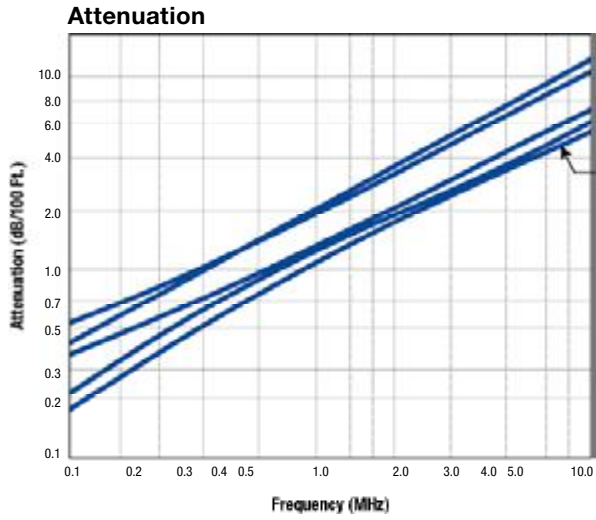
Overall Beldfoil® Shield
Cable Characteristics



Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.

Charts assume 5% peak-to-peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.

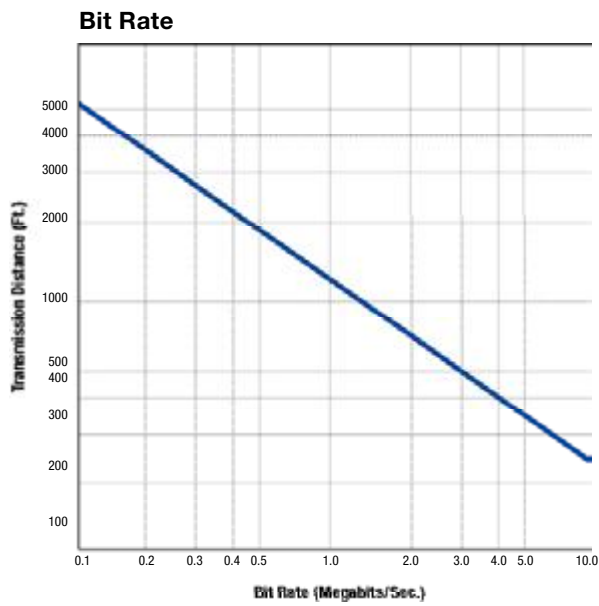
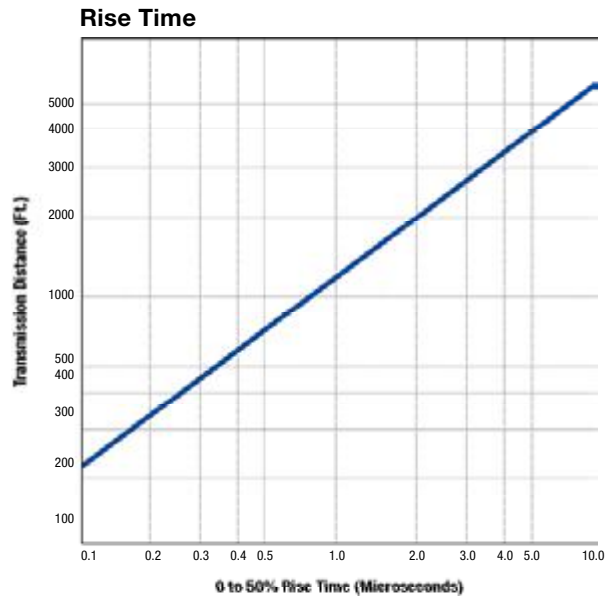
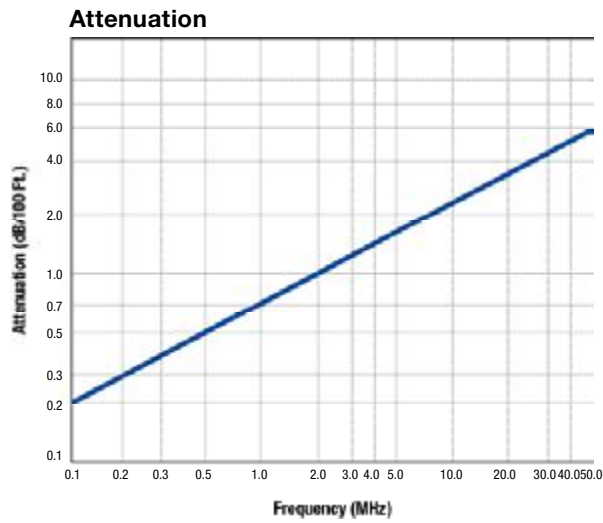
Overall Foil/Braid Shield
Cable Characteristics



Paired and Triads Cables

Individually Shielded

Cable Characteristics (Part No. 9728 – 9738)

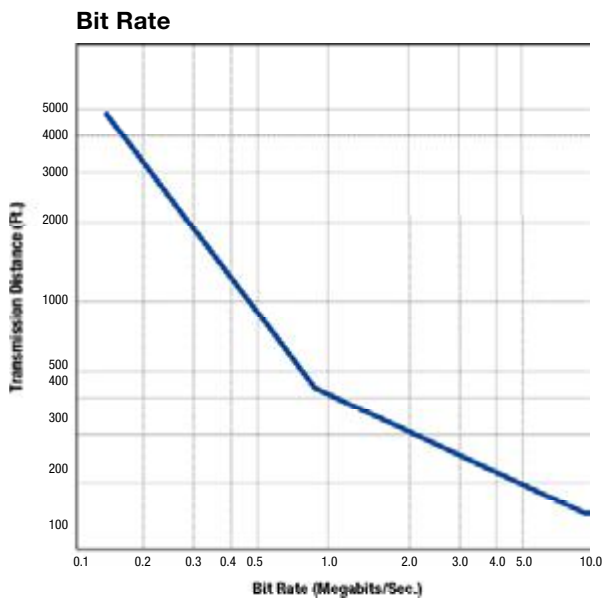
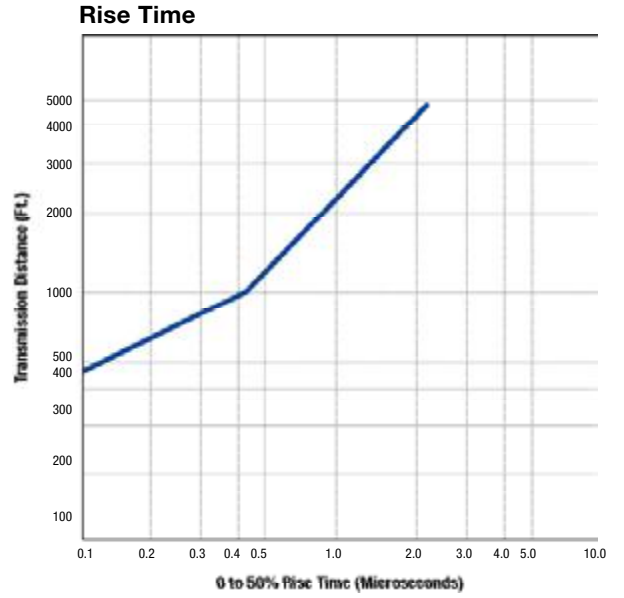
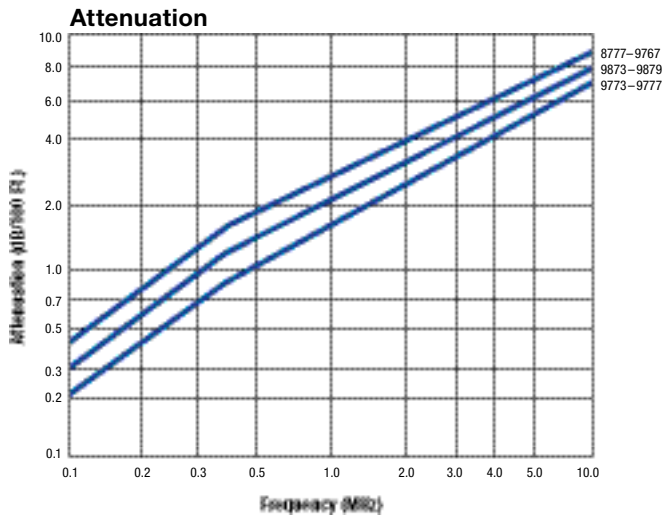


Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.

Charts assume 5% peak-to-peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.

Individually Shielded

Cable Characteristics (Part No. 8777 - 9767, 9873 - 9879, 9773 - 9777)



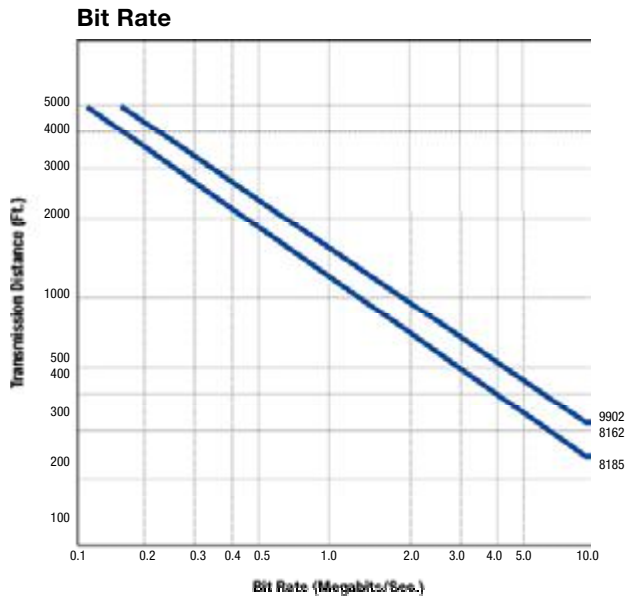
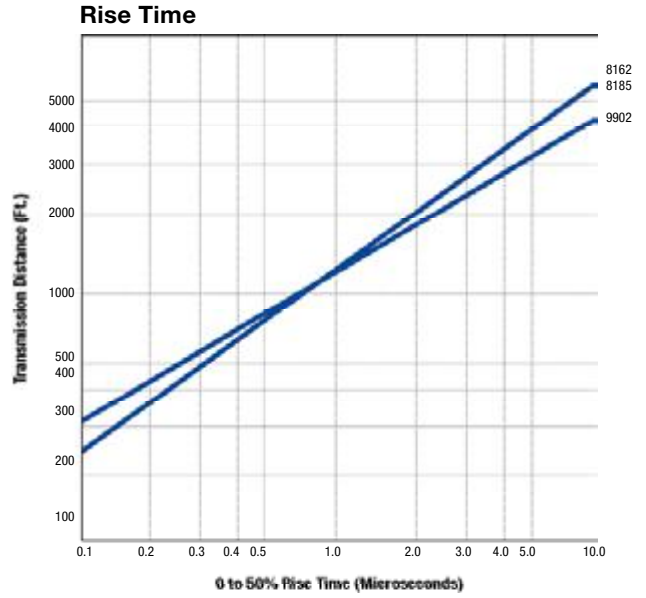
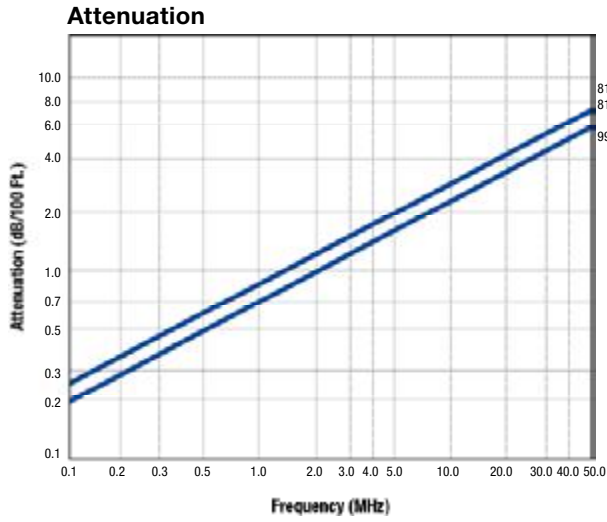
Recommended for audio, pulse, and radio frequency applications requiring superior circuit isolation.

Insulation resistance between shields:
100 megohms/1000' nom.

Capacitance between adjacent shields:
115 pf/ft. nom.

Working voltage between adjacent shields:
50 volts max.

Individually Shielded Pairs with Overall Foil/Braid Shield
Cable Characteristics



Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.

Charts assume 5% peak-to-peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.

Special Audio, Communication and Instrumentation Cables

Combination and Special Shielding



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings | |
|---|-------|------------------------|----------|------|----------------------|-----|------------------|-----|---------------|-------|----------------|-------|--|--|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | | |
| | | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 25 AWG • Polyethylene/PVC | | | | | | | | | | | | | | |
| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Red-Black Pair Individually Shielded + Overall Beldfoil® Shield • 25 AWG TC Drain Wire • Chrome PVC Jacket. 3 Copper, 4 Copper-Covered Steel Strands in Each Conductor • Pairs Cables on Common Axis to Reduce Diameter. | | | | | | | | | | | | | | |
| 8434 | 2 | Black-Red, Green-White | .165 | 4.19 | .013 | .33 | .020 | .51 | 25 | 82 | 49 | 131 | 400 V, +80 °C | |
| 22 AWG • PVC/PVC | | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • PVC Insulation • One Unshielded Single Conductor • One Pair Beldfoil® Shielded • 22 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
| 9685 | 1.5 | Black-White, Brown | .199 | 5.05 | .013 | .33 | .032 | .81 | 60 | 197 | 99 | 325 | NEC: CM Meets NEC Article 800 300 V, +80 °C | |
| 22 AWG • Polypropylene/PVC | | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • One Unshielded Pair • One Beldfoil® Shielded Pair • 24 AWG TC Drain Wire • Chrome PVC Jacket. See Technical Bulletin T/8-21 Before Planning High- And Low-Level Circuits in the Same Cable • Pairs Cables on Common Axis to Reduce Diameter. | | | | | | | | | | | | | | |
| 8730 | 2 | Black-Red, Green-White | .205 | 5.21 | .008 | .20 | .030 | .76 | 34 | 113 | 67 | 220 | 200 V, +80 °C | |
| 8724 | 2 | Black-Red, Green-White | .185 | 4.19 | .008 | .20 | .019 | .48 | 34 | 113 | 67 | 220 | NEC: CM • CEC: CM 300 V, +80 °C •VW-1 | |
| 22 AWG • Polypropylene/PVC | | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • Polyester Film Over Each Shield • 24 AWG TC Drain Wire for Each Pair • Chrome PVC Jacket. Pairs Cables on Common Axis to Reduce Diameter. | | | | | | | | | | | | | | |
| 8728 | 2 | Black-Red, Green-White | .215 | 5.46 | .010 | .25 | .028 | .71 | 35 | 115 | 62 | 203 | NEC: CM • CEC: CM UL AWM Style 2717 (+80 °C) | |

TC = Tinned Copper • PVC = Polyvinyl Chloride

Special Audio, Communication and Instrumentation Cables

Combination and Special Shielding



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

20 AWG • Polyethylene/PVC

Stranded (7 x 28) TC Conductors • Polyethylene Insulation • One Unshielded Single Conductor • One Pair Beldfoil® Shielded • 20 AWG TC Drain Wire • Chrome PVC Jacket

| | | | | | | | | | | | | | |
|------|-----|------------------|------|------|------|-----|------|-----|----|----|----|-----|---------------|
| 8763 | 1.5 | Black-Red, Clear | .210 | 5.33 | .014 | .36 | .028 | .71 | 26 | 85 | 48 | 157 | 350 V, +80 °C |
|------|-----|------------------|------|------|------|-----|------|-----|----|----|----|-----|---------------|

20 AWG • PVC/PVC

Stranded (7 x 28) TC Conductors • PVC Insulation • One Unshielded Pair • One Beldfoil® Shielded Pair • 22 AWG TC Drain Wire • Chrome PVC Jacket. See Technical Bulletin T/8-21 Before Planning High- And Low-Level Circuits in the Same Cable • Pairs Cables on Common Axis to Reduce Diameter.

| | | | | | | | | | | | | | |
|------|---|------------------------|------|------|------|-----|------|-----|----|-----|----|-----|--|
| 8722 | 2 | Black-Red, Green-White | .226 | 5.74 | .015 | .38 | .028 | .71 | 60 | 197 | 99 | 325 | NEC: CMG • CEC: CMG FT4 350 V, +80 °C VW-1 |
|------|---|------------------------|------|------|------|-----|------|-----|----|-----|----|-----|--|

20 AWG • Polypropylene/PVC

Stranded (7 x 28) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs Polyester Film Over Each Shield • 22 AWG TC Drain Wire for Each Pair • Chrome PVC Jacket. See Technical Bulletin T/8-21 Before Planning High- And Low-Level Circuits in the Same Cable • Pairs Cables on Common Axis to Reduce Diameter.

| | | | | | | | | | | | | | |
|------|---|--|------|------|------|-----|------|-----|----|----|----|-----|---|
| 8725 | 4 | Black-Red, Green-White, White/Red-White/Black White/Green-White/Yellow | .345 | 8.76 | .015 | .38 | .030 | .76 | 27 | 89 | 49 | 161 | NEC: CM • CEC: CM 400 V, +105 °C VW-1 |
|------|---|--|------|------|------|-----|------|-----|----|----|----|-----|---|

20 AWG and 18 AWG • Polyethylene/PVC

Stranded (7 x 28 and 16 x 30) TC Conductors • Polyethylene Insulation • Unshielded 18 AWG Pair • Beldfoil® Shielded 20 AWG Pair • 22 AWG Stranded TC Drain Wire • Beige PVC Jacket

| | | | | | | | | | | | | | |
|------|---------------|-------------|------|------|------|-----|------|-----|----|----|----|-----|--|
| 9155 | 1 (20 AWG) | Black-Red | .262 | 6.65 | .020 | .51 | .031 | .79 | 24 | 79 | 46 | 151 | NEC: CM • CEC: CM Meets NEC Article 800 UL AWM Style 2094 (300 V, +60 °C) |
| | 1 (18 AWG) | Green-White | | | .019 | .48 | | | 22 | 72 | | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride

Audio, Control, and Instrumentation Cables

300 V +80 °C • Unshielded



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Additional Features/Ratings |
|--|-------|-------------|----------|-------|----------------------|-----|------------------|------|--|
| | | | Inch | mm | Inch | mm | Inch | mm | |
| Stranded TC or Solid BC Conductors • PVC Insulation • Chrome PVC Jacket | | | | | | | | | |
| 20 AWG • 7 x 28 • PVC/PVC | | | | | | | | | |
| 8205 | 1 | Chart 3 | .180 | 4.57 | .013 | .33 | .025 | .64 | NEC: CMG • CEC: CMG FT4 UL AWM Style 2464 (Except 8205) |
| 9750 | 3 | Chart 3 | .299 | 7.59 | | | | | |
| 9751 | 6 | Chart 3 | .366 | 9.30 | .013 | .33 | .035 | .89 | |
| 9752 | 9 | Chart 3 | .429 | 10.90 | | | | | |
| 9755 | 15 | Chart 3 | .545 | 13.84 | .013 | .33 | .040 | 1.02 | |
| 19 AWG • Solid • PVC/PVC | | | | | | | | | |
| 8486 | 1 | Brown-Tan | .182 | 4.62 | .015 | .38 | .025 | .64 | NEC: CM • CEC: CM |
| 18 AWG • 7 x 26 • PVC/PVC | | | | | | | | | |
| 8461 | 1 | Black-White | .234 | 5.94 | .022 | .56 | .028 | .71 | NEC: CMG • CEC: CMG FT4 |
| 18 AWG • 16 x 30 • PVC/PVC | | | | | | | | | |
| 9740 | 1 | Chart 3 | .210 | 5.33 | .014 | .36 | .032 | .81 | NEC: CMG • CEC: CMG FT4 UL AWM Style 2464 |
| 9156 | 2 | Chart 3 | .333 | 8.46 | .014 | .36 | .035 | .89 | |
| 8690 | 3 | Chart 3 | .347 | 8.81 | | | | | |
| 9157 | 4 | Chart 3 | .381 | 9.68 | | | | | |
| 9159 | 5 | Chart 3 | .391 | 9.93 | .014 | .36 | .032 | .81 | |
| 8691 | 6 | Chart 3 | .433 | 11.00 | | | | | |
| 9161 | 8 | Chart 3 | .485 | 12.32 | .014 | .36 | .037 | .94 | |
| 8692 | 9 | Chart 3 | .524 | 13.31 | .014 | .36 | .040 | 1.02 | |
| 9741 | 12 | Chart 3 | .600 | 15.24 | .014 | .36 | .046 | 1.17 | |
| 9742 | 15 | Chart 3 | .677 | 17.20 | .014 | .36 | .051 | 1.30 | |
| 9743 | 19 | Chart 3 | .721 | 18.31 | .014 | .36 | .055 | 1.40 | |
| 20 AWG • 7 x 28 • PE/LSZH | | | | | | | | | |
| Stranded TC Conductors • PE Insulation • Chrome LSZH Jacket | | | | | | | | | |
| 8205NH | 1 | Chart 3 | .180 | 4.65 | .013 | .33 | .035 | .89 | Flame IEC 60332-3-24, Smoke IEC 6103 |

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

Plenum • 300 V, +80 °C • Unshielded



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Additional Features/Ratings |
|--|-------|-------------|----------|-------|----------------------|-----|------------------|----------|---|
| | | | Inch | mm | Inch | mm | Inch | mm | |
| 16 AWG • 19 x 29 • PVC/PVC | | | | | | | | | |
| Stranded TC Conductors • PVC Insulation • Chrome PVC jacket | | | | | | | | | |
| 8471 | 1 | Black-White | .274 | 6.96 | .023 | .58 | .032 | .81 | NEC: CMG • CEC: CMG FT4 UL AWM Style 2598 |
| 16 AWG • 19 x 29 • PE/LSZH | | | | | | | | | |
| Stranded TC Conductors • PE Insulation • LSZH Jacket | | | | | | | | | |
| 8471NH | 1 | Black-White | .28 | 7.10 | .023 | .58 | .035 | .89 | Flame IEC 60332-3-24, Smoke IEC 6103 |
| 8471LS | 1 | Black-White | .45 | 11.50 | .023 | .58 | .035/.051 | .89/1.30 | Flame IEC 60332-3-24, Smoke IEC 6103 |
| 14 AWG • 42 x 30 • PVC/PVC | | | | | | | | | |
| Stranded TC Conductors • PVC Insulation • Chrome PVC jacket | | | | | | | | | |
| 8473 | 1 | Black-White | .340 | 8.64 | .031 | .79 | .032 | .81 | NEC: CL3 • CEC: FAS 90 FT4 UL AWM Style 2587 |
| 12 AWG • 65 x 32 • PVC/PVC | | | | | | | | | |
| Stranded TC Conductors • PVC Insulation • Chrome PVC jacket | | | | | | | | | |
| 8477 | 1 | Black-White | .386 | 9.80 | .032 | .81 | .035 | .89 | NEC: CL3R UL AWM Style 2587 |

Plenum • 300 V • Unshielded



- NEC: CMP
- CEC: CMP FT6

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | |
|---|-------|------------|----------|------|----------------------|-----|------------------|-----|--|
| | | | Inch | mm | Inch | mm | Inch | mm | |
| 22 AWG • FEP/FEP | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Red FEP Jacket | | | | | | | | | |
| 88442 | 1 | Chart 3 | .102 | 2.59 | .006 | .15 | .012 | .30 | |
| 88741 | 2 | Chart 3 | .169 | 4.29 | | | | | |
| 88757 | 4 | Chart 3 | .200 | 5.08 | | | | | |
| 22 AWG • FEP/Flamarrest® | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Natural Flamarrest Jacket | | | | | | | | | |
| 82442 | 1 | Chart 3 | .112 | 2.84 | .006 | .15 | .014 | .36 | |
| 82741 | 2 | Chart 3 | .179 | 4.55 | | | | | |
| 82742 | 3 | Chart 3 | .191 | 4.85 | | | | | |
| 82757 | 4 | Chart 3 | .210 | 5.33 | | | | | |
| 82743 | 6 | Chart 3 | .238 | 6.05 | | | | | |
| | | | | | | | | | |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

Plenum • 300 V • Unshielded



- NEC: CMP
- CEC: CMP FT6

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

18 AWG • FEP/FEP

| Stranded (19 x 30) TC Conductors • FEP Insulation • Red FEP Jacket | | | | | | | | |
|--|---|-----------|------|------|------|-----|------|-----|
| 89740 | 1 | Black-Red | .136 | 3.45 | .006 | .17 | .009 | .23 |

18 AWG • FEP/Fluorocopolymer

| Plenum • FEP Insulation • Red Fluorocopolymer Jacket | | | | | | | | |
|--|---|-----------|------|------|------|-----|------|-----|
| 87740 | 1 | Black-Red | .140 | 3.56 | .006 | .17 | .011 | .28 |

18 AWG • FEP/Fiamarrest®

| Plenum • FEP Insulation • Natural Fiamarrest Jacket | | | | | | | | |
|---|---|-----------|------|------|------|-----|------|-----|
| 82740 | 1 | Black-Red | .147 | 3.73 | .006 | .17 | .015 | .38 |

150 V, +80 °C • Unshielded



- PVC/PVC
- UL AWM Style 2576
- NEC: CMG
- CEC: CMG FT4

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

| Solid TC Conductors • PVC Insulation • Chrome PVC Jacket | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
|--|--|--|--|--|--|--|--|--|

24 AWG • PVC/PVC

| | | | | | | | | |
|------|----|---------|------|-------|------|-----|------|-----|
| 9562 | 2 | Chart 4 | .199 | 5.05 | .010 | .25 | .032 | .81 |
| 9566 | 6 | Chart 4 | .289 | 7.34 | | | | |
| 9570 | 10 | Chart 4 | .310 | 7.87 | | | | |
| 9585 | 25 | Chart 4 | .480 | 12.19 | | | | |

22 AWG • PVC/PVC

| | | | | | | | | |
|------|---|---------|------|------|------|-----|------|-----|
| 8740 | 1 | Chart 3 | .156 | 3.96 | .010 | .25 | .032 | .81 |
| 8741 | 2 | Chart 3 | .230 | 5.84 | | | | |
| 8742 | 3 | Chart 3 | .242 | 6.15 | | | | |
| 8757 | 4 | Chart 3 | .264 | 6.71 | | | | |
| 8743 | 6 | Chart 3 | .293 | 7.44 | | | | |
| 9160 | 8 | Chart 3 | .323 | 8.20 | | | | |
| 8744 | 9 | Chart 3 | .350 | 8.89 | .010 | .25 | .035 | .89 |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

150 V, +80 °C • Unshielded

- UL AWM Style 2576

- NEC: CMG
- CEC: CMG FT4



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

22 AWG • PVC/PVC

| Stranded (7 x 30) TC Conductors • PVC Insulation • Chrome PVC Jacket | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|------|
| 9744 | 2 | Chart 3 | .244 | 6.20 | | | | |
| 9745 | 3 | Chart 3 | .257 | 6.53 | .010 | .25 | .032 | .81 |
| 9746 | 4 | Chart 3 | .281 | 7.14 | | | | |
| 8747 | 6 | Chart 3 | .320 | 8.13 | .010 | .25 | .035 | .89 |
| 8748 | 9 | Chart 3 | .389 | 9.88 | .010 | .25 | .037 | .94 |
| 9747 | 12 | Chart 3 | .425 | 10.80 | | | | |
| 8749 | 15 | Chart 3 | .440 | 11.18 | .010 | .25 | .040 | 1.02 |
| 9748 | 19 | Chart 3 | .505 | 12.83 | | | | |
| 8750 | 27 | Chart 3 | .575 | 14.61 | .010 | .25 | .045 | 1.14 |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

Overall Beldfoil® Shield



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|--|-------|------------------------|----------|-------|----------------------|-----|------------------|------|---------------|------|----------------|------|---|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 22 AWG • Polypropylene/PVC | | | | | | | | | | | | | |
| Solid TC Conductors • Polypropylene Insulation • Overall Beldfoil® Shield • 22 AWG Solid TC Drain Wire • Gray or Black PVC Insulation | | | | | | | | | | | | | |
| 8450 | 1 | Black-Red | .118 | 3.00 | .007 | .18 | .018 | .46 | 40 | 133 | 76 | 249 | NEC: CM • CEC: CM 300 V, +75 °C |
| 22 AWG • Polypropylene/PVC | | | | | | | | | | | | | |
| Solid TC Conductors • Polypropylene Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Chrome PVC Insulation | | | | | | | | | | | | | |
| 8752 | 38 | Tech Bulletin T/8-4 | .610 | 15.50 | .008 | .20 | .045 | 1.14 | 17 | 56 | 24.3 | 80 | 200 V, +75 °C |
| 22 AWG • SR-PVC/PVC | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Semi-Rigid PVC Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Pale Fawn Beige Striated PVC Jacket | | | | | | | | | | | | | |
| 9414 | 1 | White-Black | .186 | 4.72 | .010 | .25 | .035 | .89 | 50 | 164 | 95 | 312 | NEC: CMG • CEC: CMG FT4 UL AWM Style 2464 (300 V, +80 °C) |
| 22 AWG • PVC/PVC | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • PVC Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
| 9462 | 1 | Black-Red | .186 | 4.72 | .013 | .33 | .035 | .89 | 50 | 164 | 90 | 295 | 200 V, +75 °C |
| 22 AWG • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
| 8761 | 1 | Black-Clear | .175 | 4.45 | .016 | .41 | .025 | .64 | 24 | 79 | 47 | 154 | NEC: CM • CEC: CM UL AWM Style 2092 (300 V, +60 °C) |
| 22 AWG • Polyethylene/LSZH | | | | | | | | | | | | | |
| Stranded (7x30) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shielding • 22 AWG Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | | | | |
| 8761NH | 1 | Black-Clear | .19 | 4.95 | .016 | .41 | .035 | .89 | 24 | 79 | 47 | 154 | Flame IEC 60332-3-24, Smoke IEC 6103 |
| 22 AWG • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Chrome PVC Jacket Jacket and Shield Are Bonded So Both Can Be Removed on Automatic Stripping Equipment. Drain Wire Is Inside Foil Shield. | | | | | | | | | | | | | |
| 9461 | 1 | Black-Clear | .180 | 4.57 | .016 | .41 | .026 | .66 | 24 | 79 | 47 | 154 | NEC: CM • CEC: CM UL AWM Style 2092 (300 V, +60 °C) |
| 22 AWG • Polypropylene/PVC | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Paper Wrap (to Facilitate Stripping) • Gray or Black PVC Jacket Jacket and Shield Are Bonded So Both Can Be Removed on Automatic Stripping Equipment. Drain Wire Is Inside Foil Shield. | | | | | | | | | | | | | |
| 8451 | 1 | Black-Red | .138 | 3.51 | .008 | .20 | .020 | .51 | 34 | 112 | 67 | 220 | NEC: CMR • CEC: CMG 300 V, 75°V |

TC = Tinned Copper • LSZH = Low Smoke Zero Halogen • PVC = Polyvinyl Chloride

Audio, Control, and Instrumentation Cables

Overall Beldfoil® Shield



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|---|-------|------------|----------------|----------------|----------------------|-----|------------------|-----|---------------|------|----------------|------|--|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 22 AWG • Polypropylene/PVC | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • PVC Jacket (Black, Gray, Brown, Red, Orange, Yellow, Green, Blue, Purple, White) | | | | | | | | | | | | | |
| 9451 | 1 | Black-Red | .135 | 3.43 | .008 | .20 | .020 | .51 | 35 | 115 | 67 | 220 | NEC: CMR • CEC: CMG FT4 300 V, +75 °C |
| 22 AWG • Polypropylene/LSZH | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Black LSZH Jacket Jacket and Shield Are Bonded So Both Can Be Removed on Automatic Stripping Equipment. Drain Wire Is Inside Foil Shield. | | | | | | | | | | | | | |
| 9451SB | 1 | Black-Red | .160 | 4.06 | .008 | .20 | .032 | .81 | 35 | 115 | 67 | 220 | NEC: CMG-LS • CEC: CMG-LS FT4 300 V, +105 °C |
| 22 AWG • Polyolefin/PVC | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polyolefin Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • PVC Jacket (Red-Green, Red-Black, Red-Purple, Red-Gray) | | | | | | | | | | | | | |
| 9451D | 2 | Black-Red | .135 x .270 | 3.43 x 6.86 | .008 | .20 | .020 | .51 | 34 | 112 | 67 | 220 | Zipcord Construction NEC: CMR • CEC: CMR FT4 300 V, +60 °C |
| 22 AWG • Polypropylene/PVC | | | | | | | | | | | | | |
| Unique Design Features Lower Capacitance and Greater Flexibility Than Standard Audio Pair Constructions. | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Overall Beldfoil® Shield • 24 AWG Stranded TC Drain Wire • PVC Jacket (Black, Gray, Brown, Red, Orange, Yellow, Green, Blue, Purple, White) | | | | | | | | | | | | | |
| 1266A | 1 | Black-Red | .143 | 3.63 | .010 | .25 | .020 | .51 | 30 | 99 | 54 | 177 | NEC: CM • CEC: CM 300 V |
| 22 AWG • PVC/PVC | | | | | | | | | | | | | |
| Unique Design Features Lower Capacitance and Greater Flexibility Than Standard Audio Pair Constructions. | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • PVC Insulation • Overall Beldfoil® Shield • 24 AWG Stranded TC Drain Wire • PVC Jacket (Black, Gray, Brown, Red, Orange, Yellow, Green, Blue, Purple, White) | | | | | | | | | | | | | |
| 1503A | 1 | Black-Red | .142 | 3.61 | .010 | .25 | .020 | .51 | 53 | 174 | 97 | 318 | NEC: CM • CEC: CM 300 V |
| 22 AWG • PVC/PVC | | | | | | | | | | | | | |
| Stranded (19 x 34) TC Conductors • PVC Insulation • Overall Beldfoil® Shield • 24 AWG Stranded TC Drain Wire • PVC Jacket (Red-Green, Red-Purple, Red-Gray) | | | | | | | | | | | | | |
| 1504A | 2 | Black-Red | .143 x .286 | 3.63 x 7.26 | .010 | .25 | .017 | .43 | 57 | 187 | 100 | 328 | Stereo Audio Cable Zipcord Construction NEC: CM • CEC: CM 150 V |

TC = Tinned Copper • LSZH = Low Smoke Zero Halogen • PVC = Polyvinyl Chloride

Audio, Control, and Instrumentation Cables

Overall Beldfoil® Shield



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|---|-------|------------------------|-------------|-------------|----------------------|-----|------------------|-----|---------------|------|----------------|------|---|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 22 AWG • FEP/Flamarrest® | | | | | | | | | | | | | |
| Stranded (19 x 34) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • White Flamarrest Jacket Jacket and Shield Are Bonded So Both Can Be Removed on Automatic Stripping Equipment. Drain Wire Is Inside Foil Shield. | | | | | | | | | | | | | |
| 9451DP | 2 | Black-Red, Black-White | .127 x .269 | 3.43 x 6.86 | .007 | .18 | .017 | .43 | 35 | 115 | 67 | 220 | Plenum Zipcord Construction NEC: CMP • CEC: CMP FT6 300 V |
| 22 AWG • FEP/Flamarrest® | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Flamarrest Jacket (Black, Gray, Brown, Red, Orange, Yellow, Green, Blue, Purple, White) | | | | | | | | | | | | | |
| 9451P | 1 | Black-Red | .127 | 3.23 | .007 | .18 | .017 | .43 | 35 | 115 | 67 | 220 | NEC: CMP • CEC: CMP FT6 |
| 22 AWG • FEP/Flamarrest® | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | | | | |
| 82761 | 1 | Black-Red | .116 | 2.95 | .006 | .15 | .014 | .36 | 35 | 115 | 67 | 220 | NEC: CMP • CEC: CMP FT6 |
| 22 AWG • FEP/FEP | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Red FEP Jacket | | | | | | | | | | | | | |
| 88761 | 1 | Black-Red | .119 | 3.02 | .006 | .15 | .014 | .36 | 35 | 115 | 67 | 220 | NEC: CMP • CEC: CMP FT6 |
| 22 AWG • FEP/Fluorocopolymer | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Red Fluorocopolymer Jacket | | | | | | | | | | | | | |
| 87761 | 1 | Black-Red | .116 | 2.95 | .006 | .15 | .014 | .36 | 35 | 115 | 67 | 220 | NEC: CMP • CEC: CMP FT6 |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene

Audio, Control, and Instrumentation Cables

Overall Beldfoil® Shield



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|---|-------|-------------|----------|-------|----------------------|-----|------------------|--------------|---------------|------|----------------|------|---|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 20 AWG • PVC/PVC | | | | | | | | | | | | | |
| Stranded (7 x 28) TC Conductors • PVC Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Beige PVC Jacket | | | | | | | | | | | | | |
| 9154 | 1 | Black, Red | .198 | 5.03 | .014 | .36 | .031 | .79 | | | | | NEC: CMG • CEC: CMG FT4 UL AWM Style 2464 (300 V, +80 °C) |
| 20 AWG • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded (7 x 28) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 20 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
| 8762 | 1 | Black-Clear | .204 | 5.18 | .016 | .41 | .028 | .71 | 27 | 89 | 49 | 161 | NEC: CM • CEC: CM UL AWM Style 2092 (300 V, +60 °C) |
| 20 AWG • Polyethylene/LSZH | | | | | | | | | | | | | |
| Stranded (7 x 28) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shielding • 20 AWG Stranded TC Drain • Wire Chrome LSZH Jacket | | | | | | | | | | | | | |
| 8762NH | 1 | Black-Clear | .21 | 5.40 | .016 | .41 | .035 | .89 | 27 | 89 | 49 | 161 | Flame IEC 60332-3-24, Smoke IEC 6103 |
| 18 AWG • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded (19 x 30) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 20 AWG TC Drain Wire Chrome PVC Jacket | | | | | | | | | | | | | |
| 8760 | 1 | Black-Clear | .222 | 5.64 | .019 | .48 | .028 | .71 | 24 | 79 | 44 | 144 | NEC: CM • CEC: CM UL AWM Style 2092 (300 V, +60 °C) |
| 18 AWG • Polyethylene/LSZH | | | | | | | | | | | | | |
| Stranded (19 x 30) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 20 AWG Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | | | | |
| 8760NH | 1 | Black-Clear | .24 | 6.00 | .016 | .41 | .035 | .89 | 30 | 98 | 44 | 144 | Flame IEC 60332-3-24, Smoke IEC 6103 |
| 8760LS | 1 | Black-Clear | .41 | 10.40 | .016 | .41 | .035/ .051 | .89/ 1.30 | 30 | 98 | 44 | 144 | Flame IEC 60332-3-24, Smoke IEC 6103 Steel Wire Armor |
| 18 AWG • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded (19 x 30) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 20 AWG TC Drain Wire • Chrome PVC Jacket Jacket and Shield Are Bonded So Both Can Be Removed on Automatic Stripping Equipment. Drain Wire Is Inside Foil Shield. | | | | | | | | | | | | | |
| 9460 | 1 | Black-Clear | .230 | 5.84 | .019 | .48 | .030 | .76 | 24 | 79 | 44 | 144 | NEC: CM • CEC: CM UL AWM Style 2092 (300 V, +60 °C) |
| 18 AWG • FEP/FEP | | | | | | | | | | | | | |
| Stranded (19 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 20 AWG TC Drain Wire • Red FEP Jacket | | | | | | | | | | | | | |
| 88760 | 1 | Black-Red | .150 | 3.81 | .007 | .18 | .014 | .36 | 51 | 167 | 97 | 318 | NEC: CMP • CEC: CMP FT6 300 V |
| 18 AWG • FEP/Fluorocopolymer | | | | | | | | | | | | | |
| Stranded (19 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 20 AWG TC Drain Wire • Red Fluorocopolymer Jacket | | | | | | | | | | | | | |
| 87760 | 1 | Black-Red | .150 | 3.81 | .007 | .18 | .014 | .36 | 51 | 167 | 97 | 318 | NEC: CMP • CEC: CMP FT6 300 V |
| 18 AWG • FEP/Flamarrest® | | | | | | | | | | | | | |
| Stranded (19 x 30) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 20 AWG TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | | | | |
| 82760 | 1 | Black-Red | .150 | 3.81 | .007 | .18 | .014 | .36 | 51 | 167 | 97 | 318 | NEC: CMP • CEC: CMP FT6 300 V |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride

Audio, Control, and Instrumentation Cables

Overall Beldfoil® Shield



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|---|-------|-------------|----------|-------|----------------------|-----|------------------|------|---------------|------|----------------|------|---|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 16 AWG • 19 x 29 • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 18 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
| 8719 | 1 | Black-Clear | .313 | 7.95 | .032 | .81 | .032 | .81 | 23 | 75 | 44 | 144 | NEC: CM, CL2 • CEC: CM UL AWM Style 20253 (600 V, +80 °C) |
| 16 AWG • 19 x 29 • Polyethylene/LSZH | | | | | | | | | | | | | |
| Stranded TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 18 AWG Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | | | | |
| 8719NH | 1 | Black-Clear | .32 | 8.10 | .032 | .81 | .030 | .75 | 23 | 75 | 44 | 144 | Flame IEC 60332-3-24, Smoke IEC 6103 |
| 14 AWG • 19 x 27 • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 18 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
| 8720 | 1 | Black-Clear | .355 | 9.02 | .032 | .81 | .035 | .89 | 24 | 79 | 47 | 154 | NEC: CM, CL2 UL AWM Style 20253 (600 V, +80 °C) |
| 12 AWG • 19 x 25 • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 18 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
| 8718 | 1 | Black-Clear | .400 | 10.16 | .037 | .94 | .040 | 1.02 | 25 | 82 | 49 | 161 | NEC: CL2 C(UL) AWM II A UL AWM Style 20253 (600 V, +80 °C) |

TC = Tinned Copper • PVC = Polyvinyl Chloride

Audio, Control, and Instrumentation Cables

300 V, +60 °C • Overall Beldfoil® Shield



- NEC: CMG
- CEC: CMG FT4

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • PVC/PVC

| Solid TC Conductors • PVC Insulation • Overall Beldfoil® Shield • 22 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|------|------|----|-----|------|-----|-----------------------------------|---------------|
| 9302 | 2 | Chart 3 | .244 | 6.20 | | | | | | | | | | |
| 9305 | 4 | Chart 3 | .265 | 6.73 | .013 | .33 | .032 | .81 | | | | | | |
| 9306 | 6 | Chart 3 | .315 | 8.00 | | | | | | | | | | |
| 9309 | 9 | Chart 3 | .363 | 9.22 | .013 | .33 | .033 | .84 | 35 | 115 | 50 | 164 | AWM Style 2464 (300 V, +80 °C) | |
| 9315 | 15 | Chart 3 | .449 | 11.41 | .013 | .33 | .037 | .94 | | | | | | |
| 9319 | 19 | Chart 3 | .495 | 12.57 | .013 | .33 | .040 | 1.02 | | | | | | |
| 9327 | 27 | Chart 3 | .615 | 15.62 | .013 | .33 | .045 | 1.14 | | | | | | |
| 8751 | 51 | Note 1 | .710 | 18.03 | .013 | .33 | .050 | 1.27 | 30 | 98 | 42.8 | 140 | | 300 V, +60 °C |

Note 1: See Tech Bulletin T/8-4.

300 V • Overall Duofoil® Shield



- NEC: CM
- CEC: CM

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • Datalene®/PVC

| Solid TC Conductors • Datalene Insulation • Overall Duofoil Shielding • 22 AWG Stranded TC Drain Wire • Black PVC Jacket | | | | | | | | | | | | | |
|--|---|---------------------------|------|------|------|-----|------|------|-----|------|------|------|--|
| 9184 | 2 | Black-Yellow, Red-Blue | .385 | 9.78 | .035 | .89 | .041 | 1.03 | 8.7 | 25.5 | 14.1 | 46.3 | 150 Ω Nom. Impedance 78% Velocity of Prop. Conductor DCR (Nom): 16.5/1000' (54.13 Ω/km) |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

300 V, +80 °C • Overall Beldfoil® Shield • Plenum and Non-Plenum



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|---|-------|-------------|----------|------|----------------------|-----|------------------|-----|---------------|------|----------------|------|---|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 24 AWG • Polyolefin/PVC | | | | | | | | | | | | | |
| Stranded (7 x 32) TC Conductors • Polyolefin Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Matte Black PVC Jacket | | | | | | | | | | | | | |
| 1508A | 1 | Black-Red | .131 | 3.33 | .008 | .20 | .024 | .61 | 31 | 102 | 58 | 190 | NEC: CM |
| 24 AWG • Polypropylene/PVC | | | | | | | | | | | | | |
| Stranded (7 x 32) TC Conductors • Polypropylene Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • PVC Jacket (Gray, Brown, Red, Green, Light Blue, Purple, White, or Black). Jacket and Shield Are Bonded So Both Can Be Removed With Automatic Stripping Equipment. For Cross-Connect Use With 1408R Snake Cables. | | | | | | | | | | | | | |
| 1883A | 1 | Black-Red | .123 | 3.12 | .008 | .29 | .020 | .51 | 31 | 102 | 58 | 190 | NEC: CMR • CEC: CMR FT4 |
| 24 AWG • Polyethylene/PVC | | | | | | | | | | | | | |
| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
| 8641 | 1 | Black-Clear | .168 | 4.27 | .016 | .41 | .025 | .64 | 22 | 72 | 42 | 138 | NEC: CM • CEC: CM AWM Style 2092 |
| 24 AWG • FEP/FEP | | | | | | | | | | | | | |
| Stranded (7 x 32) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Red FEP Jacket | | | | | | | | | | | | | |
| 88641 | 1 | Black-Red | .106 | 2.69 | .006 | .15 | .014 | .36 | 31 | 102 | 59 | 194 | Plenum • Non-Conduit NEC: CMP • CEC: CMP FT6 |
| 24 AWG • FEP/Flamarrest® | | | | | | | | | | | | | |
| Stranded (7 x 32) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Red Flamarrest Jacket | | | | | | | | | | | | | |
| 82641 | 1 | Black-Red | .106 | 2.69 | .006 | .15 | .014 | .36 | 31 | 102 | 59 | 194 | Plenum • Non-Conduit NEC: CMP • CEC: CMP FT6 |

High-Temperature • 300 V, +150 °C • Overall Beldfoil® Shield



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|--|-------|------------|----------|-------|----------------------|-----|------------------|-----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 20 AWG • ETFE/ETFE | | | | | | | | | | | | | |
| Stranded (7 x 28) TC Conductors • ETFE Insulation Overall Beldfoil® Shield • 22 AWG TC Drain Wire • Clear ETFE Jacket | | | | | | | | | | | | | |
| 85164 | 4 | Chart 3 | .344 | 8.74 | .015 | .38 | .025 | .64 | 23 | 75 | 40 | 111 | VW-1 |
| 85168 | 8 | Chart 3 | .439 | 11.15 | | | | | | | | | |

TC = Tinned Copper • ETFE = Ethylene/TFE = Tetrafluoroethylene • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

Individually Shielded Pairs



- NEC: CM
- CEC: CM

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • Polyethylene/PVC

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Individually Beldfoil® Shielded Pairs • 24 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|------|----|----|----|-----|--|---|
| 9990 | 3 | Chart 3 | .255 | 6.48 | | | | | | | | | | UL AWM Style 2919 (30 V, +80 °C) 60 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 9991 | 6 | Chart 3 | .330 | 8.38 | | | | | | | | | | |
| 9992 | 9 | Chart 3 | .383 | 9.73 | .011 | .28 | .035 | .89 | 25 | 82 | 47 | 154 | | |
| 9993 | 12 | Chart 3 | .428 | 10.87 | | | | | | | | | | |
| 9995 | 25 | Chart 3 | .636 | 16.15 | .011 | .28 | .052 | 1.32 | | | | | | |

Individually Shielded Pairs



- NEC: MPG, CMG
- CEC: MPG, CMG FT4

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • Polyethylene/PVC

| Solid TC Conductors • Polyethylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|------|----|-----|----|-----|--|--------------------------------------|
| 8767 | 3 | Chart 3 | .279 | 7.10 | .013 | .33 | .037 | .94 | | | | | | UL AWM Style 2464 (300 V, +80 °C) |
| 8768 | 6 | Chart 3 | .379 | 9.60 | .013 | .33 | .037 | .94 | | | | | | |
| 8764 | 9 | Chart 3 | .425 | 10.80 | .013 | .33 | .040 | 1.02 | 40 | 131 | 77 | 253 | | |
| 8766 | 15 | Chart 3 | .525 | 13.30 | .013 | .33 | .045 | 1.14 | | | | | | |

TC = Tinned Copper • ETFE = Ethylene/TFE = Tetrafluoroethylene • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

Individually Shielded Pairs • RS-485



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • SR-PVC/PVC

| Stranded (7 x 30) TC Conductors • PVC Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Pale Fawn Beige PVC Jacket • Pairs Parallel Under Jacket | | | | | | | | | | | | | |
|--|---|-----------------------------|-------------|-------------|------|-----|------|-----|----|-----|------|-----|---|
| 9406 | 2 | Black-White Black-Yellow | .173 x .280 | 4.39 x 7.11 | .011 | .28 | .033 | .84 | 50 | 164 | 95.5 | 312 | NEC: CMG • CEC: CMG FT4 UL AWM Style 2464 (300 V, +80 °C) 50 Ω Nom. Impedance 60% Velocity of Prop. Conductor DCR (Nom): 15.0 Ω/1000' (49.2 Ω/km) |

22 AWG • Polypropylene/PVC

| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Chrome PVC Jacket • Pairs Cabled on a Common Axis to Reduce Diameter | | | | | | | | | | | | | |
|--|---|--------------------------|------|------|------|-----|------|-----|----|-----|----|-----|--|
| 8723 | 2 | Black-Red Green-White | .160 | 4.06 | .009 | .22 | .020 | .51 | 35 | 115 | 62 | 203 | NEC: CM • CEC: CM 300 V, +60 °C 45 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |

22 AWG • Polypropylene/LSZH

| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Black LSZH Jacket • Pairs Cabled on a Common Axis to Reduce Diameter | | | | | | | | | | | | | |
|--|---|--------------------------|------|------|------|-----|------|-----|----|-----|----|-----|--|
| 8723SB | 2 | Black-Red Green-White | .196 | 4.98 | .009 | .22 | .034 | .86 | 35 | 115 | 62 | 203 | NEC: CMG-LS • CEC: CMG- LS FT4 Limited Smoke 300 V, +60 °C 45 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |

22 AWG • Polypropylene/LSZH

| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Chrome LSZH Jacket • Pairs Cabled on Common Axis to Reduce Diameter | | | | | | | | | | | | | |
|---|---|--------------------------|------|------|------|-----|---------------|--------------|----|----|----|-----|--|
| 8723NH | 2 | Black-Red Green-White | .180 | 4.55 | .009 | .22 | .026 | .65 | 17 | 55 | 35 | 115 | Flame IEC 60332-3-24, Smoke IEC 6103, 45 Ω Nim. Impedance, 65% Velocity of Prop., Conductor DCR (Nom): 14.7 Ω/100' (48.2 Ω/km) |
| 8723LS | 2 | Black-Red Green-White | .350 | 8.80 | .009 | .22 | .026/ .049 | .65/ 1.25 | 17 | 55 | 35 | 115 | Flame IEC 60332-3-24, Smoke IEC 6103, 45 Ω Nim. Impedance, 65% Velocity of Prop., Conductor DCR (Nom): 14.7 Ω/100' (48.2 Ω/km) Steel Wire Armor |

TC = Tinned Copper • LSZH = Low Smoke Zero Halogen • PVC = Polyvinyl Chloride

Audio, Control, and Instrumentation Cables

Individually Shielded Pairs • RS-485



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • Polypropylene/PVC

| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|------|------|----|----|----|-----|--|--|
| 8777 | 3 | Chart 3 | .273 | 6.93 | | | | | | | | | | |
| 8778 | 6 | Chart 3 | .362 | 9.19 | .011 | .28 | .034 | .86 | | | | | | |
| 8774 | 9 | Chart 3 | .417 | 10.59 | | | | | | | | | | |
| 8775 | 11 | Chart 3 | .464 | 11.79 | .011 | .28 | .036 | .91 | | | | | | |
| 9768 | 12 | Chart 3 | .464 | 11.79 | | | | | 30 | 98 | 55 | 180 | | |
| 8776 | 15 | Chart 3 | .548 | 13.92 | .011 | .28 | .052 | 1.32 | | | | | | |
| 9769 | 17 | Chart 3 | .577 | 14.66 | | | | | | | | | | |
| 8769 | 19 | Chart 3 | .603 | 15.32 | .011 | .28 | .064 | 1.63 | | | | | | |
| 8773 | 27 | Chart 3 | .709 | 18.00 | | | | | | | | | | |
| 9767 | 37 | Chart 3 | .800 | 20.32 | .011 | .28 | .069 | 1.75 | | | | | | |

NEC: CM • CEC: CM
UL AWM Style 2919 (30 V, +80 °C)
50 Ω Nom. Impedance
66% Velocity of Prop.
Conductor DCR (Nom): 15.0 Ω/1000' (49.2 Ω/km)

22 AWG • Polypropylene/LSZH

| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • LSZH Jacket | | | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|----|----|----|-----|--|--|
| 8777SB | 3 | Chart 3 | .273 | 6.93 | .010 | .25 | .034 | .86 | 30 | 98 | 55 | 180 | | |

NEC: CMG-LS • CEC: CMG-LS
50 Ω Nom. Impedance
66% Velocity of Prop.
Conductor DCR (Nom): 15.0 Ω/1000' (49.2 Ω/km)

22 AWG • Polypropylene/LSZH

| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | | | | | |
|---|---|---------|------|-------|------|-----|---------------|--------------|----|----|----|-----|--|---|
| 8777NH | 3 | Chart 3 | .280 | 7.00 | .011 | .28 | .035 | .89 | 30 | 98 | 55 | 180 | | Flame IEC 60332-3-24, Smoke IEC 6103, 50 Ω Nom. Impedance, 66% Velocity of Prop., Conductor DCR (Nom): 15.0 Ω/1000' (49.2 Ω/km) |
| 8777LS | 3 | Chart 3 | .450 | 11.50 | .011 | .28 | .035/ .053 | .89/ 1.35 | 30 | 98 | 55 | 180 | | Flame IEC 60332-3-24, Smoke IEC 6103, 50 Ω Nom. Impedance, 66% Velocity of Prop., Conductor DCR (Nom): 15.0 Ω/1000' (49.2 Ω/km) Steel Wire Armor |
| 8778NH | 6 | Chart 3 | .370 | 9.50 | .011 | .28 | .035 | .89 | 30 | 98 | 55 | 180 | | Flame IEC 60332-3-24, Smoke IEC 6103, 50 Ω Nom. Impedance, 66% Velocity of Prop., Conductor DCR (Nom): 15.0 Ω/1000' (49.2 Ω/km) |
| 8778LS | 6 | Chart 3 | .550 | 13.90 | .011 | .28 | .035/ .053 | .89/ 1.35 | 30 | 98 | 55 | 180 | | Flame IEC 60332-3-24, Smoke IEC 6103, 50 Ω Nom. Impedance, 66% Velocity of Prop., Conductor DCR (Nom): 15.0 Ω/1000' (49.2 Ω/km) Steel Wire Armor |

TC = Tinned Copper • LSZH = Low Smoke Zero Halogen • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

Individually Shielded Pairs • RS-485



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|---|-------|--------------------------|----------|------|----------------------|-----|------------------|-----|---------------|------|----------------|------|--|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |
| 22 AWG • FEP/Flamarrest® | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Individually Beldfoil® Shielded Pairs • 24 AWG TC Drain Wire • Natural Flamarrest Jacket Pairs Cabled on a Common Axis to Reduce Diameter. | | | | | | | | | | | | | |
| 82723 | 2 | Black-Red Green-White | .153 | 3.89 | .007 | .18 | .017 | .43 | 43 | 141 | 75 | 246 | Plenum • Non-Conduit NEC: CMP • CEC: CMP FT6 300 V 45 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |
| 22 AWG • FEP/FEP | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Individually Beldfoil® Shielded Pairs • 24 AWG TC Drain Wire • Red FEP Jacket Pairs Cabled on a Common Axis to Reduce Diameter. | | | | | | | | | | | | | |
| 88723 | 2 | Black-Red Green-White | .148 | 3.76 | .007 | .18 | .014 | .36 | 35 | 115 | 67 | 220 | Plenum • Non-Conduit NEC: CMP • CEC: CMP FT6 300 V 45 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |
| 22 AWG • FEP/Fluorocopolymer | | | | | | | | | | | | | |
| Stranded (7 x 30) TC Conductors • FEP Insulation • Individually Beldfoil® Shielded Pairs • 24 AWG TC Drain Wire • Red Fluorocopolymer Jacket Pairs Cabled on a Common Axis to Reduce Diameter. | | | | | | | | | | | | | |
| 87723 | 2 | Black-Red Green-White | .148 | 3.76 | .007 | .18 | .014 | .36 | 35 | 115 | 67 | 220 | Plenum • Non-Conduit NEC: CMP • CEC: CMP FT6 300 V 45 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene

Audio, Control, and Instrumentation Cables

Individually Shielded Pairs • Plenum



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • FEP/Flamarrest®

| Stranded (7 x 30) TC Conductors • FEP Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|----|-----|----|-----|---|
| 82777 | 3 | Chart 3 | .237 | 6.02 | | | | | | | | | Plenum NEC: CMP • CEC: CMP FT6 46 Ω Nom. Impedance 62% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |
| | | | | | .011 | .28 | .017 | .43 | 35 | 115 | 76 | 249 | |
| 82778 | 6 | Chart 3 | 3.14 | 7.98 | | | | | | | | | |

22 AWG • FEP/FEP

| Stranded (7 x 30) TC Conductors • FEP Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Red FEP Jacket | | | | | | | | | | | | | |
|--|---|---------|------|------|------|-----|------|-----|----|-----|----|-----|---|
| 88777 | 3 | Chart 3 | .234 | 5.94 | | | | | | | | | Plenum NEC: CMP • CEC: CMP FT6 50 Ω Nom. Impedance 62% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |
| | | | | | .010 | .25 | .014 | .36 | 31 | 102 | 67 | 220 | |
| 88778 | 6 | Chart 3 | .309 | 7.85 | | | | | | | | | |

22 AWG • FEP/Fluorocopolymer

| Stranded (7 x 30) TC Conductors • FEP Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Red Fluorocopolymer Jacket | | | | | | | | | | | | | |
|--|---|---------|------|------|------|-----|------|-----|----|-----|----|-----|---|
| 87777 | 3 | Chart 3 | .234 | 5.94 | | | | | | | | | Plenum NEC: CMP • CEC: CMP FT6 46 Ω Nom. Impedance 50% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |
| | | | | | .010 | .25 | .014 | .36 | 31 | 102 | 67 | 220 | |
| 87778 | 6 | Chart 3 | .309 | 7.85 | | | | | | | | | |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene | Belden Color Code Charts can be found at page 560.

Audio, Control, and Instrumentation Cables

Individually Shielded Pairs



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

20 AWG • SR-PVC/PVC

| Stranded (7 x 28) TC Conductors • Semi-Rigid PVC Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
|--|---|---------------------------|------|------|------|-----|------|------|----|-----|----|-----|---|
| 9402 | 2 | Black-Red, Green-White | .300 | 7.62 | .010 | .25 | .041 | 1.04 | 55 | 180 | 95 | 312 | NEC: CMG • CEC: CMG FT4 UL AWM Style 2464 (300 V, +80 °C) |

20 AWG • Polypropylene/Polyethylene

| Stranded (10 x 32) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Black High-Density Polyethylene Jacket | | | | | | | | | | | | | |
|---|---|---------|------|-------|------|-----|------|------|----|----|----|-----|--|
| 9883 | 3 | Chart 3 | .340 | 8.64 | .013 | .33 | .040 | 1.02 | 30 | 98 | 55 | 180 | NEC: CMG • CEC: CMP FT4 350 V 50 Ω Nom. Impedance 66% Velocity of Prop Conductor DCR (Nom): 6.4 Ω/1000' (21.0 Ω/km) |
| 9886 | 6 | Chart 3 | .455 | 11.56 | .013 | .33 | .045 | 1.14 | | | | | |

20 AWG • Polypropylene/PVC

| Stranded (7 x 28) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|------|-----|----|----|----|-----|---|
| 9873 | 3 | Chart 3 | .341 | 8.66 | .015 | .38 | .035 | .89 | 30 | 98 | 55 | 180 | NEC: CM • CEC: CM UL AWM Style 2919 (30 V, +80 °C) 50 Ω Nom. Impedance 66% Velocity of Prop Conductor DCR (Nom): 10.5 Ω/1000' (34.4 Ω/km) |
| 9874 | 6 | Chart 3 | .445 | 11.30 | | | | | | | | | |
| 9875 | 9 | Chart 3 | .555 | 14.10 | | | | | | | | | |
| 9876 | 11 | Chart 3 | .600 | 15.24 | | | | | | | | | |
| 9877 | 12 | Chart 3 | .617 | 15.67 | | | | | | | | | |
| 9879 | 15 | Chart 3 | .689 | 17.50 | | | | | | | | | |

18 AWG • Polypropylene/PVC

| Stranded (19 x 30) TC Conductors • Polypropylene Insulation • Individually Beldfoil® Shielded Pairs • 20 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|-----|----|----|----|-----|---|
| 9773 | 3 | Chart 3 | .404 | 10.26 | .019 | .48 | .035 | .89 | 30 | 98 | 55 | 180 | NEC: CM • CEC: CM UL AWM Style 2919 (30 V, +80 °C) 50 Ω Nom. Impedance 66% Velocity of Prop Conductor DCR (Nom): 10.5 Ω/1000' (34.4 Ω/km) |
| 9774 | 6 | Chart 3 | .560 | 14.22 | | | | | | | | | |
| 9775 | 9 | Chart 3 | .655 | 16.64 | | | | | | | | | |
| 9776 | 12 | Chart 3 | .735 | 18.67 | | | | | | | | | |
| 9777 | 15 | Chart 3 | .819 | 20.80 | | | | | | | | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Instrumentation and Signal, Paired and Triads Cables



Reliability- even in the harshest of environments- is the hallmark of Belden® control & power cables. No matter what type of insulation, conductor count & size, jacket, armor or standard we can meet your needs.

Cable Standards

- EN 50288-7
- IEC 60502-1
- IEC 60092-376

Full Range Of Choice

Belden offers a full range of control & power cables based on international standards to ensure that your critical application needs are addressed. These cables are designed in metric conductor sizes, have the most suitable insulation material to ensure the key electrical performance, steel wire armoring option & variety of jacketing materials to meet the rigorous installation requirements. These multi-core cables offer high performance & reliability in various verticals ensuring higher uptime & precise operation.

Shielding

Belden meets the demand for highly effective shielding technology with innovative, EMI/RFI protective foil and braid designs like Beldfoil. Belden's patented Beldfoil shield is an aluminum/polyester foil construction that yields a lightweight, strong, flexible and 100% shield coverage. For low frequency coupling noise Belden offers low resistance path to ground by using tinned copper braid shield which ensures the elimination of this noise while also providing high flexibility to the cables.

Product Description

This range of control & power cables which are suitable for 300 V all the way upto to 1000 V applications. You can now design your own cable by selecting :

- Cable type
- Conductor size and material
- Insulation and jacket material
- Flame rating
- Insulation and jacket color codes
- Shielding options

Verticals

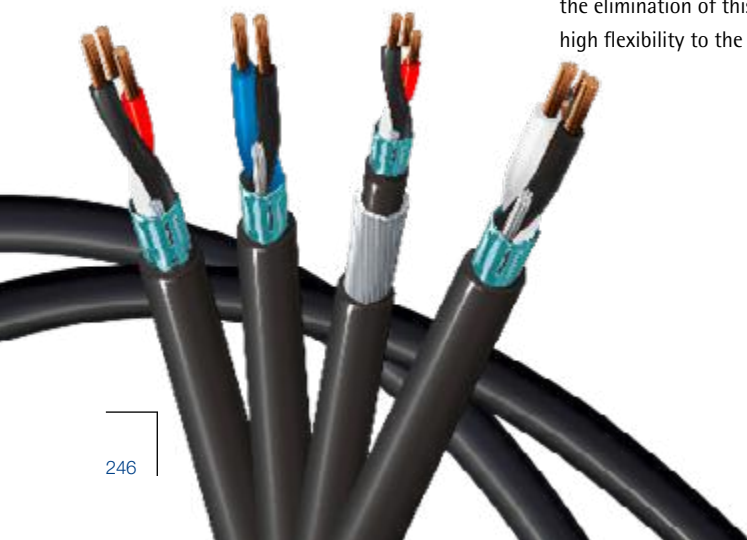
Belden control & power cables meet the highest electrical, mechanical and physical requirements which are required in today's fast growing verticals such as :

- Oil & Gas (upstream, midstream & down stream)
- Power (generation transmission & distribution)
- Auto-manufacturing
- Machine Building
- Petrochemical complex
- Mining industry
- Manufacturing (steel, cement, pulp & paper, food & beverages)
- Waste water treatment
- Intelligent transport & traffic system
- Wind energy

Applications

Belden instrumentation & signal cables are suitable in various applications such as 4-20mA signals, RTD, electronic sensors, measuring devices, field devices, analog & digital signal communications & many more. The requirement for intrinsically safe cables is very important when the cables are being installed in a highly explosive environment & Belden select the right cable as per your installation requirement. Belden Classics paired products deliver low voltage analog data signals within enclosures, from controllers and I/Os to devices such as temperature and pressure sensors, relays, valves, meters, actuators and alarms. They also are applicable for computers, communications, instrumentation sound, control, audio, data transmission and many more applications.

The Belden instrumentation cables are available with multiple armoring and enclosures, from controllers and I/Os to devices such as temperature and jacketing options-making them ideal for all industries, including petrochemical, pharmaceutical, power generation, wastewater treatment, pulp and paper, food processing and transportation.



EN 50288-7 Instrumentation and Signal Cables

300V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|-------|------|
| I2075FF01 | 1 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.19 | 5.0 |
| I2075FF02 | 2 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.2 | 7.2 |
| I2075FF04 | 4 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.332 | 8.4 |
| I2075FF08 | 8 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.44 | 11.3 |

Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| J3075FF01 | 1 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.21 | 5.3 |
| J3075FF02 | 2 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.31 | 8.0 |
| J3075FF04 | 4 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.37 | 9.3 |
| J3075FF08 | 8 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.50 | 12.7 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I2 07 5 F F 01

| Code | | | | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|--------|---|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| | | | | | | | | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | |
| 31 | 32 | 0.75 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | |
| 8A | 8B | 18 AWG | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

EN 50288-7 Instrumentation and Signal Cables
300V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|
| I5075FF01 | 1 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.37 | 9.4 |
| I5075FF02 | 2 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.46 | 11.7 |
| I5075FF04 | 4 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.51 | 12.9 |
| I5075FF08 | 8 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.63 | 16.0 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|
| J6075FF01 | 1 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.38 | 9.7 |
| J6075FF02 | 2 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.49 | 12.5 |
| J6075FF04 | 4 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.55 | 13.9 |
| J6075FF08 | 8 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.68 | 17.4 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I5 07 5 F F 01

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|------|---|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | |
| 31 | 32 | 0.75 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | |
| 8A | 8B | 18 AWG | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

EN 50288-7 Instrumentation and Signal Cables
300V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|------|------|
| I2115FF01 | 1 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.23 | 5.9 |
| I2115FF02 | 2 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.33 | 8.5 |
| I2115FF04 | 4 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.39 | 10.0 |
| I2115FF08 | 8 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.53 | 13.6 |

Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

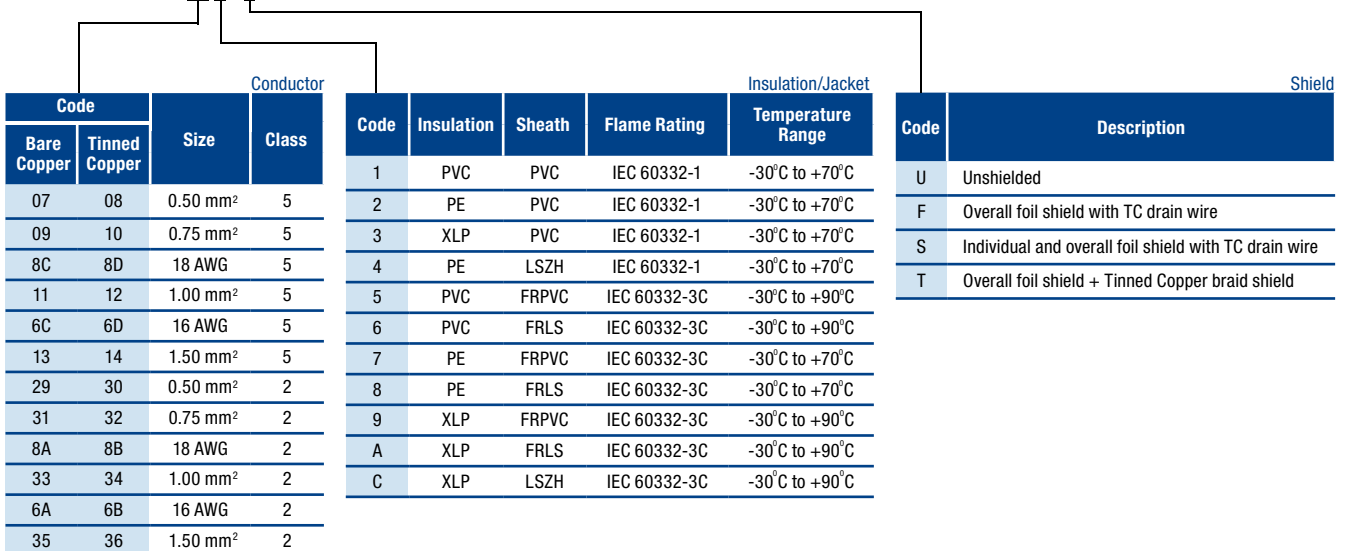
| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| J3115FF01 | 1 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.24 | 6.2 |
| J3115FF02 | 2 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.37 | 9.5 |
| J3115FF04 | 4 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.44 | 11.2 |
| J3115FF08 | 8 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.60 | 15.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I2 11 5 F F 01



EN 50288-7 Instrumentation and Signal Cables

300V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|
| I5115FF01 | 1 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.40 | 10.3 |
| I5115FF02 | 2 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.51 | 13.1 |
| I5115FF04 | 4 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.57 | 14.6 |
| I5115FF08 | 8 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.72 | 18.4 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|
| J6115FF01 | 1 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.42 | 10.6 |
| J6115FF02 | 2 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.55 | 14.1 |
| J6115FF04 | 4 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.62 | 15.8 |
| J6115FF08 | 8 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.79 | 20.1 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I5 11 5 F F 01

| Conductor | | | | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|--------|---|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | |
| 31 | 32 | 0.75 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | |
| 8A | 8B | 18 AWG | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

EN 50288-7 Instrumentation and Signal Cables

300V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|------|------|
| I2135FF01 | 1 | White & Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.27 | 6.9 |
| I2135FF02 | 2 | White & Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.40 | 10.2 |
| I2135FF04 | 4 | White & Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.47 | 12.0 |
| I2135FF08 | 8 | White & Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.64 | 16.4 |

Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| J3135FF01 | 1 | White, Black & Red | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.29 | 7.3 |
| J3135FF02 | 2 | White, Black & Red | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.44 | 11.4 |
| J3135FF04 | 4 | White, Black & Red | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.53 | 13.4 |
| J3135FF08 | 8 | White, Black & Red | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.73 | 18.6 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I2 13 5 F F 01

| Conductor | | | | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|--------|---|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | |
| 31 | 32 | 0.75 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | |
| 8A | 8B | 18 AWG | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

EN 50288-7 Instrumentation and Signal Cables

300V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|
| I5135FF01 | 1 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.45 | 11.3 |
| I5135FF02 | 2 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.58 | 14.8 |
| I5135FF04 | 4 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.65 | 16.7 |
| I5135FF08 | 8 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.84 | 21.3 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|
| J6135FF01 | 1 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.46 | 11.8 |
| J6135FF02 | 2 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.63 | 16.0 |
| J6135FF04 | 4 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.71 | 18.2 |
| J6135FF08 | 8 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.96 | 24.4 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I5 13 5 F F 01

| Conductor | | | | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|--------|---|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | |
| 31 | 32 | 0.75 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | |
| 8A | 8B | 18 AWG | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | |
| 6A | 6B | 16 AWG | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

EN 50288-7 Instrumentation and Signal Cables

500V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|--------|--------|------|------|
| I3075FF01 | 1 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.20 | 5.3 |
| I3075FF02 | 2 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.34 | 8.9 |
| I3075FF04 | 4 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.40 | 10.4 |
| I3075FF08 | 8 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.55 | 14.2 |

Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|--------|--------|------|------|
| J4075FF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.25 | 6.4 |
| J4075FF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.38 | 9.9 |
| J4075FF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.45 | 11.6 |
| J4075FF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.62 | 15.9 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I3 07 5 F F 01

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|---|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire | | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

EN 50288-7 Instrumentation and Signal Cables
500V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|---------|---------|------|------|
| I6075FF01 | 1 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.37 | 9.7 |
| I6075FF02 | 2 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.52 | 13.4 |
| I6075FF04 | 4 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.58 | 15.0 |
| I6075FF08 | 8 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.74 | 19.0 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|---------|---------|------|------|
| J7075FF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.39 | 10.2 |
| J7075FF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.56 | 14.5 |
| J7075FF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.63 | 16.3 |
| J7075FF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.81 | 20.8 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I6 15 5 F F 01

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|---|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire | | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

EN 50288-7 Instrumentation and Signal Cables

500V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|--------|--------|------|------|
| I3115FF01 | 1 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.23 | 5.9 |
| I3115FF02 | 2 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.40 | 10.2 |
| I3115FF04 | 4 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.47 | 12.0 |
| I3115FF08 | 8 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.65 | 16.5 |

Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|--------|--------|------|------|
| J4115FF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.25 | 6.5 |
| J4115FF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.45 | 11.4 |
| J4115FF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.53 | 13.5 |
| J4115FF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.73 | 18.7 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I3 11 5 F F 01

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|---|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire | | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

EN 50288-7 Instrumentation and Signal Cables
500V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|---------|---------|------|------|
| I6115FF01 | 1 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.41 | 10.4 |
| I6115FF02 | 2 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.58 | 14.8 |
| I6115FF04 | 4 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.65 | 16.7 |
| I6115FF08 | 8 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.84 | 21.4 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|---------|---------|------|------|
| J7115FF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.43 | 11.0 |
| J7115FF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.63 | 16.1 |
| J7115FF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.71 | 18.2 |
| J7115FF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.96 | 24.4 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I6 11 5 F F 01

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|---|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire | | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

EN 50288-7 Instrumentation and Signal Cables

500V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|--------|--------|------|------|
| I3135FF01 | 1 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.29 | 7.3 |
| I3135FF02 | 2 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.43 | 11.0 |
| I3135FF04 | 4 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.51 | 13.0 |
| I3135FF08 | 8 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.71 | 18.0 |

Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|--------|--------|------|------|
| J4135FF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.27 | 7.0 |
| J4135FF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.48 | 12.3 |
| J4135FF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.57 | 14.6 |
| J4135FF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.80 | 20.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I3 13 5 F F 01

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|---|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire | | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

EN 50288-7 Instrumentation and Signal Cables
500V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|---------|---------|------|------|
| I6135FF01 | 1 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.42 | 10.8 |
| I6135FF02 | 2 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.61 | 15.7 |
| I6135FF04 | 4 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.70 | 17.7 |
| I6135FF08 | 8 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.93 | 23.7 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|---------|---------|------|------|
| J7135FF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.45 | 11.5 |
| J7135FF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.67 | 17.0 |
| J7135FF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.76 | 19.4 |
| J7135FF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 1.03 | 26.1 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I6 13 5 F F 01

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|---|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire | | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

EN 50288-7 Instrumentation and Signal Cables

500V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|--------|--------|------|------|
| I3155FF01 | 1 | Blue & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.29 | 7.5 |
| I3155FF02 | 2 | Blue & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.52 | 13.4 |
| I3155FF04 | 4 | Blue & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.62 | 15.9 |
| I3155FF08 | 8 | Blue & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.87 | 22.1 |

Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • FRPVC Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|--------|--------|------|------|
| J4155FF01 | 1 | Blue, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.33 | 8.4 |
| J4155FF02 | 2 | Blue, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.59 | 15.0 |
| J4155FF04 | 4 | Blue, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.71 | 18.0 |
| J4155FF08 | 8 | Blue, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.98 | 25.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I3 15 5 F F 01

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|---|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire | | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

EN 50288-7 Instrumentation and Signal Cables

500V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|---------|---------|------|------|
| I6155FF01 | 1 | Blue & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.47 | 12.1 |
| I6155FF02 | 2 | Blue & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.71 | 18.2 |
| I6155FF04 | 4 | Blue & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.81 | 20.8 |
| I6155FF08 | 8 | Blue & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.10 | 28.0 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- IEC 60228 / HD 383
- BS EN 50290
- BS EN 50289
- IEC 60332-1-2, IEC 60332-3
- Oil Resistant
- UV Resistant
- BS EN 10257-1

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • PVC Insulation • Overall Foil Shield • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|---------|---------|------|------|
| J7155FF01 | 1 | Blue, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.51 | 12.9 |
| J7155FF02 | 2 | Blue, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.78 | 19.9 |
| J7155FF04 | 4 | Blue, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.93 | 23.7 |
| J7155FF08 | 8 | Blue, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.22 | 31.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I6 15 5 F F 01

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|--------------|-------------------|-------------------|---|------|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | | |
| 09 | 10 | 0.75 mm ² | 5 | 2 | PE | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall foil shield with TC drain wire | | | |
| 8C | 8D | 18 AWG | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | S | Individual and overall foil shield with TC drain wire | | | |
| 11 | 12 | 1.00 mm ² | 5 | 4 | PE | LSZH | IEC 60332-1 | -30°C to +70°C | T | Overall foil shield + Tinned Copper braid shield | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | 7 | PE | FRPVC | IEC 60332-3C | -30°C to +70°C | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | 8 | PE | FRLS | IEC 60332-3C | -30°C to +70°C | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | 9 | XLP | FRPVC | IEC 60332-3C | -30°C to +90°C | | | | | |
| 8A | 8B | 18 AWG | 2 | A | XLP | FRLS | IEC 60332-3C | -30°C to +90°C | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | C | XLP | LSZH | IEC 60332-3C | -30°C to +90°C | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

IEC 60502-1 Instrumentation and Signal Cables
600/1000V Instrumentation Cables

Pair Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30°C to +90°C
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • FRPVC Sheath-IEC 60502-1 | | | | | | | | |
|---|---|---------------|------|-----|--------|--------|------|------|
| I4139KU01 | 1 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.37 | 9.5 |
| I4139KU02 | 2 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.52 | 13.3 |
| I4139KU04 | 4 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.60 | 15.3 |
| I4139KU08 | 8 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.80 | 20.3 |

Triad Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30°C to +90°C
- Oil Resistant
- UV Resistant

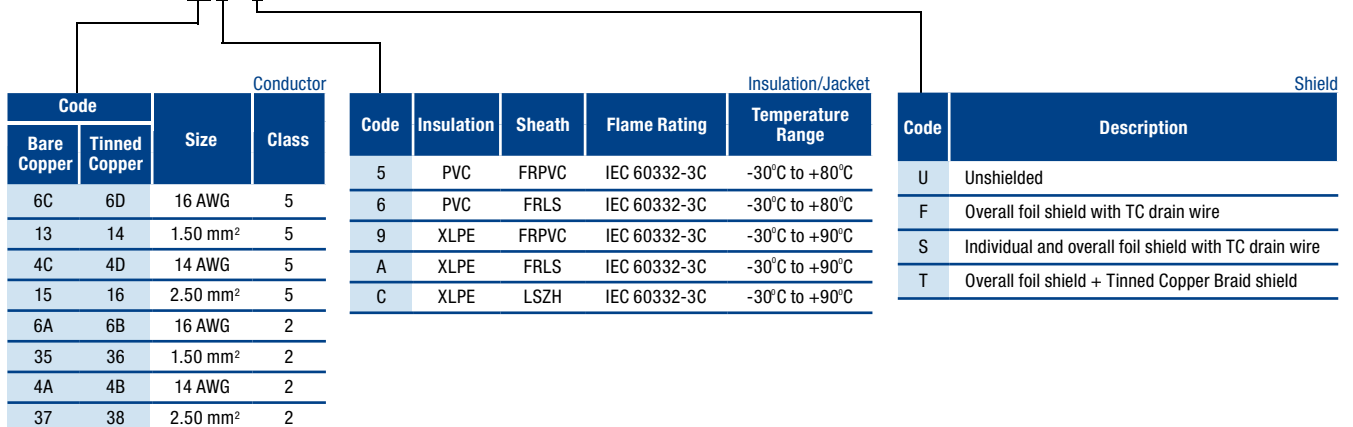
| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • FRPVC Sheath-IEC 60502-1 | | | | | | | | |
|---|---|--------------------|------|-----|--------|--------|------|------|
| J5139MU01 | 1 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.39 | 10.0 |
| J5139MU02 | 2 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.57 | 14.6 |
| J5139MU04 | 4 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.67 | 16.9 |
| J5139MU08 | 8 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.89 | 22.6 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I4 13 9 K U 01



IEC 60502-1 Instrumentation and Signal Cables

600/1000V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30°C to +90°C
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath-IEC 60502-1 | | | | | | | | |
|---|---|---------------|------|-----|---------|---------|------|------|
| I7139KU01 | 1 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.52 | 13.1 |
| I7139KU02 | 2 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.67 | 16.9 |
| I7139KU04 | 4 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.78 | 19.8 |
| I7139KU08 | 8 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.00 | 25.5 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30°C to +90°C
- Oil Resistant
- UV Resistant

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath-IEC 60502-1 | | | | | | | | |
|---|---|--------------------|------|-----|---------|---------|------|------|
| J8139MU01 | 1 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.54 | 13.6 |
| J8139MU02 | 2 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.75 | 19.1 |
| J8139MU04 | 4 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.85 | 21.5 |
| J8139MU08 | 8 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.09 | 27.8 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I7 13 9 K U 01

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|------|---|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +80°C | U | Unshielded |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +80°C | F | Overall foil shield with TC drain wire |
| 4C | 4D | 14 AWG | 5 | 9 | XLPE | FRPVC | IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with TC drain wire |
| 15 | 16 | 2.50 mm ² | 5 | A | XLPE | FRLS | IEC 60332-3C | -30°C to +90°C | T | Overall foil shield + Tinned Copper Braid shield |
| 6A | 6B | 16 AWG | 2 | C | XLPE | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 4A | 4B | 14 AWG | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

IEC 60502-1 Instrumentation and Signal Cables

600/1000V Instrumentation Cables

Pair Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30°C to +90°C
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • FRPVC Sheath-IEC 60502-1 | | | | | | | | |
|---|---|---------------|------|-----|--------|--------|------|------|
| I4159KU01 | 1 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.41 | 10.5 |
| I4159KU02 | 2 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.59 | 14.9 |
| I4159KU04 | 4 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.68 | 17.2 |
| I4159KU08 | 8 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.90 | 22.9 |

Triad Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30°C to +90°C
- Oil Resistant
- UV Resistant

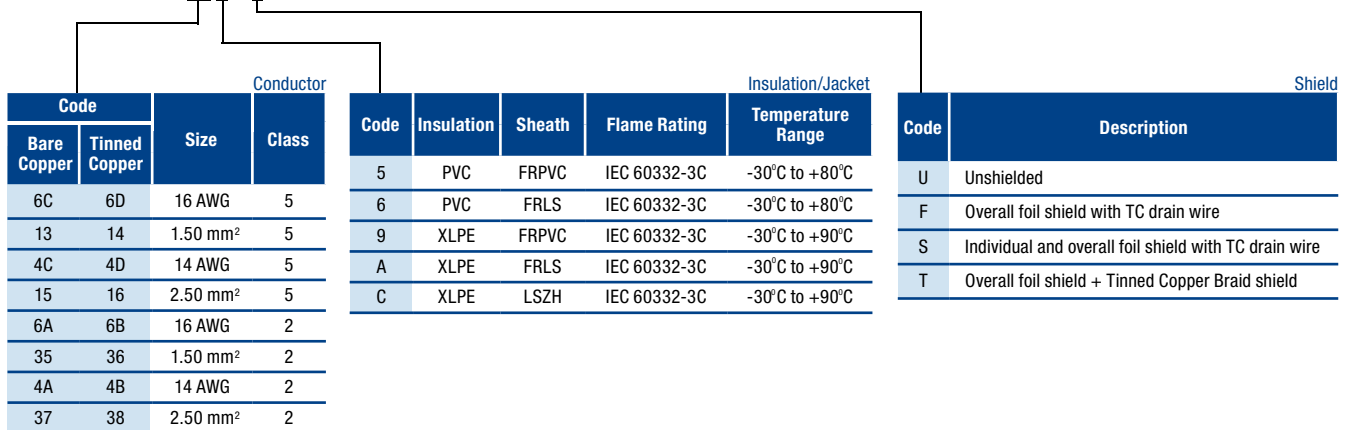
| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • FRPVC Sheath-IEC 60502-1 | | | | | | | | |
|---|---|--------------------|------|-----|--------|--------|------|------|
| J5139MU01 | 1 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.39 | 10.0 |
| J5139MU02 | 2 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.58 | 14.7 |
| J5139MU04 | 4 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.67 | 16.9 |
| J5139MU08 | 8 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.89 | 22.6 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I4 15 9 K U 01



IEC 60502-1 Instrumentation and Signal Cables

600/1000V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30°C to +90°C
- Oil Resistant
- UV Resistant

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath-IEC 60502-1 | | | | | | | | |
|---|---|---------------|------|-----|---------|---------|------|------|
| I7159KU01 | 1 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.56 | 14.1 |
| I7159KU02 | 2 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.71 | 18.0 |
| I7159KU04 | 4 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.85 | 21.7 |
| I7159KU08 | 8 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.11 | 28.2 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60332-3
- -30°C to +90°C
- Oil Resistant
- UV Resistant

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath-IEC 60502-1 | | | | | | | | |
|---|---|--------------------|------|-----|---------|---------|------|------|
| J8159MU01 | 1 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.57 | 14.6 |
| J8159MU02 | 2 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.82 | 20.9 |
| J8159MU04 | 4 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.96 | 24.3 |
| J8159MU08 | 8 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.21 | 30.8 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: I7 15 9 K U 01

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|--------------|-------------------|------|---|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 6C | 6D | 16 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-3C | -30°C to +80°C | U | Unshielded |
| 13 | 14 | 1.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-3C | -30°C to +80°C | F | Overall foil shield with TC drain wire |
| 4C | 4D | 14 AWG | 5 | 9 | XLPE | FRPVC | IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with TC drain wire |
| 15 | 16 | 2.50 mm ² | 5 | A | XLPE | FRLS | IEC 60332-3C | -30°C to +90°C | T | Overall foil shield + Tinned Copper Braid shield |
| 6A | 6B | 16 AWG | 2 | C | XLPE | LSZH | IEC 60332-3C | -30°C to +90°C | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 4A | 4B | 14 AWG | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

IEC 60092-376 Marine Instrumentation and Signal Cables
150/250V (300V) Instrumentation Cables



ABS Certificate No. 15-HS1327197-PDA

Pair Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|------|------|
| MA07TRF01 | 1 | White & Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.17 | 4.3 |
| MA07TRF02 | 2 | White & Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.27 | 7.0 |
| MA07TRF04 | 4 | White & Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.33 | 8.4 |
| MA07TRF08 | 8 | White & Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.47 | 12.0 |

Triad Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| MB07TRF01 | 1 | White, Black & Red | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.26 | 6.6 |
| MB07TRF02 | 2 | White, Black & Red | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.40 | 10.2 |
| MB07TRF04 | 4 | White, Black & Red | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.47 | 12.0 |
| MB07TRF08 | 8 | White, Black & Red | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.64 | 16.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: MA 07 T R F 01

| Code | | Size (mm ²) | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|-------------------------|-------|-----------|------------|--------------|--------------|-------------------|------|---|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded | |
| 09 | 10 | 0.75 | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire | |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire | |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield | |
| 15 | 16 | 2.50 | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield | |
| 29 | 30 | 0.50 | 2 | | | | | | | | |
| 31 | 32 | 0.75 | 2 | | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | | |

IEC 60092-376 Marine Instrumentation and Signal Cables
150/250V (300V) SWA Armored Instrumentation Cables



ABS Certificate No. 15-HS1327197-PDA

Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|---------------|------|-----|---------|---------|------|------|
| MJ07TRF01 | 1 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.31 | 7.9 |
| MJ07TRF02 | 2 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.42 | 10.7 |
| MJ07TRF04 | 4 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.48 | 12.3 |
| MJ07TRF08 | 8 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.63 | 16.1 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|--------------------|------|-----|---------|---------|------|------|
| MK07TRF01 | 1 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.39 | 9.9 |
| MK07TRF02 | 2 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.53 | 13.5 |
| MK07TRF04 | 4 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.60 | 15.4 |
| MB15TRF08 | 8 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.78 | 20.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: MJ 07 T R F 01

| Code | | Conductor | | Insulation/Jacket | | | Shield | | | |
|-------------|---------------|-------------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|---|
| Bare Copper | Tinned Copper | Size (mm ²) | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield |
| 15 | 16 | 2.50 | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 29 | 30 | 0.50 | 2 | | | | | | | |
| 31 | 32 | 0.75 | 2 | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)

IEC 60092-376 Marine Instrumentation and Signal Cables
150/250V (300V) Instrumentation Cables



ABS Certificate No. 15-HS1327197-PDA

Pair Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|------|------|
| MA13TRF01 | 1 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.23 | 5.9 |
| MA13TRF02 | 2 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.38 | 9.7 |
| MA13TRF04 | 4 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.46 | 11.7 |
| MA13TRF08 | 8 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.65 | 16.6 |

Triad Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| MB13TRF01 | 1 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.33 | 8.5 |
| MB13TRF02 | 2 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.53 | 13.5 |
| MB13TRF04 | 4 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.63 | 16.0 |
| MB13TRF08 | 8 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.87 | 22.2 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: MA 13 T R F 01

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|-------------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|---|
| Code | | Size (mm ²) | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield |
| 15 | 16 | 2.50 | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 29 | 30 | 0.50 | 2 | | | | | | | |
| 31 | 32 | 0.75 | 2 | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | |

IEC 60092-376 Marine Instrumentation and Signal Cables
150/250V (300V) SWA Armored Instrumentation Cables



ABS Certificate No. 15-HS1327197-PDA

Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|---------------|------|-----|---------|---------|------|------|
| MJ13TRF01 | 1 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.37 | 9.6 |
| MJ13TRF02 | 2 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.53 | 13.6 |
| MJ13TRF04 | 4 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.62 | 15.8 |
| MJ13TRF08 | 8 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.86 | 22.0 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath | | | | | | | | |
|---|---|--------------------|------|-----|---------|---------|------|------|
| MK13TRF01 | 1 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.46 | 11.8 |
| MK13TRF02 | 2 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.67 | 17.0 |
| MK13TRF04 | 4 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.77 | 19.6 |
| MK13TRF08 | 8 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.03 | 26.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: MJ 13 T R F 01

| Code | | Conductor | | Insulation/Jacket | | | Shield | | | |
|-------------|---------------|-------------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|---|
| Bare Copper | Tinned Copper | Size (mm ²) | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield |
| 15 | 16 | 2.50 | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 29 | 30 | 0.50 | 2 | | | | | | | |
| 31 | 32 | 0.75 | 2 | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)

IEC 60092-376 Marine Instrumentation and Signal Cables
150/250V (300V) Instrumentation Cables



ABS Certificate No. 15-HS1327197-PDA

Pair Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|------|------|
| MA15TRF01 | 1 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.27 | 6.9 |
| MA15TRF02 | 2 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.44 | 11.2 |
| MA15TRF04 | 4 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.53 | 13.6 |
| MA15TRF08 | 8 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.76 | 19.4 |

Triad Instrumentation Cables



- IEC 60092-376
- IEC 60092-350 & IEC 60228
- IEC 61034-2, IEC 60754-1 & - 2
- IEC 60092-351
- IEC 60092-359
- IEC 60332-1-2 & IEC 60332-3-22

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • XLP Insulation • Overall Foil Shield • SHF1 Sheath | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| MB15TRF01 | 1 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.38 | 9.6 |
| MB15TRF02 | 2 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.60 | 15.4 |
| MB15TRF04 | 4 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.72 | 18.4 |
| MB15TRF08 | 8 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.00 | 25.4 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: MA 15 T R F 01

| Code | | | | Conductor | | | | Insulation/Jacket | | | | Shield | |
|-------------|---------------|-------------------------|-------|-----------|------------|--------------|--------------|-------------------|------|---|----|--------|------|
| Bare Copper | Tinned Copper | Size (mm ²) | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | | |
| | | | | | | | | | | | 07 | 08 | 0.50 |
| 09 | 10 | 0.75 | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire | | | |
| 11 | 12 | 1.00 | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire | | | |
| 13 | 14 | 1.50 | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield | | | |
| 15 | 16 | 2.50 | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield | | | |
| 29 | 30 | 0.50 | 2 | | | | | | | | | | |
| 31 | 32 | 0.75 | 2 | | | | | | | | | | |
| 33 | 34 | 1.00 | 2 | | | | | | | | | | |
| 35 | 36 | 1.50 | 2 | | | | | | | | | | |
| 37 | 38 | 2.50 | 2 | | | | | | | | | | |

UL Instrumentation Cables

300 V Power-Limited Tray Cables – Overview

Construction

Soft annealed bare or tinned copper with PVC flame retardant insulation and jacket. Other insulation and jacket options are available (see table below). Communication wire included on all multi-pair/multi-triad 1000 and 3000 series part numbers, 22 AWG (7 x 30) bare copper, orange PVC insulation. Nylon rip cord included in all PVC/PVC instrumentation cables.

Other Construction Options:

| UL Listed for PLTC | |
|--------------------|------------------|
| Insulation/Jacket | Max. Temp Rating |
| XLP/PVC | +90 °C |
| XLP/CPE | +90 °C |
| PVC/PVC | +105 °C |
| PVC/CPE | +105 °C |
| XLP/Haloarrest® | +90 °C |

Armoring Capabilities

Belden also has the capability to protect electronic, instrumentation and control cables with interlocking or continuous armor and Belclad® corrugated protective metal tapes.

Application

Cable jackets are resistant to sunlight, moisture and vapor penetration. PVC/PVC constructions, with 3 conductors or more and 20 AWG or larger, are suitable for direct burial.

Unshielded

Twisted non-shielded pairs and triads provide a minimal OD allowing greater tray and conduit fill. Non-shielded instrument pairs may be utilized when recommended by the instrument manufacturer and used in a metallic conduit.

Overall Shield

Recommended for use in instrumentation applications where signals are transmitted in excess of 100 millivolts except in areas where high voltage and current sources create excessive noise interference. The Beldfoil® shield with drain wire provides 100% coverage for maximum shield effectiveness.

Individually Shielded and Overall Shielded

Individually shielded pairs or triads with an overall shield are recommended for use in instrumentation applications where optimum noise rejection is required. Individual pair/triad shields are fully isolated from each other and contain a separate drain wire for grounding to provide maximum protection from crosstalk and common mode interference. Cables with an overall shield provide additional electrostatic noise protection.

Specifications

- UL Subject 13
- UL Subject 2250
- NEC Article 725 Class 2 and Class 3 Circuits
- NEC Type PLTC Listed, which is approved for cable tray use in Class 1, Division 2, hazardous areas and non-hazardous areas, cable trays, raceways, conduit and supported by messenger wires.
- Sunlight-resistant.
- NEC Type ITC per Article 727. ITC cables may carry up to 5 amps at 150 V, which is significantly greater than that allowed for PLTC only cables. ITC cables may also be installed in specific applications, per the NEC, in addition to those allowed for PLTC.
- UL 1685 (UL 1581) Vertical Tray Flame Test comparable to IEEE 383-1974 (70,000 BTU/hr.) Flame Test.
- PVC/PVC constructions are CMG, FT4, IEEE 1202 and IEEE 383-2003 rated, and meet ICEA T-29-520 Flame Test.
- Design options – call 1-800-BELDEN1.

PLTC-ER/ITC-ER

As an option, Belden offers all PVC insulated, PVC jacketed instrumentation cables, and several other insulation and jackets, with a PLTC-ER (Exposed Run) and ITC-ER ratings.

Per NEC Article 725, a PLTC-ER rated cable may be installed in an industrial establishment between a cable tray and the utilization equipment or device. A PLTC-ER rated cable must meet the crush and impact requirements of UL Type MC cable. By eliminating the need for metal conduit and/or armor, using a PLTC-ER rated cable results in savings in both installation and maintenance.

Armoring Options

| Code | | |
|-----------------------|--------------|---------------------|
| Overall Jacket Prefix | Armor Prefix | Base Part No. |
| 3 | 4 | 4-digit base number |

Overall Jacket

| Code | Material |
|------|------------|
| 1 | PVC |
| 3 | CPE |
| 4 | TPE |
| 5 | HDPE |
| 7 | Haloarrest |

Armor

| Code | Material |
|------|--------------------|
| 2 | Aluminum Interlock |
| 3 | Steel Interlock |
| 4 | Aluminum Belclad® |
| 5 | Steel Belclad |
| 6 | Copper Belclad |
| 8 | Continuous Armor |

Example: 343016A is cable part no. 3016A with CPE outer jacket and aluminum Belclad tape.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

22 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

22 AWG • Unshielded

| Stranded (7 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|----|----|------|-------|------|------|------|-----|
| 9407 | 1 | E2 | 19 | 85 | 2.00 | 50.80 | .198 | 5.03 | .037 | .94 |

22 AWG • Overall Beldfoil® Shield

| Stranded (7 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|-----|------|------|--------|------|-------|------|------|
| 9322 | 1 | E2 | 28 | 125 | 2.00 | 50.80 | .201 | 5.10 | .037 | .94 |
| 9512 | 2 | E2 | 46 | 205 | 3.00 | 76.20 | .310 | 7.82 | | |
| 9513 | 3 | E2 | 63 | 280 | 3.25 | 82.55 | .324 | 8.23 | .042 | 1.07 |
| 9514 | 4 | E2 | 80 | 356 | 3.50 | 88.90 | .356 | 9.04 | | |
| 9516 | 6 | E2 | 118 | 525 | 4.25 | 107.95 | .418 | 10.62 | | |
| 9520 | 9 | E2 | 172 | 765 | 4.75 | 120.65 | .482 | 12.29 | .053 | 1.35 |
| 9521 | 11 | E2 | 200 | 890 | 5.35 | 135.89 | .506 | 12.85 | | |
| 9524 | 15 | E2 | 280 | 1246 | 6.00 | 152.40 | .594 | 15.09 | | |
| 9526 | 19 | E2 | 350 | 1557 | 6.33 | 160.78 | .644 | 16.36 | .063 | 1.60 |
| 9527 | 27 | E2 | 500 | 2224 | 7.50 | 190.50 | .763 | 19.38 | | |

22 AWG • Individually Beldfoil® Shielded Pairs

| Stranded (7 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|-----|------|------|--------|------|-------|------|------|
| 9328 | 2 | E2 | 54 | 240 | 3.00 | 76.20 | .323 | 8.20 | | |
| 9329 | 3 | E2 | 54 | 240 | 3.50 | 88.90 | .341 | 8.66 | .042 | 1.07 |
| 9330 | 4 | E2 | 110 | 489 | 3.50 | 88.90 | .372 | 9.45 | | |
| 9331 | 6 | E2 | 101 | 449 | 4.33 | 109.98 | .457 | 11.61 | | |
| 9332 | 9 | E2 | 160 | 712 | 5.00 | 127.00 | .530 | 13.46 | .053 | 1.35 |
| 9333 | 11 | E2 | 160 | 712 | 5.50 | 139.70 | .592 | 15.04 | | |
| 9335 | 19 | E2 | 264 | 1174 | 6.50 | 165.10 | .711 | 18.06 | .063 | 1.60 |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

22 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

22 AWG • Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 30) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|-----|------|------|--------|-------|-------|------|------|
| 3000A | 2 | E1 | 46 | 205 | 3.00 | 76.20 | .310 | 7.87 | .043 | 1.09 |
| 3004A | 4 | E1 | 80 | 356 | 3.50 | 88.90 | .357 | 9.01 | .042 | 1.07 |
| 3006A | 8 | E1 | 172 | 765 | 4.75 | 120.65 | .450 | 11.43 | | |
| 3008A | 12 | E1 | 210 | 934 | 5.00 | 127.00 | .536 | 13.61 | .053 | 1.35 |
| 3010A | 16 | E1 | 290 | 1290 | 6.00 | 152.40 | .594 | 15.09 | | |
| 3012A | 24 | E1 | 440 | 1957 | 7.50 | 190.50 | .749 | 19.02 | .065 | 1.65 |
| 3014A | 50 | E1 | 915 | 4070 | 9.50 | 241.30 | 1.017 | 25.80 | .075 | 1.91 |

22 AWG • Individually Beldfoil® Shielded Pairs and Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 30) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|-------|--------|-------|-------|------|------|
| 3001A | 2 | E1 | 54 | 240 | 3.25 | 82.55 | .324 | 8.23 | .042 | 1.07 |
| 3005A | 4 | E1 | 115 | 512 | 3.50 | 88.90 | .360 | 9.14 | .043 | 1.09 |
| 3007A | 8 | E1 | 250 | 1112 | 5.25 | 133.35 | .497 | 12.62 | | |
| 3009A | 12 | E1 | 300 | 1334 | 5.75 | 146.05 | .570 | 14.48 | .053 | 1.35 |
| 3011A | 16 | E1 | 350 | 1557 | 6.25 | 158.75 | .674 | 17.12 | .064 | 1.63 |
| 3013A | 24 | E1 | 540 | 2402 | 8.00 | 203.20 | .800 | 20.32 | .065 | 1.65 |
| 3015A | 50 | E1 | 1330 | 5916 | 10.50 | 266.70 | 1.050 | 26.67 | .075 | 1.91 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

22 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

22 AWG • Unshielded

| Stranded (7 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|----|-----|------|-------|------|------|------|-----|
| 9491 | 1 | E1 | 29 | 129 | 2.00 | 50.80 | .208 | 5.28 | .037 | .94 |

22 AWG • Beldfoil® Shield

| Stranded (7 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|----|-----|------|-------|------|------|------|-----|
| 9363 | 1 | E1 | 29 | 129 | 2.00 | 50.80 | .208 | 5.28 | .037 | .94 |

22 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

22 AWG • Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 30) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|----|-----|------|-------|------|------|------|------|
| 3002A | 2 | E1 | 62 | 276 | 3.50 | 88.90 | .330 | 8.38 | .043 | 1.09 |

22 AWG • Individually Beldfoil® Shielded Triads and Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 30) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|----|-----|------|-------|------|------|------|------|
| 3003A | 2 | E1 | 82 | 365 | 3.25 | 82.55 | .330 | 8.38 | .043 | 1.09 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

20 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

20 AWG • Unshielded

| Stranded (19 x 32) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|-----|-------|------|------|------|-----|
| 9408 | 1 | E2 | 31 | 138 | 2.0 | 50.80 | .214 | 5.44 | .037 | .94 |

20 AWG • Overall Beldfoil® Shield

| Stranded (19 x 32) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|-----|-------|------|------|------|-----|
| 9320 | 1 | E2 | 40 | 178 | 2.0 | 50.80 | .217 | 5.51 | .037 | .94 |

20 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

20 AWG • Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 28) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|-------|--------|-------|-------|------|------|
| 1033A | 1 | E1 | 42 | 187 | 2.25 | 57.15 | .213 | 5.41 | .037 | .94 |
| 3016A | 2 | E1 | 92 | 409 | 3.75 | 95.25 | .332 | 8.43 | .042 | 1.07 |
| 1056A | 4 | E1 | 135 | 601 | 4.25 | 107.95 | .408 | 10.36 | | |
| 1057A | 8 | E1 | 247 | 1099 | 5.00 | 127.00 | .472 | 11.99 | .053 | 1.35 |
| 1058A | 12 | E1 | 359 | 1597 | 6.00 | 152.40 | .564 | 14.33 | | |
| 1059A | 16 | E1 | 232 | 1032 | 6.50 | 165.10 | .649 | 16.48 | | |
| 1060A | 24 | E1 | 695 | 3092 | 8.25 | 209.55 | .786 | 19.96 | .064 | 1.63 |
| 1061A | 36 | E1 | 1031 | 4586 | 10.00 | 254.00 | .960 | 24.38 | | |
| 1062A | 50 | E1 | 1423 | 6330 | 11.50 | 292.10 | 1.117 | 28.37 | .074 | 1.88 |

To Specify Conductor, Insulation and Jacket Options:

| 1234 | A | E |
|---|--|----------------------------|
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

20 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

20 AWG • Individually Beldfoil® Shielded Pairs and Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 28) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|-------|--------|-------|-------|------|------|
| 1075A | 2 | E1 | 97 | 431 | 3.75 | 95.25 | .337 | 8.56 | .042 | 1.07 |
| 1076A | 4 | E1 | 171 | 761 | 4.50 | 114.30 | .411 | 10.44 | .053 | 1.35 |
| 1077A | 8 | E1 | 320 | 1423 | 5.50 | 139.70 | .514 | 13.06 | | |
| 1078A | 12 | E1 | 468 | 2082 | 6.75 | 171.45 | .637 | 16.18 | | |
| 1079A | 16 | E1 | 617 | 2745 | 7.50 | 190.50 | .704 | 17.88 | .064 | 1.63 |
| 1091A | 20 | E1 | 765 | 3403 | 8.25 | 209.55 | .780 | 19.81 | | |
| 1080A | 24 | E1 | 914 | 4066 | 9.00 | 228.60 | .863 | 21.92 | | |
| 1081A | 36 | E1 | 1359 | 6045 | 10.50 | 266.70 | 1.035 | 26.29 | .074 | 1.88 |
| 1082A | 50 | E1 | 1878 | 8354 | 12.75 | 323.85 | 1.215 | 30.86 | | |

20 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

20 AWG • Unshielded

| Stranded (19 x 32) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|-----|
| 9492 | 1 | E1 | 46 | 205 | 2.25 | 57.15 | .225 | 5.72 | .037 | .94 |

20 AWG • Beldfoil® Shield

| Stranded (19 x 32) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|-----|
| 9364 | 1 | E1 | 46 | 205 | 2.25 | 57.15 | .228 | 5.79 | .037 | .94 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

20 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

20 AWG • Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 28) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | | |
|---|----|----|-----|------|------|--------|-------|-------|------|------|--|
| 1526A | 1 | E1 | 42 | 187 | 2.20 | 55.88 | .215 | 5.46 | .037 | .94 | |
| 3017A | 2 | E1 | 97 | 431 | 3.60 | 91.44 | .360 | 9.14 | | | |
| 3020A | 4 | E1 | 174 | 774 | 4.75 | 120.65 | .470 | 11.94 | .055 | 1.40 | |
| 3021A | 8 | E1 | 330 | 1468 | 5.00 | 127.00 | .560 | 14.22 | | | |
| 3022A | 12 | E1 | 485 | 2157 | 7.00 | 177.80 | .710 | 18.03 | .066 | 1.68 | |
| 3023A | 16 | E1 | 600 | 2669 | 7.75 | 196.85 | .821 | 20.85 | .064 | 1.63 | |
| 3024A | 24 | E1 | 920 | 4092 | 9.25 | 234.95 | 1.031 | 26.19 | .074 | 1.88 | |

20 AWG • Individually Beldfoil® Shielded Triads and Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 28) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | | |
|---|----|----|------|------|-------|--------|-------|-------|------|------|--|
| 3018A | 2 | E1 | 102 | 454 | 3.75 | 95.25 | .372 | 9.45 | .055 | 1.40 | |
| 1083A | 4 | E1 | 228 | 1014 | 4.50 | 114.30 | .451 | 11.46 | .053 | 1.35 | |
| 1084A | 8 | E1 | 432 | 1922 | 5.75 | 146.05 | .575 | 10.81 | | | |
| 1085A | 12 | E1 | 636 | 2929 | 7.15 | 181.61 | .714 | 18.14 | .064 | 1.63 | |
| 1092A | 16 | E1 | 841 | 3741 | 7.90 | 200.66 | .793 | 20.14 | | | |
| 1086A | 24 | E1 | 1250 | 5560 | 9.90 | 251.46 | .992 | 25.20 | | | |
| 3067A | 36 | E1 | 1875 | 8340 | 13.00 | 330.20 | 1.292 | 32.82 | .074 | 1.88 | |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

18 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Unshielded

| Stranded (19 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|----|------|-------|------|------|------|-----|
| 9409 | 1 | E2 | 19 | 85 | 2.25 | 57.15 | .230 | 5.84 | .037 | .94 |

18 AWG • Overall Beldfoil® Shield

| Stranded (19 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|----|----|-----|------|------|--------|------|-------|------|------|
| 9318 | 1 | E2 | 60 | 267 | 2.25 | 57.15 | .233 | 5.92 | .037 | .94 |
| 9552 | 2 | E2 | 65 | 289 | 3.70 | 93.98 | .368 | 9.34 | .042 | 1.07 |
| 9553 | 3 | E2 | 145 | 645 | 4.10 | 104.14 | .411 | 10.44 | | |
| 9554 | 4 | E2 | 187 | 832 | 4.50 | 114.30 | .447 | 11.35 | .053 | 1.35 |
| 9556 | 6 | E2 | 270 | 1201 | 5.00 | 127.00 | .497 | 12.62 | | |
| 9559 | 9 | E2 | 395 | 1757 | 5.80 | 147.32 | .579 | 14.71 | | |
| 9563 | 11 | E2 | 478 | 2126 | 6.75 | 171.45 | .665 | 16.89 | | |
| 9565 | 15 | E2 | 640 | 2847 | 7.50 | 190.50 | .739 | 18.77 | .063 | 1.60 |

18 AWG • Individually Beldfoil® Shielded Pairs

| Stranded (19 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|----|----|------|------|------|--------|------|-------|------|------|
| 9368 | 2 | E2 | 125 | 556 | 3.75 | 95.25 | .378 | 9.60 | .042 | 1.07 |
| 9369 | 3 | E2 | 220 | 979 | 4.25 | 107.95 | .423 | 10.74 | | |
| 3029A | 4 | E1 | 296 | 1317 | 4.50 | 114.30 | .461 | 11.71 | .053 | 1.35 |
| 9388 | 4 | E2 | 296 | 1317 | 4.60 | 116.84 | .461 | 11.71 | | |
| 9389 | 6 | E2 | 440 | 1957 | 5.25 | 133.35 | .538 | 13.67 | | |
| 9390 | 9 | E2 | 666 | 2963 | 6.50 | 165.10 | .652 | 16.56 | | |
| 9391 | 11 | E2 | 815 | 3625 | 7.25 | 184.15 | .729 | 18.52 | .064 | 1.63 |
| 9392 | 15 | E2 | 1100 | 4893 | 8.00 | 203.20 | .808 | 20.52 | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

18 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 26) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|-------|--------|-------|-------|------|------|
| 1032A | 1 | E1 | 67 | 298 | 2.50 | 63.50 | .233 | 5.92 | .037 | .94 |
| 3025A | 2 | E1 | 121 | 538 | 3.50 | 88.90 | .375 | 9.53 | .042 | 1.07 |
| 1529A | 3 | E1 | 165 | 734 | 4.25 | 107.95 | .415 | 10.54 | | |
| 1466A | 4 | E1 | 211 | 939 | 4.50 | 114.30 | .452 | 11.48 | .053 | 1.35 |
| 1467A | 8 | E1 | 390 | 1735 | 5.50 | 139.70 | .523 | 13.28 | | |
| 1468A | 12 | E1 | 560 | 2491 | 6.75 | 171.45 | .673 | 17.09 | .064 | 1.63 |
| 3034A | 16 | E1 | 640 | 2847 | 7.25 | 184.15 | .713 | 18.11 | .066 | 1.68 |
| 1471A | 24 | E1 | 1105 | 4915 | 9.25 | 234.95 | .932 | 23.67 | | |
| 1472A | 36 | E1 | 1644 | 7313 | 10.50 | 266.70 | 1.062 | 26.97 | .074 | 1.88 |
| 3041A | 50 | E1 | 2240 | 9964 | 12.75 | 323.85 | 1.240 | 31.50 | | |

18 AWG • Individually Beldfoil® Shielded Pairs and Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 26) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1474A | 2 | E1 | 149 | 663 | 4.00 | 101.60 | .408 | 10.16 | | |
| 1475A | 4 | E1 | 267 | 1188 | 4.75 | 120.65 | .468 | 11.89 | .053 | 1.35 |
| 1476A | 8 | E1 | 501 | 2229 | 6.00 | 152.40 | .594 | 15.10 | | |
| 1477A | 12 | E1 | 779 | 3465 | 7.25 | 184.15 | .737 | 18.72 | | |
| 3035A | 16 | E1 | 725 | 3225 | 8.50 | 215.90 | .836 | 21.20 | .064 | 1.63 |
| 1480A | 24 | E1 | 1443 | 6419 | 10.25 | 260.35 | 1.019 | 25.88 | | |
| 1481A | 36 | E1 | 2148 | 9555 | 11.75 | 298.45 | 1.163 | 29.54 | .074 | 1.88 |
| 3042A | 50 | E1 | 2935 | 13056 | 14.00 | 355.60 | 1.389 | 35.28 | .084 | 2.13 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

18 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Unshielded

| Stranded (19 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|-----|
| 9493 | 1 | E1 | 62 | 276 | 2.25 | 57.15 | .242 | 6.15 | .037 | .94 |

18 AWG • Beldfoil® Shield

| Stranded (19 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|-----|
| 9365 | 1 | E1 | 74 | 329 | 2.50 | 63.50 | .245 | 6.22 | .037 | .94 |

18 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 26) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|-------|--------|-------|-------|------|------|
| 1036A | 1 | E1 | 90 | 400 | 2.40 | 60.96 | .236 | 5.99 | .037 | .94 |
| 3027A | 2 | E1 | 165 | 734 | 4.25 | 107.95 | .420 | 10.67 | .055 | 1.40 |
| 3030A | 4 | E1 | 240 | 1068 | 4.50 | 114.30 | .521 | 13.20 | .064 | 1.63 |
| 3032A | 8 | E1 | 501 | 2229 | 5.75 | 146.05 | .580 | 14.70 | .077 | 1.96 |
| 3036A | 16 | E1 | 1050 | 4671 | 9.00 | 228.60 | .900 | 22.86 | .077 | 1.96 |
| 3038A | 24 | E1 | 1450 | 6450 | 10.25 | 260.35 | 1.020 | 25.91 | .077 | 1.96 |

18 AWG • Individually Beldfoil® Shielded Triads and Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 26) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|-------|--------|-------|-------|------|------|
| 3028A | 2 | E1 | 175 | 778 | 4.50 | 114.30 | .450 | 11.43 | .055 | 1.40 |
| 3031A | 4 | E1 | 255 | 1134 | 5.25 | 133.35 | .533 | 13.50 | .053 | 1.35 |
| 3033A | 8 | E1 | 560 | 2491 | 6.50 | 165.10 | .654 | 16.50 | .064 | 1.63 |
| 3068A | 12 | E1 | 800 | 3559 | 8.50 | 215.90 | .840 | 21.30 | .063 | 1.60 |
| 3037A | 16 | E1 | 1320 | 5872 | 10.50 | 266.70 | .974 | 24.70 | .074 | 1.88 |
| 3039A | 24 | E1 | 1620 | 7206 | 11.25 | 285.75 | 1.200 | 30.50 | .074 | 1.88 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

16 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Unshielded

| Stranded (19 x 29) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|-----|
| 9410 | 1 | E2 | 78 | 347 | 2.50 | 63.50 | .254 | 6.45 | 0.37 | .94 |
| Stranded (7 x 24) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
| 1035A | 1 | E1 | 71 | 316 | 2.50 | 63.50 | .254 | 6.45 | 0.37 | .94 |

16 AWG • Beldfoil® Shield

| Stranded (19 x 29) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|-----|
| 9316 | 1 | E2 | 90 | 400 | 2.50 | 63.50 | .256 | 6.50 | 0.37 | .94 |

16 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 24) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1030A | 1 | E1 | 94 | 418 | 2.50 | 63.50 | .257 | 6.53 | .037 | .94 |
| 3043A | 2 | E1 | 83 | 369 | 4.50 | 114.30 | .437 | 11.10 | | |
| 1528A | 3 | E1 | 250 | 1112 | 4.75 | 120.65 | .457 | 11.61 | | |
| 1484A | 4 | E1 | 330 | 1468 | 5.00 | 127.00 | .495 | 12.57 | .053 | 1.35 |
| 1485A | 8 | E1 | 616 | 2740 | 6.00 | 152.40 | .597 | 15.16 | | |
| 1486A | 12 | E1 | 892 | 3966 | 7.50 | 190.50 | .741 | 18.80 | | |
| 3050A | 16 | E1 | 661 | 2940 | 8.50 | 215.90 | .831 | 21.10 | .064 | 1.63 |
| 1489A | 24 | E1 | 1749 | 7780 | 10.50 | 266.70 | 1.032 | 26.20 | .074 | 1.88 |
| 1490A | 36 | E1 | 2606 | 11592 | 11.75 | 298.45 | 1.178 | 29.80 | | |
| 3056A | 50 | E1 | 3615 | 16080 | 15.50 | 393.70 | 1.550 | 39.37 | .088 | 2.24 |

To Specify Conductor, Insulation and Jacket Options:

| 1234 | A | E |
|---|--|----------------------------|
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

16 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Individually Beldfoil® Shielded Pairs and Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 24) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1492A | 2 | E1 | 232 | 1032 | 4.50 | 114.30 | .450 | 11.43 | .053 | 1.35 |
| 1493A | 4 | E1 | 420 | 1868 | 5.00 | 127.00 | .512 | 13.11 | .055 | 1.40 |
| 1494A | 8 | E1 | 795 | 3536 | 7.00 | 177.80 | .687 | 17.50 | .066 | 1.68 |
| 1495A | 12 | E1 | 1170 | 5204 | 8.25 | 209.55 | .822 | 20.73 | .074 | 1.88 |
| 3051A | 16 | E1 | 661 | 2940 | 10.00 | 254.00 | .936 | 23.77 | .084 | 2.13 |
| 1498A | 24 | E1 | 2296 | 10213 | 11.50 | 292.10 | 1.149 | 29.18 | .088 | 2.24 |
| 1499A | 36 | E1 | 3167 | 14088 | 13.50 | 342.90 | 1.334 | 33.88 | | |
| 3057A | 50 | E1 | 2066 | 9190 | 16.00 | 406.40 | 1.600 | 40.64 | | |

16 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Unshielded

| Stranded (19 x 29) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|-----|
| 9494 | 1 | E1 | 91 | 405 | 2.75 | 69.85 | .268 | 6.81 | .037 | .94 |
| Stranded (7 x 24) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
| 1034A | 1 | E1 | 107 | 476 | 2.75 | 69.85 | .268 | 6.81 | .037 | .94 |

16 AWG • Beldfoil® Shield

| Stranded (19 x 29) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|-----|
| 9366 | 1 | E1 | 116 | 516 | 2.75 | 69.85 | .270 | 6.86 | .037 | .94 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

16 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 24) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1031A | 1 | E1 | 130 | 578 | 2.75 | 69.85 | .271 | 6.88 | .037 | .94 |
| 3044A | 2 | E1 | 259 | 1152 | 4.75 | 120.65 | .483 | 12.27 | .053 | 1.35 |
| 3046A | 4 | E1 | 473 | 2104 | 5.75 | 146.05 | .570 | 14.40 | .063 | 1.60 |
| 3048A | 8 | E1 | 902 | 4012 | 7.50 | 190.50 | .760 | 19.30 | .074 | 1.88 |
| 3052A | 16 | E1 | 1758 | 7820 | 11.25 | 285.75 | 1.032 | 26.21 | .084 | 2.13 |
| 3054A | 24 | E1 | 2615 | 11632 | 11.75 | 298.45 | 1.180 | 29.90 | .084 | 2.13 |

16 AWG • Individually Beldfoil® Shielded Triads and Overall Beldfoil® Shield • 22 AWG Orange Communication Wire

| Stranded (7 x 24) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 3045A | 2 | E1 | 304 | 1352 | 5.00 | 127.00 | .506 | 12.80 | .053 | 1.35 |
| 3047A | 4 | E1 | 563 | 2504 | 6.00 | 152.40 | .569 | 14.45 | .064 | 1.63 |
| 3049A | 8 | E1 | 1081 | 4809 | 8.00 | 203.20 | .764 | 19.41 | .074 | 1.88 |
| 3069A | 12 | E1 | 1500 | 6672 | 10.00 | 254.00 | .998 | 25.35 | .084 | 2.13 |
| 3053A | 16 | E1 | 2117 | 9417 | 11.50 | 292.10 | 1.150 | 29.20 | .084 | 2.13 |
| 3055A | 24 | E1 | 3153 | 14025 | 13.25 | 336.55 | 1.320 | 33.53 | .084 | 2.13 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

14 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CL3R
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

14 AWG • Unshielded

| Stranded (42 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|------|
| 9411 | 1 | E2 | 124 | 552 | 3.25 | 82.55 | .322 | 8.18 | .042 | 1.07 |

14 AWG • Beldfoil® Shield

| Stranded (42 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|------|
| 9314 | 1 | E2 | 140 | 623 | 3.25 | 82.55 | .324 | 8.23 | .042 | 1.07 |

14 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CL3R
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

14 AWG • Unshielded

| Stranded (42 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|------|
| 9495 | 1 | E1 | 186 | 827 | 3.50 | 88.90 | .340 | 8.64 | .042 | 1.07 |

14 AWG • Beldfoil® Shield

| Stranded (42 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|------|
| 9367 | 1 | E1 | 188 | 836 | 3.50 | 88.90 | .343 | 8.71 | .042 | 1.07 |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
300 V Power-Limited Tray Cables

12 AWG Pairs



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CL3R
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

12 AWG • Unshielded

| Stranded (65 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|--------|------|------|------|------|
| 9412 | 1 | E2 | 197 | 876 | 4.25 | 107.95 | .370 | 9.40 | .042 | 1.07 |

12 AWG • Beldfoil® Shield

| Stranded (65 x 30) TC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|------|------|--------|------|------|------|------|
| 9312 | 1 | E2 | 225 | 1001 | 4.25 | 107.95 | .373 | 9.47 | .042 | 1.07 |

12 AWG Triads



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- NEC: CL3R
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

12 AWG • Unshielded

| Stranded (7 x 20) BC Conductors • PVC Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|------|------|-------|------|-------|------|------|
| 3102A | 1 | E1 | 315 | 1401 | 3.50 | 88.90 | .432 | 11.00 | 0.53 | 1.35 |

To Specify Conductor, Insulation and Jacket Options:

| 1234 | A | E |
|---|--|----------------------------|
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cable

Thermocouple Extension Cable and Thermocouple Wire – Overview

Construction Thermocouple Extension Cable

Conductor material determined by the thermocouple extension wire type. FEP or PVC insulated with FEP or PVC jacket. Nylon rip cord included in all PVC-jacketed thermocouple extension cables. Communication wire included on all multi-pair, PVC constructions – 22 AWG (7 x 30) bare copper orange PVC insulation.

NOTE: The temperature ranges in Table A are applicable only to the thermocouple conductors and not to the cable. The cable must never be exposed to temperatures higher than the maximum temperature ratings shown in Table B.

Table B: Other Insulation/Jacket Options

| UL Listed for PLTC | |
|--------------------|------------------|
| Insulation/Jacket | Max. Temp Rating |
| XLP/PVC | +90 °C |
| XLP/CPE | +90 °C |
| PVC/PVC | +105 °C |
| PVC/CPE | +105 °C |
| XLP/Halooarrest® | +90 °C |
| FEP/FEP | +200 °C |

Application

Unshielded

Parallel non-shielded extension wire may be utilized in low noise environments when recommended by the instrument manufacturer.

Overall Shield

Recommended, except in areas where high voltage and current sources create excessive noise interference. The Beldfoil® shield with drain wire provides 100% coverage for maximum shield effectiveness.

Individually Shielded

Individually shielded pairs are recommended for use in applications where optimum noise rejection is required.

PVC Insulated, PVC Jacketed Cable Specifications

- UL Subject 13
- UL 1685 (UL 1581) Vertical Tray Flame Test comparable to IEEE 383-1974 (70,000 BTU) Flame Test
- ANSI/MC 96.1-1982
- NEC CMG
- NEC Type PLTC Listed, which is approved for cable tray use in Class 1, Division 2, hazardous areas and non-hazardous areas, cable trays, raceways, conduit and supported by messenger wires.

- NEC Type ITC Listed, which is approved for cable tray use, raceways hazardous locations according to Articles 501, 502, 503 and 504; or as aerial on a cable messenger, and under raised floors in control rooms and rack rooms where arranged to prevent damage to the cable. Usages are allowed based on qualified persons servicing all installations.
- PVC/PVC constructions are CMG, FT4, IEEE 1202 and IEEE 383-2003 rated, and meet ICEA T-29-520 Flame Test.
- Optional: PLTC-ER/ITC-ER
- UL 1277 TC versions approved for use in Class 1 trays available as special.

Shielded Twisted Pair (FEP insulated, FEP jacketed cable specifications)

- UL Subject 13
- NFPA 262 (UL 910 Steiner Tunnel Flame Test) comparable to FT6 Flame Test
- ANSI/MC 96.1-1982
- NEC Type CL3P/PLTC Listed, which is approved for use in ducts, plenums and other space used for environmental air.
- UL 1277 TC versions approved for use in Class 1 trays available as special.

Thermocouple Wire

Conductor material determined by the thermocouple type. FEP insulated and jacketed flat constructions.

FEP thermocouple wire is impervious to chemical attack and is flame retardant.

Table A: Thermocouple Identification and Limits of Error – Reference Junction 0 °C*

| ANSI Symbol | Temperature Range (°C) (conductor only) | Limits of Error Standard (°C) | Jacket Color | Insulation Color Code | | Conductor Identification | |
|-------------|---|-------------------------------|--------------|-----------------------|--------------|--------------------------|----------------------------|
| | | | | Positive (+) | Negative (-) | Positive (+) | Negative (-) |
| E | 0 to 340 340 to 540 | ±1.7 °C ±.50% | Brown | Purple | Red | Chromel® Non-magnetic | Constantan Silver Color |
| J | 0 to 293 293 to 480 | ±2.2 °C ±.75% | Brown | White | Red | Iron Magnetic | Constantan Non-magnetic |
| K | 0 to 293 293 to 980 | ±2.2 °C ±.75% | Brown | Yellow | Red | Chromel Non-magnetic | Alumel® Magnetic |
| T | 0 to 133 133 to 260 | ±1.0 °C ±.75% | Brown | Blue | Red | Copper Copper Color | Constantan Non-magnetic |
| EX | 0 to 200 | ±1.7 °C | Purple | Purple | Red | Chromel | Constantan |
| JX | 0 to 200 | ±2.2 °C | Black | White | Red | Iron | Constantan |
| KX | 0 to 200 | ±2.2 °C | Yellow | Yellow | Red | Chromel | Alumel |
| TX | 0 to 200 | ±1.0 °C | Blue | Blue | Red | Copper | Constantan |

Limits of error per ANSI MC96.1-1982. Limits shown do not include system or installation error. Percentages refer to the temperature being measured.

* The Temperature Range and Limits of Error are for standard grade thermocouples, Reference ANSI MC96.1-1982 for special grade thermocouples. The Temperature Ranges for type E, J, K and T thermocouple wires listed above pertain to 20 AWG wire.

Additional constructions available upon request.

CPE = Chlorinated Polyethylene • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene

UL Instrumentation Cables
Thermocouple Extension Cables

Extension Cable



- UL PLTC, ITC
- Sunlight Res
- Oil Res
- +105 °C
- NEC: CMG
- CEC: CMG FT4
- IEEE 1202/383
- ICEA T-29-520

| Part No. | ANSI Type | Pairs | Color Code | Jacket Color | Insulation Thickness | | OD (Nom) | |
|----------|-----------|-------|------------|--------------|----------------------|----|----------|----|
| | | | | | Inch | mm | Inch | mm |

20 AWG Solid Conductors • Overall Beldfoil® Shield

| PVC Insulation • PVC Jacket | | | | | | | | | |
|-----------------------------|----|---|-------------|--------|------|-----|------|------|--|
| 3111A | JX | 1 | White, Red | Black | | | | | |
| 3112A | KX | 1 | Yellow, Red | Yellow | .016 | .41 | .206 | 5.23 | |
| 3113A | TX | 1 | Blue, Red | Blue | | | | | |

20 AWG Solid Conductors • Individually Beldfoil® Shielded Pairs + Overall Beldfoil® Shield

| PVC Insulation • PVC Jacket | | | | | | | | | |
|-----------------------------|----|---|-------------|--------|------|-----|------|-------|--|
| 3115A | JX | 2 | White, Red | Black | .016 | .41 | .332 | 8.43 | |
| 1006A | JX | 4 | White, Red | Black | .016 | .41 | .383 | 9.73 | |
| 1012A | KX | 4 | Yellow, Red | Yellow | .016 | .41 | .383 | 9.73 | |
| 1013A | KX | 8 | Yellow, Red | Yellow | .016 | .41 | .503 | 12.78 | |

16 AWG Solid Conductors • Overall Beldfoil® Shield

| PVC Insulation • PVC Jacket | | | | | | | | | |
|-----------------------------|----|---|-------------|--------|------|-----|------|------|--|
| 1101A | EX | 1 | Purple, Red | Purple | | | | | |
| 1000A | JX | 1 | White, Red | Black | | | | | |
| 1018A | KX | 1 | Yellow, Red | Yellow | .017 | .43 | .248 | 6.30 | |
| 1023A | TX | 1 | Blue, Red | Blue | | | | | |

PVC = Polyvinyl Chloride

UL Instrumentation Cables

High-Temperature Thermocouple Extension Cables and Thermocouple Wire

High-Temperature Extension Cable

- UL PLTC
- Sunlight Res
- Oil Res
- +200 °C
- NEC: CL3P

| Part No. | ANSI Type | Pairs/Cond. | Color Code | Jacket Color | Insulation Thickness | | OD (Nom) | |
|----------|-----------|-------------|------------|--------------|----------------------|----|----------|----|
| | | | | | Inch | mm | Inch | mm |

20 AWG Solid Conductors • Unshielded

| FEP Insulation • FEP Jacket | | | | | | | | | |
|-----------------------------|----|----|-------------|--------|------|-----|-------------|-------------|--|
| 83932 | KX | 2c | Yellow, Red | Yellow | .010 | .25 | .076 x .128 | 1.93 x 3.25 | |

20 AWG Stranded (7x28) Conductors • Unshielded

| FEP Insulation • FEP Jacket | | | | | | | | | |
|-----------------------------|----|----|------------|-------|------|-----|-------------|-------------|--|
| 83930 | JX | 2c | White, Red | Black | .010 | .25 | .082 x .149 | 2.08 x 3.56 | |

20 AWG Stranded (7x28) Conductors • Overall Beldfoil® Shield

| FEP Insulation • FEP Jacket | | | | | | | | | |
|-----------------------------|----|------|-------------|--------|------|-----|------|------|--|
| 83955 | EX | 1 pr | Purple, Red | Purple | .010 | .25 | .145 | 3.68 | |
| 83950 | JX | 1 pr | White, Red | Black | | | | | |
| 83952 | KX | 1 pr | Yellow, Red | Yellow | | | | | |
| 83954 | TX | 1 pr | Blue, Red | Blue | | | | | |

16 AWG Solid Conductors • Overall Beldfoil® Shield

| FEP Insulation • FEP Jacket | | | | | | | | | |
|-----------------------------|----|------|-------------|--------|------|-----|------|------|--|
| 1114A | EX | 1 pr | Purple, Red | Purple | .010 | .25 | .172 | 4.37 | |
| 1115A | JX | 1 pr | White, Red | Black | | | | | |
| 1116A | KX | 1 pr | Yellow, Red | Yellow | | | | | |
| 1117A | TX | 1 pr | Blue, Red | Blue | | | | | |

16 AWG Stranded (7 x 24) Conductors • Overall Beldfoil® Shield

| FEP Insulation • FEP Jacket | | | | | | | | | |
|-----------------------------|----|------|-------------|--------|------|-----|------|------|--|
| 83951 | JX | 1 pr | White, Red | Black | .010 | .25 | .189 | 4.80 | |
| 83953 | KX | 1pr | Yellow, Red | Yellow | .010 | .25 | .187 | 4.75 | |

High-Temperature Thermocouple Wire

- UL PLTC
- Sunlight Res
- Oil Res
- +200 °C
- NEC: CL3P

| Part No. | ANSI Type | Conductors | Color Code | Jacket Color | Insulation Thickness | | OD (Nom) | |
|----------|-----------|------------|------------|--------------|----------------------|----|----------|----|
| | | | | | Inch | mm | Inch | mm |

20 AWG Solid Conductors • Unshielded

| FEP Insulation • FEP Jacket | | | | | | | | | |
|-----------------------------|---|---|-------------|-------|------|-----|-------------|-------------|--|
| 83915 | E | 2 | Purple, Red | Brown | .010 | .25 | .076 x .128 | 1.93 x 3.25 | |
| 83900 | J | 2 | White, Red | Brown | | | | | |
| 83905 | K | 2 | Yellow, Red | Brown | | | | | |
| 83910 | T | 2 | Blue, Red | Brown | | | | | |

FEP = Fluorinated Ethylene Propylene

UL Instrumentation Cables

600 V Tray Cables – Overview

Construction

Soft annealed bare or tinned copper conductors. PVC insulated with a nylon overcoat, +90 °C PVC Jacket, TFN, TFFN or THHN style singles. Nylon rip cord included in all PVC-Nylon/PVC instrumentation cables.

Application

These cables are suitable for installation in wet or dry locations. Cable jackets are resistant to sunlight, moisture and vapor penetration. The cables can be used in raceways, and (supported by messenger wire), outdoor applications and direct burial applications.

Unshielded

Twisted non-shielded instrument pairs provide a minimal OD allowing greater tray and conduit fill. Non-shielded instrument pairs may be utilized when recommended by the instrument manufacturer and used in a metallic conduit.

Overall Shield

Recommended for use in instrumentation applications where signals are transmitted in excess of 100 millivolts except in areas where high voltage and current sources creates excessive noise interference.

The Beldfoil® shield with drain wire provides 100% coverage for maximum shield effectiveness. Copper tape shield available upon request.

Individually Shielded and Overall Shielded

Individually shielded pairs or triads with an overall shield are recommended for use in instrumentation applications where optimum noise rejection is required. Individual pair/triad shields are fully isolated from each other and contain a separate drain wire for grounding to provide maximum protection from crosstalk and common mode interference. Cables with an overall shield provide additional electrostatic noise protection.

Tray Cable Construction Options

| Insulation/Jacket | UL Listed for MC and TC | | | |
|---|-------------------------|--------|---|------------------------------------|
| | Max. Temp Rating | | Flame Tests | Ratings* |
| | Wet | Dry | | |
| PVC-Nylon/PVC (THHN or THWN) 14 AWG & larger | +75 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 ICEA T-29-520 | ICEA S-73-532 ICEA S-61-402 |
| PVC-Nylon/PVC (TFN or TFFN) 16 & 18 AWG | +75 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 ICEA T-29-520 | ICEA S-73-532 ICEA S-61-402 |
| XLP/PVC or CPE (XHHW-2) 14 AWG & larger | +90 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 VW-1 rated singles ICEA T-29-520 | ICEA S-73-532 ICEA S-66-524 |
| XLP/PVC or CPE (RFH-2) 16 & 18 AWG | +90 °C | +90 °C | UL 1685 FT4/IEEE 1202/383 VW-1 rated singles ICEA T-29-520 | ICEA S-73-532 ICEA S-82-552 |
| XLP/Haloarrest® (Thermoplastic) (XHHW-2) 14 AWG & larger (RFH-2) 16 & 18 AWG | +90 °C | +90 °C | UL 1685 | TC-LS |
| XLP/HaloarrestXLink™-1 and -2 (Thermoset) (XHHW-2) 14 AWG & larger (RFH-2) 16 & 18 AWG | +90 °C | +90 °C | UL 1685 ICEA T-29-520 FT4/IEEE 1202/383 | TC-ER ICEA S-73-532 T-33-655 |

CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-linked Poly

* Applicable to TC-rated cables only.

UL Instrumentation Cables (continued)
600 V Tray Cables – Overview

Specifications

- UL Subject 1277 TC
- UL 1685 (UL 1581) Vertical Tray Flame
- NEC Type TC Listed, which is approved for cable tray use in Class 1, Division 2 areas, per NEC Articles 340, 318 and 501 and for Class 1 circuits as permitted in Article 725
- PVC-Nylon/PVC constructions are NEC Type NPLF Listed, which is approved for use in Non Power-Limited Fire Protective Signaling circuits, per NEC Article 760
- PVC-Nylon/PVC, XLP/PVC and XLP/CPE constructed cables meet IEEE 1202/IEEE 383-2003/FT4 (70,000 BTU) Flame Test
- XLP/Haloarrest® (thermoplastic) cables are UL 1277 TC-LS rated
- XLP/HaloarrestXLink™-1 and -2 are TC-ER rated

TC-ER Rated Cables

Belden offers all PVC-nylon/PVC, XLP/PVC and XLP/CPE jacketed tray cables with a TC-ER (Exposed Run) rating.

Per NEC Article 336, a TC-ER rated cable may be installed in an industrial establishment between a cable tray and the utilization equipment or device. A TC-ER rated cable must meet the crush and impact requirements of UL Type MC cable. By eliminating the need for metal conduit and/or armor, using a TC-ER rated cable results in savings in both installation and maintenance.

MC Cable Ratings Optional

Customize any 600 V TC instrumentation cable with armor and a full-sized ground. See chart below to specify.

To Specify Conductor, Insulation and Jacket Options:

| 1234 | A | E |
|--------------------------|--|--|
| Start with Base Part No. | Add or replace letter code for desired Conductor, Insulation, and Jacket | Add for Exposed Run Rating if required |

| Conductor | | Insulation/Jacket |
|-----------|--------|--|
| Bare | Tinned | |
| A | B | PVC-Nylon/PVC |
| C | D | XLP/PVC |
| G | H | XLP/TPE |
| Q | R | XLP/CPE |
| S | T | XLP/Haloarrest |
| U | V | XLP/HaloarrestXLink-1 |
| W | X | XLP/HaloarrestXLink-2 |
| Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

| Code | | |
|-----------------------|--------------|---------------------|
| Overall Jacket Prefix | Armor Prefix | Base Part No. |
| 1 | 2 | 4-digit base number |

Overall Jacket

| Code | Material |
|------|----------------------------------|
| 1 | PVC |
| 3 | CPE |
| 4 | TPE |
| 5 | HDPE |
| 7 | Haloarrest® (Thermoplastic LSZH) |

Armor

| Code | Material |
|------|--------------------|
| 2 | Aluminum Interlock |
| 3 | Steel Interlock |
| 4 | Aluminum Belclad® |
| 5 | Steel Belclad |
| 6 | Copper Belclad |
| 8 | Continuous Armor |

Example: 121049A is part number 1049A with PVC outer jacket and aluminum interlock armor.

CPE = Chlorinated Polyethylene • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Polyethylene

UL Instrumentation Cables
600 V Tray Cables

18 AWG Pairs



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Unshielded

| Stranded (19 x 30) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|------|
| 9486 | 1 | E2 | 50 | 222 | 2.75 | 69.85 | .275 | 6.99 | .048 | 1.22 |

18 AWG • Overall Beldfoil® Shield

| Stranded (19 x 30) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|------|
| 9341 | 1 | E2 | 63 | 280 | 2.75 | 69.85 | .276 | 7.01 | .048 | 1.22 |

18 AWG • Overall Beldfoil® Shield

| Stranded (7 x 26) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1120A | 1 | E2 | 59 | 262 | 2.80 | 71.12 | .278 | 7.06 | .048 | 1.22 |
| 3088A | 1 | E1 | 67 | 298 | 2.80 | 71.12 | .278 | 7.06 | | |
| 1063A | 2 | E1 | 112 | 498 | 4.10 | 104.14 | .407 | 10.34 | .053 | 1.35 |
| 1064A | 4 | E1 | 202 | 899 | 4.70 | 119.38 | .470 | 11.94 | | |
| 1065A | 8 | E1 | 381 | 1695 | 6.00 | 152.40 | .599 | 15.21 | .064 | 1.63 |
| 1066A | 12 | E1 | 560 | 2491 | 7.20 | 182.88 | .717 | 18.21 | | |
| 1067A | 16 | E1 | 739 | 3287 | 8.00 | 203.20 | .793 | 20.14 | .084 | 2.13 |
| 1068A | 24 | E1 | 1098 | 4884 | 10.30 | 261.62 | 1.017 | 25.83 | | |
| 1087A | 36 | E1 | 1635 | 7273 | 11.70 | 297.18 | 1.178 | 29.97 | .084 | 2.13 |
| 1088A | 50 | E1 | 2262 | 10062 | 14.50 | 368.30 | 1.446 | 36.73 | | |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
600 V Tray Cables

18 AWG Pairs



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Individually Beldfoil® Shielded Pairs + Overall Beldfoil® Shield

| Stranded (7 x 26) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1048A | 2 | E1 | 140 | 623 | 3.80 | 96.52 | .381 | 9.68 | .048 | 1.22 |
| 1049A | 4 | E1 | 258 | 1148 | 4.90 | 124.46 | .489 | 12.42 | .053 | 1.35 |
| 1050A | 8 | E1 | 350 | 1557 | 6.60 | 167.64 | .654 | 16.61 | .064 | 1.63 |
| 1051A | 12 | E1 | 728 | 3238 | 7.90 | 200.66 | .785 | 19.94 | | |
| 1052A | 16 | E1 | 963 | 4284 | 9.00 | 228.60 | .898 | 22.81 | | |
| 1053A | 24 | E1 | 1434 | 6379 | 11.10 | 281.94 | 1.115 | 28.32 | .084 | 2.13 |
| 1054A | 36 | E1 | 2139 | 9515 | 13.00 | 330.20 | 1.299 | 32.99 | | |
| 1038A | 50 | E1 | 2962 | 13176 | 15.30 | 388.62 | 1.527 | 38.79 | | |

18 AWG • Overall Beldfoil® Shield • Exposed Run • Green Insulated Ground Wire

| Stranded (7 x 26) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|----|-----|------|-------|------|------|------|------|
| 3088AE | 1 | E1 | 80 | 356 | 3.40 | 86.36 | .340 | 8.64 | .048 | 1.22 |

| Stranded (7 x 26) BC Conductors • Cross-Linked Poly Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|----|-----|------|-------|------|------|------|------|
| 3088CE | 1 | E1 | 63 | 280 | 2.75 | 69.85 | .276 | 7.01 | .048 | 1.22 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Bare | Tinned | Insulation/Jacket | Bare | Tinned | Insulation/Jacket |
|------|--------|-------------------|------|--------|-------------------|
| A | B | PVC/PVC | Q | R | XLP/CPE |
| C | D | XLP/PVC | S | T | XLP/Haloarrest® |

BC = Bare Copper • CPE = Chlorinated Polyethylene • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
600 V Tray Cables

18 AWG Triads



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Overall Beldfoil® Shield

| Stranded (7 x 26) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|----|-----|------|-------|------|------|------|------|
| 1121A | 1 | E2 | 81 | 360 | 2.90 | 73.66 | .290 | 7.36 | .047 | 1.22 |
| 3089A | 1 | E1 | 90 | 400 | 2.75 | 89.85 | .282 | 7.16 | .048 | 1.22 |

18 AWG • Individually Beldfoil® Shielded Triads + Overall Beldfoil® Shield

| Stranded (7 x 26) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|------|-------|--------|-------|-------|------|------|
| 3064A | 2 | E1 | 185 | 823 | 4.75 | 120.65 | .493 | 12.52 | .048 | 1.22 |
| 1093A | 4 | E1 | 347 | 1545 | 6.00 | 152.40 | .577 | 14.66 | .063 | 1.60 |
| 1094A | 8 | E1 | 672 | 2989 | 7.50 | 190.50 | .745 | 18.92 | .084 | 2.13 |
| 1095A | 12 | E1 | 997 | 4435 | 9.75 | 247.65 | .944 | 23.98 | .084 | 2.13 |
| 1096A | 24 | E1 | 1971 | 8767 | 13.00 | 330.20 | 1.284 | 32.61 | .084 | 2.13 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLink™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLink-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
600 V Tray Cables

16 AWG Pairs



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Unshielded

| Stranded (19 x 29) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|----|-----|------|-------|------|------|------|------|
| 9487 | 1 | E2 | 70 | 311 | 3.00 | 76.20 | .295 | 7.49 | .048 | 1.22 |

16 AWG • Overall Beldfoil® Shield

| Stranded (19 x 29) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|------|
| 9342 | 1 | E2 | 105 | 467 | 3.00 | 76.20 | .296 | 7.52 | .048 | 1.22 |

16 AWG • Overall Beldfoil® Shield

| Stranded (7 x 24) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1118A | 1 | E2 | 105 | 467 | 3.00 | 76.20 | .294 | 7.47 | | |
| 3090A | 1 | E1 | 105 | 467 | 3.00 | 76.20 | .295 | 7.49 | .047 | 1.19 |
| 1069A | 2 | E1 | 179 | 796 | 4.60 | 116.84 | .456 | 11.58 | | |
| 1527A | 3 | E1 | 241 | 1072 | 4.80 | 121.92 | .482 | 12.24 | | |
| 1070A | 4 | E1 | 321 | 1428 | 5.60 | 142.24 | .560 | 14.22 | | |
| 1071A | 8 | E1 | 607 | 2700 | 6.80 | 172.72 | .676 | 17.17 | .063 | 1.60 |
| 1072A | 12 | E1 | 893 | 3972 | 8.10 | 205.74 | .812 | 20.63 | | |
| 1073A | 16 | E1 | 1178 | 5240 | 9.30 | 236.22 | .946 | 24.03 | | |
| 1074A | 24 | E1 | 1749 | 7780 | 11.60 | 294.64 | 1.158 | 29.41 | .085 | 2.16 |
| 1089A | 36 | E1 | 2606 | 11592 | 13.20 | 335.28 | 1.321 | 33.55 | | |
| 1090A | 50 | E1 | 3606 | 16040 | 15.50 | 393.70 | 1.551 | 39.40 | | |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLInk™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLInk-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLInk-2, Marine Approved |

TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
600 V Tray Cables

16 AWG Pairs



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Individually Beldfoil® Shielded Pairs + Overall Beldfoil® Shield

| Stranded (7 x 24) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1055A | 2 | E1 | 223 | 992 | 4.16 | 105.66 | .476 | 12.09 | | |
| 1037A | 3 | E1 | 290 | 1290 | 5.00 | 127.0 | .504 | 12.80 | .047 | 1.19 |
| 1039A | 4 | E1 | 411 | 1828 | 5.80 | 147.32 | .584 | 14.83 | | |
| 1040A | 6 | E1 | 428 | 1904 | 6.80 | 172.72 | .682 | 17.32 | .063 | 1.60 |
| 1041A | 8 | E1 | 786 | 3496 | 7.40 | 187.96 | .738 | 18.75 | | |
| 1042A | 12 | E1 | 1161 | 5164 | 9.40 | 238.76 | .935 | 23.75 | | |
| 1043A | 16 | E1 | 1537 | 6837 | 10.40 | 264.16 | 1.035 | 26.29 | | |
| 1044A | 20 | E1 | 1912 | 8505 | 11.50 | 292.10 | 1.146 | 29.11 | .085 | 2.16 |
| 1045A | 24 | E1 | 2287 | 10173 | 12.70 | 322.58 | 1.272 | 32.31 | | |
| 1046A | 36 | E1 | 3413 | 15182 | 14.50 | 368.30 | 1.454 | 36.93 | | |
| 1047A | 50 | E1 | 4726 | 21022 | 17.80 | 452.12 | 1.781 | 45.24 | .120 | 3.05 |

16 AWG • Overall Beldfoil® Shield • Exposed Run • Green Insulated Ground Wire

| Stranded (7 x 24) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|-----|------|-------|------|------|------|------|
| 3090AE | 1 | E1 | 130 | 578 | 3.90 | 99.06 | .390 | 9.91 | .048 | 1.22 |

| Stranded (7 x 24) BC Conductors • Cross-Linked Poly Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|-----|------|-------|------|------|------|------|
| 3090CE | 1 | E1 | 130 | 578 | 3.90 | 99.06 | .390 | 9.91 | .048 | 1.22 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLink™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLink-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Polyethylene
Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
600 V Tray Cables

16 AWG Triads



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Overall Beldfoil® Shield

| Stranded (7 x 24) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|-----|------|-------|------|------|------|------|
| 1119A | 1 | E2 | | | | | | | | |
| 3091A | 1 | E1 | 129 | 574 | 3.10 | 78.74 | .310 | 7.87 | .047 | 1.19 |

16 AWG • Individually Beldfoil® Shielded Triads + Overall Beldfoil® Shield

| Stranded (7 x 24) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|----|----|------|-------|-------|--------|-------|-------|------|------|
| 1097A | 4 | E1 | 554 | 2464 | 6.40 | 162.56 | .640 | 16.26 | .063 | 1.60 |
| 1098A | 8 | E1 | 1072 | 4768 | 8.70 | 220.98 | .872 | 22.15 | .085 | 2.16 |
| 1099A | 12 | E1 | 1590 | 7073 | 10.50 | 266.70 | 1.047 | 26.59 | .085 | 2.16 |
| 3118A | 16 | E1 | 1771 | 7878 | 12.25 | 311.15 | 1.234 | 31.34 | .084 | 2.13 |
| 1100A | 24 | E1 | 3144 | 13985 | 14.30 | 363.22 | 1.434 | 36.42 | .085 | 2.16 |
| 3130A | 36 | E1 | 3600 | 16014 | 18.00 | 457.20 | 1.773 | 45.03 | .110 | 2.79 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLInk™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLInk-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLInk-2, Marine Approved |

BC = Bare Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Polyethylene | Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
600 V Tray Cables

14 AWG Pairs



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

14 AWG • Unshielded

| Stranded (42 x 30) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|------|
| 9488 | 1 | E2 | 107 | 476 | 3.75 | 95.25 | .359 | 9.12 | .048 | 1.22 |

14 AWG • Overall Beldfoil® Shield

| Stranded (42 x 30) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|------|
| 9343 | 1 | E2 | 160 | 712 | 3.75 | 95.25 | 3.58 | 9.09 | .048 | 1.22 |

14 AWG • Overall Beldfoil® Shield

| Stranded (7 x 22) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|-----|------|-------|------|------|------|------|
| 3080A | 1 | E2 | 160 | 712 | 3.50 | 88.90 | .342 | 8.69 | .048 | 1.22 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLink™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLink-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Polyethylene
Belden Color Code Charts can be found at page 561.

UL Instrumentation Cables
600 V Tray Cables

14 AWG Triads



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

14 AWG • Overall Beldfoil® Shield

| Stranded (7 x 22) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|-----|------|-------|------|------|------|------|
| 3081A | 1 | E1 | 200 | 890 | 3.50 | 88.90 | .361 | 9.17 | .048 | 1.22 |

12 AWG Pairs



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

12 AWG • Unshielded

| Stranded (37 x 27) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|-----|------|-------|------|------|------|------|
| 9489 | 1 | E2 | 179 | 796 | 3.75 | 95.25 | .380 | 9.65 | 0.45 | 1.14 |

12 AWG • Overall Beldfoil® Shield

| Stranded (37 x 27) TC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|--|---|----|-----|------|------|-------|------|------|------|------|
| 9344 | 1 | E2 | 253 | 1125 | 3.75 | 95.25 | .384 | 9.75 | .045 | 1.14 |

12 AWG • Overall Beldfoil® Shield

| Stranded (7 x 20) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|------|------|-------|------|------|------|------|
| 3103A | 1 | E1 | 253 | 1125 | 3.80 | 96.52 | .380 | 9.65 | .048 | 1.22 |

12 AWG Triads



- UL TC
- UL Sunlight Res
- Oil Res
- Direct Burial
- NEC: NPLF
- ICEA S-73-532, S-61-402, T-29-520
- FT4
- IEEE 1202/383

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|--------------------|---|-------------------|----|----------|----|------------------|----|
| | | | Lbs | N | Inch | mm | Inch | mm | Inch | mm |

12 AWG • Overall Beldfoil® Shield

| Stranded (7 x 20) BC Conductors • PVC/Nylon Insulation • PVC Jacket | | | | | | | | | | |
|---|---|----|-----|------|------|--------|------|-------|------|------|
| 3104A | 1 | E1 | 315 | 1401 | 4.00 | 101.60 | .401 | 10.19 | .048 | 1.22 |

| To Specify Conductor, Insulation and Jacket Options: | | |
|---|--|----------------------------|
| 1234 | A | E |
| Start with Base Part No. (1000 and 3000 Series cables only) | Add or Modify for Conductor, Insulation, and Jacket. See table at right. | Add for Exposed Run Rating |

| Conductor | | Insulation/Jacket | Conductor | | Insulation/Jacket |
|-----------|--------|-------------------|-----------|--------|--|
| Bare | Tinned | | Bare | Tinned | |
| A | B | PVC-Nylon/PVC | S | T | XLP/Haloarrest® |
| C | D | XLP/PVC | U | V | XLP/HaloarrestXLink™-1 |
| G | H | XLP/TPE | W | X | XLP/HaloarrestXLink-2 |
| Q | R | XLP/CPE | Y | Z | XLP/HaloarrestXLink-2, Marine Approved |

BC = Bare Copper • TC = Tinned Copper • CPE = Chlorinated Polyethylene • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer • XLP = Cross-Linked Polyethylene
Belden Color Code Charts can be found at page 561.

CSA Instrumentation and Thermocouple Tray Cables

300 V TC/CIC

Pairs • Unshielded



- +90 °C Dry, +75 °C Wet (PVC)
- +90 °C Dry/Wet (XLP)
- Sunlight Res
- Direct Burial

- CSA C22.2 No. 239 CIC
- CSA C22.2 No. 230 Type TC
- CSA FT4 70,000 BTU Flame Test
- CEC Part 1, Suitable for Use in Hazardous Locations: Class 1, Zone 2 and Class 2, Division 2

| Pairs | Part No. | | | | |
|---|-----------------|-----------------------------|--------------------------|-------------------------|----------------------------|
| | 7-Strand Copper | Solid EX Chromel/Constantan | Solid JX Iron/Constantan | Solid KX Chromel/Alumel | Solid TX Copper/Constantan |
| 20 AWG • PVC Insulation • PVC Jacket | | | | | |
| 1 | 22000 | 21100 | 21114 | 21128 | 21142 |
| 2 | 22001 | 21101 | 21115 | 21129 | 21143 |
| 4 | 22002 | 21102 | 21116 | 21130 | 21144 |
| 6 | 22003 | 21103 | 21117 | 21131 | 21145 |
| 8 | 22004 | 21104 | 21118 | 21132 | 21146 |
| 10 | 22005 | 21105 | 21119 | 21133 | 21147 |
| 12 | 22006 | 21106 | 21120 | 21134 | 21148 |
| 16 | 22007 | 21107 | 21121 | 21135 | 21149 |
| 20 | 22008 | 21108 | 21122 | 21136 | 21150 |
| 24 | 22009 | 21109 | 21123 | 21137 | 21151 |
| 30 | 22010 | 21110 | 21124 | 21138 | 21152 |
| 36 | 22011 | 21111 | 21125 | 21139 | 21153 |
| 40 | 22012 | 21112 | 21126 | 21140 | 21154 |
| 50 | 22013 | 21113 | 21127 | 21141 | 21155 |
| 18 AWG • PVC Insulation • PVC Jacket | | | | | |
| 1 | 22027 | 21156 | 21170 | 21184 | 21198 |
| 2 | 22028 | 21157 | 21171 | 21185 | 21199 |
| 4 | 22029 | 21158 | 21172 | 21186 | 21200 |
| 6 | 22030 | 21159 | 21173 | 21187 | 21201 |
| 8 | 22031 | 21160 | 21174 | 21188 | 21202 |
| 10 | 22032 | 21161 | 21175 | 21189 | 21203 |
| 12 | 22033 | 21162 | 21176 | 21190 | 21204 |
| 16 | 22034 | 21163 | 21177 | 21191 | 21205 |
| 20 | 22035 | 21164 | 21178 | 21192 | 21206 |
| 24 | 22036 | 21165 | 21179 | 21193 | 21207 |
| 30 | 22037 | 21166 | 21180 | 21194 | 21208 |
| 36 | 22038 | 21167 | 21181 | 21195 | 21209 |
| 40 | 22039 | 21168 | 21182 | 21196 | 21210 |
| 50 | 22040 | 21169 | 21183 | 21197 | 21211 |
| 16 AWG • PVC Insulation • PVC Jacket | | | | | |
| 1 | 22054 | 21212 | 21226 | 21240 | 21254 |
| 2 | 22055 | 21213 | 21227 | 21241 | 21255 |
| 4 | 22056 | 21214 | 21228 | 21242 | 21256 |
| 6 | 22057 | 21215 | 21229 | 21243 | 21257 |
| 8 | 22058 | 21216 | 21230 | 21244 | 21258 |
| 10 | 22059 | 21217 | 21231 | 21245 | 21259 |
| 12 | 22060 | 21218 | 21232 | 21246 | 21260 |
| 16 | 22061 | 21219 | 21233 | 21247 | 21261 |
| 20 | 22062 | 21220 | 21234 | 21248 | 21262 |
| 24 | 22063 | 21221 | 21235 | 21249 | 21263 |
| 30 | 22064 | 21222 | 21236 | 21250 | 21264 |
| 36 | 22065 | 21223 | 21237 | 21251 | 21265 |
| 40 | 22066 | 21224 | 21238 | 21252 | 21266 |
| 50 | 22067 | 21225 | 21239 | 21253 | 21267 |

PVC = Polyvinyl Chloride

CSA Instrumentation and Thermocouple Tray Cables

300 V TC/CIC

Triads • Unshielded



- +90 °C Dry, +75 °C Wet (PVC)
- +90 °C Dry/Wet (XLP)
- Sunlight Res
- Direct Burial
- CSA C22.2 No. 239 CIC
- CSA C22.2 No. 230 Type TC
- CSA FT4 70,000 BTU Flame Test
- CEC Part 1, Suitable for Use in Hazardous Locations: Class 1, Zone 2 and Class 2, Division 2

| Triads | Part No. | | |
|--|----------|--------|--------|
| | 20 AWG | 18 AWG | 16 AWG |
| Copper Conductors • PVC Insulation (Black, White, Red) • PVC Jacket | | | |
| 1 | 22014 | 22041 | 22068 |
| 2 | 22015 | 22042 | 22069 |
| 4 | 22016 | 22043 | 22070 |
| 6 | 22017 | 22044 | 22071 |
| 8 | 22018 | 22045 | 22072 |
| 10 | 22019 | 22046 | 22073 |
| 12 | 22020 | 22047 | 22074 |
| 16 | 22021 | 22048 | 22075 |
| 20 | 22022 | 22049 | 22076 |
| 24 | 22023 | 22050 | 22077 |
| 30 | 22024 | 22051 | 22078 |
| 36 | 22025 | 22052 | 22079 |

To Create a Part Number

To the base part number, add a letter suffix for conductor, insulation, and, jacket, and a numeric suffix for shielding, as shown below.

| Suffix | Conductor | Insulation | Jacket | Suffix | Shielding (includes Drain wire) |
|--------|-----------------------------------|------------|--------|--------|--|
| A | Bare Copper or Thermocouple Alloy | PVC | PVC | none | No Shielding |
| B | Tinned Copper | PVC | PVC | 1 | Overall Foil + Drain Wire |
| C | Bare Copper or Thermocouple Alloy | XLP | PVC | 2 | Individual Pairs/Triads + Overall Foil |
| D | Tinned Copper | XLP | PVC | | |

Sample Part Number: 22001B2 = 300 V, 2-pair 20 AWG tinned copper conductor cable with PVC insulation, PVC jacket, with individual and overall foil shields plus drain wire.

Thermocouple Color Codes

| ANSI Type | Jacket | Insulation | |
|-----------|--------|--------------|--------------|
| | | Positive (+) | Negative (-) |
| EX | Purple | Purple | Red |
| JX | Black | White | Red |
| KX | Yellow | Yellow | Red |
| TX | Blue | Blue | Red |

PVC = Polyvinyl Chloride • XLP = Cross-Linked Polyethylene

CSA Instrumentation Cables
300 V CIC

Contact Belden Customer Service for other options:

- 150 V
- XLP insulation (add D suffix to part number)
- Thermocouple alloy conductors
- Overall foil shield only
- Other pair and triad counts

Pairs • Individually Shielded Pairs + Overall Beldfoil® Shield



- -40 °C to +105 °C Dry
- -40 °C to +75 °C Wet
- -25 °C Cold Impact

- CSA C22.2 No. 239, Type CIC
- FT4 Flame Test

| Part No. | Pairs | Color Code | OD (Nom) | | Jacket Thickness | |
|----------|-------|------------|----------|----|------------------|----|
| | | | Inch | mm | Inch | mm |

Stranded TC Conductors • PVC Insulation • Individually Shielded Pairs + Overall Beldfoil® Shield • Polyester Isolation Tape • PVC Jacket

20 AWG • 7 x 28

| | | | | | | |
|-------|----|----|-------|-------|------|------|
| 22671 | 1 | E1 | .260 | 6.60 | | |
| 22638 | 2 | E1 | .400 | 10.16 | .045 | 1.14 |
| 22639 | 4 | E1 | .460 | 11.68 | | |
| 22640 | 6 | E1 | .570 | 14.48 | | |
| 22641 | 8 | E1 | .610 | 15.49 | | |
| 22676 | 12 | E1 | .730 | 18.54 | .060 | 1.52 |
| 22643 | 16 | E1 | .810 | 20.57 | | |
| 22647 | 24 | E1 | 1.040 | 26.42 | .080 | 2.03 |
| 22670 | 36 | E1 | 1.190 | 30.23 | | |

18 AWG • 7 x 26

| | | | | | | |
|-------|----|----|-------|-------|------|------|
| 22645 | 1 | E1 | .300 | 7.62 | | |
| 22633 | 2 | E1 | .480 | 12.19 | .045 | 1.14 |
| 22648 | 4 | E1 | .580 | 14.73 | | |
| 22634 | 6 | E1 | .670 | 17.02 | | |
| 22635 | 8 | E1 | .730 | 18.54 | .060 | 1.52 |
| 22636 | 12 | E1 | .920 | 23.37 | | |
| 22654 | 16 | E1 | 1.020 | 25.91 | .080 | 2.03 |
| 22637 | 24 | E1 | 1.260 | 32.00 | | |

16 AWG • 7 x 24

| | | | | | | |
|-------|----|----|-------|-------|------|------|
| 22646 | 1 | E1 | .320 | 8.13 | .045 | 1.14 |
| 22628 | 2 | E1 | .520 | 13.21 | | |
| 22629 | 4 | E1 | .628 | 15.95 | | |
| 22630 | 6 | E1 | .740 | 18.80 | .060 | 1.52 |
| 22631 | 8 | E1 | .800 | 20.32 | | |
| 22632 | 12 | E1 | 1.010 | 25.65 | | |
| 22685 | 16 | E1 | 1.120 | 28.45 | .080 | 2.03 |
| 22686 | 24 | E1 | 1.380 | 35.05 | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

CSA Instrumentation Cables

300 V CIC

**Triads • Individually Shielded Triads
+ Overall Beldfoil® Shield**

- -40 °C to +105 °C Dry
- -40 °C to +75 °C Wet
- -25 °C Cold Impact

- CSA C22.2 No . 239, Type CIC
- FT4 Flame Test

| Part No. | Triads | Color Code | OD (Nom) | | Jacket Thickness | |
|----------|--------|------------|----------|----|------------------|----|
| | | | Inch | mm | Inch | mm |

Stranded TC Conductors • PVC Insulation • Individually Shielded Triads + Overall Beldfoil® Shield • Polyester Isolation Tape • Black PVC Jacket

20 AWG • 7 x 28

| | | | | | | |
|-------|----|----|-------|-------|------|------|
| 22660 | 1 | E1 | .270 | 6.86 | | |
| 22662 | 2 | E1 | .420 | 10.67 | .045 | 1.14 |
| 22663 | 4 | E1 | .490 | 12.45 | | |
| 22672 | 8 | E1 | .650 | 16.51 | .060 | 1.52 |
| 22673 | 16 | E1 | .910 | 23.11 | | |
| 22674 | 24 | E1 | 1.110 | 28.19 | .080 | 2.03 |

18 AWG • 7 x 26

| | | | | | | |
|-------|----|----|-------|-------|------|------|
| 22677 | 1 | E1 | .303 | 7.70 | | |
| 22678 | 2 | E1 | .480 | 12.19 | .045 | 1.14 |
| 22679 | 4 | E1 | .620 | 15.75 | | |
| 22680 | 8 | E1 | .710 | 18.03 | .060 | 1.52 |
| 22681 | 16 | E1 | .770 | 19.56 | | |
| 22682 | 24 | E1 | .980 | 24.89 | | |
| 22683 | 16 | E1 | 1.090 | 27.69 | .080 | 2.03 |
| 22684 | 24 | E1 | 1.340 | 34.04 | | |

16 AWG • 7 x 24

| | | | | | | |
|-------|---|----|------|-------|------|------|
| 22603 | 1 | E1 | .329 | 8.36 | | |
| 22687 | 2 | E1 | .580 | 14.73 | .045 | 1.14 |
| 22675 | 4 | E1 | .670 | 17.02 | | |
| 22688 | 6 | E1 | .780 | 19.81 | .060 | 1.52 |
| 22689 | 8 | E1 | .940 | 23.88 | .080 | 2.03 |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

CSA Instrumentation Cables
300 V ACIC Armored Cables

Pairs • Armored • Individually Beldfoil® Shielded Pairs + Overall Beldfoil® Shield



- -40 °C to +105 °C Dry
- -40 °C to +75 °C Wet
- -25 °C Cold Impact

- CSA C22.2 No. 239, Type ACIC
- CSA C22.2 No. 174, HLABCD
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas (Jacket Only)
- FT4 Flame Test

| Part No. | | Pairs | Color Code | Inner Jacket OD | | Outer Jacket OD | | Insulation Thickness | |
|----------|-------|-------|------------|-----------------|----|-----------------|----|----------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm |

Stranded TC Conductors • PVC Insulation • Individually Beldfoil® Shielded Pairs + Overall Beldfoil® Shield • Polyester Isolation Tape • PVC Inner Jacket • Armor • Chrome PVC Outer Jacket

20 AWG • 7 x 28

| | | | | | | | | | |
|-------|-------|----|----|------|------|------|------|------|-----|
| 23543 | 26530 | 1 | E1 | .26 | 6.6 | .56 | 14.2 | | |
| 23534 | 26531 | 2 | E1 | .40 | 10.2 | .70 | 17.8 | | |
| 23514 | 26532 | 4 | E1 | .46 | 11.7 | .76 | 19.3 | | |
| 23513 | 26533 | 6 | E1 | .57 | 14.5 | .88 | 22.4 | | |
| 23503 | 26534 | 8 | E1 | .63 | 16.0 | .92 | 23.4 | | |
| 23521 | 26535 | 12 | E1 | .75 | 19.1 | 1.06 | 26.9 | .020 | .51 |
| 23532 | 26536 | 16 | E1 | .79 | 20.1 | 1.16 | 29.5 | | |
| 23506 | 26537 | 24 | E1 | 1.05 | 26.7 | 1.42 | 36.1 | | |
| 23544 | 26538 | 36 | E1 | 1.14 | 29.0 | 1.57 | 39.9 | | |
| 23575 | 26546 | 50 | E1 | 1.37 | 34.8 | 1.75 | 44.5 | | |

18 AWG • 7 x 26

| | | | | | | | | | |
|-------|-------|----|----|------|------|------|------|------|-----|
| 23533 | 26514 | 1 | E1 | .30 | 7.6 | .60 | 15.2 | | |
| 23511 | 26515 | 2 | E1 | .48 | 12.2 | .78 | 19.8 | | |
| 23530 | 26516 | 4 | E1 | .58 | 14.7 | .88 | 22.4 | | |
| 23528 | 26517 | 6 | E1 | .67 | 17.0 | .98 | 24.9 | | |
| 23531 | 26518 | 8 | E1 | .73 | 18.5 | 1.03 | 26.2 | .025 | .64 |
| 23524 | 26519 | 12 | E1 | .90 | 22.9 | 1.28 | 32.5 | | |
| 23519 | 26520 | 16 | E1 | .99 | 25.1 | 1.37 | 34.8 | | |
| 23542 | 26521 | 24 | E1 | 1.24 | 31.5 | 1.63 | 41.4 | | |
| 23554 | 26555 | 36 | E1 | 1.41 | 35.8 | 1.80 | 45.7 | | |

16 AWG • 7 x 24

| | | | | | | | | | |
|-------|-------|----|----|------|------|------|------|------|-----|
| 23501 | 26500 | 1 | E1 | .33 | 8.4 | .62 | 15.8 | | |
| 23527 | 26501 | 2 | E1 | .52 | 13.2 | .81 | 20.6 | | |
| 23509 | 26503 | 4 | E1 | .63 | 16.0 | .93 | 23.6 | | |
| 23500 | 26504 | 6 | E1 | .73 | 18.5 | 1.03 | 26.2 | | |
| 23510 | 26505 | 8 | E1 | .79 | 20.1 | 1.16 | 29.5 | .025 | .64 |
| 23525 | 26506 | 12 | E1 | 1.00 | 25.4 | 1.37 | 34.8 | | |
| 23539 | 26507 | 16 | E1 | 1.12 | 28.2 | 1.48 | 37.6 | | |
| 23538 | 26508 | 24 | E1 | 1.36 | 34.5 | 1.75 | 44.5 | | |
| 23568 | 26551 | 36 | E1 | 1.60 | 40.6 | 1.97 | 50.0 | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

CSA Instrumentation Cables
300 V ACIC Armored Cables

Triads • Armored • Individually Beldfoil® Shielded Triads + Overall Beldfoil® Shield



- -40 °C to +105 °C Dry
- -40 °C to +75 °C Wet
- -25 °C Cold Impact
- CSA C22.2 No. 239, Type ACIC
- CSA C22.2 No. 174, HLABCD
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas (Jacket Only)
- FT4 Flame Test

| Part No. | | Triads | Color Code | Inner Jacket OD | | Outer Jacket OD | | Insulation Thickness | |
|----------|-------|--------|------------|-----------------|----|-----------------|----|----------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm |

Stranded TC Conductors • PVC Insulation • Individually Beldfoil® Shielded Triads + Overall Beldfoil® Shield • Polyester Isolation Tape • PVC Inner Jacket • Armor • Chrome PVC Outer Jacket

20 AWG • 7 x 28

| | | | | | | | | | |
|-------|-------|----|----|------|------|------|------|------|-----|
| 23545 | 26539 | 1 | E1 | .27 | 6.9 | .57 | 14.5 | .020 | .51 |
| 23546 | 26540 | 2 | E1 | .43 | 10.9 | .73 | 18.5 | | |
| 23547 | 26541 | 4 | E1 | .50 | 12.7 | .80 | 20.3 | | |
| 23548 | 26542 | 8 | E1 | .69 | 17.5 | 1.00 | 25.4 | | |
| 23571 | 26553 | 12 | E1 | .82 | 20.8 | 1.24 | 31.5 | | |
| 23549 | 26543 | 16 | E1 | .91 | 23.1 | 1.28 | 32.5 | | |
| 23550 | 26544 | 24 | E1 | 1.11 | 28.2 | 1.48 | 37.6 | | |

18 AWG • 7 x 26

| | | | | | | | | | |
|-------|-------|----|----|------|------|------|------|------|-----|
| 23505 | 26522 | 1 | E1 | .33 | 8.4 | .61 | 15.5 | .025 | .64 |
| 23516 | 26523 | 2 | E1 | .51 | 13.0 | .81 | 20.6 | | |
| 23515 | 26524 | 4 | E1 | .62 | 15.7 | .93 | 23.6 | | |
| 23508 | 26525 | 6 | E1 | .75 | 19.1 | 1.11 | 28.2 | | |
| 23523 | 26526 | 8 | E1 | .81 | 20.6 | 1.18 | 30.0 | | |
| 23512 | 26527 | 12 | E1 | 1.03 | 26.2 | 1.40 | 35.6 | | |
| 23537 | 26528 | 16 | E1 | 1.13 | 28.7 | 1.50 | 38.1 | | |
| 23536 | 26529 | 24 | E1 | 1.37 | 34.8 | 1.80 | 45.7 | | |

16 AWG • 7 x 24

| | | | | | | | | | |
|-------|-------|----|----|------|------|------|------|------|-----|
| 23507 | 26502 | 1 | E1 | .35 | 8.9 | .63 | 16.0 | .025 | .64 |
| 23522 | 26509 | 2 | E1 | .58 | 14.7 | .90 | 22.9 | | |
| 23520 | 26510 | 4 | E1 | .68 | 17.3 | .95 | 24.1 | | |
| 23529 | 26511 | 6 | E1 | .78 | 19.8 | 1.19 | 30.2 | | |
| 23526 | 26512 | 8 | E1 | .93 | 23.6 | 1.30 | 33.0 | | |
| 23541 | 26513 | 12 | E1 | 1.13 | 28.7 | 1.50 | 38.1 | | |
| 23567 | 26545 | 16 | E1 | 1.25 | 31.8 | 1.64 | 41.7 | | |
| 23578 | 26547 | 24 | E1 | 1.58 | 40.1 | 1.95 | 49.5 | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

CSA Instrumentation Cables
600 V ACIC Armored Cables

Pairs • Armored • Individually Beldfoil® Shielded Pairs + Overall Beldfoil® Shield



- -40 °C to +105 °C Dry
- -40 °C to +75 °C Wet
- -25 °C Cold Impact

- CSA C22.2 No. 239, Type ACIC
- CSA C22.2 No. 174, HLABCD
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas (Jacket Only)
- FT4 Flame Test

| Part No. | | Pairs | Color Code | Inner Jacket OD | | Outer Jacket OD | | Insulation Thickness | |
|----------|-------|-------|------------|-----------------|----|-----------------|----|----------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm |

Stranded TC Conductors • PVC Insulation • Individually Beldfoil® Shielded Pairs + Overall Beldfoil® Shield • Polyester Isolation Tape • PVC Inner Jacket • Armor • Chrome PVC Outer Jacket

18 AWG • 7 x 26

| | | | | | | | | | |
|-------|-------|----|----|------|-------|------|-------|------|-----|
| 24511 | 25506 | 1 | E1 | .32 | 8.13 | .61 | 15.49 | .030 | .76 |
| 24512 | 25514 | 2 | E1 | .51 | 12.95 | .82 | 20.83 | | |
| 24513 | 25503 | 4 | E1 | .63 | 16.00 | .93 | 23.62 | | |
| 24514 | 25505 | 8 | E1 | .79 | 20.27 | 1.15 | 29.21 | | |
| 24515 | 25501 | 12 | E1 | 1.00 | 25.40 | 1.36 | 34.54 | | |
| 24520 | 25517 | 24 | E1 | 1.36 | 34.54 | 1.75 | 44.45 | | |

16 AWG • 7 x 24

| | | | | | | | | | |
|-------|-------|----|----|------|-------|------|-------|------|-----|
| 24500 | 25504 | 1 | E1 | .34 | 8.64 | .64 | 16.26 | .030 | .76 |
| 24505 | 25510 | 2 | E1 | .59 | 14.99 | .89 | 22.61 | | |
| 24502 | 25511 | 4 | E1 | .68 | 17.27 | .98 | 24.89 | | |
| 24506 | 25512 | 6 | E1 | .79 | 20.07 | 1.16 | 29.46 | | |
| 24503 | 25513 | 8 | E1 | .90 | 22.86 | 1.27 | 32.26 | | |
| 24504 | 25518 | 12 | E1 | 1.09 | 27.69 | 1.46 | 37.08 | | |
| 24510 | 25519 | 24 | E1 | 1.49 | 37.85 | 1.88 | 47.75 | | |

Triads • Armored • Individually Beldfoil® Shielded Triads + Overall Beldfoil® Shield



- -40 °C to +105 °C Dry
- -40 °C to +75 °C Wet
- -25 °C Cold Impact

- CSA C22.2 No. 239, Type ACIC
- CSA C22.2 No. 174, HLABCD
- CSA C22.2 No. 0.3 Clause 4.31 Low Acid Gas (Jacket Only)
- FT4 Flame Test

| Part No. | | Triads | Color Code | Inner Jacket OD | | Outer Jacket OD | | Insulation Thickness | |
|----------|-------|--------|------------|-----------------|----|-----------------|----|----------------------|----|
| Aluminum | Steel | | | Inch | mm | Inch | mm | Inch | mm |

Stranded TC Conductors • PVC Insulation • Individually Beldfoil® Shielded Triads + Overall Beldfoil® Shield • Polyester Isolation Tape • PVC Inner Jacket • Armor • Chrome PVC Outer Jacket

18 AWG • 7 x 26

| | | | | | | | | | |
|-------|-------|---|----|-----|-------|------|-------|------|-----|
| 24516 | 25500 | 1 | E1 | .34 | 8.64 | .63 | 16.00 | .030 | .76 |
| 24517 | 25522 | 2 | E1 | .58 | 14.73 | .89 | 22.61 | | |
| 24518 | 25520 | 4 | E1 | .66 | 16.76 | .99 | 25.15 | | |
| 24519 | 25523 | 8 | E1 | .88 | 22.35 | 1.29 | 32.77 | | |

16 AWG • 7 x 24

| | | | | | | | | | |
|-------|-------|---|----|-----|-------|------|-------|------|-----|
| 24501 | 25502 | 1 | E1 | .36 | 9.14 | .66 | 16.76 | .030 | .76 |
| 24507 | 25507 | 2 | E1 | .62 | 15.75 | .94 | 23.88 | | |
| 24508 | 25509 | 4 | E1 | .72 | 18.29 | 1.05 | 26.67 | | |
| 24509 | 25508 | 8 | E1 | .96 | 24.38 | 1.33 | 33.78 | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 561.

MarineTuff™ UL Instrumentation Cables



MarineTuff certified Belden instrumentation and control cables bring reliable, safety conscious wiring solutions to offshore platforms, equipment suppliers and commercial shipbuilders. These ABS-certified cables offer physical toughness and the safety benefits of low smoke and zero halogen (LSZH) jackets to provide a no-compromise solution that can withstand the harshest offshore environments. Belden's MarineTuff certified cables are highly reliable, rugged solutions that will function in a variety of challenging offshore activities: mobile drilling, fixed platform, floating production, storage and offloading (FPSO), marine vessels

Product Features

- Type P rated insulations on all cables and options.
- LSZH jackets on all cables and options.
- Bronze braid or continuous aluminum armor available.
- ABS and DNV certified.
- 10 year warranty.
- Sunlight and Oil Resistant.
- Unshielded, Overall shielded, or Individually shielded.

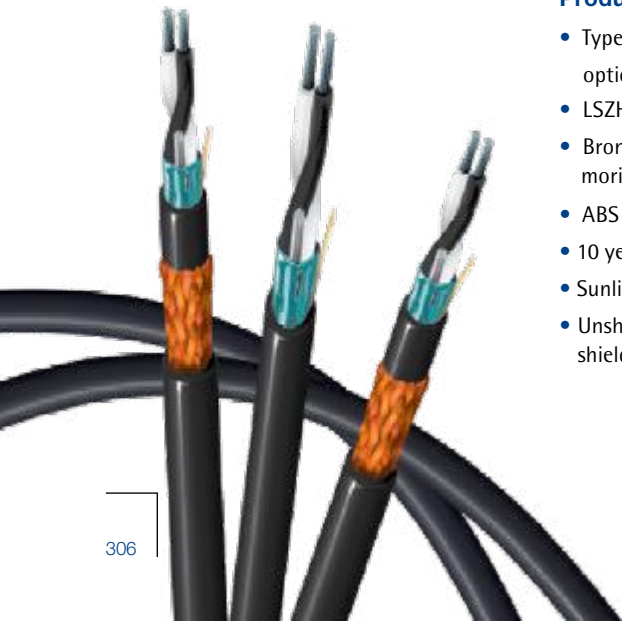
Cable Specifications

Belden cables have been designed and tested to the highest of standards :

- IEEE 45 Electrical Installation on Shipboard.
- IEEE 1580 Type P insulations (recommended practice for marine cables for use on shipboard in fixed or floating facilities).
- UL 1309 Marine Shipboard Cables.
- IEC 60811-2-1 compliant for Hydrocarbon Resistance.
- IEC 60754-1 compliant jacket for Halogen content.
- IEC 60754-2 compliant jacket for Acid Gas Emissions.
- IEC 60092-350 Electrical Installations on Ships.
- UL 1277 TC-ER Crush and Impact Resistant (UL TC for 2 - conductor cables).
- IEEE 1202 and FT4 Flame-Resistant.
- IEC 60332-3-22.

Applications

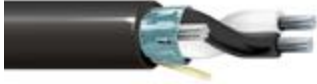
Oil and Gas platforms must continuously achieve optimal performance, while operating in harsh environments under mission-critical conditions. Demands on communication networks include safety, availability, reliability and durability in environments where vibration, corrosion, fluctuating temperature, splash water, and pollution occur. The MarineTuff instrumentation and control cables are designed to operate in these conditions.



MarineTuff™ Marine Approved UL Instrumentation Cables
600V Type TC (or MC) Instrumentation Cables



UL Instrumentation Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- UL 1277 TC-ER crush and impact resistance
- IEEE 1202 and CSA FT4 flame-resistance
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD(Nom) | | Nom. Jacket Thickness | |
|----------|-------|------------|--------------------|--|-------------------|----|---------|----|-----------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Shielded

| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Pairs + Overall Shield 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|--|----|----|------|-------|-------|------|------|------|-----|--|
| 1120Z | 1 | E2 | 59 | 3.20 | 81.3 | 0.32 | 8.1 | 0.05 | 1.2 | |
| 3088Z | 1 | E1 | 67 | 3.20 | 81.3 | 0.32 | 8.1 | 0.05 | 1.2 | |
| 1049Z | 4 | E1 | 258 | 6.30 | 160.0 | 0.63 | 16.0 | 0.05 | 1.3 | |
| 1051Z | 12 | E1 | 728 | 10.10 | 256.5 | 1.01 | 25.7 | 0.06 | 1.6 | |
| 1053Z | 24 | E1 | 1434 | 13.90 | 353.1 | 1.38 | 35.1 | 0.08 | 2.1 | |
| 1038Z | 50 | E1 | 2962 | 19.40 | 492.8 | 1.94 | 49.3 | 0.08 | 2.1 | |



| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|-------|------------|--------------------|--|-------------------|----|----------|----|-----------------------|----|------------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Shielded • Armored

| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Pairs + Overall Shield 100% Beldfoil • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|---|----|----|------|-------|-------|------|------|------|-----|------|-----|
| Z1120Z | 1 | E2 | 59 | 5.57 | 141.6 | 0.46 | 11.8 | 0.05 | 1.2 | 0.05 | 1.4 |
| Z3088Z | 1 | E1 | 67 | 5.57 | 141.6 | 0.46 | 11.8 | 0.05 | 1.2 | 0.05 | 1.4 |
| Z1049Z | 4 | E1 | 258 | 9.29 | 236.1 | 0.77 | 19.7 | 0.05 | 1.3 | 0.05 | 1.4 |
| Z1051Z | 12 | E1 | 728 | 13.85 | 351.9 | 1.15 | 29.3 | 0.06 | 1.6 | 0.05 | 1.4 |
| Z1053Z | 24 | E1 | 1434 | 18.41 | 467.7 | 1.53 | 39.0 | 0.08 | 2.1 | 0.06 | 1.7 |
| Z1038Z | 50 | E1 | 2962 | 25.25 | 614.4 | 2.10 | 53.5 | 0.08 | 2.1 | 0.06 | 1.7 |

*ULTC for 2 Conductor Cables | BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff™ Marine Approved UL Instrumentation Cables
600V Type TC (or MC) Instrumentation Cables



UL Instrumentation Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- UL 1277 TC-ER crush and impact resistance
- IEEE 1202 and CSA FT4 flame-resistance
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD(Nom) | | Nom. Jacket Thickness | |
|----------|--------|------------|--------------------|--|-------------------|----|---------|----|-----------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Shielded

| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Triads + Overall Shield 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|----|----|------|-------|-------|------|------|------|-----|--|
| 1121Z | 1 | E2 | 81 | 3.30 | 83.8 | 0.32 | 8.1 | 0.05 | 1.2 | |
| 3089Z | 1 | E1 | 90 | 3.30 | 83.8 | 0.32 | 8.1 | 0.05 | 1.2 | |
| 1093Z | 4 | E1 | 347 | 6.90 | 175.3 | 0.68 | 17.3 | 0.05 | 1.6 | |
| 1094Z | 8 | E1 | 672 | 9.40 | 238.8 | 0.94 | 23.9 | 0.05 | 1.6 | |
| 1095Z | 12 | E1 | 997 | 11.30 | 287.0 | 1.13 | 28.7 | 0.05 | 2.1 | |
| 1096Z | 24 | E1 | 1971 | 15.60 | 396.2 | 1.56 | 39.6 | 0.05 | 2.1 | |



| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|--------|------------|--------------------|--|-------------------|----|----------|----|-----------------------|----|------------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

18 AWG • Shielded • Armored

| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Triads + Overall Shield 100% Beldfoil • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | | |
|--|----|----|------|-------|-------|------|------|------|-----|------|-----|--|
| Z1121Z | 1 | E2 | 81 | 5.57 | 141.6 | 0.46 | 11.8 | 0.05 | 1.2 | 0.05 | 1.4 | |
| Z3089Z | 1 | E1 | 90 | 5.57 | 141.6 | 0.46 | 11.8 | 0.05 | 1.2 | 0.05 | 1.4 | |
| Z1093Z | 4 | E1 | 347 | 9.89 | 251.3 | 0.82 | 20.9 | 0.05 | 1.6 | 0.05 | 1.4 | |
| Z1094Z | 8 | E1 | 672 | 13.01 | 330.5 | 1.08 | 27.5 | 0.05 | 1.6 | 0.05 | 1.4 | |
| Z1095Z | 12 | E1 | 997 | 15.29 | 388.5 | 1.27 | 32.4 | 0.05 | 2.1 | 0.05 | 1.4 | |
| Z1096Z | 24 | E1 | 1971 | 20.69 | 525.6 | 1.72 | 43.8 | 0.05 | 2.1 | 0.06 | 1.7 | |

*ULTC for 2 Conductor Cables | BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff™ Marine Approved UL Instrumentation Cables
600V Type TC (or MC) Instrumentation Cables



UL Instrumentation Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- UL 1277 TC-ER crush and impact resistance
- IEEE 1202 and CSA FT4 flame-resistance
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD(Nom) | | Nom. Jacket Thickness | |
|----------|-------|------------|--------------------|--|-------------------|----|---------|----|-----------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Shielded

| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Pairs + Overall Shield 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|--|----|----|------|-------|-------|------|------|------|-----|--|
| 1118Z | 1 | E2 | 105 | 3.50 | 88.9 | 0.34 | 8.6 | 0.05 | 1.2 | |
| 3090Z | 1 | E1 | 105 | 3.50 | 88.9 | 0.34 | 8.6 | 0.05 | 1.2 | |
| 1039Z | 4 | E1 | 411 | 6.80 | 172.7 | 0.68 | 17.2 | 0.06 | 1.6 | |
| 1042Z | 12 | E1 | 1161 | 11.00 | 279.4 | 1.10 | 27.9 | 0.09 | 2.2 | |
| 1045Z | 24 | E1 | 2287 | 15.20 | 386.1 | 1.51 | 38.3 | 0.09 | 2.2 | |
| 1047Z | 50 | E1 | 4726 | 21.20 | 538.5 | 2.12 | 53.8 | 0.12 | 3.0 | |



| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|-------|------------|--------------------|--|-------------------|----|----------|----|-----------------------|----|------------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Shielded • Armored

| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Pairs + Overall Shield 100% Beldfoil • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|---|----|----|------|-------|-------|------|------|------|-----|------|-----|
| Z1118Z | 1 | E2 | 105 | 5.81 | 147.7 | 0.48 | 12.3 | 0.05 | 1.2 | 0.06 | 1.4 |
| Z3090Z | 1 | E1 | 105 | 5.81 | 147.7 | 0.48 | 12.3 | 0.05 | 1.2 | 0.06 | 1.4 |
| Z1039Z | 4 | E1 | 411 | 9.89 | 251.3 | 0.82 | 20.9 | 0.06 | 1.6 | 0.06 | 1.4 |
| Z1042Z | 12 | E1 | 1161 | 14.93 | 379.3 | 1.24 | 31.6 | 0.09 | 2.2 | 0.06 | 1.4 |
| Z1045Z | 24 | E1 | 2287 | 20.09 | 510.4 | 1.67 | 42.5 | 0.09 | 2.2 | 0.07 | 1.7 |
| Z1047Z | 50 | E1 | 4726 | 27.41 | 696.3 | 2.28 | 58.0 | 0.12 | 3.0 | 0.07 | 1.7 |

*ULTC for 2 Conductor Cables | BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff™ Marine Approved UL Instrumentation Cables

600 V Type TC (or MC) Instrumentation Cables



UL Instrumentation Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- UL 1277 TC-ER crush and impact resistance
- IEEE 1202 and CSA FT4 flame-resistance
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD(Nom) | | Nom. Jacket Thickness | |
|----------|--------|------------|--------------------|--|-------------------|----|---------|----|-----------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Shielded

| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Triads + Overall Shield 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
|---|----|----|------|-------|-------|------|------|------|-----|--|
| 1119Z | 1 | E2 | 129 | 3.60 | 91.4 | 0.35 | 8.9 | 0.05 | 1.2 | |
| 3091Z | 1 | E1 | 129 | 3.60 | 91.4 | 0.35 | 8.9 | 0.05 | 1.2 | |
| 1097Z | 4 | E1 | 554 | 7.40 | 188.0 | 0.74 | 18.8 | 0.06 | 1.6 | |
| 1099Z | 12 | E1 | 1590 | 12.40 | 315.0 | 1.24 | 31.5 | 0.09 | 2.2 | |
| 1100Z | 24 | E1 | 3144 | 17.90 | 454.7 | 1.78 | 45.2 | 0.09 | 2.2 | |
| 3130Z | 36 | E1 | 3600 | 22.60 | 574.0 | 2.26 | 57.4 | 0.11 | 2.8 | |



| Part No. | Triads | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|--------|------------|--------------------|--|-------------------|----|----------|----|-----------------------|----|------------------------|----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

16 AWG • Shielded • Armored

| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Triads + Overall Shield 100% Beldfoil • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
|--|----|----|------|-------|-------|------|------|------|-----|------|-----|
| Z1119Z | 1 | E2 | 129 | 9.77 | 248.0 | 0.38 | 9.8 | 0.05 | 1.2 | 0.06 | 1.4 |
| Z3091Z | 1 | E1 | 129 | 9.77 | 248.0 | 0.38 | 9.8 | 0.05 | 1.2 | 0.06 | 1.4 |
| Z1097Z | 4 | E1 | 554 | 20.11 | 510.8 | 0.79 | 20.1 | 0.06 | 1.6 | 0.06 | 1.4 |
| Z1099Z | 12 | E1 | 1590 | 33.25 | 844.4 | 1.31 | 33.2 | 0.09 | 2.2 | 0.06 | 1.5 |
| Z1100Z | 24 | E1 | 3144 | 46.96 | 1192. | 1.85 | 47.0 | 0.09 | 2.2 | 0.07 | 1.7 |
| Z3130Z | 36 | E1 | 3600 | 59.15 | 1502. | 2.33 | 59.2 | 0.11 | 2.8 | 0.08 | 2.0 |

*ULTC for 2 Conductor Cables | BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff™ Marine Approved UL Instrumentation Cables
600V Type TC (or MC) Instrumentation Cables



UL Instrumentation Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- UL 1277 TC-ER crush and impact resistance
- IEEE 1202 and CSA FT4 flame-resistance
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Pairs | Color Code | Pull Tension (Max) | Bend Radius (Min) | | OD(Nom) | | Nom. Jacket Thickness | |
|---|-------|------------|--------------------|-------------------|------|---------|-----|-----------------------|-----|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm |
| 14 AWG • Shielded | | | | | | | | | |
| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Pairs + Overall Shield 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | |
| 3080Z | 1 | E1 | 160 | 3.70 | 94.0 | 0.37 | 9.4 | 0.05 | 1.2 |



| Part No. | Pairs | Color Code | Pull Tension (Max) | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|--|-------|------------|--------------------|-------------------|-----|----------|------|-----------------------|-----|------------------------|-----|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| 14 AWG • Shielded • Armored | | | | | | | | | | | |
| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Pairs + Overall Shield 100% Beldfoil • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | |
| Z3080Z | 1 | E1 | 160 | 6.17 | 0.6 | 0.51 | 13.1 | 0.05 | 1.2 | 0.06 | 1.4 |

*ULTC for 2 Conductor Cables | BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff™ Marine Approved UL Instrumentation Cables
600V Type TC (or MC) Instrumentation Cables



UL Instrumentation Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
- IEEE 45 Electrical installation on Shipboard
- IEEE 1580 Type P Insulations
- UL 1277 TC-ER crush and impact resistance
- IEEE 1202 and CSA FT4 flame-resistance
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Triads | Color Code | Pull Tension (Max) | Bend Radius (Min) | | OD(Nom) | | Nom. Jacket Thickness | |
|----------|--------|------------|--------------------|-------------------|----|---------|----|-----------------------|----|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm |

14 AWG • Shielded

Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Triads + Overall Shield 100% Beldfoil • LSZH Thermoset Jacket • Type TC

| | | | | | | | | | |
|--------------|---|----|-----|------|------|------|-----|------|-----|
| 3081Z | 1 | E1 | 200 | 3.80 | 96.5 | 0.38 | 9.7 | 0.05 | 1.2 |
|--------------|---|----|-----|------|------|------|-----|------|-----|



| Part No. | Triads | Color Code | Pull Tension (Max) | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|----------|--------|------------|--------------------|-------------------|----|----------|----|-----------------------|----|------------------------|----|
| | | | Lbs | Inch | mm | Inch | mm | Inch | mm | Inch | mm |

14 AWG • Shielded • Armored

Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Triads + Overall Shield 100% Beldfoil • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC

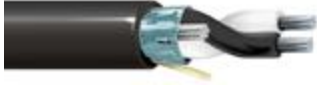
| | | | | | | | | | | | |
|---------------|---|----|-----|------|-------|------|------|------|-----|------|-----|
| Z3081Z | 1 | E1 | 200 | 6.29 | 159.9 | 0.52 | 13.3 | 0.05 | 1.2 | 0.05 | 1.4 |
|---------------|---|----|-----|------|-------|------|------|------|-----|------|-----|

*ULTC for 2 Conductor Cables | BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

MarineTuff™ Marine Approved UL Instrumentation Cables
600V Type TC (or MC) Instrumentation Cables



UL Instrumentation Cables



- IEC 60811-2-1
- IEC 60754-1 and IEC 60754-2
- IEC 60092-350
- IEC 60332-3-22
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- IEEE 1580 Type P Insulations
- UL 1277 TC-ER crush and impact resistance
- IEEE 1202 and CSA FT4 flame-resistance
- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- Sunlight Resistant
- Oil Resistant

| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD(Nom) | | Nom. Jacket Thickness | |
|--|-------|------------|--------------------|--|-------------------|-------|---------|------|-----------------------|-----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm |
| 12 AWG • Shielded | | | | | | | | | | |
| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Pairs + Overall Shield 100% Beldfoil • LSZH Thermoset Jacket • Type TC | | | | | | | | | | |
| 3103A | 1 | E1 | 253 | | 4.10 | 104.1 | 0.41 | 10.4 | 0.05 | 1.2 |



| Part No. | Pairs | Color Code | Pull Tension (Max) | | Bend Radius (Min) | | OD (Nom) | | Nom. Jacket Thickness | | Outer Jacket Thickness | |
|---|-------|------------|--------------------|--|-------------------|-------|----------|------|-----------------------|-----|------------------------|-----|
| | | | Lbs | | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| 12 AWG • Shielded • Armored | | | | | | | | | | | | |
| Flexible Stranded TC Conductors • XLPE Insulation • Individually Shielded Pairs + Overall Shield 100% Beldfoil • Bronze Braid Armor • Double LSZH Thermoset Jackets • Type TC | | | | | | | | | | | | |
| Z3103A | 1 | E1 | 253 | | 6.86 | 174.2 | 0.57 | 14.5 | 0.05 | 1.2 | 0.06 | 1.4 |

*ULTC for 2 Conductor Cables | BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 561.

Belden has developed the most comprehensive line of industrial cables, wires and accessories in the world today.

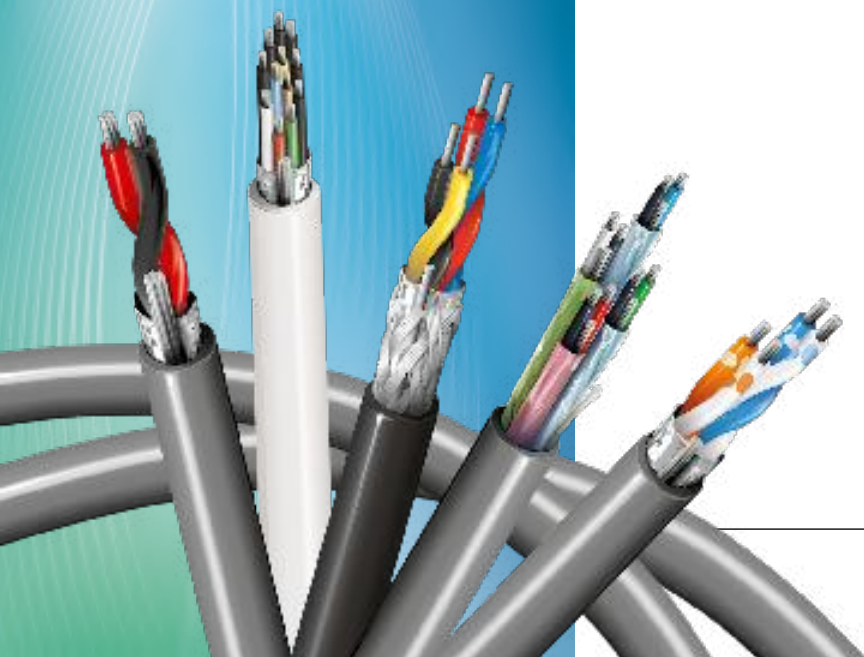


Data Communication Systems Computer Cables



Section Table of Contents

| Data Communication Systems | Page |
|---|------------|
| Computer Cables | |
| Overview | 316 |
| Multi-Conductor Computer Cables | 318 |
| Computer Cables for RS-232 Applications | 318 |
| Computer Cables for RS-232, RS-423, and IEEE 488 | 319 |
| Low-Capacitance Computer Cables for RS-232 Applications | 320 |
| Low-Capacitance Computer Cables for RS-232 and RS-423 Applications | 321 |
| Paired Computer Cables | 322 |
| Computer Cables for RS-232 Applications | 322 |
| Low-Capacitance Computer Cables for RS-232 and RS-422 Applications | 324 |
| Low-Capacitance 100 Ohm Computer Cables for RS-422 and Digital Audio Applications | 325 |
| Low-Capacitance Computer Cables for RS-232 Applications | 327 |
| Low-Capacitance Computer Cables for RS-232 and RS-422 Applications | 328 |
| Low-Capacitance Computer Cables for RS-232, RS-422, and RS-485 Applications | 330 |
| Low-Capacitance Computer Cables for RS-485 Applications | 331 |
| Computer POS Cables | 332 |
| Low-Capacitance Computer Cables for RS-232, RS-422 and Digital Audio Applications | 333 |



Computer Cables



Belden Computer cables are manufactured in a wide variety of gauge (AWG) sizes, insulation materials, shielding configurations, and jacking materials including Plenum versions. These cables meet the technical requirements of many different applications, with proven reliability and performance that is best in class.

Product Features

- Broad range of AWG sizes, shielding options, conductor (designs include up to 50 wires) and pair counts (up to 50)
- EMI/RFI protective foil and braid designs, such as Beldfoil®, to reduce such interferences
- PVC, LSZH, FEP, Natural Flamearrest and Fluorocopolymer jackets
- UL, AWM and IEC ratings
- MSHA approved designs

Benefits

Higher Level of Safety through:

- Certified fire-resistant characteristics preventing spreading of fire and ensuring the safety of the building
- Single and bundle flame test against flame propagation
- Limited smoke release minimizing safety hazards

Lifetime Performance:

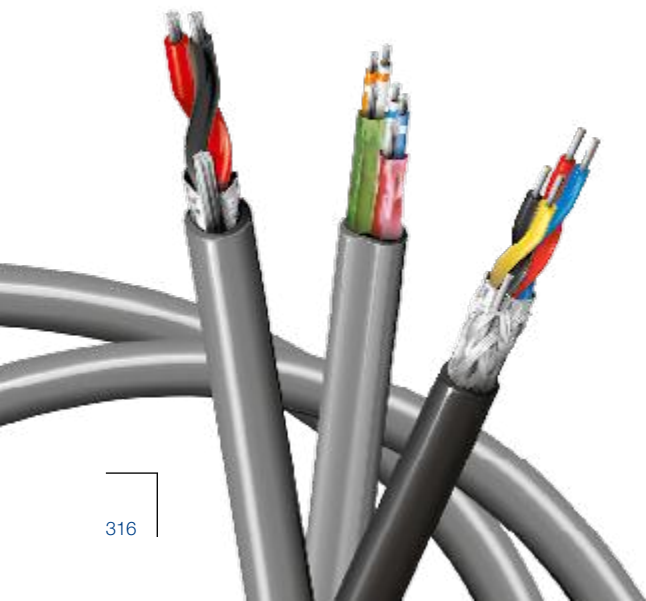
- 10 year warranty

Unmatched Signal Performance through:

- Patented Beldfoil® shielding technology for maximum EMI and cross talk protection
- Lower Electrical capacitance ensuring system performance
- A constant performance during temperature variations ranging between -30 °C up to +90 °C without signal disruptions
- UL certified design quality

Applications

Computer cables are designed but are not limited to RS-232, RS-422/423, RS-488 & RS-485 applications, as Computer & CAD/CAM and Low speed data communication from microprocessor to device utilizing simple commands (On, Off, Stop, Start).



Multi-Conductor Computer Cables
Computer Cables for RS-232 Applications

300 V, +80 °C • Foil Shield



24 AWG • SR-PVC/PVC

- AWM Style
- NEC: CMG
- CEC: CMG FT4

24 AWG • PE/LSZH

- Flame IEC 60332-3-24
- Smoke IEC 6103

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

24 AWG • SR-PVC/PVC

| Stranded (7 x 32) TC Conductors • Semi-Rigid PVC Insulation • Cabled • Overall Beldfoil® Shield • 28 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | |
|---|----|----------|------|-------|------|-----|------|------|----|-----|
| 9533 | 3 | Chart 1 | .162 | 4.11 | | | | | | |
| 9534 | 4 | Chart 1 | .184 | 4.67 | | | | | | |
| 9535 | 5 | Chart 1 | .189 | 4.80 | | | | | | |
| 9536 | 6 | Chart 1 | .209 | 5.31 | .011 | .28 | .032 | .81 | 65 | 213 |
| 9537 | 7 | Chart 1 | .209 | 5.31 | | | | | | |
| 9538 | 8 | Chart 1 | .224 | 5.69 | | | | | | |
| 9539 | 9 | Chart 1 | .244 | 6.20 | | | | | | |
| 9540 | 10 | Chart 1 | .244 | 6.20 | | | | | | |
| 9541 | 15 | Chart 2R | .284 | 7.21 | .011 | .28 | .032 | .81 | | |
| 9542 | 20 | Chart 2R | .314 | 7.98 | | | | | | |
| 9543 | 25 | Chart 2R | .339 | 8.61 | | | | | 55 | 180 |
| 9544 | 30 | Chart 2R | .380 | 9.65 | | | | | | |
| 9545 | 40 | Chart 2R | .406 | 10.31 | .011 | .28 | .040 | 1.02 | | |
| 9546 | 50 | Chart 2R | .490 | 12.45 | .011 | .28 | .045 | 1.14 | | |

24 AWG • PE/LSZH

| Stranded (7 x 32) TC Conductors • PE Insulation • Cabled • Overall Beldfoil® Shielding • 28 AWG Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | |
|---|----|----------|------|------|------|-----|------|-----|----|-----|
| 9534NH | 30 | Chart 1 | .190 | 4.85 | | | | | | |
| 9536NH | 40 | Chart 1 | .220 | 5.48 | .011 | .28 | .035 | .90 | 65 | 213 |
| 9541NH | 50 | Chart 2R | .290 | 7.40 | | | .031 | .80 | 55 | 180 |

* One conductor to other conductors connected to shield.

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Multi-Conductor Computer Cables

Computer Cables for RS-232 Applications

300 V, +80 °C • Foil/Braid Shield



- AWM Style
- VW-1

- NEC: CMG
- CEC: CMG FT4

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

24 AWG • SR-PVC/PVC

| Stranded (7 x 32) TC Conductors • Semi-Rigid PVC Insulation • Overall Beldfoil® + 65% TC Braid Shielding • Chrome PVC Jacket | | | | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|------|----|-----|--|
| 9608 | 3 | Chart 1 | .190 | 4.83 | | | | | | | |
| 9609 | 4 | Chart 1 | .200 | 5.08 | .011 | .28 | .035 | .88 | 65 | 213 | |
| 9610 | 5 | Chart 1 | .215 | 5.46 | | | | | | | |
| 9611 | 6 | Chart 1 | .225 | 5.72 | | | | | | | |
| 9612 | 7 | Chart 1 | .225 | 5.72 | | | | | | | |
| 9613 | 8 | Chart 1 | .240 | 6.10 | | | | | | | |
| 9614 | 9 | Chart 1 | .253 | 6.43 | .011 | .28 | .035 | .88 | | | |
| 9615 | 10 | Chart 1 | .270 | 6.86 | | | | | 55 | 180 | |
| 9616 | 15 | Chart 1 | .300 | 7.62 | | | | | | | |
| 9617 | 25 | Chart 1 | .370 | 9.40 | .011 | .28 | .037 | .94 | | | |
| 9618 | 37 | Chart 1 | .411 | 10.43 | .011 | .28 | .040 | 1.02 | | | |
| 9619 | 50 | Chart 1 | .485 | 12.32 | .011 | .28 | .045 | 1.14 | | | |

* One conductor to other conductors connected to shield.

Multi-Conductor Computer Cables

Computer Cables for RS-232, RS-423, and IEEE 488

300 V, +80 °C • Foil/Braid Shield



- AWM Style
- VW-1

- NEC: CL2
- CSA: AWM I B FT4

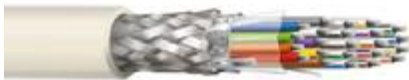
| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

28 AWG • SR-PVC/PVC

| Stranded (7 x 36) TC Conductors • Semi-Rigid PVC Insulation • Overall Beldfoil® + 65% TC Braid Shielding • Chrome PVC Jacket | | | | | | | | | | |
|--|----|----------|------|------|------|-----|------|-----|----|--------|
| 9637 | 25 | Chart 2R | .305 | 7.75 | .010 | .25 | .035 | .89 | 50 | 164.05 |

* One conductor to other conductors connected to shield.

30 V, +80 °C • Foil/Braid Shield



- AWM Style
- VW-1

- NEC: CL2
- CSA: AWM I A FT4

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

26 and 24 AWG • SR-PVC/PVC

| Stranded (7 x 34 and 7 x 32) TC Conductors • Semi-Rigid PVC Insulation • Overall Beldfoil® + 90% TC Braid Shielding • 26 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|--|--|
| 9641 | 23 Total 6 (26 AWG Pairs) 10 (26 AWG Cond.) 1 (24 AWG Cond.) | Chart 1 | .350 | 8.89 | .010 | .25 | .035 | .89 | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Multi-Conductor Computer Cables

Low-Capacitance Computer Cables for RS-232 Applications

300 V, +80 °C • Low Capacitance • Foil/Braid Shield

• AWM Style

• NEC: CMG
• CEC: CMG FT4



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

22 AWG • SR-PVC/PVC

| Stranded (7 x 30) TC Conductors • Semi-Rigid PVC Insulation • Overall Beldfoil® + 65% TC Braid Shielding • Chrome PVC Jacket | | | | | | | | | | |
|--|----|----------|------|-------|------|-----|------|------|----|-----|
| 9939 | 3 | Chart 1 | .202 | 5.13 | | | | | | |
| 9940 | 4 | Chart 1 | .215 | 5.46 | .011 | .28 | .035 | .89 | 67 | 220 |
| 9941 | 5 | Chart 1 | .230 | 5.84 | | | | | | |
| 9942 | 6 | Chart 1 | .245 | 6.22 | | | | | | |
| 9943 | 7 | Chart 1 | .245 | 6.22 | | | | | | |
| 9944 | 8 | Chart 1 | .264 | 6.71 | | | | | | |
| 9945 | 9 | Chart 1 | .280 | 7.11 | .011 | .28 | .035 | .89 | | |
| 9946 | 10 | Chart 1 | .300 | 7.62 | | | | | 63 | 207 |
| 9947 | 15 | Chart 2R | .340 | 8.64 | | | | | | |
| 9948 | 25 | Chart 2R | .410 | 10.41 | 0.11 | .28 | .040 | 1.02 | | |
| 9949 | 37 | Chart 2R | .460 | 11.68 | | | | | | |
| 9950 | 50 | Chart 2R | .555 | 14.10 | 0.11 | .28 | .050 | 1.27 | | |

* One conductor to other conductors connected to shield.

Multi-Conductor Computer Cables

Low-Capacitance Computer Cables for RS-232 and RS-423 Applications

30 V, +80 °C • Low Capacitance • Foil/Braid Shield

- AWM Style

- NEC: CMG
- CEC: CMG FT4



| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance* | |
|----------|------------|------------|----------|----|----------------------|----|------------------|----|--------------|------|
| | | | Inch | mm | Inch | mm | Inch | mm | pF/Ft | pF/m |

24 AWG • Datalene®/PVC

| Stranded (7 x 32) TC Conductors • Datalene® Insulation • Overall Beldfoil® + 65% TC Braid Shielding • 24 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|------|----|------|
| 9925 | 3 | Chart 1 | .215 | 5.46 | | | | | | |
| 9927 | 4 | Chart 1 | .230 | 5.84 | | | | | | |
| 9929 | 5 | Chart 1 | .246 | 6.25 | | | | | | |
| 9931 | 6 | Chart 1 | .265 | 6.73 | | | | | | |
| 9932 | 7 | Chart 1 | .265 | 6.73 | .015 | .38 | .035 | .89 | | |
| 9933 | 8 | Chart 1 | .280 | 7.11 | | | | | 22 | 72.2 |
| 9934 | 9 | Chart 1 | 3.00 | 7.62 | | | | | | |
| 9935 | 10 | Chart 1 | 3.06 | 7.77 | | | | | | |
| 9936 | 15 | Chart 1 | .350 | 8.89 | | | | | | |
| 9937 | 25 | Chart 1 | .445 | 11.30 | | | | | | |
| 9938 | 37 | Chart 1 | .500 | 12.70 | .015 | .38 | .045 | 1.14 | | |

* One conductor to other conductors connected to shield.

Datalene insulation features include a low dielectric constant and a low dissipation factor for high-speed, low-distortion data handling. Physical properties include good crush resistance and light weight.

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Computer Cables for RS-232 Applications

300 V, +80 °C • Overall Beldfoil® Shield



24 AWG • SR-PVC/PVC
 • NEC: CMG
 • CEC: CMG FT43

24 AWG • PE/LSZH
 • Flame IEC 60332-3-24
 • Smoke IEC 6103

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • SR-PVC/PVC

| Stranded (7 x 32) TC Conductors • Semi-Rigid PVC Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
|---|----|---------|------|------|------|-----|------|------|----|-----|----|-----|--|
| 9501 | 1 | Chart 3 | .156 | 3.96 | .011 | .28 | .032 | .81 | 40 | 131 | 74 | 233 | |
| 9502 | 2 | Chart 3 | .222 | 5.64 | | | | | | | | | |
| 9503 | 3 | Chart 3 | .232 | 5.89 | | | | | | | | | |
| 9504 | 4 | Chart 3 | .265 | 6.73 | | | | | | | | | |
| 9505 | 5 | Chart 3 | .289 | 7.34 | | | | | | | | | |
| 9506 | 6 | Chart 3 | .289 | 7.34 | .011 | .28 | .032 | .81 | | | | | |
| 9507 | 7 | Chart 3 | .294 | 7.47 | | | | | | | | | |
| 9508 | 8 | Chart 3 | .324 | 8.23 | | | | | 30 | 98 | 50 | 164 | |
| 9509 | 9 | Chart 3 | .334 | 8.48 | | | | | | | | | |
| 9510 | 10 | Chart 3 | .368 | 9.34 | | | | | | | | | |
| 9515 | 15 | Chart 3 | .417 | 10.6 | .011 | .28 | .034 | .86 | | | | | |
| 9519 | 19 | Chart 3 | .448 | 11.4 | | | | | | | | | |
| 9525 | 25 | Chart 3 | .503 | 12.8 | .011 | .28 | .045 | 1.14 | | | | | |
| 9550 | 50 | Chart 3 | .708 | 18.0 | .011 | .28 | .054 | 1.37 | | | | | |

UL AWM Style 2464
 CSA AWM 1A
 MSHA* (9502)
 75 Ω Nominal Impedance
 60% Velocity of Prop.
 Conductor DCR (Nom):
 24.0 Ω/1000' (78.7 Ω/km)
 Shield DCR (Nom):
 18.0 Ω/1000' (59.1 Ω/km)

24 AWG • PE/LSZH

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 24 AWG Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|-----------------|---------------|----|-----|----|-----|--|
| 9501NH | 1 | Chart 3 | .160 | 4.15 | .011 | .28 | .035 | .90 | 40 | 131 | 74 | 243 | |
| 9502NH | 2 | Chart 3 | .230 | 5.80 | | | | | | | | | |
| 9503NH | 3 | Chart 3 | .240 | 6.07 | | | | | | | | | |
| 9504NH | 4 | Chart 3 | .270 | 6.88 | | | | | | | | | |
| 9505NH | 5 | Chart 3 | .300 | 7.50 | | | | | | | | | |
| 9506NH | 6 | Chart 3 | .300 | 7.52 | .011 | .28 | .035 | .90 | 30 | 98 | 50 | 164 | |
| 9507NH | 7 | Chart 3 | .300 | 7.64 | | | | | | | | | |
| 9508NH | 8 | Chart 3 | .330 | 8.40 | | | | | | | | | |
| 9510NH | 10 | Chart 3 | .370 | 9.40 | | | | | | | | | |
| 9502LS | 2 | Chart 3 | .390 | 10.00 | .011 | .28 | 0.035/ 0.051 | 0.90/ 1.30 | 30 | 98 | 50 | 164 | |

75 Ω Nominal Impedance,
 60% Velocity of Prop.,
 Conductor DCR (Nom):
 24.0 Ω/1000' (78.7 Ω/km)
 Shield DCR (Nom):
 18.0 Ω/1000' (59.1 Ω/km)
 Steel Wire Armor

* MSHA = Mine Safety and Health Administration

Paired Computer Cables

Computer Cables for RS-232 Applications

Plenum • Overall Beldfoil® Shield



- Flame IEC 60332-3-24
- Smoke IEC 6103
- NEC: CMP
- CEC: CMP FT6

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|
| | | | Inch | mm | inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m |

24 AWG • FEP/Flamarrest®

| Stranded (7 x 32) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | | | |
|--|---|---------|------|------|------|-----|------|-----|----|-----|----|-----|
| 82641 | 1 | Chart 3 | .106 | 2.69 | .006 | .15 | .014 | .36 | 31 | 102 | 59 | 194 |
| 82502 | 2 | Chart 3 | .162 | 4.11 | | | | | | | | |
| 82503 | 3 | Chart 3 | .169 | 4.29 | | | | | | | | |
| 82504 | 4 | Chart 3 | .193 | 4.90 | .006 | .15 | .014 | .36 | 25 | 82 | 45 | 148 |
| 82505 | 5 | Chart 3 | .196 | 4.98 | | | | | | | | |
| 82506 | 6 | Chart 3 | .209 | 5.31 | | | | | | | | |
| 82509 | 9 | Chart 3 | .246 | 6.25 | .006 | .15 | .015 | .38 | 23 | 75 | 42 | 138 |

24 AWG • FEP/FEP

| Stranded (7 x 32) TC Conductors • FEP Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Red FEP Jacket | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|----|-----|----|-----|
| 88641 | 1 | Chart 3 | .106 | 2.69 | .006 | .15 | .014 | .36 | 31 | 102 | 59 | 194 |
| 89503 | 3 | Chart 3 | .175 | 4.45 | | | | | | | | |
| 89504 | 4 | Chart 3 | .192 | 4.88 | .006 | .15 | .014 | .36 | 21 | 69 | 40 | 131 |
| 89505 | 5 | Chart 3 | .197 | 5.00 | | | | | | | | |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Low-Capacitance Computer Cables for RS-232 and RS-422 Applications

Low Capacitance • Overall Beldfoil® Shield



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

28 AWG • Datalene®/PVC

| Stranded (7 x 32) TC Conductors • Datalene Insulation • Overall Beldfoil® Shield • 28 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|------|---------|------|------|------|-----|------|-----|------|------|------|------|--|--|
| 8132FO | 2 | Chart 5 | .215 | 5.46 | | | | | | | | | | NEC: CL2 UL AWM Style 2919 (30 V, +80 °C) 120 Ω Nom. Impedance 78% Velocity of Prop. Conductor DCR (Nom): 65.0/1000' (213.0 Ω/km) Shield DCR (Nom): 23.1 Ω/1000' (75.8 Ω/km) |
| 8134FO | 4 | Chart 5 | .270 | 6.86 | | | | | | | | | | |
| 8135FO | 5 | Chart 5 | .280 | 7.11 | | | | | | | | | | |
| 8138FO | 8 | Chart 5 | .310 | 7.88 | .015 | .38 | .035 | .89 | 11.0 | 36.1 | 20.0 | 65.6 | | |
| 8142FO | 12.5 | Chart 5 | .385 | 9.78 | | | | | | | | | | |

24 AWG • Polyethylene/PVC

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|------|---------|------|-------|------|-----|------|-----|------|------|------|------|--|---|
| 9680 | 3 | Chart 5 | .282 | 7.16 | | | | | | | | | | NEC: CM • CEC: CM UL AWM Style 2919 100 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 24.0/1000' (78.7 Ω/km) |
| 9681 | 4 | Chart 5 | .307 | 7.80 | | | | | | | | | | |
| 9682 | 6 | Chart 5 | .342 | 8.69 | .016 | .41 | .035 | .89 | 15.5 | 42.0 | 27.5 | 72.0 | | |
| 9683 | 9 | Chart 5 | .397 | 10.10 | | | | | | | | | | |
| 9684 | 12.5 | Chart 5 | .445 | 11.30 | | | | | | | | | | |

24 AWG • Datalene/PVC

| Stranded (7 x 32) TC Conductors • Datalene Insulation • Overall Beldfoil® Shield • 24 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|------|---------|------|-------|------|-----|------|------|------|------|------|------|--|--|
| 1419A | 2 | Chart 5 | .248 | 6.30 | | | | | | | | | | NEC: CM • CEC: CM CEC: FT! (1419A, 1420A) UL AWM Style 2919 100 Ω Nom. Impedance 78% Velocity of Prop. Conductor DCR (Nom): 24.0/1000' (78.7 Ω/km) |
| 1420A | 3 | Chart 5 | .261 | 6.63 | | | | | | | | | | |
| 1421A | 4 | Chart 5 | .280 | 7.11 | | | | | | | | | | |
| 1422A | 5 | Chart 5 | .294 | 7.47 | .013 | .33 | .035 | .89 | 15.5 | 42.0 | 27.5 | 72.0 | | |
| 1423A | 6 | Chart 5 | .319 | 8.10 | | | | | | | | | | |
| 1424A | 12.5 | Chart 5 | .418 | 10.62 | | | | | | | | | | |
| 1425A | 15 | Chart 5 | .473 | 12.01 | .013 | .33 | .040 | 1.02 | | | | | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Low-Capacitance 100 Ohm Computer Cables for RS-422 and Digital Audio Applications

Individually Shielded Pairs • RS-422 and Digital Audio



24 AWG • Datalene®/PVC
 • NEC: CM
 • CEC: CM

24 AWG • Datalene/LSZH
 • Flame IEC 60332-3-24
 • Smoke IEC 6103

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • Datalene®/PVC

| Stranded (7 x 32) TC Conductors • Datalene Insulation • Individually Beldfoil® Shielded Pairs • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|------|------|------|------|------|------|---|--|
| 9729 | 2 | Chart 3 | .266 | 6.76 | | | | | | | | | | |
| 9730 | 3 | Chart 3 | .334 | 8.48 | | | | | | | | | | |
| 9728 | 4 | Chart 3 | .363 | 9.22 | .019 | .48 | .048 | 1.22 | | | | | | |
| 9731 | 6 | Chart 3 | .421 | 10.69 | | | | | | | | | | |
| 9732 | 9 | Chart 3 | .488 | 12.40 | | | | | | | | | | |
| 9734 | 12 | Chart 3 | .575 | 14.61 | .019 | .48 | .063 | 1.60 | 12.5 | 41.0 | 23.2 | 76.1 | UL AWM Style 2493 (300 V, +60 °C) 100 Ω Nom. Impedance 76% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) | |
| 9735 | 15 | Chart 3 | .639 | 16.23 | | | | | | | | | | |
| 9736 | 17 | Chart 3 | .671 | 17.04 | | | | | | | | | | |
| 9737 | 19 | Chart 3 | .671 | 17.04 | .019 | .48 | .065 | 1.65 | | | | | | |
| 9738 | 27 | Chart 3 | .797 | 20.24 | | | | | | | | | | |

24 AWG • Datalene/LSZH

| Stranded (7 x 32) TC Conductors • Datalene Insulation • Individually Beldfoil® Shielded Pairs • Chrome LSZH Jacket | | | | | | | | | | | | | |
|--|---|---------|------|-------|------|-----|-----------------|---------------|----|----|----|----|--|
| 9729NH | 2 | Chart 3 | .310 | 7.90 | .019 | .48 | .045 | 1.14 | 12 | 41 | 23 | 76 | 100 Ω Nom. Impedance, 76% Velocity of Prop., Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 9729LS | 2 | Chart 3 | .490 | 12.50 | .019 | .48 | 0.045/ 0.053 | 1.14/ 1.35 | 12 | 41 | 23 | 76 | 100 Ω Nom. Impedance, 76% Velocity of Prop., Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) Steel Wire Armor |

TC = Tinned Copper • PVC = Polyvinyl Chloride • LSZH = Low Smoke Zero Halogen | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Low-Capacitance 100 Ohm Computer Cables for RS-422 and Digital Audio Applications

Plenum • Individually Shielded Pairs • RS-232, RS-422, and Digital Audio

- NEC: CMP
- CEC: CMP FT6



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • FEP/Fluorocopolymer

| Stranded (7 x 32) TC Conductors • Foam FEP Insulation • Individually Beldfoil® Shielded Pairs • 24 AWG TC Drain Wire • Gray Fluorocopolymer Jacket | | | | | | | | | | | | | | |
|--|---|---------|------|-------|------|-----|------|-----|------|----|------|------|--|---|
| 89729 | 2 | Chart 5 | .261 | 6.63 | | | | | | | | | | Plenum 300 V 100 Ω Nom. Impedance 76% Velocity of Prop. Conductor DCR (Nom): 23.3 Ω/1000' (76.4 Ω/km) |
| 89730 | 3 | Chart 5 | .278 | 7.06 | .019 | .48 | .017 | .43 | | | | | | |
| 89728 | 4 | Chart 5 | .307 | 7.80 | | | | | 13.5 | 44 | 22.5 | 73.8 | | |
| 89731 | 6 | Chart 5 | .361 | 9.17 | .019 | .48 | .014 | .36 | | | | | | |
| 89732 | 9 | Chart 5 | .429 | 10.90 | .019 | .48 | .016 | .41 | | | | | | |

24 AWG • FEP/Flamarrest®

| Stranded (7 x 32) TC Conductors • Foam FEP Insulation • Individually Beldfoil® Shielded Pairs • 24 AWG TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | | | | | |
|--|---|---------|------|------|------|-----|------|-----|------|----|------|------|--|---|
| 82729 | 2 | Chart 5 | .255 | 6.48 | .019 | .48 | .014 | .36 | 13.5 | 44 | 22.5 | 73.8 | | 300 V 100 Ω Nom. Impedance 76% Velocity of Prop. Conductor DCR (Nom): 23.3 Ω/1000' (76.4 Ω/km) |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Low-Capacitance Computer Cables for RS-232 Applications

Overall Foil/Braid Shield • RS-232



- NEC: CMG
- CEC: CMG FT4

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • SR-PVC/PVC

| Stranded (7 x 30) TC Conductors • Semi-Rigid Insulation • Overall Beldfoil® + 65% TC Braid Shield • Chrome PVC Jacket | | | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|------|------|--|----|-----|-----|-----|-----|--|
| 8302 | 2 | Chart 3 | .260 | 6.60 | | | | | | | 40 | 131 | 72 | 236 | |
| 8303 | 3 | Chart 3 | .270 | 6.86 | | | | | | | | | | | |
| 8304 | 4 | Chart 3 | .320 | 8.13 | | | | | | | | | | | |
| 8305 | 5 | Chart 3 | .322 | 8.18 | .011 | .28 | .035 | .89 | | | | | | | |
| 8306 | 6 | Chart 3 | .348 | 8.84 | | | | | | | | | | | |
| 8307 | 7 | Chart 3 | .348 | 8.84 | | | | | | | | | | | |
| 8308 | 8 | Chart 3 | .384 | 9.75 | | | | | | 35 | 115 | 63 | 207 | | |
| 8310 | 10 | Chart 3 | .440 | 11.18 | | | | | | | | | | | |
| 8312 | 12 | Chart 3 | .455 | 11.56 | .011 | .28 | .040 | 1.02 | | | | | | | |
| 8315 | 15 | Chart 3 | .502 | 12.75 | | | | | | | | | | | |
| 8318 | 18 | Chart 3 | .535 | 13.59 | | | | | | | | | | | |
| 8325 | 25 | Chart 3 | .620 | 15.75 | .011 | .28 | .045 | 1.14 | | | | | | | |

UL AWM Style 2464
(300 V, +80 °C)
70 Ω Nom. Impedance
60% Velocity of Prop.
Conductor DCR (Nom):
15.0 Ω/1000'
(49.2 Ω/km)

Computer Cables

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Low-Capacitance Computer Cables for RS-232 and RS-422 Applications

Overall Foil/Braid Shield • RS-232



- NEC: CMG
- CEC: CMG FT4

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • SR-PVC/PVC

| Stranded (7 x 32) TC Conductors • Semi-Rigid PVC Insulation • Overall Beldfoil® + 65% TC Braid Shield • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|------|---------|------|-------|------|-----|------|------|----|----|----|-----|--|---|
| 8332 | 2 | Chart 5 | .250 | 6.35 | | | | | | | | | | |
| 8333 | 3 | Chart 5 | .265 | 6.73 | | | | | | | | | | |
| 8334 | 4 | Chart 5 | .288 | 7.32 | | | | | | | | | | |
| 8335 | 5 | Chart 5 | .295 | 7.49 | .011 | .28 | .035 | .89 | | | | | | UL AWM Style 2464 (300 V, +80 °C) CSA AWM 1A 75 Ω Nom. Impedance 60% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 8336 | 6 | Chart 5 | .310 | 7.87 | | | | | | | | | | |
| 8337 | 7 | Chart 5 | .321 | 8.15 | | | | | 30 | 98 | 50 | 165 | | |
| 8340 | 10 | Chart 5 | .385 | 9.78 | | | | | | | | | | |
| 8342 | 12.5 | Chart 5 | .405 | 10.29 | .011 | .28 | .040 | 1.02 | | | | | | |
| 8345 | 15 | Chart 5 | .445 | 11.30 | | | | | | | | | | |
| 8348* | 18 | Chart 5 | .480 | 12.19 | .011 | .28 | .045 | 1.14 | | | | | | |
| 8355* | 25 | Chart 5 | .550 | 13.97 | | | | | | | | | | |

* Not Rated for CSA AWM 1A, 300 V, +80 °C

Overall Foil/Braid Shield • RS-232/422



24 AWG • Polyethylene/PVC

- NEC: CM
- CEC: CM

24 AWG • Polyethylene/LSZH

- Flame IEC 60332-3-24
- Smoke IEC 6103

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • Polyethylene/PVC

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 65% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|------|-----|------|------|------|------|--|---|
| 9829 | 2 | Chart 5 | .291 | 7.39 | | | | | | | | | | |
| 9830 | 3 | Chart 5 | .305 | 7.74 | | | | | | | | | | |
| 9831 | 4 | Chart 5 | .330 | 8.38 | | | | | | | | | | |
| 9832 | 5 | Chart 5 | .338 | 8.59 | | | | | | | | | | UL AWM Style 2919 (30 V, +80 °C) 100 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 9839 | 6 | Chart 5 | .364 | 9.25 | .016 | .41 | .035 | .89 | 15.5 | 50.9 | 27.5 | 90.2 | | |
| 9833 | 7 | Chart 5 | .370 | 9.40 | | | | | | | | | | |
| 9834 | 9 | Chart 5 | .419 | 10.64 | | | | | | | | | | |
| 9835 | 10 | Chart 5 | .451 | 11.46 | | | | | | | | | | |
| 9836 | 12 | Chart 5 | .464 | 11.79 | | | | | | | | | | |
| 9837 | 18 | Chart 5 | .567 | 14.40 | | | | | | | | | | |

24 AWG • Polyethylene/LSZH

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 65% TC Braid • 24 AWG • Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|------|------|------|------|--|
| 9829NH | 2 | Chart 5 | .280 | 7.10 | .016 | .41 | .035 | .89 | 16.0 | 50.9 | 27.0 | 90.2 | 100 Ω Nom. Impedance, 66% Velocity of Prop., Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |

TC = Tinned Copper • PVC = Polyvinyl Chloride • LSZH = Low Smoke Zero Halogen | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Low-Capacitance Computer Cables for RS-232 and RS-422 Applications

Overall Foil/Braid Shield • RS-232/422



24 AWG • Datalene®/PVC
 • NEC: CM
 • CEC: CM

24 AWG • Datalene/LSZH
 • Flame IEC 60332-3-24
 • Smoke IEC 6103

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • Datalene®/PVC

| Stranded (7 x 32) TC Conductors • Datalene Insulation • Overall Beldfoil® + 65% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|------|---------|------|-------|------|-----|------|------|------|----|----|------|--|--|
| 8102 | 2 | Chart 5 | .270 | 6.86 | | | | | | | | | | |
| 8103 | 3 | Chart 5 | .283 | 7.19 | | | | | | | | | | |
| 8104 | 4 | Chart 5 | .302 | 7.67 | | | | | | | | | | |
| 8105 | 5 | Chart 5 | .316 | 8.03 | | | | | | | | | | |
| 8106 | 6 | Chart 5 | .341 | 8.66 | .013 | .33 | .035 | .89 | | | | | | |
| 8107 | 7 | Chart 5 | .341 | 8.66 | | | | | | | | | | |
| 8108 | 8 | Chart 5 | .370 | 9.40 | | | | | 12.5 | 41 | 22 | 72.2 | | |
| 8110 | 10 | Chart 5 | .427 | 10.85 | | | | | | | | | | |
| 8112 | 12.5 | Chart 5 | .440 | 11.18 | | | | | | | | | | |
| 8115 | 15 | Chart 5 | .495 | 12.57 | .015 | .38 | .040 | 1.02 | | | | | | |
| 8118 | 18 | Chart 5 | .537 | 13.64 | .015 | .38 | .048 | 1.22 | | | | | | |
| 8125 | 25 | Chart 5 | .632 | 16.05 | .015 | .38 | .050 | 1.27 | | | | | | |

UL AWM Style 2919
 (30 V, +80 °C)
 100 Ω Nom. Impedance
 78% Velocity of Prop.
 Conductor DCR (Nom):
 24.0 Ω/1000'
 (78.7 Ω/km)

24 AWG • Datalene/LSZH

| Stranded (7 x 32) TC Conductors • Datalene Insulation • Overall Beldfoil® + 65% TC Braid • 24 AWG • Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|------|-----|------|----|----|------|--|--|
| 8102NH | 2 | Chart 5 | .270 | 6.90 | .013 | .33 | .031 | .80 | | | | | | |
| 8110NH | 10 | Chart 5 | .410 | 10.29 | .013 | .33 | .033 | .83 | 12.0 | 41 | 22 | 72.2 | | |

100 Ω Nom. Impedance,
 78% Velocity of Prop.,
 Conductor DCR (Nom):
 24.0 Ω/1000'
 (78.7 Ω/km)

TC = Tinned Copper • PVC = Polyvinyl Chloride • LSZH = Low Smoke Zero Halogen | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Low-Capacitance Computer Cables for RS-232, RS-422, and RS-485 Applications

Overall Foil/Braid Shield • RS-232/422

- NEC: CL2



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

28 AWG • Polypropylene/PVC

| Stranded (7 x 36) TC Conductors • Polypropylene Insulation • Overall Beldfoil® + 90% TC Braid Shield • 28 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|--|----|---------|------|-------|------|-----|------|------|------|------|------|------|--|--|
| 9804 | 2 | Chart 3 | .214 | 5.44 | .009 | .23 | .042 | 1.07 | | | | | | |
| 9805 | 3 | Chart 3 | .222 | 5.64 | | | | | | | | | | |
| 9806 | 4 | Chart 3 | .237 | 6.02 | | | | | | | | | | |
| 9807 | 5 | Chart 3 | .240 | 6.10 | | | | | | | | | | |
| 9808 | 7 | Chart 3 | .256 | 6.50 | | | | | | | | | | |
| 9809 | 9 | Chart 3 | .290 | 7.37 | .009 | .23 | .035 | .89 | 15.5 | 50.9 | 27.5 | 90.2 | UL AWM Style 2960 (30 V, +60 °C) 100 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 64.9 Ω/1000' (212.9 Ω/km) | |
| 9812 | 12 | Chart 3 | .319 | 8.10 | | | | | | | | | | |
| 9813 | 13 | Chart 3 | .336 | 8.53 | | | | | | | | | | |
| 9819 | 18 | Chart 3 | .365 | 9.27 | | | | | | | | | | |
| 9825 | 25 | Chart 3 | .429 | 10.90 | | | | | | | | | | |
| 9814 | 31 | Chart 3 | .462 | 11.73 | .009 | .23 | .040 | 1.02 | | | | | | |

Overall Foil/Braid Shield • RS-232/485

- NEC: CL2



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

28 AWG • Datalene®/PVC

| Stranded (7 x 36) TC Conductors • Datalene Insulation • Overall Beldfoil® + 65% TC Braid Shield • 28 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|------|---------|------|-------|------|-----|------|------|------|------|------|------|--|--|
| 8132 | 2 | Chart 5 | .220 | 5.59 | | | | | | | | | | |
| 8133 | 3 | Chart 5 | .270 | 6.86 | | | | | | | | | | |
| 8134 | 4 | Chart 5 | .290 | 7.37 | | | | | | | | | | |
| 8135 | 5 | Chart 5 | .300 | 7.62 | | | | | | | | | | |
| 8138 | 8 | Chart 5 | .330 | 8.38 | .015 | .38 | .035 | .89 | | | | | | |
| 8142 | 12.5 | Chart 5 | .375 | 9.53 | .015 | .38 | .035 | .89 | | | | | | |
| 8148 | 18 | Chart 5 | .465 | 11.81 | .015 | .38 | .045 | 1.14 | | | | | | |
| 8155 | 25 | Chart 5 | .565 | 14.35 | .015 | .38 | .044 | 1.12 | 11.0 | 36.1 | 20.0 | 65.6 | UL AWM Style 2919 (30 V, +80 °C) 120 Ω Nom. Impedance 78% Velocity of Prop. Conductor DCR (Nom): 65.0 Ω/1000' (213.0 Ω/km) | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Low-Capacitance Computer Cables for RS-485 Applications

Overall Foil/Braid Shield • RS-485 • DMX512



- 24 AWG • Polyethylene/PVC
- NEC: CM
 - CEC: CM

- 24 AWG • Polyethylene/LSZH
- Flame IEC 60332-3-24
 - Smoke IEC 6103

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • Polyethylene/PVC

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 90% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|------|------|------|------|--|--|
| 9841 | 1 | Chart 5 | .232 | 5.89 | .023 | .58 | .035 | .89 | | | | | | |
| 9842 | 2 | Chart 5 | .340 | 8.64 | | | | | | | | | | |
| 9843 | 3 | Chart 5 | .360 | 9.14 | | | | | 12.8 | 42.0 | 23.0 | 75.5 | | |
| 9844 | 4 | Chart 5 | .390 | 9.91 | .022 | .56 | .035 | .89 | | | | | | |

24 AWG • Polyethylene/LSZH

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 90% TC Braid • 24 AWG Stranded TC Drain Wire • Chrome LSZH Jacket | | | | | | | | | | | | | | |
|---|---|---------|------|-------|------|-----|-----------|----------|------|------|------|------|--|--|
| 9841NH | 1 | Chart 5 | .230 | 5.90 | | | | | | | | | | |
| 9842NH | 2 | Chart 5 | .340 | 9.65 | .023 | .58 | .035 | .89 | 12.8 | 42.0 | 23.0 | 75.5 | 120 Ω Nom. Impedance, 66% Velocity of Prop., Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) | |
| 9843NH | 3 | Chart 5 | .360 | 9.10 | | | | | | | | | | |
| 9844NH | 4 | Chart 5 | .390 | 9.90 | | | | | | | | | | |
| 9841LS | 1 | Chart 5 | .410 | 10.30 | | | | | | | | | | |
| 9842LS | 2 | Chart 5 | .520 | 13.10 | .023 | .58 | .035/.053 | .89/1.35 | 12.8 | 42.0 | 23.0 | 75.5 | 120 Ω Nom. Impedance, 66% Velocity of Prop., Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) | |
| 9844LS | 4 | Chart 5 | .590 | 15.10 | | | | | | | | | Steel Wire Armor | |

Plenum • Overall Foil/Braid Shield • RS-485



- NEC: CMP
- CEC: CMP FT6

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • FEP/Flamarrest®

| Stranded (7 x 32) TC Conductors • Foam FEP Insulation • Overall Beldfoil® + 90% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|----|------|----|------|--|--------------|
| 82841 | 1 | Chart 5 | .204 | 5.18 | .025 | .64 | .015 | .38 | | | | | | Plenum 300 V |
| 82842 | 2 | Chart 5 | .273 | 6.93 | .019 | .48 | .015 | .38 | 12 | 39.4 | 22 | 72.2 | 120 Ω Nom. Impedance 76% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) | |

24 AWG • FEP/FEP

| Stranded (7 x 32) TC Conductors • Foam FEP Insulation • Overall Beldfoil® + 90% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Red FEP Jacket | | | | | | | | | | | | | | |
|--|---|---------|------|------|------|-----|------|-----|----|------|----|------|--|--------------|
| 89841 | 1 | Chart 5 | .202 | 5.13 | .025 | .64 | .014 | .36 | | | | | | Plenum 300 V |
| 89842 | 2 | Chart 5 | .305 | 7.75 | .023 | .58 | .014 | .36 | 12 | 39.4 | 22 | 72.2 | 120 Ω Nom. Impedance 76% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) | |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride • LSZH = Low Smoke Zero Halogen | Belden Color Code Charts can be found at page 560.

Paired Computer Cables

Computer POS Cables

Overall Foil/Braid Shield • RS-485 • POS



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Braid | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|-------|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • Polyethylene/PVC

| Solid TC or BC Conductors • Polyethylene Insulation • Overall Beldfoil® + TC Braid Shield • 22 AWG Solid TC Drain Wire • Black PVC Jacket | | | | | | | | | | | | | | | |
|---|------|--------|------|------|------|-----|------|-----|-----|------|------|------|------|--|--|
| 1268A | 2 TC | Note 1 | .270 | 6.86 | | | | | | 90% | | | | | NEC: CM • CEC: CM UL AWM Style 2582 (150 V, +60 °C) 66% Velocity of Prop. |
| 9855 | 2 TC | Note 1 | .270 | 6.86 | .019 | .48 | .033 | .84 | 58% | 15.5 | 50.9 | 27.5 | 90.2 | | |
| 9696 | 2 BC | Note 2 | .290 | 7.37 | .018 | .44 | .033 | .84 | 58% | 16.0 | 52.5 | 27.5 | 90.2 | | |

22 AWG • FEP/PVC

| Solid TC or BC Conductors • FEP Insulation • Overall Beldfoil® + TC Braid Shield • 22 AWG Solid TC Drain Wire • Black PVC Jacket | | | | | | | | | | | | | | | |
|--|------|--------|------|------|------|-----|------|-----|-----|------|------|------|------|--|---|
| 1269A | 2 TC | Note 1 | .240 | 6.10 | .016 | .41 | .016 | .43 | 90% | | | | | | Plenum • Non-conduit NEC: CMP • CEC: CMP FT6 69.5% Velocity of Prop. |
| 89855 | 2 TC | Note 1 | .272 | 6.91 | .016 | .41 | .016 | .41 | 58% | 15.5 | 50.9 | 27.0 | 88.6 | | |
| 89696 | 2 BC | Note 2 | .262 | 6.65 | .020 | .51 | .016 | .41 | | | | | | | |

Note 1: Red-Blue, Black-Yellow

Note 2: Blue-White with Blue Stripe, Orange-White with Orange Stripe

Paired Computer Cables

Low-Capacitance Computer Cables for RS-232, RS-422, and Digital Audio Applications

Individually Shielded Pairs with Overall Foil/Braid Shield

- NEC: CM
- CEC: CM



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • Datalene®/PVC

| Stranded (7 x 32) TC Conductors • Datalene Insulation • Individually Beldfoil® Shielded Pairs + Overall 65% TC Braid Shielding • 24 AWG TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
|---|----|---------|------|-------|------|-----|------|------|------|----|----|------|---|
| 8162 | 2 | Chart 3 | .343 | 8.71 | | | | | | | | | |
| 8263 | 3 | Chart 3 | .359 | 9.12 | | | | | | | | | |
| 8164 | 4 | Chart 3 | .388 | 9.86 | | | | | | | | | |
| 8165 | 5 | Chart 3 | .413 | 10.49 | .019 | .48 | .048 | 1.22 | | | | | UL AWM Style 2493 (+60 °C) VW-1 100 Ω Nom. Impedance 78% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 8166 | 6 | Chart 3 | .446 | 11.33 | | | | | | | | | |
| 8167 | 7 | Chart 3 | .446 | 11.33 | | | | | 12.5 | 41 | 22 | 72.2 | |
| 8168 | 8 | Chart 3 | .479 | 12.17 | | | | | | | | | |
| 8170 | 10 | Chart 3 | .584 | 14.83 | .019 | .48 | .063 | 1.60 | | | | | |
| 8175 | 15 | Chart 3 | .665 | 16.89 | | | | | | | | | |
| 8178 | 18 | Chart 3 | .686 | 17.42 | .019 | .48 | .065 | 1.65 | | | | | |
| 8185 | 25 | Chart 3 | .822 | 20.88 | | | | | | | | | |

TC = Tinned Copper • PVC = Polyvinyl Chloride | Belden Color Code Charts can be found at page 560.



Advanced networks
need advanced
technology.





Industrial Data and Process Automation

Section Table of Contents

| Industrial Data and Process Automation | Page |
|---|------------|
| Overview | 336 |
| Introduction | 336 |
| PLC/DCS-to-Cable Cross Reference Guide | 338 |
| Protocol-to-Cable Cross Reference Guide | 341 |



Industrial Data and Process Automation



Tough Cables for Tough Environments

Today, more than ever, manufacturing productivity depends upon seamless data communication and automation systems. And both depend upon high-performance cabling solutions.

Depend on Belden

Belden has developed the world's most comprehensive line of industrial cabling solutions for applications like yours: whether you are networking your factory floor or your process equipment and devices to their controllers...and on to the control room, the engineering department, and remote manufacturing sites – or, all of the above. From your petrochemical, automotive manufacturing, pharmaceutical, power generation, pulp and paper, metals, food and beverage, or general manufacturing plant to your corporate headquarters – and everywhere in between – Belden has your cabling solution.

Most importantly you can have the peace-of-mind that is inherent with the use of Belden products since all Belden cables are manufactured in ISO 9001:2000 certified

facilities to the industry's highest standards of quality, using the most advanced equipment, systems, controls and processes available.

Belden cables give you the performance you need day after dependable day.

Innovative Technology

Bonded-Pair™ Cable

Many DataTuff® Industrial Ethernet cables feature Belden's patented bonded-pair technology. Bonded-pairs provide Installable Performance® – superior electrical performance even after the stresses of installation. Bonded-pairs exhibit the most robust and reliable electrical performance in the industry.

Shielding

Effective cable shielding for protection from noise interference remains critical with evolving industrial technology. Belden's shielding designs and testing methods ensure signal integrity and a dependable cable in the presence of electrical noise.

Belden's exclusive patented Beldfoil® design, with its aluminum/polyester foil, was the first shield to offer 100 percent cable protection against radiated emission and ingress at audio and radio frequencies.

Armoring

Belden's innovative armoring technology delivers maximum physical protection in harsh environments. Additional benefits include reduced cost of conduit, easier installation and re-routing, plus additional shielding.

Belden has the capability to protect data, electronic, instrumentation and control cables with interlocking steel or aluminum armor as well as continuous corrugated aluminum armor. Smooth or corrugated protective metal tapes are also available.



Insulation and Jacket

Belden formulates many of its own insulation and jacket compounds. As a result, they provide superior performance under a variety of hostile environmental conditions.

Intrinsically Safe Wiring

In accordance with NEC Article 504, intrinsically safe cables are colored blue for easy identification. Belden offers several industrial cables in intrinsically safe blue to meet your requirements for intrinsically safe wiring. Contact the NEC and/or your local inspector for specific guidelines.

Custom Capabilities

Most of our industrial cables are available from stock. Many of these are available off the shelf from distributors. If you have a new or unusual application or you cannot find an Industrial cable in this catalog section that meets your technical requirements, contact Technical Support at +31-77-3878-555.

Overall Jacket

| Material |
|----------|
| PUR |
| FRNC |
| PVC |
| CPE |
| TPE |
| HDPE |

Armor

| Material |
|--------------------------------|
| Steel Wire, Aluminum Interlock |
| Steel Interlock |
| Aluminum Belclad® |
| Steel Belclad |
| Copper Belclad |
| Continuous Armor |

PLC/DCS Cable Cross Reference Guide

| PLC/DCS Manufacturer | System Name | Belden Part Number | | |
|------------------------------------|--|---|--|----------------------|
| ABB/Bailey Controls | FOUNDATION Fieldbus | See Protocol listings on pages 341–342 | | |
| | Industrial IT 800 X A | 9880 | Network Trunk Cable | |
| | Infinet | 9880 | Network Trunk Cable | |
| | | 9463 | Blue Hose® (Standard) | |
| | Masterpiece 200 | 9880 | Network Trunk Cable | |
| | | 9907 | Thin Network Trunk Cable | |
| | MICRO-DCI | 3105A | 1-Pair, RS-485 | |
| | MICROLINK | 9860 | Twinax, 16 AWG, 124 Ohm | |
| | Modcell | 3105A | 1-Pair, RS-485 | |
| | PROFIBUS DP & PA | See Protocol listings on pages 341–342 | | |
| Allen-Bradley/ Rockwell Automation | ControlNet™ | See Protocol listings on pages 341–342 | | |
| | DeviceNet™ | See Protocol listings on pages 341–342 | | |
| | DH, DH+, Remote I/O | 9463 | Blue Hose (Standard) | |
| | | 9463F | Flexible Version (9463) | |
| | | 129463 | Aluminum Armor (9463) | |
| | | 139463 | Steel Armor (9463) | |
| | | 189463 | Continuous Armor (9463) | |
| | | 9463DB | Direct Burial (9463) | |
| | DH-485 | 3072F | 600 V TC Rated (9463) | |
| | | 89463 | FEP 200 °C, Plenum | |
| | | 3074F | 600 V Tray Cable | |
| | | 3106A | 1.5-Pair, RS-485 (PLTC) | |
| | Industrial Ethernet | 9842 | 2-Pair, RS-485 | |
| | | See pages 379-400 | | |
| | | 8723 | Interface Cable | |
| | Longline Communications | 88723 | Plenum Version | |
| | | I/Q System | 9463 | Blue Hose (Standard) |
| | DeviceNet | | See Protocol listings on pages 341–342 | |
| | Emerson Process Management (Fisher/Rosemont Systems) – Delta V | FOUNDATION Fieldbus (Type SP50 ISA/IEC) | See Protocol listings on pages 341–342 | |
| HART | | See Protocol listings on pages 341–342 | | |
| Industrial Ethernet | | See pages 379-400 | | |
| MODBUS | | See Protocol listings on pages 341–342 | | |
| PROFIBUS DP | | See Protocol listings on pages 341–342 | | |
| Provox Plus | | 3094A* | RG-11 Quad Shield PVC | |
| | | 3131A | RG-6 Quad Shield PVC | |
| RS-485 | See Protocol listings on pages 341–342 | | | |
| GE Fanuc – I/O Bus | DeviceNet | See Protocol listings on pages 341–342 | | |
| | 9030, 9070 | 9182 | Communications Bus | |
| | PAC System | 89182 | Plenum Version | |
| | INTERBUS®-S | See Protocol listings on pages 341–342 | | |
| | MODBUS® | See Protocol listings on pages 341–342 | | |
| | PROFIBUS | See Protocol listings on pages 341–342 | | |

| PLC/DCS Manufacturer | System Name | Belden Part Number | | |
|-----------------------------------|---|--|---|------|
| GE Fanuc – Sensor Device Networks | DeviceNet | See Protocol listings on pages 341–342 | | |
| | SDS | See Protocol listings on pages 341–342 | | |
| Honeywell | Access 4000 System | 9248* | RG-6 PVC | |
| | FOUNDATION Fieldbus (Type SP50 ISA/IEC) | See Protocol listings on pages 341–342 | | |
| | IPC 620 System I/O | 9271 | Twinax, 25 AWG, 124 Ohm | |
| | IPC 620 System | 9729 | Up to 4000 ft. (1220 m) | |
| | Serial Interface | 9182 | Up to 10,000 ft. (3050 m) | |
| | | 89182 | Plenum | |
| | Series C | RS-485 | FOUNDATION Fieldbus Industrial Ethernet | |
| | 3000 UCN & LCN | 3131A | RG-6 Quad Shield PVC | |
| | | 3094A | RG-11 Quad Shield PVC | |
| | Honeywell Microswitch Division | Smart Distributed System | 3086A | Mini |
| 3087A | | | Micro | |
| 1346F | | | 1 Pair 22 AWG, 1 Pair 24 AWG | |
| 1348A | | | 3 20 AWG | |
| 1349A | | | 3 20 AWG, 2 18 AWG | |
| Invensys/Foxboro | FOUNDATION Fieldbus (Type SP50 ISA/IEC) | See Protocol listings on pages 341–342 | | |
| | I/A Series Carrier Band | 8233* | Small Trunk | |
| | | 3095A | Plenum | |
| | | 9290* | Drop Cable | |
| | I/A Series Fieldbus | 9207 | Twinax | |
| | | 89207 | 200 °C, Plenum | |
| | | 3073F | 600 V Tray Cable | |
| | I/A Series Node Bus | 9880 | Trunk Cable | |
| | | 89880 | Plenum Version | |
| | Industrial Ethernet | See pages 379-400 | | |
| Limitorque | DCC100 | 3105A | Actuator Bus Cable, 1-Pair, RS-485 | |
| Matsushita | FP Series C-NET | 9207 | Twinax, 20 AWG, Stranded, 100 Ohm | |
| | | 9860 | Twinax, 16 AWG, Solid, 124 Ohm | |
| | FP Series MEWNET-F | 9207 | Twinax, 20 AWG, Stranded, 100 Ohm | |
| | | 9860 | Twinax, 16 AWG, Solid, 124 Ohm | |
| | FP Series MEWNET-H | 9248* | RG-6, 75 Ohm, 18 AWG | |
| | FP Series MEWNET-TR | 9207 | Twinax, 20 AWG, Stranded, 100 Ohm | |
| | | 9860 | Twinax, 16 AWG, Solid, 124 Ohm | |
| | FP Series MEWNET-W | 9207 | Twinax, 20 AWG, Stranded, 100 Ohm | |
| | | 9806 | 4-Pair, RS-232, RS-422 | |
| | FP Series MEWNET-W2 | 9207 | Twinax, 20 AWG, Stranded, 100 Ohm | |
| 9860* | | Twinax, 16 AWG, Solid, 124 Ohm | | |
| FP Series TRNET | 9207 | Twinax, 20 AWG, Stranded, 100 Ohm | | |
| | 9860 | Twinax, 16 AWG, Solid, 124 Ohm | | |

FEP = Fluorinated Ethylene-propylene
PVC = Polyvinyl Chloride
TC = Tinned Copper

| PLC/DCS Manufacturer | System Name | Belden Part Number | |
|--------------------------------|-------------------------|---|--|
| Mitsubishi Electric Automation | CC-Link | See Protocol listings on pages 341–342 | |
| | DeviceNet | See Protocol listings on pages 341–342 | |
| | Melsecnet II (10/10H) | 1505A* | Precision RG-59/U Coax |
| | | 1505F* | High-Flex 1505A |
| | | 1506A* | Plenum Precision RG-59/U, Outdoor, Direct Burial |
| | | 8241* | Standard RG-59/U Coax |
| | | 8241F* | High-Flex 8241F |
| | MODBUS | See Protocol listings on pages 341–342 | |
| | PROFIBUS DP | See Protocol listings on pages 341–342 | |
| | Serial Communications | 8777 Control and Instrumentation Interconnect Cable | |
| Modicon/Schneider AEG | Industrial Ethernet | See pages 379-400 | |
| | MODBUS | 8777 | Modem Drop Cable, 22 AWG, 3-Pair |
| 8777NH | | 22 AWG, 3-Pair, LSNH | |
| 8777LS | | 22 AWG, 3-Pair, Steel Wire Armor | |
| 128777 | | Aluminum Armor (8777) | |
| 138777 | | Steel Armor (8777) | |
| 88777 | | FEP 200 °C, Plenum | |
| MODBUS II | | 3092A | RG-6 Quad Shield PVC |
| | | 3132A | RG-6 Quad Shield, 150 °C, Plenum |
| | | 3092F | RG-6 Quad Shield PVC, Flexible Version |
| | | 123092A | Aluminum Armor (3092A) |
| | 133092A | Steel Armor (3092A) | |
| Remote I/O | 3092A | RG-6 Quad Shield PVC | |
| | 3092F | RG-6 Quad Shield PVC, Flexible Version | |
| | 123092A | Aluminum Armor (3092A) | |
| | 133092A | Steel Armor (3092A) | |
| | 123092F | Aluminum Armor, RG-6 Quad Shield PVC | |
| | 3132A | RG-6 Quad Shield, 150 °C, Plenum | |
| | 3094A | RG-11 Quad Shield PVC | |
| | 123094A | Aluminum Armor (3094A) | |
| | 133094A | Steel Armor (3094A) | |
| | 3095A | RG-11 Quad Shield, 150 °C, Plenum | |
| Omron | ComboBus/D (DeviceNet™) | See DeviceNet Protocol listings on pages 341–342 | |
| | ComboBus/S | 9409* | 18 AWG, 1-Pair, 300 V PLTC Control |
| | | 9318* | 18 AWG, 1-Pair, 300 V PLTC Control, Shielded |
| | | 3073F | 600 V Tray Cable, Twinax |
| | | 89740* | 18 AWG, 1-Pair, 300 V, Control |

| PLC/DCS Manufacturer | System Name | Belden Part Number | |
|----------------------------|---|--|--|
| Omron (continued) | Controller Link | 9207 | Twinax |
| | | 89207 | Twinax, 200 °C, Plenum |
| | | 9815* | Twinax, 100 Ohm, Direct Burial |
| | | 3073F | 600 V Tray Cable, Twinax |
| | | SYSBUS-2 | 3073F 600 V Tray Cable, Twinax |
| | SYSMAC BUS | 9841 | 22 AWG, 1-Pair, RS-485 |
| | | 3105A | 22 AWG, 1-Pair, RS-485 |
| | SYSMAC LINK | 9231* | RG-59U Coax |
| | Phoenix Contact | DeviceNet | See Protocol listings on pages 341–342 |
| | | Industrial Ethernet | See pages 379-400 |
| INTERBUS®-S | | See Protocol listings on pages 341–342 | |
| PROFIBUS DP FMS & PA | | See Protocol listings on pages 341–342 | |
| Reliance/A-B | Auto Max Distributed Power | B9B012* | 2-Fiber Breakout |
| | | I100255* | 2-Fiber Loose Tube PVC |
| | | I100266* | 2-Fiber Loose Tube CPE |
| | R-Net | 9259* | RG-59 PVC |
| | 89259* | RG-59, 200 °C, Plenum | |
| Rotork | Pakscan II E RS-485 | 3105A | 22 AWG, 1-Pair, RS-485 |
| Siemens/Moore | FMC (Field Mountable Controller) | 3105A | 1-Pair, RS-485 |
| | | 3106A | 1.5-Pair, RS-485 |
| | | 3107A | 2-Pair, RS-485 |
| | | 3108A | 3-Pair, RS-485 |
| | | 3109A | 4-Pair, RS-485 |
| | FOUNDATION Fieldbus (Type SP50 ISA/IEC) | See Protocol listings on pages 341–342 | |
| | Hiway | 9860 | Network Trunk Cable |
| | Industrial Ethernet | See pages 379-400 | |
| | MODULNET | 3094A | RG-11 Quad Shield PVC |
| | | 3131A | RG-6 Quad Shield PVC |
| PROFIBUS DP & FMS (Purple) | See Protocol listings on pages 341–342 | | |
| PROFIBUS PA (Blue) | See Protocol listings on pages 341–342 | | |
| SINEC Series H1 | 9907 | Thin Network Trunk Cable | |
| | 9880 | Network Trunk Cable | |
| SINEC Series H2B | 3131A | RG-6 Quad Shield | |
| | 3094A | RG-11 Quad Shield | |
| SINEC Series L1 | 3107A | 2-Pair, RS-485 | |
| SINEC Series L2 | 3079A | 300 V Twinax | |
| Thicknet Ethernet Trunk | 9880 | Network Trunk Cable | |
| | 129880 | Aluminum Interlocked Armor Trunk | |
| | 139880 | Steel Interlocked Armor Trunk | |
| Thinnet Ethernet Trunk | 9907 | Thin Network Trunk Cable | |

CPE = Chlorinated Polyethylene
 LSNH = Low Smoke No Halogen
 FEP = Fluorinated Ethylene-propylene
 PVC = Polyvinyl Chloride

PLC/DCS Cable Cross Reference Guide (continued)

| PLC/DCS Manufacturer | System Name | Belden Part Number | | |
|----------------------------|---|--|---------------------------------------|------------------------|
| Smar | FOUNDATION Fieldbus (Type SP50 ISA/IEC) | See Protocol listings on pages 341–342 | | |
| | Industrial Ethernet | See pages 379-400 | | |
| | PROFIBUS DP FMS & PA | See Protocol listings on pages 341–342 | | |
| | RS-485 | See Protocol listings on pages 341–342 | | |
| Square D/ Schneider AEG | FIP/Fieldbus | 3079A | 22 AWG, 1-Pair, Shielded | |
| | | 123079A | Aluminum Armor (3079A) | |
| | Industrial Ethernet | See pages 379-400 | | |
| | Model 50, RS-422 Cable | 8760 | 18 AWG, 1-Pair, Shielded | |
| | | 128760 | Aluminum Armor (8760) | |
| | | Passport I/O – I/O Net | 3105A | 22 AWG, 1-Pair, RS-485 |
| | | | 123105A | Aluminum Armor (3105A) |
| | Power Logic | 3106A | 22 AWG, 1.5-Pair, RS-485 | |
| | | 123106A | Aluminum Armor (3106A) | |
| | | 9841 | 24 AWG, 1-Pair, RS-485 | |
| | | 9842 | 24 AWG, 2-Pair, RS-485 | |
| | Square D/ Schneider AEG | Seriplex® | 3124A | CBL-1822-P20 |
| | | | 3125A | CBL-1622-P16 |
| | | | 3126A | CBL-162212-P16 |
| | | | 123124A | Aluminum Armor (3124A) |
| 123125A | | | Aluminum Armor (3125A) | |
| 123126A | | | Aluminum Armor (3126A) | |
| 9463 | | | Blue Hose® (Standard) | |
| 9463NH | | | 20 AWG Twinax, FRNC | |
| 9463LS | | | 20 AWG Twinax, Steel Wire Armor, FRNC | |
| 129463 | | | Aluminum Armor (9463) | |
| 139463 | | | Steel Armor (9463) | |
| 189463 | | | Continuous Armor (9463) | |
| YR28826 | | Dual Version (9463) | | |
| 9463DB | | Direct Burial (9463) | | |
| YR29565 | | Various Color Jackets 9463) | | |
| SY/Net Network Trunk Cable | 3072F | 600 V TC Rated (9463) | | |
| | 89463 | FEP 200 °C, Plenum | | |
| SY/Net TNIM Cable | 9272 | 20 AWG, 1-Pair, Shielded | | |
| | 89272 | FEP 200 °C, Plenum | | |

| PLC/DCS Manufacturer | System Name | Belden Part Number | |
|---|---|--|--|
| Yokogawa – CENTUM | DeviceNet™ | See Protocol listings on pages 341–342 | |
| | FOUNDATION Fieldbus (Type SP50 ISA/IEC) | See Protocol listings on pages 341–342 | |
| | HART | See Protocol listings on pages 341–342 | |
| | Industrial Ethernet | See pages 379-400 | |
| | PROFIBUS | See Protocol listings on pages 341–342 | |
| | RS-485 | See Protocol listings on pages 341–342 | |
| Yokogawa – FA-M3 | DeviceNet | See Protocol listings on pages 341–342 | |
| | Industrial Ethernet | See pages 379-400 | |
| | MODBUS | See Protocol listings on pages 341–342 | |
| | PROFIBUS | See Protocol listings on pages 341–342 | |
| | RS-485 | See Protocol listings on pages 341–342 | |
| | Yokogawa – STARDOM | DeviceNet | See Protocol listings on pages 341–342 |
| FOUNDATION Fieldbus (Type SP50 ISA/IEC) | | See Protocol listings on pages 341–342 | |
| HART | | See Protocol listings on pages 341–342 | |
| Industrial Ethernet | | See pages 379-400 | |
| PROFIBUS | | See Protocol listings on pages 341–342 | |
| RS-485 | | See Protocol listings on pages 341–342 | |
| Westinghouse | WDPF | 9292* | RG-11 PVC |

FEP = Fluorinated Ethylene-Propylene.
 FRNC = Fire Retardant, Non-Corrosive
 TC = Tinned Copper

ControlNet is a ControlNet International, Ltd. trademark.
 DeviceNet is an Open DeviceNet Vendor Association, Inc. trademark.
 EtherNet/IP is a ControlNet International, Ltd. trademark, under license by Open DeviceNet Vendor Association, Inc.
 HART is a HART Communication Foundation trademark.
 INTERBUS is a Phoenix Contact trademark.
 MODBUS is a Schneider Electric trademark.
 PROFIBUS is a PROFIBUS International trademark.
 PROFINET is a PROFIBUS International trademark.
 SDS is a Honeywell International, Inc. trademark.
 Seriplex is a Square D/Schneider AEG trademark.

Protocol Cable Cross Reference Guide

| System Name | Belden Part Number |
|--|---|
| Industrial Ethernet | See pages 379-400 |
| FOUNDATION Fieldbus (Type SP50 ISA/IEC) | See pages 345-353 |
| | HSE Copper See Industrial Ethernet |
| PROFIBUS DP | See pages 355-356 |
| | 3079A 22 AWG 300 V Twinax |
| | 3079E 22 AWG 300 V Twinax, Flex Version |
| | 3079ALS 22 AWG, Steel Wire Armored, LSNH |
| | 3079ANH 22 AWG, LSNH |
| | 70101E Solid Cond., PVC, IEC 60332-1, IEC 61158-2 |
| | 70101NH Solid Cond., LSNH, IEC 60332-1, IEC 61158-2 |
| | 70101LS Solid Cond., Steel Wire Armored, LSNH, IEC 60332-1, IEC 61158-2 |
| | 70102E Stranded Cond., PVC, IEC 60332-1, IEC 61158-2 |
| | 70101PE Outdoor, PE, IEC 61158-2 |
| | 70103E Fast Connect, PVC, IEC 60332-1, IEC 61158-2 |
| | 70104E Fast Connect, PVC, UL AWM 20276 |
| | 70105PU Trailing, PUR, IEC 61158-2 |
| | 183079A 22 AWG, 300 V, Twinax, Armored |
| PROFIBUS PA | |
| | 3076F 18 AWG, 2-Conductor, PVC, CMX-Outdoor |
| | 3076ELS 18 AWG, 2-Conductor, LSNH Inner and Outer Jacket |
| | 3076ENH 18 AWG, 2-Conductor, LSNH |
| | 183076F 18 AWG, 2-Conductor, Armored, PVC |
| | 70001E 18 AWG, 2-Conductor, PVC, IEC 60332-1 |
| | 70001NH 18 AWG, 2-Conductor, LSNH, IEC 60332-1 |
| | 70001LS 18 AWG, 2-Conductor, Steel Wire Armor, LSNH, IEC 60332-1 |
| | 70200E 18 AWG, 2-Conductor, PVC, 30 V UL AWM 2464, IEC 60332-1, IEC 61158-2 |
| | 70200NH 18 AWG, 2-Conductor, LSNH, 30 V UL AWM 20851, IEC 60332-1, IEC 61158-2 |
| | 70200LS 18 AWG, 2-Conductor, Steel Wire Armor, LSNH, IEC 60332-1, IEC 61158-2 |
| | 70110E 18 AWG, 2-Conductor, PVC, IEC 60332-1, IEC 61158-2, UL 1581, AWM 2464 |

| System Name | Belden Part Number |
|-------------------------------------|--|
| CANopen RS-485/HART | See pages 357-360 |
| | 9841 1-Pair |
| | 9841NH 1-Pair, LSNH |
| | 9841LS 1-Pair, Low Smoke |
| | 82841 1-Pair, Plenum |
| | 89841 1-Pair, Plenum, High-Temperature |
| | 9842 2-Pair |
| | 9842NH 2-Pair, LSNH |
| | 9842LS 2-Pair, Low Smoke |
| | 82842 2-Pair, Plenum |
| | 9843 3-Pair |
| | 9843NH 3-Pair, LSNH |
| | 9844 4-Pair |
| | 9844NH 4-Pair, LSNH |
| | 7200A 1-Pair, RS-485, Hi-Flex |
| | 7201A 2-Pair, RS-485, Hi-Flex |
| | 7202A 3-Pair, RS-485, Hi-Flex |
| | 7203A 4-Pair, RS-485, Hi-Flex |
| | 7206A 1-Pair, RS-485, Hi-Flex |
| | 3105A 1-Pair, RS-485 (PLTC) |
| | 3106A 1.5-Pair, RS-485 (PLTC) |
| | 3107A 2-Pair, RS-485 (PLTC) |
| | 3108A 3 Pair, RS-485 (PLTC) |
| | 3109A 4 Pair, RS-485 (PLTC) |
| | 123107A 2-Pair, RS-485, Aluminium Interlocked Armor |
| DeviceBus for ODVA DeviceNet | |
| | 1345F CL2 TPE (Thick) |
| | 3082A PVC (Thick) |
| | 3082F High-Flex (Thick) |
| | 3083A CPE (Thick) |
| | 3084A PVC (Thin) |
| | 3084F High-Flex (Thin) |
| | 3085A CPE (Thin) |
| | 7895A CL2 PVC (Cable III Mid) |
| | 7896A CL1 PVC (Type V Trunk Cable) |
| | 7897A CL1 PVC (Thick) |
| | 7900A CL1 Unshielded (Drop Cable IV) |
| MarineTuff™ DeviceNet™ | See page 365 |

CPE = Chlorinated Polyethylene
 PE = Polyethylene
 PUR = Polyurethane
 LSNH = Low Smoke No Halogen
 PVC = Polyvinyl Chloride
 TPE = Fluorinated Ethylene-propylene

Protocol Cable Cross Reference Guide (continued)

| System Name | Belden Part Number |
|---|--|
| DeviceBus for Honeywell Smart Distributed System (SDS) | 3086A 1-Pair 16 AWG, 1-Pair 20 AWG |
| | 3087A 2-Pair 22 AWG |
| DeviceBus for Square D/Seriplex | 3124A 1-Pair 18 AWG, 1-Pair 22 AWG |
| | 3125A 1-Pair 16 AWG, 1-Pair 22 AWG |
| | 3126A 1-Pair 16 AWG, 1-Pair 22 AWG, 1-Pair 12 AWG |
| | 123124A Aluminum Armor (3124A) |
| | 123125A Aluminum Armor (3125A) |
| 123126A Aluminum Armor (3126A) | |
| DeviceBus for Phoenix Contact INTERBUS-S | 3119A 18 AWG/3c, 24 AWG/3-Pair, Composite |
| | 3120A 24 AWG/3-Pair |
| ControlNet™ | See pages 366-367 |
| | 3092A RG-6 PVC Quad Shield |
| | 3092F RG-6 PVC Quad Shield, Flex Version, Aluminum Braid |
| | 3093A RG-6 FEP Quad Shield, Plenum |
| | 123092A Aluminum Armor (3092A) |
| | 133092A Steel Armor (3092A) |
| | 183092A Continuous Armor (3092A) |
| ControlBus | 3092F RG-6 Quad Shield, High Flex |
| | 3131A RG-6 Quad Shield, Solid |
| | 3132A RG-6 Quad Shield, Plenum, Outdoor and Direct Burial |
| | 3094A RG-11 Quad Shield, Solid |
| | 3095A RG-11 Quad Shield, Plenum, Outdoor and Direct Burial |
| ControlBus Blue Hose Industrial Twinax/DataHighway (DH) and DataHighway Plus (DH+) Remote I/O | 9463 20 AWG Twinax, Blue Hose |
| | 9463DB Direct Burial Blue Hose |
| | 9463NH 20 AWG Twinax, FRNC |
| | 9463LS 20 AWG Twinax Steel Wire Armor, FRNC |
| | 9463F High-Flex, Blue Hose |
| | 89463 High-Temp, Plenum Blue Hose |
| | 129463 Aluminum Armor (9463) |
| 139463 Steel Armor (9463) | |
| 189463 Continuous Armor (9463) | |
| MarineTuff™ Blue Hose Industrial Twinax | See page 374 |

| System Name | Belden Part Number |
|------------------------------------|--|
| ControlBus Twinax Cables | 9272 20 AWG Stranded, 300 V |
| | 9250 18 AWG Stranded, RG-22B |
| | 9207 20 AWG Stranded, PVC |
| | 9207NH 20 AWG Stranded, LSNH |
| | 9271 25 AWG Stranded, 300 V |
| | 9860 16 AWG Solid, PVC |
| | 9182 22 AWG Stranded, PVC |
| | 9182NH 22 AWG Stranded, LSNH |
| | 9182LS 22 AWG Stranded, Steel Wire Armor, LSNH |
| | 89182 22 AWG Stranded, Plenum, FEP |
| MODBUS RS-232 | 8777 22 AWG, 3-Pair, Modem Drop Cable |
| | 128777 Aluminum Armor (8777) |
| | 138777 Steel Armor (8777) |
| | 82777 FEP 200 °C, Plenum (8777) |
| MODBUS II RG-6 Type Coaxial Cables | 8777NH 22 AWG, 3-Pair, LSNH |
| | 8777LS 22 AWG, 3-Pair, Steel Wire Armor |
| | 3092A 18 AWG Solid, PVC |
| | 3093A 18 AWG Solid, Plenum |
| LonWorks | 3092F 20 AWG High Flex |
| | 7701NH 22 AWG, 1-Pair, LSNH |
| | 7702NH 22 AWG, 2-Pair, LSNH |
| | 7703NH 24 AWG, 1-Pair, LSNH |
| | 7704NH 24 AWG, 2-Pair, LSNH |
| | 8471 16 AWG, 1-Pair, UL AWM 2598 |
| | 8471LS 16 AWG, 1-Pair, LSNH, IEC 60332-1 |
| | 8471NH 16 AWG 1-Pair, LSNH |
| | 85102 16 AWG, 1-Pair, Tefzel® jacket |
| | 3072F 18 AWG, MSHA, 78 Ω, PVC |
| 3073F 18 AWG, 100 Ω, PVC | |
| 3074F 18 AWG, 124 Ω, PVC | |
| DataTray 600 V Twinaxial | CC Link |
| | 7953A Cat 6, 600 V UL AWM, EtherNet/IP, CMX-Outdoor, Solid, LSNH |
| | 7929A Cat 5e, MSHA, CMX-Outdoor, Solid, PVC |
| | 7921A Cat 5e, EtherNet/IP, CMX-Outdoor, Solid, PVC |
| | 7939A Cat 5e, CMX-Outdoor, Stranded, PVC |
| | 1348A 3-Conductor, PVC Outer Jacket |
| | 1349A 5-Conductor, PVC Inner and Outer Jacket |
| KNX/EIB | YE00819 1-pair, PVC |
| | YE00820 2-pair, PVC |
| | YE00905 1-pair, LSNH |
| | YE00906 2-pair, LSNH |
| Coaxial Ethernet | 9907 20 AWG, Stranded, PVC |
| | 89907 20 AWG, Stranded, Plenum |
| | 9880 12 AWG, Solid, PVC |
| | 89880 12 AWG, Solid, Plenum |

CPE = Chlorinated Polyethylene
 FEP = Fluorinated Ethylene
 FRPO = Flame Retardant Polyolefin
 FRNC = Fire Retardant, Non-Corrosive
 LSNH = Low Smoke No Halogen
 PVC = Polyvinyl Chloride
 TPE = Fluorinated Ethylene-propylene
 MSHA = Mine Safety and Health Administration



Industrial Data and Process Automation Serial Fieldbus

Section Table of Contents

| Industrial Data and Process Automation | Page |
|---|------------|
| Serial Fieldbus | |
| Overview | 344 |
| Foundation Fieldbus Type A | 345 |
| Foundation Fieldbus Type B | 350 |
| Foundation Fieldbus MarineTuff™ Marine Approved | 351 |
| PROFIBUS | 354 |
| PROFIBUS MarineTuff™ Marine Approved | 356 |
| CANopen RS-485 | 357 |
| CANopen RS-485 MarineTuff™ Marine Approved | 359 |
| DeviceBus® for ODVA DeviceNet™ | 361 |
| DeviceBus® for Honeywell Smart Distributed System | 363 |
| DeviceBus® for Square D/Seriplex® and Phoenix Contact INTERBUS®-S | 364 |
| DeviceBus® for ODVA DeviceNet™ MarineTuff™ Marine Approved | 365 |
| ControlNet™ | 366 |
| ControlNet™ MarineTuff™ Marine Approved | 367 |
| ControlBus™ | 368 |
| MODBUS for RS-232 Applications | 371 |
| MODBUS II for RG-6 Type Coaxial Cables | 371 |
| LonWorks | 372 |
| DataTray® 600 V Twinaxial | 373 |
| Blue Hose DataTray® 600 V Twinaxial MarineTuff™ Marine Approved | 374 |
| CC Link | 375 |
| KNX/EIB Approved Cables | 376 |
| Coaxial Ethernet | 377 |
| MachFlex Flexible Automation Cables | 378 |
| 300 V MachFlex Data Cables (1 Million Flex Cycles) | 378 |
| MachFlex Vision 75 Ohm Coax Cables (1 Million Flex Cycles) | 378 |



Serial Fieldbus



Today, more than ever, manufacturing productivity depends upon seamless data communication and automation systems. And both depend upon high-performance cabling solutions. The Serial Fieldbus range covers all key protocols in the market: Foundation Fieldbus (type A, type B, high speed), Profibus DP and PA, CanOpen RS-485, DeviceBus (for ODVA DeviceNet™, Honeywell Smart Distributed System, Square D/Seriplex® and Phoenix Contact INTERBUS®-S), ControlNet, ControlBus, MODBUS, Lonworks, DataTray® 600 V Twinaxial, CC Link, KNX/EIB and Coaxial Ethernet. The products are approved for the main PCL/DCS manufacturers in the market, such as: ABB, Siemens, Rockwell Automation, Honeywell, Emerson, Yokogawa, Mitsubishi, Schneider Electric, Omron, etc.

Product Features

- Variety of jacket materials: PVC, CPE, HDPE, FRNC/LSNH, or TPE jackets
- Versions available with Beldfoil® shields and Beldfoil® Plus Braid shields
- Twisted and bonded pairs, quad, single and multi-conductor versions
- Operation temperature from -40 °C up to +150 °C, designs suitable for hi/lo temperature installations
- UL, IEC, NFPA approvals
- Sunlight, oil, gasoline and weldsplatter resistant designs
- Suitable for CMX/outdoor applications
- PLTC listed cables
- High resistance against trailing and torsion as well continuous flooding
- Options suitable for direct burial

Benefits

- Robustness for full range of industrial applications: outdoors, trailing, oil contact
- Reliability through design robustness: steel wire armor, aluminium interlock armor, stranded conductors
- Ease of use through fast connect versions

Applications

Belden has developed the world's most comprehensive line of industrial cabling solutions for applications like yours: whether you are networking your factory floor or your process equipment and devices to their controllers, on to the control room, or relaying data between the control room, the engineering department, and remote manufacturing sites. From your petrochemical, automotive manufacturing, pharmaceutical, power generation, pulp and paper, metals, food and beverage, or general manufacturing plant to your corporate headquarters – and everywhere in between – Belden has your cabling solution.

Foundation Fieldbus Type A

Foundation Fieldbus Type A



- BS EN 50288-7
- IEC 61158-2
- IEC 60332-3
- Impedance 100 Ohm

| Part No. | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature | Additional Features/Standards |
|----------|-----|---------|-------|----------|----|-----------------------|-------------------------------|
| | | | | Inch | mm | | |

18 AWG

| Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • FRLS PVC Sheath | | | | | | | |
|---|----|------|---|------|------|----------------|---|
| YJ55281F | 18 | 300V | 1 | 0.28 | 7.2 | -30°C to +90°C | BS EN 290-2-29, BS EN 0290-2-27, BS EN50290-2-22, UL 1581, ASTM D 2843, Sunlight Res Oil Res |
| YJ55282F | | | 2 | 0.48 | 12.4 | | |
| YJ55283F | | | 3 | 0.50 | 13.0 | | |
| YJ55284F | | | 4 | 0.56 | 14.4 | | |

| Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • LSZH Sheath | | | | | | | |
|---|----|------|---|------|------|----------------|---|
| YJ55281L | 18 | 300V | 1 | 0.28 | 7.2 | -30°C to +90°C | BS EN 290-2-29, BS EN 0290-2-27, BS EN50290-2-22, UL 1581, ASTM D 2843, Sunlight Res Oil Res |
| YJ55282L | | | 2 | 0.48 | 12.4 | | |
| YJ55283L | | | 3 | 0.50 | 13.0 | | |
| YJ55284L | | | 4 | 0.56 | 14.4 | | |

16 AWG

| Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • FRLS PVC Sheath | | | | | | | |
|---|----|------|---|------|------|----------------|---|
| YJ55261F | 16 | 300V | 1 | 0.34 | 8.8 | -30°C to +90°C | BS EN 290-2-29, BS EN 0290-2-27, BS EN50290-2-22, UL 1581, ASTM D 2843, Sunlight Res Oil Res |
| YJ55262F | | | 2 | 0.60 | 15.5 | | |
| YJ55263F | | | 3 | 0.63 | 16.3 | | |
| YJ55264F | | | 4 | 0.70 | 18.0 | | |

| Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • LSZH Sheath | | | | | | | |
|---|----|------|---|------|------|----------------|---|
| YJ55261L | 16 | 300V | 1 | 0.34 | 8.8 | -30°C to +90°C | BS EN 290-2-29, BS EN 0290-2-27, BS EN50290-2-22, UL 1581, ASTM D 2843, Sunlight Res Oil Res |
| YJ55262L | | | 2 | 0.60 | 15.5 | | |
| YJ55263L | | | 3 | 0.63 | 16.3 | | |
| YJ55264L | | | 4 | 0.70 | 18.0 | | |

Foundation Fieldbus Type A

Foundation Fieldbus Type A



- Impedance 100 Ohm
- BS EN 50288-7
- IEC 60332-3
- IEC 61158-2

| Part No. | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature | Additional Features/Standards |
|----------|-----|---------|-------|----------|----|-----------------------|-------------------------------|
| | | | | Inch | mm | | |

18 AWG

Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • PVC Inner Sheath • Steel Wire Armor • FRLS PVC Outer Sheath

| | | | | | | | |
|------------------|----|------|---|------|------|----------------|--|
| YJ55281FS | 18 | 300V | 1 | 0.41 | 10.5 | -30°C to +90°C | BS EN 290-2-29, BS EN 0290-2-27, BS EN50290-2-22, UL 1581, ASTM D 2843, Sunlight Res Oil Res |
| YJ55282FS | | | 2 | 0.62 | 15.9 | | |
| YJ55283FS | | | 3 | 0.64 | 16.5 | | |
| YJ55284FS | | | 4 | 0.70 | 18.0 | | |

Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath

| | | | | | | | |
|------------------|----|------|---|------|------|----------------|--|
| YJ55281LS | 18 | 300V | 1 | 0.41 | 10.5 | -30°C to +90°C | BS EN 290-2-29, BS EN 0290-2-27, BS EN50290-2-22, UL 1581, ASTM D 2843, Sunlight Res Oil Res |
| YJ55282LS | | | 2 | 0.62 | 15.9 | | |
| YJ55283LS | | | 3 | 0.65 | 16.5 | | |
| YJ55284LS | | | 4 | 0.70 | 18.0 | | |

16 AWG

Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • PVC Inner Sheath • Steel Wire Armor • FRLS PVC Outer Sheath

| | | | | | | | |
|------------------|----|------|---|------|------|----------------|--|
| YJ55261FS | 16 | 300V | 1 | 0.47 | 12.2 | -30°C to +90°C | BS EN 290-2-29, BS EN 0290-2-27, BS EN50290-2-22, UL 1581, ASTM D 2843, Sunlight Res Oil Res |
| YJ55262FS | | | 2 | 0.78 | 20.1 | | |
| YJ55263FS | | | 3 | 0.81 | 20.9 | | |
| YJ55264FS | | | 4 | 0.88 | 22.7 | | |

Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath

| | | | | | | | |
|------------------|----|------|---|------|------|----------------|--|
| YJ55261LS | 16 | 300V | 1 | 0.47 | 12.2 | -30°C to +90°C | BS EN 290-2-29, BS EN 0290-2-27, BS EN50290-2-22, UL 1581, ASTM D 2843, Sunlight Res Oil Res |
| YJ55262LS | | | 2 | 0.78 | 20.1 | | |
| YJ55263LS | | | 3 | 0.81 | 20.9 | | |
| YJ55264LS | | | 4 | 0.88 | 22.7 | | |

Foundation Fieldbus Type A

Foundation Fieldbus Type A

- Impedance 100 Ohm



| Part No. | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|-----|---------|-------|-----------|--------|----------------------------|---|
| | | | | Inch | mm | | |
| Stranded (7 x 26) TC Conductors • Polyolefin Insulation • TC Drain Wire • Beldfoil® Shielding • Orange or Intrinsically Safe Blue PVC Jacket | | | | | | | |
| 3076F* | 18 | 300 | 1 | .253 | 6.43 | -40 to +105 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| Stranded (7 x 26) TC Conductors • Polyolefin Insulation • TC Drain Wire • Beldfoil® Shielding • LSNH Inner Jacket (Black and Blue) • Steel Wire Armor • Black LSNH Outer Jacket | | | | | | | |
| 3076ELS | 18 | 300 | 1 | .295/.511 | 7.5/13 | -45 to +80 | NEC: CM • CEC: CM |
| Stranded (7 x 26) TC Conductors • Polyolefin Insulation • TC Drain Wire • Beldfoil® Shielding • LSNH Jacket | | | | | | | |
| 3076ENH | 18 | 300 | 1 | .295 | 7.5 | -45 to +80 | NEC: CM • CEC: CM |
| Stranded (7 x 26) TC Conductors • Polyolefin Insulation • TC Drain Wire • Beldfoil® Shielding • PVC Inner Jacket • Armor • Orange PVC Outer Jacket | | | | | | | |
| 183076F | 18 | 300 | 1 | .562 | 14.30 | -40 to +105 | FOUNDATION Fieldbus Type A Continuously Corrugated Aluminum Armor NEC: CMX-Outdoor Sunlight Res Oil Res |
| Stranded (7 x 26) TC Conductors • Polyolefin Insulation • TC Drain Wire • Individually Foil Shielded Pairs + Overall Beldfoil® Shielding • Orange PVC Jacket | | | | | | | |
| 1327A | 18 | 300 | 2 | .44 | 11.18 | -40 to +105 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| 1328A | | | 5 | .55 | 13.87 | | |
| 1329A | | | 8 | .67 | 17.02 | | |
| 1330A | | | 12 | .81 | 20.57 | | |
| 1331A | | | 16 | .92 | 23.37 | | |
| 1332A | | | 20 | 1.02 | 25.91 | | |
| 1333A | | | 24 | 1.14 | 28.96 | | |
| 1359A | | | 50 | 1.61 | 40.90 | | |
| Stranded (7 x 26) TC Conductors • Polyolefin Insulation • TC Drain Wire • Beldfoil® + 65% TC Braid Shielding • Orange or Intrinsically Safe Blue PVC Jacket | | | | | | | |
| 1334A | 18 | 300 | 1 | .28 | 7.11 | -50 to +105 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |

* ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.

Conductor Color Code: Blue, Orange, Numbered Pairs

TC = Tinned Copper • PVC = Polyvinyl Chloride • LSNH = Low Smoke No Halogen

Foundation Fieldbus Type A

Foundation Fieldbus Type A

- Impedance 100 Ohm



| Part No. | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|---|-----|---------|-------|----------|-------|----------------------------|---|
| | | | | Inch | mm | | |
| Stranded (7 x 26) TC Conductors • Cross-Linked Polyolefin Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • Orange or Intrinsically Safe Blue PVC Jacket | | | | | | | |
| 2100A | | | 1 | .319 | 8.10 | | |
| 2101A | | | 2 | .512 | 13.00 | | |
| 2102A | | | 5 | .677 | 17.20 | | |
| 2103A | | | 8 | .800 | 20.32 | | |
| 2104A | 18 | 300 | 12 | 1.015 | 25.78 | -55 to +90 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 C(UL) CIC Type TC Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| 2105A | | | 16 | 1.126 | 28.60 | | |
| 2106A | | | 20 | 1.249 | 31.72 | | |
| 2107A | | | 24 | 1.389 | 35.28 | | |
| 2108A | | | 50 | 1.947 | 49.45 | | |
| Stranded (7 x 26) TC Conductors • Cross-Linked Polyolefin Insulation • TC Drain Wires • Individually Shielded Pairs and Overall Beldfoil® Shielding • Orange or Intrinsically Safe Blue PVC Jacket | | | | | | | |
| 2118A* | | | 1 | .319 | 8.10 | | |
| 2119A* | | | 2 | .512 | 13.00 | | |
| 2120A* | | | 5 | .677 | 17.20 | | |
| 2121A* | | | 8 | .800 | 20.32 | | |
| 2122A* | 18 | 600 | 12 | 1.015 | 25.78 | -55 to +90 | TC-ER CMG CMX-Outdoor CEC: CMG FT4 C(UL) CIC Type TC Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| 2123A | | | 16 | 1.126 | 28.60 | | |
| 2124A | | | 20 | 1.249 | 31.72 | | |
| 2125A | | | 24 | 1.389 | 35.28 | | |
| 2126A | | | 50 | 1.947 | 49.45 | | |
| Stranded (7 x 24) TC Conductors • Polyolefin Insulation • TC Drain Wires • Individually Shielded Pairs and Overall Beldfoil® Shielding • Orange PVC Jacket | | | | | | | |
| 1360A | | | 1 | .40 | 10.16 | -50 to +105 | |
| 1361A | | | 2 | .58 | 14.73 | | |
| 1362A | | | 5 | .75 | 19.05 | | |
| 1363A | | | 8 | .91 | 23.11 | | |
| 1364A | 16 | 300 | 12 | 1.11 | 28.19 | -40 to +105 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| 1365A | | | 16 | 1.23 | 31.24 | | |
| 1366A | | | 20 | 1.39 | 35.31 | | |
| 1367A | | | 24 | 1.55 | 39.37 | | |
| Stranded (7 x 24) TC Conductors • Cross-Linked Polyolefin Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • Orange or Intrinsically Safe Blue PVC Jacket | | | | | | | |
| 2109A | | | 1 | .365 | 9.27 | | |
| 2110A | | | 2 | .629 | 15.98 | | |
| 2111A | | | 5 | .789 | 20.04 | | |
| 2112A | | | 8 | .982 | 24.94 | | |
| 2113A | 16 | 300 | 12 | 1.186 | 30.12 | -55 to +90 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 C(UL) CIC Type TC Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| 2114A | | | 16 | 1.321 | 33.55 | | |
| 2115A | | | 20 | 1.469 | 37.31 | | |
| 2116A | | | 24 | 1.638 | 41.61 | | |
| 2117A | | | 36 | 1.952 | 49.58 | | |

* ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.

Conductor Color Code: Blue, Orange, Numbered Pairs

TC = Tinned Copper • PVC = Polyvinyl Chloride

Foundation Fieldbus Type A

Foundation Fieldbus Type A

- Impedance 100 Ohm



| Part No. | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|-----|---------|-------|----------|-------|----------------------------|---|
| | | | | Inch | mm | | |
| Stranded (7 x 24) TC Conductors • Cross-Linked Polyolefin Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • Orange or Intrinsically Safe Blue PVC Jacket | | | | | | | |
| 2127A* | | | 1 | .365 | 9.27 | | |
| 2128A* | | | 2 | .629 | 15.98 | | |
| 2129A* | | | 5 | .789 | 20.04 | | |
| 2130A* | | | 8 | .982 | 24.94 | | |
| 2131A* | 16 | 600 | 12 | 1.186 | 30.12 | -55 to +90 | TC-ER CMG CMX-Outdoor CEC: CMG FT4 C(UL) CIC Type TC Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| 2132A | | | 16 | 1.321 | 33.55 | | |
| 2133A | | | 20 | 1.469 | 37.31 | | |
| 2134A | | | 24 | 1.638 | 41.61 | | |
| 2135A | | | 36 | 1.952 | 49.58 | | |
| Stranded (7 x 24) TC Conductors • Polyolefin Insulation • TC Drain Wire • Overall Beldfoil® + 65% TC Braid Shielding • Orange or Intrinsically Safe Blue PVC Jacket | | | | | | | |
| 1335A** | 16 | 300 | 1 | .34 | 8.64 | -50 to +105 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| Stranded (7 x 22) TC Conductors • Polyolefin Insulation • TC Drain Wire • Overall Beldfoil® + 65% TC Braid Shielding • Orange or Intrinsically Safe Blue PVC Jacket | | | | | | | |
| 1336A** | 14 | 300 | 1 | .43 | 10.92 | -50 to +105 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |

* ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.
 ** Although Type A specification references nominal 18 AWG, Belden 1335A and 1336A meet all other Type A requirements.

Conductor Color Code: Blue, Orange, Numbered Pairs

TC = Tinned Copper • PVC = Polyvinyl Chloride

Foundation Fieldbus Type B

Foundation Fieldbus Type B and High Speed

- Impedance 100 Ohm or 150 Ohm



| Part No. | Impedance (Ohm) | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|---|-----------------|-----|---------|-------|------------|-------------|----------------------------|---|
| | | | | | Inch | mm | | |
| Stranded (7 x 30) TC Conductors • Polyolefin Insulation • TC Drain Wire • Beldfoil® Shielding • Orange PVC Jacket | | | | | | | | |
| 3077F | 100 | 22 | 300 | 1 | .196 | 4.97 | -30 to +105 | FOUNDATION Fieldbus Type B NEC: PLTC/ITC CM • CEC: CM FT1 Sunlight Res Oil Res |
| Stranded (7 x 30) TC Conductors • Foam High-Density Polyethylene Insulation • TC Drain Wire • Beldfoil® Shield • Orange PVC Jacket | | | | | | | | |
| 3078F | 150 | 22 | 300 | 1 | .351 | 8.92 | -40 to +75 | FOUNDATION Fieldbus High Speed NEC: CM • CEC: CM Sunlight Res Oil Res |
| Stranded (7 x 30) TC Conductors • Polyolefin Insulation • TC Drain Wire • Beldfoil® Shielding • Steel Wire Armor • FRNC Jacket | | | | | | | | |
| 3077ELS | 100 | 22 | 300 | 1 | .295/.512* | 7.50/13.00* | -30 to +105 | FOUNDATION Fieldbus Type B NEC: PLTC/ITC CM • CEC: CM FT1 |
| Stranded (7 x 30) TC Conductors • Polyolefin Insulation • TC Drain Wire • Beldfoil® Shielding • FRNC Jacket | | | | | | | | |
| 3077ENH | 100 | 22 | 300 | 1 | .295 | 7.50 | -30 to +105 | FOUNDATION Fieldbus Type B NEC: PLTC/ITC CM • CEC: CM FT1 |

* Inner jacket/outer jacket

Conductor Color Code: Blue, Orange

MarineTuff™ Marine Approved Foundation Fieldbus Cables



Foundation Fieldbus Type A



- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- PLTC/ITC-ER
- IEC 60754-1
- IEC 60754-2
- NEC: CMG
- CEC: CMG FT4
- IEC 60332-3-24 (Cat C)
- FT4/IEEE 1202
- IEC 60332-3-22

| Part No. | Voltage | AWG | Pairs | OD (Nom) | | Additional Features/Standards |
|----------|---------|-----|-------|----------|----|-------------------------------|
| | | | | Inch | mm | |

18 AWG • Shielded

Stranded (7x 26) TC Conductors • Polyolefin Insulation • TC Drain Wire • Overall Beldfoil® Shielding • LSZH Jacket

| | | | | | | |
|-----------------------------|------|----|---|------|-----|---|
| Thermoset Jacket | | | | | | DNV Certificate No. TAE0000VW ABS Certificate No. 14-HS1221997-PDA |
| 3076Z | 300V | 18 | 1 | 0.38 | 9.7 | |
| Thermoplastic Jacket | | | | | | |
| 3076T | 300V | 18 | 1 | 0.38 | 9.7 | |



| Part No. | Voltage | AWG | Pairs | OD (Nom) | | Additional Features/Standards |
|----------|---------|-----|-------|----------|----|-------------------------------|
| | | | | Inch | mm | |

18 AWG • Shielded • Armored

Stranded (7x 26) TC Conductors • Polyolefin Insulation • TC Drain Wire • Overall Beldfoil® Shielding • Bronze Braid Armor • Double LSZH Jackets

| | | | | | | |
|-----------------------------|------|----|---|------|------|--|
| Thermoset Jacket | | | | | | DNV Certificate No. TAE00000WM ABS Certificate No. 14-HS1221997-PDA |
| 973076Z | 300V | 18 | 1 | 0.52 | 13.3 | |
| Thermoplastic Jacket | | | | | | |
| 773076T | 300V | 18 | 1 | 0.52 | 13.3 | |

MarineTuff™ Marine Approved Foundation Fieldbus Cables



Foundation Fieldbus Type A



- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- IEEE 1580 Type P Jacket
- UL 1277 Type TC-ER
- IEC 60332-3-24 (Cat C)
- FT4/IEEE 1202
- IEC 60332-3-22
- IEC 60754-1
- IEC 60754-2

| Part No. | Voltage | AWG | Pairs | OD (Nom) | | Additional Features/Standards |
|----------|---------|-----|-------|----------|----|-------------------------------|
| | | | | Inch | mm | |

18 AWG • Shielded

Stranded (7x 26) TC Conductors • XLP Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil™ Shielding • LSZH Jacket

| Thermoset Jacket | | | | | | | |
|----------------------|------|----|----|------|------|--|--|
| 2118Z | 600V | 18 | 1 | 0.35 | 8.8 | DNV Certificate No. TAE00000VW ABS Certificate No. 13-HS1104623B-PDA & 13-HS1085604-PDA | |
| 2119Z | | | 2 | 0.60 | 15.2 | | |
| 2120Z | | | 5 | 0.75 | 19.0 | | |
| 2121Z | | | 8 | 0.93 | 23.6 | | |
| 2122Z | | | 12 | 1.12 | 28.5 | | |
| Thermoplastic Jacket | | | | | | | |
| 2118T | 600V | 18 | 1 | 0.35 | 8.8 | | DNV Certificate No. TAE00000VW ABS Certificate No. 13-HS1104623B-PDA & 13-HS1085604-PDA |
| 2119T | | | 2 | 0.60 | 15.2 | | |
| 2120T | | | 5 | 0.75 | 19.0 | | |
| 2121T | | | 8 | 0.93 | 23.6 | | |
| 2122T | | | 12 | 1.12 | 28.5 | | |



| Part No. | Voltage | AWG | Pairs | OD (Nom) | | Additional Features/Standards |
|----------|---------|-----|-------|----------|----|-------------------------------|
| | | | | Inch | mm | |

18 AWG • Shielded • Armored

Stranded (7x 26) TC Conductors • XLP Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil™ Shielding • Bronze Braid Armor • Double LSZH Jackets

| Thermoset Jacket | | | | | | | |
|----------------------|------|----|----|------|------|--|--|
| 972118Z | 600V | 18 | 1 | 0.48 | 12.5 | DNV Certificate No. TAE00000WM ABS Certificate No. 13-HS1104623B-PDA & 13-HS1085604-PDA | |
| 972119Z | | | 2 | 0.75 | 19.3 | | |
| 972120Z | | | 5 | 0.90 | 23.1 | | |
| 972121Z | | | 8 | 1.09 | 27.7 | | |
| 972122Z | | | 12 | 1.28 | 32.6 | | |
| Thermoplastic Jacket | | | | | | | |
| 772118T | 600V | 18 | 1 | 0.48 | 12.5 | | DNV Certificate No. TAE00000WM ABS Certificate No. 13-HS1104623B-PDA & 13-HS1085604-PDA |
| 772119T | | | 2 | 0.75 | 19.3 | | |
| 772120T | | | 5 | 0.90 | 23.1 | | |
| 772121T | | | 8 | 1.09 | 27.7 | | |
| 772122T | | | 12 | 1.28 | 32.6 | | |

MarineTuff™ Marine Approved Foundation Fieldbus Cables



Foundation Fieldbus Type A



- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- IEEE 1580 Type P Jacket
- UL 1277 Type TC-ER
- IEC 60332-3-24 (Cat C)
- FT4/IEEE 1202
- IEC 60332-3-22
- IEC 60754-1
- IEC 60754-2

| Part No. | Voltage | AWG | Pairs | OD (Nom) | | Additional Features/Standards |
|----------|---------|-----|-------|----------|----|-------------------------------|
| | | | | Inch | mm | |

16 AWG • Shielded

Stranded (7x 26) TC Conductors • XLP Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • LSZH Jacket

| Thermoset Jacket | | | | | | | |
|----------------------|------|----|----|------|------|---|---|
| 2127Z | 600V | 16 | 1 | 0.37 | 9.5 | DNV Certificate No. TAE0000VW ABS Certificate No. 13-HS1104623B-PDA & 13-HS1085604-PDA | |
| 2128Z | | | 2 | 0.65 | 16.4 | | |
| 2129Z | | | 5 | 0.81 | 20.6 | | |
| 2130Z | | | 8 | 1.01 | 25.6 | | |
| 2131Z | | | 12 | 1.22 | 31.0 | | |
| Thermoplastic Jacket | | | | | | | |
| 2127T | 600V | 16 | 1 | 0.37 | 9.5 | | DNV Certificate No. TAE0000VW ABS Certificate No. 13-HS1104623B-PDA & 13-HS1085604-PDA |
| 2128T | | | 2 | 0.65 | 16.4 | | |
| 2129T | | | 5 | 0.81 | 20.6 | | |
| 2130T | | | 8 | 1.01 | 25.6 | | |
| 2131T | | | 12 | 1.22 | 31.0 | | |



| Part No. | Voltage | AWG | Pairs | OD (Nom) | | Additional Features/Standards |
|----------|---------|-----|-------|----------|----|-------------------------------|
| | | | | Inch | mm | |

16 AWG • Shielded • Armored

Stranded (7x 26) TC Conductors • XLP Insulation • TC Drain Wire • Individually Shielded Pairs and Overall Beldfoil® Shielding • Bronze Braid Armor • Double LSZH Jackets

| Thermoset Jacket | | | | | | | |
|----------------------|------|----|----|------|------|---|---|
| 972127T | 600V | 16 | 1 | 0.52 | 13.2 | DNV Certificate No. TAE0000VW ABS Certificate No. 13-HS1104623B-PDA & 13-HS1085604-PDA | |
| 972128T | | | 2 | 0.81 | 20.5 | | |
| 972129T | | | 5 | 0.97 | 24.7 | | |
| 972130T | | | 8 | 1.17 | 29.7 | | |
| 972131T | | | 12 | 1.41 | 35.8 | | |
| Thermoplastic Jacket | | | | | | | |
| 772127T | 600V | 16 | 1 | 0.52 | 13.2 | | DNV Certificate No. TAE0000VW ABS Certificate No. 13-HS1104623B-PDA & 13-HS1085604-PDA |
| 772128T | | | 2 | 0.81 | 20.5 | | |
| 772129T | | | 5 | 0.97 | 24.7 | | |
| 772130T | | | 8 | 1.17 | 29.7 | | |
| 772131T | | | 12 | 1.41 | 35.8 | | |

PROFIBUS

PROFIBUS PA

- Impedance 100 Ohm
- 300 V



| Part No. | Shielding | Jacket | OD (Nom) | | Operating Temperature (°C) | Additional Features |
|--|-----------------------------------|--------|-----------|-----------|----------------------------|---|
| | | | Inch | mm | | |
| 18 AWG (.891 mm²) • Stranded (7 x 26) TC Conductors • 1 Pair • Polyolefin Insulation | | | | | | |
| 3076F | Overall Beldfoil® | | .253 | 6.43 | -40 to +105 | PLTC/ITC-ER CMG CMX-Outdoor CEC: CMG FT4 Sunlight Res Oil Res IEC 60332-3-24 (Cat C) |
| 70200E | | PVC | .295 | 7.5 | -40 to +80 | 30 V UL AWM 2464 IEC 60332-1 • IEC 61158-2 |
| 70001E | Overall Beldfoil® + 85% Braid | | .295 | 7.5 | -45 to +80 | 30 V UL AWM 20276 IEC 60332-1 |
| 70110E | Overall Beldfoil® + >70% Braid | | .307 | 7.8 | -30 to +75 | IEC 60332-1 • IEC 61158-2 UL 1581 • 30 V UL AWM 2464 |
| 3076ENH | | | | | -45 to +80 | NEC: CM • CEC: CM |
| 70200NH | Overall Beldfoil® | LSNH | .295 | 7.5 | -40 to +80 | 30 V UL AWM 20851 IEC 60332-1 • IEC 61158-2 |
| 70001NH | Overall Beldfoil® + 85% Braid | | | | -45 to +80 | 30 V UL AWM 20851 IEC 60332-1 |
| 18 AWG (.891 mm²) • Stranded (7 x 26) TC Conductors • 1 Pair • Polyolefin Insulation • Continuously Corrugated Aluminium Armor | | | | | | |
| 183076F | Overall Beldfoil® + 65% Braid | PVC | .253/.562 | 6.43/14.3 | -40 to +105 | FOUNDATION Fieldbus Type A Continuously Corrugated Aluminum Armor NEC: CMX-Outdoor Sunlight Res Oil Res PVC Inner Jacket |
| 18 AWG (.891 mm²) • Stranded (7 x 26) TC Conductors • 1 Pair • Polyolefin Insulation • Steel Wire Armor | | | | | | |
| 3076ELS | | | | | -45 to +80 | Steel Wire Armor NEC: CM • CEC: CM LSNH Inner Jacket |
| 70200LS | Overall Beldfoil® | LSNH | .295/.511 | 7.5/13 | -40 to +70 | Steel Wire Armor IEC 60332-1 • IEC 61158-2 LSNH Inner Jacket |
| 70001LS | Overall Beldfoil® + 85% Braid | | | | -45 to +70 | Steel Wire Armor IEC 60332-1 LSNH Inner Jacket |

Conductor Color Coding: 3076F, 3076ELS, 3076ENH, 183076F: Blue, Orange
70001E, 70001NH, 70001LS, 70200E, 70200NH, 70200LS, 70110E: Red, Green

All construction have TC Drain Wire in their design.
Colors available: Orange, Blue, Black

PROFIBUS

PROFIBUS DP

- Impedance 150 Ohm
- 300 V



| Part No. | Shielding | Jacket | OD (Nom) | | Operating Temperature (°C) | Additional Features |
|--|----------------------------------|--------|-----------|------------|----------------------------|---|
| | | | Inch | mm | | |
| 22 AWG (.322 mm²) • Solid BC Conductors • 1 Pair • Flame Retardant Foam Polyethylene Insulation | | | | | | |
| 3079A* | | | .315 | 8.92 | -30 to +75 | NEC: CMG • CEC: CMG FT4 UL PLTC Sunlight Res Siemens Sinec L2 cable UL AWM 20201 (600 V, +75 °C) |
| 70101E | | PVC | .307 | 7.8 | -40 to +80 | 30 V UL AWM 20276 IEC 60332-1 • IEC 61158-2 |
| 70103E | Overall Beldfoil® + 65% Braid | | .323 | 8.2 | -40 to +80 | Fast Connect 30 V UL AWM 20276 IEC 60332-1 • IEC 61158-2 |
| 3079ANH | | | .315 | 8.0 | -45 to +80 | IEC 60332-3-24 |
| 70101NH | | LSNH | .307 | 7.8 | -40 to +80 | 30 V UL AWM 20851 IEC 60332-1 • IEC 61158-2 |
| 70101PE | | PE | .307 | 7.8 | -40 to +70 | Outdoor IEC 61158-2 |
| 22 AWG (.352 mm²) • Stranded (7 x 30) BC Conductors • 1 Pair • Flame Retardant Foam Polyethylene Insulation | | | | | | |
| 3079E | Overall Beldfoil® + 65% Braid | PVC | .315 | 8.92 | -30 to +75 | NEC: CMG • CEC: CMG FT4 UL PLTC Sunlight Res UL AWM 20201 (600 V, +75 °C) |
| 70102E | | | .307 | 7.8 | -40 to +80 | 30 V UL AWM 20276 IEC 60332-1 • IEC 61158-2 |
| 24 AWG (.239 mm²) • Stranded (19 x 36) BC Conductors • 1 Pair • Flame Retardant Foam Polyethylene Insulation | | | | | | |
| 70105PU | Overall Beldfoil® + 70% Braid | PUR | .307 | 7,8 | -40 to +80 | 2 Million Continuous Flex Cycles, Trailing 30 V UL AWM 21292 IEC 61158-2 |
| 22 AWG (.322 mm²) • Solid BC Conductors • 1 Pair • Flame Retardant Foam Polyethylene Insulation • Continuously Corrugated Aluminium Armor | | | | | | |
| 183079A | Overall Beldfoil® + 65% Braid | PVC | .315/.587 | 8.92/14.91 | -30 to +60 | NEC: CMG • CEC: CMG FT4 UL PLTC Continuously Corrugated Aluminum Armor 600 V AWM Sunlight Res PVC Inner Jacket |
| 22 AWG (.322 mm²) • Solid BC Conductors • 1 Pair • Flame Retardant Foam Polyethylene Insulation • Steel Wire Armor | | | | | | |
| 3079ALS | | | .315/.488 | 8.00/12.40 | -45 to +80 | Steel Wire Armor IEC 60332-3-24 LSNH Inner Jacket |
| 70101LS | Overall Beldfoil® + 65% Braid | LSNH | .307/.472 | 7.8/12 | -40 to +70 | Steel Wire Armor IEC 60332-1 • IEC 61158-2 LSNH Inner Jacket |

* ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.

Conductor Color Coding: Red, Green

All construction have TC Drain Wire in their design.
Colors available: Chrome, Purple, Black

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • LSNH = Low Smoke No Halogen • FRNC = Fire Retardant, Non-Corrosive • PE = Polyethylene • PUR = Polyurethane

MarineTuff™ Marine Approved PROFIBUS DP Cables



Profibus DP



- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- NEC: PLTC CMG
- CEC: CMG FT4
- FT4/IEEE 1202
- IEC 60332-3-22
- IEC 60754-1
- IEC 60754-2

| Part No. | Voltage | Pairs | OD (Nom) | | Additional Features / Ratings |
|----------|---------|-------|----------|----|-------------------------------|
| | | | Inch | mm | |

22 AWG • Shielded

Solid BC Conductor • FRFPE Insulation • Overall Beldfoil® Shielding + Overall Tinned Copper Braid (65% coverage) • LSZH Jacket

| Thermoset Jacket | | | | | Additional Features / Ratings |
|----------------------|------|---|------|------|-------------------------------|
| 3079Z | 300V | 1 | 0.43 | 10.9 | |
| Thermoplastic Jacket | | | | | |
| 3079T | 300V | 1 | 0.43 | 10.9 | |

DNV Certificate No.
TAE00000W
ABS Certificate No.
14-HS1233170-PDA-DUP



| Part No. | Voltage | Pairs | OD (Nom) | | Additional Features / Ratings |
|----------|---------|-------|----------|----|-------------------------------|
| | | | Inch | mm | |

22 AWG • Shielded • Armored

Solid BC Conductor • FRFPE Insulation • Overall Beldfoil® Shielding + Overall Tinned Copper Braid (65% coverage) • Bronze Braid Armor • Double LSZH Jackets

| Thermoset Jacket | | | | | Additional Features / Ratings |
|----------------------|------|---|------|------|-------------------------------|
| 973079Z | 300V | 1 | 0.59 | 15.0 | |
| Thermoplastic Jacket | | | | | |
| 773079T | 300V | 1 | 0.59 | 15.0 | |

DNV Certificate No.
TAE00000W
ABS Certificate No.
14-HS1233170-PDA-DUP



Marine Approved CANopen RS-485

CANopen RS-485



- IEC 60228, IEC 60092-376, IEC 60092-359, IEC 60092-351, UL 758
- IEC 60754-1, IEC 60754-2, IEC 61034-2, ASTM D 2843, EN 50305, NF F63-305
- IEC 60332-1-2, IEC 60332-3A
- RoHS & CE & REACH Directives

| Part No. | Pairs | Color Code | OD (Nom) | | Operating Temperature | Nom. Cable Weight | Nom. Capacitance | | | | Additional Features/Standards |
|----------|-------|------------|----------|----|-----------------------|-------------------|------------------|------|----------------|------|-------------------------------|
| | | | Inch | mm | | | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG

| Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® & TC Braid Shield • LSZH Jacket | | | | | | | | | | | |
|---|---|---------|------|------|----------------|-----|-------|----|-------|----|-------------------------------------|
| 50011L | 1 | Chart 4 | 0.26 | 6.6 | -40°C To +90°C | 64 | 14.02 | 46 | 24.99 | 82 | ABS Certificate No.15-HS1434725-PDA |
| 50012L | 2 | Chart 4 | 0.35 | 8.9 | | 99 | | | | | |
| 50013L | 3 | Chart 4 | 0.37 | 9.5 | | 104 | | | | | |
| 50014L | 4 | Chart 4 | 0.41 | 10.5 | | 124 | | | | | |



- IEC 60228, IEC 60092-376, IEC 60092-359, IEC 60092-351, UL 758
- IEC 60754-1, IEC 60754-2, IEC 61034-2, ASTM D 2843, EN 50305, NF F63-305
- IEC 60332-1-2, IEC 60332-3A
- RoHS & CE & REACH Directives

| Part No. | Pairs | Color Code | OD (Nom) | | Operating Temperature | Nom. Cable Weight | Nom. Capacitance | | | | Additional Features/Standards |
|----------|-------|------------|----------|----|-----------------------|-------------------|------------------|------|----------------|------|-------------------------------|
| | | | Inch | mm | | | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG

| Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® & TC Braid Shield • Galvanized Steel Wire Armor • Double LSZH Jackets | | | | | | | | | | | |
|---|---|---------|------|-------|----------------|-----|-------|----|-------|----|-------------------------------------|
| 50011LS | 1 | Chart 4 | 0.36 | 9.2 | -40°C To +90°C | 188 | 14.02 | 46 | 24.99 | 82 | ABS Certificate No.15-HS1434725-PDA |
| 50012LS | 2 | Chart 4 | 0.45 | 11.6 | | 258 | | | | | |
| 50013LS | 3 | Chart 4 | 0.47 | 12.00 | | 265 | | | | | |
| 50014LS | 4 | Chart 4 | 0.50 | 12.8 | | 298 | | | | | |



- IEC 60228, IEC 60092-376, IEC 60092-359, IEC 60092-351, UL 758
- IEC 60754-1, IEC 60754-2, IEC 61034-2, ASTM D 2843, EN 50305, NF F63-305
- IEC 60332-1-2, IEC 60332-3A
- RoHS & CE & REACH Directives

| Part No. | Pairs | Color Code | OD (Nom) | | Operating Temperature | Nom. Cable Weight | Nom. Capacitance | | | | Additional Features/Standards |
|----------|-------|------------|----------|----|-----------------------|-------------------|------------------|------|----------------|------|-------------------------------|
| | | | Inch | mm | | | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG

| Stranded TC Conductors • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® & TC Braid Shield • Galvanized Steel Wire Braid Armor • Double LSZH Jackets | | | | | | | | | | | |
|---|---|---------|------|------|----------------|-----|-------|----|-------|----|-------------------------------------|
| 50011LB | 1 | Chart 4 | 0.33 | 8.5 | -40°C To +90°C | 122 | 14.02 | 46 | 24.99 | 82 | ABS Certificate No.15-HS1434725-PDA |
| 50012LB | 2 | Chart 4 | 0.43 | 10.9 | | 173 | | | | | |
| 50013LB | 3 | Chart 4 | 0.44 | 11.3 | | 184 | | | | | |
| 50014LB | 4 | Chart 4 | 0.47 | 12.1 | | 213 | | | | | |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 560.

CANopen RS-485

**Non-Plenum • Overall Foil/
Braid Shield • RS-485 • DMX512**

- Impedance 120 Ohm



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • Polyethylene/PVC

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 90% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Chrome PVC Jacket | | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|------|------|------|------|--|
| 9841 | 1 | Chart 5 | .232 | 5.89 | .023 | .58 | .035 | .89 | | | | | NEC: CM • CEC: CM UL AWM Style 2919 (30 V, +80 °C) ANSI E1.11 DMX512 120 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 9842 | 2 | Chart 5 | .340 | 8.64 | | | | | 12.8 | 42.0 | 23.0 | 75.5 | |
| 9843 | 3 | Chart 5 | .360 | 9.14 | .022 | .56 | .035 | .89 | | | | | |
| 9844 | 4 | Chart 5 | .390 | 9.91 | | | | | | | | | |

24 AWG • Polyethylene/LSNH

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 90% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Chrome FRNC/LSNH Jacket | | | | | | | | | | | | | |
|---|---|---------|------|------|------|------|------|-----|------|------|------|------|---|
| 9841NH | 1 | Chart 5 | .232 | 5.89 | .023 | 0.58 | .035 | .89 | | | | | IEC332-3-24 ANSI E1.11 DMX512 120 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 9842NH | 2 | Chart 5 | .341 | 8.65 | | | | | 12.8 | 42.0 | 23.0 | 75.5 | |
| 9843NH | 3 | Chart 5 | .358 | 9.10 | .022 | 0.56 | .035 | .89 | | | | | |
| 9844NH | 4 | Chart 5 | .390 | 9.91 | | | | | | | | | |

24 AWG • Polyethylene/LSNH • Armored

| Stranded (7 x 32) TC Conductors • Polyethylene Insulation • Chrome FRNC/LSNH Inner Jacket • Overall Beldfoil® + 90% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Steel Wire Armor • Black Sunlight-Resistant FRNC/LSNH Outer Jacket | | | | | | | | | | | | | |
|--|---|---------|------|-------|------|------|------------|-----------|------|------|------|------|---|
| 9841LS | 1 | Chart 5 | .405 | 10.30 | .023 | 0.58 | | | | | | | IEC332-3-24 ANSI E1.11 DMX512 120 Ω Nom. Impedance 66% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| | | | | | | | .035/.051* | .89/1.30* | 12.8 | 42.0 | 23.0 | 75.5 | |
| 9842LS | 2 | Chart 5 | .516 | 13.10 | .022 | 0.56 | | | | | | | |

* Inner jacket/outer jacket

**Plenum • Overall Foil/
Braid Shield • RS-485**

- Impedance 120 Ohm

- NEC: CMP
- CEC: CMP FT6



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

24 AWG • FEP/Flamarrest®

| Stranded (7 x 32) TC Conductors • Foam FEP Insulation • Overall Beldfoil® + 90% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|----|------|----|------|--|
| 82841 | 1 | Chart 5 | .204 | 5.18 | .025 | .64 | .015 | .38 | | | | | Plenum 300 V 120 Ω Nom. Impedance 76% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 82842 | 2 | Chart 5 | .273 | 6.93 | .019 | .48 | .015 | .38 | 12 | 39.4 | 22 | 72.2 | |

24 AWG • FEP/FEP

| Stranded (7 x 32) TC Conductors • Foam FEP Insulation • Overall Beldfoil® + 90% TC Braid Shield • 24 AWG Stranded TC Drain Wire • Red FEP Jacket | | | | | | | | | | | | | |
|--|---|---------|------|------|------|-----|------|-----|----|------|----|------|--|
| 89841 | 1 | Chart 5 | .202 | 5.13 | .025 | .64 | .014 | .36 | | | | | Plenum 300 V 120 Ω Nom. Impedance 76% Velocity of Prop. Conductor DCR (Nom): 24.0 Ω/1000' (78.7 Ω/km) |
| 89842 | 2 | Chart 5 | .305 | 7.75 | .023 | .58 | .014 | .36 | 12 | 39.4 | 22 | 72.2 | |

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene • FRNC/LSNH = Fire Retardant, Non-Corrosive/Low Smoke, No Halogen | Belden Color Code Charts can be found at page 560.

CANopen RS-485

Paired Cable • Shielded



- 24 AWG (41 x 40) BC Conductors
- Foam Polyethylene Insulation with Skin
- Overall Beldfoil® + 85% TC Braid Shield
- Green PVC Jacket
- 24 AWG (41 x 40) TC Drain Wire
- Impedance 120 Ohm
- NEC: CM
- CEC: CM
- -20 °C to +60 °C
- -5 °C to +60 °C Flexing

| Part No. | Pairs | OD (Nom) | | Capacitance (Max) Cond.-Cond. | | Additional Features/Ratings |
|----------|-------|----------|----|-------------------------------|------|-----------------------------|
| | | Inch | mm | pF/Ft | pF/m | |

120 Ohm Impedance • RS-232 and RS-485

| 24 AWG (41 x 40) BC Conductors • Foam Polyethylene Insulation with Skin • Overall Beldfoil® + 85% TC Braid Shield • 24 AWG (41 x 40) TC Drain Wire • Green PVC Jacket | | | | | | |
|---|---|------|------|------|------|------------|
| 7200A | 1 | .240 | 6.10 | | | |
| 7201A | 2 | .322 | 8.18 | | | |
| 7202A | 3 | .347 | 8.81 | 15.0 | 49.2 | Oil Res II |
| 7203A | 4 | .362 | 9.20 | | | |

Conductor Color Coding: One-Pair Cable: White, Blue
 Multi-Pair Configurations: 1 White/Blue Stripe – Blue/White Stripe
 2 White/Orange Stripe – Orange/White Stripe
 3 White/Green Stripe – Green/White Stripe
 4 White/Brown Stripe – Brown/White Stripe

PLTC Cable



- Impedance 120 Ohm

| Part No. | Pairs | OD (Nom) | | Capacitance (Max) Cond.-Cond. | | Operating Temperature (°C) | Additional Features/Ratings |
|----------|-------|----------|----|-------------------------------|------|----------------------------|-----------------------------|
| | | Inch | mm | pF/Ft | pF/m | | |

| 22 AWG (7 x 30) Stranded TC Conductors • Datalene® Insulation • TC Drain Wire • Overall Beldfoil® + 90% TC Braid Shielding • Black PVC Jacket | | | | | | | |
|---|-----|------|-------|----|------|------------|---------------------|
| 3105A | 1.0 | .284 | 7.21 | | | | NEC CM • CEC CM FT1 |
| 3106A* | 1.5 | .300 | 7.62 | | | | UL PLTC |
| 3107A* | 2.0 | .356 | 9.04 | | | | Sunlight Res |
| 3108A* | 3.0 | .420 | 10.67 | 11 | 36.1 | -20 to +60 | Oil Res II |
| 3109A* | 4.0 | .448 | 11.38 | | | | 300 V |

3105A and 3107A are DMX512 Type
 3106A: Single conductor is under the braid shield; pair is under the Beldfoil® shield
 Also available with CPE jacket

| 22 AWG (7 x 30) Stranded TC Conductors • Datalene Insulation • TC Drain Wire • Overall Beldfoil® + 90% TC Braid Shielding • Armor • Black PVC Jacket | | | | | | | |
|--|-----|------|-------|----|------|------------|--|
| 123107A | 2.0 | .650 | 16.51 | 11 | 36.1 | -40 to +60 | Aluminum Interlocked Armor NEC CM • CEC CMG FT4 UL PLTC Sunlight Res Oil Res II 300 V |

* ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride

MarineTuff™ Marine Approved RS 485 Cables



RS - 485



- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- NEC: CMG, PLTC
- CEC/C(UL): CMG FT4
- FT4/IEEE 1202
- IEC 60332-3-22
- IEC 60754-1
- IEC 60754-2

| Part No. | Pairs | OD (Nom) | | Additional Features / Ratings |
|----------|-------|----------|----|-------------------------------|
| | | Inch | mm | |

22 AWG • Shielded

(7 X 30) Stranded TC Conductors • Datalene® Insulation • TC Drain Wire • Overall Beldfoil Shielding + Overall Tinned Copper Braid (65%) • LSZH Jacket

| Thermoset Jacket | | | | |
|----------------------|---|------|------|---|
| 3105Z | 1 | 0.40 | 10.2 | DNV Certificate No. TAE0000VS ABS Certificate No. 14-HS1264686-PDA-DUP |
| 3107Z | 2 | 0.44 | 11.2 | |
| 3108Z | 3 | 0.47 | 11.9 | |
| 3109Z | 4 | 0.49 | 12.4 | |
| Thermoplastic Jacket | | | | |
| 3105T | 1 | 0.40 | 10.2 | DNV Certificate No. TAE0000VS ABS Certificate No. 14-HS1264686-PDA-DUP |
| 3107T | 2 | 0.44 | 11.2 | |
| 3108T | 3 | 0.47 | 11.9 | |
| 3109T | 4 | 0.49 | 12.4 | |



| Part No. | Pairs | OD (Nom) | | Additional Features / Ratings |
|----------|-------|----------|----|-------------------------------|
| | | Inch | mm | |

22 AWG • Shielded • Armored

(7 X 30) Stranded TC Conductors • Datalene® Insulation • TC Drain Wire • Overall Beldfoil Shielding + Overall Tinned Copper Braid (65%) • Bronze Braid Armor • Double LSZH Jackets

| Thermoset Jacket | | | | |
|----------------------|---|------|------|---|
| 973105Z | 1 | 0.56 | 14.3 | DNV Certificate No. TAE0000WT ABS Certificate No. 14-HS1264686-PDA-DUP |
| 973107Z | 2 | 0.60 | 15.3 | |
| 973108Z | 3 | 0.63 | 16.0 | |
| 973109Z | 4 | 0.65 | 16.6 | |
| Thermoplastic Jacket | | | | |
| 773105T | 1 | 0.56 | 14.3 | DNV Certificate No. TAE0000WT ABS Certificate No. 14-HS1264686-PDA-DUP |
| 773107T | 2 | 0.60 | 15.3 | |
| 773108T | 3 | 0.63 | 16.0 | |
| 773109T | 4 | 0.65 | 16.6 | |

DeviceBus® for ODVA DeviceNet™

DeviceNet Communications Rate Table (Impedance 120 Ohm)

| Communications Rate (kb/s) | Maximum Distance | | | | | | | |
|----------------------------|----------------------------|--------|--------------|--------|-------|--------|----------------------------|--------|
| | 3082A, 3082F, 3083A, 7897A | | 3082K, 7896A | | 7895A | | 3084F, 3084A, 3085A, 7900A | |
| | Feet | Meters | Feet | Meters | Feet | Meters | Feet | Meters |
| 125 | 1640 | 500 | 1378 | 420 | 984 | 300 | 328 | 100 |
| 250 | 820 | 250 | 656 | 200 | 820 | 250 | 328 | 100 |
| 500 | 328 | 100 | 246 | 75 | 328 | 100 | 328 | 100 |

DeviceBus Cables

- Impedance 120 Ohm



| Part No. | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|---|----------------------------------|----------|-------|----------------------------|--|
| | | Inch | mm | | |
| 15 (19 x 28) and 18 (19 x 30) AWG Stranded TC Conductors • FEP (Data), PVC/Nylon (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Gray PVC Jacket | | | | | |
| 7897A | 2 1 pair data 1 pair power | .460 | 11.7 | -20 to +75 | ODVA Class 1 Thick, High Velocity, 600 V UL TC-ER Sunlight Res Oil Res |
| 16 (19 x 29) and 18 (19 x 30) AWG Stranded TC Conductors • FR Polypropylene (Data), PVC/Nylon (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Gray PVC Jacket | | | | | |
| 7896A* | 2 1 pair data 1 pair power | .525 | 13.34 | -20 to +75 | ODVA Class 1 Cable V, 600 V UL TC-ER Sunlight Res Oil Res |
| 16 (19 x 29) and 18 (19 x 30) AWG Stranded TC Conductors • FR Polypropylene (Data), PVC/Nylon (Power) Insulation • Unshielded • Gray PVC Jacket | | | | | |
| 7900A | 2 1 pair data 1 pair power | .430 | 10.92 | -20 to +75 | ODVA Class 1 Cable IV, Drop Cable, 600 V UL TC-ER CEC: FT1 Sunlight Res Oil Res |
| 15 (19 x 28) and 18 (19 x 30) AWG Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Gray or Red PVC Jacket | | | | | |
| 3082A | 2 1 pair data 1 pair power | .480 | 12.19 | -20 to +75 | ODVA Class 2 Thick, 300 V NEC: CMG • CEC: CMG FT4 C(UL) AWM I/II A UL AWM 20201 (600 V) UL PLTC-ER Sunlight Res Oil Res |
| 15 (65 x 33) and 18 (65 x 36) AWG Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Gray or Red PVC Jacket | | | | | |
| 3082F | 2 1 pair data 1 pair power | .480 | 12.19 | -20 to +75 | ODVA Class 2 Thick, 300 V High Flex NEC: CMG • CEC: CMG FT4 C(UL) AWM I/II A UL AWM 20201 (600 V) UL PLTC-ER Sunlight Res Oil Res |

* ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.

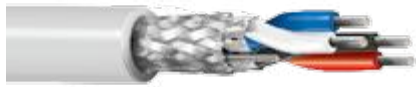
Conductor Color Coding: Data: Blue, White
Power: Red, Black

TC = Tinned Copper • FEP = Fluorinated Ethylene Propylene • PVC = Polyvinyl Chloride

DeviceBus® for ODVA DeviceNet™

DeviceBus Cables

- Impedance 120 Ohm



| Part No. | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|----------------------------------|----------|-------|----------------------------|--|
| | | Inch | mm | | |
| 15 (65 x 33) and 18 (65 x 36) AWG Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Gray TPE Jacket | | | | | |
| 1345F | 2 1 pair data 1 pair power | .480 | 12.19 | -30 to +75 | ODVA Class 2 Thick, 300 V High Flex NEC: CMG • CEC: CMG FT4 C(UL) AWM I/II A UL AWM 20201 (600 V) Sunlight Res Weldsplatter Resistant Oil Res I UL PLTC-ER Sunlight Res Oil Res |
| 22 AWG (154 x 44) and 24 AWG (105 x 44) Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • TC Drain Wire • Individual Beldfoil® + 65% TC Braid Shielding • Gray TPE Jacket | | | | | |
| 1346F | 2 1 pair data 1 pair power | .275 | 6.99 | -30 to +75 | Class 2 Thin, 300 V NEC: CMG CL2 • CEC: CMG FT4 Sunlight Res Oil Res I Weldsplatter Resistant C(UL) AWM I/II A |
| 15 (19 x 28) and 18 (19 x 30) AWG Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Yellow CPE Jacket | | | | | |
| 3083A | 2 1 pair data 1 pair power | .475 | 12.07 | -30 to +75 | ODVA Class 2 Thick, 300 V NEC: CMG • CEC: CMG FT4 UL PLTC Sunlight Res Oil Res |
| 22 (19 x 34) and 24 (19 x 36) AWG Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Gray PVC Jacket | | | | | |
| 3084A | 2 1 pair data 1 pair power | .280 | 7.11 | -20 to +75 | ODVA Class 2 Thin, 300 V NEC: CMG CL2 • CEC: CMG FT4, C(UL) AWM I/II A Sunlight Res Oil Res |
| 22 (155 x 44) and 24 (105 x 44) AWG Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Gray PVC Jacket | | | | | |
| 3084F | 2 1 pair data 1 pair power | .275 | 6.00 | -20 to +75 | Class 2 Thin, 300 V High Flex NEC: CMG CL2 • CEC: CMG FT4, C(UL) AWM I/II A Sunlight Res Oil Res |
| 22 (19 x 34) and 24 (19 x 36) AWG Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Yellow CPE Jacket | | | | | |
| 3085A | 2 1 pair data 1 pair power | .280 | 7.11 | -30 to +75 | ODVA Class 2 Thin, 300 V NEC: CL2 CMG • CEC: CMG FT4 Sunlight Res Oil Res |
| 20 (19 x 32) and 18 AWG (19 x 30) Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • Individually Foil Shielded Pairs + Overall 65% TC Braid Shielding • Gray PVC Jacket | | | | | |
| 7895A | 2 1 pair data 1 pair power | .378 | 9.60 | -20 to +75 | OVDA Class 2 Cable III, 300 V NEC: CMG • CEC: CMG FT4 UL AWM 20201 (600 V) UL PLTC Sunlight Res Oil Res |

Conductor Color Coding: Data: Blue, White
Power: Red, Black

TC = Tinned Copper • PVC = Polyvinyl Chloride • FPE = Foam Polyethylene • TPE = Thermoplastic Elastomer • CPE = Chlorinated Polyethylene

DeviceBus® for Honeywell Smart Distributed System



- Impedance 120 Ohm

| Part No. | Impedance (Ohm) | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|-----------------|----------------------------------|----------|-------|----------------------------|---|
| | | | Inch | mm | | |
| 16 AWG (19 x 29) and 20 AWG (19 x 32) Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • TC Drain Wire • Individually Beldfoil® Shielded Pairs • Gray PVC Jacket | | | | | | |
| 3086A | 120 | 2 1 pair data 1 pair power | .398 | 10.11 | -40 to +80 | Mini Cable, Trunk NEC: CL2 UL AWM 2464 (30 V, +60 °C) CSA AWM I/II A FT1 |
| 22 AWG (19 x 34) Stranded TC Conductors • Foam Polyethylene (Data), PVC (Power) Insulation • TC Drain Wire • Individually Beldfoil® Shielded Pairs • Gray PVC Jacket | | | | | | |
| 3087A | 120 | 2 1 pair data 1 pair power | .290 | 7.37 | -40 to +80 | Micro Cable, Drop NEC: CL2 UL AWM 2464 (30 V, +60 °C) CSA AWM I/II A FT1 |

Conductor Color Code: Power Pairs: Black, White
Data Pairs: Blue, Brown

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • TPE = Thermoplastic Elastomer

DeviceBus® for Square D/Seriplex® and Phoenix Contact INTERBUS®-S

Square D/Seriplex



| Part No. | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|-------|-------------|--------------|----------------------------|--|
| | | Inch | mm | | |
| 18 AWG (16 x 30) and 22 (7 x 30) Stranded TC Conductors • Foam High-Density Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® Shielding • Orange PVC Jacket | | | | | |
| 3124A | 2 | .308 | 7.82 | -20 to +75 | Seriplex CBL 1822-P18 NEC: CL2 CM • CEC: CM UL AWM 20201 (600 V, +75 °C) |
| 16 AWG (16 x 30) and 22 (7 x 30) Stranded TC Conductors • Foam High-Density Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® Shielding • Orange PVC Jacket | | | | | |
| 3125A | 2 | .368 | 10.11 | -20 to +75 | Seriplex CBL 1622-P1 NEC: CL2 CM • CEC: CM 300 V, +75 °C |
| 12 AWG (65 x 30), 16 AWG (26 x 30) and 22 (7 x 30) Stranded TC Conductors • Foam High-Density Polyethylene (Data), PVC (Power) Insulation • TC Drain Wire • Overall Beldfoil® Shielding • Orange PVC Jacket | | | | | |
| 3126A | 3 | .486 x .363 | 12.34 x 9.22 | -20 to +75 | Seriplex CBL 162212-P16 NEC: CL2 CM • CEC: CM 300 V, +75 °C |

Conductor Color Coding: 16/18 AWG: Red, Black
 22 AWG: White, Green
 12 AWG: Black/White, Red/White

Phoenix Contact INTERBUS-S

- Impedance 100 Ohm



| Part No. | Conductors | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|------------------------------|----------|------|----------------------------|------------------------------|
| | | Inch | mm | | |
| 18 AWG (7 x 26) and 24 (7 x 33) Stranded TC Conductors • PE (Data), PVC (Power) Insulation • TC Drain Wire • Overall Beldfoil® + 90% TC Braid Shielding • Green Polyurethane Jacket | | | | | |
| 3119A | 3 Cond. power 3 pair data | .333 | 8.46 | -40 to +80 | UL AWM 20333 (300 V, +80 °C) |
| Stranded 24 AWG (7 x 32) TC Conductors • PE Insulation • Overall Beldfoil® + 90% TC Braid Shielding • Green Polyurethane Jacket | | | | | |
| 3120A | 3 pair | .277 | 7.04 | -40 to +80 | UL AWM 20333 (300 V, +80 °C) |

TC = Tinned Copper • PE = Polyethylene • PVC = Polyvinyl Chloride

MarineTuff™ Marine Approved DeviceNet™ Cables



DeviceNet™



- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- C(UL) AWM I/II A/B (Thermoset Only)
- NEC: TC-ER
- CEC: FT4
- FT4/IEEE 1202
- IEC 60332-3-22
- IEC 60754-1
- IEC 60754-2

| Part No. | Voltage | Pairs | OD (Nom) | | Additional Features / Ratings |
|----------|---------|-------|----------|----|-------------------------------|
| | | | Inch | mm | |

16 AWG • Shielded

| Stranded TC Conductors (19 x 29) • XLPE Insulation (Thermoset) • PE Insulation (Thermoplastic) • Overall Beldfoil® Shielding + Overall Tinned Copper Braid (65% Coverage) • LSZH Jacket | | | | | | |
|---|------|---|------|------|--|--|
| Thermoset Jacket | | | | | | |
| 7896Z | 600V | 2 | 0.64 | 16.2 | DNV Certificate No. TAE00000VU ABS Certificate No. 14-HS1236591-PDA-DUP | |
| Thermoplastic Jacket | | | | | | |
| 7896T | 600V | 2 | 0.64 | 16.2 | | |



| Part No. | Voltage | Pairs | OD (Nom) | | Additional Features / Ratings |
|----------|---------|-------|----------|----|-------------------------------|
| | | | Inch | mm | |

16 AWG • Shielded • Armored

| Stranded TC Conductors (19 x 29) • XLPE Insulation (Thermoset) • PE Insulation (Thermoplastic) • Overall Beldfoil® Shielding + Overall Tinned Copper Braid (65% Coverage) • Bronze Braid Armor • Double LSZH Jackets | | | | | | |
|--|------|---|------|------|--|--|
| Thermoset Jacket | | | | | | |
| 977896Z | 600V | 2 | 0.80 | 19.8 | DNV Certificate No. TAE00000WR ABS Certificate No. 14-HS1236591-PDA-DUP | |
| Thermoplastic Jacket | | | | | | |
| 777896T | 600V | 2 | 0.80 | 19.8 | | |

ControlNet™

RG6/U Type Quad Shielded Coaxial

- Impedance 75 Ohm



| Part No. | Core Diameter | | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|---------------|------|----------|-------|----------------------------|---|
| | Inch | mm | Inch | mm | | |
| 18 AWG Solid BC-Covered Steel Conductor • Foam Polyethylene Insulation • Duobond® IV* Quad Shield • PVC Jacket (Black or Intrinsically Safe Blue) | | | | | | |
| 3092A** | .180 | 4.57 | .298 | 7.57 | -30 to +75 | Impedance: 75 Ω NEC: CMR CL2R • CEC: CMG FT4 |
| 18 AWG Solid BC-Covered Steel Conductor • Foam FEP Insulation • Duobond IV* Quad Shield • Fluorocopolymer Jacket (Black or Intrinsically Safe Blue) | | | | | | |
| 3093A | .170 | 4.32 | .274 | 6.96 | -20 to +150 | Plenum Rated Impedance: 75 Ω NEC: CMP • CEC: CMP FT6 |
| 20 AWG Stranded (105 x 40) BC Conductor • Foam Polyethylene Insulation • Duobond IV* Quad Shield • Black PVC Jacket | | | | | | |
| 3092F | .183 | 4.65 | .303 | 7.70 | -40 to +75 | High Flex Impedance: 75 Ω NEC: CMR CL2R • CEC: CMG FT4 |
| 18 AWG Solid BC-Covered Steel Conductor • Foam Polyethylene Insulation • Duobond IV* Quad Shield • PVC Inner Jacket • Armor • Black PVC Sunlight-Resistant Outer Jacket | | | | | | |
| 123092A | .180 | 4.57 | .620 | 15.75 | -40 to +75 | Aluminum Interlocked Armor Impedance: 75 Ω NEC: CM • CEC: CMG FT4, HL |
| 18 AWG Solid BC-Covered Steel Conductor • Foam Polyethylene Insulation • Duobond IV* Quad Shield • PVC Inner Jacket • Armor • Black PVC Outer Jacket | | | | | | |
| 183092A | .180 | 4.57 | .570 | 14.48 | -30 to +75 | Continuously Corrugated Aluminum Armor Impedance: 75 Ω NEC: CM CL2 |

* Duobond IV is a four-layer shield: (1) Duobond II Foil, (2) Aluminium Braid (60%), (3) Duofoil® Foil, (4) Aluminium Braid (40%).

** ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.

MarineTuff™ Marine Approved ControlNet™ Cables



ControlNet™



- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- NEC: CMG CL2
- CEC: CMG FT4
- FT4/IEEE 1202
- IEC 60332-3-22
- IEC 60754-1
- IEC 60754-2

| Part No. | AWG | OD (Nom) | | Additional Features / Ratings |
|----------|-----|----------|----|-------------------------------|
| | | Inch | mm | |

18 AWG • Quad Shielded Coaxial, Type RG6/U

Solid BC-Covered Steel Conductor • Polyolefin Insulation • Duobond Quad Shield • LSZH Jacket

| Thermoset Jacket | | | | |
|----------------------|----|------|-----|--|
| 3092Z | 18 | 0.30 | 7.6 | ABS Certificate No. 14-HS1244316-PDA |
| | | | | DNV Certificate No. TAE00000V0 |
| Thermoplastic Jacket | | | | |
| 3092T | 18 | 0.30 | 7.6 | ABS Certificate No. 13-HS1092993-1-PDA-DUP |

20 AWG • Quad Shielded Coaxial, Type RG6/U

Stranded (105x40) BC Conductor • Polyolefin Insulation • Duobond Quad Shield • LSZH Jacket

| Thermoset Jacket | | | | |
|----------------------|----|------|-----|--|
| 3092FZ | 20 | 0.31 | 7.7 | ABS Certificate No. 14-HS1244316-PDA |
| | | | | DNV Certificate No. TAE00000V0 |
| Thermoplastic Jacket | | | | |
| 3092FT | 20 | 0.31 | 7.7 | ABS Certificate No. 13-HS1092993-1-PDA-DUP |



| Part No. | AWG | OD (Nom) | | Additional Features / Ratings |
|----------|-----|----------|----|-------------------------------|
| | | Inch | mm | |

18 AWG • Quad Shielded Coaxial, Type RG6/U • Armored

Solid BC-Covered Steel Conductor • Polyolefin Insulation • Duobond Quad Shield • Bronze Braid Armor • Double LSZH Jackets

| Thermoset Jacket | | | | |
|----------------------|----|------|------|--|
| 973092Z | 18 | 0.44 | 11.3 | ABS Certificate No. 14-HS1244316-PDA |
| | | | | DNV Certificate No. TAE00000WC |
| Thermoplastic Jacket | | | | |
| 773092T | 18 | 0.44 | 11.3 | ABS Certificate No. 13-HS1092993-1-PDA-DUP |

20 AWG • Quad Shielded Coaxial, Type RG6/U • Armored

Stranded (105x40) BC Conductor • Polyolefin Insulation • Duobond Quad Shield • Bronze Braid Armor • Double LSZH Jackets

| Thermoset Jacket | | | | |
|----------------------|----|------|------|--|
| 973092F | 20 | 0.45 | 11.4 | ABS Certificate No. 14-HS1244316-PDA |
| | | | | DNV Certificate No. TAE00000WC |
| Thermoplastic Jacket | | | | |
| 773092F | 20 | 0.45 | 11.4 | ABS Certificate No. 13-HS1092993-1-PDA-DUP |

*Duobond IV is a four-layer shield: (1) Duobond II Foil, (2) TC Braid (94%), (3) Duofoil Foil, (4) TC Braid (90%).
BC = Bare Copper • PVC = Polyvinyl Chloride

Serial Fieldbus

ControlBus™

Quad Shielded Coaxial

- Impedance 75 Ohm



| Part No. | Core Diameter | | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|---|---------------|------|----------|-------|----------------------------|--|
| | Inch | mm | Inch | mm | | |
| 20 AWG Stranded (105 x 40) BC Conductor • Foam Polyethylene Insulation • Duobond® IV* Quad Shielding • Black PVC Jacket | | | | | | |
| 3092F** | .183 | 4.65 | .303 | 7.70 | -40 to +75 | High Flex Impedance: 75 Ω RG-6/U Type NEC: CMR CL2R • CEC: CMG FT4 IEEE 802.4 MAP/IEEE 802.7 Mini-MAP |
| 18 AWG Solid BC-Covered Steel Conductor • Gas-Injected Foam Polyethylene Insulation • Duobond IV* Quad Shielding • Gray PVC Jacket | | | | | | |
| 3131A | .189 | 4.57 | .300 | 7.62 | -30 to +75 | Impedance: 75 Ω RG-6/U Type NEC: CMR CL2R • CEC: CMG FT4 |
| 18 AWG Solid BC-Covered Steel Conductor • Foam FEP Insulation • Duobond IV* Quad Shielding • Gray Fluorocopolymer Jacket | | | | | | |
| 3132A | .170 | 4.32 | .274 | 6.96 | -20 to +150 | Plenum Impedance: 75 Ω Outdoor and Direct Burial RG-6/U Type NEC: CMP • CEC: CMP FT6 IEEE 802.4 MAP/IEEE 802.7 Mini-MAP |
| 14 AWG Solid BC-Covered Steel Conductor • Gas-Injected Foam Polyethylene Insulation • Duobond IV* Quad Shielding • Gray PVC Jacket | | | | | | |
| 3094A | .280 | 7.11 | .407 | 10.34 | -30 to +80 | Impedance: 75 Ω RG-11/U Type NEC: CMR CLR2 • CEC: CMG FT4 IEEE 802.4 MAP |
| 14 AWG Solid BC-Covered Steel Conductor • Foam FEP Insulation • Duobond IV* Quad Shielding • Gray Fluorocopolymer Jacket | | | | | | |
| 3095A | .280 | 7.11 | .387 | 9.83 | -20 to +150 | Plenum Impedance: 75 Ω Outdoor and Direct Burial RG-11/U Type NEC: CMP • CEC: CMG FT6 IEEE 802.4 MAP |

* Duobond IV is a four-layer shield: (1) Duobond II Foil, (2) 60% Aluminium Braid, (3) Duofoil® Foil, (4) 40% Aluminium Braid.

** ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.

ControlBus™

Blue Hose® Industrial Twinax

- Impedance 78 Ohm



| Part No. | Voltage | Nominal OD | | Operating Temperature (°C) | Additional Features/Ratings |
|---|---------|------------|-------|----------------------------|---|
| | | Inch | mm | | |
| 20 AWG Stranded (7 x 28) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 55% TC Braid Shielding • Blue Sunlight-Resistant PVC Jacket | | | | | |
| 9463 | 300 V | .238 | 6.05 | -40 to +80 | NEC: CM CL2 • CEC: CM UL AWM 2464 MSHA Approved* |
| 20 AWG Stranded (42 x 36) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 85% TC Braid Shielding • Blue Sunlight-Resistant PVC Jacket | | | | | |
| 9463F | 300 V | .154 | 3.91 | -40 to +80 | High Flex NEC: CM CL2 • CEC: CM UL AWM 2464 MSHA Approved* |
| 20 AWG Stranded (42 x 36) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 85% TC Braid Shielding • Blue Sunlight-Resistant FRNC Jacket | | | | | |
| 9463NH | 300 V | .25 | 6.35 | -45 to +80 | IEC 60332-3-24 |
| 20 AWG Stranded (42 x 36) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 85% TC Braid Shielding • Steel Wire Armor • Blue FRNC Outer and Inner Jacket | | | | | |
| 9463LS | 300 V | .42 | 10.75 | -45 to +80 | IEC 60332-3-24 |
| 20 AWG Stranded (7 x 28) TC Conductors • Polyethylene Insulation • Overall Beldfoil® + 55% TC Braid Shielding • PVC Inner Jacket • Aluminium, Steel Interlock or Corrugated Armor • Blue Sunlight-Resistant PVC Jacket | | | | | |
| 129463 | | .563 | 14.30 | -40 to +60 | Aluminum Armored NEC: CM CL2 • CEC: CM, HLBCD |
| 139463 | 300 V | .563 | 14.30 | -40 to +60 | Steel Armored NEC: CM CL2 • CEC: CM, HLBCD |
| 189463 | | .500 | 12.70 | -20 to +60 | Corrugated Armored UL PLTC |
| 20 AWG Stranded (7 x 28) TC Conductors • Low-Density Polyethylene Insulation • Overall Beldfoil® + 55% TC Braid Shielding • Blue Sunlight-Resistant LDPE Jacket | | | | | |
| 9463DB | 300 V | .154 | 3.91 | -55 to +80 | Continuously Flooded Direct Burial |
| 20 AWG Stranded (7 x 28) TC Conductors • FEP Insulation • Overall Beldfoil® + 55% TC Braid Shielding • Blue Sunlight-Resistant FEP Jacket | | | | | |
| 89463 | 300 V | .151 | 3.83 | -70 to +200 | Plenum NEC: CMP CL2P • CEC: CMP FT6 |

* MSHA = Mine Safety and Health Administration

Conductor Color Codes: Blue, Clear

Serial Fieldbus

TC = Tinned Copper • PVC = Polyvinyl Chloride • FEP = Fluorinated Ethylene Propylene • FRNC = Fire Retardant, Non-Corrosive • LDPE = Low-density Polyethylene

ControlBus™

Twinax Cables



| Part No. | Impedance (Ohm) | Core Diameter | | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|-----------------|---------------|------|----------|-------|----------------------------|--|
| | | Inch | mm | Inch | mm | | |
| 20 AWG Stranded (7 x 28) TC Conductors • Polyethylene Insulation (Blue, Clear) • 93% TC Braid Shielding • Blue PVC Jacket | | | | | | | |
| 9272 | 78 | .156 | 3.96 | .244 | 6.20 | -20 to +60 | Impedance: 78 Ω NEC: CM • CEC: CM UL AWM Style 2092 (300 V, +60 °C) |
| 18 AWG Stranded (7 x 26) BC Conductors • Polyethylene Insulation (Clear, Clear) • Polyethylene Inner Jacket • 95% TC Double Braid Shielding • Black Non-contaminating PVC Outer Jacket | | | | | | | |
| 9250 | 95 | .285 | 7.24 | .416 | 10.57 | -40 to +80 | Impedance: 95 Ω RG-22B/U Type VW-1 One Conductor Has Tinned Center Strand |
| 20 AWG Stranded (7 x 28) One TC, One BC Conductor • Polyethylene Insulation (Natural, Natural) • Polyethylene Inner Jacket • Duofoil® + 86% TC Braid Shielding • Black PVC Outer Jacket | | | | | | | |
| 9207 | 100 | .236 | 5.99 | .330 | 8.38 | -30 to +75 | Impedance: 100 Ω NEC: CMG CL2 • CEC: CMG FT4 |
| 20 AWG Stranded (7 x 28) One TC, One BC Conductor • Polyethylene Insulation (Natural, Natural) • Polyethylene Inner Jacket • Duofoil® + 86% TC Braid Shielding • Black FRNC Outer Jacket | | | | | | | |
| 9207NH | 100 | 0.236 | 5.99 | .34 | 8.6 | -45 to +80 | IEC 60332-3-24 |
| 25 AWG Stranded (7 x 33) TC Conductors • Polyethylene Insulation (Blue, Clear) • Beldfoil® • Blue PVC Jacket | | | | | | | |
| 9271 | 124 | .170 | 4.32 | .240 | 6.10 | -20 to +60 | Impedance: 124 Ω NEC: CM • CEC: CM UL AWM 2092 (300 V, +60 °C) |
| 16 AWG Solid BC Conductors • Foam Polyethylene Insulation (Blue, Clear) • Duofoil + 90% TC Braid Shielding • Black PVC Jacket | | | | | | | |
| 9860 | 124 | .322 | 8.18 | .440 | 11.18 | -20 to +60 | Impedance: 124 Ω NEC: CMX • CEC: CMX UL AWM 2448 (30 V, +60 °C) VW-1 |
| 22 AWG stranded (19 x 34) TC Conductors • Datalene® Insulation (Black, Yellow) • Duofoil Shielding • Black PVC Jacket • Stranded TC Drain Wire | | | | | | | |
| 9182 | 150 | .275 | 6.98 | .345 | 8.76 | -20 to +60 | Impedance: 150 Ω NECL CL2X CMX • CEC: CMX UL AWM 2668 (30 V, +60 °C) VW-1 |
| 22 AWG Stranded (19 x 34) TC Conductors • Datalene® Insulation (Black, Yellow) • Duofoil Shielding • Black FRNC Jacket • Stranded TC Drain Wire | | | | | | | |
| 9182NH | 150 | .275 | 6.98 | .345 | 8.76 | -45 to +80 | IEC 60332-3-24 |
| 22 AWG Stranded (19 x 34) TC Conductors • Datalene Insulation (Black, Yellow) • Duofoil Shielding • Black FRNC Inner Jacket • Steel Wire Armor • Black FRNC Jacket • Stranded TC Drain Wire | | | | | | | |
| 9182LS | 150 | .275 | 6.98 | .56 | 14.25 | -45 to +80 | IEC 60332-3-24 |
| 22 AWG stranded (19 x 34) TC Conductors • Foam FEP Insulation (Black, Yellow) • Duofoil Shielding • Black FEP Jacket • Stranded TC Drain Wire | | | | | | | |
| 89182 | 150 | .278 | 7.06 | .307 | 7.80 | -70 to +200 | Impedance: 150 Ω Plenum Rated NEC: CMP CL2P • CEC: CMP FT6 |

TC = Tinned Copper • BC = Bare Copper • PVC = Polyvinyl Chloride • FRNC = Fire Retardant, Non-Corrosive • FEP = Fluorinated Ethylene Propylene

MODBUS for RS-232 Applications

Shielded Twisted Pair Cables

- Impedance 50 Ohm



| Part No. | Pairs | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|----------|-------|----------|----|----------------------------|-----------------------------|
| | | Inch | mm | | |

22 AWG • Polypropylene

| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • TC Drain Wire • Individually Beldfoil® Shielded Pairs • Chrome PVC Jacket | | | | | |
|---|---|------|------|------------|---|
| 8777 | 3 | .273 | 6.93 | -20 to +80 | NEC: CM • CEC: CM UL AWM 2919 (30 V, +80 °C) |
| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • TC Drain Wire • Individually Beldfoil® Shielded Pairs • Chrome FRNC Jacket | | | | | |
| 8777NH | 3 | .273 | 6.93 | -45 to +80 | IEC 60332-3-24 |
| Stranded (7 x 30) TC Conductors • Polypropylene Insulation • TC Drain Wire • Individually Beldfoil® Shielded Pairs • Steel Wire Armor • Black FRNC Jacket | | | | | |
| 8777LS | 3 | .55 | 13.9 | -45 to +80 | IEC 60332-3-24 |

Conductor Color Coding: Red/Black, White/Black, Green/Black

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Capacitance | | | | Additional Features/Ratings |
|----------|-------|------------|----------|----|----------------------|----|------------------|----|---------------|------|----------------|------|-----------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

22 AWG • FEP/Flamarrest®

| Stranded (7 x 30) TC Conductors • FEP Insulation • Individually Beldfoil® Shielded Pairs • 22 AWG TC Drain Wire • Natural Flamarrest Jacket | | | | | | | | | | | | | |
|---|---|---------|------|------|------|-----|------|-----|----|-----|----|-----|---|
| 82777 | 3 | Chart 3 | .237 | 6.02 | .011 | .28 | .017 | .43 | 35 | 115 | 76 | 249 | Plenum NEC: CMP • CEC: CMP FT6 46 Ω Nom. Impedance 62% Velocity of Prop. Conductor DCR (Nom): 14.7 Ω/1000' (48.2 Ω/km) |

MODBUS II for RG-6 Type Coaxial Cables

Coaxial Cables

- Impedance 75 Ohm



| Part No. | Core Diameter | | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|----------|---------------|----|----------|----|----------------------------|-----------------------------|
| | Inch | mm | Inch | mm | | |

| 18 AWG Solid BC-Covered Steel Conductor • Foam Polyethylene Insulation • Duobond® IV* Quad Shield • PVC Jacket (Black or Intrinsically Safe Blue) | | | | | | |
|---|------|------|------|------|-------------|--|
| 3092A | .180 | 4.57 | .298 | 7.57 | -30 to +75 | Impedance: 75 Ω NEC: CMR CL2R • CEC: CMG FT4 |
| 18 AWG Solid BC-Covered Steel Conductor • Foam FEP Insulation • Duobond IV* Quad Shield • Fluorocopolymer Jacket (Black or Intrinsically Safe Blue) | | | | | | |
| 3093A | .170 | 4.32 | .274 | 6.96 | -20 to +150 | Plenum Rated Impedance: 75 Ω NEC: CMP • CEC: CMP FT6 |
| 20 AWG Stranded (105 x 40) BC Conductor • Duobond IV* Quad Shield • Foam Polyethylene Insulation • Black PVC Jacket | | | | | | |
| 3092F | .183 | 4.65 | .303 | 7.70 | -40 to +75 | High Flex Impedance: 75 Ω NEC: CMR CL2R • CEC: CMG FT4 |

* Duobond IV is a four-layer shield: (1) Duobond II Foil, (2) TC Braid (94%), (3) Duofoil® Foil, (4) TC Braid (90%).

TC = Tinned Copper • BC = Bare Copper • PVC = Polyvinyl Chloride • FRNC = Fire Retardant, Non-Corrosive • FEP = Fluorinated Ethylene Propylene | Belden Color Code Charts can be found at page 560.

LonWorks

Paired Cable 300 V, +80 °C



- Impedance 100 Ohm
- Level IV Cables

| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Additional Features |
|--|-------|----------------------------|----------|-----|----------------------|-----|------------------|-----|--------------------------------------|
| | | | Inch | mm | Inch | mm | Inch | mm | |
| 22 AWG BC Conductors • Foamed Polyethylene Insulation • White LSNH Jacket | | | | | | | | | |
| Unshielded | | | | | | | | | |
| 7701NH | 1 | White/Blue, Blue/White | .138 | 3.5 | .009 | .23 | .018 | .45 | Flame Resistance IEC 60332-3C or -24 |
| 7702NH | 2 | Orange/White, White/Orange | .205 | 5.2 | .009 | .23 | .020 | .50 | |
| Overall Beldfoil® Shield | | | | | | | | | |
| 7703NH | 1 | White/Blue, Blue/White | .181 | 4.6 | .015 | .4 | .018 | .45 | Flame Resistance IEC 60332-3C or -24 |
| 7704NH | 2 | Orange/White, White/Orange | .256 | 6.5 | .011 | .3 | .020 | .50 | |

Backbone Cable • Plenum • 300 V, +80 °C • Unshielded



| Part No. | Pairs | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | Additional Features/Ratings |
|--|-------|-------------|----------|------|----------------------|-----|------------------|---------|---|
| | | | Inch | mm | Inch | mm | Inch | mm | |
| 16 AWG • 19 x 29 • PVC/PVC | | | | | | | | | |
| Stranded TC Conductors • PVC Insulation • Chrome PVC jacket | | | | | | | | | |
| 8471 | 1 | Black/White | .274 | 6.96 | .023 | .58 | .032 | .81 | NEC: CMG • CEC: CMG FT4 UL AWM Style 2598 |
| 16 AWG • 19 x 29 • Armored | | | | | | | | | |
| Stranded BC Conductors • Polyethylene Insulation • Unshielded • LSNH Inner Jacket • Steel Wire Armor • Chrome LSNH Outer Jacket | | | | | | | | | |
| 8471LS | 1 | Black/White | .413 | 10.5 | .022 | .58 | .035/.051 | .89/1.3 | IEC 60332-3-24 |
| 16 AWG • 19 x 29 | | | | | | | | | |
| Stranded BC Conductors • Polyethylene Insulation • Unshielded • Chrome LSNH Outer Jacket | | | | | | | | | |
| 8471NH | 1 | Black/White | .28 | 7.1 | .023 | .58 | .035 | .89 | IEC 60332-3-24 |

High-Temperature Backbone Cable 300 V, +150 °C • Unshielded



- VW-1

| Part No. | Conductors | Color Code | OD (Nom) | | Insulation Thickness | | Jacket Thickness | | |
|--|------------|------------|----------|------|----------------------|-----|------------------|-----|--|
| | | | Inch | mm | Inch | mm | Inch | mm | |
| 16 AWG • 19 x 29 • ETFE/ETFE | | | | | | | | | |
| Stranded (19 x 29) TC Conductors • Cabled • ETFE Insulation • Clear ETFE Jacket | | | | | | | | | |
| 85102 | 2 | Chart 2R | .211 | 5.36 | .014 | .36 | .019 | .48 | |

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • LSNH = Low Smoke No Halogen • ETFE = Ethylene/Tetrafluoroethylene | Belden Color Code Charts can be found at page 560.

DataTray® 600 V Twinaxial

DataTray® 600 V Twinax



| Part No. | Impedance (Ohm) | Core Diameter | | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|---|-----------------|---------------|------|----------|-------|----------------------------|--|
| | | Inch | mm | Inch | mm | | |
| 18 AWG Stranded (7 x 26) TC Conductors • Flame-retardant Polyolefin Insulation (Natural, Blue) • Overall Beldfoil® + 55%TC Braid Shield • Blue Sunlight-resistant PVC Jacket • TC Drain Wire | | | | | | | |
| 3072F* | 78 | .192 | 4.88 | .324 | 8.23 | -40 to +75 | Impedance: 78 Ω NEC: CMG, ITC, TC, PLTC • CEC: CMG FT4 UL TC MSHA Approved** |
| 3073F | 100 | .246 | 6.25 | .388 | 9.86 | -40 to +75 | Impedance: 100 Ω NEC: CMG, ITC, TC, PLTC • CEC: CMG FT4 UL TC |
| 3074F | 124 | .328 | 8.33 | .460 | 11.86 | -40 to +75 | Impedance: 124 Ω NEC: CMG, ITC, TC, PLTC • CEC: CMG FT4 UL TC |

* ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service.

** MSHA = Mine Safety and Health Administration

TC = Tinned Copper • PVC = Polyvinyl Chloride

MarineTuff™ Marine Approved Blue Hose Cables



Blue Hose® Industrial Twinax



- ABS (American Bureau of Shipping)
- DNV (Det Norske Veritas)
- NEC/UL: CMG, TC
- C(UL): CMG
- FT4/IEEE 1202
- IEC 60332-3-22
- IEC 60754-1
- IEC 60754-2

| Part No. | Voltage | OD (Nom) | | Additional Features / Ratings |
|----------|---------|----------|----|-------------------------------|
| | | Inch | mm | |

18 AWG • Shielded • Twinaxial Cable

Stranded TC Conductors (7x 26) • Polyolefin Insulation • Overall Beldfoil® Shielding • LSZH Jacket

| Thermoset Jacket | | | | Additional Features / Ratings |
|----------------------|------|------|------|-------------------------------|
| 3072Z | 600V | 0.42 | 10.6 | |
| Thermoplastic Jacket | | | | Additional Features / Ratings |
| 3072T | 600V | 0.42 | 10.6 | |

DNV Certificate No.
TAE00000VY
ABS Certificate No.
14-HS1248538-PDA



| Part No. | Voltage | OD (Nom) | | Additional Features / Ratings |
|----------|---------|----------|----|-------------------------------|
| | | Inch | mm | |

18 AWG • Shielded • Armored • Twinaxial Cable

Stranded TC Conductors (7x 26) • Polyolefin Insulation • Overall Beldfoil® Shielding • Bronze Braid Armor • Double LSZH Jackets

| Thermoset Jacket | | | | Additional Features / Ratings |
|----------------------|------|------|------|-------------------------------|
| 973072Z | 600V | 0.57 | 14.7 | |
| Thermoplastic Jacket | | | | Additional Features / Ratings |
| 773072T | 600V | 0.57 | 14.7 | |

DNV Certificate No.
TAE00000WJ
ABS Certificate No.
14-HS1248538-PDA

CC Link



- Impedance 100 Ohm

| Part No. | Category | Pairs | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | Operating Temperature (°C) | Additional Features/Ratings |
|--|----------|-------|-----------------------|------------|-----------------|--------|-----------------------------|----------------------------|---|
| | | | Solid | Stranded | | | | | |
| Category 6 • 4 Pair • Shielded • LSNH Outer Jacket • Bonded-Pair | | | | | | | | | |
| 7953A | Cat 6 | 4 | AWG 23 (1) | – | 8.64 | LSNH | Overall Beldfoil® Shielding | -40 to +75 | 600 V UL AWM Shielded EtherNet/IP Compliant NEC: CMR, CMX-Outdoor • CEC: CMR FT4 Sunlight and Oil Resistant |
| Category 5e • 4 Pair • Unshielded and Shielded • PVC Outer Jacket • Bonded-Pair | | | | | | | | | |
| 7929A | | 4 | AWG 24 (1) | – | 6.73 | | Overall Beldfoil® Shielding | | NEC: CMR, CMX-Outdoor • CEC: CMR FT4 MSHA Approved* Sunlight and Oil Resistant |
| 7921A | Cat 5e | 4 | AWG 24 (1) | – | 8.38 | PVC | Foil Braid >70% | -40 to +75 | Heavy Shielded EtherNet/IP Compliant NEC: CMR, CMX-Outdoor • CEC: CMR FT4 Sunlight and Oil Resistant |
| 7939A | | 4 | – | AWG 24 (7) | 8.60 | | Overall Beldfoil® Shielding | | NEC: CMR, CMX-Outdoor • CEC: CMR FT4 Sunlight and Oil Resistant |

* MSHA = Mine Safety and Health Administration



- Impedance 110 Ohm

| Part No. | Pairs | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | Operating Temperature (°C) | Additional Features/Ratings |
|--|-------------------------------|-----------------------|---|-----------------|--------|-----------------|----------------------------|---|
| | | Solid | Stranded | | | | | |
| 20 AWG (7 x 28) Stranded BC Conductors • Foam High-Density Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® + 78% TC Braid Shielding • Red PVC Jacket | | | | | | | | |
| 1348A | 3 Cond. | – | AWG 20 (7) | 7.70 | PVC | Foil Braid >78% | -30 to +60 | 3 Conductor, 300 V NEC: CM • CEC: CM |
| 3 x 20 AWG (7 x 28) and 2 x 18 AWG (7 x 26) Stranded BC Conductors • Foam High-Density Polyethylene (Data), PVC (Power) Insulation • 3 Data cables: Overall Beldfoil® + 78% TC Braid Shielding, TC Drain Wire • Black PVC Inner Jacket • Red PVC Outer Jacket | | | | | | | | |
| 1349A | 3 Cond. Data 2 Cond. Power | – | 3 x 20 AWG (7) and 2 x 18 AWG (7) | 13.00 | PVC | Foil Braid >78% | -30 to +60 | 5 Conductor, 300 V NEC: CM • CEC: CM |

Conductor Color Coding: Blue, Yellow, White (Data); Black, White (Power)

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride • LSNH = Low Smoke No Halogen

KNX/EIB Approved Cables



| Part No. | Applicable Standard(s) | No. of Pairs | Color Code | Standard Lengths | | Standard Unit Weight | | Insulation Thickness | | Outer Jacket Thickness | | Nominal OD | |
|--|----------------------------|--------------|---------------------------|------------------|------|----------------------|------|----------------------|-----|------------------------|------|------------|------|
| | | | | ft. | mm | lbs. | mm | Inch | mm | Inch | mm | Inch | mm |
| 0.8 mm (0.5 mm² or AWG 20) | | | | | | | | | | | | | |
| Solid BC • PVC Insulation • 100% Foil Screen • Green PVC Jacket KNX Reg. no. 109/7253/05 | | | | | | | | | | | | | |
| YE00819 | EN 50090 CEN/TC 247 | 1 | Red/Black | 328 | 100 | 8.4 | 3.8 | .012 | .30 | .043 | 1.10 | .217 | 5.50 |
| | | | | 500 | 500 | 46.3 | 21.0 | | | | | | |
| | | | | 3280 | 1000 | 89.3 | 40.5 | | | | | | |
| YE00820 | EN 50090 CEN/TC 247 | 2 | Red/Black White/Yellow | 328 | 100 | 11.5 | 5.2 | .012 | .30 | .043 | 1.10 | .241 | 6.10 |
| | | | | 500 | 500 | 61.7 | 28.0 | | | | | | |
| | | | | 3280 | 1000 | 122.3 | 55.5 | | | | | | |
| Solid BC • PE Insulation • 100% Foil Screen • Green LSNH Jacket KNX Reg. no. 109/7254/05 | | | | | | | | | | | | | |
| YE00905 | IEC 60189-2 IEC 60332-1 | 1 | Red/Black | 328 | 100 | 8.6 | 3.9 | .016 | .40 | .043 | 1.10 | .220 | 5.60 |
| | | | | 1624 | 500 | 47.4 | 21.5 | | | | | | |
| | | | | 3280 | 1000 | 91.5 | 41.5 | | | | | | |
| YE00906 | IEC 60189-2 IEC 60332-1 | 2 | Red/Black White/Yellow | 328 | 100 | 12.3 | 5.6 | .016 | .40 | .043 | 1.10 | .282 | 6.30 |
| | | | | 1624 | 500 | 68.3 | 31.0 | | | | | | |
| | | | | 3280 | 1000 | 131.1 | 59.5 | | | | | | |

BC = Bare Copper • PVC = Polyvinyl Chloride • PE = Polyethylene • LSNH = Low Smoke No Halogen

Coaxial Ethernet

Thinnet 10Base2 Ethernet

- Impedance 50 Ohm



| Part No. | AWG | Core Diameter | | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|---|-----|---------------|------|----------|------|----------------------------|---|
| | | Inch | mm | Inch | mm | | |
| Stranded (19 x 32) TC Conductor • Foam Polyethylene Insulation • Duobond® II Foil + 93% TC Braid Shielding • Gray PVC Jacket | | | | | | | |
| 9907 | 20 | .102 | 2.59 | .185 | 4.70 | -40 to +80 | Impedance: 50 Ω RG-58 Type NEC: CM CL2 • CEC: CM UL AWM Style 1354 (30 V, +60 °C) |
| Stranded (19 x 32) TC Conductor • Foam FEP Insulation • Duobond II Foil + 93% TC Braid Shielding • Gray Fluorocopolymer Jacket | | | | | | | |
| 89907 | 20 | .095 | 2.41 | .160 | 4.06 | -20 to +150 | RG-58A/U Type Plenum Rated Impedance: 50 Ω NEC: CMP CL2P • CEC: CMP FT6 Outdoor and Direct Burial |

Thicknet 10Base5 Ethernet

- Impedance 50 Ohm



| Part No. | AWG | Core Diameter | | OD (Nom) | | Operating Temperature (°C) | Additional Features/Ratings |
|--|-----|---------------|------|----------|-------|----------------------------|--|
| | | Inch | mm | Inch | mm | | |
| Solid BC Conductor • Foam Polyethylene Insulation • Duobond IV* Quad Shielding • Yellow PVC Jacket | | | | | | | |
| 9880 | 12 | .243 | 6.17 | .405 | 10.29 | -40 to +60 | Impedance: 50 Ω NEC: CM CL2 • CEC: CM UL AWM Style 1478 (30 V, +60 °C) |
| Solid BC Conductor • Foam FEP Insulation • Duobond IV* Quad Shielding • Orange Fluorocopolymer Jacket | | | | | | | |
| 89880 | 12 | .245 | 6.22 | .375 | 9.53 | -25 to +150 | Plenum Rated Impedance: 50 Ω NEC: CMP CL2P • CEC: CMP FT6 Outdoor and Direct Burial |

* Duobond IV is a four-layer shield: (1) Duobond II Foil, (2) TC Braid (94%), (3) Duofoil® Foil, (4) TC Braid (90%).

MachFlex Flexible Control Cables

300 V MachFlex Data Cables (1 Million Flex Cycles)

Paired Cable • Shielded



- 24 AWG (41 x 40) BC Conductors
- Foam Polyethylene Insulation with Skin
- Overall Beldfoil® + 85% TC Braid Shield
- Green PVC Jacket
- 24 AWG (41 x 40) TC Drain Wire
- NEC: CM
- CEC: CM
- -20 °C to +60 °C
- -5 °C to +60 °C Flexing

| Part No. | Pairs | OD (Nom) | | Capacitance (Max)* | | Additional Features/Ratings |
|----------|-------|----------|----|--------------------|------|-----------------------------|
| | | Inch | mm | pF/Ft | pF/m | |

24 AWG (41 x 40) BC Conductors • Foam Polyethylene Insulation with Skin • Overall Beldfoil® + 85% TC Braid Shield • 24 AWG (41 x 40) TC Drain Wire • Green PVC Jacket

120 Ohm Impedance • RS-232 and RS-485

| Part No. | Pairs | OD (Nom) Inch | OD (Nom) mm | Capacitance (Max)* pF/Ft | Capacitance (Max)* pF/m | Additional Features/Ratings |
|----------|-------|---------------|-------------|--------------------------|-------------------------|-----------------------------|
| 7200A | 1 | .240 | 6.10 | 15.0 | 49.2 | Oil Res II |
| 7201A | 2 | .322 | 8.18 | | | |
| 7202A | 3 | .347 | 8.81 | | | |
| 7203A | 4 | .362 | 9.20 | | | |

100 Ohm Impedance • RS-232 and RS-422

| Part No. | Pairs | OD (Nom) Inch | OD (Nom) mm | Capacitance (Max)* pF/Ft | Capacitance (Max)* pF/m | Additional Features/Ratings |
|----------|-------|---------------|-------------|--------------------------|-------------------------|-----------------------------|
| 7205A | 1 | .232 | 5.89 | 14.0 | 45.9 | Oil Res II |

150 Ohm Impedance • RS-232 and RS-485

| Part No. | Pairs | OD (Nom) Inch | OD (Nom) mm | Capacitance (Max)* pF/Ft | Capacitance (Max)* pF/m | Additional Features/Ratings |
|----------|-------|---------------|-------------|--------------------------|-------------------------|-----------------------------|
| 7206A | 1 | .302 | 7.67 | 10.0 | 32.8 | |

* One conductor to other conductors connected to shield.

Conductor Color Coding: One-Pair Cable: White, Blue

Multi-Pair Configurations: 1 White/Blue Stripe – Blue/White Stripe
 2 White/Orange Stripe – Orange/White Stripe
 3 White/Green Stripe – Green/White Stripe
 4 White/Brown Stripe – Brown/White Stripe

MachFlex Vision 75 Ohm Coax Cables (1 Million Flex Cycles)

75 Ohm Coax



- UL AWM 1354 (30 V, +80 °C)
- CSA AWM I/II A/B FT1
- -40 °C to +80 °C

| Part No. | Core OD (Nom) | | Cable OD (Nom) | | Additional Features/Ratings |
|----------|---------------|----|----------------|----|-----------------------------|
| | Inch | mm | Inch | mm | |

Foam Polyethylene Insulation • 95% TC "French Braid" Shield • Matte Blue Belflex Jacket

30 AWG Stranded • 7 x 38 • Tinned Copper Alloy Conductor

| Part No. | Core OD (Nom) Inch | Core OD (Nom) mm | Cable OD (Nom) Inch | Cable OD (Nom) mm | Additional Features/Ratings |
|----------|--------------------|------------------|---------------------|-------------------|-----------------------------|
| 7500A | .056 | 1.42 | .110 | 2.79 | Sub-Mini Type |

25 AWG Stranded • 19 x 38 • BC Conductor

| Part No. | Core OD (Nom) Inch | Core OD (Nom) mm | Cable OD (Nom) Inch | Cable OD (Nom) mm | Additional Features/Ratings |
|----------|--------------------|------------------|---------------------|-------------------|-----------------------------|
| 7501A | .090 | 2.29 | .146 | 3.71 | Mini Type |

22 AWG Stranded • 19 x 34 • BC Conductor

| Part No. | Core OD (Nom) Inch | Core OD (Nom) mm | Cable OD (Nom) Inch | Cable OD (Nom) mm | Additional Features/Ratings |
|----------|--------------------|------------------|---------------------|-------------------|-----------------------------|
| 7502A | .146 | 3.71 | .242 | 6.15 | RG-59 Type |

20 AWG Stranded • 7 x 15 x 40 • BC Conductor

| Part No. | Core OD (Nom) Inch | Core OD (Nom) mm | Cable OD (Nom) Inch | Cable OD (Nom) mm | Additional Features/Ratings |
|----------|--------------------|------------------|---------------------|-------------------|-----------------------------|
| 7503A | .185 | 4.70 | .275 | 6.99 | RG-6/U Type |

16 AWG Stranded • 7 x 37 x 40 • BC Conductor

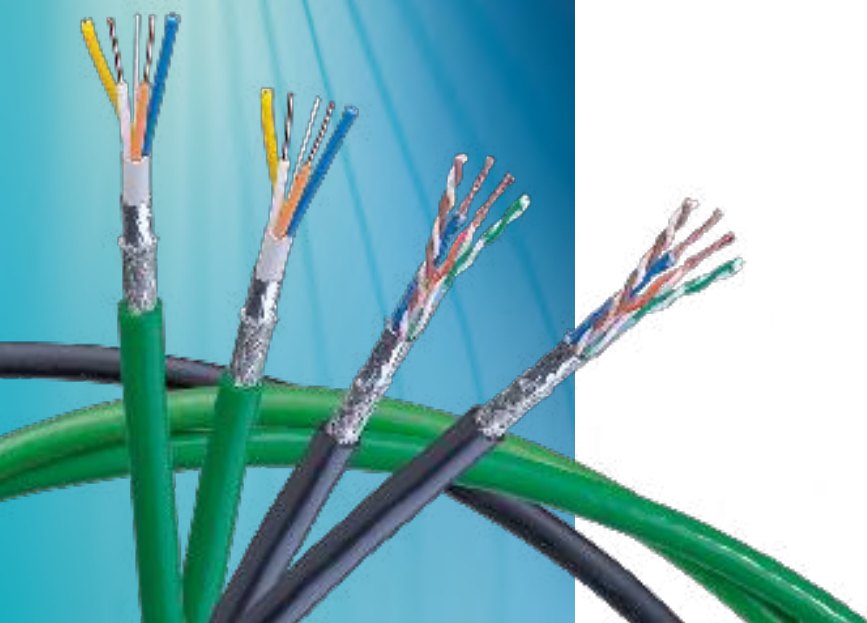
| Part No. | Core OD (Nom) Inch | Core OD (Nom) mm | Cable OD (Nom) Inch | Cable OD (Nom) mm | Additional Features/Ratings |
|----------|--------------------|------------------|---------------------|-------------------|-----------------------------|
| 7504A | .285 | 7.24 | .405 | 10.29 | RG-11 Type |

BC = Bare Copper • TC = Tinned Copper • PVC = Polyvinyl Chloride

Industrial Data and Process Automation DataTuff® Industrial Ethernet Cables

Section Table of Contents

| Industrial Data and Process Automation | Page |
|---|------------|
| DataTuff® Industrial Ethernet Cables | |
| Overview | 380 |
| Introduction and Cable Selection Guide | 381 |
| DataTuff® Industrial Ethernet | 385 |
| Permanent Installation Cables | 386 |
| Moderate Flexing Cables | 391 |
| Continuous Flexing Cables | 394 |
| MarineTuff™ Marine Approved Industrial Ethernet Cables | 396 |
| Overview | 396 |
| MarineTuff™ Marine Approved LSZH Industrial Ethernet Cables | 397 |
| DataTuff® PROFINET | 398 |
| Permanent Installation Cables | 398 |
| Moderate Flexing Cables | 399 |
| Continuous Flexing Cables | 400 |



DataTuff® Industrial Ethernet Cables



The comprehensive DataTuff® Industrial Ethernet cable range ensures the highest level of reliability, quality and performance. Specifiers can choose from products suitable for indoor and outdoor applications, for use underground, and for other harsh conditions.

Product Features

- Industrial Ethernet and PROFINET designs
- PVC, polyethylene, FEP, FRNC/LSNH, PUR, or TPE jackets
- Twisted Pair or Bonded-Pair™ technology
- Shielded and unshielded designs
- Torsion resistant guaranteed for more than 2 million cycles
- Cables designed for trailing/drag chain applications tested for more than 2 million or up to 10 million bending cycles
- Oil, abrasion and sunlight resistant designs
- Direct burial and CMX/outdoor rated cables
- Operation temperature from -70 °C up to +150 °C, designs suitable for hi/lo temperature installations

Benefits

Broadest Portfolio on the Market

- Belden DataTuff® is EMEA's most comprehensive portfolio of Industrial Ethernet cable and connectivity products.

Reliability

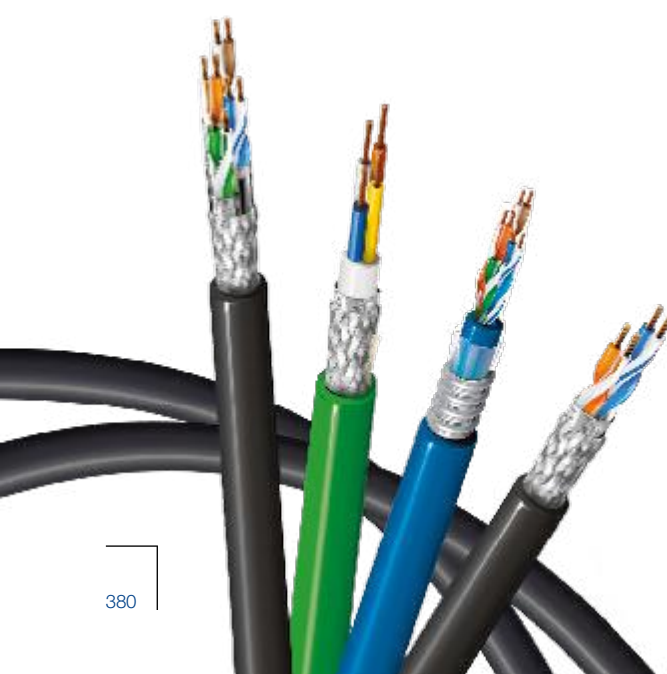
- Robust design: industrial grade jackets withstand exposure to oil, chemicals, rough handling, abrasion, UV and temperature variations, etc
- Product consistency: manufactured in ISO certified manufacturing facilities, Belden's state-of-the-art processes ensure quality in each product. Product consistency for ease of termination and assembly is a mainstay of our products.

Future Proof

- Belden supports the migration of Ethernet networks to 10 Gb/s

Applications

DataTuff® range is primarily built and designed for harsh/mission-critical applications. The products are used in automation, machine building, food/beverage, petro-chemical, and many more industrial markets.



DataTuff® Industrial Ethernet Cables

Introduction

Breadth of Line: Category 5e, Category 6 and Category 7 Cables

- Twisted Pair or Bonded-Pair™ technology
- Unshielded or shielded cables
- Solid or stranded conductors
- Plenum or non-plenum
- Polyolefin or FEP insulation
- PVC, polyethylene, FEP, FRNC/LSNH, PUR, or TPE jackets
- Heavy duty, double jacketed, or aluminum armored
- Halogen-free or Low Smoke Zero Halogen constructions
- Versions suitable for burial or outdoor use, gasoline resistance, high and low temperatures Jackets sequentially marked at regular intervals (typically 2 ft)
- Performance third-party verified to ANSI/TIA-568-B.2

Field-Proven Performance for Such Conditions as:

- Oil, sunlight and gasoline
- Temperature variations
- Abrasion and crushing
- Flexing
- EMI/RFI presence
- Weldsplatter resistance

Approvals

- All RoHS approved
- Many are EtherNet/IP compliant
- Some MSHA approved for mining environments

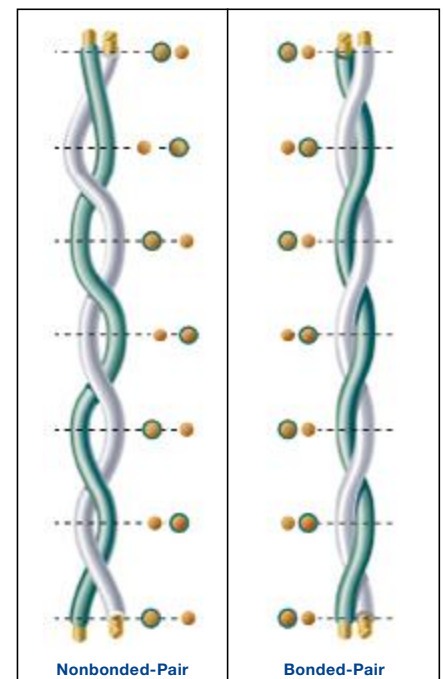
Belden's Patented Bonded-Pair Technology

Most DataTuff cables feature Belden's Bonded-Pair technology, a patented cable construction which affixes the conductor insulation of the cable pairs along their longitudinal axes to ensure that no performance-robbing gaps can develop between the conductor pairs.

- No gaps between the conductor pairs ensures that the conductor-to-conductor spacing, or centricity, is always uniform
- With uniform centricity, the cable offers excellent and consistently reliable electrical performance
- Installable Performance® is achieved – the affixing of the insulation of the cable pairs and the uniform centricity translate to superior electrical performance, even after the cable has been subjected to the bending, pulling and twisting inherent in the installation process

Tests Prove the Post-Installation Effectiveness of Belden Bonded-Pair Cables

Belden performed tests that simulate the effects of the installation process, both on an industry-leading 350 MHz Cat 5e cable (a nonbonded-pair cable) and a Belden 350 MHz Cat 5e bonded-pair cable. For comparison, the cables were tested both right off the reel and after an installation stress test. Results showed that the nonbonded-pair cable had an RL degradation greater than 12 dB – over 15 times worse than its before-installation value. The Bonded-Pair cables showed greater integrity in maintaining RL performance.



DataTuff® Industrial Ethernet Cable Selection Guide

This table is meant to help you select the proper cable.

| Part No. | Conductor | | Installation | | Environmental | | | | | | | | | | Industrial Grade Jacket | | |
|----------|-----------|----------|---------------------------------|--------------|---------------|-------------|--------------------|-------------|---------------|----------|------|------|--------------|-----------|-------------------------|----------|---------|
| | Solid | Stranded | Installation Stress Resistance* | Pull Tension | Oil Res. | UV Sun Res. | Weld-splatter Res. | CMX-Outdoor | Direct Burial | Gas Res. | LSZH | MSHA | Hi/Low Temp. | 600 V AWM | Heavy | Upjacket | Armored |

Industrial Ethernet

| Category 7 Shielded Cable | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|---|-----|---|---|---|---|---|---|---|---|---|---|--|--|---|
| 74004E | • | | | 45 | • | • | | | | | | | | | | | |
| 74004NH | • | | | 45 | • | • | | | | | • | | | | | | |
| 74005E | | • | | 30 | • | • | | | | | | | | | | | |
| 74005NH | | • | | 30 | • | • | | | | | • | | | | | | |
| 74005PU | | • | | 30 | • | • | | | | | • | | | | | | |
| Category 6 Shielded Cable | | | | | | | | | | | | | | | | | |
| 7953A <i>EtherNet/IP</i> | • | | • | 40 | • | • | | • | | | | | | • | | | • |
| Category 6 Unshielded Cable | | | | | | | | | | | | | | | | | |
| 7940A <i>EtherNet/IP</i> | • | | • | 40 | • | • | | • | | | | | | | | | • |
| 7927A | • | | • | 45 | • | • | | | | | | | | | | | • |
| 11872A | • | | • | 45 | | | | | | | | | | | | | • |
| 121872A | • | | • | 200 | | • | | | | | | | | | | | • |
| 7931A | • | | • | 40 | • | • | | | | • | | | • | | | | • |
| Category 5e Shielded Cable | | | | | | | | | | | | | | | | | |
| 7929A | • | | • | 40 | • | • | | • | | | | • | | | | | • |
| 7958A <i>EtherNet/IP</i> | • | | • | 35 | • | • | | | | | | | | • | | | • |
| 7919A | • | | | 25 | • | • | | • | | | | • | | | | | • |
| 7939A | | • | • | 40 | • | • | | | | | | | | | | | • |
| 7921A <i>EtherNet/IP</i> | • | | • | 75 | • | • | | • | | | | | | | | | • |
| 7957A <i>EtherNet/IP</i> | • | | • | 75 | • | • | | • | | | | | | • | | | • |
| 7937A | • | | • | 40 | • | • | | | • | | | | | | | | • |
| 7936A | • | | • | 40 | | • | | | | | • | • | | | | | • |
| 74001E | • | | | 40 | • | • | | | | | | | | | | | |
| 74001NH | • | | | 40 | • | • | | | | | • | | | | | | |
| 74001PU | • | | | 40 | • | • | | | | | | | | | | | |
| 74002E | | • | | 30 | • | • | | | | | | | | | | | |
| 74002NH | | • | | 30 | • | • | | | | | • | | | | | | |
| 74002PU | | • | | 30 | • | • | | | | | • | | | | | | |
| 7938A High Flex | | • | • | 40 | • | • | • | | | | | | | | | | • |
| 74003PU High Flex Trailing | | • | | 30 | • | • | | | | | • | | | | | | |
| 74009PU High Flex Torsion | | • | | 30 | • | • | • | | | | • | | | | | | |

* Products with Bonded-Pair™ technology provide Installable Performance® advantages; refer to Belden's Bonded-Pair Cable Bulletin BP02.

| Part No. | Conductor | | Installation | | Environmental | | | | | | | | | | Industrial Grade Jacket | | |
|----------|-----------|----------|---------------------------------|--------------|---------------|-------------|--------------------|-------------|---------------|----------|------|------|--------------|-----------|-------------------------|----------|---------|
| | Solid | Stranded | Installation Stress Resistance* | Pull Tension | Oil Res. | UV Sun Res. | Weld-splatter Res. | CMX-Outdoor | Direct Burial | Gas Res. | LSZH | MSHA | Hi/Low Temp. | 600 V AWM | Heavy | Upjacket | Armored |

Industrial Ethernet

| Category 5e Unshielded Cable | | | | | | | | | | | | | | | | |
|-------------------------------------|---|---|---|----|---|---|--|---|---|---|--|---|--|--|---|---|
| 7923A <i>EtherNet/IP</i> | • | | • | 40 | • | • | | • | | | | • | | | • | |
| 7922A PLTC | • | | • | 40 | • | • | | • | | | | | | | • | |
| 7918A | • | | | 35 | • | • | | • | | | | • | | | • | |
| 11700A <i>EtherNet/IP</i> | • | | • | 40 | • | • | | • | | | | • | | | • | |
| 11700A2 Oil Res. 1/II | • | | • | 40 | • | • | | | | | | | | | • | |
| 121700A | • | | • | 40 | • | • | | | | | | | | | | • |
| 121700R | • | | • | 40 | • | • | | | | | | | | | | • |
| 7924A | | • | • | 40 | • | • | | • | | | | | | | • | |
| 7930A | | • | | 25 | • | • | | • | | | | | | | • | |
| 7934A <i>EtherNet/IP</i> | • | | • | 40 | • | • | | | • | | | | | | • | |
| 7935A <i>EtherNet/IP</i> | • | | • | 40 | | • | | | | | | • | | | • | |
| 7928A <i>EtherNet/IP</i> | • | | • | 40 | • | • | | • | | • | | • | | | • | |
| 2-Pair Category 5e Shielded Cable | | | | | | | | | | | | | | | | |
| 7933A <i>EtherNet/IP</i> | • | | • | 20 | • | • | | | | | | | | | • | |
| 72001E | • | | | 30 | • | • | | | | | | | | | | |
| 72001NH | • | | | 30 | • | • | | | | | | • | | | | |
| 72002E | | • | | 20 | • | • | | | | | | | | | | |
| 72002NH | | • | | 20 | • | • | | | | | | • | | | | |
| 72002PU | | • | | 20 | • | • | | | | | | • | | | | |
| 2-Pair Category 5e Unshielded Cable | | | | | | | | | | | | | | | | |
| 7932A <i>EtherNet/IP</i> | • | | • | 20 | • | • | | | | | | | | | • | |

* Products with Bonded-Pair™ technology provide Installable Performance® advantages; refer to Belden's Bonded-Pair Cable Bulletin BP02.

| Part No. | Conductor | | Environmental | | | | | | | | | | Industrial Grade Jacket | | |
|----------|-----------|----------|---------------|-------------|--------------------|--------|-----------------|----------|------|------|--------------|-------------------|-------------------------|----------|---------|
| | Solid | Stranded | Oil Res. | UV Sun Res. | Weld-splatter Res. | NEC:CM | Flame Retardant | Gas Res. | LSZH | MSHA | Hi/Low Temp. | Rodent Protection | Heavy | Upjacket | Armored |

Industrial Ethernet

| Category 5e Unshielded Cable | | | | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|--|---|---|--|--|---|---|--|--|--|---|
| 50105U | • | | • | • | | • | • | | | | | | | | |
| 50105UL | • | | • | • | | • | • | | | • | | | | | |
| 2-Pair Category 5e Shielded Cable | | | | | | | | | | | | | | | |
| 50105F | • | | • | • | | • | • | | | | | | | | |
| 50105FL | • | | • | • | | • | • | | | • | | | | | |
| Category 6 Unshielded Cable | | | | | | | | | | | | | | | |
| 50106U | • | | • | • | | • | • | | | | | | | | |
| 50106UL | • | | • | • | | • | • | | | • | | | | | |
| 50106UA | • | | • | • | | • | • | | | | | | | | • |
| 50106UAL | • | | • | • | | • | • | | | • | | | | | • |
| 50106UAR | • | | • | • | | • | • | | | | • | | | | |
| Category 6 Shielded Cable | | | | | | | | | | | | | | | |
| 50106F | • | | • | • | | • | • | | | | | | | | |
| 50106FL | • | | • | • | | • | • | | | • | | | | | |
| 50106FA | • | | • | • | | • | • | | | | | | | | • |
| 50106FAL | • | | • | • | | • | • | | | • | | | | | • |
| Category 7 Shielded Cable | | | | | | | | | | | | | | | |
| 50007TSF | | • | • | • | | • | • | | | • | | | | | |

DataTuff® Industrial Ethernet Cable Selection Guide (continued)

| Part No. | Conductor | | Installation | | Environmental | | | | | | | | | | Industrial Grade Jacket | | |
|----------|-----------|----------|---------------------------------|--------------|---------------|-------------|--------------------|-------------|---------------|----------|------|------|--------------|-----------|-------------------------|----------|---------|
| | Solid | Stranded | Installation Stress Resistance* | Pull Tension | Oil Res. | UV Sun Res. | Weld-splatter Res. | CMX-Outdoor | Direct Burial | Gas Res. | LSZH | MSHA | Hi/Low Temp. | 600 V AWM | Heavy | Upjacket | Armored |

PROFINET

| Category 5e Shielded Cable | | | | | | | | | | | | | | | | | |
|----------------------------|---|---|----|---|---|---|---|---|--|--|---|--|--|--|--|---|---|
| 70006E | • | | 40 | • | | | | | | | | | | | | | |
| 70006NH | • | | 40 | • | • | | | | | | • | | | | | | |
| 7960A | • | | 40 | • | • | | | • | | | | | | | | • | |
| 70007E | | • | 40 | • | | | | | | | | | | | | | |
| 7961A | | • | 40 | • | • | | | • | | | | | | | | | • |
| 70007NH | | • | 40 | • | • | | | | | | • | | | | | | |
| 70007PU | | • | 40 | • | • | | | | | | | | | | | | |
| 70008PU High Flex Trailing | | • | 40 | • | • | | | | | | | | | | | | |
| 7962A High Flex Trailing | | • | 40 | • | • | • | • | • | | | | | | | | | • |
| 70009PU High Flex Torsion | | • | 40 | • | • | • | | | | | | | | | | | |

* Products with Bonded-Pair™ technology provide Installable Performance® advantages; refer to Belden's Bonded-Pair Cable Bulletin BP02.

DataTuff® Industrial Ethernet
Permanent Installation Cables

Category 5e • 2 Pair • Unshielded and Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|--|------------|----------|-----------------------|----------|-----------------|--------|--------------------------|------------|--------------|-------------|----------------------------|---|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 5e • 2 Pair • Unshielded and Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 72001E | | | | | 6.00 | | Overall Foil + 80% Braid | - | ✓ | - | -40 to +80 | Heavy Shielded 300 V UL AWM 2464 Sunlight and Oil Resistant Flame Retardant |
| 7933A | 100 Mb/s | Cat 5e | AWG 24 (1) | - | 5.77 | PVC | Overall Foil | - | - | ✓ | -40 to +75 | EtherNet/IP Compliant NEC: CMR • CEC: CMR FT4 Sunlight and Oil Resistant |
| 7932A | | | | | 5.26 | | - | ✓ | - | ✓ | -40 to +75 | EtherNet/IP Compliant NEC: CMR • CEC: CMR FT4 Sunlight and Oil Resistant |
| Category 5e • 2 Pair • Shielded • LSZH Outer Jacket | | | | | | | | | | | | |
| 72001NH | 100 Mb/s | Cat 5e | AWG 24 (1) | - | 7.00 | LSZH | Overall Foil + 80% Braid | - | ✓ | - | -40 to +80 | Heavy Shielded 300 V UL AWM 21286 Sunlight and Oil Resistant Flame Retardant |

Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue
Pair 2: White/Orange Stripe & Orange

PVC = Polyvinyl Chloride • LSZH = Low Smoke Zero Halogen

DataTuff® Industrial Ethernet
Permanent Installation Cables

Category 5e • 4 Pair • Unshielded and Shielded



121700R

| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|--|------------|----------|-----------------------|----------|-----------------|--------|--------------------------|------------|--------------|-------------|----------------------------|---|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 5e • 4 Pair • Unshielded and Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 74001E | | | | | 7.00 | | Overall Foil + 80% Braid | - | ✓ | - | -40 to +80 | Heavy Shielded 300 V UL AWM 2464 Sunlight and Oil Resistant Flame Retardant |
| 7921A | | | | | 8.38 | | Overall Foil + 70% Braid | - | - | ✓ | | Heavy Shielded EtherNet/IP Compliant NEC: CMR, CMX-Outdoor CEC: CMR FT4 Sunlight and Oil Resistant |
| 7957A | | | | | 8.38 | | Overall Foil + 70% Braid | - | - | ✓ | | Heavy Shielded 60 V UL AWM EtherNet/IP Compliant NEC: CMR, CMX-Outdoor CEC: CMR FT4 Sunlight and Oil Resistant |
| 7923A | | | | | 5.84 | | - | ✓ | - | ✓ | | EtherNet/IP Compliant MSHA Approved* NEC: CMR, CMX-Outdoor CEC: CMR FT4 Sunlight and Oil Resistant |
| 7918A | | | | | 5.84 | | - | ✓ | ✓ | - | | MSHA Approved* NEC: CMR, CMX-Outdoor CEC: CMR FT4 |
| 7929A | | | | | 6.73 | | Overall Foil | - | - | ✓ | | NEC: CMR, CMX-Outdoor CEC: CMR FT4 MSHA Approved* Sunlight and Oil Resistant |
| 7958A | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 6.73 | PVC | Overall Foil | - | - | ✓ | -40 to +75 | 600 V UL AWM EtherNet/IP Compliant NEC: CMR, CMX-Outdoor CEC: CMR FT4 Sunlight and Oil Resistant |
| 7919A | | | | | 6.73 | | Overall Foil | - | ✓ | - | | NEC: CMR, CMX-Outdoor CEC: CMR FT4 MSHA Approved* Sunlight and Oil Resistant CMX-Outdoor |
| 11700A | | | | | 7.24 | | - | ✓ | - | ✓ | | Upjacketed - PVC Inner Jacket EtherNet/IP Compliant MSHA Approved* NEC: CMR, CMX-Outdoor CEC: CMR FT4 Sunlight and Oil Resistant |
| 11700A2 | | | | | 7.24 | | - | ✓ | - | ✓ | | Upjacketed – PVC Inner Jacket Outstanding Oil Res I/II NEC: CMR • CEC: CMR FT4 Sunlight and Oil Resistant |
| 121700A | | | | | 13.46 | | - | ✓ | - | ✓ | | Interlocked Aluminium Armor Upjacketed – PVC Inner Jacket NEC: CM • CEC: HL, CMG FT4 Sunlight and Oil Resistant |
| 121700R | | | | | 13.46 | | - | ✓ | - | ✓ | | Interlocked Aluminium Armor Upjacketed – PVC Inner Jacket -40 °C Cold Impact NEC: CM • CEC: HL, CMG FT4 Sunlight and Oil Resistant |
| 7922A | | | AWG 22 (1) | | 7.65 | | - | ✓ | - | ✓ | | UL PLTC NEC: CMR, CMX-Outdoor CEC: CMR FT4 Sunlight and Oil Resistant |

* Pennsylvania Department of Environmental Resources and United States Mine Safety and Health Administration Certification

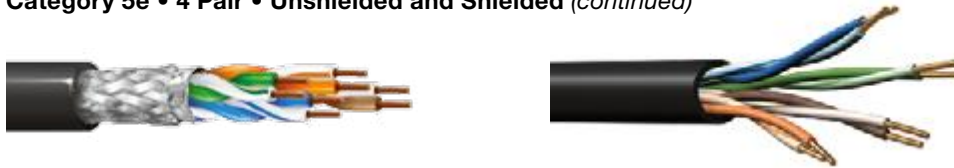
Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue • Pair 2: White/Orange Stripe & Orange • Pair 3: White/Green Stripe & Green • Pair 4: White/Brown Stripe & Brown

PVC = Polyvinyl Chloride

DataTuff® Industrial Ethernet
Permanent Installation Cables

Category 5e • 4 Pair • Unshielded and Shielded (continued)



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|---|------------|----------|-----------------------|----------|-----------------|--------|--------------------------|------------|--------------|-------------|----------------------------|--|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 5e • 4 Pair • Unshielded and Shielded • LSZH Outer Jacket | | | | | | | | | | | | |
| 74001NH | | | | | 7.00 | | Overall Foil + 80% Braid | - | - | - | -40°C to +80°C | Heavy Shielded 300 V UL AWM 21286 Sunlight and Oil Resistant Flame Retardant |
| 7935A | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 5.84 | LSZH | - | ✓ | - | ✓ | -40°C to +75°C | EtherNet/IP Compliant NEC: CM • CEC: CM FT1 Sunlight Resistant |
| 7936A | | | | | 6.73 | | Overall Foil Shield | - | - | ✓ | | NEC: CM • CEC: CMG FT4 Sunlight Resistant |
| 50105UL | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 5.20 | LSZH | - | ✓ | ✓ | - | -20°C to +75°C | Unshielded 300V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-1 Flame Retardant IEC 61034-2 Smoke density |
| 50105FL | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 6.00 | LSZH | Overall Foil Shield | - | ✓ | - | -20°C to +75°C | Shielded 300V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-1 Flame Retardant IEC 61034-2 Smoke density |
| Category 5e • 4 Pair • Unshielded • PE Outer Jacket | | | | | | | | | | | | |
| 7934A | | | | | 5.84 | | - | ✓ | - | ✓ | | Waterblocked Burial Halogen Free EtherNet/IP Compliant Sunlight and Oil Resistant |
| 7937A | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 7.01 | PE | Overall Foil Shield | - | - | ✓ | -40°C to +75°C | Waterblocked Burial Upjacketed – PE Inner Jacket Halogen Free Sunlight and Oil Resistant |
| Category 5e • 4 Pair • Unshielded • FEP Outer Jacket | | | | | | | | | | | | |
| 7928A | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 4.75 | FEP | - | ✓ | - | ✓ | -75°C to +150°C | High and Low Temp EtherNet/IP Compliant NEC: CMP • CEC: CMP FT6 Outstanding Oil Res I/II Gas Resistant Sunlight Resistant |
| Category 5e • 4 Pair • Shielded • PUR Outer Jacket | | | | | | | | | | | | |
| 74001PU | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 6.60 | PUR | Overall Foil + 80% Braid | - | ✓ | - | -40°C to +80°C | Heavy Shielded 300 V UL AWM 20549 Sunlight and Oil Resistant Flame Retardant FT2 Halogen Free |
| Category 5e • 4 Pair • Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 50105F | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 6.00 | PVC | Overall Foil Shield | - | ✓ | - | -20°C to +75°C | Shielded 300V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC: CM |
| Category 5e • 4 Pair • Unshielded • PVC Outer Jacket | | | | | | | | | | | | |
| 50105U | 1 Gb/s | Cat 5e | AWG 24 (1) | - | 5.20 | PVC | - | ✓ | ✓ | - | -20°C to +75°C | Unshielded 300V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC: CM |

Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue
Pair 2: White/Orange Stripe & Orange
Pair 3: White/Green Stripe & Green
Pair 4: White/Brown Stripe & Brown

LSZH = Low Smoke Zero Halogen • PE = Polyethylene • FEP = Fluorinated Ethylene Propylene • PUR = Polyurethane

DataTuff® Industrial Ethernet
Permanent Installation Cables

Category 6 • 4 Pair • Unshielded and Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|---|------------|----------|-----------------------|----------|-----------------|-------------|---------------------|------------|--------------|-------------|----------------------------|---|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 6 • 4 Pair • Unshielded • PVC Outer Jacket | | | | | | | | | | | | |
| 50106U | 1 Gb/s | Cat 6 | 24 AWG | – | 6.30 | PVC | – | ✓ | ✓ | – | -20°C to +75°C | 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC:CM |
| Category 6 • 4 Pair • Unshielded • LSZH Outer Jacket | | | | | | | | | | | | |
| 50106UL | 1 Gb/s | Cat 6 | 24 AWG | – | 6.30 | LSZH | – | ✓ | ✓ | – | -20°C to +75°C | 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-1 Flame Retardant NEC:CM |
| Category 6 • 4 Pair • Unshielded • Double PVC Outer Jacket - Aluminium Tape Armored (ATA) | | | | | | | | | | | | |
| 50106UA | 1 Gb/s | Cat 6 | 24 AWG | – | 9.00 | Double PVC | – | ✓ | ✓ | – | -20°C to +75°C | Armored 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC:CM |
| Category 6 • 4 Pair • Unshielded • Double LSZH Outer Jacket - Aluminium Tape Armored (ATA) | | | | | | | | | | | | |
| 50106UAL | 1 Gb/s | Cat 6 | 24 AWG | – | 9.00 | Double LSZH | – | ✓ | ✓ | – | -20°C to +75°C | Armored 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC:CM |
| Category 6 • 4 Pair • Unshielded • PVC Outer Jacket (with Rodent Protection) | | | | | | | | | | | | |
| 50106UAR | 1 Gb/s | Cat 6 | 23 AWG | – | 6.20 | PVC | – | ✓ | ✓ | – | -20°C to +75°C | Anti-Rodent 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC:CM |
| Category 6 • 4 Pair • Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 50106F | 1 Gb/s | Cat 6 | 24 AWG | – | 7.50 | PVC | Overall Foil Shield | – | ✓ | – | -20°C to +75°C | Shielded 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC:CM |
| Category 6 • 4 Pair • Shielded • LSZH Outer Jacket | | | | | | | | | | | | |
| 50106FL | 1 Gb/s | Cat 6 | 24 AWG | – | 7.50 | LSZH | Overall Foil Shield | – | ✓ | – | -20°C to +75°C | Shielded 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-1 Flame Retardant NEC:CM |
| Category 6 • 4 Pair • Shielded • Double LSZH Outer Jacket - Aluminium Tape Armored (ATA) | | | | | | | | | | | | |
| 50106FAL | 1 Gb/s | Cat 6 | 24 AWG | – | 9.50 | Double LSZH | Overall Foil Shield | – | ✓ | – | -20°C to +75°C | Shielded and Armored 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC:CM |
| Category 6 • 4 Pair • Shielded • Double PVC Outer Jacket - Aluminium Tape Armored (ATA) | | | | | | | | | | | | |
| 50106FA | 1 Gb/s | Cat 6 | 24 AWG | – | 9.50 | Double PVC | Overall Foil Shield | – | ✓ | – | -20°C to +75°C | Shielded and Armored 300 V, Indoor/Outdoor Sunlight & Oil Resistant IEC 60332-3 Flame Retardant NEC:CM |

LSZH = Low Smoke Zero Halogen • PVC = Poly Vinyl Chloride

DataTuff® Industrial Ethernet
Permanent Installation Cables

Category 6 • 4 Pair • Unshielded and Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|---|------------|----------|-----------------------|----------|-----------------|--------|--------------|------------|--------------|-------------|----------------------------|--|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 6 • 4 Pair • Unshielded and Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 7953A* | | | | | 8.64 | | Overall Foil | - | - | ✓ | | 600 V UL AWM Shielded EtherNet/IP Compliant NEC: CMR, CMX-Outdoor • CEC: CMR FT4 Sunlight and Oil Resistant |
| 7940A* | | | | | 6.35 | | - | ✓ | - | ✓ | | EtherNet/IP Compliant NEC: CMR, CMX-Outdoor • CEC: CMR FT4 Sunlight and Oil Resistant |
| 7927A | 1 Gb/s | Cat 6 | AWG 23 (1) | - | 6.38 x 8.61 | PVC | - | ✓ | - | ✓ | -40 to +75 | E-Spline Center Member for Mechanical Protection Tested to 600 MHz NEC: CMR • CEC: CMR FT4 Sunlight and Oil Resistant |
| 11872A | | | | | 12.07 x 6.73 | | - | ✓ | - | ✓ | | Upjacketed – PVC Inner Jacket NEC: CM • CEC: CM FT1 |
| 121872A | | | | | 17.37 | | - | ✓ | - | ✓ | | Interlocked Aluminium Armor NEC: CM • CEC: HL, CMG FT4 Sunlight Resistant |
| Category 6 • 4 Pair • Unshielded • FEP Outer Jacket | | | | | | | | | | | | |
| 7931A | 1 Gb/s | Cat 6 | AWG 23 (1) | - | 5.44 | FEP | - | ✓ | - | ✓ | -75 to +150 | High and Low Temp NEC: Limited Combustible FHC 25/50, CMP • CEC: CMP FT6 Outstanding Oil Res I/II Gas Resistant Sunlight Resistant |

* ABS and DNV-GL approved design also available. For more details please see Belden MarineTuff Offshore and Marine Cable Solutions brochure or consult Customer Service. Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue
Pair 2: White/Orange Stripe & Orange
Pair 3: White/Green Stripe & Green
Pair 4: White/Brown Stripe & Brown

LSZH = Low Smoke Zero Halogen • FEP = Fluorinated Ethylene Propylene

DataTuff® Industrial Ethernet
Permanent Installation Cables

Category 7 • 4 Pair • Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|---|------------|----------|-----------------------|----------|-----------------|--------|--------------------------|------------|--------------|-------------|----------------------------|--|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 7 • 4 Pair • Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 74004E | 10 Gb/s | Cat 7 | AWG 23 (1) | – | 8.00 | PVC | Overall Foil + 65% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded 30 V UL AWM 20276 Sunlight and Oil Resistant Flame Retardant |
| Category 7 • 4 Pair • Shielded • LSZH Outer Jacket | | | | | | | | | | | | |
| 74004NH | 10 Gb/s | Cat 7 | AWG 23 (1) | – | 8.00 | LSZH | Overall Foil + 65% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded 30 V UL AWM 20851 Sunlight and Oil Resistant Flame Retardant – Bundle Flame Test IEC 60332-3-24 EN50266-2-4 cat C |

Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue
 Pair 2: White/Orange Stripe & Orange
 Pair 3: White/Green Stripe & Green
 Pair 4: White/Brown Stripe & Brown

DataTuff® Industrial Ethernet
Moderate Flexing Cables

Category 5e • 2 Pair • Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|--|------------|----------|-----------------------|------------|-----------------|--------|--------------------------|------------|--------------|-------------|----------------------------|--|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 5e • 2 Pair • Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 72002E | 100 Mb/s | Cat 5e | – | AWG 26 (7) | 6.00 | PVC | Overall Foil + 80% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded 300 V UL AWM 2464 Sunlight and Oil Resistant Flame Retardant |
| Category 5e • 2 Pair • Shielded • LSZH Outer Jacket | | | | | | | | | | | | |
| 72002NH | 100 Mb/s | Cat 5e | – | AWG 26 (7) | 6.00 | LSZH | Overall Foil + 80% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded 300 V UL AWM 21286 Sunlight and Oil Resistant Flame Retardant |
| Category 5e • 2 Pair • Shielded • PUR Outer Jacket | | | | | | | | | | | | |
| 72002PU | 100 Mb/s | Cat 5e | – | AWG 26 (7) | 6.00 | PUR | Overall Foil + 80% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded 300 V UL AWM 20549 Sunlight and Oil Resistant Flame Retardant FT2 Halogen Free AWM 20549 |

Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue • Pair 2: White/Orange Stripe & Orange • Pair 3: White/Green Stripe & Green • Pair 4: White/Brown Stripe & Brown

PVC = Polyvinyl Chloride • LSZH = Low Smoke Zero Halogen • PUR = Polyurethane

DataTuff® Industrial Ethernet
Moderate Flexing Cables

Category 5e • 4 Pair • Unshielded and Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|--|------------|----------|-----------------------|------------|-----------------|--------|--------------------------|------------|--------------|-------------|----------------------------|--|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 5e • 4 Pair • Unshielded and Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 74002E | 1 Gb/s | Cat 5e | – | AWG 26 (7) | 6.50 | PVC | Overall Foil + 80% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded 300 V UL AWM 2464 Sunlight and Oil Resistant Flame Retardant AWM 2464 |
| 7939A | | | – | AWG 24 (7) | 8.60 | | Overall Foil | – | – | ✓ | -40 to +75 | NEC: CMR, CMX-Outdoor CEC: CMR FT4 Sunlight and Oil Resistant |
| 7924A | | | – | AWG 24 (7) | 5.84 | | – | ✓ | – | ✓ | -40 to +75 | |
| 7930A | | | – | AWG 24 (7) | 5.84 | | – | ✓ | ✓ | – | -25 to +75 | |
| Category 5e • 4 Pair • Shielded • LSZH Outer Jacket | | | | | | | | | | | | |
| 74002NH | 1 Gb/s | Cat 5e | – | AWG 26 (7) | 6.50 | LSZH | Overall Foil + 80% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded 300 V UL AWM 21286 Sunlight and Oil Resistant Flame Retardant |
| Category 5e • 4 Pair • Shielded • PUR Outer Jacket | | | | | | | | | | | | |
| 74002PU | 1 Gb/s | Cat 5e | – | AWG 26 (7) | 6.50 | PUR | Overall Foil + 80% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded 300 V UL AWM 20549 Sunlight and Oil Resistant Flame Retardant FT2 Halogen Free AWM 20549 |

Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue • Pair 2: White/Orange Stripe & Orange • Pair 3: White/Green Stripe & Green • Pair 4: White/Brown Stripe & Brown

PVC = Polyvinyl Chloride • LSZH = Low Smoke Zero Halogen • PUR = Polyurethane

DataTuff® Industrial Ethernet
Moderate Flexing Cables

Category 7 • 4 Pair • Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|---|------------|----------|-----------------------|------------|-----------------|--------------|--|------------|--------------|-------------|----------------------------|--|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded Pair | | |
| Category 7 • 4 Pair • Shielded • PVC Outer Jacket | | | | | | | | | | | | |
| 74005E | 10 Gb/s | Cat 7 | – | AWG 26 (7) | 6.80 | PVC | Overall Foil + 65% Braid | – | ✓ | – | -40° C to +80° C | Heavy Shielded 30 V UL AWM 20121 Sunlight and Oil Resistant Flame Retardant |
| Category 7 • 4 Pair • Shielded • LSNH Outer Jacket | | | | | | | | | | | | |
| 74005NH | 10 Gb/s | Cat 7 | – | AWG 26 (7) | 6.80 | LSNH | Overall Foil + 65% Braid | – | ✓ | – | -40° C to +80° C | Heavy Shielded 30 V UL AWM 20851 Sunlight and Oil Resistant Flame Retardant Halogen Free |
| Category 7 • 4 Pair • Shielded • PUR Outer Jacket | | | | | | | | | | | | |
| 74005PU | 10 Gb/s | Cat 7 | – | AWG 26 (7) | 6.80 | PUR | Overall Foil + 65% Braid | – | ✓ | – | -40° C to +80° C | Heavy Shielded 30 V UL AWM 21292 Sunlight and Oil Resistant Flame Retardant FT2 Halogen Free |
| Category 7 • 4 Pair • Shielded • PUR Outer Jacket | | | | | | | | | | | | |
| 50007TSF | 10 Gb/s | Cat 7 | – | AWG 23 | 9.00 | SHF1 LSZH | Individual Foil Shield + Overall Tinned Copper Braid | – | ✓ | – | -15° C to +80° C | ABS Approved Marine Cable Suitability For Indoor And Outdoor UV Resistant Oil Resistant |

Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue
Pair 2: White/Orange Stripe & Orange
Pair 3: White/Green Stripe & Green
Pair 4: White/Brown Stripe & Brown

PUR = Polyurethane

DataTuff® Industrial Ethernet
Continuous Flexing Cables

Category 5e • 4 Pair • Shielded



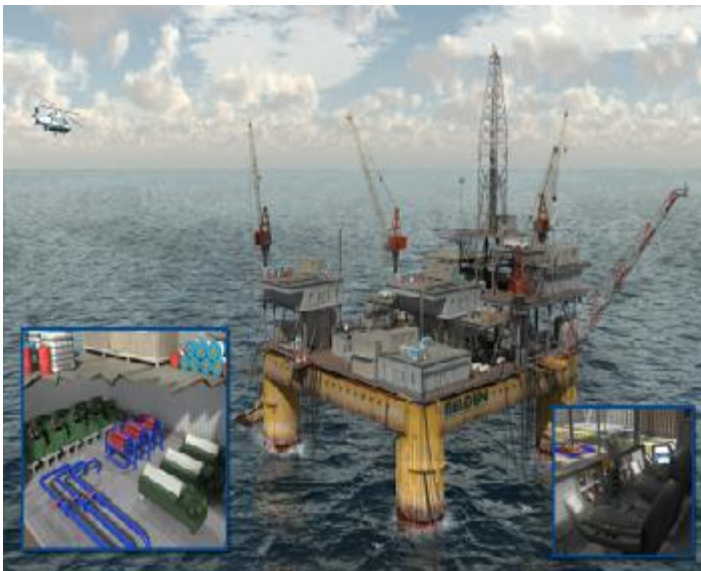
| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|---|------------|----------|-----------------------|-------------|-----------------|--------|--------------------------|------------|--------------|-------------|----------------------------|---|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Bonded-Pair | | |
| Category 5e • 4 Pair • Shielded • TPE Outer Jacket | | | | | | | | | | | | |
| 7938A | 1 Gb/s | Cat 5e | – | AWG 24 (32) | 8.74 | TPE | Overall Foil + 85% Braid | – | – | ✓ | -40 to +80 | 10 Million Continuous Flex Cycles, Trailing Weldsplatter Resistant CEC: FT1 Sunlight and Oil Resistant AWM 20626 |
| Category 5e • 4 Pair • Shielded • PUR Outer Jacket | | | | | | | | | | | | |
| 74003PU | | | | | 6.65 | | | | | | | 2 Million Continuous Flex Cycles, Trailing 300 V UL AWM 20549 Sunlight and Oil Resistant Flame Retardant FT2 Halogen Free AWM 20549 |
| | 1 Gb/s | Cat 5e | – | AWG 26 (19) | | PUR | Overall Foil + 80% Braid | – | ✓ | – | -40 to +80 | 2 Million Continuous Flex Cycles, Torsion 300 V UL AWM 20549 Weldsplatter Resistant Sunlight and Oil Resistant Flame Retardant FT2 Halogen Free |
| 74009PU | | | | | 6.40 | | | | | | | |

Compatible with Belden Metal Body RJ45 Plugs R301601 and R301602

Conductor Color Codes: Pair 1: White/Blue Stripe & Blue
Pair 2: White/Orange Stripe & Orange
Pair 3: White/Green Stripe & Green
Pair 4: White/Brown Stripe & Brown

TPE = Thermoplastic Elastomer • PUR = Polyurethane

Belden is leading the way in the transformation to a connected world.



MarineTuff™ Industrial Ethernet Cables



Even minor disturbances in the spacing can have a significant impact on the electrical performance, particularly impedance, return loss and crosstalk. Since the two conductors of a Bonded-Pair cable are bonded together, gaps cannot form in between the conductors. The physical integrity of the pair is maintained, resulting in consistent electrical performance.

Cable Specifications

Belden cables have been designed and tested to the highest of standards:

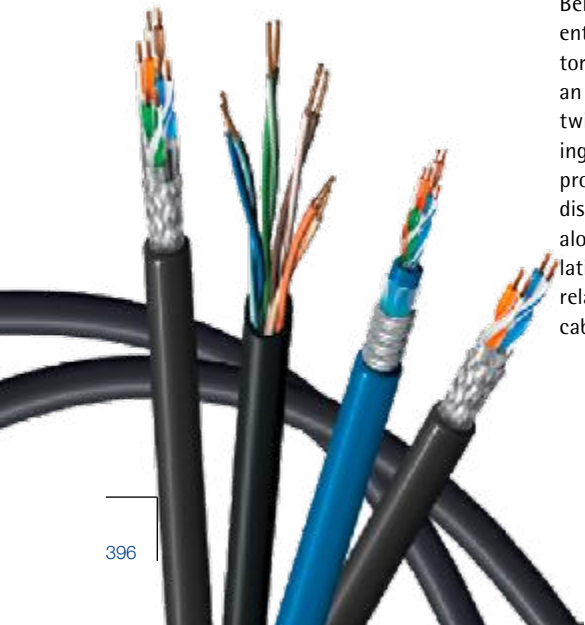
- NEC: CMG.
- CEC: CMG.
- EtherNet/IP compliant.
- FT4/IEEE 1202.
- IEC 60332-3-22.
- IEC 60754-1(Jacket).
- IEC 60754-2 (Jacket).

Product Features

- Sunlight and Oil Resistant.
- LSZH jackets on all cables and options.
- Bronze braid options on all cable and options.
- ABS certified & DNV certified.
- 10 year warranty.
- Consistently reliable electrical performance.
- Bonded Pair Technology.

Only Belden offers the most comprehensive range of Industrial Ethernet cabling solutions available in the world today - all specifically engineered and ruggedly constructed to ensure optimum network performance and uptime, even in the harshest settings. Belden Industrial Ethernet cables, the DataTuff cable line, are far and away the industry's top choice for signal transmission integrity and consistently reliable electrical performance. Unlike commercial off-the-shelf (COTS) Ethernet cabling, our Category 6 copper-based cables are built Belden-tough to withstand the harsh environmental conditions and mechanical stresses typically present in offshore environments.

Belden Bonded-Pair Cables feature a patented design that bonds individual conductors along their longitudinal axis. This assures an extremely uniform spacing within each twisted pair which is a key factor in maintaining consistent electrical performance and providing optimal RFI immunity. Ideally, this distance should remain fixed and stable along the length of the twisted pair. Installation and termination of cable disturbs this relationship and therefore also affects the cable's electrical performance.



MarineTuff™ Marine Approved Industrial Ethernet Cables



Industrial Marine CAT 6 UTP



- ABS Certified
- NEC: CMG
- CEC: CMG
- EtherNet/IP compliant
- FT4/IEEE 1202
- IEC 60332-3-22
- IEC 60754-1 (Jacket)
- IEC 60754-2 (Jacket)
- Sunlight and Oil resistant
- Bonded Pairs
- Oil Res II (Thermoset)

| Part No. | OD (Nom) | | Additional Features / Standard | |
|---|----------|-----|--|--|
| | Inch | mm | | |
| 23 AWG • Unshielded | | | | |
| 4 Pair • Solid BC Conductors • Polyolefin Insulation • LSZH Outer Jacket | | | | |
| Thermoset Jacket | | | | |
| 7940Z | 0.29 | 7.4 | ABS Certificate No. 06 - HS184641G - 3 - PDA | |
| Thermoplastic Jacket | | | | |
| 7940T | 0.29 | 7.4 | | |



| Part No. | OD (Nom) | | Additional Features / Standard | |
|--|----------|------|--|--|
| | Inch | mm | | |
| 23 AWG • Unshielded | | | | |
| 4 Pair • Solid BC Conductors • Polyolefin Insulation • Bronze Braid Armor • Double LSZH Outer Jackets | | | | |
| Thermoset Jacket | | | | |
| 977940Z | 0.43 | 11.1 | ABS Certificate No. 06 - HS184641G - 3 - PDA | |
| Thermoplastic Jacket | | | | |
| 777940T | 0.43 | 11.1 | | |

Industrial Marine CAT 7 S/FTP



- ABS Certified
- IEC 61156-5, ISO/IEC 11801
- EtherNet/IP compliant
- IEC 61034-2
- IEC 60332-3-24, IEC 60332-1
- IEC 60754-1 (Jacket)
- IEC 60754-2 (Jacket)
- Sunlight and Oil resistant

| Part No. | Category | Conductor Size | Jacket | Shielding | Operating Temperature (°C) | Additional Features / Standard |
|--|----------|----------------|-------------|--|----------------------------|--|
| 23 AWG • Shielded | | | | | | |
| Category 7 • 4 Pair • Stranded BC Conductors • Polyolefin • Individually Shielded Pairs + Overall Tinned Copper Braid Shield • SHF1 LSZH Jacket | | | | | | |
| Thermoplastic Jacket | | | | | | |
| 50007TSF | Cat 7 | AWG 23 | LSZH (SHF1) | Individual Foil Shield + Overall Tinned Copper Braid | -15°C To +80°C | ABS Certificate No. 17 - HS1599804 - PDA |

DataTuff® PROFINET
Permanent Installation Cables

Category 5e • 2 Pair (Quad) Design • Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Operating Temperature (°C) | Additional Features/Ratings |
|---|------------|----------|-----------------------|----------|-----------------|--------|--------------------------|------------|----------------------------|---|
| | | | Solid | Stranded | | | Shielded | Unshielded | | |
| Category 5e • 2 Pair (Quad) • Shielded • PVC Outer Jacket | | | | | | | | | | |
| 70006E | 100 Mbit/s | Cat 5e | AWG 22 (1) | – | 6.50 | PVC | Overall Foil + 85% Braid | – | -40 to +80 | Heavy Shielded 300 V AWM 2464 Oil Resistant Flame Retardant |
| 7960A | | | | | | | | | | Heavy Shielded Oil Resistant, Sunlight Resistant PLTC listed 600 V AWM C(UL) CMG FT4, IEEE1202/383, VW-1 and IEC 60332-1-2 flame ratings |
| Category 5e • 2 Pair (Quad) • Shielded • LSZH Outer Jacket | | | | | | | | | | |
| 70006NH | 100 Mbit/s | Cat 5e | AWG 22 (1) | – | 6.50 | FRNC | Overall Foil + 85% Braid | – | -40 to +70 | Heavy Shielded 300 V UL AWM 21286 Sunlight and Oil Resistant VDE 60811-2-1 Flame Retardant |

PVC = Polyvinyl Chloride • FRNC = Fire Retardant, Non-Corrosive

DataTuff® PROFINET
Moderate Flexing Cables

Category 5e • 2 Pair (Quad) Design • Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Operating Temperature (°C) | Additional Features/Ratings |
|---|------------|----------|-----------------------|------------|-----------------|--------|--------------------------|------------|----------------------------|---|
| | | | Solid | Stranded | | | Shielded | Unshielded | | |
| Category 5e • 2 Pair (Quad) • Shielded • PVC Outer Jacket | | | | | | | | | | |
| 70007E | 100 Mbit/s | Cat 5e | – | AWG 22 (7) | 6.50 | PVC | Overall Foil + 85% Braid | – | -40 to +80 | Heavy Shielded 300 V UL AWM 2464 Oil Resistant Flame Retardant |
| 7961A | | | | | | | | | | Heavy Shielded Oil Resistant, Sunlight Resistant PLTC listed 600 V AWM C(UL) CMG FT4, IEEE1202/383, VW-1 and IEC 60332-1-2 flame ratings |
| Category 5e • 2 Pair (Quad) • Shielded • LSZH Outer Jacket | | | | | | | | | | |
| 70007NH | 100 Mbit/s | Cat 5e | – | AWG 22 (7) | 6.50 | FRNC | Overall Foil + 85% Braid | – | -25 to +80 | Heavy Shielded 300 V UL AWM 21286 Sunlight and Oil Resistant Flame Retardant |
| Category 5e • 2 Pair (Quad) • Shielded • PUR Outer Jacket | | | | | | | | | | |
| 70007PU | 100 Mbit/s | Cat 5e | – | AWG 22 (7) | 6.50 | PUR | Overall Foil + 85% Braid | – | -40 to +80 | Heavy Shielded 300 V UL AWM 20549 Sunlight and Oil Resistant Flame Retardant |

PVC = Polyvinyl Chloride • FRNC = Fire Retardant, Non-Corrosive • PUR = Polyurethane

DataTuff® PROFINET
Continuous Flexing Cables

Category 5e • 2 Pair (Quad) Design • Shielded



| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Operating Temperature (°C) | Additional Features/Ratings |
|--|------------|----------|-----------------------|-------------|-----------------|--------|--------------------------|------------|----------------------------|---|
| | | | Solid | Stranded | | | Shielded | Unshielded | | |
| Category 5e • 2 Pair (Quad) • Shielded • PUR Outer Jacket | | | | | | | | | | |
| 70008PU | | | | | | | | | | 5 Million Continuous Flex Cycles, Trailing 300 V UL AWM 20549 Sunlight and Oil Resistant Flame Retardant FT2 Halogen Free AWM 20549 |
| | 100 Mbit/s | Cat 5e | – | AWG 22 (19) | 6.50 | PUR | Overall Foil + 85% Braid | – | -40 to +80 | 2 Million Continuous Flex Cycles, Torsion 300 V UL AWM 20549 Sunlight and Oil Resistant Weldsplatter Resistant Flame Retardant FT2 Halogen Free AWM 20549 |
| 70009PU | | | | | | | | | | |
| Category 5e • 2 Pair (Quad) • Shielded • TPE Outer Jacket | | | | | | | | | | |
| 7962A | 100 Mbit/s | Cat 5e | – | AWG 22 (19) | 6.50 | TPE | Overall Foil + 85% Braid | – | -40 to +80 | 5 Million Continuous Flex Cycles, Trailing Heavy Shielded Oil Resistant, Sunlight Resistant Weldsplatter Resistant CMX Outdoor PLTC listed 600 V AWM C(UL) CM, FT1 flame ratings |

TPE = Thermoplastic Elastomer • PUR = Polyurethane

Industrial Data and Process Automation DataTuff® Industrial Ethernet Patch Cords

Section Table of Contents

| Industrial Data and Process Automation | Page |
|---|------|
| DataTuff® Industrial Ethernet Patch Cords | |
| Overview | 402 |
| DataTuff® Industrial Ethernet Patch Cords | 403 |
| Twisted Pair Cables | 403 |
| Bonded Pair Cables | 405 |



DataTuff® Industrial Ethernet Patch Cords



Safety and uptime are key in all mission-critical applications, this is why Belden's DataTuff® Industrial Ethernet Patch Cords are designed to meet stringent system requirements, providing resilient data throughput.

Product Features

- Industrial Ethernet and PROFINET patch cords
- RJ 45 to RJ 45, IP20 and IP67 combinations
- Solid and stranded constructions
- Shielded and unshielded
- Heavy-duty oil and sunlight resistant PVC, FRNC and PUR jackets
- CMX/outdoor rated designs

Benefits

- Industry-approved, standard connector options
- Proven, state-of-the-art Bonded-Pair options
- Product consistency: manufactured in ISO certified manufacturing facilities, Belden's state-of-the-art processes ensure quality in each product. Product consistency for ease of termination and assembly is a mainstay of our products

Applications

The DataTuff® range is primarily built and designed for harsh/mission-critical applications. The products are used in automation, machine building, food/beverage, petro-chemical, and many more industrial markets.

DataTuff® Industrial Ethernet Patch Cords
Twisted Pair Cables

Permanent Installation



| Part No. | Data Rates | Patch Cord Category | Conductor (Stranding) | | No. of Pairs | Jacket | | | Shielding | | Design Twisted Pair | Connectivity | | | |
|----------------------------|------------|---------------------|-----------------------|----------|--------------|--------|------|-----|--------------------------|------------|---------------------|--------------|------------------|------------|------------------|
| | | | Solid | Stranded | | PVC | FRNC | PUR | Shielded | Unshielded | | Plug End 1 | Protection End 1 | Plug End 2 | Protection End 2 |
| INDUSTRIAL ETHERNET | | | | | | | | | | | | | | | |
| CA00641 | 100 Mb/s | Cat 5e | AWG 24 (1) | - | 2 | ✓ | - | - | Overall Foil + 80% Braid | - | ✓ | RJ45 | IP20 | RJ45 | IP20 |
| CA00642 | | | | | | - | ✓ | - | | | | | | | |
| CA00600 | 1 Gb/s | Cat 6A | - | - | 4 | ✓ | - | - | Overall Foil + 65% Braid | - | ✓ | RJ45 | IP20 | RJ45 | IP20 |
| CA00643 | | | | | | - | ✓ | - | | | | | | | |
| CA00664 | 10 Gb/s | Cat 6A | - | - | 4 | ✓ | - | - | Overall Foil + 65% Braid | - | ✓ | RJ45 | IP20 | RJ45 | IP20 |
| CA00665 | | | | | | - | ✓ | - | | | | | | | |

Permanent Installation



| Part No. | Data Rates | Patch Cord Category | Conductor (Stranding) | | No. of Pairs | Jacket | | | Shielding | | Design Quad | Connectivity | | | |
|-----------------|------------|---------------------|-----------------------|----------|--------------|--------|------|-----|--------------------------|------------|-------------|--------------|------------------|------------|------------------|
| | | | Solid | Stranded | | PVC | FRNC | PUR | Shielded | Unshielded | | Plug End 1 | Protection End 1 | Plug End 2 | Protection End 2 |
| PROFINET | | | | | | | | | | | | | | | |
| CA00656 | 100 Mb/s | Cat 5e | AWG 22 (1) | - | Quad | ✓ | - | - | Overall Foil + 85% Braid | - | ✓ | RJ45 | IP20 | RJ45 | IP20 |
| CA00658 | | | | | | - | ✓ | - | | | | | | | |

PVC = Polyvinyl Chloride • FRNC = Fire Retardant, Non-Corrosive • PUR = Polyurethane

DataTuff® Industrial Ethernet Patch Cords

Twisted Pair Cables

Moderate Flexing



| Part No. | Data Rates | Patch Cord Category | Conductor (Stranding) | | No. of Pairs | Jacket | | | Shielding | | Design Twisted Pair | Connectivity | | | |
|----------------------------|------------|---------------------|-----------------------|------------|--------------|--------|------|-----|--------------------------|------------|---------------------|--------------|------------------|------------|------------------|
| | | | Solid | Stranded | | PVC | FRNC | PUR | Shielded | Unshielded | | Plug End 1 | Protection End 1 | Plug End 2 | Protection End 2 |
| INDUSTRIAL ETHERNET | | | | | | | | | | | | | | | |
| CA00660 | 100 Mb/s | Cat 5e | - | AWG 26 (7) | 2 | ✓ | - | - | Overall Foil + 80% Braid | - | ✓ | RJ45 | IP20 | RJ45 | IP20 |
| CA00661 | | | | | | - | ✓ | - | | | | | | | |
| CA00613 | 1 Gb/s | | - | AWG 26 (7) | 4 | ✓ | - | - | Overall Foil + 65% Braid | - | ✓ | RJ45 | IP20 | RJ45 | IP20 |
| CA00630 | | | | | | - | ✓ | - | | | | | | | |
| CA00652 | 10 Gb/s | Cat 6A | - | AWG 26 (7) | 4 | - | - | ✓ | Overall Foil + 65% Braid | - | ✓ | RJ45 | IP20 | RJ45 | IP20 |

Moderate Flexing

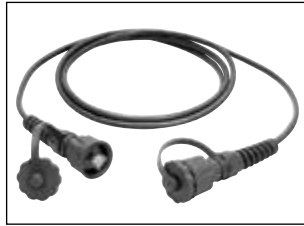


| Part No. | Data Rates | Patch Cord Category | Conductor (Stranding) | | No. of Pairs | Jacket | | | Shielding | | Design Quad | Connectivity | | | |
|-----------------|------------|---------------------|-----------------------|------------|--------------|--------|------|-----|--------------------------|------------|-------------|--------------|------------------|------------|------------------|
| | | | Solid | Stranded | | PVC | FRNC | PUR | Shielded | Unshielded | | Plug End 1 | Protection End 1 | Plug End 2 | Protection End 2 |
| PROFINET | | | | | | | | | | | | | | | |
| CA00730 | 100 Mb/s | Cat 5e | - | AWG 22 (7) | Quad | ✓ | - | - | Overall Foil + 85% Braid | - | ✓ | RJ45 | IP20 | RJ45 | IP20 |
| CA00735 | | | | | | - | ✓ | - | | | | | | | |

PVC = Polyvinyl Chloride • FRNC = Fire Retardant, Non-Corrosive • PUR = Polyurethane

DataTuff® Industrial Ethernet Patch Cords
Bonded Pair Cables

Category 6 • Standard RJ45 Connectors



- 4-Pair Cable
- 23 AWG Solid BC Conductors
- Heavy-Duty Oil- & Sunlight-Resistant Black Jackets
- NEC: CMR, CMX-Outdoor
- CEC: CMR FT4
- IP67 interface complies with the EtherNet/IP specification (IEC 61076-3-106 Variant 1)

| Part No. | | | | Length | |
|--|---------------|--|---------------|--------|------|
| Unshielded Belden Bonded-Pair Cable 7940A | | Shielded Belden Bonded-Pair Cable 7953A | | Meters | Feet |
| IP67 (Tethered Cap) | IP20 (No Cap) | IP67 (Tethered Cap) | IP20 (No Cap) | | |
| E600001 010S1 | E601001 010S1 | E604001 010S1 | E605001 010S1 | 1 | 3.3 |
| E600002 010S1 | E601002 010S1 | E604002 010S1 | E605002 010S1 | 2 | 6.6 |
| E600003 010S1 | E601003 010S1 | E604003 010S1 | E605003 010S1 | 3 | 9.8 |
| E600005 010S1 | E601005 010S1 | E604005 010S1 | E605005 010S1 | 5 | 16.4 |
| E600025 010S1 | — | E604025 010S1 | — | 25 | 82 |

Category 6 • Ruggedized Metal-Body RJ45 Connectors



- 4-Pair Cable
- 23 AWG Solid BC Conductors
- Heavy-Duty Oil- & Sunlight-Resistant Black Jackets
- NEC: CMR, CMX-Outdoor
- CEC: CMR FT4

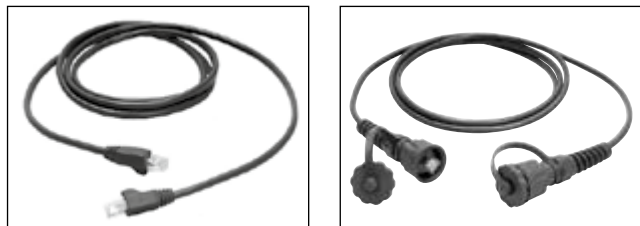
| Part No. | | Length | |
|--|--|--------|------|
| Unshielded Belden Bonded-Pair Cable 7940A | Shielded Belden Bonded-Pair Cable 7953A | Meters | Feet |
| IP20 (No Cap) | IP20 (No Cap) | | |
| R601001 010S1 | R605001 010S1 | 1 | 3.3 |
| R601002 010S1 | R605002 010S1 | 2 | 6.6 |
| R601003 010S1 | R605003 010S1 | 3 | 9.8 |
| R601005 010S1 | R605005 010S1 | 5 | 16.4 |

BC = Bare Copper

DataTuff® Industrial Ethernet Patch Cords

Bonded Pair Cables

Category 5e • Standard RJ45 Connectors



- 4-Pair Cable
- Heavy-Duty Oil- & Sunlight-Resistant Black Jackets
- NEC: CMR, CMX-Outdoor
- CEC: CMR FT4
- IP67 interface complies with the EtherNet/IP specification (IEC 61076-3-106 Variant 1)

Solid BC Conductors

| Part No. | | | | Length | |
|--|---------------|--|---------------|--------|------|
| Unshielded Belden Bonded-Pair Cable 7923A | | Shielded Belden Bonded-Pair Cable 7929A | | | |
| IP67 (Tethered Cap) | IP20 (No Cap) | IP67 (Tethered Cap) | IP20 (No Cap) | Meters | Feet |
| E500001 010S1 | E501001 010S1 | E504001 010S1 | E505001 010S1 | 1 | 3.3 |
| E500002 010S1 | E501002 010S1 | E504002 010S1 | E505002 010S1 | 2 | 6.6 |
| E500003 010S1 | E501003 010S1 | E504003 010S1 | E505003 010S1 | 3 | 9.8 |
| E500005 010S1 | E501005 010S1 | E504005 010S1 | E505005 010S1 | 5 | 16.4 |
| E500025 010S1 | — | E504025 010S1 | — | 25 | 82 |

Stranded BC Conductors

| Part No. | | | | Length | |
|--|---------------|--|---------------|--------|------|
| Unshielded Belden Bonded-Pair Cable 7924A | | Shielded Belden Bonded-Pair Cable 7939A | | | |
| IP67 (Tethered Cap) | IP20 (No Cap) | IP67 (Tethered Cap) | IP20 (No Cap) | Meters | Feet |
| E502001 010S1 | E503001 010S1 | E506001 010S1 | E507001 010S1 | 1 | 3.3 |
| E502002 010S1 | E503002 010S1 | E506002 010S1 | E507002 010S1 | 2 | 6.6 |
| E502003 010S1 | E503003 010S1 | E506003 010S1 | E507003 010S1 | 3 | 9.8 |
| E502005 010S1 | E503005 010S1 | E506005 010S1 | E507005 010S1 | 5 | 16.4 |
| E502025 010S1 | — | E506025 010S1 | — | 25 | 82 |

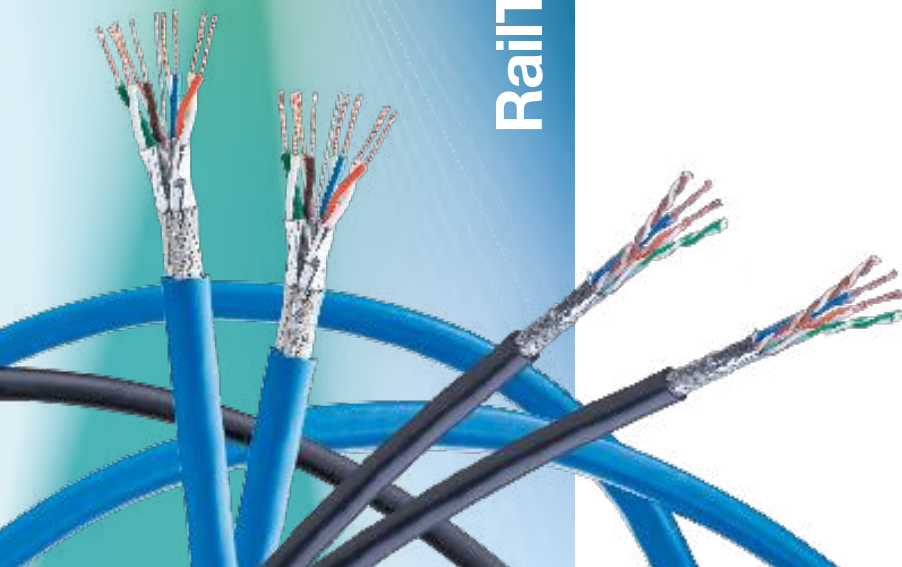
BC = Bare Copper

Industrial Data and Process Automation RailTuff™ Railway Approved Industrial Ethernet



Section Table of Contents

| Industrial Data and Process Automation | Page |
|--|------|
| RailTuff™ Railway Approved Industrial Ethernet | |
| Overview | 408 |
| RailTuff™ Railway Approved Industrial Ethernet | 409 |



RailTuff™ Railway Approved Industrial Ethernet



Belden RailTuff™ Railway Ethernet Data Cables offer enhanced system performance and a greater passenger travel experience. Belden has a complete portfolio of data communication cables in the railway transportation environment, covering from 100 Mb/s, to 1 Gb/s and now also 10 Gb/s.

Product Features

- Cat 7 10 Gb/s transmission performance
- Cat 5e 4-pair and quad design
- International railway standards approval: EN 45545-2 and ISO/IEC 11801, EN 50155, EN 50155:2007, DIN 5510-2, IEC 61156-6
- Max. operating temperature of +90 °C
- Premium X-Linked LSZH Outer Jacket
- Highly stranded copper conductor
- High screen coverage + Belden Beldfoil®
- Small bending radius
- Robust design

Benefits

Future Proof

- Up to 10 Gb/s transmission performance (BE43802)

Safety

- Maximum operating temperatures on the market: +90 °C, exceeding the +85 °C short term temp. requirement in Class TX of the EN 50155 railway standard (BE43802)

Efficiency

- Operational efficiency with 19-strand copper conductors (BE43802)
- Small bend radius allows for easy and risk free installation within limited spaces

Full Product Range

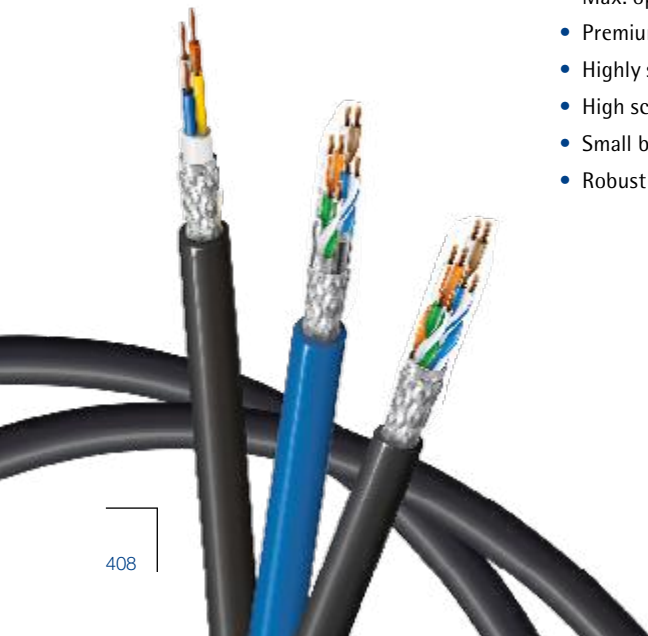
- Complete portfolio of data communication cables in the railway transportation environment: 100 Mb/s, 1 Gb/s, 10 Gb/s bandwidth

Applications

The RailTuff™ range is designed for the transmission of data and signals using Ethernet technology, for on-board applications; effectively future proofing the on board Ethernet backbone and enabling compliance with the new series of IEC standards; IEC EN 61375 "Train Communication Network (TCN)" and IEC EN 62580 "On-board Multimedia and Telematic Subsystems for Railways".

Key areas of application include:

- Train Consist Network (TCN)
- Passenger information and entertainment
- Multimedia Services
- Security and surveillance
- Train diagnostics
- Fare collection and ticketing
- Communications Based Train Control (CBTC)



RailTuff™ Railway Approved Industrial Ethernet

Meeting International Railway Standards

Belden RailTuff™ data cables are designed and manufactured in accordance with the following international railway standards:

- EN 50155:2007
 - Railway applications
 - Class TX (-40 °C to +85 °C)
- EN 45545-2:2013
 - Fire protection on railway vehicles
 - Class R15 and R16 (Hazard Level 1-3)
 - IEC 60332-1-2
 - Toxicity test: EN 50305
 - Flame test: EN 50266-2-5
 - IEC 60332-3-25 Cat D
 - EN 61034-2
 - NF X70-100-1 & NF X70-100-2
- DIN 5510-2
 - Preventive fire protection in railway vehicles
 - Protection Level 1-4
 - IEC 60332-1-2
 - IEC 50266-2-5 Cat D
- ISO/IEC 11801 2nd edition IEC 61156-6

| Part No. | Data Rates | Category | Conductor (Stranding) | | Nominal OD (mm) | Jacket | Shielding | | Design | | Operating Temperature (°C) | Additional Features/Ratings |
|----------|------------|----------|-----------------------|----------|-----------------|--------|-----------|------------|--------------|------|----------------------------|-----------------------------|
| | | | Solid | Stranded | | | Shielded | Unshielded | Twisted Pair | Quad | | |



| PROFINET Cat 5e • 2 Pair (Quad) • Shielded • Premium X-Linked LSZH Outer Jacket | | | | | | | | | | | | |
|---|------------|--------|---|-------------|------|--|--------------------------|---|---|---|------------|---|
| BE43769 | 100 Mbit/s | Cat 5e | – | AWG 22 (19) | 6.70 | Premium LSZH, Insulation and Jacket cross-linked (by e-beam) | Overall Foil + 80% Braid | – | – | ✓ | -40 to +90 | Heavy Shielded DIN 5510-2 level 1 to 4, EN 50155 Flame Resistance acc EN/TS 45545, IEC 60332-1-2, EN 50305 & IEC 60332-3-25 cat D EN/TS 45545 (Class R15 and R16 HL3) Oil Resistance |



| Industrial Ethernet Cat 5e • 4 Pair • Shielded • Premium X-Linked LSZH Outer Jacket | | | | | | | | | | | | |
|---|--------|--------|---|-------------|------|--|--------------------------|---|---|---|------------|---|
| BE43800 | 1 Gb/s | Cat 5e | – | AWG 26 (19) | 6.70 | Premium LSZH, Insulation and Jacket cross-linked (by e-beam) | Overall Foil + 85% Braid | – | ✓ | – | -40 to +90 | Heavy Shielded DIN 5510-2 level 1 to 4, EN 50155 Flame Resistance acc EN/TS 45545, IEC 60332-1-2, EN 50305 & IEC 60332-3-25 cat D EN/TS 45545 (Class R15 and R16 HL3) Oil Resistance |



| Industrial Ethernet Cat 7 • 4 Pair • Shielded • Premium X-Linked LSZH Outer Jacket | | | | | | | | | | | | |
|--|---------|-------|---|-------------|------|--|--------------------------|---|---|---|------------|---|
| BE43802 | 10 Gb/s | Cat 7 | – | AWG 24 (19) | 8.10 | Premium LSZH, Insulation and Jacket cross-linked (by e-beam) | Overall Foil + 80% Braid | – | ✓ | – | -40 to +80 | Heavy Shielded DIN 5510-2 level 1 to 4, EN 50155 Flame Resistance acc EN/TS 45545, IEC 60332-1-2, EN 50305 & IEC 60332-3-25 cat D EN/TS 45545 (Class R15 and R16 HL3) Oil Resistance |

LSZH = Low Smoke Zero Halogen

The Railway approved cable range ensures the highest level of reliability, quality and performance.





Fire Survival and Circuit Integrity Cables

Section Table of Contents

| Fire Survival and Circuit Integrity Cables | Page |
|---|------------|
| Overview | 412 |
| Classic Cables | 413 |
| Circuit Integrity(CI) Industrial Data Solution@ SensorNet / Manchester | 413 |
| Overview | 414 |
| Control & Power Cables | 415 |
| EN 50288-7 300/500 V Fire Resistant Control Cables | 415 |
| IEC 60502-1 600/1000 V Fire Resistant Power Cables | 419 |
| IEC 60092-376 150/250 V Fire Resistant Control Cables | 421 |
| IEC 60092-353 600/1000 V Marine Fire Resistant Power Cables | 423 |
| Instrumentation & Signal Cables | 425 |
| EN 50288-7 300/500 V Fire Resistant Instrumentation & Signal Cables | 425 |
| IEC 60502-1 600/1000 V Fire Resistant Instrumentation & Signal Cables | 439 |
| IEC 60092-376 150/250 V Marine Fire Resistant Instrumentation & Signal Cables | 443 |
| Serial Fieldbus | 449 |
| Foundation Fieldbus Marine Approved Fire Resistant Cable | 450 |
| CANopen RS-485 Marine Approved Fire Resistant Cable | 451 |
| Optical Fiber | 453 |
| Fire Resistant Optical Fiber Cables | 454 |



Classic Fire Resistant Cables



Survivable System Choices

When life-saving Emergency Voice-Alarm Communications (EVAC) systems are installed, there are three means by which we meet the 3-hour circuit integrity code requirements:

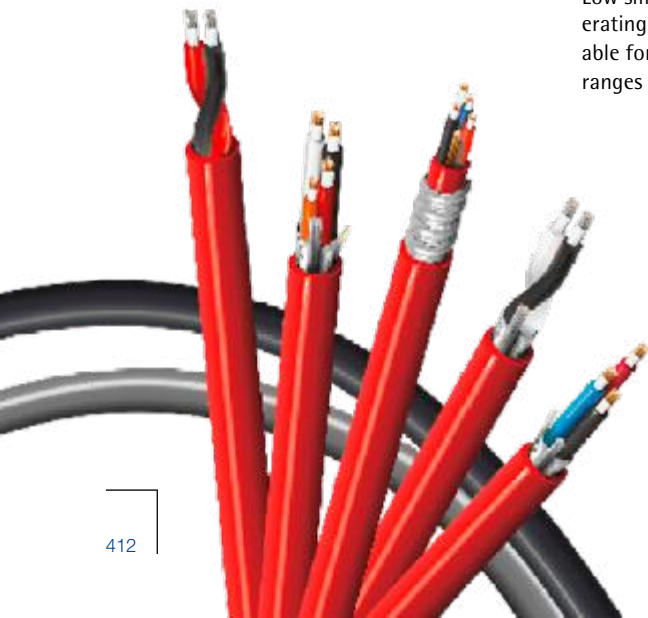
- Structural/architectural 3-hour chase that is not a means of exit – a very expensive and often unsightly or impossible choice if the building is being rehabilitated.
- Mineral Insulated (MI) cables – a very expensive cable type that is also laborious to install.
- EtherNet/IP compliant.
- Belden Safe-T-Line continuous length, flexible extrusion, fire-resistive circuit integrity cables, or similar make – the most economical choice and the easiest installation option.

Belden now offers a full line of high quality, high reliability 3-hour rated Circuit Integrity cables

- Safe-T-Line Circuit Integrity cables meet the most stringent circuit integrity requirements on the market, BS 6387 CWZ:
 - C: resistance to fire alone at a temperature of 950°C for 3 hours
 - W: resistance to fire with water spray for 15 minutes at 650°C
 - Z: resistance to fire with mechanical shock for 15 minutes at 950°C
- Resistance to fire for unprotected small cables used in emergency circuits for 2 hours as per EN 50200
- Riser rated FPLR cables as per UL 1666
- Low smoke, halogen free cables with operating temperature of up to 105°C, suitable for applications where temperature ranges are variable.

Easier to Terminate and Install

To meet the needs of installers, Belden Fire-resistive Safe-T-Line cables are manufactured with a user friendly, aluminum-polyester Beldfoil® shielding tape, instead of the copper tapes used by other manufacturers. This makes Belden's CI cable the most easily terminated cable of its kind.



Fire Resistant Circuit Integrity (CI) Industrial Data Solution® SensorNet / Manchester



- ASTM D2863
- IEC 60332-3C, IEC 60332-3A
- IEC 60754-2
- IEC 60332-3-22
- IEC 60331-23
- EN 50200
- BS 6387

| Part No. | Voltage | Conductor Size | No. of Pairs | Standard Unit Weight (kg) | Normal Jacket Thickness (mm) | Nominal Diameter (mm) | Nominal DC Resistance (Ω/km) |
|----------|---------|----------------|--------------|---------------------------|------------------------------|-----------------------|------------------------------|
|----------|---------|----------------|--------------|---------------------------|------------------------------|-----------------------|------------------------------|

| Stranded TC Conductors • Mica - Glass Tape • XLP Insulation • TC Drain Wire • Overall Beldfoil® Shielding • LSZH Jacket | | | | | | | |
|---|-------|----|---|-------|-----|------|------|
| 8760CWZ | 300 V | 18 | 1 | 73.4 | 0.9 | 8.0 | 23.2 |
| 8719CWZ | 300 V | 16 | 1 | 98.5 | 0.9 | 9.1 | 14.6 |
| 8720CWZ | 300 V | 14 | 1 | 131.8 | 1.0 | 10.0 | 9.1 |

Classic Fire Survival Cables

Fire Survival & Circuit Integrity Cables



Survival System Choice

Belden now offers a new line of high quality, high reliability and upto 3 hours fire survival & circuit integrity cables for mission critical and hazardous applications. As these cables are manufactured with a hybrid mica glass tape, highly engineered insulation materials and LSZH sheath materials they can continuously operate and maintain circuit integrity even in the presence of a fire. These cables are flame retardant low smoke zero halogen which also ensures they do not emit harmful & toxic gases and prevent any fire from spreading while continuously transmitting signals.

These cables can be used in a variety of verticals such as airports, intelligent transportation, high speed trains, theme parks, building automation, offshore rigs, oil & gas, marine, PT & D etc. Safety, installation environment, ease of termination & longevity are the main parameters based on which Belden developed the following ranges of fire survival & circuit integrity cables:

- 90 min fire survival cable IEC 60331-21, IEC 60331-23, GB/T 19666.
- 120 min fire survival cable EN 50200, IEC 60331-31.
- 180 min fire survival cable BS 6387 @ 950°C.

Cable Specifications

Belden cables have been designed and tested to meet the highest standards :

- BS EN50288-7, 300 or 500V.
- IEC 60092-376 150/250V (300V) - Marine.
- IEC 60092-373 600/1000V - Marine.
- IEC 60502-1 600/1000V.
- Flame Retardant IEC 60332-3C or IEC 60332-3A.
- Smoke Density IEC 61034-2 or BS 7622 .
- Oxygen Index ASTM D2863 or ISO 4589-2.
- Halogen content IEC 60754-1 or BS 6425.
- Acid gas IEC 60754-2 or BS 6425.
- Oil Resistant IEC 60811-2-1.
- UV Resistant UL15891.
- These cables are also available with the following armoring options :
 - (a) Steel wire braid armor (SWB).
 - (b) Tinned copper braid armor (TCB).
 - (c) Steel wire armor (SWA).

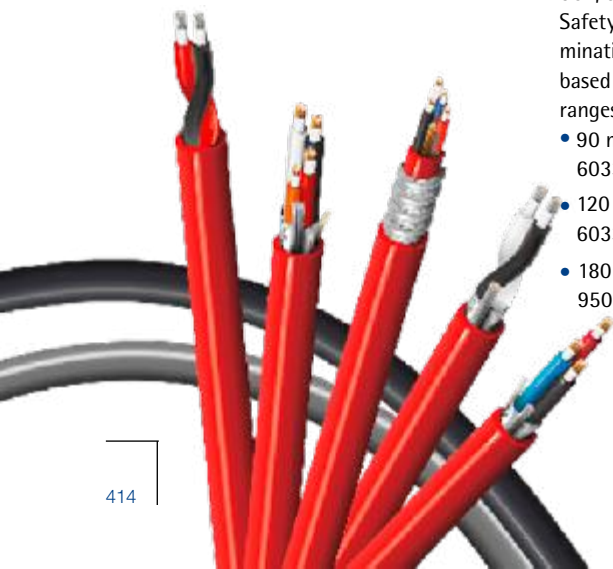
Easier to Terminate and Install

To meet the needs of installers, Belden fire resistance cables are manufactured with a user-friendly, aluminum-polyester Beldfoil®. shielding tape, instead of the copper tapes used by other manufacturers. This makes Belden's fire resistant cables the most easily terminated cable of its kind.

Applications

These cables are suitable for the following applications :

- Emergency voice alarm communication (EVAC).
- Control shut down of industrial devices.
- Fire & gas detection & alarm system.
- Public address & voice alarm (PAYA).
- Public address & general alarm (PA/GA).
- Firefighting phone & smoke detection system.
- Analog 4-20mA current loop signaling.
- Resistance temperature detectors (RTD).
- SCADA communication.
- Heating, Ventilation & Air Conditioning (HVAC).
- Emergency shutdown (ESD) systems.
- Railway signaling & communication.
- Underground & tunnel applications.



Fire Resistant Control Cables - EN 50288-7
300V Control Cables

Control Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|
| ZC07CFF02 | 2 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.27 | 6.9 |
| ZC07CFF04 | 4 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.31 | 8.0 |
| ZC07CFF06 | 6 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.38 | 9.6 |
| ZC07CFF08 | 8 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.42 | 10.8 |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|
| ZC11CFF02 | 2 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.30 | 7.7 |
| ZC11CFF04 | 4 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.35 | 9.0 |
| ZC11CFF06 | 6 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.42 | 10.7 |
| ZC11CFF08 | 8 | Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.47 | 12.1 |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|
| ZC13CFF02 | 2 | Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.34 | 8.7 |
| ZC13CFF04 | 4 | Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.40 | 10.3 |
| ZC13CFF06 | 6 | Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.48 | 12.3 |
| ZC13CFF08 | 8 | Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.55 | 14.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZC 07 C F F 02

| Code | | Conductor | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|-------------------|------|--|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

Fire Resistant Control Cables - EN 50288-7
300V SWA Armored Control Cables

Steel Wire Armor (SWA) Control Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|------|---------|---------|------|------|
| ZL07CFF02 | 2 | Black | 0.01 | 0.35 | 12 x OD | 12 x OD | 0.41 | 10.5 |
| ZL07CFF04 | 4 | Black | 0.01 | 0.35 | 12 x OD | 12 x OD | 0.45 | 11.6 |
| ZL07CFF06 | 6 | Black | 0.01 | 0.35 | 12 x OD | 12 x OD | 0.52 | 13.2 |
| ZL07CFF08 | 8 | Black | 0.01 | 0.35 | 12 x OD | 12 x OD | 0.57 | 14.4 |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|------|---------|---------|------|------|
| ZL11CFF02 | 2 | Black | 0.01 | 0.35 | 12 x OD | 12 x OD | 0.44 | 11.2 |
| ZL11CFF04 | 4 | Black | 0.01 | 0.35 | 12 x OD | 12 x OD | 0.49 | 12.5 |
| ZL11CFF06 | 6 | Black | 0.01 | 0.35 | 12 x OD | 12 x OD | 0.56 | 14.3 |
| ZL11CFF08 | 8 | Black | 0.01 | 0.35 | 12 x OD | 12 x OD | 0.62 | 15.7 |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|------|---------|---------|------|------|
| ZL13CFF02 | 2 | Black | 0.01 | 0.47 | 12 x OD | 12 x OD | 0.48 | 12.3 |
| ZL13CFF04 | 4 | Black | 0.01 | 0.47 | 12 x OD | 12 x OD | 0.54 | 13.9 |
| ZL13CFF06 | 6 | Black | 0.01 | 0.47 | 12 x OD | 12 x OD | 0.63 | 16.0 |
| ZL13CFF08 | 8 | Black | 0.01 | 0.47 | 12 x OD | 12 x OD | 0.69 | 17.6 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZL 07 C F F 02

| Code | | Conductor | | | Insulation/Jacket | | | | Shield | |
|-------------|---------------|----------------------|-------|------|-------------------|--------|----------------------------|-------------------|--------|--|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Control Cables - EN 50288-7

500V Control Cables

Control Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|--|
| Z007CFF02 | 2 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.31 | 8.0 | |
| Z007CFF04 | 4 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.36 | 9.3 | |
| Z007CFF06 | 6 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.44 | 11.2 | |
| Z007CFF08 | 8 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.49 | 12.6 | |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|--|
| Z011CFF02 | 2 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.34 | 8.7 | |
| Z011CFF04 | 4 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.40 | 10.2 | |
| Z011CFF06 | 6 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.48 | 12.3 | |
| Z011CFF08 | 8 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.55 | 13.9 | |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|--|
| Z013CFF02 | 2 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.36 | 9.3 | |
| Z013CFF04 | 4 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.43 | 10.9 | |
| Z013CFF06 | 6 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.51 | 13.1 | |
| Z013CFF08 | 8 | Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.59 | 15.0 | |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|--|
| Z015CFF02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.42 | 10.7 | |
| Z015CFF04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.49 | 12.6 | |
| Z015CFF06 | 6 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.60 | 15.4 | |
| Z015CFF08 | 8 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.68 | 17.4 | |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: Z0 07 C F F 02

| Code | | Conductor | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|-------------------|------|--|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Control Cables - EN 50288-7

500V SWA Armored Control Cables

Steel Wire Armor (SWA) Control Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| ZX07CFF02 | 2 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.41 | 10.6 |
| ZX07CFF04 | 4 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.46 | 11.7 |
| ZX07CFF06 | 6 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.52 | 13.3 |
| ZX07CFF08 | 8 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.57 | 14.6 |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| ZX11CFF02 | 2 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.44 | 11.3 |
| ZX11CFF04 | 4 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.49 | 12.6 |
| ZX11CFF06 | 6 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.57 | 14.5 |
| ZX11CFF08 | 8 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.62 | 15.9 |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| ZX13CFF02 | 2 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.48 | 12.4 |
| ZX13CFF04 | 4 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.55 | 13.9 |
| ZX13CFF06 | 6 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.63 | 16.0 |
| ZX13CFF08 | 8 | Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.69 | 17.7 |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|
| ZX15CFF02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.56 | 12.4 |
| ZX15CFF04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.64 | 13.9 |
| ZX15CFF06 | 6 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.75 | 16.0 |
| ZX15CFF08 | 8 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.86 | 17.7 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZX 07 C F F 02

| Code | | Conductor | | | Insulation/Jacket | | | | Shield | |
|-------------|---------------|----------------------|-------|------|-------------------|--------|----------------------------|-------------------|--------|--|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Power Cables - IEC 60502-1
600/1000V Power & Control Cables

Power & Control Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Cores | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • FRPVC Sheath - IEC 60502-1 | | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|--|
| BQ139BU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.44 | 11.4 | |
| BQ139BU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.47 | 11.9 | |
| BQ139BU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.51 | 12.9 | |
| BQ139BU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.55 | 14.0 | |
| BQ139BU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.60 | 15.2 | |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • FRPVC Sheath - IEC 60502-1 | | | | | | | | | |
|---|---|-------|------|-----|--------|--------|------|------|--|
| BQ159BU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.48 | 12.2 | |
| BQ159BU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.51 | 12.9 | |
| BQ159BU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.55 | 14.0 | |
| BQ159BU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.60 | 15.2 | |
| BQ159BU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.65 | 16.5 | |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: BQ 13 9 B U 02

| Code | | Size | Class | Conductor | | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|-------------------|--|--------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | | |
| 13 | 14 | 1.50 mm ² | 5 | 3 | XLPE | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | |
| 15 | 16 | 2.50 mm ² | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | F | Overall Foil Shield with TC Drain Wire | | |
| 35 | 36 | 1.50 mm ² | 2 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | T | Overall Foil shield + Tinned Copper Braid shield | | |
| 37 | 38 | 2.50 mm ² | 2 | 9 | XLPE | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| | | | | A | XLPE | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| | | | | C | XLPE | LSZH | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | | |
| | | | | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | | | |
| | | | | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | | | |

Fire Resistant Power Cables - IEC 60502-1
600/1000V SWA Armored Power & Control Cables

Steel Wire Armor (SWA) Power & Control Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387
Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Cores | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - IEC 60502-1 | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| BZ139BU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.59 | 14.9 |
| BZ139BU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.61 | 15.5 |
| BZ139BU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.65 | 16.5 |
| BZ139BU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.69 | 17.6 |
| BZ139BU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.74 | 18.8 |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - IEC 60502-1 | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| BZ159BU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.62 | 15.8 |
| BZ159BU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.65 | 16.5 |
| BZ159BU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.69 | 17.6 |
| BZ159BU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.74 | 18.8 |
| BZ159BU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.83 | 21.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: BZ 13 9 B U 02

| Code | | Conductor | | | Insulation/Jacket | | | | Shield | |
|-------------|---------------|----------------------|-------|------|-------------------|--------|----------------------------|-------------------|--------|--|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 13 | 14 | 1.50 mm ² | 5 | 3 | XLPE | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 15 | 16 | 2.50 mm ² | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | F | Overall Foil Shield with TC Drain Wire |
| 35 | 36 | 1.50 mm ² | 2 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 37 | 38 | 2.50 mm ² | 2 | 9 | XLPE | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| | | | | A | XLPE | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| | | | | C | XLPE | LSZH | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| | | | | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | |
| | | | | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | |

*Also available in Steel Wire Braid Armor (SWB)



Fire Resistant Marine Control Cables - IEC 60092-376
150/250V (300V) Control Cables

Control Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|--|
| AC07TRF02 | 2 | Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.32 | 8.2 | |
| AC07TRF04 | 4 | Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.37 | 9.6 | |
| AC07TRF06 | 6 | Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.45 | 11.5 | |
| AC07TRF08 | 8 | Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.51 | 12.9 | |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|--|
| AC13TRF02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.45 | 11.6 | |
| AC13TRF04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.55 | 13.9 | |
| AC13TRF06 | 6 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.62 | 15.8 | |
| AC13TRF08 | 8 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.40 | 10.3 | |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|--|
| AC15TRF02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.43 | 10.9 | |
| AC15TRF04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.50 | 12.8 | |
| AC15TRF06 | 6 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.61 | 15.5 | |
| AC15TRF08 | 8 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.69 | 17.6 | |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: **AC 07 T R F 02**

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|--|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 mm ² | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | B | Tinned Copper Braid Shield |
| 11 | 12 | 1.00 mm ² | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 6C | 6D | 16 AWG | 5 | | | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | | | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | | | | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Marine Control Cables - IEC 60092-376
150/250V (300V) SWA Armored Control Cables



Steel Wire Armor (SWA) Control Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|--|
| AL07WRF02 | 2 | Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.41 | 10.6 | |
| AL07WRF04 | 4 | Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.46 | 11.8 | |
| AL07WRF06 | 6 | Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.53 | 13.5 | |
| AL07WRF08 | 8 | Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.58 | 14.8 | |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|--|
| AL13WRF02 | 2 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.50 | 12.8 | |
| AL13WRF04 | 4 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.57 | 14.5 | |
| AL13WRF06 | 6 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.66 | 16.9 | |
| AL13WRF08 | 8 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.73 | 18.7 | |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|-------|------|-----|---------|---------|------|------|--|
| AL15WRF02 | 2 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.54 | 13.8 | |
| AL15WRF04 | 4 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.62 | 15.8 | |
| AL15WRF06 | 6 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.72 | 18.4 | |
| AL15WRF08 | 8 | Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.85 | 21.5 | |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AL 07 T R F 02

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------------|--------------|-------------------|------|--|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 mm ² | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded | |
| 09 | 10 | 0.75 mm ² | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire | |
| 8C | 8D | 18 AWG | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | B | Tinned Copper Braid Shield | |
| 11 | 12 | 1.00 mm ² | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | T | Overall Foil Shield + Tinned Copper Braid Shield | |
| 6C | 6D | 16 AWG | 5 | | | | | | | | |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | | | |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | | | | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | | | | | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)



Fire Resistant Marine Power & Control Cables - IEC 60092-353
600/1000V Power & Control Cables

Power & Control Cables



- IEC 60092-353
- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • SHF1 Sheath - IEC 60092-353 | | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|--|
| AM11WTU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.36 | 9.2 | |
| AM11WTU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.38 | 9.8 | |
| AM11WTU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.42 | 10.8 | |
| AM11WTU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.47 | 11.9 | |
| AM11WTU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.51 | 13.1 | |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • SHF1 Sheath - IEC 60092-353 | | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|--|
| AM13WTU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.39 | 9.8 | |
| AM13WTU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.41 | 10.4 | |
| AM13WTU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.45 | 11.5 | |
| AM13WTU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.50 | 12.6 | |
| AM13WTU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.54 | 13.9 | |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • SHF1 Sheath - IEC 60092-353 | | | | | | | | | |
|--|---|-------|------|-----|--------|--------|------|------|--|
| AM15WTU02 | 2 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.42 | 10.7 | |
| AM15WTU03 | 3 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.45 | 11.5 | |
| AM15WTU04 | 4 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.50 | 12.7 | |
| AM15WTU05 | 5 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.55 | 13.9 | |
| AM15WTU07 | 7 | Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.60 | 15.3 | |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AM 11 WT U 02

| Code | | Conductor | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|--|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 11 | 12 | 1.00 mm ² | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 6C | 6D | 16 AWG | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | B | Tinned Copper Braid Shield |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Marine Power & Control Cables - IEC 60092-353
600/1000V Power & Control Cables



Steel Wire Armor (SWA) Power & Control Cables



- IEC 60092-353
- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387
Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Cores | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-353 | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| AP11WTU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.49 | 12.5 |
| AP11WTU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.51 | 13.1 |
| AP11WTU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.56 | 14.2 |
| AP11WTU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.60 | 15.3 |
| AP11WTU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.65 | 16.5 |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-353 | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| AP13WTU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.51 | 13.1 |
| AP13WTU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.54 | 13.8 |
| AP13WTU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.58 | 14.9 |
| AP13WTU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.63 | 16.1 |
| AP13WTU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.68 | 17.4 |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-353 | | | | | | | | |
|---|---|-------|------|-----|---------|---------|------|------|
| AP15WTU02 | 2 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.63 | 16.1 |
| AP15WTU03 | 3 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.58 | 14.8 |
| AP15WTU04 | 4 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.63 | 16.1 |
| AP15WTU05 | 5 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.68 | 17.4 |
| AP15WTU07 | 7 | Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.74 | 18.9 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AP 11 W T U 02

| Code | | Size | Class | Insulation/Jacket | | | | | Shield | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------------|--------------|-------------------|--------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 11 | 12 | 1.00 mm ² | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 6C | 6D | 16 AWG | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | B | Tinned Copper Braid Shield |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

300V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|---------------|------|-----|--------|--------|------|------|
| ZA07CFF01 | 1 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.27 | 6.9 |
| ZA07CFF02 | 2 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.41 | 10.5 |
| ZA07CFF04 | 4 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.48 | 12.2 |
| ZA07CFF08 | 8 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.66 | 16.9 |

Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|--------------------|------|-----|--------|--------|------|------|
| ZB07CFF01 | 1 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.29 | 7.4 |
| ZB07CFF02 | 2 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.46 | 11.8 |
| ZB07CFF04 | 4 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.54 | 13.8 |
| ZB07CFF08 | 8 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.75 | 19.1 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZA 07 C F F 01

| Code | | Size | Class | Insulation/Jacket | | | | Code | Description | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|----------------|-------------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | | | Temperature Range |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

300V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|
| ZJ07CFF01 | 1 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.44 | 11.3 |
| ZJ07CFF02 | 2 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.59 | 15.0 |
| ZJ07CFF04 | 4 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.66 | 16.8 |
| ZJ07CFF08 | 8 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.85 | 21.7 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|
| ZK07CFF01 | 1 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.46 | 11.8 |
| ZK07CFF02 | 2 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.64 | 16.4 |
| ZK07CFF04 | 4 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.72 | 18.4 |
| ZK07CFF08 | 8 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.94 | 24.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZJ 07 C F F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|------|--|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire | |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire | |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 29 | 30 | 0.50 mm ² | 2 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 31 | 32 | 0.75 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| 8A | 8B | 18 AWG | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

300V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|---------------|------|-----|--------|--------|------|------|
| ZA11CFF01 | 1 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.30 | 7.7 |
| ZA11CFF02 | 2 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.46 | 11.7 |
| ZA11CFF04 | 4 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.54 | 13.7 |
| ZA11CFF08 | 8 | White & Black | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.75 | 19.0 |

Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|--------------------|------|-----|--------|--------|------|------|
| ZB11CFF01 | 1 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.32 | 8.2 |
| ZB11CFF02 | 2 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.52 | 13.2 |
| ZB11CFF04 | 4 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.61 | 15.6 |
| ZB11CFF08 | 8 | White, Black & Red | 0.01 | 0.3 | 8 x OD | 8 x OD | 0.85 | 21.5 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZA 11 C F F 01

| Code | | Size | Class | Insulation/Jacket | | | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|----------------|-------------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

300V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|
| ZJ11CFF01 | 1 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.47 | 12.1 |
| ZJ11CFF02 | 2 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.64 | 16.3 |
| ZJ11CFF04 | 4 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.72 | 18.4 |
| ZJ11CFF08 | 8 | White & Black | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.94 | 23.9 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|
| ZK11CFF01 | 1 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.49 | 12.6 |
| ZK11CFF02 | 2 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.73 | 18.7 |
| ZK11CFF04 | 4 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 0.80 | 20.4 |
| ZK11CFF08 | 8 | White, Black & Red | 0.01 | 0.3 | 12 x OD | 12 x OD | 1.07 | 27.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZJ 11 C F F 01

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|-------------------|------|--|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Instrumentation and Signal Cables - EN 50288-7
300V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|---------------|------|-----|--------|--------|------|------|
| ZA13CFF01 | 1 | White & Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.34 | 8.7 |
| ZA13CFF02 | 2 | White & Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.53 | 13.5 |
| ZA13CFF04 | 4 | White & Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.63 | 16.0 |
| ZA13CFF08 | 8 | White & Black | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.87 | 22.1 |

Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|--------------------|------|-----|--------|--------|------|------|
| ZB13CFF01 | 1 | White, Black & Red | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.36 | 9.3 |
| ZB13CFF02 | 2 | White, Black & Red | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.60 | 15.4 |
| ZB13CFF04 | 4 | White, Black & Red | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.71 | 18.1 |
| ZB13CFF08 | 8 | White, Black & Red | 0.01 | 0.4 | 8 x OD | 8 x OD | 0.98 | 25.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZA 13 C FF 01

| Code | | Size | Class | Insulation/Jacket | | | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|----------------|-------------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

300V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|
| ZJ13CFF01 | 1 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.52 | 13.2 |
| ZJ13CFF02 | 2 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.71 | 18.2 |
| ZJ13CFF04 | 4 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.82 | 20.8 |
| ZJ13CFF08 | 8 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 1.09 | 27.9 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 300V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|
| ZK13CFF01 | 1 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.54 | 13.9 |
| ZK13CFF02 | 2 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.86 | 21.9 |
| ZK13CFF04 | 4 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.90 | 23.0 |
| ZK13CFF08 | 8 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 1.22 | 30.9 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZJ 13 C F F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|---|--|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire | | |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire | | |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| 29 | 30 | 0.50 mm ² | 2 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| 31 | 32 | 0.75 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | | |
| 8A | 8B | 18 AWG | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

500V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|--------------|------|-----|--------|--------|------|------|
| ZM07CFF01 | 1 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.31 | 8.0 |
| ZM07CFF02 | 2 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.48 | 12.2 |
| ZM07CFF04 | 4 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.56 | 14.3 |
| ZM07CFF08 | 8 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.77 | 19.7 |

Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|-------------------|------|-----|--------|--------|------|------|
| ZN07CFF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.33 | 8.5 |
| ZN07CFF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.53 | 13.6 |
| ZN07CFF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.63 | 16.1 |
| ZN07CFF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.87 | 22.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZM 07 C F F 01

| Code | | Conductor | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|-------------------|------|--|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

500V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|---------|---------|------|------|
| ZV07CFF01 | 1 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.49 | 12.4 |
| ZV07CFF02 | 2 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.66 | 16.8 |
| ZV07CFF04 | 4 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.75 | 19.0 |
| ZV07CFF08 | 8 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.97 | 24.7 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|---------|---------|------|------|
| ZW07CFF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.51 | 13.0 |
| ZW07CFF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.72 | 18.2 |
| ZW07CFF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.82 | 20.9 |
| ZW07CFF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 1.10 | 28.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZV 07 C F F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|------|--|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire | |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire | |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

500V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|--------------|------|-----|--------|--------|------|------|
| ZM11CFF01 | 1 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.34 | 8.7 |
| ZM11CFF02 | 2 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.53 | 13.6 |
| ZM11CFF04 | 4 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.62 | 15.9 |
| ZM11CFF08 | 8 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.86 | 22.0 |

Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|-------------------|------|-----|--------|--------|------|------|
| ZN11CFF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.36 | 9.3 |
| ZN11CFF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.59 | 15.2 |
| ZN11CFF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.71 | 18.0 |
| ZN11CFF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.98 | 25.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZM 11 C F F 01

| Code | | Size | Class | Insulation/Jacket | | | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|----------------|-------------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

500V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|---------|---------|------|------|
| ZV11CFF01 | 1 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.52 | 13.2 |
| ZV11CFF02 | 2 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.71 | 18.1 |
| ZV11CFF04 | 4 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.81 | 20.7 |
| ZV11CFF08 | 8 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 1.09 | 27.7 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.0mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|---------|---------|------|------|
| ZW11CFF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.54 | 13.8 |
| ZW11CFF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.78 | 19.8 |
| ZW11CFF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.89 | 22.8 |
| ZW11CFF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 1.21 | 30.8 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZV 11 C F F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|------|--|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire | |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire | |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Instrumentation and Signal Cables - EN 50288-7
500V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|--------------|------|-----|--------|--------|------|------|
| ZM13CFF01 | 1 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.36 | 9.2 |
| ZM13CFF02 | 2 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.57 | 14.4 |
| ZM13CFF04 | 4 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.66 | 16.9 |
| ZM13CFF08 | 8 | Blue & Black | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.92 | 23.4 |

Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|-------------------|------|-----|--------|--------|------|------|
| ZN13CFF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.39 | 9.9 |
| ZN13CFF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.64 | 16.4 |
| ZN13CFF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 0.76 | 19.3 |
| ZN13CFF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 8 x OD | 8 x OD | 1.05 | 26.7 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZM 13 C F F 01

| Code | | Size | Class | Insulation/Jacket | | | | Code | Description | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|----------------|-------------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | | | Temperature Range |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

500V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|---------|---------|------|------|
| ZV13CFF01 | 1 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.54 | 13.8 |
| ZV13CFF02 | 2 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.75 | 19.1 |
| ZV13CFF04 | 4 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.86 | 21.8 |
| ZV13CFF08 | 8 | Blue & Black | 0.02 | 0.5 | 12 x OD | 12 x OD | 1.15 | 29.4 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|---------|---------|------|------|
| ZW13CFF01 | 1 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.56 | 14.4 |
| ZW13CFF02 | 2 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.85 | 21.8 |
| ZW13CFF04 | 4 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 0.95 | 24.1 |
| ZW13CFF08 | 8 | Blue, Black & Red | 0.02 | 0.5 | 12 x OD | 12 x OD | 1.28 | 32.7 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZV 13 C F F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|---|--|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire | | |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire | | |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

500V Instrumentation Cables

Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|--------------|------|-----|--------|--------|------|------|
| ZM15CFF01 | 1 | Blue & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.42 | 10.7 |
| ZM15CFF02 | 2 | Blue & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.66 | 16.8 |
| ZM15CFF04 | 4 | Blue & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.78 | 19.8 |
| ZM15CFF08 | 8 | Blue & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.08 | 27.5 |

Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Sheath - EN 50288-7 | | | | | | | | |
|---|---|-------------------|------|-----|--------|--------|------|------|
| ZN15CFF01 | 1 | Blue, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.45 | 11.4 |
| ZN15CFF02 | 2 | Blue, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.75 | 19.0 |
| ZN15CFF04 | 4 | Blue, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.88 | 22.4 |
| ZN15CFF08 | 8 | Blue, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.23 | 31.3 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZM 15 C F F 01

| Code | | Size | Class | Insulation/Jacket | | | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-------------------|------------|--------|----------------------------|----------------|-------------|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | | | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Instrumentation and Signal Cables - EN 50288-7

500V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|--------------|------|-----|---------|---------|------|------|
| ZV15CFF01 | 1 | Blue & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.59 | 15.1 |
| ZV15CFF02 | 2 | Blue & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.87 | 22.1 |
| ZV15CFF04 | 4 | Blue & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.96 | 24.4 |
| ZV15CFF08 | 8 | Blue & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.30 | 33.1 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- BS EN 50288-7
- EN 50290-2 & IEC 60228
- IEC 60332-1-2 & IEC 60332-3
- IEC 61034-2, IEC 60754-1, IEC 60754-2
- IEC 60331-31, EN 50200, BS 6387
- Category CWZ

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 500V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • LSZH Inner Sheath • Steel Wire Armor • LSZH Outer Sheath - EN 50288-7 | | | | | | | | |
|--|---|-------------------|------|-----|---------|---------|------|------|
| ZW15CFF01 | 1 | Blue, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.62 | 15.9 |
| ZW15CFF02 | 2 | Blue, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.93 | 23.8 |
| ZW15CFF04 | 4 | Blue, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.11 | 28.2 |
| ZW15CFF08 | 8 | Blue, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.47 | 37.4 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: ZV 15 C F F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|------|--|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 mm ² | 5 | 1 | PVC | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | |
| 09 | 10 | 0.75 mm ² | 5 | 3 | XLP | PVC | IEC 60332-1 | -30°C to +70°C | F | Overall Foil shield with TC Drain Wire | |
| 8C | 8D | 18 AWG | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | S | Individual and overall foil shield with Drain Wire | |
| 11 | 12 | 1.00 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | |
| 6C | 6D | 16 AWG | 5 | 9 | XLP | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 13 | 14 | 1.50 mm ² | 5 | A | XLP | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 15 | 16 | 2.50 mm ² | 5 | C | XLP | LSZH | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| 29 | 30 | 0.50 mm ² | 2 | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| 31 | 32 | 0.75 mm ² | 2 | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Instrumentation and Signal Cables - IEC 60502-1
600/1000V Instrumentation Cables

Pair Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Pairs | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • FRPVC Sheath - IEC 60502-1 | | | | | | | | |
|---|---|---------------|------|-----|--------|--------|------|------|
| B0139KU01 | 1 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.44 | 11.4 |
| B0139KU02 | 2 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.64 | 16.3 |
| B0139KU04 | 4 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.74 | 19.0 |
| B0139KU08 | 8 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.00 | 25.5 |

Triad Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Triads | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • FRPVC Sheath - IEC 60502-1 | | | | | | | | |
|---|---|--------------------|------|-----|--------|--------|------|------|
| BP139MU01 | 1 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.47 | 11.9 |
| BP139MU02 | 2 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.71 | 18.1 |
| BP139MU04 | 4 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.83 | 21.1 |
| BP139MU08 | 8 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.12 | 28.5 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: **B0 13 9 K U 01**

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Code | Description | Shield |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|---|---|-------------|--------|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | | | | |
| 13 | 14 | 1.50 mm ² | 5 | 3 | XLPE | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | | |
| 15 | 16 | 2.50 mm ² | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | F | Overall Foil Shield with TC Drain Wire | | |
| 35 | 36 | 1.50 mm ² | 2 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | S | Individual and overall foil shield with TC Drain Wire | | |
| 37 | 38 | 2.50 mm ² | 2 | 9 | XLPE | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | | |
| | | | | A | XLPE | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | | |
| | | | | C | XLPE | LSZH | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | | |
| | | | | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | | | |
| | | | | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | | | |

Fire Resistant Instrumentation and Signal Cables - IEC 60502-1
600/1000V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Pairs | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - IEC 60502-1 | | | | | | | | |
|---|---|---------------|------|-----|---------|---------|------|------|
| BX139KU01 | 1 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.59 | 14.9 |
| BX139KU02 | 2 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.81 | 20.8 |
| BX139KU04 | 4 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.92 | 23.5 |
| BX139KU08 | 8 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.21 | 30.7 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Triads | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - IEC 60502-1 | | | | | | | | |
|---|---|--------------------|------|-----|---------|---------|------|------|
| BY139MU01 | 1 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.61 | 15.6 |
| BY139MU02 | 2 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.88 | 22.5 |
| BY139MU04 | 4 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.03 | 26.3 |
| BY139MU08 | 8 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.33 | 33.9 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: **BX 13 9 K U 01**

| Code | | Conductor | | | Insulation/Jacket | | | | Shield | |
|-------------|---------------|----------------------|-------|------|-------------------|--------|----------------------------|-------------------|--------|---|
| Bare Copper | Tinned Copper | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 13 | 14 | 1.50 mm ² | 5 | 3 | XLPE | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded |
| 15 | 16 | 2.50 mm ² | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | F | Overall Foil Shield with TC Drain Wire |
| 35 | 36 | 1.50 mm ² | 2 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | S | Individual and overall foil shield with TC Drain Wire |
| 37 | 38 | 2.50 mm ² | 2 | 9 | XLPE | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield |
| | | | | A | XLPE | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | |
| | | | | C | XLPE | LSZH | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | |
| | | | | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | |
| | | | | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | |

*Also available in Steel Wire Braid Armor (SWB)

Fire Resistant Instrumentation and Signal Cables - IEC 60502-1
600/1000V Instrumentation Cables

Pair Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Pairs | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • FRPVC Sheath - IEC 60502-1 | | | | | | | | |
|---|---|---------------|------|-----|--------|--------|------|------|
| BO159KU01 | 1 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.48 | 12.2 |
| BO159KU02 | 2 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.70 | 17.8 |
| BO159KU04 | 4 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.81 | 20.7 |
| BO159KU08 | 8 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.10 | 28.0 |

Triad Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Triads | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • FRPVC Sheath - IEC 60502-1 | | | | | | | | |
|---|---|--------------------|------|-----|--------|--------|-------|------|
| BP159MU01 | 1 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.510 | 12.9 |
| BP159MU02 | 2 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.780 | 19.8 |
| BP159MU04 | 4 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.912 | 23.1 |
| BP159MU08 | 8 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.238 | 31.4 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: BO 15 9 K U 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|------|---|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| | | | | 3 | XLPE | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | |
| 13 | 14 | 1.50 mm ² | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | F | Overall Foil Shield with TC Drain Wire | |
| 15 | 16 | 2.50 mm ² | 5 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | S | Individual and overall foil shield with TC Drain Wire | |
| 35 | 36 | 1.50 mm ² | 2 | 9 | XLPE | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | |
| 37 | 38 | 2.50 mm ² | 2 | A | XLPE | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| | | | | C | XLPE | LSZH | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| | | | | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | | |
| | | | | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | | |

Fire Resistant Instrumentation and Signal Cables - IEC 60502-1
600/1000V SWA Armored Instrumentation Cables

Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Pairs | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - IEC 60502-1 | | | | | | | | |
|---|---|---------------|------|-----|---------|---------|------|------|
| BX159KU01 | 1 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.62 | 15.8 |
| BX159KU02 | 2 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.90 | 23.0 |
| BX159KU04 | 4 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.02 | 25.9 |
| BX159KU08 | 8 | White & Black | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.31 | 33.4 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60502-1
- IEC 60228
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3

| Part No. | Triads | Insulation Color | Min. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 600/1000V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • PVC Inner Sheath • Steel Wire Armor • FRPVC Outer Sheath - IEC 60502-1 | | | | | | | | |
|---|---|--------------------|------|-----|---------|---------|------|------|
| BY159MU01 | 1 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.65 | 16.5 |
| BY159MU02 | 2 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 0.95 | 24.3 |
| BY159MU04 | 4 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.11 | 28.3 |
| BY159MU08 | 8 | White, Black & Red | 0.02 | 0.7 | 12 x OD | 12 x OD | 1.45 | 37.0 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: **BX 15 9 K U 01**

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------|----------------------------|-------------------|------|---|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 13 | 14 | 1.50 mm ² | 5 | 3 | XLPE | PVC | IEC 60332-1 | -30°C to +70°C | U | Unshielded | |
| 15 | 16 | 2.50 mm ² | 5 | 5 | PVC | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | F | Overall Foil Shield with TC Drain Wire | |
| 35 | 36 | 1.50 mm ² | 2 | 6 | PVC | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +80°C | S | Individual and overall foil shield with TC Drain Wire | |
| 37 | 38 | 2.50 mm ² | 2 | 9 | XLPE | FRPVC | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | T | Overall Foil shield + Tinned Copper Braid shield | |
| | | | | A | XLPE | FRLS | IEC 60332-1 & IEC 60332-3C | -30°C to +90°C | | | |
| | | | | C | XLPE | LSZH | IEC 60332-1 & IEC 60332-3A | -30°C to +90°C | | | |
| | | | | M | PVC | FRPVC | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | | |
| | | | | N | PVC | FRLS | IEC 60332-1 & IEC 60332-3A | -30°C to +80°C | | | |

*Also available in Steel Wire Braid Armor (SWB)



Fire Resistant Marine Instrumentation and Signal Cables - IEC 60092-376
150/250V (300V) Instrumentation Cables

Pair Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|------|------|
| AA07TRF01 | 1 | White & Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.32 | 8.2 |
| AA07TRF02 | 2 | White & Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.49 | 12.5 |
| AA07TRF04 | 4 | White & Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.57 | 14.6 |
| AA07TRF08 | 8 | White & Black | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.79 | 20.2 |

Triad Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| AB07TRF01 | 1 | White, Black & Red | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.34 | 8.7 |
| AB07TRF02 | 2 | White, Black & Red | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.55 | 14.1 |
| AB07TRF04 | 4 | White, Black & Red | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.65 | 16.5 |
| AB07TRF08 | 8 | White, Black & Red | 0.02 | 0.6 | 8 x OD | 8 x OD | 0.90 | 22.9 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AA 07 T R F 01

| Code | | Size | Class | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|---|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| 07 | 08 | 0.50 mm ² | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield |
| 6C | 6D | 16 AWG | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | A | Individual & Overall Foil shield with Tinned Copper Braid |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | | | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | | | | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Marine Instrumentation and Signal Cables - IEC 60092-376
150/250V (300V) SWA Armored Instrumentation Cables



Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|
| AJ07WRF01 | 1 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.41 | 10.6 |
| AJ07WRF02 | 2 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.56 | 14.4 |
| AJ07WRF04 | 4 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.64 | 16.3 |
| AJ07WRF08 | 8 | White & Black | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.83 | 21.2 |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

0.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|
| AK07WRF01 | 1 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.43 | 11.0 |
| AK07WRF02 | 2 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.62 | 15.8 |
| AK07WRF04 | 4 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.71 | 18.0 |
| AK07WRF08 | 8 | White, Black & Red | 0.01 | 0.4 | 12 x OD | 12 x OD | 0.93 | 23.6 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AJ 07 T R F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------------|--------------|-------------------|------|---|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 mm ² | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded | |
| 09 | 10 | 0.75 mm ² | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire | |
| 8C | 8D | 18 AWG | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire | |
| 11 | 12 | 1.00 mm ² | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield | |
| 6C | 6D | 16 AWG | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield | |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | A | Individual & Overall Foil shield with Tinned Copper Braid | |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | | | | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | | | | | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)



Fire Resistant Marine Instrumentation and Signal Cables - IEC 60092-376
150/250V (300V) Instrumentation Cables

Pair Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|------|------|
| AA13TRF01 | 1 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.32 | 8.2 |
| AA13TRF02 | 2 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.49 | 12.5 |
| AA13TRF04 | 4 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.57 | 14.6 |
| AA13TRF08 | 8 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.79 | 20.2 |

Triad Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| AB13TRF01 | 1 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.42 | 10.6 |
| AB13TRF02 | 2 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.68 | 17.3 |
| AB13TRF04 | 4 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.80 | 20.3 |
| AB13TRF08 | 8 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.12 | 28.4 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AA 13 T R F 01

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|---|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 mm ² | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield |
| 6C | 6D | 16 AWG | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | A | Individual & Overall Foil shield with Tinned Copper Braid |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | | | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | | | | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Marine Instrumentation and Signal Cables - IEC 60092-376
150/250V (300V) SWA Armored Instrumentation Cables



Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|--|
| AJ13WRF01 | 1 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.50 | 12.8 | |
| AJ13WRF02 | 2 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.70 | 17.9 | |
| AJ13WRF04 | 4 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.82 | 20.8 | |
| AJ13WRF08 | 8 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 1.09 | 27.6 | |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

1.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|--|
| AK13WRF01 | 1 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.53 | 13.5 | |
| AK13WRF02 | 2 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.78 | 19.8 | |
| AK13WRF04 | 4 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.91 | 23.2 | |
| AK13WRF08 | 8 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 1.22 | 31.0 | |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AJ 13 T R F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------------|--------------|-------------------|------|---|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 mm ² | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded | |
| 09 | 10 | 0.75 mm ² | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire | |
| 8C | 8D | 18 AWG | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire | |
| 11 | 12 | 1.00 mm ² | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield | |
| 6C | 6D | 16 AWG | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield | |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | A | Individual & Overall Foil shield with Tinned Copper Braid | |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | | | | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | | | | | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)

Fire Resistant Marine Instrumentation and Signal Cables - IEC 60092-376
150/250V (300V) Instrumentation Cables



Pair Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | |
|--|---|---------------|------|-----|--------|--------|------|------|
| AA15TRF01 | 1 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.43 | 10.9 |
| AA15TRF02 | 2 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.67 | 17.0 |
| AA15TRF04 | 4 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.78 | 20.0 |
| AA15TRF08 | 8 | White & Black | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.09 | 27.9 |

Triad Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLP Insulation • Overall Foil Shield • SHF1 Sheath - IEC 60092-376 | | | | | | | | |
|--|---|--------------------|------|-----|--------|--------|------|------|
| AB15TRF01 | 1 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.46 | 11.7 |
| AB15TRF02 | 2 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.75 | 19.1 |
| AB15TRF04 | 4 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 0.88 | 22.5 |
| AB15TRF08 | 8 | White, Black & Red | 0.02 | 0.7 | 8 x OD | 8 x OD | 1.24 | 31.5 |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AA 15 T R F 01

| Conductor | | | | Insulation/Jacket | | | | Shield | | |
|-------------|---------------|----------------------|-------|-------------------|------------|--------------|--------------|-------------------|------|---|
| Code | | Size | Class | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description |
| Bare Copper | Tinned Copper | | | | | | | | | |
| 07 | 08 | 0.50 mm ² | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded |
| 09 | 10 | 0.75 mm ² | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire |
| 8C | 8D | 18 AWG | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire |
| 11 | 12 | 1.00 mm ² | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield |
| 6C | 6D | 16 AWG | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | A | Individual & Overall Foil shield with Tinned Copper Braid |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | | | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | | | | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | |

Fire Resistant Marine Instrumentation and Signal Cables - IEC 60092-376

150/250V (300V) SWA Armored Instrumentation Cables



Steel Wire Armor (SWA) Pair Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Pairs | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|-------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|---------------|------|-----|---------|---------|------|------|--|
| AJ15WRF01 | 1 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.54 | 13.8 | |
| AJ15WRF02 | 2 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.78 | 19.8 | |
| AJ15WRF04 | 4 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.94 | 23.9 | |
| AJ15WRF08 | 8 | White & Black | 0.02 | 0.6 | 12 x OD | 12 x OD | 1.23 | 31.4 | |

Steel Wire Armor (SWA) Triad Instrumentation Cables



- IEC 60228 & IEC 60092-376
- IEC 60093-351
- IEC 60092-359
- IEC 60331-21, EN 50200, BS 6387 Category BWY
- IEC 60332-1-2 & IEC 60332-3
- IEC 60092-350

| Part No. | Triads | Insulation Color | Nom. Insulation Thickness | | Bend Radius (Min) | | OD (Nom) | |
|----------|--------|------------------|---------------------------|----|-------------------|----|----------|----|
| | | | Inch | mm | Inch | mm | Inch | mm |

2.5mm²

| 150/250V • Stranded Class-5 • BC Conductors • Mica - Glass Tape • XLPE Insulation • Overall Foil Shield • SHF1 Inner Sheath • Steel Wire Armor • SHF1 Outer Sheath - IEC 60092-376 | | | | | | | | | |
|--|---|--------------------|------|-----|---------|---------|------|------|--|
| AK15WRF01 | 1 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.57 | 14.6 | |
| AK15WRF02 | 2 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 0.86 | 22.0 | |
| AK15WRF04 | 4 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 1.04 | 26.5 | |
| AK15WRF08 | 8 | White, Black & Red | 0.02 | 0.6 | 12 x OD | 12 x OD | 1.41 | 35.9 | |

Design Your Own Cable By Creating The Part Code Using Cable Design Criteria :

Cable Part Code: AJ 15 T R F 01

| Code | | Size | Class | Conductor | | | | Insulation/Jacket | | Shield | |
|-------------|---------------|----------------------|-------|-----------|------------|--------------|--------------|-------------------|------|---|--|
| Bare Copper | Tinned Copper | | | Code | Insulation | Sheath | Flame Rating | Temperature Range | Code | Description | |
| 07 | 08 | 0.50 mm ² | 5 | T | XLP | SHF1 | IEC 60332-3A | -40°C to +90°C | U | Unshielded | |
| 09 | 10 | 0.75 mm ² | 5 | U | XLP | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | F | Overall Foil Shield with TC Drain Wire | |
| 8C | 8D | 18 AWG | 5 | W | XLPE | SHF1 | IEC 60332-3A | -40°C to +90°C | S | Individual & Overall Foil shield with TC Drain Wire | |
| 11 | 12 | 1.00 mm ² | 5 | X | XLPE | SHF2 MUD RES | IEC 60332-3A | -30°C to +90°C | B | Tinned Copper Braid Shield | |
| 6C | 6D | 16 AWG | 5 | | | | | | T | Overall Foil Shield + Tinned Copper Braid Shield | |
| 13 | 14 | 1.50 mm ² | 5 | | | | | | A | Individual & Overall Foil shield with Tinned Copper Braid | |
| 15 | 16 | 2.50 mm ² | 5 | | | | | | | | |
| 29 | 30 | 0.50 mm ² | 2 | | | | | | | | |
| 31 | 32 | 0.75 mm ² | 2 | | | | | | | | |
| 8A | 8B | 18 AWG | 2 | | | | | | | | |
| 33 | 34 | 1.00 mm ² | 2 | | | | | | | | |
| 6A | 6B | 16 AWG | 2 | | | | | | | | |
| 35 | 36 | 1.50 mm ² | 2 | | | | | | | | |
| 37 | 38 | 2.50 mm ² | 2 | | | | | | | | |

*Also available in Steel Wire Braid Armor (SWB) & Tinned Copper Braid Armor (TCB)



Fire Resistant Serial Fieldbus

Section Table of Contents

| Serial Fieldbus | Page |
|--|------|
| Foundation Fieldbus Marine Approved Fire Resistant Cable | 450 |
| CANopen RS-485 Marine Approved Fire Resistant Cable | 451 |



Marine Approved Fire Resistant Foundation Fieldbus



Fire Resistant Foundation Fieldbus



- FF 844
- IEC 61158-2
- IEC 60332-1-2, IEC 60332-3
- BS 6387
- UL 1581
- IEC 60092-376
- EN 50288-7
- IEC 60331-23
- ABS Approved
- RoHS, CE & REACH Directives

| Part No. | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature | Additional Features/Standards |
|---|-----|---------|-------|----------|----|-----------------------|-------------------------------|
| | | | | Inch | mm | | |
| Stranded TC Conductors • Mica - Glass Tape • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® Shielding • FRLS PVC Sheath | | | | | | | |

| | | | | | | | |
|--------|----|------|---|------|-----|----------------|---|
| 50076L | 18 | 300V | 1 | 0.33 | 8.5 | -40°C To +90°C | ABS Certificate No. 15-HS1434724-PDA |
|--------|----|------|---|------|-----|----------------|---|



- FF 844
- IEC 61158-2
- IEC 60332-1-2, IEC 60332-3
- BS 6387
- UL 1581
- IEC 60092-376
- EN 50288-7
- IEC 60331-23
- ABS Approved
- RoHS, CE & REACH Directives

| Part No. | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature | Additional Features/Standards |
|---|-----|---------|-------|----------|----|-----------------------|-------------------------------|
| | | | | Inch | mm | | |
| Stranded TC Conductors • Mica - Glass Tape • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® Shielding • PVC Inner Sheath • Steel Wire Armor • FRLS PVC Outer Sheath | | | | | | | |

| | | | | | | | |
|---------|----|------|---|------|------|----------------|---|
| 50076LS | 18 | 300V | 1 | 0.47 | 12.0 | -40°C To +90°C | ABS Certificate No. 15-HS1434724-PDA |
|---------|----|------|---|------|------|----------------|---|



- FF 844
- IEC 61158-2
- IEC 60332-1-2, IEC 60332-3
- BS 6387
- UL 1581
- IEC 60092-376
- EN 50288-7
- IEC 60331-23
- ABS Approved
- RoHS, CE & REACH Directives

| Part No. | AWG | Voltage | Pairs | OD (Nom) | | Operating Temperature | Additional Features/Standards |
|---|-----|---------|-------|----------|----|-----------------------|-------------------------------|
| | | | | Inch | mm | | |
| Stranded TC Conductors • Mica - Glass Tape • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® Shielding • PVC Inner Sheath • Steel Wire Braid Armor • FRLS PVC Outer Sheath | | | | | | | |

| | | | | | | | |
|---------|----|------|---|------|------|----------------|---|
| 50076LB | 18 | 300V | 1 | 0.45 | 11.5 | -40°C To +90°C | ABS Certificate No. 15-HS1434724-PDA |
|---------|----|------|---|------|------|----------------|---|



CANopen RS-485 Marine Approved Fire Resistant Cables

CANopen RS-485



- IEC 60228, IEC 60092-376, IEC 60092-359, IEC 60092-351
- IEC 60754-1, IEC 60754-2, IEC 61034-2, ASTM D 2843, EN 50305, NF F63-305
- IEC 60332-1-2, IEC 60332-3A
- IEC 60331-23, BS 6387
- RoHS & CE & REACH Directives

| Part No. | Pairs | Color Code | OD (Nom) | | Operating Temperature | Nom. Cable Weight | Nom. Capacitance | | | | Additional Features/Standards |
|----------|-------|------------|----------|----|-----------------------|-------------------|------------------|------|----------------|------|-------------------------------|
| | | | Inch | mm | | | Cond. - Cond. | | Cond. - Shield | | |
| | | | | | | | pF/Ft | pF/m | pF/Ft | pF/m | |

0.5mm²

| Stranded TC Conductors • Mica - Glass Tape • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® & TC Braid Shield • LSZH Jacket | | | | | | | | | | | |
|---|---|---------|------|------|----------------|-----|----|----|----|----|--|
| 50021L | 1 | Chart 4 | 0.41 | 10.4 | -40°C To +90°C | 152 | 14 | 46 | 24 | 82 | ABS Certificate No. 15-HS1434726-1-PDA |
| 50022L | 2 | Chart 4 | 0.60 | 15.4 | | 252 | | | | | |
| 50023L | 3 | Chart 4 | 0.64 | 16.4 | | 262 | | | | | |
| 50024L | 4 | Chart 4 | 0.70 | 18.0 | | 312 | | | | | |

1.5mm²

| Stranded TC Conductors • Mica - Glass Tape • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® & TC Braid Shield • LSZH Jacket | | | | | | | | | | | |
|---|---|---------|------|------|----------------|-----|----|----|----|----|--|
| 50031L | 1 | Chart 4 | 0.52 | 13.4 | -40°C To +90°C | 224 | 14 | 46 | 24 | 82 | ABS Certificate No. 15-HS1434726-1-PDA |
| 50032L | 2 | Chart 4 | 0.80 | 20.4 | | 456 | | | | | |
| 50033L | 3 | Chart 4 | 0.85 | 21.8 | | 483 | | | | | |
| 50034L | 4 | Chart 4 | 0.95 | 24.3 | | 602 | | | | | |

BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 560.

CANopen RS-485 Marine Approved Fire Resistant Cables



CANopen RS-485



- IEC 60228, IEC 60092-376, IEC 60092-359, IEC 60092-351
- IEC 60754-1, IEC 60754-2, IEC 61034-2, ASTM D 2843, EN 50305, NF F63-305
- IEC 60332-1-2, IEC 60332-3A
- IEC 60331-23, BS 6387
- RoHS & CE & REACH Directives

| Part No. | Pairs | Color Code | OD (Nom) | | Operating Temperature | Nom. Cable Weight | Nom. Capacitance | | | | Additional Features/Standards |
|----------|-------|------------|----------|----|-----------------------|-------------------|------------------|----------------|-------|------|-------------------------------|
| | | | Inch | mm | | | Cond. - Cond. | Cond. - Shield | pF/Ft | pF/m | |

0.5mm²

| Stranded TC Conductors • Mica - Glass Tape • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® & TC Braid Shield • Galvanized Steel Wire Armor • Double LSZH Jackets | | | | | | | | | | | |
|---|---|---------|------|------|----------------|-----|----|----|----|----|--|
| 50021LS | 1 | Chart 4 | 0.53 | 13.7 | -40°C To +90°C | 355 | 14 | 46 | 24 | 82 | ABS Certificate No. 15-HS1434726-1-PDA |
| 50022LS | 2 | Chart 4 | 0.74 | 19.1 | | 582 | | | | | |
| 50023LS | 3 | Chart 4 | 0.78 | 19.9 | | 598 | | | | | |
| 50024LS | 4 | Chart 4 | 0.84 | 21.5 | | 679 | | | | | |

1.5mm²

| Stranded TC Conductors • Mica - Glass Tape • Cross-Linked Polyethylene Insulation • TC Drain Wire • Overall Beldfoil® & TC Braid Shield • Galvanized Steel Wire Armor • Double LSZH Jackets | | | | | | | | | | | |
|---|---|---------|------|------|----------------|------|----|----|----|----|--|
| 50031LS | 1 | Chart 4 | 0.67 | 17.1 | -40°C To +90°C | 512 | 14 | 46 | 24 | 82 | ABS Certificate No. 15-HS1434726-1-PDA |
| 50032LS | 2 | Chart 4 | 0.92 | 23.6 | | 846 | | | | | |
| 50033LS | 3 | Chart 4 | 0.96 | 24.7 | | 875 | | | | | |
| 50034LS | 4 | Chart 4 | 1.05 | 26.9 | | 1011 | | | | | |

*Also available in Steel Wire Braid Armor (SWB) | BC = Bare Copper • TC = Tinned Copper | Belden Color Code Charts can be found at page 560.



Fire Resistant Optical Fiber Central and Multi Loose Tube

Section Table of Contents

| Optical Fiber | Page |
|-------------------------------------|------------|
| Optical Fiber | 453 |
| Fire Resistant Optical Fiber Cables | 454 |



Universal Central Loose Tube Cable with Corrugated Steel Tape, Single Jacket

GUCN, GUCB

A/I-DQ(ZN)(SR)H



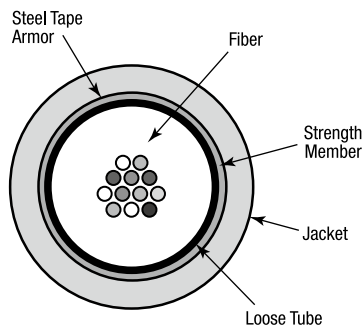
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|-------------------------------|
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Circuit Integrity: | EN 50200, IEC 60331-25 (E120) |
| Flame Retardant: | IEC 60332-3-22 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | E1 | E1 | |
| GUCN*xx | 4 to 24 | 9.0 | 103 | 35 | 1500 | 500 | 1045 |
| GUCB*xx | 4 to 24 | 10.6 | 148 | 40 | 2500 | 830 | 1308 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|
| GUCN | | | | | | |
| 62.5/125-OM1 | GUCN104 | GUCN106 | GUCN108 | GUCN112 | GUCN116 | GUCN124 |
| 50/125-OM2 | GUCN204 | GUCN206 | GUCN208 | GUCN212 | GUCN216 | GUCN224 |
| 50/125-OM3 | GUCND04 | GUCND06 | GUCND08 | GUCND12 | GUCND16 | GUCND24 |
| 50/125-OM4 | GUCNE04 | GUCNE06 | GUCNE08 | GUCNE12 | GUCNE16 | GUCNE24 |
| 9/125 ITU G.652D | GUCN804 | GUCN806 | GUCN808 | GUCN812 | GUCN816 | GUCN824 |
| 9/125 ITU G.655 C & D | GUCN704 | GUCN706 | GUCN708 | GUCN712 | GUCN716 | GUCN724 |
| GUCB | | | | | | |
| 62.5/125-OM1 | GUCB104 | GUCB106 | GUCB108 | GUCB112 | GUCB116 | GUCB124 |
| 50/125-OM2 | GUCB204 | GUCB206 | GUCB208 | GUCB212 | GUCB216 | GUCB224 |
| 50/125-OM3 | GUCBD04 | GUCBD06 | GUCBD08 | GUCBD12 | GUCBD16 | GUCBD24 |
| 50/125-OM4 | GUCBE04 | GUCBE06 | GUCBE08 | GUCBE12 | GUCBE16 | GUCBE24 |
| 9/125 ITU G.652D | GUCB804 | GUCB806 | GUCB808 | GUCB812 | GUCB816 | GUCB824 |
| 9/125 ITU G.655 C & D | GUCB704 | GUCB706 | GUCB708 | GUCB712 | GUCB716 | GUCB724 |
| GUCN • GUCB | | | | | | |
| Std. plywood reel (non-returnable) | | | Ø 1000 x 530 mm, Weight 18.0 kg | | | |
| Std. delivery length | | | 2100 ± 100 m | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Universal Multi Loose Tube Cable with Corrugated Steel Tape, Single Jacket

GCCG, GCCD, GCCE, GCCF

A/I-DQ(ZN)(SR)H



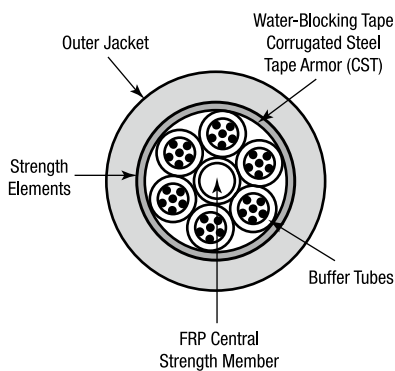
Applications

- For outdoor and indoor use in structured (data) wiring systems such as (campus backbone)
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|------------------------|
| Crush Resistance (E3): | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | IEC 60332-3-22 |
| Circuit Integrity: | IEC 60332-25, EN 50200 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GCCG*xx | 6 to 36 | 1.9 | 6 | Dry | 10.5 | 160 | 1750 | 580 | 2100 |
| GCCD*xx | 12 to 72 | 2.5 | 12 | Dry | 12.0 | 200 | 2400 | 800 | 2900 |
| GCCE*xx | 84 to 96 | 2.5 | 12 | Dry | 15.4 | 250 | 2500 | 830 | 3100 |
| GCCF*xx | 108 to 144 | 2.5 | 12 | Dry | 18.5 | 330 | 4000 | 1300 | 6000 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GCCG106 | GCCG112 | GCCG118 | GCCG124 | GCCG136 |
| 50/125-OM2 | GCCG206 | GCCG212 | GCCG218 | GCCG224 | GCCG236 |
| 50/125-OM3 | GCCGD06 | GCCGD12 | GCCGD18 | GCCGD24 | GCCGD36 |
| 50/125-OM4 | GCCGE06 | GCCGE12 | GCCGE18 | GCCGE24 | GCCGE36 |
| 9/125 ITU G.652D | GCCG806 | GCCG812 | GCCG818 | GCCG824 | GCCG836 |
| 9/125 ITU G.655 C & D | GCCG706 | GCCG712 | GCCG718 | GCCG724 | GCCG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GCCD112 | GCCD124 | GCCD136 | GCCD148 | GCCD160 | GCCD172 |
| 50/125-OM2 | GCCD212 | GCCD224 | GCCD236 | GCCD248 | GCCD260 | GCCD272 |
| 50/125-OM3 | GCCDD12 | GCCDD24 | GCCDD36 | GCCDD48 | GCCDD60 | GCCDD72 |
| 50/125-OM4 | GCCDE12 | GCCDE24 | GCCDE36 | GCCDE48 | GCCDE60 | GCCDE72 |
| 9/125 ITU G.652D | GCCD812 | GCCD824 | GCCD836 | GCCD848 | GCCD860 | GCCD872 |
| 9/125 ITU G.655 C & D | GCCD712 | GCCD724 | GCCD736 | GCCD748 | GCCD760 | GCCD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | |
|------------------------------------|----------------------------------|----------------|
| | 96 | 144 |
| 62.5/125-OM1 | GCCE196 | GCCF144 |
| 50/125-OM2 | GCCE296 | GCCF244 |
| 50/125-OM3 | GCCE096 | GCCFD44 |
| 50/125-OM4 | GCCEE96 | GCCFE44 |
| 9/125 ITU G.652D | GCCE896 | GCCF844 |
| 9/125 ITU G.655 C & D | GCCE796 | GCCF744 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | |
| Std. delivery length | 2100 ± 100 m | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|---------------|--------------------------|--------------|
| 1 | Red | 11 | White | 21 | Grey + ring |
| 2 | Green | 12 | Aqua | 22 | Brown + ring |
| 3 | Blue | 13 | Red + ring | 23 | White + ring |
| 4 | Yellow | 14 | Green + ring | 24 | Aqua + ring |
| 5 | Violet | 15 | Blue + ring | Tube Color Coding | |
| 6 | Pink | 16 | Yellow + ring | No. | |
| 7 | Orange | 17 | Violet + ring | 1 | Red |
| 8 | Black | 18 | Pink + ring | 2 | Green |
| 9 | Grey | 19 | Orange + ring | 3 to 12 | White |
| 10 | Brown | 20 | Black + ring | | |

Universal Multi Loose Tube Cable with Corrugated Steel Tape, Double Jacket

GCDG, GCDD, GCDE, GCDF

A/I-DQ(ZN)H(SR)H



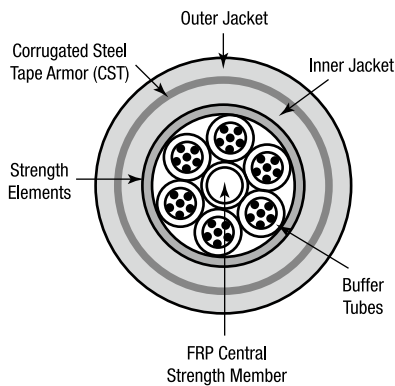
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Crush Resistance (E3): | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | IEC 60332-3-22 |
| Circuit Integrity: | EN 50200 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|---------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GCDG*xx | 6 to 36 | 1.9 | 6 | Dry | 13.2 | 195 | 1750 | 580 | 2800 |
| GCDD*xx | 12 to 72 | 2.5 | 12 | Dry | 15.2 | 280 | 2300 | 750 | 3900 |
| GCDE*xx | 84 to 96 | 2.5 | 12 | Dry | 17.4 | 340 | 2900 | 950 | 4700 |
| GCDF*xx | 108 to 144 | 2.5 | 12 | Dry | 20.5 | 430 | 3450 | 1150 | 7300 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------------------------|---------------------------------|---------|---------|---------|---------|
| | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GCDG106 | GCDG112 | GCDG118 | GCDG124 | GCDG136 |
| 50/125-OM2 | GCDG206 | GCDG212 | GCDG218 | GCDG224 | GCDG236 |
| 50/125-OM3 | GCDGD06 | GCDGD12 | GCDGD18 | GCDGD24 | GCDGD36 |
| 50/125-OM4 | GCDGE06 | GCDGE12 | GCDGE18 | GCDGE24 | GCDGE36 |
| 9/125 ITU G.652D | GCDG806 | GCDG812 | GCDG818 | GCDG824 | GCDG836 |
| 9/125 ITU G.655 C & D | GCDG706 | GCDG712 | GCDG718 | GCDG724 | GCDG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | |
|------------------------------------|---------------------------------|---------|---------|---------|---------|---------|
| | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GCDD112 | GCDD124 | GCDD136 | GCDD148 | GCDD160 | GCDD172 |
| 50/125-OM2 | GCDD212 | GCDD224 | GCDD236 | GCDD248 | GCDD260 | GCDD272 |
| 50/125-OM3 | GCDDD12 | GCDDD24 | GCDDD36 | GCDDD48 | GCDDD60 | GCDDD72 |
| 50/125-OM4 | GCDD12 | GCDD24 | GCDD36 | GCDD48 | GCDD60 | GCDD72 |
| 9/125 ITU G.652D | GCDD812 | GCDD824 | GCDD836 | GCDD848 | GCDD860 | GCDD872 |
| 9/125 ITU G.655 C & D | GCDD712 | GCDD724 | GCDD736 | GCDD748 | GCDD760 | GCDD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | |
|------------------------------------|----------------------------------|---------|
| | 96 | 144 |
| 62.5/125-OM1 | GCDE196 | GCDF144 |
| 50/125-OM2 | GCDE296 | GCDF244 |
| 50/125-OM3 | GCDED96 | GCDFD44 |
| 50/125-OM4 | GCDEE96 | GCDFE44 |
| 9/125 ITU G.652D | GCDE896 | GCDF844 |
| 9/125 ITU G.655 C & D | GCDE796 | GCDF744 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | |
| Std. delivery length | 2100 ± 100 m | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|---------------|--------------------------|--------------|
| 1 | Red | 11 | White | 21 | Grey + ring |
| 2 | Green | 12 | Aqua | 22 | Brown + ring |
| 3 | Blue | 13 | Red + ring | 23 | White + ring |
| 4 | Yellow | 14 | Green + ring | 24 | Aqua + ring |
| 5 | Violet | 15 | Blue + ring | Tube Color Coding | |
| 6 | Pink | 16 | Yellow + ring | | |
| 7 | Orange | 17 | Violet + ring | | |
| 8 | Black | 18 | Pink + ring | | |
| 9 | Grey | 19 | Orange + ring | No. | |
| 10 | Brown | 20 | Black + ring | 1 | Red |
| | | | | 2 | Green |
| | | | | 3 to 12 | White |

Universal Central Loose Tube Cable with Corrugated Steel Tape, Single Jacket

GUKB



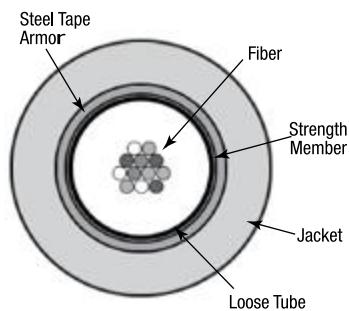
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- UV resistant FRNC/LSNH outer jacket
- Length marking in meters for easy determination of the cable length
- Transparent nylon (polyamide) layer (0.5mm) for termite protection.

Cross Section



Specifications

IEC 60794-1, EIA/TIA-455

| | |
|--|----------------|
| Crush Resistance Installation (Short Term) : | ≤40kN/m |
| Min. Bend Radius installation (E6): | 10 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| -Transport/Storage | -30°C To +70°C |
| -Installation | -5°C To +50°C |
| -Operation | -30°C To +70°C |
| Watertightness (F5): | Pass |
| Predicted Lifetime: | >30 years |

Other

| | |
|--------------------|-------------------------------|
| Circuit Integrity: | IEC 60331-25 (E120) |
| Flame Retardant: | IEC 60332-3-22 (EN 50266-2-2) |
| Halogen Free: | IEC 60754-1 (EN 50267-2-1) |
| Non Corrosive: | IEC 60754-2 (EN 50267-2-2) |
| Smoke Density: | IEC 61034-2 (EN 50268-2-2) |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength(short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|--------------------|----------------|--------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | | | |
| GUKB*xx | 4 to 24 | 4.0 | 24 | Filled | 13.7 | 229 | ≤ 4000 | ≤ 2000 | 2769 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|
| 62.5/125-OM1 | GUKB104 | GUKB106 | GUKB108 | GUKB112 | GUKB116 | GUKB124 |
| 50/125-OM2 BI | GUKB204 | GUKB206 | GUKB208 | GUKB212 | GUKB216 | GUKB224 |
| 50/125-OM3 BI | GUKBD04 | GUKBD06 | GUKBD08 | GUKBD12 | GUKBD16 | GUKBD24 |
| 50/125-OM4 BI | GUKBE04 | GUKBE06 | GUKBE08 | GUKBE12 | GUKBE16 | GUKBE24 |
| 9/125 ITU G.655 C&D | GUKB704 | GUKB706 | GUKB708 | GUKB712 | GUKB716 | GUKB724 |
| 9/125 ITU G.652D & G.657A1 BI | GUKB804 | GUKB806 | GUKB808 | GUKB812 | GUKB816 | GUKB824 |
| 9/125 ITU G.657A2 BI | GUKBF04 | GUKBF06 | GUKBF08 | GUKBF12 | GUKBF16 | GUKBF24 |
| 9/125 ITU G.657B3 BI | GUKBI04 | GUKBI06 | GUKBI08 | GUKBI12 | GUKBI16 | GUKBI24 |
| Std. plywood reel (non-returnable) | Ø 1000* 530mm, Weight 18 kg | | | | | |
| Std. delivery length | 2100 ± 105m | | | | | |

Fiber Color Coding

| No. | Color | No. | Color | No. | Color | No. | Color | No. | Color | No. | Color |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 18 | Violet + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 17 | Green + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Universal Multi Loose Tube Cable with Corrugated Steel Tape, Double Jacket

GCKD, GCKF



Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- UV resistant FRNC/LSNH outer jacket
- Length marking in meters for easy determination of the cable length
- Transparent nylon (polyamide) layer (0.5mm) for termite protection.

Specifications

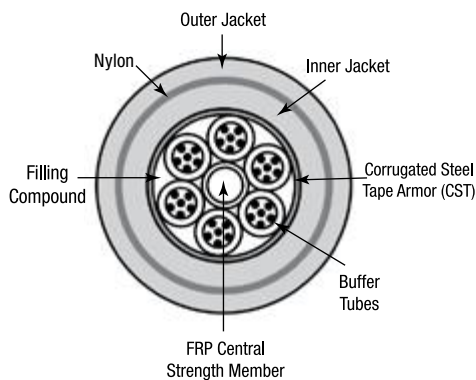
IEC 60794-1, EIA/TIA-455

| | |
|--|----------------|
| Crush Resistance Installation (Short Term) : | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| -Transport/Storage | -30°C To +70°C |
| -Installation | -5°C To +50°C |
| -Operation | -30°C To +70°C |
| Watertightness (F5): | Pass |

Other

| | |
|--------------------|--------------------------------|
| Circuit Integrity: | EN 50200, IEC 60331- 25 (E120) |
| Flame Retardant: | IEC 60332-3-22 (EN 50266-2-2) |
| Halogen Free: | IEC 60754-1 (EN 50267-2-1) |
| Non Corrosive: | IEC 60754-2 (EN 50267-2-2) |
| Smoke Density: | IEC 61034-2 (EN 50268-2-2) |

Cross Section



Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|--------------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | | | |
| GCKD*xx | 24 to 72 | 2.5 | 72 | Dry | 16.1 | 286 | 4750 | 1550 | 2861 |
| GCKF*xx | 108 to 144 | 2.5 | 144 | Dry | 21.5 | 480 | 8000 | 4000 | 9479 |

Ordering Information

| Fiber Description /Count | 6 | 12 | 16 | 24 | 36 | 48 | 60 | 72 |
|------------------------------------|-----------------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Fiber Distribution | 1 tube with 6 fibers | 1 tube with 12 fibers | 4 tubes with 4 fibers | 2 tubes with 12 fibers | 3 tubes with 12 fibers | 4 tubes with 12 fibers | 5 tubes with 12 fibers | 6 tubes with 12 fibers |
| 62.5/125-OM1 | GCKD106 | GCKD112 | GCKD116 | GCKD124 | GCKD136 | GCKD148 | GCKD160 | GCKD172 |
| 50/125-OM2 BI | GCKD206 | GCKD212 | GCKD216 | GCKD224 | GCKD236 | GCKD248 | GCKD260 | GCKD272 |
| 50/125-OM3 BI | GCKDD06 | GCKDD12 | GCKDD16 | GCKDD24 | GCKDD36 | GCKDD48 | GCKDD60 | GCKDD72 |
| 50/125-OM4 BI | GCKDE06 | GCKDE12 | GCKDE16 | GCKDE24 | GCKDE36 | GCKDE48 | GCKDE60 | GCKDE72 |
| 9/125 ITU G.655 | GCKD706 | GCKD712 | GCKD716 | GCKD724 | GCKD736 | GCKD748 | GCKD760 | GCKD772 |
| 9/125 ITU G.652D & G.657A1 BI | GCKD806 | GCKD812 | GCKD816 | GCKD824 | GCKD836 | GCKD848 | GCKD860 | GCKD872 |
| 9/125 ITU G.657A2 | GUKDF06 | GUKDF12 | GUKDF16 | GUKDF24 | GUKDF36 | GUKDF48 | GUKDF60 | GUKDF72 |
| 9/125 ITU G.657B3 | GUKDI06 | GUKDI12 | GUKDI16 | GCKDI24 | GCKDI36 | GCKDI48 | GCKDI60 | GCKDI72 |
| Std. plywood reel (non-returnable) | Ø 1000* 530mm, Weight 18 kg | | | | | | | |
| Std. delivery length | 2100 ± 105m | | | | | | | |

| Fiber Description /Count | 108 | 120 | 132 | 144 |
|------------------------------------|-------------------------------|---------|---------|---------|
| 62.5/125-OM1 | GCKF108 | GCKF120 | GCKF132 | GCKF144 |
| 50/125-OM2 BI | GCKF208 | GCKF220 | GCKF232 | GCKF244 |
| 50/125-OM3 BI | GCKFD08 | GCKFD20 | GCKFD32 | GCKFD44 |
| 50/125-OM4 BI | GCKFE08 | GCKFE20 | GCKFE32 | GCKFE44 |
| 9/125 ITU G.655 C&D | GCKF708 | GCKF720 | GCKF732 | GCKF744 |
| 9/125 ITU G.652D & G.657A1 BI | GCKF808 | GCKF820 | GCKF832 | GCKF844 |
| 9/125 ITU G.657A2 BI | GUKFF08 | GUKFF20 | GUKFF32 | GUKFF44 |
| 9/125 ITU G.657B3 BI | GUKFI08 | GUKFI20 | GUKFI32 | GUKFI44 |
| Std. plywood reel (non-returnable) | Ø 1660* 1200mm, Weight 220 kg | | | |
| Std. delivery length | 2100 ± 105m / 4100 ± 328m | | | |

Fiber Color Coding

| No. | Color | No. | Color | No. | Color | No. | Color | No. | Color | No. | Color |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 18 | Violet + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 17 | Green + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Universal Multi Loose Tube Cable with Corrugated Steel Tape, Double Jacket

DK4U, DM4U



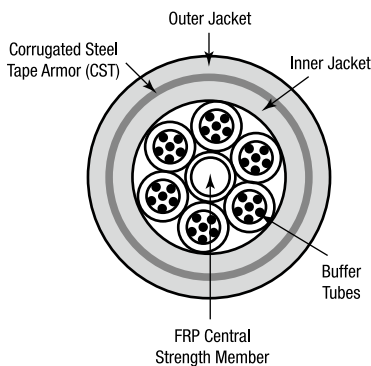
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 4 to 96 fibers.
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibres (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor.
- Halogen Free jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 30 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Transport /Storage | -40 °C to +80 °C |
| - Operation | -40 °C to +70 °C |
| Impact Resistance : | Passes IEC794-1 |
| Solar Radiation Resistance : | Passes IEC794-1 |
| Compound Flow : | Passes IEC794-1 |
| Cyclic Flexing : | Passes IEC794-1 |

| Other | |
|----------------------------|-------------------------------|
| Flame Resistant : | IEC 60331-25 |
| Flame Retardant : | IEC 60332-3-24 (EN 50266-2-4) |
| | IEC 60332-1 (EN 50265-1) |
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | Y |
| Sunlight Resistance (Y/N) | Y |
| Oil Resistance (Y/N) | Y |
| Rodent Resistance (Y/N) | Y |
| Water Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|----------------------|------------------------|--------------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | | |
| DK4UxxMA | 4 to 36 | 6 | Dry | 14.8 | 283 | 1000 | 400 | 3000N / 100mm |
| DM4UxxHA | 48 to 72 | 12 | Dry | 15.7 | 318 | 1000 | 400 | 3000N / 100mm |
| DM4UxxHA | 96 | 12 | Dry | 17.6 | 373 | 1000 | 400 | 3000N / 100mm |

Ordering Information

| Fiber Type/Count | Dry Core | | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 4 | 6 | 12 | 24 | 30 | 36 |
| DK4U | | | | | | |
| SM G652.D | DK4U12MA004BKAA | DK4U12MA006BKAA | DK4U12MA012BKAA | DK4U12MA024BKAA | DK4U12MA030BKAA | DK4U12MA036BKAA |
| 62.5µm OM1 | DK4U62MA004BKAA | DK4U12MA006BKAA | DK4U12MA012BKAA | DK4U12MA024BKAA | DK4U12MA030BKAA | DK4U12MA036BKAA |
| 50µm OM2 | DK4U50MA004BKAA | DK4U12MA006BKAA | DK4U12MA012BKAA | DK4U12MA024BKAA | DK4U12MA030BKAA | DK4U12MA036BKAA |
| 50µm OM3 | DK4U53MA004BKAA | DK4U12MA006BKAA | DK4U12MA012BKAA | DK4U12MA024BKAA | DK4U12MA030BKAA | DK4U12MA036BKAA |

| Fiber Type/Count | Dry Core | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|
| | 48 | 60 | 72 | 96 |
| DM4U | | | | |
| SM G652.D | DM4U12HA048BKAA | DM4U12HA060BKAA | DM4U12HA072BKAA | DM4U12HA096BKAA |
| 62.5µm OM1 | DM4U62HA048BKAA | DM4U62HA060BKAA | DM4U62HA072BKAA | DM4U62HA096BKAA |
| 50µm OM2 | DM4U50HA048BKAA | DM4U50HA060BKAA | DM4U50HA072BKAA | DM4U50HA096BKAA |
| 50µm OM3 | DM4U53HA048BKAA | DM4U53HA060BKAA | DM4U53HA072BKAA | DM4U53HA096BKAA |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Universal Multi Loose Tube Cable with Corrugated Steel Tape, Single Jacket

DK8U, DM8U



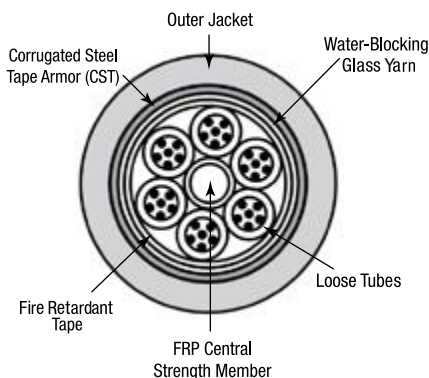
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 4 to 144 fibers.
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibres (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor.
- Halogen Free jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

| | |
|-------------------------------------|--|
| Crush Resistance: | 20 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11) : | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -20 °C to +70 °C (DM8U), -40 °C to +70 °C (DK8U) |
| - Operation | -20 °C to +70 °C (DM8U), -40 °C to +70 °C (DK8U) |
| Impact Resistance : | Passes IEC794-1 |
| Solar Radiation Resistance : | Passes IEC794-1 |
| Compound Flow : | Passes IEC794-1 |
| Cyclic Flexing : | Passes IEC794-1 |

Other

| | |
|----------------------------|---|
| Flame Resistant | IEC 60331-25 |
| Flame Retardant | IEC 60332-3-24 (EN 50266-2-4) IEC 60332-1 (EN 50265-1) |
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | Y |
| Sunlight Resistance (Y/N) | Y |
| Oil Resistance (Y/N) | Y |
| Rodent Resistance (Y/N) | Y |
| Termite Resistance (Y/N) | Y |
| Water Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|----------------------|------------------------|--------------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | | |
| DK8UxxMA | 4 to 36 | 6 | Dry | 13.2 | 243 | 3000 | 1000 | 2000N / 100mm |
| DM8UxxHA | 48 to 96 | 12 | Dry | 15.7 | 315 | 3000 | 1000 | 2000N / 100mm |
| DM8UxxHA | 108 | 12 | Dry | 16.2 | 340 | 3000 | 1000 | 2000N / 100mm |
| DM8UxxHA | 120 | 12 | Dry | 16.8 | 403 | 3000 | 1000 | 2000N / 100mm |
| DM8UxxHA | 144 | 12 | Dry | 18.2 | 403 | 3000 | 1000 | 2000N / 100mm |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 4 | 8 | 12 | 24 | 36 |
| DK8U | | | | | |
| SM G652.D | DK8U12MA004BKAA | DK8U12MA008BKAA | DK8U12MA012BKAA | DK8U12MA024BKAA | DK8U12MA036BKAA |
| 62.5µm OM1 | DK8U62MA004BKAA | DK8U62MA008BKAA | DK8U62MA012BKAA | DK8U62MA024BKAA | DK8U62MA036BKAA |
| 50µm OM2 | DK8U50MA004BKAA | DK8U50MA008BKAA | DK8U50MA012BKAA | DK8U50MA024BKAA | DK8U50MA036BKAA |
| 50µm OM3 | DK8U53MA004BKAA | DK8U53MA008BKAA | DK8U53MA012BKAA | DK8U53MA024BKAA | DK8U53MA036BKAA |

| Fiber Type/Count | Dry Core | | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 48 | 72 | 96 | 108 | 120 | 144 |
| DM8U | | | | | | |
| SM G652.D | DM8U12HA048BKAA | DM8U12HA072BKAA | DM8U12HA096BKAA | DM8U12HA108BKAA | DM8U12HA120BKAA | DM8U12HA144BKAA |
| 62.5µm OM1 | DM8U62HA048BKAA | DM8U62HA072BKAA | DM8U62HA096BKAA | DM8U62HA108BKAA | DM8U62HA120BKAA | DM8U62HA144BKAA |
| 50µm OM2 | DM8U50HA048BKAA | DM8U50HA072BKAA | DM8U50HA096BKAA | DM8U50HA108BKAA | DM8U50HA120BKAA | DM8U50HA144BKAA |
| 50µm OM3 | DM8U53HA048BKAA | DM8U53HA072BKAA | DM8U53HA096BKAA | DM8U53HA108BKAA | DM8U53HA120BKAA | DM8U53HA144BKAA |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Universal Multi Loose Tube Cable with Corrugated Steel Tape, Triple Jacket

DK9U, DM9U



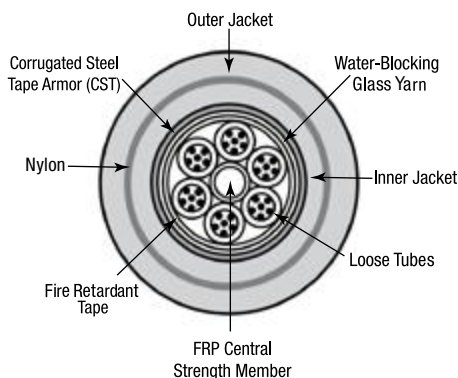
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 4 to 144 fibers.
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibres (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor.
- Halogen Free jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 20 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +80 °C |
| - Operation | -40 °C to +70 °C |
| Impact Resistance : | Passes IEC794-1 |
| Solar Radiation Resistance : | Passes IEC794-1 |
| Compound Flow : | Passes IEC794-1 |
| Cyclic Flexing : | Passes IEC794-1 |

| Other | |
|----------------------------|-------------------------------|
| Flame Resistant | IEC 60331-25 |
| Flame Retardant | IEC 60332-3-24 (EN 50266-2-4) |
| | IEC 60332-1 (EN 50265-1) |
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | Y |
| Sunlight Resistance (Y/N) | Y |
| Oil Resistance (Y/N) | Y |
| Rodent Resistance (Y/N) | Y |
| Terminate Resistance (Y/N) | Y |
| Water Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|----------------------|------------------------|--------------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | | |
| DK9UxxMA | 4 to 36 | 6 | Dry | 16.4 | 340 | 3000 | 1000 | 2000N / 100mm |
| DM9UxxHA | 48 to 96 | 12 | Dry | 18.9 | 430 | 3000 | 1000 | 2000N / 100mm |
| DM9UxxHA | 108 | 12 | Dry | 19.7 | 451 | 3000 | 1000 | 2000N / 100mm |
| DM9UxxHA | 120 | 12 | Dry | 20.0 | 535 | 3000 | 1000 | 2000N / 100mm |
| DM9UxxHA | 144 | 12 | Dry | 21.4 | 535 | 3000 | 1000 | 2000N / 100mm |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 4 | 8 | 12 | 24 | 36 |
| DK9U | | | | | |
| SM G652.D | DK9U12MA004BKAA | DK9U12MA008BKAA | DK9U12MA012BKAA | DK9U12MA024BKAA | DK9U12MA036BKAA |
| 62.5µm OM1 | DK9U62MA004BKAA | DK9U62MA008BKAA | DK9U62MA012BKAA | DK9U62MA024BKAA | DK9U62MA036BKAA |
| 50µm OM2 | DK9U50MA004BKAA | DK9U50MA008BKAA | DK9U50MA012BKAA | DK9U50MA024BKAA | DK9U50MA036BKAA |
| 50µm OM3 | DK9U53MA004BKAA | DK9U53MA008BKAA | DK9U53MA012BKAA | DK9U53MA024BKAA | DK9U53MA036BKAA |

| Fiber Type/Count | Dry Core | | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 48 | 72 | 96 | 108 | 120 | 144 |
| DM9U | | | | | | |
| SM G652.D | DM9U12HA048BKAA | DM9U12HA072BKAA | DM9U12HA096BKAA | DM9U12HA108BKAA | DM9U12HA120BKAA | DM9U12HA144BKAA |
| 62.5µm OM1 | DM9U62HA048BKAA | DM9U62HA072BKAA | DM9U62HA096BKAA | DM9U62HA108BKAA | DM9U62HA120BKAA | DM9U62HA144BKAA |
| 50µm OM2 | DM9U50HA048BKAA | DM9U50HA072BKAA | DM9U50HA096BKAA | DM9U50HA108BKAA | DM9U50HA120BKAA | DM9U50HA144BKAA |
| 50µm OM3 | DM9U53HA048BKAA | DM9U53HA072BKAA | DM9U53HA096BKAA | DM9U53HA108BKAA | DM9U53HA120BKAA | DM9U53HA144BKAA |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Belden is a dynamic and an innovative company with a vast product portfolio.





Optical Fiber Central and Multi Loose Tube

Section Table of Contents

| Optical Fiber | Page |
|------------------------------------|------------|
| Overview | 472 |
| Loose Tube Optical Characteristics | 473 |
| Construction Lookup Table | 474 |
| Part Number Coding | 475 |
| Central Loose Tube | 476 |
| Multi Loose Tube | 510 |
| Technical Information | 544 |



Optical Fiber – Overview



Belden's central and multi loose tube fiber cables are ideal for industrial and underground environments. Belden's fiber cabling range is the culmination of our experience and expertise in a variety of applications, including oil and gas, transportation, power transmission and generation, and many more.

Product Features

- Central loose tube and multi loose tube cables
- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\text{Ø } 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, immune to lightning and electromagnetic interference (EMC-safe), spark-free and require no grounding
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices)
- High mechanical and full rodent protection provided by Steel Wire armor (SWA), Corrugated Steel Tape (CST) armor, Fiber Reinforced Plastic (FRP) armor, Steel Wire Braid (SWB) armor or Glass Yarn Strength Elements
- Length marking in meters for easy determination of the cable length

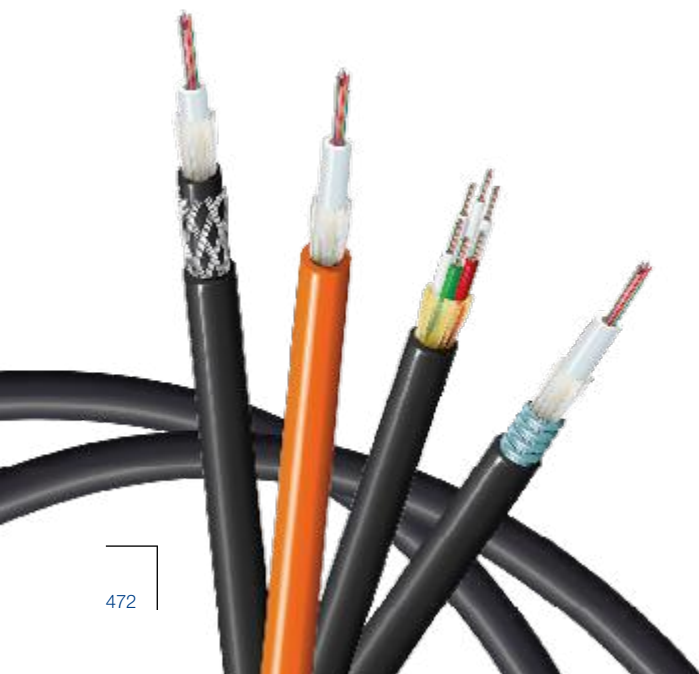
Benefits

Involved in the development of optical fiber components for over 40 years, Belden is a leading supplier of high-quality, cost-effective optical fiber cabling systems. Belden's fiber cables are designed to offer reduced complexity, increased flexibility, and rapid installation for maximum cost effectiveness.

Applications

Belden's fiber central and multi loose tube cables are suitable for a wide range of applications, including:

- For outdoor and indoor use in structured (data) wiring systems such as industrial backbone, campus backbone, factory backbone (riser) and/or horizontal cabling, networks within automation environments, video surveillance, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial



Belden Optical Fiber Cables

Reduce Complexity and Increase Flexibility

Today's advanced networks are diverse and almost always complex. The right way ahead is to future-proof these networks and to take precautions to protect them against anything that will create problems, damage or disruption. That means matching the right hardware with the right cabling to guarantee performance – and that means choosing fiber optic cable. Optical fiber cables offer many benefits: high bandwidth and transmission speed, the potential for network growth, extended reach, fault tolerance, greater data security and support for Gigabit and multi-Gigabit protocols and networked applications.

Fiber Types

Loose Tube Optical Characteristics

| European Part Number Coding, Position 5 | Fiber-Type | Mode-Field/Cladding Diameter (µm) | Wave-length (nm) | Attenuation [®] average/max. (dB/km) | Dispersion (ps/nm-km) | PMD ^A (ps/km) | Cable Cut-off Wave-length (nm) |
|---|------------|-----------------------------------|------------------|---|-----------------------|--------------------------|--------------------------------|
|---|------------|-----------------------------------|------------------|---|-----------------------|--------------------------|--------------------------------|

Characteristics (cabled) Single-Mode • Matched-Cladded Optical Fibers according to ITU

| | | | | | | | |
|---|---------------------|-------------|------|-----------|--------|--------|--------|
| 8 | 9/125 | 9.2 ± 0.4 | 1310 | 0.33/0.34 | ≤ 3.2 | ≤ 0.06 | ≤ 1260 |
| | G.652D & G.657A1 BI | 125.0 ± 0.7 | 1550 | 0.18/0.19 | ≤ 17.0 | | |
| | OS2 | | 1625 | 0.20/0.24 | | | |
| 7 | 9/125 | 8.4 ± 0.6 | 1550 | 0.2/0.22 | ≤ 4.5 | ≤ 0.04 | ≤ 1260 |
| | G.655 C & D | 125.0 ± 0.7 | 1625 | 0.21/0.24 | ≤ 7.9 | | |

Note A: Link design value

Note B: Due to cabling the optical attenuation values can increase with max. 0.05 dB/km

| European Part Number Coding, Position 5 | Fiber-Type | Core/Cladding Diameter (µm) | Wave-length (nm) | Attenuation ^c average/max. (dB/km) | Bandwidth (MHz-km) | Ethernet Performance (m) | | Num. Apert. (µm) | Refractive Index |
|---|------------|-----------------------------|------------------|---|--------------------|--------------------------|--------|------------------|------------------|
| | | | | | | 1 GBE | 10 GBE | | |

Characteristics (cabled) Multi-Mode • Graded-Index Optical Fibers according to IEC 60793

| | | | | | | | | | |
|---|---------------|-------------|------|---------|--------|------|-----|---------------|-------|
| 1 | 62.5/125 OM1 | 62.5 ± 2.5 | 850 | 2.7/3.0 | ≥ 200 | 220 | 33 | 0.275 ± 0.015 | 1.495 |
| | | 125.0 ± 1.0 | 1300 | 0.7/0.8 | ≥ 600 | 550 | 300 | | 1.490 |
| 2 | 50/125 OM2 | 50.0 ± 2.5 | 850 | 2.3/2.5 | ≥ 500 | 600 | 83 | 0.200 ± 0.015 | 1.481 |
| | | 125.0 ± 1.0 | 1300 | 0.5/0.6 | ≥ 500 | 600 | 300 | | 1.476 |
| D | 50/125 OM3 BI | 50.0 ± 2.5 | 850 | 2.3/2.5 | ≥ 1500 | 1000 | 300 | 0.200 ± 0.015 | 1.482 |
| | | 125.0 ± 1.0 | 1300 | 0.5/0.6 | ≥ 500 | 550 | 300 | | 1.477 |
| E | 50/125 OM4 BI | 50.0 ± 2.5 | 850 | 2.3/2.5 | ≥ 3500 | 1100 | 550 | 0.200 ± 0.015 | 1.482 |
| | | 125.0 ± 1.0 | 1300 | 0.5/0.6 | ≥ 500 | 550 | 300 | | 1.477 |

Note C: Due to cabling the optical attenuation values can increase with max. 0.4 dB/km

Belden Optical Fiber Cables

Construction Lookup Table

| Central Loose Tube Cables | | |
|---------------------------|-------------------------|------|
| Construction | Description | Page |
| GUSN, GUSL, GURN, GUVN | CLT Universal | 476 |
| GOSN, GORN, GOVN | CLT Outdoor | 478 |
| GMSN | CLT Outdoor | 480 |
| GUCN, GUCB | CLT Universal CST | 482 |
| GOCN, GOCB | CLT Outdoor CST | 484 |
| GUDN, GUDB | CLT Universal CST | 486 |
| GODN, GODB | CLT Outdoor CST | 488 |
| GUHA | CLT Universal SWB | 490 |
| GOHN | CLT Outdoor SWB | 492 |
| GUWN, GUWB | CLT Universal SWA | 494 |
| GOWN, GOWB | CLT Outdoor SWA | 496 |
| GUFN, GUFB | CLT Universal FRP | 498 |
| GOFN, GOFB | CLT Outdoor FRP | 500 |
| NXBU, NYBU | CLT Universal | 502 |
| NXGU, NYGU | CLT Universal CST | 504 |
| NVGU | CLT Universal CST (PSW) | 506 |
| NYLU | CLT Universal CST | 508 |

| Multi Loose Tube Cables | | |
|-------------------------|--|------|
| Construction | Description | Page |
| GCRG, GCRD, GCRE, GCRF | MLT Universal | 510 |
| GBRG, GBRD, GBRE, GBRF | MLT Outdoor | 512 |
| GDRG, GDRD, GDRE, GDRF | MLT Outdoor | 512 |
| GCCG, GCCD, GCCE, GCCF | MLT Universal CST | 514 |
| GBCG, GBCD, GBCE, GBCF | MLT Outdoor CST | 516 |
| GDCG, GDGD, GDCE, GDCE | MLT Outdoor CST | 516 |
| GCDG, GCDD, GCDE, GCDF | MLT Universal CST | 518 |
| GBDG, GBDD, GBDE, GBDF | MLT Outdoor CST | 520 |
| GDDG, GDDD, GDDE, GDDF | MLT Outdoor CST | 520 |
| GCWG, GCWD | MLT Universal SWA | 522 |
| GBWG, GBWD | MLT Outdoor SWA | 524 |
| GDWG, GDWD | MLT Outdoor SWA | 524 |
| GAAG, GAAD, GAAE | MLT Outdoor ADSS | 526 |
| NOCU, NKCU, NMCU | MLT Universal | 528 |
| NOGU, NKGU, NMGU | MLT Universal CST | 530 |
| NOPU, NKPU, NMPU | MLT Universal CST | 532 |
| NODU, NKDU, NMDU | MLT Universal (Nylon) | 534 |
| NKIU, NMIU | MLT Universal | 536 |
| NOGU, NKGU, NMGU | MLT Universal CST (Fig 8 construction) | 538 |
| NOJU, NKJU, NMJU | MLT Outdoor ADSS (420 m) | 540 |
| NOJU, NKJU, NMJU | MLT Outdoor ADSS (100 m) | 542 |

Part Number Coding

The part numbers for the European Optical Fiber cables have the following structure:

- 4 positions to describe the construction
- 1 position to describe the fiber type
- 2 positions to describe the fiber count

Example

| Construction | | | | Fiber Type | Fiber Count | |
|--------------|---|---|---|------------|-------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| G | C | R | G | 1 | 0 | 6 |

In this example the

- Construction is: **GCRG**
- Jacket type is: **2**
- Fiber type is: **1**
- Fiber count is: **6**

Jacket Type Coding on Position 2

| Position 2 | Jacket Type |
|------------|--------------|
| A | Polyethylene |
| B | Polyethylene |
| C | Halogen Free |
| D | Polyethylene |
| O | Polyethylene |
| U | Halogen Free |

For both the PE and LSZH versions Termite Protection options are available by means of adding a PA (nylon) jacket, either as an outer jacket (for PE versions) or double jackets, PA and additional LSZH outer jacket, for LSZH versions. Please contact Customer Service for more information.

*Part codes from china have a completely different part number coding scheme.

Universal Central Loose Tube Cable with Rodent Protection, Single Jacket

GUSN, GUSL, GURN, GUVN

A/I-DQ(ZN)BH



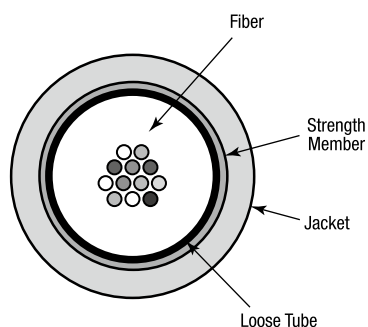
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250 ± 15 µm)
- Full dielectric construction, no grounding required
- Rodent protected by means of Glass Yarn Strength Elements
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|---|------------------|
| Crush Resistance Installation (Short Term): | 15 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | |
| – GUSN, GURN, GUVN | IEC 60332-1 |
| – GUSL | IEC 60332-3-24 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | E1 | E1 | |
| GUSN*xx | 2 to 24 | 5.8 | 37 | 1250 | 420 | 550 |
| GUSL*xx | 2 to 24 | 6.5 | 47 | 1250 | 420 | 580 |
| GURN*xx | 2 to 24 | 7.1 | 55 | 3000 | 1000 | 755 |
| GUVN*xx | 2 to 24 | 7.8 | 67 | 4000 | 1300 | 928 |

Ordering Information

| Fiber Type/Count | 2 | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|---------|---------|--|---------|---------|---------|---------|
| GUSN | | | | | | | |
| 62.5/125-OM1 | GUSN102 | GUSN104 | GUSN106 | GUSN108 | GUSN112 | GUSN116 | GUSN124 |
| 50/125-OM2 | GUSN202 | GUSN204 | GUSN206 | GUSN208 | GUSN212 | GUSN216 | GUSN224 |
| 50/125-OM3 | GUSND02 | GUSND04 | GUSND06 | GUSND08 | GUSND12 | GUSND16 | GUSND24 |
| 50/125-OM4 | GUSNE02 | GUSNE04 | GUSNE06 | GUSNE08 | GUSNE12 | GUSNE16 | GUSNE24 |
| 9/125 ITU G.652D | GUSN802 | GUSN804 | GUSN806 | GUSN808 | GUSN812 | GUSN816 | GUSN824 |
| 9/125 ITU G.655 C & D | GUSN702 | GUSN704 | GUSN706 | GUSN708 | GUSN712 | GUSN716 | GUSN724 |
| GUSL | | | | | | | |
| 62.5/125-OM1 | GUSL102 | GUSL104 | GUSL106 | GUSL108 | GUSL112 | GUSL116 | GUSL124 |
| 50/125-OM2 | GUSL202 | GUSL204 | GUSL206 | GUSL208 | GUSL212 | GUSL216 | GUSL224 |
| 50/125-OM3 | GUSLD02 | GUSLD04 | GUSLD06 | GUSLD08 | GUSLD12 | GUSLD16 | GUSLD24 |
| 50/125-OM4 | GUSLE02 | GUSLE04 | GUSLE06 | GUSLE08 | GUSLE12 | GUSLE16 | GUSLE24 |
| 9/125 ITU G.652D | GUSL802 | GUSL804 | GUSL806 | GUSL808 | GUSL812 | GUSL816 | GUSL824 |
| 9/125 ITU G.655 C & D | GUSL702 | GUSL704 | GUSL706 | GUSL708 | GUSL712 | GUSL716 | GUSL724 |
| GURN | | | | | | | |
| 62.5/125-OM1 | GURN102 | GURN104 | GURN106 | GURN108 | GURN112 | GURN116 | GURN124 |
| 50/125-OM2 | GURN202 | GURN204 | GURN206 | GURN208 | GURN212 | GURN216 | GURN224 |
| 50/125-OM3 | GURND02 | GURND04 | GURND06 | GURND08 | GURND12 | GURND16 | GURND24 |
| 50/125-OM4 | GURNE02 | GURNE04 | GURNE06 | GURNE08 | GURNE12 | GURNE16 | GURNE24 |
| 9/125 ITU G.652D | GURN802 | GURN804 | GURN806 | GURN808 | GURN812 | GURN816 | GURN824 |
| 9/125 ITU G.655 C & D | GURN702 | GURN704 | GURN706 | GURN708 | GURN712 | GURN716 | GURN724 |
| GUVN | | | | | | | |
| 62.5/125-OM1 | GUVN102 | GUVN104 | GUVN106 | GUVN108 | GUVN112 | GUVN116 | GUVN124 |
| 50/125-OM2 | GUVN202 | GUVN204 | GUVN206 | GUVN208 | GUVN212 | GUVN216 | GUVN224 |
| 50/125-OM3 | GUVND02 | GUVND04 | GUVND06 | GUVND08 | GUVND12 | GUVND16 | GUVND24 |
| 50/125-OM4 | GUVNE02 | GUVNE04 | GUVNE06 | GUVNE08 | GUVNE12 | GUVNE16 | GUVNE24 |
| 9/125 ITU G.652D | GUVN802 | GUVN804 | GUVN806 | GUVN808 | GUVN812 | GUVN816 | GUVN824 |
| 9/125 ITU G.655 C & D | GUVN702 | GUVN704 | GUVN706 | GUVN708 | GUVN712 | GUVN716 | GUVN724 |
| GUSN • GURN • GUVN | | | | | | | |
| Std. plywood reel (non-returnable) | | | Ø 800 x 475 mm, Weight 7.65 kg and Ø 1000 x 530 mm, Weight 18.0 kg | | | | |
| Std. delivery length | | | 2100 ± 100 m and 4100 ± 100 m | | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Outdoor Central Loose Tube Cable with Rodent Protection, Single Jacket

GOSN, GORN, GOVN

A-DQ(ZN)B2Y



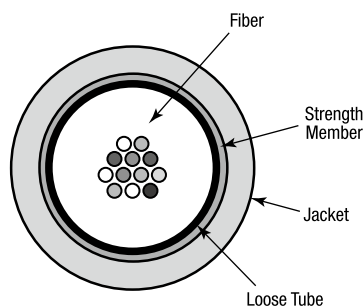
Applications

- For outdoor use in structured (data) wiring systems such as campus backbone
- For outdoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Rodent protected by means of Glass Yarn Strength Elements
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|---|--------------------|
| Crush Resistance Installation (Short Term): | 15 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 10 x \varnothing |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | E1 | E1 | |
| GOSN*xx | 2 to 24 | 5.8 | 28 | 1250 | 420 | 762 |
| GORN*xx | 2 to 24 | 7.1 | 44 | 3000 | 1000 | 1056 |
| GOVN*xx | 2 to 24 | 7.8 | 52 | 4000 | 1300 | 1350 |

Ordering Information

| Fiber Type/Count | 2 | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|----------------|--|----------------|----------------|----------------|----------------|----------------|
| GOSN | | | | | | | |
| 62.5/125-OM1 | GOSN102 | GOSN104 | GOSN106 | GOSN108 | GOSN112 | GOSN116 | GOSN124 |
| 50/125-OM2 | GOSN202 | GOSN204 | GOSN206 | GOSN208 | GOSN212 | GOSN216 | GOSN224 |
| 50/125-OM3 | GOSND02 | GOSND04 | GOSND06 | GOSND08 | GOSND12 | GOSND16 | GOSND24 |
| 50/125-OM4 | GOSNE02 | GOSNE04 | GOSNE06 | GOSNE08 | GOSNE12 | GOSNE16 | GOSNE24 |
| 9/125 ITU G.652D | GOSN802 | GOSN804 | GOSN806 | GOSN808 | GOSN812 | GOSN816 | GOSN824 |
| 9/125 ITU G.655 C & D | GOSN702 | GOSN704 | GOSN706 | GOSN708 | GOSN712 | GOSN716 | GOSN724 |
| GORN | | | | | | | |
| 62.5/125-OM1 | GORN102 | GORN104 | GORN106 | GORN108 | GORN112 | GORN116 | GORN124 |
| 50/125-OM2 | GORN202 | GORN204 | GORN206 | GORN208 | GORN212 | GORN216 | GORN224 |
| 50/125-OM3 | GORND02 | GORND04 | GORND06 | GORND08 | GORND12 | GORND16 | GORND24 |
| 50/125-OM4 | GORNE02 | GORNE04 | GORNE06 | GORNE08 | GORNE12 | GORNE16 | GORNE24 |
| 9/125 ITU G.652D | GORN802 | GORN804 | GORN806 | GORN808 | GORN812 | GORN816 | GORN824 |
| 9/125 ITU G.655 C & D | GORN702 | GORN704 | GORN706 | GORN708 | GORN712 | GORN716 | GORN724 |
| GOVN | | | | | | | |
| 62.5/125-OM1 | GOVN102 | GOVN104 | GOVN106 | GOVN108 | GOVN112 | GOVN116 | GOVN124 |
| 50/125-OM2 | GOVN202 | GOVN204 | GOVN206 | GOVN208 | GOVN212 | GOVN216 | GOVN224 |
| 50/125-OM3 | GOVND02 | GOVND04 | GOVND06 | GOVND08 | GOVND12 | GOVND16 | GOVND24 |
| 50/125-OM4 | GOVNE02 | GOVNE04 | GOVNE06 | GOVNE08 | GOVNE12 | GOVNE16 | GOVNE24 |
| 9/125 ITU G.652D | GOVN802 | GOVN804 | GOVN806 | GOVN808 | GOVN812 | GOVN816 | GOVN824 |
| 9/125 ITU G.655 C & D | GOVN702 | GOVN704 | GOVN706 | GOVN708 | GOVN712 | GOVN716 | GOVN724 |
| GOSN • GORN • GOVN | | | | | | | |
| Std. plywood reel (non-returnable) | | Ø 800 x 475 mm, Weight 7.65 kg and Ø 1000 x 530 mm, Weight 18.0 kg | | | | | |
| Std. delivery length | | 2100 ± 100 m and 4100 ± 100 m | | | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Outdoor Central Loose Tube Cable with Rodent Protection, Single Jacket

GMSN

A/I-DQ(ZN)B11Y



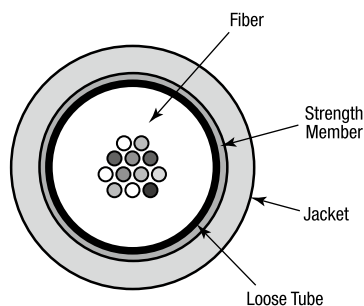
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone, building backbone (riser) and/or Horizontal cabling
- Support all computer network applications such as FDDI, Gigabit Ethernet and ATM
- Easy to install in ducts, tunnels and trenches. Not recommended for direct burial

Features & Benefits

- Available in sizes from 2 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Rodent protected by means of Glass Yarn Strength Elements
- TPU Jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Crush Resistance (E3): | 15 kN/m |
| Min. Bend Radius installation (E6): | 15 x \varnothing |
| Min. Bend Radius operation (E11): | 10 x \varnothing |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | E1 | E1 | |
| GMSN*xx | 2 to 24 | 6.4 | 40 | 1250 | 420 | 582 |

Ordering Information

| Fiber Type/Count | 2 | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|--|----------------|----------------|----------------|----------------|----------------|----------------|
| GMSN | | | | | | | |
| 62.5/125-OM1 | GMSN102 | GMSN104 | GMSN106 | GMSN108 | GMSN112 | GMSN116 | GMSN124 |
| 50/125-OM2 BI | GMSN202 | GMSN204 | GMSN206 | GMSN208 | GMSN212 | GMSN216 | GMSN224 |
| 50/125-OM3 BI | GMSND02 | GMSND04 | GMSND06 | GMSND08 | GMSND12 | GMSND16 | GMSND24 |
| 50/125-OM4 BI | GMSNE02 | GMSNE04 | GMSNE06 | GMSNE08 | GMSNE12 | GMSNE16 | GMSNE24 |
| 9/125 ITU G.655 C & D | GMSN702 | GMSN704 | GMSN706 | GMSN708 | GMSN712 | GMSN716 | GMSN724 |
| 9/125 ITU G.652D & G.657A1 | GMSN802 | GMSN804 | GMSN806 | GMSN808 | GMSN812 | GMSN816 | GMSN824 |
| 9/125 ITU G.657A2 BI | GMSNF02 | GMSNF04 | GMSNF06 | GMSNF08 | GMSNF12 | GMSNF16 | GMSNF24 |
| 9/125 ITU G.657B3 BI | GMSNI02 | GMSNI04 | GMSNI06 | GMSNI08 | GMSNI12 | GMSNI16 | GMSNI24 |
| Std. plywood reel (non-returnable) | Ø 800 x 475 mm, Weight 7.65 kg and Ø 1000 x 530 mm, Weight 18.0 kg | | | | | | |
| Std. delivery length | 2100m ± 105m | | | | | | |

Fiber Color Coding

| | | | | | | | | | | | |
|------------|---------|------------|--------|------------|-----------|------------|----------------|------------|---------------|------------|------------------|
| No. | | No. | | No. | | No. | | No. | | No. | |
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

**Universal Central Loose Tube Cable
with Corrugated Steel Tape, Single Jacket**

GUCN, GUCB

A/I-DQ(ZN)(SR)H



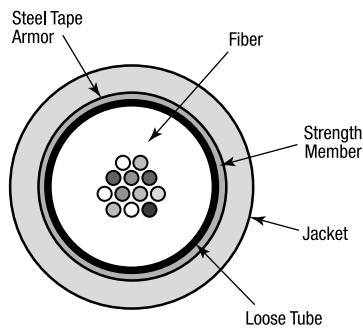
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250 ± 15 µm)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|-------------------------------|
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Circuit Integrity: | EN 50200, IEC 60331-25 (E120) |
| Flame Retardant: | IEC 60332-3-22 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | E1 | E1 | |
| GUCN*xx | 4 to 24 | 9.0 | 103 | 35 | 1500 | 500 | 1045 |
| GUCB*xx | 4 to 24 | 10.6 | 148 | 40 | 2500 | 830 | 1308 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|
| GUCN | | | | | | |
| 62.5/125-OM1 | GUCN104 | GUCN106 | GUCN108 | GUCN112 | GUCN116 | GUCN124 |
| 50/125-OM2 | GUCN204 | GUCN206 | GUCN208 | GUCN212 | GUCN216 | GUCN224 |
| 50/125-OM3 | GUCND04 | GUCND06 | GUCND08 | GUCND12 | GUCND16 | GUCND24 |
| 50/125-OM4 | GUCNE04 | GUCNE06 | GUCNE08 | GUCNE12 | GUCNE16 | GUCNE24 |
| 9/125 ITU G.652D | GUCN804 | GUCN806 | GUCN808 | GUCN812 | GUCN816 | GUCN824 |
| 9/125 ITU G.655 C & D | GUCN704 | GUCN706 | GUCN708 | GUCN712 | GUCN716 | GUCN724 |
| GUCB | | | | | | |
| 62.5/125-OM1 | GUCB104 | GUCB106 | GUCB108 | GUCB112 | GUCB116 | GUCB124 |
| 50/125-OM2 | GUCB204 | GUCB206 | GUCB208 | GUCB212 | GUCB216 | GUCB224 |
| 50/125-OM3 | GUCBD04 | GUCBD06 | GUCBD08 | GUCBD12 | GUCBD16 | GUCBD24 |
| 50/125-OM4 | GUCBE04 | GUCBE06 | GUCBE08 | GUCBE12 | GUCBE16 | GUCBE24 |
| 9/125 ITU G.652D | GUCB804 | GUCB806 | GUCB808 | GUCB812 | GUCB816 | GUCB824 |
| 9/125 ITU G.655 C & D | GUCB704 | GUCB706 | GUCB708 | GUCB712 | GUCB716 | GUCB724 |
| GUCN • GUCB | | | | | | |
| Std. plywood reel (non-returnable) | | | Ø 1000 x 530 mm, Weight 18.0 kg | | | |
| Std. delivery length | | | 2100 ± 100 m | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

**Outdoor Central Loose Tube Cable
with Corrugated Steel Tape, Single Jacket**

GOCN, GOCB

A-DQ(ZN)(SR)2Y



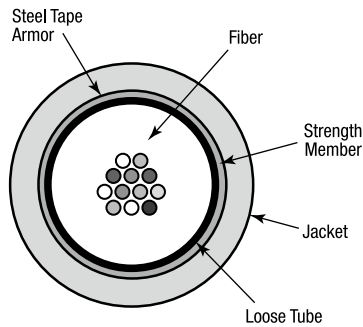
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250 ± 15 µm)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|------------------|
| Impact Resistance (E4): | 3000 N |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | E1 | E1 | |
| GOCN*xx | 4 to 24 | 9.0 | 80 | 35 | 1500 | 500 | 1774 |
| GOCB*xx | 4 to 24 | 10.6 | 107 | 40 | 2500 | 830 | 2242 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|
| GOCN | | | | | | |
| 62.5/125-OM1 | GOCN104 | GOCN106 | GOCN108 | GOCN112 | GOCN116 | GOCN124 |
| 50/125-OM2 | GOCN204 | GOCN206 | GOCN208 | GOCN212 | GOCN216 | GOCN224 |
| 50/125-OM3 | GOCND04 | GOCND06 | GOCND08 | GOCND12 | GOCND16 | GOCND24 |
| 50/125-OM4 | GOCNE04 | GOCNE06 | GOCNE08 | GOCNE12 | GOCNE16 | GOCNE24 |
| 9/125 ITU G.652D | GOCN804 | GOCN806 | GOCN808 | GOCN812 | GOCN816 | GOCN824 |
| 9/125 ITU G.655 C & D | GOCN704 | GOCN706 | GOCN708 | GOCN712 | GOCN716 | GOCN724 |
| GOCB | | | | | | |
| 62.5/125-OM1 | GOCB104 | GOCB106 | GOCB108 | GOCB112 | GOCB116 | GOCB124 |
| 50/125-OM2 | GOCB204 | GOCB206 | GOCB208 | GOCB212 | GOCB216 | GOCB224 |
| 50/125-OM3 | GOCBD04 | GOCBD06 | GOCBD08 | GOCBD12 | GOCBD16 | GOCBD24 |
| 50/125-OM4 | GOCBE04 | GOCBE06 | GOCBE08 | GOCBE12 | GOCBE16 | GOCBE24 |
| 9/125 ITU G.652D | GOCB804 | GOCB806 | GOCB808 | GOCB812 | GOCB816 | GOCB824 |
| 9/125 ITU G.655 C & D | GOCB704 | GOCB706 | GOCB708 | GOCB712 | GOCB716 | GOCB724 |
| GOCN • GOCB | | | | | | |
| Std. plywood reel (non-returnable) | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | |
| Std. delivery length | | | 2100 ± 100 m | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

**Universal Central Loose Tube Cable
with Corrugated Steel Tape, Double Jacket**

GUDN, GUDB

A/I-DQ(ZN)H(SR)H



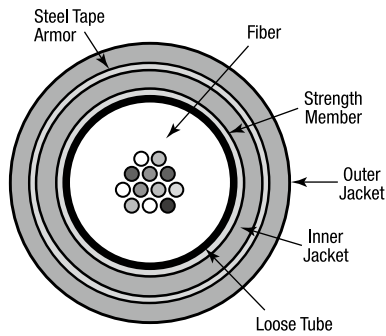
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250 ± 15 µm)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|------------------|
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | |
| – GUDN | IEC 60332-3-22 |
| – GUDB | IEC 60332-3-22 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | E1 | E1 | |
| GUDN*xx | 4 to 24 | 11.0 | 180 | 35 | 1500 | 500 | 1550 |
| GUDB*xx | 4 to 24 | 13.0 | 233 | 40 | 2500 | 830 | 2919 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|
| GUDN | | | | | | |
| 62.5/125-OM1 | GUDN104 | GUDN106 | GUDN108 | GUDN112 | GUDN116 | GUDN124 |
| 50/125-OM2 | GUDN204 | GUDN206 | GUDN208 | GUDN212 | GUDN216 | GUDN224 |
| 50/125-OM3 | GUDND04 | GUDND06 | GUDND08 | GUDND12 | GUDND16 | GUDND24 |
| 50/125-OM4 | GUDNE04 | GUDNE06 | GUDNE08 | GUDNE12 | GUDNE16 | GUDNE24 |
| 9/125 ITU G.652D | GUDN804 | GUDN806 | GUDN808 | GUDN812 | GUDN816 | GUDN824 |
| 9/125 ITU G.655 C & D | GUDN704 | GUDN706 | GUDN708 | GUDN712 | GUDN716 | GUDN724 |
| GUDB | | | | | | |
| 62.5/125-OM1 | GUDB104 | GUDB106 | GUDB108 | GUDB112 | GUDB116 | GUDB124 |
| 50/125-OM2 | GUDB204 | GUDB206 | GUDB208 | GUDB212 | GUDB216 | GUDB224 |
| 50/125-OM3 | GUDBD04 | GUDBD06 | GUDBD08 | GUDBD12 | GUDBD16 | GUDBD24 |
| 50/125-OM4 | GUDBE04 | GUDBE06 | GUDBE08 | GUDBE12 | GUDBE16 | GUDBE24 |
| 9/125 ITU G.652D | GUDB804 | GUDB806 | GUDB808 | GUDB812 | GUDB816 | GUDB824 |
| 9/125 ITU G.655 C & D | GUDB704 | GUDB706 | GUDB708 | GUDB712 | GUDB716 | GUDB724 |
| GUDN • GUDB | | | | | | |
| Std. plywood reel (non-returnable) | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | |
| Std. delivery length | | | 2100 ± 100 m | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Outdoor Central Loose Tube Cable with Corrugated Steel Tape, Double Jacket

GODN, GODB

A-DQ(ZN)2Y(SR)2Y



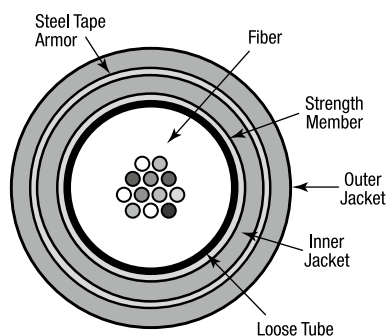
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

IEC 60794-1-2

| | |
|-------------------------------------|--------------------|
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | E1 | E1 | |
| GODN*xx | 4 to 24 | 11.0 | 144 | 35 | 1500 | 500 | 2596 |
| GODB*xx | 4 to 24 | 13.0 | 178 | 40 | 2500 | 830 | 4980 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|
| GODN | | | | | | |
| 62.5/125-OM1 | GODN104 | GODN106 | GODN108 | GODN112 | GODN116 | GODN124 |
| 50/125-OM2 | GODN204 | GODN206 | GODN208 | GODN212 | GODN216 | GODN224 |
| 50/125-OM3 | GODND04 | GODND06 | GODND08 | GODND12 | GODND16 | GODND24 |
| 50/125-OM4 | GODNE04 | GODNE06 | GODNE08 | GODNE12 | GODNE16 | GODNE24 |
| 9/125 ITU G.652D | GODN804 | GODN806 | GODN808 | GODN812 | GODN816 | GODN824 |
| 9/125 ITU G.655 C & D | GODN704 | GODN706 | GODN708 | GODN712 | GODN716 | GODN724 |
| GODB | | | | | | |
| 62.5/125-OM1 | GODB104 | GODB106 | GODB108 | GODB112 | GODB116 | GODB124 |
| 50/125-OM2 | GODB204 | GODB206 | GODB208 | GODB212 | GODB216 | GODB224 |
| 50/125-OM3 | GOSBD04 | GOSBD06 | GOSBD08 | GOSBD12 | GOSBD16 | GOSBD24 |
| 50/125-OM4 | GOSBE04 | GOSBE06 | GOSBE08 | GOSBE12 | GOSBE16 | GOSBE24 |
| 9/125 ITU G.652D | GOSB804 | GOSB806 | GOSB808 | GOSB812 | GOSB816 | GOSB824 |
| 9/125 ITU G.655 C & D | GOSB704 | GOSB706 | GOSB708 | GOSB712 | GOSB716 | GOSB724 |
| GODN • GODB | | | | | | |
| Std. plywood reel (non-returnable) | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | |
| Std. delivery length | | | 2100 ± 100 m | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Universal Central Loose Tube Cable with Steel Wire Braid, Double Jacket

GUHA

A/I-DQ(ZN)H(SR)H



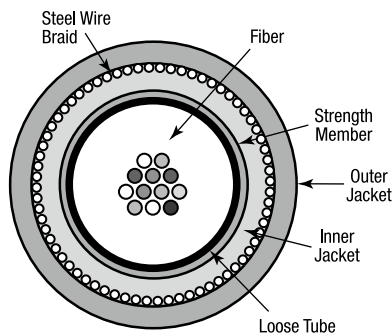
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- High mechanical and full rodent protection provided by Steel Wire Braid (SWB) armor
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

IEC 60794-1-2

| | |
|-------------------------------------|--------------------|
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |

Watertightness (F5): Pass

Other

| | |
|------------------|----------------|
| Flame Retardant: | IEC 60332-3-25 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | E1 | E1 | |
| GUHA*xx | 4 to 24 | 10.0 | 127 | 25 | 1250 | 420 | 1509 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| 62.5/125-OM1 | GUHA104 | GUHA106 | GUHA108 | GUHA112 | GUHA116 | GUHA124 |
| 50/125-OM2 | GUHA204 | GUHA206 | GUHA208 | GUHA212 | GUHA216 | GUHA224 |
| 50/125-OM3 | GUHAD04 | GUHAD06 | GUHAD08 | GUHAD12 | GUHAD16 | GUHAD24 |
| 50/125-OM4 | GUHAE04 | GUHAE06 | GUHAE08 | GUHAE12 | GUHAE16 | GUHAE24 |
| 9/125 ITU G.652D | GUHA804 | GUHA806 | GUHA808 | GUHA812 | GUHA816 | GUHA824 |
| 9/125 ITU G.655 C & D | GUHA704 | GUHA706 | GUHA708 | GUHA712 | GUHA716 | GUHA724 |
| Std. plywood reel (non-returnable) | Ø 1000 x 588 mm, Weight 50.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Outdoor Central Loose Tube Cable with Steel Wire Braid, Double Jacket

GOHN

A-DQ(ZN)2Y(SR)2Y



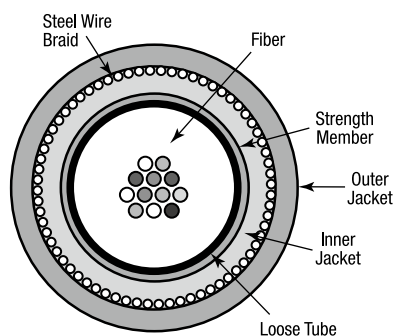
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- High mechanical and full rodent protection provided by Steel Wire Braid (SWB) armor
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

IEC 60794-1-2

| | |
|-------------------------------------|--------------------|
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 10 x \varnothing |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | E1 | E1 | |
| GOHN*xx | 4 to 24 | 10.0 | 98 | 25 | 1250 | 420 | 2503 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| 62.5/125-OM1 | GOHN104 | GOHN106 | GOHN108 | GOHN112 | GOHN116 | GOHN124 |
| 50/125-OM2 | GOHN204 | GOHN206 | GOHN208 | GOHN212 | GOHN216 | GOHN224 |
| 50/125-OM3 | GOHND04 | GOHND06 | GOHND08 | GOHND12 | GOHND16 | GOHND24 |
| 50/125-OM4 | GOHNE04 | GOHNE06 | GOHNE08 | GOHNE12 | GOHNE16 | GOHNE24 |
| 9/125 ITU G.652D | GOHN804 | GOHN806 | GOHN808 | GOHN812 | GOHN816 | GOHN824 |
| 9/125 ITU G.655 C & D | GOHN704 | GOHN706 | GOHN708 | GOHN712 | GOHN716 | GOHN724 |
| Std. plywood reel (non-returnable) | Ø 1000 x 588 mm, Weight 50.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

**Universal Central Loose Tube Cable
with Steel Wire Armor, Double Jacket**

GUWN, GUWB

A/I-DQ(ZN)H(SR)H



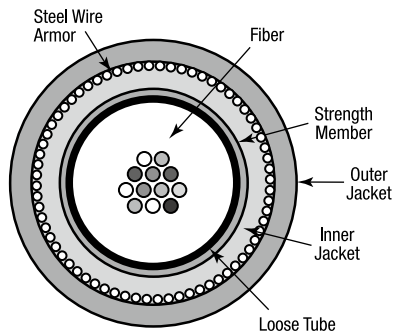
Applications

- For outdoor and indoor use in structured (data) wiring systems such as industrial backbone, campus backbone, building backbone (riser) and/or horizontal cabling
- For outdoor and indoor use in networks for industrial, telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250 ± 15 µm)
- High mechanical and full rodent protection provided by Steel Wire Armor (SWA)
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| | |
|-------------------------------------|------------------|
| IEC 60794-1-2 | |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | |
| – GUWN | IEC 60332-3-25 |
| – GUWB | IEC 60332-3-24 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Steel Wire Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|--------------------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | E1 | E1 | |
| GUWN*xx | 4 to 24 | 9.6 | 0.6 | 155 | 45 | 1250 | 420 | 1500 |
| GUWB*xx | 4 to 24 | 13.8 | 0.9 | 325 | 50 | 3750 | 1250 | 2625 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| GUWN | | | | | | |
| 62.5/125-OM1 | GUWN104 | GUWN106 | GUWN108 | GUWN112 | GUWN116 | GUWN124 |
| 50/125-OM2 | GUWN204 | GUWN206 | GUWN208 | GUWN212 | GUWN216 | GUWN224 |
| 50/125-OM3 | GUWND04 | GUWND06 | GUWND08 | GUWND12 | GUWND16 | GUWND24 |
| 50/125-OM4 | GUWNE04 | GUWNE06 | GUWNE08 | GUWNE12 | GUWNE16 | GUWNE24 |
| 9/125 ITU G.652D | GUWN804 | GUWN806 | GUWN808 | GUWN812 | GUWN816 | GUWN824 |
| 9/125 ITU G.655 C & D | GUWN704 | GUWN706 | GUWN708 | GUWN712 | GUWN716 | GUWN724 |
| Std. plywood reel (non-returnable) | Ø 1000 x 588 mm, Weight 50.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |
| GUWB | | | | | | |
| 62.5/125-OM1 | GUWB104 | GUWB106 | GUWB108 | GUWB112 | GUWB116 | GUWB124 |
| 50/125-OM2 | GUWB204 | GUWB206 | GUWB208 | GUWB212 | GUWB216 | GUWB224 |
| 50/125-OM3 | GUWBD04 | GUWBD06 | GUWBD08 | GUWBD12 | GUWBD16 | GUWBD24 |
| 50/125-OM4 | GUWBE04 | GUWBE06 | GUWBE08 | GUWBE12 | GUWBE16 | GUWBE24 |
| 9/125 ITU G.652D | GUWB804 | GUWB806 | GUWB808 | GUWB812 | GUWB816 | GUWB824 |
| 9/125 ITU G.655 C & D | GUWB704 | GUWB706 | GUWB708 | GUWB712 | GUWB716 | GUWB724 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

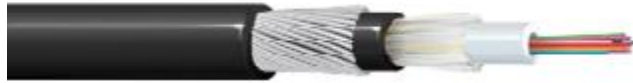
Fiber Color Coding

| | | | | | | | | | | | |
|-------|---------|-------|--------|--------|-----------|--------|----------------|--------|---------------|--------|------------------|
| No. 1 | Red | No. 5 | Green | No. 9 | Orange | No. 13 | Red + ring | No. 17 | Green + ring | No. 21 | Orange + ring |
| No. 2 | Natural | No. 6 | Violet | No. 10 | Turquoise | No. 14 | Natural + ring | No. 18 | Violet + ring | No. 22 | Turquoise + ring |
| No. 3 | Yellow | No. 7 | Brown | No. 11 | Pink | No. 15 | Yellow + ring | No. 19 | Brown + ring | No. 23 | Pink + ring |
| No. 4 | Blue | No. 8 | Black | No. 12 | White | No. 16 | Blue + ring | No. 20 | Grey + ring | No. 24 | White + ring |

**Outdoor Central Loose Tube Cable
with Steel Wire Armor, Double Jacket**

GOWN, GOWB

A-DQ(ZN)2Y(SR)2Y



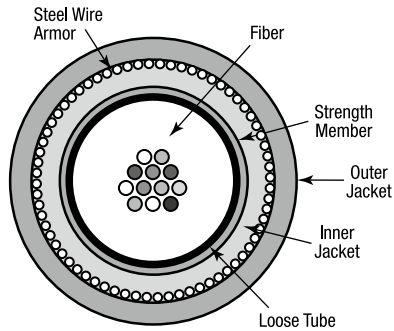
Applications

- For outdoor and indoor use in structured (data) wiring systems such as industrial backbone, campus backbone, building backbone (riser) and/or horizontal cabling
- For outdoor and indoor use in networks for industrial, telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250 ± 15 µm)
- High mechanical and full rodent protection provided by Steel Wire Armor (SWA)
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|------------------|
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Steel Wire Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|--------------------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | E1 | E1 | |
| GOWN*xx | 4 to 24 | 9.6 | 0.6 | 125 | 45 | 1250 | 420 | 2505 |
| GOWB*xx | 4 to 24 | 13.5 | 0.9 | 270 | 50 | 3750 | 1250 | 2625 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| GOWN | | | | | | |
| 62.5/125-OM1 | GOWN104 | GOWN106 | GOWN108 | GOWN112 | GOWN116 | GOWN124 |
| 50/125-OM2 | GOWN204 | GOWN206 | GOWN208 | GOWN212 | GOWN216 | GOWN224 |
| 50/125-OM3 | GOWND04 | GOWND06 | GOWND08 | GOWND12 | GOWND16 | GOWND24 |
| 50/125-OM4 | GOWNE04 | GOWNE06 | GOWNE08 | GOWNE12 | GOWNE16 | GOWNE24 |
| 9/125 ITU G.652D | GOWN804 | GOWN806 | GOWN808 | GOWN812 | GOWN816 | GOWN824 |
| 9/125 ITU G.655 C & D | GOWN704 | GOWN706 | GOWN708 | GOWN712 | GOWN716 | GOWN724 |
| Std. plywood reel (non-returnable) | Ø 1000 x 588 mm, Weight 50.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |
| GOWB | | | | | | |
| 62.5/125-OM1 | GOWB104 | GOWB106 | GOWB108 | GOWB112 | GOWB116 | GOWB124 |
| 50/125-OM2 | GOWB204 | GOWB206 | GOWB208 | GOWB212 | GOWB216 | GOWB224 |
| 50/125-OM3 | GOWBD04 | GOWBD06 | GOWBD08 | GOWBD12 | GOWBD16 | GOWBD24 |
| 50/125-OM4 | GOWBE04 | GOWBE06 | GOWBE08 | GOWBE12 | GOWBE16 | GOWBE24 |
| 9/125 ITU G.652D | GOWB804 | GOWB806 | GOWB808 | GOWB812 | GOWB816 | GOWB824 |
| 9/125 ITU G.655 C & D | GOWB704 | GOWB706 | GOWB708 | GOWB712 | GOWB716 | GOWB724 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Universal Central Loose Tube Cable with Fiber Reinforced Plastic Armor, Single Jacket

GUFN, GUFB

A/I-DQBH



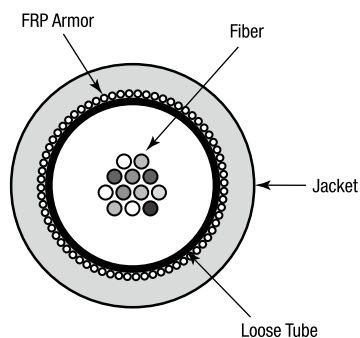
Applications

- For outdoor and indoor use in structured (data) wiring systems such as industrial backbone, campus backbone, building backbone (riser) and/or horizontal cabling
- For outdoor and indoor use in networks for industrial, telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- High mechanical and full rodent protection provided by Fiber Reinforced Plastic (FRP) armor
- These cables are all dielectric and therefore immune to lightning and electromagnetic interference (EMC-safe), spark-free and require no grounding
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | |
| – GUFN | IEC 60332-1 |
| – GUFB | IEC 60332-3-24 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | FRP Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|-------------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | E1 | E1 | |
| GUFN*xx | 4 to 24 | 7.4 | 1.0 | 62 | 45 | 3250 | 1100 | 1030 |
| GUFB*xx | 4 to 24 | 9.0 | 1.0 | 110 | 50 | 4000 | 1300 | 1370 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| GUFN | | | | | | |
| 62.5/125-OM1 | GUFN104 | GUFN106 | GUFN108 | GUFN112 | GUFN116 | GUFN124 |
| 50/125-OM2 | GUFN204 | GUFN206 | GUFN208 | GUFN212 | GUFN216 | GUFN224 |
| 50/125-OM3 | GUFND04 | GUFND06 | GUFND08 | GUFND12 | GUFND16 | GUFND24 |
| 50/125-OM4 | GUFNE04 | GUFNE06 | GUFNE08 | GUFNE12 | GUFNE16 | GUFNE24 |
| 9/125 ITU G.652D | GUFN804 | GUFN806 | GUFN808 | GUFN812 | GUFN816 | GUFN824 |
| 9/125 ITU G.655 C & D | GUFN704 | GUFN706 | GUFN708 | GUFN712 | GUFN716 | GUFN724 |
| Std. plywood reel (non-returnable) | Ø 1000 x 588 mm, Weight 50.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |
| GUFB | | | | | | |
| 62.5/125-OM1 | GUFB104 | GUFB106 | GUFB108 | GUFB112 | GUFB116 | GUFB124 |
| 50/125-OM2 | GUFB204 | GUFB206 | GUFB208 | GUFB212 | GUFB216 | GUFB224 |
| 50/125-OM3 | GUFBD04 | GUFBD06 | GUFBD08 | GUFBD12 | GUFBD16 | GUFBD24 |
| 50/125-OM4 | GUFBE04 | GUFBE06 | GUFBE08 | GUFBE12 | GUFBE16 | GUFBE24 |
| 9/125 ITU G.652D | GUFB804 | GUFB806 | GUFB808 | GUFB812 | GUFB816 | GUFB824 |
| 9/125 ITU G.655 C & D | GUFB704 | GUFB706 | GUFB708 | GUFB712 | GUFB716 | GUFB724 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|---------|-----|--------|-----|-----------|-----|----------------|-----|---------------|-----|------------------|
| 1 | Red | 5 | Green | 9 | Orange | 13 | Red + ring | 17 | Green + ring | 21 | Orange + ring |
| 2 | Natural | 6 | Violet | 10 | Turquoise | 14 | Natural + ring | 18 | Violet + ring | 22 | Turquoise + ring |
| 3 | Yellow | 7 | Brown | 11 | Pink | 15 | Yellow + ring | 19 | Brown + ring | 23 | Pink + ring |
| 4 | Blue | 8 | Black | 12 | White | 16 | Blue + ring | 20 | Grey + ring | 24 | White + ring |

Outdoor Central Loose Tube Cable with Fiber Reinforced Plastic Armor, Single Jacket

GOFN, GOFB

A-DQB2Y



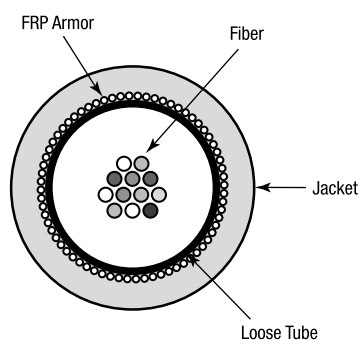
Applications

- For outdoor and indoor use in structured (data) wiring systems such as industrial backbone, campus backbone, building backbone (riser) and/or horizontal cabling
- For outdoor and indoor use in networks for industrial, telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 4 to 24 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- High mechanical and full rodent protection provided by Fiber Reinforced Plastic (FRP) armor
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | FRP Diameter (mm) | Weight (kg/km) | Crush Resistance (kN/m) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|---------------|-------------------|----------------|-------------------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | E1 | E1 | |
| GOFN*xx | 4 to 24 | 7.4 | 1.0 | 51 | 45 | 3250 | 1100 | 1430 |
| GOFB*xx | 4 to 24 | 9.0 | 1.0 | 76 | 50 | 4000 | 1300 | 2410 |

Ordering Information

| Fiber Type/Count | 4 | 6 | 8 | 12 | 16 | 24 |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| GOFN | | | | | | |
| 62.5/125-OM1 | GOFN104 | GOFN106 | GOFN108 | GOFN112 | GOFN116 | GOFN124 |
| 50/125-OM2 | GOFN204 | GOFN206 | GOFN208 | GOFN212 | GOFN216 | GOFN224 |
| 50/125-OM3 | GOFND04 | GOFND06 | GOFND08 | GOFND12 | GOFND16 | GOFND24 |
| 50/125-OM4 | GOFNE04 | GOFNE06 | GOFNE08 | GOFNE12 | GOFNE16 | GOFNE24 |
| 9/125 ITU G.652D | GOFN804 | GOFN806 | GOFN808 | GOFN812 | GOFN816 | GOFN824 |
| 9/125 ITU G.655 C & D | GOFN704 | GOFN706 | GOFN708 | GOFN712 | GOFN716 | GOFN724 |
| Std. plywood reel (non-returnable) | Ø 1000 x 588 mm, Weight 50.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |
| GOFB | | | | | | |
| 62.5/125-OM1 | GOFB104 | GOFB106 | GOFB108 | GOFB112 | GOFB116 | GOFB124 |
| 50/125-OM2 | GOFB204 | GOFB206 | GOFB208 | GOFB212 | GOFB216 | GOFB224 |
| 50/125-OM3 | GOFBD04 | GOFBD06 | GOFBD08 | GOFBD12 | GOFBD16 | GOFBD24 |
| 50/125-OM4 | GOFBE04 | GOFBE06 | GOFBE08 | GOFBE12 | GOFBE16 | GOFBE24 |
| 9/125 ITU G.652D | GOFB804 | GOFB806 | GOFB808 | GOFB812 | GOFB816 | GOFB824 |
| 9/125 ITU G.655 C & D | GOFB704 | GOFB706 | GOFB708 | GOFB712 | GOFB716 | GOFB724 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Fiber Color Coding

| | | | | | |
|-----------|----------|--------------|-------------------|------------------|---------------------|
| 1 Red | 5 Green | 9 Orange | 13 Red + ring | 17 Green + ring | 21 Orange + ring |
| 2 Natural | 6 Violet | 10 Turquoise | 14 Natural + ring | 18 Violet + ring | 22 Turquoise + ring |
| 3 Yellow | 7 Brown | 11 Pink | 15 Yellow + ring | 19 Brown + ring | 23 Pink + ring |
| 4 Blue | 8 Black | 12 White | 16 Blue + ring | 20 Grey + ring | 24 White + ring |

Universal Central Loose Tube Cable, Single Jacket

NXBU, NYBU



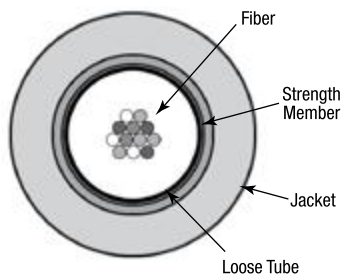
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.

Features & Benefits

- Available in sizes from 2 to 24 fibers.
- Full dielectric construction, no grounding required.
- Rodent protected by means of Glass Yarn Strength Elements (NXBU).
- Aramid Yarn Strength Element for tensile strength (NYBU).
- Halogen Free jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

| IEC 60794-1, EIA/TIA-455 | |
|-------------------------------------|---|
| Crush Resistance: | 10 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| – Storage | -40 °C to +70 °C |
| – Operation | -40 °C to +70 °C |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |
| Other | |
| Suitability - Indoor (Y/N) | Y |
| – Outdoor (Y/N) | Y (where waterproof is not strictly required) |
| – Aerial (Y/N) | Y |
| – Duct (Y/N) | Y |
| – Direct Burial (Y/N) | N |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | |
| NXBUxxBA | 2 to 12 | 6.8 | 56 | 1000 | 400 | 1000N / 100mm |
| NYBUxxBA | 2 to 12 | 6.2 | 40 | 1000 | 400 | 1000N / 100mm |
| NXBUxxDA | 14 to 24 | 7.8 | 67 | 1000 | 400 | 1000N / 100mm |
| NYBUxxDA | 14 to 24 | 7.0 | 50 | 1000 | 400 | 1000N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2 | 4 | 6 | 8 | 12 | 16 | 24 |
| NXBU | | | | | | | |
| SM G652.D | NXBU12BA002BKAA | NXBU12BA004BKAA | NXBU12BA006BKAA | NXBU12BA008BKAA | NXBU12BA012BKAA | NXBU12DA016BKAA | NXBU12DA024BKAA |
| 62.5µm OM1 | NXBU62BA002BKAA | NXBU62BA004BKAA | NXBU62BA006BKAA | NXBU62BA008BKAA | NXBU62BA012BKAA | NXBU62DA016BKAA | NXBU62DA024BKAA |
| 50µm OM2 | NXBU50BA002BKAA | NXBU50BA004BKAA | NXBU50BA006BKAA | NXBU50BA008BKAA | NXBU50BA012BKAA | NXBU50DA016BKAA | NXBU50DA024BKAA |
| 50µm OM3 | NXBU53BA002BKAA | NXBU53BA004BKAA | NXBU53BA006BKAA | NXBU53BA008BKAA | NXBU53BA012BKAA | NXBU53DA016BKAA | NXBU53DA024BKAA |
| NYBU | | | | | | | |
| SM G652.D | NYBU12BA002BKAA | NYBU12BA004BKAA | NYBU12BA006BKAA | NYBU12BA008BKAA | NYBU12BA012BKAA | NYBU12DA016BKAA | NYBU12DA024BKAA |
| 62.5µm OM1 | NYBU62BA002BKAA | NYBU62BA004BKAA | NYBU62BA006BKAA | NYBU62BA008BKAA | NYBU62BA012BKAA | NYBU62DA016BKAA | NYBU62DA024BKAA |
| 50µm OM2 | NYBU50BA002BKAA | NYBU50BA004BKAA | NYBU50BA006BKAA | NYBU50BA008BKAA | NYBU50BA012BKAA | NYBU50DA016BKAA | NYBU50DA024BKAA |
| 50µm OM3 | NYBU53BA002BKAA | NYBU53BA004BKAA | NYBU53BA006BKAA | NYBU53BA008BKAA | NYBU53BA012BKAA | NYBU53DA016BKAA | NYBU53DA024BKAA |

Fiber Color Coding

| No. | Color | No. | Color | No. | Color |
|-----|--------|-----|-------|-----|--------|
| 1 | Blue | 5 | Grey | 9 | Yellow |
| 2 | Orange | 6 | White | 10 | Violet |
| 3 | Green | 7 | Red | 11 | Pink |
| 4 | Brown | 8 | Black | 12 | Aqua |

Universal Central Loose Tube Cable with Corrugated Steel Tape, Single Jacket

NXGU, NYGU



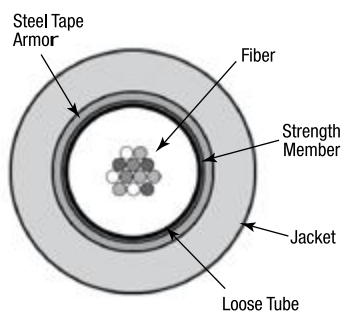
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 2 to 24 fibers.
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape armor (CST).
- Polyethylene jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

| IEC 60794-1, EIA/TIA-455 | |
|-------------------------------------|---|
| Crush Resistance: | 10 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| – Storage | -40 °C to +70 °C |
| – Operation | -40 °C to +70 °C |
| Impact Resistance : | Pass |
| Solar Rediation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |
| Other | |
| Suitability - Indoor (Y/N) | Y |
| – Outdoor (Y/N) | Y (where waterproof is not strictly required) |
| – Aerial (Y/N) | Y |
| – Duct (Y/N) | Y |
| – Direct Burial (Y/N) | N |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | |
| NXGUxxBA | 2 to 12 | 8.5 | 76 | 1000 | 400 | 1000N / 100mm |
| NYGUxxBA | 2 to 12 | 7.3 | 35 | 1000 | 400 | 1000N / 100mm |
| NXGUxxDA | 14 to 24 | 9.6 | 94 | 1000 | 400 | 1000N / 100mm |
| NYGUxxDA | 14 to 24 | 8.6 | 70 | 1000 | 400 | 1000N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2 | 4 | 6 | 8 | 12 | 16 | 24 |
| NXGU | | | | | | | |
| SM G652.D | NXGU12BA002BKAA | NXGU12BA004BKAA | NXGU12BA006BKAA | NXGU12BA008BKAA | NXGU12BA012BKAA | NXGU12DA016BKAA | NXGU12DA024BKAA |
| 62.5µm OM1 | NXGU62BA002BKAA | NXGU62BA004BKAA | NXGU62BA006BKAA | NXGU62BA008BKAA | NXGU62BA012BKAA | NXGU62DA016BKAA | NXGU62DA024BKAA |
| 50µm OM2 | NXGU50BA002BKAA | NXGU50BA004BKAA | NXGU50BA006BKAA | NXGU50BA008BKAA | NXGU50BA012BKAA | NXGU50DA016BKAA | NXGU50DA024BKAA |
| 50µm OM3 | NXGU53BA002BKAA | NXGU53BA004BKAA | NXGU53BA006BKAA | NXGU53BA008BKAA | NXGU53BA012BKAA | NXGU53DA016BKAA | NXGU53DA024BKAA |
| NYGU | | | | | | | |
| SM G652.D | NYGU12BA002BKAA | NYGU12BA004BKAA | NYGU12BA006BKAA | NYGU12BA008BKAA | NYGU12BA012BKAA | NYGU12DA016BKAA | NYGU12DA024BKAA |
| 62.5µm OM1 | NYGU62BA002BKAA | NYGU62BA004BKAA | NYGU62BA006BKAA | NYGU62BA008BKAA | NYGU62BA012BKAA | NYGU62DA016BKAA | NYGU62DA024BKAA |
| 50µm OM2 | NYGU50BA002BKAA | NYGU50BA004BKAA | NYGU50BA006BKAA | NYGU50BA008BKAA | NYGU50BA012BKAA | NYGU50DA016BKAA | NYGU50DA024BKAA |
| 50µm OM3 | NYGU53BA002BKAA | NYGU53BA004BKAA | NYGU53BA006BKAA | NYGU53BA008BKAA | NYGU53BA012BKAA | NYGU53DA016BKAA | NYGU53DA024BKAA |

Fiber Color Coding

| No. | Color | No. | Color | No. | Color |
|-----|--------|-----|-------|-----|--------|
| 1 | Blue | 5 | Grey | 9 | Yellow |
| 2 | Orange | 6 | White | 10 | Violet |
| 3 | Green | 7 | Red | 11 | Pink |
| 4 | Brown | 8 | Black | 12 | Aqua |

Universal Central Loose Tube Cable with Corrugated Steel Tape, Single Jacket

NVGU



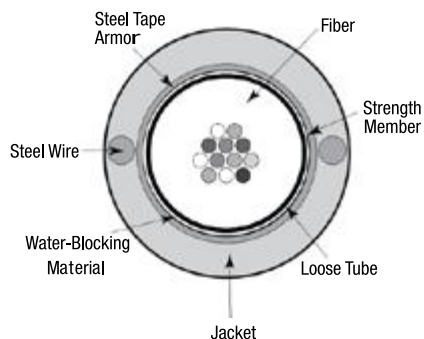
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 2 to 24 fibers.
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor.
- Polyethylene jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

IEC 60794-1, EIA/TIA-455

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 10 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| – Storage | -40 °C to +70 °C |
| – Operation | -40 °C to +70 °C |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |

Other

| | |
|----------------------------|---|
| Suitability - Indoor (Y/N) | Y |
| – Outdoor (Y/N) | Y (where waterproof is not strictly required) |
| – Aerial (Y/N) | Y |
| – Duct (Y/N) | Y |
| – Direct Burial (Y/N) | N |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | |
| NVGUxxBA | 2 to 14 | 8.7 | 82 | 1000 | 400 | 1000N / 100mm |
| NVGUxxDA | 14 to 24 | 12.0 | 147 | 3000 | 1000 | 1000N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2 | 4 | 6 | 8 | 12 | 16 | 24 |
| NVGU | | | | | | | |
| SM G652.D | NVGU12BA002BKAA | NVGU12BA004BKAA | NVGU12BA006BKAA | NVGU12BA008BKAA | NVGU12BA012BKAA | NVGU12DA016BKAA | NVGU12DA024BKAA |
| 62.5µm OM1 | NVGU62BA002BKAA | NVGU62BA004BKAA | NVGU62BA006BKAA | NVGU62BA008BKAA | NVGU62BA012BKAA | NVGU62DA016BKAA | NVGU62DA024BKAA |
| 50µm OM2 | NVGU50BA002BKAA | NVGU50BA004BKAA | NVGU50BA006BKAA | NVGU50BA008BKAA | NVGU50BA012BKAA | NVGU50DA016BKAA | NVGU50DA024BKAA |
| 50µm OM3 | NVGU53BA002BKAA | NVGU53BA004BKAA | NVGU53BA006BKAA | NVGU53BA008BKAA | NVGU53BA012BKAA | NVGU53DA016BKAA | NVGU53DA024BKAA |

Fiber Color Coding

| No. | Color | No. | Color | No. | Color |
|-----|--------|-----|-------|-----|--------|
| 1 | Blue | 5 | Grey | 9 | Yellow |
| 2 | Orange | 6 | White | 10 | Violet |
| 3 | Green | 7 | Red | 11 | Pink |
| 4 | Brown | 8 | Black | 12 | Aqua |

Universal Central Loose Tube Cable with Corrugated Steel Tape, Single Jacket

NYLU



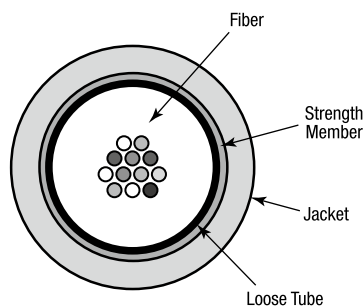
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 2 to 24 fibers.
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor.
- Halogen Free jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

| IEC 60794-1, EIA/TIA-455 | |
|-------------------------------------|---|
| Crush Resistance: | 10 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +70 °C |
| - Operation | -40 °C to +70 °C |
| Impact Resistance : | Pass |
| Solar Rediation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |
| Other | |
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y (where waterproof is not strictly required) |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | Y |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | |
| NYLUxxBA | 2 to 12 | 7.3 | 68 | 1000 | 400 | 1000N / 100mm |
| NYLUxxDA | 14 to 24 | 8.6 | 88 | 1000 | 400 | 1000N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2 | 4 | 6 | 8 | 12 | 16 | 24 |
| NYLU | | | | | | | |
| SM G652.D | NYLU12BA002BKAA | NYLU12BA004BKAA | NYLU12BA006BKAA | NYLU12BA008BKAA | NYLU12BA012BKAA | NYLU12DA016BKAA | NYLU12DA024BKAA |
| 62.5µm OM1 | NYLU62BA002BKAA | NYLU62BA004BKAA | NYLU62BA006BKAA | NYLU62BA008BKAA | NYLU62BA012BKAA | NYLU62DA016BKAA | NYLU62DA024BKAA |
| 50µm OM2 | NYLU50BA002BKAA | NYLU50BA004BKAA | NYLU50BA006BKAA | NYLU50BA008BKAA | NYLU50BA012BKAA | NYLU50DA016BKAA | NYLU50DA024BKAA |
| 50µm OM3 | NYLU53BA002BKAA | NYLU53BA004BKAA | NYLU53BA006BKAA | NYLU53BA008BKAA | NYLU53BA012BKAA | NYLU53DA016BKAA | NYLU53DA024BKAA |

Fiber Color Coding

| No. | Color | No. | Color | No. | Color |
|-----|--------|-----|-------|-----|--------|
| 1 | Blue | 5 | Grey | 9 | Yellow |
| 2 | Orange | 6 | White | 10 | Violet |
| 3 | Green | 7 | Red | 11 | Pink |
| 4 | Brown | 8 | Black | 12 | Aqua |

Universal Multi Loose Tube Cable with Rodent Protection, Single Jacket

GCRG, GCRD, GCRE, GCRF

A/I-DQ(ZN)BH



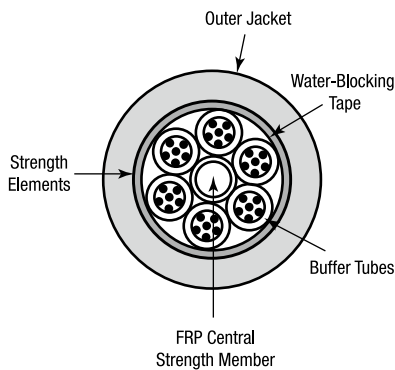
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices)
- Rodent protected by means of Glass Yarn Strength Elements
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Crush Resistance (E3): | 15 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | IEC 60332-3-24 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GCRG*xx | 6 to 36 | 1.9 | 6 | Dry | 11.8 | 159 | 6000 | 2000 | 2500 |
| GCRD*xx | 12 to 72 | 2.5 | 12 | Dry | 13.7 | 169 | 6600 | 2200 | 3000 |
| GCRE*xx | 84 to 96 | 2.5 | 12 | Dry | 15.3 | 215 | 8000 | 2650 | 3200 |
| GCRF*xx | 108 to 144 | 2.5 | 12 | Dry | 18.5 | 276 | 8000 | 3200 | 5900 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GCRG106 | GCRG112 | GCRG118 | GCRG124 | GCRG136 |
| 50/125-OM2 | GCRG206 | GCRG212 | GCRG218 | GCRG224 | GCRG236 |
| 50/125-OM3 | GCRGD06 | GCRGD12 | GCRGD18 | GCRGD24 | GCRGD36 |
| 50/125-OM4 | GCRGE06 | GCRGE12 | GCRGE18 | GCRGE24 | GCRGE36 |
| 9/125 ITU G.652D | GCRG806 | GCRG812 | GCRG818 | GCRG824 | GCRG836 |
| 9/125 ITU G.655 C & D | GCRG706 | GCRG712 | GCRG718 | GCRG724 | GCRG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GCRD112 | GCRD124 | GCRD136 | GCRD148 | GCRD160 | GCRD172 |
| 50/125-OM2 | GCRD212 | GCRD224 | GCRD236 | GCRD248 | GCRD260 | GCRD272 |
| 50/125-OM3 | GCRDD12 | GCRDD24 | GCRDD36 | GCRDD48 | GCRDD60 | GCRDD72 |
| 50/125-OM4 | GCRDE12 | GCRDE24 | GCRDE36 | GCRDE48 | GCRDE60 | GCRDE72 |
| 9/125 ITU G.652D | GCRD812 | GCRD824 | GCRD836 | GCRD848 | GCRD860 | GCRD872 |
| 9/125 ITU G.655 C & D | GCRD712 | GCRD724 | GCRD736 | GCRD748 | GCRD760 | GCRD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | |
|------------------------------------|----------------------------------|----------------|
| | 96 | 144 |
| 62.5/125-OM1 | GCRE196 | GCRE144 |
| 50/125-OM2 | GCRE296 | GCRE244 |
| 50/125-OM3 | GCRE096 | GCRFD44 |
| 50/125-OM4 | GCREE96 | GCRFE44 |
| 9/125 ITU G.652D | GCRE896 | GCRF844 |
| 9/125 ITU G.655 C & D | GCRE796 | GCRF744 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | |
| Std. delivery length | 2100 ± 100 m | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|---------------|-----|--------------|
| 1 | Red | 11 | White | 21 | Grey + ring |
| 2 | Green | 12 | Aqua | 22 | Brown + ring |
| 3 | Blue | 13 | Red + ring | 23 | White + ring |
| 4 | Yellow | 14 | Green + ring | 24 | Aqua + ring |
| 5 | Violet | 15 | Blue + ring | | |
| 6 | Pink | 16 | Yellow + ring | | |
| 7 | Orange | 17 | Violet + ring | | |
| 8 | Black | 18 | Pink + ring | | |
| 9 | Grey | 19 | Orange + ring | | |
| 10 | Brown | 20 | Black + ring | | |

| Tube Color Coding | |
|-------------------|-------|
| No. | |
| 1 | Red |
| 2 | Green |
| 3 to 12 | White |

Outdoor Multi Loose Tube Cable with Rodent Protection, Single Jacket

GBRG, GBRD, GBRE, GBRF
GDRG, GDRD, GDRE, GDRF

A-DQ(ZN)B2Y
A-DF(ZN)B2Y



Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

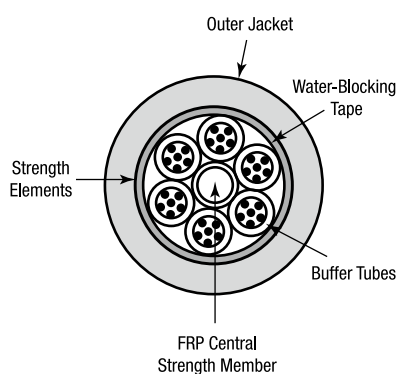
- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices) for GBR types
- Rodent protected by means of Glass Yarn Strength Elements
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Specifications

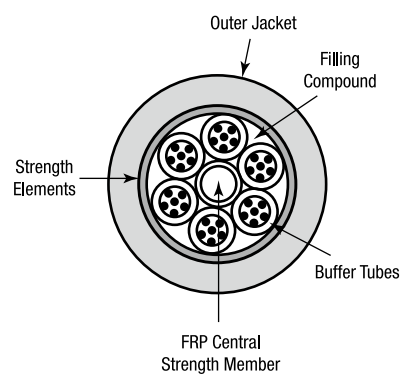
| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Crush Resistance (E3): | 15 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Cross Section

GBR



GDR



Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GBRG*xx | 6 to 36 | 1.9 | 6 | Dry | 11.8 | 105 | 6000 | 2000 | 3200 |
| GDRG*xx | 6 to 36 | 1.9 | 6 | Filled | 11.8 | 107 | 6000 | 2000 | 3600 |
| GBRD*xx | 12 to 72 | 2.5 | 12 | Dry | 13.7 | 145 | 6600 | 2200 | 4600 |
| GDRD*xx | 12 to 72 | 2.5 | 12 | Filled | 13.7 | 147 | 6600 | 2200 | 5000 |
| GBRE*xx | 84 to 96 | 2.5 | 12 | Dry | 15.3 | 170 | 8000 | 2650 | 4900 |
| GDRE*xx | 84 to 96 | 2.5 | 12 | Filled | 15.3 | 174 | 8000 | 2650 | 5500 |
| GBRF*xx | 108 to 144 | 2.5 | 12 | Dry | 18.5 | 248 | 8000 | 3200 | 7700 |
| GDRF*xx | 108 to 144 | 2.5 | 12 | Filled | 18.5 | 254 | 8000 | 2670 | 8600 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | | Filled Core | | | | |
|------------------------------------|---------------------------------|---------|---------|---------|---------|---------------------------------|---------|---------|---------|---------|
| | 6 | 12 | 18 | 24 | 36 | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GBRG106 | GBRG112 | GBRG118 | GBRG124 | GBRG136 | GDRG106 | GDRG112 | GDRG118 | GDRG124 | GDRG136 |
| 50/125-OM2 | GBRG206 | GBRG212 | GBRG218 | GBRG224 | GBRG236 | GDRG206 | GDRG212 | GDRG218 | GDRG224 | GDRG236 |
| 50/125-OM3 | GBRGD06 | GBRGD12 | GBRGD18 | GBRGD24 | GBRGD36 | GDRGD06 | GDRGD12 | GDRGD18 | GDRGD24 | GDRGD36 |
| 50/125-OM4 | GBRGE06 | GBRGE12 | GBRGE18 | GBRGE24 | GBRGE36 | GDRGE06 | GDRGE12 | GDRGE18 | GDRGE24 | GDRGE36 |
| 9/125 ITU G.652D | GBRG806 | GBRG812 | GBRG818 | GBRG824 | GBRG836 | GDRG806 | GDRG812 | GDRG818 | GDRG824 | GDRG836 |
| 9/125 ITU G.655 C & D | GBRG706 | GBRG712 | GBRG718 | GBRG724 | GBRG736 | GDRG706 | GDRG712 | GDRG718 | GDRG724 | GDRG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | | Filled Core | | | | | |
|------------------------------------|---------------------------------|---------|---------|---------|---------|---------|---------------------------------|---------|---------|---------|---------|---------|
| | 12 | 24 | 36 | 48 | 60 | 72 | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GBRD112 | GBRD124 | GBRD136 | GBRD148 | GBRD160 | GBRD172 | GDRD112 | GDRD124 | GDRD136 | GDRD148 | GDRD160 | GDRD172 |
| 50/125-OM2 | GBRD212 | GBRD224 | GBRD236 | GBRD248 | GBRD260 | GBRD272 | GDRD212 | GDRD224 | GDRD236 | GDRD248 | GDRD260 | GDRD272 |
| 50/125-OM3 | GBRDD12 | GBRDD24 | GBRDD36 | GBRDD48 | GBRDD60 | GBRDD72 | GDRDD12 | GDRDD24 | GDRDD36 | GDRDD48 | GDRDD60 | GDRDD72 |
| 50/125-OM4 | GBRDE12 | GBRDE24 | GBRDE36 | GBRDE48 | GBRDE60 | GBRDE72 | GDRDE12 | GDRDE24 | GDRDE36 | GDRDE48 | GDRDE60 | GDRDE72 |
| 9/125 ITU G.652D | GBRD812 | GBRD824 | GBRD836 | GBRD848 | GBRD860 | GBRD872 | GDRD812 | GDRD824 | GDRD836 | GDRD848 | GDRD860 | GDRD872 |
| 9/125 ITU G.655 C & D | GBRD712 | GBRD724 | GBRD736 | GBRD748 | GBRD760 | GBRD772 | GDRD712 | GDRD724 | GDRD736 | GDRD748 | GDRD760 | GDRD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | | Filled Core | |
|------------------------------------|----------------------------------|---------|-------------|---------|
| | 96 | 144 | 96 | 144 |
| 62.5/125-OM1 | GBRE196 | GBRF144 | GDRE196 | GDRF144 |
| 50/125-OM2 | GBRE296 | GBRF244 | GDRE296 | GDRF244 |
| 50/125-OM3 | GBRED96 | GBRFD44 | GDRED96 | GDRFD44 |
| 50/125-OM4 | GBREE96 | GBRFE44 | GDREE96 | GDRFE44 |
| 9/125 ITU G.652D | GBRE896 | GBRF844 | GDRE896 | GDRF844 |
| 9/125 ITU G.655 C & D | GBRE796 | GBRF744 | GDRE796 | GDRF744 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | | | |
| Std. delivery length | 2100 ± 100 m | | | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|---------------|-----|--------------|
| 1 | Red | 11 | White | 21 | Grey + ring |
| 2 | Green | 12 | Aqua | 22 | Brown + ring |
| 3 | Blue | 13 | Red + ring | 23 | White + ring |
| 4 | Yellow | 14 | Green + ring | 24 | Aqua + ring |
| 5 | Violet | 15 | Blue + ring | | |
| 6 | Pink | 16 | Yellow + ring | | |
| 7 | Orange | 17 | Violet + ring | | |
| 8 | Black | 18 | Pink + ring | | |
| 9 | Grey | 19 | Orange + ring | | |
| 10 | Brown | 20 | Black + ring | | |

| Tube Color Coding | |
|-------------------|-------|
| No. | |
| 1 | Red |
| 2 | Green |
| 3 to 12 | White |

**Universal Multi Loose Tube Cable
with Corrugated Steel Tape, Single Jacket**

GCCG, GCCD, GCCE, GCCF

A/I-DQ(ZN)(SR)H



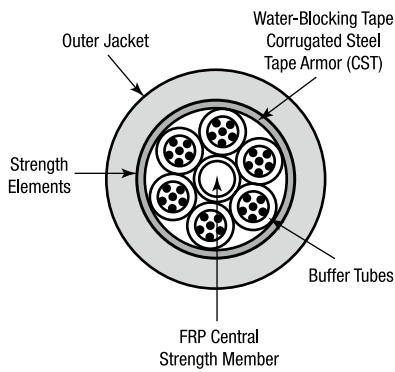
Applications

- For outdoor and indoor use in structured (data) wiring systems such as (campus backbone)
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers (Ø 250 ± 15 µm)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|------------------------|
| Crush Resistance (E3): | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | IEC 60332-3-22 |
| Circuit Integrity: | IEC 60332-25, EN 50200 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GCCG*xx | 6 to 36 | 1.9 | 6 | Dry | 10.5 | 160 | 1750 | 580 | 2100 |
| GCCD*xx | 12 to 72 | 2.5 | 12 | Dry | 12.0 | 200 | 2400 | 800 | 2900 |
| GCCE*xx | 84 to 96 | 2.5 | 12 | Dry | 15.4 | 250 | 2500 | 830 | 3100 |
| GCCF*xx | 108 to 144 | 2.5 | 12 | Dry | 18.5 | 330 | 4000 | 1300 | 6000 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GCCG106 | GCCG112 | GCCG118 | GCCG124 | GCCG136 |
| 50/125-OM2 | GCCG206 | GCCG212 | GCCG218 | GCCG224 | GCCG236 |
| 50/125-OM3 | GCCGD06 | GCCGD12 | GCCGD18 | GCCGD24 | GCCGD36 |
| 50/125-OM4 | GCCGE06 | GCCGE12 | GCCGE18 | GCCGE24 | GCCGE36 |
| 9/125 ITU G.652D | GCCG806 | GCCG812 | GCCG818 | GCCG824 | GCCG836 |
| 9/125 ITU G.655 C & D | GCCG706 | GCCG712 | GCCG718 | GCCG724 | GCCG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GCCD112 | GCCD124 | GCCD136 | GCCD148 | GCCD160 | GCCD172 |
| 50/125-OM2 | GCCD212 | GCCD224 | GCCD236 | GCCD248 | GCCD260 | GCCD272 |
| 50/125-OM3 | GCCDD12 | GCCDD24 | GCCDD36 | GCCDD48 | GCCDD60 | GCCDD72 |
| 50/125-OM4 | GCCDE12 | GCCDE24 | GCCDE36 | GCCDE48 | GCCDE60 | GCCDE72 |
| 9/125 ITU G.652D | GCCD812 | GCCD824 | GCCD836 | GCCD848 | GCCD860 | GCCD872 |
| 9/125 ITU G.655 C & D | GCCD712 | GCCD724 | GCCD736 | GCCD748 | GCCD760 | GCCD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | |
|------------------------------------|----------------------------------|----------------|
| | 96 | 144 |
| 62.5/125-OM1 | GCCE196 | GCCF144 |
| 50/125-OM2 | GCCE296 | GCCF244 |
| 50/125-OM3 | GCCE096 | GCCFD44 |
| 50/125-OM4 | GCCEE96 | GCCFE44 |
| 9/125 ITU G.652D | GCCE896 | GCCF844 |
| 9/125 ITU G.655 C & D | GCCE796 | GCCF744 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | |
| Std. delivery length | 2100 ± 100 m | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|---------------|-----|--------------|
| 1 | Red | 11 | White | 21 | Grey + ring |
| 2 | Green | 12 | Aqua | 22 | Brown + ring |
| 3 | Blue | 13 | Red + ring | 23 | White + ring |
| 4 | Yellow | 14 | Green + ring | 24 | Aqua + ring |
| 5 | Violet | 15 | Blue + ring | | |
| 6 | Pink | 16 | Yellow + ring | | |
| 7 | Orange | 17 | Violet + ring | | |
| 8 | Black | 18 | Pink + ring | | |
| 9 | Grey | 19 | Orange + ring | | |
| 10 | Brown | 20 | Black + ring | | |

| Tube Color Coding | |
|-------------------|-------|
| No. | |
| 1 | Red |
| 2 | Green |
| 3 to 12 | White |

Outdoor Multi Loose Tube Cable with Corrugated Steel Tape, Single Jacket

GBCG, GBCD, GBCE, GBCF
GDCG, GDCE, GDCE, GDCF

A-DQ(ZN)(SR)2Y
A-DF(ZN)(SR)2Y



Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

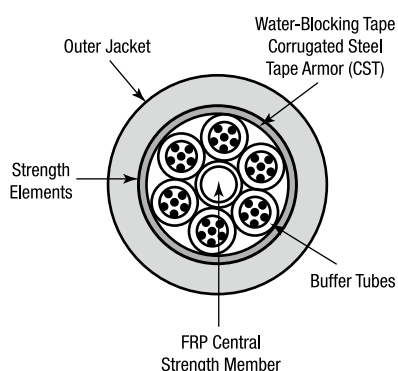
- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices) for GBC types
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Specifications

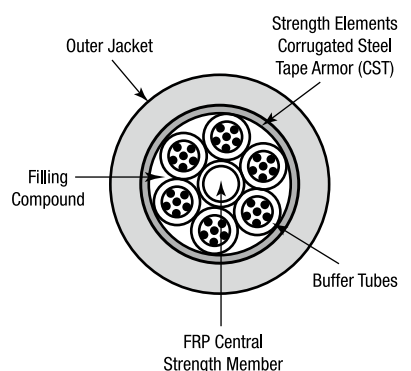
| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Crush Resistance (E3): | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Cross Section

GBC



GDC



Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GBCG*xx | 6 to 36 | 1.9 | 6 | Dry | 10.5 | 105 | 1750 | 550 | 3000 |
| GDCG*xx | 6 to 36 | 1.9 | 6 | Filled | 10.5 | 115 | 1750 | 580 | 3400 |
| GBCD*xx | 12 to 72 | 2.5 | 12 | Dry | 12.0 | 175 | 2400 | 800 | 4000 |
| GDCD*xx | 12 to 72 | 2.5 | 12 | Filled | 12.0 | 180 | 7000 | 800 | 4400 |
| GBCE*xx | 84 to 96 | 2.5 | 12 | Dry | 15.4 | 230 | 2500 | 830 | 4400 |
| GDCE*xx | 84 to 96 | 2.5 | 12 | Filled | 15.4 | 240 | 2500 | 830 | 4900 |
| GBCF*xx | 108 to 144 | 2.5 | 12 | Dry | 18.5 | 310 | 4000 | 1300 | 8000 |
| GDCF*xx | 108 to 144 | 2.5 | 12 | Filled | 18.5 | 325 | 4000 | 1300 | 8900 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | | Filled Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GBCG106 | GBCG112 | GBCG118 | GBCG124 | GBCG136 | GDCG106 | GDCG112 | GDCG118 | GDCG124 | GDCG136 |
| 50/125-OM2 | GBCG206 | GBCG212 | GBCG218 | GBCG224 | GBCG236 | GDCG206 | GDCG212 | GDCG218 | GDCG224 | GDCG236 |
| 50/125-OM3 | GBCGD06 | GBCGD12 | GBCGD18 | GBCGD24 | GBCGD36 | GDCGD06 | GDCGD12 | GDCGD18 | GDCGD24 | GDCGD36 |
| 50/125-OM4 | GBCGE06 | GBCGE12 | GBCGE18 | GBCGE24 | GBCGE36 | GDCGE06 | GDCGE12 | GDCGE18 | GDCGE24 | GDCGE36 |
| 9/125 ITU G.652D | GBCG806 | GBCG812 | GBCG818 | GBCG824 | GBCG836 | GDCG806 | GDCG812 | GDCG818 | GDCG824 | GDCG836 |
| 9/125 ITU G.655 C & D | GBCG706 | GBCG712 | GBCG718 | GBCG724 | GBCG736 | GDCG706 | GDCG712 | GDCG718 | GDCG724 | GDCG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | | Filled Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GBCD112 | GBCD124 | GBCD136 | GBCD148 | GBCD160 | GBCD172 | GDCD112 | GDCD124 | GDCD136 | GDCD148 | GDCD160 | GDCD172 |
| 50/125-OM2 | GBCD212 | GBCD224 | GBCD236 | GBCD248 | GBCD260 | GBCD272 | GDCD212 | GDCD224 | GDCD236 | GDCD248 | GDCD260 | GDCD272 |
| 50/125-OM3 | GBDD12 | GBDD24 | GBDD36 | GBDD48 | GBDD60 | GBDD72 | GDCDD12 | GDCDD24 | GDCDD36 | GDCDD48 | GDCDD60 | GDCDD72 |
| 50/125-OM4 | GBCDE12 | GBCDE24 | GBCDE36 | GBCDE48 | GBCDE60 | GBCDE72 | GDCDE12 | GDCDE24 | GDCDE36 | GDCDE48 | GDCDE60 | GDCDE72 |
| 9/125 ITU G.652D | GBCD812 | GBCD824 | GBCD836 | GBCD848 | GBCD860 | GBCD872 | GDCD812 | GDCD824 | GDCD836 | GDCD848 | GDCD860 | GDCD872 |
| 9/125 ITU G.655 C & D | GBCD712 | GBCD724 | GBCD736 | GBCD748 | GBCD760 | GBCD772 | GDCD712 | GDCD724 | GDCD736 | GDCD748 | GDCD760 | GDCD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | | Filled Core | |
|------------------------------------|----------------------------------|----------------|----------------|----------------|
| | 96 | 144 | 96 | 144 |
| 62.5/125-OM1 | GBCE196 | GBCF144 | GDCE196 | GDCF144 |
| 50/125-OM2 | GBCE296 | GBCF244 | GDCE296 | GDCF244 |
| 50/125-OM3 | GBCED96 | GBCFD44 | GDCE96 | GDCF44 |
| 50/125-OM4 | GBCEE96 | GBCFE44 | GDCEE96 | GDCF44 |
| 9/125 ITU G.652D | GBCE896 | GBCF844 | GDCE896 | GDCF844 |
| 9/125 ITU G.655 C & D | GBCE796 | GBCF744 | GDCE796 | GDCF744 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | | | |
| Std. delivery length | 2100 ± 100 m | | | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|---------------|-----|--------------|
| 1 | Red | 11 | White | 21 | Grey + ring |
| 2 | Green | 12 | Aqua | 22 | Brown + ring |
| 3 | Blue | 13 | Red + ring | 23 | White + ring |
| 4 | Yellow | 14 | Green + ring | 24 | Aqua + ring |
| 5 | Violet | 15 | Blue + ring | | |
| 6 | Pink | 16 | Yellow + ring | | |
| 7 | Orange | 17 | Violet + ring | | |
| 8 | Black | 18 | Pink + ring | | |
| 9 | Grey | 19 | Orange + ring | | |
| 10 | Brown | 20 | Black + ring | | |

| Tube Color Coding | |
|--------------------------|-------|
| No. | |
| 1 | Red |
| 2 | Green |
| 3 to 12 | White |

**Universal Multi Loose Tube Cable
with Corrugated Steel Tape, Double Jacket**

GCDG, GCDD, GCDE, GCDF

A/I-DQ(ZN)H(SR)H



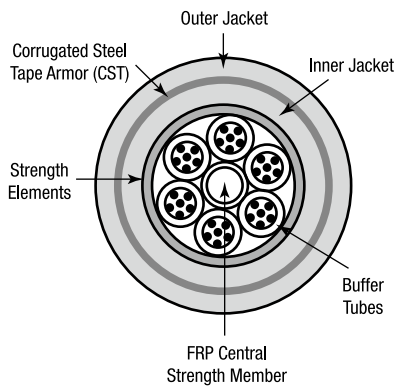
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers (Ø 250 ± 15 µm)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices)
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|------------------|
| Crush Resistance (E3): | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | IEC 60332-3-22 |
| Circuit Integrity: | EN 50200 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GCDG*xx | 6 to 36 | 1.9 | 6 | Dry | 13.2 | 195 | 1750 | 580 | 2800 |
| GCDD*xx | 12 to 72 | 2.5 | 12 | Dry | 15.2 | 280 | 2300 | 750 | 3900 |
| GCDE*xx | 84 to 96 | 2.5 | 12 | Dry | 17.4 | 340 | 2900 | 950 | 4700 |
| GCDF*xx | 108 to 144 | 2.5 | 12 | Dry | 20.5 | 430 | 3450 | 1150 | 7300 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GCDG106 | GCDG112 | GCDG118 | GCDG124 | GCDG136 |
| 50/125-OM2 | GCDG206 | GCDG212 | GCDG218 | GCDG224 | GCDG236 |
| 50/125-OM3 | GCDGD06 | GCDGD12 | GCDGD18 | GCDGD24 | GCDGD36 |
| 50/125-OM4 | GCDGE06 | GCDGE12 | GCDGE18 | GCDGE24 | GCDGE36 |
| 9/125 ITU G.652D | GCDG806 | GCDG812 | GCDG818 | GCDG824 | GCDG836 |
| 9/125 ITU G.655 C & D | GCDG706 | GCDG712 | GCDG718 | GCDG724 | GCDG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GCDD112 | GCDD124 | GCDD136 | GCDD148 | GCDD160 | GCDD172 |
| 50/125-OM2 | GCDD212 | GCDD224 | GCDD236 | GCDD248 | GCDD260 | GCDD272 |
| 50/125-OM3 | GCDDD12 | GCDDD24 | GCDDD36 | GCDDD48 | GCDDD60 | GCDDD72 |
| 50/125-OM4 | GCDD12 | GCDD24 | GCDD36 | GCDD48 | GCDD60 | GCDD72 |
| 9/125 ITU G.652D | GCDD812 | GCDD824 | GCDD836 | GCDD848 | GCDD860 | GCDD872 |
| 9/125 ITU G.655 C & D | GCDD712 | GCDD724 | GCDD736 | GCDD748 | GCDD760 | GCDD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | |
|------------------------------------|----------------------------------|----------------|
| | 96 | 144 |
| 62.5/125-OM1 | GCDE196 | GCDF144 |
| 50/125-OM2 | GCDE296 | GCDF244 |
| 50/125-OM3 | GCDED96 | GCDFD44 |
| 50/125-OM4 | GCDEE96 | GCDFE44 |
| 9/125 ITU G.652D | GCDE896 | GCDF844 |
| 9/125 ITU G.655 C & D | GCDE796 | GCDF744 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | |
| Std. delivery length | 2100 ± 100 m | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|---------------|--------------------------|--------------|
| 1 | Red | 11 | White | 21 | Grey + ring |
| 2 | Green | 12 | Aqua | 22 | Brown + ring |
| 3 | Blue | 13 | Red + ring | 23 | White + ring |
| 4 | Yellow | 14 | Green + ring | 24 | Aqua + ring |
| 5 | Violet | 15 | Blue + ring | Tube Color Coding | |
| 6 | Pink | 16 | Yellow + ring | No. | |
| 7 | Orange | 17 | Violet + ring | 1 | Red |
| 8 | Black | 18 | Pink + ring | 2 | Green |
| 9 | Grey | 19 | Orange + ring | 3 to 12 | White |
| 10 | Brown | 20 | Black + ring | | |

Outdoor Multi Loose Tube Cable with Corrugated Steel Tape, Double Jacket

GBDG, GBDD, GBDE, GBDF
GDDG, GDDD, GDDE, GDDF

A-DQ(ZN)2Y(SR)2Y
A-DF(ZN)2Y(SR)2Y



Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices) for GBD types
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

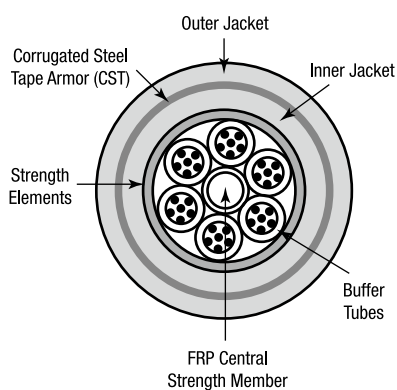
Specifications

IEC 60794-1-2

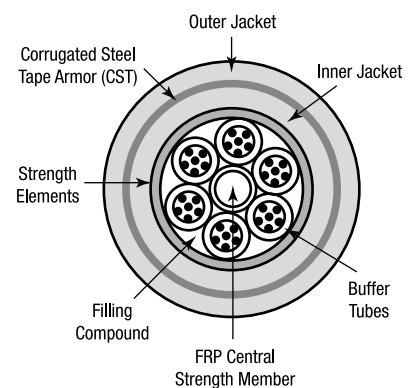
| | |
|-------------------------------------|--------------------|
| Crush Resistance (E3): | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Cross Section

GBD



GDD



Characteristics

| Tight Buffer | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GBDG*xx | 6 to 36 | 1.9 | 6 | Dry | 13.2 | 155 | 1750 | 550 | 4700 |
| GDDG*xx | 6 to 36 | 1.9 | 6 | Filled | 13.0 | 160 | 1750 | 580 | 4900 |
| GBDD*xx | 12 to 72 | 2.5 | 12 | Dry | 15.2 | 200 | 2300 | 750 | 6100 |
| GDDD*xx | 12 to 72 | 2.5 | 12 | Filled | 15.0 | 205 | 2300 | 750 | 6500 |
| GBDE*xx | 84 to 96 | 2.5 | 12 | Dry | 17.4 | 310 | 2900 | 950 | 7600 |
| GDDE*xx | 84 to 96 | 2.5 | 12 | Filled | 17.1 | 285 | 2900 | 950 | 8100 |
| GBDF*xx | 108 to 144 | 2.5 | 12 | Dry | 20.5 | 310 | 3450 | 1150 | 8000 |
| GDDF*xx | 108 to 144 | 2.5 | 12 | Filled | 20.5 | 377 | 3450 | 1150 | 11400 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | | Filled Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GBDG106 | GBDG112 | GBDG118 | GBDG124 | GBDG136 | GDDG106 | GDDG112 | GDDG118 | GDDG124 | GDDG136 |
| 50/125-OM2 | GBDG206 | GBDG212 | GBDG218 | GBDG224 | GBDG236 | GDDG206 | GDDG212 | GDDG218 | GDDG224 | GDDG236 |
| 50/125-OM3 | GBDGD06 | GBDGD12 | GBDGD18 | GBDGD24 | GBDGD36 | GDDGD06 | GDDGD12 | GDDGD18 | GDDGD24 | GDDGD36 |
| 50/125-OM4 | GBDGE06 | GBDGE12 | GBDGE18 | GBDGE24 | GBDGE36 | GDDGE06 | GDDGE12 | GDDGE18 | GDDGE24 | GDDGE36 |
| 9/125 ITU G.652D | GBDG806 | GBDG812 | GBDG818 | GBDG824 | GBDG836 | GDDG806 | GDDG812 | GDDG818 | GDDG824 | GDDG836 |
| 9/125 ITU G.655 C & D | GBDG706 | GBDG712 | GBDG718 | GBDG724 | GBDG736 | GDDG706 | GDDG712 | GDDG718 | GDDG724 | GDDG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | | Filled Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GBDD112 | GBDD124 | GBDD136 | GBDD148 | GBDD160 | GBDD172 | GDDD112 | GDDD124 | GDDD136 | GDDD148 | GDDD160 | GDDD172 |
| 50/125-OM2 | GBDD212 | GBDD224 | GBDD236 | GBDD248 | GBDD260 | GBDD272 | GDDD212 | GDDD224 | GDDD236 | GDDD248 | GDDD260 | GDDD272 |
| 50/125-OM3 | GBDDD12 | GBDDD24 | GBDDD36 | GBDDD48 | GBDDD60 | GBDDD72 | GDDDD12 | GDDDD24 | GDDDD36 | GDDDD48 | GDDDD60 | GDDDD72 |
| 50/125-OM4 | GBDDE12 | GBDDE24 | GBDDE36 | GBDDE48 | GBDDE60 | GBDDE72 | GDDDE12 | GDDDE24 | GDDDE36 | GDDDE48 | GDDDE60 | GDDDE72 |
| 9/125 ITU G.652D | GBDD812 | GBDD824 | GBDD836 | GBDD848 | GBDD860 | GBDD872 | GDDD812 | GDDD824 | GDDD836 | GDDD848 | GDDD860 | GDDD872 |
| 9/125 ITU G.655 C & D | GBDD712 | GBDD724 | GBDD736 | GBDD748 | GBDD760 | GBDD772 | GDDD712 | GDDD724 | GDDD736 | GDDD748 | GDDD760 | GDDD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | | Filled Core | |
|------------------------------------|----------------------------------|----------------|----------------|----------------|
| | 96 | 144 | 96 | 144 |
| 62.5/125-OM1 | GBDE196 | GBDF144 | GDDE196 | GDDF144 |
| 50/125-OM2 | GBDE296 | GBDF244 | GDDE296 | GDDF244 |
| 50/125-OM3 | GBDED96 | GBDFD44 | GDDED96 | GDDFD44 |
| 50/125-OM4 | GBDEE96 | GBDFE44 | GDDEE96 | GDDFE44 |
| 9/125 ITU G.652D | GBDE896 | GBDF844 | GDDE896 | GDDF844 |
| 9/125 ITU G.655 C & D | GBDE796 | GBDF744 | GDDE796 | GDDF744 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | | | |
| Std. delivery length | 2100 ± 100 m | | | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|---------------|-----|--------------|
| 1 | Red | 11 | White | 21 | Grey + ring |
| 2 | Green | 12 | Aqua | 22 | Brown + ring |
| 3 | Blue | 13 | Red + ring | 23 | White + ring |
| 4 | Yellow | 14 | Green + ring | 24 | Aqua + ring |
| 5 | Violet | 15 | Blue + ring | | |
| 6 | Pink | 16 | Yellow + ring | | |
| 7 | Orange | 17 | Violet + ring | | |
| 8 | Black | 18 | Pink + ring | | |
| 9 | Grey | 19 | Orange + ring | | |
| 10 | Brown | 20 | Black + ring | | |

| Tube Color Coding | |
|--------------------------|-------|
| No. | |
| 1 | Red |
| 2 | Green |
| 3 to 12 | White |

Universal Multi Loose Tube Cable with Steel Wire Armor, Double Jacket

GCWG, GCWD

A/I-DQ(ZN)HBH



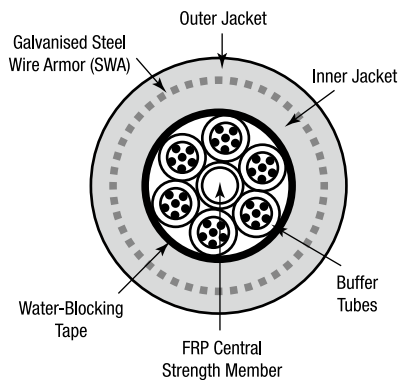
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices)
- High mechanical and full rodent protection provided by Steel Wire Armor (SWA)
- Halogen Free jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Crush Resistance (E3): | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |
| Other | |
| Flame Retardant: | IEC 60332-3-22 |
| Halogen Free: | IEC 60754-1 |
| Non Corrosive: | IEC 60754-2 |
| Smoke Density: | IEC 61034-2 |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Steel Wire Diameter (mm) | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|--------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | | E1 | E1 | |
| GCWG*xx | 6 to 36 | 1.9 | 6 | Dry | 0.9 | 13.5 | 325 | 1750 | 580 | 3000 |
| GCWD*xx | 12 to 72 | 2.5 | 12 | Dry | 0.9 | 15.5 | 390 | 2300 | 750 | 4100 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GCWG106 | GCWG112 | GCWG118 | GCWG124 | GCWG136 |
| 50/125-OM2 | GCWG206 | GCWG212 | GCWG218 | GCWG224 | GCWG236 |
| 50/125-OM3 | GCWGD06 | GCWGD12 | GCWGD18 | GCWGD24 | GCWGD36 |
| 50/125-OM4 | GCWGE06 | GCWGE12 | GCWGE18 | GCWGE24 | GCWGE36 |
| 9/125 ITU G.652D | GCWG806 | GCWG812 | GCWG818 | GCWG824 | GCWG836 |
| 9/125 ITU G.655 C & D | GCWG706 | GCWG712 | GCWG718 | GCWG724 | GCWG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GCWD112 | GCWD124 | GCWD136 | GCWD148 | GCWD160 | GCWD172 |
| 50/125-OM2 | GCWD212 | GCWD224 | GCWD236 | GCWD248 | GCWD260 | GCWD272 |
| 50/125-OM3 | GCWDD12 | GCWDD24 | GCWDD36 | GCWDD48 | GCWDD60 | GCWDD72 |
| 50/125-OM4 | GCWDE12 | GCWDE24 | GCWDE36 | GCWDE48 | GCWDE60 | GCWDE72 |
| 9/125 ITU G.652D | GCWD812 | GCWD824 | GCWD836 | GCWD848 | GCWD860 | GCWD872 |
| 9/125 ITU G.655 C & D | GCWD712 | GCWD724 | GCWD736 | GCWD748 | GCWD760 | GCWD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Fiber Color Coding

| No. | |
|-----|--------|
| 1 | Red |
| 2 | Green |
| 3 | Blue |
| 4 | Yellow |
| 5 | Violet |

| No. | |
|-----|--------|
| 6 | Pink |
| 7 | Orange |
| 8 | Black |
| 9 | Grey |
| 10 | Brown |

| No. | |
|-----|--------------|
| 11 | White |
| 12 | Aqua |
| 13 | Red + ring |
| 14 | Green + ring |
| 15 | Blue + ring |

| No. | |
|-----|---------------|
| 16 | Yellow + ring |
| 17 | Violet + ring |
| 18 | Pink + ring |
| 19 | Orange + ring |
| 20 | Black + ring |

| No. | |
|-----|--------------|
| 21 | Grey + ring |
| 22 | Brown + ring |
| 23 | White + ring |
| 24 | Aqua + ring |

Tube Color Coding

| No. | |
|---------|-------|
| 1 | Red |
| 2 | Green |
| 3 to 12 | White |

Outdoor Multi Loose Tube Cable with Steel Wire Armor, Double Jacket

GBWG, GBWD
GDWG, GDWD

A-DQ(ZN)2YB2Y
A-DF(ZN)2YB2Y



Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone
- For outdoor and indoor use in networks for telecom, cable TV and/or broadcast
- Easy to install in ducts, tunnels and trenches by means of compressed air or pulling wire
- Suitable for direct burial

Features & Benefits

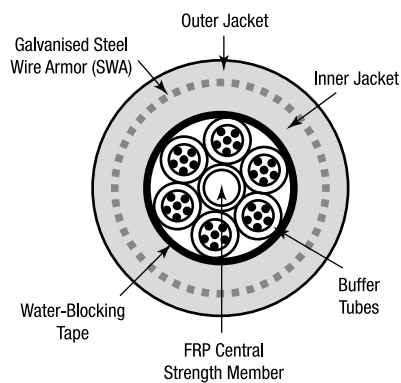
- Available in sizes from 2 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibers ($\varnothing 250 \pm 15 \mu\text{m}$)
- Full dielectric construction, no grounding required
- Installation-friendly thanks to the cable core which is kept free of grease (dry interstices) for GBD types
- High mechanical and full rodent protection provided by Steel Wire Armor (SWA)
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Specifications

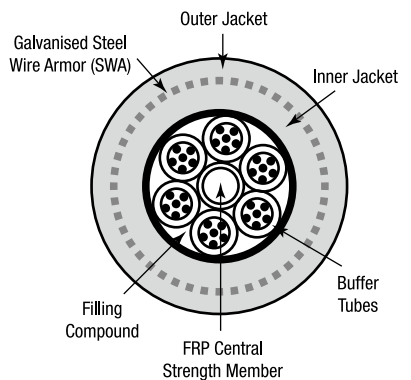
| IEC 60794-1-2 | |
|-------------------------------------|--------------------|
| Crush Resistance (E3): | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x \varnothing |
| Min. Bend Radius operation (E11): | 20 x \varnothing |
| Temperature Range (F1): | |
| - Transport/Storage | -30 °C to +70 °C |
| - Installation | -5 °C to +50 °C |
| - Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Cross Section

GBW



GDW



Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Steel Wire Diameter (mm) | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|--------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | | E1 | E1 | |
| GBWG*xx | 6 to 36 | 1.9 | 6 | Dry | 0.9 | 13.5 | 255 | 1750 | 580 | 4900 |
| GDWG*xx | 6 to 36 | 1.9 | 6 | Filled | 0.9 | 13.5 | 260 | 1750 | 580 | 5100 |
| GBWD*xx | 12 to 72 | 2.5 | 12 | Dry | 0.9 | 15.5 | 300 | 2300 | 750 | 6300 |
| GDWD*xx | 12 to 72 | 2.5 | 12 | Filled | 0.9 | 15.5 | 320 | 2300 | 750 | 6700 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | | Filled Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GBWG106 | GBWG112 | GBWG118 | GBWG124 | GBWG136 | GDWG106 | GDWG112 | GDWG118 | GDWG124 | GDWG136 |
| 50/125-OM2 | GBWG206 | GBWG212 | GBWG218 | GBWG224 | GBWG236 | GDWG206 | GDWG212 | GDWG218 | GDWG224 | GDWG236 |
| 50/125-OM3 | GBWGD06 | GBWGD12 | GBWGD18 | GBWGD24 | GBWGD36 | GDWGD06 | GDWGD12 | GDWGD18 | GDWGD24 | GDWGD36 |
| 50/125-OM4 | GBWGE06 | GBWGE12 | GBWGE18 | GBWGE24 | GBWGE36 | GDWGE06 | GDWGE12 | GDWGE18 | GDWGE24 | GDWGE36 |
| 9/125 ITU G.652D | GBWG806 | GBWG812 | GBWG818 | GBWG824 | GBWG836 | GDWG806 | GDWG812 | GDWG818 | GDWG824 | GDWG836 |
| 9/125 ITU G.655 C & D | GBWG706 | GBWG712 | GBWG718 | GBWG724 | GBWG736 | GDWG706 | GDWG712 | GDWG718 | GDWG724 | GDWG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | | Filled Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GBWD112 | GBWD124 | GBWD136 | GBWD148 | GBWD160 | GBWD172 | GDWD112 | GDWD124 | GDWD136 | GDWD148 | GDWD160 | GDWD172 |
| 50/125-OM2 | GBWD212 | GBWD224 | GBWD236 | GBWD248 | GBWD260 | GBWD272 | GDWD212 | GDWD224 | GDWD236 | GDWD248 | GDWD260 | GDWD272 |
| 50/125-OM3 | GBWDD12 | GBWDD24 | GBWDD36 | GBWDD48 | GBWDD60 | GBWDD72 | GDWDD12 | GDWDD24 | GDWDD36 | GDWDD48 | GDWDD60 | GDWDD72 |
| 50/125-OM4 | GBWDE12 | GBWDE24 | GBWDE36 | GBWDE48 | GBWDE60 | GBWDE72 | GDWDE12 | GDWDE24 | GDWDE36 | GDWDE48 | GDWDE60 | GDWDE72 |
| 9/125 ITU G.652D | GBWD812 | GBWD824 | GBWD836 | GBWD848 | GBWD860 | GBWD872 | GDWD812 | GDWD824 | GDWD836 | GDWD848 | GDWD860 | GDWD872 |
| 9/125 ITU G.655 C & D | GBWD712 | GBWD724 | GBWD736 | GBWD748 | GBWD760 | GBWD772 | GDWD712 | GDWD724 | GDWD736 | GDWD748 | GDWD760 | GDWD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | | 2100 ± 100 m | | | | | |

Fiber Color Coding

| No. | | No. | | No. | | No. | | No. | | No. | |
|-----|--------|-----|--------|-----|--------------|-----|---------------|-----|--------------|---------|-------|
| 1 | Red | 6 | Pink | 11 | White | 16 | Yellow + ring | 21 | Grey + ring | 1 | Red |
| 2 | Green | 7 | Orange | 12 | Aqua | 17 | Violet + ring | 22 | Brown + ring | 2 | Green |
| 3 | Blue | 8 | Black | 13 | Red + ring | 18 | Pink + ring | 23 | White + ring | 3 to 12 | White |
| 4 | Yellow | 9 | Grey | 14 | Green + ring | 19 | Orange + ring | 24 | Aqua + ring | | |
| 5 | Violet | 10 | Brown | 15 | Blue + ring | 20 | Black + ring | | | | |

Tube Color Coding

Outdoor Multi Loose Tube Cable with All Dielectric Self Supporting, Single Jacket

GAAG, GAAD, GAAE

A-DQ(ZN)2Y(T)



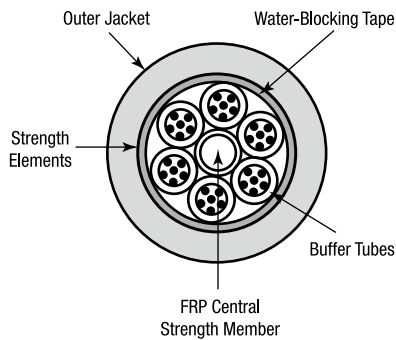
Applications

- All Dielectric Self Supporting cable (ADSS) for Outdoor use
- Suitable for installation between poles with a maximum span of 150 meters for GAAG, GAAD and GAAE, and 110 meter for GAAF
- Initial sag at +20 °C: 1% of span

Features & Benefits

- Available in sizes from 6 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibres (Ø 250 ± 15 µm)
- Full dielectric construction, no grounding required
- Aramid yarns for tensile strength
- Installation-friendly because of the cable core kept free of grease (dry interstices)
- Polyethylene jacket
- Length marking in meters for easy determination of the cable length

Cross Section



Specifications

| IEC 60794-1-2 | |
|-------------------------------------|------------------|
| Crush Resistance (E3): | 15 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 20 x Ø |
| Temperature Range (F1): | |
| – Transport/Storage | -30 °C to +70 °C |
| – Installation | -5 °C to +50 °C |
| – Operation | -30 °C to +70 °C |
| Watertightness (F5): | Pass |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Fire Load (kJ/m) |
|----------------------|-------------|--------------------|----------------------|------------------------|---------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 60794-1-2 | | | | | | | E1 | E1 | |
| GAAG*xx | 6 to 36 | 1.9 | 6 | Dry | 10.3 | 72 | 2450 | 800 | 3000 |
| GAAD*xx | 12 to 72 | 2.5 | 12 | Dry | 12.2 | 99 | 2700 | 900 | 4000 |
| GAAE*xx | 84 to 96 | 2.5 | 12 | Dry | 13.8 | 132 | 3450 | 1150 | 4400 |

Ordering Information

| Fiber Type/Count | Dry Core | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|
| | 6 | 12 | 18 | 24 | 36 |
| 62.5/125-OM1 | GAAG106 | GAAG112 | GAAG118 | GAAG124 | GAAG136 |
| 50/125-OM2 BW 600/1200 | GAAG206 | GAAG212 | GAAG218 | GAAG224 | GAAG236 |
| 50/125-OM3 | GAAGD06 | GAAGD12 | GAAGD18 | GAAGD24 | GAAGD36 |
| 50/125-OM4 | GAAGE06 | GAAGE12 | GAAGE18 | GAAGE24 | GAAGE36 |
| 9/125 ITU G.652D | GAAG806 | GAAG812 | GAAG818 | GAAG824 | GAAG836 |
| 9/125 ITU G.655 C&D | GAAG706 | GAAG712 | GAAG718 | GAAG724 | GAAG736 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | |
| Std. delivery length | 2100 ± 100 m | | | | |

| Fiber Type/Count | Dry Core | | | | | |
|------------------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 12 | 24 | 36 | 48 | 60 | 72 |
| 62.5/125-OM1 | GAAD112 | GAAD124 | GAAD136 | GAAD148 | GAAD160 | GAAD172 |
| 50/125-OM2 BW 600/1200 | GAAD212 | GAAD224 | GAAD236 | GAAD248 | GAAD260 | GAAD272 |
| 50/125-OM3 | GAADD12 | GAADD24 | GAADD36 | GAADD48 | GAADD60 | GAADD72 |
| 50/125-OM4 | GAADE12 | GAADE24 | GAADE36 | GAADE48 | GAADE60 | GAADE72 |
| 9/125 ITU G.652D | GAAD812 | GAAD824 | GAAD836 | GAAD848 | GAAD860 | GAAD872 |
| 9/125 ITU G.655 C & D | GAAD712 | GAAD724 | GAAD736 | GAAD748 | GAAD760 | GAAD772 |
| Std. plywood reel (non-returnable) | Ø 1250 x 688 mm, Weight 93.0 kg | | | | | |
| Std. delivery length | 2100 ± 100 m | | | | | |

Ordering Information

| Fiber Type/Count | Dry Core | |
|------------------------------------|----------------------------------|----------------|
| | 84 | 96 |
| 62.5/125-OM1 | GAAE184 | GAAE196 |
| 50/125-OM2 BW 600/1200 | GAAE284 | GAAE296 |
| 50/125-OM3 | GAAED84 | GAAED96 |
| 50/125-OM4 | GAAEE84 | GAAEE96 |
| 9/125 ITU G.652D | GAAE884 | GAAE896 |
| 9/125 ITU G.655 C & D | GAAE784 | GAAE796 |
| Std. plywood reel (non-returnable) | Ø 1400 x 900 mm, Weight 120.0 kg | |
| Std. delivery length | 2100 ± 100 m | |

Fiber Color Coding

| No. | | No. | | No. | |
|-----|--------|-----|--------|-----|-------|
| 1 | Red | 5 | Violet | 9 | Grey |
| 2 | Green | 6 | Pink | 10 | Brown |
| 3 | Blue | 7 | Orange | 11 | White |
| 4 | Yellow | 8 | Black | 12 | Aqua |

Tube Color Coding

| | |
|---------|-------|
| 1 | Red |
| 2 | Green |
| 3 to 12 | White |

**Universal Multi Loose Tube Cable,
Single Jacket**

NOCU, NKCU, NMCU



Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.

Features & Benefits

- Available in sizes from 4 to 144 fibers.
- Full dielectric construction, no grounding required.
- Polyethylene jacket.
- Length marking in meters for easy determination of the cable length.

Specifications

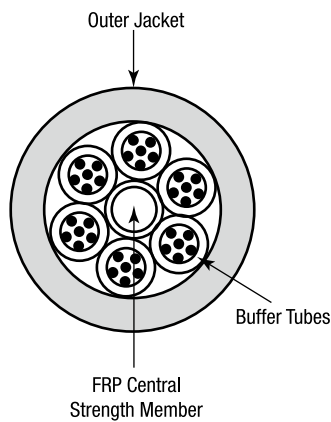
IEC 60794-1, EIA/TIA-455

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 10 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +70 °C |
| - Operation | -40 °C to +70 °C |
| Watertightness (F5) : | Pass |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |

Other

| | |
|----------------------------|---|
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | N |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Cross Section



Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength(short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|--------------------|----------------------|------------------------|--------------------|----------------|--------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | | | |
| NOCUxxMA | 4 to 16 | 2.0 | 4 | Filled | 10.6 | 88 | 1000 | 400 | 1000N/100mm |
| NKCUxxMA | 6 to 36 | 2.0 | 6 | Filled | 10.6 | 88 | 1000 | 400 | 1000N/100mm |
| NMCUxxHA | 48 to 72 | 2.6 | 12 | Filled | 12.0 | 112 | 1500 | 600 | 1000N/100mm |
| NMCUxxHA | 96 | 2.6 | 12 | Filled | 13.9 | 154 | 3000 | 1000 | 1000N/100mm |
| NMCUxxHA | 144 | 2.6 | 12 | Filled | 17.3 | 240 | 3000 | 1000 | 1000N/100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | |
|------------------|-----------------|-----------------|-----------------|
| | 4 | 8 | 16 |
| NOCU | | | |
| SM G652.D | NOCU12MA004BKAA | NOCU12MA008BKAA | NOCU12MA016BKAA |
| 62.5µm OM1 | NOCU62MA004BKAA | NOCU62MA008BKAA | NOCU62MA016BKAA |
| 50µm OM2 | NOCU50MA004BKAA | NOCU50MA008BKAA | NOCU50MA016BKAA |
| 50µm OM3 | NOCU53MA004BKAA | NOCU53MA008BKAA | NOCU53MA016BKAA |

| Fiber Type/Count | Filled Core | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|
| | 6 | 12 | 24 | 36 |
| NKCU | | | | |
| SM G652.D | NKCU12MA006BKAA | NKCU12MA012BKAA | NKCU12MA024BKAA | NKCU12MA036BKAA |
| 62.5µm OM1 | NKCU62MA006BKAA | NKCU62MA012BKAA | NKCU62MA024BKAA | NKCU62MA036BKAA |
| 50µm OM2 | NKCU50MA006BKAA | NKCU50MA012BKAA | NKCU50MA024BKAA | NKCU50MA036BKAA |
| 50µm OM3 | NKCU53MA006BKAA | NKCU53MA012BKAA | NKCU53MA024BKAA | NKCU53MA036BKAA |

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 48 | 60 | 72 | 96 | 144 |
| NMCU | | | | | |
| SM G652.D | NMCU12HA048BKAA | NMCU12HA060BKAA | NMCU12HA072BKAA | NMCU12HA096BKAA | NMCU12HA144BKAA |
| 62.5µm OM1 | NMCU62HA048BKAA | NMCU62HA060BKAA | NMCU62HA072BKAA | NMCU62HA096BKAA | NMCU62HA144BKAA |
| 50µm OM2 | NMCU50HA048BKAA | NMCU50HA060BKAA | NMCU50HA072BKAA | NMCU50HA096BKAA | NMCU50HA144BKAA |
| 50µm OM3 | NMCU53HA048BKAA | NMCU53HA060BKAA | NMCU53HA072BKAA | NMCU53HA096BKAA | NMCU53HA144BKAA |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Universal Multi Loose Tube Cable with Corrugated Steel Tape, Single Jacket

NOGU, NKGU, NMGU



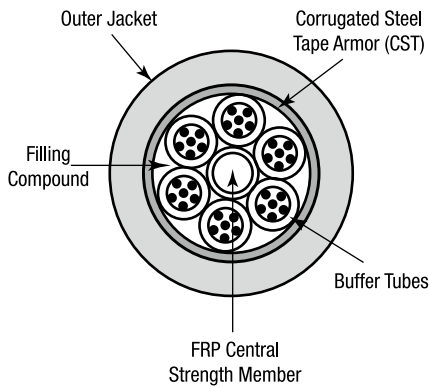
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 4 to 144 fibers
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers. (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor.
- Polyethylene jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

IEC 60794-1, EIA/TIA-455

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 10 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +70 °C |
| - Operation | -40 °C to +70 °C |
| Watertightness (F5) : | Pass |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |

Other

| | |
|----------------------------|---|
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | Y |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength(short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|--------------------|----------------------|------------------------|--------------------|----------------|--------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | | | |
| NOGUxxMA | 4 to 16 | 2.0 | 4 | Filled | 12.0 | 132 | 1000 | 400 | 1000N/100mm |
| NKGUxxMA | 6 to 36 | 2.0 | 6 | Filled | 12.0 | 132 | 1000 | 400 | 1000N/100mm |
| NMGUxxHA | 48 to 72 | 2.6 | 12 | Filled | 13.4 | 164 | 1500 | 600 | 1000N/100mm |
| NMGUxxHA | 96 | 2.6 | 12 | Filled | 14.8 | 210 | 3000 | 1000 | 1000N/100mm |
| NMGUxxHA | 144 | 2.6 | 12 | Filled | 19.2 | 320 | 3000 | 1000 | 1000N/100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | |
|------------------|-----------------|-----------------|-----------------|
| | 4 | 8 | 16 |
| NOGU | | | |
| SM G652.D | NOGU12MA004BKAA | NOGU12MA008BKAA | NOGU12MA016BKAA |
| 62.5µm OM1 | NOGU62MA004BKAA | NOGU62MA008BKAA | NOGU62MA016BKAA |
| 50µm OM2 | NOGU50MA004BKAA | NOGU50MA008BKAA | NOGU50MA016BKAA |
| 50µm OM3 | NOGU53MA004BKAA | NOGU53MA008BKAA | NOGU53MA016BKAA |

| Fiber Type/Count | Filled Core | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|
| | 6 | 12 | 24 | 36 |
| NKGU | | | | |
| SM G652.D | NKGU12MA006BKAA | NKCU12MA012BKAA | NKGU12MA024BKAA | NKGU12MA036BKAA |
| 62.5µm OM1 | NKGU62MA006BKAA | NKCU62MA012BKAA | NOGU62MA024BKAA | NKGU62MA036BKAA |
| 50µm OM2 | NKGU50MA006BKAA | NKCU50MA012BKAA | NOGU50MA024BKAA | NKGU50MA036BKAA |
| 50µm OM3 | NKGU53MA006BKAA | NKCU53MA012BKAA | NOGU53MA024BKAA | NKGU53MA036BKAA |

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 48 | 60 | 72 | 96 | 144 |
| NMGU | | | | | |
| SM G652.D | NMGU12HA048BKAA | NMGU12HA060BKAA | NMGU12HA072BKAA | NMGU12HA096BKAA | NMGU12HA144BKAA |
| 62.5µm OM1 | NMGU62HA048BKAA | NMGU62HA060BKAA | NMGU62HA072BKAA | NMGU62HA096BKAA | NMGU62HA144BKAA |
| 50µm OM2 | NMGU50HA048BKAA | NMGU50HA060BKAA | NMGU50HA072BKAA | NMGU50HA096BKAA | NMGU50HA144BKAA |
| 50µm OM3 | NMGU53HA048BKAA | NMGU53HA060BKAA | NMGU53HA072BKAA | NMGU53HA096BKAA | NMGU53HA144BKAA |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Universal Multi Loose Tube Cable with Corrugated Steel Tape, Double Jacket

NOPU, NKPU, NMPU



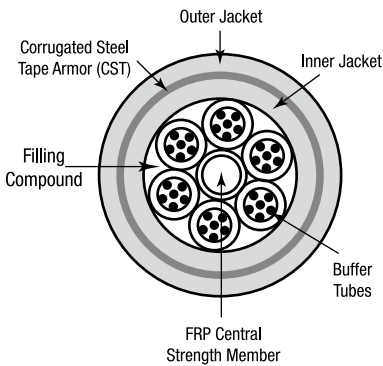
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 4 to 144 fibers.
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor.
- Polyethylene jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

IEC 60794-1, EIA/TIA-455

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 30 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +70 °C |
| - Operation | -40 °C to +70 °C |
| Watertightness (F5) : | Pass |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |

Other

| | |
|----------------------------|---|
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | Y |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|--------------------|----------------------|------------------------|--------------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | | | |
| NOPUxxMA | 4 to 16 | 2.0 | 4 | Filled | 15.8 | 226 | 3000 | 1000 | 3000N / 100mm |
| NKPUxxMA | 6 to 48 | 2.0 | 6 | Filled | 15.8 | 226 | 3000 | 1000 | 3000N / 100mm |
| NMPUxxHA | 60 to 96 | 2.6 | 12 | Filled | 16.8 | 255 | 3000 | 1000 | 3000N / 100mm |
| NMPUxxHA | 144 | 2.6 | 12 | Filled | 21.2 | 380 | 3000 | 1000 | 3000N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | |
|------------------|-----------------|-----------------|-----------------|
| | 4 | 8 | 16 |
| NOPU | | | |
| SM G652.D | NOPU12MA004BKAA | NOPU12MA008BKAA | NOPU12MA016BKAA |
| 62.5µm OM1 | NOPU62MA004BKAA | NOPU62MA008BKAA | NOPU62MA016BKAA |
| 50µm OM2 | NOPU50MA004BKAA | NOPU50MA008BKAA | NOPU50MA016BKAA |
| 50µm OM3 | NOPU53MA004BKAA | NOPU53MA008BKAA | NOPU53MA016BKAA |
| 50µm OM4 | NOPU54MA004BKAA | NOPU54MA008BKAA | NOPU54MA016BKAA |

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 6 | 12 | 24 | 36 | 48 |
| NKPU | | | | | |
| SM G652.D | NKPU12MA006BKAA | NKPU12MA012BKAA | NKPU12MA024BKAA | NKPU12MA036BKAA | NKPU12MA048BKAA |
| 62.5µm OM1 | NKPU62MA006BKAA | NKPU62MA012BKAA | NKPU62MA024BKAA | NKPU62MA036BKAA | NKPU62MA048BKAA |
| 50µm OM2 | NKPU50MA006BKAA | NKPU50MA012BKAA | NKPU50MA024BKAA | NKPU50MA036BKAA | NKPU50MA048BKAA |
| 50µm OM3 | NKPU53MA006BKAA | NKPU53MA012BKAA | NKPU53MA024BKAA | NKPU53MA036BKAA | NKPU53MA048BKAA |
| 50µm OM4 | NKPU54MA006BKAA | NKPU54MA012BKAA | NKPU54MA024BKAA | NKPU54MA036BKAA | NKPU54MA048BKAA |

| Fiber Type/Count | Filled Core | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|
| | 60 | 72 | 96 | 144 |
| NMPU | | | | |
| SM G652.D | NMPU12HA060BKAA | NMPU12HA072BKAA | NMPU12HA096BKAA | NMPU12HA144BKAA |
| 62.5µm OM1 | NMPU62HA060BKAA | NMPU62HA072BKAA | NMPU62HA096BKAA | NMPU62HA144BKAA |
| 50µm OM2 | NMPU50HA060BKAA | NMPU50HA072BKAA | NMPU50HA096BKAA | NMPU50HA144BKAA |
| 50µm OM3 | NMPU53HA060BKAA | NMPU53HA072BKAA | NMPU53HA096BKAA | NMPU53HA144BKAA |
| 50µm OM4 | NMPU54HA060BKAA | NMPU54HA072BKAA | NMPU54HA096BKAA | NMPU54HA144BKAA |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Universal Multi Loose Tube Cable with Rodent Protection, Double Jacket

NODU, NKDU, NMDU



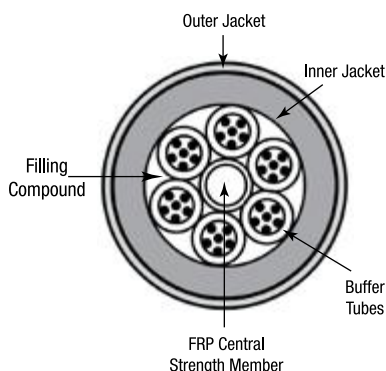
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.

Features & Benefits

- Available in sizes from 4 to 144 fibers.
- Full dielectric construction, no grounding required.
- Polyethylene/Nylon jacket.
- Length marking in meters for easy determination of the cable length.
- Nylon layer provides termite protection.

Cross Section



Specifications

IEC 60794-1, EIA/TIA-455

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 10 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +70 °C |
| - Operation | -40 °C to +70 °C |
| Watertightness (F5) : | Pass |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |

Other

| | |
|----------------------------|---|
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | N |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Diameter Tube (mm) | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|--------------------|----------------------|------------------------|--------------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | | | |
| NODUxxMA | 4 to 16 | 2.0 | 4 | Filled | 11.6 | 122 | 1000 | 400 | 1000N / 100mm |
| NKDUxxMA | 6 to 36 | 2.0 | 6 | Filled | 11.6 | 122 | 1000 | 400 | 1000N / 100mm |
| NMDUxxHA | 48 to 72 | 2.6 | 12 | Filled | 13.0 | 150 | 1500 | 600 | 1000N / 100mm |
| NMDUxxHA | 96 | 2.6 | 12 | Filled | 14.9 | 198 | 3000 | 1000 | 1000N / 100mm |
| NMDUxxHA | 144 | 2.6 | 12 | Filled | 18.3 | 292 | 3000 | 1000 | 1000N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | |
|------------------|-----------------|-----------------|-----------------|
| | 4 | 8 | 16 |
| NODU | | | |
| SM G652.D | NODU12MA004BEAA | NODU12MA008BEAA | NODU12MA016BEAA |
| 62.5µm OM1 | NODU62MA004BEAA | NODU62MA008BEAA | NODU62MA016BEAA |
| 50µm OM2 | NODU50MA004BEAA | NODU50MA008BEAA | NODU50MA016BEAA |
| 50µm OM3 | NODU53MA004BEAA | NODU53MA008BEAA | NODU53MA016BEAA |
| 50µm OM4 | NODU54MA004BEAA | NODU54MA008BEAA | NODU54MA016BEAA |

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 6 | 12 | 24 | 36 | 48 |
| NKDU | | | | | |
| SM G652.D | NKDU12MA006BEAA | NKDU12MA012BEAA | NKDU12MA024BEAA | NKDU12MA036BEAA | NKDU12MA048BEAA |
| 62.5µm OM1 | NKDU62MA006BEAA | NKDU62MA012BEAA | NKDU62MA024BEAA | NKDU62MA036BEAA | NKDU62MA048BEAA |
| 50µm OM2 | NKDU50MA006BEAA | NKDU50MA012BEAA | NKDU50MA024BEAA | NKDU50MA036BEAA | NKDU50MA048BEAA |
| 50µm OM3 | NKDU53MA006BEAA | NKDU53MA012BEAA | NKDU53MA024BEAA | NKDU53MA036BEAA | NKDU53MA048BEAA |
| 50µm OM4 | NKDU54MA006BEAA | NKDU54MA012BEAA | NKDU54MA024BEAA | NKDU54MA036BEAA | NKDU54MA048BEAA |

| Fiber Type/Count | Filled Core | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|
| | 60 | 72 | 96 | 144 |
| NMDU | | | | |
| SM G652.D | NMDU12HA060BEAA | NMDU12HA072BEAA | NMDU12HA096BEAA | NMDU12HA144BEAA |
| 62.5µm OM1 | NMDU62HA060BEAA | NMDU62HA072BEAA | NMDU62HA096BEAA | NMDU62HA144BEAA |
| 50µm OM2 | NMDU50HA060BEAA | NMDU50HA072BEAA | NMDU50HA096BEAA | NMDU50HA144BEAA |
| 50µm OM3 | NMDU53HA060BEAA | NMDU53HA072BEAA | NMDU53HA096BEAA | NMDU53HA144BEAA |
| 50µm OM4 | NMDU54HA060BEAA | NMDU54HA072BEAA | NMDU54HA096BEAA | NMDU54HA144BEAA |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

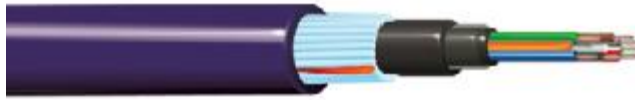
| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Universal Multi Loose Tube Cable with Glass Yarn Armor, Quadruple Jacket

NKIU, NMIU



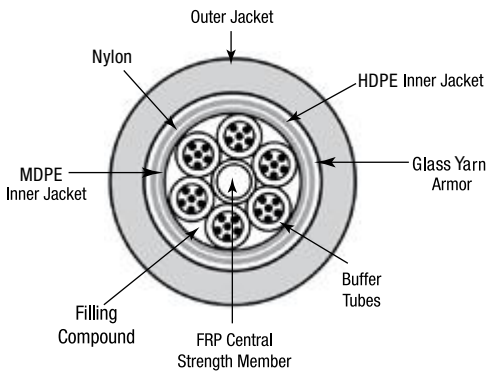
Applications

- For outdoor and indoor use in structured (data) wiring systems such as campus backbone.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, tunnels and trenches.

Features & Benefits

- Available in sizes from 6 to 60 fibers.
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers (Ø 250).
- High mechanical and rodent protection provided by glass yarn armor.
- Polyethylene/Nylon jacket.
- Length marking in meters for easy determination of the cable length.
- Transparent nylon layer for termite protection.

Cross Section



Specifications

| IEC 60794-1, EIA/TIA-455 | |
|-------------------------------------|------------------|
| Crush Resistance: | 30 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | -40 °C to +70 °C |
| Watertightness (F5) : | Pass |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |
| Other | |
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | N |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Max. Fibers per Tube | Watertightness in Core | Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Crush Resistance |
|------------------|-------------|----------------------|------------------------|---------------|----------------|---------------------------------|------------------|
| IEC 794-1 | | | | | | | |
| NKIUxxHA | 6 | 6 | Filled | 16.6 | 544 | 3000 | 3000N / 100mm |
| NMIUxxHA | 6 to 60 | 12 | Filled | 16.6 | 544 | 3000 | 3000N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|--|--|--|--|
| | 6 | | | | |
| NKIU | | | | | |
| SM G652.D | NKIU12HA006PRAA | | | | |
| 62.5µm OM1 | NKIU62HA006PRAA | | | | |
| 50µm OM2 | NKIU50HA006PRAA | | | | |
| 50µm OM3 | NKIU53HA006PRAA | | | | |

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 12 | 24 | 36 | 48 | 60 |
| NMIU | | | | | |
| SM G652.D | NMIU12HA012PRAA | NMIU12HA024PRAA | NMIU12HA036PRAA | NMIU12HA048PRAA | NMIU12HA060PRAA |
| 62.5µm OM1 | NMIU62HA012PRAA | NMIU62HA024PRAA | NMIU62HA036PRAA | NMIU62HA048PRAA | NMIU62HA060PRAA |
| 50µm OM2 | NMIU50HA012PRAA | NMIU50HA024PRAA | NMIU50HA036PRAA | NMIU50HA048PRAA | NMIU50HA060PRAA |
| 50µm OM3 | NMIU53HA012PRAA | NMIU53HA024PRAA | NMIU53HA036PRAA | NMIU53HA048PRAA | NMIU53HA060PRAA |
| 50µm OM4 | NMIU54HA012PRAA | NMIU54HA024PRAA | NMIU54HA036PRAA | NMIU54HA048PRAA | NMIU54HA060PRAA |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Universal Multi Loose Tube Cable with Corrugate Steel Tape, Single Jacket

NOGU, NKGU, NMGU



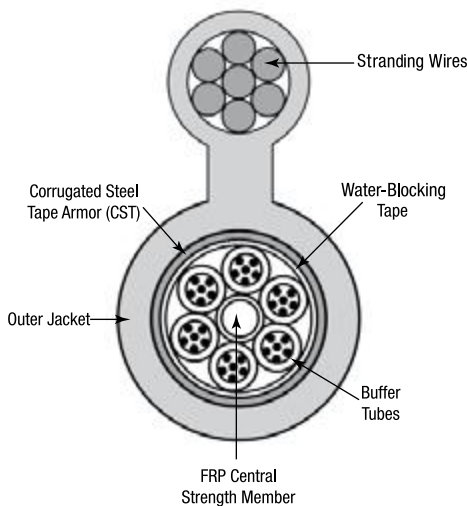
Applications

- For outdoor and indoor use in structured (data) wiring systems.
- For outdoor use in networks for telecom, cable TV and/or broadcast.
- Easy to install in ducts, underground conduits & short, medium span aerial installations.
- Suitable for direct burial.

Features & Benefits

- Available in sizes from 4 to 144 fibers.
- Jelly filled (non-dripping and silicon-free) loose tube with primary coated optical fibers. (Ø 250).
- High mechanical and full rodent protection provided by Corrugated Steel Tape (CST) armor.
- Polyethylene jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

IEC 60794-1, EIA/TIA-455

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 10 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +70 °C |
| - Operation | -40 °C to +70 °C |
| Watertightness (F5) : | Pass |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |

Other

| | |
|----------------------------|---|
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | Y |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Max. Fibers per Tube | Watertightness in Core | Nom.Diameter (mm) | Weight (kg/km) | Tensile Strength (short term) N | Tensile Strength (permanent) N | Crush Resistance |
|------------------|-------------|----------------------|------------------------|--------------------|----------------|---------------------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | | |
| NOGUxxMA | 4 to 24 | 4 | Filled | 5.96 X 12.5 X 20.4 | 250 | 7000 | 3000 | 1000N / 100mm |
| NKGUxxMA | 12 to 72 | 6 | Filled | 6.0 X 11.2 X 19.5 | 250 | 7000 | 3000 | 1000N / 100mm |
| NMGUxxMA | 96 | 12 | Filled | 6.0 X 15.5 X 23.5 | 324 | 7000 | 3000 | 1000N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | |
|------------------|-----------------|-----------------|-----------------|
| | 4 | 12 | 24 |
| NOGU | | | |
| SM G652.D | NOGU12MA004BKS8 | NOGU12MA012BKS8 | NOGU12MA024BKS8 |
| 62.5µm OM1 | NOGU62MA004BKS8 | NOGU62MA012BKS8 | NOGU62MA024BKS8 |
| 50µm OM2 | NOGU50MA004BKS8 | NOGU50MA012BKS8 | NOGU50MA024BKS8 |
| 50µm OM3 | NOGU53MA004BKS8 | NOGU53MA012BKS8 | NOGU53MA024BKS8 |
| 50µm OM4 | NOGU54MA004BKS8 | NOGU54MA012BKS8 | NOGU54MA024BKS8 |

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 12 | 24 | 36 | 48 | 60 |
| NKGU | | | | | |
| SM G652.D | NKGU12MA012BKS8 | NKGU12MA024BKS8 | NKGU12MA036BKS8 | NKGU12MA048BKS8 | NKGU12MA060BKS8 |
| 62.5µm OM1 | NKGU62MA012BKS8 | NKGU62MA024BKS8 | NKGU62MA036BKS8 | NKGU62MA048BKS8 | NKGU62MA060BKS8 |
| 50µm OM2 | NKGU50MA012BKS8 | NKGU50MA024BKS8 | NKGU50MA036BKS8 | NKGU50MA048BKS8 | NKGU50MA060BKS8 |
| 50µm OM3 | NKGU53MA012BKS8 | NKGU53MA024BKS8 | NKGU53MA036BKS8 | NKGU53MA048BKS8 | NKGU53MA060BKS8 |
| 50µm OM4 | NKGU54MA012BKS8 | NKGU54MA024BKS8 | NKGU54MA036BKS8 | NKGU54MA048BKS8 | NKGU54MA060BKS8 |

| Fiber Type/Count | Filled Core |
|------------------|-----------------|
| | 96 |
| NMGU | |
| SM G652.D | NMGU12MA096BKS8 |
| 62.5µm OM1 | NMGU62MA096BKS8 |
| 50µm OM2 | NMGU50MA096BKS8 |
| 50µm OM3 | NMGU53MA096BKS8 |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Outdoor Multi Loose Tube Cable with All Dielectric Self Supporting, Double Jacket

NOJU, NKJU, NPJU, NMJU



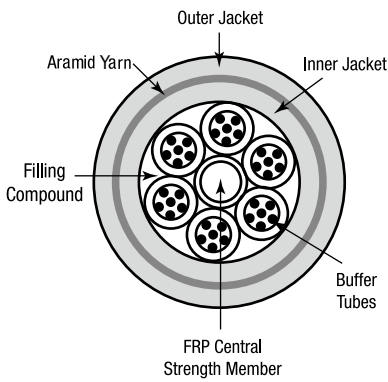
Applications

- All Dielectric Self Supporting cable (ADSS) for Outdoor use.
- Suitable for installation between poles with a maximum span of 420 meters.
- Wind Speed : Maximum 29m per second.

Features & Benefits

- Available in sizes from 4 to 144 fibers.
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibres (Ø 250).
- Full dielectric construction, no grounding required.
- Aramid yarns for tensile strength.
- Polyethylene jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

IEC 60794-1, EIA/TIA-455

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +70 °C |
| - Operation | -40 °C to +70 °C |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |

Other

| | |
|----------------------------|---|
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | N |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Weight (kg/km) | Max Allowable Work Tension (N) | Crush Resistance |
|------------------|-------------|----------------------|------------------------|--------------------|----------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | | |
| NOJUxxMA | 4 to 24 | 4 | Filled | 12.2 | 124 | 7000 | 2200N / 100mm |
| NKJUxxHA | 36 | 6 | Filled | 13.0 | 142 | 7500 | 2200N / 100mm |
| NPJUxxHA | 48 | 8 | Filled | 13.0 | 142 | 7500 | 2200N / 100mm |
| NMJUxxHA | 60 to 72 | 12 | Filled | 13.2 | 150 | 9000 | 2200N / 100mm |
| NMJUxxHA | 96 to 144 | 12 | Filled | 15.4 | 202 | 11000 | 2200N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 4 | 6 | 8 | 12 | 24 |
| NOJU | | | | | |
| SM G652.D | NOJU12MA004BKS4 | NOJU12MA006BKS4 | NOJU12MA008BKS4 | NOJU12MA012BKS4 | NOJU12MA024BKS4 |
| 62.5µm OM1 | NOJU62MA004BKS4 | NOJU62MA006BKS4 | NOJU62MA008BKS4 | NOJU62MA012BKS4 | NOJU62MA024BKS4 |
| 50µm OM2 | NOJU50MA004BKS4 | NOJU50MA006BKS4 | NOJU50MA008BKS4 | NOJU50MA012BKS4 | NOJU50MA024BKS4 |
| 50µm OM3 | NOJU53MA004BKS4 | NOJU53MA006BKS4 | NOJU53MA008BKS4 | NOJU53MA012BKS4 | NOJU53MA024BKS4 |

| Fiber Type/Count | Filled Core |
|------------------|-----------------|
| | 36 |
| NKJU | |
| SM G652.D | NKJU12HA036BKS4 |
| 62.5µm OM1 | NKJU62HA036BKS4 |
| 50µm OM2 | NKJU50HA036BKS4 |
| 50µm OM3 | NKJU53HA036BKS4 |

| Fiber Type/Count | Filled Core |
|------------------|-----------------|
| | 48 |
| NPJU | |
| SM G652.D | NPJU12HA048BKS4 |
| 62.5µm OM1 | NPJU62HA048BKS4 |
| 50µm OM2 | NPJU50HA048BKS4 |
| 50µm OM3 | NPJU53HA048BKS4 |

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|------------------|
| | 60 | 72 | 96 | 108 | 144 |
| NMJU | | | | | |
| SM G652.D | NMJU12HA060BKS4 | NMJU12HA072BKS4 | NMJU12HA096BKS4 | NMJU12HA108BKS4 | NMJU12HA144BKS4 |
| 62.5µm OM1 | NMJU62HA060BKS4 | NMJU62HA072BKS4 | NMJU62HA096BKS4 | NMJU62HA108BKS4 | NMJU62HA144BKS4 |
| 50µm OM2 | NMJU50HA060BKS4 | NMJU50HA072BKS4 | NMJU50HA096BKS4 | NMJU50HA108BKS4 | NMJU50HA144BKS4 |
| 50µm OM3 | NMJU53HA060BKS4 | NMJU53HA072BKS4 | NMJU53HA096BKS4 | NMJU53HA108BKS4 | NMJU53H A144BKS4 |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

Buffer Color Coding

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

Buffer Color Coding

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

Buffer Color Coding

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

Outdoor Multi Loose Tube Cable with All Dielectric Self Supporting, Double Jacket

NOJU, NKJU, NPJU, NMJU



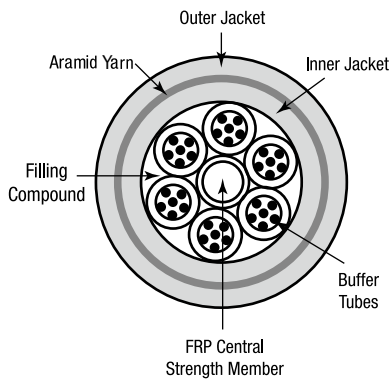
Applications

- All Dielectric Self Supporting cable (ADSS) for Outdoor use.
- Suitable for installation between poles with a maximum span of 100 meters.
- Wind Speed : Maximum 25m per second.

Features & Benefits

- Available in sizes from 4 to 144 fibers.
- Jelly filled (non-dripping and silicon-free) loose tubes with primary coated optical fibres (Ø 250).
- Full dielectric construction, no grounding required.
- Aramid yarns for tensile strength.
- Polyethylene jacket.
- Length marking in meters for easy determination of the cable length.

Cross Section



Specifications

IEC 60794-1, EIA/TIA-455

| | |
|-------------------------------------|------------------|
| Crush Resistance: | 22 kN/m |
| Min. Bend Radius installation (E6): | 20 x Ø |
| Min. Bend Radius operation (E11): | 10 x Ø |
| Temperature Range (F1): | |
| - Storage | -40 °C to +70 °C |
| - Operation | -40 °C to +70 °C |
| Impact Resistance : | Pass |
| Solar Radiation Resistance : | Pass |
| Compound Flow : | Pass |
| Cyclic Flexing : | Pass |

Other

| | |
|----------------------------|---|
| Suitability - Indoor (Y/N) | Y |
| - Outdoor (Y/N) | Y |
| - Aerial (Y/N) | Y |
| - Duct (Y/N) | Y |
| - Direct Burial (Y/N) | N |
| Sunlight Resistance (Y/N) | Y |
| EU RoHS Complaint (Y/N) | Y |

Characteristics

| Loose Tube | Fiber Count | Max. Fibers per Tube | Watertightness in Core | Nom. Diameter (mm) | Max Allowable Work Tension (N) | Crush Resistance |
|------------------|-------------|----------------------|------------------------|--------------------|--------------------------------|------------------|
| IEC 794-1 | | | | | | |
| NOJUxxMA | 4 to 24 | 4 | Filled | 11.6 | 2000 | 2200N / 100mm |
| NKJUxxHA | 36 | 6 | Filled | 12.4 | 2500 | 2200N / 100mm |
| NPJUxxHA | 48 | 8 | Filled | 12.4 | 2500 | 2200N / 100mm |
| NMJUxxHA | 60 to 72 | 12 | Filled | 12.4 | 2600 | 2200N / 100mm |
| NMJUxxHA | 96 to 144 | 12 | Filled | 14.8 | 3000 | 2200N / 100mm |

Ordering Information

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 4 | 6 | 8 | 12 | 24 |
| NOJU | | | | | |
| SM G652.D | NOJU12MA004BKL1 | NOJU12MA006BKL1 | NOJU12MA008BKL1 | NOJU12MA012BKL1 | NOJU12MA024BKL1 |
| 62.5µm OM1 | NOJU62MA004BKL1 | NOJU62MA006BKL1 | NOJU62MA008BKL1 | NOJU62MA012BKL1 | NOJU62MA024BKL1 |
| 50µm OM2 | NOJU50MA004BKL1 | NOJU50MA006BKL1 | NOJU50MA008BKL1 | NOJU50MA012BKL1 | NOJU50MA024BKL1 |
| 50µm OM3 | NOJU53MA004BKL1 | NOJU53MA006BKL1 | NOJU53MA008BKL1 | NOJU53MA012BKL1 | NOJU53MA024BKL1 |

| Fiber Type/Count | Filled Core |
|------------------|-----------------|
| | 36 |
| NKJU | |
| SM G652.D | NKJU12HA036BKL1 |
| 62.5µm OM1 | NKJU62HA036BKL1 |
| 50µm OM2 | NKJU50HA036BKL1 |
| 50µm OM3 | NKJU53HA036BKL1 |

| Fiber Type/Count | Filled Core |
|------------------|-----------------|
| | 48 |
| NPJU | |
| SM G652.D | NPJU12HA048BKL1 |
| 62.5µm OM1 | NPJU62HA048BKL1 |
| 50µm OM2 | NPJU50HA048BKL1 |
| 50µm OM3 | NPJU53HA048BKL1 |

| Fiber Type/Count | Filled Core | | | | |
|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 60 | 72 | 96 | 108 | 144 |
| NMJU | | | | | |
| SM G652.D | NMJU12HA060BKL1 | NMJU12HA072BKL1 | NMJU12HA096BKL1 | NMJU12HA108BKL1 | NMJU12HA144BKL1 |
| 62.5µm OM1 | NMJU62HA060BKL1 | NMJU62HA072BKL1 | NMJU62HA096BKL1 | NMJU62HA108BKL1 | NMJU62HA144BKL1 |
| 50µm OM2 | NMJU50HA060BKL1 | NMJU50HA072BKL1 | NMJU50HA096BKL1 | NMJU50HA108BKL1 | NMJU50HA144BKL1 |
| 50µm OM3 | NMJU53HA060BKL1 | NMJU53HA072BKL1 | NMJU53HA096BKL1 | NMJU53HA108BKL1 | NMJU53HA144BKL1 |

Fiber Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

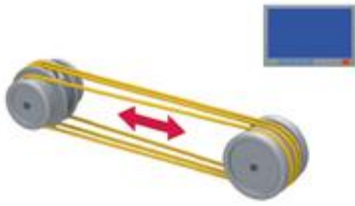
Buffer Color Coding

| No. | Color |
|-----|--------|
| 1 | Blue |
| 2 | Orange |
| 3 | Green |
| 4 | Brown |

| No. | Color |
|-----|-------|
| 5 | Grey |
| 6 | White |
| 7 | Red |
| 8 | Black |

| No. | Color |
|-----|--------|
| 9 | Yellow |
| 10 | Violet |
| 11 | Pink |
| 12 | Aqua |

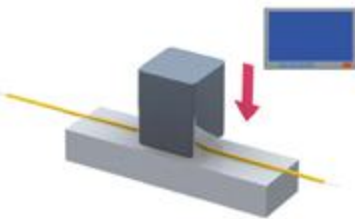
Mechanical Test Procedures



Tensile Performance

The tensile performance method monitors the attenuation variation and evaluates elongation of the cable which is subject to an increasing traction load during installation and operation.

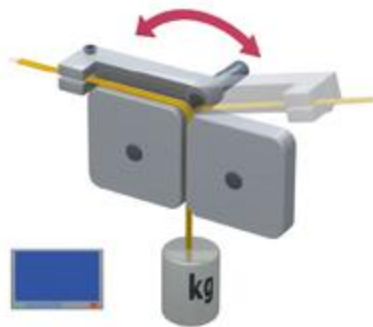
- Standards: IEC 60794-1-2 E1 (Future IEC 60794-1-21 E1)



Crush Resistance

This test aims to verify the behavior of the cable and the fibers that are subject to compression during operation and/or installation. During the test, a cable sample is compressed (in a transverse direction) between a fixed and a mobile base, where an even force is applied on a cable section.

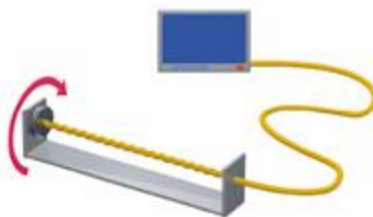
- Standards: IEC 60794-1-2 E3 (Future IEC 60794-1-21 E3)



Repeated Bending

The test evaluates the ability of an optical fiber cable to withstand repeated bending. The cable is repeatedly bent at 90° to reproduce working conditions and to create stress.

- Standards: IEC 60794-1-2 E6 (Future IEC 60794-1-21 E3)



Torsion

The torsion test is aimed at evaluating the ability of an optical fiber cable to withstand mechanical twisting. The test is carried out on a cable sample anchored to a fixed support and to a rotating support and by applying a sample load. The cable is then twisted in clockwise and anti-clockwise rotations to examine the possibility of physical damage.

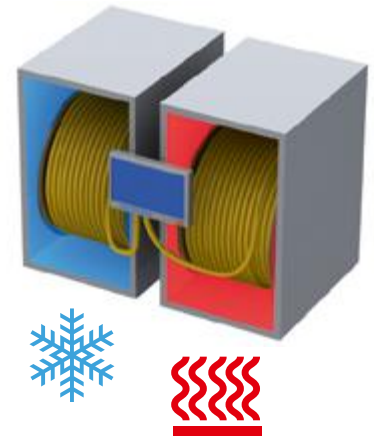
- Standards: IEC 60794-1-2 E7 (Future IEC 60794-1-21 E7)

Environmental Test Procedures

Temperature Cycling

The temperature cycling test measures the ability of an optical fiber cable to provide stable operations during exposure to changing temperatures. Test conditions are regulated to simulate the worst conditions for such temperature changes to measure the possible effects on the optical and mechanical performance of a cable.

- Standards: IEC 60794-1-2 F1 (Future IEC 60794-1-22 F1)



Water Penetration

Water penetration test examines the effectiveness of use of water blocking materials in fiber optic cable. This test is used as assurance criteria for the cable's resistance to longitudinal water penetration.

- Standards: IEC 60794-1-2 F5B (future IEC 60794-1-22 F5B/C)



Fire Performance Test Procedures



Fire Propagation on a Vertical Single Cable

This test evaluates the flame retardant characteristics of a single cable. Depending on the cable diameter and weight, a regulated flame is continuously applied for a certain amount of time to the cable. The cable needs to extinguish itself and the burnt portion of the cable should not reach the top of the sample for the cable to pass the test.

- Standard: IEC 60332-1



Fire Propagation on a Vertical Cable Bundle

This test examines the flame retardant characteristics of a group of bundled cables (depending on the volume of flammable materials) fixed on a vertical 3.5m ladder and flame is applied to the bundle for 20 or 40 minutes. The height of the fire damage should not exceed 2.5 m for the bundled cables to pass the test.

- Standard: IEC 60332-3



Smoke Emission

Smoke emissions considerably reduce the visibility in case of fires. This test measures the density of smoke emitted from burning cables and this is determined with an optical transmission measurement.

- Standard: IEC 61034



Fire Test with Circuit Integrity

It is vital for some circuits to maintain the power supply for the activation of safety equipment in case of fires. This test determines the circuit integrity of a cable during and after a prolonged fire. The cable passes the test when there is continuous circuit integrity during and after the test.

- Standard: IEC 60331-25



Patching and Termination MIPP – The Industrial-strength Patch Panel



Section Table of Contents

| Patching and Termination | Page |
|---|------------|
| MIPP – The Industrial-strength Patch Panel | |
| Overview | 548 |
| MIPP Fiber Splice Box | 549 |
| Overview | 549 |
| Standard Part Number Reference Guide | 551 |
| Standard Part Number Reference List | 552 |
| MIPP Copper Patch Panel | 554 |
| Overview | 554 |
| Standard Part Number Reference Guide | 555 |
| Standard Part Number Reference List | 555 |
| MIPP Mix | 556 |
| Overview | 556 |
| Standard Part Number Reference List | 557 |
| Accessories | 558 |

MIPP – The Industrial-strength Patch Panel



Belden's Modular Industrial Patch Panel (MIPP™) is a robust and versatile termination panel for both fiber and copper cables that need to be connected from operating environment to active equipment. Easily installed on any standard 35 mm DIN rail, MIPP features high port-density to meet expanding network connectivity needs within limited space. MIPP is Belden's high-quality solution for performance-critical Industrial Ethernet Applications.

Product Features

Robust Quality

- Lightweight, high strength aluminium housing, able to withstand temperatures from -20 °C to +70 °C
- UL approval (UL 1863)

Fiber Splice Box, Copper Patch Panel or Combination Applications

- MIPP comes as either a Fiber Splice Box, Copper Patch Panel, or a mix of both
- LC, SC, ST, SC and ST metal and E-2000 fiber duplex adapters multimode (OM1, OM2, OM3 and OM4) and singlemode (OS2 and OS2/APC)
- RJ45 copper keystone jacks (Shielded and Unshielded, Cat 5e, Cat 6, Cat 6A) and RJ45 copper coupler (shielded and unshielded, Cat 6A)

Easy Installation and Maintenance

- Splice tray and multiple fingers for easy fiber management
- Cable entry in two places (top or bottom) for ease of use and choice of placement in cabinet
- Three cable entries for single fiber module, for ring topology applications
- Double fiber module accommodates hybrid fiber cables, with single mode and multi mode fibers

Best Fit

- Available as part of a system with market leading Hirschmann switches and high performance Belden cabling for optimum reliability in Industrial Ethernet networks

Applications

The MIPP is ideal for use in a wide range of industrial applications requiring maximum system reliability and flexibility. The industrial design makes it highly suited for use in Machine Building, Transportation, Alternative Power Generation, Power Transmission & Distribution, and Oil & Gas markets, as well as for general use in enterprise, buildings and other applications.

MIPP – The Industrial-strength Patch Panel

The market shows a clear trend in the growing use of both Industrial Ethernet and fiber infrastructures in industrial networks. The Modular Industrial Patch Panel (MIPP) is the efficient termination and patching tool for an efficient, low maintenance and secure connection between cables and switches in performance critical applications.

Robust Quality

The durable MIPP panels are constructed of lightweight, high strength aluminium, securely protecting copper and optical fiber connections under the harshest industrial conditions. The housing is able to withstand temperatures from -20 °C to +70 °C and is resistant to shocks and vibrations. The patch panel's industrial quality guarantees a secure termination point for reliable industrial Ethernet connectivity.

Fiber, Copper, Both

MIPP comes as either a Fiber Splice Box, Copper Patch Panel, or a combination. Where both fiber and copper cables are needed together the design enables simply connecting both to a single panel. MIPP allows flexible network design for network engineers and flexible patching for system installers.

Easy Installation and Maintenance

The smart housing design allows quick and flexible installation of the MIPP on a DIN rail or a wall. Maintenance is equally easy, since the modules can be individually removed without dismantling the MIPP from the DIN rail or wall mount. Just take out the modules that need work and save precious time.

Future Proof

As network design may change over time, MIPP allows for modifications by simply swapping modules to meet the new design required. Installing a MIPP with blind* modules readies the solution for any extensions or modifications to come. MIPP is the future proof termination and patching solution for dynamic industries.

Save Space

Belden knows the importance of cabinet space in industrial sites. Continuous growth of system networks requires smart use of the existing space. MIPP is designed to fit. Thanks to its narrow housing design the required space is kept to a minimum. With three cable entry points (top and bottom) there is no need for special cabinet design or positioning.

Best Fit

MIPP is the reliable solution for connecting Belden cables and Hirschmann switches.



Benefits

- 1. Robustness:** durable UL certified (UL 1863) solution for linking Hirschmann switches to Belden cabling with a guaranteed lifetime of well over 10 years.
- 2. Versatility:** suitable in nearly any industrial application where fiber splicing, copper termination or both are required. A single MIPP allows for termination and patching of:
 - Up to 72 fiber cables: MIPP Fiber Splice Box
 - Up to 24 copper cables: MIPP Copper Patch Panel
- 3. Ease of use:** mounted on a DIN rail or wall, any module can be individually extracted from the housing for maintenance actions.
- 4. Future proof:** simply swap modules to meet new network demands or add blind modules at initial installation.
- 5. Save space and cost:** high port density and multiple cable entry points.

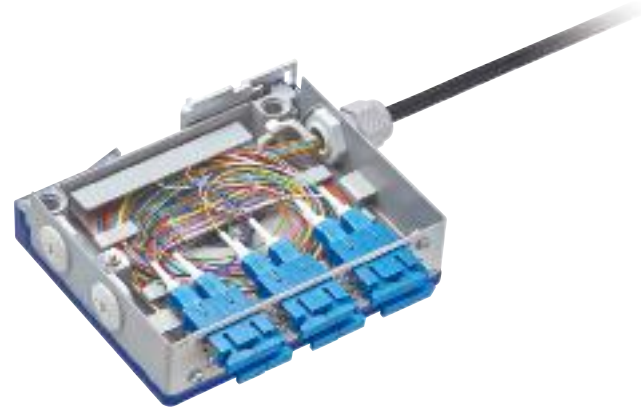
MIPP Fiber Splice Box

Save cost and space: high port density and multiple cable entry points minimize required cabinet space.

MIPP Fiber Splice Box guarantees efficient fiber termination and is designed for use in a wide range of industrial applications. MIPP Fiber Splice Box accommodates various fiber types and connectors: LC, SC, SC metal, ST, ST metal and E-2000 fiber duplex adapters.

MIPP Fiber Splice Box gives you everything you need

- Splice tray and multiple fingers for easy fiber management
- Up to three cable entries for single fiber module, ideal for ring topology applications
- High port density with up to 72 fiber counts (for a single MIPP) for efficient usage of space



Accessories for the MIPP Fiber Splice Box
Brilliance connectors

Type of Adapters

Single Fiber Modules

(up to 12 fiber connections)

- 6 x SC duplex adapters
- 6 x SC metal duplex adapters
- 6 x LC duplex adapters
- 6 x ST duplex adapters
- 6 x ST metal duplex adapters
- 6 x E-2000 duplex adapters

Double Fiber Modules

(up to 24 fiber connections)

- 12 x SC duplex adapters
- 12 x SC metal duplex adapters
- 12 x LC duplex adapters
- 12 x ST duplex adapters
- 12 x ST metal duplex adapters
- 12 x E-2000 duplex adapters

Fiber Applications

- Multimode: OM1, OM2, OM3 and OM4
- Singlemode: OS2 and OS2/APC

MIPP Fiber Splice Box is UL certified (UL 1863).

MIPP Fiber Splice Box Single Module
Standard Part Number Reference Guide

| | | |
|----------|-------------------------|---|
| 1 | System build-up | MIPP Fiber Splice Box |
| 2 | Number of Fibers | Single Module (Fiber count up to 12) |
| 3 | Mounting Type | DIN rail (wall mount also available) |
| 4 | Adapter | LC * SC * |

| | | | | | | | | | | |
|----------|------------------------------|--------------------|-------------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| 5 | Application | OM1 | OM2 | OM3 | OS2 | OM1 | OM2 | OM3 | OS2 | |
| | Color | Beige | Beige | Aqua | Blue | Beige | Beige | Aqua | Blue | |
| | Adapter sleeve material | Phosphor Bronze | | | Ceramic | | Phosphor Bronze | | Ceramic | |
| | Part Number | MIPP-01-030 | MIPP-01-033 | MIPP-01-003 | MIPP-01-005 | MIPP-01-007 | MIPP-01-010 | MIPP-01-012 | MIPP-01-013 | |
| | Accessories | | | | | | | | | |
| | Pigtails | Part Number | MIPP-01-031 | MIPP-01-002 | MIPP-01-004 | MIPP-01-006 | MIPP-01-008 | MIPP-01-011 | MIPP-01-037 | MIPP-01-014 |
| | Brilliance Connectors | Part Number | MIPP-01-032 | MIPP-01-001 | MIPP-01-034 | MIPP-01-035 | MIPP-01-036 | MIPP-01-009 | MIPP-01-038 | MIPP-01-039 |

| | | |
|----------|----------------|-------------|
| 4 | Adapter | ST * |
|----------|----------------|-------------|

* SC and ST available also in metal adapters via Customer Service
 * E-2000 adapters available via Customer Service
 * OM4 fibers available via Customer Service

| | | | | | | |
|----------|------------------------------|--------------------|-------------|-------------|-------------|-------------|
| 5 | Application | OM1 | OM2 | OM3 | OS2 | |
| | Color | Beige | Beige | Aqua | Blue | |
| | Adapter sleeve material | Phosphor Bronze | | Ceramic | | |
| | Part Number | MIPP-01-015 | MIPP-01-042 | MIPP-01-017 | MIPP-01-019 | |
| | Accessories | | | | | |
| | Pigtails | Part Number | MIPP-01-040 | MIPP-01-016 | MIPP-01-018 | MIPP-01-045 |
| | Brilliance Connectors | Part Number | MIPP-01-041 | MIPP-01-043 | MIPP-01-044 | MIPP-01-046 |

| | |
|-------------------------|---|
| Material | Steel (powder coated) |
| Weight (gr) | 560 |
| Protection Class | IP40 |
| Cable Entry | <ul style="list-style-type: none"> • 3 possible cable entries • 1 M16 Gland installed • 1 extra M16 Gland supplied |
| Diameter Cable | 3 to 10 mm |
| Cable Types | loose-tube, mini-breakout or breakout cables of up to 12 fibers |
| Mating Cycles | 500 cycles (E-2000 1000 cycles) |

MIPP Fiber Splice Box
Standard Part Number Reference List

| Part No. | Max Number Fibers | Type of Module | Mounting Type | | Adapter Type | | | | Application | | | | | Accessories | | |
|-------------|-------------------|---------------------------|---------------|------------|--------------|----|----|---------|-------------|-----|-----|------------|----------|-------------|-----------------------|--|
| | | | DIN Rail | Wall Mount | LC | SC | ST | E-2000™ | Multimode | | | Singlemode | | Pigtails | Brilliance Connectors | |
| | | | | | | | | | OM1 | OM2 | OM3 | OS2 | OS2/A PC | | | |
| MIPP-00-001 | – | No Housing – Blind Module | | | | | | | | | | | | | | |
| MIPP-00-002 | 12 | No Housing Single | | | • | | | | | • | | | | | | |
| MIPP-00-003 | 12 | No Housing Single | | | | • | | | | • | | | | | | |
| MIPP-00-004 | 12 | No Housing Single | | | | • | | | | | • | | | | | |
| MIPP-01-030 | 12 | 1 x Single | • | | • | | | | | • | | | | | | |
| MIPP-01-031 | 12 | 1 x Single | • | | • | | | | | • | | | | • | | |
| MIPP-01-032 | 12 | 1 x Single | • | | • | | | | | • | | | | | • | |
| MIPP-01-033 | 12 | 1 x Single | • | | • | | | | | • | | | | | | |
| MIPP-01-002 | 12 | 1 x Single | • | | • | | | | | • | | | | • | | |
| MIPP-01-001 | 12 | 1 x Single | • | | • | | | | | • | | | | | • | |
| MIPP-01-003 | 12 | 1 x Single | • | | • | | | | | | • | | | | | |
| MIPP-01-004 | 12 | 1 x Single | • | | • | | | | | | • | | | • | | |
| MIPP-01-034 | 12 | 1 x Single | • | | • | | | | | | • | | | | • | |
| MIPP-01-005 | 12 | 1 x Single | • | | • | | | | | | | • | | | | |
| MIPP-01-006 | 12 | 1 x Single | • | | • | | | | | | | • | | • | | |
| MIPP-01-035 | 12 | 1 x Single | • | | • | | | | | | | • | | | • | |
| MIPP-01-007 | 12 | 1 x Single | • | | | • | | | | • | | | | | | |
| MIPP-01-008 | 12 | 1 x Single | • | | | • | | | | • | | | | • | | |
| MIPP-01-036 | 12 | 1 x Single | • | | | • | | | | • | | | | | • | |
| MIPP-01-010 | 12 | 1 x Single | • | | | • | | | | | • | | | | | |
| MIPP-01-011 | 12 | 1 x Single | • | | | • | | | | • | | | | • | | |
| MIPP-01-009 | 12 | 1 x Single | • | | | • | | | | • | | | | | • | |
| MIPP-01-012 | 12 | 1 x Single | • | | | • | | | | | • | | | | | |
| MIPP-01-037 | 12 | 1 x Single | • | | | • | | | | | • | | | • | | |
| MIPP-01-038 | 12 | 1 x Single | • | | | • | | | | | • | | | | • | |
| MIPP-01-013 | 12 | 1 x Single | • | | | • | | | | | | • | | | | |
| MIPP-01-014 | 12 | 1 x Single | • | | | • | | | | | | • | | • | | |
| MIPP-01-039 | 12 | 1 x Single | • | | | • | | | | | | • | | | • | |
| MIPP-01-015 | 12 | 1 x Single | • | | | | • | | | • | | | | | | |
| MIPP-01-040 | 12 | 1 x Single | • | | | | • | | | • | | | | • | | |
| MIPP-01-041 | 12 | 1 x Single | • | | | | • | | | • | | | | | • | |
| MIPP-01-042 | 12 | 1 x Single | • | | | | • | | | | • | | | | | |
| MIPP-01-016 | 12 | 1 x Single | • | | | | • | | | • | | | | • | | |
| MIPP-01-043 | 12 | 1 x Single | • | | | | • | | | | • | | | | • | |
| MIPP-01-017 | 12 | 1 x Single | • | | | | • | | | | • | | | | | |
| MIPP-01-018 | 12 | 1 x Single | • | | | | • | | | | • | | | • | | |
| MIPP-01-044 | 12 | 1 x Single | • | | | | • | | | | • | | | | • | |
| MIPP-01-019 | 12 | 1 x Single | • | | | | • | | | | | • | | | | |
| MIPP-01-045 | 12 | 1 x Single | • | | | | • | | | | | • | | • | | |
| MIPP-01-046 | 12 | 1 x Single | • | | | | • | | | | | • | | | • | |

MIPP Fiber Splice Box

Standard Part Number Reference List (continued)

| Part No. | Max Number Fibers | Type of Module | Mounting Type | | Adapter Type | | | | Application | | | | | Accessories | |
|-------------|-------------------|----------------|---------------|------------|--------------|----|----|---------|-------------|-----|-----|------------|----------|-------------|-----------------------|
| | | | DIN Rail | Wall Mount | LC | SC | ST | E-2000™ | Multimode | | | Singlemode | | Pigtails | Brilliance Connectors |
| | | | | | | | | | OM1 | OM2 | OM3 | OS2 | OS2/A PC | | |
| MIPP-10-001 | 1 x 24 | 1 x Double | • | | | | | • | | | | | | • | |
| MIPP-10-002 | 1 x 24 | 1 x Double | • | | • | | | | | • | | | | | |
| MIPP-10-003 | 1 x 24 | 1 x Double | • | | • | | | | | | • | | | | |
| MIPP-10-004 | 1 x 24 | 1 x Double | • | | • | | | | | | | • | | | |
| MIPP-10-005 | 1 x 24 | 1 x Double | • | | • | | | | | | | • | | • | |
| MIPP-10-006 | 1 x 24 | 1 x Double | • | | | • | | | • | | | | | | |
| MIPP-10-007 | 1 x 24 | 1 x Double | • | | | • | | | • | | | | | • | |
| MIPP-10-008 | 1 x 24 | 1 x Double | • | | | • | | | | | • | | | | |
| MIPP-10-012 | 1 x 24 | 1 x Double | • | | | • | | | | | | • | | | |
| MIPP-10-009 | 1 x 24 | 1 x Double | • | | | • | | | | | | • | | • | |
| MIPP-10-010 | 1 x 24 | 1 x Double | • | | | | • | | • | | | | | • | |
| MIPP-10-011 | 1 x 24 | 1 x Double | | • | | • | | | • | | | | | | |
| MIPP-02-001 | 1 x 24 | 2 x Single | • | | 2x | | | | | 2x | | | | | |
| MIPP-02-002 | 1 x 24 | 2 x Single | • | | 2x | | | | | 2x | | | | 2x | |
| MIPP-02-003 | 1 x 24 | 2 x Single | • | | | 2x | | | 2x | | | | | | |
| MIPP-02-004 | 1 x 24 | 2 x Single | • | | | 2x | | | 2x | | | | | 2x | |
| MIPP-02-006 | 1 x 24 | 2 x Single | • | | | 2x | | | | 2x | | | | | |
| MIPP-02-008 | 1 x 24 | 2 x Single | • | | | 2x | | | | | 2x | | | | |
| MIPP-20-001 | 48 | 2 x Double | • | | 2x | | | | | | 2x | | | | |
| MIPP-04-001 | 48 | 4 x Single | • | | 4x | | | | | 4x | | | | | |

MIPP

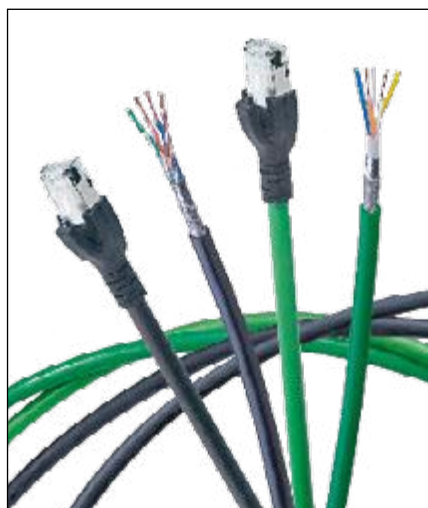
MIPP Copper Patch Panel

Perfect fit to the Belden cables and Hirschmann product families.

MIPP Copper Patch Panel ensures maximum reliability for Industrial Ethernet and PROFINET networks. The MIPP Copper Patch Panel compliments the market leading Hirschmann switches and high performance Belden cabling solutions by enabling cables to be terminated and linked to active equipment using DataTuff patch cords, in an organised and structured manner.

MIPP Copper Patch Panel covers all your copper termination and patching needs

- High variety of media and connectors:
 - RJ45 copper keystone jacks (unshielded and shielded, Cat 5e, Cat 6, Cat 6A)
 - RJ45 copper coupler (unshielded and shielded, Cat 6A)
- Suitable in nearly any industrial application thanks to the robust aluminium housing (resisting an operating temperature range of -20 °C to +70 °C)



Accessories for the MIPP Copper Patch Panel DataTuff for cables and patch cords

Type of Keystone

Single Copper Modules

- 2 or 4 x RJ45 keystone unshielded
- 2 or 4 x RJ45 keystone shielded
- 2 or 4 x RJ45 coupler unshielded
- 2 or 4 x RJ45 coupler shielded

Type of Cable Categories

- Cat 5e unshielded and shielded
- Cat 6 unshielded and shielded
- Cat 6A unshielded and shielded

MIPP Copper Patch Panel is UL certified (UL 1863).

MIPP Copper Patch Panel Single Module

Standard Part Number Reference Guide

| | | | | | | | | | | |
|----------|--------------------------------|--|--------------|--------------------------|----------------------------|--------------|--------------------------|----------------------------|--------------------------|-------------|
| 1 | System build-up | MIPP Copper Patch Panel | | | | | | | | |
| 2 | Number of Copper Cables | Single Module (Copper cables up to 4) | | | | | | | | |
| 3 | Mounting Type | DIN rail (wall mount also available) | | | | | | | | |
| 4 | Keystone | Unshielded KeyConnect | | | Shielded KeyConnect | | | Unshielded Couplers | Shielded Couplers | |
| 5 | Category | CAT 5e | CAT 6 | Cat 6_A | CAT 5e | CAT 6 | Cat 6_A | Cat 6_A | Cat 6_A | |
| | Weight (gr) | 515 | | | 640 | | | 515 | 640 | |
| | Connector Part Number | AX101310 | AX101321 | AX102283 | AX104595 | AX104596 | AX104562 | AX104024 | AX104501 | |
| | 4 Keystone* | Part Number | MIPP-01-021 | MIPP-01-020 | MIPP-01-022 | MIPP-01-023 | MIPP-01-024 | MIPP-01-025 | MIPP-01-026 | MIPP-01-027 |

* Available also with 2 keystones via Customer Service

| | |
|-------------------------|---|
| Material | Steel (powder coated) |
| Protection Class | IP20 |
| Cable Entry | <ul style="list-style-type: none"> • 1 cable entry point • with tie wrap fixing latch |
| Diameter Cable | 4 x 7.5 mm |
| Mating Cycles | 750 cycles |

Standard Part Number Reference List

| Part No. | Max Number Fibers | Type of Module | Mounting Type | Keystone Type | | | | Cable Type | | | |
|-------------|-------------------|---------------------------|---------------|---------------|------------|----------|------------|------------|--------|-------|--------------------|
| | | | | DIN Rail | KeyConnect | | Couplers | | Cat 5e | Cat 6 | Cat 6 _A |
| | | | | | Unshielded | Shielded | Unshielded | Shielded | | | |
| MIPP-00-001 | – | No Housing – Blind Module | | | | | | | | | |
| MIPP-00-005 | 4 | No Housing Single | | | • | | | • | | | |
| MIPP-00-006 | 4 | No Housing Single | | | • | | | | • | | |
| MIPP-01-021 | 4 | 1 x Single | • | | • | | | • | | | |
| MIPP-01-020 | 4 | 1 x Single | • | | • | | | | • | | |
| MIPP-01-022 | 4 | 1 x Single | • | | • | | | | | • | |
| MIPP-01-023 | 4 | 1 x Single | • | | | • | | • | | | |
| MIPP-01-024 | 4 | 1 x Single | • | | | • | | | • | | |
| MIPP-01-025 | 4 | 1 x Single | • | | | • | | | | • | |
| MIPP-01-026 | 4 | 1 x Single | • | | | | • | | | • | |
| MIPP-01-027 | 4 | 1 x Single | • | | | | | • | | • | |
| MIPP-02-010 | 8 | 2 x Single | • | | • | | | | • | | |
| MIPP-04-002 | 16 | 4 x Single | • | | | | 4x | | | 4x | |

MIPP Mix



Scan to view the MIPP Mix Video

The market shows a clear trend in the growing use of both Industrial Ethernet and fiber infrastructures in industrial networks. MIPP™ addresses this by allowing the connection of both fiber and copper cables in a single solution*. Specifically designed for industrial use, MIPP™'s functionality and reliability can make a significant contribution to the uptime and availability of performancecritical systems.

MIPP Fiber Splice Box and Copper Patch Panel for varying industrial networking needs.



* Up to 6 single modules, 3 double modules or a combination can be used in one MIPP™



MIPP Mix

Standard Part Number Reference List

| Part No. | Type of Module | Mounting Type | Module 1 | Module 2 | Module 3 | Module 4 | Module 5 |
|-------------|---------------------------|---------------|------------------------------------|-------------------------------------|-----------------------------|--------------|--------------|
| | | DIN Rail | | | | | |
| MIPP-00-001 | No Housing - Blind Module | | | | | | |
| MIPP-02-011 | 2 x Single | • | Fiber: LC OM2 with Pigtails | Blind Module | | | |
| MIPP-02-005 | 2 x Single | • | Fiber: SC OM1 with Pigtails | Copper: Unshielded Keystones Cat 5e | | | |
| MIPP-02-007 | 2 x Single | • | Fiber: SC OS2 | Copper: Unshielded Keystones Cat 6 | | | |
| MIPP-02-009 | 2 x Single | • | Fiber: SC OS2 with Pigtails | Copper: Unshielded Keystones Cat 5e | | | |
| MIPP-03-001 | 3 x Single | • | Copper: Unshielded Coupler, Cat 6 | Copper: Unshielded Coupler, Cat 6 | Fiber: SC OM3 | | |
| MIPP-21-001 | 3 x Single | • | Copper: Unshielded Coupler, Cat 5e | Fiber Double Module: ST OM2 | Fiber Double Module: ST OM2 | | |
| MIPP-05-001 | 5 x Single | • | Fiber: LC OS2 with Pigtails | Copper: Unshielded Coupler, Cat 6 | Blind Module | Blind Module | Blind Module |

MIPP

Accessories

MIPP Fiber Splice Box Accessories

| Pigtails | | | |
|---|---|---|--|
| SC | LC | ST | E-2000 |
| 1 or 2 packs of 12 pigtails, 900 micron, 0.6 mtr in 12 different colors: <ul style="list-style-type: none"> • SC/UPC SM 9/125, OS2 • SC/APC SM 9/125, OS2 • SC/PC MM 62.5/125, OM1 • SC/PC MM 50/125, OM2 • SC/PC MM 50/125, OM3 • SC/PC MM 50/125, OM4 | 1 or 2 packs of 12 pigtails, 900 micron, 0.6 mtr in 12 different colors: <ul style="list-style-type: none"> • LC/UPC SM 9/125, OS2 • LC/APC SM 9/125, OS2 • LC/PC MM 62.5/125, OM1 • LC/PC MM 50/125, OM2 • LC/PC MM 50/125, OM3 • LC/PC MM 50/125, OM4 | 1 or 2 packs of 12 pigtails, 900 micron, 0.6 mtr in 12 different colors: <ul style="list-style-type: none"> • ST/UPC SM 9/125, OS2 • ST/PC MM 62.5/125, OM1 • ST/PC MM 50/125, OM2 • ST/PC MM 50/125, OM3 • ST/PC MM 50/125, OM4 | 1 or 2 packs of 12 pigtails, 900 micron, 0.6 mtr in 12 different colors: <ul style="list-style-type: none"> • E-2000/UPC SM 9/125, OS2 • E-2000/APC SM 9/125, OS2 • E-2000/PC MM 62.5 ,OM1 • E-2000/PC MM 50/125,OM2 • E-2000/PC MM 50/125,OM3 • E-2000/PC MM 50/125,OM4 |
| Brilliance Field Installable Connectors | | | |
| 12 or 24 brilliance connectors SC, 900 micron: <ul style="list-style-type: none"> • OS2 Blue – AX105208 • OM1 Beige – AX105205 • OM2 Black – AX105206 • OM3/4 Aqua – AX105207 | 12 or 24 brilliance connectors LC, 900 micron: <ul style="list-style-type: none"> • OS2 Blue – AX105203 • OM1 Beige – AX105200 • OM2 Black – AX105201 • OM3/4 Aqua – AX105202 | 12 or 24 brilliance connectors ST, 900 micron: <ul style="list-style-type: none"> • OS2 Blue – AX105213 • OM1 Beige – AX105210 • OM2 Black – AX105211 • OM3/4 Aqua – AX105212 | – |

MIPP Copper Panel Accessories

Industrial Ethernet DataTuff Patch Cords

- Cat 5e 2 or 4 pairs
- Cat 6 4 pairs
- Cat 6A 4 pairs
- Shielded or Unshielded
- Twisted Pair, Quad or Bonded-Pair
- PVC, FRNC, TPE or PUR jackets



Technical Information

Section Table of Contents

| Technical Information | Page |
|---|------------|
| Belden Conductor Color Code Charts | 560 |
| Conductors | 562 |
| Insulations and Jackets | 565 |
| Shielding | 569 |
| Cables Standards Reference Guide | 572 |
| Cables Substitution Chart | 573 |
| Canadian Substitution Hierarchy and Catalog Terms of Use | 574 |
| Glossary | 575 |

Belden Conductor Color Code Charts

Color Code Chart 1

| Cond. No. | Color |
|-----------|--------|
| 1 | Black |
| 2 | White |
| 3 | Red |
| 4 | Green |
| 5 | Brown |
| 6 | Blue |
| 7 | Orange |
| 8 | Yellow |
| 9 | Purple |
| 10 | Gray |
| 11 | Pink |
| 12 | Tan |

Color Code Chart 2 and 2R: 2 = Spiral Stripe, 2R = Ring Band Stripe

| Cond. No. | Color |
|-----------|---------------------|
| 1 | Black |
| 2 | White |
| 3 | Red |
| 4 | Green |
| 5 | Orange |
| 6 | Blue |
| 7 | White/Black Stripe |
| 8 | Red/Black Stripe |
| 9 | Green/Black Stripe |
| 10 | Orange/Black Stripe |
| 11 | Blue/Black Stripe |
| 12 | Black/White Stripe |
| 13 | Red/White Stripe |

| Cond. No. | Color |
|-----------|---------------------|
| 14 | Green/White Stripe |
| 15 | Blue/White Stripe |
| 16 | Black/Red Stripe |
| 17 | White/Red Stripe |
| 18 | Orange/Red Stripe |
| 19 | Blue/Red Stripe |
| 20 | Red/Green Stripe |
| 21 | Orange/Green Stripe |
| 22 | Black/White/Red |
| 23 | White/Black/Red |
| 24 | Red/Black/White |
| 25 | Green/Black/White |
| 26 | Orange/Black/White |

| Cond. No. | Color |
|-----------|--------------------|
| 27 | Blue/Black/White |
| 28 | Black/Red/Green |
| 29 | White/Red/Green |
| 30 | Red/Black/Green |
| 31 | Green/Black/Orange |
| 32 | Orange/Black/Green |
| 33 | Blue/White/Orange |
| 34 | Black/White/Orange |
| 35 | White/Red/Orange |
| 36 | Orange/White/Blue |
| 37 | White/Red/Blue |
| 38 | Black/White/Green |
| 39 | White/Black/Green |

| Cond. No. | Color |
|-----------|------------------|
| 40 | Red/White/Green |
| 41 | Green/White/Blue |
| 42 | Orange/Red/Green |
| 43 | Blue/Red/Green |
| 44 | Black/White/Blue |
| 45 | White/Black/Blue |
| 46 | Red/White/Blue |
| 47 | Green/Orange/Red |
| 48 | Orange/Red/Blue |
| 49 | Blue/Orange/Red |
| 50 | Black/Orange/Red |

Color Code Chart 3: Belden Standard for Paired Cable

| Pair | Color |
|------|----------------|
| 1 | Black & Red |
| 2 | Black & White |
| 3 | Black & Green |
| 4 | Black & Blue |
| 5 | Black & Yellow |
| 6 | Black & Brown |
| 7 | Black & Orange |
| 8 | Red & White |
| 9 | Red & Green |
| 10 | Red & Blue |

| Pair | Color |
|------|----------------|
| 11 | Red & Yellow |
| 12 | Red & Brown |
| 13 | Red & Orange |
| 14 | Green & White |
| 15 | Green & Blue |
| 16 | Green & Yellow |
| 17 | Green & Brown |
| 18 | Green & Orange |
| 19 | White & Blue |
| 20 | White & Yellow |

| Pair | Color |
|------|-----------------|
| 21 | White & Brown |
| 22 | White & Orange |
| 23 | Blue & Yellow |
| 24 | Blue & Brown |
| 25 | Blue & Orange |
| 26 | Brown & Yellow |
| 27 | Brown & Orange |
| 28 | Orange & Yellow |
| 29 | Purple & Orange |
| 30 | Purple & Red |

| Pair | Color |
|------|-----------------|
| 31 | Purple & White |
| 32 | Purple & Green |
| 33 | Purple & Blue |
| 34 | Purple & Yellow |
| 35 | Purple & Brown |
| 36 | Purple & Black |
| 37 | Gray & White |

Color Code Chart 4: Belden Standard for Paired Cable

| Pair | Color |
|------|----------------|
| 1 | White & Blue |
| 2 | White & Orange |
| 3 | White & Green |
| 4 | White & Brown |
| 5 | White & Gray |
| 6 | Red & Blue |
| 7 | Red & Orange |

| Pair | Color |
|------|----------------|
| 8 | Red & Green |
| 9 | Red & Brown |
| 10 | Red & Gray |
| 11 | Black & Blue |
| 12 | Black & Orange |
| 13 | Black & Green |
| 14 | Black & Brown |

| Pair | Color |
|------|-----------------|
| 15 | Black & Gray |
| 16 | Yellow & Blue |
| 17 | Yellow & Orange |
| 18 | Yellow & Green |
| 19 | Yellow & Brown |
| 20 | Yellow & Gray |
| 21 | Purple & Blue |

| Pair | Color |
|------|-----------------|
| 22 | Purple & Orange |
| 23 | Purple & Green |
| 24 | Purple & Brown |
| 25 | Purple & Gray |

Color Code Chart 5: Western Electric Standard for Paired Cable

| Pair | Color |
|------|---|
| 1 | White/Blue Stripe & Blue/White Stripe |
| 2 | White/Orange Stripe & Orange/White Stripe |
| 3 | White/Green Stripe & Green/White Stripe |
| 4 | White/Brown Stripe & Brown/White Stripe |
| 5 | White/Gray Stripe & Gray/White Stripe |
| 6 | Red/Blue Stripe & Blue/Red Stripe |
| 7 | Red/Orange Stripe & Orange/Red Stripe |

| Pair | Color |
|------|---|
| 8 | Red/Green Stripe & Green/Red Stripe |
| 9 | Red/Brown Stripe & Brown/Red Stripe |
| 10 | Red/Gray Stripe & Gray/Red Stripe |
| 11 | Black/Blue Stripe & Blue/Black Stripe |
| 12 | Black/Orange Stripe & Orange/Black Stripe |
| 13 | Black/Green Stripe & Green/Black Stripe |
| 14 | Black/Brown Stripe & Brown/Black Stripe |

| Pair | Color |
|------|---|
| 15 | Black/Gray Stripe & Gray/Black Stripe |
| 16 | Yellow/Blue Stripe & Blue/Yellow Stripe |
| 17 | Yellow/Orange Stripe & Orange/Yellow Stripe |
| 18 | Yellow/Green Stripe & Green/Yellow Stripe |
| 19 | Yellow/Brown Stripe & Brown/Yellow Stripe |
| 20 | Yellow/Gray Stripe & Gray/Yellow Stripe |
| 21 | Purple/Blue Stripe & Blue/Purple Stripe |

| Pair | Color |
|------|---|
| 22 | Purple/Orange Stripe & Orange/Purple Stripe |
| 23 | Purple/Green Stripe & Green/Purple Stripe |
| 24 | Purple/Brown Stripe & Brown/Purple Stripe |
| 25 | Purple/Gray Stripe & Gray/Purple Stripe |

Color Code Chart E1 ICEA S-73-532

| Cond. No. | Base Color | Tracer | Tracer |
|-----------|------------|--------|--------|
| 1 | Black | - | - |
| 2 | White | - | - |
| 3 | Red | - | - |
| 4 | Green | - | - |
| 5 | Orange | - | - |
| 6 | Blue | - | - |
| 7 | White | Black | - |
| 8 | Red | Black | - |
| 9 | Green | Black | - |
| 10 | Orange | Black | - |
| 11 | Blue | Black | - |
| 12 | Black | White | - |
| 13 | Red | White | - |

| Cond. No. | Base Color | Tracer | Tracer |
|-----------|------------|--------|--------|
| 14 | Green | White | - |
| 15 | Blue | White | - |
| 16 | Black | Red | - |
| 17 | White | Red | - |
| 18 | Orange | Red | - |
| 19 | Blue | Red | - |
| 20 | Red | Green | - |
| 21 | Orange | Green | - |
| 22 | Black | White | Red |
| 23 | White | Black | Red |
| 24 | Red | Black | White |
| 25 | Green | Black | White |
| 26 | Orange | Black | White |

| Cond. No. | Base Color | Tracer | Tracer |
|-----------|------------|--------|--------|
| 27 | Blue | Black | White |
| 28 | Black | Red | Green |
| 29 | White | Red | Green |
| 30 | Red | Black | Green |
| 31 | Green | Black | Orange |
| 32 | Orange | Black | Green |
| 33 | Blue | White | Orange |
| 34 | Black | White | Orange |
| 35 | White | Red | Orange |
| 36 | Orange | White | Blue |
| 37 | White | Red | Blue |
| 38 | Black | White | Green |
| 39 | White | Black | Green |

| Cond. No. | Base Color | Tracer | Tracer |
|-----------|------------|--------|--------|
| 40 | Red | White | Green |
| 41 | Green | White | Blue |
| 42 | Orange | Red | Green |
| 43 | Blue | Red | Green |
| 44 | Black | White | Blue |
| 45 | White | Black | Blue |
| 46 | Red | White | Blue |
| 47 | Green | Orange | Red |
| 48 | Orange | Red | Blue |
| 49 | Blue | Red | Orange |
| 50 | Black | Orange | Red |

Pair cables are Black, White, and Numbered.
Triad cables are Black, White, Red, and Numbered.

Color Code Chart E2 ICEA S-73-532

| Cond. No. | Base Color | Tracer |
|-----------|------------|--------|
| 1 | Black | - |
| 2 | Red | - |
| 3 | Blue | - |
| 4 | Orange | - |
| 5 | Yellow | - |
| 6 | Brown | - |
| 7 | Red | Black |
| 8 | Blue | Black |
| 9 | Orange | Black |
| 10 | Yellow | Black |

| Cond. No. | Base Color | Tracer |
|-----------|------------|--------|
| 11 | Brown | Black |
| 12 | Black | Red |
| 13 | Blue | Red |
| 14 | Orange | Red |
| 15 | Yellow | Red |
| 16 | Brown | Red |
| 17 | Black | Blue |
| 18 | Red | Blue |
| 19 | Orange | Blue |
| 20 | Yellow | Blue |

| Cond. No. | Base Color | Tracer |
|-----------|------------|--------|
| 21 | Brown | Blue |
| 22 | Black | Orange |
| 23 | Red | Orange |
| 24 | Blue | Orange |
| 25 | Yellow | Orange |
| 26 | Brown | Orange |
| 27 | Black | Yellow |
| 28 | Red | Yellow |
| 29 | Blue | Yellow |
| 30 | Orange | Yellow |

| Cond. No. | Base Color | Tracer |
|-----------|------------|--------|
| 31 | Brown | Yellow |
| 32 | Black | Brown |
| 33 | Red | Brown |
| 34 | Blue | Brown |
| 35 | Orange | Brown |
| 36 | Yellow | Brown |

Pair cables are Black, Red, and Numbered.
Triad cables are Black, Red, Blue and Numbered.
Colors repeat after 36 conductors.
There are no Green or White conductors or stripes.

**Color Code Chart M4
ICEA Method 4: All Conductors Black and Numbered ICEA S-73-532**

| Cond. No. | Conductor Printing |
|-----------|--------------------|
| 1 | "1-ONE-1" |
| 2 | "2-TWO-2" |
| 3 | "3-THREE-3" |
| 4 | "4-FOUR-4" |
| 5 | "5-FIVE-5" |
| 6 | "6-SIX-6" |
| 7 | "7-SEVEN-7" |
| 8 | "8-EIGHT-8" |
| 9 | "9-NINE-9" |
| 10 | "10-TEN-10" |
| 11 | "11-ELEVEN-11" |
| 12 | "12-TWELVE-12" |
| 13 | "13-THRIRTEEN-13" |

| Cond. No. | Conductor Printing |
|-----------|----------------------|
| 14 | "14-FOURTEEN-14" |
| 15 | "15-FIFTEEN-15" |
| 16 | "16-SIXTEEN-16" |
| 17 | "17-SEVENTEEN-17" |
| 18 | "18-EIGHTEEN-18" |
| 19 | "19-NINETEEN-19" |
| 20 | "20-TWENTY-20" |
| 21 | "21-TWENTY-ONE-21" |
| 22 | "22-TWENTY-TWO-22" |
| 23 | "23-TWENTY-THREE-23" |
| 24 | "24-TWENTY-FOUR-24" |
| 25 | "25-TWENTY-FIVE-25" |
| 26 | "26-TWENTY-SIX-26" |

| Cond. No. | Conductor Printing |
|-----------|----------------------|
| 27 | "27-TWENTY-SEVEN-27" |
| 28 | "28-TWENTY-EIGHT-28" |
| 29 | "29-TWENTY-NINE-29" |
| 30 | "30-THIRTY-30" |
| 31 | "31-THIRTY-ONE-31" |
| 32 | "32-THIRTY-TWO-32" |
| 33 | "33-THRITY-THREE-33" |
| 34 | "34-THIRTY-FOUR-34" |
| 35 | "35-THIRTY-FIVE-35" |
| 36 | "36-THIRTY-SIX-36" |
| 37 | "37-THIRTY-SEVEN-37" |
| 38 | "38-THIRTY-EIGHT-38" |
| 39 | "39-THIRTY-NINE-39" |

| Cond. No. | Conductor Printing |
|-----------|---------------------|
| 40 | "40-FORTY-40" |
| 41 | "41-FORTY-ONE-41" |
| 42 | "42-FORTY-TWO-42" |
| 43 | "43-FORTY-THREE-43" |
| 44 | "44-FORTY-FOUR-44" |
| 45 | "45-FORTY-FIVE-45" |
| 46 | "46-FORTY-SIX-46" |
| 47 | "47-FORTY-SEVEN-47" |
| 48 | "48-FORTY-EIGHT-48" |
| 49 | "49-FORTY-NINE-49" |
| 50 | "50-FIFTY-50" |

Conductors

Solid Copper Wire, American Wire Gage

| Gage (AWG) | Nominal OD | | Nominal Circular MIL Area | Nominal Weight (Lbs. per 1000') | Nominal Resistance @ 68°F (Ω/1000') |
|------------|------------|------|---------------------------|---------------------------------|-------------------------------------|
| | Inches | mm | | | |
| 10 | .1019 | 2.60 | 10,380.0 | 31.43 | .9989 |
| 11 | .0907 | 2.30 | 8234.0 | 24.92 | 1.260 |
| 12 | .0808 | 2.05 | 6530.0 | 19.77 | 1.588 |
| 13 | .0720 | 1.83 | 5178.0 | 15.68 | 2.003 |
| 14 | .0641 | 1.63 | 4107.0 | 12.43 | 2.525 |
| 15 | .0571 | 1.45 | 3260.0 | 9.858 | 3.184 |
| 16 | .0508 | 1.29 | 2583.0 | 7.818 | 4.016 |
| 17 | .0453 | 1.15 | 2050.0 | 6.200 | 5.064 |
| 18 | .0403 | 1.02 | 1620.0 | 4.917 | 6.385 |
| 19 | .0359 | .912 | 1200.0 | 3.899 | 8.051 |
| 20 | .0320 | .813 | 1020.0 | 3.092 | 10.15 |
| 21 | .0285 | .724 | 812.1 | 2.452 | 12.80 |
| 22 | .0253 | .643 | 640.4 | 1.945 | 16.14 |
| 23 | .0226 | .574 | 511.5 | 1.542 | 20.36 |
| 24 | .0201 | .511 | 404.0 | 1.223 | 25.67 |
| 25 | .0179 | .455 | 320.4 | .9699 | 32.37 |
| 26 | .0159 | .404 | 253.0 | .7692 | 40.81 |
| 27 | .0142 | .361 | 201.5 | .6100 | 51.47 |
| 28 | .0126 | .320 | 159.8 | .4837 | 64.90 |
| 29 | .0113 | .287 | 126.7 | .3836 | 81.83 |
| 30 | .0100 | .254 | 100.5 | .3042 | 103.2 |
| 31 | .0089 | .226 | 79.7 | .2413 | 130.1 |
| 32 | .0080 | .203 | 63.21 | .1913 | 164.1 |
| 33 | .0071 | .180 | 50.13 | .1517 | 206.9 |
| 34 | .0063 | .160 | 39.75 | .1203 | 260.9 |
| 35 | .0056 | .142 | 31.52 | .09542 | 331.0 |
| 36 | .0050 | .127 | 25.00 | .07568 | 414.8 |
| 37 | .0045 | .114 | 19.83 | .0613 | 512.1 |
| 38 | .0040 | .102 | 15.72 | .04759 | 648.6 |
| 39 | .0035 | .089 | 12.20 | .03774 | 847.8 |
| 40 | .0031 | .079 | 9.61 | .02993 | 1080.0 |

Information from National Bureau of Standards Copper Wire Tables – Handbook 100.

Unparalleled Performance

Belden is one of only a very few cable manufacturers to draw and anneal its own conductors. This is a time-consuming process, but it allows us to ensure signal integrity, as well as proper physical characteristics.

In addition, the standards under which we design and manufacture our fiber optic cabling are among the strictest in the industry. The result is a comprehensive offering of products which give unparalleled performance and can satisfy your most demanding operating and environmental challenges.

Conductors
Stranded Copper Wire, American Wire Gage

| Gage (AWG) | Stranding (Nom. AWG) | Min. Average OD of Strand | Approximate OD | | ASTM Min. Circular MIL Area | Min. Weight (Lbs./1000') | Max. Resistance* @ 68°F (Ω/1000') |
|------------|----------------------|---------------------------|----------------|------|-----------------------------|--------------------------|-----------------------------------|
| | | | Inch | mm | | | |
| 36 | 7 x 44 | .0019 | .006 | .152 | 25 | .076 | 414.8 |
| 34 | 7 x 42 | .0024 | .0075 | .191 | 39.7 | .121 | 260.9 |
| 32 | 7 x 40 | .0030 | .0093 | .236 | 64 | .195 | 164.1 |
| 32 | 19 x 44 | .0018 | .010 | .254 | 64 | .195 | 164.1 |
| 30□ | 7 x 38 | .0038 | .012 | .305 | 100 | .304 | 112.0 |
| 30 | 19 x 42 | .0023 | .012 | .305 | 100 | .304 | 112.0 |
| 28□ | 7 x 36 | .0048 | .015 | .381 | 159 | .484 | 70.7 |
| 28□ | 19 x 40 | .0029 | .016 | .406 | 159 | .484 | 70.7 |
| 27 | 7 x 35 | .0054 | .017 | .432 | 202 | .614 | 55.6 |
| 26□ | 7 x 34 | .0060 | .019 | .483 | 253 | .770 | 44.4 |
| 26 | 10 x 36 | .0050 | .021 | .533 | 253 | .770 | 44.4 |
| 26□ | 19 x 38 | .0036 | .020 | .508 | 253 | .770 | 44.4 |
| 24□ | 7 x 32 | .0076 | .024 | .610 | 404 | 1.229 | 27.7 |
| 24 | 10 x 34 | .0064 | .024 | .610 | 404 | 1.229 | 27.7 |
| 24□ | 19 x 36 | .0046 | .024 | .610 | 404 | 1.229 | 27.7 |
| 24□ | 42 x 40 | .0031 | .023 | .584 | 404 | 1.229 | 27.7 |
| 22□ | 7 x 30 | .0096 | .030 | .762 | 640 | 1.947 | 17.5 |
| 22□ | 19 x 34 | .0058 | .031 | .787 | 640 | 1.947 | 17.5 |
| 22 | 26 x 36 | .0050 | .030 | .762 | 640 | 1.947 | 17.5 |
| 20□ | 7 x 28 | .0126 | .038 | .965 | 1020 | 3.103 | 10.9 |
| 20 | 10 x 30 | .0101 | .037 | .940 | 1020 | 3.103 | 10.9 |
| 20□ | 19 x 32 | .0073 | .037 | .940 | 1020 | 3.103 | 10.9 |
| 20 | 26 x 34 | .0063 | .036 | .914 | 1020 | 3.103 | 10.9 |
| 20□ | 42 x 36 | .0049 | .038 | .965 | 1020 | 3.103 | 10.9 |
| 18□ | 7 x 26 | .0152 | .048 | 1.22 | 1620 | 4.93 | 6.92 |
| 18 | 16 x 30 | .0101 | .047 | 1.19 | 1620 | 4.93 | 6.92 |
| 18□ | 19 x 30 | .0092 | .049 | 1.24 | 1620 | 4.93 | 6.92 |
| 18□ | 42 x 34 | .0062 | .047 | 1.19 | 1620 | 4.93 | 6.92 |
| 18□ | 65 x 36 | .0050 | .047 | 1.19 | 1620 | 4.93 | 6.92 |
| 16□ | 7 x 24 | .0192 | .060 | 1.52 | 2580 | 7.85 | 4.35 |
| 16□ | 19 x 29 | .0117 | .058 | 1.47 | 2580 | 7.85 | 4.35 |
| 16 | 26 x 30 | .0100 | .059 | 1.50 | 2580 | 7.85 | 4.35 |
| 16□ | 65 x 34 | .0063 | .059 | 1.50 | 2580 | 7.85 | 4.35 |
| 16 | 105 x 36 | .0050 | .059 | 1.50 | 2580 | 7.85 | 4.35 |
| 14□ | 7 x 22 | .0242 | .076 | 1.93 | 4110 | 12.50 | 2.73 |
| 14□ | 19 x 26 | .0147 | .071 | 1.80 | 4110 | 12.50 | 2.73 |
| 14□ | 42 x 30 | .0099 | .075 | 1.91 | 4110 | 12.50 | 2.73 |
| 14 | 105 x 34 | .0063 | .075 | 1.91 | 4110 | 12.50 | 2.73 |
| 12□ | 7 x 20 | .0305 | .096 | 2.44 | 6530 | 19.86 | 1.71 |
| 12□ | 19 x 25 | .0185 | .093 | 2.36 | 6530 | 19.86 | 1.71 |
| 12□ | 65 x 30 | .0100 | .095 | 2.41 | 6530 | 19.86 | 1.71 |
| 12 | 165 x 34 | .0063 | .095 | 2.41 | 6530 | 19.86 | 1.71 |
| 10 | 37 x 26 | .0167 | .115 | 2.92 | 10380 | 31.58 | 1.08 |
| 10 | 65 x 28 | .0126 | .120 | 3.05 | 10380 | 31.58 | 1.08 |
| 10 | 105 x 30 | .0099 | .118 | 3.00 | 10380 | 31.58 | 1.08 |

Conductors

Metric/Imperial/AWG Equivalentents (Square Millimeters/Square Inches/Circular Mills/AWG)

| Sq. mm | Sq. In. | Cir. Mills | AWG | Sq. mm | Sq. In. | Cir. Mills | AWG | Sq. mm | Sq. In. | Cir. Mills | AWG |
|--------|---------|------------|-----|--------|---------|------------|-----|--------|---------|------------|-----|
| 1000 | 1.550 | 1974000 | | 75 | .1163 | 148050 | | 8.5 | .01317 | 16779 | |
| 975 | 1.511 | 1924700 | | 70 | .1085 | 138180 | | – | – | 16510 | 8 |
| 950 | 1.472 | 1875300 | | – | – | 133100 | 2/0 | 8.0 | .01240 | 15792 | |
| 925 | 1.434 | 1826000 | | 65 | .1008 | 128310 | | 7.5 | .01163 | 14805 | |
| 900 | 1.395 | 1776600 | | 60 | .0930 | 118440 | | 7.0 | .01085 | 13818 | |
| 875 | 1.356 | 1727300 | | 55 | .0853 | 108570 | | – | – | 13090 | 9 |
| 850 | 1.317 | 1677900 | | – | – | 105600 | 1/0 | 6.5 | .01008 | 12831 | |
| 825 | 1.279 | 1628600 | | 50 | .0775 | 98700 | | 6.0 | .00930 | 11844 | |
| 800 | 1.240 | 1579200 | | 45 | .0698 | 88830 | | 5.5 | .00853 | 10857 | |
| 775 | 1.201 | 1529900 | | – | – | 83690 | 1 | – | – | 10380 | 10 |
| 750 | 1.163 | 1480500 | | 40 | .0620 | 78960 | | 5.00 | .00775 | 9870 | |
| 725 | 1.124 | 1431200 | | 35 | .0542 | 69090 | | 4.75 | .00736 | 9377 | |
| 700 | 1.085 | 1381800 | | – | – | 66360 | 2 | 4.50 | .00698 | 8883 | |
| 675 | 1.046 | 1332500 | | 30 | .0465 | 59220 | | 4.25 | .00659 | 8390 | |
| 650 | 1.008 | 1283100 | | – | – | 52620 | 3 | – | – | 8230 | 11 |
| 625 | .969 | 1233800 | | 25 | .0388 | 49350 | | 4.00 | .00620 | 7896 | |
| 600 | .930 | 1184400 | | – | – | 41740 | 4 | 3.75 | .00581 | 7403 | |
| 575 | .891 | 1135100 | | 20.0 | .0310 | 39480 | | 3.50 | .00542 | 6909 | |
| 550 | .853 | 1085700 | | 19.5 | .0302 | 38490 | | – | – | 6530 | 12 |
| 525 | .814 | 1036400 | | 19.0 | .0294 | 37510 | | 3.25 | .00504 | 6416 | |
| 500 | .775 | 987000 | | 18.5 | .0287 | 36520 | | 3.00 | .00465 | 5922 | |
| 475 | .736 | 937700 | | 18.0 | .0279 | 35530 | | 2.75 | .00426 | 5429 | |
| 450 | .698 | 888300 | | 17.5 | .0271 | 34550 | | – | – | 5180 | 13 |
| 425 | .659 | 839000 | | 17.0 | .0264 | 33560 | | 2.50 | .00388 | 4935 | |
| 400 | .620 | 789600 | | – | – | 33090 | 5 | 2.25 | .00349 | 4422 | |
| 375 | .581 | 740300 | | 16.5 | .0256 | 32560 | | – | – | 4110 | 14 |
| 350 | .542 | 690900 | | 16.0 | .0248 | 31580 | | 2.00 | .00310 | 3948 | |
| 325 | .504 | 641600 | | 15.5 | .0240 | 30600 | | 1.75 | .00271 | 3455 | |
| 300 | .465 | 592200 | | 15.0 | .0233 | 29610 | | – | – | 3260 | 15 |
| 275 | .426 | 542900 | | 14.5 | .0225 | 28620 | | 1.50 | .00233 | 2961 | |
| 250 | .388 | 493500 | | 14.0 | .0217 | 27640 | | – | – | 2580 | 16 |
| 225 | .349 | 444200 | | 13.5 | .0209 | 26650 | | 1.25 | .00194 | 2468 | |
| 200 | .310 | 394800 | | – | – | 26420 | 6 | – | – | 2050 | 17 |
| 175 | .271 | 345500 | | 13.0 | .0201 | 25660 | | 1.00 | .00155 | 1974 | |
| 150 | .233 | 296100 | | 12.5 | .0194 | 24680 | | .90 | .00140 | 1777 | |
| 125 | .1938 | 246800 | | 12.0 | .0186 | 23690 | | – | – | 1620 | 18 |
| – | – | 211600 | 4/0 | 11.5 | .0178 | 22700 | | .80 | .00124 | 1579 | |
| 100 | .1550 | 197400 | | 11.0 | .0171 | 21710 | | .75 | .00116 | 1481 | |
| 95 | .1472 | 187530 | | – | – | 20820 | 7 | .70 | .00109 | 1382 | |
| 90 | .1395 | 177660 | | 10.5 | .0163 | 20730 | | – | – | 1290 | 19 |
| – | – | 167800 | 3/0 | 10.0 | .0155 | 19740 | | .60 | .00093 | 1184 | |
| 85 | .1317 | 167790 | | 9.5 | .01472 | 18753 | | – | – | 1029 | 20 |
| 80 | .1240 | 157920 | | 9.0 | .01395 | 17766 | | .50 | .000775 | 987 | |

| To Convert | Multiply By |
|-----------------------|-------------|
| Inches to millimeters | 25.4 |
| Millimeters to inches | .03937 |

Insulations and Jackets

Overview

Insulations

Because we formulate our own insulations, they provide superior performance under a variety of hostile environmental conditions. Belden cables are available in UL Listed and CSA Approved insulation compounds.

Among the insulations we offer:

- Polyethylene
- Polyvinyl chloride (PVC)
- Polypropylene

Also available are:

- **Datalene®** – For computer and data transmission, Datalene is crush resistant, lightweight, and offers good performance characteristics over a wide range of temperatures.
- **FEP Insulated Plenum & High-Temperature Cables** – For data communications, instrumentation/control, and other commercial and industrial applications. Plenum cables eliminate the need for conduit and reduce installation time.

Jackets

Belden electronic cables are manufactured in a wide selection of jacketing materials.

- **Flamarrest®** – A Belden jacketing innovation, Flamarrest is a low-smoke, flame retardant compound that is five times more flexible than fluorocopolymer. Cables jacketed with Flamarrest are cost efficient and easy to install.

Also included in our wide selection of jacketing compounds are:

- Polyvinyl chloride
- Polyethylene
- Polyurethane
- FEP
- ETFE
- E-CTFE
- Neoprene
- EPDM
- CSPE
- Silicone rubber
- Natural rubber

Special compounds and variations of standard compounds are used as well.

Insulations and Jackets

Overview (continued)

Typical Characteristics of Popular Insulation and Jacketing Compounds

EPDM

EPDM (ethylene-propylene-diene elastomer) is a chemically cross-linked elastomer with excellent flexibility at high and low temperatures (+150°C to -55 °C). It has good insulation resistance and dielectric strength, as well as excellent abrasion resistance and mechanical properties. EPDM also has better cut-through resistance than Silicone rubber, which it replaces in some applications.

EPDM is compatible with most varnishes, but after the dip and bake cycle varnish tends to adhere to the insulation (because EPDM, unlike some rubber insulations, does not exude oils or waxes). As lead wires are pulled apart for termination, the varnish cracks, sometimes breaking the insulation.

To resolve this problem, a stearic solution is applied to the lead wire during the put-up process. This ensures that rigid varnish does not cause EPDM insulation to rupture when the wire is terminated.

Field evaluations by numerous users reveal that the coated EPDM has excellent varnish resistance at least equal to synthetic elastomers, cross-link polyethylene, or silicone glass braid in dip and bake systems.

Flamarrest®

Flamarrest is a plenum grade chloride-based jacketing material with low smoke and low flame spread properties. Cables jacketed with Flamarrest meet the ANSI/NFPA Standard 262-1985 (U L910), Plenum Cable Flame Test.

E-CTFE

Thermoplastic fluoropolymer material with excellent chemical resistance, electrical properties, thermal characteristics, and impact resistance. The temperature rating is -70 °C to +150 °C.

Neoprene

The temperature range of this material can vary from -55 °C to +90 °C. The actual range would depend on the formulation used. Neoprene is both oil-resistant and sunlight-resistant, making it ideal for many outdoor applications. The most stable colors are

black, dark brown, and gray. The electrical properties are not as good as other insulation materials. Because of this, thicker insulation should be used. Typical designs where this material is used are lead wire insulation and cable jackets.

Polyethylene (Solid and Foamed)

A very good insulation in terms of electrical properties. Low dielectric constant, a stable dielectric constant over all frequencies, very high insulation resistance. In terms of flexibility, polyethylene can be rated stiff to very hard, depending on molecular weight and density – low density being the most flexible, with high-density, high-molecular weight formulation being very hard. Moisture resistance is rated excellent. Black and specially formulated colored versions have excellent weather resistance. The dielectric constant is 2.3 for solid insulation and typically 1.64 for foam designs.

Flame retardant formulations are available with dielectric constants ranging from about 1.7 for foam flame retardant to 2.58 for solid flame retardant polyethylene.

Polypropylene (Solid and Foam)

Similar in electrical properties to polyethylene. This material is primarily used as an insulation material. Typically, it is harder than polyethylene. This makes it suitable for thin wall insulations. UL maximum temperature rating may be +60 °C, +80 °C or +105 °C. The dielectric constant is 2.25 for solid and typically 1.55 for foam designs.

Polyurethane

This material is used primarily as a cable jacket material. It has excellent oxidation, oil, and ozone resistance. Some formations also have good flame resistance. It is a hard material with excellent abrasion resistance. It has outstanding "memory" properties, making it an ideal jacket material for retractile cords.

PVC

Sometimes referred to as vinyl or polyvinyl-chloride. Extremely high or low temperature properties cannot be found in one formulation. Certain formulations may have -55 °C to +105 °C rating. Other common vinyls may

have -20 °C to +60 °C. There are many formulations for the variety of different applications. The many varieties of PVC also differ in pliability and electrical properties. The price range can vary accordingly. Typical dielectric constant values can vary from 3.5 to 6.5.

Rubber

The description of rubber normally includes natural rubber and SBR compounds. Both of these materials can be used for insulations and jackets. There are many formulations of these basic materials. Each formulation is for a specific application. Some formulations are suitable for -55 °C minimum, while others are suitable for +75 °C maximum.

Silicone

This is a very soft insulation which has a temperature range from -80 °C to +200 °C. It has excellent electrical properties plus ozone resistance, low moisture absorption, weather resistance, and radiation resistance. It typically has low mechanical strength and poor scuff resistance.

FEP/TFE

This material has excellent electrical properties, temperature range, and chemical resistance. It is not suitable where subjected to nuclear radiation and does not have good high voltage characteristics. FEP is extrudable in a manner similar to PVC and polyethylene. This means that long wire and cable lengths are available. TFE is extrudable in a hydraulic ram type process. Lengths are limited due to amount of material in the ram, thickness of the insulation, and preform size. TFE must be extruded over a silver- or nickel-coated wire. The nickel- and silver-coated designs are rated +260 °C and +200 °C maximum, respectively. The cost of FEP/TFE is approximately 8 to 10 times more per pound than PVC compounds.

ETFE

Fluorocopolymer thermoplastic material having excellent electrical properties, heat resistance, chemical resistance, toughness, radiation resistance, and flame resistance. The temperature rating is -65 °C to +150 °C.

Insulations and Jackets

Comparative Properties of Plastic Insulating and Jacketing Compounds

| Properties | PVC | LDPE | Cellular Polyethylene | HDPE | Polypropylene | Cellular Polypropylene | PUR | Nylon | CPE | Flamarrest® |
|--|-----|------|-----------------------|------|---------------|------------------------|-----|-------|-----|-------------|
| Oxidation Resistance | E | E | E | E | E | E | E | E | E | E |
| Heat Resistance | G-E | G | G | E | E | E | G | E | E | G-E |
| Oil Resistance | F | G-E | G | G-E | F | F | E | E | E | F |
| Low-Temperature Flexibility | P-G | E | E | E | P | P | G | G | E | P-G |
| Weather, Sun Resistance | G-E | E | E | E | E | E | G | E | E | G |
| Ozone Resistance | E | E | E | E | E | E | E | E | E | E |
| Abrasion Resistance | F-G | G | F | E | F-G | F-G | O | E | E-O | F-G |
| Electrical Properties | F-G | E | E | E | E | E | P | P | E | G |
| Flame Resistance | E | P | P | P | P | P | P | P | E | E |
| Nuclear Radiation Resistance | F | G-E | G | G-E | F | F | G | F-G | O | F |
| Water Resistance | F-G | E | E | E | E | E | P-G | P-F | O | F |
| Acid Resistance | G-E | G-E | G-E | E | E | E | F | P-F | E | G |
| Alkali Resistance | G-E | G-E | G-E | E | E | E | F | E | E | G |
| Aliphatic Hydrocarbons Resistance (Gasoline, Kerosene, etc.) | P | G-E | G | G-E | P-F | P | P-G | G | E | P |
| Aromatic Hydrocarbons Resistance (Benzol, Toluol, etc.) | P-F | P | P | P | P-F | P | P-G | G | G-E | P-F |
| Halogenated Hydrocarbons Resistance (Degreaser Solvents) | P-F | G | G | G | P | P | P-G | G | E | P-F |
| Alcohol Resistance | P-F | E | E | E | E | E | P-G | P | E | G |
| Underground Burial | P-G | G | N/A | E | N/A | N/A | G | P | E-O | P |

These ratings are based on average performance of general purpose compounds. Any given property can usually be improved by the use of selective compounding.

Comparative Properties of Fluoropolymer and Rubber Insulating and Jacketing Compounds

| Properties | Fluoropolymers | | | | | Rubber | | | | |
|--|----------------|------|------|----------|--------|--------|----------|------|------|----------|
| | FEP | ETFE | PTFE | PVDF/PVF | E-CTFE | Rubber | Neoprene | CSPE | EPDM | Silicone |
| Oxidation Resistance | O | E | O | O | O | F | G | E | E | E |
| Heat Resistance | O | E | O | O | O | F | G | E | E | O |
| Oil Resistance | O | E | E-O | E | O | P | G | G | P | F-G |
| Low-Temperature Flexibility | O | E | O | F | O | G | F-G | F | G-E | O |
| Weather, Sun Resistance | O | E | O | E-O | O | F | G | E | E | O |
| Ozone Resistance | E | E | O | E | E | P | G | E | E | O |
| Abrasion Resistance | E | E | O | E | E | E | G-E | G | G | P |
| Electrical Properties | E | E | E | G-E | E | G | P | G | E | G |
| Flame Resistance | O | G | E | E | E-O | P | G | G | P | F-G |
| Nuclear Radiation Resistance | P-G | E | P | E | E | F | F-G | E | G | E |
| Water Resistance | E | E | E | E | E | G | E | E | G-E | G-E |
| Acid Resistance | E | E | E | G-E | E | F-G | G | E | G-E | F-G |
| Alkali Resistance | E | E | E | E | E | F-G | G | E | G-E | F-G |
| Aliphatic Hydrocarbons Resistance (Gasoline, Kerosene, etc.) | E | E | E | E | E | P | G | F | P | P-F |
| Aromatic Hydrocarbons Resistance (Benzol, Toluol, etc.) | E | E | E | G-E | E | P | P-F | F | F | P |
| Halogenated Hydrocarbons Resistance (Degreaser Solvents) | E | E | E | G | E | P | P | P-F | P | P-G |
| Alcohol Resistance | E | E | E | E | E | G | F | G | P | G |
| Underground Burial | E | E | E | E | E | N/A | N/A | N/A | N/A | N/A |

These ratings are based on average performance of general purpose compounds. Any given property can usually be improved by the use of selective compounding.

CPE = Chlorinated Polyethylene • HDPE = High-density Polyethylene • LDPE = Low-density Polyethylene • PUR = Polyurethane

Insulations and Jackets

Nominal Temperature Range for Various Insulating and Jacketing Compounds

| Compound | Normal Low | Normal High | Special Low | Special High |
|----------------------------------|------------|-----------------|-------------|-----------------|
| CSPE | -20 °C | +90 °C | -40 °C | +105 °C |
| EPDM | -55 °C | +105 °C | – | +150 °C |
| Neoprene | -20 °C | +60 °C | -55 °C | +90 °C |
| Polyethylene (Solid and Foamed) | -60 °C | +80 °C | – | – |
| Polypropylene (Solid and Foamed) | -40 °C | +105 °C | – | – |
| Rubber | -30 °C | +60 °C | -55 °C | +75 °C |
| FEP | -70 °C | +200 °C | — | – |
| PVC | -20 °C | +80 °C | -55 °C | +105 °C |
| Silicone | -80 °C | +150 °C | – | +200 °C |
| E-CTFE | -70 °C | +150 °C | – | – |
| ETFE | -65 °C | +150 °C | – | – |
| PTFE | -70 °C | +260 °C | – | – |
| CPE | -35 °C | +90 °C | -45 °C | +105 °C |
| PVDF/PVF | -20 °C | +150 °C/+125 °C | -40 °C | +150 °C/+150 °C |
| Flamarrest® | -20 °C | +75 °C | – | – |

Shielding Overview

Innovative Leadership

The evolution of technology maintains steady demand for sophisticated cable shielding. Belden meets that demand with innovative shielding and shield effectiveness testing methods to supply you with high quality, dependable cable.

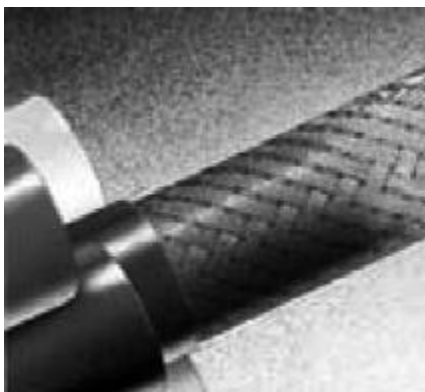
With the creation of trademarked shield designs and patented test methods, Belden has earned a reputation for innovation and leadership that is unequaled in the wire and cable industry. In addition, Belden offers the broadest line of shielded multi-conductor, coaxial and flat cable in the industry.

Several unique Belden innovations are utilized across a wide range of shielding applications:

- **Beldfoil®** – The first aluminum/polyester foil developed for use as a cable shield. Provides 100% shield coverage for optimum protection.
- **Duofoil®** – Consists of an aluminum-poly-aluminum laminate wrapped around the cable's dielectric core. Provides 100% physical coverage, and improves shield reliability and flex life.

Belden also uses a number of innovative techniques to apply shielding to multi-conductor and paired cables:

- **"French Braid" Shields** – Belden's patented "French Braid" shield is a double spiral (double serve shield) with the two spirals tied together by one weave.



Belden's patented "French Braid" shield.

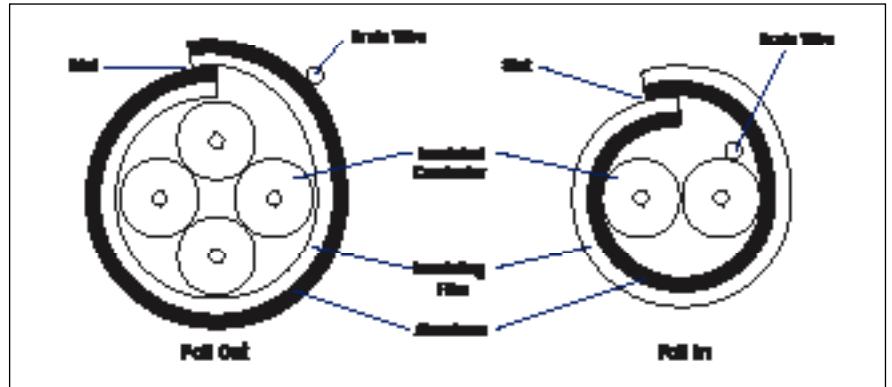


Figure 1: Foil shield configurations without shorting folds.

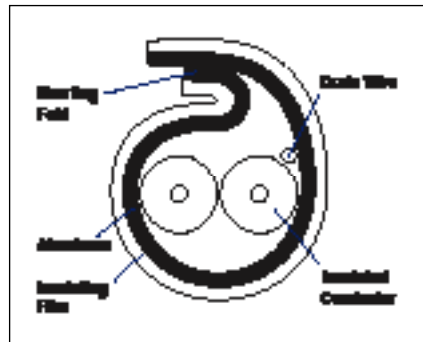


Figure 2: Foil shield configuration with shorting fold.

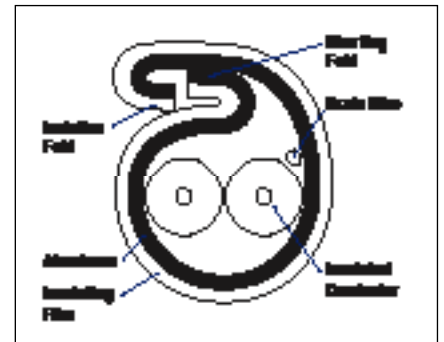


Figure 3: Foil shield with Z-Fold reduces crosstalk in multi-pair applications.

- **Shorting Fold** – Belden uses a shorting fold technique to maintain metal-to-metal contact for improved high frequency performance. Without the shorting fold, a slot is created through which signals can leak and cause interference. (See Figures 1 and 2.)

- **Z-Fold®** – Belden improves on the traditional shorting fold by employing a Z-Fold designed for use in multi-pair applications to reduce crosstalk. The Z-Fold (see Figure 3) combines an isolation and a shorting fold. The shorting fold provides metal-to-metal contact while the isolation fold keeps shields from shorting to one another in multi-pair, individually shielded cables.

The use of either a shorting fold or a Z-Fold increases the foil shield's range of effectiveness to higher frequencies.

Shielding

Characteristics of Belden Shield Types

Foil Shields

Foil shields consist of aluminum foil laminated to a polyester or polypropylene film. The film gives the shield mechanical strength and bonus insulation. Foil shields provide 100% cable coverage, necessary for electrostatic shield protection. Because of their small size, foil shields are commonly used to shield individual pairs of multi-pair data cables to reduce crosstalk. They have less weight, bulk and cost less than spiral or braid shields and are generally more effective than braid shields in RF ranges. Foil shields are more flexible than braid but have a shorter flex life than spiral or braid.



Drain wires are used with foil shields to make termination easier and to ground electrostatic discharges. The shortcomings in using the foil shield include higher DC resistance and lower mechanical strength than braid or spiral shields.

Braid Shields

A braid shield consists of groups of tinned or bare copper or aluminum strands, one set woven in a clockwise direction and interwoven with another set in a counterclockwise direction.



Braid shields provide superior structural integrity, while maintaining good flexibility and flex life. These shields are ideal for minimizing low frequency interference and have lower DC resistance than foil. Braid shields are effective at audio, as well as RF ranges.

Generally, the higher the braid coverage, the more effective the shield. However, the trade-off between cost and braid coverage must be considered. Typical braid coverages are between 80% and 95%. Coverage of 100% is unattainable with a braid shield. Other features to consider when choosing a braid shield are the weave angle, strand diameter, number of carriers (strand groups) and the number of ends (strands).

Braid shields are generally bulkier and heavier than other shields and, in some cases, harder to terminate because the braid may be combed out and pigtailed.

Spiral/Serve Shields

A spiral/serve shield consists of wire (usually copper) wrapped in a spiral around the inner cable core.



Superior flexibility and flex life, ease of termination and

up to 97% coverage are the advantages of spiral shields. They are best suited for audio applications. As a rule, spiral shields are not effective above the audio frequency range due to the coil effect produced by the inductance of served wire strands.

"French Braid" Shields

Belden's patented "French Braid" shield is a double spiral (double serve shield) with the two spirals tied together by one weave. This construction provides improved flex life over standard spiral shields, improved flexibility over conventional braid shields, and lower levels of microphonic or triboelectric noise than either spiral or conventional braid shields.



Combination Shields

Combination shields consist of more than one layer of shielding. They provide maximum shield efficiency across the frequency spectrum. The combination foil/braid shield combines the advantages of 100% foil coverage, plus the strength and low DC resistance of the braid.

Belden has also developed a number of shielding configurations for use with broadband coaxial cables.

- **Duobond®** – Duobond is essentially the same construction as Duofoil® (a laminated tape of foil/film/foil), but with an extra layer of adhesive bonding the foil shield to the dielectric core. This foil shield provides 100% coverage and insures maximum shield protection.

- **Duobond II (Foil/Braid)** – Combines Duobond with an outer braid, applied for greater protection against interference and to increase the overall tensile strength.



- **Duobond III (Tri-Shield)** – Uses the Duobond II design (foil/braid) plus a surrounding layer of Duofoil. The extra foil layer improves shield reliability and provides an additional interference barrier.



- **Duobond Plus®** – Features foil/braid/foil construction with a shorting fold in the outermost foil. This fold prevents a slot opening from being created in the shield, thereby preventing signal egress or ingress.



- **Duobond IV (Quad Shield)** – Offers an extra layer of braid shield (foil/braid/foil/braid) for improved strength and durability.



Other combination shields are available such as the foil/braid/foil/braid used on the Ethernet cables, braid/braid or foil/spiral.

Shielding

Shield Types Application Guide, Relative Cost Comparison of Shield Types Shield Performance Ratings

Shield Types Application Guide

Choose a Foil Shield...

- For protection against capacitive (electric field) coupling where shield coverage is more important than low DC resistance.
- When possible sources of interference include TV signals, crosstalk from other circuits, radio transmitters, fluorescent lights or computing equipment.
- For MATV, CATV, video, networking, computer I/O cables in office, industrial or commercial environments where ambient EMI levels are low.

Choose a Braid Shield...

- For superior performance against diffusion coupling, where low DC resistance is important, and to a lesser extent, capacitive and inductive coupling.
- When possible sources of interference exhibit low impedance characteristics, such as motor control circuits and switches which operate inductive loads.
- For computer to terminal interconnect for process, instrumentation or control applications.

Choose a Spiral Shield...

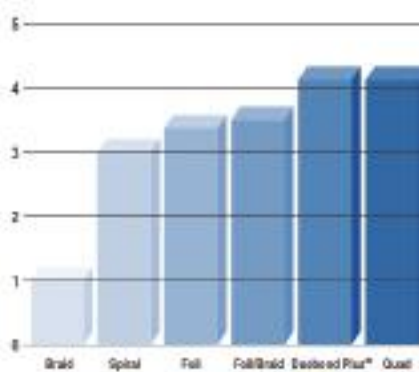
- For functional shielding against diffusion and capacitive coupling at audio frequencies only.
- When possible sources of interference are power lines and fluorescent lights.
- For applications when flexibility and flex life are major concerns, such as microphone and audio cables and retractile cords.

Choose a Combination Shield...

- For shielding against high frequency radiated emissions coupling and ESD. Combines the low resistance of braid and 100% coverage of foil shields.
- When possible sources of interference include radio transmitters, TV stations, printed circuit boards, back planes, motor control circuits and computing equipment.
- For Video, CATV, MATV, networking, computer I/O cables and computer-aided manufacturing applications.

Relative Cost Comparison

Relative cost comparisons are based on coaxial cable. Chart shows relative shield cost as one component of the total cost of the cable. These cost ratings may change depending on the physical construction of the cable.



Shield Performance Comparison Chart

| Frequency Range and Types of Interference Anticipated | Cable Shield Rating [®] | | | | |
|---|----------------------------------|--------|------|------------|---|
| | Braid 95% Coverage | Spiral | Foil | Foil/Braid | Foil/Braid/Foil Duobond Plus [®] |
| Frequency: DC | | | | | |
| Capacitive | A | AA | AAA | AAA | AAA |
| Diffusion | AAA | A | C | AAA | AAA |
| Diffusion/Inductive | - | - | - | - | - |
| Diffusion/Inductive/Capacitive | - | - | - | - | - |
| Frequency: 15 kHz | | | | | |
| Capacitive | A | AA | AAA | AAA | AAA |
| Diffusion | AAA | B | C | AAA | AAA |
| Diffusion/Inductive | AA | C | A | AA | AAA |
| Diffusion/Inductive/Capacitive | - | - | - | - | - |
| Frequency: 10 MHz to 1000 MHz | | | | | |
| Capacitive | A | AA | AAA | AAA | AAA |
| Diffusion | - | - | - | - | - |
| Diffusion/Inductive | B | C | A | AA | AAA |
| Diffusion/Inductive/Capacitive | B | C | A | AA | AAA |

* Although ratings shown above are based on shielded coaxial cable test results, these ratings also pertain to shielded multi-conductor and flat cable where shield types are available.

Note: Shield effectiveness decreases as frequency increases. Therefore, ratings in one frequency category do not imply equal shield effectiveness in other frequency categories.

| Shield Rating Key | |
|-------------------|----------------|
| AAA | Best |
| AA | Better |
| A | Good |
| B | Functional |
| C | Unsatisfactory |
| - | Not Applicable |

Cables Standards Reference Guide

National Electrical Code (NEC)[®] Catalog Reference Information

The National Electrical Code is a set of guidelines describing procedures which minimize the hazards of electrical shock, fires, and explosions caused by electrical installation. The text of the NEC is contained in nine chapters, each chapter broken into individual articles.

NEC types are acronyms consisting of a prefix describing cable type (e.g. coax, CATV, fiber optic) and a suffix indicating the type of flame test it has passed and where it can be installed. Articles describing wire and cable products – including required cable markings – are listed in the chart to the right.

Impact of the NEC

Almost everyone involved with wire and cable is affected by the National Electrical Code. In particular, the following groups must incorporate NEC guidelines into their work: OEM engineers, wire and cable product engineers, distributors, installers, and architects.

Although NEC covers wire and cable installed in factories, office buildings, hotels, motels, apartment buildings, residences, and all cables which pass through any floor, wall, ceiling, or which travel in ducts, plenums, and other air handling spaces, each individual municipality, city, county, or state can decide whether or not they wish to adopt the NEC as law. Local authorities having jurisdiction enforce their own codes. They have the right to accept or refuse any installation in accordance with their own local laws. One of the organizations local inspectors rely on to test wire and cable is Underwriters Laboratories (UL).

Intended Uses of Appliance Wiring Materials (AWM)

In the past, AWM cable was incorrectly used to wire buildings – this was never its intended use.

AWM cable is intended for internal wiring of factory-assembled, listed appliances such as computers, business machines, ranges, washers, dryers, radios, and televisions.

In some cases, AWM cable may be used for external connection. In these situations, the user should be aware that AWM cable temperatures and voltage ratings may differ from NEC ratings.

| NEC Article/Type | Description | Installation Type | | | |
|------------------|---|-------------------|--------|------------|-------------|
| | | Plenum | Riser | Commercial | Residential |
| CL2 | Class 2 cables | CL2P | CL2R | CL2 | CL2X* |
| CL3 | Class 3 cables | CL3P | CL3R | CL3 | CL2X* |
| 725 PLTC | A stand-alone class. This is a power limited tray cable – a CL3-type cable which can be used outdoors, is sunlight- and moisture-resistant and must pass the Vertical Tray flame test. | (none) | (none) | PLTC | (none) |
| 760 FPL | Power limited, fire protective signaling circuit cable | FPLP | FPLR | FPL | (none) |
| 770 | OFC Fiber cable also containing metallic conductors | OFCP | OFCR | OFCC, OFC | (none) |
| | OFN Fiber cable only containing optical fibers | OFNP | OFNR | OFNG, OFN | (none) |
| 800 CM | Communications | CMP | CMR | CMG, CM | CMX* |
| 820 CATV | Community antenna television and radio distribution system | CATVP | CATVR | CATV | CATVX** |
| 830 BM | Network-powered broadband communications cable | BLP | BMR | BM | BLX |

* Cable diameter must be less than 0.250".

** Cable diameter must be less than 0.375".

C(UL) Certifications

UL/NEC-Approved cables may also be C(UL)/CEC-Approved as communications cables meeting the requirements of the Bi-National Standard CSA C22.2 No. 214/UL 444 and Section 60 of the Canadian Electrical Code, Part I (CEC). The C(UL) cable designation (and its meaning) would be one of the following:

1. **CMP** – Cable meeting CSA FT6 or NFPA 262 (UL 910);
2. **CMR** – Cable meeting UL 1666;
3. **CMG** – Cable meeting CSA FT4 or FT4/IEEE 1202 type of flames exposure (without smoke measurements) in UL 1685;
4. **CM** – Cable meeting UL 1685 (without smoke measurement) (UL 1581, Sec. 1160) Vertical-Tray;
5. **CMX or CMUC** – Meeting UL 1581, Sec. 1080 (VW-1);
6. **CMH** – Cable meeting CSA FT1.

NOTE: The CSA flame tests are defined in CSA C22.2 No. 0.3 as follows:

FT1 Vertical Flame Test – per C.S.A. C22.2 No. 0.3-92 Para 4.11.1

A finished cable shall not propagate a flame or continue to burn for more than 1 minute after five 15-second applications of the test flame. There is an interval of 15 seconds between flame applications. The flame test shall be performed in accordance with Para 4.11.1 of Canadian Standards Association (CSA) Standard C22.2 No. 0.3. In addition, if more than 25% of the indicator flag is burned, the test cable fails.

FT4 Vertical Flame Test – Cables in Cable Trays per C.S.A. C22.2 No. 0.3-92 Para 4.11.4

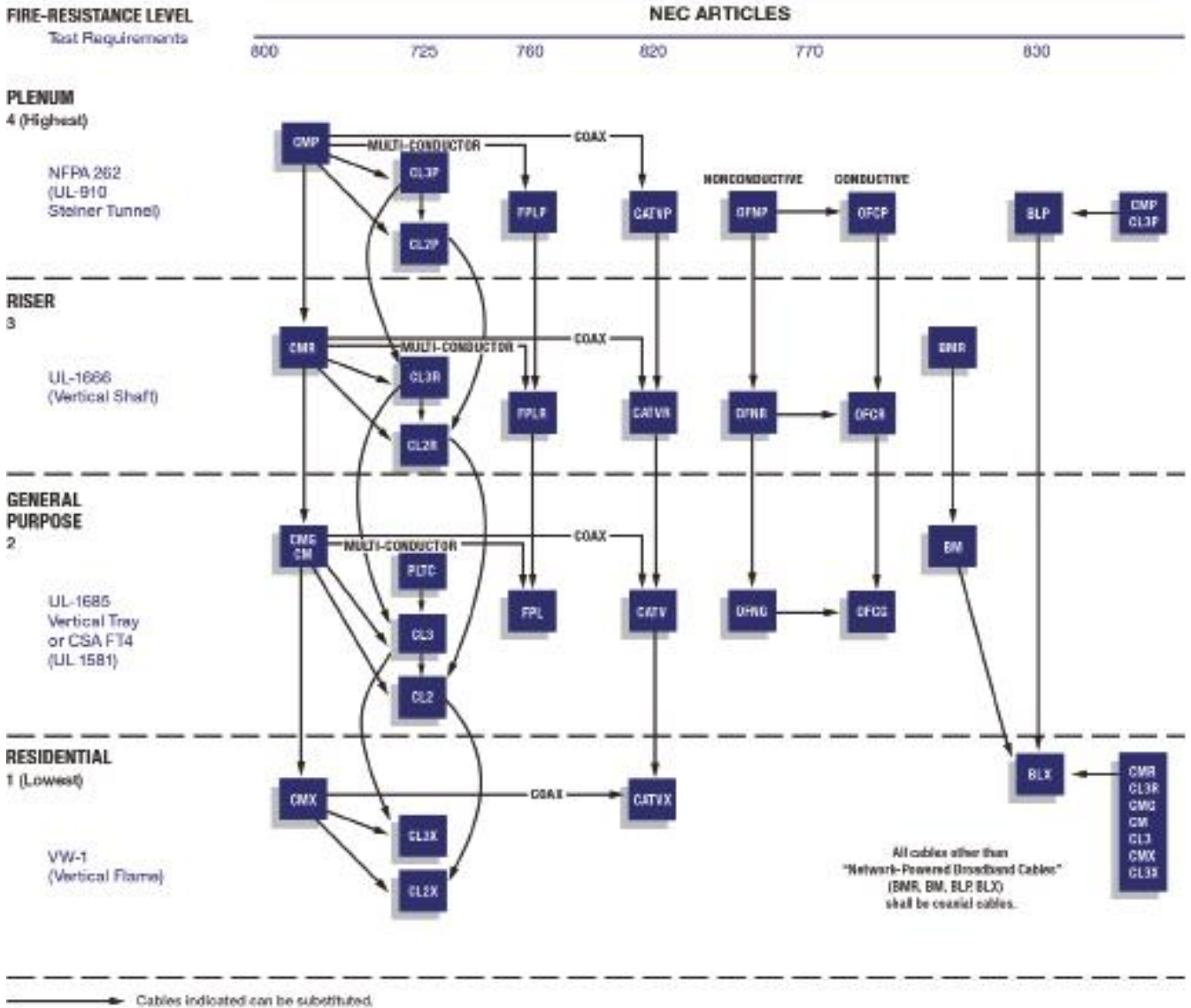
The FT4 Vertical Flame Test – Cables in Cable Trays is similar to the UL-1685 Vertical Tray Flame Test, but is more severe. The FT4 test has its burner mounted at 20° from the horizontal with the burner ports facing up. The UL-1685 Vertical Tray has its burner at 0° from the horizontal. The FT4 samples must be larger than 13 mm (.512") in diameter.

If not, then the cable samples are grouped in units of at least three (3) to obtain a grouped overall diameter of 13mm. The UL-1581 Vertical Tray does not distinguish on cable size. The FT4 has a maximum char height of 1.5 m (59") measured from the lower edge of the burner face. The UL-1685 has a flame height allowable up to approximately 78" measured from the burner.

FT6 Horizontal Flame & Smoke Test – per C.S.A. C22.2 No. 0.3-92 Appendix B

Belden products passing the FT6 Horizontal Flame and Smoke Test are designated FT6 in the column where the trade number appears. This test is for cables which must pass a Horizontal Flame and Smoke Test in accordance with ANSI/NFPA Standard 262-1985 (UL-910). The maximum flame spread shall be 1.50 meters (4.92 ft.). The smoke density shall be 0.5 at peak optical density and 0.15 at maximum average optical density.

Cables Substitution Chart Per 2005 NEC®

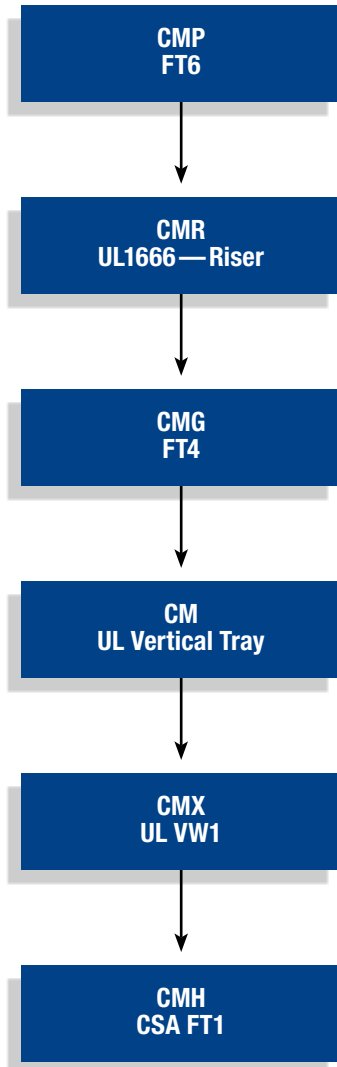


| NEC Type | Definition |
|--|--|
| CMP, CMR, CMG, CM, CMX | Communications Cables |
| CL3P, CL3R, CL3, CL3X, CL2P, CL2R, CL2, CL2X | Class 2 and Class 3 Remote-Control, Signaling and Power Limited Cables |
| FPLP, FPLR, FPL | Power Limited Fire Alarm Cables |
| CATVP, CATVR, CATV, CATVX | Community Antenna Television and Radio Distribution Cables |
| OFNP, OFNR, OFNG, OFN | Nonconductive Optical Fiber Cables |
| OFCP, OFCR, OFCG, OFC | Conductive Optical Fiber Cables |
| PLTC | Power Limited Tray Cables |
| BMR, BM, BLP, BLX | Network-powered Broadband Communications Cable |

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Canadian Substitution Hierarchy and Catalog Terms of Use

Cable Substitution Hierarchy as per C22.2 #214 – Communication Cables



Canadian Electrical Code, Part 1, Table 19, Note 21:

The following cable substitution may be used:

- a. Communication cables marked CMP, CMR, CMG, CM, CMX, CMH, FT6, and FT4/IEEE 1202 have been found to meet the standard criteria for FT1.
- b. Communication cables marked CMP, CMR, CMG, and FT6 have been found to meet the standard criteria for FT4/IEEE 1202.
- c. Communication cables marked CMP have been found to meet the standard criteria for FT6.

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Glossary

Abrasion Resistance – Ability of a wire, cable or material to resist surface wear.

Accelerated Aging – A test that simulates long time environmental conditions in a relatively short time.

ACR – Attenuation to Crosstalk Ratio. The difference between attenuation and crosstalk, measured in dB, at a given frequency. Important characteristic in networking transmission to assure that signal sent down a twisted pair is stronger at the receiving end of the cable than are any interference signals imposed on that same pair by crosstalk from other pairs.

Alien Crosstalk – A measure of the unwanted signal coupling between cabling or components in close proximity.

American Wire Gage (AWG) – A standard for expressing wire diameter. As the AWG number gets smaller, the wire diameter gets larger.

Ampacity – Current handling capability expressed in amperes. The maximum current a conductor can carry without being heated beyond a safe limit.

Ampere – A standard unit of current. Defined as the amount of current that flows when one volt of electromotive force (EMF) is applied across one ohm of resistance. One ampere of current is produced by one coulomb of charge passing a point in one second.

Analog Signal – An electrical signal which varies continuously, not having discrete values. Analog signals are copies or representations of other waves in nature. An analog audio signal, for instance, is a representation of the pressure waves which make up audible sound.

Attenuation – The decrease in magnitude of a signal as it travels through any transmitting medium, such as a cable or circuitry. Attenuation is usually expressed logarithmically as the ratio of the original and decreased signal amplitudes. It is usually expressed in decibels (dB).

AWG – American Wire Gage. A wire diameter specification. The smaller the AWG number, the larger the wire diameter.

AWM – Appliance Wiring Material. A UL designation for a type of wire.

Balanced Line – A cable having two identical conductors which carry voltages opposite in polarity, but equal in magnitude with respect to ground, suitable for differential signal transmission.

Bandwidth – The difference between the upper and lower limits of a given band of frequencies. It is expressed in Hertz. The range of frequencies that a transmitted communications signal occupies or that a receiving system can accept. For example, it takes more bandwidth to download a photograph in a second than to download a page of text. Virtual reality and three-dimensional audio/visual presentations require even more.

Baud – Rate of digital transmission equal to the reciprocal of the time of one output signaling element.

Bel – A unit that represents the logarithm of the ratio of two levels. One bel equals the base 10 logarithm of the ratio of two power levels. It is also equal to the base 10 logarithm of square of the ratio of two voltage or current levels, provided the impedances are the same at the two levels. (See dB.)

Belflex® – A premium hybrid matte-finish jacket material that exhibits superior flexibility at low temperatures along with resistance compared to standard PVC jacketing materials.

Beldfoil® – Belden trademark for highly effective electrostatic shield of reinforced metallic foil.

Beldsol™ – Solderable Belden magnet wire combining insulating films of polyurethane for excellent dielectric characteristics and nylon for mechanical protection.

Bend Radius – Radius of curvature that a flat, round fiber optic or metallic cable can bend without any adverse effects.

Binder – A tape or thread used for holding assembled cable components in place.

Bit Error Rate – The number of errors occurring in a system per unit of time (e.g. bits per second).

Bonded Pairs™ – A patented method of providing uniform electrical characteristics in twisted pairs in which the insulations of the pair are bonded so that they maintain consistent geometry of twisting when bent or otherwise stressed during and after installation.

Braid – A group of textile or metallic filaments interwoven to form a tubular flexible structure which may be applied over one or more wires or flattened to form a strap.

Braid Angle – The angle between a strand of wire in a braid shield and the longitudinal axis (i.e., axis along the length of the center) of the cable it is wound around.

Breakdown Voltage – The voltage at which the insulation between two conductors will fail and allow electricity to conduct or "arc."

Breakout – The point at which elements of a cable are separated from a multiconductor or fiber optic cable. Also called fanout.

Broadband – The technique used to multiplex multiple networks on a single cable without interfering with each other. Technologies that allow you to transmit or receive higher volumes of data at higher speeds.

Buffer – A protective coating over an optical fiber.

Bunch Strand – Conductors twisted together with the same lay and direction without regard to geometric pattern.

Buried – Cables that are required to go underground.

Bus-bar Wire – Uninsulated tinned copper wire used as a common lead.

Butyl Rubber – A synthetic rubber with good electrical insulating properties.

Cable – A group of electrically or optically conductive subcomponents twisted helically.

Cabling – The grouping or twisting together of two or more insulated conductors or subcomponents to form a cable.

Glossary (continued)

Capacitance – The ability of a dielectric material between conductors to store energy when a difference of potential exists between the conductors. The unit of measurement is the farad. Cable capacitance is usually measured in picofarads (pF).

Capacitive Crosstalk – Cable crosstalk or interference resulting from the coupling of the electrostatic field of one conductor upon one or more others.

Capacitive Reactance – The opposition to alternating current due to the capacitance of a capacitor, cable or circuit. It is measured in ohms and is equal to $1/(2\pi fC)$ where pi is approximately 3.1416, f is the frequency in Hz and C is the capacitance in farads.

Capacitor – Two conducting surfaces separated by a dielectric material. The capacitance is determined by the area of the surfaces, type of dielectric and spacing between the conducting surfaces.

Cellular Polyethylene – Expanded or “foam” polyethylene, consists of individual closed cells of inert gas suspended in a polyethylene medium. The result is a desirable reduction of the dielectric constant compared to solid polyethylene, which decreases attenuation and increases the velocity of propagation.

Center-to-Center Distance – Also called pitch. Nominal distance from center-to-center of adjacent conductors within a cable. When conductors are flat, pitch is usually measured from the reference edge of a conductor to the reference edge of the adjacent conductor.

Characteristic Impedance – In a transmission cable of infinite length, the ratio of the applied voltage to the resultant current at the point the voltage is applied. Or the impedance which makes a transmission cable seem infinitely long, when connected across the cable’s output terminals.

Circular Mil – Area of a wire that is one-thousandth of an inch (.001 inch, one mil) in diameter. This area is $\pi/4$ of a square mil. The circular mil area (CMA, cmil) equals the diameter in mils squared. By knowing the CMA of various conductors, they can be used to determine what conductivity and gage size various combinations will produce.

Cladding – A low refractive index material that surrounds the core of an optical fiber causing the transmitted light to travel down the core and protects against surface contaminant scattering or a layer of metal applied over another. Cladding is often chosen to improve conductivity or to resist corrosion.

Coaxial Cable – A cylindrical transmission line composed of a conductor centered inside a metallic tube or shield, separated by a dielectric material, and usually covered by an insulating jacket.

Coil Effect – The inductive effect exhibited by a spiral-wrapped shield, especially above audio frequencies.

Color Code – A system of different colors or stripes used to identify components of cables such as individual conductors or groups of conductors.

Composite Cable – Cable having conductors with two or more AWG sizes or more than one cable type.

Concentric Stranding – A group of uninsulated wires twisted together and containing a center core with subsequent layers spirally wrapped around the core with alternating lay directions to form a single conductor.

Conductivity – The ability of a material to allow electrons to flow, measured by the current per unit of voltage applied. It is the reciprocal of resistivity and is measured in siemens (S) or mhos.

Conductor – A substance, usually metal, used to transfer electrical energy from point to point.

Conduit – A tube of metal or plastic through which wire or cable can be run. Used to protect the wire or cable and, in the case of metal conduit, to contain the fire of a burning wire or cable.

Connector – A device designed to allow electrical flow from one wire or cable to a device on another cable. A connector will allow interruption of the circuit or the transfer to another circuit without any cutting of wire or cable or other preparation.

Cord – A very flexible insulated cable.

Core – The light conducting central portion of an optical fiber with a refractive index higher than that of the cladding. The center of a cable construction. Most often applies to a coaxial cable, where the core is the center conductor and the dielectric material applied to it.

Corona – The ionization of gasses about a conductor that results when the potential gradient reaches a certain value.

Coupling – The transfer of energy (without direct electrical contact) between two or more cables or components of a circuit.

Coverage – The extent to which a metal shield covers an underlying surface. Measured in percent.

CPE – Chlorinated polyethylene can be used as either a thermoplastic or thermoset. It is a tough chemical- and oil-resistant material and makes an excellent jacket for industrial control cable. As a thermoset, it can be used as an oil-resistant cord jacket. Other outstanding properties include low water absorption and superior crush resistance, which are important attributes in industrial control applications.

Crosstalk – A type of interference caused by signals from one pair or cable being coupled into adjacent pairs or cables. Can occur with audio, data or RF signals.

Datalene® – Belden trademark for foam polyolefin.

dB – Decibel

Decibel (dB) – A decibel is one-tenth of a bel and is equal to 10 times the logarithm of the power ratio, 20 times the log of the voltage ratio, or 20 times the log of the current ratio. Decibels are also used to express acoustic power, such as the apparent level of a sound. The decibel can express an actual level only when comparing with some definite reference level that is assumed to be zero dB.

Derating Factor – A multiplier used to reduce the current carrying capacity of conductors in more adverse environments, such as higher temperature, or where multiple conductors are together in one conduit.

Dielectric – An insulating (nonconducting) medium. It is the insulating material between conductors carrying a signal in a cable. In coaxial cables it is between the center conductor and the outer conductor. In twisted pair cables it is the insulation between conductors plus any surrounding air or other material.

Dielectric Breakdown – Any change in the properties of a dielectric that causes it to become conductive. Normally a catastrophic failure of an insulation because of excessive voltage. See Breakdown Voltage.

Dielectric Constant – Also called relative permittivity. That property of a dielectric which determines the amount of electrostatic energy that can be stored by the material when a given voltage is applied to it. Actually, the ratio of the capacitance of a capacitor using the dielectric to the capacitance of an identical capacitor using a vacuum (which has a dielectric constant of 1) as a dielectric. A number which indicates the quality of a material to resist holding an electrical charge when placed between two conductors.

Dielectric Heating – The heating of an insulating material when placed in a radio-frequency field, caused by internal losses during the rapid polarization reversal of molecules in the material.

Dielectric Loss – The power dissipated in a dielectric as the result of the friction produced by molecular motion when an alternating electric field is applied.

Dielectric Strength – The voltage an insulation can withstand before it breaks down. Usually expressed as volts per mil.

Dielectric Withstand Voltage – The voltage an insulation can withstand before it breaks down. Usually expressed as volts per mil.

Dispersion – The cause of bandwidth limitations in an optical fiber. Dispersion causes a broadening of input pulses along the length of the fiber. Two major types are (a) mode dispersion caused by differential optical path lengths in a multimode fiber, and (b) material dispersion caused by a differential delay of various wavelengths of light in a wave guide material.

Distortion – Any undesired change in a waveform or signal.

Drain Wire – A non-insulated wire in contact with parts of a cable, usually the shield, and used in the termination to that shield and as a ground connection.

Duobond® II – Belden trademark for a laminated shielding tape consisting of heat sensitive adhesive, aluminum foil, polyester or polypropylene and aluminum foil.

Duobond® IV – Belden trademark for a four-layer shield: 1) Duobond II foil, (2) tinned copper braid with 94% coverage, (3) Duofoil foil, (4) tinned copper braid with 90% coverage.

Duobond Plus® – Belden trademark for a foil/braid/foil connection with a shorting fold in the outermost shield.

Duofoil® – Belden trademark for a shield in which metallic foil is applied to both sides of a supporting plastic film.

Electromagnetic Coupling – The transfer of energy by means of a varying magnetic field. Inductive coupling.

Energy Dissipation – Loss of energy from a system due to the conversion of work energy into an undesirable form, usually heat. Dissipation of electrical energy occurs when current flows through a resistance.

EPDM – Ethylene-propylene-diene monomer rubber. A chemically cross-linked elastomer with good electrical insulating properties and excellent flexibility at high and low temperatures. It has good insulation resistance and dielectric strength, as well as excellent abrasion resistance and mechanical properties. EPDM has better cut-through resistance than silicone rubber, which it replaces in some applications.

Equilay – More than one layer of helically laid wires with the length of the lay in each layer.

Expanded Polyethylene – Expanded or "foam" polyethylene, consists of individual closed cells of inert gas suspended in a polyethylene medium, resulting in a desirable reduction of the dielectric constant.

Extruded Cable – Conductors are simultaneously insulated and the cable is formed by a continuous extrusion process.

FEP – Fluorinated ethylene-propylene. A thermoplastic material with good electrical insulating properties and chemical and heat resistance.

FEXT – Far End Crosstalk. Crosstalk induced on the pairs, measured at the far end of the cable, referenced to the near end input signal. Usually expressed in decibels (dB).

Fiber – A single, separate optical transmission element characterized by core and cladding.

Fiber Optics – Light transmission through optical fibers for communication and signaling. A technology that transmits information as light pulses along a glass or plastic fiber. Optical fiber carries much more information than conventional copper wire and is generally not subject to interference. Most telephone company long-distance lines are optical fiber.

Field – An area through which electric and/or magnetic lines of force pass.

Filled – Cables that are gel filled to improve waterblocking properties.

Fillers – Non-conducting components cabled with the insulated conductors or optical fibers to impart roundness and/or tensile strength to the cable.

Flamarrest® – Belden trademark for a plenum grade chloride-based thermoplastic jacketing material with low smoke and low flame spread properties; more flexible than traditional fluorocopolymer jacket materials. Cables jacketed with Flamarrest meet the ANSI/ NFPA Standard 2621-985 (UL-910) Flame Test.

Flame Resistance – The ability of a material to resist the spread of an applied flame.

Flex Life – The qualification of the number of times a cable may bend before breaking.

Flexibility – The ability of a cable to bend in a short radius. The ability of a cable to lay flat or conform to a surface as with microphone cables.

Glossary (continued)

Fluorocopolymer – Generic term for PVDF.

Foam Polyethylene – Expanded or “foam” polyethylene, consists of individual closed cells of inert gas suspended in a polyethylene medium, resulting in a desirable reduction of the dielectric constant.

FR-TPE – Flame retarded thermoplastic elastomer is a rubber-like plastic that has properties similar to rubber yet is processed as a thermoplastic. It is used as the insulation and jacket in an all TPE constructions which meets UL 13 and 1277 industrial cable requirements. It has good electrical properties, abrasion resistance, colorability, and flame retardance. This compound is ideal for cold weather applications.

Ground Conductor – A conductor in a transmission cable or line that is grounded.

Haloarrest® – Haloarrest is a non-halogenated flame retarding thermoplastic polyolefin with excellent low smoke and flame properties. It is often used as a jacket over the XLP insulated singles (non-XHHW), and the entire construction meets the UL 13 and 1277 specifications as a non-halogenated PLTC/TC cable. Haloarrest meets the European Specifications on acid gas evolution and % halogen content. This jacket can also be used with XHHW conductors for wet ratings.

HaloarrestXLink™ – HaloarrestXLink is a non-halogenated flame retarding thermoset compound with excellent low smoke and flame properties. The highly oil-resistant material is used as a jacket material in control, communication, and instrumentation applications and is suited for indoor and outdoor applications. The entire construction meets the UL 13 and 1277 specifications as a non-halogenated PLTC/TC cable. HaloarrestXLink meets the European Specifications on acid gas evolution and % halogen content.

Hook-Up Wire – Single conductor wire with various types of insulation.

Impedance Match – A condition whereby the impedance of a particular circuit, cable or component is the same as the impedance of the circuit, cable or device to which it is connected.

Impedance Matching Stub – A section of transmission line or pair of conductors cut to match the impedance of a load. Also called matching stub.

Insulation Stress – The molecule separation pressure caused by a potential difference across an insulator. The practical stress on insulation is expressed in volts per mil.

Interference – Disturbances of an electrical or electromagnetic nature that introduce undesirable responses into other electronic equipment.

Ionization – The formation of ions. Ions are produced when polar compounds are dissolved in a solvent and when a liquid, gas, or solid is caused to lose or gain electrons due to the passage of an electric current.

Ionization Voltage – The potential at which a material ionizes. The potential at which an atom gives up an electron.

Jacket – Pertaining to wire and cable, the outer protective covering that may also provide additional insulation.

Matte Finish PVC – A special formulation of PVC which very closely looks and feels like rubber. See Belflex®.

Mutual Capacitance – Effective capacitance between two conductors when the effects of the other conductors and shield, if present, are removed.

Neoprene – A synthetic rubber with good resistance to oil, chemical, and flame. Also called polychloroprene.

NEXT – Near-end Crosstalk. Crosstalk induced on the pairs, measured at the end near the transmitter. Usually expressed in decibels (dB).

NFPA – National Fire Protection Association.

Noise – In a cable or circuit, any extraneous signal which tends to interfere with the signal normally present in or passing through the system.

Non-Plenum – A description for a cable that does not meet the requirements of NFPA 262 (UL 910) CMP flame test. Such a cable cannot be installed in an area that is used for air return (plenum).

Nylon – An abrasion-resistant thermoplastic with good chemical resistance.

Ozone – Extremely reactive form of oxygen, normally occurring around electrical discharges and present in the atmosphere in small but active quantities. In sufficient concentrations it can break down certain rubber insulations under tension (such as a bent cable).

Plastic – High polymeric substances, including both natural and synthetic products that are capable of flowing under heat and pressure, called thermoplastics. Unlike rubber and other thermoset compounds, plastics can be remelted and reused.

Plasticizer – A chemical added to plastics to make them softer and more flexible.

Plenum – A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system. A description for a cable that passes the NFPA 262 (UL-910) CMP flame test requirements.

Polyethylene (PE) – A thermoplastic material having excellent electrical properties. Low dielectric constant, a stable dielectric constant over all frequencies, very high insulation resistance. In terms of flexibility, polyethylene can be rated stiff to very hard, depending on molecular weight and density – low density being the most flexible and the high-density, high-molecular weight formulation being very hard. Moisture resistance is rated excellent.

Polymer – A substance made of many repeating chemical units or molecules. The term polymer is often used in place of plastic, rubber or elastomer.

Polyolefin – Any of the polymers and copolymers of the ethylene family of hydrocarbons, such as polyethylene and polypropylene.

Polypropylene (PP) – A thermoplastic similar to polyethylene but stiffer and having a higher softening point (temperature). This material is primarily used as an insulation material. Typically, it is harder than polyethylene. This makes it suitable for thin wall insulations. The dielectric constant is 2.25 for solid and 1.55 for cellular designs. Also called thermoplastic urethane (TPU).

Polyurethane (PUR or TPU) – Broad class of polymers noted for good abrasion and solvent resistance. Can be in solid or cellular form. This thermoplastic material is used primarily as a cable jacket material. It has excellent oxidation, oil, and ozone resistance. Some formulations also have good flame resistance. It is a hard material with excellent abrasion resistance. It has outstanding memory properties, making it an ideal jacket material for retractile cords.

Polyvinyl Chloride (PVC) – A general purpose thermoplastic used for wire and cable insulation and jackets.

Portable Cordage – Cable with two or more twisted conductors for flexible applications. Also called flexible cord.

PP – Polypropylene

Rated Temperature – The maximum temperature at which an electric component can operate for extended periods without loss of its basic properties.

Rated Voltage – The maximum voltage at which an electric component can operate for extended periods without undue degradation or safety hazard.

RG/U – RG is the abbreviation for radio guide, a military designation for a coaxial cable, and U stands for universal.

Rubber (Wire Insulation) – A general term used to describe wire insulations made of thermosetting elastomers, such as natural or synthetic rubbers, neoprene, butyl rubber and others.

Self-extinguishing – The characteristic of a material that extinguishes its own flame after the igniting flame is removed.

Separator – Pertaining to wire and cable, a layer of insulating material such as textile, paper, Mylar®, etc., which is placed between a conductor and its dielectric, between a cable jacket and the components it covers, or between various components of a multiple-conductor cable. It can be used to improve stripping qualities, flexibility or can offer additional mechanical or electrical protection to the components it separates.

Sheath – Pertaining to wire and cable, the outer protective covering, also called jacket, that may also provide additional insulation.

Shield – A tape, serve or braid (usually copper, aluminum or other conductive material) placed around or between electric circuits or cables or their components, to prevent signal leakage or interference.

Shield Coverage – The optical percentage of a cable actually covered by shielding material.

Shield Effectiveness – The relative ability of a shield to screen out undesirable interference or prevent signal leakage out of the cable. Frequently confused with the term shield coverage.

Shield Percentage – The percentage of physical area of a circuit or cable actually covered by shielding material.

Signal – Any visible or audible indication which can convey information. Also, the information conveyed through a communication system.

Silicone – A material made from silicon and oxygen. Can be in thermosetting elastomer or liquid form. The thermosetting elastomer form is noted for high heat resistance. This is a very soft thermoset insulation. It has excellent electrical properties plus ozone resistance, low moisture absorption, weather resistance, and radiation resistance. It typically has low mechanical strength and poor scuff resistance.

Single-mode Fiber – An optical fiber waveguide in which only one mode will propagate. The fiber has a very small core diameter of approximately 8 micro meters. It permits signal transmission at extremely high bandwidths and is generally used with laser diodes.

Thermoplastic – A material which will soften, flow or distort appreciably when subjected to sufficient heat and pressure. Examples are polyvinyl chloride and polyethylene.

Thermoset – A material which will not soften, flow or distort appreciably when subjected to heat and pressure. Vulcanizable. Examples are rubber and neoprene.

Triaxial Cable – A cable construction having a conductor and two isolated braid shields, all insulated from each other. A coaxial cable with a second braid applied over an inner jacket and an outer jacket applied over the outer braid. Commonly used in television camera systems.

Twinax Cable – Cable with two twisted conductors with established electrical properties (one pair = two conductors sharing a common axis = twinax).

Twisted Pair – Two lengths of insulated conductors twisted together. Gets its name because two insulated copper wires are twisted together, both of which are needed for each connection.

VW-1 – A flammability rating established by Underwriters Laboratories for wires and cables that pass a specially designed vertical flame test, formerly designed FR-1.

XLP – Cross-linked poly is a thermoset and is cross linked by radiation, thermally, or by moisture. XLP offers a wide range of operating temperatures, excellent deformation, abrasion, and flame resistance. XLP can be formulated with halogenated or non-halogenated flame retardant packages. Some grades are also rated XHHW-2 which offers excellent wet electrical properties.



Belden – Wire and Cable solutions for high quality, top performance and total reliability.





Part Number Index

Section Table of Contents

Part Number Index

Part Number Index

582

Part Number Index

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 1000A | 287 | 1072A | 294 | 1119Z | 310 |
| 1006A | 287 | 1073A | 294 | 1120A | 291 |
| 1012A | 287 | 1074A | 294 | 1120Z | 307 |
| 1013A | 287 | 1075A | 276 | 1121A | 293 |
| 1018A | 287 | 1076A | 276 | 1121Z | 308 |
| 1023A | 287 | 1077A | 276 | 11700A | 386 |
| 1030A | 281 | 1078A | 276 | 11700A2 | 386 |
| 1031A | 283 | 1079A | 276 | 11872A | 389 |
| 1032A | 279 | 1080A | 276 | 1211A | 38 |
| 1033A | 275 | 1081A | 276 | 1212A | 38 |
| 1034A | 282 | 1082A | 276 | 1213A | 38 |
| 1035A | 281 | 1083A | 277 | 1214A | 38 |
| 1036A | 280 | 1084A | 277 | 121700A | 386 |
| 1037A | 295 | 1085A | 277 | 121700R | 386 |
| 1038A | 292 | 1086A | 277 | 121872A | 389 |
| 1038Z | 307 | 1087A | 291 | 1229500 | 159 |
| 1039A | 295 | 1088A | 291 | 1229501 | 159 |
| 1039Z | 309 | 1089A | 294 | 1229502 | 159 |
| 1040A | 295 | 1090A | 294 | 1229503 | 159 |
| 1041A | 295 | 1091A | 276 | 1229504 | 159 |
| 1042A | 295 | 1092A | 277 | 1229505 | 159 |
| 1042Z | 309 | 1093A | 293 | 1229506 | 159 |
| 1043A | 295 | 1093Z | 308 | 1229507 | 159 |
| 1044A | 295 | 1094A | 293 | 1229528 | 159 |
| 1045A | 295 | 1094Z | 308 | 1229529 | 159 |
| 1045Z | 309 | 1095A | 293 | 1229530 | 159 |
| 1046A | 295 | 1095Z | 308 | 1229531 | 159 |
| 1047A | 295 | 1096A | 293 | 1229532 | 159 |
| 1047Z | 309 | 1096Z | 308 | 123092A | 366 |
| 1048A | 292 | 1097A | 296 | 123107A | 359 |
| 1049A | 292 | 1097Z | 310 | 1242A | 19 |
| 1049Z | 307 | 1098A | 296 | 1266A | 234 |
| 1050A | 292 | 1099A | 296 | 1268A | 332 |
| 1051A | 292 | 1099Z | 310 | 1269A | 332 |
| 1051Z | 307 | 10C0.14YCY | 89 | 129463 | 369 |
| 1052A | 292 | 10C0.14YY | 85 | 12C0.14YCY | 89 |
| 1053A | 292 | 10C0.25YCY | 89 | 12C0.14YY | 85 |
| 1053Z | 307 | 10C0.25YY | 85 | 12C0.25YCY | 89 |
| 1054A | 292 | 10C0.34YCY | 90 | 12C0.25YY | 85 |
| 1055A | 295 | 10C0.34YY | 86 | 12C0.34YCY | 90 |
| 1056A | 275 | 10C0.5YCY | 90 | 12C0.34YY | 86 |
| 1057A | 275 | 10C0.5YY | 86 | 12C0.5YCY | 90 |
| 1058A | 275 | 10C0.75YCY | 91 | 12C0.5YY | 86 |
| 1059A | 275 | 10C0.75YY | 87 | 12C0.75YCY | 91 |
| 1060A | 275 | 10C1.0YCY | 91 | 12C0.75YY | 87 |
| 1061A | 275 | 10C1.0YY | 87 | 12C1.0YCY | 91 |
| 1062A | 275 | 10C1.5YCY | 92 | 12C1.0YY | 87 |
| 1063A | 291 | 10C1.5YY | 88 | 12C1.5YCY | 92 |
| 1064A | 291 | 10C2.5YCY | 92 | 12C1.5YY | 88 |
| 1065A | 291 | 10C2.5YY | 88 | 12C2.5YCY | 92 |
| 1066A | 291 | 1100A | 296 | 12C2.5YY | 88 |
| 1067A | 291 | 1100Z | 310 | 12G0.5 | 44 |
| 1068A | 291 | 1101A | 287 | 12G0.5CY | 48 |
| 1069A | 294 | 1118A | 294 | 12G0.5SY | 52 |
| 1070A | 294 | 1118Z | 309 | 12G0.75 | 44 |
| 1071A | 294 | 1119A | 296 | 12G0.75CY | 48 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 12G0.75SY | 52 | 1348A | 375 | 18C0.25YCY | 89 |
| 12G1.0 | 45 | 1349A | 375 | 18C0.25YY | 85 |
| 12G1.0CY | 49 | 1359A | 347 | 18C0.34YCY | 90 |
| 12G1.0SY | 53 | 1360A | 348 | 18C0.34YY | 86 |
| 12G1.5 | 45 | 1361A | 348 | 18C0.5YCY | 90 |
| 12G1.5CY | 49 | 1362A | 348 | 18C0.5YY | 86 |
| 12G1.5SY | 53 | 1363A | 348 | 18C0.75YCY | 91 |
| 12G2.5 | 46 | 1364A | 348 | 18C0.75YY | 87 |
| 12G2.5CY | 50 | 1365A | 348 | 18C1.0YCY | 91 |
| 12G2.5SY | 54 | 1366A | 348 | 18C1.0YY | 87 |
| 12G4 | 46 | 1367A | 348 | 18C1.5YCY | 92 |
| 12G4CY | 50 | 139463 | 369 | 18C1.5YY | 88 |
| 12G4SY | 54 | 1419A | 324 | 18C2.5YCY | 92 |
| 12X0.5 | 44 | 1420A | 324 | 18C2.5YY | 88 |
| 12X0.5CY | 48 | 1421A | 324 | 19105 | 208 |
| 12X0.5SY | 52 | 1422A | 324 | 19106 | 208 |
| 12X0.75 | 44 | 1423A | 324 | 19107 | 208 |
| 12X0.75CY | 48 | 1424A | 324 | 19108 | 208 |
| 12X0.75SY | 52 | 1425A | 324 | 19109 | 208 |
| 12X1.0 | 45 | 1466A | 279 | 19115 | 206 |
| 12X1.0CY | 49 | 1467A | 279 | 19120 | 207 |
| 12X1.0SY | 53 | 1468A | 279 | 19122 | 206 |
| 12X1.5 | 45 | 1471A | 279 | 19123 | 206 |
| 12X1.5CY | 49 | 1472A | 279 | 19124 | 208 |
| 12X1.5SY | 53 | 1474A | 279 | 19125 | 208 |
| 12X2.5 | 46 | 1475A | 279 | 19126 | 206 |
| 12X2.5CY | 50 | 1476A | 279 | 19129 | 208 |
| 12X2.5SY | 54 | 1477A | 279 | 19130 | 208 |
| 12X4 | 46 | 1480A | 279 | 19140 | 207 |
| 12X4CY | 50 | 1481A | 279 | 19201 | 207 |
| 12X4SY | 54 | 1484A | 281 | 19202 | 207 |
| 1327A | 347 | 1485A | 281 | 19203 | 207 |
| 1328A | 347 | 1486A | 281 | 19204 | 207 |
| 1329500 | 159 | 1489A | 281 | 19205 | 208 |
| 1329501 | 159 | 1490A | 281 | 19206 | 208 |
| 1329502 | 159 | 1492A | 282 | 19207 | 208 |
| 1329503 | 159 | 1493A | 282 | 19208 | 208 |
| 1329504 | 159 | 1494A | 282 | 19209 | 208 |
| 1329505 | 159 | 1495A | 282 | 19216 | 210 |
| 1329506 | 159 | 1498A | 282 | 19217 | 210 |
| 1329507 | 159 | 1499A | 282 | 19227 | 207 |
| 1329528 | 159 | 1503A | 234 | 19228 | 207 |
| 1329529 | 159 | 1504A | 234 | 19229 | 208 |
| 1329530 | 159 | 1508A | 239 | 19230 | 208 |
| 1329531 | 159 | 1526A | 277 | 19348 | 208 |
| 1329532 | 159 | 1527A | 294 | 19349 | 208 |
| 1329A | 347 | 1528A | 281 | 19350 | 209 |
| 1330A | 347 | 1529A | 279 | 19352 | 208 |
| 1331A | 347 | 183076F | 347 | 19353 | 208 |
| 1332A | 347 | 183076F | 354 | 19354 | 208 |
| 1333A | 347 | 183079A | 355 | 19362 | 209 |
| 1334A | 347 | 183092A | 366 | 19363 | 209 |
| 1335A | 349 | 1883A | 239 | 19364 | 209 |
| 1336A | 349 | 189463 | 369 | 19401 | 209 |
| 1345F | 362 | 18C0.14YCY | 89 | 19402 | 209 |
| 1346F | 362 | 18C0.14YY | 85 | 19403 | 209 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 19404 | 206 | 20X2.5SY | 54 | 2114A | 348 |
| 19405 | 206 | 2109A | 348 | 21150 | 299 |
| 19500 | 207 | 21100 | 299 | 21151 | 299 |
| 19501 | 207 | 21101 | 299 | 21152 | 299 |
| 19502 | 207 | 21102 | 299 | 21153 | 299 |
| 19503 | 209 | 21103 | 299 | 21154 | 299 |
| 19504 | 209 | 21104 | 299 | 21155 | 299 |
| 19505 | 209 | 21105 | 299 | 2115A | 348 |
| 19506 | 207 | 21106 | 299 | 2116A | 348 |
| 19507 | 207 | 21107 | 299 | 2117A | 348 |
| 19508 | 207 | 21108 | 299 | 2118A | 348 |
| 20C0.14YCY | 89 | 21109 | 299 | 2118T | 352 |
| 20C0.14YY | 85 | 2110A | 348 | 2118Z | 352 |
| 20C0.25YCY | 89 | 21110 | 299 | 2119A | 348 |
| 20C0.25YY | 85 | 21111 | 299 | 2119T | 352 |
| 20C0.34YCY | 90 | 21112 | 299 | 2119Z | 352 |
| 20C0.34YY | 86 | 21113 | 299 | 2120A | 348 |
| 20C0.5YCY | 90 | 21114 | 299 | 2120T | 352 |
| 20C0.5YY | 86 | 21115 | 299 | 2120Z | 352 |
| 20C0.75YCY | 91 | 21116 | 299 | 21212 | 299 |
| 20C0.75YY | 87 | 21117 | 299 | 21213 | 299 |
| 20C1.0YCY | 91 | 21118 | 299 | 21214 | 299 |
| 20C1.0YY | 87 | 21119 | 299 | 21215 | 299 |
| 20C1.5YCY | 92 | 2111A | 348 | 21216 | 299 |
| 20C1.5YY | 88 | 21120 | 299 | 21217 | 299 |
| 20C2.5YCY | 92 | 21121 | 299 | 21218 | 299 |
| 20C2.5YY | 88 | 21122 | 299 | 21219 | 299 |
| 20G0.5 | 44 | 21123 | 299 | 2121A | 348 |
| 20G0.5CY | 48 | 21124 | 299 | 2121T | 352 |
| 20G0.5SY | 52 | 21125 | 299 | 2121Z | 352 |
| 20G0.75 | 44 | 21126 | 299 | 21220 | 299 |
| 20G0.75CY | 48 | 21127 | 299 | 21221 | 299 |
| 20G0.75SY | 52 | 21128 | 299 | 21222 | 299 |
| 20G1.0 | 45 | 21129 | 299 | 21223 | 299 |
| 20G1.0CY | 49 | 2112A | 348 | 21224 | 299 |
| 20G1.0SY | 53 | 21130 | 299 | 21225 | 299 |
| 20G1.5 | 45 | 21131 | 299 | 21226 | 299 |
| 20G1.5CY | 49 | 21132 | 299 | 21227 | 299 |
| 20G1.5SY | 53 | 21133 | 299 | 21228 | 299 |
| 20G2.5 | 46 | 21134 | 299 | 21229 | 299 |
| 20G2.5CY | 50 | 21135 | 299 | 2122A | 348 |
| 20G2.5SY | 54 | 21136 | 299 | 2122T | 352 |
| 20X0.5 | 44 | 21137 | 299 | 2122Z | 352 |
| 20X0.5CY | 48 | 21138 | 299 | 21230 | 299 |
| 20X0.5SY | 52 | 21139 | 299 | 21231 | 299 |
| 20X0.75 | 44 | 2113A | 348 | 21232 | 299 |
| 20X0.75CY | 48 | 21140 | 299 | 21233 | 299 |
| 20X0.75SY | 53 | 21141 | 299 | 21234 | 299 |
| 20X1.0 | 45 | 21142 | 299 | 21235 | 299 |
| 20X1.0CY | 49 | 21143 | 299 | 21236 | 299 |
| 20X1.0SY | 53 | 21144 | 299 | 21237 | 299 |
| 20X1.5 | 45 | 21145 | 299 | 21238 | 299 |
| 20X1.5CY | 49 | 21146 | 299 | 21239 | 299 |
| 20X1.5SY | 53 | 21147 | 299 | 2123A | 348 |
| 20X2.5 | 46 | 21148 | 299 | 21240 | 299 |
| 20X2.5CY | 50 | 21149 | 299 | 21241 | 299 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 21242 | 299 | 21315 | 120 | 21365 | 120 |
| 21243 | 299 | 21316 | 120 | 21366 | 120 |
| 21244 | 299 | 21317 | 120 | 21367 | 120 |
| 21245 | 299 | 21318 | 120 | 21368 | 120 |
| 21246 | 299 | 21319 | 120 | 21369 | 120 |
| 21247 | 299 | 2131A | 349 | 21370 | 120 |
| 21248 | 299 | 2131T | 353 | 21371 | 120 |
| 21249 | 299 | 2131Z | 353 | 21372 | 120 |
| 2124A | 348 | 21320 | 120 | 21373 | 120 |
| 21250 | 299 | 21321 | 120 | 21374 | 120 |
| 21251 | 299 | 21322 | 120 | 21375 | 120 |
| 21252 | 299 | 21323 | 120 | 21376 | 120 |
| 21253 | 299 | 21324 | 120 | 21377 | 120 |
| 21254 | 299 | 21325 | 120 | 21378 | 120 |
| 21255 | 299 | 21326 | 120 | 21379 | 120 |
| 21256 | 299 | 21327 | 120 | 21380 | 120 |
| 21257 | 299 | 21328 | 120 | 21381 | 120 |
| 21258 | 299 | 21329 | 120 | 21382 | 120 |
| 21259 | 299 | 2132A | 349 | 21383 | 120 |
| 2125A | 348 | 21330 | 120 | 21384 | 120 |
| 21260 | 299 | 21331 | 120 | 21385 | 120 |
| 21261 | 299 | 21332 | 120 | 21386 | 120 |
| 21262 | 299 | 21333 | 120 | 21387 | 120 |
| 21263 | 299 | 21334 | 120 | 21388 | 120 |
| 21264 | 299 | 21335 | 120 | 21389 | 121 |
| 21265 | 299 | 21336 | 120 | 21390 | 121 |
| 21266 | 299 | 21337 | 120 | 21391 | 121 |
| 21267 | 299 | 21338 | 120 | 21392 | 121 |
| 2126A | 348 | 21339 | 121 | 21393 | 121 |
| 2127A | 349 | 2133A | 349 | 21394 | 121 |
| 2127T | 353 | 21340 | 121 | 21395 | 121 |
| 2127Z | 353 | 21341 | 121 | 21396 | 121 |
| 2128A | 349 | 21342 | 121 | 21397 | 121 |
| 2128T | 353 | 21343 | 121 | 21398 | 121 |
| 2128Z | 353 | 21344 | 121 | 21400 | 120 |
| 2129A | 349 | 21345 | 121 | 21401 | 120 |
| 2129T | 353 | 21346 | 121 | 21402 | 120 |
| 2129Z | 353 | 21347 | 121 | 21403 | 120 |
| 21300 | 120 | 21348 | 121 | 21404 | 120 |
| 21301 | 120 | 2134A | 349 | 21405 | 120 |
| 21302 | 120 | 21350 | 120 | 21406 | 120 |
| 21303 | 120 | 21351 | 120 | 21407 | 120 |
| 21304 | 120 | 21352 | 120 | 21408 | 120 |
| 21305 | 120 | 21353 | 120 | 21409 | 120 |
| 21306 | 120 | 21354 | 120 | 21410 | 120 |
| 21307 | 120 | 21355 | 120 | 21411 | 120 |
| 21308 | 120 | 21356 | 120 | 21412 | 120 |
| 21309 | 120 | 21357 | 120 | 21413 | 120 |
| 2130A | 349 | 21358 | 120 | 21414 | 120 |
| 2130T | 353 | 21359 | 120 | 21415 | 120 |
| 2130Z | 353 | 2135A | 349 | 21416 | 120 |
| 21310 | 120 | 21360 | 120 | 21417 | 120 |
| 21311 | 120 | 21361 | 120 | 21418 | 120 |
| 21312 | 120 | 21362 | 120 | 21419 | 120 |
| 21313 | 120 | 21363 | 120 | 21420 | 120 |
| 21314 | 120 | 21364 | 120 | 21421 | 120 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 21422 | 120 | 21479 | 121 | 21556 | 120 |
| 21423 | 120 | 21500 | 120 | 21557 | 120 |
| 21424 | 120 | 21501 | 120 | 21558 | 120 |
| 21425 | 120 | 21502 | 120 | 21559 | 120 |
| 21426 | 120 | 21503 | 120 | 21560 | 120 |
| 21427 | 120 | 21504 | 120 | 21561 | 120 |
| 21428 | 120 | 21505 | 120 | 21562 | 120 |
| 21429 | 120 | 21506 | 120 | 21563 | 120 |
| 21430 | 120 | 21507 | 120 | 21564 | 120 |
| 21431 | 120 | 21508 | 120 | 21565 | 120 |
| 21432 | 120 | 21509 | 120 | 21566 | 120 |
| 21433 | 120 | 21510 | 120 | 21567 | 120 |
| 21434 | 120 | 21511 | 120 | 21568 | 120 |
| 21435 | 120 | 21512 | 120 | 21569 | 120 |
| 21436 | 120 | 21513 | 120 | 21570 | 120 |
| 21437 | 120 | 21514 | 120 | 21571 | 120 |
| 21438 | 120 | 21515 | 120 | 21572 | 120 |
| 21439 | 121 | 21516 | 120 | 21573 | 120 |
| 21440 | 121 | 21517 | 120 | 21574 | 120 |
| 21441 | 121 | 21518 | 120 | 21575 | 120 |
| 21442 | 121 | 21519 | 120 | 21576 | 120 |
| 21443 | 121 | 21520 | 120 | 21577 | 120 |
| 21444 | 121 | 21521 | 120 | 21578 | 120 |
| 21445 | 121 | 21522 | 120 | 21579 | 120 |
| 21446 | 121 | 21523 | 120 | 21580 | 120 |
| 21447 | 121 | 21524 | 120 | 21581 | 120 |
| 21448 | 121 | 21525 | 120 | 21582 | 120 |
| 21450 | 121 | 21526 | 120 | 21583 | 120 |
| 21451 | 121 | 21527 | 120 | 21584 | 120 |
| 21452 | 121 | 21528 | 120 | 21585 | 120 |
| 21453 | 121 | 21529 | 120 | 21586 | 120 |
| 21454 | 121 | 21530 | 120 | 21587 | 120 |
| 21455 | 121 | 21531 | 120 | 21588 | 120 |
| 21456 | 121 | 21532 | 120 | 21589 | 121 |
| 21457 | 121 | 21533 | 120 | 21590 | 121 |
| 21458 | 121 | 21534 | 120 | 21591 | 121 |
| 21459 | 121 | 21535 | 120 | 21592 | 121 |
| 21460 | 121 | 21536 | 120 | 21593 | 121 |
| 21461 | 121 | 21537 | 120 | 21594 | 121 |
| 21462 | 121 | 21538 | 120 | 21595 | 121 |
| 21463 | 121 | 21539 | 121 | 21596 | 121 |
| 21464 | 121 | 21540 | 121 | 21597 | 121 |
| 21465 | 121 | 21541 | 121 | 21598 | 121 |
| 21466 | 121 | 21542 | 121 | 21600 | 120 |
| 21467 | 121 | 21543 | 121 | 21601 | 120 |
| 21468 | 121 | 21544 | 121 | 21602 | 120 |
| 21469 | 121 | 21545 | 121 | 21603 | 120 |
| 21470 | 121 | 21546 | 121 | 21604 | 120 |
| 21471 | 121 | 21547 | 121 | 21605 | 120 |
| 21472 | 121 | 21548 | 121 | 21606 | 120 |
| 21473 | 121 | 21550 | 120 | 21607 | 120 |
| 21474 | 121 | 21551 | 120 | 21608 | 120 |
| 21475 | 121 | 21552 | 120 | 21609 | 120 |
| 21476 | 121 | 21553 | 120 | 21610 | 120 |
| 21477 | 121 | 21554 | 120 | 21611 | 120 |
| 21478 | 121 | 21555 | 120 | 21612 | 120 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 21613 | 120 | 21670 | 121 | 22062 | 299 |
| 21614 | 120 | 21671 | 121 | 22063 | 299 |
| 21615 | 120 | 21672 | 121 | 22064 | 299 |
| 21616 | 120 | 21673 | 121 | 22065 | 299 |
| 21617 | 120 | 21674 | 121 | 22066 | 299 |
| 21618 | 120 | 21675 | 121 | 22067 | 299 |
| 21619 | 120 | 21676 | 121 | 22068 | 300 |
| 21620 | 120 | 21677 | 121 | 22069 | 300 |
| 21621 | 120 | 21678 | 121 | 22070 | 300 |
| 21622 | 120 | 21679 | 121 | 22071 | 300 |
| 21623 | 120 | 22000 | 299 | 22072 | 300 |
| 21624 | 120 | 22001 | 299 | 22073 | 300 |
| 21625 | 120 | 22002 | 299 | 22074 | 300 |
| 21626 | 120 | 22003 | 299 | 22075 | 300 |
| 21627 | 120 | 22004 | 299 | 22076 | 300 |
| 21628 | 120 | 22005 | 299 | 22077 | 300 |
| 21629 | 120 | 22006 | 299 | 22078 | 300 |
| 21630 | 120 | 22007 | 299 | 22079 | 300 |
| 21631 | 120 | 22008 | 299 | 22100 | 122 |
| 21632 | 120 | 22009 | 299 | 22101 | 122 |
| 21633 | 120 | 22010 | 299 | 22102 | 122 |
| 21634 | 120 | 22011 | 299 | 22103 | 122 |
| 21635 | 120 | 22012 | 299 | 22104 | 122 |
| 21636 | 120 | 22013 | 299 | 22105 | 122 |
| 21637 | 120 | 22014 | 300 | 22106 | 122 |
| 21638 | 120 | 22015 | 300 | 22107 | 122 |
| 21639 | 121 | 22016 | 300 | 22108 | 122 |
| 21640 | 121 | 22017 | 300 | 22110 | 122 |
| 21641 | 121 | 22018 | 300 | 22114 | 122 |
| 21642 | 121 | 22019 | 300 | 22118 | 122 |
| 21643 | 121 | 22020 | 300 | 22120 | 122 |
| 21644 | 121 | 22021 | 300 | 22121 | 122 |
| 21645 | 121 | 22022 | 300 | 22122 | 122 |
| 21646 | 121 | 22023 | 300 | 22123 | 122 |
| 21647 | 121 | 22024 | 300 | 22124 | 122 |
| 21648 | 121 | 22025 | 300 | 22125 | 122 |
| 21650 | 121 | 22041 | 300 | 22126 | 122 |
| 21651 | 121 | 22042 | 300 | 22127 | 122 |
| 21652 | 121 | 22043 | 300 | 22128 | 122 |
| 21653 | 121 | 22044 | 300 | 22130 | 122 |
| 21654 | 121 | 22045 | 300 | 22134 | 122 |
| 21655 | 121 | 22046 | 300 | 22138 | 122 |
| 21656 | 121 | 22047 | 300 | 22140 | 122 |
| 21657 | 121 | 22048 | 300 | 22141 | 122 |
| 21658 | 121 | 22049 | 300 | 22142 | 122 |
| 21659 | 121 | 22050 | 300 | 22143 | 122 |
| 21660 | 121 | 22051 | 300 | 22144 | 122 |
| 21661 | 121 | 22052 | 300 | 22145 | 122 |
| 21662 | 121 | 22054 | 299 | 22146 | 122 |
| 21663 | 121 | 22055 | 299 | 22147 | 122 |
| 21664 | 121 | 22056 | 299 | 22148 | 122 |
| 21665 | 121 | 22057 | 299 | 22150 | 122 |
| 21666 | 121 | 22058 | 299 | 22152 | 122 |
| 21667 | 121 | 22059 | 299 | 22154 | 122 |
| 21668 | 121 | 22060 | 299 | 22160 | 123 |
| 21669 | 121 | 22061 | 299 | 22161 | 123 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 22162 | 123 | 23509 | 303 | 24512 | 305 |
| 22170 | 123 | 23510 | 303 | 24513 | 305 |
| 22171 | 123 | 23511 | 303 | 24514 | 305 |
| 22180 | 123 | 23512 | 304 | 24515 | 305 |
| 22181 | 123 | 23513 | 303 | 24516 | 305 |
| 22603 | 302 | 23514 | 303 | 24517 | 305 |
| 22628 | 301 | 23515 | 304 | 24518 | 305 |
| 22629 | 301 | 23516 | 304 | 24519 | 305 |
| 22630 | 301 | 23519 | 303 | 24520 | 305 |
| 22631 | 301 | 23520 | 304 | 25500 | 305 |
| 22632 | 301 | 23521 | 303 | 25501 | 305 |
| 22633 | 301 | 23522 | 304 | 25502 | 305 |
| 22634 | 301 | 23523 | 304 | 25503 | 305 |
| 22635 | 301 | 23524 | 303 | 25504 | 305 |
| 22636 | 301 | 23525 | 303 | 25505 | 305 |
| 22637 | 301 | 23526 | 304 | 25506 | 305 |
| 22638 | 301 | 23527 | 303 | 25507 | 305 |
| 22639 | 301 | 23528 | 303 | 25508 | 305 |
| 22640 | 301 | 23529 | 304 | 25509 | 305 |
| 22641 | 301 | 23530 | 303 | 25510 | 305 |
| 22643 | 301 | 23531 | 303 | 25511 | 305 |
| 22645 | 301 | 23532 | 303 | 25512 | 305 |
| 22646 | 301 | 23533 | 303 | 25513 | 305 |
| 22647 | 301 | 23534 | 303 | 25514 | 305 |
| 22648 | 301 | 23536 | 304 | 25517 | 305 |
| 22654 | 301 | 23537 | 304 | 25518 | 305 |
| 22660 | 302 | 23538 | 303 | 25519 | 305 |
| 22662 | 302 | 23539 | 303 | 25520 | 305 |
| 22663 | 302 | 23541 | 304 | 25522 | 305 |
| 22670 | 301 | 23542 | 303 | 25523 | 305 |
| 22671 | 301 | 23543 | 303 | 25C0.5YCY | 90 |
| 22672 | 302 | 23544 | 303 | 25C0.5YY | 86 |
| 22673 | 302 | 23545 | 304 | 25C0.75YCY | 91 |
| 22674 | 302 | 23546 | 304 | 25C0.75YY | 87 |
| 22675 | 302 | 23547 | 304 | 25C1.0YCY | 91 |
| 22676 | 301 | 23548 | 304 | 25C1.0YY | 87 |
| 22677 | 302 | 23549 | 304 | 25C1.5YCY | 92 |
| 22678 | 302 | 23550 | 304 | 25C1.5YY | 88 |
| 22679 | 302 | 23554 | 303 | 26500 | 303 |
| 22680 | 302 | 23567 | 304 | 26501 | 303 |
| 22681 | 302 | 23568 | 303 | 26502 | 304 |
| 22682 | 302 | 23571 | 304 | 26503 | 303 |
| 22683 | 302 | 23575 | 303 | 26504 | 303 |
| 22684 | 302 | 23578 | 304 | 26505 | 303 |
| 22685 | 301 | 24500 | 305 | 26506 | 303 |
| 22686 | 301 | 24501 | 305 | 26507 | 303 |
| 22687 | 302 | 24502 | 305 | 26508 | 303 |
| 22688 | 302 | 24503 | 305 | 26509 | 304 |
| 22689 | 302 | 24504 | 305 | 26510 | 304 |
| 23500 | 303 | 24505 | 305 | 26511 | 304 |
| 23501 | 303 | 24506 | 305 | 26512 | 304 |
| 23503 | 303 | 24507 | 305 | 26513 | 304 |
| 23505 | 304 | 24508 | 305 | 26514 | 303 |
| 23506 | 303 | 24509 | 305 | 26515 | 303 |
| 23507 | 304 | 24510 | 305 | 26516 | 303 |
| 23508 | 304 | 24511 | 305 | 26517 | 303 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 26518 | 303 | 27260 | 115 | 27641Z | 135 |
| 26519 | 303 | 27261 | 115 | 27643A | 111 |
| 26520 | 303 | 27262 | 115 | 27643Z | 136 |
| 26521 | 303 | 27263 | 115 | 27840 | 117 |
| 26522 | 304 | 27264 | 115 | 27841 | 117 |
| 26523 | 304 | 27265 | 115 | 27842 | 117 |
| 26524 | 304 | 27267 | 115 | 27843 | 117 |
| 26525 | 304 | 27268 | 115 | 27844 | 117 |
| 26526 | 304 | 27269 | 114 | 27845 | 117 |
| 26527 | 304 | 27270 | 114 | 27846 | 117 |
| 26528 | 304 | 27271 | 114 | 27847 | 117 |
| 26529 | 304 | 27272 | 114 | 27848 | 117 |
| 26530 | 303 | 27273 | 114 | 27849 | 117 |
| 26531 | 303 | 27274 | 114 | 27850 | 117 |
| 26532 | 303 | 27275 | 114 | 27851 | 117 |
| 26533 | 303 | 27276 | 114 | 27852 | 117 |
| 26534 | 303 | 27277 | 114 | 27853 | 117 |
| 26535 | 303 | 27278 | 114 | 27854 | 117 |
| 26536 | 303 | 27279 | 114 | 27855 | 117 |
| 26537 | 303 | 27280 | 114 | 27856 | 117 |
| 26538 | 303 | 27281 | 115 | 27857 | 117 |
| 26539 | 304 | 27282 | 115 | 27858 | 117 |
| 26540 | 304 | 27283 | 115 | 27859 | 117 |
| 26541 | 304 | 27284 | 115 | 27860 | 117 |
| 26542 | 304 | 27285 | 115 | 27861 | 117 |
| 26543 | 304 | 27286 | 115 | 27862 | 117 |
| 26544 | 304 | 27287 | 115 | 27863 | 117 |
| 26545 | 304 | 27288 | 115 | 27864 | 117 |
| 26546 | 303 | 27289 | 115 | 27865 | 117 |
| 26547 | 304 | 27290 | 115 | 27866 | 118 |
| 26551 | 303 | 27291 | 115 | 27867 | 118 |
| 26553 | 304 | 27292 | 114 | 27868 | 118 |
| 26555 | 303 | 27293 | 115 | 27869 | 118 |
| 27080A | 108 | 27325A | 107 | 27870 | 118 |
| 27080Z | 134 | 27325AS | 107 | 27871 | 118 |
| 27109A | 110 | 27325Z | 132 | 27872 | 118 |
| 27109Z | 135 | 27325ZS | 132 | 27873 | 118 |
| 27138A | 111 | 27337A | 108 | 27874 | 118 |
| 27138Z | 136 | 27337AS | 108 | 27875 | 118 |
| 27243 | 114 | 27337Z | 133 | 27876 | 118 |
| 27244 | 114 | 27337ZS | 133 | 27877 | 118 |
| 27245 | 114 | 27428 | 116 | 27878 | 118 |
| 27246 | 114 | 27429 | 116 | 27879 | 118 |
| 27247 | 114 | 27430 | 116 | 27880 | 118 |
| 27248 | 114 | 27431 | 116 | 27881 | 118 |
| 27249 | 114 | 27432 | 114 | 27882 | 118 |
| 27250 | 114 | 27433 | 114 | 27883 | 118 |
| 27251 | 114 | 27434 | 114 | 27884 | 118 |
| 27252 | 114 | 27535 | 114 | 27885 | 117 |
| 27253 | 114 | 27538 | 114 | 27886 | 117 |
| 27254 | 114 | 27539 | 114 | 27887 | 117 |
| 27255 | 114 | 27540 | 114 | 27888 | 118 |
| 27256 | 114 | 27541 | 115 | 27889 | 118 |
| 27257 | 115 | 27636A | 108 | 27890 | 119 |
| 27258 | 115 | 27636Z | 134 | 27891 | 119 |
| 27259 | 115 | 27641A | 110 | 27892 | 119 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 27893 | 119 | 28121A | 110 | 28161A | 112 |
| 27894 | 118 | 28122A | 110 | 28161Z | 141 |
| 27895 | 118 | 28123A | 110 | 28165A | 112 |
| 27896 | 118 | 28124A | 110 | 28166A | 112 |
| 27916A | 107 | 28125A | 110 | 28167A | 112 |
| 27916Z | 132 | 28125Z | 135 | 28167Z | 142 |
| 27917A | 108 | 28126A | 110 | 28168A | 112 |
| 27917Z | 133 | 28127A | 110 | 28168Z | 142 |
| 27969 | 114 | 28128A | 110 | 28169A | 112 |
| 28081A | 108 | 28129A | 110 | 28169Z | 142 |
| 28081AS | 109 | 28130A | 110 | 28170A | 112 |
| 28081ZS | 134 | 28131A | 110 | 28170Z | 143 |
| 28082A | 109 | 28132A | 110 | 28171A | 112 |
| 28082AS | 109 | 28132Z | 135 | 28171Z | 143 |
| 28082ZS | 134 | 28133A | 110 | 28172A | 112 |
| 28083A | 109 | 28134A | 110 | 28172Z | 143 |
| 28084A | 109 | 28135A | 110 | 28173A | 112 |
| 28085A | 109 | 28136A | 110 | 28173Z | 144 |
| 28086A | 109 | 28137A | 110 | 28174A | 112 |
| 28087A | 109 | 28139A | 111 | 28174Z | 144 |
| 28088A | 109 | 28140A | 111 | 28175A | 112 |
| 28089A | 109 | 28140Z | 136 | 28175Z | 144 |
| 28090A | 109 | 28141A | 111 | 28176A | 112 |
| 28090Z | 134 | 28142A | 111 | 28176Z | 145 |
| 28091A | 109 | 28143A | 111 | 28177A | 112 |
| 28092A | 109 | 28144A | 111 | 28177Z | 145 |
| 28093A | 109 | 28144Z | 136 | 28178A | 112 |
| 28094A | 109 | 28145A | 111 | 28178Z | 145 |
| 28095A | 109 | 28146A | 111 | 28243 | 114 |
| 28096A | 109 | 28147A | 111 | 28244 | 114 |
| 28096Z | 134 | 28148A | 111 | 28245 | 114 |
| 28097A | 109 | 28148Z | 136 | 28246 | 114 |
| 28098A | 109 | 28149A | 111 | 28247 | 114 |
| 28099A | 109 | 28149Z | 137 | 28248 | 114 |
| 28100A | 109 | 28150A | 111 | 28249 | 114 |
| 28101A | 109 | 28150Z | 137 | 28250 | 114 |
| 28102A | 109 | 28151A | 111 | 28251 | 114 |
| 28103A | 109 | 28151Z | 137 | 28252 | 114 |
| 28103Z | 134 | 28152A | 111 | 28253 | 114 |
| 28104A | 109 | 28152Z | 138 | 28254 | 114 |
| 28105A | 109 | 28153A | 111 | 28255 | 114 |
| 28106A | 109 | 28153Z | 138 | 28256 | 114 |
| 28107A | 109 | 28154A | 111 | 28257 | 115 |
| 28108A | 109 | 28154Z | 138 | 28258 | 115 |
| 28110A | 110 | 28155A | 112 | 28259 | 115 |
| 28111A | 110 | 28155Z | 139 | 28260 | 115 |
| 28112A | 110 | 28156A | 112 | 28261 | 115 |
| 28113A | 110 | 28156Z | 139 | 28262 | 115 |
| 28114A | 110 | 28157A | 112 | 28263 | 115 |
| 28115A | 110 | 28157Z | 139 | 28264 | 115 |
| 28116A | 110 | 28158A | 112 | 28265 | 115 |
| 28117A | 110 | 28158Z | 140 | 28267 | 115 |
| 28118A | 110 | 28159A | 112 | 28268 | 115 |
| 28119A | 110 | 28159Z | 140 | 28269 | 114 |
| 28119Z | 135 | 28160A | 112 | 28270 | 114 |
| 28120A | 110 | 28160Z | 140 | 28271 | 114 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 28272 | 114 | 28540 | 114 | 28854 | 117 |
| 28273 | 114 | 28541 | 115 | 28855 | 117 |
| 28274 | 114 | 28600A | 107 | 28856 | 117 |
| 28275 | 114 | 28601A | 107 | 28857 | 117 |
| 28276 | 114 | 28602A | 107 | 28858 | 117 |
| 28277 | 114 | 28603A | 107 | 28859 | 117 |
| 28278 | 114 | 28604A | 107 | 28860 | 117 |
| 28279 | 114 | 28605A | 107 | 28861 | 117 |
| 28280 | 114 | 28606A | 107 | 28862 | 117 |
| 28281 | 115 | 28607A | 107 | 28863 | 117 |
| 28282 | 115 | 28608A | 107 | 28864 | 117 |
| 28283 | 115 | 28609A | 107 | 28865 | 117 |
| 28284 | 115 | 28610A | 107 | 28866 | 118 |
| 28285 | 115 | 28611A | 107 | 28867 | 118 |
| 28286 | 115 | 28611Z | 132 | 28868 | 118 |
| 28287 | 115 | 28612A | 107 | 28869 | 118 |
| 28288 | 115 | 28613A | 107 | 28870 | 118 |
| 28289 | 115 | 28613Z | 132 | 28871 | 118 |
| 28290 | 115 | 28614A | 107 | 28872 | 118 |
| 28291 | 115 | 28615A | 108 | 28873 | 118 |
| 28292 | 114 | 28616A | 108 | 28874 | 118 |
| 28293 | 115 | 28617A | 108 | 28875 | 118 |
| 28323A | 108 | 28618A | 108 | 28876 | 118 |
| 28324A | 108 | 28619A | 108 | 28877 | 118 |
| 28324Z | 133 | 28620A | 108 | 28878 | 118 |
| 28326A | 107 | 28621A | 108 | 28879 | 118 |
| 28326AS | 107 | 28622A | 108 | 28880 | 118 |
| 28326ZS | 132 | 28623A | 108 | 28881 | 118 |
| 28327A | 107 | 28623Z | 133 | 28882 | 118 |
| 28328A | 107 | 28624A | 108 | 28883 | 118 |
| 28329A | 107 | 28625A | 108 | 28884 | 118 |
| 28329Z | 132 | 28626A | 108 | 28885 | 117 |
| 28330A | 108 | 28627A | 108 | 28886 | 117 |
| 28331A | 108 | 28628A | 108 | 28887 | 117 |
| 28331AS | 108 | 28628Z | 133 | 28888 | 118 |
| 28331ZS | 133 | 28629A | 109 | 28889 | 118 |
| 28334A | 107 | 28630A | 110 | 28890 | 119 |
| 28334AS | 107 | 28632A | 107 | 28891 | 119 |
| 28334ZS | 132 | 28632Z | 132 | 28892 | 119 |
| 28335A | 107 | 28633A | 108 | 28893 | 119 |
| 28336A | 107 | 28634A | 110 | 28894 | 118 |
| 28338A | 108 | 28634Z | 135 | 28895 | 118 |
| 28339A | 108 | 28840 | 117 | 28896 | 118 |
| 28340A | 108 | 28841 | 117 | 28912A | 109 |
| 28341A | 108 | 28842 | 117 | 28912Z | 134 |
| 28341Z | 133 | 28843 | 117 | 28969 | 114 |
| 28428 | 116 | 28844 | 117 | 29004 | 125 |
| 28429 | 116 | 28845 | 117 | 29005 | 125 |
| 28430 | 116 | 28846 | 117 | 29006 | 125 |
| 28431 | 116 | 28847 | 117 | 29007 | 125 |
| 28432 | 114 | 28848 | 117 | 29008 | 125 |
| 28433 | 114 | 28849 | 117 | 29009 | 125 |
| 28434 | 114 | 28850 | 117 | 29016 | 125 |
| 28535 | 114 | 28851 | 117 | 29017 | 125 |
| 28538 | 114 | 28852 | 117 | 29018 | 125 |
| 28539 | 114 | 28853 | 117 | 29019 | 125 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 29020 | 125 | 29513 | 155 | 2C0.75YCY | 91 |
| 29021 | 125 | 29528 | 155 | 2C0.75YY | 87 |
| 29022 | 125 | 29528T | 157 | 2C1.0YCY | 91 |
| 29023 | 125 | 29528X | 158 | 2C1.0YY | 87 |
| 29024 | 125 | 29528X | 163 | 2C1.5YCY | 92 |
| 29025 | 125 | 29529 | 155 | 2C1.5YY | 88 |
| 29030 | 125 | 29529T | 157 | 2C2.5YCY | 92 |
| 29031 | 125 | 29529X | 158 | 2C2.5YY | 88 |
| 29032 | 125 | 29529X | 163 | 2X0.5 | 44 |
| 29033 | 125 | 29530 | 155 | 2X2.5 | 46 |
| 29034 | 125 | 29530T | 157 | 2X0.5CY | 48 |
| 29035 | 125 | 29530X | 158 | 2X0.5SY | 52 |
| 29036 | 125 | 29530X | 163 | 2X0.75 | 44 |
| 29038 | 125 | 29531 | 155 | 2X0.75CY | 48 |
| 29040 | 125 | 29531T | 157 | 2X0.75SY | 52 |
| 29043 | 125 | 29531X | 158 | 2X1.0 | 45 |
| 29048 | 125 | 29531X | 163 | 2X1.0CY | 49 |
| 29053 | 125 | 29532 | 155 | 2X1.0SY | 53 |
| 29058 | 125 | 29532T | 157 | 2X1.5 | 45 |
| 29068 | 125 | 29534 | 158 | 2X1.5CY | 49 |
| 29078 | 125 | 29534 | 163 | 2X1.5SY | 53 |
| 29500 | 155 | 29533 | 156 | 2X2.5CY | 50 |
| 29500T | 157 | 29534 | 156 | 2X2.5SY | 54 |
| 29500X | 158 | 29535 | 156 | 3000A | 273 |
| 29500X | 162 | 29536 | 156 | 3001A | 273 |
| 29501 | 155 | 29537 | 156 | 3002A | 274 |
| 29501T | 157 | 29538 | 156 | 3003A | 274 |
| 29501X | 158 | 29539 | 156 | 3004A | 273 |
| 29501X | 162 | 29540 | 156 | 3005A | 273 |
| 29502 | 155 | 29541 | 156 | 3006A | 273 |
| 29502T | 157 | 29542 | 156 | 3007A | 273 |
| 29502X | 158 | 29543 | 156 | 3008A | 273 |
| 29502X | 162 | 29544 | 156 | 3009A | 273 |
| 29503 | 155 | 29545 | 156 | 3010A | 273 |
| 29503T | 157 | 29546 | 156 | 3011A | 273 |
| 29503X | 158 | 29547 | 156 | 3012A | 273 |
| 29503X | 162 | 29550C | 160 | 3013A | 273 |
| 29504 | 155 | 29551C | 160 | 3014A | 273 |
| 29504T | 157 | 29552C | 160 | 3015A | 273 |
| 29504X | 158 | 29553C | 160 | 3016A | 275 |
| 29504X | 162 | 29554C | 160 | 3017A | 277 |
| 29505 | 155 | 29555C | 160 | 3018A | 277 |
| 29505T | 157 | 29556C | 160 | 3020A | 277 |
| 29505X | 158 | 29557C | 160 | 3021A | 277 |
| 29505X | 162 | 29558C | 160 | 3022A | 277 |
| 29506 | 155 | 29559C | 160 | 3023A | 277 |
| 29506T | 157 | 29560C | 160 | 3024A | 277 |
| 29506X | 158 | 29561C | 160 | 3025A | 279 |
| 29506X | 162 | 2C0.14YCY | 89 | 3027A | 280 |
| 29507 | 155 | 2C0.14YY | 85 | 3028A | 280 |
| 29507T | 157 | 2C0.25YCY | 89 | 3029A | 278 |
| 29507X | 158 | 2C0.25YY | 85 | 3030A | 280 |
| 29507X | 162 | 2C0.34YCY | 90 | 3031A | 280 |
| 29510 | 155 | 2C0.34YY | 86 | 3032A | 280 |
| 29511 | 155 | 2C0.5YCY | 90 | 3033A | 280 |
| 29512 | 155 | 2C0.5YY | 86 | 3034A | 279 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 3035A | 279 | 3080Z | 311 | 3105A | 359 |
| 3036A | 280 | 30810 | 192 | 3105T | 360 |
| 3037A | 280 | 30812 | 192 | 3105Z | 360 |
| 3038A | 280 | 30814 | 192 | 3106A | 359 |
| 3039A | 280 | 30816 | 192 | 3107A | 359 |
| 3041A | 279 | 30818 | 192 | 3107T | 360 |
| 3042A | 279 | 3081A | 298 | 3107Z | 360 |
| 3043A | 281 | 3081Z | 312 | 3108A | 359 |
| 3044A | 283 | 30820 | 192 | 3108T | 360 |
| 3045A | 283 | 3082A | 361 | 3108Z | 360 |
| 3046A | 283 | 3082F | 361 | 3109A | 359 |
| 3047A | 283 | 30830 | 192 | 3109T | 360 |
| 3048A | 283 | 3083A | 362 | 3109Z | 360 |
| 3049A | 283 | 30840 | 192 | 3111A | 287 |
| 3050A | 281 | 3084A | 362 | 3112A | 287 |
| 3051A | 282 | 3084F | 362 | 3113A | 287 |
| 3052A | 283 | 3085A | 362 | 3115A | 287 |
| 3053A | 283 | 3086A | 363 | 3118A | 296 |
| 3054A | 283 | 3087A | 363 | 3119A | 364 |
| 3055A | 283 | 3088A | 291 | 3120A | 364 |
| 3056A | 281 | 3088AE | 292 | 3124A | 364 |
| 3057A | 282 | 3088CE | 292 | 3125A | 364 |
| 3064A | 293 | 3088Z | 307 | 3126A | 364 |
| 3067A | 277 | 30890 | 192 | 3130A | 296 |
| 3068A | 280 | 3089A | 293 | 3130Z | 310 |
| 3069A | 283 | 3089Z | 308 | 3131A | 366 |
| 3072F | 373 | 3090A | 294 | 3132A | 366 |
| 3072T | 374 | 3090AE | 295 | 31502 | 190 |
| 3072Z | 374 | 3090CE | 295 | 31504 | 190 |
| 3073F | 373 | 3090Z | 309 | 31506 | 190 |
| 3074F | 373 | 3091A | 296 | 31508 | 190 |
| 3076ELS | 347 | 3091Z | 310 | 31510 | 190 |
| 3076ELS | 354 | 3092A | 371 | 31512 | 190 |
| 3076ENH | 347 | 3092A | 366 | 31514 | 190 |
| 3076ENH | 354 | 3092F | 366 | 31516 | 190 |
| 3076F | 354 | 3092F | 371 | 31518 | 190 |
| 3076F | 347 | 3092F | 366 | 31520 | 190 |
| 3076T | 351 | 3092FT | 367 | 32410 | 192 |
| 3076Z | 351 | 3092FZ | 367 | 32412 | 192 |
| 3077ELS | 350 | 3092T | 367 | 32414 | 192 |
| 3077ENH | 350 | 3092Z | 367 | 32416 | 192 |
| 3077F | 350 | 3093A | 366 | 32418 | 192 |
| 3078F | 350 | 3093A | 371 | 32516 | 190 |
| 3079A | 355 | 3094A | 366 | 32518 | 190 |
| 3079ALS | 355 | 3095A | 366 | 32718 | 176 |
| 3079ANH | 355 | 31008N | 186 | 32720 | 176 |
| 3079E | 355 | 31010 | 186 | 32722 | 176 |
| 3079T | 356 | 31010N | 186 | 32820 | 175 |
| 3079Z | 356 | 31012 | 186 | 32822 | 175 |
| 30800 | 192 | 31012N | 186 | 33302 | 191 |
| 30801 | 192 | 31014 | 186 | 33304 | 191 |
| 30802 | 192 | 31014N | 186 | 33306 | 191 |
| 30804 | 192 | 3102A | 285 | 33308 | 191 |
| 30806 | 192 | 3103A | 298 | 33310 | 191 |
| 30808 | 192 | 3103A | 138 | 33312 | 191 |
| 3080A | 297 | 3104A | 298 | 33314 | 191 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 33316 | 191 | 36190 | 189 | 3C0.75YY | 87 |
| 33318 | 191 | 36C0.14YCY | 89 | 3C1.0YCY | 91 |
| 33320 | 191 | 36C0.14YY | 85 | 3C1.0YY | 87 |
| 33322 | 191 | 36C0.25YCY | 89 | 3C1.5YCY | 92 |
| 33390 | 191 | 36C0.25YY | 85 | 3C1.5YY | 88 |
| 33414 | 191 | 36C0.34YCY | 90 | 3C2.5YCY | 92 |
| 33416 | 191 | 36C0.34YY | 86 | 3C2.5YY | 88 |
| 33418 | 191 | 37100 | 183 | 3G0.5 | 44 |
| 34017 | 193 | 37101 | 183 | 3G0.5CY | 48 |
| 34020 | 193 | 37102 | 183 | 3G0.5SY | 52 |
| 34400 | 188 | 37103 | 183 | 3G0.75 | 44 |
| 34401 | 188 | 37104 | 183 | 3G0.75CY | 48 |
| 34402 | 188 | 37106 | 183 | 3G0.75SY | 52 |
| 34403 | 188 | 37108 | 183 | 3G1.0 | 45 |
| 34404 | 188 | 37110 | 183 | 3G1.0CY | 49 |
| 34406 | 188 | 37112 | 183 | 3G1.0SY | 53 |
| 34408 | 188 | 37114 | 183 | 3G1.5 | 45 |
| 34410 | 188 | 37116 | 183 | 3G1.5CY | 49 |
| 34412 | 188 | 37118 | 183 | 3G1.5SY | 53 |
| 34414 | 188 | 37130 | 183 | 3G10 | 47 |
| 34416 | 188 | 37140 | 183 | 3G10CY | 51 |
| 34418 | 188 | 37190 | 183 | 3G10SY | 55 |
| 34430 | 188 | 37212 | 184 | 3G16 | 47 |
| 34440 | 188 | 37214 | 184 | 3G16CY | 51 |
| 34490 | 188 | 37216 | 184 | 3G16SY | 55 |
| 34914 | 188 | 37218 | 184 | 3G2.5 | 46 |
| 34916 | 188 | 37220 | 184 | 3G2.5CY | 50 |
| 34918 | 188 | 37222 | 184 | 3G2.5SY | 54 |
| 34920 | 188 | 37500 | 184 | 3G25 | 47 |
| 34922 | 188 | 37501 | 184 | 3G25CY | 51 |
| 35410 | 186 | 37502 | 184 | 3G25SY | 55 |
| 35412 | 186 | 37504 | 184 | 3G35 | 47 |
| 35414 | 186 | 37506 | 184 | 3G35CY | 51 |
| 35416 | 186 | 37508 | 184 | 3G35SY | 55 |
| 35418 | 186 | 37530 | 184 | 3G4 | 46 |
| 35420 | 186 | 37540 | 184 | 3G4CY | 50 |
| 35606 | 185 | 37590 | 184 | 3G4SY | 54 |
| 35608 | 185 | 39110 | 180 | 3G6 | 46 |
| 35610 | 185 | 39112 | 180 | 3G6CY | 50 |
| 35612 | 185 | 39114 | 180 | 3G6SY | 54 |
| 35614 | 185 | 39116 | 180 | 3X0.5 | 44 |
| 35616 | 185 | 39118 | 180 | 3X0.5CY | 48 |
| 35618 | 185 | 39120 | 180 | 3X0.5SY | 52 |
| 35620 | 185 | 39122 | 180 | 3X0.75 | 44 |
| 35622 | 185 | 39124 | 180 | 3X0.75CY | 48 |
| 35716 | 185 | 39126 | 180 | 3X0.75SY | 52 |
| 35718 | 185 | 39128 | 180 | 3X1.0 | 45 |
| 35720 | 185 | 3C0.14YCY | 89 | 3X1.0CY | 49 |
| 35722 | 185 | 3C0.14YY | 85 | 3X1.0SY | 53 |
| 36100 | 189 | 3C0.25YCY | 89 | 3X1.5 | 45 |
| 36101 | 189 | 3C0.25YY | 85 | 3X1.5CY | 49 |
| 36102 | 189 | 3C0.34YCY | 90 | 3X1.5SY | 53 |
| 36104 | 189 | 3C0.34YY | 86 | 3X10 | 47 |
| 36106 | 189 | 3C0.5YCY | 90 | 3X10CY | 51 |
| 36108 | 189 | 3C0.5YY | 86 | 3X10SY | 55 |
| 36140 | 189 | 3C0.75YCY | 91 | 3X16 | 47 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|----------|-------------|------|
| 3X16CY | 51 | 4G25SY | 55 | 50014LS | 357 |
| 3X16SY | 55 | 4G35 | 47 | 50021L | 451 |
| 3X2.5 | 46 | 4G35CY | 51 | 50021LS | 452 |
| 3X2.5CY | 50 | 4G35SY | 55 | 50022L | 451 |
| 3X2.5SY | 54 | 4G4 | 46 | 50022LS | 452 |
| 3X25 | 47 | 4G4CY | 50 | 50023L | 451 |
| 3X25CY | 51 | 4G4SY | 54 | 50023LS | 452 |
| 3X25SY | 55 | 4G6 | 46 | 50024L | 451 |
| 3X35 | 47 | 4G6CY | 50 | 50024LS | 452 |
| 3X35CY | 51 | 4G6SY | 54 | 5002FME | 36 |
| 3X35SY | 55 | 4X0.5 | 44 | 50031L | 451 |
| 3X4 | 46 | 4X0.5CY | 48 | 50031LS | 452 |
| 3X4CY | 50 | 4X0.5SY | 52 | 50032L | 451 |
| 3X4SY | 54 | 4X0.75 | 44 | 50032LS | 452 |
| 3X6 | 46 | 4X0.75CY | 48 | 50033L | 451 |
| 3X6CY | 50 | 4X0.75SY | 52 | 50033LS | 452 |
| 3X6SY | 54 | 4X1.0 | 45 | 50034L | 451 |
| 4C0.14YCY | 89 | 4X1.0CY | 49 | 50034LS | 452 |
| 4C0.14YY | 85 | 4X1.0SY | 53 | 50076L | 450 |
| 4C0.25YCY | 89 | 4X1.5 | 45 | 50076LB | 450 |
| 4C0.25YY | 85 | 4X1.5CY | 49 | 50076LS | 450 |
| 4C0.34YCY | 90 | 4X1.5SY | 53 | 50105F | 387 |
| 4C0.34YY | 86 | 4X10 | 47 | 50105FL | 387 |
| 4C0.5YCY | 90 | 4X10CY | 51 | 50105U | 387 |
| 4C0.5YY | 86 | 4X10SY | 55 | 50105UL | 387 |
| 4C0.75YCY | 91 | 4X16 | 47 | 50106F | 388 |
| 4C0.75YY | 87 | 4X16CY | 51 | 50106FA | 388 |
| 4C1.0YCY | 91 | 4X16SY | 55 | 50106FAL | 388 |
| 4C1.0YY | 87 | 4X2.5 | 46 | 50106FL | 388 |
| 4C1.5YCY | 92 | 4X2.5CY | 50 | 50106U | 388 |
| 4C1.5YY | 88 | 4X2.5SY | 54 | 50106UA | 388 |
| 4C2.5YCY | 92 | 4X25 | 47 | 50106UAR | 388 |
| 4C2.5YY | 88 | 4X25CY | 51 | 50106UAL | 388 |
| 4G0.5 | 44 | 4X25SY | 55 | 50106UL | 388 |
| 4G0.5CY | 48 | 4X35 | 47 | 5020FME | 36 |
| 4G0.5SY | 52 | 4X35CY | 51 | 5020UME | 34 |
| 4G0.75 | 44 | 4X35SY | 55 | 5022FME | 36 |
| 4G0.75CY | 48 | 4X4 | 46 | 5022UME | 34 |
| 4G0.75SY | 52 | 4X4CY | 50 | 50C0.14YCY | 89 |
| 4G1.0 | 45 | 4X4SY | 54 | 50C0.14YY | 85 |
| 4G1.0CY | 49 | 4X6 | 46 | 50C0.25YCY | 89 |
| 4G1.0SY | 53 | 4X6CY | 50 | 50C0.25YY | 85 |
| 4G1.5 | 45 | 4X6SY | 54 | 50C0.34YCY | 90 |
| 4G1.5CY | 49 | 50007TSF | 393, 397 | 50C0.34YY | 86 |
| 4G1.5SY | 53 | 5000FME | 36 | 5100FME | 36 |
| 4G10 | 47 | 50011L | 357 | 5102FME | 36 |
| 4G10CY | 51 | 50011LB | 357 | 5120FME | 36 |
| 4G10SY | 55 | 50011LS | 357 | 5120UME | 34 |
| 4G16 | 47 | 50012L | 357 | 5122FME | 36 |
| 4G16CY | 51 | 50012LB | 357 | 5122UME | 34 |
| 4G16SY | 55 | 50012LS | 357 | 5200FME | 35 |
| 4G2.5 | 46 | 50013L | 357 | 5201FRE | 37 |
| 4G2.5CY | 50 | 50013LB | 357 | 5202FME | 35 |
| 4G2.5SY | 54 | 50013LS | 357 | 5220FME | 35 |
| 4G25 | 47 | 50014L | 357 | 5220UME | 34 |
| 4G25CY | 51 | 50014LB | 357 | 5222FME | 35 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 5222UME | 34 | 5X1.5SY | 53 | 7106WS | 81 |
| 5240FRE | 37 | 5X2.5 | 46 | 7107W | 80 |
| 5300FME | 35 | 5X2.5CY | 50 | 7108W | 80 |
| 5302FME | 35 | 5X2.5SY | 54 | 7110W | 80 |
| 5304FME | 35 | 6051 | 128 | 7111W | 80 |
| 5306FME | 35 | 6054 | 128 | 7111WS | 81 |
| 5320FME | 35 | 6059 | 128 | 7113W | 80 |
| 5320UME | 34 | 6060 | 128 | 7116W | 80 |
| 5322FME | 35 | 6163 | 130 | 7117W | 80 |
| 5322UME | 34 | 6179 | 130 | 7122W | 80 |
| 5324FME | 35 | 6193 | 130 | 7123WS | 81 |
| 5324UME | 34 | 70001E | 354 | 7125W | 80 |
| 5326FME | 35 | 70001LS | 354 | 7126W | 80 |
| 5326UME | 34 | 70001NH | 354 | 7127W | 80 |
| 5C0.14YCY | 89 | 70006E | 398 | 7129W | 80 |
| 5C0.14YY | 85 | 70006NH | 398 | 7129WS | 81 |
| 5C0.25YCY | 89 | 70007E | 399 | 7136WS | 81 |
| 5C0.25YY | 85 | 70007NH | 399 | 7145W | 80 |
| 5C0.34YCY | 90 | 70007PU | 399 | 72001E | 385 |
| 5C0.34YY | 86 | 70008PU | 400 | 72001NH | 385 |
| 5C0.5YCY | 90 | 70009PU | 400 | 72002E | 391 |
| 5C0.5YY | 86 | 70101E | 355 | 72002NH | 391 |
| 5C0.75YCY | 91 | 70101LS | 355 | 72002PU | 391 |
| 5C0.75YY | 87 | 70101NH | 355 | 7200A | 359 |
| 5C1.0YCY | 91 | 70101PE | 355 | 7200A | 378 |
| 5C1.0YY | 87 | 70102E | 355 | 7201A | 359 |
| 5C1.5YCY | 92 | 70103E | 355 | 7201A | 378 |
| 5C1.5YY | 88 | 70105PU | 355 | 7202A | 359 |
| 5C2.5YCY | 92 | 70110E | 354 | 7202A | 378 |
| 5C2.5YY | 88 | 70200E | 354 | 7203A | 359 |
| 5G0.5 | 44 | 70200LS | 354 | 7203A | 378 |
| 5G0.5CY | 48 | 70200NH | 354 | 7205A | 378 |
| 5G0.5SY | 52 | 70201E | 167 | 7206A | 378 |
| 5G0.75 | 44 | 70202E | 167 | 74001E | 386 |
| 5G0.75CY | 48 | 70203E | 167 | 74001NH | 387 |
| 5G0.75SY | 52 | 70251PU | 168 | 74001PU | 387 |
| 5G1.0 | 45 | 70252PU | 168 | 74002E | 392 |
| 5G1.0CY | 49 | 70254PU | 168 | 74002NH | 392 |
| 5G1.0SY | 53 | 70256PU | 168 | 74002PU | 392 |
| 5G1.5 | 45 | 70257PU | 168 | 74003PU | 394 |
| 5G1.5CY | 49 | 70258PU | 168 | 74004E | 390 |
| 5G1.5SY | 53 | 70259PU | 168 | 74004NH | 390 |
| 5G2.5 | 46 | 70260PU | 169 | 74005E | 393 |
| 5G2.5CY | 50 | 70261PU | 168 | 74005NH | 393 |
| 5G2.5SY | 54 | 70262PU | 168 | 74005PU | 393 |
| 5X0.5 | 44 | 70263PU | 168 | 74009PU | 394 |
| 5X0.5CY | 48 | 70264PU | 168 | 7400W | 82 |
| 5X0.5SY | 52 | 70265PU | 168 | 7401W | 82 |
| 5X0.75 | 44 | 70266PU | 169 | 7401WS | 84 |
| 5X0.75CY | 48 | 70267PU | 169 | 7402W | 82 |
| 5X0.75SY | 52 | 70268PU | 168 | 7403W | 82 |
| 5X1.0 | 45 | 70269PU | 168 | 7403WS | 84 |
| 5X1.0CY | 49 | 7101W | 80 | 7404W | 82 |
| 5X1.0SY | 53 | 7102W | 80 | 7404WS | 84 |
| 5X1.5 | 45 | 7105W | 80 | 7405W | 82 |
| 5X1.5CY | 49 | 7106W | 80 | 7406W | 82 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 7407W | 82 | 7703NH | 372 | 7957A | 386 |
| 7408W | 82 | 7704NH | 372 | 7958A | 386 |
| 7408WS | 84 | 772118T | 352 | 7960A | 398 |
| 7409W | 82 | 772119T | 352 | 7961A | 399 |
| 7410W | 82 | 772120T | 352 | 7962A | 400 |
| 7410WS | 84 | 772121T | 352 | 8000 | 195 |
| 7411W | 82 | 772122T | 352 | 8011 | 195 |
| 7411WS | 84 | 772127T | 353 | 8012 | 195 |
| 7412W | 82 | 772128T | 353 | 8013 | 195 |
| 7413W | 82 | 772129T | 353 | 8019 | 195 |
| 7413WS | 84 | 772130T | 353 | 8020 | 195 |
| 7414W | 82 | 772131T | 353 | 8021 | 195 |
| 7415W | 82 | 773072T | 374 | 8022 | 195 |
| 7415WS | 84 | 773076Z | 351 | 8023 | 195 |
| 7416W | 82 | 773079T | 356 | 8024 | 195 |
| 7416WS | 84 | 773092F | 367 | 8025 | 195 |
| 7417W | 82 | 773092T | 367 | 8049 | 194 |
| 7417WS | 84 | 773105T | 360 | 8050 | 194 |
| 7418W | 82 | 773107T | 360 | 8051 | 194 |
| 7421W | 82 | 773108T | 360 | 8052 | 194 |
| 7422W | 82 | 773109T | 360 | 8053 | 194 |
| 7422WS | 84 | 777896T | 365 | 8054 | 194 |
| 7423W | 82 | 777940T | 397 | 8055 | 194 |
| 7423WS | 84 | 7895A | 362 | 8056 | 194 |
| 7424W | 82 | 7896A | 361 | 8057 | 194 |
| 7425W | 82 | 7896T | 365 | 8058 | 194 |
| 7426W | 82 | 7896Z | 365 | 8073 | 194 |
| 7427W | 82 | 7897A | 361 | 8074 | 194 |
| 7427WS | 84 | 7900A | 361 | 8075 | 194 |
| 7428W | 82 | 7918A | 386 | 8076 | 194 |
| 7428WS | 84 | 7919A | 386 | 8077 | 194 |
| 7429W | 82 | 7921A | 375 | 8078 | 194 |
| 7429WS | 84 | 7921A | 386 | 8079 | 194 |
| 7430W | 82 | 7922A | 386 | 8080 | 194 |
| 7435W | 83 | 7923A | 386 | 8081 | 194 |
| 7435WS | 84 | 7924A | 392 | 8083 | 194 |
| 7436W | 83 | 7927A | 389 | 8085 | 194 |
| 7438W | 83 | 7928A | 387 | 8132 | 330 |
| 7438WS | 84 | 7929A | 375 | 8132FO | 324 |
| 7439W | 83 | 7929A | 386 | 8133 | 330 |
| 7440W | 83 | 7930A | 392 | 8134 | 330 |
| 7442W | 83 | 7931A | 389 | 8134FO | 324 |
| 7444W | 83 | 7932A | 385 | 8135 | 330 |
| 7445W | 83 | 7933A | 385 | 8135FO | 324 |
| 7445WS | 84 | 7934A | 387 | 8138 | 330 |
| 7447W | 83 | 7935A | 387 | 8138FO | 324 |
| 7447WS | 84 | 7936A | 387 | 8142 | 330 |
| 7450WS | 84 | 7937A | 387 | 8142FO | 324 |
| 7453W | 83 | 7938A | 394 | 8148 | 330 |
| 7500A | 378 | 7939A | 375 | 8155 | 330 |
| 7501A | 378 | 7939A | 392 | 8205 | 229 |
| 7502A | 378 | 7940A | 389 | 8205MN | 213 |
| 7503A | 378 | 7940T | 397 | 8205NH | 229 |
| 7504A | 378 | 7940Z | 397 | 82418 | 21 |
| 7701NH | 372 | 7953A | 375 | 82418 | 24 |
| 7702NH | 372 | 7953A | 389 | 82442 | 24 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 82442 | 230 | 8305 | 327 | 83553 | 25 |
| 82444 | 24 | 8306 | 327 | 83554 | 25 |
| 82489 | 24 | 8307 | 327 | 83556 | 328 |
| 82502 | 323 | 8308 | 327 | 83559 | 25 |
| 82503 | 323 | 8310 | 327 | 8355 | 25 |
| 82504 | 323 | 8312 | 327 | 83562 | 25 |
| 82505 | 323 | 8315 | 327 | 83569 | 25 |
| 82506 | 323 | 8318 | 327 | 83602 | 25 |
| 82509 | 323 | 8325 | 327 | 83604 | 25 |
| 82641 | 239 | 83303E | 28 | 83606 | 25 |
| 82641 | 323 | 83304E | 28 | 83609 | 25 |
| 82723 | 243 | 83305E | 28 | 83612 | 25 |
| 82729 | 326 | 83306E | 28 | 83652 | 25 |
| 82740 | 231 | 83307E | 28 | 83653 | 25 |
| 82741 | 230 | 83308E | 28 | 83654 | 25 |
| 82742 | 230 | 83317E | 28 | 83656 | 25 |
| 82743 | 230 | 83318E | 28 | 83659 | 25 |
| 82757 | 230 | 83319E | 28 | 83662 | 25 |
| 82760 | 236 | 83320E | 28 | 83702 | 25 |
| 82761 | 235 | 83321E | 28 | 83703 | 25 |
| 82777 | 244 | 83322E | 28 | 83704 | 25 |
| 82777 | 371 | 8332 | 328 | 83706 | 25 |
| 82778 | 244 | 83332E | 28 | 83709 | 25 |
| 82841 | 331 | 83333E | 28 | 83712 | 25 |
| 82841 | 358 | 83334E | 28 | 83715 | 33 |
| 82842 | 331 | 83335E | 28 | 83719 | 33 |
| 82842 | 358 | 83336E | 28 | 83752 | 33 |
| 83000 | 181 | 83337E | 28 | 83753 | 33 |
| 83001 | 181 | 8333 | 328 | 83754 | 33 |
| 83002 | 181 | 83347E | 28 | 83756 | 33 |
| 83003 | 181 | 83348E | 28 | 83802 | 33 |
| 83004 | 181 | 83349E | 28 | 83803 | 33 |
| 83005 | 181 | 8334 | 328 | 83804 | 288 |
| 83006 | 181 | 83350E | 28 | 83806 | 288 |
| 83007 | 181 | 83351E | 28 | 83900 | 288 |
| 83008 | 181 | 83352E | 28 | 83905 | 288 |
| 83009 | 182 | 8335 | 328 | 83910 | 288 |
| 83010 | 182 | 8336 | 328 | 83915 | 288 |
| 83023 | 181 | 8337 | 328 | 83930 | 288 |
| 83025 | 181 | 83393 | 27 | 83932 | 288 |
| 83026 | 181 | 83394 | 27 | 83950 | 288 |
| 83027 | 181 | 83395 | 27 | 83951 | 288 |
| 83028 | 181 | 83396 | 27 | 83952 | 288 |
| 83029 | 181 | 8340 | 328 | 83953 | 288 |
| 8302 | 327 | 8342 | 328 | 83954 | 227 |
| 83030 | 181 | 8345 | 328 | 83955 | 20 |
| 8303 | 327 | 8348 | 328 | 8434 | 213 |
| 83041 | 182 | 83503 | 25 | 8442 | 20 |
| 83043 | 182 | 83504 | 25 | 8442MN | 213 |
| 83045 | 182 | 83506 | 25 | 8443 | 20 |
| 83046 | 182 | 83509 | 25 | 8443MN | 20 |
| 83047 | 182 | 83512 | 25 | 8444 | 213 |
| 83048 | 182 | 83515 | 25 | 8445 | 41 |
| 83049 | 182 | 83552 | 25 | 8445MN | 41 |
| 8304 | 327 | 83553 | 25 | 8446 | 317 |
| 83050 | 182 | 83554 | 25 | 8448 | 317 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 8452 | 207 | 85240 | 27 | 8742 | 231 |
| 8453 | 209 | 85241 | 27 | 8743 | 231 |
| 8454 | 210 | 8524 | 177 | 8744 | 231 |
| 8455 | 210 | 8525 | 177 | 8747 | 232 |
| 8456 | 20 | 8527 | 177 | 8748 | 232 |
| 8457 | 20 | 8529 | 177 | 8749 | 232 |
| 8457MN | 213 | 8530 | 177 | 8750 | 232 |
| 8458 | 20 | 8538 | 177 | 8751 | 238 |
| 8458MN | 213 | 8597 | 177 | 8752 | 317 |
| 8459 | 20 | 8618 | 20 | 8757 | 231 |
| 8461 | 229 | 8619 | 19 | 8760 | 236 |
| 8463MN | 213 | 8620 | 18 | 8760CWZ | 413 |
| 8465 | 19 | 8621 | 18 | 8760LS | 236 |
| 8465MN | 213 | 8622 | 18 | 8760MN | 214 |
| 8466 | 19 | 8623 | 18 | 8760NH | 236 |
| 8466MN | 213 | 8624 | 18 | 8761 | 317 |
| 8467 | 19 | 8627 | 18 | 8761MN | 214 |
| 8467MN | 213 | 8628 | 18 | 8761NH | 317 |
| 8468 | 19 | 8629 | 18 | 8762 | 236 |
| 8468MN | 213 | 8641 | 239 | 8762MN | 214 |
| 8469 | 19 | 8643 | 22 | 8762NH | 236 |
| 8469MN | 213 | 8660 | 195 | 8763 | 228 |
| 8471 | 230 | 8661 | 195 | 8764 | 240 |
| 8471 | 372 | 8662 | 195 | 8766 | 240 |
| 8471LS | 230 | 8663 | 195 | 8767 | 240 |
| 8471LS | 372 | 8668 | 195 | 8768 | 240 |
| 8471NH | 230 | 8669 | 195 | 8769 | 242 |
| 8471NH | 372 | 8670 | 195 | 8770 | 20 |
| 8472 | 207 | 8673 | 40 | 8770MN | 214 |
| 8473 | 230 | 8675 | 40 | 8770NH | 20 |
| 8477 | 230 | 8677 | 40 | 8771 | 20 |
| 8478 | 207 | 8678 | 40 | 8771MN | 214 |
| 8479 | 208 | 8690 | 229 | 8771NH | 20 |
| 8484 | 40 | 8691 | 229 | 87723 | 243 |
| 8486 | 229 | 8692 | 229 | 8772 | 20 |
| 8489 | 19 | 8718 | 237 | 8772MN | 214 |
| 8500 | 177 | 8719 | 237 | 8772NH | 20 |
| 8501 | 177 | 8719CWZ | 413 | 8773 | 242 |
| 8502 | 177 | 8719NH | 237 | 87740 | 231 |
| 8503 | 177 | 8720 | 237 | 8774 | 242 |
| 8504 | 177 | 8720CWZ | 413 | 8775 | 242 |
| 8505 | 177 | 8722 | 228 | 87760 | 236 |
| 85102 | 26 | 8723 | 241 | 87761 | 235 |
| 85102 | 372 | 8723LS | 241 | 8776 | 242 |
| 85103 | 26 | 8723MN | 215 | 87777 | 244 |
| 85109 | 26 | 8723NH | 241 | 87778 | 244 |
| 85164 | 239 | 8723SB | 241 | 8777 | 242 |
| 85168 | 239 | 8724 | 227 | 8777 | 371 |
| 8520 | 177 | 8725 | 228 | 8777LS | 242 |
| 8521 | 177 | 8728 | 227 | 8777LS | 371 |
| 85220 | 26 | 8729 | 21 | 8777MN | 215 |
| 85221 | 26 | 8730 | 227 | 8777NH | 242 |
| 8522 | 177 | 8734 | 23 | 8777NH | 371 |
| 85230 | 27 | 8735 | 22 | 8777SB | 242 |
| 85231 | 27 | 8740 | 231 | 8778 | 242 |
| 8523 | 177 | 8741 | 231 | 8778LS | 242 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 8778MN | 215 | 8917 | 176 | 9329 | 272 |
| 8778NH | 242 | 89182 | 370 | 9330 | 272 |
| 8779MN | 215 | 8918 | 176 | 9331 | 272 |
| 8781MN | 215 | 8919 | 176 | 9332 | 272 |
| 8786 | 30 | 8920 | 176 | 9333 | 272 |
| 8787 | 29 | 89418 | 24 | 9335 | 272 |
| 8788 | 30 | 89463 | 369 | 9341 | 126 |
| 8791 | 23 | 89503 | 323 | 9342 | 294 |
| 8794 | 19 | 89504 | 323 | 9343 | 297 |
| 8795 | 19 | 89505 | 323 | 9344 | 298 |
| 8800 | 179 | 89696 | 332 | 9363 | 274 |
| 8816 | 179 | 89728 | 326 | 9364 | 276 |
| 8824 | 179 | 89729 | 326 | 9365 | 280 |
| 8825 | 179 | 89730 | 326 | 9366 | 282 |
| 88442 | 24 | 89731 | 326 | 9367 | 284 |
| 88442 | 230 | 89732 | 326 | 9368 | 278 |
| 88444 | 24 | 89740 | 231 | 9369 | 278 |
| 88489 | 24 | 89841 | 331 | 9388 | 278 |
| 88641 | 239 | 89841 | 358 | 9389 | 278 |
| 88641 | 323 | 89842 | 331 | 9390 | 278 |
| 8866 | 193 | 89842 | 358 | 9391 | 278 |
| 8868 | 193 | 89855 | 332 | 9392 | 278 |
| 8869 | 193 | 89880 | 377 | 9402 | 245 |
| 8870MN | 214 | 89907 | 377 | 9402MN | 215 |
| 8871MN | 214 | 9154 | 236 | 9405 | 41 |
| 88723 | 243 | 9155 | 228 | 9406 | 241 |
| 8872MN | 214 | 9156 | 229 | 9407 | 272 |
| 8873MN | 214 | 9157 | 229 | 9408 | 275 |
| 88741 | 230 | 9159 | 229 | 9409 | 278 |
| 8874MN | 214 | 9160 | 231 | 9410 | 281 |
| 88757 | 230 | 9161 | 229 | 9411 | 284 |
| 8875MN | 215 | 9182 | 370 | 9412 | 285 |
| 88760 | 236 | 9182LS | 370 | 9414 | 317 |
| 88761 | 235 | 9182NH | 370 | 9418 | 21 |
| 8876MN | 214 | 9184 | 238 | 9420 | 41 |
| 88770 | 24 | 9207 | 370 | 9420 | 210 |
| 88777 | 244 | 9207NH | 370 | 9421 | 20 |
| 88778 | 244 | 9250 | 370 | 9422 | 210 |
| 8877MN | 214 | 9260 | 22 | 9422 | 41 |
| 8878MN | 214 | 9261 | 22 | 9423 | 20 |
| 8880MN | 214 | 9271 | 370 | 9423MN | 213 |
| 8881MN | 214 | 9272 | 370 | 9424 | 41 |
| 8882MN | 214 | 9302 | 238 | 9424 | 210 |
| 8883MN | 214 | 9305 | 238 | 9425 | 41 |
| 8884MN | 214 | 9306 | 238 | 9425 | 210 |
| 8885MN | 214 | 9309 | 238 | 9427 | 41 |
| 8886MN | 214 | 9312 | 285 | 9427 | 210 |
| 8888 | 206 | 9314 | 284 | 9429 | 41 |
| 8890 | 193 | 9315 | 238 | 9429 | 210 |
| 8897 | 193 | 9316 | 281 | 9430 | 20 |
| 8898 | 193 | 9318 | 278 | 9430MN | 213 |
| 8899 | 193 | 9319 | 238 | 9431 | 20 |
| 8908 | 176 | 9320 | 275 | 9432 | 20 |
| 8910 | 176 | 9322 | 272 | 9433 | 20 |
| 8915 | 176 | 9327 | 238 | 9434 | 20 |
| 8916 | 176 | 9328 | 272 | 9438 | 195 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 9439 | 19 | 9514 | 272 | 9613 | 318 |
| 9439MN | 213 | 9515 | 322 | 9614 | 318 |
| 9443MN | 213 | 9516 | 272 | 9615 | 318 |
| 9444 | 19 | 9519 | 322 | 9616 | 318 |
| 9445 | 19 | 9520 | 272 | 9617 | 318 |
| 9445MN | 213 | 9521 | 272 | 9618 | 318 |
| 9451 | 234 | 9524 | 272 | 9619 | 318 |
| 9451D | 234 | 9525 | 322 | 9620 | 18 |
| 9451DP | 235 | 9526 | 272 | 9621 | 18 |
| 9451P | 235 | 9527 | 272 | 9622 | 18 |
| 9451SB | 234 | 9531 | 179 | 9623 | 18 |
| 9455 | 19 | 9533 | 317 | 9626 | 19 |
| 9455MN | 213 | 9534 | 317 | 9637 | 319 |
| 9457 | 19 | 9534NH | 317 | 9641 | 319 |
| 9457MN | 213 | 9535 | 317 | 9680 | 324 |
| 9458MN | 213 | 9536 | 317 | 9681 | 324 |
| 9460 | 236 | 9536NH | 317 | 9682 | 324 |
| 9461 | 317 | 9537 | 317 | 9683 | 324 |
| 9462 | 317 | 9538 | 317 | 9684 | 324 |
| 9463 | 369 | 9539 | 317 | 9685 | 227 |
| 9463DB | 369 | 9540 | 317 | 9696 | 332 |
| 9463F | 369 | 9541 | 317 | 972118Z | 352 |
| 9463LS | 369 | 9541NH | 317 | 972119Z | 352 |
| 9463NH | 369 | 9542 | 317 | 972120Z | 352 |
| 9486 | 291 | 9543 | 317 | 972121Z | 352 |
| 9487 | 294 | 9544 | 317 | 972122Z | 352 |
| 9488 | 297 | 9545 | 317 | 972127Z | 353 |
| 9489 | 298 | 9546 | 317 | 972128Z | 353 |
| 9491 | 274 | 9550 | 322 | 972129Z | 353 |
| 9492 | 276 | 9552 | 278 | 972130Z | 353 |
| 9493 | 280 | 9553 | 278 | 972131Z | 353 |
| 9494 | 282 | 9554 | 278 | 9721 | 18 |
| 9495 | 284 | 9556 | 278 | 9728 | 325 |
| 9498 | 19 | 9559 | 278 | 9729 | 325 |
| 9501 | 322 | 9562 | 231 | 9729LS | 325 |
| 9501NH | 322 | 9563 | 278 | 9729NH | 325 |
| 9502 | 322 | 9565 | 278 | 973072Z | 374 |
| 9502LS | 322 | 9566 | 231 | 973076T | 351 |
| 9502NH | 322 | 9570 | 231 | 973079Z | 356 |
| 9503 | 322 | 9571 | 31 | 973092F | 367 |
| 9503NH | 322 | 9572 | 31 | 973092Z | 367 |
| 9504 | 322 | 9574 | 32 | 9730 | 325 |
| 9504NH | 322 | 9575 | 32 | 973105Z | 360 |
| 9505 | 322 | 9576 | 31 | 973107Z | 360 |
| 9505NH | 322 | 9578 | 32 | 973108Z | 360 |
| 9506 | 322 | 9579 | 32 | 973109Z | 360 |
| 9506NH | 322 | 9580 | 31 | 9731 | 325 |
| 9507 | 322 | 9581 | 32 | 9732 | 325 |
| 9507NH | 322 | 9582 | 31 | 9734 | 325 |
| 9508 | 322 | 9583 | 32 | 9735 | 325 |
| 9508NH | 322 | 9585 | 231 | 9736 | 325 |
| 9509 | 322 | 9608 | 318 | 9737 | 325 |
| 9510 | 322 | 9609 | 318 | 9738 | 325 |
| 9510NH | 322 | 9610 | 318 | 9740 | 229 |
| 9512 | 272 | 9611 | 318 | 9740MN | 213 |
| 9513 | 272 | 9612 | 318 | 9741 | 229 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| 9742 | 229 | 9841NH | 358 | 9930 | 175 |
| 9743 | 229 | 9842 | 331 | 9931 | 321 |
| 9744 | 232 | 9842 | 358 | 9932 | 321 |
| 9745 | 232 | 9842LS | 331 | 9933 | 321 |
| 9746 | 232 | 9842LS | 358 | 9934 | 321 |
| 9747 | 232 | 9842NH | 331 | 9935 | 321 |
| 9748 | 232 | 9842NH | 358 | 9936 | 321 |
| 9750 | 229 | 9843 | 331 | 9937 | 321 |
| 9751 | 229 | 9843 | 358 | 9938 | 321 |
| 9752 | 229 | 9843NH | 331 | 9939 | 320 |
| 9755 | 229 | 9843NH | 358 | 9940 | 320 |
| 9767 | 242 | 9844 | 331 | 9941 | 320 |
| 9768 | 242 | 9844 | 358 | 9942 | 320 |
| 9769 | 242 | 9844LS | 331 | 9943 | 320 |
| 9770 | 21 | 9844NH | 331 | 9944 | 320 |
| 9772 | 29 | 9844NH | 358 | 9945 | 320 |
| 9773 | 245 | 9855 | 332 | 9946 | 320 |
| 9773MN | 215 | 9860 | 370 | 9947 | 320 |
| 9774 | 245 | 9867 | 193 | 9948 | 320 |
| 9774MN | 215 | 9873 | 245 | 9949 | 320 |
| 9775 | 245 | 9873MN | 215 | 9950 | 320 |
| 9776 | 245 | 9874 | 245 | 9951 | 39 |
| 9777 | 245 | 9874MN | 215 | 9952 | 39 |
| 977896Z | 365 | 9875 | 245 | 9953 | 39 |
| 977940Z | 397 | 9876 | 245 | 9954 | 39 |
| 9779MN | 215 | 9877 | 245 | 9961 | 39 |
| 9780MN | 215 | 9879 | 245 | 9962 | 39 |
| 9794 | 19 | 9880 | 377 | 9963 | 39 |
| 9802 | 38 | 9882MN | 215 | 9964 | 39 |
| 9803 | 38 | 9883 | 245 | 9965 | 39 |
| 9804 | 330 | 9884MN | 215 | 9966 | 39 |
| 9805 | 330 | 9886 | 245 | 9967 | 39 |
| 9806 | 330 | 9890 | 38 | 9968 | 39 |
| 9807 | 330 | 9894 | 38 | 9975 | 174 |
| 9808 | 330 | 9899 | 193 | 9976 | 174 |
| 9809 | 330 | 9904 | 177 | 9977 | 174 |
| 9812 | 330 | 9906 | 177 | 9978 | 174 |
| 9813 | 330 | 9907 | 377 | 9979 | 174 |
| 9814 | 330 | 9908 | 176 | 9980 | 174 |
| 9819 | 330 | 9909 | 174 | 9981 | 174 |
| 9825 | 330 | 9910 | 176 | 9982 | 174 |
| 9829 | 328 | 9911 | 174 | 9983 | 174 |
| 9830 | 328 | 9912 | 176 | 9984 | 174 |
| 9831 | 328 | 9916 | 175 | 9985 | 174 |
| 9832 | 328 | 9917 | 174 | 9986 | 174 |
| 9833 | 328 | 9918 | 175 | 9987 | 174 |
| 9834 | 328 | 9919 | 175 | 9989 | 175 |
| 9835 | 328 | 9920 | 175 | 9990 | 240 |
| 9836 | 328 | 9921 | 175 | 9991 | 240 |
| 9837 | 328 | 9923 | 175 | 9992 | 240 |
| 9829NH | 328 | 9924 | 176 | 9993 | 240 |
| 9841 | 358 | 9925 | 321 | 9995 | 240 |
| 9841 | 331 | 9926 | 175 | 9998 | 209 |
| 9841LS | 331 | 9927 | 321 | AA07TRF01 | 443 |
| 9841LS | 358 | 9928 | 175 | AA07TRF02 | 443 |
| 9841NH | 331 | 9929 | 321 | AA07TRF04 | 443 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| AA07TRF08 | 443 | AK15WRF08 | 448 | B5075FF04 | 98 |
| AA13TRF01 | 445 | AL07WRF02 | 422 | B5075FF06 | 98 |
| AA13TRF02 | 445 | AL07WRF04 | 422 | B5075FF08 | 98 |
| AA13TRF04 | 445 | AL07WRF06 | 422 | B5115FF02 | 98 |
| AA13TRF08 | 445 | AL07WRF08 | 422 | B5115FF04 | 98 |
| AA15TRF01 | 447 | AL13WRF02 | 422 | B5115FF06 | 98 |
| AA15TRF02 | 447 | AL13WRF04 | 422 | B5115FF08 | 98 |
| AA15TRF04 | 447 | AL13WRF06 | 422 | B5135FF02 | 98 |
| AA15TRF08 | 447 | AL13WRF08 | 422 | B5135FF04 | 98 |
| AB07TRF01 | 443 | AL15WRF02 | 422 | B5135FF06 | 98 |
| AB07TRF02 | 443 | AL15WRF04 | 422 | B5135FF08 | 98 |
| AB07TRF04 | 443 | AL15WRF06 | 422 | B5155FF02 | 98 |
| AB07TRF08 | 443 | AL15WRF08 | 422 | B5155FF04 | 98 |
| AB13TRF01 | 445 | AM11WTU02 | 423 | B5155FF06 | 98 |
| AB13TRF02 | 445 | AM11WTU03 | 423 | B5155FF08 | 98 |
| AB13TRF04 | 445 | AM11WTU04 | 423 | B6139BU02 | 100 |
| AB13TRF08 | 445 | AM11WTU05 | 423 | B6139BU03 | 100 |
| AB15TRF01 | 447 | AM11WTU07 | 423 | B6139BU04 | 100 |
| AB15TRF02 | 447 | AM13WTU02 | 423 | B6139BU05 | 100 |
| AB15TRF04 | 447 | AM13WTU03 | 423 | B6139BU07 | 100 |
| AB15TRF08 | 447 | AM13WTU04 | 423 | B6159BU02 | 100 |
| AC07TRF02 | 421 | AM13WTU05 | 423 | B6159BU03 | 100 |
| AC07TRF04 | 421 | AM13WTU07 | 423 | B6159BU04 | 100 |
| AC07TRF06 | 421 | AM15WTU02 | 423 | B6159BU05 | 100 |
| AC07TRF08 | 421 | AM15WTU03 | 423 | B6159BU07 | 100 |
| AC13TRF02 | 421 | AM15WTU04 | 423 | B7075FF02 | 97 |
| AC13TRF04 | 421 | AM15WTU05 | 423 | B7075FF04 | 97 |
| AC13TRF06 | 421 | AM15WTU07 | 423 | B7075FF06 | 97 |
| AC13TRF08 | 421 | AP11WTU02 | 424 | B7075FF08 | 97 |
| AC15TRF02 | 421 | AP11WTU03 | 424 | B7115FF02 | 97 |
| AC15TRF04 | 421 | AP11WTU04 | 424 | B7115FF04 | 97 |
| AC15TRF06 | 421 | AP11WTU05 | 424 | B7115FF06 | 97 |
| AC15TRF08 | 421 | AP11WTU07 | 424 | B7115FF08 | 97 |
| AJ07WRF01 | 444 | AP13WTU02 | 424 | B7135FF02 | 97 |
| AJ07WRF02 | 444 | AP13WTU03 | 424 | B7135FF04 | 97 |
| AJ07WRF04 | 444 | AP13WTU04 | 424 | B7135FF06 | 97 |
| AJ07WRF08 | 444 | AP13WTU05 | 424 | B7135FF08 | 97 |
| AJ13WRF01 | 446 | AP13WTU07 | 424 | B8075FF02 | 99 |
| AJ13WRF02 | 446 | AP15WTU02 | 424 | B8075FF04 | 99 |
| AJ13WRF04 | 446 | AP15WTU03 | 424 | B8075FF06 | 99 |
| AJ13WRF08 | 446 | AP15WTU04 | 424 | B8075FF08 | 99 |
| AJ15WRF01 | 448 | AP15WTU05 | 424 | B8115FF02 | 99 |
| AJ15WRF02 | 448 | AP15WTU07 | 424 | B8115FF04 | 99 |
| AJ15WRF04 | 448 | B4075FF02 | 96 | B8115FF06 | 99 |
| AJ15WRF08 | 448 | B4075FF04 | 96 | B8115FF08 | 99 |
| AK07WRF01 | 444 | B4075FF06 | 96 | B8135FF02 | 99 |
| AK07WRF02 | 444 | B4075FF08 | 96 | B8135FF04 | 99 |
| AK07WRF04 | 444 | B4115FF02 | 96 | B8135FF06 | 99 |
| AK07WRF08 | 444 | B4115FF04 | 96 | B8135FF08 | 99 |
| AK13WRF01 | 446 | B4115FF06 | 96 | B8155FF02 | 99 |
| AK13WRF02 | 446 | B4115FF08 | 96 | B8155FF04 | 99 |
| AK13WRF04 | 446 | B4135FF02 | 96 | B8155FF06 | 99 |
| AK13WRF08 | 446 | B4135FF04 | 96 | B8155FF08 | 99 |
| AK15WRF01 | 448 | B4135FF06 | 96 | B9139BU02 | 101 |
| AK15WRF02 | 448 | B4135FF08 | 96 | B9139BU03 | 101 |
| AK15WRF04 | 448 | B5075FF02 | 98 | B9139BU04 | 101 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| B9139BU05 | 101 | BZ139BU07 | 420 | C20G2.5SY | 66 |
| B9139BU07 | 101 | BZ159BU02 | 420 | C20X0.5 | 46 |
| B9159BU02 | 101 | BZ159BU03 | 420 | C20X0.5CY | 60 |
| B9159BU03 | 101 | BZ159BU04 | 420 | C20X0.5SY | 64 |
| B9159BU04 | 101 | BZ159BU05 | 420 | C20X0.75 | 46 |
| B9159BU05 | 101 | BZ159BU07 | 420 | C20X0.75CY | 60 |
| B9159BU07 | 101 | C12G0.5 | 46 | C20X0.75SY | 64 |
| BE43769 | 409 | C12G0.5CY | 60 | C20X1.0 | 57 |
| BE43800 | 409 | C12G0.5SY | 64 | C20X1.0CY | 61 |
| BE43802 | 409 | C12G0.75 | 46 | C20X1.0SY | 65 |
| BO139KU01 | 439 | C12G0.75CY | 60 | C20X1.5 | 57 |
| BO139KU02 | 439 | C12G0.75SY | 64 | C20X1.5CY | 61 |
| BO139KU04 | 439 | C12G1.0 | 57 | C20X1.5SY | 65 |
| BO139KU08 | 439 | C12G1.0CY | 61 | C20X2.5 | 58 |
| BO159KU01 | 441 | C12G1.0SY | 65 | C20X2.5CY | 62 |
| BO159KU02 | 441 | C12G1.5 | 57 | C20X2.5SY | 66 |
| BO159KU04 | 441 | C12G1.5CY | 61 | C2X0.5 | 46 |
| BO159KU08 | 441 | C12G1.5SY | 65 | C2X0.5CY | 60 |
| BP139MU01 | 439 | C12G2.5 | 58 | C2X0.5SY | 64 |
| BP139MU02 | 439 | C12G2.5CY | 62 | C2X0.75 | 46 |
| BP139MU04 | 439 | C12G2.5SY | 66 | C2X0.75CY | 60 |
| BP139MU08 | 439 | C12G4 | 58 | C2X0.75SY | 64 |
| BP159MU01 | 441 | C12G4CY | 62 | C2X1.0 | 57 |
| BP159MU02 | 441 | C12G4SY | 66 | C2X1.0CY | 61 |
| BP159MU04 | 441 | C12X0.5 | 46 | C2X1.0SY | 65 |
| BP159MU08 | 441 | C12X0.5CY | 60 | C2X1.5 | 57 |
| BQ139BU02 | 419 | C12X0.5SY | 64 | C2X1.5CY | 61 |
| BQ139BU03 | 419 | C12X0.75 | 46 | C2X1.5SY | 65 |
| BQ139BU04 | 419 | C12X0.75CY | 60 | C2X2.5 | 58 |
| BQ139BU05 | 419 | C12X0.75SY | 64 | C2X2.5CY | 62 |
| BQ139BU07 | 419 | C12X1.0 | 57 | C2X2.5SY | 66 |
| BQ159BU02 | 419 | C12X1.0CY | 61 | C2X35 | 59 |
| BQ159BU03 | 419 | C12X1.0SY | 65 | C2X35CY | 63 |
| BQ159BU04 | 419 | C12X1.5 | 57 | C2X35SY | 67 |
| BQ159BU05 | 419 | C12X1.5CY | 61 | C3G0.5 | 46 |
| BQ159BU07 | 419 | C12X1.5SY | 65 | C3G0.5CY | 60 |
| BX139KU01 | 440 | C12X2.5 | 58 | C3G0.5SY | 64 |
| BX139KU02 | 440 | C12X2.5CY | 62 | C3G0.75 | 46 |
| BX139KU04 | 440 | C12X2.5SY | 66 | C3G0.75CY | 60 |
| BX139KU08 | 440 | C12X4 | 58 | C3G0.75SY | 64 |
| BX159KU01 | 442 | C12X4CY | 62 | C3G1.0 | 57 |
| BX159KU02 | 442 | C12X4SY | 66 | C3G1.0CY | 61 |
| BX159KU04 | 442 | C20G0.5 | 46 | C3G1.0SY | 65 |
| BX159KU08 | 442 | C20G0.5CY | 60 | C3G1.5 | 57 |
| BY139MU01 | 440 | C20G0.5SY | 64 | C3G1.5CY | 61 |
| BY139MU02 | 440 | C20G0.75 | 46 | C3G1.5SY | 65 |
| BY139MU04 | 440 | C20G0.75CY | 60 | C3G10 | 59 |
| BY139MU08 | 440 | C20G0.75SY | 64 | C3G10CY | 63 |
| BY159MU01 | 442 | C20G1.0 | 57 | C3G10SY | 67 |
| BY159MU02 | 442 | C20G1.0CY | 61 | C3G16 | 59 |
| BY159MU04 | 442 | C20G1.0SY | 65 | C3G16CY | 63 |
| BY159MU08 | 442 | C20G1.5 | 57 | C3G16SY | 67 |
| BZ139BU02 | 420 | C20G1.5CY | 61 | C3G2.5 | 58 |
| BZ139BU03 | 420 | C20G1.5SY | 65 | C3G2.5CY | 62 |
| BZ139BU04 | 420 | C20G2.5 | 58 | C3G2.5SY | 66 |
| BZ139BU05 | 420 | C20G2.5CY | 62 | C3G25 | 59 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| C3G25CY | 63 | C4G10 | 59 | C5510 | 126 |
| C3G25SY | 67 | C4G10CY | 63 | C5513 | 126 |
| C3G35 | 59 | C4G10SY | 67 | C5518 | 126 |
| C3G35CY | 63 | C4G16 | 59 | C5523 | 126 |
| C3G35SY | 67 | C4G16CY | 63 | C5528 | 126 |
| C3G4 | 58 | C4G16SY | 67 | C5529 | 126 |
| C3G4CY | 62 | C4G2.5 | 58 | C5530 | 126 |
| C3G4SY | 66 | C4G2.5CY | 62 | C5531 | 126 |
| C3G6 | 58 | C4G2.5SY | 66 | C5532 | 126 |
| C3G6CY | 62 | C4G25 | 59 | C5533 | 126 |
| C3G6SY | 66 | C4G25CY | 63 | C5534 | 126 |
| C3X0.5 | 46 | C4G25SY | 67 | C5535 | 126 |
| C3X0.5CY | 60 | C4G4 | 58 | C5536 | 126 |
| C3X0.5SY | 64 | C4G4CY | 62 | C5538 | 126 |
| C3X0.75 | 46 | C4G4SY | 66 | C5540 | 126 |
| C3X0.75CY | 60 | C4G6 | 58 | C5543 | 126 |
| C3X0.75SY | 64 | C4G6CY | 62 | C5548 | 126 |
| C3X1.0 | 57 | C4G6SY | 66 | C5553 | 126 |
| C3X1.0CY | 61 | C4X0.5 | 46 | C5558 | 126 |
| C3X1.0SY | 65 | C4X0.5CY | 60 | C5560 | 127 |
| C3X1.5 | 57 | C4X0.5SY | 64 | C5561 | 127 |
| C3X1.5CY | 61 | C4X0.75 | 46 | C5562 | 127 |
| C3X1.5SY | 65 | C4X0.75CY | 60 | C5563 | 127 |
| C3X10 | 59 | C4X0.75SY | 64 | C5564 | 127 |
| C3X10CY | 63 | C4X1.0 | 57 | C5565 | 127 |
| C3X10SY | 67 | C4X1.0CY | 61 | C5566 | 127 |
| C3X16 | 59 | C4X1.0SY | 65 | C5568 | 127 |
| C3X16CY | 63 | C4X1.5 | 57 | C5570 | 127 |
| C3X16SY | 67 | C4X1.5CY | 61 | C5573 | 127 |
| C3X2.5 | 58 | C4X1.5SY | 65 | C5578 | 127 |
| C3X2.5CY | 62 | C4X10 | 59 | C5579 | 127 |
| C3X2.5SY | 66 | C4X10CY | 63 | C5580 | 127 |
| C3X25 | 59 | C4X10SY | 67 | C5581 | 127 |
| C3X25CY | 63 | C4X16 | 59 | C5582 | 127 |
| C3X25SY | 67 | C4X16CY | 63 | C5583 | 127 |
| C3X35 | 59 | C4X16SY | 67 | C5590 | 129 |
| C3X35CY | 63 | C4X2.5 | 58 | C5591 | 129 |
| C3X35SY | 67 | C4X2.5CY | 62 | C5592 | 129 |
| C3X4 | 58 | C4X2.5SY | 66 | C5601 | 130 |
| C3X4CY | 62 | C4X25 | 59 | C5602 | 130 |
| C3X4SY | 66 | C4X25CY | 63 | C5611 | 130 |
| C3X6 | 58 | C4X25SY | 67 | C5621 | 130 |
| C3X6CY | 62 | C4X4 | 58 | C5622 | 130 |
| C3X6SY | 66 | C4X4CY | 62 | C5625 | 130 |
| C4G0.5 | 46 | C4X4SY | 66 | C5626 | 130 |
| C4G0.5CY | 60 | C4X6 | 58 | C5701 | 129 |
| C4G0.5SY | 64 | C4X6CY | 62 | C5702 | 129 |
| C4G0.75 | 46 | C4X6SY | 66 | C5730 | 129 |
| C4G0.75CY | 60 | C5500 | 126 | C5731 | 129 |
| C4G0.75SY | 64 | C5501 | 126 | C5732 | 129 |
| C4G1.0 | 57 | C5502 | 126 | C5760 | 129 |
| C4G1.0CY | 61 | C5503 | 126 | C5761 | 129 |
| C4G1.0SY | 65 | C5504 | 126 | C5762 | 129 |
| C4G1.5 | 57 | C5505 | 126 | C5G0.5 | 46 |
| C4G1.5CY | 61 | C5506 | 126 | C5G0.5CY | 60 |
| C4G1.5SY | 65 | C5508 | 126 | C5G0.5SY | 64 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-----------------|------|-----------------|------|-----------------|------|
| C5G0.75 | 46 | DK4U53MA006BKAA | 465 | DM4U50HA006BKAA | 465 |
| C5G0.75CY | 60 | DK4U53MA012BKAA | 465 | DM4U50HA072BKAA | 465 |
| C5G0.75SY | 64 | DK4U53MA024BKAA | 465 | DM4U50HA096BKAA | 465 |
| C5G1.0 | 57 | DK4U53MA030BKAA | 465 | DM4U53HA048BKAA | 465 |
| C5G1.0CY | 61 | DK4U53MA036BKAA | 465 | DM4U53HA060BKAA | 465 |
| C5G1.0SY | 65 | DK4U62MA004BKAA | 465 | DM4U53HA072BKAA | 465 |
| C5G1.5 | 57 | DK4U62MA006BKAA | 465 | DM4U53HA096BKAA | 465 |
| C5G1.5CY | 61 | DK4U62MA012BKAA | 465 | DM4U62HA048BKAA | 465 |
| C5G1.5SY | 65 | DK4U62MA024BKAA | 465 | DM4U62HA060BKAA | 465 |
| C5G2.5 | 58 | DK4U62MA030BKAA | 465 | DM4U62HA072BKAA | 465 |
| C5G2.5CY | 62 | DK4U62MA036BKAA | 465 | DM4U62HA096BKAA | 465 |
| C5G2.5SY | 66 | DK8U12MA004BKAA | 467 | DM8U12HA048BKAA | 467 |
| C5X0.5 | 46 | DK8U12MA008BKAA | 467 | DM8U12HA072BKAA | 467 |
| C5X0.5CY | 60 | DK8U12MA012BKAA | 467 | DM8U12HA096BKAA | 467 |
| C5X0.5SY | 64 | DK8U12MA024BKAA | 467 | DM8U12HA108BKAA | 467 |
| C5X0.75 | 46 | DK8U12MA036BKAA | 467 | DM8U12HA120BKAA | 467 |
| C5X0.75CY | 60 | DK8U50MA004BKAA | 467 | DM8U12HA144BKAA | 467 |
| C5X0.75SY | 64 | DK8U50MA008BKAA | 467 | DM8U50HA048BKAA | 467 |
| C5X1.0 | 57 | DK8U50MA012BKAA | 467 | DM8U50HA072BKAA | 467 |
| C5X1.0CY | 61 | DK8U50MA024BKAA | 467 | DM8U50HA096BKAA | 467 |
| C5X1.0SY | 65 | DK8U50MA036BKAA | 467 | DM8U50HA108BKAA | 467 |
| C5X1.5 | 57 | DK8U53MA004BKAA | 467 | DM8U50HA120BKAA | 467 |
| C5X1.5CY | 61 | DK8U53MA008BKAA | 467 | DM8U50HA144BKAA | 467 |
| C5X1.5SY | 65 | DK8U53MA012BKAA | 467 | DM8U53HA048BKAA | 467 |
| C5X2.5 | 58 | DK8U53MA024BKAA | 467 | DM8U53HA072BKAA | 467 |
| C5X2.5CY | 62 | DK8U53MA036BKAA | 467 | DM8U53HA096BKAA | 467 |
| C5X2.5SY | 66 | DK8U62MA004BKAA | 467 | DM8U53HA108BKAA | 467 |
| C6064 | 126 | DK8U62MA008BKAA | 467 | DM8U53HA120BKAA | 467 |
| CA00600 | 403 | DK8U62MA012BKAA | 467 | DM8U53HA144BKAA | 467 |
| CA00613 | 404 | DK8U62MA024BKAA | 467 | DM8U62HA048BKAA | 467 |
| CA00630 | 404 | DK8U62MA036BKAA | 467 | DM8U62HA072BKAA | 467 |
| CA00641 | 403 | DK9U12MA004BKAA | 469 | DM8U62HA096BKAA | 467 |
| CA00642 | 403 | DK9U12MA008BKAA | 469 | DM8U62HA108BKAA | 467 |
| CA00643 | 403 | DK9U12MA012BKAA | 469 | DM8U62HA120BKAA | 467 |
| CA00652 | 404 | DK9U12MA024BKAA | 469 | DM8U62HA144BKAA | 467 |
| CA00656 | 403 | DK9U12MA036BKAA | 469 | DM9U12HA048BKAA | 469 |
| CA00658 | 403 | DK9U50MA004BKAA | 469 | DM9U12HA072BKAA | 469 |
| CA00660 | 404 | DK9U50MA008BKAA | 469 | DM9U12HA096BKAA | 469 |
| CA00661 | 404 | DK9U50MA012BKAA | 469 | DM9U12HA108BKAA | 469 |
| CA00664 | 403 | DK9U50MA024BKAA | 469 | DM9U12HA120BKAA | 469 |
| CA00665 | 403 | DK9U50MA036BKAA | 469 | DM9U12HA144BKAA | 469 |
| CA00730 | 404 | DK9U53MA004BKAA | 469 | DM9U50HA048BKAA | 469 |
| CA00735 | 404 | DK9U53MA008BKAA | 469 | DM9U50HA072BKAA | 469 |
| DK4U12MA004BKAA | 465 | DK9U53MA012BKAA | 469 | DM9U50HA096BKAA | 469 |
| DK4U12MA006BKAA | 465 | DK9U53MA024BKAA | 469 | DM9U50HA108BKAA | 469 |
| DK4U12MA012BKAA | 465 | DK9U53MA036BKAA | 469 | DM9U50HA120BKAA | 469 |
| DK4U12MA024BKAA | 465 | DK9U62MA004BKAA | 469 | DM9U50HA144BKAA | 469 |
| DK4U12MA030BKAA | 465 | DK9U62MA008BKAA | 469 | DM9U53HA048BKAA | 469 |
| DK4U12MA036BKAA | 465 | DK9U62MA012BKAA | 469 | DM9U53HA072BKAA | 469 |
| DK4U50MA004BKAA | 465 | DK9U62MA024BKAA | 469 | DM9U53HA096BKAA | 469 |
| DK4U50MA006BKAA | 465 | DK9U62MA036BKAA | 469 | DM9U53HA108BKAA | 469 |
| DK4U50MA012BKAA | 465 | DM4U12HA048BKAA | 465 | DM9U53HA120BKAA | 469 |
| DK4U50MA024BKAA | 465 | DM4U12HA060BKAA | 465 | DM9U53HA144BKAA | 469 |
| DK4U50MA030BKAA | 465 | DM4U12HA072BKAA | 465 | DM9U62HA048BKAA | 469 |
| DK4U50MA036BKAA | 465 | DM4U12HA096BKAA | 465 | DM9U62HA072BKAA | 469 |
| DK4U53MA004BKAA | 465 | DM4U50HA048BKAA | 465 | DM9U62HA096BKAA | 469 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-----------------|------|---------------|------|-------------|------|
| DM9U62HA108BKAA | 469 | E605005 010S1 | 405 | GAAG218 | 527 |
| DM9U62HA120BKAA | 469 | GAAD112 | 527 | GAAG224 | 527 |
| DM9U62HA144BKAA | 469 | GAAD124 | 527 | GAAG236 | 527 |
| E500001 010S1 | 406 | GAAD136 | 527 | GAAG706 | 527 |
| E500002 010S1 | 406 | GAAD148 | 527 | GAAG712 | 527 |
| E500003 010S1 | 406 | GAAD160 | 527 | GAAG718 | 527 |
| E500005 010S1 | 406 | GAAD172 | 527 | GAAG724 | 527 |
| E500025 010S1 | 406 | GAAD212 | 527 | GAAG736 | 527 |
| E501001 010S1 | 406 | GAAD224 | 527 | GAAG806 | 527 |
| E501002 010S1 | 406 | GAAD236 | 527 | GAAG812 | 527 |
| E501003 010S1 | 406 | GAAD248 | 527 | GAAG818 | 527 |
| E501005 010S1 | 406 | GAAD260 | 527 | GAAG824 | 527 |
| E502001 010S1 | 406 | GAAD272 | 527 | GAAG836 | 527 |
| E502002 010S1 | 406 | GAAD712 | 527 | GAAGD06 | 527 |
| E502003 010S1 | 406 | GAAD724 | 527 | GAAGD12 | 527 |
| E502005 010S1 | 406 | GAAD736 | 527 | GAAGD18 | 527 |
| E502025 010S1 | 406 | GAAD748 | 527 | GAAGD24 | 527 |
| E503001 010S1 | 406 | GAAD760 | 527 | GAAGD36 | 527 |
| E503002 010S1 | 406 | GAAD772 | 527 | GAAGE06 | 527 |
| E503003 010S1 | 406 | GAAD812 | 527 | GAAGE12 | 527 |
| E503005 010S1 | 406 | GAAD824 | 527 | GAAGE18 | 527 |
| E504001 010S1 | 406 | GAAD836 | 527 | GAAGE24 | 527 |
| E504002 010S1 | 406 | GAAD848 | 527 | GAAGE36 | 527 |
| E504003 010S1 | 406 | GAAD860 | 527 | GBCD112 | 517 |
| E504005 010S1 | 406 | GAAD872 | 527 | GBCD124 | 517 |
| E504025 010S1 | 406 | GAADD12 | 527 | GBCD136 | 517 |
| E505001 010S1 | 406 | GAADD24 | 527 | GBCD148 | 517 |
| E505002 010S1 | 406 | GAADD36 | 527 | GBCD160 | 517 |
| E505003 010S1 | 406 | GAADD48 | 527 | GBCD172 | 517 |
| E505005 010S1 | 406 | GAADD60 | 527 | GBCD212 | 517 |
| E506001 010S1 | 406 | GAADD72 | 527 | GBCD224 | 517 |
| E506002 010S1 | 406 | GAAD E12 | 527 | GBCD236 | 517 |
| E506003 010S1 | 406 | GAAD E24 | 527 | GBCD248 | 517 |
| E506005 010S1 | 406 | GAAD E36 | 527 | GBCD260 | 517 |
| E506025 010S1 | 406 | GAAD E48 | 527 | GBCD272 | 517 |
| E507001 010S1 | 406 | GAAD E60 | 527 | GBCD712 | 517 |
| E507002 010S1 | 406 | GAAD E72 | 527 | GBCD724 | 517 |
| E507003 010S1 | 406 | GAAE184 | 527 | GBCD736 | 517 |
| E507005 010S1 | 406 | GAAE196 | 527 | GBCD748 | 517 |
| E600001 010S1 | 405 | GAAE284 | 527 | GBCD760 | 517 |
| E600002 010S1 | 405 | GAAE296 | 527 | GBCD772 | 517 |
| E600003 010S1 | 405 | GAAE784 | 527 | GBCD812 | 517 |
| E600005 010S1 | 405 | GAAE796 | 527 | GBCD824 | 517 |
| E600025 010S1 | 405 | GAAE884 | 527 | GBCD836 | 517 |
| E601001 010S1 | 405 | GAAE896 | 527 | GBCD848 | 517 |
| E601002 010S1 | 405 | GAAED84 | 527 | GBCD860 | 517 |
| E601003 010S1 | 405 | GAAED96 | 527 | GBCD872 | 517 |
| E601005 010S1 | 405 | GAAEE84 | 527 | GBCDD12 | 517 |
| E604001 010S1 | 405 | GAAEE96 | 527 | GBCDD24 | 517 |
| E604002 010S1 | 405 | GAAG106 | 527 | GBCDD36 | 517 |
| E604003 010S1 | 405 | GAAG112 | 527 | GBCDD48 | 517 |
| E604005 010S1 | 405 | GAAG118 | 527 | GBCDD60 | 517 |
| E604025 010S1 | 405 | GAAG124 | 527 | GBCDD72 | 517 |
| E605001 010S1 | 405 | GAAG136 | 527 | GBCDE12 | 517 |
| E605002 010S1 | 405 | GAAG206 | 527 | GBCDE24 | 517 |
| E605003 010S1 | 405 | GAAG212 | 527 | GBCDE36 | 517 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GBCDE48 | 517 | GBDD724 | 521 | GBDGD12 | 521 |
| GBCDE60 | 517 | GBDD736 | 521 | GBDGD18 | 521 |
| GBCDE72 | 517 | GBDD748 | 521 | GBDGD24 | 521 |
| GBCE196 | 517 | GBDD760 | 521 | GBDGD36 | 521 |
| GBCE296 | 517 | GBDD772 | 521 | GBDGE06 | 521 |
| GBCE896 | 517 | GBDD812 | 521 | GBDGE12 | 521 |
| GBCED96 | 517 | GBDD824 | 521 | GBDGE18 | 521 |
| GBCEE96 | 517 | GBDD836 | 521 | GBDGE24 | 521 |
| GBCF144 | 517 | GBDD848 | 521 | GBDGE36 | 521 |
| GBCF244 | 517 | GBDD860 | 521 | GBRD112 | 513 |
| GBCF844 | 517 | GBDD872 | 521 | GBRD124 | 513 |
| GBCFD44 | 517 | GBDDD12 | 521 | GBRD136 | 513 |
| GBCFE44 | 517 | GBDDD24 | 521 | GBRD148 | 513 |
| GBCG106 | 517 | GBDDD36 | 521 | GBRD160 | 513 |
| GBCG112 | 517 | GBDDD48 | 521 | GBRD172 | 513 |
| GBCG118 | 517 | GBDDD60 | 521 | GBRD212 | 513 |
| GBCG124 | 517 | GBDDD72 | 521 | GBRD224 | 513 |
| GBCG136 | 517 | GBDDE12 | 521 | GBRD236 | 513 |
| GBCG206 | 517 | GBDDE24 | 521 | GBRD248 | 513 |
| GBCG212 | 517 | GBDDE36 | 521 | GBRD260 | 513 |
| GBCG218 | 517 | GBDDE48 | 521 | GBRD272 | 513 |
| GBCG224 | 517 | GBDDE60 | 521 | GBRD712 | 513 |
| GBCG236 | 517 | GBDDE72 | 521 | GBRD724 | 513 |
| GBCG706 | 517 | GBDE196 | 521 | GBRD736 | 513 |
| GBCG712 | 517 | GBDE296 | 521 | GBRD748 | 513 |
| GBCG718 | 517 | GBDE796 | 521 | GBRD760 | 513 |
| GBCG724 | 517 | GBDE896 | 521 | GBRD772 | 513 |
| GBCG736 | 517 | GBDED96 | 521 | GBRD812 | 513 |
| GBCG806 | 517 | GBDEE96 | 521 | GBRD824 | 513 |
| GBCG812 | 517 | GBDF144 | 521 | GBRD836 | 513 |
| GBCG818 | 517 | GBDF244 | 521 | GBRD848 | 513 |
| GBCG824 | 517 | GBDF744 | 521 | GBRD860 | 513 |
| GBCG836 | 517 | GBDF844 | 521 | GBRD872 | 513 |
| GBCGD06 | 517 | GBDFD44 | 521 | GBRDD12 | 513 |
| GBCGD12 | 517 | GBDFE44 | 521 | GBRDD24 | 513 |
| GBCGD18 | 517 | GBDG106 | 521 | GBRDD36 | 513 |
| GBCGD24 | 517 | GBDG112 | 521 | GBRDD48 | 513 |
| GBCGD36 | 517 | GBDG118 | 521 | GBRDD60 | 513 |
| GBCGE06 | 517 | GBDG124 | 521 | GBRDD72 | 513 |
| GBCGE12 | 517 | GBDG136 | 521 | GBRDE12 | 513 |
| GBCGE18 | 517 | GBDG206 | 521 | GBRDE24 | 513 |
| GBCGE24 | 517 | GBDG212 | 521 | GBRDE36 | 513 |
| GBCGE36 | 517 | GBDG218 | 521 | GBRDE48 | 513 |
| GBDD112 | 521 | GBDG224 | 521 | GBRDE60 | 513 |
| GBDD124 | 521 | GBDG236 | 521 | GBRDE72 | 513 |
| GBDD136 | 521 | GBDG706 | 521 | GBRE196 | 513 |
| GBDD148 | 521 | GBDG712 | 521 | GBRE296 | 513 |
| GBDD160 | 521 | GBDG718 | 521 | GBRE796 | 513 |
| GBDD172 | 521 | GBDG724 | 521 | GBRE896 | 513 |
| GBDD212 | 521 | GBDG736 | 521 | GBRED96 | 513 |
| GBDD224 | 521 | GBDG806 | 521 | GBREE96 | 513 |
| GBDD236 | 521 | GBDG812 | 521 | GBRF144 | 513 |
| GBDD248 | 521 | GBDG818 | 521 | GBRF244 | 513 |
| GBDD260 | 521 | GBDG824 | 521 | GBRF744 | 513 |
| GBDD272 | 521 | GBDG836 | 521 | GBRF844 | 513 |
| GBDD712 | 521 | GBDGD06 | 521 | GBRFD44 | 513 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|----------|-------------|----------|
| GBRFE44 | 513 | GBWDD24 | 525 | GCCD224 | 457, 515 |
| GBRG106 | 513 | GBWDD36 | 525 | GCCD236 | 457, 515 |
| GBRG112 | 513 | GBWDD48 | 525 | GCCD236 | 457, 515 |
| GBRG118 | 513 | GBWDD60 | 525 | GCCD248 | 457, 515 |
| GBRG124 | 513 | GBWDD72 | 525 | GCCD248 | 457, 515 |
| GBRG136 | 513 | GBWDE12 | 525 | GCCD260 | 457, 515 |
| GBRG206 | 513 | GBWDE24 | 525 | GCCD260 | 457, 515 |
| GBRG212 | 513 | GBWDE36 | 525 | GCCD272 | 457, 515 |
| GBRG218 | 513 | GBWDE48 | 525 | GCCD272 | 457, 515 |
| GBRG224 | 513 | GBWDE60 | 525 | GCCD712 | 457, 515 |
| GBRG236 | 513 | GBWDE72 | 525 | GCCD712 | 457, 515 |
| GBRG706 | 513 | GBWG106 | 525 | GCCD724 | 457, 515 |
| GBRG712 | 513 | GBWG112 | 525 | GCCD724 | 457, 515 |
| GBRG718 | 513 | GBWG118 | 525 | GCCD736 | 457, 515 |
| GBRG724 | 513 | GBWG124 | 525 | GCCD736 | 457, 515 |
| GBRG736 | 513 | GBWG136 | 525 | GCCD748 | 457, 515 |
| GBRG806 | 513 | GBWG206 | 525 | GCCD748 | 457, 515 |
| GBRG812 | 513 | GBWG212 | 525 | GCCD760 | 457, 515 |
| GBRG818 | 513 | GBWG218 | 525 | GCCD760 | 457, 515 |
| GBRG824 | 513 | GBWG224 | 525 | GCCD772 | 457, 515 |
| GBRG836 | 513 | GBWG236 | 525 | GCCD772 | 457, 515 |
| GBRGD06 | 513 | GBWG706 | 525 | GCCD812 | 457, 515 |
| GBRGD12 | 513 | GBWG712 | 525 | GCCD812 | 457, 515 |
| GBRGD18 | 513 | GBWG718 | 525 | GCCD824 | 457, 515 |
| GBRGD24 | 513 | GBWG724 | 525 | GCCD824 | 457, 515 |
| GBRGD36 | 513 | GBWG736 | 525 | GCCD836 | 457, 515 |
| GBRGE06 | 513 | GBWG806 | 525 | GCCD836 | 457, 515 |
| GBRGE12 | 513 | GBWG812 | 525 | GCCD848 | 457, 515 |
| GBRGE18 | 513 | GBWG818 | 525 | GCCD848 | 457, 515 |
| GBRGE24 | 513 | GBWG824 | 525 | GCCD860 | 457, 515 |
| GBRGE36 | 513 | GBWG836 | 525 | GCCD860 | 457, 515 |
| GBWD112 | 525 | GBWGD06 | 525 | GCCD872 | 457, 515 |
| GBWD124 | 525 | GBWGD12 | 525 | GCCD872 | 457, 515 |
| GBWD136 | 525 | GBWGD18 | 525 | GCCDD12 | 457, 515 |
| GBWD148 | 525 | GBWGD24 | 525 | GCCDD12 | 457, 515 |
| GBWD160 | 525 | GBWGD36 | 525 | GCCDD24 | 457, 515 |
| GBWD172 | 525 | GBWGE06 | 525 | GCCDD24 | 457, 515 |
| GBWD212 | 525 | GBWGE12 | 525 | GCCDD36 | 457, 515 |
| GBWD224 | 525 | GBWGE18 | 525 | GCCDD36 | 457, 515 |
| GBWD236 | 525 | GBWGE24 | 525 | GCCDD48 | 457, 515 |
| GBWD248 | 525 | GBWGE36 | 525 | GCCDD48 | 457, 515 |
| GBWD260 | 525 | GCCD112 | 457, 515 | GCCDD60 | 457, 515 |
| GBWD272 | 525 | GCCD112 | 457, 515 | GCCDD60 | 457, 515 |
| GBWD712 | 525 | GCCD124 | 457, 515 | GCCDD72 | 457, 515 |
| GBWD724 | 525 | GCCD124 | 457, 515 | GCCDD72 | 457, 515 |
| GBWD736 | 525 | GCCD136 | 457, 515 | GCCDE12 | 457, 515 |
| GBWD748 | 525 | GCCD136 | 457, 515 | GCCDE12 | 457, 515 |
| GBWD760 | 525 | GCCD148 | 457, 515 | GCCDE24 | 457, 515 |
| GBWD772 | 525 | GCCD148 | 457, 515 | GCCDE24 | 457, 515 |
| GBWD812 | 525 | GCCD160 | 457, 515 | GCCDE36 | 457, 515 |
| GBWD824 | 525 | GCCD160 | 457, 515 | GCCDE36 | 457, 515 |
| GBWD836 | 525 | GCCD172 | 457, 515 | GCCDE48 | 457, 515 |
| GBWD848 | 525 | GCCD172 | 457, 515 | GCCDE48 | 457, 515 |
| GBWD860 | 525 | GCCD212 | 457, 515 | GCCDE60 | 457, 515 |
| GBWD872 | 525 | GCCD212 | 457, 515 | GCCDE60 | 457, 515 |
| GBWDD12 | 525 | GCCD224 | 457, 515 | GCCDE72 | 457, 515 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|----------|-------------|----------|-------------|----------|
| GCCDE72 | 457, 515 | GCCGD12 | 457, 515 | GCDD824 | 459, 519 |
| GCCE196 | 457, 515 | GCCGD18 | 457, 515 | GCDD836 | 459, 519 |
| GCCE296 | 457, 515 | GCCGD18 | 457, 515 | GCDD836 | 459, 519 |
| GCCE796 | 457, 515 | GCCGD24 | 457, 515 | GCDD848 | 459, 519 |
| GCCE896 | 457, 515 | GCCGD24 | 457, 515 | GCDD848 | 459, 519 |
| GCCED96 | 457, 515 | GCCGD36 | 457, 515 | GCDD860 | 459, 519 |
| GCCEE96 | 457, 515 | GCCGD36 | 457, 515 | GCDD860 | 459, 519 |
| GCCF144 | 457, 515 | GCCGE06 | 457, 515 | GCDD872 | 459, 519 |
| GCCF244 | 457, 515 | GCCGE06 | 457, 515 | GCDD872 | 459, 519 |
| GCCF744 | 457, 515 | GCCGE12 | 457, 515 | GCDD12 | 459, 519 |
| GCCF844 | 457, 515 | GCCGE12 | 457, 515 | GCDD12 | 459, 519 |
| GCCFD44 | 457, 515 | GCCGE18 | 457, 515 | GCDD24 | 459, 519 |
| GCCFE44 | 457, 515 | GCCGE18 | 457, 515 | GCDD24 | 459, 519 |
| GCCG106 | 457, 515 | GCCGE24 | 457, 515 | GCDD36 | 459, 519 |
| GCCG106 | 457, 515 | GCCGE24 | 457, 515 | GCDD36 | 459, 519 |
| GCCG112 | 457, 515 | GCCGE36 | 457, 515 | GCDD48 | 459, 519 |
| GCCG112 | 457, 515 | GCCGE36 | 457, 515 | GCDD48 | 459, 519 |
| GCCG118 | 457, 515 | GCDD112 | 459, 519 | GCDD60 | 459, 519 |
| GCCG118 | 457, 515 | GCDD112 | 459, 519 | GCDD60 | 459, 519 |
| GCCG124 | 457, 515 | GCDD124 | 459, 519 | GCDD72 | 459, 519 |
| GCCG124 | 457, 515 | GCDD124 | 459, 519 | GCDD72 | 459, 519 |
| GCCG136 | 457, 515 | GCDD136 | 459, 519 | GCDE12 | 459, 519 |
| GCCG136 | 457, 515 | GCDD136 | 459, 519 | GCDE12 | 459, 519 |
| GCCG206 | 457, 515 | GCDD148 | 459, 519 | GCDE24 | 459, 519 |
| GCCG206 | 457, 515 | GCDD148 | 459, 519 | GCDE24 | 459, 519 |
| GCCG212 | 457, 515 | GCDD160 | 459, 519 | GCDE36 | 459, 519 |
| GCCG212 | 457, 515 | GCDD160 | 459, 519 | GCDE36 | 459, 519 |
| GCCG218 | 457, 515 | GCDD172 | 459, 519 | GCDE48 | 459, 519 |
| GCCG218 | 457, 515 | GCDD172 | 459, 519 | GCDE48 | 459, 519 |
| GCCG224 | 457, 515 | GCDD212 | 459, 519 | GCDE60 | 459, 519 |
| GCCG224 | 457, 515 | GCDD212 | 459, 519 | GCDE60 | 459, 519 |
| GCCG236 | 457, 515 | GCDD224 | 459, 519 | GCDE72 | 459, 519 |
| GCCG236 | 457, 515 | GCDD224 | 459, 519 | GCDE72 | 459, 519 |
| GCCG706 | 457, 515 | GCDD236 | 459, 519 | GCDE196 | 459, 519 |
| GCCG706 | 457, 515 | GCDD236 | 459, 519 | GCDE296 | 459, 519 |
| GCCG712 | 457, 515 | GCDD248 | 459, 519 | GCDE796 | 459, 519 |
| GCCG712 | 457, 515 | GCDD248 | 459, 519 | GCDE896 | 459, 519 |
| GCCG718 | 457, 515 | GCDD260 | 459, 519 | GCDED96 | 459, 519 |
| GCCG718 | 457, 515 | GCDD260 | 459, 519 | GCDEE96 | 459, 519 |
| GCCG724 | 457, 515 | GCDD272 | 459, 519 | GCDF144 | 459, 519 |
| GCCG724 | 457, 515 | GCDD272 | 459, 519 | GCDF244 | 459, 519 |
| GCCG736 | 457, 515 | GCDD712 | 459, 519 | GCDF744 | 459, 519 |
| GCCG736 | 457, 515 | GCDD712 | 459, 519 | GCDF844 | 459, 519 |
| GCCG806 | 457, 515 | GCDD724 | 459, 519 | GCDFD44 | 459, 519 |
| GCCG806 | 457, 515 | GCDD724 | 459, 519 | GCDFE44 | 459, 519 |
| GCCG812 | 457, 515 | GCDD736 | 459, 519 | GCDG106 | 459, 519 |
| GCCG812 | 457, 515 | GCDD736 | 459, 519 | GCDG106 | 459, 519 |
| GCCG818 | 457, 515 | GCDD748 | 459, 519 | GCDG112 | 459, 519 |
| GCCG818 | 457, 515 | GCDD748 | 459, 519 | GCDG112 | 459, 519 |
| GCCG824 | 457, 515 | GCDD760 | 459, 519 | GCDG118 | 459, 519 |
| GCCG824 | 457, 515 | GCDD760 | 459, 519 | GCDG118 | 459, 519 |
| GCCG836 | 457, 515 | GCDD772 | 459, 519 | GCDG124 | 459, 519 |
| GCCG836 | 457, 515 | GCDD772 | 459, 519 | GCDG124 | 459, 519 |
| GCCGD06 | 457, 515 | GCDD812 | 459, 519 | GCDG136 | 459, 519 |
| GCCGD06 | 457, 515 | GCDD812 | 459, 519 | GCDG136 | 459, 519 |
| GCCGD12 | 457, 515 | GCDD824 | 459, 519 | GCDG206 | 459, 519 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|----------|-------------|------|-------------|------|
| GCDG206 | 459, 519 | GCKD172 | 463 | GCKF220 | 463 |
| GCDG212 | 459, 519 | GCKD206 | 463 | GCKF232 | 463 |
| GCDG212 | 459, 519 | GCKD212 | 463 | GCKF244 | 463 |
| GCDG218 | 459, 519 | GCKD216 | 463 | GCKF708 | 463 |
| GCDG218 | 459, 519 | GCKD224 | 463 | GCKF720 | 463 |
| GCDG224 | 459, 519 | GCKD236 | 463 | GCKF732 | 463 |
| GCDG224 | 459, 519 | GCKD248 | 463 | GCKF744 | 463 |
| GCDG236 | 459, 519 | GCKD260 | 463 | GCKF808 | 463 |
| GCDG236 | 459, 519 | GCKD272 | 463 | GCKF820 | 463 |
| GCDG706 | 459, 519 | GCKD706 | 463 | GCKF832 | 463 |
| GCDG706 | 459, 519 | GCKD712 | 463 | GCKF844 | 463 |
| GCDG712 | 459, 519 | GCKD716 | 463 | GCKFD08 | 463 |
| GCDG712 | 459, 519 | GCKD724 | 463 | GCKFD20 | 463 |
| GCDG718 | 459, 519 | GCKD736 | 463 | GCKFD32 | 463 |
| GCDG718 | 459, 519 | GCKD748 | 463 | GCKFD44 | 463 |
| GCDG724 | 459, 519 | GCKD760 | 463 | GCKFE08 | 463 |
| GCDG724 | 459, 519 | GCKD772 | 463 | GCKFE20 | 463 |
| GCDG736 | 459, 519 | GCKD806 | 463 | GCKFE32 | 463 |
| GCDG736 | 459, 519 | GCKD812 | 463 | GCKFE44 | 463 |
| GCDG806 | 459, 519 | GCKD816 | 463 | GCKFF44 | 463 |
| GCDG806 | 459, 519 | GCKD824 | 463 | GCKFI44 | 463 |
| GCDG812 | 459, 519 | GCKD836 | 463 | GCRD112 | 511 |
| GCDG812 | 459, 519 | GCKD848 | 463 | GCRD124 | 511 |
| GCDG818 | 459, 519 | GCKD860 | 463 | GCRD136 | 511 |
| GCDG818 | 459, 519 | GCKD872 | 463 | GCRD148 | 511 |
| GCDG824 | 459, 519 | GCKDD06 | 463 | GCRD160 | 511 |
| GCDG824 | 459, 519 | GCKDD12 | 463 | GCRD172 | 511 |
| GCDG836 | 459, 519 | GCKDD16 | 463 | GCRD212 | 511 |
| GCDG836 | 459, 519 | GCKDD24 | 463 | GCRD224 | 511 |
| GCDGD06 | 459, 519 | GCKDD36 | 463 | GCRD236 | 511 |
| GCDGD06 | 459, 519 | GCKDD48 | 463 | GCRD248 | 511 |
| GCDGD12 | 459, 519 | GCKDD60 | 463 | GCRD260 | 511 |
| GCDGD12 | 459, 519 | GCKDD72 | 463 | GCRD272 | 511 |
| GCDGD18 | 459, 519 | GCKDE06 | 463 | GCRD712 | 511 |
| GCDGD18 | 459, 519 | GCKDE12 | 463 | GCRD724 | 511 |
| GCDGD24 | 459, 519 | GCKDE16 | 463 | GCRD736 | 511 |
| GCDGD24 | 459, 519 | GCKDE24 | 463 | GCRD748 | 511 |
| GCDGD36 | 459, 519 | GCKDE36 | 463 | GCRD760 | 511 |
| GCDGD36 | 459, 519 | GCKDE48 | 463 | GCRD772 | 511 |
| GCDGE06 | 459, 519 | GCKDE60 | 463 | GCRD812 | 511 |
| GCDGE06 | 459, 519 | GCKDE72 | 463 | GCRD824 | 511 |
| GCDGE12 | 459, 519 | GCKDF24 | 463 | GCRD836 | 511 |
| GCDGE12 | 459, 519 | GCKDF36 | 463 | GCRD848 | 511 |
| GCDGE18 | 459, 519 | GCKDF48 | 463 | GCRD860 | 511 |
| GCDGE18 | 459, 519 | GCKDF60 | 463 | GCRD872 | 511 |
| GCDGE24 | 459, 519 | GCKDF72 | 463 | GCRDD12 | 511 |
| GCDGE24 | 459, 519 | GCKDI24 | 463 | GCRDD24 | 511 |
| GCDGE36 | 459, 519 | GCKDI36 | 463 | GCRDD36 | 511 |
| GCDGE36 | 459, 519 | GCKDI48 | 463 | GCRDD48 | 511 |
| GCKD106 | 463 | GCKDI60 | 463 | GCRDD60 | 511 |
| GCKD112 | 463 | GCKDI72 | 463 | GCRDD72 | 511 |
| GCKD116 | 463 | GCKF108 | 463 | GCRDE12 | 511 |
| GCKD124 | 463 | GCKF120 | 463 | GCRDE24 | 511 |
| GCKD136 | 463 | GCKF132 | 463 | GCRDE36 | 511 |
| GCKD148 | 463 | GCKF144 | 463 | GCRDE48 | 511 |
| GCKD160 | 463 | GCKF208 | 463 | GCRDE60 | 511 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GCRDE72 | 511 | GCWD724 | 523 | GDCD148 | 517 |
| GCRE144 | 511 | GCWD736 | 523 | GDCD160 | 517 |
| GCRE196 | 511 | GCWD748 | 523 | GDCD172 | 517 |
| GCRE244 | 511 | GCWD760 | 523 | GDCD212 | 517 |
| GCRE296 | 511 | GCWD772 | 523 | GDCD224 | 517 |
| GCRE796 | 511 | GCWD812 | 523 | GDCD236 | 517 |
| GCRE896 | 511 | GCWD824 | 523 | GDCD248 | 517 |
| GCRE96 | 511 | GCWD836 | 523 | GDCD260 | 517 |
| GCREE96 | 511 | GCWD848 | 523 | GDCD272 | 517 |
| GCRF744 | 511 | GCWD860 | 523 | GDCD712 | 517 |
| GCRF844 | 511 | GCWD872 | 523 | GDCD724 | 517 |
| GCRFD44 | 511 | GCWDD12 | 523 | GDCD736 | 517 |
| GCRFE44 | 511 | GCWDD24 | 523 | GDCD748 | 517 |
| GCRG106 | 511 | GCWDD36 | 523 | GDCD760 | 517 |
| GCRG112 | 511 | GCWDD48 | 523 | GDCD772 | 517 |
| GCRG118 | 511 | GCWDD60 | 523 | GDCD812 | 517 |
| GCRG124 | 511 | GCWDD72 | 523 | GDCD824 | 517 |
| GCRG136 | 511 | GCWDE12 | 523 | GDCD836 | 517 |
| GCRG206 | 511 | GCWDE24 | 523 | GDCD848 | 517 |
| GCRG212 | 511 | GCWDE36 | 523 | GDCD860 | 517 |
| GCRG218 | 511 | GCWDE48 | 523 | GDCD872 | 517 |
| GCRG224 | 511 | GCWDE60 | 523 | GDCDD12 | 517 |
| GCRG236 | 511 | GCWDE72 | 523 | GDCDD24 | 517 |
| GCRG706 | 511 | GCWG106 | 523 | GDCDD36 | 517 |
| GCRG712 | 511 | GCWG112 | 523 | GDCDD48 | 517 |
| GCRG718 | 511 | GCWG118 | 523 | GDCDD60 | 517 |
| GCRG724 | 511 | GCWG124 | 523 | GDCDD72 | 517 |
| GCRG736 | 511 | GCWG136 | 523 | GDCDE12 | 517 |
| GCRG806 | 511 | GCWG206 | 523 | GDCDE24 | 517 |
| GCRG812 | 511 | GCWG212 | 523 | GDCDE36 | 517 |
| GCRG818 | 511 | GCWG218 | 523 | GDCDE48 | 517 |
| GCRG824 | 511 | GCWG224 | 523 | GDCDE60 | 517 |
| GCRG836 | 511 | GCWG236 | 523 | GDCDE72 | 517 |
| GCRGD06 | 511 | GCWG706 | 523 | GDCE196 | 517 |
| GCRGD12 | 511 | GCWG712 | 523 | GDCE296 | 517 |
| GCRGD18 | 511 | GCWG718 | 523 | GDCE896 | 517 |
| GCRGD24 | 511 | GCWG724 | 523 | GDCE96 | 517 |
| GCRGD36 | 511 | GCWG736 | 523 | GDCEE96 | 517 |
| GCRGE06 | 511 | GCWG806 | 523 | GDCF144 | 517 |
| GCRGE12 | 511 | GCWG812 | 523 | GDCF244 | 517 |
| GCRGE18 | 511 | GCWG818 | 523 | GDCF844 | 517 |
| GCRGE24 | 511 | GCWG824 | 523 | GDCF44 | 517 |
| GCRGE36 | 511 | GCWG836 | 523 | GDCFE44 | 517 |
| GCWD112 | 523 | GCWGD06 | 523 | GDCG106 | 517 |
| GCWD124 | 523 | GCWGD12 | 523 | GDCG112 | 517 |
| GCWD136 | 523 | GCWGD18 | 523 | GDCG118 | 517 |
| GCWD148 | 523 | GCWGD24 | 523 | GDCG124 | 517 |
| GCWD160 | 523 | GCWGD36 | 523 | GDCG136 | 517 |
| GCWD172 | 523 | GCWGE06 | 523 | GDCG206 | 517 |
| GCWD212 | 523 | GCWGE12 | 523 | GDCG212 | 517 |
| GCWD224 | 523 | GCWGE18 | 523 | GDCG218 | 517 |
| GCWD236 | 523 | GCWGE24 | 523 | GDCG224 | 517 |
| GCWD248 | 523 | GCWGE36 | 523 | GDCG236 | 517 |
| GCWD260 | 523 | GDCD112 | 517 | GDCG706 | 517 |
| GCWD272 | 523 | GDCD124 | 517 | GDCG712 | 517 |
| GCWD712 | 523 | GDCD136 | 517 | GDCG718 | 517 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GDCG724 | 517 | GDDE896 | 521 | GDRD772 | 513 |
| GDCG736 | 517 | GDDED96 | 521 | GDRD812 | 513 |
| GDCG806 | 517 | GDDEE96 | 521 | GDRD824 | 513 |
| GDCG812 | 517 | GDDF144 | 521 | GDRD836 | 513 |
| GDCG818 | 517 | GDDF244 | 521 | GDRD848 | 513 |
| GDCG824 | 517 | GDDF744 | 521 | GDRD860 | 513 |
| GDCG836 | 517 | GDDF844 | 521 | GDRD872 | 513 |
| GDCGD06 | 517 | GDDFD44 | 521 | GDRDD12 | 513 |
| GDCGD12 | 517 | GDDFE44 | 521 | GDRDD24 | 513 |
| GDCGD18 | 517 | GDDG106 | 521 | GDRDD36 | 513 |
| GDCGD24 | 517 | GDDG112 | 521 | GDRDD48 | 513 |
| GDCGD36 | 517 | GDDG118 | 521 | GDRDD60 | 513 |
| GDCGE06 | 517 | GDDG124 | 521 | GDRDD72 | 513 |
| GDCGE12 | 517 | GDDG136 | 521 | GDRDE12 | 513 |
| GDCGE18 | 517 | GDDG206 | 521 | GDRDE24 | 513 |
| GDCGE24 | 517 | GDDG212 | 521 | GDRDE36 | 513 |
| GDCGE36 | 517 | GDDG218 | 521 | GDRDE48 | 513 |
| GDDD112 | 521 | GDDG224 | 521 | GDRDE60 | 513 |
| GDDD124 | 521 | GDDG236 | 521 | GDRDE72 | 513 |
| GDDD136 | 521 | GDDG706 | 521 | GDRDE196 | 513 |
| GDDD148 | 521 | GDDG712 | 521 | GDRDE296 | 513 |
| GDDD160 | 521 | GDDG718 | 521 | GDRDE796 | 513 |
| GDDD172 | 521 | GDDG724 | 521 | GDRDE896 | 513 |
| GDDD212 | 521 | GDDG736 | 521 | GDRDE96 | 513 |
| GDDD224 | 521 | GDDG806 | 521 | GDRDE96 | 513 |
| GDDD236 | 521 | GDDG812 | 521 | GDRF144 | 513 |
| GDDD248 | 521 | GDDG818 | 521 | GDRF244 | 513 |
| GDDD260 | 521 | GDDG824 | 521 | GDRF744 | 513 |
| GDDD272 | 521 | GDDG836 | 521 | GDRF844 | 513 |
| GDDD712 | 521 | GDDGD06 | 521 | GDRFD44 | 513 |
| GDDD724 | 521 | GDDGD12 | 521 | GDRFE44 | 513 |
| GDDD736 | 521 | GDDGD18 | 521 | GDRG106 | 513 |
| GDDD748 | 521 | GDDGD24 | 521 | GDRG112 | 513 |
| GDDD760 | 521 | GDDGD36 | 521 | GDRG118 | 513 |
| GDDD772 | 521 | GDDGE06 | 521 | GDRG124 | 513 |
| GDDD812 | 521 | GDDGE12 | 521 | GDRG136 | 513 |
| GDDD824 | 521 | GDDGE18 | 521 | GDRG206 | 513 |
| GDDD836 | 521 | GDDGE24 | 521 | GDRG212 | 513 |
| GDDD848 | 521 | GDDGE36 | 521 | GDRG218 | 513 |
| GDDD860 | 521 | GDRD112 | 513 | GDRG224 | 513 |
| GDDD872 | 521 | GDRD124 | 513 | GDRG236 | 513 |
| GDDDD12 | 521 | GDRD136 | 513 | GDRG706 | 513 |
| GDDDD24 | 521 | GDRD148 | 513 | GDRG712 | 513 |
| GDDDD36 | 521 | GDRD160 | 513 | GDRG718 | 513 |
| GDDDD48 | 521 | GDRD172 | 513 | GDRG724 | 513 |
| GDDDD60 | 521 | GDRD212 | 513 | GDRG736 | 513 |
| GDDDD72 | 521 | GDRD224 | 513 | GDRG806 | 513 |
| GDDDE12 | 521 | GDRD236 | 513 | GDRG812 | 513 |
| GDDDE24 | 521 | GDRD248 | 513 | GDRG818 | 513 |
| GDDDE36 | 521 | GDRD260 | 513 | GDRG824 | 513 |
| GDDDE48 | 521 | GDRD272 | 513 | GDRG836 | 513 |
| GDDDE60 | 521 | GDRD712 | 513 | GDRGD06 | 513 |
| GDDDE72 | 521 | GDRD724 | 513 | GDRGD12 | 513 |
| GDDE196 | 521 | GDRD736 | 513 | GDRGD18 | 513 |
| GDDE296 | 521 | GDRD748 | 513 | GDRGD24 | 513 |
| GDDE796 | 521 | GDRD760 | 513 | GDRGD36 | 513 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GDRGE06 | 513 | GDWG806 | 525 | GMSNE24 | 481 |
| GDRGE12 | 513 | GDWG812 | 525 | GMSNF02 | 481 |
| GDRGE18 | 513 | GDWG818 | 525 | GMSNF04 | 481 |
| GDRGE24 | 513 | GDWG824 | 525 | GMSNF06 | 481 |
| GDRGE36 | 513 | GDWG836 | 525 | GMSNF08 | 481 |
| GDWD112 | 525 | GDWGD06 | 525 | GMSNF12 | 481 |
| GDWD124 | 525 | GDWGD12 | 525 | GMSNF16 | 481 |
| GDWD136 | 525 | GDWGD18 | 525 | GMSNF24 | 481 |
| GDWD148 | 525 | GDWGD24 | 525 | GMSNI02 | 481 |
| GDWD160 | 525 | GDWGD36 | 525 | GMSNI04 | 481 |
| GDWD172 | 525 | GDWGE06 | 525 | GMSNI06 | 481 |
| GDWD212 | 525 | GDWGE12 | 525 | GMSNI08 | 481 |
| GDWD224 | 525 | GDWGE18 | 525 | GMSNI12 | 481 |
| GDWD236 | 525 | GDWGE24 | 525 | GMSNI16 | 481 |
| GDWD248 | 525 | GDWGE36 | 525 | GMSNI24 | 481 |
| GDWD260 | 525 | GMSN102 | 481 | GOCB104 | 485 |
| GDWD272 | 525 | GMSN104 | 481 | GOCB106 | 485 |
| GDWD712 | 525 | GMSN106 | 481 | GOCB108 | 485 |
| GDWD724 | 525 | GMSN108 | 481 | GOCB112 | 485 |
| GDWD736 | 525 | GMSN112 | 481 | GOCB116 | 485 |
| GDWD748 | 525 | GMSN116 | 481 | GOCB124 | 485 |
| GDWD760 | 525 | GMSN124 | 481 | GOCB204 | 485 |
| GDWD772 | 525 | GMSN202 | 481 | GOCB206 | 485 |
| GDWD812 | 525 | GMSN204 | 481 | GOCB208 | 485 |
| GDWD824 | 525 | GMSN206 | 481 | GOCB212 | 485 |
| GDWD836 | 525 | GMSN208 | 481 | GOCB216 | 485 |
| GDWD848 | 525 | GMSN212 | 481 | GOCB224 | 485 |
| GDWD860 | 525 | GMSN216 | 481 | GOCB704 | 485 |
| GDWD872 | 525 | GMSN224 | 481 | GOCB706 | 485 |
| GDWDD12 | 525 | GMSN702 | 481 | GOCB708 | 485 |
| GDWDD24 | 525 | GMSN704 | 481 | GOCB712 | 485 |
| GDWDD36 | 525 | GMSN706 | 481 | GOCB716 | 485 |
| GDWDD48 | 525 | GMSN708 | 481 | GOCB724 | 485 |
| GDWDD60 | 525 | GMSN712 | 481 | GOCB804 | 485 |
| GDWDD72 | 525 | GMSN716 | 481 | GOCB806 | 485 |
| GDWDE12 | 525 | GMSN724 | 481 | GOCB808 | 485 |
| GDWDE24 | 525 | GMSN802 | 481 | GOCB812 | 485 |
| GDWDE36 | 525 | GMSN804 | 481 | GOCB816 | 485 |
| GDWDE48 | 525 | GMSN806 | 481 | GOCB824 | 485 |
| GDWDE60 | 525 | GMSN808 | 481 | GOCBD04 | 485 |
| GDWDE72 | 525 | GMSN812 | 481 | GOCBD06 | 485 |
| GDWG106 | 525 | GMSN816 | 481 | GOCBD08 | 485 |
| GDWG112 | 525 | GMSN824 | 481 | GOCBD12 | 485 |
| GDWG118 | 525 | GMSND02 | 481 | GOCBD16 | 485 |
| GDWG124 | 525 | GMSND04 | 481 | GOCBD24 | 485 |
| GDWG136 | 525 | GMSND06 | 481 | GOCBE04 | 485 |
| GDWG206 | 525 | GMSND08 | 481 | GOCBE06 | 485 |
| GDWG212 | 525 | GMSND12 | 481 | GOCBE08 | 485 |
| GDWG218 | 525 | GMSND16 | 481 | GOCBE12 | 485 |
| GDWG224 | 525 | GMSND24 | 481 | GOCBE16 | 485 |
| GDWG236 | 525 | GMSNE02 | 481 | GOCBE24 | 485 |
| GDWG706 | 525 | GMSNE04 | 481 | GOCN104 | 485 |
| GDWG712 | 525 | GMSNE06 | 481 | GOCN106 | 485 |
| GDWG718 | 525 | GMSNE08 | 481 | GOCN108 | 485 |
| GDWG724 | 525 | GMSNE12 | 481 | GOCN112 | 485 |
| GDWG736 | 525 | GMSNE16 | 481 | GOCN116 | 485 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GOCN124 | 485 | GODBD06 | 489 | GOFB212 | 501 |
| GOCN204 | 485 | GODBD08 | 489 | GOFB216 | 501 |
| GOCN206 | 485 | GODBD12 | 489 | GOFB224 | 501 |
| GOCN208 | 485 | GODBD16 | 489 | GOFB704 | 501 |
| GOCN212 | 485 | GODBD24 | 489 | GOFB706 | 501 |
| GOCN216 | 485 | GODBE04 | 489 | GOFB708 | 501 |
| GOCN224 | 485 | GODBE06 | 489 | GOFB712 | 501 |
| GOCN704 | 485 | GODBE08 | 489 | GOFB716 | 501 |
| GOCN706 | 485 | GODBE12 | 489 | GOFB724 | 501 |
| GOCN708 | 485 | GODBE16 | 489 | GOFB804 | 501 |
| GOCN712 | 485 | GODBE24 | 489 | GOFB806 | 501 |
| GOCN716 | 485 | GODN104 | 489 | GOFB808 | 501 |
| GOCN724 | 485 | GODN106 | 489 | GOFB812 | 501 |
| GOCN804 | 485 | GODN108 | 489 | GOFB816 | 501 |
| GOCN806 | 485 | GODN112 | 489 | GOFB824 | 501 |
| GOCN808 | 485 | GODN116 | 489 | GOFBD04 | 501 |
| GOCN812 | 485 | GODN124 | 489 | GOFBD06 | 501 |
| GOCN816 | 485 | GODN204 | 489 | GOFBD08 | 501 |
| GOCN824 | 485 | GODN206 | 489 | GOFBD12 | 501 |
| GOCND04 | 485 | GODN208 | 489 | GOFBD16 | 501 |
| GOCND06 | 485 | GODN212 | 489 | GOFBD24 | 501 |
| GOCND08 | 485 | GODN216 | 489 | GOFBE04 | 501 |
| GOCND12 | 485 | GODN224 | 489 | GOFBE06 | 501 |
| GOCND16 | 485 | GODN704 | 489 | GOFBE08 | 501 |
| GOCND24 | 485 | GODN706 | 489 | GOFBE12 | 501 |
| GOCNE04 | 485 | GODN708 | 489 | GOFBE16 | 501 |
| GOCNE06 | 485 | GODN712 | 489 | GOFBE24 | 501 |
| GOCNE08 | 485 | GODN716 | 489 | GOFN104 | 501 |
| GOCNE12 | 485 | GODN724 | 489 | GOFN106 | 501 |
| GOCNE16 | 485 | GODN804 | 489 | GOFN108 | 501 |
| GOCNE24 | 485 | GODN806 | 489 | GOFN112 | 501 |
| GODB104 | 489 | GODN808 | 489 | GOFN116 | 501 |
| GODB106 | 489 | GODN812 | 489 | GOFN124 | 501 |
| GODB108 | 489 | GODN816 | 489 | GOFN204 | 501 |
| GODB112 | 489 | GODN824 | 489 | GOFN206 | 501 |
| GODB116 | 489 | GODND04 | 489 | GOFN208 | 501 |
| GODB124 | 489 | GODND06 | 489 | GOFN212 | 501 |
| GODB204 | 489 | GODND08 | 489 | GOFN216 | 501 |
| GODB206 | 489 | GODND12 | 489 | GOFN224 | 501 |
| GODB208 | 489 | GODND16 | 489 | GOFN704 | 501 |
| GODB212 | 489 | GODND24 | 489 | GOFN706 | 501 |
| GODB216 | 489 | GODNE04 | 489 | GOFN708 | 501 |
| GODB224 | 489 | GODNE06 | 489 | GOFN712 | 501 |
| GODB704 | 489 | GODNE08 | 489 | GOFN716 | 501 |
| GODB706 | 489 | GODNE12 | 489 | GOFN724 | 501 |
| GODB708 | 489 | GODNE16 | 489 | GOFN804 | 501 |
| GODB712 | 489 | GODNE24 | 489 | GOFN806 | 501 |
| GODB716 | 489 | GOFB104 | 501 | GOFN808 | 501 |
| GODB724 | 489 | GOFB106 | 501 | GOFN812 | 501 |
| GODB804 | 489 | GOFB108 | 501 | GOFN816 | 501 |
| GODB806 | 489 | GOFB112 | 501 | GOFN824 | 501 |
| GODB808 | 489 | GOFB116 | 501 | GOFND04 | 501 |
| GODB812 | 489 | GOFB124 | 501 | GOFND06 | 501 |
| GODB816 | 489 | GOFB204 | 501 | GOFND08 | 501 |
| GODB824 | 489 | GOFB206 | 501 | GOFND12 | 501 |
| GODBD04 | 489 | GOFB208 | 501 | GOFND16 | 501 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GOFND24 | 501 | GORN224 | 479 | GOSN824 | 479 |
| GOFNE04 | 501 | GORN702 | 479 | GOSND02 | 479 |
| GOFNE06 | 501 | GORN704 | 479 | GOSND04 | 479 |
| GOFNE08 | 501 | GORN706 | 479 | GOSND06 | 479 |
| GOFNE12 | 501 | GORN708 | 479 | GOSND08 | 479 |
| GOFNE16 | 501 | GORN712 | 479 | GOSND12 | 479 |
| GOFNE24 | 501 | GORN716 | 479 | GOSND16 | 479 |
| GOHN104 | 493 | GORN724 | 479 | GOSND24 | 479 |
| GOHN106 | 493 | GORN802 | 479 | GOSNE02 | 479 |
| GOHN108 | 493 | GORN804 | 479 | GOSNE04 | 479 |
| GOHN112 | 493 | GORN806 | 479 | GOSNE06 | 479 |
| GOHN116 | 493 | GORN808 | 479 | GOSNE08 | 479 |
| GOHN124 | 493 | GORN812 | 479 | GOSNE12 | 479 |
| GOHN204 | 493 | GORN816 | 479 | GOSNE16 | 479 |
| GOHN206 | 493 | GORN824 | 479 | GOSNE24 | 479 |
| GOHN208 | 493 | GORND02 | 479 | GOVN102 | 479 |
| GOHN212 | 493 | GORND04 | 479 | GOVN104 | 479 |
| GOHN216 | 493 | GORND06 | 479 | GOVN106 | 479 |
| GOHN224 | 493 | GORND08 | 479 | GOVN108 | 479 |
| GOHN704 | 493 | GORND12 | 479 | GOVN112 | 479 |
| GOHN706 | 493 | GORND16 | 479 | GOVN116 | 479 |
| GOHN708 | 493 | GORND24 | 479 | GOVN124 | 479 |
| GOHN712 | 493 | GORNE02 | 479 | GOVN202 | 479 |
| GOHN716 | 493 | GORNE04 | 479 | GOVN204 | 479 |
| GOHN724 | 493 | GORNE06 | 479 | GOVN206 | 479 |
| GOHN804 | 493 | GORNE08 | 479 | GOVN208 | 479 |
| GOHN806 | 493 | GORNE12 | 479 | GOVN212 | 479 |
| GOHN808 | 493 | GORNE16 | 479 | GOVN216 | 479 |
| GOHN812 | 493 | GORNE24 | 479 | GOVN224 | 479 |
| GOHN816 | 493 | GOSN102 | 479 | GOVN702 | 479 |
| GOHN824 | 493 | GOSN104 | 479 | GOVN704 | 479 |
| GOHND04 | 493 | GOSN106 | 479 | GOVN706 | 479 |
| GOHND06 | 493 | GOSN108 | 479 | GOVN708 | 479 |
| GOHND08 | 493 | GOSN112 | 479 | GOVN712 | 479 |
| GOHND12 | 493 | GOSN116 | 479 | GOVN716 | 479 |
| GOHND16 | 493 | GOSN124 | 479 | GOVN724 | 479 |
| GOHND24 | 493 | GOSN202 | 479 | GOVN802 | 479 |
| GOHNE04 | 493 | GOSN204 | 479 | GOVN804 | 479 |
| GOHNE06 | 493 | GOSN206 | 479 | GOVN806 | 479 |
| GOHNE08 | 493 | GOSN208 | 479 | GOVN808 | 479 |
| GOHNE12 | 493 | GOSN212 | 479 | GOVN812 | 479 |
| GOHNE16 | 493 | GOSN216 | 479 | GOVN816 | 479 |
| GOHNE24 | 493 | GOSN224 | 479 | GOVN824 | 479 |
| GORN102 | 479 | GOSN702 | 479 | GOVND02 | 479 |
| GORN104 | 479 | GOSN704 | 479 | GOVND04 | 479 |
| GORN106 | 479 | GOSN706 | 479 | GOVND06 | 479 |
| GORN108 | 479 | GOSN708 | 479 | GOVND08 | 479 |
| GORN112 | 479 | GOSN712 | 479 | GOVND12 | 479 |
| GORN116 | 479 | GOSN716 | 479 | GOVND16 | 479 |
| GORN124 | 479 | GOSN724 | 479 | GOVND24 | 479 |
| GORN202 | 479 | GOSN802 | 479 | GOVNE02 | 479 |
| GORN204 | 479 | GOSN804 | 479 | GOVNE04 | 479 |
| GORN206 | 479 | GOSN806 | 479 | GOVNE06 | 479 |
| GORN208 | 479 | GOSN808 | 479 | GOVNE08 | 479 |
| GORN212 | 479 | GOSN812 | 479 | GOVNE12 | 479 |
| GORN216 | 479 | GOSN816 | 479 | GOVNE16 | 479 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|----------|-------------|----------|
| GOVNE24 | 479 | GOWN806 | 497 | GUCB806 | 455, 483 |
| GOWB104 | 497 | GOWN808 | 497 | GUCB808 | 455, 483 |
| GOWB106 | 497 | GOWN812 | 497 | GUCB808 | 455, 483 |
| GOWB108 | 497 | GOWN816 | 497 | GUCB812 | 455, 483 |
| GOWB112 | 497 | GOWN824 | 497 | GUCB812 | 455, 483 |
| GOWB116 | 497 | GOWND04 | 497 | GUCB816 | 455, 483 |
| GOWB124 | 497 | GOWND06 | 497 | GUCB816 | 455, 483 |
| GOWB204 | 497 | GOWND08 | 497 | GUCB824 | 455, 483 |
| GOWB206 | 497 | GOWND12 | 497 | GUCB824 | 455, 483 |
| GOWB208 | 497 | GOWND16 | 497 | GUCBD04 | 455, 483 |
| GOWB212 | 497 | GOWND24 | 497 | GUCBD04 | 455, 483 |
| GOWB216 | 497 | GOWNE04 | 497 | GUCBD06 | 455, 483 |
| GOWB224 | 497 | GOWNE06 | 497 | GUCBD06 | 455, 483 |
| GOWB704 | 497 | GOWNE08 | 497 | GUCBD08 | 455, 483 |
| GOWB706 | 497 | GOWNE12 | 497 | GUCBD08 | 455, 483 |
| GOWB708 | 497 | GOWNE16 | 497 | GUCBD12 | 455, 483 |
| GOWB712 | 497 | GOWNE24 | 497 | GUCBD12 | 455, 483 |
| GOWB716 | 497 | GUCB104 | 455, 483 | GUCBD16 | 455, 483 |
| GOWB724 | 497 | GUCB104 | 455, 483 | GUCBD16 | 455, 483 |
| GOWB804 | 497 | GUCB106 | 455, 483 | GUCBD24 | 455, 483 |
| GOWB806 | 497 | GUCB106 | 455, 483 | GUCBD24 | 455, 483 |
| GOWB808 | 497 | GUCB108 | 455, 483 | GUCBE04 | 455, 483 |
| GOWB812 | 497 | GUCB108 | 455, 483 | GUCBE04 | 455, 483 |
| GOWB816 | 497 | GUCB112 | 455, 483 | GUCBE06 | 455, 483 |
| GOWB824 | 497 | GUCB112 | 455, 483 | GUCBE06 | 455, 483 |
| GOWBD04 | 497 | GUCB116 | 455, 483 | GUCBE08 | 455, 483 |
| GOWBD06 | 497 | GUCB116 | 455, 483 | GUCBE08 | 455, 483 |
| GOWBD08 | 497 | GUCB124 | 455, 483 | GUCBE12 | 455, 483 |
| GOWBD12 | 497 | GUCB124 | 455, 483 | GUCBE12 | 455, 483 |
| GOWBD16 | 497 | GUCB204 | 455, 483 | GUCBE16 | 455, 483 |
| GOWBD24 | 497 | GUCB204 | 455, 483 | GUCBE16 | 455, 483 |
| GOWBE04 | 497 | GUCB206 | 455, 483 | GUCBE24 | 455, 483 |
| GOWBE06 | 497 | GUCB206 | 455, 483 | GUCBE24 | 455, 483 |
| GOWBE08 | 497 | GUCB208 | 455, 483 | GUCN104 | 455, 483 |
| GOWBE12 | 497 | GUCB208 | 455, 483 | GUCN104 | 455, 483 |
| GOWBE16 | 497 | GUCB212 | 455, 483 | GUCN106 | 455, 483 |
| GOWBE24 | 497 | GUCB212 | 455, 483 | GUCN106 | 455, 483 |
| GOWN104 | 497 | GUCB216 | 455, 483 | GUCN108 | 455, 483 |
| GOWN106 | 497 | GUCB216 | 455, 483 | GUCN108 | 455, 483 |
| GOWN108 | 497 | GUCB224 | 455, 483 | GUCN112 | 455, 483 |
| GOWN112 | 497 | GUCB224 | 455, 483 | GUCN112 | 455, 483 |
| GOWN116 | 497 | GUCB704 | 455, 483 | GUCN116 | 455, 483 |
| GOWN124 | 497 | GUCB704 | 455, 483 | GUCN116 | 455, 483 |
| GOWN204 | 497 | GUCB706 | 455, 483 | GUCN124 | 455, 483 |
| GOWN206 | 497 | GUCB706 | 455, 483 | GUCN124 | 455, 483 |
| GOWN208 | 497 | GUCB708 | 455, 483 | GUCN204 | 455, 483 |
| GOWN212 | 497 | GUCB708 | 455, 483 | GUCN204 | 455, 483 |
| GOWN216 | 497 | GUCB712 | 455, 483 | GUCN206 | 455, 483 |
| GOWN224 | 497 | GUCB712 | 455, 483 | GUCN206 | 455, 483 |
| GOWN704 | 497 | GUCB716 | 455, 483 | GUCN208 | 455, 483 |
| GOWN706 | 497 | GUCB716 | 455, 483 | GUCN208 | 455, 483 |
| GOWN708 | 497 | GUCB724 | 455, 483 | GUCN212 | 455, 483 |
| GOWN712 | 497 | GUCB724 | 455, 483 | GUCN212 | 455, 483 |
| GOWN716 | 497 | GUCB804 | 455, 483 | GUCN216 | 455, 483 |
| GOWN724 | 497 | GUCB804 | 455, 483 | GUCN216 | 455, 483 |
| GOWN804 | 497 | GUCB806 | 455, 483 | GUCN224 | 455, 483 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|----------|-------------|------|-------------|------|
| GUCN224 | 455, 483 | GUDB206 | 487 | GUDND12 | 487 |
| GUCN704 | 455, 483 | GUDB208 | 487 | GUDND16 | 487 |
| GUCN704 | 455, 483 | GUDB212 | 487 | GUDND24 | 487 |
| GUCN706 | 455, 483 | GUDB216 | 487 | GUDNE04 | 487 |
| GUCN706 | 455, 483 | GUDB224 | 487 | GUDNE06 | 487 |
| GUCN708 | 455, 483 | GUDB704 | 487 | GUDNE08 | 487 |
| GUCN708 | 455, 483 | GUDB706 | 487 | GUDNE12 | 487 |
| GUCN712 | 455, 483 | GUDB708 | 487 | GUDNE16 | 487 |
| GUCN712 | 455, 483 | GUDB712 | 487 | GUDNE24 | 487 |
| GUCN716 | 455, 483 | GUDB716 | 487 | GUFB104 | 499 |
| GUCN716 | 455, 483 | GUDB724 | 487 | GUFB106 | 499 |
| GUCN724 | 455, 483 | GUDB804 | 487 | GUFB108 | 499 |
| GUCN724 | 455, 483 | GUDB806 | 487 | GUFB112 | 499 |
| GUCN804 | 455, 483 | GUDB808 | 487 | GUFB116 | 499 |
| GUCN804 | 455, 483 | GUDB812 | 487 | GUFB124 | 499 |
| GUCN806 | 455, 483 | GUDB816 | 487 | GUFB204 | 499 |
| GUCN806 | 455, 483 | GUDB824 | 487 | GUFB206 | 499 |
| GUCN808 | 455, 483 | GUDBD04 | 487 | GUFB208 | 499 |
| GUCN808 | 455, 483 | GUDBD06 | 487 | GUFB212 | 499 |
| GUCN812 | 455, 483 | GUDBD08 | 487 | GUFB216 | 499 |
| GUCN812 | 455, 483 | GUDBD12 | 487 | GUFB224 | 499 |
| GUCN816 | 455, 483 | GUDBD16 | 487 | GUFB704 | 499 |
| GUCN816 | 455, 483 | GUDBD24 | 487 | GUFB706 | 499 |
| GUCN824 | 455, 483 | GUDBE04 | 487 | GUFB708 | 499 |
| GUCN824 | 455, 483 | GUDBE06 | 487 | GUFB712 | 499 |
| GUCND04 | 455, 483 | GUDBE08 | 487 | GUFB716 | 499 |
| GUCND04 | 455, 483 | GUDBE12 | 487 | GUFB724 | 499 |
| GUCND06 | 455, 483 | GUDBE16 | 487 | GUFB804 | 499 |
| GUCND06 | 455, 483 | GUDBE24 | 487 | GUFB806 | 499 |
| GUCND08 | 455, 483 | GUDN104 | 487 | GUFB808 | 499 |
| GUCND08 | 455, 483 | GUDN106 | 487 | GUFB812 | 499 |
| GUCND12 | 455, 483 | GUDN108 | 487 | GUFB816 | 499 |
| GUCND12 | 455, 483 | GUDN112 | 487 | GUFB824 | 499 |
| GUCND16 | 455, 483 | GUDN116 | 487 | GUFBD04 | 499 |
| GUCND16 | 455, 483 | GUDN124 | 487 | GUFBD06 | 499 |
| GUCND24 | 455, 483 | GUDN204 | 487 | GUFBD08 | 499 |
| GUCND24 | 455, 483 | GUDN206 | 487 | GUFBD12 | 499 |
| GUCNE04 | 455, 483 | GUDN208 | 487 | GUFBD16 | 499 |
| GUCNE04 | 455, 483 | GUDN212 | 487 | GUFBD24 | 499 |
| GUCNE06 | 455, 483 | GUDN216 | 487 | GUFBE04 | 499 |
| GUCNE06 | 455, 483 | GUDN224 | 487 | GUFBE06 | 499 |
| GUCNE08 | 455, 483 | GUDN704 | 487 | GUFBE08 | 499 |
| GUCNE08 | 455, 483 | GUDN706 | 487 | GUFBE12 | 499 |
| GUCNE12 | 455, 483 | GUDN708 | 487 | GUFBE16 | 499 |
| GUCNE12 | 455, 483 | GUDN712 | 487 | GUFBE24 | 499 |
| GUCNE16 | 455, 483 | GUDN716 | 487 | GUFN104 | 499 |
| GUCNE16 | 455, 483 | GUDN724 | 487 | GUFN106 | 499 |
| GUCNE24 | 455, 483 | GUDN804 | 487 | GUFN108 | 499 |
| GUCNE24 | 455, 483 | GUDN806 | 487 | GUFN112 | 499 |
| GUDB104 | 487 | GUDN808 | 487 | GUFN116 | 499 |
| GUDB106 | 487 | GUDN812 | 487 | GUFN124 | 499 |
| GUDB108 | 487 | GUDN816 | 487 | GUFN204 | 499 |
| GUDB112 | 487 | GUDN824 | 487 | GUFN206 | 499 |
| GUDB116 | 487 | GUDND04 | 487 | GUFN208 | 499 |
| GUDB124 | 487 | GUDND06 | 487 | GUFN212 | 499 |
| GUDB204 | 487 | GUDND08 | 487 | GUFN216 | 499 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GUFN224 | 499 | GUHAE06 | 491 | GUKDI06 | 463 |
| GUFN704 | 499 | GUHAE08 | 491 | GUKDI12 | 463 |
| GUFN706 | 499 | GUHAE12 | 491 | GUKDI16 | 463 |
| GUFN708 | 499 | GUHAE16 | 491 | GUKFF08 | 463 |
| GUFN712 | 499 | GUHAE24 | 491 | GUKFF20 | 463 |
| GUFN716 | 499 | GUKB104 | 461 | GUKFF32 | 463 |
| GUFN724 | 499 | GUKB106 | 461 | GUKFI08 | 463 |
| GUFN804 | 499 | GUKB108 | 461 | GUKFI20 | 463 |
| GUFN806 | 499 | GUKB112 | 461 | GUKFI32 | 463 |
| GUFN808 | 499 | GUKB116 | 461 | GURN102 | 477 |
| GUFN812 | 499 | GUKB124 | 461 | GURN104 | 477 |
| GUFN816 | 499 | GUKB204 | 461 | GURN106 | 477 |
| GUFN824 | 499 | GUKB206 | 461 | GURN108 | 477 |
| GUFND04 | 499 | GUKB208 | 461 | GURN112 | 477 |
| GUFND06 | 499 | GUKB212 | 461 | GURN116 | 477 |
| GUFND08 | 499 | GUKB216 | 461 | GURN124 | 477 |
| GUFND12 | 499 | GUKB224 | 461 | GURN202 | 477 |
| GUFND16 | 499 | GUKB704 | 461 | GURN204 | 477 |
| GUFND24 | 499 | GUKB706 | 461 | GURN206 | 477 |
| GUFNE04 | 499 | GUKB708 | 461 | GURN208 | 477 |
| GUFNE06 | 499 | GUKB712 | 461 | GURN212 | 477 |
| GUFNE08 | 499 | GUKB716 | 461 | GURN216 | 477 |
| GUFNE12 | 499 | GUKB724 | 461 | GURN224 | 477 |
| GUFNE16 | 499 | GUKB804 | 461 | GURN702 | 477 |
| GUFNE24 | 499 | GUKB806 | 461 | GURN704 | 477 |
| GUHA104 | 491 | GUKB808 | 461 | GURN706 | 477 |
| GUHA106 | 491 | GUKB812 | 461 | GURN708 | 477 |
| GUHA108 | 491 | GUKB816 | 461 | GURN712 | 477 |
| GUHA112 | 491 | GUKB824 | 461 | GURN716 | 477 |
| GUHA116 | 491 | GUKBD04 | 461 | GURN724 | 477 |
| GUHA124 | 491 | GUKBD06 | 461 | GURN802 | 477 |
| GUHA204 | 491 | GUKBD08 | 461 | GURN804 | 477 |
| GUHA206 | 491 | GUKBD12 | 461 | GURN806 | 477 |
| GUHA208 | 491 | GUKBD16 | 461 | GURN808 | 477 |
| GUHA212 | 491 | GUKBD24 | 461 | GURN812 | 477 |
| GUHA216 | 491 | GUKBE04 | 461 | GURN816 | 477 |
| GUHA224 | 491 | GUKBE06 | 461 | GURN824 | 477 |
| GUHA704 | 491 | GUKBE08 | 461 | GURND02 | 477 |
| GUHA706 | 491 | GUKBE12 | 461 | GURND04 | 477 |
| GUHA708 | 491 | GUKBE16 | 461 | GURND06 | 477 |
| GUHA712 | 491 | GUKBE24 | 461 | GURND08 | 477 |
| GUHA716 | 491 | GUKBF04 | 461 | GURND12 | 477 |
| GUHA724 | 491 | GUKBF06 | 461 | GURND16 | 477 |
| GUHA804 | 491 | GUKBF08 | 461 | GURND24 | 477 |
| GUHA806 | 491 | GUKBF12 | 461 | GURNE02 | 477 |
| GUHA808 | 491 | GUKBF16 | 461 | GURNE04 | 477 |
| GUHA812 | 491 | GUKBF24 | 461 | GURNE06 | 477 |
| GUHA816 | 491 | GUKBI04 | 461 | GURNE08 | 477 |
| GUHA824 | 491 | GUKBI06 | 461 | GURNE12 | 477 |
| GUHAD04 | 491 | GUKBI08 | 461 | GURNE16 | 477 |
| GUHAD06 | 491 | GUKBI12 | 461 | GURNE24 | 477 |
| GUHAD08 | 491 | GUKBI16 | 461 | GUSL102 | 477 |
| GUHAD12 | 491 | GUKBI24 | 461 | GUSL104 | 477 |
| GUHAD16 | 491 | GUKDF06 | 463 | GUSL106 | 477 |
| GUHAD24 | 491 | GUKDF12 | 463 | GUSL108 | 477 |
| GUHAE04 | 491 | GUKDF16 | 463 | GUSL112 | 477 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GUSL116 | 477 | GUSN716 | 477 | GUVND16 | 477 |
| GUSL124 | 477 | GUSN724 | 477 | GUVND24 | 477 |
| GUSL202 | 477 | GUSN802 | 477 | GUVNE02 | 477 |
| GUSL204 | 477 | GUSN804 | 477 | GUVNE04 | 477 |
| GUSL206 | 477 | GUSN806 | 477 | GUVNE06 | 477 |
| GUSL208 | 477 | GUSN808 | 477 | GUVNE08 | 477 |
| GUSL212 | 477 | GUSN812 | 477 | GUVNE12 | 477 |
| GUSL216 | 477 | GUSN816 | 477 | GUVNE16 | 477 |
| GUSL224 | 477 | GUSN824 | 477 | GUVNE24 | 477 |
| GUSL702 | 477 | GUSND02 | 477 | GUWB104 | 495 |
| GUSL704 | 477 | GUSND04 | 477 | GUWB106 | 495 |
| GUSL706 | 477 | GUSND06 | 477 | GUWB108 | 495 |
| GUSL708 | 477 | GUSND08 | 477 | GUWB112 | 495 |
| GUSL712 | 477 | GUSND12 | 477 | GUWB116 | 495 |
| GUSL716 | 477 | GUSND16 | 477 | GUWB124 | 495 |
| GUSL724 | 477 | GUSND24 | 477 | GUWB204 | 495 |
| GUSL802 | 477 | GUSNE02 | 477 | GUWB206 | 495 |
| GUSL804 | 477 | GUSNE04 | 477 | GUWB208 | 495 |
| GUSL806 | 477 | GUSNE06 | 477 | GUWB212 | 495 |
| GUSL808 | 477 | GUSNE08 | 477 | GUWB216 | 495 |
| GUSL812 | 477 | GUSNE12 | 477 | GUWB224 | 495 |
| GUSL816 | 477 | GUSNE16 | 477 | GUWB704 | 495 |
| GUSL824 | 477 | GUSNE24 | 477 | GUWB706 | 495 |
| GUSLD02 | 477 | GUVN102 | 477 | GUWB708 | 495 |
| GUSLD04 | 477 | GUVN104 | 477 | GUWB712 | 495 |
| GUSLD06 | 477 | GUVN106 | 477 | GUWB716 | 495 |
| GUSLD08 | 477 | GUVN108 | 477 | GUWB724 | 495 |
| GUSLD12 | 477 | GUVN112 | 477 | GUWB804 | 495 |
| GUSLD16 | 477 | GUVN116 | 477 | GUWB806 | 495 |
| GUSLD24 | 477 | GUVN124 | 477 | GUWB808 | 495 |
| GUSLE02 | 477 | GUVN202 | 477 | GUWB812 | 495 |
| GUSLE04 | 477 | GUVN204 | 477 | GUWB816 | 495 |
| GUSLE06 | 477 | GUVN206 | 477 | GUWB824 | 495 |
| GUSLE08 | 477 | GUVN208 | 477 | GUWBD04 | 495 |
| GUSLE12 | 477 | GUVN212 | 477 | GUWBD06 | 495 |
| GUSLE16 | 477 | GUVN216 | 477 | GUWBD08 | 495 |
| GUSLE24 | 477 | GUVN224 | 477 | GUWBD12 | 495 |
| GUSN102 | 477 | GUVN702 | 477 | GUWBD16 | 495 |
| GUSN104 | 477 | GUVN704 | 477 | GUWBD24 | 495 |
| GUSN106 | 477 | GUVN706 | 477 | GUWBE04 | 495 |
| GUSN108 | 477 | GUVN708 | 477 | GUWBE06 | 495 |
| GUSN112 | 477 | GUVN712 | 477 | GUWBE08 | 495 |
| GUSN116 | 477 | GUVN716 | 477 | GUWBE12 | 495 |
| GUSN124 | 477 | GUVN724 | 477 | GUWBE16 | 495 |
| GUSN202 | 477 | GUVN802 | 477 | GUWBE24 | 495 |
| GUSN204 | 477 | GUVN804 | 477 | GUWN104 | 495 |
| GUSN206 | 477 | GUVN806 | 477 | GUWN106 | 495 |
| GUSN208 | 477 | GUVN808 | 477 | GUWN108 | 495 |
| GUSN212 | 477 | GUVN812 | 477 | GUWN112 | 495 |
| GUSN216 | 477 | GUVN816 | 477 | GUWN116 | 495 |
| GUSN224 | 477 | GUVN824 | 477 | GUWN124 | 495 |
| GUSN702 | 477 | GUVND02 | 477 | GUWN204 | 495 |
| GUSN704 | 477 | GUVND04 | 477 | GUWN206 | 495 |
| GUSN706 | 477 | GUVND06 | 477 | GUWN208 | 495 |
| GUSN708 | 477 | GUVND08 | 477 | GUWN212 | 495 |
| GUSN712 | 477 | GUVND12 | 477 | GUWN216 | 495 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| GUWN224 | 495 | H20G0.75CY | 72 | H3G25 | 71 |
| GUWN704 | 495 | H20G0.75SY | 76 | H3G25CY | 75 |
| GUWN706 | 495 | H20G1.0 | 68 | H3G25SY | 79 |
| GUWN708 | 495 | H20G1.0CY | 72 | H3G35 | 71 |
| GUWN712 | 495 | H20G1.0SY | 76 | H3G35CY | 75 |
| GUWN716 | 495 | H20G1.5 | 69 | H3G35SY | 79 |
| GUWN724 | 495 | H20G1.5CY | 73 | H3G4 | 70 |
| GUWN804 | 495 | H20G1.5SY | 77 | H3G4CY | 74 |
| GUWN806 | 495 | H20G2.5 | 69 | H3G4SY | 78 |
| GUWN808 | 495 | H20G2.5CY | 73 | H3G6 | 70 |
| GUWN812 | 495 | H20G2.5SY | 77 | H3G6CY | 74 |
| GUWN816 | 495 | H20X0.75 | 68 | H3G6SY | 78 |
| GUWN824 | 495 | H20X0.75CY | 72 | H3X0.75 | 68 |
| GUWN04 | 495 | H20X0.75SY | 76 | H3X0.75CY | 72 |
| GUWN06 | 495 | H20X1.0 | 68 | H3X0.75SY | 76 |
| GUWN08 | 495 | H20X1.0CY | 72 | H3X1.0 | 68 |
| GUWN12 | 495 | H20X1.0SY | 76 | H3X1.0CY | 72 |
| GUWN16 | 495 | H20X1.5 | 69 | H3X1.0SY | 76 |
| GUWN24 | 495 | H20X1.5CY | 73 | H3X1.5 | 69 |
| GUWNE04 | 495 | H20X1.5SY | 77 | H3X1.5CY | 73 |
| GUWNE06 | 495 | H20X2.5 | 69 | H3X1.5SY | 77 |
| GUWNE08 | 495 | H20X2.5CY | 73 | H3X10 | 70 |
| GUWNE12 | 495 | H20X2.5SY | 77 | H3X10CY | 74 |
| GUWNE16 | 495 | H2X0.75 | 68 | H3X10SY | 78 |
| GUWNE24 | 495 | H2X0.75CY | 72 | H3X16 | 71 |
| H12G0.75 | 68 | H2X0.75SY | 76 | H3X16CY | 75 |
| H12G0.75CY | 72 | H2X1.0 | 68 | H3X16SY | 79 |
| H12G0.75SY | 76 | H2X1.0CY | 72 | H3X2.5 | 69 |
| H12G1.0 | 68 | H2X1.0SY | 76 | H3X2.5CY | 73 |
| H12G1.0CY | 72 | H2X1.5 | 69 | H3X2.5SY | 77 |
| H12G1.0SY | 76 | H2X1.5CY | 73 | H3X25 | 71 |
| H12G1.5 | 69 | H2X1.5SY | 77 | H3X25CY | 75 |
| H12G1.5CY | 73 | H2X2.5 | 69 | H3X25SY | 79 |
| H12G1.5SY | 77 | H2X2.5CY | 73 | H3X35 | 71 |
| H12G2.5 | 69 | H2X2.5SY | 77 | H3X35CY | 75 |
| H12G2.5CY | 73 | H2X35 | 71 | H3X35SY | 79 |
| H12G2.5SY | 77 | H2X35CY | 75 | H3X4 | 70 |
| H12G4 | 70 | H2X35SY | 79 | H3X4CY | 74 |
| H12G4CY | 74 | H3G0.75 | 68 | H3X4SY | 78 |
| H12G4SY | 78 | H3G0.75CY | 72 | H3X6 | 70 |
| H12X0.75 | 68 | H3G0.75SY | 76 | H3X6CY | 74 |
| H12X0.75CY | 72 | H3G1.0 | 68 | H3X6SY | 78 |
| H12X0.75SY | 76 | H3G1.0CY | 72 | H4G0.75 | 68 |
| H12X1.0 | 68 | H3G1.0SY | 76 | H4G0.75CY | 72 |
| H12X1.0CY | 72 | H3G1.5 | 69 | H4G0.75SY | 76 |
| H12X1.0SY | 76 | H3G1.5CY | 73 | H4G1.0 | 68 |
| H12X1.5 | 69 | H3G1.5SY | 77 | H4G1.0CY | 72 |
| H12X1.5CY | 73 | H3G10 | 70 | H4G1.0SY | 76 |
| H12X1.5SY | 77 | H3G10CY | 74 | H4G1.5 | 69 |
| H12X2.5 | 69 | H3G10SY | 78 | H4G1.5CY | 73 |
| H12X2.5CY | 73 | H3G16 | 71 | H4G1.5SY | 77 |
| H12X2.5SY | 77 | H3G16CY | 75 | H4G10 | 70 |
| H12X4 | 70 | H3G16SY | 79 | H4G10CY | 74 |
| H12X4CY | 74 | H3G2.5 | 69 | H4G10SY | 78 |
| H12X4SY | 78 | H3G2.5CY | 73 | H4G16 | 71 |
| H20G0.75 | 68 | H3G2.5SY | 77 | H4G16CY | 75 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|---------|-------------|---------|
| H4G16SY | 79 | H5X1.0CY | 72 | HKX30.75 | 94, 187 |
| H4G2.5 | 69 | H5X1.0SY | 76 | HKX30.75 | 94, 187 |
| H4G2.5CY | 73 | H5X1.5 | 69 | HKX31.0 | 94, 187 |
| H4G2.5SY | 77 | H5X1.5CY | 73 | HKX31.0 | 94, 187 |
| H4G25 | 71 | H5X1.5SY | 77 | HKX31.5 | 94, 187 |
| H4G25CY | 75 | H5X2.5 | 69 | HKX31.5 | 94, 187 |
| H4G25SY | 79 | H5X2.5CY | 73 | HKX32.5 | 94, 187 |
| H4G4 | 70 | H5X2.5SY | 77 | HKX32.5 | 94, 187 |
| H4G4CY | 74 | HK30.5 | 93, 178 | HKX34 | 94, 187 |
| H4G4SY | 78 | HK30.5 | 93, 178 | HKX34 | 94, 187 |
| H4G6 | 70 | HK30.75 | 93, 178 | HKX41.5 | 94, 187 |
| H4G6CY | 74 | HK30.75 | 93, 178 | HKX41.5 | 94, 187 |
| H4G6SY | 78 | HK31.0 | 93, 178 | HKX410 | 94, 187 |
| H4X0.75 | 68 | HK31.0 | 93, 178 | HKX410 | 94, 187 |
| H4X0.75CY | 72 | HK31.5 | 93, 178 | HKX416 | 94, 187 |
| H4X0.75SY | 76 | HK31.5 | 93, 178 | HKX416 | 94, 187 |
| H4X1.0 | 68 | HK32.5 | 93, 178 | HKX42.5 | 94, 187 |
| H4X1.0CY | 72 | HK32.5 | 93, 178 | HKX42.5 | 94, 187 |
| H4X1.0SY | 76 | HK34 | 93, 178 | HKX425 | 94, 187 |
| H4X1.5 | 69 | HK34 | 93, 178 | HKX425 | 94, 187 |
| H4X1.5CY | 73 | HK41.5 | 93, 178 | HKX435 | 94, 187 |
| H4X1.5SY | 77 | HK41.5 | 93, 178 | HKX435 | 94, 187 |
| H4X10 | 70 | HK410 | 93, 178 | HKX44 | 94, 187 |
| H4X10CY | 74 | HK410 | 93, 178 | HKX44 | 94, 187 |
| H4X10SY | 78 | HK416 | 93, 178 | HKX46 | 94, 187 |
| H4X16 | 71 | HK416 | 93, 178 | HKX46 | 94, 187 |
| H4X16CY | 75 | HK42.5 | 93, 178 | HKX60.5 | 94, 187 |
| H4X16SY | 79 | HK42.5 | 93, 178 | HKX60.5 | 94, 187 |
| H4X2.5 | 69 | HK425 | 93, 178 | HKX60.75 | 94, 187 |
| H4X2.5CY | 73 | HK425 | 93, 178 | HKX60.75 | 94, 187 |
| H4X2.5SY | 77 | HK435 | 93, 178 | HKX61.0 | 94, 187 |
| H4X25 | 71 | HK435 | 93, 178 | HKX61.0 | 94, 187 |
| H4X25CY | 75 | HK44 | 93, 178 | HKX610 | 94, 187 |
| H4X25SY | 79 | HK44 | 93, 178 | HKX610 | 94, 187 |
| H4X4 | 70 | HK46 | 93, 178 | HKX616 | 94, 187 |
| H4X4CY | 74 | HK46 | 93, 178 | HKX616 | 94, 187 |
| H4X4SY | 78 | HK60.5 | 93, 178 | HKX625 | 94, 187 |
| H4X6 | 70 | HK60.5 | 93, 178 | HKX625 | 94, 187 |
| H4X6CY | 74 | HK60.75 | 93, 178 | HKX635 | 94, 187 |
| H4X6SY | 78 | HK60.75 | 93, 178 | HKX635 | 94, 187 |
| H5G0.75 | 68 | HK61.0 | 93, 178 | HKX64 | 94, 187 |
| H5G0.75CY | 72 | HK61.0 | 93, 178 | HKX64 | 94, 187 |
| H5G0.75SY | 76 | HK610 | 93, 178 | HKX66 | 94, 187 |
| H5G1.0 | 68 | HK610 | 93, 178 | HKX66 | 94, 187 |
| H5G1.0CY | 72 | HK616 | 93, 178 | I2075FF01 | 247 |
| H5G1.0SY | 76 | HK616 | 93, 178 | I2075FF02 | 247 |
| H5G1.5 | 69 | HK625 | 93, 178 | I2075FF04 | 247 |
| H5G1.5CY | 73 | HK625 | 93, 178 | I2075FF08 | 247 |
| H5G1.5SY | 77 | HK635 | 93, 178 | I2115FF01 | 249 |
| H5G2.5 | 69 | HK635 | 93, 178 | I2115FF02 | 249 |
| H5G2.5CY | 73 | HK64 | 93, 178 | I2115FF04 | 249 |
| H5G2.5SY | 77 | HK64 | 93, 178 | I2115FF08 | 249 |
| H5X0.75 | 68 | HK66 | 93, 178 | I2135FF01 | 251 |
| H5X0.75CY | 72 | HK66 | 93, 178 | I2135FF02 | 251 |
| H5X0.75SY | 76 | HKX30.5 | 94, 187 | I2135FF04 | 251 |
| H5X1.0 | 68 | HKX30.5 | 94, 187 | I2135FF08 | 251 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| I3075FF01 | 253 | I7159KU01 | 264 | J7115FF01 | 256 |
| I3075FF02 | 253 | I7159KU02 | 264 | J7115FF02 | 256 |
| I3075FF04 | 253 | I7159KU04 | 264 | J7115FF04 | 256 |
| I3075FF08 | 253 | I7159KU08 | 264 | J7115FF08 | 256 |
| I3115FF01 | 255 | J3075FF01 | 247 | J7135FF01 | 258 |
| I3115FF02 | 255 | J3075FF02 | 247 | J7135FF02 | 258 |
| I3115FF04 | 255 | J3075FF04 | 247 | J7135FF04 | 258 |
| I3115FF08 | 255 | J3075FF08 | 247 | J7135FF08 | 258 |
| I3135FF01 | 257 | J3115FF01 | 249 | J7155FF01 | 260 |
| I3135FF02 | 257 | J3115FF02 | 249 | J7155FF02 | 260 |
| I3135FF04 | 257 | J3115FF04 | 249 | J7155FF04 | 260 |
| I3135FF08 | 257 | J3115FF08 | 249 | J7155FF08 | 260 |
| I3155FF01 | 259 | J3135FF01 | 251 | J8139MU01 | 262 |
| I3155FF02 | 259 | J3135FF02 | 251 | J8139MU02 | 262 |
| I3155FF04 | 259 | J3135FF04 | 251 | J8139MU04 | 262 |
| I3155FF08 | 259 | J3135FF08 | 251 | J8139MU08 | 262 |
| I4139KU01 | 261 | J4075FF01 | 253 | J8159MU01 | 264 |
| I4139KU02 | 261 | J4075FF02 | 253 | J8159MU02 | 264 |
| I4139KU04 | 261 | J4075FF04 | 253 | J8159MU04 | 264 |
| I4139KU08 | 261 | J4075FF08 | 253 | J8159MU08 | 264 |
| I4159KU01 | 263 | J4115FF01 | 255 | MIPP-00-001 | 552 |
| I4159KU02 | 263 | J4115FF02 | 255 | MIPP-00-001 | 555 |
| I4159KU04 | 263 | J4115FF04 | 255 | MIPP-00-001 | 557 |
| I4159KU08 | 263 | J4115FF08 | 255 | MIPP-00-002 | 552 |
| I5075FF01 | 248 | J4135FF01 | 257 | MIPP-00-003 | 552 |
| I5075FF02 | 248 | J4135FF02 | 257 | MIPP-00-004 | 552 |
| I5075FF04 | 248 | J4135FF04 | 257 | MIPP-00-005 | 555 |
| I5075FF08 | 248 | J4135FF08 | 257 | MIPP-00-006 | 555 |
| I5115FF01 | 250 | J4155FF01 | 259 | MIPP-01-001 | 552 |
| I5115FF02 | 250 | J4155FF02 | 259 | MIPP-01-002 | 552 |
| I5115FF04 | 250 | J4155FF04 | 259 | MIPP-01-003 | 552 |
| I5115FF08 | 250 | J4155FF08 | 259 | MIPP-01-004 | 552 |
| I5135FF01 | 252 | J5139MU01 | 261 | MIPP-01-005 | 552 |
| I5135FF02 | 252 | J5139MU02 | 261 | MIPP-01-006 | 552 |
| I5135FF04 | 252 | J5139MU04 | 261 | MIPP-01-007 | 552 |
| I5135FF08 | 252 | J5139MU08 | 261 | MIPP-01-008 | 552 |
| I6075FF01 | 254 | J5159MU01 | 263 | MIPP-01-009 | 552 |
| I6075FF02 | 254 | J5159MU02 | 263 | MIPP-01-010 | 552 |
| I6075FF04 | 254 | J5159MU04 | 263 | MIPP-01-011 | 552 |
| I6075FF08 | 254 | J5159MU08 | 263 | MIPP-01-012 | 552 |
| I6115FF01 | 256 | J6075FF01 | 248 | MIPP-01-013 | 552 |
| I6115FF02 | 256 | J6075FF02 | 248 | MIPP-01-014 | 552 |
| I6115FF04 | 256 | J6075FF04 | 248 | MIPP-01-015 | 552 |
| I6115FF08 | 256 | J6075FF08 | 248 | MIPP-01-016 | 552 |
| I6135FF01 | 258 | J6115FF01 | 250 | MIPP-01-017 | 552 |
| I6135FF02 | 258 | J6115FF02 | 250 | MIPP-01-018 | 552 |
| I6135FF04 | 258 | J6115FF04 | 250 | MIPP-01-019 | 552 |
| I6135FF08 | 258 | J6115FF08 | 250 | MIPP-01-020 | 555 |
| I6155FF01 | 260 | J6135FF01 | 252 | MIPP-01-021 | 555 |
| I6155FF02 | 260 | J6135FF02 | 252 | MIPP-01-022 | 555 |
| I6155FF04 | 260 | J6135FF04 | 252 | MIPP-01-023 | 555 |
| I6155FF08 | 260 | J6135FF08 | 252 | MIPP-01-024 | 555 |
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| Part Number | Page | Part Number | Page | Part Number | Page |
|-----------------|------|-----------------|------|-----------------|------|
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| Part Number | Page | Part Number | Page | Part Number | Page |
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| Part Number | Page | Part Number | Page | Part Number | Page |
|-----------------|------|-----------------|------|-----------------|------|
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| Part Number | Page | Part Number | Page | Part Number | Page |
|-----------------|------|-----------------|------|-----------------|------|
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| NXGU53DA014BKAA | 503 | NYBU62BA006BKAA | 503 | NYGU62DA022BKAA | 503 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-----------------|------|---------------|------|-------------|------|
| NYGU62DA024BKAA | 503 | PS/PSX 156-12 | 146 | ST200-551 | 146 |
| NYLU12BA002BKAA | 509 | PS/PSX 174-12 | 146 | ST250-477 | 146 |
| NYLU12BA004BKAA | 509 | PS/PSX 174-15 | 146 | ST250-478 | 146 |
| NYLU12BA006BKAA | 509 | PS/PSX 188-12 | 146 | ST300-479 | 146 |
| NYLU12BA008BKAA | 509 | PS/PSX 188-15 | 146 | ST300-480 | 146 |
| NYLU12BA010BKAA | 509 | PS/PSX 200-15 | 146 | ST300-481 | 146 |
| NYLU12BA012BKAA | 509 | PS/PSX 218-15 | 146 | ST350-482 | 146 |
| NYLU12DA014BKAA | 509 | PS/PSX 219-20 | 146 | ST350-483 | 146 |
| NYLU12DA016BKAA | 509 | PS/PSX 236-20 | 146 | ST400-484 | 146 |
| NYLU12DA018BKAA | 509 | PS/PSX 247-20 | 146 | ST400-485 | 146 |
| NYLU12DA020BKAA | 509 | PS/PSX 261-20 | 146 | ST400-486 | 146 |
| NYLU12DA022BKAA | 509 | PS/PSX 263-25 | 146 | TMC10402 | 146 |
| NYLU12DA024BKAA | 509 | PS/PSX 280-25 | 146 | TMC165 | 146 |
| NYLU50BA002BKAA | 509 | PS/PSX 296-25 | 146 | TMC285 | 146 |
| NYLU50BA004BKAA | 509 | PS/PSX 297-30 | 146 | TMC3112 | 146 |
| NYLU50BA006BKAA | 509 | PS/PSX 311-30 | 146 | TMC4140 | 146 |
| NYLU50BA008BKAA | 509 | PS/PSX 327-30 | 146 | TMC5161 | 146 |
| NYLU50BA010BKAA | 509 | PS/PSX 343-30 | 146 | TMC6206 | 146 |
| NYLU50BA012BKAA | 509 | PS/PSX 359-30 | 146 | TMC7247 | 146 |
| NYLU50DA014BKAA | 509 | PS/PSX 375-35 | 146 | TMC8302 | 146 |
| NYLU50DA016BKAA | 509 | PS/PSX 392-35 | 146 | TMC9352 | 146 |
| NYLU50DA018BKAA | 509 | PS/PSX 412-35 | 146 | TMCX10402 | 146 |
| NYLU50DA020BKAA | 509 | PS/PSX 423-40 | 146 | TMCX165 | 146 |
| NYLU50DA022BKAA | 509 | PS/PSX 437-40 | 146 | TMCX285 | 146 |
| NYLU50DA024BKAA | 509 | PS/PSX 45-05 | 146 | TMCX3112 | 146 |
| NYLU53BA002BKAA | 509 | PS/PSX 451-40 | 146 | TMCX4140 | 146 |
| NYLU53BA004BKAA | 509 | PS/PSX 462-40 | 146 | TMCX5161 | 146 |
| NYLU53BA006BKAA | 509 | PS/PSX 55-05 | 146 | TMCX6206 | 146 |
| NYLU53BA008BKAA | 509 | PS/PSX 65-05 | 146 | TMCX7247 | 146 |
| NYLU53BA010BKAA | 509 | PS/PSX 75-05 | 146 | TMCX8302 | 146 |
| NYLU53BA012BKAA | 509 | PS/PSX 85-05 | 146 | TMCX9352 | 146 |
| NYLU53DA014BKAA | 509 | PS/PSX 95-05 | 146 | YE00819 | 342 |
| NYLU53DA016BKAA | 509 | PS/PSX 99-07 | 146 | YE00820 | 342 |
| NYLU53DA018BKAA | 509 | R601001 010S1 | 405 | YE00905 | 342 |
| NYLU53DA020BKAA | 509 | R601002 010S1 | 405 | YE00906 | 342 |
| NYLU53DA022BKAA | 509 | R601003 010S1 | 405 | YJ55261F | 345 |
| NYLU53DA024BKAA | 509 | R601005 010S1 | 405 | YJ55261FS | 346 |
| NYLU62BA002BKAA | 509 | R605001 010S1 | 405 | YJ55261L | 345 |
| NYLU62BA004BKAA | 509 | R605002 010S1 | 405 | YJ55261LS | 346 |
| NYLU62BA006BKAA | 509 | R605003 010S1 | 405 | YJ55262F | 345 |
| NYLU62BA008BKAA | 509 | R605005 010S1 | 405 | YJ55262FS | 346 |
| NYLU62BA010BKAA | 509 | ST050-462 | 146 | YJ55262L | 345 |
| NYLU62BA012BKAA | 509 | ST050-464 | 146 | YJ55262LS | 346 |
| NYLU62DA014BKAA | 509 | ST050-465 | 146 | YJ55263F | 345 |
| NYLU62DA016BKAA | 509 | ST050-466 | 146 | YJ55263FS | 346 |
| NYLU62DA018BKAA | 509 | ST075-467 | 146 | YJ55263L | 345 |
| NYLU62DA020BKAA | 509 | ST075-468 | 146 | YJ55263LS | 346 |
| NYLU62DA022BKAA | 509 | ST100-469 | 146 | YJ55264F | 345 |
| NYLU62DA024BKAA | 509 | ST125-470 | 146 | YJ55264FS | 346 |
| PS/PSX 107-07 | 146 | ST125-471 | 146 | YJ55264L | 345 |
| PS/PSX 112-10 | 146 | ST125-550 | 146 | YJ55264LS | 346 |
| PS/PSX 113-07 | 146 | ST150-472 | 146 | YJ55281F | 345 |
| PS/PSX 121-07 | 146 | ST150-473 | 146 | YJ55281FS | 346 |
| PS/PSX 125-10 | 146 | ST200-474 | 146 | YJ55281L | 345 |
| PS/PSX 138-10 | 146 | ST200-475 | 146 | YJ55281LS | 346 |
| PS/PSX 138-12 | 146 | ST200-476 | 146 | YJ55282F | 345 |

| Part Number | Page | Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|-------------|------|
| YJ55282FS | 346 | Z28156Z | 139 | ZA11CFF08 | 427 |
| YJ55282L | 345 | Z28157Z | 139 | ZA13CFF01 | 429 |
| YJ55282LS | 346 | Z28158Z | 140 | ZA13CFF02 | 429 |
| YJ55283F | 345 | Z28159Z | 140 | ZA13CFF04 | 429 |
| YJ55283FS | 346 | Z28160Z | 140 | ZA13CFF08 | 429 |
| YJ55283L | 345 | Z28161Z | 141 | ZB07CFF01 | 425 |
| YJ55283LS | 346 | Z28167Z | 142 | ZB07CFF02 | 425 |
| YJ55284F | 345 | Z28168Z | 142 | ZB07CFF04 | 425 |
| YJ55284FS | 346 | Z28169Z | 142 | ZB07CFF08 | 425 |
| YJ55284L | 345 | Z28170Z | 143 | ZB11CFF01 | 427 |
| YJ55284LS | 346 | Z28171Z | 143 | ZB11CFF02 | 427 |
| Z1038Z | 307 | Z28172Z | 143 | ZB11CFF04 | 427 |
| Z1039Z | 309 | Z28173Z | 144 | ZB11CFF08 | 427 |
| Z1042Z | 309 | Z28174Z | 144 | ZB13CFF01 | 429 |
| Z1045Z | 309 | Z28175Z | 144 | ZB13CFF02 | 429 |
| Z1047Z | 309 | Z28176Z | 145 | ZB13CFF04 | 429 |
| Z1049Z | 307 | Z28177Z | 145 | ZB13CFF08 | 429 |
| Z1051Z | 307 | Z28178Z | 145 | ZC07CFF02 | 415 |
| Z1053Z | 307 | Z28324Z | 133 | ZC07CFF04 | 415 |
| Z1093Z | 308 | Z28329Z | 132 | ZC07CFF06 | 415 |
| Z1094Z | 308 | Z28341Z | 133 | ZC07CFF08 | 415 |
| Z1095Z | 308 | Z28611Z | 132 | ZC11CFF02 | 415 |
| Z1096Z | 308 | Z28613Z | 132 | ZC11CFF04 | 415 |
| Z1097Z | 310 | Z28623Z | 133 | ZC11CFF06 | 415 |
| Z1099Z | 310 | Z28628Z | 133 | ZC11CFF08 | 415 |
| Z1100Z | 310 | Z28632Z | 132 | ZC13CFF02 | 415 |
| Z1118Z | 309 | Z28634Z | 135 | ZC13CFF04 | 415 |
| Z1119Z | 310 | Z28912Z | 134 | ZC13CFF06 | 415 |
| Z1120Z | 307 | Z29500X | 162 | ZC13CFF08 | 415 |
| Z1121Z | 308 | Z29501X | 162 | ZJ07CFF01 | 426 |
| Z27080Z | 134 | Z29502X | 162 | ZJ07CFF02 | 426 |
| Z27109Z | 135 | Z29503X | 162 | ZJ07CFF04 | 426 |
| Z27138Z | 136 | Z29504X | 162 | ZJ07CFF08 | 426 |
| Z27325Z | 132 | Z29505X | 162 | ZJ11CFF01 | 428 |
| Z27337Z | 133 | Z29506X | 162 | ZJ11CFF02 | 428 |
| Z27636Z | 134 | Z29507X | 162 | ZJ11CFF04 | 428 |
| Z27641Z | 135 | Z2952.1.15 | 163 | ZJ11CFF08 | 428 |
| Z27643Z | 136 | Z2952.1.16 | 163 | ZJ13CFF01 | 430 |
| Z27916Z | 132 | Z2952.1.17 | 163 | ZJ13CFF02 | 430 |
| Z27917Z | 133 | Z29531X | 163 | ZJ13CFF04 | 430 |
| Z28090Z | 134 | Z29534 | 163 | ZJ13CFF08 | 430 |
| Z28096Z | 134 | Z3080Z | 311 | ZK07CFF01 | 426 |
| Z28103Z | 134 | Z3081Z | 312 | ZK07CFF02 | 426 |
| Z28119Z | 135 | Z3088Z | 307 | ZK07CFF04 | 426 |
| Z28125Z | 135 | Z3089Z | 308 | ZK07CFF08 | 426 |
| Z28132Z | 135 | Z3090Z | 309 | ZK11CFF01 | 428 |
| Z28140Z | 136 | Z3091Z | 310 | ZK11CFF02 | 428 |
| Z28144Z | 136 | Z3103A | 138 | ZK11CFF04 | 428 |
| Z28148Z | 136 | Z3130Z | 310 | ZK11CFF08 | 428 |
| Z28149 | 137 | ZA07CFF01 | 425 | ZK13CFF01 | 430 |
| Z28150Z | 137 | ZA07CFF02 | 425 | ZK13CFF02 | 430 |
| Z28151Z | 137 | ZA07CFF04 | 425 | ZK13CFF04 | 430 |
| Z28152Z | 138 | ZA07CFF08 | 425 | ZK13CFF08 | 430 |
| Z28153Z | 138 | ZA11CFF01 | 427 | ZL07CFF02 | 416 |
| Z28154Z | 138 | ZA11CFF02 | 427 | ZL07CFF04 | 416 |
| Z28155Z | 139 | ZA11CFF04 | 427 | ZL07CFF06 | 416 |

| Part Number | Page | Part Number | Page |
|-------------|------|-------------|------|
| ZL07CFF08 | 416 | ZO15CFF08 | 417 |
| ZL11CFF02 | 416 | ZV07CFF01 | 432 |
| ZL11CFF04 | 416 | ZV07CFF02 | 432 |
| ZL11CFF06 | 416 | ZV07CFF04 | 432 |
| ZL11CFF08 | 416 | ZV07CFF08 | 432 |
| ZL13CFF02 | 416 | ZV11CFF01 | 434 |
| ZL13CFF04 | 416 | ZV11CFF02 | 434 |
| ZL13CFF06 | 416 | ZV11CFF04 | 434 |
| ZL13CFF08 | 416 | ZV11CFF08 | 434 |
| ZM07CFF01 | 431 | ZV13CFF01 | 436 |
| ZM07CFF02 | 431 | ZV13CFF02 | 436 |
| ZM07CFF04 | 431 | ZV13CFF04 | 436 |
| ZM07CFF08 | 431 | ZV13CFF08 | 436 |
| ZM11CFF01 | 433 | ZV15CFF01 | 438 |
| ZM11CFF02 | 433 | ZV15CFF02 | 438 |
| ZM11CFF04 | 433 | ZV15CFF04 | 438 |
| ZM11CFF08 | 433 | ZV15CFF08 | 438 |
| ZM13CFF01 | 435 | ZW07CFF01 | 432 |
| ZM13CFF02 | 435 | ZW07CFF02 | 432 |
| ZM13CFF04 | 435 | ZW07CFF04 | 432 |
| ZM13CFF08 | 435 | ZW07CFF08 | 432 |
| ZM15CFF01 | 437 | ZW11CFF01 | 434 |
| ZM15CFF02 | 437 | ZW11CFF02 | 434 |
| ZM15CFF04 | 437 | ZW11CFF04 | 434 |
| ZM15CFF08 | 437 | ZW11CFF08 | 434 |
| ZN07CFF01 | 431 | ZW13CFF01 | 436 |
| ZN07CFF02 | 431 | ZW13CFF02 | 436 |
| ZN07CFF04 | 431 | ZW13CFF04 | 436 |
| ZN07CFF08 | 431 | ZW13CFF08 | 436 |
| ZN11CFF01 | 433 | ZW15CFF01 | 438 |
| ZN11CFF02 | 433 | ZW15CFF02 | 438 |
| ZN11CFF04 | 433 | ZW15CFF04 | 438 |
| ZN11CFF08 | 433 | ZW15CFF08 | 438 |
| ZN13CFF01 | 435 | ZX07CFF02 | 418 |
| ZN13CFF02 | 435 | ZX07CFF04 | 418 |
| ZN13CFF04 | 435 | ZX07CFF06 | 418 |
| ZN13CFF08 | 435 | ZX07CFF08 | 418 |
| ZN15CFF01 | 437 | ZX11CFF02 | 418 |
| ZN15CFF02 | 437 | ZX11CFF04 | 418 |
| ZN15CFF04 | 437 | ZX11CFF06 | 418 |
| ZN15CFF08 | 437 | ZX11CFF08 | 418 |
| ZO07CFF02 | 417 | ZX13CFF02 | 418 |
| ZO07CFF04 | 417 | ZX13CFF04 | 418 |
| ZO07CFF06 | 417 | ZX13CFF06 | 418 |
| ZO07CFF08 | 417 | ZX13CFF08 | 418 |
| ZO11CFF02 | 417 | ZX15CFF02 | 418 |
| ZO11CFF04 | 417 | ZX15CFF04 | 418 |
| ZO11CFF06 | 417 | ZX15CFF06 | 418 |
| ZO11CFF08 | 417 | ZX15CFF08 | 418 |
| ZO13CFF02 | 417 | | |
| ZO13CFF04 | 417 | | |
| ZO13CFF06 | 417 | | |
| ZO13CFF08 | 417 | | |
| ZO15CFF02 | 417 | | |
| ZO15CFF04 | 417 | | |
| ZO15CFF06 | 417 | | |

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www.beldenapac.com



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Asia/Pacific

China
Phone: +86-21-5445-2353
China.Marketing@belden.com

India
Phone: + 91-124-4509999
india.sales@belden.com

Singapore
Phone: +65-6879-9800
singapore.sales@belden.com

EUROPE/MIDDLE EAST/AFRICA

**The Netherlands –
Head Office**
Phone: +31-773-878-555
venlo.salesinfo@belden.com

Italy
Phone: +39-039-5965-250
info.milano@belden.com

Sweden
Phone: +46-40-699-88-60
inet-sales@belden.com

France
Phone: +33-472-109-990
lyon.salesinfo@belden.com

Russia
Phone: +7-495-287-1391
info@belden.ru

United Arab Emirates
Phone: +971-4-391-0490
dubai.salesinfo@belden.com

Germany
Phone: +49-7127-14-0
inet-sales@belden.com

Spain
Phone: +34-91-746-17-30
madrid.salesinfo@belden.com

United Kingdom
Phone: +44 161 4983749
manchester.salesinfo@belden.com

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