BELDEN
SENDING ALL THE RIGHT SIGNALS



Not All Foil-Braid VFD Cables are 300% Ground Cables.

The Variable Frequency Drive (VFD) cable market has been marred by an assortment of products — described by the manufacturers as VFD cables — but lacking the essential properties required to perform effectively and reliably in many applications. Most VFD cables are designed with absolutely zero research or testing to ensure they effectively mitigate the issues associated with variable frequency drive systems. Belden's 300% Ground VFD cables are designed with application issues in mind and are proven for 25 years of reliable service.

What is a 300% Ground VFD Cable?

A 300% ground VFD cable has the copper equivalent of 3-phase conductors in the ground system. Belden 300% ground VFD cables include a full-size insulated ground, a full-size uninsulated ground and a over 90% coverage tinned copper braid system with more copper content than each phase conductor.

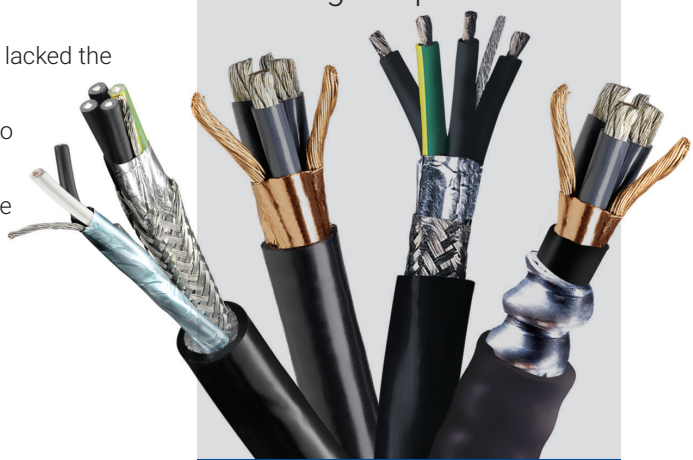
Why Specify a 300% Ground VFD Cable?

When developing what is now called VFD cable, Belden and the development partner — a major manufacturer of IGBT-based variable frequency drives — set specific parameters for performance and goals to mitigate the issues associated with variable frequency drives.

For many systems, NEC-compliant grounds, or even full-size grounds, lacked the conductivity necessary to effectively bond the motor and drive at all frequencies. The bond between the motor and drive was determined to be the most significant factor in mitigating the release of common mode current and the associated impact on adjacent circuits, sensitive instruments, networks and motor bearings, the equivalent of 3-phase conductors in the ground system.

Belden Offers a Broad VFD Cable Portfolio

- 300% and 100% Ground High Performance Industrial-Grade
- Premium + Signal Pair
- Continuous-Flex and High-Flex
- Contractor-Grade
- Low Smoke Zero Halogen Options



For more information, visit
belden.com/products/industrial/cable/vfd

Phone: **1.800.BELDEN1**

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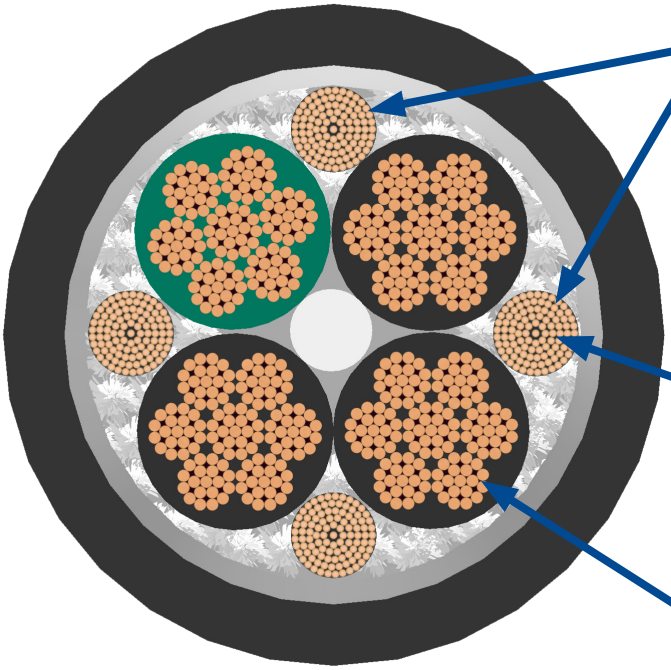
Design Matters

Often copied, never duplicated, Belden's competitors have offered what they call "equivalent" foil braid designs. One look at the cable cross sections show that these products are anything but equal.

Belden 300% Ground VFD Cable



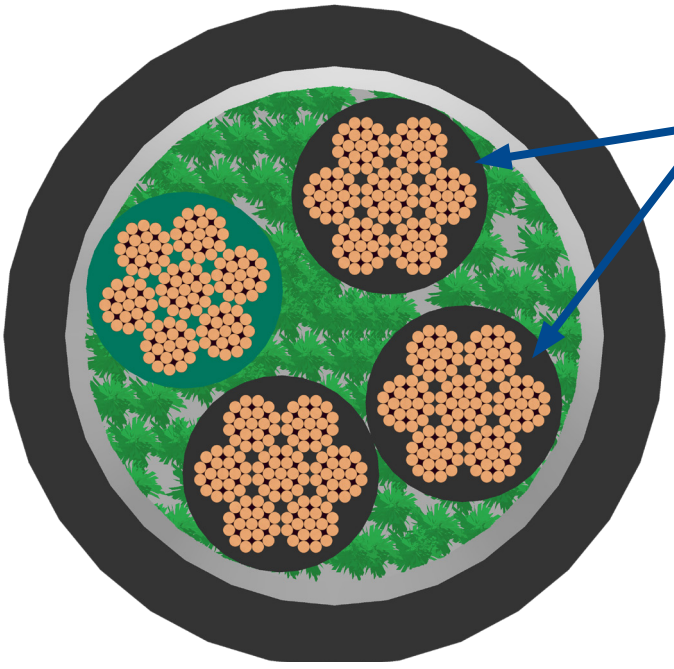
Equal Distributions/Ground Symmetry
The Belden product has minimal fillers and the uninsulated ground cable is distributed in 4 equal segments to reduce self-induction and the resulting bearing destroying currents.

- **Quality**
  The quality of fabrication and the symmetry is evident in the Belden cable. The balanced geometry ensures that induced bearing currents and common mode noise currents are minimized. 90% braid coverage with more copper content than each phase conductor.

Noise Currents
Bringing the uninsulated grounds into close proximity to the phase conductors reduces the inductance of the ground path and makes it the most attractive path for noise currents. The farther the distance between the ground conductor and phase conductors, the more noise currents are forced to take potentially damaging paths back to the drive.

Fine-Stranded Copper
The cross section of the Belden cable is virtually all fine stranded copper. This more effectively conducts the high frequency drive outputs, resulting in reduced cable heating and bonds the drive and motor at all frequencies, reducing the common mode currents that cause interference with other components of the equipment. It also facilitates longer runs without compromising motor life.

Competitors "Equal" VFD Cable



- No symmetric bare grounds
- Cross-section is mostly filler
- Distorted geometry
- Minimal braid coverage

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