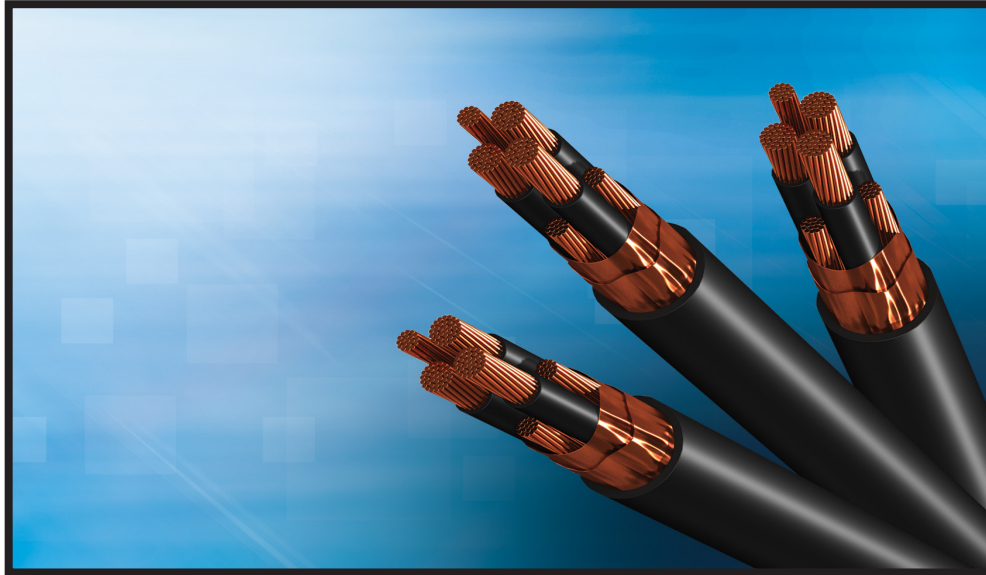


PB 368

Belden® MCM VFD Cables

Belden, the Innovator in VFD Cable Design Adds 250-500 MCM Sizes to Support Larger Drives and Motors up to 250 HP at 460V.



Belden Offers MCM VFD Cables to Its Line of Industrial Cables for Variable Frequency AC Motor Drive Applications

Belden's tray-rated, exposed-run variable frequency drive (VFD) cables in 250 MCM, 350 MCM and 500 MCM address the special needs of VFD installations. VFDs reduce energy consumption, and thus operating costs, and the right MCM VFD cables help extend the life of higher horsepower motors (up to 250 HP at 460V) and drives and to reduce the impact of VFDs on other plant equipment.

VFDs can be the single largest source of current noise, EMI and RFI in a facility, and they are usually operated in close proximity to sensitive instruments and critical networks and safety systems. Drive systems often induce noise in other sensitive systems, leading to expensive troubleshooting and isolation, unexplained downtime, nuisance trips on related equipment, and signal errors in process measurements. Process variation and quality issues are the result.

Belden's MCM VFD cables deliver superior electrical performance and reliability in demanding industrial environments, such as those found in oil & gas, petrochemical, power generation, water/wastewater treatment, and other industries.

Why Specify VFD Cables?

Installing the right cable can be the difference between reliable trouble-free operation and a problematic and unreliable one. Proper cable selection, from cables specifically designed to connect to VFDs, and proper installation practices can mitigate adverse effects on nearby cable systems and reduce the likelihood of cable or motor failure.

Belden's MCM VFD cables provide a proven solution for motor-to-drive connections. The cables are essential in noise-sensitive applications or in any damp or wet environment where reflected wave voltages may degrade PVC/nylon conductors. These products are also suitable for use as shielded power cable for other solid state devices. Belden VFD cables provide superior common mode current protection, and help protect a system against the damage of reflected wave voltages and capacitively coupled currents, ensuring maximum safety and reliability.

Belden's MCM VFD Solution

Belden's VFD cables, in sizes of 250, 350 and 500 MCM, are rated for use in cable trays and direct burial, wet or dry conditions, Belden MCM VFD cables provide the performance and durability required for demanding applications.

Belden MCM VFD Cables

Key design features include:

- Symmetric Bare Grounds. Balanced ground wires prevent induced ground currents by allowing the induced ground currents to cancel and sum to zero. This reduces the potential for motor bearing currents and current noise in the ground system.
- Shield Termination Directly at the Drive. When properly installed, Belden's VFD cables control common mode current and return it to the drive, effectively preventing the release of common mode currents from the shield into the most sensitive equipment.
- Enhanced XLP Insulation provides high dielectric and low capacitance to reduce the energy required to charge the cable. It also lessens reflected wave voltages.
- Individual Motor Lead Set Shielding. Shielding motor lead sets at a level suitable for all frequencies on the cable prevents capacitive interaction with other cables and reduces capacitive charging currents.
- Industrial-grade PVC Jackets. Sunlight and oil resistant jackets provide longer cable life.
- TC-ER (Exposed Run) rated that allows cable to run from cable tray to point of utilization per the NEC. This reduces the need for additional support or protection.

Certifications

- 2000V UL 1277 Type TC-ER per 2005 NEC Article 336
- 1000V CSA TC C22.2 No 230
- 90°C wet/dry
- Class I & II; Division 2 hazardous locations
- UL 1685 vertical tray flame test
- IEEE 1202 vertical tray flame test at 70,000 BTU/hour
- CSA FT4
- UL direct burial
- Oil & Sunlight resistant
- RoHS compliant and CE approved.

Product Cross Reference

Belden VFD cable line was designed in cooperation with some of the industry's leading drive suppliers, and is suitable for use with all 230VAC, 460VAC, and 575VAC variable frequency drives available from a variety of manufactures. Belden cables are specified or approved by many of the industry's leading drive suppliers, and are proven in over 16 years of field use.

Product Availability

Belden offers a wide range of gauges, giving drive users and installers the most options possible for specifying the appropriate sizes for their specific applications. For more information on other gauges and their specifications, see Belden's Product Bulletin PB 316, "[Belden VFD Cables.](#)"

Encoder and Signal Cables

Belden offers the following standard cables for encoder applications. Encoder cables help feed information to the microprocessor regarding both the speed and the position of the rotor. Signal cable can be used for brake or thermal contact applications.

Part Number	Pairs	AWG
8790 (Power Supply)	1	18
9729 (Encoder)	2	24
9730, 89730 (Encoder)	3	24
9728 (Encoder)	4	24
9892 (Encoder)	4	20
9860 (Signal)	1	16

Variable Frequency Drive Cable—Symmetrical Design

250, 350 and 500 MCM with Dual Copper Tape Shield

Description	Part No.	Cond. Size	Cond. Stranding	Standard Lengths		Standard Unit Wt.		Nominal OD		Maximum Pull Tension		Minimum Bend Radius	
				Ft.	m	Lbs.	kg	Inch	mm	Lbs.	N	Inch	mm

Three-stranded Bare Circuit Conductors + (3) Symmetrical BC Grounds • (2) Spiral Copper Tape Shields (100% Coverage) (ICEA Method 4 Color Code)

XLP Insulation • Black Sunlight- and Oil-Resistant PVC Jacket



29533	250 MCM	37x.0822	2300	701	9379	4254	1.91	48.56	6000	26688	34.4	873.8
29534	350 MCM	37x.0973	1750	533	9601	4355	2.13	54.18	8400	37363	38.4	975.4
29535	500 MCM	37x.1162	1300	396	9574	4343	2.41	61.16	12000	53376	43.4	1102.4

2000V UL 1277 TC-ER
1000V CSA C22.2 # 230
IEEE 1202
CSA FT4
UL Direct Burial
RHW-2 & RW90 Circuit Conductors
90°C wet/dry

Reference Resources: [Unarmored Variable Frequency Drive \(VFD\) Cable Termination Guide](#) and [VFD Cable Reference Guide for Typical Installations](#) (Based on Motor HP).