

# » Industrial Cable Solutions for Variable Frequency Drives

Tough challenges call for innovative solutions, and General Cable is your worldwide source for new products and a wide range of industry-leading industrial cables. As a selected partner in Rockwell Automation's Encompass™ Product Partner program, General Cable provides a line of cables for Variable Frequency Drives (VFD) in both unarmored and armored designs as well as in many power ratings.

The following highlights the features and benefits of specially engineered cable designs for use with AC motors controlled by pulse-width modulated inverters in VFD applications rated up to 1000 V, 2000 V, 5 kV and 8 kV:

## CVTC® VFD Low-Voltage Power Type TC-ER

Compressed stranding to reduce overall cable diameter

Dual copper tape shields provide maximum shield coverage required for Variable Frequency Drive applications

Symmetrically placed annealed bare copper grounding conductors in direct contact with shield

Designed to reduce the risk of Electromagnetic Interference (EMI), which can lead to malfunction

Meets crush and impact requirements of Type MC cable

Permitted for use in Class I, Division 2 industrial hazardous locations per NEC



## CCW® VFD Low- & Medium-Voltage Power Type MC-HL

Compact or compressed stranding to reduce conductor size

XLPE insulation with high impulse voltage breakdown level resists degradation

Symmetrically placed annealed bare copper grounding conductors in direct contact with shield

Compact conductors provide reduced conductor size

Pure EPR insulation system has outstanding corona resistance and high dielectric strength, providing electrical stability under stress

Triple Extrusion applies strand shield, EPR insulation and insulation shield in one operation, eliminating exposure to contamination and providing maximum control and consistency



## Additional Benefits of CCW® VFD Low- & Medium-Voltage Power Cable

Continuously Corrugated Welded armor:

- Provides impervious barrier to moisture, gas and liquids
- Provides EMI shielding performance
- Factory assembled and tested for use as an economical, rugged and reliable alternative to cable in conduit wiring systems

Armored constructions suitable for use in Class I, II, & III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505

# Industrial Cable Solutions for VFD

## Specially Engineered Cable Designs for VFD Applications

With **1 kV and 2 kV CVTC® VFD (XLPE/PVC) Type TC-ER unarmored and CCW® VFD (Continuously Corrugated Welded) 600 V – 8 kV Type MC-HL armored product lines**, General Cable offers high-quality VFD cable solutions for factory automation, traditional power generation, refining and petrochemical, marine, specialty chemical and wastewater treatment applications. Many of General Cable's designs incorporate symmetrical grounding, minimizing ground voltages and induced ground currents, which can lead to motor-bearing fluting and premature motor failure. These cables undergo stringent testing to ensure reliable power from AC drive systems to AC motors. With our processing capabilities and know-how as one of the industry's leading suppliers, our VFD industrial-grade designs efficiently handle voltage spikes, common with fast-switching PWM signals, and minimize both radiated and induced Electromagnetic Interference (EMI) through optimized ground and shielding system options.

**CVTC® VFD cables** may be customized to address the specific requirements of various Variable Frequency Drive applications and to

ensure reliable performance and protection of VFD equipment. Designed for use with AC motors controlled by pulse-width modulated inverters in VFD applications, **CVTC VFD cables** reduce the risk of Electromagnetic Interference (EMI), which can lead to drive malfunction, and provide added protection in Class I, Division 2 hazardous industrial applications.

**CCW® VFD cables** are used in hazardous locations where cables are required to be impervious to gas, liquids and vapors, and terminated with explosion-proof glands to electrical equipment. CCW sets the standard in the refining industry with its design integrity for performance-demanding environments and is a staple in offshore production platforms, refineries, LNG facilities and petrochemical processing mills. This product line is suitable for installation in Class I, II, and III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505 and is ideal for use in both hazardous and non-hazardous locations.

**General Cable's broad line of VFD industrial cable solutions is tested and certified on both a regional and global level. In addition to the cable constructions below, we are designing, engineering and manufacturing custom cables to meet unique requirements every day.**

SPECIFICATION	VOLTAGE	SHIELD	CONDUCTOR	INSULATION	GROUND	ARMOR	JACKET
4560/4565 CVTC®	1000 V/600 V	Overall Al/Polymer + Braid	Tinned Copper	XLPE	1 Full-Sized Insulated XLPE	N/A	PVC
4570 CVTC®	1000 V/600 V	Dual Copper Tape	Tinned Copper	XLPE	3 Symmetrical Bare Copper	N/A	PVC
4575 CVTC®	2000 V	Tinned Copper Braid + Al Polymer	Tinned Copper	XLPE	3 Symmetrical Tinned Copper	N/A	PVC
4580 CVTC®	2000 V	Overall Copper Tape	Bare Copper	XLPE	3 Symmetrical Bare Copper	N/A	PVC
9600 CCW®	600 V	•	Bare Copper	XLPE	3 Symmetrical Bare Copper per NEC	•	PVC
9605 CCW®	600 V	•	Bare Copper	XLPE	3 Symmetrical Bare Copper per NEC	•	PVC
9615 CCW®	2000 V	•	Bare Copper	XLPE	3 Symmetrical Bare Copper per NEC	•	PVC
9675 CCW®	1000 V	•	Bare Copper	XLPE	3 Symmetrical Bare Copper per NEC	•	PVC
9700 CCW®	2.4 kV	•	Bare Copper	EPR	3 Symmetrical Bare Copper per NEC	•	PVC
9800 CCW®	5 kV	Bare Copper Tape	Bare Copper	EPR	3 Symmetrical Bare Copper per NEC	•	PVC
9805 CCW®	5 kV	Bare Copper Tape	Bare Copper	EPR	3 Symmetrical Bare Copper per NEC	•	PVC
9815 CCW®	8 kV	Bare Copper Tape	Bare Copper	EPR	3 Symmetrical Bare Copper per NEC	•	PVC

• Continuously Corrugated Welded armor not only protects the cable from mechanical damage but also functions as an excellent electrical shield when terminated properly.



4 Tesseneer Drive, Highland Heights, Kentucky 41076-9753

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Printed in USA

Telephone: +1 800.950.3512

+1 859.572.8000

www.generalcable.com

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