



# Global Oil and Gas

CABLE SOLUTIONS





# One Company Connecting The World

## POWERFUL PRESENCE · PRODUCTS PERFORMANCE · PEOPLE

General Cable has been a wire and cable innovator for over 170 years, always dedicated to connecting and powering people's lives. Today, with more than 14,500 employees and \$6 billion in revenues, we are one of the largest wire and cable manufacturers in the world.

Our company serves customers through a global network of 57 manufacturing facilities in 26 countries and has worldwide sales representation and distribution. We are dedicated to the production of high-quality aluminum, copper and fiber optic wire and cable and systems solutions for the energy, construction, industrial, specialty and communications sectors. With a vast portfolio of products to meet thousands of diverse application requirements, we continue to invest in research and development in order to maintain and extend our technology leadership by developing new materials, designing new products, and creating new solutions to meet tomorrow's market challenges.

In addition to our strong brand recognition and strengths in technology and manufacturing, General Cable is also competitive in such areas as distribution and logistics, marketing, sales and customer service. This combination enables us to better serve our customers globally and as they expand into new geographic markets.

**General Cable offers our customers all the strengths and value of a large company, but our people give us the agility and responsiveness of a small one. We service you globally or locally.**



Visit our Website at  
[www.generalcable.com](http://www.generalcable.com)

## GLOBAL RESOURCES, WORLD-CLASS SERVICE

Successful globalization of the oil, gas and petrochemical industry requires global leaders with the knowledge, experience and engineering expertise to meet international product requirements. With a legacy of innovation that spans more than 170 years, General Cable is uniquely positioned to develop state-of-the-art cable solutions for today's upstream, midstream and downstream application challenges—from topside, subsea and onshore to refineries and petrochemical plants.

Uniquely positioned to respond to the evolving needs of the global oil and gas market, General Cable has the resources, production processes and dedication to work side-by-side with customers to design cost-effective solutions that meet exact specifications while providing value-added services. Backed by an organization that is flexible and responsive with a commitment to maintaining lasting customer relationships, customers can count on General Cable for dedicated service and technical support.

## GLOBAL INVESTMENT, WORLDWIDE SUPPLY

Through dedicated engineering expertise and effective management of global resources and capabilities, General Cable continues to invest in advanced onshore and offshore cable designs while providing value-added assemblies and services for the global oil, gas and petrochemical industry.

Global demand for oil, gas and petroleum-based byproducts has reached record levels. No longer can the industry take a regional or local approach. Through our expansive global footprint, General Cable has the capability to manufacture and deliver a diversified worldwide supply of cable solutions for long-term reliable performance under the most severe conditions across the globe.

- Worldwide engineering and technology resources
- Global industry teams and distribution network
- Universal vertical integration capabilities
- Strong global supply chain and inventory support
- Dedicated global service, support and sales expertise

## QUALITY ASSURANCE GUARANTEED

Through ongoing quality assurance initiatives, General Cable ensures the quality of product design, manufacture, installation and expected service life, as well as respect for the environment through sustainable products, processes and policies. Continuous research and development combined with process control, quality audits and stringent testing provide an ever-growing range of specialty materials and designs that meet the approvals and standards of the oil, gas and petrochemical industry. General Cable is ISO 9001:2008 certified for quality and has ISO 14001-equivalent management systems for environmental responsibility.

### Industry Approvals & Certifications

**ABS** American Bureau of Shipping  
**CCG** Canadian Coast Guard  
**CSA** Canadian Standards Association  
**DNV** Det Norske Veritas  
**ITS** Intertek Testing Service  
**ISO 9001** International Organization for Standards  
**ISO 14001** International Organization for Standards  
**LRS** Lloyds Register of Shipping  
**UL** Underwriters Laboratories  
**USCG** United States Coast Guard  
**Various Shipyard, Oil Rig and Petrochemical Facilities**

### Industry Standards

**API** American Petroleum Institute  
**BSI** British Standards Institute  
**CSA** Canadian Standards Association  
**ICEA** Insulated Cable Engineers Association  
**IEEE** Institute of Electrical & Electronic Engineers  
**IEC** International Electrotechnical Commission  
**NEK TS 606** Norwegian Elektrotechnical Standard  
**UL** Underwriters Laboratories



# UPSTREAM EXPLORATION & PRODUCTION Offshore Topside Applications

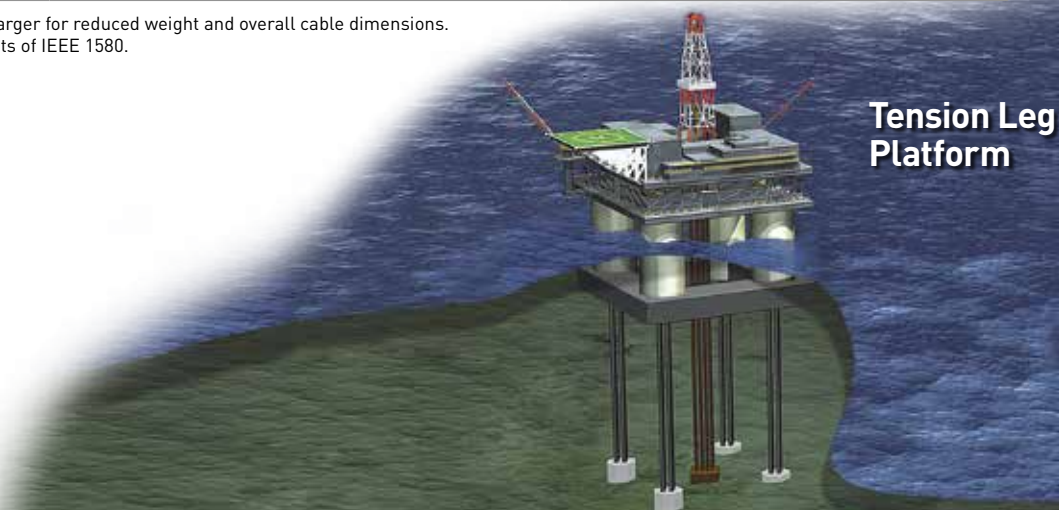
Through our long-term commitment and investment in the global oil, gas and petrochemical industry, General Cable's specialized team of expert engineers has developed innovative, effective cable designs that help protect lives and preserve the operational integrity of mission-critical equipment in the most demanding offshore exploration and production environments around the world.

To meet increasing power requirements, global offshore rigs, production platforms, FPSOs and ships rely on General Cable's comprehensive range of industry-leading, application-specific cables for stabilization and directional drilling.

Every General Cable topside cable is engineered with the reliability and operational excellence required to power the drilling, exploration and production of vital natural resources.

Upstream Offshore Cable — Topside Solutions		
Product	Application	Industry Compliance
<b>Drilling Rigs, MODUs, FPSOs</b>		
<b>IEC 60092-350, NEK TS 606</b> EXZHELLENT® 606 - Mud Oil-Resistant	Power, Control and Instrumentation Cables; AC Variable Frequency Drive Cables	NEK-606 Mud Oil-Resistant; ABS, DNV & Lloyd's Register Type Approved
<b>IEC 60092-350</b> EXZHELLENT® - 92-3*	Power, Control and Instrumentation Cables; AC Variable Frequency Drive Cables	ETL Listed, ABS, DNV & Lloyd's Register Type Approved
<b>IEEE 1580 Type P</b> MOR Polyrad® XT - Mud Oil-Resistant	Power, Control and Instrumentation Cables; AC Variable Frequency Drive Cables	ABS, DNV, Lloyd's Register & Transport Canada Type Approved; CSA Type RW75 & RW90; CSA & UL Listed Marine Shipboard Cable and ETL Verified to IEEE 1580 Type P; IEC 61892-4
<b>IEEE 1580 Type E</b> MV-RIG®	Medium-Voltage Power Generation and Distribution Cables	ABS & Transport Canada Type Approved; CSA & UL Listed Marine Shipboard Cable; IEEE 1580 Type E; IEC 61892-4
<b>Production Platforms, FPSOs</b>		
<b>UL Type MC-HL, UL Type ITC-HL/PLTC</b> <b>CWCMC</b> CCW®	Armored Low-Voltage Power, Control, Instrumentation and Thermocouple Extension Cables; Medium-Voltage Power Cables	ABS Type CWCMC; CSA Type RA90 & UL Type MC, MC-HL, ITC-HL; MV-90 and MV-105
<b>Offshore Rigs, MODUs, Production Platforms, FPSOs</b>		
<b>Data Communications Category Cables</b> COMMODORE®	Category 5e and 6 Network Application Cables	ABS Type Approved/ETL Confirmed
<b>Coaxial Cables</b> COMMODORE®	Control and Video Monitoring Application Cables — RG-6/U, RG-11/U, RG-58/U, RG-59/U, RG-213/U, RS422 and RS485	ABS Type Approved/ETL Confirmed
<b>Industrial Automation Cables</b> COMMODORE®	Closed and Open Architecture Cables meeting Profibus, Fieldbus and DeviceNet protocols	ABS Type Approved/ETL Confirmed
<b>Fiber Optic Communication Armored and Non-Armored Cables</b> COMMODORE® and COMMODORE® Lite™	Premium Performance Data Transmission and Communication Application Cables; Standards-Compliant, Cost-Effective Data Transmission and Communication Application Cables	ABS Type Approved (RQS)
<b>Top Drive Power and Control Service Loops</b>		
<b>Application-Specific Cable Assemblies</b>	Power, Control and Instrumentation Cable Assemblies	Application-Specific

\* SectorFlex® conductor on 35mm<sup>2</sup> and larger for reduced weight and overall cable dimensions. Compliant with performance requirements of IEEE 1580.



# UPSTREAM EXPLORATION & PRODUCTION

## Offshore Subsea Applications

As offshore oil exploration continues to expand to deeper waters around the globe, General Cable's commitment to continuous R&D provides an ever-growing range of NSW® Brand subsea cables and umbilicals that perform under the harshest electrical and mechanical stresses to ensure ongoing, reliable operation in severe environments below the sea.

Everything from underwater platforms, pipelines and long-haul communications to ROVs, winches, ploughs and trenchers relies on General Cable's subsea cable solutions. Through our enhanced capabilities, we supply combinations of fiber optics, low-, medium-, and high-voltage applications up to 150 kV AC, fully qualified splicing technology, sophisticated extrusion lines and maximum armoring capacity to armor 138 wires in one layer. Our medium-voltage submarine solutions for power distribution also include factory and offshore splice and repair.

General Cable's processing capabilities and decades of experience deliver subsea cables that meet stringent industry specifications and the specialized power, control and communications requirements of vital seabed infrastructures.

Upstream Offshore Cable — Subsea Solutions		
Product	Application	Industry Compliance
<b>Medium-Voltage Submarine Cables</b> NSW® OCEAN®	Medium- and High-Voltage Subsea Cables for Subsea Separation and Processing Technology	IEC 60502-2 or ICEA S-97-682 or VDE 0276-620 (HD 620 Part 10 Section C); other compliances upon request
<b>Umbilicals</b> NSW®	Underwater Vehicle Umbilicals; Power & Control Cables for Subsea Platforms; Geophysical-Seismic	ROV Manufacturer Specifications
<b>ROV Umbilicals</b> NSW®	Dynamic cables to be used underwater for the power and communication of Remote Operated Vehicles	Customer Specifications
<b>Components for Umbilicals</b>	Control, Fiber Optic Data, Energy and Heat Tracing Cables for ROV Main Lift and Tether Plough and Trencher; Air Gun and Electro-Mechanical	Oil Company Specifications
<b>Unrepeated Submarine Fiber</b>	Data and Communication Cables for Platform Connection	Oil Company Specifications
<b>Repeated Submarine Fiber</b>	Data and Communication Cables for Data Transmission Over Long-Haul Distances	Oil Company Specifications

Floating Production, Storage and Offloading Vessel (FPSO)



Subsea Technologies

General Cable

# UPSTREAM EXPLORATION & PRODUCTION

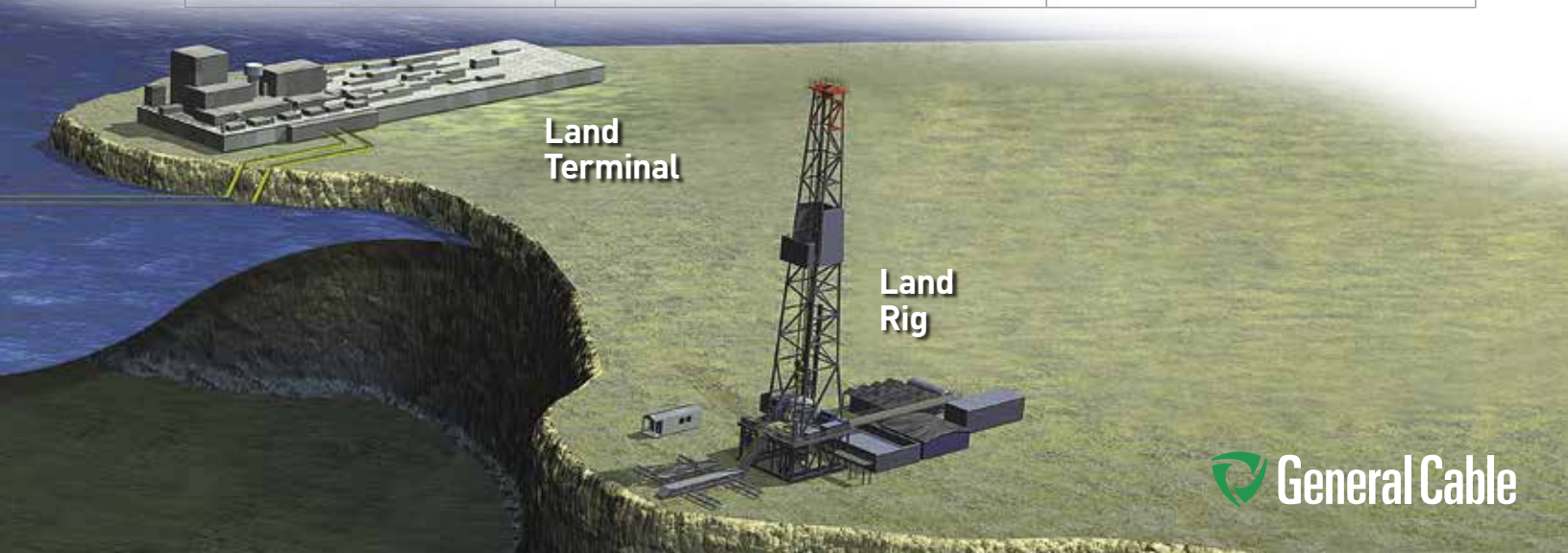
## Onshore Applications

From Alaska's North Slope to the deserts of the Middle East, today's competitive onshore environment with deeper drilling for resources in extreme, remote locations around the globe requires advanced cable designs that meet industry specifications while ensuring the utmost performance for these challenging applications.

From a variety of IEEE Type P mud oil-resistant constructions and continuously corrugated welded armor low- and medium-voltage cables designed for hazardous installations to cables engineered for maximum longevity in the most severe electrical submersible pump (ESP) applications, today's land drilling rigs rely on General Cable's onshore cable solutions. At the same time, our wide range of low-voltage cables maintains standards-compliant performance and data transmission integrity for ongoing operation of modern automation, instrumentation, control and communications systems.

**General Cable's full platform of robust, low-maintenance and high-functioning cable designs meets the challenges of onshore oil and gas exploration and production well into the future.**

Upstream Onshore Cable — Land Rig Solutions		
Product	Application	Industry Compliance
<b>Land Drilling Rigs</b>		
<b>IEEE 1580 Type P</b> MOR Polyrad® XT Mud Oil-Resistant	Power, Control and Instrumentation Cables	ABS, DNV, Lloyd's Register & Transport Canada Type Approved; CSA Type RW75 & RW90; CSA & UL Listed Marine Shipboard Cable & ETL Verified to IEEE 1580 Type P; IEC 61892-4
<b>IEEE 1580 Type P</b> MOR Polyrad® XT VFD Mud Oil-Resistant	AC Variable Frequency Drive Cables	ABS, DNV, Lloyd's Register & Transport Canada Type Approved; CSA Type RW75 & RW90; CSA & UL Listed Marine Shipboard Cable & ETL Verified to IEEE 1580 Type P; IEC 61892-4
<b>Data Communication and Automation Cables</b> COMMODORE®	Category 5e and 6 Network Application Cables; Closed and Open Architecture Cables meeting Profibus, Fieldbus and DeviceNet protocols; Premium Performance and Standards-Compliant Data Transmission and Communication Application Fiber Optic Cables where high levels of information integrity and security are prerequisites*	ABS Type Approved/ETL Confirmed*
<b>Oil and Gas Wells</b>		
<b>UL Type MC-HL, UL Type ITC-HL/PLTC</b> <b>ABS CWCMC</b> CCW®	Armored Low-Voltage Power, Control, Instrumentation and Thermocouple Extension Cables & Medium-Voltage Power Cables for hazardous locations, designed to be suitable for arctic installations	ABS Type CWCMC; CSA Type RA90 & UL Type MC, MC-HL, ITC-HL; MV-90 and MV-105
<b>Electrical Submersible Pump Cables</b> X-Tract®	Electrical Submersible Pump / Artificial Lift Cables	IEEE 1018; API RP 11S5 & 11S6 Compliant
<b>Data Communication and Automation Cables</b> COMMODORE®	*See above	*See above
<b>Top Drive Power and Control Service Loops</b>		
<b>Application-Specific Cable Assemblies</b>	Power, Control, Instrumentation, Communications, and Automation Cable Assemblies	Application-Specific



# MIDSTREAM & DOWNSTREAM Liquefied Natural Gas & Refining

Today's liquefied natural gas (LNG) and refining systems are more complex than ever, and space is at a premium. As safety remains the number one priority, followed closely by uptime and productivity, General Cable continues to diversify its product offering by investing in precision-engineered, state-of-the-art equipment to produce a full line of specialized cables for midstream and downstream applications.

From resistance to oils, hydrocarbons and chemicals to continuing performance in sub-zero or extreme high temperatures, General Cable is committed to providing quality high-performing cables backed by expert technical support. Offered in a variety of armor types such as wire, metal clad and continuous corrugated weld, our tested and proven line of industrial-grade low-, medium-, and high-voltage power cables and control, instrumentation and signal cables comprises an extensive selection of application-specific compounds and is in compliance with applicable IEC/EN and/or IEEE/UL standards.

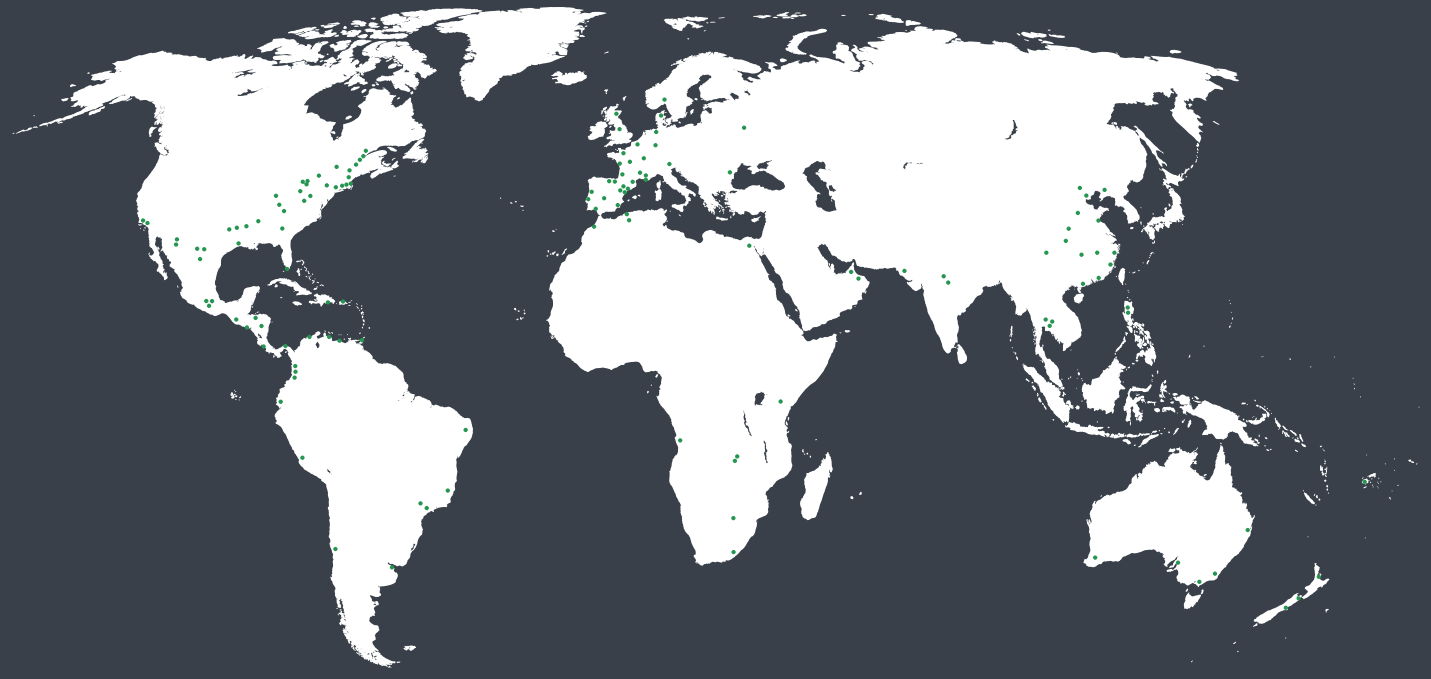
General Cable's midstream and downstream cables help maintain the operational integrity of global LNG facilities, refineries and petrochemical plants to ensure efficiency and performance.

## Midstream & Downstream Cable — LNG Facility, Refinery & Petrochemical Plant Solutions

Product	Application	Industry Compliance
<b>IEC 60502</b> ARMIGRON® ARCTIC-FLEX® RVMV	Low-Voltage Wire Armored Power and Control Cables	IEC 60502-1
<b>IEC 60502</b> ARMIGRON® RVFV	Low-Voltage Tape Armored Power and Control Cables	IEC 60502-1
<b>IEC 60502</b> ARMIGRON® RGPV	Armored and Lead-Sheathed Power and Control Cables	IEC 60502-1
<b>BS 5308, EN 50288</b> ARMIGRON® Instrumentation	Armored Instrumentation Cables for signal transmission with electromagnetic protection	BS 5308; EN 50288
<b>IEC 60502-2</b> HERSATENE® Medium-Voltage	Armored Medium-Voltage Power Cables for power distribution	IEC 60502-2
<b>IEC 60840</b> Silec® Armored High-Voltage	Armored High-Voltage Power Cable for power transmission	IEC 60840
<b>Tenaflex H07RNF</b>	Cables for mobile applications	EN 50525-2-21
<b>UL Type MV-105</b> Uniblend® UniShield®	Medium-Voltage Unarmored Power Cables - Copper Tape Shield or Copper Wire Shield	MV-105 IEEE 1202 / CSA FT4
<b>UL Type MC-HL, UL Type ITC-HL/PLTC</b> <b>ABS CWCMC</b> CCW®	Armored Low-Voltage Power, Control, Instrumentation and Thermocouple Extension Cables & Medium-Voltage Power Cables for hazardous locations, designed to be suitable for arctic installations	ABS Type CWCMC; CSA Type RA90 & UL Type MC, MC-HL, ITC-HL; MV-90 and MV-105
<b>UL Type MC</b> Duralox®	Armored Low-Voltage Power, Control and Instrumentation Cables & Medium-Voltage Power Cables	UL 1569, UL 44 IEEE 1202 / CSA FT4
<b>TECK90/HVTECK</b>	Armored Control and Power Cables & Medium-Voltage Power Cables	CSA C22.2 IEEE 1202 / CSA FT4
<b>UL Type TC-ER</b> VNTC®, FREP® and CVTC®	Flame-Retardant Thermoplastic Tray Cables; Flame-Retardant Thermoset Insulation/CPE Jacketed Tray Cables; Flame-Retardant Thermoset Insulation/PVC Jacketed Tray Cables	90°C Dry/75°C Wet; 90°C Dry/90°C Wet; 90°C Dry/90°C Wet IEEE 1277; IEEE 1202/CSA FT4 Cold Bend @ -25°C; Cold Bend @ -40°C; Cold Bend @ -30°C
<b>AC Variable Frequency Drive (VFD)</b> 600 V, 2 kV, 1 kV, 2.4 kV, 5 kV CCW® SPEC 9600, 9615, 9675, 9700, 9800 1 kV/600 V CVTC SPEC 4560/4565, 4570; 2 kV CVTC SPEC 4575, 4580	High-quality AC Variable Frequency Drive (VFD) Cable Solutions	Type MC-HL UL 1277 600 V Type TC-ER; UL 1277 1000 V

## Land-Based Production and Processing





General Cable, a leading wire and cable innovator for over 170 years, serves customers through a global network of 57 manufacturing facilities in 26 countries and has worldwide sales representation and distribution. The Company is dedicated to the production of high-quality aluminum, copper and fiber optic wire and cable and systems solutions for the energy, construction, industrial, specialty and communications sectors. In addition to our strong brand recognition and strengths in technology and manufacturing, General Cable is also competitive in such areas as distribution and logistics, marketing, sales and customer service. This combination enables General Cable to better serve its customers as they expand into new geographic markets.

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