

...through Nexans maritime cables and solutions



Nexans is the worldwide cable leader on the shipbuilding market. Rather than depend on external suppliers, Nexans draws on its own production facilities in Europe, Asia and the Americas to produce every type of cable used on a modern vessel, from bulk carriers, anchor handling tug supply (AHTS) ships, ocean station vessels (OSVs) and FPSOs to cruise liners and oceanic research ships.

A truly global manufacturer and supplier, Nexans provides a wide family of marine cables for ships being built around the world. In fact, Nexans currently supplies approximately 25% of the global shipboard cable market.

With a vast product range, extensive global production and research facilities, Nexans is continuing to innovate and develop new products and services for shipbuilding: making cables easier to install and more flexible, ensuring that they are operationally and environmentally safe, improving fire performance and survivability, and developing new customer services in design, custom cutting, labeling, pre-assembly, and just-in-time delivery worldwide.

Maritime cables offering quality and performance

- Complete family of shipbuilding and offshore cables from the world's leading cable manufacturer
- Reliable performance in terms of heat, cold, humidity, oil, vibration, salt corrosion, etc.
- Advanced fiber and copper LANs for next generation maritime telecommunications
- LV/MV power cables for all yard and shipboard energy needs
- Reduced weight and volume through advanced material and cable designs
- Global presence and fast delivery wherever you are located in the world

Commercial, offshore and naval compliancy

- International IEC 60092 series
- Japanese JIS specification
- IEEE 1580 Type P for offshore and UL 1309 & 1072
- Norwegian NEK 606 and BS6883
- German VG95218 for submarines
- Mil-Dtl-24643 and Mil-Dtl-24640 for naval vessels
- IEC advanced fire performance
- ABS, BV, CCS, DNV, GL, KR, LR, NK, RINA, RFMR, UL, ETL, VDE, US Coast Guard approved
- ISO 9001 quality standards
- Qualified Products List (QPL)



Global expert in cables and cabling systems

With energy as the basis of its development, Nexans, the worldwide leader in the cable industry, offers an extensive range of cables and cabling systems. The Group is a global player in the infrastructure, industry, building and Local Area Network markets. Nexans addresses a series of market segments: from energy, transport and telecom networks to shipbuilding, oil & gas, nuclear power, automotives, electronics, aeronautics, material handling and automation.

With an industrial presence in more than 30 countries and commercial activities worldwide, Nexans employs 22,000 people and had sales in 2007 of 7.4 billion euros. Nexans is listed on Euronext Paris, compartment A.



**Global cable expertise
for shipboard safety and reliability**

Bringing safety and security onboard...

Shipbuilding is enjoying the biggest boom of its history, with 25% of the world's existing fleet now being replaced. An increase in seaborne trading (raw materials and finished goods), intense oil and gas activity, heightened ecological concerns, and growing tourism have resulted in 500 million DWT total order books in 2008. This is equivalent to four years of average building, and includes bulk carriers, containerships, FPSOs, tankers, LNG/LPG carriers, ROROs, cruise ships and offshore supply and support vessels.

Growth of this magnitude has changed the dynamics for shipyards, prime contractors, designers and suppliers who are striving to increase production capacity and assembly speed, while at the same time assuring the highest levels of quality, onboard safety, security and reliability.

Increasingly, many shipyard actors see themselves as "integrators." Prefabricated modules are now put together in a coordinated series of supply, assembly, and installation activities. Maritime cables are essential elements in this process. Although cables account for only 1-2% of a ship's overall cost, they provide the energy and data to enable onboard operating

efficiency and safety. That is why you, as a shipbuilder, have high expectations of a cable manufacturer in terms of quality and performance, support services, and cost reduction through e-purchasing, progressive procurement and on-time delivery.

What you expect from a cable producer:

- Multi-standard capability to deliver the right, certified cable worldwide
- Reliable cables that optimize operations and passenger safety onboard
- Pre-cut and pre-assembled solutions to facilitate modular construction
- Ability to quickly meet unexpected design changes and modifications
- Optimized solutions that shorten installation time and increase installer efficiency
- Energy and propulsion efficiency through lighter high-performance cables
- Increased data capacity both for ship administration and passenger/crew comfort
- Flexible, strippable, paint-resistant, environmentally-friendly cables



A comprehensive range of maritime cables...

POWER CABLES

Medium-voltage cables

Nexans produces MV energy cables for power backbone and propulsion (1.8/3 kV, 3.6/6 kV, 6/10 kV up to 12/20 kV). Like all Nexans shipboard products, these stranded copper cables are Halogen-Free Fire-Retardant (HFFR). Once the cable route is known at the ship's design stage, Nexans can pre-cut and mark the cable (bulkhead point, beginning and end indicators) for faster, easier installation.

To carry more power in today's highly automated vessels, Nexans has raised the voltage rating of mains cables which allows increased power capacity, but not conductor cross-section. For Meyer shipyards, Nexans has supplied the Aida, Celebrity and Disney cruise ships.

Low-voltage cables

For onboard power distribution throughout the vessel, Nexans manufactures HFFR low-voltage energy cables (0.6/1 kV). These quality copper cables come in a variety of insulations, sheaths and armoring. Also, special flat cables running along corridors make it possible to quickly add lighting and power outlets using Rapid Connection Boxes.

Nexans has provided cabling for a series of mega-yachts being built by HDW in Kiel, including the 140-meter Sigma yacht designed by the avant-guard designer, Philippe Stark.

FLEXISHIP® cables

These special maritime 0.6/1 kV general power and lighting cables incorporate three compact triangular energy conductors. In addition to being halogen-free and low smoke, they can be installed in 30% less pulling time in tight spaces, using lower pulling force. They are also easy to strip and install.

With its small bending radius, Flexiship® has improved flexibility by 30-50%, thus facilitating hull wiring. It has been fully approved by Norske Veritas for ships and offshore, and obtained IEC qualification.

Variable Frequency Drive (VFD) cables

Nexans' VFD cables (Corflex®, MPRXCX® EMC VFD, EXPHOL®) are designed to improve EMC protection and the operating performance of variable frequency drive systems used with a bow and side thrusters, movable pod propulsion systems, winches, lifts and drives on regular ships and FPSOs. Because of the excellent shielding design and grounding, Nexans' VFD cables have proven to be the best overall cables in independent tests of speed drives.

Nexans' Corflex® cables are UL and ABS approved and 600-volt rated. Its continuous, impervious aluminum sheath corrugated for flexibility prevents ingress of moisture, gases and liquids.

Hybrid ship-to-shore cables

An innovative hybrid ship-to-shore cable provides an alternative power supply, data transfer and telecommunications for quayside ships. Medium-voltage power supply, control cores and optical fibers are laid up in one flexible, rugged and easy-to-reel cable which fully protects the fiber elements.

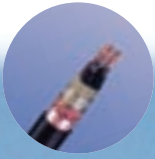
Increasingly used in the world's harbors and mega-ports, this special cable allows ships to cut their power-supply diesels while in port, thus significantly reducing local pollution levels.



Medium-voltage cables



Shipboard LAN cables



Low-voltage cables



FLEXISHIP® cables



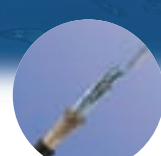
Variable Frequency Drive (VFD) cables



Coaxial cables



Fieldbus cables



Instrumentation, communication and control cables

... for a new generation of ships

DATA CABLES



Hybrid ship-to-shore cables

Shipboard LAN cables

Nexans provides laser-certified multimode optical fiber for vertical onboard backbones, and horizontal copper links to individual crew cabins based on DNV certified LANmark Category 7 Maritime solutions with GG45 Marine connectors, in addition to maritime patch panels, patch guides and patch cords. Immune to shipboard interference, this robust, reliable and safe system can operate up to 10 Gbit/s.

Nexans LAN cables have been installed on a Norwegian research vessel, the G.O. Sars, the James Cook, operated by the UK's National Oceanography Center, and CroisiMer's new cruise ship, the MS Belle de l'Adriatique. The latter ship provides passenger and crew cabins with television, telephone and data on a single compact cable

Coaxial cables

MIL-C-17 Coaxial cables are usually used for onboard high frequency data transmission (communication equipment, radar, and instrumentation) and also carry video signals for surveillance cameras. Flamex RG offers exceptional fire safety in a single cable. A coaxial cable is often combined with various conductors in a compact hybrid cable for piloting and powering CCTV cameras.

To meet stringent insurance specifications, 90 km of Nexans hybrid cables for video surveillance have been installed on cruise ships being installed on cruise ships being built by Aker Yards.

Fieldbus cables

These Halogen-Free Flame and Fire-Retardant cables are dedicated to maritime applications. They have a fixed impedance and transmit an extremely precise digital signal to control all essential shipboard functions, like motors, rudder and hydraulic systems. Can Bus cable comes in a single or double pair; while Profibus cable is a single pair. Both can be supplied with SHF1 or SHF2 jackets, depending on specification.

Adapted from the industrial plant environment, these high-performance cables are fully sea-resistant and can operate safely in temperatures from -20°C to +70°C. Nexans supplied SHF2 sheathed cable for the Umm Shaif FPSO project for Hyundai Heavy Industries (Korea).

Instrumentation, communication and control cables

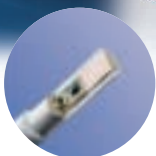
Twisted pairs, with stranded conductors, these Halogen-Free and Fire-Retardant/Resistant (HFFR) cables carry vital technical information for sensors, measurement, control panel, etc. The Nexans range includes all cable types (collective or individual shielding, armored or unarmored).

By reducing the section down to 0.75 mm² the cable is much lighter, making it ideal for high-speed craft and express ferries, where weight is a determining factor.

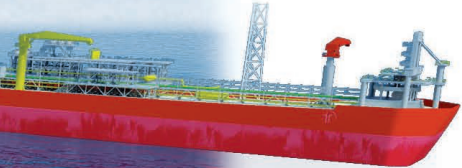
LIST fire-detection cables

To prevent fires onboard, Nexans provides a complete temperature sensor cable system: LIST (Linear Sensing of Temperature). This flat, four-core cable with hybrid circuits contains an ASIC (Application-Specific Integrated Circuit) temperature sensor which can rapidly detect temperature increases which could be the source of fires on vessels so that firefighting equipment can be rapidly activated.

Not only can LIST cables be used in harsh sea conditions, they can be deployed in lengths up to 2,000 meters to monitor heat conditions throughout the vessel.



LIST fire-detection cables





Services on the horizon

Global expertise

We offer a wide family of customized maritime products common to a variety of ships and platforms. Mastering both shipboard energy and data needs, Nexans has found solutions to make modular, integrated ship construction quicker, easier and more efficient.

Local presence

Since shipbuilding is a world industry, we support shipyards everywhere, often by a local manufacturing presence (e.g. Korea, China, Brazil, USA, Europe), direct sales offices, or a comprehensive distributor network. With technology transfers, shared maritime cable research, a global supply chain, and full conformity to international certification, Nexans guarantees product quality worldwide.

Technical leadership

Nexans is dedicated to producing maritime cables of the highest quality, made from the best materials to function maintenance-free for the full life-cycle of a ship. Nexans designs all its maritime cables to operate reliably in the harshest sea-going conditions, while offering unsurpassed security and fire-safety.