

SHIPLINK[®]
CABLE SOLUTIONS AND SERVICES
FOR SAFETY AND EFFICIENCY IN SHIPS





SHIPLINK® TO SUPPORT YOUR PERFORMANCE: CABLE SOLUTIONS AND SERVICES FOR SAFETY AND EFFICIENCY IN SHIPS AND PLATFORMS

Today's shipbuilding environment continues to face a number of challenges in terms of safety, operational efficiency and passenger experience, all of which are dependent on high-performance cable solutions and customized services.

While dealing with cables the first is the necessity to improve the fire safety and the reliability of electrical systems on board in line with regulation evolution. There is also a pressing need to improve operational efficiency, flexibility and lightness for the shipyards. Finally, there is a call for richer, more comfortable and satisfying passenger travel experience for the cruise industry.

Safety

Fire can be devastating on a ship, particularly on a passenger ship, where large numbers of people may need to be evacuated before help arrives. It is also of concern to ships carrying finished consumer products or highly inflammable cargo, posing serious risks to crew members, or ports and harbors.

Given the autonomous floating environment, safety must be self-contained and omnipresent to ensure outstanding survival characteristics which depend on cables. The ship's power comes from half a dozen marine diesel-generating sets, which provide electricity for lights, elevators, electronics, galleys, water treatment, and other vital systems, including survival, evacuation and propulsion. All of these systems require reliable cables.

In addition, ships must also operate safely according to the "flooding threshold," allowing for evacuation, or Safe Return to Port. Following the loss of any one watertight compartment, it must have propulsion, steering, navigation, communications, pumps, and bilge and ballast systems for damage control and basic services.

Flexibility, lightness and operational efficiency

As autonomous floating environments, ships of all kinds have to provide numerous functions that have less to do with other types of transportation, than with stable habitats. This requires hundreds of onboard systems for power, communication and control, which depend on an invisible network of cables hidden within the vessels superstructure.

The design parameters of a ship present a special installation challenge. Ship structures are becoming larger, longer, and wider. Cable installation can be an expensive, labor intensive and injury-prone operation. That is why, since space is scarce and weight is an operational concern, cables need to be as small and light as possible.

Passenger cruise experience

Beyond safety and efficiency concerns, ship industry is now driven by passenger demands for a safer, richer, more satisfying travel experience where comfort and entertainment are prime demands.

Apart from operational infrastructure, these ships boast gadgets to enliven the travel experience: like bionic bartenders, wall-to-wall touch screens, fast Wi-Fi, and "sea view" filmed in real time and projected onto high-definition screens the size of balcony windows.

Growing expectations depend on high-performance cable solutions, components, co-engineering and services as all of these diverse service offerings depend on a complex array of power and data cables, often based on our expertise in transportation and the world of telecommunications.

What you expect from a cable producer:

- Reliable cables that optimize operational and passenger safety onboard.
- Multi-standard capability to deliver the right, certified cable worldwide.
- Lower overall costs for shipboard cables without compromising quality.
- Pre-cut and pre-assembled solutions to facilitate modular construction shortening installation time.
- Energy and propulsion efficiency through lighter, high-performance cables.

Nexans answer

Nexans is a marine cable leader and innovator. Rather than depend on separate suppliers, Nexans draws on its own production facilities in Europe, Asia and America to produce every type of cables used on a modern vessel, from bulk carriers, anchor handling tug supply (AHTS) ships, ocean station vessels (OSVs) and offshore projects, including FPSOs, to cruise liners and oceanic research ships.

A truly global manufacturer and supplier, Nexans provides a wide family of cables for ships and offshore platforms being built around the world. In fact, Nexans currently supply more than 20% of the international shipbuilding cable market. With a vast product range, extensive 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.

To meet new Safe Return to Port regulations, Nexans has developed various solutions designed with nanomaterials. These special cables can withstand mechanical shocks and water jet, and continue to operate during a fire.

SHIPLINK® offers quality and performance

- Complete family of shipbuilding and offshore marine cables from one manufacturer.
- Reliable performance in terms of heat, cold, humidity, oil, vibration, salt corrosion, etc.
- Advanced INFIT® technology for high survivability of fire resistant cables.
- Advanced fiber and copper LANs for next generation maritime telecommunications.
- LV/MV power cables for all shipyard 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 and offshore compliancy

- Advanced halogen-free cables acc. IEC 60092 series for Cruise.
- NEK 606, BS 6883 and IEEE 45/1580 & UL 1309/1072 Type P for tough offshore applications.
- JIS as well as HIS high-quality IEC-based simplified standard for bulk carriers, tankers or container ships.
- Approved by ABS, BV, CCS, DNV.GL, LR, RINA or US Coast Guard.
- ISO 9001 quality standards, and Qualified Products List (QPL).

A COMPREHENSIVE RANGE OF SHIPLINK® CABLES FOR ADVANCED SHIPS

Designed with halogen-free fire retardant materials, SHIPLINK® cables provide optimum safety for people and maximal asset protection against all risks of fire.

Medium voltage cables & accessories



Nexans produces medium voltage cables for power backbone and propulsion from 1.8/3 kV to 12/20kV. MPRXCX® and MEPRXCX® FLEXISHIP® armoured power

cables are used for critical medium voltage systems where enhanced mechanical protection and electrical screening is required. These products are recommended for installations and connections in environments where an optimal bending radius is required.

Nexans also supplies connectivity solutions (lugs, terminations or interfaces) to connect MPRXCX® and MEPRXCX® FLEXISHIP® cables to medium voltage equipment (transformers, switchgear, motors, etc).

At last power cables for Variable Frequency Drives (VFD) were developed to improve EMC protection compared to regular screened types in line with demanding operating performance of systems used for thrusters, propulsion, lifts or drives.

Power & control cables



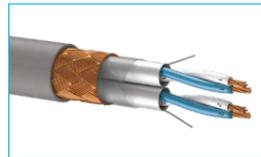
Unarmoured MPRX® 0.6/1kV power and control cables are used for wiring fixed installations not subject to mechanical risk while MPRXCX® armoured cables

are recommended for areas where enhanced mechanical protection and electrical screening (Electro-Magnetic Compatibility) is required.

The highly flexible MPRX® and MPRXC® FLEXISHIP® range is recommended for installations and connections in narrow spaces where an optimal bending radius is required. The sectoral conductors of multicore cables provide further space and weight savings on the cable trays.

Additionally Nexans supplies MX 0.6/1kV power wires used for wiring switchboards, cabinets, control panels and various electrical enclosures. These highly flexible wires are designed with finely stranded conductors for easy connection.

Instrumentation & control cables



Telecommunication and instrumentation cables manufactured by Nexans are designed for fixed applications for circuits rated at 150/250 V and

are complying with IEC 60092-376 standard. Multi-core cables are mainly dedicated for control, whereas multi pairs, triples or quads are for instrumentation devices. These cables are proposed in armoured and unarmoured versions:

TCX® (C) and TCX® (I) 150/250V armoured twisted pair cables are selected where enhanced mechanical protection and an effective screening is required over a wide range of frequencies. These products are very suitable for polluted electromagnetic surroundings.

TX® (C) 150/250V overall screened twisted pair cables provide a medium protection against external electromagnetic disturbances whereas TX® (I) 150/250V with individually screened twisted pair cables show stronger protection against cross-talk and result into a good compromise between TX® (C) and TCX® (C) cables against external electromagnetic disturbances.

Fire resistant cables



In case of fire, equipment on board should remain functional to help in the evacuation process. Nexans has been at the forefront of technological progress in fire resistant cables

designing control and power cables to be used in safety systems (emergency lighting, fire detection, warning systems, door opening, etc.). These cables ensure the integrity of electrical circuits for a certain time after the fire started. MPRXCX® or MPRXCX® 331 power, control or TCX® (C) instrumentation cables improve safety in ships by protecting people's lives and vessels from fires.



LAN cables



LAN cables irrigate the vessel to deliver, via RJ45 connectivity, a secure and high-speed data transmission. According to the level of performance

required, LAN cables exist in several categories, Cat 6, Cat 6A and even Cat 7 for demanding communication systems. As mechanical and EMC (Electro-Magnetic Compatibility) requirements are challenging, LAN cables are designed with a tinned copper braid, SF/UTP or S/FTP and the newly developed SxTP designs for demanding marine environment. Cables are available in 4 pairs or 2x4pairs to further reduce installation costs.

Fieldbus, coaxial or optical fiber cables



Can Bus or Profibus cables have fixed impedance and transmit an extremely precise digital signal to control all essential shipboard functions, like motors, rudder and

hydraulic systems.

Coaxial cables are usually used for onboard high frequency data transmission (communication equipment,

radar, and instrumentation) and also carry video signals for surveillance cameras.

Optical fibers are mainly used to transmit information over long distances and with high bit rates. Among other key features the signal transmitted on the fiber is not disturbed by any electromagnetic wave created by power cables or electric machines.

ICEFLEX® ultracold cables



First marine energy cable on the market qualified for extremely low temperatures. Normally, cables become stiff and brittle in intense cold. This rubber based cable remains highly flexible

and resistant, while ensuring advanced fire performance.



SERVICES

A CUSTOMIZED PROGRAM OF SERVICES

TO SUPPORT YOUR PERFORMANCE

Supply chain

Inventory management

- Our experts use high-performance analysis tools to carry out diagnostics and propose personalized solutions to speed up the flow and fluidity of your supply chain.
- Reduces costs, frees up warehouse space and simplifies project management.

Custom-tailored packaging

- We deliver on special reels and use customized packaging with special protection (protective film wrap, lagging, hooping) and cross-docking to consolidate deliveries.
- Adapts to your operational constraints, facilitates rollout of new projects, and reduces waste.

Engineering

Technological consulting

- We optimize electrical, thermal and mechanical designs for shipboard and conduct life cycle analysis to assess environmental impact.
- For major projects, a resident engineer oversees the project and provides maximum onsite support.

Re-design to cost

- On-site experts identify solutions and technical alternatives, allowing you to make your cable purchase portfolio leaner and reduce total cost-of-ownership.
- Makes you more competitive by optimizing bills of materials, both in terms of process and performance.

Innovation

- For OEMs, Nexans makes available R&D tools like numerical modeling, electron microscopy, laboratory testing and engineering expertise.
- Innovation accelerates time-to-market, optimizes performance, and lowers development costs.

Cable systems

- Ready to use Harnesses
- Shipboard harnesses integrate cables, connections and boxes ready for fast installations on board your vessels.

E-Business

"My Nexans" dedicated space

- Through personalized access, you can track orders/deliveries, create pre-selected catalogues, consult inventory and product availability, etc.
- Provides a secure electronic library of all technical, administrative and commercial documentation over a project's lifetime.

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

We support shipyards everywhere, often by local manufacturing presence (e.g. Korea, China, Brazil, USA, Europe), direct sales

offices, or a comprehensive distributor network. A global supply chain and full conformity to international certification guarantee 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 operate reliably in the harshest sea-going conditions, while offering unsurpassed security and fire-safety.

Nexans brings energy to life through an extensive range of cables and cabling solutions that deliver increased performance for our customers worldwide. Nexans' teams are committed to a partnership approach that supports customers in four main business areas: Power transmission and distribution (submarine and land), Energy resources (Oil & Gas, Mining and Renewables), Transportation (Road, Rail, Air, Sea) and Building (Commercial, Residential and Data Centers). Nexans' strategy is founded on continuous innovation in products, solutions and services, employee development, customer training and the introduction of safe, low-environmental-impact industrial processes. In 2013, Nexans became the first cable player to create a Foundation to introduce sustained initiatives for access to energy for disadvantaged communities worldwide. Nexans is an active member of Europacable, the European Association of Wire & Cable Manufacturers, and a signatory of the Europacable Industry Charter. The Charter expresses its members' commitment to the principles and objectives of developing ethical, sustainable and high-quality cables. We have an industrial presence in 40 countries and commercial activities worldwide, employing close to 26,000 people and generating sales in 2015 of 6.2 billion euros. Nexans is listed on NYSE Euronext Paris, compartement A.

Nexans

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