



**Global cable expertise
for Shipbuilding**

Challenges to world shipbuilding

After a steady upward trend in new ship construction through the 90s and strong sales at the turn of the millennium, shipbuilding is continuing to meet the challenges of a global economy. At present, South Korea, Japan and China hold nearly two-thirds of market share (in terms of gross tonnage), with Europe accounting for some 20%. Apart from military vessels — which are often nationally-built — tankers, bulk carriers and containerships have shown solid growth. However, there has been a fall in freight rates, and even though many new ships have been built, current prices per vessel are relatively low. Specialized vessels, like chemical carriers, liquid natural gas carriers (LNGs), ferries, ro-ros and cruise ships have also seen healthy growth.

Also, the stimulus from offshore oil and gas, new environmental laws for double-hull tankers, a demand for high-performance handysize ships (20,000 to 50,000 dwt), and cruise tourism are creating new opportunities. Increased international trade and intensified oil production have especially contributed to the building of new container ships and advanced LNGs.

- **Sizeable demand for commercial ships is likely in the next decade since the world fleet is aging. Even by the mid-nineties, the average ocean-going vessel was 25-years-old!**
- **To remain profitable, shipbuilders have to create new customer services, transform manufacturing processes, and integrate advanced technologies onboard, especially in terms of cabling.**
- **Managing the whole supplier/subcontractor chain is critical to maintaining a competitive edge.**



N enhances performance in shipyards and on the high seas

To cut costs and improve efficiency, shipbuilders are modularizing processes and redesigning shipyard infrastructures.

State-of-the-art computer-assisted design (CAD) is now being integrated with Web-centric information management and sharing, especially for analyzing total life-cycle costs of equipment. Since electrical power and Information Technology are vital to sophisticated vessels, electrical and telecommunications cables must be reliable, efficient, and easy-to-install. With onboard systems becoming increasingly integrated, shipbuilders look for multi-system packages from a single source. They expect quality and conformity to the highest standards (which means rigorous maritime testing). They demand constant innovation and customized solutions. This means working with consultants and suppliers in developing specs, seeing that they are delivered on time, and making sure that they can evolve to ensure a vessel's longevity.

Because ships are often floating "mini-cities" which must be capable of satisfying every human need, from heat, lighting and comfort to communications, Internet access, and CATV, nearly every type of wire and cable present on land can be found somewhere onboard. A paramount concern in this autonomous, floating environment is safety for the ship, crew and passengers.

The variety of shipyard and onboard cables requires a cable manufacturer with broad experience. As a global supplier to the world shipbuilding industry, Nexans provides:

- a wide family of shipyard and onboard marine cables provided by one manufacturer
- high performance in terms of heat, cold, humidity, oil, vibration, salt corrosion, etc.
- advanced fiber and copper LANs for next generation maritime telecommunications and CATV/Internet.
- a complete range of LV/HV power cables for all yard and shipboard energy needs
- reduced weight and volume through advanced XLPE cable designs
- custom-designed cables with value-added and efficient modular installation

- expertise in connectivity at all levels, and provider of fully-integrated systems
- standard and interconnective solutions to guarantee availability worldwide
- market-driven innovation in partnership with shipbuilders and installers



- manufacturing flexibility to accommodate design and production changes
- global presence and fast delivery wherever you are located in the world
- conformity to the highest IEC standards, and approval by leading certification bodies: ABS, BV, CCS, DNV, GL, LRS, RINA
- ISO 9001 quality standards
- advanced fire-performance (IEC 60332-3 and/or IEC 60331), low-smoke (IEC 61034), halogen-free (60754-1/60754-2) products for safety
- life-cycle product guarantees to meet new tough Maritime Equipment Directives



provides a comprehensive range of shipboard cables...

Energy

High and low-voltage energy cables

HV (1.8/3 kV up to 8.7/15 kV) and LV (0,6/1 kV) cables for propulsion and power distribution. In cooperation with shipyards, Nexans has raised the voltage rate, which increases power capacity, but not conductor cross-section.

For the Queen Mary 2, Nexans is providing 1.8/3 kV flexible cables for feeding the power systems for propulsion.

Low-voltage energy cables

Halogen-Free Fire-Retardant (HFFR) LV (0.6/1 kV) cables for onboard power distribution. To save installation time, Nexans has developed a Rapid Connection Box and flat cable for lighting in corridors.

By eliminating the need for stripping, this cable can be installed quickly and easily for all public area lighting.

Winding wires

Winding wires appear in various motors, transformers, generators, compressors, pumps, relays, etc. Self-bonding wires speed-up motor manufacturing time; continuous transposed cable is used for medium and high-voltage transformers.

Since Nexans controls the entire manufacturing process, its winding wires have advanced electrical characteristics, chemical resistance and mechanical features.

Instrumentation and Control

Instrumentation and Control cables

Standard and thin-walled Halogen-Free Fire-Retardant (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 to 0,75 mm² the cable is much lighter, making it ideal for express ferries, where weight is a determining factor.

Sensor measurement and fieldbus cables

These Fire Retardant cables control all essential industrial functions, like motors, rudder, and hydraulic systems. They have a controlled impedance, and transmit an extremely precise digital signal.

Foam-skin insulation allows air or gas to be injected, optimizing the size of the cable for important weight and volume gains, while maintaining optimum characteristics.

Multimode Optical Fiber Cables
to connect antennas to shipboard signal distribution networks



High and low-voltage energy cables
for propulsion and power distribution



Thin-wall LV cables
to provide energy for equipment, conveniences, cabins...

Hybrid energy and data cables
for surveillance cameras
and information transmission



Telephone cables (TCX TEL)
for complete telephone
network on cruise ships



Low-voltage energy cables
for lighting



Maritime LAN cables
for telecommunications
and passenger video service
and entertainment



**Sensor measurement
and fieldbus cables**
for hydraulic systems,
motors and rudder control



**Coaxial cables and
Cat. 7 solutions**
for onboard entertainment
and Internet services



**Instrumentation
and control cables**
to carry technical
information



Winding wires
for motors,
generators,
compressors...



...to keep ships sailing right on course

Communication, Navigation, and Safety

Maritime Local Area Networks

Copper and/or fiber LANs (supporting 10 Gigabit and beyond) provide capacity to handle the operational, navigation and telecommunications information needed to run a large vessel efficiently, while giving crew and passengers advanced video services.

In addition to fiber, Nexans advocates Lloyds-approved Category 7 cable for future-proofing LANs, and thus eliminating the need for expensive retrofitting.

Hybrid energy and data cables

These Halogen-Free Fire-Retardant (HFFR) cables provide power to surveillance cameras and transmit vital information for security, emergencies and fire-monitoring. They allow a command function to control camera movement, and guarantee non-stop surveillance.

For telesurveillance, Nexans developed hybrid cables and special connections to simplify and ensure nonstop operability of all camera functions.

Comfort & Entertainment

Thin-wall LV cables

Low-voltage cables (Flamex HFFR) provide efficient energy for equipment, conveniences, cabin wall outlets, public address systems, automatic doors, lighting, etc.

Used largely for passenger ships, this time-saving, modular and pre-fitted cable is extremely easy to install.

Telephone cables

A new generation of telephone cable provides a complete telephone network on cruise ships.

TCX-TEL cable diameters have been reduced to achieve important space savings.

Optical fiber cables

Multimode OF cables provide a downlink from the satellite dish to equipment for television transmissions. A special shielding guarantees high mechanical strength and resistance to vibration, stress, sea salt, chemicals, etc.

For entertainment and communications, Nexans supplies optical fiber to connect antennas to shipboard signal distribution networks.

Coaxial cable and Category 7 copper solutions

Deliver television and data services to every cabin providing crew and passengers with quality onboard entertainment and Internet services. Lloyds approved Cat 7 avoids the need for expensive active equipment.

For "The World" a luxury liner in which residents buy their cabins, Nexans installed a shipboard broadband network, which delivers everything from TV to videoconferencing. Nexans GG45 connector allows 3 applications to be "shared" on one Cat 7 cable, thus reducing weight and the daily cost of running the ship.

Components & Accessories

A wide range of cable accessories cover all energy and telecom needs: joints and terminations, branching units, amplifiers, etc. All items are custom-fitted and pre-processed to facilitate installation, maintenance and future upgrades.



Beyond cable, a horizon of services

To help shipbuilding move into a new era of modular, integrated construction, Nexans offers services that only a worldclass cable manufacturer can provide:

Expertise

The fact that cables are our core business means that we have the expertise and family of products especially designed for shipyards and ships. As integrators and installers, we work closely with constructors to cut costs and increase efficiency, assuring that all cables are future-safe. To meet the demands of a safety-conscious industry, we conform to and help set international quality standards, and are approved by numerous world certification bodies.

Global presence

Since shipbuilding and shipping are global, they require a company with global resources. Nexans has the broadest geographical presence in the cable industry, with plants on 5 continents, and representatives in over 65 countries. We have logistics centers in Europe (France and Germany), China and Korea to allow us to keep close to key players. Shipbuilders and repairers are thus assured of getting everything they need from one vendor wherever they are.

Performance

Nexans heavily reinvests in R&D to invent new products and processes, and develop customized solutions with and for customers. In an industry where delay or system failure mean costly downtime or worse, we are dedicated to producing cables and accessories of the highest quality, made from the best materials, which can function for years virtually maintenance-free in harsh marine conditions, and offering unsurpassed fire-safety.

Partnership

Through long-term co-operation with shipyards, engineers, outfitters and repair personnel, Nexans understands the entire "supply chain," and customizes products to the specific needs of each customer. By sharing intelligence, we widen opportunities for major contracts. As a privileged partner, we offer counseling in terms of design, installation and maintenance, and assume total responsibility for completely integrated shipboard systems. Nexans has developed an industrial software and logistics system to deliver cables just-in-time to shipyards, thus reducing and eliminating inventory for important cost savings.





Global expert in cables and cabling systems

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