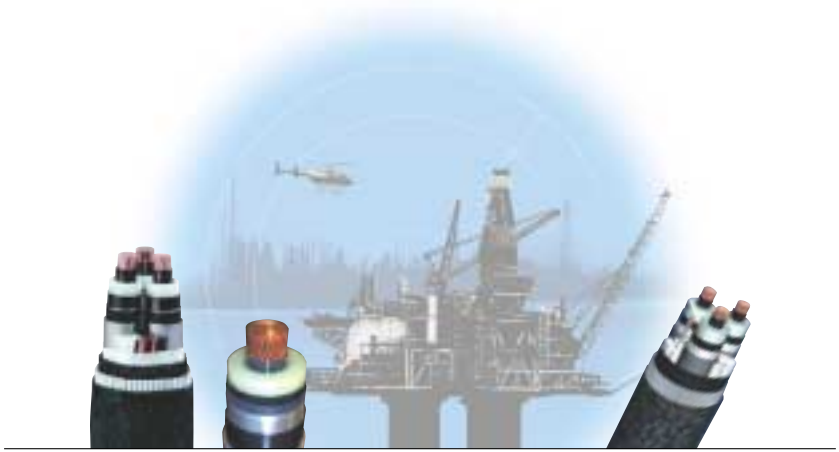


 Nexans



**High voltage energy cables  
for reliable power in dynamic sea conditions**

# Nexans, worldwide leader in cables and cabling systems

As a global expert in cables and cabling systems, Nexans brings an extensive range of advanced copper and optical fiber solutions to three key sectors of the economy: **infrastructure, industry and buildings.**

Its cables and systems can be found in every area of people's lives, from rolling stock and railway infrastructure to telecommunications and energy networks, aeronautics, aerospace, automobiles,

petrochemicals, windmills, medical applications, etc.

The presence of Nexans in over 65 countries gives it a full mastery of both national and international standards. Its 10 Competence Centers and International Research Center work closely with customers to constantly improve its standard range of products and technologies and to develop customized, country and industry-specific solutions.



# High voltage energy cables from Nexans to assure your operational efficiency

Faced with rising demand, and green concerns, the oil & gas industry is seeking to explore new reserves, reduce costs, and improve operational efficiency. Remotely-managed “smart wells”, both land-based and offshore, are a definite trend, as well as longer and deeper umbilicals. Meanwhile, the industry is forever looking for safer, more reliable and environmentally-friendly methods in extraction and processing.

Nexans provides a wide range of energy and telecom cables for prospecting, production and distribution, as well as for refineries, storage depots and petrochemical complexes, including safer lead-free energy cables. Aside from mastering installation techniques both onshore and offshore, Nexans has developed deepwater umbilicals, new protective sheathings, high-speed optical fiber solutions, and fire-performance

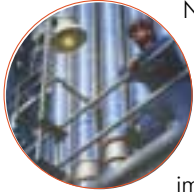
products, all of which are recyclable.

You want to exploit new and marginal oil & gas fields at greater depths, and deliver power to the subsea templates and satellites, sometimes with hydraulic cables to control valves for redundancy. Rather than generate electricity offshore, you would like to bring electricity from distant generators on land, combined with other cables for shore-based remote control, thus reducing manpower costs. With free-hanging power cables subject to currents and tides, you need dynamic cable solutions which have the tensile strength and fatigue resistance to last the lifetime of your field (over 30 years).

To help you improve efficiency, Nexans offers dynamic and reliable **high voltage energy cables**.



# High voltage energy cables: powering deep-sea templates from onshore



Nexans masters both high voltage DC and AC transmission from land to offshore, the former through fluid-filled, mass-impregnated cables, and the latter through typically three-core XLPE cables, often containing fiber optics and hydraulic tubes in the interstices. Nexans has recently pioneered a unique HVDC submarine cable with an Integrated Return Conductor (IRC) which eliminates the magnetic field. Meanwhile, proven XLPE designs, originally created for underground HV transmission, are now being used increasingly undersea as well, with shielding and armoring that can support great depths. Because of the need to be free-hanging in an ocean environment, Nexans uses a special design tool, UFLEX, which assesses “stress and strain” so that the cable can be optimized for dynamic sea conditions.

## This Nexans solution gives you:

- **A secure and dependable power supply** for the lifetime of your fields (design life 40 years proven by 1.7 million cycles of bending and full scale fatigue tests)
- **Remote operational capability** since the platform can be reduced or eliminated, with all extraction done directly on the seabed.
- **Enhanced safety** using dry-type (XLPE) cables which are water-resistant, armored and designed for tough ocean conditions
- **No maintenance** XLPE cable insulation including dry-type maintenance free terminations
- **Guaranteed transmission capacity** over long distances (125 km for 145 kV)
- **Outstanding thermal strength** at high voltages
- **Cost-efficiency** through proven reliability, and durability
- **Customization** due to early engineering to meet special customer needs
- **Full installation** using special cable laying vessels and Nexans maritime expertise
- **Dynamic cable designs** through advanced software for free-hanging cables



## Nexans HV cables moves dynamically into new eastern markets

For China’s national oil company (CNOOC), Nexans provided a 15 km long standard 36 kV cable with lead-sheathing destined for the Lu Da offshore field in the China Sea. In the Indonesian market, Nexans supplied

Haliburton with a dynamic 15 kV cable able to meet the monsoon conditions of Southeast Asia, a technological first in the region. In Azerbaijan, for the Azeri project on the Caspian Sea, Nexans provided a 16.5 km cable with a 36 kV dynamic section capable of handling harsh environments.

# High voltage energy cables



Product families	Product family names	Standards / Specs
Submarine AC power cables	<ul style="list-style-type: none"> <li>• AC 3-core XLPE <math>\leq</math> 45kV including Fibre Optic and control cores (Composite cables)</li> <li>• AC 3-core XLPE <math>&gt;</math> 45kV including Fibre Optic</li> <li>• Dynamic cable analysis</li> </ul>	<ul style="list-style-type: none"> <li>• IEC</li> <li>• Customized</li> </ul>
Submarine DC power cables	<ul style="list-style-type: none"> <li>• DC Mass Impregnated <math>&gt;</math> 150kV</li> </ul>	<ul style="list-style-type: none"> <li>• IEC</li> <li>• Customized</li> </ul>
Accessories	<ul style="list-style-type: none"> <li>• Bullnose with armour block for Pull-in</li> <li>• Cable Termination</li> <li>• Cable Joints topside and subsea</li> <li>• Cable Junction box</li> <li>• Temporary clamp used during Hang-off</li> <li>• Cable Hang-off armour block with split flange and Bellhouse</li> <li>• Cable bend stiffener</li> <li>• Cable bending strain reliever</li> <li>• Cable buoyancy for dynamic applications</li> <li>• Cable J-tube seal</li> <li>• Cable stopper/cable pulling device</li> <li>• FO cable pig tail and splitter box</li> </ul>	
Submarine cable installation	<ul style="list-style-type: none"> <li>• Hook-up and testing services on offshore platforms</li> <li>• Submarine cable laying services</li> <li>• Submarine cable trenching services</li> </ul>	



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