



**High-voltage cables
for reliable energy backbones**

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.



HV cables from nexans, to deliver wind energy to power grids

Wind power is the world's fastest growing energy source. By 2020, 12% of the world's demand of electricity will be produced by wind. Recent trends are a move from onshore to offshore, the upscaling of wind turbine size (to 3-5 MW), and the integration of land and marine-based networks. A major challenge is connecting a variable energy source to a distant grid demanding power stability.

Nexans is expert at interlinking offshore and onshore wind turbines, and then connecting them to transformers, substations and local and distant grids. For medium and high-voltage cables, we are one of the few companies who can oversee complete installation, from initial pre-qualification and design to custom production, logistics, installation, testing and commissioning.

Your windfarm requires a reliable backbone to carry energy from an onshore/offshore substation to a transformer station or grid. For controlling and monitoring wind turbines you also would like to have integrated optical fiber. You need a cable manufacturer, with proven delivery capability and a mastery of all technical issues, like corrosion, impedance, thermal constraints, the handling of large drums, and onsite installation often in remote mountainous areas and offshore.

To help you achieve this, Nexans offers a **wide choice of high-voltage cables.**



High-voltage cables for transmission offshore

High-voltage cables for transmission onshore

XLPE and mass-impregnated HV cables: a full range of transmission solutions for windfarms



Nexans produces HV (60-500 kV) cables for both land and submarine applications. Apart from widely-used lapped aluminum

or lead sheath XLPE cables, we recently developed a smaller and lighter single-core AC cable for onshore which offers extremely high conductivity (ampacity) through enameled wires contained in a smooth and water-sealed aluminum sheath.

For offshore, our 3-core XLPE can carry up to 224 kV, and our single-core XLPE up to 400 kV. Various types of armoring can match the terrain: rocky seabeds, heavy traffic, depth, etc. Meanwhile, our mass-impregnated HVDC cable provides long-distance submarine capability. Its three-in-one design incorporates a power cable, a DC return cable (to eliminate magnetic fields) and optical fiber.

Nexans is one of the few suppliers to own a cable laying ship, the “Skagerrak” and has developed its own Remotely Operated Vehicles for trenching and burying: “Capjet” and “Spider.”

This Nexans solution gives you:

- **Wide range** of cable diameters to fit any high-voltage system
- **Complete accessories**, including sealing ends/terminations and joints
- **Minimal maintenance** with only visual inspection and cleaning required
- **Long life** (typically 25, but up to 40 years); extremely low failure rate
- **Installation expertise** for both onshore and submarine environments, including ship laying, dynamic positioning software, and specialized ROVs
- **Turnkey capability** from initial design to final submarine installation
- **Evolving products** to meet changing market needs and new technical developments
- **Compactness** for longer distances, fewer joints, and shorter installation time
- **High performance** in terms of radial and longitudinal water-resistance, corrosion, impedance, thermal constraints, etc.
- **Logistics** for onshore and offshore delivery



Nexans distance and performance achievements

Nexans was the first cable manufacturer to deliver a single-piece 170 kV 3-core XLPE submarine cable (21 km) to the Horns Rev windpark in Denmark. This was a world record

in terms of high voltage. On the island of Smøla in Norway, Nexans provided a 132 kV 3-core cable that was adapted to both land and the submarine environments.

For the Barrow Offshore windfarm in the UK, we manufactured the world's longest (27.5 km) 132 kV 3-core submarine cable to serve 30 turbines located off Barrow-in-Furness in north Liverpool Bay.

High-voltage onshore cables



Product families	Products	Standards / Specs
XLPE	60 to 500 kV <i>Various types available to meet customer demands; Enamelled Milliken conductor, Seamless Aluminium Sheath, Lead Sheath etc.</i>	<ul style="list-style-type: none"> • IEC and according to customer requirements
Mass impregnated (MI)	HVDC MI (Mass Impregnated) 150 to 500 kV HVDC MI IRC (3 in one cable: Power, Integrated Return and Fibre) 150 to 500 kV	<ul style="list-style-type: none"> • Cigre • Cigre
Fluid filled	SCFF (Self Contained Fluid Filled) up to 525 kV LPFF (Low Pressure Fluid Filled) up to 525 kV	<ul style="list-style-type: none"> • Cigre / IEC • Cigre / IEC

High-voltage offshore cables



Product families	Products	Standards / Specs
XLPE	3 core 60-225 kV Singlecore up to 400 kV	<ul style="list-style-type: none"> • Cigre / IEC • Cigre / IEC
Mass impregnated (MI)	HVDC MI (Mass Impregnated) 150 to 500 kV HVDC MI IRC (3 in one cable: Power, Integrated Return and Fibre) 150 to 500 kV	<ul style="list-style-type: none"> • Cigre • Cigre
Fluid filled	SCFF (Self Contained Fluid Filled) up to 525 kV LPFF (Low Pressure Fluid Filled) up to 525 kV	<ul style="list-style-type: none"> • Cigre / IEC • Cigre / IEC



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