



**Medium-voltage cables
for reliable windpark infrastructure**

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.



Medium-voltage cables from , to keep your windpark delivering variable energy

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-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.

As a power utility, windfarm developer or installer you want a cost-effective solution for interconnecting wind turbines, or linking up with the local grid. Having the right conductor size for your application is important to reduce costly electrical losses. You also need customized sheathings and special armoring in shipping zones to protect against maritime threats and reduce magnetic fields. For offshore data needs, you want integrated fiber. You expect on-time delivery, long-life and high reliability.

To help you achieve this, Nexans offers **durable MV cables with proven performance.**



Medium-voltage XLPE rubber cables: durable, efficient, and adapted to the environment



Nexans offers a range up to 60 kV of MV cables for both land-based and offshore windparks. Submarine power cables are XLPE-insulated 3-core copper models designed for environmental requirements (depth, soils, sea currents). They usually include integrated optical fiber or copper conductors for data communications. Different designs are available from “wet designs” to 100% water tight lead sheathed solutions. For onshore installations, we supply a wide choice of XLPE/EPR single-core cables up to 60 kV, according to grid needs. Not only does Nexans provide input as to the right cable size to reduce electrical losses, we are expert in installation and protection of short and long-distance cables in tough maritime conditions.

This Nexans solution gives you:

- **Longevity** of your infrastructure, even to a second generation of turbines
- **Consistent performance** with no increase of power losses over time
- **Wide range of cable sizes** assuring that you get the right cable for your windfarm
- **Complete accessories**, including sealing ends/terminations and joints
- **No maintenance** and thus no extra life-cycle costs
- **Cable design expertise** for both land and submarine cables
- **Turnkey capability** from initial design to submarine installation
- **Expertise** with entire networks, including both wind turbines and grid facilities
- **Logistics** for onshore and offshore delivery



Nexans pioneers submarine links worldwide

To link 80 wind turbines of the world's largest offshore windpark, Horns Rev (Denmark), Nexans provided 63 km of 30 kV, 3-core XLPE submarine cable with integrated optical fiber

for measurement and control. Due to varying transmission capacities, three different conductor sizes were used to achieve maximum efficiency. For the Arklow project off Ireland, we delivered 22 km of 35 kV, 3-core cable to connect seven wind turbines and to carry energy onshore. Decades of experience in this type of cable was acquired by supplying utilities and oil & gas installations all over the world.

Medium-voltage onshore cables



Product families	Products	Standards / Specs
XLPE insulation PE sheathing 3 core and single core	TXSP and TXSE 12-24-36 kV TSLE 12-24-36 kV <i>Metal screened cable with laminated aluminium and polyethylene sheath</i>	<ul style="list-style-type: none"> • IEC • HD 620.5 K IEC 60840
XLPE insulation PE sheathing Single core	TSXE 36 kV <i>Stranded aluminium or copper conductors, copper wire screens, longitudinally watertight</i>	<ul style="list-style-type: none"> • BS 7870-4.10 HD 620-50
XLPE insulation PE sheathing	NA2XS(F)2Y 6/10 kV 12/20 kV 18/30 kV NA2XS2Y 6/10 kV 12/20 kV 18/30 kV	<ul style="list-style-type: none"> • VDE 0276 • VDE 0276
XLPE insulation PVC sheathing 3-cores	RE4H1RX / ARE4H1RX 12/20 kV RE4H1RX / ARE4H1RX 18/30 kV	<ul style="list-style-type: none"> • IEC 60502-2 • IEC 60502-2
EPR insulation PVC sheathing 3-cores	RG7H1RX / ARG7H1RX 12/20 kV RG7H1RX / ARG7H1RX 18/30 kV	<ul style="list-style-type: none"> • CEI 20-13 (equivalent to IEC 60502-2) • CEI 20-13 (equivalent to IEC 60502-2)
Aluminum conductor XLPE insulation PE sheathing	Axclight O LT 12/24 kV, 3x25-240 Axclight O TT 12/24 kV, 3x25-240	<ul style="list-style-type: none"> • International HD 620 S1/6M prA2:2002 National SS 424 14 16 normförslag utg.8 • International HD 620 S1/6M prA2:2002 National SS 424 14 16 normförslag utg.8

Product families	Products	Standards / Specs
XLPE insulation PE sheathing	HTA 3 X 240 Copper or Aluminum 12/20 kV	<ul style="list-style-type: none"> NFC 33-226
XLPE insulation PE or PVC sheathing	Copper or Aluminum 8.7/15 kV Copper or Aluminum 20.8/36 kV	<ul style="list-style-type: none"> NBN C33-323 NBN C33-323
TR*-XLPE insulation <small>*TREE-RETARDANT</small>	MV cable - Strandblock conductor 5 kV to 46 kV 25 kV to 46 kV	<ul style="list-style-type: none"> AEIC CS8, ICEA S-94-649 CSA C 68.3, AEIC CS8-00
ACSR	MV cable - Aluminum conductor, steel reinforced 25 kV to 46 kV	<ul style="list-style-type: none"> CSA C 49.1, ASTM B 232

Medium-voltage offshore cables

Product families	Products	Standards / Specs
XLPE insulation 3 core and single core	3 core and single core 12 kV - 42,5 kV <ul style="list-style-type: none"> Fibre Optic element integrated in 3-core cable Excluded and included lead sheath on each phase Single - and double armour types available 	<ul style="list-style-type: none"> Cigre / IEC
Laminated core-sheath	2XS(FL)RAA 10 to 36 kV	<ul style="list-style-type: none"> VDE, IEC



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