



**Medium and high-voltage accessories
for safeguarding your 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.



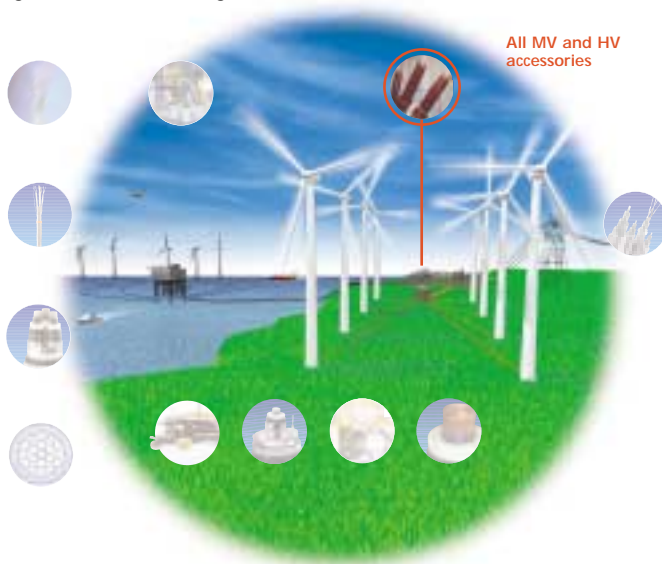
Medium and high-voltage accessories from Nexans, to keep your transformers and switchgears operating for years to come

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.

For your wind turbine infrastructure, you are looking for a cable supplier that can deliver MV and HV accessories with proven reliability. You want easy, error-free installation, with a minimum number of operations in the field. The degradation of joints from natural aging and water ingress is a real concern because you would like your network to last for 30 years and more. You need experts who can advise you on difficult land and aerial installations, and provide safe and secure maritime links for offshore windfarms.

To help you achieve this, Nexans offers a whole range of reliable and easy-to-install **MV and HV accessories.**



Medium and high-voltage accessories: easy-to-install, reliable and adapted to windparks and grids



Nexans produces a complete range of MV and HV joints and terminations for windpark

infrastructures, including transformer-to-substation links, and then beyond to the main transmission and distribution network via overhead and underground lines. Joints exist in many versions, including traditional slip-on and hot-shrinks to easy-to-install cold shrinks.

Nexans supplies purpose-designed joints and terminations for XLPE insulated cables from 12 kV to 500 kV, as well as transition joints between various cable types.

We have also developed connectivity for High-Voltage Direct Current (HVDC) cables that can carry electricity over extremely long distances. Nexans has a wide experience in aerial, land and submarine installations.

This Nexans solution gives you:

- **Proven reliability** of MV and HV accessories for fluid-filled and XLPE insulated cables, both AC and long-distance DC (beyond 1,000 km)
- **Combined expertise** in both energy network and wind turbine technologies
- **Durability** with no maintenance during the lifetime of your infrastructure (typically 30 years)
- **Easy installation**, especially for cold shrink joints (12 kV to 24 kV)
- **Safety** for installers and maintenance personnel
- **Water-resistance** in humid soils and undersea due to special moisture barriers
- **Surge protection** in the event of lightning, short circuits and sudden power spikes
- **Advanced testing facilities** to validate your network architecture, cables and components
- **Training and certification** for specialized windpark installers
- **Technological continuity** through wind-power related research and development



Nexans accessories making connections across Europe

Nexans has provided connectivity for windparks throughout Europe. In addition to largely equipping Horns Rev in Denmark, we furnished

accessories for the Smøla windpark in Norway, and for the 23-km long 35 kV cable connecting the Arklow windfarm in Ireland to its onshore substation. In Spain, Nexans accessories were used on the 180 km-long land cable bringing energy from the La Cañiza windpark (Galicia) to the local grid, and on the Serra de Outes project serving the city of Santiago de Compostella.

Accessories for windfarm infrastructure



Product families	Products	Standards / Specs
Dry type cable sealing end	Type DTF for GIS up to Um = 170 kV, BIL = 750 kV	<ul style="list-style-type: none"> • IEC 60840 • IEC 60859 part 2
Cold-shrinkable terminations	Type ITK & OTK for MV cables up to 24 kV	<ul style="list-style-type: none"> • CENELEC 629.1 S1
Premoulded terminations	Type AIN & AFN for MV cables up to 36 kV	<ul style="list-style-type: none"> • CENELEC 629.1 S1
Premoulded cold-shrinkable joint	<p>Type CMP for HV cables with synthetic insulation up to 72.5 kV</p> <p>Type 24CSJ for cables up to 24 kV</p> <p>Type 36 CSSM for cables up to 36 kV</p>	<ul style="list-style-type: none"> • IEC 60840 • CENELEC 629.1 S1 • CENELEC 629.1 S1





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