



**Protect the value of your HV fluid-filled cable network
through full life-cycle maintenance**

... a complete network service package

Since the 1930s, Nexans and its parent companies have pioneered fluid-filled high-voltage cables and accessories which have been constantly improved to deliver power in many environments, including underground, tunnels, shafts and at deep ocean depths. This long-stabilized technology provides excellent operational data, allowing you to monitor, foresee, and quickly resolve transmission problems. In fact, for long-distance, high-voltage submarine DC transmission, the capacity of fluid-filled cables is still unsurpassed. Later, Nexans developed an entire range of next-generation XLPE (cross-linked polyethylene) insulated cables, commercializing them in the nineties. Today, they are steadily replacing fluid-filled cables both underground and undersea. However, precious knowledge and skills about fluid-filled cable maintenance has been carefully kept alive to assure you of operational continuity and a smooth transition to the power transmission systems of the future.

Fluid-filled cables

Nexans has nearly a century of experience behind it in the manufacturing, installation and maintenance of all types of fluid-filled cables for specific international markets:

- Low Pressure Oil Filled (LPOF)
- High-pressure fluid-filled or pipe-type
- External gas-pressured
- Internal gas-filled (MIG)



Accessories

Because no power transmission system can be stronger than its weakest link, this manufacturing capacity is complemented by the production of all essential accessories:

- transition and stop joints
- terminations
- fluid pressure tanks
- high-pressure pumps
- oil-conditioning and regeneration plants
- evacuation and fluid-feeding systems
- test equipment
- alarm and monitoring equipment



XLPE innovation

Since the nineties, Nexans has developed a next generation of XLPE (cross-linked polyethylene) cables which consists of a stranded copper or aluminum conductor with an extruded insulation system protected by a metallic shield and an outer sheath. XLPEs offer flexibility, lightness and strength. They need no fluid-pressure system, are maintenance-free, and can handle conductor temperatures up to 90°C.



Complete service concept

Nexans complete service concept is unique in that not only do we continue to manufacture all HV cable types, we provide customized accessories, and full life-cycle maintenance support for all technologies (both fluid-filled and XLPE). We also offer the best solution for combining and integrating oil-filled and XLPE cables in one network. Finally, we offer you a seamless, cost-efficient and environmentally-friendly upgrade/migration path to tomorrow's all-XLPE networks.



Ensuring energy availability requires...

Today's electrical power networks worldwide often consist of successive generations of time-proven paper-insulated, fluid-filled cables – mass-impregnated, low and high-pressure – which have functioned efficiently for many decades. During the eighties and nineties, these buried or submarine cables were often replaced by next-generation XLPE (cross-linked polyethylene) cables.

Thus, as grids continued to expand and evolve, several cable types often co-existed in a complex transmission network which also included a host of high-voltage accessories, all of which need careful monitoring and maintenance.

As an electrical generation or transmission utility, new power provider, or private industrial plant owner, you would like to see your network survive well beyond its projected life-span of about forty years, without compromising safety, quality of service, and power availability for your growing customer base. Even though electrical installations are considered near zero-maintenance systems, circuits can still fail, causing serious disruption and even blackouts. That is why Nexans has developed a full-maintenance package that meets your long-term expectations.

What you expect from a cable producer:

- Life-cycle management, from feasibility, budgeting, planning to final disposal/replacement
- Expertise and practical experience about every aspect of fluid-filled technologies
- Customized service adapted to existing and future power network developments
- Regular checkups and preventive maintenance to detect and resolve potential problems
- 24-hour hotline availability and a rapid-response emergency repair service
- Cost-savings through reduced inventory and modular service solutions
- Advanced testing and simulation facilities for high-voltage circuits
- Ongoing training in both old and new cable/accessory technologies
- Environmentally-safe oil draining, dismantling and recycling of old cables
- Seamless and cost-efficient transition to next generation power transmission



A to Z service to safeguard your energy investment

Because a large part of your network consists of fluid-filled cables, you want full life-cycle availability and security for your existing power transmission network for at least another 10-15 years: from planning, installation, operation and maintenance through to final disposal and environmentally-safe renewal. Only an active manufacturer of traditional fluid-filled cables and accessories and latest-generation HV cables can provide Through-Life Support (TLS), either as single modules adapted to your special needs, or as a complete service package.

1. Prevent

Nexans listens closely to the customer to determine a network's sensitive points and draws up a regular checkup protocol. Accessible junction rooms are punctually cleaned if necessary, and monitoring systems tested. All maintenance work is carefully planned, and fees are pre-determined. Oil quality is analyzed and the circuit route examined, with subsequent environmental modifications identified. Already, the customer decides which components are essential and which are low-risk and can be reserved and stored on Nexans premises, thus cutting unnecessary inventory and saving money.

2. Correct

Light maintenance is the standard service option, and involves adding fluids to cables when necessary and repairing minor and localized leakage, mostly in accessories and terminations. Equipment used to control and monitor pressure and temperature is regularly checked, and any necessary repairs are undertaken by experts. Experienced oil/fluid maintenance engineers and cable jointers are a part of the team. Because accessories are vital to network operations, any defects or failings are detected, disassembled and replaced quickly with minimal disruption to service.

3. Intervene

Heavy intervention is a contract option to deal with serious breakdowns. Since only emergency stock is stored on the customer site, operational and repair costs are reduced. When an incident occurs needing quick intervention, a single phone call to the Nexans hotline mobilizes an often international team who bring the situation under control within hours. An emergency team is dispatched to resolve the problem by moving cables, detecting and repairing leakage, or carrying out transition joints between XLPE and oil-filled cables. On our own installations, repairs are often customized solutions.

4. Train

The fact that fluid-filled cables have survived the test of time has also meant that expert knowledge has inevitably declined among power utilities, installers and suppliers. That is why Nexans is dedicated to keeping expertise alive through special training programs, both internally and for its customers. The Nexans High Voltage Training Center, based in Switzerland, is aimed at standardizing installation and methodology, and providing both theoretical and basic training for everyone involved in high-voltage cable systems: jointers, engineers, maintenance personnel, network managers, etc.

5. Replace

End-of-life management is a growing concern, both to protect the environment and to assure future network expansion. Nexans has several solutions for blowing out fluids in cables in a safe way which is patented for draining fluids with a special eco-friendly mixture. Then, the cables are excavated and recycled as secondary raw materials. A Nexans retrofitting solution saves civil engineering costs by using existing ducts for fluid-filled cables to house next-generation XLPE cables. With a vast range of high-voltage cables available, a power transmission network can continue to grow in a sustainable way.



From rapid response to round-the-clock service

Since time is an essential part of troubleshooting, Nexans offers a “rapid response” service whereby service customers who experience faults during normal working hours can ring a special free hotline to reach our on-call staff. Without being diverted via a call center, network operators can contact experts in high-voltage systems immediately, and receive assistance on the telephone while experienced personnel with special tools are dispatched to right where they are needed. If full, round-the-clock coverage is needed, a Premium Hotline Service is available 24/7.

Power transmission renewal, a global concern...

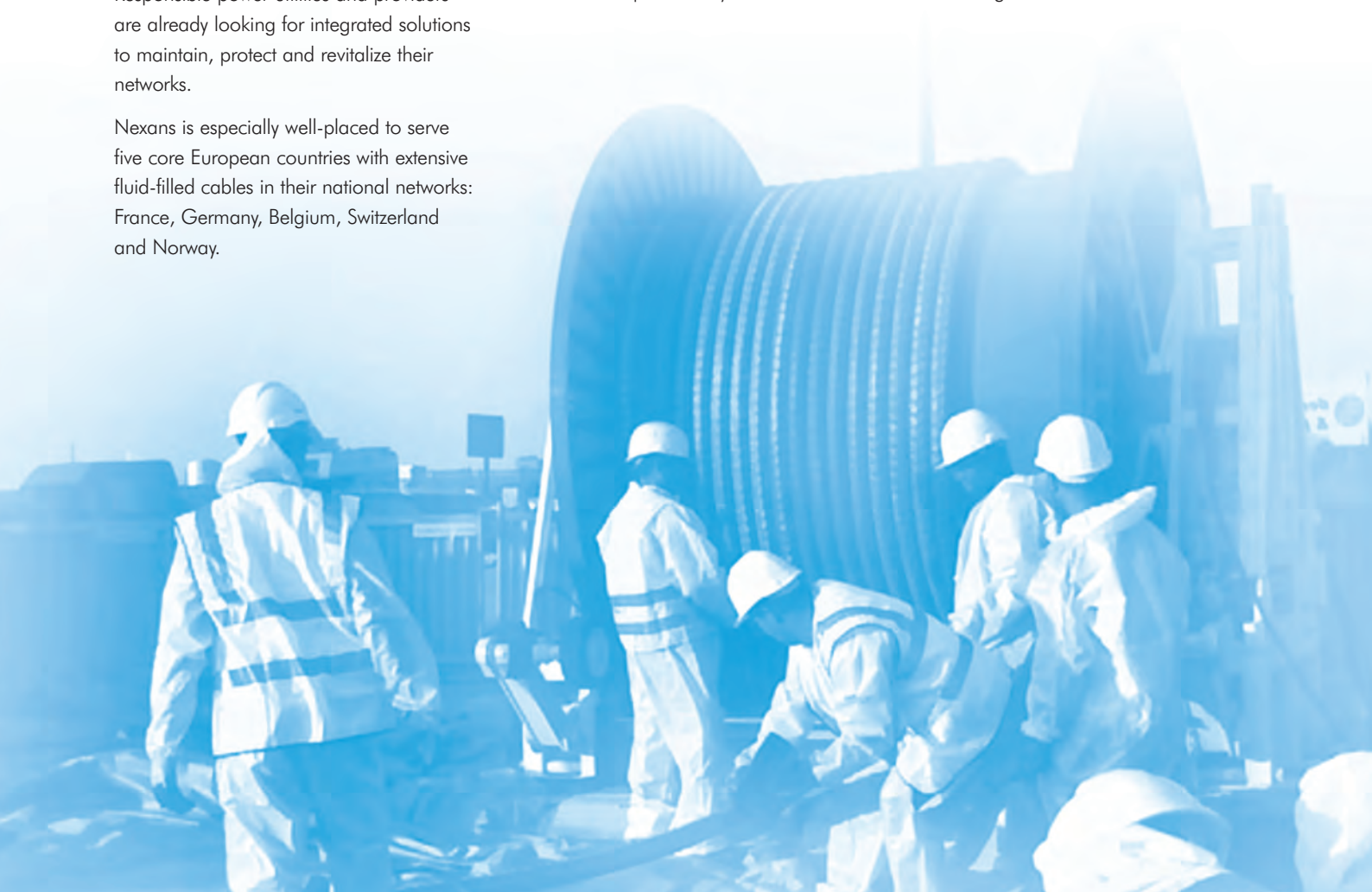
Fluid-filled cable technologies are predominant worldwide and continuing to age with every year of operation. Responsible power utilities and providers are already looking for integrated solutions to maintain, protect and revitalize their networks.

Nexans is especially well-placed to serve five core European countries with extensive fluid-filled cables in their national networks: France, Germany, Belgium, Switzerland and Norway.

Moreover, with our global manufacturing presence we can also provide fluid-filled cables, accessories, maintenance, and upgrades internationally to other European countries and far beyond...including Eastern Europe, the Middle East, North and South America, Australia and Southeast Asia.

...that calls for a global Nexans service response

- In France, Nexans has a long-term partnership with RTE for transmission networks and EDF, especially for networks around nuclear power plants.
- In Belgium, Nexans has a long-term partnership with Elia for transmission networks and Electrabel product networks around nuclear power plants.
- Nexans is widely present on the Swiss and Austrian power utility markets.
- In Germany, Nexans has an excellent reputation with the transmission networks operators such as Vattenfall, RWE and E.ON, as well as with public utility companies with smaller transmission networks.
- In South America, Nexans is managing maintenance for Edenor, Argentina’s biggest power distributor.
- Nexans has been providing power transmission cables for Kuwait, Saudi Arabia and the Middle East, including testing, regular maintenance and eventually purging of fluid-filled cables.
- Nexans in Norway has pioneered long-distance DC high-voltage submarine cables which have allowed international energy transmission, and made it possible for offshore windfarms to efficiently transmit power to distant domestic grids.





Global expert in cables and cabling systems

With energy as the basis of its development, Nexans, the worldwide leader in the cable industry, offers an extensive range of cables and cabling systems. The Group is a global player in the infrastructure, industry, building and Local Area Network markets. Nexans addresses a series of market segments: from energy, transport and telecom networks to shipbuilding, oil and gas, nuclear power, automotives, electronics, aeronautics, material handling and automation. With an industrial presence in 39 countries and commercial activities worldwide, Nexans employs 22,700 people and had sales in 2009 of 5 billion euros. Nexans is listed on NYSE Euronext Paris, compartment A.

Nexans S.A. – 8, rue du Général Foy – 75008 Paris – France
Tel.: +33 (0)1 73 23 84 00 – Fax: + 33 (0)1 73 23 86 38 – www.nexans.com
marcom.info@nexans.com