



**Low and high-temperature power cables  
for secure railway operations  
in extreme cold and heat**

# 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.



# Low and high-temperature power cables from Nexans, a wide range of products covering diverse railway standards

The rolling stock industry is now at a crucial point in its development. New challenges must be met due to long-awaited equipment upgrades, booming freight traffic and high-speed train projects, and the growing need for conventional subways, fully-automated metros, and light-rail suburban vehicles worldwide.

Nexans manufactures a complete range of rolling stock cables and components, meeting national and international standards, in addition to providing system integration, extensive customer service and innovative products for future needs. We supply both standard items and customized solutions, and reinforce system interoperability to meet the challenge of ERTMS and ETCS.

Perhaps you are running trains in northern latitudes or in mountainous regions. Your power cables must operate securely under freezing conditions, while remaining extremely flexible. Or, within the locomotive, itself, you need cables which can endure up to +140°C heat and a variety of threats, including hot oil, chemicals and vibration. Since locomotives are being sold internationally you expect conformity to both European Norms (EN) and international standards, especially in terms of fire-performance.

To help you achieve this, Nexans offers high-performance **low and high-temperature power cables**.



**Low and high-temperature power cable**  
to provide energy and deal with extreme temperatures and weight constraints

# Low and high-temperature power cables: durability and reliability in harsh conditions



Nexans provides a full range of silicone-rubber power cables from 1.8/3 to 3.6/6 kV in diameters of 2.5 to 240 mm<sup>2</sup>. All cables meet strict technical requirements in terms of electrical safety, fire-performance (low-smoke and toxicity, continuous operation in the event of fire). These class 5 class conductors are extremely flexible, and easy-to-install in locomotives and wagons, both inside and outside. As a preferred supplier, Nexans is often called upon to provide technical advice, especially concerning environmental and electrical conditions, so as to provide the right cable for the right application.

## This Nexans solution gives you:

- **Long-life** because of many years of experience in designing railway-specific power cables.
- **Fire protection** for people and equipment through Halogen-Free Fire-Retardant (HFFR) materials
- **Wide range** of voltages and diameters which can be used both inside and outside railway vehicles
- **Compatibility** with international and new European Norms (EN)
- **Durability** because of cross-linked rubber compounds that can resist heat, oil, vibration, chemical aggression, etc.
- **Full technical support** including specifications, custom designs, data sheets and detailed test information
- **Logistics** for efficient delivery and assembly



## Low and high-temperature cables for enhanced performance

For the BR 185 1 & 2 project, Nexans supplied low and high-temperature

power cables to outfit over 400 multi-system locomotives being built by Bombardier in Germany. This is, in fact, the largest single order that Deutsche Bahn has ever given to an original equipment manufacturer. For the Swedish X40 project, Alstom chose Nexans to supply power cables that can withstand temperatures down to -40°C.

# Low and high-temperature power cables for locomotives and drives



Product families	Product family names	Standards / Specs
<b>NFF 63827 / EN 50382</b> High-temperature silicone version (150°C)	<b>HFFR medium voltage, mono-conductor class 5</b>  <b>3 kV</b> 2.5 to 240 mm <sup>2</sup>  <b>1.8 / 3 kV</b> various constructions	<ul style="list-style-type: none"><li>• NFF 16101, IEC 332-1 / 2</li><li>• NFF 16101, IEC 332-1 / 2</li></ul>
<b>VDE silicone rubber cables</b>	<b>Halogen free, medium voltage</b>  <b>(N)S2HXAF0E 1.8 / 3 kV</b>  <b>(N)S2HXAF0E 3.6 / 6 kV</b>	<ul style="list-style-type: none"><li>• VDE</li><li>• VDE</li></ul>





Global expert in cables and cabling systems

[www.nexans.com](http://www.nexans.com)

[www.nexans.com/e-service](http://www.nexans.com/e-service)

[marcom.info@nexans.com](mailto:marcom.info@nexans.com)

Nexans S.A. - 16, rue de Monceau - 75008 Paris - France  
Tel.: +33 (0)1 56 69 84 00 - Fax: +33 (0)1 56 69 84 84