



**Silicone motor connection cables  
for flexibility, durability and performance**

# With Nexans, rolling stock moves ahead...

The rolling stock industry is now at a crucial point in its development. New challenges must be met due to overdue 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 provides a comprehensive range of high quality rolling stock cables and components, in addition to system integration, extensive customer service,

and innovative products for future needs. We supply both standard items and customized solutions wherever necessary, and reinforce system interoperability to meet the challenge of ERTMS and ETCS.

To meet the challenge of "sustainable mobility", speed, comfort and safety, Nexans offers cables and components for a new generation of locomotives and traction motors. Our broad range of reliable and durable products includes braided silicone-rubber-insulated motor connection cables.



**Silicone motor connection cables**  
for HV machines, transformers, motors  
and generators

# 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.



# Flexible and ultra-safe for the rail environment



To meet the double challenge of extreme temperatures and safety,

Nexans has developed an extremely flexible

SIWO-KUL silicone-rubber-insulated motor connection cable which generates little smoke, and has relatively long functional endurance under fire conditions.

This singlecore cable, manufactured in the voltage range of 1.1kV; 3.3/4.2kV; 6.6/7.2kV; and 13.8/15kV is used in electric and hybrid locomotives, and in traction drives for metros, light rail vehicles, tramways, and people movers. Generally located inside the electrical motor between the stator and connection box, or as a connection cable between transformer/generator and motor, these cables offer many advantages, especially in confined

environments, where high-temperatures are a permanent factor.

## Benefits

- Possibility of reducing usual copper cross-sections because of resistance to high temperatures
- Flexibility for easy installation
- Capacity to handle permanent or variable temperatures (- 60°C to + 180°C)
- Very small insulation wall-thickness with high dielectric strength
- Excellent mechanical protection due to polyester yarn braiding
- Good sliding surface due to the varnish coating with PUR
- Good mechanical resistance to abrasion and chemical resistance to oil, cleaning agents
- Fire-resistance and low-smoke generation
- Exceptionally long life-cycle



## Supplying industry leaders

SIWO-KUL motor connection cable was developed by Nexan's Swiss predecessors many years ago, and

has been a flagship product ever since, widely outperforming all rubber and plastic-insulated alternatives. Today, Nexans is supplying major forces in the rolling stock industry, for example Alstom and Bombardier. The cables are delivered on drums, as pre-cut lengths, in rings, or with preconnectors.



Product family	Products	Standards / Specs
<b>SIWO-KUL</b>  Very flexible single core connection cable with silicone insulation and PUR varnished protective braid	<b>1.1kV; 1.5 to 240mm<sup>2</sup></b>  	<ul style="list-style-type: none"> <li>• NF F16.101, class B, F1</li> <li>• UIC 895 ed. 3 technical specifications for cables for railway vehicles</li> <li>• Lloyd's Register of Shipping and Bureau Veritas approved</li> <li>• BV Rules and regulations for the classification of ships</li> <li>• IEC 60092-series electrical installation in ships</li> <li>• UL approved, style 3640</li> </ul>
	<b>3.3kV; 4.2kV 1.5 to 240mm<sup>2</sup></b>  	<ul style="list-style-type: none"> <li>• IEC 60502 construction</li> <li>• IEC 60228 class 5 conductor</li> <li>• IEC 60754-1 halogen free</li> <li>• IEC 60754-2 non corrosivity of fumes</li> <li>• IEC 61034 low smoke density</li> <li>• IEC 60332-1 flame retardance</li> </ul>
	<b>6.6kV; 7.2kV 4 to 240mm<sup>2</sup></b>  	<ul style="list-style-type: none"> <li>• IEC 60332-3-24 fire retardance</li> <li>• IEC 60331-21 circuit integrity: 30 min, 1000V</li> </ul>
	<b>13.8kV / 15kV; 6 to 240mm<sup>2</sup></b>  	



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