The future is a train, get on board!
Cable solutions for the Rolling Stock industry
We specialise in underground and submarine cables and systems for power transmission and distribution, special cables for applications in many different industries, and medium and low voltage cables for the construction and infrastructure sectors.

For the telecommunications industry, the Group is the world’s largest provider of cutting-edge cables and accessories for voice, video and data transmission, offering a comprehensive range of optical fibres, optical and copper cables and connectivity systems.

We are committed to environmental responsibility in our production processes, the protection of the global environment, and the responsible management of relations with the local communities in which we work.

For us, innovation means meeting the needs of our customers and communities by understanding their business drivers as quickly as they do. To do that, our team of over 900 Research & Development professionals is constantly looking to the future, predicting and identifying emerging trends in each of our industries and sectors. Acting on this intelligence from 25 R&D centres around the world, we’re constantly close to our customers in their own local markets.
Rolling Stock Cables

The Railway industry is constantly evolving in terms of new market requests. Increasingly demanding customer expectations, fierce competition and rapid technological change are the main challenges for the whole Rolling Stock supply chain. With the goal of maximizing passengers’ comfort, operational efficiency, safety and speed, the train manufacturing industry is looking for reliable suppliers to support them in facing these ever-growing challenges.

Enhanced data and power transmission and advanced technology requirements translate into increased amounts of cabling on trains. This has an impact on all types of rolling stock vehicles and carriages. Prysmian Group promotes and drives product development and innovation to meet these requirements, by minimizing the size and weight of cables and reducing the wall thickness of insulation and outer sheath, whilst maintaining or even enhancing performances.

Prysmian Group offers a full range of products from High and Medium Voltage to Instrumentation cables, from High Temperature to Thin Wall designs, to harnessing solutions according to specific customer needs. Advanced technologies and materials used have been specially developed to withstand the harsh environment of rolling stock and improve electrical, mechanical and thermal properties, fire performance and life expectancy of products.

All Prysmian Group Rolling Stock cables are Reach and RoHs compliant and all manufacturing facilities are certified according to ISO/TS 22163 (IRIS).

OUTSTANDING AND COMPLETE PRODUCT RANGE

A comprehensive product range of covering all different market needs in terms of geography and technical specifications (either according to or based on EN standards or according to or based on AAR RP-585).

ADVANCED TECHNOLOGY AND PERFORMANCE

The most technologically advanced and high-performing compounds, specially designed by our laboratories allow: bending radius up to 3 times the cable outer diameter, smallest dimensions possible, higher working temperature with scaled-down conductor cross-sections, higher physical and mechanical resistance for properties such as abrasion, cut-through, notch propagation, repeated bending and vibrations; easy peeling and low friction properties; compliance with industry-specific EMC requirements.

UNIQUE SAFETY IN FIRE HAZARDS

Prysmian Group always focused on ensuring both human and material safety in any working condition. Our Rolling Stock cable solutions minimize fire hazards related to cables. Self-extinguishing properties, no toxic and corrosive gases released, and reduced smoke emission prevent the cables from contributing to fire propagation and related consequences to people safety and to equipment integrity.

TAILOR-MADE SOLUTIONS

Any special customer issue can be addressed by Prysmian Group’s technicians thanks to extended technological capabilities to manufacture a broad range of specifically developed compounds and cable designs e.g. formulation, compounding and manufacturing cables and harnessing solutions according to customer needs.
Product Families at a Glance

1. Control cables
   EN 50306, TW 600 V.

2. Power cables
   (300/500 V up to 3.6/6 kV)
   EN 50264-3; EN 50264-2; Reduced wall.

3. High temperature
   (1.8/3 kV and 3.6/6 kV)
   EN 50582-2 (120 °C, 150 °C or 180 °C).

4. Power and Control (US market)
   AAR RP-585 and ICEA S-95-658 single and multi-conductors; Reduced wall single and multi-conductors

5. Data cables
   Cat5e, 6, 7; Bus cables 120 Ohm; others

6. DLO
   Up to 2000 V

7. Jumper cables

8. Composite cables

9. Pantograph
   45 kV power cable
## Product Mapping

<table>
<thead>
<tr>
<th>Instrumentation and Control cables EN 50306</th>
<th>TEROL TW</th>
<th>Control cables for equipment control and monitoring circuits, internal wiring of equipment, interlocking circuits, indicating circuits</th>
<th>300/500 V</th>
<th>0.5-2.5 mm²</th>
<th>single/multicore, pairs</th>
<th>according to EN 50306</th>
<th>-40 °C to +90 °C (105 °C single core)</th>
<th>Multiscreen cables available, individual or overall screen available on multipair</th>
<th>Y</th>
<th>Y</th>
<th>EN 45545+NFPA 150</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEROL TW 600 V</td>
<td>0.6/1 kV</td>
<td>0.5-2.5 mm²</td>
<td>single core</td>
<td>according to EN 50306</td>
<td>-40 °C to +105 °C</td>
<td>-</td>
<td>Y</td>
<td>-</td>
<td>EN 45545</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power cables EN 50264</th>
<th>TEROL MW</th>
<th>Power cables for lighting circuits powered by accumulators, equipment control and monitoring circuits, auxiliary and auxiliary heating circuits, auxiliary circuits at line voltage, traction circuits, electric heating fed at line voltage in protected (or exposed - if cable is shielded) areas, internal safe circuits</th>
<th>300/500 up to 3,6/6 kV</th>
<th>0.5-400 mm²</th>
<th>single/multicore</th>
<th>according to EN 50264-3</th>
<th>-40 °C to +90 °C</th>
<th>copper wire screen, copper braided screen available for jumper application</th>
<th>-</th>
<th>Y</th>
<th>EN 45545+NFPA 150</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEROL SW</td>
<td>1,8/3 kV up to 3,6/6 kV</td>
<td>0.5-400 mm²</td>
<td>single/multicore</td>
<td>according to EN 50264-3</td>
<td>-40 °C to +90 °C</td>
<td>Y</td>
<td>Y</td>
<td>EN 45545+NFPA 150</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>SIEKOPPR (120)</td>
<td>3,6/6 kV up to 3,6/6 kV</td>
<td>0.5-400 mm²</td>
<td>single/multicore</td>
<td>according to EN 50264-3</td>
<td>-40 °C to +90 °C</td>
<td>Y</td>
<td>Y</td>
<td>EN 45545+NFPA 150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afumex Z, DZ or DZ</td>
<td>1,8/3 kV up to 3,6/6 kV</td>
<td>0.5-400 mm²</td>
<td>single/multicore</td>
<td>according to EN 50264-3</td>
<td>-40 °C to +90 °C</td>
<td>Y</td>
<td>Y</td>
<td>EN 45545</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOVIS (2GKN, 3GKN, 4GKN, 6GKN)</td>
<td>300/500 up to 3,6/6 kV</td>
<td>0.5-400 mm²</td>
<td>single/multicore, reduced - based on EN 50264-3</td>
<td>-40 °C to +120 °C</td>
<td>Y</td>
<td>-</td>
<td>Y</td>
<td>EN 45545+NFPA 150</td>
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</tr>
</tbody>
</table>

| High Temperature cables EN 50382 | TEROL HT | Power cable with high temperature properties for use in auxiliary circuits at line voltage, traction circuits, electric heating fed at line voltage in protected (or exposed - if cable is shielded) areas | 1,8/3 kV up to 3,6/6 kV | 1.5-400 mm² | single core | according to EN 50382-2 | -40 °C to +120 °C or 150 °C | - | - | EN 45545+NFPA 150 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SIEKOPPRY (180) | 1,8/3 kV up to 3,6/6 kV | 1.5-400 mm² | single core | similar to EN 50382-2 | -50 °C to +180 °C | Y | - | - | EN 45545 |
| Afumex HTS | 1,8/3 kV up to 3,6/6 kV | 1.5-400 mm² | single core | according to EN 50382-2 | -40 °C to +120 °C or 150 °C | Y | - | Y | EN 45545 |
| Afumex HTS - Hard | 1,8/3 kV up to 3,6/6 kV | 1.5-400 mm² | single core | according to EN 50382-2 | -40 °C to +120 °C or 150 °C | Y | - | Y | EN 45545 |

| High Voltage | TENAX TRAIN Plus- (N)TMCWOEU | High Voltage cable for connection of pantographs in locomotives and trains | 26/465 V | 50-630 mm² | single core | reduced | -40 °C to +90 °C | - | EN 45545+NFPA 150 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PROTOCOL(WMK) | 26/465 V | 50-630 mm² | single core | reduced | -50 °C to +90 °C | - | EN 45545+GOST |

| Datasub | MOVIS | Data transmission cables for all usages on Rolling Stock vehicles | Data transmission values according to relevant standards | Cat 5, Cat 6, Cat 7, Datasub 1200mm, Coaxial, special designs | multicore, pairs | - | -25 °C up to 90 °C | NA | - | EN 45545 |

| American Range AAR RP-585 and ICEA S-95-658 | Polyrad XT | Power and control cables manufactured for on-car applications, according to AAR RP-585 and ICEA S-95-658 | 600 V and 2000 V | 20 AWG thru 1111 kcmil for single core | 20 AWG thru 4/0 AWG for multicore | according to AAR RP-585 and ICEA S-95-658 | Dual temperature rating at 125 °C/110 °C | Y | - | NFPA 150, IEEE 1202 (70,000 BTU/hr), IEEE 383 (70,000 BTU/hr), VW-1 |

| American Range Reduced Wall | Polyrad Ultra | Reduced weight and smaller diameter, ideal for on-car, high density cabling applications | 600 V | 22 AWG thru 10 AWG | single/multicore | reduced wall | +125 °C | Y | - | NFPA 150, IEEE 1202 (70,000 BTU/hr), IEEE 383 (70,000 BTU/hr), VW-1 |

| American Range New York City Transit approved | Polyrad XT - TX | Cables according to New York City Transit (NYCT) TX Cable Specification | 600 V and 2000 V | 20 AWG thru 4/0 AWG for 600 V | 20 AWG thru 535 kcmil for 2000 V | single/multicore | according to AAR RP-585 and ICEA S-95-658 | +110 °C | - | NFPA 150, IEEE 1202 (70,000 BTU/hr), IEEE 383 (70,000 BTU/hr), VW-1 |

| American Range Data Communication cables | NFPA 150 rated, UL Listed Type CMG-LS, according to ANSI/ TIA 568 C.2 Patch | Data transmission values according to relevant standards | 4-pair 24/awg Category 5e, 2 Pair 32/awg Category 5e, 4 Pair 24/awg Category 6 | multicore, pairs | - | -55 °C to +75 °C | - | - | IEEE 1202 (70,000 BTU/hr), IEEE 383 (70,000 BTU/hr), VW-1 |

| Electronically Controlled Pneumatic (ECP) Brake Cable | Electrically Controlled Pneumatic (ECP) Brake Cable | Speciality design for installation both under and between freight cars, available with interlocked armor or non- armored design | 600 V | 2x8AWG | 2 conductors | - | -45 °C to +100 °C | - | - | NFPA 130 |

| DLO cables | Diesel Locomotive Cable 2000 V | For use in Diesel Locomotives, UL Type RWHW-2, (BUL) Type RW90 | 2000 V | 14 AWG thru 1111 kcmil | single core | - | +90 °C | - | - | UL 2556 VW-1, IEEE 1202/CSA FT4 for sizes 1/0 AWG and larger |

(*) please contact us for further information
Product & Brands

EUROPEAN RANGE

**TEROL.** According to EN 50306, EN 50264 and EN 50382 with special fire performances. Usable on rolling stock with hazard level HL3 according to EN 45545. Tested against NFPA 130.

**MOVIS Power and Control cables.** Halogen-free, single core, with special fire performance, increased heat resistance (120 °C) and reduced dimensions. For use as fixed wiring or where limited flexing in operation is encountered. Usable on rolling stock with hazard level HL3 acc. to EN 45545. Fire resistant (EN 50200) available.

**MOVIS Data and Communication cables.** Halogen-free data cables with special fire performance and increased heat resistance. Usable on rolling stock with hazard level HL3 according to EN 45545.

**Sienopyr (120).** Power and control cables according to EN with increased heat resistance (120 °C), fulfilling EN 45545 fire and smoke properties. Fire resistant (EN 50200) versions available.

**Sienopyr (180).** High temperature cables based on EN 50382-2 with increased heat resistance (180 °C), fulfilling EN 45545.

**Afumex Z, DZ and DGZ.** Mainstream power and control cables acc. to EN 50264-3 fulfilling EN 45545 fire and smoke properties.

**Afumex HTS.** Mainstream high temperature cables according to EN 50382-2 fulfilling EN 45545 fire and smoke properties.

**Afumex HTS – Hard.** High temperature cables according to EN 50382-2 with enhanced performance to mechanical stress, fulfilling EN 45545 fire and smoke properties.

**TENAX TRAIN Plus and PROTOLON (HMK).** Halogen-free single-core HD flexible cables with special fire performance and reduced dimensions. Used for connection of pantographs in locomotives and trains. Special design also for flexible connections to distribute power along the train.

**AMERICAN RANGE**


**Polyrad ULTRA.** Designed to meet the increasing demand for the reduction of both size and weight of cabling systems. Polyrad ULTRA wire offers better performance, reduced weight and smaller diameters and can be designed into multiconductor constructions that are 600 Volt and rated 125 °C. Ideal for high-density cabling applications.

**Polyrad XT-NYCT TX.** Cables according to New York City Transit (NYCT) TX Cable Specification, approved for future Capital Programs, and Maintenance, Repair and Operational (MRO) requirements.

**Transit Data Communications Cables.** NFPA 130 rated, UL Listed Type CMG-L5, according to ANSI/TIA 568-C.2 Patch. 4 pair 24 AWG Category 5e; 2 Pair 22 AWG Category 5e; 4 Pair 24 AWG Category 6.

**Electronically Controlled Pneumatic (ECP) Brake Cable.** Specialty design for installation both under and between freight cars, available with interlocked armor or non-armored design, meets AAR S-4210.

**Diesel Locomotive (DLO) Cable.** UL Type RHH/RHW-2; c(UL) Type RW90.

Prysmian Group Rolling Stock cable solutions are used by all major train manufacturers in state-of-the-art projects worldwide.