relats

Innovative Covering Solutions




relats

innovative covering solutions

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www.relats.com

Company Profile

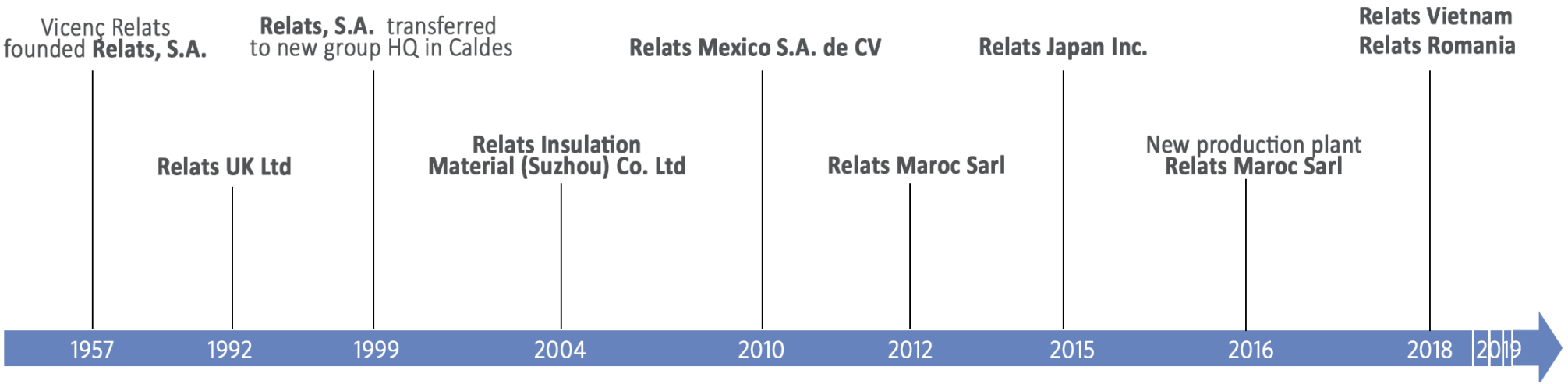
Relats is a multinational Catalan family company with HQ near to Barcelona that is highly internationalized, which designs and produces a range of products with textile substrate systems for engines, brakes, push pull cables, rubber hoses and metal, among many others. With a presence in four continents across six manufacturing plants (in Catalonia, China, Mexico, Morocco, Vietnam and Romania). Relats Group works with companies that supply the main components of global brands in the automotive industry, aerospace, railway, electricity sector, electrical appliances and renewable energy.

Leading manufacturer with global presence of:

- Electrical and thermal insulating sleevings
- Mechanical protection and/or noise reduction covers (Self Closing TWS – PLAS family)
- EMI and heat reflective protective components
- Impact protection sleeves

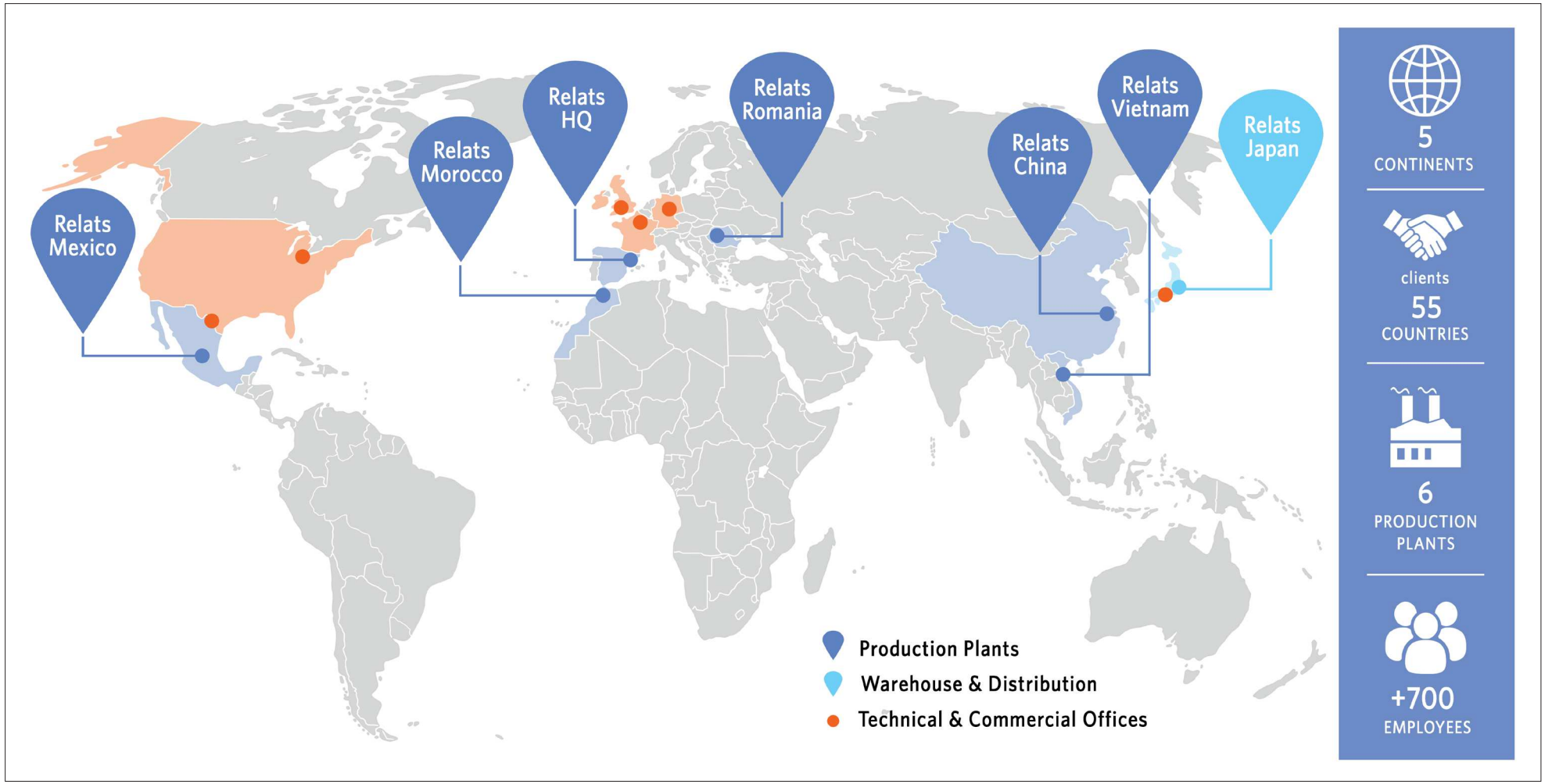
Company Profile

History & milestones



Company Profile

Worldwide presence:



Production Plants

Relats, S.A. - HQ

2016. Relats' headquarters is extended with a new smart warehouse

Building before expansion:	7,300 m²
Expansion:	2,400 m²
Total:	**9,700 m²**

Relats China

June, 2017 - Expansion

Before expansion:	6,000 m²
Expansion:	3,000 m²
Total:	**9,000 m²**

Relats Mexico

October, 2017 - Expansion

Before expansion:	3,500 m²
Expansion:	3,770 m²
Total:	**7,270 m²**

Relats Morocco

May, 2017 - Transfer to New Production Plant

Current Plant:	4,500 m²
New Plant:	**10,000 m²**

Relats Vietnam

June, 2018 - New Production Plant

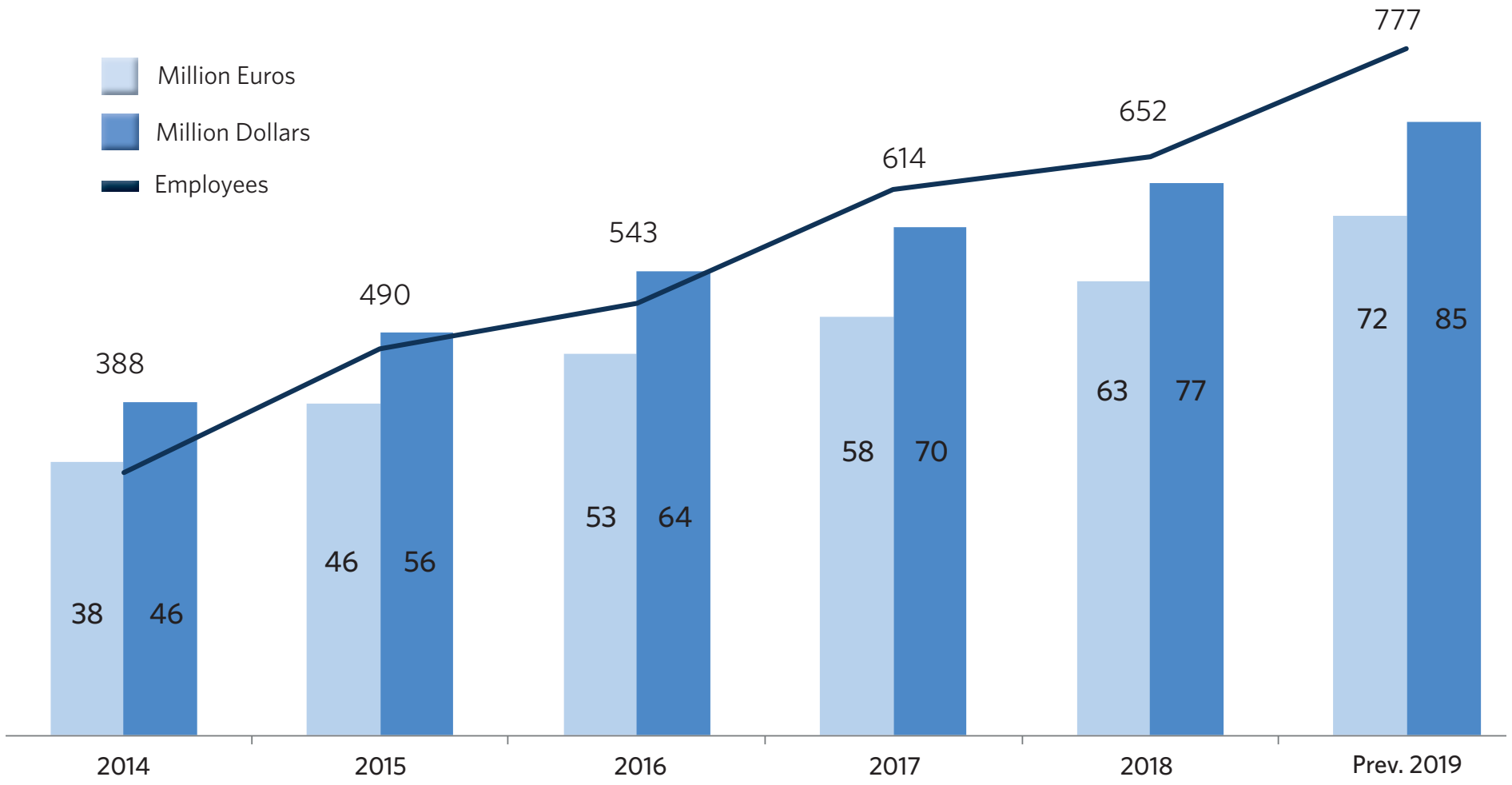
Total: 7,250 m²

Relats Romania

October, 2018 - New Production Plant

Total: 4,250 m²

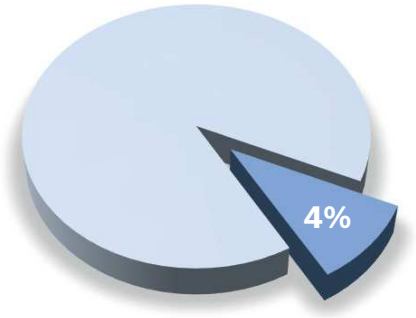
Turnover & Employees – Relats Group



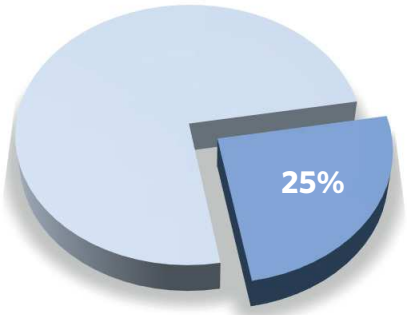
Company Profile

Constant innovation

R&D Investment vs Turnover
(annually)

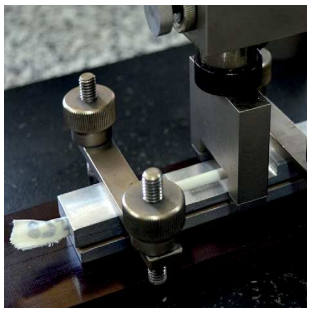


New Products vsTotal Sales
(Products introduced in the market during last 4 years)



- 22 active patents, Avg. 2 new applications every year.
- Collaboration/agreements with technological centers, laboratories and universities.
- In regular consultation with European experts in our speciality.

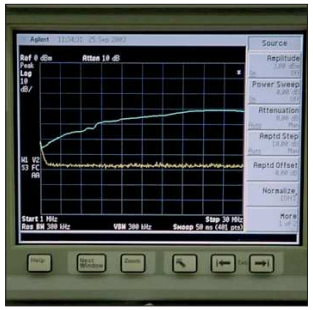
Laboratory capabilities in house



Mechanical tests

Thermal tests

Chemical tests



EMI testing

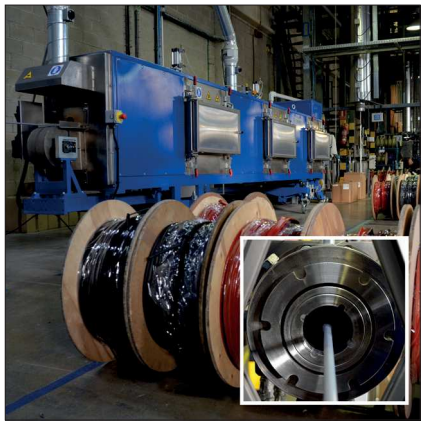
Physical testing

Crash tests

Production process

Braiding, knitting, knitbraiding

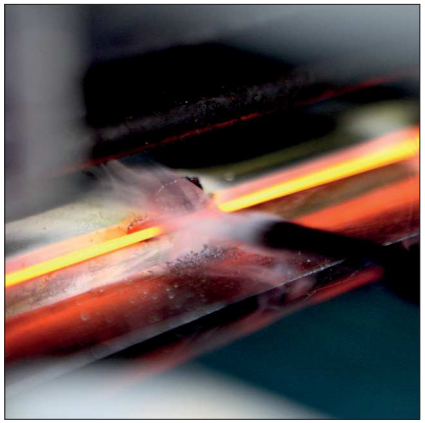
Coating towers



Silicone extrusion

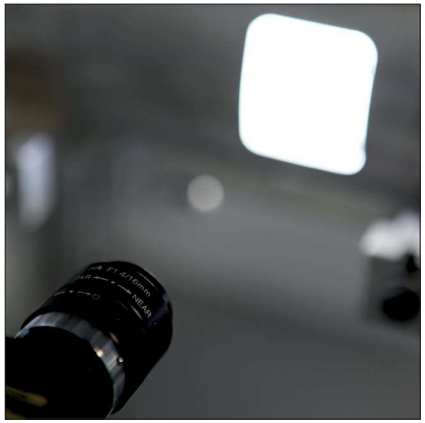
Alu foil laminating

Flat knitting self closing sleeves



Cutting: Thermal, mechanical, ultrasonic cut

Heatshields laser cutting



Artificial vision quality system

AUTOMOTIVE APPLICATIONS

Orange color version available under request for electric (EV) and hybrid electric and plug-in hybrid electric (HEV & PHEV) applications.

Heat Shrinkables

Woven sleeving which after applying heat, shrinks to a snug and secure fit on top of the application.

- Relshrink

Mechanical Protection Braids

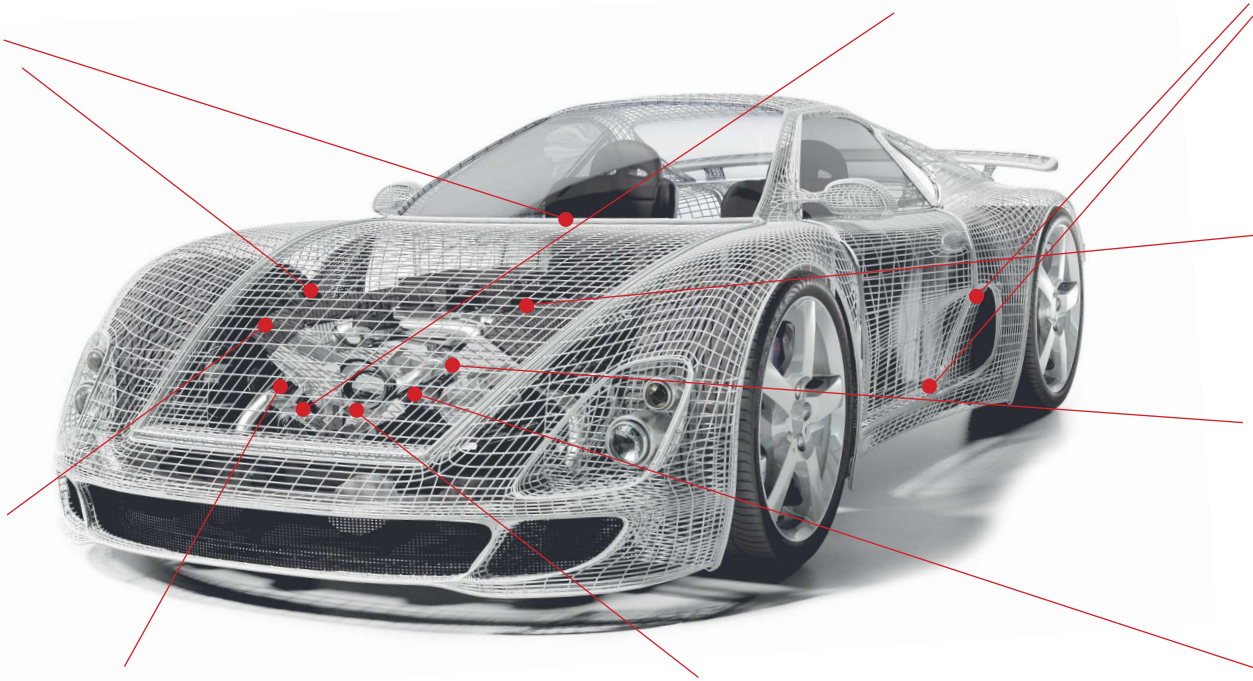
Monofilament or Multifilament braids (eg. PET or PA6.6) for mechanical protection applications (eg. hoses, fuel lines). Various expansion ratios available.

- PS; PO; PT; NSG; PNG; PEPO D Durasleeve

Self Closing TWS

for bundling and mechanical protection of harness cables.

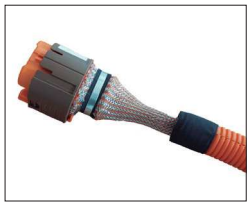
- PLAS7; PLAS8; PLAS8NJ; PLAS8NN; PLAS8 L; PLAF1



EMI Shielding Sleeves

Sleeves offering shielding of electromagnetic interference on high voltage cables (eg. hybrids and electric vehicles).

- NEMI; NEMI CS; NEMI C SIL



Glass Silicone Sleeves

for high temperature applications for example engine sensors or fuel lines.

- VSC25NE; VSC25NE E; VSC25NE HT; VSC25AL, WSR15NE E

Reflective Sleeves

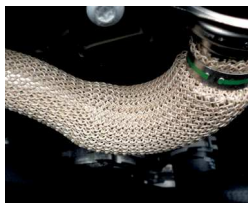
Open or closed aluminium foil laminated sleeves for thermal protection.

- SLEEVE AF; SLEEVE AK; PLAD REFLECT

Supersleeves
(EGR's and Heat Socks)

Glass or Quartz fibre sleeves to reduce thermal radiation from exhausts or EGR's.

- SS600; SS600 B; SS1100



Impact Protection Sleeves (IPS)

Various types using glassfibre, polyester or para-aramide. Mechanical protection in extrem conditions.

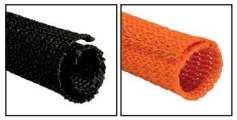
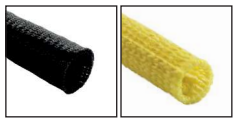
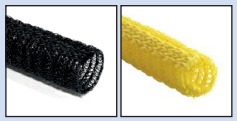
- VHG10; V2G10; IPS family

Heatshields

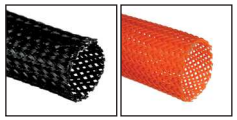
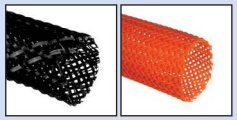
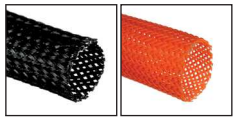
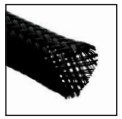
Aluminium foil laminated material customized heatshields for thermal protection, for example connectors or valves.

- Heatshield

Self Closing TWS

Product	Description	Material	Temperature	Abrasion	Flammability
 **PLAS7**	High performance woven open sleeve with unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament and Multifilament Polyester	-70°C to +150°C	■■■■■	Self-extinguishing
 **PLAS8NE PLAD8**	Woven open lightweight sleeve with unique wraparound qualities allowing easy cable bundling after wire harness assembly. Version with adhesive tape available.	Monofilament and Multifilament Polyester	-70°C to +150°C	■■■■□	Self-extinguishing
 **PLAS8NA**	Woven open sleeve with unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament and Multifilament Polyester	-70°C to +150°C	■■■■□	Self-extinguishing
 **PLAS8NJ**	Woven open lightweight and extraflexible sleeve with unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament and Multifilament Polyester	-70°C to +150°C	■■■■□	Self-extinguishing
 **PLAS8 LITE**	Woven open ultra lightweight sleeve with unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament Polyester	-70°C to +150°C	■■■□□	Self-extinguishing
 **PLAS8NN**	Woven open lightweight sleeve with unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament Polyester and Multifilament Polyamide	-70°C to +125°C	■■■■□	Self-extinguishing
 **PLAF1**	Woven open sleeve, with convoluted surface, flexible with unique wraparound qualities allowing easy cable bundling after wire and harness assembly.	Monofilament and Multifilament Polyester	-70°C to +150°C	■□□□□	Self-extinguishing

Mechanical Protection Braids

Product	Description	Material	Expansion ratio	Temperature	Abrasion	Flammability
 **Periflex PO**	Highly expandable braided sleeving mainly meant for applications of mechanical protection.	Monofilament Polyester	1:3	-70°C to +150°C	■■□□□	Self-extinguishing
 **Periflex PS**	Expandable braided sleeving mainly meant for applications of mechanical protection.	Monofilament Polyester	1:2	-70°C to +150°C	■■■□□	Self-extinguishing
 **Periflex PT**	Tighter expandable braided sleeving mainly meant for applications of mechanical protection.	Monofilament Polyester	1:1,3	-70°C to +150°C	■■■■□	Self-extinguishing
 **Periflex NSG**	Expandable braided sleeving mainly meant for applications of mechanical protection.	Monofilament Polyamide	1:2	-70°C to +150°C	■■■■■	Self-extinguishing
 **Periflex PNG**	Expandable braided sleeving made of thick yarns mainly meant for applications of mechanical protection.	Monofilament Polyester and Polyamide	1:2	-70°C to +150°C	■■■■■	Self-extinguishing
 **Periflex Durasleeve**	Expandable braided sleeving for mechanical protection. Due to the special disposition of the yarns the coverage of this sleeving is almost 100% in all of its expansion range. Good sound dampening properties.	Multifilament Polyester	1:2	-70°C to +150°C	■■■■■	Self-extinguishing
 **Periflex NEPO/PEPO**	Expandable braided sleeving able to maintain a high degree of surface coverage when expanded so facilitating the jacketing of cables, etc. Excellent sound dampening properties.	Monofilament and Multifilament Polyester	1:3	-70°C to +150°C	■■□□□	Self-extinguishing
 **Periflex PEPO D**	Expandable braided sleeving . Due to its resilience it recovers quickly to its initial diameter. Excellent sound dampening properties.	Monofilament and Multifilament Polyester	1:1,3	-70°C to +150°C	■■■■□	Self-extinguishing

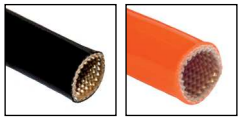
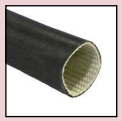
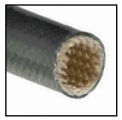
Reflective Sleeves

Product	Description	Material	Temperature	Thermal Efficiency (SAE J2302)	Flammability
 **Revitex Sleeve AF**	Braided sleeving with aluminium foil which refracts radiation heat and provides excellent insulating properties.	Fibreglass and Aluminium Foil	-70°C to +200°C	■■■■□	Self-extinguishing
 **Revitex Sleeve AR**	Knitted sleeving covered with aluminium foil adhesive tape which refracts radiation heat and provides excellent insulating properties.	Fibreglass and Aluminium foil	-70°C to +200°C	■■■■□	Self-extinguishing
 **Plad Reflect**	Braided open self closing sleeve with aluminium foil and paper backed adhesive tape along the edge to allow the product to be closed into a tube or wrapped around bundles of cables and closed along the edge. Product mainly meant for thermal protection.	Fibreglass, Polyester Monofilament and Aluminium Foil plus Adhesive Closure	-70°C to +200°C	■■■■■	Self-extinguishing

Heatshields

Product	Description	Material	Temperature	Thermal Efficiency (SAE J2302)	Flammability
 **Heatshield**	Customized heatshields (special laser cutting) made of fibreglass substrate laminated with aluminium foil. Various types of substrates are available. Heatshields can be with button snaps, adhesive tapes (parcial or full covering) and sown with glass or aramide yarns. Product designed for thermal protection of connectors and other components.	Fibreglass and Aluminium Foil	-70°C to +200°C -70°C to +250°C -70°C to +300°C	■■■■□	Self-extinguishing

Glass Silicone Sleeves

Product	Description	Material	Temperature	Thermal Efficiency (SAE J2302)	Flammability
 **Revitex VSC25**	Sleeving made of a special silicone rubber coated fiberglass braid.	Fiberglass and silicone	-70°C to +235°C (Peaks at 300°C)	■■□□□	Self-extinguishing
 **Revitex VSC25 E**	Sleeving made of a extruded silicone rubber coated fiberglass braid.	Fiberglass and silicone	-70°C to +225°C (Peaks at 300°C)	■■□□□	Self-extinguishing
 **Revitex VSC25 AL**	Sleeving coated with silicone rubber containing heat reflecting aluminium pigments. The aluminium coating reflects radiating heat, whereas at the same time fiberglass braid inside provides excellent insulating properties.	Fiberglass and silicone	-70°C to +235°C (Peaks at 300°C)	■■■□□	Self-extinguishing
 **Revitex VSC25 HT**	Sleeving made of a high temperature extruded silicone rubber coated fiberglass braid.	Fiberglass and silicone	-70°C to +250°C	■■□□□	Self-extinguishing
 **Revitex WSR15**	Fiberglass knitted sleeving impregnated and coated with special extruded silicone rubber.	Fiberglass and silicone	-70°C to +210°C (Peaks at 300°C)	■■□□□	Self-extinguishing

Impact Protection Sleeves (IPS)

Product	Description	Material	Temperature	Abrasion	Crash	Flammability
 **Revitex VHG10 V2G10**	Heat treated thick wall braided fiberglass sleeving impregnated with silicone varnish. Good thermal performance. Double wall version available.	Fiberglass and silicone	-70°C to +350°C	■□□□□	■■□□□	Non Combustible
 **IPS00**	Braided sleeve made of polyester fibers with a special design that together with its coating provides exceptional impact protection properties.	Polyester yarns and resin	-70°C to +150°C	■■■■□	■■□□□	Self-extinguishing
 **IPS40**	Braided sleeve made of multifilament para-aramid fibers and fibreglass yarn with an aramide over-knit that together with its impregnation provides impact protection properties.	60% Para-aramid fibers, 40% fiberglass and resin	-70°C to +180°C	■■■■□	■■■□□	Self-extinguishing
 **IPS50**	Reverse knitted para-aramid sleeve with a special design that together with its coating provides exceptional impact properties.	Para-aramid fibers and resin	-70°C to +180°C	■■■□□	■■■□□	Self-extinguishing
 **IPS55**	Reverse knitted para-aramid and polyester sleeve with a special design that together with its coating provides exceptional impact properties.	40% multifilament para-aramid fibers and 60% multifilament of polyester and resin	-70°C to +180°C	■■■□□	■■■□□	Self-extinguishing
 **IPS60**	Sleeving made of multifilament para-aramid fibers and silicone coating intended for mechanical and impact protection for protection of cable bundles against impact.	Para-aramid fibers and silicone	-70°C to +180°C	■■□□□	■■■□□	Self-extinguishing
 **IPS65**	Braided sleeve composed of para-aramid and fiberglass yarns with a special design that together with his coating provides exceptional impact protection properties.	70% Para-aramid fibers, 30% fiberglass and silicone	-70°C to +180°C	■■□□□	■■■■□	Self-extinguishing
 **IPS80**	Sleeving made of fiberglass braid impregnated as an internal layer. As second external layer made of a knitted para-aramid multifilament yarn and coated with silicone.	Para-aramid fibers, fiberglass and silicone	-70°C to +180°C	■■■■□	■■■■■	Self-extinguishing
 Self Closing **Shock Shield**	Woven open sleeve with cushion effect high closing force . The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament and Multifilament Polyester	-70°C to +150°C	■■■■□	■■■■□	Self-extinguishing

EMI Shielding Sleeves

Product	Description	Material	Temperature	Abrasion	Transfer Impedance	Flammability
 **Periflex NEMI**	Braided sleeving composed of polyester multifilament and tin-copper wire mainly meant for applications of electromagnetic protection and thermal insulation.	Multifilament Polyester and Tin-copper wire	-70°C to +150°C	■□□□□	■■■□□	Self-extinguishing
 **Periflex NEMI CS**	Braided sleeving composed of 100% tin-copper wire mainly meant for applications of electromagnetic protection and thermal insulation.	Tin-copper wire	-70°C to +200°C	■■□□□	■■■■□	Self-extinguishing
 **Periflex NEMI C SIL**	Braided sleeving composed of tin-copper wire coated with extruded silicone rubber mainly meant for applications of electromagnetic protection and thermal insulation.	Tin-copper wire and silicone	-70°C to +200°C	■■□□□	■■■■□	Self-extinguishing

Supersleeves (EGR's and Heat Socks)

Product	Description	Material	Temperature	Thermal Efficiency (SAE J2302)	Flammability
 **Supersleeve 600**	Patented combination of glass knitbraided sleeving and special impregnant. The material expands approx. 50% and fits snugly on tight bends. Exceptional retention of mechanical properties at elevated temperatures. Various expandable versions available.	Fiberglass and silicone	-70°C to +650°C	■□□□□	Self-extinguishing
 **Supersleeve 600B**	Patented combination of fiberglass braided sleeving and special impregnant. The material expands approx. 50%. Exceptional retention of mechanical properties at elevated temperatures.	Fiberglass and silicone	-70°C to +650°C	■□□□□	Self-extinguishing
 **Supersleeve 600 Wrap**	Open sleeving, combination of fiberglass with special impregnant. It is a sandwich structure of glass plus insulation material that provides excellent thermal efficiency	Fiberglass, insulation material and silicone	-70ºC to +650ºC	■■■□□	Self-extinguishing
 **Supersleeve 1100**	Patented combination of silica knitbraid sleeving and special impregnant. The material expands approx. 50% and fits snugly on tight bends. Exceptional retention of mechanical properties at extreme temperatures.	Silica and silicone	-70°C to +1100°C	■□□□□	Self-extinguishing

Heat Shrinkables

Product	Description	Material	Shrink ratio	Temperature	Abrasion	Flammability
 **RELSHRINK**	Woven sleeving made of polyester multifilament and polyolefin filaments which after applying heat, shrinks to a snug and secure fit on top of the application.	Polyester & polyolefin	2:1	-70°C to +125°C	■■■■□	<100mm/min

Automotive Customers

OEM

1st TIER

INDUSTRIAL & ENERGY

Windmill Industry

Glass Silicone Sleeves

For electrical insulation applications.

- Revitex VSC25/VSC75/VSX40/VSX75/VSC99

For electrical and mechanical insulation applications

- Revitex V2A

Glass & Polyester Cords

For electrical machines armature banding.

- Revitex Therm Support Cord; Revitex V0000

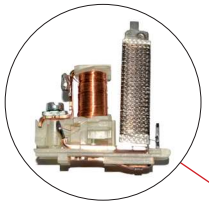
Steel Industry

Glass Silicone Sleeves

Open and closed sleeves for fire protection of electrical cable and cable bundles to ensure the electrical characteristics will not be degraded.

- VSCTF Fire Pro; Fire Pro SC HP

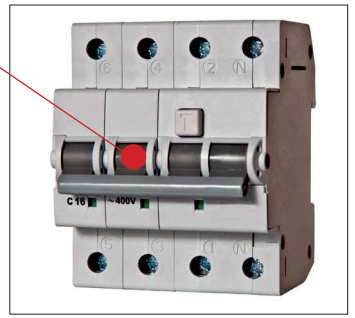
Circuit Breakers



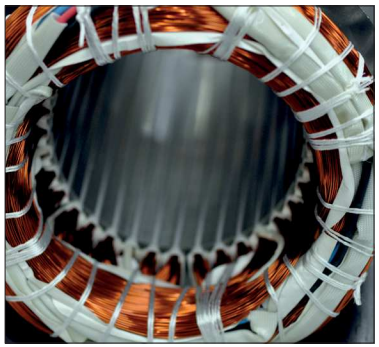
Glass Acrylic Sleeves

For isolation of thermal bimetals, heat conductors. Mainly used on motor protection switches, automatic circuit breakers.

- Revitex Bimetal Cover



EV, HEV & PHEV Motors

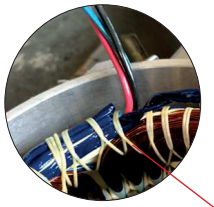


Silicone Sleeves & Tie Cords

Sleeves for electrical insulation of EV, HEV & PHEV motors and Tie Cord to tie the winding due to its mechanical resistance and high compatibility with the resins used in motors.

- Revitex V2V / Revitex Silcup; Tie Cord

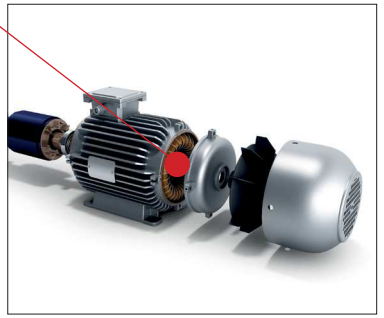
Electrical Power Units



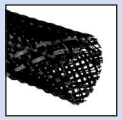
Glass Acrylic & Polyurethane Sleeves

For protection of electrical connections and thermals because of its compatibility with impregnating varnishes.

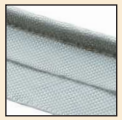
- Revitex VPG40 / VPG80; Revitex VAC30 / VAC40 / VAC80



Mechanical Protection Braids

Product	Description	Material	Expansion ratio	Temperature	Flammability
 **Periflex PS V0**	Expandable braided sleeving mainly meant for applications of mechanical protection.	Monofilament Polyester	1:2	-70°C to +150°C	UL94 V0
 **Periflex PO V0**	Highly expandable braided sleeving mainly meant for applications of mechanical protection.	Monofilament Polyester	1:3	-70°C to +150°C	UL94 V0
 **Periflex Dura HA**	Flexible sleeving intended for high mechanical protection. Due to its dense woven construction provides 100% coverage.	Multifilament Polyamide	--	-70°C to +125°C	Self-Extinguishing

Glass & Polyester Cords

Product	Description	Material	Temperature	Flammability
 **Revitex Therm Support Cord**	Sleeving made of a bundle of E-glass yarn with a braided polyester yarn covering.	Fiberglass and Polyester	-70°C to +180°C	DNA
 **Revitex Therm Tapecord**	Sleeving made of woven fiberglass tape and fully encapsulated knitbraided fiberglass yarn filled with textured fiberglass threads.	Fiberglass	-70°C to +600°C	Self-Extinguishing
 **Polyester Sleeve Bopu**	Expandable braided sleeving with coverage almost 100%.	Multifilament Polyester	-70°C to +150°C	Self-Extinguishing
 **Revitex V0000**	Heat treated braided sleeving. Sleeving provides air space insulating only.	Fiberglass	-70°C to +550°C	Incombustible

Gaskets

Product	Description	Material	Temperature	Flammability
 **Revitex Therm**	Braided or knitbraided fibreglass yarn, impregnated or not, unfilled or filled with textured fiberglass yarn or stainless steel metal mesh and optionally with paper backed adhesive tape.	Fiberglass, Stainless Steel, Paper Backed Adhesive	-70°C to +600°C	Fire Proof

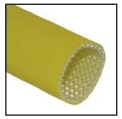
Polyester Impregnated Sleeves

Product	Description	Material	Temperature	Flammability	Abrasion
 **Polycryl PAC**	Braided polyester sleeving impregnated with acrylic varnish.This is a Class B electrical insulating sleeving available in two voltage grades.	Polyester yarn and Acrylic	-70°C to +180°C	DNA	■■■■□

Glass Impregnated Sleeves

Product	Description	Material	Temperature	Flammability	UL
 **Revitex VSR10**	Braided fiberglass sleeving impregnated with silicone varnish. Sleeving provides air space insulation only.	Fiberglass and silicone	-70°C to +300°C	Incombustible	UL recognized

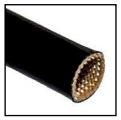
Glass Acrylic Sleeves

Product	Description	Material	Temperature	Flammability	UL
 **Revitex VAC30**	Braided fiberglass sleeving coated with acrylic resin. This is a Class F electrical insulating sleeving.	Fiberglass and Acrylic	-70°C to +155°C	Extinguishes within 60 sec. VW	--
 **Revitex VAC40**	Braided fiberglass impregnated sleeving coated with acrylic resin. This is a Class F electrical insulating sleeving.	Fiberglass and Acrylic	-70°C to +155°C	Extinguishes within 60 sec. VW	UL recognized
 **Revitex VAC80**	Braided fiberglass impregnated sleeving coated with acrylic resin. This is a Class F electrical insulating sleeving.	Fiberglass and Acrylic	-70°C to +155°C	Extinguishes within 60 sec. VW	UL recognized
 **Revitex Bimetal Cover**	Flat or Round Fiberglass braid which is usually treated with an inorganic impregnation.	Fiberglass and Inorganic Impregnation	-70°C to +300°C	Self-Extinguishing	--

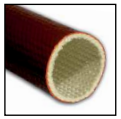
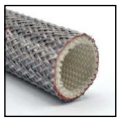
Silicone, Acryilic & Polyurethane Sleeves

Product	Description	Material	Temperature	Flammability	UL
 **Revitex GUF VPG 40/80**	Braided fiberglass sleeving coated with polyurethane varnish.	Fiberglass and Polyurethane	-70°C to +155°C	HS	UL recognized
 **Revitex V2A 25**	Sleeving made of fiberglass braid coated with silicone rubber as a first internal layer. As second external layer made of a braided polyester sleeving with acrylic impregnation.	Fiberglass, Polyester, Silicone and Acrylic	-70°C to +155°C	Self-Extinguishing	--

Glass Silicone Sleeves

Product	Description	Material	Expansion Ratio	Temperature	Flammability	UL
 **Revitex VSC25/75**	Sleeving made of a special silicone rubber coated fiberglass braid.	Fiberglass and silicone	--	-70°C to +235°C	Self-Extinguishing	UL recognized
 **Revitex VSX40**	Sleeving made of a special silicone rubber, its unique construction allows expanding 1.6 times its original size.	Fiberglass and silicone	1: 1,6	-70°C to +235°C	Self-Extinguishing	--
 **Revitex VSX75**	Sleeving made of a special silicone rubber coated fiberglass braid, with allows to expand it to the double of its original size	Fiberglass and silicone	1:2	-70°C to +235°C	Self-Extinguishing	UL recognized
 **Revitex VSC99**	Sleeving made of a special silicone rubber thick coated fiberglass braid that guarantees a high dielectric strength	Fiberglass and silicone	--	-70°C to +235°C	Self-Extinguishing	--

Glass Silicone Sleeves

Product	Description	Material	Temperature	Flammability
 **Revitex VSCTE**	Fiberglass sleeving, thick wall, coated with self extinguishing silicone rubber, that guarantees a high degree of thermal insulation	Fiberglass and silicone	-70°C to +235°C	Self-Extinguishing
 **Revitex VSCTF**	Fiberglass knitbraided sleeving, thick wall, coated with self extinguishing and fire resistant silicone rubber, that guarantees a high degree of thermal insulation and fire protection.	Fiberglass and fire resistant silicone	-70°C to +235°C	Self-Extinguishing
 **FIRE PRO SC**	Self closing fiberglass and polyester sleeving coated with self-extinguishing and fire resistant special silicone rubber, that guarantees a high degree of thermal insulation and fire protection.	Fiberglass, polyester and fire resistant silicone	-70°C to +200°C	Self-Extinguishing
 **Revitex Silcup**	Sleeving made of a special silicone rubber coated fiberglass braid with one end bonded with silicone.	Fiberglass and silicone	-70°C to +235°C	Self-Extinguishing
 **Revitex V2V**	Sleeving made of fiberglass braid coated with silicone rubber as a first internal layer. As second external layer made of a braided fiberglass sleeving with silicone impregnation.	Fiberglass and silicone	-70°C to +200°C	Self-Extinguishing

Tie Cords

Product	Description	Material	Temperature	Flammability	Tensile Strength	ATF Oil Compatibility
 **Tie Cord Nomex®**	Braided sleeving made of Nomex® for tie motors, intended for mechanical resistance and high compatibility with resins.	Nomex® yarn	-70°C to +180°C	Self-Extinguishing	■■■□□	Tensile Strenght Retention 70%
 **Tie Cord PPS**	Braided sleeving made of PPS for tie motors, intended for mechanical resistance and high compatibility with resins.	PPS yarn	-70°C to +180°C	Self-Extinguishing	■■■■□	Tensile Strenght Retention 70%
 **Tie Cord Para-aramid**	Braided sleeving made of Para-aramid for tie motors, intended for mechanical resistance and high compatibility with resins.	Para-aramid yarn	-70°C to +180°C	Self-Extinguishing	■■■■■	Tensile Strenght Retention 70%

Industrial & Energy Customers

RAILWAY

Self Closing

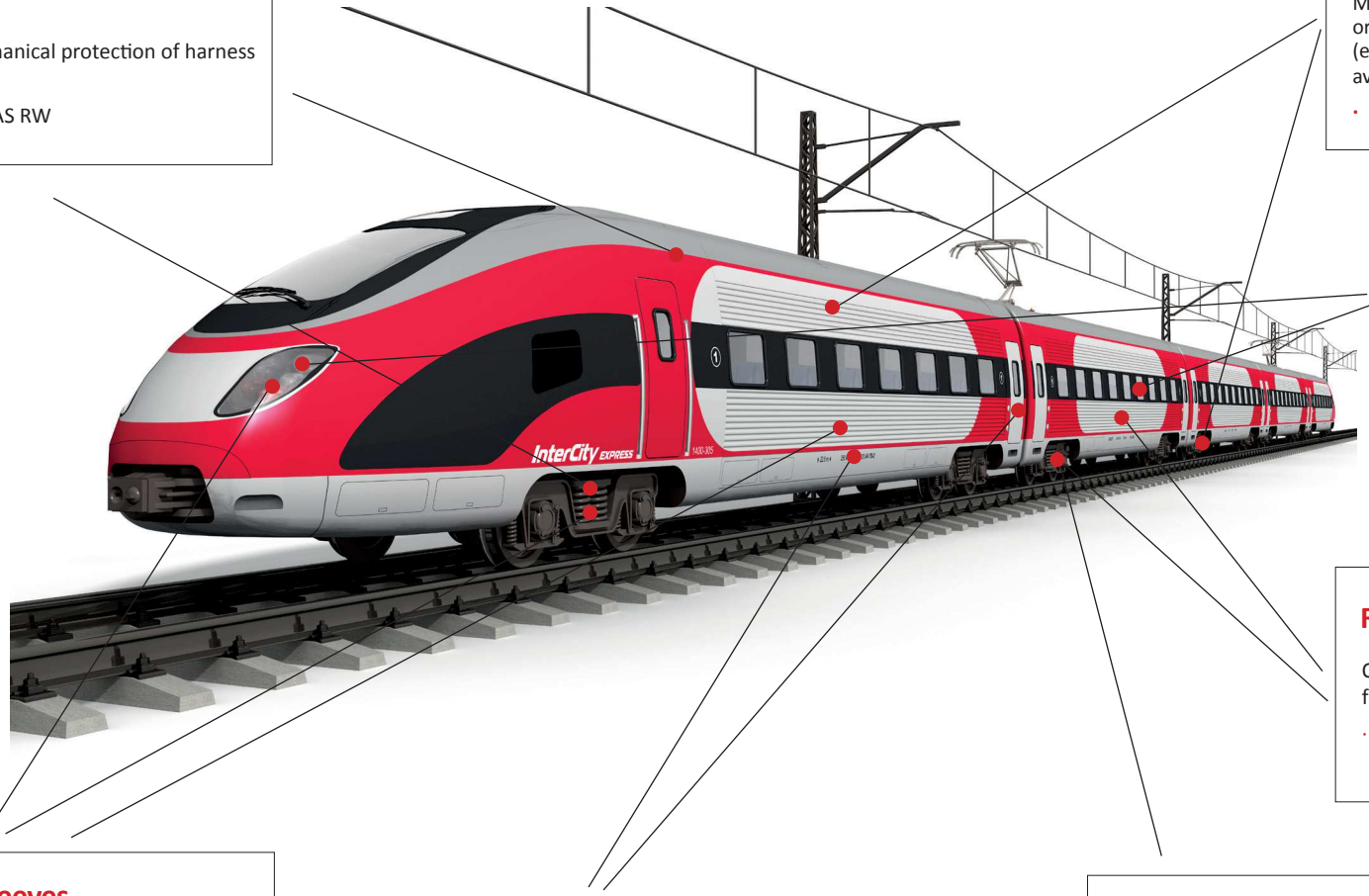
for bundling and mechanical protection of harness cables.

- PLAI7 V0 RW; PLAI7 AS RW

Mechanical Protection Braids

Monofilament or Multifilament braids (eg. PET or PA6.6) for mechanical protection applications (eg. hoses, fuel lines). Various expansion ratios available.

- PS V0 RW; PS O RW; NSG RW



EMI Shielding Sleeves

Sleeves offering shielding of electromagnetic interference on high voltage cables.

- Emi Shield PRO RW; Emi Shield RW, Dura Emi RW

Reflective Sleeves

Open or closed aluminium foil laminated sleeves for thermal protection.

- Revitex SLEEVE AF

Glass Silicone Sleeves

for high temperature applications for example engine sensors or fuel lines.

- VSC25/40/75 RW; VSC99 RW; VSCTE RW; VSCTF RW; FIRE PRO SC RW

Glass Impregnated Sleeves

High oxygen index impregnated sleeves to provide insulation at high temperatures

- VSR10 RW; VSR10 Expandable Version RW

Heatshields

Aluminium foil laminated material customized heatshields for thermal protection, for example connectors or valves.

- Heatshield

RAILWAY

Bogie: areas of application

Pneumatic pipes temperature & impact protection

- Revitex V2A; VSCTF

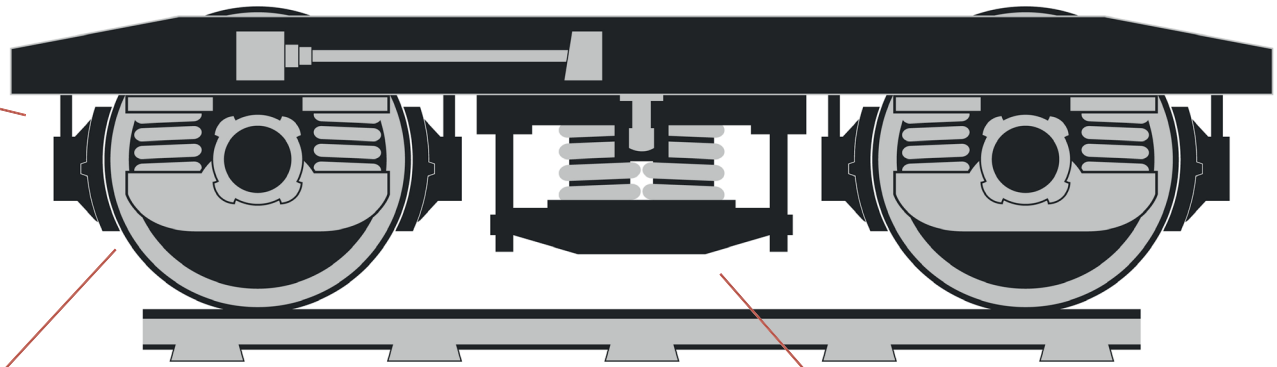
Electrical harness protection

- Revitex VSC; VSX, VSC99

Cable & harness bundeling & protection

- Periflex PS; PLAI7

Revitex VSC; VSX; VSCTF



Brake temperature sensor protection

- Revitex VSC; VSX, VSC99

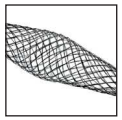
Hidraulic pipes protection

- Revitex 2A; VSCTF

Self Closing

Product	Description	Material	Temperature	Abrasion	Fire Behaviour EN 45545
 **PLAI7 V0 RW**	Woven open sleeve made of flame-retardant fibers with unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament and Multifilament Polyester	-70°C to +150°C	■■■■■	R22&R23 Hazard Level HL1, HL2, HL3
 **PLAI7 AS RW**	Woven open sleeve made of flame-retardant fibers and aluminium foil inside with unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament and Multifilament Polyester and aluminium foil	-70°C to +150°C	■■■■□	R22&R23 Hazard Level HL1, HL2, HL3

Mechanical Protection Braids

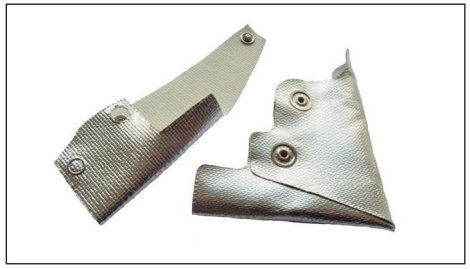
Product	Description	Material	Expansion ratio	Temperature	Abrasion	Fire Behaviour EN 45545
 **Periflex PS V0 RW**	Expandable braided sleeving made of flame retardant fibers mainly meant for applications of mechanical protection.	Monofilament Polyester	1:2	-70°C to +150°C	■■■□□	R22&R23 Hazard Level: HL1, HL2, HL3
 **Periflex PS O RW**	Highly expandable braided sleeving mainly meant for allowing easy cable bundling after wire and harness assembly.	Monofilament Polyester	1:3,6	-70°C to +150°C	■□□□□	R22&R23 Hazard Level: HL1, HL2, HL3
 **Periflex NSG RW**	Expandable braided sleeving mainly meant for applications of mechanical protection.	Monofilament Polyamide	1:2	-70°C to +150°C	■■■■■	R22 Hazard Level: HL1, HL2 R23 Hazard Level: HL1, HL2, HL3

Reflective Sleeves

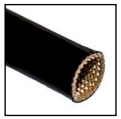
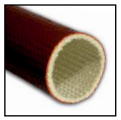
Product	Description	Material	Temperature	Thermal Efficiency (SAE J2302)	Fire Behaviour EN 45545
 **Revitex Sleeve AF**	Braided sleeving with aluminium foil which refracts radiation heat and provides excellent insulating properties.	Fibreglass and Aluminium Foil	-70°C to +200°C	■■■■□	Self-extinguishing

Heatshields

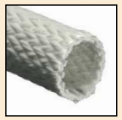
Product	Description	Material	Temperature	Thermal Efficiency (SAE J2302)	Fire Behaviour EN 45545
 **Revitex End Fit V AF (Heatshield)**	Customized heatshields made of fibreglass substrate laminated with aluminium foil. Various types of substrates are available. Heatshields can be with button snaps, adhesive tapes (parcial or full covering) and sown with glass or aramide yarns. Product designed for thermal protection of connectors and other components.	Fibreglass and Aluminium Foil	-70°C to +200°C	■■■■□	Self-extinguishing
			-70°C to +250°C		
			-70°C to +300°C		



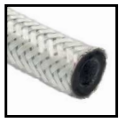
Glass Silicone Sleeves

Product	Description	Material	Temperature	Fire Behaviour EN 45545
 **Revitex VSC25/40/75 RW**	Sleeving made of a special silicone rubber coated fiberglass braid. This is a Class 200 electrical insulating sleeving available in three voltage grades.	Fiberglass and silicone	-70°C to +235°C	R22&R23 Hazard Level: HL1, HL2, HL3
 **Revitex VSC99 RW**	Sleeving made of a special silicone rubber thick coated fiberglass braid that guarantees a high dielectric strength.	Fiberglass and silicone	-70°C to +235°C	DNA
 **Revitex VSCTE RW**	Fiberglass sleeving, thick wall, coated with self extinguishing silicone rubber, that guarantees a high degree of thermal insulation.	Fiberglass and silicone	-70°C to +235°C	DNA
 **Revitex VSCTF RW**	Fiberglass knitbraided sleeving, thick wall, coated with self extinguishing and fire resistant silicone rubber, that guarantees a high degree of thermal insulation and fire protection.	Fiberglass and fire resistant silicone	-70°C to +235°C	R22 Hazard Level: HL1, HL2 R23 Hazard Level: HL1, HL2 HL3
 **FIRE PRO SC RW**	Self closing fiberglass and polyester sleeving coated with self-extinguishing and fire resistant special silicone rubber, that guarantees a high degree of thermal insulation and fire protection.	Fiberglass, polyester and fire resistant silicone	-70°C to +200°C	R22 Hazard Level: HL1, HL2 R23 Hazard Level: HL1, HL2

Glass Impregnated Sleeves

Product	Description	Material	Expansion ratio	Temperature	Fire Behaviour EN 45545
 **Revitex VSR10 RW**	Braided fiberglass sleeving impregnated with silicone varnish. Sleeving provides air space insultaion only.	Fiberglass and silicone	--	-70°C to +300°C	R22&R23 Hazard Level: HL1, HL2, HL3
 **Revitex VSR10** **EXPANDABLE VERSION** **RW**	Expandable braided fiberglass sleeving impregnated with silicone varnish. Sleeving provides air space insultaion only.	Fiberglass and silicone	1:2,5	-70°C to +300°C	R22&R23 Hazard Level: HL1, HL2, HL3

EMI Shielding Sleeves

Product	Description	Material	Temperature	Lighthning Strike	Fire Behaviour EN 45545
 **Emi Shield RW**	Woven open sleeve. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly. The special construction provide lightning strike protection and high performance electromagnetic shielding; easy to make the electrical contact.	PPS monofilament and Tinned plated copper yarn	-65°C to +200°C	DNA	R22 & R23 Hazard Level: HL1, HL2, HL3
 **Emi Shield Pro RW**	Woven open sleeve. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly. The special construction provide lightning strike protection and high performance electromagnetic shielding; easy to make the electrical contact.	PPS monofilament and 4% Nickel plated copper yarn	-65°C to +200°C	10kA	DNA
 **Dura Emi RW**	Braided sleeving mainly meant for applications of electromagnetic and mechanical protection.	CuSn wires	-65°C to +260°C	DNA	DNA

Railway: test & certifications

Relats Products	EUROPEAN STANDARD			NAFTA STANDARD						BRITISH STANDARD			GERMAN STANDARD	FRENCH STANDARD			
	C EN 45545*			NFPA 130				SMP 800-C					DIN 5510	NF F 16.101 CLASS I		NF F 16.101 CLASS F	
	Oxigen index	Gas toxicity	Heat release	Flame propagation	Fire propagation	Smoke release	Flame propagation	Gas toxicity	Heat release	Spread of flame	Reaction to fire	Smoke density	Burning behaviour	Oxigen index	Glow wire	Smoke density	Gas toxicity
	ISO 4589	NF X 70.100	ISO 5659	ASTM E 162	ASTM C 542	ASTM E 662	UL 1685	SMP 800-C	ASTM E 1354	EN ISO 11925-2	BS EN ISO 11925-2:2002	BS 6853:1999	DIN 54837	ISO 4589	NF EN 60695-2-11	NF X 10.702	NF X 70.100
PLAI7	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓
PLAI7 AS	✓													✓			
NSG	✓	✓	✓	✓						✓	✓		✓	✓	✓	✓	✓
PS/PTG	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓
VSC	✓	✓	✓	✓		✓							✓	✓	✓	✓	✓
FIRE PRO SC	✓	✓	✓														
VSCTF	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
VSR10/VRX10	✓	✓	✓			✓			✓	✓		✓	✓	✓	✓	✓	✓
PLAS7				✓		✓		✓	✓								
EMI SHIELD	✓	✓	✓														
SLEEVE AF	✓	✓	✓														

* EN 45545 HL3 (maximum grade) certified: PLAI7, NSG, PS/PTG, VSC,VSR10/VRX10, VSCTF, EMI SHIELD and SLEEVE AF - Rev. 0516

Railway Customers

ALSTOM

BOMBARDIER
the evolution of mobility

AnsaldoBreda
A Finmeccanica Company

SIEMENS

SEPSA

merak

KANGNI

HUBER+SUHNER
Excellence in Connectivity Solutions

Downer

Talgo

STADLER
Clevere Lösungen auf der Schiene

中国中车
CRRC

KNORR-BREMSE

AEROSPACE

Self Wrap

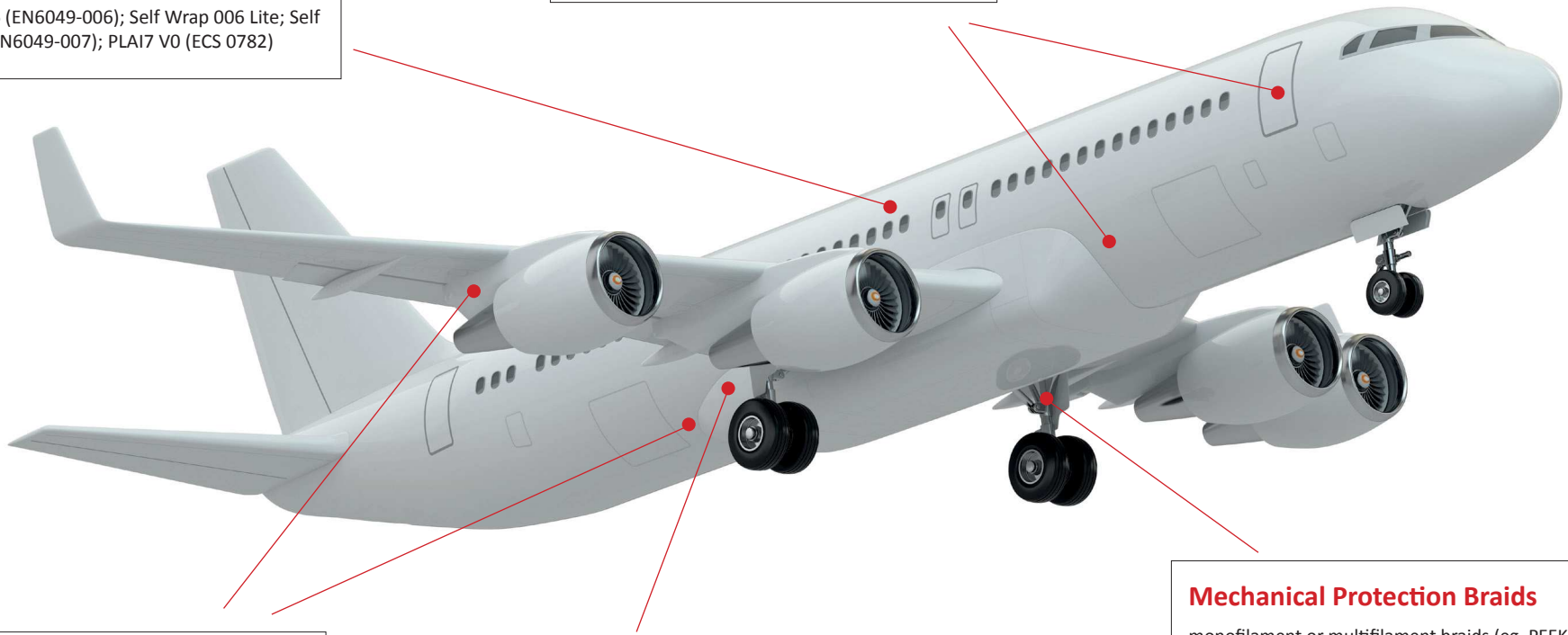
for bundeling mechanical and electrical protection with water repellent treatment.

- Self Wrap 006 (EN6049-006); Self Wrap 006 Lite; Self Wrap HP 007 (EN6049-007); PLAI7 V0 (ECS 0782)

Mechanical Protection Braids

multifilament braids for mechanical protection applications with water repellent treatment.

- DURANX (EN6049-003); DURANX Expandable (EN6049-004)



EMI Shielding Sleeves

nickel plated copper and PPS self closing sleeves for EMI protection applications inside or outside pressurized areas.

- EMI Shield Pro 4 (EN4674-003); EMI Shield Pro 27 (EN4674-004); EMI Shield Lite; PLAS EMI HP (Multifunctional); Dura Emi Pro; Dura Emi Lite

Glass Silicone Sleeves

for fire protection of electrical cable and cable bundles to ensure the electrical characteristics will not be degraded.

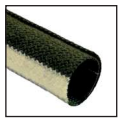
- VSCTF Fire Pro; Fire Pro SC HP

Mechanical Protection Braids

monofilament or multifilament braids (eg. PEEK, PPS and PFA) for mechanical protection applications (eg. hoses, fuel lines). Various expansion ratios available.

- Periflex PEEK; Periflex 200 HA; Periflex DURA PPS; Periflex PFA; Periflex HS

Self Wrap

Product	Description	Material	Temperature	Flammability	Smoke density	Toxicity
 **SELF WRAP 006 (EN6049-006)**	Olive green woven open sleeve. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly.	PPS Monofilament and Meta-aramid Fiber	-70°C to +200°C	✓	✓	✓
 **SELF WRAP LITE (ABS2413)**	Olive green lightweight woven open sleeve. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly.	PPS monofilament and meta-aramid fiber	-70°C to +200°C	✓	✓	✓
 **SELF WRAP HP 007 (EN6049-007)**	Olive green woven open sleeve. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly.	PEEK Monofilament and Meta-aramid Fiber	-70°C to +260°C	✓	✓	✓
 **PLAI7 V0 (ECS0782)**	Black woven open sleeve. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly.	Monofilament and Multifilament Polyester Flame-retardant Fibers	-70°C to +150°C	✓	✓	✓

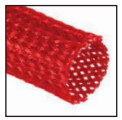
EMI Shielding Sleeves

Product	Description	Material	Temperature	Flammability	Smoke Density	Toxicity	EMI Performance	Lighthning Strike
 **EMI SHIELD PRO 4 / 27 (EN4674-003) (EN4674-004)**	Woven open sleeve. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly. The special construction provide lightning strike protection and high performance electromagnetic shielding; easy to make the electrical contact.	PPS Monofilament and 4% Nickel plated copper yarn	-65°C to +200°C	✓	✓	✓	■■■■□	5kA
		PPS Monofilament and 27% Nickel plated copper yarn						10kA
 **EMI SHIELD LITE**	Ultra light woven open sleeve. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly. The special construction provide lightning strike protection and high performance electromagnetic shielding.	PPS Monofilament and stainless steel cladding with Nickel-Copper	-65°C to +200°C	✓	✓	✓	■■■■□	--
 **PLAS EMI HP (Multifunctional) (ABS2418)**	Three layers woven open sleeve; all three layers are sewn together, easy to remove before making the connexions. The material possesses unique wraparound qualities allowing easy cable bundling after wire harness assembly. The special construction provide lightning strike protection and high performance electromagnetic shielding; easy to make the electrical contact.	External layer: Panox yarn and PEEK monofilament; Second layer: PPS monofilament and nickel cooper wire; Third layer: PTFE tape.	-65°C to +200°C	✓	✓	✓	■■■■□	10kA waveform 1
 **DURA EMI PRO**	Braided sleeving composed of Cu Ni wires mainly meant for applications of electromagnetic and mechanical insulation.	Nickel plated copper wires	-65°C to +260°C	✓	-	-	DNA	-
 **DURA EMI LITE**	Braided sleeving composed of stainless steel and CuNi wires mainly meant for applications of electromagnetic shielding and lightning strike protection.	Stainless steel cladding with nickel-copper	-80°C to +260°C	✓	-	-	DNA	-

Mechanical Protection Braids

Product	Description	Material	Expansion Ratio	Temperature	Flammability	Smoke density	Toxicity
 **DURANX (EN6049-003)**	Braided sleeving intended for mechanical protection and for the protection of cable bundles against flame. Extremely tough and light weight structure.	Meta-aramid Fiber	1:2	-70°C to +240°C	☑	☑	☑
 **DURANX EXPANDABLE (EN6049-004)**	Expandable braided sleeving intended for mechanical protection and for the protection of cable bundles against flame. Extremely tough and light structure.	Meta-aramid Fiber	1:3	-70°C to +240°C	☑	☑	☑

Mechanical Protection Braids

Product	Description	Material	Expansion Ratio	Temperature	Flammability	Smoke density	Toxicity
 **PERIFLEX PEEK**	Braided sleeving mainly meant for applications of mechanical protection and thermal protection. Very tough and light weight structure.	PEEK Monofilament	1:3	-70°C to +260°C	Self-extinguishing	Under Test	Under Test
 **PERIFLEX 200HA**	Braided sleeving mainly meant for applications of mechanical protection and thermal protection. Very tough and light weight structure.	PEEK and PPS Monofilament	1:2	-70°C to +200°C	Self-extinguishing	Under Test	Under Test
 **PERIFLEX HS (ABS0890)**	Braided sleeving mainly meant for applications of mechanical protection and thermal protection. Excellent corrosion and chemical resistance	ECTFE monofilament	1:1,6	-70°C to +180°C	Self-extinguishing	Under Test	Under Test
 **PERIFLEX DURA PPS**	Braided sleeving intended for thermal and mechanical protection. Extremely tough and lightweight structure.	PPS Multifilament	1:2	-70°C to +200°C	☑	☑	☑
 **PERIFLEX PFA**	Braided sleeving mainly meant for applications of mechanical protection and thermal protection. Very tough and light weight structure.	PFA Monofilament	1:2	-70°C to +260°C	Self-extinguishing	Under Test	Under Test

Glass Silicone Sleeves

Product	Description	Material	Temperature	Flammability	Smoke Density	Toxicity	Thermal Efficiency (SAE J2302)
 **VSCTF FIRE PRO**	Braided / knitbraided sleeving coated with fire resistant special silicone rubber, that guarantees a high degree of thermal insulation and fire protection.	Fibreglass and special silicone rubber	-70°C to +235°C	☑	☑	☑	■■■■■
 **FIRE PRO SC HP**	Self closing sleeving coated with self-extinguishing and fire resistant special coating, that guarantees a high degree of thermal insulation and fire protection.	Fiberglass and PPS monofilament and silicone rubber	70°C to +235°C	☑	☑	☑	■■■■□

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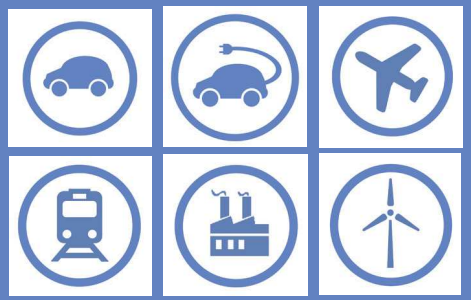

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