

MECHANICAL & THERMAL PROTECTION CATALOGUE



BRAIDED SLEEVES

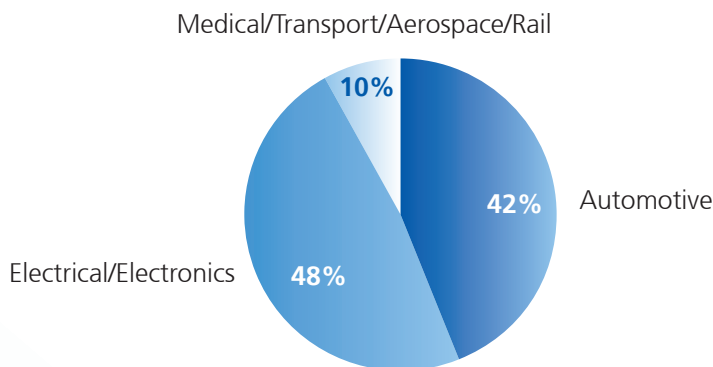
THERMAL PRODUCTS

SPECIALTY PRODUCTS

Company History

- 1985** Foundation of GREMCO as a manufacturer of heat shrink tubing. The original company specialized in the distribution of insulation materials to the electrical industry.
- 1995** Development of expertise in the design and marketing of protective sleeves for cables and harness assemblies for the automotive industry.
- 1996** International expansion of the company and the establishing of the GREMCO UK subsidiary.
- 2002** Expansion of the product range came to include the supply of expandable braided sleeves and heat reflective tubing.
- 2007** Further investment to enhance market leading technical support and to offer a full range of protective sleeves for cables, hoses, pipes and other components destined for the automotive and electrical industries.
- 2010** Foundation of GREMTEK GmbH, with a new sales network across Europe, new warehouse and logistics centre set up in Germany.

Markets



The GREMTEK range offers a comprehensive solution for all types of cable, hose and pipe protection whether the demands be thermal / mechanical protection, electrical insulation or acoustic dampening.

GREMTEK's R&D department is able to design tailor made solutions according to customer needs or according to the relevant industry standards (ISO, DIN ...).

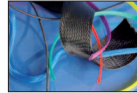
GREMTEK's experience across a wide range of markets enables customers to draw upon our unique expertise and know-how.

Products Range

- Heat Shrinkable Products
GREMTUBE & GREMSHAPES



- Braided Sleeves
GREMFLEX



- Heat Reflective Sleeves
GREMSHIELD & GREMWRAPS



- Fixing Systems and Solutions
GREMFX & GREMRING



- Cable Identification Systems
GREMARK



- Connection Systems
GREMSEAL



Applications

Used in a variety of different applications and markets

Automotive

Assembly, Anti-Abrasion Protection, Thermal Protection, Acoustic Dampening:

- Protection of cables and under-bonnet applications
- Protection of pipes carrying fluids including oil, water and fuel
- Protection of air ducts
- Protection of engine components (pumps, generators)
- Protection of electrical connectors

Electrical / Electronics

Insulation, sealing and identifying:

- Harnesses
- Protection of electrical conductors, cables
- Connectors and sensors

Medical

Assembly, isolation, sealing, protection against chemical attack, identification, transfer of fluids:

- Sensor analysis
- Biological probes

Transport / Aerospace / Rail

- Electrical protection, cable identification

Design



GREMTEK research & development department has extensive knowledge of the capabilities of our products and application areas. They can advise customers on the most appropriate choice of materials in order to meet the stated requirements.

GREMTEK offers a complete service, from co-development of technical solutions, to prototyping, testing, submission of samples and delivery of pre-production and production parts.



Production

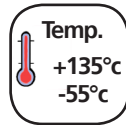
GREMTEK production team aims at supplying the highest quality products whilst maintaining an "on time and in full" delivery philosophy. GREMTEK range is always supplied to our customers specifications.

Tests

GREMTEK laboratory includes a set of test equipment for carrying out the following tests : Impact test , Thermal test , Abrasion and Scratching test, Heat aging test , Fluids test. If unable to undertake a particular test in-house, GREMTEK will outsource this requirement.



How to read the icons



This icon indicates the operating temperature of the product.



This icon indicates that the product is flame retardant.



This icon indicates that the product is made of halogen free polyolefin.



This icon indicates that the product offers a good resistance to wide range of chemicals (diesel, petrol, oil, ...).



This icon indicates that the product is inherently non flammable.



This icon indicates that the product meets some automotive industry standards.



This icon indicates that the product meets some railway industry standards.



This icon indicates that the product meets some aerospace industry standards.

How to order the products

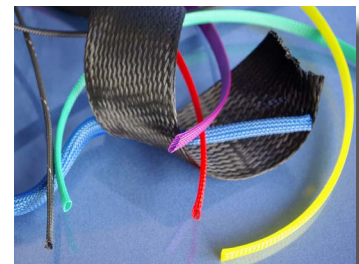
To order the products please contact our sales team:
Contact details can be found on the back cover.

When you order our products please specify the following information:
Product name - Diameter - Colour of the product - Quantity
(e.g. GREMFLEX® PET - 06 mm - Black - 200m)

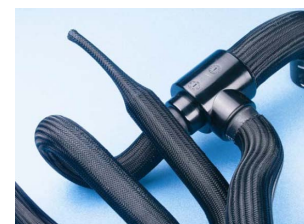
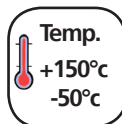
| Type | Product | Description | Material | Operating Temp. (°C) | Flammability | Adhesive | Page | |
|---------------------------|---|------------------------------------|--|--------------------------------------|-----------------------------------|--------------------------|---------------|---------------|
| Braided Sleeves | GREMFLEX® | PET-L | Highly expandable Polyester sleeve | Polyester | -50 to +150 | Self Extinguishing & V-2 | 8 | |
| | | PET | Expandable Polyester sleeve | Polyester | | | 9 | |
| | | PET-S1 | Tight construction expandable Polyester sleeve | Polyester | | | 10 | |
| | | PET-CA | Very tight construction expandable Polyester sleeve | Polyester | | | 11 | |
| | | PET AM | Expandable Polyester sleeve | Polyester | | | 12 | |
| | | PET 025-1 | 0,25mm expandable Polyester sleeve | Polyester | | | 13 | |
| | | PET HAR | Multifilament high resistant sleeve | Polyester | | | 14 | |
| | | PET 038 | 0,38mm expandable Polyester sleeve | Polyester | | | 15 | |
| | | P-V0 | Flame retardant expandable Polyester sleeve | V-0 Polyester | | | V-0 Compliant | 16 |
| | | AM-V0 | Flame retardant expandable Polyester sleeve | V-0 Polyester | | | | 17 |
| | | PA 6.6 | Expandable Polyamide 6.6 sleeve | Polyamide | -60 to +130 | Self Extinguishing & V-2 | 18 | |
| | | PLA 6.6 | Flat expandable Polyamide 6.6 sleeve | Polyamide | -70 to +100 | | 19 | |
| | | PA11 | Expandable Polyamide 11 sleeve | Polyamide | -50 to +150 | | 20 | |
| | | SZ | Noise reduction expandable Polyester & Polyamide sleeve | Polyester + Polyamide | -50 to +150 | Self Extinguishing | 21 | |
| | | PET-SZ | Noise reduction expandable Polyester sleeve | Polyester | -50 to +150 | | 22 | |
| | | PPS | High temperature expandable PPS sleeve | PPS | -50 to +200 | 23 | | |
| | | EMP | Electro Magnetic Protection expandable Polyester & Cu sleeve | Polyester + Cu | -50 to +150 | V-0 & V-2 | 24 | |
| | | NO | Expandable Poly-Aramid sleeve | Poly-Aramid | -60 to +240 | V-0 | 25 | |
| | | PET 025-H&L | Hook-and-loop fastened expandable Polyester sleeve | Polyester | -50 to +150 | V-2 | 26 | |
| | | Thermal Protection Products | GREMSHIELD® | SAPXA | Aluminum Polyester flat sleeve | Al+Polyester | -40 to +180 | Non Flammable |
| SAGXA | Aluminum fiberglass sleeve | | | AL+FG | -40 to +200 | 29 | | |
| TAFPA | Aluminum fiberglass & Polyester wrap-around sleeve | | | Al+FG+Polyester | -40 to +200 | Self extinguishing | 30 | |
| WAFPA | Aluminum fiberglass & Polyester wrap-around sleeve | | | Al+FG+Polyester | | | 31 | |
| PAFPA | Aluminum fiberglass & Polyester tubular sleeve | | | Al+FG+Polyester | | | 32 | |
| 280PET6ALU | Aluminized Polyester & fiberglass heat shield | | | Polyester Al+FG | -50 to +180 | 33 | | |
| 520PET6ALU | Heavy Aluminized Polyester & fiberglass heat shield | | | Polyester Al+FG | 34 | | | |
| 095ALU18AD | Aluminum fiberglass heat shield with adhesive | | | Al+FG+AC | -40 to +180 | 35 | | |
| GREMWIND® | GREMWIND | | | Dispenser for GREMSHIELD® 095ALU18AD | - | 36 | | |
| Coated Sleeves | GREMSHIELD® or GREMFLEX® | | | GESA | Silicone coated fiberglass sleeve | Silicone+ Fiberglass | -60 to +200 | Non Flammable |
| | | GFVA | Silicone impregnated fiberglass sleeve | -60 to +250 | 39 | | | |
| | | GTES | Silicone coated fiberglass sleeve | -40 to +200 | 40 | | | |
| | | GPY40B | Acrylic resin coated polyester sleeve | PET+AC | -40 to +150 | 41 | | |
| Specialty Products | GREMWRAP® | PET | Polyester wrap-around sleeve | Polyester | -50 to +125 | V-2 | 44 | |
| | | P-V0 | Flame retardant Polyester wrap-around sleeve | V0 Polyester | -50 to +125 | V-0 | 45 | |
| | GREMTEX® | SNW | PA6 tubular sleeve | Polyamide | -50 to +150 | Self Extinguishing & V-2 | 46 | |
| | GREMFX® | GREMFX | Fixing system for expandable braid | Polyester+PE | -50 to +125 | | 47 | |
| | GREMRING® | GREMRING | Positioning system for clamp | SS+PE | | | 48 | |
| | GREMFLEX® | GMB PET | Expandable sleeve in a dispenser | Polyester | -50 to +150 | | 49 | |

PPS=Polyphenylene Sulfide — Cu=Copper — Al=Aluminum— FG= Fiber Glass — AC=Acrylic — SS=Stainless Steel — PET=Polyester — PE=Polyolefin

BRAIDED SLEEVES



GREMFLEX® PET-L
GREMFLEX® PET
GREMFLEX® PET-S1
GREMFLEX® PET-CA
GREMFLEX® PET AM
GREMFLEX® PET 025-1
GREMFLEX® PET HAR
GREMFLEX® PET 038
GREMFLEX® P-V0
GREMFLEX® AM-V0
GREMFLEX® PA 6.6
GREMFLEX® PLA 6.6
GREMFLEX® PA 11
GREMFLEX® SZ
GREMFLEX® PET-SZ
GREMFLEX® PPS
GREMFLEX® EMP
GREMFLEX® NO
GREMFLEX® PET 025-H&L



Features/Applications

GREMFLEX® PET-L is a self extinguishing, halogen free, Polyester, 0.22mm monofilament, expandable braided sleeve.

GREMFLEX® PET-L offers a continuous working temperature of -50°C up to +150°C and a very high expansion rate.

GREMFLEX® PET-L is suitable for the protection of cable harnesses where high expansion is required.

Various

Standard colours: Black, Grey, other colours available on request.

Dimensions

| Reference GREMFLEX® PET-L | Recommended range of use (mm) |
|------------------------------|----------------------------------|
| 03 | 3 to 8 |
| 06 | 5 to 12 |
| 12 | 8 to 21 |
| 20 | 12 to 30 |
| 30 | 18 to 55 |
| 40 | 24 to 66 |
| 50 | 30 to 82 |

Cutting

GREMFLEX® PET-L can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PET is a self-extinguishing, halogen free, Polyester, 0.22mm monofilament, expandable braided sleeve.

GREMFLEX® PET offers a continuous working temperature of -50°C up to +150°C, a good resistance to abrasion and a high expansion rate.

GREMFLEX® PET is suitable for the protection of pipes, hoses and cable harnesses used within the automotive and industrial sectors.

Various

Standard colours: Black, Grey, other colours available on request.

Dimensions

| Reference <i>GREMFLEX® PET</i> | Recommended range of use (mm) |
|-----------------------------------|----------------------------------|
| 03 | 1 to 4 |
| 04 | 2 to 6 |
| 05 | 3 to 7 |
| 06 | 4 to 9 |
| 08 | 6 to 11 |
| 10 | 7 to 14 |
| 12 | 8 to 16 |
| 15 | 10 to 20 |
| 20 | 15 to 25 |
| 25 | 20 to 30 |
| 30 | 25 to 42 |
| 40 | 30 to 52 |
| 50 | 45 to 65 |

Cutting

Gremflex® PET can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| | I2 | NFF 16-101 & 102 |
| | On going | E45 545-2 |
| Smoke toxicity | Halogen free | |
| | F1 | NFF 16-101 & 102 |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PET-S1 is a self-extinguishing, halogen free, Polyester, 0.22mm monofilament, expandable braided sleeve.

GREMFLEX® PET-S1 offers a continuous working temperature of -50°C up to +150°C, a tight construction and therefore a superior resistance to abrasion.

GREMFLEX® PET-S1 is suitable for the protection of pipes, hoses and cable harnesses, where high abrasion resistance characteristics are required.



Various

Standard colours: Black, Grey, other colours available on request.

Dimensions

| Reference <i>GREMFLEX® PET-S1</i> | Recommended range of use (mm) |
|--------------------------------------|----------------------------------|
| 04 | 4 to 6,5 |
| 06 | 6 to 8,5 |
| 08 | 8 to 11 |
| 10 | 10 to 13 |
| 12 | 12 to 16 |
| 15 | 15 to 18 |
| 40 | 40 to 48 |

Cutting

GREMFLEX® PET-S1 can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| | I2 | NFF 16-101 & 102 |
| | On going | E45 545-2 |
| Smoke toxicity | Halogen free | |
| | F1 | NFF 16-101 & 102 |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PET-CA is a self-extinguishing, halogen free, Polyester, 0.22mm monofilament, expandable braided sleeve.

GREMFLEX® PET-CA offers a continuous working temperature of -50°C up to +150°C, a very tight construction and therefore an outstanding resistance to abrasion.

GREMFLEX® PET-CA is suitable for the protection of pipes, hoses and cable harnesses, where superior abrasion resistance characteristics are required.

Various

Product available upon request.

Standard colours: Black and Grey.

Dimensions

| Reference | Recommended range of use (mm) |
|------------------------|-------------------------------|
| <i>GREMFLEX®PET-CA</i> | |
| 04 | 2 to 5 |
| 05 | 4 to 6 |
| 08 | 6 to 9 |
| 10 | 8 to 11 |

Cutting

GREMFLEX® PET-CA can be cut to length.

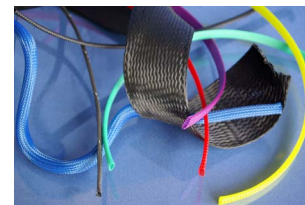
Packaging

Available in spools, coils or cut pieces.

Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PET AM is self extinguishing, halogen free, Polyester, 0.25mm monofilament, expandable braided sleeve.

GREMFLEX® PET AM offers a continuous working temperature of -50°C up to +150°C and a high expansion rate.

GREMFLEX® PET AM is suitable for harness assembly protection where high expansion is required.

Various

Product available upon request.

Standard colours: Black.

Dimensions

| Reference <i>GREMFLEX® PET AM</i> | Recommended range of use (mm) |
|--------------------------------------|----------------------------------|
| 2,4 | 2 to 5 |
| 3,2 | 4 to 8 |
| 4,8 | 5 to 14 |
| 6,4 | 7 to 17 |
| 12,7 | 14 to 29 |
| 19,1 | 20 to 42 |
| 31,8 | 32 to 65 |
| 38,1 | 39 to 72 |
| 44,5 | 45 to 86 |

Cutting

GREMFLEX® PET AM can be cut to length.

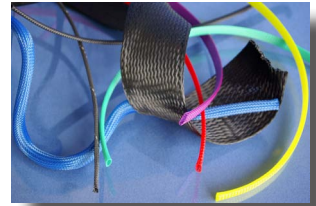
Packaging

Available in spools, coils or cut pieces.

Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PET 025-1 is a self-extinguishing, halogen free, Polyester, 0.25mm monofilament, expandable braided sleeve.

GREMFLEX® PET 025-1 offers a continuous working temperatures of -50°C up to +150°C, an outstanding abrasion resistance and a high expansion rate.

GREMFLEX® PET 025-1 is suitable for the protection of pipes, hoses and harnesses where high abrasion resistance characteristics are required.

Various

Standard colours: Black, Grey, other colours available on request.

Dimensions

| Reference | Recommended range of use (mm) |
|---------------------|-------------------------------|
| GREMFLEX® PET 025-1 | |
| 03 | 1 to 4 |
| 04 | 2 to 6 |
| 05 | 3 to 7 |
| 06 | 4 to 9 |
| 08 | 6 to 11 |
| 10 | 7 to 15 |
| 12 | 8 to 16 |
| 15 | 10 to 20 |
| 20 | 15 to 25 |
| 25 | 18 to 30 |
| 30 | 25 to 43 |
| 40 | 30 to 54 |
| 50 | 40 to 65 |

Cutting

GREMFLEX® PET 025-1 can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PET is a self-extinguishing, halogen free, Polyester, multifilament, expandable braided sleeve.

GREMFLEX® PET offers a continuous working temperature of -50°C up to +150°C, a very high resistance to abrasion and a moderate expansion rate.

GREMFLEX® PET is suitable for the protection of pipes, hoses and cable harnesses used within the automotive and industrial sectors when a high resistance to abrasion is required.



Various

Standard colours: Black, other colours available on request.

Dimensions

| Reference <i>GREMFLEX® PET HAR</i> | Recommended range of use (mm) |
|---------------------------------------|----------------------------------|
| 04 | 3 to 4 |
| 06 | 4 to 6 |
| 08 | 6 to 8 |
| 10 | 8 to 10 |
| 12 | 10 to 12 |
| 14 | 12 to 14 |
| 16 | 14 to 16 |
| 18 | 16 to 18 |
| 20 | 18 to 20 |
| 25 | 20 to 25 |
| 32 | 25 to 32 |
| 40 | 32 to 40 |

Cutting

Gremflex® PET HAR can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PET 038 is a self-extinguishing, halogen free, Polyester, 0.38mm, monofilament expandable braided sleeve.

GREMFLEX® PET 038 offers a continuous working temperature of -50°C up to +150°C, a good abrasion resistance and a high expansion rate.

GREMFLEX® PET 038 is suitable for the protection pipes, hoses and cable harnesses used in the industrial sector.

Various

Standard colours: Black, Grey, other colours available on request.

Dimensions

| Reference <i>GREMFLEX® PET 038</i> | Recommended range of use (mm) |
|---------------------------------------|----------------------------------|
| 04 | 3 to 6 |
| 06 | 5 to 20 |
| 10 | 9 to 22 |
| 20 | 19 to 31 |
| 30 | 29 to 55 |
| 44 | 43 to 78 |
| 62 | 61 to 118 |
| 86 | 85 to 140 |

Cutting

Gremflex® PET 038 can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® P-V0 is a UL94 V-0 compliant, halogen free, Polyester, 0,22mm monofilament, expandable braided sleeve.

GREMFLEX® P-V0 offers a continuous working temperature of -50°C up to +150°C and outstanding flame retardant properties.

GREMFLEX® P-V0 is suitable for the protection of pipes, hoses and cable harnesses used within the mass transportation sector and where flame retardant properties are required.

Various

Standard colours: Black with a Grey tracer or Grey with a Black tracer.

Specifications

Compliant to V-0 (UL94)

Dimensions

| Reference <i>GREMFLEX® P-V0</i> | Recommended range of use (mm) |
|------------------------------------|----------------------------------|
| 03 | 1 to 4 |
| 04 | 2 to 6 |
| 05 | 3 to 7 |
| 06 | 4 to 9 |
| 08 | 6 to 11 |
| 10 | 7 to 14 |
| 12 | 8 to 16 |
| 15 | 10 to 20 |
| 20 | 12 to 24 |
| 25 | 16 to 30 |
| 30 | 20 to 42 |
| 40 | 30 to 51 |
| 50 | 40 to 55 |

Cutting

Gremflex® P-V0 can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +225°C |
| Flammability | V-0 compliant | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| | I2 | NFF 16-101 & 102 |
| | On going | E45 545-2 |
| Smoke toxicity | Halogen free | |
| | F1 | NFF 16-101 & 102 |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® AM-V0 is a UL94 V-0 compliant, halogen free, Polyester, 0,22mm monofilament, expandable braided sleeve.

GREMFLEX® AM-V0 offers outstanding flame retardant properties, a continuous working temperature of -50°C up to +150°C and a high expansion rate.

GREMFLEX® AM-V0 is suitable for the protection of pipes, hoses and cable harnesses for the mass transportation sector where high expansion and flame retardant properties are required.

Various

Product available upon request.

Standard colours: Black with a White tracer.

Specifications

Compliant to V-0 (UL 94).

Dimensions

| Reference <i>GREMFLEX® AM-V0</i> | Recommended range of use (mm) |
|-------------------------------------|----------------------------------|
| 2,4 | 1 to 5 |
| 3,2 | 4 to 8 |
| 4,7 | 5 to 14 |
| 6,4 | 7 to 17 |
| 12,7 | 14 to 29 |
| 19,1 | 20 to 42 |
| 31,8 | 25 to 65 |
| 38,1 | 32 to 72 |
| 44,5 | 38 to 86 |

Cutting

Gremflex® AM-V0 can be cut to length.

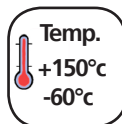
Packaging

Available in spools, coils or cut pieces.

Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +225°C |
| Flammability | V-0 compliant | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| | I2 | NFF 16-101 & 102 |
| | On going | E45 545-2 |
| Smoke toxicity | Halogen free | |
| | F1 | NFF 16-101 & 102 |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PA6.6 is a self-extinguishing, halogen free, Polyamide 6.6 (PA – Nylon™), 0.25mm monofilament expandable braided sleeve.

GREMFLEX® PA6.6 offers a working temperature of -60°C up to +150°C, an outstanding abrasion resistance and a good expansion rate.

GREMFLEX® PA6.6 is suitable for the protection pipes, hoses and cable harnesses where high abrasion resistance is required.

Various

Standard colours: Black, Grey, other colours available on request.

Dimensions

| Reference GREMFLEX® PA6.6 | Recommended range of use (mm) |
|------------------------------|----------------------------------|
| 03 | 2 to 4 |
| 04 | 3 to 5 |
| 05 | 4 to 7 |
| 06 | 5 to 8 |
| 08 | 6 to 10 |
| 10 | 8 to 12 |
| 12 | 10 to 15 |
| 14 | 12 to 16 |
| 16 | 14 to 17 |
| 20 | 16 to 24 |
| 25 | 20 to 28 |
| 30 | 24 to 31 |
| 40 | 30 to 42 |
| 50 | 42 to 54 |
| 60 | 52 to 60 |

Cutting

Gremflex® PA6.6 can be cut to length.

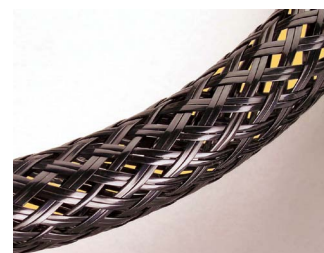
Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|--------------------|
| Physical | Working temperature | -60°C to +150°C |
| | Peak temperature | +160°C |
| | Melting point | +250°C |
| Flammability | V-2 (1) | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| | I2 | NFF 16-101 & 102 |
| | On going | E45 545-2 |
| Smoke toxicity | Halogen free | |
| | F2 | NFF 16-101 & 102 |
| Oxygen index | 31,7% | NF EN ISO 4589-1&2 |
| Chemical | Unaffected by most chemicals | |

(1) Exists also in V-0





Features/Applications

GREMFLEX® PLA6.6 is a self-extinguishing, halogen free, Polyamide 6.6 (PA - Nylon™), flat monofilament expandable braided sleeve.

GREMFLEX® PLA6.6 offers a continuous working temperature range of -60°C up to +150°C, an outstanding resistance to wearing and two expansion rates (U and P).

GREMFLEX® PLA6.6 is suitable for the protection of pipes, hoses and cable harnesses where superior abrasion resistance is required.

Various

Standard colours: Black and Grey.

Specifications

GREMFLEX® PLA6.6-U: For enhanced protection against abrasion.

GREMFLEX® PLA6.6-P: For harness assemblies.

Dimensions

| GREMFLEX® PLA6.6 | | Recommended range of use (mm) |
|------------------|------|----------------------------------|
| Serie U | | |
| | 16 U | 3 to 8 |
| | 24 U | 5 to 14 |
| | 32 U | 8 to 19 |
| | 40 U | 11 to 24 |
| | 48 U | 14 to 30 |
| Serie P | | |
| | 16 P | 3 to 10 |
| | 24 P | 6 to 16 |
| | 32 P | 9 to 22 |
| | 40 P | 13 to 30 |
| | 48 P | 16 to 30 |

Cutting

GREMFLEX® PLA6.6 can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|--------------------|
| Physical | Working temperature | -60°C to +150°C |
| | Peak temperature | +160°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Oxygen index | 31,7% | NF EN ISO 4589-1&2 |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PA11 is a self-extinguishing, halogen free, Polyamide 11 (PA – Rilsan™), 0.30mm monofilament expandable braided sleeve.

GREMFLEX® PA11 offers a continuous working temperature of -70°C up to +100°C, an outstanding abrasion resistance and a good expansion rate.

GREMFLEX® PA11 is suitable for the protection pipes, hoses and cable harnesses where high abrasion resistance is required.

Various

Standard colours: Black, Grey, other colours available on request.

Dimensions

| Reference <i>GREMFLEX® PA11</i> | Recommended range of use (mm) |
|------------------------------------|----------------------------------|
| 03 | 2 to 4 |
| 04 | 3 to 5 |
| 05 | 4 to 7 |
| 06 | 5 to 8 |
| 08 | 6 to 10 |
| 10 | 8 to 12 |
| 12 | 10 to 14 |
| 14 | 12 to 16 |
| 16 | 14 to 18 |
| 18 | 15 to 21 |
| 20 | 17 to 23 |
| 22 | 18 to 25 |
| 25 | 20 to 28 |
| 30 | 25 to 32 |
| 35 | 30 to 40 |
| 40 | 35 to 44 |
| 50 | 42 to 58 |
| 60 | 52 to 68 |

Cutting

Gremflex® PA11 can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|--------------------|
| Physical | Working temperature | -70°C to +100°C |
| | Peak temperature | +150°C |
| | Melting point | +185C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Oxygen index | 26% | NF EN ISO 4589-1&2 |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® SZ is a self-extinguishing, halogen free, Polyester, 0.22mm monofilament and Polyamide (PA) bulked multifilament, expandable braided sleeve. GREMFLEX® SZ offers a continuous working temperature of -50°C up to +150°C, good acoustic dampening properties and a good expansion rate. GREMFLEX® SZ is suitable for the protection of pipes, hoses and cable harnesses within the automotive sector where noise reduction is required.

Various

Standard colours: Black.

Dimensions

| Reference <i>GREMFLEX® SZ</i> | Recommended range of use (mm) |
|----------------------------------|----------------------------------|
| 09 | 4 to 6 |
| 13 | 9 to 8 |
| 17 | 13 to 12 |
| 19 | 15 to 14 |
| 25 | 19 to 20 |
| 29 | 22 to 24 |
| 39 | 29 to 34 |

Cutting

GREMFLEX® SZ can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PET-SZ is a self-extinguishing, halogen free, Polyester, 0.22mm monofilament and bulked multifilament, expandable braided sleeve. GREMFLEX® PET-SZ offers a continuous working temperature of -50°C up to +150°C, good acoustic dampening properties and a good expansion rate. GREMFLEX® PET-SZ is suitable for the protection of wires and cables harnesses within the automotive sector where noise reduction is required.

Various

Standard colours: Black.

Dimensions

| Reference GREMFLEX® PET-SZ | Recommended range of use (mm) |
|-------------------------------|----------------------------------|
| 03 | 1 to 3 |
| 04 | 2 to 7 |
| 06 | 4 to 10 |
| 09 | 6 to 15 |
| 12 | 8 to 19 |
| 15 | 10 to 23 |
| 20 | 13 to 28 |
| 30 | 20 to 38 |
| 40 | 30 to 48 |
| 50 | 40 to 58 |

Cutting

GREMFLEX® PET-SZ can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® PPS is a self-extinguishing, Polyphenylene Sulfide (PPS), 0.25mm monofilament, expandable braided sleeve.

GREMFLEX® PPS offers a continuous working temperature of -50°C up to +200°C, an excellent mechanical abrasion resistance as well as a low level of flammability and a high resistance to most automotive fluids.

GREMFLEX® PPS is suitable for protecting cables, pipes and hoses situated within harsh environments. Used within the automotive, aerospace and military sectors.

Various

Product available upon request.

Standard colours: Black and Clear.



Dimensions

| Reference | Recommended range of use (mm) |
|---------------|-------------------------------|
| GREMFLEX® PPS | |
| 10 | 10 to 16 |
| 12 | 12 to 18 |
| 15 | 15 to 21 |
| 25 | 25 to 31 |

Cutting

GREMFLEX® PPS can be cut to length.

Packaging

Available in spools, coils or cut pieces.

Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------------------|
| Physical | Working temperature | -50°C to +200°C |
| | Peak temperature | +230°C |
| | Melting point | +280°C |
| | Flammability | Self extinguishing Type A |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMFLEX® EMP is a self-extinguishing, halogen free, Polyester, 0.25mm monofilament and 0,1mm tinned copper, expandable braided sleeve.

GREMFLEX® EMP offers a continuous working temperature of -40°C up to +150°C. PET gives a good resistance to abrasion whilst copper confers excellent Electro Magnetic Interference (EMI) shielding protection properties.

GREMFLEX® EMP is suitable for the protection of cables and harnesses which are sensitive to electrical noise.

Various

Standard colours: Black, and red PET available.

Specification

Meets requirements of specification 000413-01, Temperature class T4.

Dimensions

| Reference | Inside diameter | | Recommended range of use (mm) | |
|---|-----------------|----------|-------------------------------|-------|
| | Nominal | Expanded | Mini. | Maxi. |
| GREMFLEX® EMP | | | | |
| <i>This sleeve is available from diameters 6mm to 40mm.</i> | | | | |
| <i>Our engineering department will define with you the most suitable design to provide best results in accordance with your specifications.</i> | | | | |

Cutting

GREMFLEX® EMP can be cut to length, with or without PE tube inside.

Packaging

Available in spools, coils or cut pieces. With or without connector.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -40°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2* | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |

*Exists also in V-0





Features/Applications

GREMFLEX® NO is a self-extinguishing, Poly-Aramid (Nomex™), multifilament braided sleeve. This product offers some expansion
GREMFLEX® NO offers a continuous working temperature of -60°C up to +240°C, a good mechanical abrasion resistance, an excellent resistance to humidity, outstanding performances under Beta, Gamma and Xray radiation as well as a high resistance to chemicals.
GREMFLEX® NO is suitable for protecting cables and hoses in harsh environmental conditions.

Various

Standard colours: Ivory, Olive green.

Specifications

V-0 rated (UL94)

Dimensions

| Reference <i>GREMFLEX® NO</i> | Recommended range of use (mm) |
|----------------------------------|----------------------------------|
| 02 | 1 to 2 |
| 04 | 2 to 4 |
| 06 | 4 to 8 |
| 08 | 6 to 12 |
| 10 | 8 to 16 |
| 15 | 10 to 20 |
| 20 | 12 to 24 |
| 25 | 15 to 30 |
| 30 | 20 to 40 |

Cutting

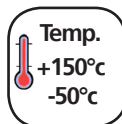
GREMFLEX® NO can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values | Test Methods |
|-----------------|---------------------|------------------------------|
| Physical | Working temperature | -60°C to +240°C |
| | Peak temperature | +240°C |
| | Melting point | +310°C |
| | Carbonization | Above 370°C |
| Flammability | V-W1 | UL224 |
| | V-0 | UL94 on compound |
| Chemical | Chemical resistance | Unaffected by most chemicals |





Features/Applications

GREMFLEX® PET 025-H&L is a flexible, wrap-around, halogen free, Polyester braided sleeve with a hook-and-loop closure system.

GREMFLEX® PET 025-H&L offers a continuous working temperature of -50°C up to +150°C, a good resistance to abrasion and cut through as well as a heavy duty hook-and-loop closure.

GREMFLEX® PET 025-H&L is suitable for computer and electrical cables bundling applications which require easy on and off installation, rework and break outs.

Various

Standard colors: Black.

Available on request : Green, Yellow, Blue, White, Red, Grey, Orange.

Dimensions

| Reference | | Wall thickness (mm) |
|--------------------------|------|---------------------|
| GREMFLEX® PET 025-H&L | | |
| (inch) | (mm) | |
| 1/2 | 12,7 | 0,6 |
| 3/4 | 19 | 0,6 |
| 1-1/4 | 32 | 0,6 |
| 2 | 51 | 0,6 |

Cutting

GREMFLEX® PET 025-H&L can be cut to length.

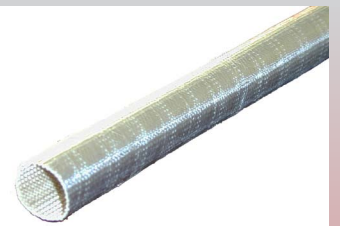
Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

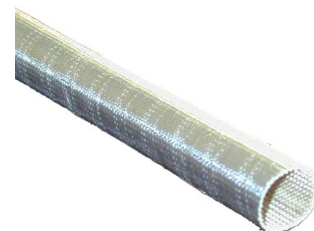
| Property | Values | Test Methods |
|-------------------------------|------------------------------|-------------------------------------|
| Physical | Working temperature | -50°C to +150°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| | Flammability | V-2 Self extinguishing Type A |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |
| Hook-and-loop fastener | Material | Polyamide 6.6 |
| | Working temperature | -20°C à + 95°C |
| | Flame resistance | Non-flame retardant |



THERMAL PROTECTION PRODUCTS



GREMSHIELD® SAPXA
GREMSHIELD® SAGXA
GREMSHIELD® TAFPA
GREMSHIELD® WAFPA
GREMSHIELD® PAFPA
GREMSHIELD® 280PET6ALU
GREMSHIELD® 520PET6ALU
GREMSHIELD® 095ALU18AD
GREMWIND®



Features/Applications

GREMSHIELD® SAPXA is a flexible sleeve made of Polyester braid covered with an aluminum foil. GREMSHIELD® SAPXA offers a continuous working temperature of -40°C up to +180°C. Its smooth and reflective outer surface provides a very effective barrier to extreme radiant heat. It is designed to reduce particle generation and irritation effect. GREMSHIELD® SAPXA is suitable for the protection of cable assemblies, hoses and pipes from a heat source. Used extensively within the automotive sector.

Various

Standard colors: Reflective aluminum.

Dimensions

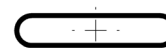
| Reference GREMSHIELD® SAPXA | Inner Diameter | |
|--------------------------------|----------------|-------|
| | Millimeter | Inch |
| 06 | 6,4 | 1/4 |
| 09 | 9,5 | 3/8 |
| 12 | 12,7 | 1/2 |
| 15 | 15,8 | 5/8 |
| 19 | 19,1 | 3/4 |
| 22 | 22,2 | 7/8 |
| 25 | 25,4 | 1 |
| 31 | 31,8 | 1-1/4 |
| 38 | 38,1 | 1-1/2 |

Cutting

GREMFLEX® SAPXA can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.



Sleeve Shape

| Property | Values | Test Methods | |
|-----------------|---------------------------------|--------------------|----------------------|
| Physical | Working environment temperature | -40°C to +180°C | |
| | Working radiant temperature | -40°C to +180°C | |
| | Flammability | Self extinguishing | ASTM D-350, method B |
| Chemical | Fluid resistance (4h immersion) | Automotive fluids | No delamination |





Features/Applications

GREMSHIELD® SAGXA is a flexible sleeve made of fiberglass braid covered with an aluminum foil. GREMSHIELD® SAGXA offers a continuous working temperature of -40°C up to +200°C. Its smooth and reflective outer surface provides a very effective barrier to extreme radiant heat. It is a fully tubular sleeve designed to eliminate conventional "sewn" alternatives.

GREMSHIELD® SAGXA is suitable for the protection of cable assemblies, hoses and pipes from a heat source. Used extensively within the automotive sector.

Various

Standard colors: Reflective aluminum.

Dimensions

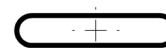
| Reference <i>GREMSHIELD® SAGXA</i> | Inner Diameter | |
|---------------------------------------|----------------|-------|
| | Millimeter | Inch |
| 06 | 6,4 | 1/4 |
| 09 | 9,5 | 3/8 |
| 12 | 12,7 | 1/2 |
| 15 | 15,8 | 5/8 |
| 19 | 19,1 | 3/4 |
| 22 | 22,2 | 7/8 |
| 25 | 25,4 | 1 |
| 31 | 31,8 | 1-1/4 |
| 38 | 38,1 | 1-1/2 |
| 50 | 50,8 | 2 |
| 76 | 76,2 | 3 |
| 101 | 101,6 | 4 |

Cutting

GREMFLEX® SAGXA can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.



Sleeve Shape

| Property | Values | Test Methods |
|-----------------|---------------------------------|--------------------|
| Physical | Working temperature | -40°C to +200°C |
| | Heat choc (6h @ 200°C) | No delamination |
| | Flammability | Self extinguishing |
| Chemical | Fluid resistance (4h immersion) | Automotive fluids |
| | | No delamination |





Features/Applications

GREMSHIELD® TAFPA is a flexible, self-wrapping sleeve made of fiberglass and Polyester monofilament covered with an aluminum foil.

GREMSHIELD® TAFPA offers a continuous working temperature of -40°C up to +200°C. Its self sealing adhesive reinforcement (without overlap for light weight) allows for permanent and seamless closure. Its smooth and reflective outer surface provides an effective barrier to extreme radiant heat.

GREMSHIELD® TAFPA is suitable for the protection, after connector installation of cable assemblies, hoses and pipes from a heat source. Used extensively within the automotive sector.

Various

Standard colours: Reflective aluminum.

Dimensions

| Reference <i>GREMSHIELD® TAFPA</i> | Inner Diameter | |
|---------------------------------------|----------------|-------|
| | Millimeter | Inch |
| 06 | 6,4 | 1/4 |
| 09 | 9,5 | 3/8 |
| 12 | 12,7 | 1/2 |
| 15 | 15,8 | 5/8 |
| 19 | 19,1 | 3/4 |
| 22 | 22,2 | 7/8 |
| 25 | 25,4 | 1 |
| 31 | 31,8 | 1-1/4 |
| 38 | 38,1 | 1-1/2 |

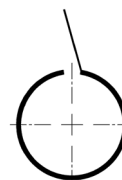
Cutting

GREMFLEX® TAFPA can be cut to length.

Packaging

Available in cut pieces.

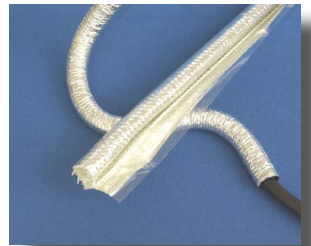
Other packaging available upon request.



Sleeve Shape

| Property | Values | Test Methods |
|-----------------|---------------------------------|--------------------|
| Physical | Working temperature | -40°C to +200°C |
| | Heat choc (6h @ 200°C) | No delamination |
| | Flammability | Self extinguishing |
| Chemical | Fluid resistance (4h immersion) | Automotive fluids |
| | | |
| | | No delamination |





Features/Applications

GREMSHIELD® WAFPA is a flexible self-wrapping sleeve made of fiberglass and Polyester monofilament covered with an aluminum foil. GREMSHIELD® WAFPA offers a continuous working temperature of -40°C up to +200°C. Its overlapping sides and a self sealing adhesive reinforcement allow for permanent and seamless closure. Its smooth and reflective outer surface provides a highly effective barrier to extreme radiant heat. GREMSHIELD® WAFPA is suitable for the protection of cable assemblies, hoses and pipes from a heat source. Used extensively within the automotive sector.

Various

Standard colours: Reflective aluminum.

Dimensions

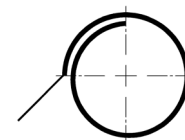
| Reference <i>GREMSHIELD® WAFPA</i> | Inner Diameter | |
|---------------------------------------|----------------|-------|
| | Millimeter | Inch |
| 09 | 9,5 | 3/8 |
| 12 | 12,7 | 1/2 |
| 15 | 15,8 | 5/8 |
| 19 | 19,1 | 3/4 |
| 25 | 25,4 | 1 |
| 31 | 31,8 | 1-1/4 |
| 38 | 38,1 | 1-1/2 |

Cutting

GREMFLEX® WAFPA can be cut to length.

Packaging

Available in cut pieces.
 Other packaging available upon request.



Sleeve Shape

| Property | Values | Test Methods |
|-----------------|---------------------------------|--------------------|
| Physical | Working temperature | -40°C to +200°C |
| | Heat choc (6h @ 200°C) | No delamination |
| | Flammability | Self extinguishing |
| Chemical | Fluid resistance (4h immersion) | Automotive fluids |
| | | |
| | | No delamination |





Features/Applications

GREMSHIELD® PAFPA is a flexible, tubular sleeve made of fiberglass and Polyester monofilament covered with an aluminum foil.

GREMSHIELD® PAFPA offers a continuous working temperature of -40°C up to +200°C. Its smooth and reflective outer surface provides an effective barrier to extreme radiant heat.

GREMSHIELD® PAFPA is suitable for the protection of cable assemblies, hoses and pipes from a heat source. Used within the automotive sector.

Various

Standard colours: Reflective aluminum.

Dimensions

| Reference <i>GREMSHIELD® PAFPA</i> | Inner Diameter | |
|---------------------------------------|----------------|-------|
| | Millimeter | Inch |
| 09 | 9,5 | 3/8 |
| 12 | 12,7 | 1/2 |
| 15 | 15,8 | 5/8 |
| 19 | 19,1 | 3/4 |
| 25 | 25,4 | 1 |
| 31 | 31,8 | 1-1/4 |
| 38 | 38,1 | 1-1/2 |

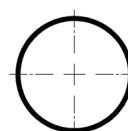
Cutting

GREMFLEX® PAFPA can be cut to length.

Packaging

Available in cut pieces.

Other packaging available upon request.



Sleeve Shape

| Property | Values | Test Methods |
|-----------------|---------------------------------|--------------------|
| Physical | Working temperature | -40°C to +200°C |
| | Heat choc (6h @ 200°C) | No delamination |
| | Flammability | Self extinguishing |
| Chemical | Fluid resistance (4h immersion) | Automotive fluids |
| | | |
| | | No delamination |





Features/Applications

GREMSHIELD® 280PET6ALU is a flexible heatshield made of a Polyester aluminized foil laminated over a thick PU treated glass cloth. GREMSHIELD® 280PET6ALU offers a continuous working temperature of -50°C up to +180°C. Its smooth and reflective outer surface provides a effective barrier to extreme radiant heat. GREMSHIELD® 280PET6ALU is suitable for the protection of any temperature sensitive components (molded parts, reservoirs, tanks, etc) from a heat source. Used within the automotive sector.



Various

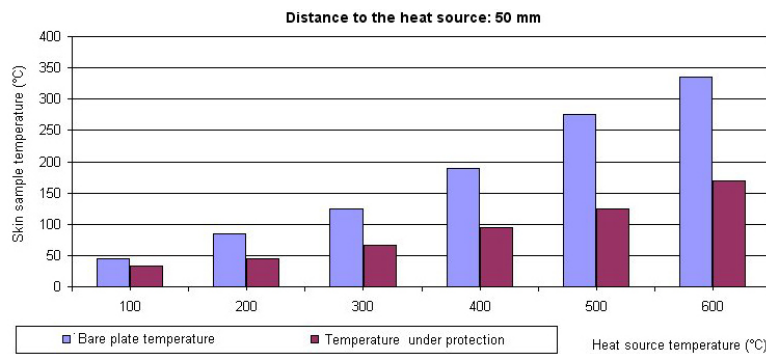
Standard colors: Aluminum.

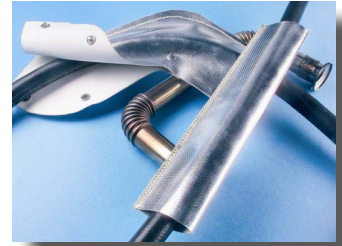
Dimensions

These parts are customized to fit each customer application. Gremtek engineering department will define with you the most suitable design to provide the best results in accordance with your specifications.

| Property | Values / Tolerances | Test Methods |
|-------------------------------------|-----------------------------|------------------------|
| Physical Working temperature | -50°C to +180°C | - |
| Processing | Non fraying PU | - |
| Aluminated polyester thickness | 6 µm | Against joining 1 face |
| Weight | 280 ± 20 g / m ² | ISO 2286-2A |
| Thickness | 0,20 ± 0,03 mm | ISO 2286-3 |
| Flammability | Type A | D45 1333 |

Heat reduction





Features/Applications

GREMSHIELD® 520PET6ALU is a flexible heatshield made of a Polyester aluminized foil laminated over a thick PU treated glass cloth. GREMSHIELD® 520PET6ALU offers a continuous working temperature of -50°C up to +180°C. Its smooth and reflective outer surface provides a effective barrier to extreme radiant heat. GREMSHIELD® 520PET6ALU is suitable for the protection of any temperature sensitive components (molded parts, reservoirs, tanks, etc) from a heat source. Used within the automotive sector.

Various

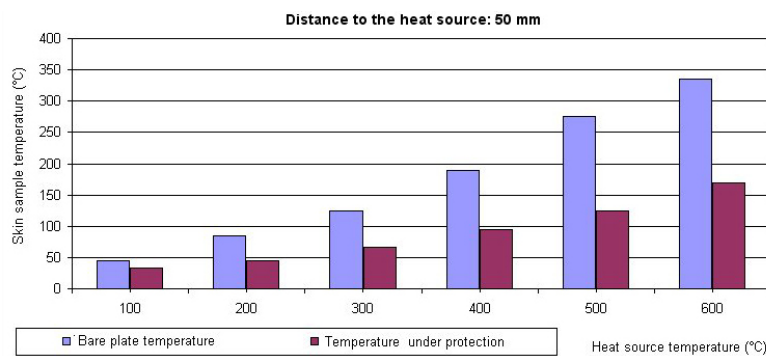
Standard colors: Aluminum.

Dimensions

These parts are customized to fit each customer application. Gremtek engineering department will define with you the most suitable design to provide the best results in accordance with your specifications.

| Property | Values / Tolerances | Test Methods |
|-------------------------------------|-----------------------------|------------------------|
| Physical Working temperature | -50°C to +180°C | - |
| Processing | Non fraying PU | - |
| Aluminated polyester thickness | 6 µm | Against joining 1 face |
| Weight | 520 ± 20 g / m ² | ISO 2286-2A |
| Thickness | 0,38 ± 0,03 mm | ISO 2286-3 |
| Flammability | Type A | D45 1333 |

Heat reduction





Features/Applications

GREMSHIELD® 095ALU18AD is a flexible heatshield made of an aluminum foil laminated over a thin glass cloth with an acrylic adhesive on the inner surface. GREMSHIELD® 095ALU18AD offers a continuous working temperature of -40°C up to +180°C. Its smooth and reflective outer surface provides an effective barrier to extreme radiant heat. GREMSHIELD® 095ALU18AD is suitable for the protection of any temperature sensitive components (moulded parts, reservoirs, tanks, etc) from a heat source. Used intensively within the automotive sector.

Various

Standard colors: Reflective aluminum.
 Available in bulk or kiss cut pieces and in rolls.



Dimensions

These parts are customized to fit each customer application. Gremtex engineering department will define with you the most suitable design to provide the best results in accordance with your specifications.

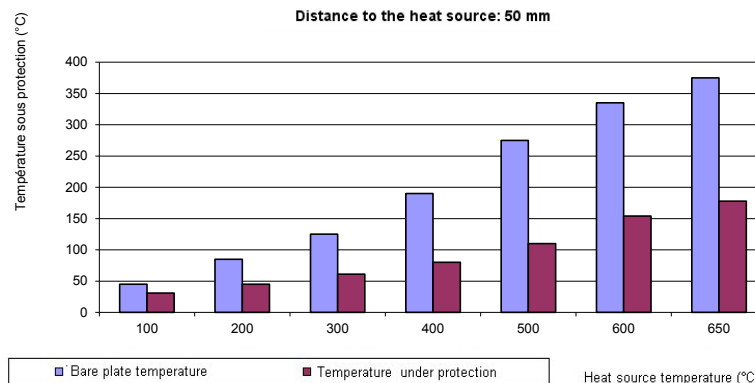
| Property | Values | Test Methods | |
|-----------------|-----------------------------------|------------------|------------|
| Physical | Working temperature | -40°C to +180°C | - |
| | Aluminum foil thickness | 18 µm ±10% | - |
| | Fiberglass cloth weight | 95 g/m2 ±10% | - |
| | Thickness (fiberglass + adhesive) | 180 µm ±10% | - |
| | Peel adhesion | >15 N/25 mm | ASTM D3330 |
| | Applying temperature | +10 °C to +40 °C | - |
| | Flammability | Type B | D45 1333 |
| | Flame spread | ≤ 102 mm/min | FMVSS 302 |

Tolerances on weight and thickness: ±10%

Storage & application recommendations

For optimal product adhesion, it is recommended to dry and to clean the surface thoroughly before applying the part. Time lapse between sticking and heat exposure : 48 hours.
 Product should be stored at room temperature and kept from humidity and heat.
 Shelf life : one year when stored at less than 21°C (70°F) and 50% relative humidity away from sunlight.

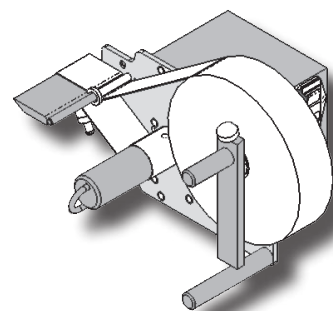
Heat reduction





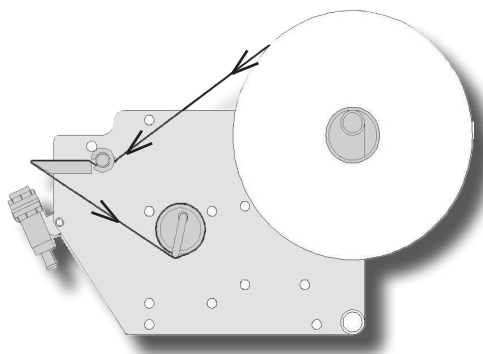
Features/Applications

GREMWIND® is a dispenser of Gremshield 095ALU18AD heat reflective shields.
GREMWIND® enables easy removal of the Gremshield parts.
GREMWIND® is suitable for applying adhesive thermal protections on any components such as: hoses and harnesses. Also air intakes, reservoirs and other injection moulded parts.



Dimensions

| Reference | Max width labels (part + liner) (mm) |
|-----------------|--------------------------------------|
| GREMWIND | |
| 110 | 110 |
| 180 | 180 |
| 220 | 220 |



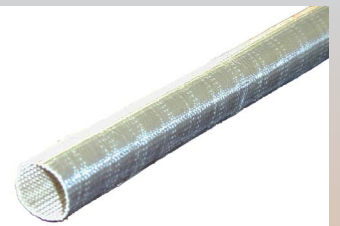
Instructions for used:

- 1 - Position the label roll on the support shaft,
- 2 - Insert the release paper following the diagram above,
- 3 - Secure it with the pin,
- 4 - Position the photocell as a function of pre peel desired
- 5 - Turn on the machine,
- 6 - Refine the pre-peel by rotating the cell,
- 7 - Remove the reflective shield, another positions itself automatically,
- 8 - The machine is ready for operation.

| Property | Values / Tolerances | Test Methods |
|----------|---------------------|---------------------|
| Physical | Power | 230 V - Mono / 50Hz |
| | Speed | 300 mm/s |



COATED SLEEVES



GREMSHIELD® GESA
GREMSHIELD® GFVA
GREMSHIELD® GTES
GREMSHIELD® GPY40B



Features/Applications

GREMSHIELD® GESA is a tubular, braided glass sleeve coated with a reflective silicone elastomer compound. GREMSHIELD® GESA offers high flexibility in working temperatures ranging from -60°C up to +200°C. GREMSHIELD® GESA is suitable for heat and mechanical protection of wires, cables and hoses in contact with or close to a heat source. Used widely within the automotive sector.



Various

Standard colors: Aluminum.

Dimensions

| Reference GREMSHIELD® GESA | Nominal inside diameter (mm) |
|-------------------------------|------------------------------|
| 01 | 1 |
| 02 | 2 |
| 03 | 3 |
| 04 | 4 |
| 05 | 5 |
| 06 | 6 |
| 08 | 8 |
| 10 | 10 |
| 12 | 12 |
| 14 | 14 |
| 16 | 16 |
| 18 | 18 |
| 20 | 20 |
| 22 | 22 |
| 25 | 25 |
| 26 | 26 |
| 29 | 29 |

Cutting

GREMFLX® GESA can be cut to length.

Packaging

Available in spools, coils or cut pieces. Other packaging available upon request.

| Cut Length (mm) | Tolerance (mm) |
|-----------------|----------------|
| <50 | ± 1 |
| 50 to 100 | ± 2 |
| >100 | ± 5 |

| Property | Values / Tolerances | Test Methods |
|--------------|------------------------|-----------------|
| Physical | Working temperature | -60°C to +200°C |
| | Short term temperature | +250°C |
| Flammability | Non flammable | FMVSS 302 |
| | Type A | D45 1333 |





Features/Applications

GREMSHIELD® GFVA is a flexible sleeve made of a fiberglass braid impregnated with a silicone resin. GREMSHIELD® GFVA offers a continuous working temperature of -60°C up to +250°C. Its outer surface provides an effective barrier to ambient heat. GREMSHIELD® GFVA is suitable for the protection of cable assemblies, hoses and pipes from heat. Used within the automotive sector.



Various

Standard colors: Aluminum.
Available in spools or cut pieces.

Dimensions

| Reference <i>GREMSHIELD® GFVA</i> | Nominal inside diameter (mm) |
|--------------------------------------|------------------------------|
| 05 | 5 |
| 06 | 6 |
| 08 | 8 |
| 10 | 10 |
| 12 | 12 |
| 14 | 18 |
| 16 | 20 |
| 20 | 22 |

Cutting

GREMFLEX® GFVA can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Property | Values / Tolerances | Test Methods |
|----------|------------------------|-----------------|
| Physical | Working temperature | -60°C to +250°C |
| | Short term temperature | +250°C |
| | Flammability | Non flammable |





Features/Applications

GREMSHIELD® GTES is a tubular sleeve made of a "E" fiberglass braided sleeve coated with a silicone elastomer.

GREMSHIELD® GTES offers a high degree of flexibility and working temperatures ranging from -40°C up to +200°C.

GREMSHIELD® GTES is suitable for heat and mechanical protection of wires, cables and pipes in contact with or close to a heat source. Used widely within the automotive sector for the protection of fuel lines.



Various

Standard colors: Black.

Dimensions

| Reference <i>GREMSHIELD® GTES</i> | Nominal inside diameter (mm) | Nominal wall thickness (mm) |
|--------------------------------------|------------------------------|-----------------------------|
| 01 | 01 ± 0,25 | 0,5 |
| 02 | 02 ± 0,25 | 0,5 |
| 03 | 03 ± 0,25 | 0,6 |
| 04 | 04 ± 0,25 | 0,6 |
| 05 | 05 ± 0,25 | 0,6 |
| 06 | 06 ± 0,25 | 0,6 |
| 07 | 07 ± 0,25 | 0,6 |
| 08 | 08 ± 0,25 | 0,8 |
| 10 | 10 ± 0,5 | 0,8 |
| 12 | 12 ± 0,5 | 0,8 |
| 14 | 14 ± 1 | 0,8 |
| 15 | 15 ± 1 | 0,8 |
| 16 | 16 ± 1 | 0,8 |
| 18 | 18 ± 1 | 0,8 |
| 20 | 20 ± 1 | 0,8 |
| 22 | 22 ± 1 | 0,8 |
| 25 | 25 ± 1 | 0,8 |
| 26 | 26 ± 1 | 0,8 |
| 29 | 29 ± 1 | 0,8 |

Cutting

GREMFLEX® GTES can be cut to length.

Packaging

Available in spools, coils or cut pieces.

Other packaging available upon request.

| Cut Length (mm) | Tolerance (mm) |
|-----------------|----------------|
| <50 | ± 1 |
| 50 to 100 | ± 2 |
| >100 | ± 5 |

| Property | Values / Tolerances | Test Methods | |
|----------|------------------------|---------------------|-----------|
| Physical | Working temperature | -40°C to +200°C | |
| | Short term temperature | +250°C max | |
| | Thermal classification | Class 180 (Class H) | IEC 60085 |
| | Flammability | Non flammable | FMVSS 302 |
| | Type A | D45 1333 | |





Features/Applications

GREMFLEX® GPY40B is a tubular polyester braided sleeve coated with an acrylic rubber. GREMFLEX® GPY40B offers a continuous working temperature of -40°C up to +150°C, an outstanding abrasion resistance and a good expansion rate. GREMFLEX® GPY40B is suitable for thermal protection where high abrasion resistance characteristics are required. Used widely within the automotive sector for the protection of fuel lines, pipes, hoses and harnesses.



Various

Standard colors: Black.

Dimensions

| Reference <i>GREMFLEX® GPY40B</i> | Nominal inside diameter (mm) | Nominal wall thickness (mm) |
|--------------------------------------|------------------------------|-----------------------------|
| 06 | 06 ± 0,5 | 0,7 |
| 08 | 08 ± 0,5 | 0,7 |
| 10 | 10 ± 0,5 | 0,7 |
| 12 | 12 ± 1 | 0,7 |
| 15 | 15 ± 1 | 0,7 |

Cutting

GREMFLEX® GPY40B can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.

| Cut Length (mm) | Tolerance (mm) |
|-----------------|----------------|
| <50 | ± 1 |
| 50 to 100 | ± 2 |
| >100 | ± 5 |

| Property | Values / Tolerances | Test Methods |
|--|-------------------------|-----------------------|
| Working temperature | -40°C to +150°C | - |
| Physical Short term temperature | +180°C max | - |
| Thermal classification | Class 155 (Class F) | IEC 60085 |
| Flammability | Non flammable Type A | FMVSS 302 D45 1333 |



SPECIALTY PRODUCTS



GREMWRAP® PET

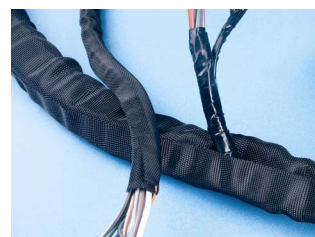
GREMWRAP® P-V0

GREMTEX® SNW

GREMFIX®

GREMRING®

GREMFLEX® GMB PET



Features/Applications

GREMWRAP® PET is a flexible, self-closing, self-extinguishing, Polyester mono and multifilament woven sleeve with an overlap.

GREMWRAP® PET offers a continuous working temperature of -50°C up to +125°C, a good wrapping strength, a high abrasion resistance and good noise dampening characteristics. It keeps its circular profile when bent. It allows quick and easy bundling of wires and cables.

GREMWRAP® PET is suitable for modular wire harness assemblies, engine compartment cable bundling and for applications which require easy on and off installation, rework and harness break outs. Used widely in the automotive and industrial sectors.

Various

Standard colours: Black, Grey, other colours available on request.

Dimensions

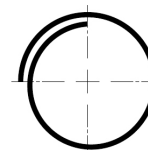
| Reference <i>GREMWRAP® PET</i> | Recommended range of use (mm) |
|-----------------------------------|----------------------------------|
| 05 | 4 to 5 |
| 08 | 5 to 8 |
| 13 | 10 to 13 |
| 16 | 13 to 16 |
| 19 | 16 to 19 |
| 25 | 19 to 25 |
| 29 | 25 to 29 |
| 32 | 29 to 32 |
| 38 | 32 to 38 |

Cutting

GREMWRAP® PET can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.



Sleeve shape

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +125°C |
| | Peak temperature | +175°C |
| | Melting point | +250°C |
| Flammability | V-2 | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type A | D45 1333 |
| Smoke toxicity | Halogen free | |
| Chemical | Unaffected by most chemicals | |





Features/Applications

GREMWRAP® P-V0 is a UL 94 V-0 compliant, flexible, self-closing, halogen free, Polyester mono and multifilament woven sleeve with an overlap.

GREMWRAP® P-V0 offers a continuous working temperature of -50°C up to +125°C, a good wrapping strength, a high abrasion resistance and good noise dampening characteristics. It keeps its circular profile when bent and allows for quick and easy bundling of wires and cables. GREMWRAP® P-V0 is suitable for modular wire harness assemblies, cable bundling and for application where flame retardant properties are required. Used widely within the railway sector.

Various

Standard colours: Black with a Grey tracer or Grey with a Black tracer.

Specifications

Compliant to V-0 (UL 94).

Dimensions

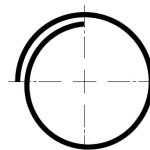
| Reference <i>GREMWRAP® P-V0</i> | Recommended range of use (mm) |
|------------------------------------|----------------------------------|
| 05 | 4 to 5 |
| 08 | 5 to 8 |
| 13 | 10 to 13 |
| 16 | 13 to 16 |
| 25 | 19 to 25 |
| 29 | 25 to 29 |
| 32 | 29 to 32 |
| 38 | 32 to 38 |

Cutting

GREMWRAP® P-V0 can be cut to length.

Packaging

Available in spools, coils or cut pieces.
Other packaging available upon request.



Sleeve shape

| Property | Values | Test Methods |
|-----------------|------------------------------|------------------|
| Physical | Working temperature | -50°C to +125°C |
| | Peak temperature | +175°C |
| | Melting point | +225°C |
| Flammability | V-0 compliant | UL94 on compound |
| | Self extinguishing | FMVSS 302 |
| | Type B | D45 1333 |
| | I2 | NFF 16-101 & 102 |
| | On going | E45 545-2 |
| Smoke toxicity | Halogen free | |
| | F1 | NFF 16-101 & 102 |
| Chemical | Unaffected by most chemicals | |

Recommendations for use:

If Gremwrap is to be used at 110°C or above (working temperature) please add ties at a regular interval





Features/Applications

GREMTEX® SNW is a flame retardant, halogen free, Polyamide (PA6), solution dyed, bulked multifilament, tubular, woven textile sleeve. GREMTEX® SNW offers a continuous working temperature of -50°C up to +150°C and an outstanding resistance to abrasion and wearing. GREMTEX® SNW is suitable for protection and containment of hose assemblies rope and wire harnesses. It is used extensively within the mining sector, heavy industry, machine construction and automotive industries.

Various

Standard colour: Black.

Specifications

ISO 6945 abrasion standards Mine Safety and Health Administration (MSHA)171/1

Dimensions

| Reference GREMTEX® SNW | Inside diameter (mm) |
|---------------------------|-------------------------|
| 13 | 14,8 |
| 19 | 18,8 |
| 21 | 20,9 |
| 26 | 25,5 |
| 31 | 31,0 |
| 36 | 36,2 |
| 40 | 40,4 |
| 45 | 45,4 |
| 49 | 48,6 |
| 52 | 52,6 |
| 60 | 60,6 |
| 65 | 64,7 |
| 73 | 72,8 |
| 85 | 84,9 |
| 93 | 93,0 |
| 112 | 111,7 |

Other sizes available on request. Tolerance on diameter: +/- 2 mm.

Packaging

Available in 91 meters/spools, 300 yards.
Other packaging available upon request.

| Property | Values | |
|-----------------|---------------------|--|
| Physical | Working temperature | -50°C up to +150°C |
| | Abrasion | Meets or exceeds ISO6985 abrasion standard |
| | Flammability | GREMTEX® SNW is approved by MSHA for use in underground mines, ICLTL/L. Also approved by UK Coal in accordance with the Fire Resistance and Anti-Static requirements as set out in BCC Spec 182. |
| | Melting Point | 210 - 220 °C (374 - 410 °F) |
| | Material | Polyamide 6 |
| Chemical | Fluid resistance | Gasoline, mineral and vegetable oil, alcohols, diluted bases, diluted acids, benzene, acetone, ether, carbone tetrachloride and chlorine based solvents. |
| | Other | Mildew and bacteria growth resistant |

Important note:

GREMTEX® SNW is made of Polyamide 6.6 and is therefore subject to moisture and heat which could cause a longitudinal shrinkage of as much as 3-8%.





Features/Applications

GREMFIX® SYSEM is a protection system made of a Gremflex (braided sleeve) with a dual wall (adhesive) heat shrink tubing at one (A) or two ends (B).

GREMFIX® offers a continuous working temperature of -50°C up to +125°C, open end(s) facilitates the easy fitting of cables, pipes or hoses within the sleeve and offers a secured fixing of the braid over the object to be protected.

GREMFIX® is suitable for the protection of fuel lines, pipes, hoses, and cable assemblies within the automotive and industrial sectors.

Various

Standard colours: Black, grey for the braid.

Black for the heat shrink tubing. Other colours available on request.

Dimensions

| Reference <i>GREMFIX® PET-DW</i> | Recommended range of use (mm) | Length of heat shrink tubing mandrel before shrinkage (mm) |
|-------------------------------------|----------------------------------|---|
| 06 | 5 to 9 | 20 |
| 08 | 7 to 11 | 20 |
| 10 | 9 to 15 | 20 |
| 12 | 11 to 17 | 20 |
| 15 | 14 to 21 | 20 |
| 20 | 19 to 27 | 20 |
| 25 | 24 to 35 | 20 |

These parts are customized to fit each customer application.

Gremtek engineering department will define with you the most suitable design to provide the best results in accordance with your specifications.

GREMFIX® PET-DW-A



GREMFIX® PET-DW-B





Features/Applications

GREMRING® is a pre assembled system consisting of a clip mounted in a heat shrinkable collar. The heat shrink collar can accommodate a wide range of clip / clamp types, e.g. clip clamps, spring clamps, ear clamps, screw clamps, etc.

GREMRING® offers an accurate positioning of the clip on the hose prior to final fastening. GREMRING® system is widely used on fuel lines and on rubber hoses within the automotive sector.

Various

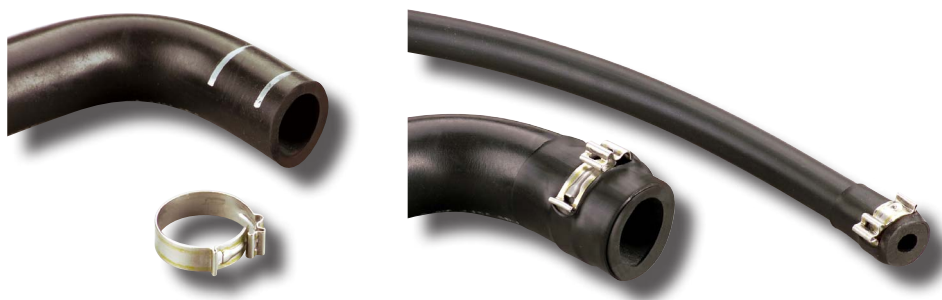
Standard colours: Black for the heat shrink tubing. Other colours available on request.



Dimensions

These parts are customized to fit each customer application. Gremtek engineering department will define with you the most suitable design to provide the best results in accordance with your specifications.

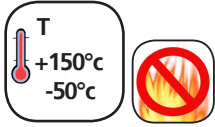
GREMRING® SYSTEM



Recommendations for use

- Lock in position the GREMRING system on the pipe and shrink it in according to the following conditions:
- Shrink type: oven or shrinking tunnel
 - Shrink temperature: between 150°C to 170°C
 - Shrink time: ~ 5 min
 - Speed of the tunnel: to adapt over time and temperature





Features/Applications

GREMFLEX® GMB PET is a range of expandable braided sleeves available in conveniently packaged dispensers.

GREMFLEX® GMB PET has been specially designed to meet the requirements of wholesalers, distributors, repair shops and electrical work shops.

GREMFLEX® GMB PET is a self-extinguishing, halogen free, Polyester, 0.22mm monofilament, expandable braided sleeve. (Refer to GREMFLEX® PET data sheet for details).

Various

Standard colours: Standard colours: Black, Grey, other colours available on request.

Box design: Standard and custom designs available on request.

Dimensions

| Reference <i>GREMFLEX® PET</i> | Recommended range of use (mm) | Length / dispenser (m) |
|-----------------------------------|----------------------------------|---------------------------|
| 03 | 1 to 4 | 20 |
| 05 | 3 to 7 | 20 |
| 08 | 6 to 11 | 15 |
| 10 | 7 to 14 | 15 |
| 12 | 8 to 16 | 10 |
| 20 | 12 to 24 | 10 |

Packaging

Other products are available on request in GMB format. Special printing box can be tailored to customer requirements.



Cutting tolerances for GREMFLEX® products

| Cutting length (mm) | Tolerances (±) (mm) |
|---------------------|-----------------------|
| 50 to 81 | 3.00 |
| 81 to 201 | 5.00 |
| 201 to 751 | 10.00 |
| 751 to 1001 | 15.00 |
| 1001 to 2001 | 20.00 |
| 2001 to 3001 | 35.00 |
| ≥ 3001 | 50.00 |

Quality policy

To ensure the consistent quality of its products, GREMTEK is committed to a policy of continuous quality improvement and rigorous traceability.

GREMTEK has implemented a quality system accredited to ISO 9001 version 2008.



FRANCE

ID n° 2010062564