

## MECHANICAL & THERMAL PROTECTION CATALOGUE



**BRAIDED SLEEVES**

**THERMAL PRODUCTS**

**SPECIALTY PRODUCTS**

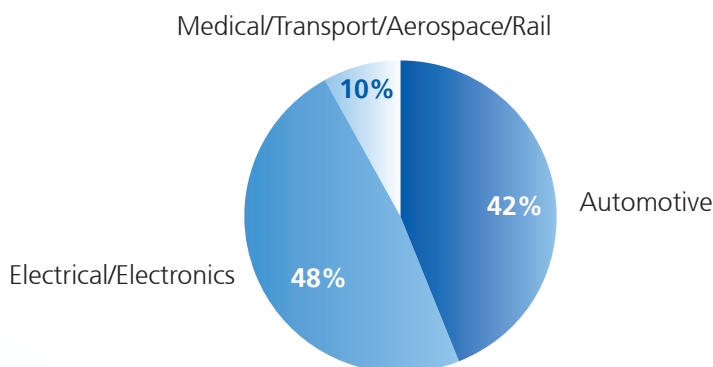
## Company History

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- 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

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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.

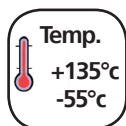
## Tests

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

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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

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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)

## Selection Guide

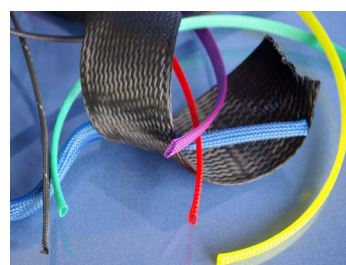
### Mechanical & thermal protection products

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
		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				19
		PA11	Expandable Polyamide 11 sleeve	Polyamide	-70 to +100			20
		SZ	Noise reduction expandable Polyester & Polyamide sleeve	Polyester + Polyamide	-50 to +150			21
		PET-SZ	Noise reduction expandable Polyester sleeve	Polyester	-50 to +150	Self Extinguishing		22
		PPS	High temperature expandable PPS sleeve	PPS	-50 to +200			23
		EMP	Electro Magnetic Protection expendable 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	-			
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
	GREMFIx®	GREMFIx	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

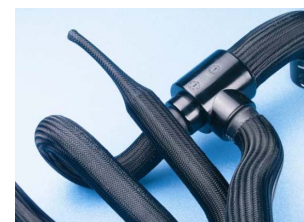
PPS=Polyphenylene Sulfide — Cu=Copper — Al=Aluminum — FG= Fiber Glass — AC=Acrylic — SS=Stainless Steel — PET=Polyester — PE=Polyolefin



## 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
Chemical	Self extinguishing	FMVSS 302
	Type A	D45 1333
	Smoke toxicity	Halogen free
Unaffected by most chemicals		



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.

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## 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
Smoke toxicity		NFF 16-101 & 102
	On going	E45 545-2
	Halogen free	
Chemical	F1	NFF 16-101 & 102
	Unaffected by most chemicals	



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### 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	Recommended range of use (mm)
<b>GREMFLEX® PET-S1</b>	
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
<b>Physical</b>	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
<b>Chemical</b>		NFF 16-101 & 102
	On going	E45 545-2
	Smoke toxicity	Halogen free
		F1
		NFF 16-101 & 102
	Unaffected by most chemicals	



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4/01/2012 Rev1



## 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)
<b>GREMFLEX® PET-CA</b>	
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
<b>Physical</b>	Working temperature	-50°C to +150°C
	Peak temperature	+175°C
	Melting point	+250°C
	Flammability	V-2
		UL94 on compound
<b>Chemical</b>	Self extinguishing	FMVSS 302
	Type A	D45 1333
	Smoke toxicity	Halogen free
Unaffected by most chemicals		



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## 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	Recommended range of use (mm)
<b>GREMFLEX® PET AM</b>	
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
<b>Physical</b>	Working temperature	-50°C to +150°C
	Peak temperature	+175°C
	Melting point	+250°C
	Flammability	V-2
		UL94 on compound
		Self extinguishing
<b>Chemical</b>		FMVSS 302
		Type A
		D45 1333
	Smoke toxicity	Halogen free
		Unaffected by most chemicals

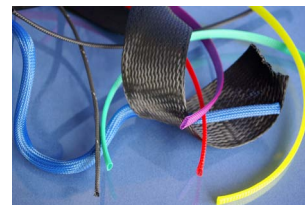


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## Features/Applications

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)
<b>GREMFLEX® PET 025-1</b>	
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	UL94 on compound
	Smoke toxicity	Halogen free
Chemical	Self extinguishing	FMVSS 302
	Type A	D45 1333
Unaffected by most chemicals		



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## 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 GREMFLEX® PET HAR	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
Chemical		FMVSS 302
		Type A
		D45 1333
	Smoke toxicity	Halogen free
		Unaffected by most chemicals



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## 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	Recommended range of use (mm)
<b>GREMFLEX® PET 038</b>	
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
<b>Physical</b>	Working temperature	-50°C to +150°C
	Peak temperature	+175°C
	Melting point	+250°C
	Flammability	V-2
		UL94 on compound
		Self extinguishing
<b>Chemical</b>		FMVSS 302
		Type A
		D45 1333
	Smoke toxicity	Halogen free
		Unaffected by most chemicals



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## 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	Recommended range of use (mm)
<b>GREMFLEX® P-V0</b>	
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
		V-0 compliant
		UL94 on compound
	Flammability	Self extinguishing
		FMVSS 302
		Type A
		D45 1333
		I2
Smoke toxicity		NFF 16-101 & 102
	On going	E45 545-2
	Halogen free	
Chemical	F1	NFF 16-101 & 102
	Unaffected by most chemicals	



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4/01/2012 Rev1





## 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	Recommended range of use (mm)
<b>GREMFLEX® AM-V0</b>	
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
Chemical	F1	NFF 16-101 & 102
	Unaffected by most chemicals	



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## 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	Recommended range of use (mm)
<b>GREMFLEX® PA6.6</b>	
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.

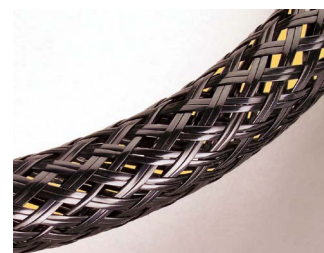
Other packaging available upon request.

Property	Values	Test Methods
<b>Physical</b>	Working temperature	-60°C to +150°C
	Peak temperature	+160°C
	Melting point	+250°C
	V-2 (1)	UL94 on compound
Flammability	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
<b>Chemical</b>	Unaffected by most chemicals	

(1) Exists also in V-0



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## 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)
<i>Serie U</i>	
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
<i>Serie P</i>	
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
	V-2	UL94 on compound
	Self extinguishing	FMVSS 302
	Type A	D45 1333
Chemical	Flammability	Halogen free
	Smoke toxicity	Halogen free
	Oxygen index	31,7%
Unaffected by most chemicals		NF EN ISO 4589-1&2



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## 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	Recommended range of use (mm)
GREMFLEX® PA11	
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	+185°C
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	



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## 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	Recommended range of use (mm)
<b>GREMFLEX® SZ</b>	
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
<b>Physical</b>	Working temperature	-50°C to +150°C
	Peak temperature	+175°C
	Melting point	+250°C
		V-2
		UL94 on compound
Flammability	Self extinguishing	FMVSS 302
	Type A	D45 1333
Smoke toxicity	Halogen free	
<b>Chemical</b>	Unaffected by most chemicals	



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### 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	Recommended range of use (mm)
GREMFLEX® PET-SZ	
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
Chemical	Self extinguishing	FMVSS 302
	Type A	D45 1333
	Smoke toxicity	Halogen free
Unaffected by most chemicals		



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### 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 GREMFLEX® PPS	Recommended range of use (mm)
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	FMVSS 302
		D45 1333



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### 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)	
GREMFLEX® EMP	Nominal	Expanded	Mini.	Maxi.
This sleeve is available from diameters 6mm to 40mm.				
Our engineering department will define with you the most suitable design to provide best results in accordance with your specifications.				

### 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



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## 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 X-ray 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	Recommended range of use (mm)
<b>GREMFLEX® NO</b>	
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
<b>Physical</b>	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
<b>Chemical</b>	Chemical resistance	Unaffected by most chemicals

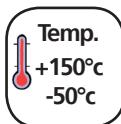


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### Features/Applications

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
	V-2	UL94 on compound
	Self extinguishing	FMVSS 302
	Type A	D45 1333
Flammability	Halogen free	
Smoke toxicity	Unaffected by most chemicals	
Chemical	Material	Polyamide 6.6
	Working temperature	-20°C à + 95°C
	Flame resistance	Non-flame retardant



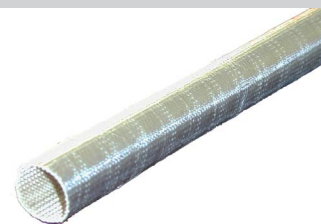
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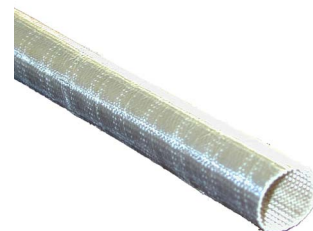
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## THERMAL PROTECTION PRODUCTS



**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

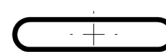
Reference <i>GREMSHIELD® SAPXA</i>	Inner Diameter	
	Millimeter	Inch
06	6,4	1/4
09	9,5	3/8
12	12,7	1/2
15	15,8	5/8
19	19,1	3/4
22	22,2	7/8
25	25,4	1
31	31,8	1-1/4
38	38,1	1-1/2

### Cutting

GREMFLEX® SAPXA can be cut to length.

### Packaging

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



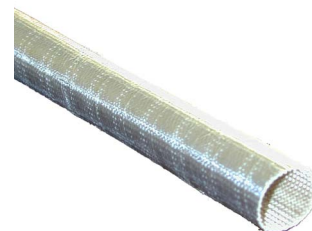
Sleeve Shape

### 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



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.



## 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

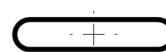
Reference <i>GREMSHIELD® SAGXA</i>	Inner Diameter	
	Millimeter	Inch
06	6,4	1/4
09	9,5	3/8
12	12,7	1/2
15	15,8	5/8
19	19,1	3/4
22	22,2	7/8
25	25,4	1
31	31,8	1-1/4
38	38,1	1-1/2
50	50,8	2
76	76,2	3
101	101,6	4

## 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
<b>Physical</b>	Working temperature	-40°C to +200°C
	Heat choc (6h @ 200°C)	No delamination
	Flammability	Self extinguishing
<b>Chemical</b>	Fluid resistance (4h immersion)	Automotive fluids
		No delamination



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.



### 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

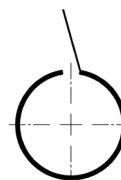
### Cutting

GREMFLEX® TAFPA can be cut to length.

### Packaging

Available in cut pieces.

Other packaging available upon request.



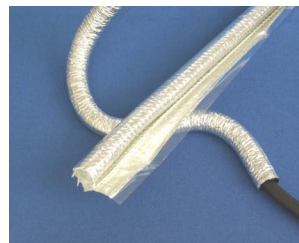
Sleeve Shape

### Property

		Values	Test Methods
Physical	Working temperature	-40°C to +200°C	-
	Heat choc (6h @ 200°C)	No delamination	NA
	Flammability	Self extinguishing	ASTM D-350, method B
Chemical	Fluid resistance (4h immersion)	Automotive fluids	No delamination



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.



### 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

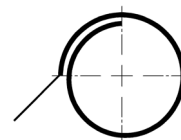
### Cutting

GREMFLEX® WAFPA can be cut to length.

### Packaging

Available in cut pieces.

Other packaging available upon request.



Sleeve Shape

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



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.

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4/01/2012 Rev1



### 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

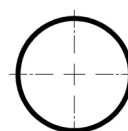
### Cutting

GREMFLEX® PAFPA can be cut to length.

### Packaging

Available in cut pieces.

Other packaging available upon request.



Sleeve Shape

### Property

		Values	Test Methods
<b>Physical</b>	Working temperature	-40°C to +200°C	-
	Heat choc (6h @ 200°C)	No delamination	NA
	Flammability	Self extinguishing	ASTM D-350, method B
<b>Chemical</b>	Fluid resistance (4h immersion)	Automotive fluids	No delamination



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## 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

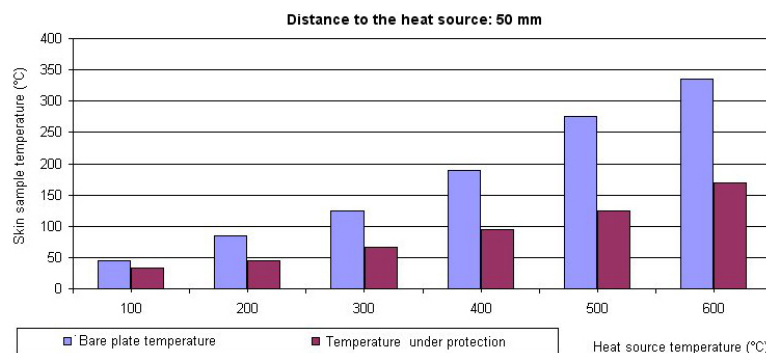
Standard colors: Aluminum.

## 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
	Aluminized polyester thickness	6 µm
	Weight	280 ± 20 g / m <sup>2</sup>
	Thickness	0,20 ± 0,03 mm
	Flammability	Type A
		Against joining 1 face
		ISO 2286-2A
		ISO 2286-3
		D45 1333

## Heat reduction



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.

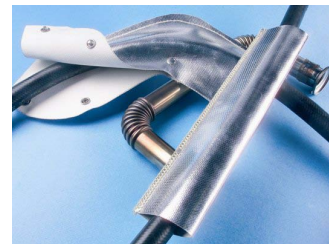


## Features/Applications

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

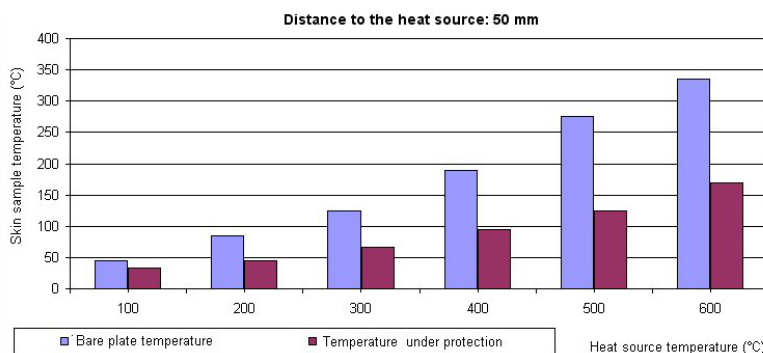
Standard colors: Aluminum.

## 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
	Weight	520 ± 20 g / m²
	Thickness	0,38 ± 0,03 mm
	Flammability	Type A
		Against joining 1 face
		ISO 2286-2A
		ISO 2286-3
		D45 1333

## Heat reduction



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.



## 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

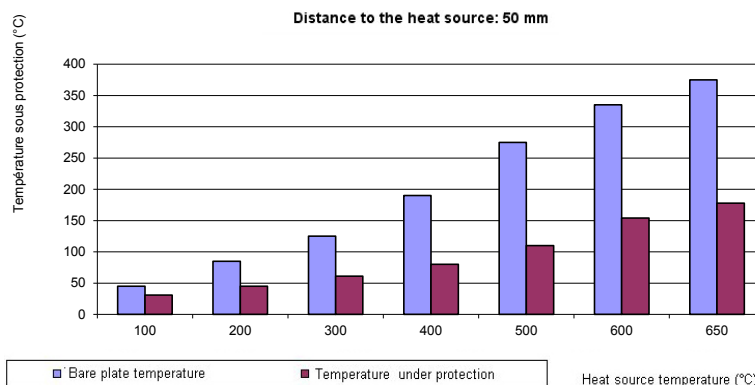
These parts are customized to fit each customer application. Gremtex engineering department will define with you the most suitable design to provide the best results in accordance with your specifications.

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
	Applying temperature	+10 °C to +40 °C
	Flammability	Type B
	Flame spread	≤ 102 mm/min
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



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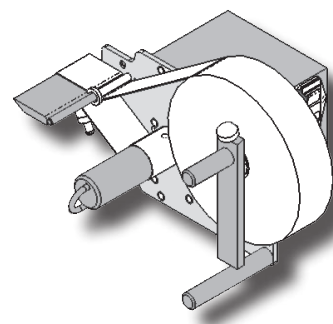


### Features/Applications

GREMWIND® is a dispenser of Gremshield 095ALU18AD heat reflective shields.

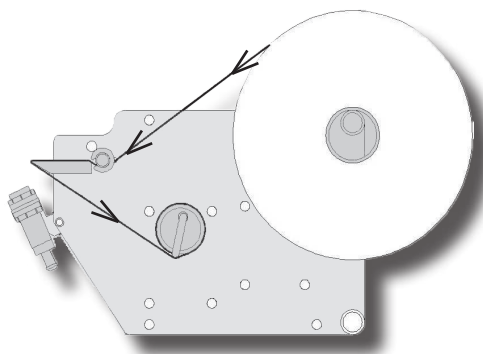
GREMWIND® enables easy removal of the Gremshield parts.

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)
<b>GREMWIND</b>	
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
<b>Physical</b>	Power	230 V - Mono / 50Hz
	Speed	300 mm/s



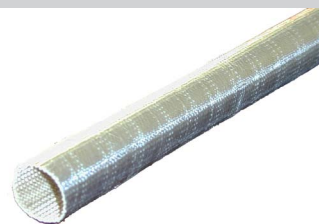
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## COATED SLEEVES



**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	Nominal inside diameter (mm)
GREMSHIELD® GESA	
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

GREMFLEX® 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
	Type A	FMVSS 302
		D45 1333



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.

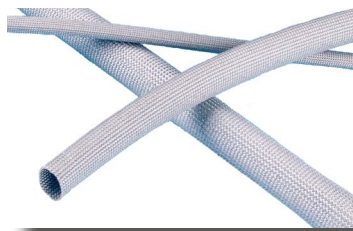


### Features/Applications

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 FMVSS 302



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#### 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)
	Flammability	Non flammable
	Type A	D45 1333



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#### 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	Nominal inside diameter (mm)	Nominal wall thickness (mm)
<b>GREMFLEX® GPY40B</b>		
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	-
<b>Physical</b> Short term temperature	+180°C max	-
Thermal classification	Class 155 (Class F)	IEC 60085
Flammability	Non flammable	FMVSS 302
	Type A	D45 1333



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## SPECIALTY PRODUCTS



***GREMWRAP® PET***

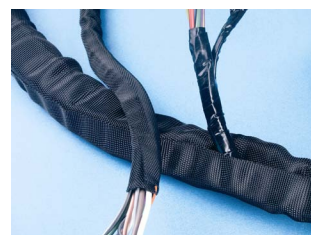
***GREMWRAP® P-V0***

***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

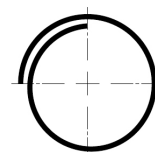
Reference	Recommended range of use (mm)
<i>GREMWRAP® PET</i>	
05	4 to 5
08	5 to 8
13	10 to 13
16	13 to 16
19	16 to 19
25	19 to 25
29	25 to 29
32	29 to 32
38	32 to 38

## 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
	Self extinguishing	UL94 on compound
Smoke toxicity	Type A	FMVSS 302
	Halogen free	D45 1333
Chemical	Unaffected by most chemicals	



We certify that the values provided are as accurate as possible. Use of these values, however, remains the sole responsibility of the customer and cannot in any way substitute for testing the product under real conditions of use. The user must assess whether this product is suitable for a particular use. Gremco shall not be held responsible for any loss or anomaly resulting from the correct or incorrect use of this product.



### 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

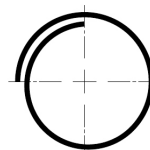
Reference <i>GREMWRAP® P-V0</i>	Recommended range of use (mm)
05	4 to 5
08	5 to 8
13	10 to 13
16	13 to 16
25	19 to 25
29	25 to 29
32	29 to 32
38	32 to 38

### 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
Chemical	F1	NFF 16-101 & 102
	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



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## 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
Chemical	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
Fluid resistance	Polyamide 6
	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%.



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### 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



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### 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



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#### 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 GREMFLEX® PET	Recommended range of use (mm)	Length / dispenser (m)
03	1 to 4	25
05	3 to 7	25
08	6 to 11	25
10	7 to 14	25
12	8 to 16	20
20	12 to 24	15

#### Packaging

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



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## 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.



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