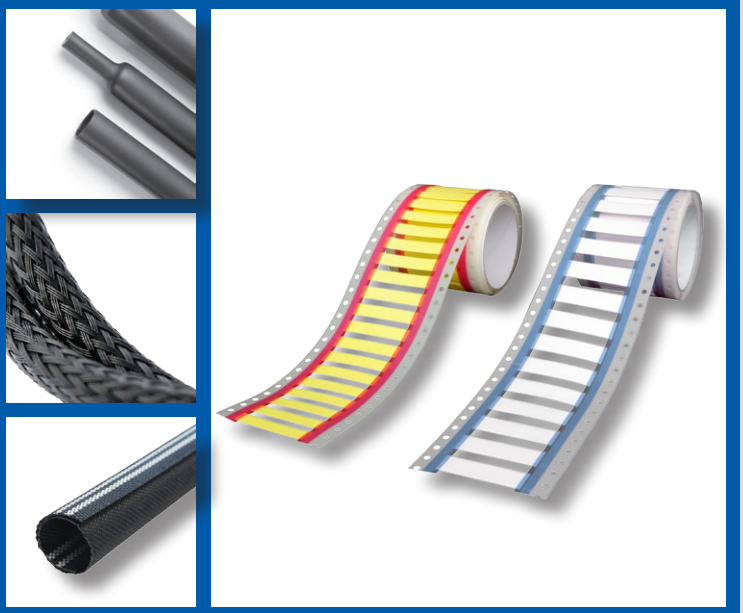
GREMTEK
Protective Sleeve Solutions

RAILWAY PRODUCTS CATALOGUE



GREMTEK SAS *is certified ISO 9001*

Heat Shrink Products

Identification Systems

Mechanical Protections

Thermal Protections

www.gremtek.com

GREMTEK
Protective Sleeve Solutions

GREMCO

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.

2012 Renaming of GREMCO into GREMTEK

2014 Development in China with the acquisition of DEEM

2015 Moving into a new headquarter to GENNEVILLIERS in FRANCE

2018 GREMTEK joins the IS Group, part of Diploma PLC

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.

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

Energy

- Cable joints and termination kits
- Cable accessories

Engineering

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.

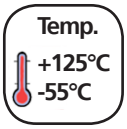
Production

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

Qualification

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 the shrink ratio of the product.

This icon indicates the shrink recovery temperature of the product.

This icon indicates that the product is flame retardant.

This icon indicates that the product is halogen free.

This icon indicates that the product is resistant to diesel, petrol and oil.

This icon indicates that the product is UL recognized.

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 MIL Specifications.

How to order the products

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

When you order the products please specify the following information:
Product name - Diameter - Colour of the product - Quantity - Packaging
(e.g. GREMTUBE® G61 3X - 12/4mm - Black - 200m - 1,2m)

GREMTEK
Protective Sleeve Solutions

Selection Guide
Railway Products

Type		Produit	Description	Material	Shrink Ratio	Recovery Temp. (°C)	Operating Temp. (°C)	Flame Retardant	Halogen Free	NF F 00-608 / NF EN 45545-2	Page
HEAT SHRINK PRODUCTS	GREMTUBE®	G61	Flexible, flame retardant polyolefin tubing	PE	2:1	+90	-55 to +135			GT A & R24	8
		G61 3X	Flexible, flame retardant, high shrink ratio polyolefin tubing		3:1						9
		G61A 3X	Flexible tubing with adhesive			+120	-55 to +110				10
		G61A 4X	High shrink ratio tubing with adhesive		4:1						11
		GMW	Halogen free, medium wall tubing		3:1	+125	-55 to +105				12
		GMWA	Halogen free, medium wall tubing with adhesive								12
		GHW	Halogen free, heavy wall tubing			+135					13
		GHWA	Halogen free, heavy wall tubing with adhesive								13
		GREN	Halogen free, medium wall tubing		3:1 - 4:1	+120	-55 to +125				14
		GREA	Halogen free, medium wall tubing with adhesive								14
		GREN-F	Halogen free, heavy wall tubing								15
		GREA-F	Halogen free, heavy wall tubing with adhesive								15
	GREMSHAPES®	GBOS 2, 3	LV Cable breakouts shapes 2 & 3 fingers		3:1	+125	-40 to +110				16
		GBOS 4, 5, 6, 7	LV Cable breakouts shapes 4, 5, 6 and 7 fingers								17
	GREMTUBE®	GSI	Silicone elastomer heat shrink tubing	SI	2:1	+110	-70 to +200				18
IDENTIFICATION SYSTEMS	GREMARK®	PG61	Flattened heat shrink tubing	PE		+90	-55 to +135			GT A MRT A & R24	20
		PG61 3X	High shrink ratio, flattened heat shrink tubing		3:1						21
		PGDR 3X	Diesel resistant, high shrink ratio, flattened heat shrink tubing			+120				GT H MRT H & R24	22
		GMDR 3X	Diesel resistant, high shrink ratio, wire identification sleeve								23
		SQUIX	Thermal transfer printer one side	-	-	-	-				24
		XD4	Thermal transfer printer double side								25
		GR TT6100 / GR TT6900	Thermal transfer ribbon for GREMARK® Printing System								26
MECHANICAL PROTECTIONS	GREMFLEX®	PET-FR	Flame retardant, expandable Polyester braided sleeve	PET-FR	-	-	-50 to +150			R22 & R23	28
		P-V0	V-0 compliant, expandable Polyester braided sleeve	PET V-0	-	-					29
	GREMWRAP®	PET-FR	Flame retardant, Polyester wrap-around sleeve	PET-FR	-	-	-50 to +125				30
		P-V0	V-0 compliant, Polyester wrap-around sleeve	PET V-0	-	-					31
	GREMFLEX®	PA6.6	Expandable Polyamide 6.6 braided sleeve	PA6.6	-	-	-50 to +150				32
THERMAL PROTECTIONS	GREMSHIELD®	GSS77C	Silicone coated Fiberglass sleeve for high temperature	SI + FG	-	-	-60 to +260			R22 & R23	34

PE = Polyolefin - **SI** = Silicone - **PET** = Polyethylene terephthalate - **FR** = Flame Retardant - **PA** = Polyamide - **FG** = Fiberglass

GREMTEK
Protective Sleeve Solutions

HEAT SHRINK PRODUCTS

GREMTUBE® G61

GREMTUBE® G61 3X

GREMTUBE® G61A 3X

GREMTUBE® G61A 4X

GREMTUBE® GMW / GMWA

GREMTUBE® GHW / GHWA

GREMTUBE® GREN / GREA

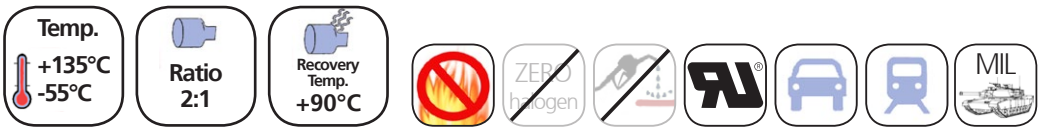
GREMTUBE® GREN-F / GREA-F

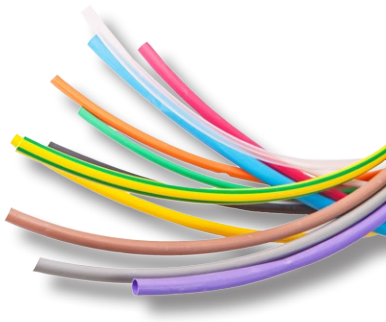
GREMSHAPES® GBOS 2-3

GREMSHAPES® GBOS 4-5-6-7

GREMTUBE® GSI

THIN WALL
GREMTUBE® G61
Flexible, flame retardant polyolefin tubing





Features/Applications

GREMTUBE® G61 is a highly flexible, low shrink temperature, flame retardant, irradiated polyolefin heat shrink tubing.
GREMTUBE® G61 offers improved installation time and therefore reduces potential damage to sensitive components.
GREMTUBE® G61 is suitable for electrical cable insulation, strain relief and cable bundling. It is widely used for joints when UL rating is required.

Various

Standard colours: Black, white, red, blue, yellow, green, clear, yellow/green.
Special sizes and colours available on request.

Specifications

Railway approved NF F 00-608 & NF EN 45545-2, SNCF approved.
UL 224, File N°E328344: VW-1, 600V (AC), 125°C (except clear products).
MIL-I-23053/5 Class 1 and 3 (coloured products), Class 2 (clear), 600V (AC), 135°C.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)	
GREMTUBE® G61	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Wall Thickness Min. (t)	Spool	Stick
001,2	1,2	0,6	0,33	200	1,2
001,6	1,6	0,7	0,36	200	1,2
002,4	2,4	1,2	0,43	150	1,2
003,2	3,2	1,6	0,43	150	1,2
004,8	4,8	2,4	0,43	150	1,2
006,4	6,4	3,2	0,56	150	1,2
009,5	9,5	4,8	0,56	75	1,2
012,7	12,7	6,4	0,56	50	1,2
019,1	19,1	9,5	0,69	30	1,2
025,4	25,4	12,7	0,76	30	1,2
032,0	32,0	16,0	0,86	30	1,2
038,1	38,1	19,1	0,86	30	1,2
050,8	50,8	25,4	0,97	30	1,2
076,2	76,2	38,1	1,07	20	1,2
101,6	101,6	50,8	1,17	20	1,2
127,0	127,0	63,5	1,17	20	1,2

●Spools as standard, cut pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +135°C	-
	Longitudinal change (except clear and size over 25,4mm)		±5% (±10%)	-
	Tensile strength Elongation at break	Unaged	≥ 10,4 MPa ≥ 200%	UL 224
	Tensile strength Elongation at break	Aged (168h @ 175°C)	≥ 7,8 MPa ≥ 100%	UL 224
	Heat shock	4h @ 250°C	No crack	UL 224
	Low temperature flexibility	4h @ -55°C	No crack	UL 224
	Flammability, Smoke & Toxicity	Procedure B/C	Pass	UL 224
			R24	EN 45545-2
Electrical	Dielectric strength		≥ 20 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 876
Chemical	Copper corrosion	168h @ 175°C	No corrosion	UL 224

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

30/09/2015 Rev3

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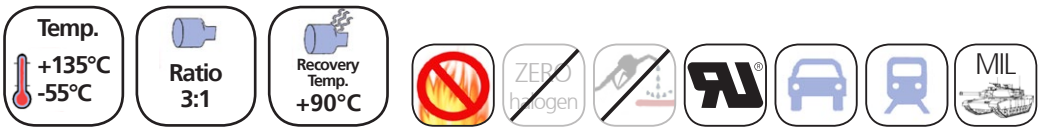
THIN WALL
GREMTUBE® G61 3X
Flexible, flame retardant, high shrink ratio polyolefin tubing



Features/Applications

GREMTUBE® G61 3X is a flexible, high shrink ratio, flame retardant, irradiated polyolefin heat shrink tubing.
GREMTUBE® G61 3X offers excellent insulation properties and meets the most stringent industrial, military and railway requirements. It covers a wide range of diameters, allowing reduced inventory. It fits snugly on tight bents.
GREMTUBE® G61 3X is suitable for electrical cable insulation, strain relief and cable bundling. It is widely used for joints when UL rating is required.

Various

Standard colours: Black, white, red, blue, yellow, green, clear, yellow/green.
Special sizes and colours available on request.

Specifications

Railway approved NF F 00-608 & NF EN 45545-2, SNCF approved.
UL 224, File N°E328344: VW-1, 600V (AC), 125°C (except clear products).
MIL-I-23053/5 Class 1 and 3 (coloured products), Class 2 (clear), 600V (AC), 135°C.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)	
GREMTUBE® G61 3X	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Wall Thickness Min. (t)	Spool	Stick
001,5	1,5	0,5	0,40	200	1,2
003,0	3,0	1,0	0,50	150	1,2
004,5	4,5	1,5	0,54	150	1,2
006,0	6,0	2,0	0,59	100	1,2
009,0	9,0	3,0	0,68	100	1,2
012,0	12,0	4,0	0,68	50	1,2
018,0	18,0	6,0	0,77	50	1,2
022,0	22,0	8,0	0,60	30	1,2
024,0	24,0	8,0	0,90	30	1,2
039,0	39,0	13,0	1,04	20	1,2
050,0	50,0	17,0	1,30	20	1,2

●Spools as standard, cut pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +135°C	-
	Longitudinal change		-15% to 0%	-
	Tensile strength	Unaged	≥ 10,4 MPa	UL 224
	Elongation at break		≥ 200%	
	Tensile strength	Aged (168h @ 175°C)	≥ 7,8 MPa	UL 224
	Elongation at break		≥ 100%	
	Heat shock	4h @ 250°C	No crack	UL 224
	Low temperature flexibility	4h @ -55°C	No crack	UL 224
	Flammability,	Procedure B/C	Pass	UL 224
	Smoke & Toxicity		R24	EN 45545-2
Electrical	Dielectric strength		≥ 20 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 876
Chemical	Copper corrosion	168h @ 175°C	No corrosion	UL 224

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

07/02/2019 Rev4

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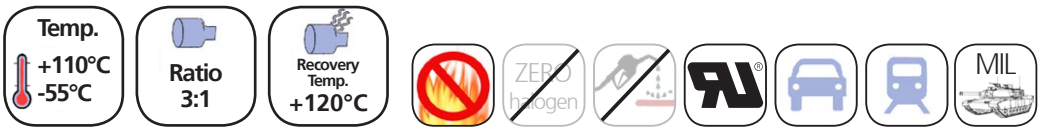
DUALL WALL
GREMTUBE® G61A 3X
Flexible tubing with adhesive



Features/Applications

GREMTUBE® G61A 3X is a flexible, flame retardant, irradiated polyolefin heat shrink tubing with adhesive.
GREMTUBE® G61A 3X offers both insulation and sealing characteristics and meets the most stringent industrial and military requirements.
GREMTUBE® G61A 3X is particularly suited to protect automotive cables, wire bundles and metal tubes against water and moisture when flame retardant properties and UL rating are required.

Various

Standard colours: Black, clear.
Special sizes and colours available on request.

Specifications

UL 224, File N°E328937: VW-1, 600V (AC), 125°C, outside jacket only, except clear products.
MIL-I-23053/4 Class 3

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)	
GREMTUBE® G61A 3X	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Total Wall Thickness Nom. (t)	Spool	Stick
003,0	3,0	1,0	1,00	150	1,2
004,5	4,5	1,5	1,10	150	1,2
005,0	5,0	1,7	1,10	75	1,2
006,0	6,0	2,0	1,20	75	1,2
009,0	9,0	3,0	1,30	50	1,2
012,0	12,0	4,0	1,35	25	1,2
016,0	16,0	5,3	1,35	20	1,2
019,0	19,0	6,0	2,00	20	1,2
024,0	24,0	8,0	2,20	20	1,2
027,0	27,0	11,0	2,20	20	1,2
031,0	31,0	11,0	2,20	20	1,2
038,0	38,0	13,0	2,30	20	1,2

●Cut pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +110°C	-
	Longitudinal change		-15% to 0%	-
	Tensile strength	Unaged	≥ 10,4 MPa	MIL-I-23053
	Elongation at break		≥ 200%	
	Tensile strength	Aged (168h @ 158°C)	≥ 7,8 MPa	UL 224
	Elongation at break		≥ 100%	
	Heat shock	4h @ 250°C	No crack	MIL-I-23053
	Low temperature flexibility	4h @ -55°C	No crack	MIL-I-23053
	Flammability	Procedure C (Outer jacket)	Pass	ASTM D 2671
Electrical	Dielectric strength		≥ 20 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 876
Chemical	Copper corrosion	168h @ 175°C	No corrosion	MIL-I-23053

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

30/09/2015 Rev2

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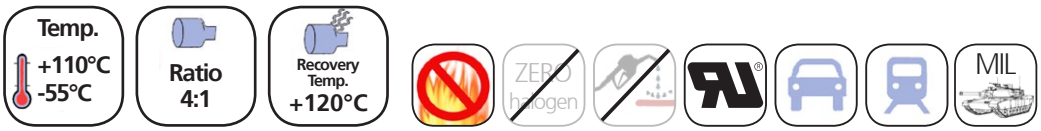
DUALL WALL
GREMTUBE® G61A 4X
High shrink ratio tubing with adhesive



Features/Applications

GREMTUBE® G61A 4X is a flame retardant, irradiated polyolefin heat shrink tubing with adhesive. GREMTUBE® G61A 4X offers both insulation and sealing characteristics and meets the most stringent industrial and military requirements. It covers a wide range of diameters, allowing for reduced inventory. It fits snugly on tight bents.
GREMTUBE® G61A 4X is particularly suited to protect cable, wire connections and metal tubes against moisture when flame retardant properties and UL rating are required.

Various

Standard colours: Black, clear.
Special sizes and colours available on request.

Specifications

UL 224, File N°E328937: VW-1, 600V (AC), 125°C, outside jacket only, except clear products
MIL-I-23053/4 Class 3

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)	
GREMTUBE® G61A 4X	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Total Wall Thickness Min. (t)	Spool	Stick
004,0	4,0	1,0	0,90	100	1,2
008,0	8,0	2,0	0,90	100	1,2
012,0	12,0	3,0	1,30	25	1,2
013,0	13,0	3,3	1,30	20	1,2
014,0	14,0	3,4	1,30	20	1,2
016,0	16,0	4,0	1,60	20	1,2
024,0	24,0	6,0	2,10	20	1,2
032,0	32,0	8,0	2,30	20	1,2
052,0	52,0	13,0	2,50	20	1,2

●Cut pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +110°C	-
	Longitudinal change		-15% to 0%	-
	Tensile strength	Unaged	≥ 10,4 MPa	MIL-I-23053
	Elongation at break		≥ 200%	
	Tensile strength	Aged (168h @ 158°C)	≥ 7,8 MPa	UL 224
	Elongation at break		≥ 100%	
	Heat shock	4h @ 250°C	No crack	MIL-I-23053
	Low temperature flexibility	4h @ -55°C	No crack	MIL-I-23053
	Flammability	Procedure C (Outer jacket)	Pass	ASTM D 2671
Electrical	Dielectric strength		≥ 20 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 876
Chemical	Copper corrosion	168h @ 175°C	No corrosion	MIL-I-23053

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

30/09/2015 Rev3

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MEDIUM & HEAVY WALL
GREMTUBE® GMW / GMWA
Halogen free, medium wall tubing (GMW), with adhesive (GMWA)

Features/Applications

GREMTUBE® GMW and GMWA are medium wall, halogen free, irradiated polyolefin heat shrink tubing (GMW), with adhesive (GMWA).
GREMTUBE® GMW and GMWA offers good electrical insulation properties, high resistance to impact, abrasion and UV radiation. 3:1 shrink ratio allows it to fit over irregular shapes and large connectors.
GREMTUBE® GMW and GMWA are suitable for a variety of low voltage (up to 15kV) electrical equipment and cable connections in wet environments such as marine vessels, off-shore oil platforms, shipyard and harbor applications when zero halogen properties are required.

Various

Standard colour: Black. Red available on request.

Specifications

UV resistant.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)
GREMTUBE® GMW / GMWA	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Total Wall Thickness Nom. (t)	
008,0	8,0	2,0	2,00	1,2
009,0	9,0	3,0	2,00	1,2
012,0	12,0	4,0	2,00	1,2
016,0	16,0	5,0	2,20	1,2
019,0	19,0	6,0	2,50	1,2
022,0	22,0	6,0	2,50	1,2
025,0	25,0	8,0	2,50	1,2
028,0	28,0	6,0	2,50	1,2
033,0	33,0	8,0	2,50	1,2
035,0	35,0	12,0	2,50	1,2
040,0	40,0	12,0	2,50	1,2
045,0	45,0	13,0	2,50	1,2
055,0	55,0	16,0	2,70	1,2
065,0	65,0	19,0	2,80	1,2
075,0	75,0	22,0	3,00	1,2
085,0	85,0	25,0	3,00	1,2
095,0	95,0	25,0	3,00	1,2
115,0	115,0	34,0	3,00	1,2
130,0	130,0	36,0	3,00	1,2
140,0	140,0	42,0	3,00	1,2
160,0	160,0	50,0	3,00	1,2
175,0	175,0	58,0	3,00	1,2
200,0	200,0	65,0	3,00	1,2
230,0	230,0	75,0	3,00	1,2
260,0	260,0	85,0	3,00	1,2

●Cut pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +105°C	-
	Longitudinal change		-10% to 0%	-
	Tensile strength	Unaged	≥ 12 MPa	ASTM D 2671
	Elongation at break	Unaged	≥ 400%	ASTM D 2671
	Tensile strength	Aged (168h @ 158°C)	≥ 12 MPa	ASTM D 2671
	Elongation at break	Aged (168h @ 158°C)	≥ 350%	ASTM D 2671
	Heat shock	4h @ 200°C	No crack	ASTM D 2671
	Low temperature flexibility	4h @ -55°C	No crack	ASTM D 2671
Electrical	Dielectric strength		≥ 15 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 2671
Adhesive	Peel strength to steel		80 N/25 mm	ASTM D 2671
	Peel strength to XLPE		110 N/25 mm	ASTM D 2671

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

07/02/2019 Rev5

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MEDIUM & HEAVY WALL
GREMTUBE® GHW / GHWA
Halogen free, heavy wall tubing (GHW), with adhesive (GHWA)

Features/Applications

GREMTUBE® GHW and GHWA are halogen free, heavy wall, irradiated polyolefin heat shrink tubing (GHW), with adhesive (GHWA).
GREMTUBE® GHW and GHWA offers good electrical insulation properties, high resistance to impact, abrasion and UV radiation. 3:1 shrink ratio allows it to fit over irregular shapes and large connectors.
GREMTUBE® GHW and GHWA are suitable for a variety of medium voltage (up to 36kV) electrical equipment and cable connections in wet environments such as marine vessels, off-shore oil platforms, shipyard and harbor applications when zero halogen properties are required.

Various

Standard colour: Black. Red available on request.
Flame retardant version is available on request (GREMTUBE® GHW-FR / GHWA-FR)

Specifications

UV resistant.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)
GREMTUBE® GHW / GHWA	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Total Wall Thickness Nom. (t)	
009,0	9,0	3,0	2,60	1,2
012,0	12,0	4,0	2,80	1,2
016,0	16,0	5,0	3,00	1,2
019,0	19,0	6,0	3,00	1,2
022,0	22,0	6,0	3,25	1,2
025,0	25,0	8,0	3,25	1,2
028,0	28,0	6,0	3,25	1,2
033,0	33,0	8,0	3,25	1,2
035,0	35,0	12,0	3,95	1,2
040,0	40,0	12,0	3,95	1,2
045,0	45,0	13,0	3,95	1,2
055,0	55,0	16,0	4,05	1,2
065,0	65,0	19,0	4,05	1,2
075,0	75,0	22,0	4,05	1,2
085,0	85,0	25,0	4,05	1,2
095,0	95,0	25,0	4,05	1,2
105,0	105,0	30,0	4,05	1,2
115,0	115,0	34,0	4,05	1,2
130,0	130,0	36,0	4,05	1,2
140,0	140,0	42,0	4,05	1,2
160,0	160,0	50,0	4,05	1,2
175,0	175,0	58,0	4,05	1,2
200,0	200,0	65,0	4,05	1,2
235,0	235,0	65,0	4,50	1,2
265,0	265,0	75,0	4,50	1,2
300,0	300,0	85,0	4,50	1,2
350,0	350,0	100,0	4,50	1,2

● Cut pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +105°C	-
	Longitudinal change		-10% to 0%	-
	Tensile strength	Unaged	≥ 12 MPa	ASTM D 2671
	Elongation at break		≥ 400%	
	Tensile strength	Aged (168h @ 150°C)	≥ 12 MPa	ASTM D 2671
	Elongation at break		≥ 350%	
	Heat shock	4h @ 200°C	No crack	ASTM D 2671
	Low temperature flexibility	4h @ -55°C	No crack	ASTM D 2671
Electrical	Dielectric strength		≥ 15 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 2671
Adhesive	Peel strength to steel		80 N/25 mm	ASTM D 2671
	Peel strength to XLPE		110 N/25 mm	ASTM D 2671

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

07/02/2019 Rev5

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MEDIUM & HEAVY WALL
GREMTUBE® GREN / GREA
Halogen free, medium wall tubing (GREN), with adhesive (GREA)

Features/Applications

GREMTUBE® GREN and GREA are halogen free, medium wall irradiated polyolefin heat shrink tubing (GREN), with adhesive (GREA).
GREMTUBE® GREN and GREA offers good electrical insulation and mechanical protection. It ensures total encapsulation and a stiff splice after shrinkage over the component.
GREMTUBE® GREN and GREA are suitable for protection of low voltage (up to 1 kV) cable connections when zero halogen properties and high working temperature are required.

Various

Standard colour: Black.

Specifications

UV resistant.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)	
GREMTUBE® GREN / GREA	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Total Wall Thickness Min. (t)		
012,0	12,0	3,0	1,60	1,0	1,5
016,0	16,0	4,0	1,90	1,0	1,5
019,0	19,0	6,0	2,20	1,0	1,5
020,0	20,0	4,0	2,30	1,0	1,5
028,0	28,0	6,0	3,10	1,0	1,5
030,0	30,0	8,0	2,20	1,0	1,5
040,0	40,0	12,0	2,20	1,0	1,5
050,0	50,0	16,0	2,50	1,0	1,5
063,0	63,0	19,0	2,70	1,0	1,5
075,0	75,0	22,0	2,80	1,0	1,5
095,0	95,0	30,0	3,40	1,0	1,5
115,0	115,0	34,0	3,30	1,0	1,5
140,0	140,0	42,0	3,50	1,0	1,5

● Cut pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +125°C	-
	Longitudinal change		± 10%	ASTM D 2671
	Tensile strength	Unaged	≥ 18 MPa	ASTM D 638
	Elongation at break	Unaged	≥ 600%	ASTM D 638
Electrical	Dielectric strength		≥ 25 kV/mm	IEC 243
	Volume resistivity		≥ 10^{13} Ω.cm	IEC 93
Chemical	Fluids resistance		Excellent	ISO 175-99

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

30/09/2015 Rev2

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MEDIUM & HEAVY WALL
GREMTUBE® GREN-F / GREA-F
Halogen free, heavy wall tubing (GREN-F), with adhesive (GREA-F)

Features/Applications
GREMTUBE® GREN-F and GREA-F are halogen free, heavy wall irradiated polyolefin heat shrink tubing (GREN-F), with adhesive (GREA-F).
GREMTUBE® GREN-F and GREA-F offers good electrical insulation and mechanical protection. It ensures total encapsulation and a stiff splice after shrinkage over the component.
GREMTUBE® GREN-F and GREA-F are suitable for protection of low voltage (up to 1 kV) cable connections when zero halogen properties and higher temperature are required.

Various
Standard colour: Black.

Specifications
UV resistant.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)	
GREMTUBE® GREN-F / GREA-F	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Total Wall Thickness Min. (t)		
009,0	9,0	3,0	2,00	1,0	1,5
013,0	13,0	4,0	2,30	1,0	1,5
019,0	19,0	6,0	2,60	1,0	1,5
023,0	23,0	6,0	2,60	1,0	1,5
033,0	33,0	8,0	3,20	1,0	1,5
045,0	45,0	12,0	4,40	1,0	1,5
051,0	51,0	16,0	4,30	1,0	1,5
063,0	63,0	19,0	4,60	1,0	1,5
068,0	68,0	22,0	4,30	1,0	1,5
085,0	85,0	25,0	4,20	1,0	1,5
105,0	105,0	30,0	4,20	1,0	1,5
130,0	130,0	36,0	4,00	1,0	1,5
140,0	140,0	42,0	4,60	1,0	1,5
165,0	165,0	50,0	4,30	1,0	1,5
185,0	185,0	50,0	4,40	1,0	1,5

●Cut pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +125°C	-
	Longitudinal change		± 10%	ASTM D 2671
	Tensile strength	Unaged	≥ 18 MPa	ASTM D 638
	Elongation at break	Unaged	≥ 600%	ASTM D 638
Electrical	Dielectric strength		≥ 25 kV/mm	IEC 243
	Volume resistivity		≥ 10^{13} Ω.cm	IEC 93
Chemical	Fluids resistance		Excellent	ISO 175-99

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

30/09/2015 Rev2

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Temp. +110°C -40°C | Ratio 3:1 | Recovery Temp. +125°C

Features/Applications

GREMSHAPES® GBOS is a flame retardant hot melt lined irradiated polyolefin heat shrink moulded breakout with 2 to 3 fingers.
GREMSHAPES® GBOS offers a superior resistance to oxidation, UV radiation and excellent encapsulation properties.
GREMSHAPES® GBOS are suitable for used both on open air and on underground power distribution (up to 1kV) and telecommunication cables with PVC or XLPE sheets.

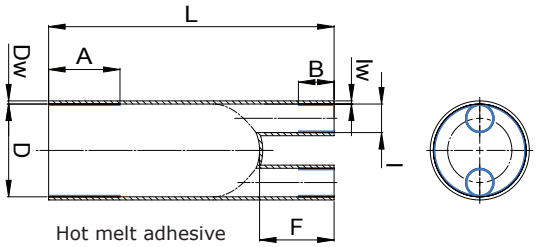
Various

Standard colour: Black.

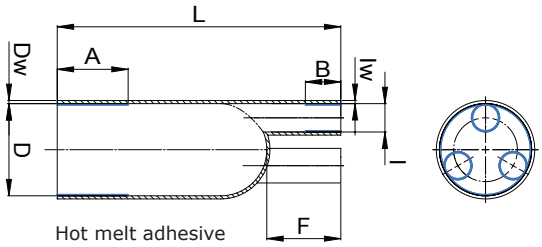
Dimensions

GREMSHAPES® GBOS	D (mm)		I (mm)		Recovered length		Recovered wall thickness	
2 fingers breakout	a (min.)	b (max.)	a (min.)	b (max.)	L (mm)	F (mm)	Dw (mm)	Iw (mm)
LV2 22/8	22	8	10	3	85	20	2,2	2,0
LV2 28/8	28	8	12	3	85	20	2,2	2,0
LV2 32/10	32	10	14	4	85	20	2,2	2,0
LV2 60/20	60	20	24	7	120	34	3,0	2,5
LV2 156/65	156	65	50	15	138	58	2,2	2,0
3 fingers breakout	a (min.)	b (max.)	a (min.)	b (max.)	L (mm)	F (mm)	Dw (mm)	Iw (mm)
LV3 37/14	37	14	15	4	100	21	2,2	2,0
LV3 60/20	60	20	25	8	188	62	3,7	2,8
LV3 75/28	75	28	35	13	173	47	3,5	3,0
LV3 80/30	80	30	36	13	215	75	3,9	3,1
LV3 100/30	100	30	39	13	215	75	3,9	3,1
LV3 110/45	110	45	55	20	235	88	4,3	3,0
LV3 125/45	125	45	57	21	230	90	4,6	3,4
LV3 140/56	140	56	68	28	250	90	4,6	3,4
LV3 180/58	180	58	68	29	250	90	4,6	3,4

- a : as supplied / b : after free recovery



Hot melt adhesive
A: 50mm B: 25mm



Hot melt adhesive
A: 50mm B: 25mm

Property			Values	Test Methods
Physical	Working temperature		-40°C to +110°C	-
	Longitudinal change		-15%	ASTM D 2671
	Tensile strength	Unaged	≥ 12 MPa	ASTM D 638
	Elongation at break	Unaged	≥ 350%	ASTM D 638
	Tensile strength	Aged (500h @ 120°C)	≥ 11 MPa	ASTM D 638
	Elongation at break after aging	Aged (500h @ 120°C)	≥ 300%	ASTM D 638
	Low temperature flexibility	4h @ -40°C	No cracking	ASTM D 2671
	Heat shock	1/2h @ 250°C	No cracking or flowing	ESI 09-11
Electrical	Dielectric strength		≥ 12kV/mm	ASTM D 149
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 257
Chemical	Water absorption		< 0,2% (max.)	ASTM D 570
Adhesive	Softening point (Ball & ring)		85°C	-
	Melting process temperature		160°C to 180°C	-
	Resistant against being in contact with oil		Pass	-

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS | REACH compliant

30/09/2015 Rev6

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Temp. +110°C -40°C | Ratio 3:1 | Recovery Temp. +125°C

Features/Applications

GREMSHAPES® is a flame retardant hot melt lined irradiated polyolefin heat shrink moulded breakout with up to 7 fingers.
GREMSHAPES® GBOS offers a superior resistance to oxidation, UV radiation and excellent encapsulation properties.
GREMSHAPES® GBOS are suitable for used both on open air and on underground power distribution (up to 1kV) and telecommunication cables with PVC or XLPE sheets.

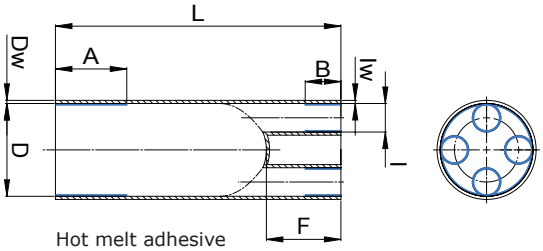
Various

Standard colour: Black.

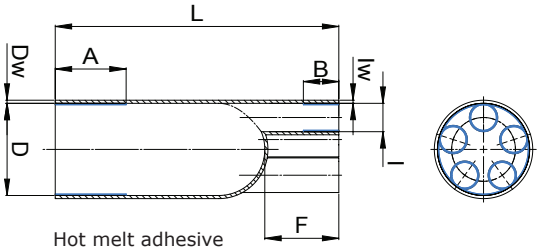
Dimensions

GREMSHAPES® GBOS	D (mm)		I (mm)		Recovered length		Recovered wall thickness	
4 fingers breakout	a (min.)	b (max.)	a (min.)	b (max.)	L (mm)	F (mm)	Dw (mm)	Iw (mm)
LV4 40/12	40	12	12	3	100	25	2,4	1,7
LV4 41/16	41	16	14	4	100	23	2,4	1,7
LV4 50/17	50	17	17	4	95	23	2,4	1,7
LV4 58/26	58	26	21	7	170	48	3,5	2,5
LV4 70/25	70	25	25	8	190	51	3,5	2,3
LV4 70/30	70	30	25	9	190	48	3,7	2,6
LV4 80/31	80	31	31	10	190	47	3,7	2,6
LV4 90/42	90	42	35	13	210	52	3,7	2,6
LV4 110/44	110	44	35	13	208	51	3,7	2,6
LV4 125/44	125	44	40	14	208	51	3,7	2,6
5 fingers breakout	a (min.)	b (max.)	a (min.)	b (max.)	L (mm)	F (mm)	Dw (mm)	Iw (mm)
LV5 50/16	50	16	15	4	110	33	3,2	2,6
LV5 80/32	80	32	26	8	190	65	3,3	2,8
LV5 100/33	100	33	32	8	190	65	3,3	2,8
6 fingers breakout	a (min.)	b (max.)	a (min.)	b (max.)	L (mm)	F (mm)	Dw (mm)	Iw (mm)
LV6 44/12	44	12	13	4	82	30	2,2	2,0
LV6 85/37	85	37	25	7	140	46	3,2	2,6
7 fingers breakout	a (min.)	b (max.)	a (min.)	b (max.)	L (mm)	F (mm)	Dw (mm)	Iw (mm)
LV7 95/37	95	37	26	7	140	55	2,7	2,6

- a : as supplied / b : after free recovery



Hot melt adhesive
A: 50mm B: 25mm



Hot melt adhesive
A: 50mm B: 25mm

Property			Values	Test Methods
Physical	Working temperature		-40°C to +110°C	-
	Longitudinal change		-15%	ASTM D 2671
	Tensile strength	Unaged	≥ 12 MPa	ASTM D 638
	Elongation at break	Unaged	≥ 350%	ASTM D 638
	Tensile strength	Aged 500h @ 120°C	≥ 11 MPa	ASTM D 638
	Elongation at break after aging	Aged 500h @ 120°C	≥ 300%	ASTM D 638
	Low temperature flexibility	4h @ -40°C	No cracking	ASTM D 2671
	Heat shock	30 min. @ 250°C	No cracking or flowing	ESI 09-11
Electrical	Dielectric strength		≥ 12kV/mm	ASTM D 149
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 257
Chemical	Water absorption		< 0,2% (max.)	ASTM D 570
Adhesive	Softening point (Ball & ring)		85°C	-
	Melting process temperature		160°C to 180°C	-
	Resistant against being in contact with oil		Pass	-

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS | REACH compliant

30/09/2015 Rev6

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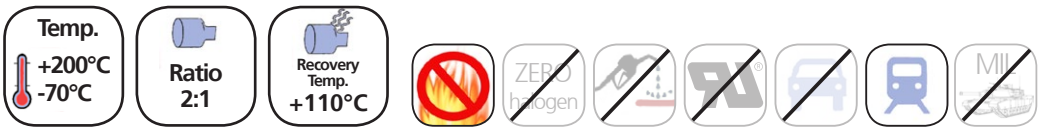

Features/Applications

GREMTUBE® GSI is very soft, flame retardant, silicone elastomer heat shrink tubing.
GREMTUBE® GSI offers a continuous working temperature from -70°C up to 200°C with peak up to 275°C.
GREMTUBE® GSI is suitable for high and low temperatures applications when a high flexibility is required.

Various

Standard colour: Grey.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m)
GREMTUBE® GSI	Inside Diameter ±10% (D)	Inside Diameter ±10% (d)	Wall Thickness ±10% (t)	
003,0	3,0	1,5	1,00	5
005,0	5,0	2,5	1,00	5
008,0	8,0	4,0	1,00	5
011,0	11,0	5,5	1,50	5
016,0	16,0	8,0	1,50	5
022,0	22,0	11,0	2,00	5
032,0	32,0	17,0	2,00	5
043,0	43,0	23,0	3,00	5
055,0	55,0	29,0	3,00	5
066,0	66,0	35,0	3,00	5
070,0	70,0	44,0	3,00	5
080,0	80,0	55,0	3,00	5
096,0	96,0	66,0	3,00	5
128,0	128,0	88,0	3,00	5
160,0	160,0	110,0	3,00	5
192,0	192,0	132,0	3,00	5
240,0	240,0	165,0	3,00	5

●Cut pieces available on request

Property		Values	Test Methods
Physical	Working temperature	-70°C to +200°C	-
	Peak temperature (Short time)	+275°C	-
	Longitudinal change	±10%	-
	Tensile strength	≥ 6,8 MPa	EN 60684-2
	Elongation at break	≥ 300%	
	Hardness	70 Shore A	ASTM D 2240
	Flammability	Self-extinguishing	ISO 11925-2
Electrical	Dielectric strength	≥ 37,7 kV/mm	EN 60684-2
	Volume resistivity	≥ 2,7 x10^{12} Ω.cm	EN 60684-2

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 35°C) and in closed containers.

RoHS
REACH compliant

17/12/2019 Rev3

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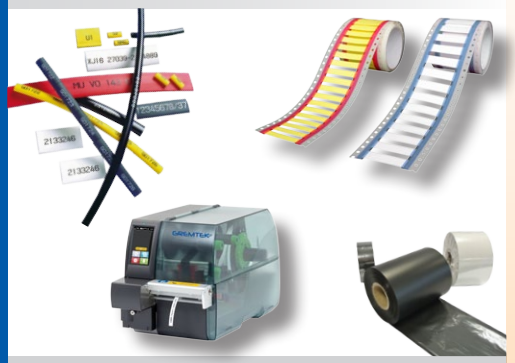
GREMTEK
Protective Sleeve Solutions

IDENTIFICATION SYSTEMS



GREMARK® PG61

GREMARK® PG61 3X

GREMARK® PGDR 3X

GREMARK® GMDR 3X

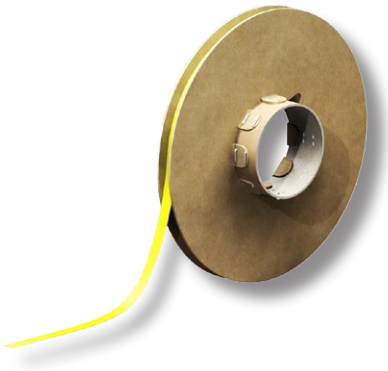
GREMARK® SQUIX

GREMARK® XD4

GREMARK® GR TT6100

GREMARK® GR TT6900

Temp. +135°C -55°C | Ratio 2:1 | Recovery Temp. +90°C



Features/Applications

GREMARK® PG61 is a flat printable, flame retardant, polyolefin heat shrink tubing.
GREMARK® PG61 offers an excellent solution for cable identification and meets the highest requirements in railway, military and industrial sectors.
GREMARK® PG61 is suitable for electrical cable insulation and for identifying cables and wires.
It is widely used in the railway, automotive, industrial and military sector.

Various

Standard colours: White, yellow.
Other colours available on request.

Specifications

SNCF NF F00-608 & EN 45545-2 approved.
Meets MIL-I-23053/5 Class 1&3.

Preferred printer / ribbon combination

To be used with the GREMTEK printing system.
- Thermal transfer printer type SQUIX 4 (one side) or XD4 (double side).
- Thermal transfer ribbon type GR-TT6100.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m/spool)
GREMARK® PG61	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Wall Thickness Min. (t)	
001,2	1,2	0,6	0,33	75
001,6	1,6	0,7	0,36	75
002,4	2,4	1,2	0,43	75
003,2	3,2	1,6	0,43	75
004,8	4,8	2,4	0,43	75
006,4	6,4	3,2	0,56	50
009,5	9,5	4,8	0,56	50
012,7	12,7	6,4	0,56	50
019,1	19,1	9,5	0,69	50
025,4	25,4	12,7	0,76	50

●Spools as standard, cut & marked pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +135°C	-
	Longitudinal change		±5%	-
	Tensile strength	Unaged	≥ 10,4 MPa	UL 224
	Elongation at break		≥ 200%	
	Tensile strength	Aged (168h @ 175°C)	≥ 7,8 MPa	UL 224
	Elongation at break		≥ 100%	
	Heat shock	4h @ 250°C	No crack	UL 224
	Low temperature flexibility	4h @ -55°C	No crack	UL 224
	Flammability, Smoke & Toxicity	Procedure B/C	Pass	UL 224
			R24	EN 45545-2
Electrical	Dielectric strength		≥ 20 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 876
Chemical	Copper corrosion	168h @ 175°C	No corrosion	UL 224

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 50°C) and in closed containers.

RoHS | REACH compliant

30/09/2015 Rev2

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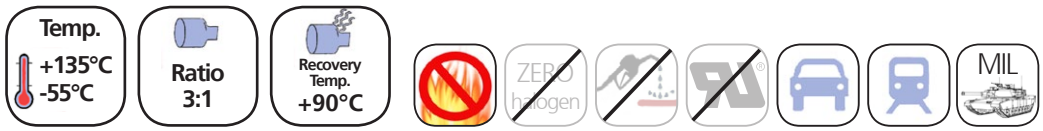
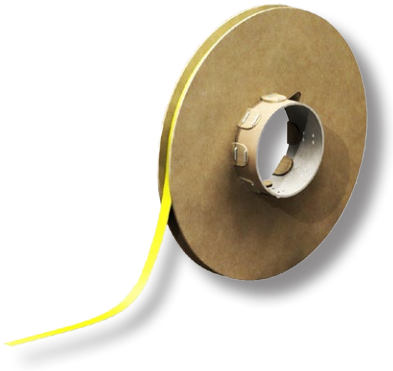
GREMARK® PG61 3X

High shrink ratio, flattened heat shrink tubing





Features/Applications

GREMARK® PG61 3X is a flat printable, flame retardant, polyolefin heat shrink tubing.
GREMARK® PG61 3X offers an excellent solution for cable identification and meets the highest requirements in railway, military and industrial sectors.
GREMARK® PG61 3X is suitable for electrical cable insulation and for identifying cables and wires. It is widely used in the railway, automotive, industrial and military sector.

Various

Standard colours: White, yellow.
Other colours available on request.

Specifications

SNCF NF F00-608 & EN 45545-2 approved.
Meets MIL-I-23053/5 Class 1&3.

Preferred printer / ribbon combination

To be used with the GREMTEK printing system.
- Thermal transfer printer type SQUIX 4 (one side) or XD4 (double side).
- Thermal transfer ribbon type GR-TT6100.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m/spool)
GREMARK® PG61 3X	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Wall Thickness Min. (t)	
001,5	1,5	0,5	0,40	75
003,0	3,0	1,0	0,50	75
004,5	4,5	1,5	0,54	75
006,0	6,0	2,0	0,59	75
009,0	9,3	3,0	0,68	75
012,0	12,3	4,0	0,68	50
018,0	18,0	6,0	0,77	50
024,0	24,0	8,0	0,90	50

- Spools as standard, cut & marked pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +135°C	-
	Longitudinal change		±5%	-
	Tensile strength	Unaged	≥ 10,4 MPa	UL 224
	Elongation at break		≥ 200%	
	Tensile strength	Aged (168h @ 175°C)	≥ 7,8 MPa	UL 224
	Elongation at break		≥ 100%	
	Heat shock	4h @ 250°C	No crack	UL 224
	Low temperature flexibility	4h @ -55°C	No crack	UL 224
	Flammability,	Procedure B/C	Pass	UL 224
	Smoke & Toxicity		R24	EN 45545-2
Electrical	Dielectric strength		≥ 20 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 876
Chemical	Copper corrosion	168h @ 175°C	No corrosion	UL 224

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 50°C) and in closed containers.

RoHS
REACH compliant

30/09/2015 Rev2

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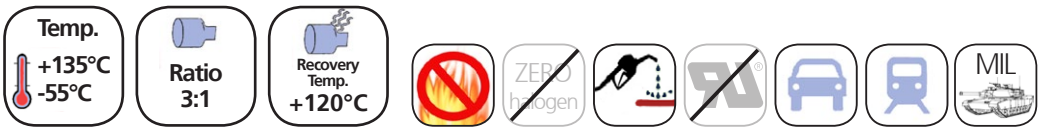
IDENTIFICATION SYSTEMS
GREMARK® PGDR 3X
Diesel resistant, high shrink ratio, flattened heat shrink tubing



Features/Applications
GREMARK® PGDR 3X is a flat printable, flame retardant, diesel resistant polyolefin heat shrink tubing.
GREMARK® PGDR 3X offers an excellent solution for cable identification and meets the highest requirements in railway, military and industrial sectors.
GREMARK® PGDR 3X is suitable for electrical cable insulation and for identifying cables and wires, when diesel resistance is required.
It is widely used in the railway, automotive, industrial and military sector.

Various
Standard colours: Yellow. Other colours available on request.
Exists also in ratio 2:1

Specifications
SNCF NF F00-608 & EN 45545-2 approved.
Meets ASTM, SAE-AMS-DTL-23053/6 class 1.

Preferred printer / ribbon combination
To be used with the GREMTEK printing system.
- Thermal transfer printer type SQUIX 4 (one side) or XD4 (double side).
- Thermal transfer ribbon type GR-TT6900.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Standard Length (m/spool)
GREMARK® PGDR 3X	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Wall Thickness Min. (t)	
002,4	2,4	0,8	0,58	25
003,2	3,2	1,1	0,58	25
004,8	4,8	1,6	0,59	25
006,4	6,4	2,1	0,60	25
009,5	9,5	3,2	0,62	25
012,7	12,7	4,2	0,62	25
019,1	19,1	6,4	0,64	25
025,4	25,4	8,5	0,65	25
038,1	38,1	12,7	0,67	25
050,8	50,8	16,9	0,68	25
076,2	76,2	25,4	0,71	25

●Spools as standard, cut & marked pieces available on request

Property			Values	Test Methods
Physical	Working temperature		-55°C to +135°C	-
	Longitudinal change		±10%	-
	Tensile strength Elongation at break	Unaged	≥ 13,8 MPa ≥ 200%	AMS-DTL-23053
	Tensile strength Elongation at break	Aged (168h @ 175°C)	≥ 11,1 MPa ≥ 100%	AMS-DTL-23053
	Heat shock	4h @ 250°C	No crack	AMS-DTL-23053
	Low temperature flexibility	4h @ -55°C	No crack	AMS-DTL-23053
	Flammability, Smoke & Toxicity	Procedure B/C	VW-1	IEC 60332
			R24	EN 45545-2
Electrical	Dielectric strength		≥ 19,7 kV/mm	ASTM D 2671
	Volume resistivity		≥ 10^{14} Ω.cm	ASTM D 876
Chemical	Copper corrosion	168h @ 175°C	No corrosion	AMS-DTL-23053

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 50°C) and in closed containers.

RoHS
REACH compliant

11/03/2016 Rev3

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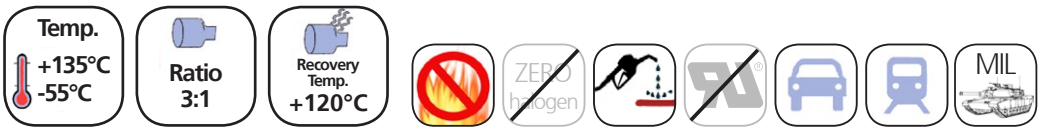
GREMARK® GMDR 3X

Diesel resistant, high shrink ratio, wire identification sleeve



Features/Applications

GREMARK® GMDR 3X is a printable, flame retardant, diesel resistant polyolefin heat shrink tubing in a ladder format.
GREMARK® GMDR 3X offers an excellent solution for cable identification and meets the highest requirements in railway, military and industrial sectors.
GREMARK® GMDR 3X is suitable for electrical cable insulation and for identifying cables and wires.
It is widely used in the railway, automotive, industrial and military sector.

Various

Standard colours: Yellow. Other colours available on request.
For heat shrink tubing characteristics please refer to GREMARK® PGDR 3X.

Specifications

SNCF NF F00-608 & EN 45545-2 R24 approved.
Meets ASTM, SAE-AMS-DTL-23053/6 class 1.

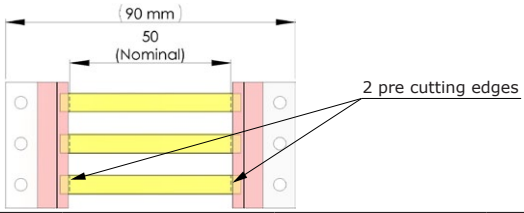
Preferred printer / ribbon combination

To be used with the GREMTEK printing system.
- Thermal transfer printer type SQUIX 4 (one side) or XD4 (double side).
- Thermal transfer ribbon type GR-TT6900.

Dimensions

Reference	As supplied (mm)	After recovery (mm)		Packaging (Sleeve/spool)
GREMARK® GMDR 3X	Inside Diameter Min. (D)	Inside Diameter Max. (d)	Wall Thickness Min. (t)	
0024-25-0-4	2,4	0,8	0,58	2500
0032-25-0-4	3,2	1,1	0,58	2500
0048-20-0-4	4,8	1,6	0,59	2000
0064-20-0-4	6,4	2,1	0,60	2000
0095-20-0-4	9,5	3,2	0,62	2000
0127-10-0-4	12,7	4,2	0,62	1000
0191-10-0-4	19,1	6,4	0,64	1000
0254-5-0-4	25,4	8,5	0,65	500
0381-5-0-4	38,1	12,9	0,67	500
0508-2,5-0-4	50,8	17,2	0,68	250
0762-2,5-0-4	76,2	25,8	0,71	250

●Spools as standard, marked pieces available on request



Options

Pre-scoring	0 (by default)	1	2	3
Printable area size	1 x 50mm	2 x 25mm	3 x 16mm	4 x 12,5mm
Colour code	4		9	
Standard colour	Yellow		White	

As a standard GREMARK® is delivered with 2 pre cutting edges.

Part numbering system

GM DR - 3 - 0480 - 20 - 0 - 4

- 4 — Colour code
- 0 — Number of pre-scoring (max. 3), not including pre cutting edges
- 20 — Number of sleeves / spool (x100)
- 0480 — Diameter before shrink
- 3 — Shrink ratio
- DR — Railway grade (Diesel resistant)
- GM — Product type

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 50°C) and in closed containers.

RoHS
REACH compliant

20/10/2016 Rev4

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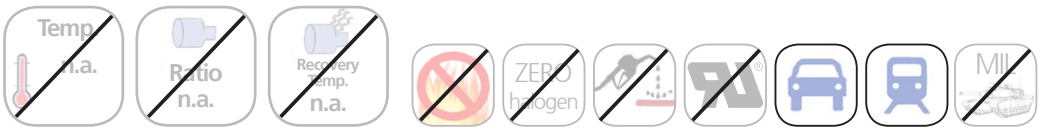

Features

GREMARK® SQUIX 4 is a high performance thermal transfer printer specially designed for high volume printing.
It accommodates printing on GREMARK® tubing both in flat and ladder format with a diameter range from 2,4 to 25,4 mm providing the optimum in flexibility, printing quality and permanence.

Benefits

- Automatic adjustment of the print head for different sleeve widths.
- Printing on very narrow or very thick continuous materials.
- Adjustable printing speed of 30 to 125 mm / sec.
- Centred material guide.

Heat shrink tubing / ribbon compatibility

- Flattened tubing: GREMARK® PG61 (2X & 3X), PG55Z (2X & 3X), PGDR (2X & 3X).
- Ladder format: GREMARK® GMEC, GMZH, GMDR, GMDRZ (2X & 3X) & TAGPUR.
- Ink ribbon: GREMARK® GR TT6100, GR TT6900.

Dimensions

Label printer	SQUIX 4
Print head	
Print method thermal transfer	•
Printable resolution (dpi)	300
Print speed up to (mm/s)	300
Print width (mm)	105,7
Material	
Labels	Paper, cardboard, textile, plastics
Label thickness (mm)	0,03 - 1,1
Width labels: continuous material (mm)	4 - 110
Width labels: continuous heat shrink tubing (mm)	4 - 85
Media roll outer diameter up to (mm)	205
Media roll core diameter (mm)	38 - 100
Media roll winding	Outer or inner
Ribbon	
Ink side	Outer or inner
Roll diameter / Core diameter / Lenght / Widht (mm)	80 / 25 / 450 / 25 to 114
Dimensions and weights	
Width x Height x Depth (mm)	252 x 288 x 460
Weight (kg)	10
Label sensor	
Gap sensor	Labels, punch marks or print marks and end of material
Reflective sensor from bottom/optionally from top	For print marks
Distance center to the left mm	0 - 60
Interfaces	
RS232C 1,200 to 230,400 baud/8 bit	•
USB 2.0 Hi-Speed device to connect a PC	•
Ethernet 10/100 Base T, LPD-, RawIP-, FTP-Printing, DHCP, HTTP, SMTP, SNMP, TIME, Zeroconf, mDNS, SOAP	
Peripheral connection	WLAN 802.11b/g/n, USB host, Digital I/O
Operating data	
Power supply	100-240 V ~ 50/60 Hz, PFC
Power consumption W	Standby<10W / typical 150W / maximum 300W
Temperature / humidity operation	+5 to +40°C / 10 to 85% not condensing
Approvals	CE, FCC class A, CB, CCC, UL

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 50°C) and in closed containers.

RoHS
REACH compliant

07/02/2019 Rev1

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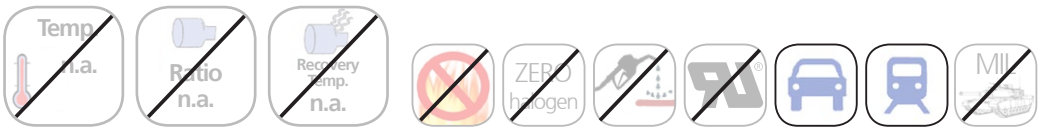

Features

GREMARK® XD4 is a high performance thermal transfer printer specially designed for high volume printing.
It accommodates printing on GREMARK® tubing both in flat and ladder format with a diameter range from 2,4 to 25,4 mm providing the optimum in flexibility, printing quality and permanence.

Benefits

- Simultaneous printing on front and back.
- Automatic adjustment of the print head for different sleeve widths.
- Printing on very narrow or very thick continuous materials.
- Adjustable printing speed of 30 to 125 mm / sec.
- Centred material guide.

Heat shrink tubing / ribbon compatibility

- Flattened tubing: GREMARK® PG61 (2X & 3X), PG55Z (2X & 3X), PGDR (2X & 3X).
- Ladder format: GREMARK® GMEC, GMZH, GMDR, GMDRZ (2X & 3X) & TAGPUR.
- Ink ribbon: GREMARK® GR TT6100, GR TT6900.

Dimensions

Label printer	XD4
Print head	
Print method thermal transfer	•
Printable resolution (dpi)	300
Print speed up to (mm/s)	125
Print width (mm)	105,6
Material	
Labels	Paper, cardboard, textile, plastics
Label thickness (mm)	0,05 - 0,2
Width labels: continuous material (mm)	4 - 110
Width labels: continuous heat shrink tubing (mm)	4 - 85
Media roll outer diameter up to (mm)	300
Media roll core diameter (mm)	38 - 100
Media roll winding	Outer or inner
Ribbon	
Ink side	Outer or inner
Roll diameter / Core diameter / Lenght / Widht (mm)	72 / 25 / 360 / 114
Dimensions and weights	
Height x depth x width (mm)	395 x 554 x 248
Weight (kg)	21
Label sensor	
Gap sensor	For leading edge or punch marks and end of material
Reflective sensor from bottom/optionally from top	For print marks
Distance center to the left mm	0 - 53
Interfaces	
RS232 C	•
USB 2.0 hi-speed slave for PC	•
Ethernet 10/100 Base T, LPD-, RawIP-, FTP-Printing, DHCP, HTTP, SMTP, SNMP, TIME, Zeroconf, mDNS, SOAP	
Peripheral connection	
Operating data	
Power supply	100-240 V ~ 50/60 Hz, PFC
Power consumption W	300 W
Temperature / humidity operation	5 to 40°C / 10 to 85% not condensing
Approvals	CE, FCC class A, CB, CCC, UL

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 50°C) and in closed containers.

RoHS
REACH compliant

07/02/2019 Rev3

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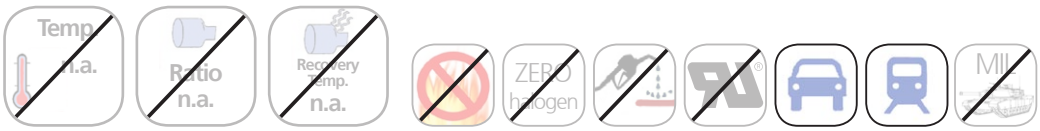
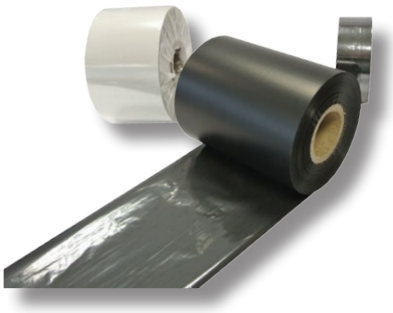
GREMARK® GR TT6100/GR TT6900

Thermal transfer ribbon for GREMARK® Printing System





Features

GREMARK® GR TT6100 and GR TT6900 are thermal transfer ribbons specialy developped for the GREMARK® product family.

GREMARK® GR-TT6100 offers very good print permanence. It is recommended for use in the electrical and railway industries.

Compatibility printers:

- SQUIX 4
- XD4
- MACH4S

Heat shrink tubing compatibility:

- Flattened tubing: GREMARK® PG61 (2X & 3X), PG55Z (2X & 3X).
- Ladder format: GREMARK® GMEC, GMZH (2X & 3X) & TAGPUR.

Dimensions

GREMARK® GR TT6100				
Standard width (mm)	Colours	Ink Side	Core - Inside Diameter (mm)	Length (m/ribbon)
20, 40, 60, 80 ou 110	Black, White	Ink side out	25,4	300

GREMARK® GR-TT6900 offers very good print permanence and high chemical resistance (diesel, fuel and oil). It is recommended for railway industry.

Compatibility printers:

- SQUIX 4
- XD4
- MACH 4S

Heat shrink tubing compatibility:

- Flattened tubing: GREMARK® PGDR (2X & 3X).
- Ladder format: GREMARK® GMDR & GMDRZ (2X & 3X).

Dimensions

GREMARK® GR TT6900				
Standard width (mm)	Colours	Ink Side	Core - Inside Diameter (mm)	Length (m/ribbon)
60	Black	Ink side out	25,4	300

Recommended storage conditions: Keep in cool, dry, ventilated storage (maximum temperature of 50°C) and in closed containers.

Please contact our technical support to choose the ribbon linked to the application (tubing/sleeve/printer).

RoHS
REACH compliant

07/02/2019 Rev3

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GREMTEK
Protective Sleeve Solutions

MECHANICAL PROTECTIONS

GREMFLEX® PET-FR

GREMFLEX® P-V0

GREMWRAP® PET-FR

GREMWRAP® P-V0

GREMFLEX® PA6,6

BRAIDED SLEEVES
GREMFLEX® PET-FR
Flame retardant, expandable Polyester braided sleeve

Features/Applications

GREMFLEX® PET-FR is a self extinguishing, halogen free, Polyester 0,22mm monofilament, expandable braided sleeve.
GREMFLEX® PET-FR offers a continuous working temperature of -50°C up to +150°C, a good resistance to abrasion and a high expansion rate.
GREMFLEX® PET-FR is suitable for the protection of pipes, hoses and cable harnesses. Used widely within the mass transportation, the automotive and industrial sectors.

Various

Standard colours: Black with one white tracer or Grey with one black tracer.

Dimensions

Reference GREMFLEX® PET-FR	Recommended range of use (mm)
003,0	01 to 04
004,0	02 to 06
005,0	03 to 07
006,0	04 to 09
008,0	05 to 11
010,0	07 to 14
012,0	08 to 16
015,0	10 to 20
020,0	14 to 25
025,0	18 to 30
030,0	20 to 40
040,0	30 to 52
050,0	40 to 65

Cutting

GREMFLEX® PET-FR can be cut to length.

Packaging

Available in spool, coils or cut pieces (on request).
Other packaging or diameter available upon request.

Property		Values	Test Methods
Physical	Working temperature	-50°C to +150°C	-
	Peak temperature	+175°C	-
	Melting point	+250°C	-
	Flammability	Self extinguishing	FMVSS 302
	Smoke	Type B	D45 1333
	Toxicity	V-2	UL94 on compound
		I2 - F1	NF F 16-101 & 102
		R22 & R23	EN 45545-2
		Halogen free	-
Chemical	Fluid resistance	Unaffected by most chemicals	D47 1924

RoHS
REACH compliant

19/04/2019 Rev1

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BRAIDED SLEEVES
GREMFLEX® P-V0
V-0 compliant, expandable Polyester braided sleeve

Features/Applications
GREMFLEX® P-V0 is a UL94 V-0 compliant, halogen free, Polyester 0,25mm 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 for the mass transportation sector, where non flammable properties are required.

Various
Standard colours: Black with a three white tracers or Grey with a three black tracers.

Specifications
Compliant to V-0 (UL94).

Dimensions

Reference GREMFLEX® P-V0	Recommended range of use (mm)
003,0	01 to 04
004,0	02 to 06
005,0	03 to 07
006,0	04 to 09
008,0	05 to 11
010,0	07 to 14
012,0	08 to 16
015,0	10 to 20
020,0	14 to 25
025,0	18 to 30
030,0	20 to 42
040,0	30 to 54
050,0	40 to 66

Cutting
GREMFLEX® P-V0 can be cut to length.

Packaging
Available in spool, coils or cut pieces (on request).
Other packaging or diameter available upon request.

Property		Values	Test Methods
Physical	Working temperature	-50°C to +150°C	-
	Peak temperature	+175°C	-
	Melting point	+250°C	-
	Flammability	Self extinguishing	FMVSS 302
	Smoke	Type B	D45 1333
	Toxicity	V-0 compliant	UL94 on compound
		I2 - F1	NF F 16-101 & 102
		R22 & R23	NF EN 45545-2
		Halogen free	-
Chemical	Fluid resistance	Unaffected by most chemicals	D47 1924

RoHS
REACH compliant

19/04/2019 Rev3

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GREMWRAP® PET-FR

Flame retardant, Polyester wrap-around sleeve

Features/Applications

GREMWRAP® PET-FR is a flexible, self-closing, halogen free, flame retardant, Polyester mono and multifilament woven sleeve with an overlap.
GREMWRAP® PET-FR 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® PET-FR is suitable for modular wire harness assemblies, cable bundling and for application where flame retardant properties are required.
Used widely in the automotive and the railway sector.

Various

Standard colour: Black with one white tracer.

Dimensions

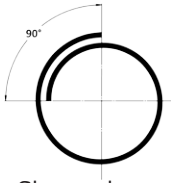
Reference GREMWRAP® PET-FR	Recommended range of use (mm)
005,0	01 to 05
008,0	05 to 08
010,0	08 to 10
013,0	10 to 13
016,0	13 to 16
019,0	16 to 19
025,0	19 to 25
029,0	25 to 29
032,0	29 to 32
038,0	32 to 38
050,0*	38 to 50

*Size 50 is made of two parts sewn together.

Assembly tool

GWtool available upon request. (4 sizes)

GWtool



Sleeve shape

Packaging

Available in spool, coils.
Other packaging or diameter available upon request.

Property		Values	Test Methods
Physical	Working temperature	-50°C to +125°C	-
	Peak temperature	+175°C	-
	Melting point	+225°C	-
	Flammability	Self extinguishing	FMVSS 302
	Smoke	Type B	D45 1333
	Toxicity	R22 & R23	EN 45545-2
		Halogen free	-
Chemical		Unaffected by most chemicals	

RoHS
REACH compliant

Recommandations for use:
If GREMWRAP is to be used at 125°C or above (working temperature) please add tie-lock or tapes at a regular interval.

03/06/2019 Rev2

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Features/Applications

GREMWRAP® P-V0 is a self-closing, halogen free, UL 94 V-0 compliant, flexible, 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 V-0 rated products properties are required. Used widely within the railway sector.

Various

Standard colour: Black with two white tracers.

Specifications

Compliant to V-0 (UL 94).

Dimensions

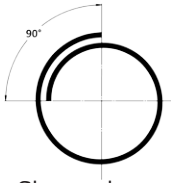
Reference GREMWRAP® P-V0	Recommended range of use (mm)
005,0	01 to 05
008,0	05 to 08
010,0	08 to 10
013,0	10 to 13
016,0	13 to 16
019,0	16 to 19
025,0	19 to 25
029,0	25 to 29
032,0	29 to 32
038,0	32 to 38
050,0*	38 to 50

*Size 50 is made of two sizes parts sewn together.

Assembly tool

GWtool available upon request. (4 sizes)

GWtool



Sleeve shape

Packaging

Available in spool, coils.
Other packaging or diameter available upon request.

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
	Smoke	Self extinguishing	FMVSS 302
	Toxicity	Type B	D45 1333
		R22 & R23	EN 45545-2
		Halogen free	-
Chemical	Unaffected by most chemicals		

RoHS
REACH compliant

Recommandations for use:
If GREMWRAP is to be used at 125°C or above (working temperature) please add tie-lock or tapes at a regular interval.

03/06/2019 Rev5

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BRAIDED SLEEVES
GREMFLEX® PA6.6
Expandable Polyamide 6.6 braided sleeve

Features/Applications

GREMFLEX® PA6.6 is a self extinguishing, halogen free, Polyamide 6.6 0,25mm monofilament, expandable braided sleeve.
GREMFLEX® PA6.6 offers a working temperature of -50°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)
003,0	02 to 04
004,0	03 to 06
005,0	03 to 07
006,0	04 to 08
008,0	05 to 10
010,0	07 to 12
012,0	08 to 14
014,0	10 to 16
016,0	12 to 18
020,0	15 to 23
025,0	18 to 28
030,0	25 to 32
040,0	30 to 44
050,0	40 to 55
060,0	50 to 65

Cutting

GREMFLEX® PA6.6 can be cut to length.

Packaging

Available in spool, coils or cut pieces (on request).
Other packaging or diameter available upon request.

Property		Values	Test Methods
Physical	Working temperature	-50°C to +150°C	-
	Peak temperature	+160°C	-
	Melting point	+250°C	-
	Flammability Smoke Toxicity	Self extinguishing	FMVSS 302
		Type B	D45 1333
		V-2	UL94 on compound
		Halogen free	-
Chemical	Fluid resistance	Unaffected by most chemicals	D47 1924

RoHS
REACH compliant

19/04/2019 Rev3

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GREMTEK
Protective Sleeve Solutions

THERMAL PROTECTIONS

GREMSHIELD® GSS77C

COATED SLEEVES
GREMSHIELD® GSS77C
Silicone coated Fiberglass sleeve for high temperature

Features/Applications

GREMSHIELD® GSS77C is a fiberglass braid coated with silicone rubber.
GREMSHIELD® GSS77C offers a continuous working temperature of -60°C to +260°C with short term temperature up to 1500°C. It also offers good resistance to flame and projections (melting particles, vapors and fluids).
GREMSHIELD® GSS77C is suitable for electric cable bundling and protection of wires, cables and pipes. This sleeve is used in the steel industry, in foundries, in glassworks, chemicals, petrochemical plants, the shipbuilding, railways and aerospace industries.

Various

Standard colours: brick red, other colours available on request.

Dimensions

Reference GREMSHIELD® GSS77C	Inside diameter (mm)	Nominal wall thickness (mm)
008,0	08,0	4,00
010,0	10,0	4,00
013,0	13,0	4,00
016,0	16,0	4,00
019,0	19,0	4,00
022,0	22,0	4,00
025,0	25,0	4,00
032,0	32,0	4,00
038,0	38,0	4,00
045,0	45,0	4,00
051,0	51,0	4,00
057,0	57,0	4,00
064,0	64,0	4,00
070,0	70,0	4,00
076,0	76,0	4,00
080,0	80,0	4,00
089,0	89,0	4,00
102,0	102,0	4,00

Cutting

GREMSHIELD® GSS77C can be cut to length.

Packaging

Available in spool, coils or cut pieces (on request).
Other packaging or diameter available upon request.

Property		Values	Test Methods
Physical	Working temperature	-60°C to +260°C	-
	Peak temperature (30 min)	+800°C	-
	Peak temperature (15 min)	+1100°C	-
	Peak temperature (1 min)	+1500°C	-
	Flammability	Self extinguishing	FMVSS 302
	Smoke	Type B	D45 1333
	Toxicity	R22 & R23	EN 45545-2
		Halogen free	-
	Flexibility at low temperature	Excellent	-
	UV resistance	Good	-
Chemical	Hydrocarbons	Slight swelling	-

RoHS
REACH compliant

18/05/2015 Rev3

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Cutting Tolerances - GREMTUBE®

Cutting length (mm)	Tolerances (mm)
5 up to 50	± 1,50
51 up to 100	± 1,50
101 up to 150	± 2,00
151 up to 300	± 3,00
301 up to 700	± 5,00
701 up to 1000	± 8,00
≥ 1000	± 1%

Hot cutting Tolerances - GREMFLEX®

Cutting length (mm)	Tolerances (mm)
50 up to 80	± 5,00
81 up to 200	± 7,00
201 up to 500	± 10,00
501 up to 750	± 12,00
751 up to 1000	± 20,00
1001 up to 2000	± 25,00
2001 up to 3000	± 40,00
≥ 3001	± 55,00

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 certified ISO 9001:2015 quality system.

GREMTEK
Protective Sleeve Solutions

GREMTEK SAS *is certified ISO 9001:2015*
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