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Product Name		Raychem	Sumitomo	Available Colours
Polyolefin Heat-shrinkable single wall tubing	HSCB	ZH2	NHR2	All except clear
	HSCB 3X			All except clear
	HSCB 4X			All except clear
	HSCBYG	DCPT		Yellow/Green
	HSCBLS	LSTT		Black
	HSM	RNF-100	B2	All except clear
	PET			All Colours
Identification	MT			White, yellow
	MT (HX)			White, yellow
	MT (TAG)	HLX		White, yellow
Special design heat-shrinkable single wall tubing	BT1T	LVIT		All colours
	BT1TM	BPTM		All colours
	KYNAR (150^{0}C)	RT-375	K2/K3	Nature
	KYNAR (175^{0}C)	RW-175/KYNAR	K	Nature
	FKM	VITON	FE3	Black
	PTFE	TFE		Clear
	RSF	HFT5000		Black
	DR	DR-25		Black
	CR	NTFR		Black
Polyolefin heat-shrinkable dual wall tubing	DWT (3X)			All except clear
	DWT (4X)			All except clear
	DWT (1000)	ATUM	W3B2	Black
	DWT (2000)	AP-2000	O	Black
	DWT (3000)	ES-2000	SA2	Black
	DWT (4000)	ES-1000		Clear
	DWT (FR)	FL-2500		Black
	DWT (RX)	RBK-VWS		Clear
	DWT (RO)	RBK-ILS		Black
	DS 406	D-406		Red, blue, yellow
	HSSS			Red, blue, yellow, white
	OFS			Clear
Heat-shrinkable medium/heavy wall tubing	MWTA	MWTM		Black
	HWTA	WCSM		Black
	HWTA (6X)	HRSR/HRHF		Black
Extrusion tubing	SGS			All colours
	SRS			White
	SRT			All colours
	TT (L)			Nature
	TT (T)			Nature
	TT (S)			Nature
	TD300 (PVC)			All colours
	TD600 (PVC)			All colours
	TD300 (PE)			All colours
	TD600 (PE)			All colours

Shrink Ratio	Potential Rating	Standard	General Description
2:1	600V	UL224	Polyolefin, Halogen free, Low smoke, Flexible and flame-retardant, 125°C
3:1	600V	UL224	Polyolefin, Halogen free, High shrinkable ratio, Flame-retardant, 125°C
4:1	600V	UL224	Polyolefin, Halogen free, High shrinkable ratio, Flame-retardant, 125°C
2:1	600V	UL224	Polyolefin, Halogen free, Flexible and flame-retardant, 125°C
2:1	600V	UL224	Polyolefin, Halogen free, Flexible, Low shrink temperature, 125°C
2:1	600V	UL224/MIL	Polyolefin, Halogen free, Flame-retardant, Oil resistance, 135°C
2:1	600V	UL224	Heat-shrinkable PET film, 125°C
2:1/3:1	600V	UL224/MIL	Polyolefin, Halogen free, Flexible and flame-retardant, Printable, 125°C
2:1/3:1	600V	UL224/MIL	Polyolefin, Highly flame-retardant, Printable, 125°C
	600V	UL224/MIL	Polyolefin, Halogen free, Flexible and flame-retardant, Printable, 125°C
2:1	1kV		Flexible halogen free and insulation for bus bar
2:1/2.5:1	10kV		Flexible halogen free and insulation for bus bar
2:1	600V	UL224/MIL	Flexible and flame-retardant, PVDF, 150°C
2:1	600V	UL224/MIL	Semi-rigid, Flame-retardant, PVDF, 175°C
2:1	600V	UL224/MIL	Flame-retardant, Solvent-resistance flexible, Fluoroelastomer, 200°C
1.8:1	600V	UL224/MIL	Semi-rigid, Teflon, Flame-retardant, Solvent-resistance, 260°C
2:1	600V	UL224	Heat-shrinkable braid cloth, Flame-retardant, Fray-resistance, 125°C
2:1	600V	MIL	Flexible, Flame-retardant, Diesel resistant, 150°C
2:1	600V	MIL	Flexible, Heat-shrinkable neoprene elastomer tubing, 121°C
3:1	600V	UL224	Adhesive-lined, Flexible, Flame-retardant, 125°C
4:1	600V	UL224	Adhesive-lined, Flexible, Flame-retardant, 125°C
2:1/3:1	600V	UL224/MIL	Adhesive-lined, Flame-retardant, Halogen free, Oil-resistance, 135°C
1.5:1	600V		Adhesive-lined, Special designed for automotive pipe brake protection
4:1	600V	UL224/MIL	Semi-rigid, Adhesive-lined, Flame-retardant, 135°C
4:1	600V	UL224/MIL	Semi-rigid, Adhesive-lined, Flame-retardant, 135°C
4:1	600V	UL224/MIL	Semi-rigid, Adhesive-lined, Flame-retardant, 125°C
4:1	600V	UL224/MIL	Semi-rigid, Adhesive-lined, Flame-retardant, Low shrink temperature, 125°C
4:1	600V	UL224/MIL	Semi-rigid, Adhesive-lined, Flame-retardant, Low shrink temperature, 125°C
4:1	600V	UL224	Heat-shrinkable butt splice connectors
	600V	UL224	Heat-shrinkable solder sleeving
	600V	UL224	Heat-shrinkable optical fibre splice protector
3.5:1/4:1	15kV	UL486D	Semi-rigid, Halogen free medium wall with adhesive
3.5:1/4:1	36kV	UL486D	Semi-rigid, Halogen free Heavy wall with adhesive
6:1	36kV	UL486D	Semi-rigid, Halogen free heavy wall with adhesive
	1.5kV ~7kV	UL1441	Fibreglass tubing, 200°C
	4kV/7kV	UL1441	Silicone rubber fibreglass tubing, 200°C
	4kV/10kV	UL224	Extrusion silicone rubber tubing, 200°C
	150V	UL224/MIL	PTFE, Non-shrinkable, 260°C
	300V	UL224/MIL	PTFE, Non-shrinkable, 260°C
	600V	UL224/MIL	PTFE, Non-shrinkable, 260°C
	300V	UL224	PVC, Flame-retardant, 105°C
	600V	UL224	PVC, Flame-retardant, 105°C
	300V	UL224	Polyolefin, Halogen free, 125°C
	600V	UL224	Polyolefin, Halogen free, 125°C

HSCB HALOGEN FREE HEAT SHRINKABLE TUBING

HSCB is halogen-free, flexible, flame retardant polyolefin heat-shrinkable tubing. This tubing is low smoke generating, abrasion resistant and in case of burning, produces no dioxin

HSCB tubing is widely used in enclosed areas where a flame-retardant, halogen-free environment is required. It is perfect for electrical and electronics applications and as uses in fields such as aerospace, automotive, construction, power delivery and mass transit vehicles including automobile, railway, aeroplanes and marine vessels

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □ ; c = Clear

Part Number	Size	As Supplied (mm)		After Recovery (mm)	
	Meter	Inside Diameter	Wall Thickness	Inside Diameter	Wall Thickness
HSCB0012-*	1.2	1.50 ± 0.20	0.18 ± 0.05	≤ 0.60	0.36 ± 0.08
HSCB0016-*	1.6	2.00 ± 0.20	0.18 ± 0.05	≤ 0.80	0.36 ± 0.08
HSCB0024-*	2.4	2.50 ± 0.20	0.20 ± 0.05	≤ 1.00	0.42 ± 0.08
HSCB0032-*	3.2	3.50 ± 0.20	0.22 ± 0.05	≤ 1.50	0.46 ± 0.08
HSCB0048-*	4.8	5.00 ± 0.20	0.23 ± 0.05	≤ 2.25	0.46 ± 0.10
HSCB0064-*	6.4	6.50 ± 0.20	0.25 ± 0.05	≤ 3.00	0.55 ± 0.10
HSCB0095-*	9.5	9.50 ± 0.20	0.28 ± 0.10	≤ 4.50	0.58 ± 0.10
HSCB0127-*	12.7	13.50 ± 0.30	0.28 ± 0.12	≤ 6.50	0.58 ± 0.10
HSCB0190-*	19.0	20.60 ± 0.50	0.32 ± 0.15	≤ 10.00	0.68 ± 0.10
HSCB0254-*	25.4	25.60 ± 0.70	0.40 ± 0.15	≤ 12.50	0.78 ± 0.12
HSCB0300-*	30.0	30.60 ± 0.70	0.40 ± 0.15	≤ 15.00	0.82 ± 0.12
HSCB0350-*	35.0	30.60 ± 0.70	0.40 ± 0.15	≤ 15.00	0.82 ± 0.12
HSCB0381-*	38.1	41.00 ± 0.50	0.50 ± 0.25	≤ 20.00	1.10 ± 0.15
HSCB0508-*	50.8	41.00 ± 0.50	0.55 ± 0.25	≤ 26.00	1.10 ± 0.15
HSCB0762-*	76.2	81.00 ± 1.00	0.60 ± 0.30	≤ 40.00	1.25 ± 0.20
HSCB 1016-*	101.6	101.00 ± 1.00	0.60 ± 0.30	≤ 50.00	1.25 ± 0.20

Items	Test Methods	Specifications
Shrink Temperature(°C)	Company standard	90°C
Operating Temperature Range (°C)	UL224	-55°C ~ 125°C
Radial Shrinking Ratio(%)	-	≥ 50%
Longitudinal Change(%)	ASTM D2671	-5% ~ +5%
Tensile Strength(MPa)	ASTM D638	≥ 10.4MPa
Ultimate Elongation (%)	ASTM D638	≥ 200%
Aging in Circulating-air Oven	-	158.0 ± 1.0°C, 168hrs

After aging	Test Methods	Specifications
Tensile Strength(MPa)	ASTM D638	≥ 7.3MPa
Ultimate Elongation(%)	ASTM D638	≥ 100%
Volume Resistivity(Ω.cm)	ASTM D2671	≥ 1.0 x 10^{13}Ω.cm
Dielectric Strength(KV/mm)	UL224, AC2500V, 1 min	No breakdown
Heat Shock	UL224	No Cracking
Flammability	UL224	VW - 1
Concentricity(%)	ASTM D2671	≥ 70%

HSCB HALOGEN FREE HEAT SHRINKABLE TUBING

HSCB(3X) and HSCB(4X) are halogen-free, flexible, flame-retardant polyolefin heat-shrinkable tubing used for the protection and marking of special shaped objects, such as wire terminations and electrical connections, cables and electronic components.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □ ; c = Clear

Part Number		As Supplied (mm)		After Recovery (mm)	
	Size	Inside Diameter	Wall Thickness	Inside Diameter	Wall Thickness
3X					
	1.5/0.5	1.50 ± 0.50	0.18 ± 0.08	≤ 0.50	0.40 ± 0.10
HSCB3X03/1-*	3/1	3.00 ± 0.50	0.20 ± 0.08	≤ 1.00	0.55 ± 0.10
HSCB3X04,5/1,5-*	4.5/1.5	4.50 ± 0.50	0.20 ± 0.08	≤ 1.50	0.55 ± 0.10
HSCB3X06/2-*	6/2	6.00 ± 0.50	0.22 ± 0.08	≤ 2.00	0.60 ± 0.15
HSCB3X09/3-*	9/3	9.00 ± 0.50	0.25 ± 0.08	≤ 3.00	0.70 ± 0.15
HSCB3X12/4-*	12/4	12.00 ± 0.50	0.25 ± 0.10	≤ 4.00	0.70 ± 0.15
HSCB3X15/5-*	15/5	15.00 ± 0.50	0.25 ± 0.10	≤ 5.00	0.70 ± 0.15
HSCB3X18/6-*	18/6	18.00 ± 0.50	0.30 ± 0.12	≤ 6.00	0.80 ± 0.20
HSCB3X24/8-*	24/8	24.00 ± 0.50	0.36 ± 0.15	≤ 8.00	1.00 ± 0.20
HSCB3X30/10-*	30/10	30.00 ± 0.50	0.36 ± 0.15	≤ 10.00	1.00 ± 0.20
HSCB3X33/11-*	33/11	33.00 ± 0.50	0.36 ± 0.15	≤ 11.00	1.00 ± 0.20
HSCB3X39/13-*	39/13	39.00 ± 0.50	0.45 ± 0.15	≤ 13.00	1.25 ± 0.20
4X					
HSCB4X08/2-*	8/2	8.50 ± 0.50	0.30 ± 0.15	≤ 2.00	0.95 ± 0.15
HSCB4X10/2,5-*	10/2.5	10.50 ± 0.50	0.30 ± 0.15	≤ 2.50	1.00 ± 0.15
HSCB4X12/3-*	12/3	12.50 ± 0.50	0.30 ± 0.15	≤ 3.00	1.00 ± 0.15
HSCB4X16/4-*	16/4	16.50 ± 0.50	0.30 ± 0.15	≤ 4.00	1.00 ± 0.15
HSCB4X18/4,5-*	18/4.5	18.50 ± 0.50	0.30 ± 0.15	≤ 4.50	1.00 ± 0.15
HSCB4X20/5-*	20/5	20.50 ± 0.50	0.30 ± 0.15	≤ 5.00	1.00 ± 0.15
HSCB4X24/6-*	24/6	25.50 ± 0.50	0.40 ± 0.20	≤ 6.25	1.40 ± 0.20

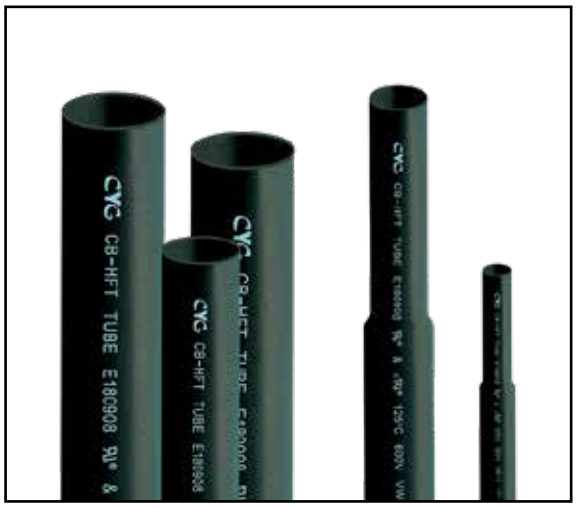
Items	Test Methods	Specifications
Shrink Temperature(°C)	Company standard	90°C
Operating Temperature Range (°C)	UL224	-55°C ~ 125°C
Radial Shrinking Ratio(%)	-	≥ 50%
Longitudinal Change(%)	ASTM D2671	-5% ~ +5%
Tensile Strength(MPa)	ASTM D638	≥ 10.4MPa
Ultimate Elongation (%)	ASTM D638	≥ 200%
Aging in Circulating-air Oven	-	158.0 ± 1.0°C, 168hrs

After aging	Test Methods	Specifications
Tensile Strength(MPa)	ASTM D638	≥ 7.3MPa
Ultimate Elongation(%)	ASTM D638	≥ 100%
Volume Resistivity(Ω.cm)	ASTM D2671	≥ 1.0 x 10^{15}Ω.cm
Dielectric Strength(KV/mm)	UL224, AC2500V, 1 min	No breakdown
Heat Shock	UL224	No Cracking
Flammability	UL224	VW - 1
Concentricity(%)	ASTM D2671	≥ 70%

HSCM HEAT-SHRINKABLE TUBING

HSCM is low-smoking, halogen-free polyolefin cross-linked heat shrinkable tubing that is designed to meet the specialised requirements of the automotive industry. It has good resistance to oil and is an excellent insulator. This material is very flexible and has excellent mechanical strength, so it is suitable for a wide range of applications including automotive, oil pipes, electronics insulation, wire protection and any place protection is needed in extreme environments.

RATING: 135°C



* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Part Number	Size	As Supplied (mm)	After Recovery (mm)	
		Min. Inside Diameter	Max. Inside Diameter	Wall Thickness
HSCM0012-*	1.20	≥ 1.20	≤ 0.60	0.41 ± 0.08
HSCM0016-*	1.60	≥ 1.60	≤ 0.80	0.43 ± 0.08
HSCM00024-*	2.40	≥ 2.40	≤ 1.20	0.51 ± 0.08
HSCM0032-*	3.20	≥ 3.20	≤ 1.60	0.51 ± 0.08
HSCM0048-*	4.80	≥ 4.80	≤ 2.40	0.51 ± 0.08
HSCM0064-*	6.40	≥ 6.40	≤ 3.20	0.64 ± 0.08
HSCM0095-*	9.50	≥ 9.50	≤ 4.75	0.64 ± 0.08
HSCM0127-*	12.70	≥ 12.70	≤ 6.40	0.64 ± 0.08
HSCM0191-*	19.10	≥ 19.10	≤ 9.53	0.76 ± 0.08
HSCM0254-*	25.40	≥ 25.40	≤ 12.70	0.89 ± 0.13
HSCM0381-*	38.10	≥ 38.10	≤ 19.10	1.02 ± 0.15
HSCM0508-*	50.80	≥ 50.80	≤ 25.40	1.14 ± 0.18
HSCM0762-*	76.20	≥ 76.20	≤ 38.10	1.27 ± 0.20
HSCM1016-*	101.60	≥ 101.60	≤ 50.80	1.40 ± 0.23

Items	Test Methods	Specifications	Typical Value
Shrink Temperature(°C)	-	-	100 ~ 140°C
Operating Temperature Range (°C)	-	-	-55°C ~ 135°C
Radial Shrinking Ratio(%)	-	≥ 50%	66%
Longitudinal Change(%)	-	-5% ~ +5%	-4%
Tensile Strength(MPa)	ASTM D638	≥ 10.4MPa	14.1MPa
Ultimate Elongation (%)	ASTM D638	≥ 200%	329%
Aging in Circulating-air Oven	175°C ± 2°C, 168hrs	-	-

After aging	Test Methods	Specifications	Typical Value
Tensile Strength(MPa)	ASTM D638	≥ 7.3MPa	9.5MPa
Ultimate Elongation(%)	ASTM D638	≥ 100%	-
Volume Resistivity(Ω.cm)	ASTM D876	≥ 1.0 x 10^{12}Ω.cm	3.6 x 10^{14}Ω.cm
Dielectric Strength(KV/mm)	ASTM D2671	≥ 15.8kV/mm	24kV/mm
Heat Shock	250°C ± 3°C, 4hrs	No Cracking	No Cracking
Copper corrosion	175°C ± 2°C, 168hrs	No Corrosion	No Corrosion
Concentricity(%)	-	≥ 50%	73%

PET HALOGEN FREE HEAT-SHRINKABLE PER FILM

PET is a flexible, halogen-free, environmentally friendly tubing that provides protection up to 125°C. It is widely used for the packaging and identification of batteries, coil windings, capacitors and fluorescent bulb encapsulation.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Part Number	Size	Width (mm)	Thickness (x 0.01mm)	Shrink ratio (%)	Longitudinal ratio (%)	Longitudinal ratio 180 ± 2°C x 15min (%)
PET0030-*	Φ3	5.50 ±2.20	8.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0040-*	Φ4	7.10 ± 0.20	8.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0050-*	Φ5	9.10 ± 0.20	8.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0060-*	Φ6	10.60 ± 0.20	8.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0063-*	Φ6.3	11.0 ± 0.20	8.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0080-*	Φ8	14.00 ± 0.20	9.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0100-*	Φ10	17.00 ± 0.20	9.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0120-*	Φ12	20.40 ± 0.30	10.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0125-*	Φ12.5	21.50 ± 0.30	10.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0130-*	Φ13	22.00 ± 0.30	10.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0135-*	Φ13.5	22.60 ± 0.30	10.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0145-*	Φ14.5	25.00 ± 0.30	10.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0160-*	Φ16	27.10 ± 0.30	11.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0180-*	Φ18	30.20 ± 0.30	11.00 ± 2.00	48 ± 4	8 ± 3	12 ± 3
PET0220-*	Φ22	36.30 ± 0.30	11.00 ± 3.00	48 ± 4	8 ± 3	12 ± 3
PET0250-*	Φ25	41.30 ± 0.50	12.00 ± 3.00	48 ± 4	8 ± 3	12 ± 3
PET0300-*	Φ30	49.00 ± 0.50	12.00 ± 3.00	48 ± 4	8 ± 3	12 ± 3
PET0350-*	Φ35	56.60 ± 0.50	12.00 ± 3.00	48 ± 4	8 ± 3	12 ± 3
PET0400-*	Φ40	65.00 ± 1.00	12.00 ± 3.00	48 ± 5	8 ± 3	12 ± 3
PET0420-*	Φ42	68.50 ± 1.00	12.00 ± 3.00	48 ± 5	8 ± 3	12 ± 3
PET0450-*	Φ45	72.00 ± 1.00	12.00 ± 3.00	48 ± 5	8 ± 3	12 ± 3
PET0480-*	Φ48	77.60 ± 1.00	12.00 ± 3.00	48 ± 5	8 ± 3	12 ± 3
PET0500-*	Φ50	84.00 ± 1.00	12.00 ± 3.00	48 ± 5	8 ± 3	12 ± 3
PET0520-*	Φ52	88.50 ± 1.00	12.00 ± 3.00	48 ± 5	8 ± 3	12 ± 3
PET0600-*	Φ60	96.00 ± 1.00	12.00 ± 3.00	48 ± 5	8 ± 3	12 ± 3
PET0635-*	Φ63.5	105.00 ± 1.00	12.00 ± 3.00	48 ± 5	8 ± 3	12 ± 3

Items	Specifications
Appearance	Without feculence
Bend (2800mm)	At or above size 8.0mm < 3.0mm
	At or under size 10.0mm < 3.5mm
Density	1.2kg/L ~ 1.5kg/L
Tensile Strength	5.0 x 10^7N/m^2 ~ 10.0 x 10^7N/m^2
Ultimate elongation rate	50% ~ 350%
Absorption (water)	< 2.0%
Dielectric Strength	>10kV/mm
Resistance	1.0 x 10^9Ω
Volume resistance	> 1.0 x 10^{14}Ω.cm
Operating temperature range	-40°C ~ 125°C

MT HEAT-SHRINKABLE WIRE IDENTIFICATION SLEEVES

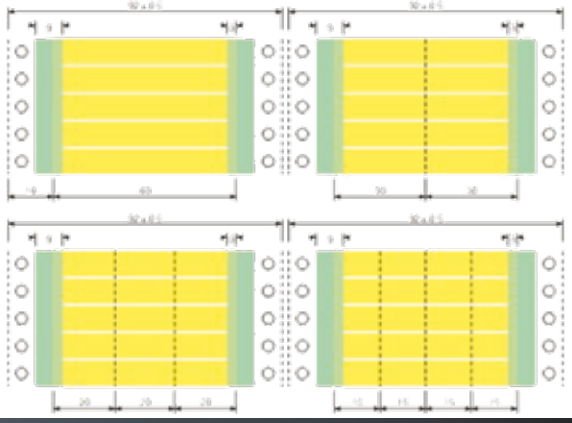
Material: Radiation Cross-linked polyolefin

Features and Benefits:
- Permanent identification sleeves
- Computer-for aerospace applications
- Lightweight for aerospace applications
- Military specification material and print performance
- 2:1 and 3:1 Shrink ratio
- UL Recognised VW-1 all flame tubing test rated
- Quick recovery for heat sensitive areas
- Yellow or white

Use:
Identification of wires and cables by computer-based printing onto sleeved. Ideal for applications where limited fire hazard charactistics make this product halogen material coupled with low smoke and low toxic fume emissions make this product ideal for use in enclosed space such as mass transit, marine and industrial installations. This product is not recommended where strain relief properties are required.

Part Number	As supplied (mm)	Recommended use range (mm)	After recovery (mm)	
	Inside diameter (D1)		Inside diameter (D2)	Wall-thickness (W)
Shrink Rate 2:1				
MT-2X-SO-2.4-*	≥ 2.36	1.27 ~ 1.90	≤ 1.17	0.508 ± 0.076
MT-2X-SO-3.2-*	≥ 3.18	1.765 ~ 2.66	≤ 1.58	0.508 ± 0.076
MT-2X-S O-4.8-*	≥ 4.75	2.54 ~ 4.06	≤ 2.36	0.508 ± 0.076
MT-2X-SO-6.4-*	≥ 6.35	3.81 ~ 5.46	≤ 3.18	0.635 ± 0.076
MT-2X-SO-9.5-*	≥ 9.53	5.59 ~ 8.12	≤ 4.75	0.635 ± 0.076
MT-2X-SO-12.7-*	≥ 12.70	6.99 ~ 10.79	≤ 6.35	0.635 ± 0.076
MT-2X-SO-19.1-*	≥ 19.10	10.16 ~ 16.25	≤ 9.53	0.762 ± 0.076
MT-2X-SO-25.4-*	≥ 25.40	14.29 ~ 21.59	≤ 12.70	0.889 ± 0.076
MT-2X-SO-38.1-*	≥ 38.10	20.95 ~ 33.02	≤ 19.10	1.016 ± 0.152
MT-2X-SO-50.8-*	≥ 50.80	27.05 ~ 42.02	≤ 25.40	1.143 ± 0.178
Shrink Rate: 3:1				
MT-3X-SO-2.4-*	≥ 2.36	0.81 ~ 1.90	≤ 0.79	0.53 ± 0.08
MT-3X-SO-3.2-*	≥ 3.18	1.11 ~ 2.66	≤ 1.07	0.58 ± 0.08
MT-3X-SO-4.8-*	≥ 4.75	1.75 ~ 4.06	≤ 1.57	0.58 ± 0.08
MT-3X-SO-6.4-*	≥ 6.35	2.31 ~ 5.46	≤ 2.11	0.58 ± 0.08
MT-3X-SO-9..5-*	≥ 9.53	3.47 ~ 8.12	≤ 3.18	0.61 ± 0.08
MT-3X-SO-12.7-*	≥ 12.70	4.64 ~ 10.79	≤ 4.22	0.61 ± 0.08
MT-3X-SO-19.1-*	≥ 19.10	6.99 ~ 16.25	≤ 6.35	0.61 ± 0.08
MT-3X-SO-25.4-*	≥ 25.40	9.29 ~ 21.59	≤ 8.46	0.64 ± 0.08
MT-3X-SO-38.1-*	≥ 38.10	14.05 ~ 34.95	≤ 12.70	1.00 ± 0.08
MT-3X-SO-50.8-*	≥ 50.80	27.94 ~ 44.95	≤ 17.00	1.00 ± 0.08

Temperature Rating		
Operating temperature range	-55°C ~ 125°C	-
Minimum recovery temperature	85°C	-
Maximum storage temperature	40°C	-
Specifications/Approvals	Military	SAE-AMS-DTL-23053/5 class 1 and 3 SAE AS 81531 4.6.2, MIL-STD-202 method 215J
	Industry	UL Recognised - standard 224 BS EN ISO 4589-3:1996, BS 6853, DIN 5510-2
Printer Information	MT Printer	MT-P-D1 (Thermal transfer/Double print) MT-P-S1 (Thermal transfer/Single print)
	MT Ribbon	MT-R-A-001 (Excellent chemical durability / Excellent friction durability MT-R-B-001 (Good wear resistant) MT-R-B-002 (Good wear resistant) MT-R-C-001 (Commom) MT-R-C-002 (Common)



MT(HX) HIGH FLAME-RETARDANT HEAT SHRINKABLE WIRE IDENTIFICATION SLEEVES

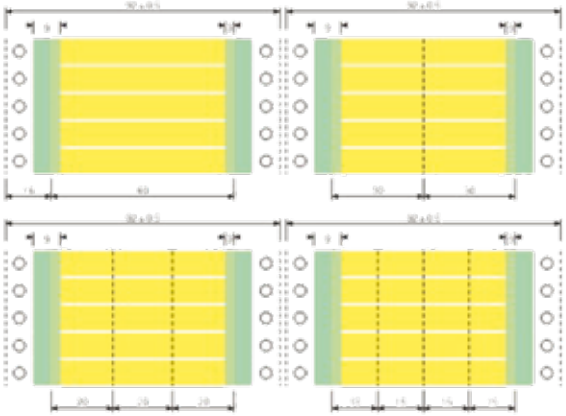
Material: Radiation Cross-linked polyolefin

Features and Benefits:
- Permanent identification sleeves
- Computer-printable
- Low smoke and RoSH criterion
- Lightweight for aerospace applications
- Military specification material and print performance
- 2:1 and 3:1 Shrink ratio
- UL Recognised VW-1 all flame tubing test rated
- Quick recovery for heat sensitive areas
- 23053/5

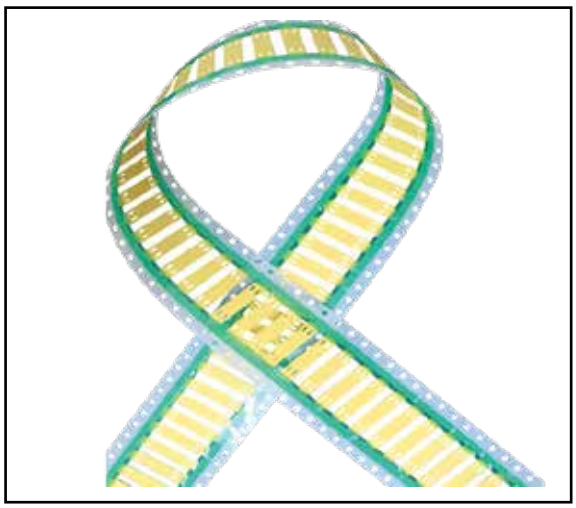
Use:
MT(HX) marker sleeves are designed to meet the wire and cable marking needs of manufacturers with high performance cable marking needs of manufacturers with high performance requirements. Made from durable, flame retardant, radiation cross linked heat-shrinkable polyolefin, MT(HX) marker sleeves can be used in a wide variety of applications. All MT(HX) meet the performance requirements of SAE-AMS-DTL-23053/5 class I. The marks are permanent immediately after printing and remain legible even when exposed to abrasion, aggressive clearing solvents and military fuels and oils. The sleeves meet the mark permanence requirements of SAE AS81531 4.6.2 and MIL-STD-202 both before and after shrinkage.

Part Number	As supplied (mm)	Recommended use range (mm)	After recovery (mm)	
	Inside diameter (D1)		Inside diameter (D2)	Wall-thickness (W)
Shrink Rate 2:1				
MT(HX)-2X-SO-2.4-*	≥ 2.36	1.27 ~ 1.90	≤ 1.17	0.508 ± 0.076
MT(HX)-2X-SO-3.2-*	≥ 3.18	1.765 ~ 2.66	≤ 1.58	0.508 ± 0.076
MT(HX)-2X-SO-4.8-*	≥ 4.75	2.54 ~ 4.06	≤ 2.36	0.508 ± 0.076
MT(HX)-2X-SO-6.4-*	≥ 6.35	3.81 ~ 5.46	≤ 3.18	0.635 ± 0.076
MT(HX)-2X-SO-9.5-*	≥ 9.53	5.59 ~ 8.12	≤ 4.75	0.635 ± 0.076
MT(HX)-2X-SO-12.7-*	≥ 12.70	6.99 ~ 10.79	≤ 6.35	0.635 ± 0.076
MT(HX)-2X-SO-19.1-*	≥ 19.10	10.16 ~ 16.25	≤ 9.53	0.762 ± 0.076
MT(HX)-2X-SO-25.4-*	≥ 25.40	14.29 ~ 21.59	≤ 12.70	0.889 ± 0.076
MT(HX)-2X-SO-38.1-*	≥ 38.10	20.95 ~ 33.02	≤ 19.10	1.016 ± 0.152
MT(HX)-2X-SO-50.8-*	≥ 50.80	27.05 ~ 42.02	≤ 25.40	1.143 ± 0.178
Shrink Rate: 3:1				
MT(HX)-3X-SO-2.4-*	≥ 2.36	0.81 ~ 1.90	≤ 0.79	0.53 ± 0.08
MT(HX)-3X-SO-3.2-*	≥ 3.18	1.11 ~ 2.66	≤ 1.07	0.58 ± 0.08
MT(HX)-3X-SO-4.8-*	≥ 4.75	1.75 ~ 4.06	≤ 1.57	0.58 ± 0.08
MT(HX)-3X-SO-6.4-*	≥ 6.35	2.31 ~ 5.46	≤ 2.11	0.58 ± 0.08
MT(HX)-3X-SO-9..5-*	≥ 9.53	3.47 ~ 8.12	≤ 3.18	0.61 ± 0.08
MT(HX)-3X-SO-12.7-*	≥ 12.70	4.64 ~ 10.79	≤ 4.22	0.61 ± 0.08
MT(HX)-3X-SO-19.1-*	≥ 19.10	6.99 ~ 16.25	≤ 6.35	0.61 ± 0.08
MT(HX)-3X-SO-25.4-*	≥ 25.40	9.29 ~ 21.59	≤ 8.46	0.64 ± 0.08
MT(HX)-3X-SO-38.1-*	≥ 38.10	14.05 ~ 34.95	≤ 12.70	1.00 ± 0.08
MT(HX)-3X-SO-50.8-*	≥ 50.80	27.94 ~ 44.95	≤ 17.00	1.00 ± 0.08

Temperature Rating		
Operating temperature range	-55°C ~ 135°C	-
Minimum recovery temperature	85°C	-
Maximum storage temperature	40°C	-
Specifications/Approvals	Military	SAE-AMS-DTL-23053/5 class 1 and 3 SAE AS 81531 4.6.2, MIL-STD-202 method 215J
	Industry	UL Recognised - standard 224 BS EN ISO 4589-3:1996, BS 6853, DIN 5510-2
Printer Information	Printer	P-D1 (Thermal transfer/Double print) P-S1 (Thermal transfer/Single print)
	Ribbon	R-A-001 (Excellent chemical durability / Excellent friction durability R-B-001 (Good wear resistant) R-B-002 (Good wear resistant) R-C-001 (Commom) R-C-002 (Common)



MT(TAG) LOW FIRE HAZARD MARKER TAGS



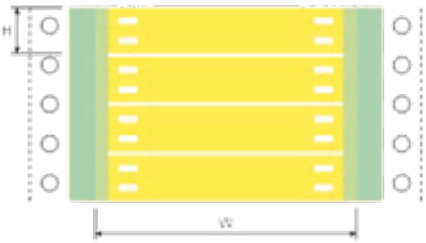
Material: Radiation Cross-linked polyolefin

Features and Benefits:
- Permanent identification sleeves
- Good fluid resistant
- Computer-printable
- Low smoke and RoSH criterion
- Lightweight for aerospace applications
- Military specification material and print performance
- UL Recognised VW-1 all flame tubing test rated
- Quick recovery for heat sensitive areas
- For space flight and railway

Use:
MT(TAGS) cable markers are made from zero halogen, low smoke, low toxicity, radiation cross-linked, UV stabilised polyolefin sheet, formed into punched organised cable markers on a paper carrier. They are used for identification of cables and wire bundles by computer-based printing into markers. Markers are attached using cable ties. MT(TAG) markers are ideal for application where limited fire hazard characteristics are necessary. MT(TAG) marker can be used in a wide variety of applications.
All MT(TAG) meet the performance requirements of SAE-ASM-DTL-23053/5 class 1. The marks are food fluid, fuel, lube resistant performance and permanent immediaterly after printing and remain legible even when exposed to abrasion aggressive cleaning solvents and military fuels and oils. The marker meet the mark performance requirement of SAE AS81531 4.6.2 and MIL-STD-202.

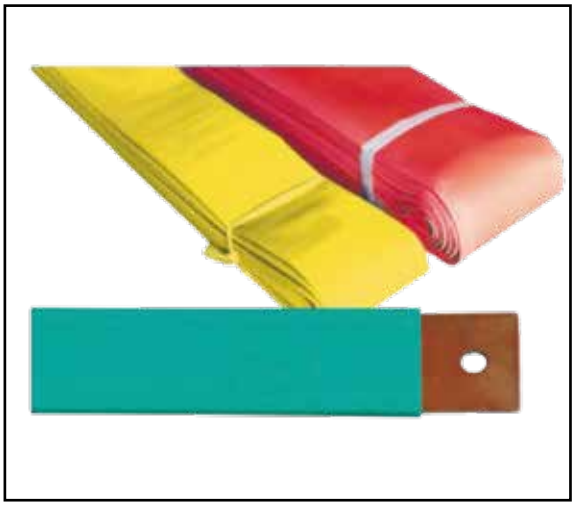
Part Number	Marker dimensions (W x H)		Printable area (W x H)	
	mm	Inches	mm	Inches
Shrink Rate 2:1				
MT(TAG)-45.00 x 10.40	45.00 x 10.40	1.80 x 0.40	25.00 x 10.40	1.00 x 0.40
MT(TAG)-70.00 x 20.30	70.00 x 20.20	2.75 x 0.80	50.00 x 20.30	2.00 x 0.80

Temperature Rating		
Operating temperature range	-40°C ~ 125°C	-
Specifications/Approvals	Military	SAE AS 81531 4.6.2, MIL-STD-202 method 215J
	Industry	ASTM D 2671 BS 6853, DIN 5510-2
Printer Information	Printer	P-D1 (Thermal transfer/Double print) P-S1 (Thermal transfer/Single print)
	Ribbon	R-A-001 (Excellent chemical durability / Excellent friction durability R-B-001 (Good wear resistant) R-B-002 (Good wear resistant) R-C-001 (Commom) R-C-002 (Common)



BT (1T/10M) HEAT-SHRINKABLE BUS BAR SLEEVING

BT(IT/I0M) is halogen-free, low smoke track-resistant polyolefin heat-shrinkable bus bar sleeving. It is widely used to protect the rectangular bus bars found in low or medium voltage switching equipment.



* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

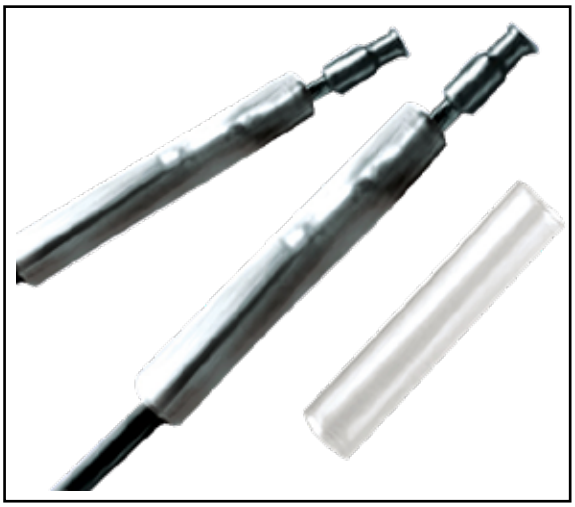
	As supplied (mm)	After recovery (mm)		Rectangular busbar (mm²)
Part Number	**Min. inside diameter**	**Max. Inside diameter**	**Wall-thickness**	
BT1T-20/10-*	≥ 20.00	≤ 10.00	1.00 ± 0.20	20 x 3
BT1T-25/12-*	≥ 25.00	≤ 12.00	1.20 ± 0.20	25 x 3
BT1T-30/15-*	≥ 30.00	≤ 15.00	1.20 ± 0.20	30 x 3
BT1T-40/20-*	≥ 40.00	≤ 20.00	1.30 ± 0.20	40 x 4
BT1T-50/25-*	≥ 50.00	≤ 25.00	1.30 ± 0.20	50 x 5
BT1T-60/30-*	≥ 60.00	≤ 30.00	1.30 ± 0.20	60 x 6
BT1T-80/40-*	≥ 80.00	≤ 40.00	1.50 ± 0.20	80 x 8
BT1T-100/50-*	≥ 100.00	≤ 50.00	1.40 ± 0.20	100 x 10
BT1T-120/60-*	≥ 120.00	≤ 60.00	1.40 ± 0.20	120 x 10
BT1T-150/75-*	≥ 150.00	≤ 75.00	1.40 ± 0.20	150 x 10
BT1T-20/8-*	≥ 20.00	≤ 8.00	2.30 ± 0.30	20 x 3
BT1T-30/12-*	≥ 30.00	≤ 12.00	2.30 ± 0.30	30 x 3
BT1T-40/16-*	≥ 40.00	≤ 16.00	2.30 ± 0.30	40 x 4
BT1T-50/20-*	≥ 50.00	≤ 20.00	2.60 ± 0.40	50 x 5
BT1T-60/24-*	≥ 60.00	≤ 24.00	2.60 ± 0.40	60 x 6
BT1T-80/32-*	≥ 80.00	≤ 32.00	2.80 ± 0.50	80 x 8
BT1T-100/40-*	≥ 100.00	≤ 40.00	2.80 ± 0.50	100 x 10
BT1T-120/50-*	≥ 120.00	≤ 50.00	2.80 ± 0.50	120 x 10
BT1T-150/60-*	≥ 150.00	≤ 60.00	2.80 ± 0.50	150 x 10

Items	Test Mothods	Specifications
Shrink temperature		110°C
Operating temperature		105°C
Tensile strength	ASTM D2671	≥12MPa
Elongation at break	ASTM D2671	≥450%
Aging in circulating-air oven	ASTM D2671	136.0°C ± 1.0°C, 168hrs
Tensile strength after aging	ASTM D2671	≥10MPa
Elongation at break after aging	ASTM D2671	≥400%
Flexibility	ASTM D2671, -40°C, 4hrs	No cracking
Volume resistance	ASTM D876	≥1.0 x 10^{14}Ω.cm
Dielectric strength	ASTM2671	≥19kV/mm
Heat shock	200oC ±3°C, 4hrs	No cracking
Water Absorption	ASTM D570A	≤0.5%

KYNAR (150°C/175°C) FLAME-RETARTDANT PVDF HEAT-SHRINKABLE TUBING

KYNAR(I50°C) is clear, thin-wall, flexible, flame-retardant heat-shrinkable tubing with excellent chemical resistance. It is especially suitable for applications requiring abrasion and cut-through resistance, or superior chemical and solvent resistance properties. Provides electrical insulation and strain relief of multipoint connectors and solder joints. Ideal for applications that require dense packing of components or visual inspection of covered components.

KYNAR(I75°C) is clear, thin-wall, semi-rigid, flame-retardant heat-shrinkable tubing with both high temperature and chemical resistance. Especially suitable for applications requiring high temperature performance, outstanding abrasion resistance and cut-through resistance, or superior chemical and solvent properties. Provides electrical insulation and strain relief of muftipoint connectors and solder joints. KYNAR(I75°C) is ideal for applications that require dense packing of components or visual inspection of covered components.



Standard Colour = Clear

Product Number	Product Number		As supplied (mm)	After recovery (mm)	
150°C	175°C	Size (Inch)	Min. inside diameter	Max. inside diameter	Wall-thickness
KNR150-0012C	KNR175-0012C	3/64	≥ 1.2	≤ 0.60	0.25 ± 0.05
KNR150-0016C	KNR175-0016C	1/16	≥ 1.60	≤ 0.80	0.25 ± 0.05
KNR150-0024C	KNR175-0024C	3/32	≥ 2.40	≤ 1.20	0.25 ± 0.05
KNR150-0032C	KNR175-0032C	1/8	≥ 3.20	≤ 1.60	0.25 ± 0.05
KNR150-0048C	KNR175-0048C	3/16	≥ 4.80	≤ 2.40	0.25 ± 0.05
KNR150-0064C	KNR175-0064C	1/4	≥ 6.40	≤ 3.20	0.33 ± 0.05
KNR150-0095C	KNR175-0095C	3/8	≥ 9.50	≤ 4.80	0.33 ± 0.05
KNR150-0127C	KNR175-0127C	1/2	≥ 12.70	≤ 6.40	0.33 ± 0.05
KNR150-0191C	KNR175-0191C	3/4	≥ 19.10	≤ 9.50	0.43 ± 0.08
KNR150-0254C	KNR175-0254C	1	≥ 25.40	≤ 12.70	0.48 ± 0.08

Items	Test Methods	CYG-KYNAR (150°C)	CYG-KYNAR (175°C)
Min. Shrink Temperature	-	140°C	155°C
Operating temperature range	-	-55°C ~ 150°C	-55°C ~ 175°C
Specific gravity	ASTM D792	1.78g/cm^3	1.78g/cm^3
Tensile strength	ASTM D2671	≥ 30MPa	≥ 34.5MPa
Elongation at break	ASTM D2671	≥ 150%	≥ 150%
Elongation at break after aging	225°C, 168hrs	≥ 100%	≥ 50%
Heat Shock	275°C, 4hrs	No cracking	No cracking
Cold bend	-55°C, 4hrs	No cracking	No cracking
Dielectric strength	ASTM D2671	≥ 15.7kV/mm	≥ 31.5kV/mm
Volume resistance	ASTM D257	≥ 1.0 x 10^{13}Ω.cm	≥ 1.0 x 10^{13}Ω.cm
Flammability	UL224	VW-1	VW-1

FKM HIGH TEMPERATURE FLUOROELASTOMER HEAT-SHRINKABLE TUBING

FKM is very flexible at both high and low temperatures without cracking. Made from modified fluoroelastomer, FKM is used for applications at elevated temperatures and has superior chemical and solvent resistance properties. It reliably protects wires, solder joints, terminals, connectors and components from most industrial fluids, solvents and chemicals.

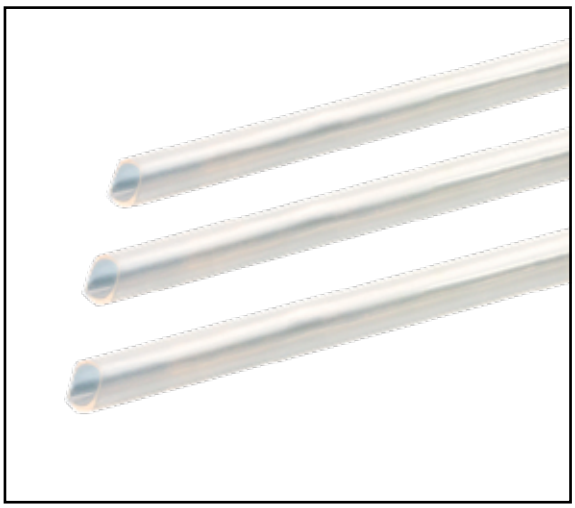
Part Number		As supplied (mm)	After recovery (mm)		
	Size (Inch)	Min. inside diameter	Max. Inside diameter	Wall-thickness	Standard Length
	CYG-FKM (HW)				
FKMH0032-0	1/8	≥ 3.20	≤ 1.60	0.76	50m/spool
FKMH0048-0	3/16	≥ 4.80	≤ 2.40	0.84	50m/spool
FKMH0064-0	1/4	≥ 6.40	≤ 3.20	0.89	50m/spool
FKMH0095-0	3/8	≥ 9.50	≤ 4.70	1.02	50m/spool
FKMH0127-0	1/2	≥ 12.70	≤ 6.40	1.22	30m/spool
FKMH0159-0	5/8	≥ 15.90	≤ 7.90	1.40	30m/spool
FKMH0191-0	3/4	≥ 19.10	≤ 9.50	1.45	30m/spool
FKMH0222-0	7/8	≥ 22.2	≤ 11.10	1.53	30m/spool
FKMH0254-0	1	≥ 25.40	≤ 12.70	1.78	30m/spool
FKMH0318-0	1-1/4	≥ 31.80	≤ 15.90	1.91	30m/spool
FKMH0381-0	1-1/2	≥ 38.10	≤ 19.10	2.41	15m/spool
FKMH0518-0	2	≥ 51.80	≤ 25.40	2.79	1m/spool
	CYG-FKM				
FKM0032-0	1/8	≥ 3.20	≤ 1.60	0.76	50m/spool
FKM0048-0	3/16	≥ 4.80	≤ 2.40	0.89	50m/spool
FKM0064-0	1/4	≥ 6.40	≤ 3.20	0.89	50m/spool
FKM0095-0	3/8	≥ 9.50	≤ 4.70	0.89	50m/spool
FKM0127-0	1/2	≥ 12.70	≤ 6.40	0.89	30m/spool
FKM0191-0	3/4	≥ 19.10	≤ 9.50	1.07	30m/spool
FKM0254-0	1	≥ 25.40	≤ 12.70	1.25	30m/spool
FKM0381-0	1-1/2	≥ 38.10	≤ 19.10	1.40	15m/spool
FKM0518-0	2	≥ 51.80	≤ 25.40	1.65	15m/spool

Items	Test Mothods	Specifications
Min. Shrink temperature		175°C
Operating temperature range	IEC216	-40°C ~ 200°C
Tensile strength	ASTM D638	≥8MPa
Elongation at break	ASTM D638	≥250%
Longitudinal change		≤ 10%
Elongation at break after aging	250°C, 168hrs	≥ 200%
Volume resistance	ASTM D876	≥1.0 x 10^{11}Ω.cm
Dielectric strength	ASTM2671	≥9kV/mm
Heat shock	300°C, 4hrs	No cracking or dripping

PTFE HEAT-SHRINKABLE TUBING

PTFE is high temperature, highly flame-retardant PTFE tubing with excellent chemical resistance. It is designed to provide insulation and mechanical protection in severe chemical and thermal environments. PTFE is normally used to cover hydraulic hoses and couplings to prevent contamination and corrosion. The high mechanical strength and extremely low coefficient of friction make it ideal for reducing damage to bearing shafts and similar applications.

Standard Colour = Clear (Natural). Other colours and sizes are available on request



* **0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □ ; c = clear**

Product Number	Size (mm)	As supplied (mm)	After recovery (mm)	
		Min. Inside diameter	Max. Inside diameter	Wall-thickness
PTFE0080-C	0.80	≥ 0.80	≤ 0.38	0.23
PTFE0090-C	0.90	≥ 0.90	≤ 0.46	0.23
PTFE0110-C	1.10	≥ 1.10	≤ 0.53	0.25
PTFE0120-C	1.20	≥ 1.20	≤ 0.66	0.25
PTFE0140-C	1.40	≥ 1.40	≤ 0.81	0.30
PTFE0150-C	1.50	≥ 1.50	≤ 0.97	0.30
PTFE0190-C	1.90	≥ 1.90	≤ 1.17	0.30
PTFE0230-C	2.30	≥ 2.30	≤ 1.47	0.30
PTFE0300-C	3.00	≥ 3.00	≤ 1.83	0.30
PTFE0380-C	3.80	≥ 3.80	≤ 2.31	0.30
PTFE0480-C	4.80	≥ 4.80	≤ 2.84	0.30
PTFE0610-C	6.10	≥ 6.10	≤ 3.53	0.38
PTFE0760-C	7.60	≥ 7.60	≤ 4.41	0.38
PTFE0940-C	9.40	≥ 9.40	≤ 5.53	0.38
PTFE1040-C	10.90	≥ 10.90	≤ 6.93	0.38
PTFE1190-C	11.90	≥ 11.90	≤ 8.69	0.38

Items	Test Mothods	Specifications
Specific gravity	ASTM D792	2.16g/cm^3
Operating temperature		-55°C ~ 260°C
Min. full recovery temperature		327°C
Tensile strength	ASTM D638	24.5MPa
Elongation at break	ASTM D638	350%
Bending modulus	ASTM D790	490MPa
Impact strength	ASTM D256	No cracking
Hardness (Shore)	ASTM D2240	55 ShoreD
Coefficient of dynamic friction		0.1
Flammability	UL224	VW-1
Dielectric constant	ASTM D150, 10^3 ~ 10^6Hz	2.1
Dielectric dissipation factor	ASTM D150, 10^6Hz	0.0002
Arc resistance	ASTM D495	> 300s
Linear coeffecient of expansion	ASTM D257	> 1.0 x 10^{18}Ω.cm
Weather resistance	Weather-o-meter, 2000hrs	No cracking
Fluid resistance	ASTM D543	Excellent
Chemical resistance	ASTM D543	Excellent

RSF HEAT-SHRINKABLE FIBRE TUBING

RSF is flexible, braided cloth fibre tubing designed primarily to provide outstanding mechanical abrasion protection for components such as rubber hoses, plastic pipes and harness wiring bundles. Also suitable for noise and rattle suppression.

Standard Colour = Black

Product Name	D: Min. ID as supplied (mm)	d: Max. ID after recovery (mm)
RSF-12/6-B	≥ 12.00	≤ 6.00
RSF-20/10-B	≥ 22.00	≤ 10.00
RSF-30-15-B	≥ 30.00	≤ 15.00
RSF-40-20-B	≥ 40.00	≤ 20.00
RSF-50/25-B	≥ 50.00	≤ 25.00
RSF-60/30-B	≥ 60.00	≤ 30.00
RSF-70-35-B	≥ 70.00	≤ 35.00

Items	Test Mothods	Specifications
Shrink temperature		110°C
Operating temperature range		-40°C ~ 125°C
Abrasion resistance (200g load, 144000 cycles)	23°C by 168hrs	No damage to underlying hose
	158°C by 168hrs	No damage to underlying hose
Low temperature flexibility	4hrs at -40°C, 10x diameter mandrel	No cracking
Cold impact	200g weight from 100mm at -40°C	No cracking
Thermal shock	100 cycles between -40°C and 125°C	No deterioration in abrasion resistance at 80°C
Fluid resistance	24hrs immersion at 23°C	No deterioration in abrasion resistance at 80°C

DR DIESEL RESISTANT HEAT-SHRINKABLE ELASTOME

DR is a modified cross-linked flexible elastomer and is widely used the wire harness protection of automotive, aviation, aerospace, military, which have the requirement of the resistance to diesel fuels, hydraulic fluids and lubricating oil.

Standard Colour = Black

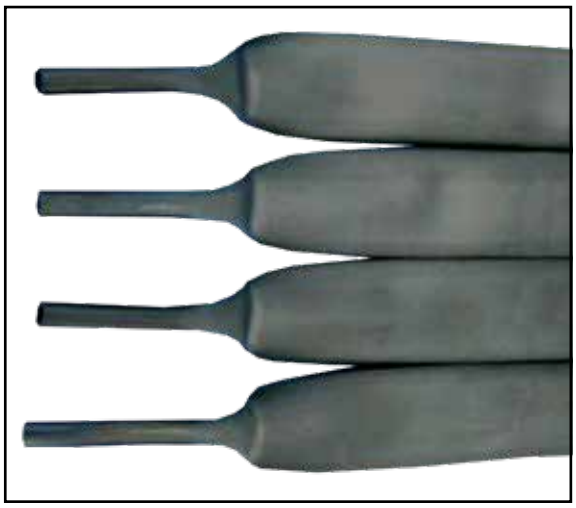
Part Number	Size	As supplied (mm)	After recovery (mm)		
	(Inch)	Inside diameter	Inside diameter	Wall-thickness	Standard packing
DR0032-0	1/8	≥ 3.20	≤ 1.60	0.75 ± 0.15	50m
DR0048-0	3/16	≥ 4.80	≤ 2.40	0.82 ± 0.15	50m
DR0064-0	1/4	≥ 6.40	≤ 3.20	0.90 ± 0.15	50m
DR0095-0	3/8	≥ 9.50	≤ 4.75	1.02 ± 0.20	50m
DR0127-0	1/2	≥ 12.70	≤ 6.35	1.22 ± 0.20	30m
DR0190-0	3/4	≥ 19.05	≤ 9.50	1.45 ± 0.28	30m
DR0254-0	1	≥ 25.40	≤ 12.70	1.78 ± 0.28	30m
DR0381-0	1-1/2	≥ 38.10	≤ 19.05	2.41 ± 0.41	30m
DR0508-0	2	≥ 50.80	≤ 25.10	2.79 ± 0.41	1m
DR0762-0	3	≥ 76.20	≤ 38.10	3.18 ± 0.41	1m

Items	Test Mothods	Specifications	Typical value
Shrink ratio		2:1	2:1
Tensile strength	ASTM D412	≥ 11.7MPa	14.8MPa
Elongation at break	ASTM D412	≥ 250%	450%
Min. Shrink temperature		175°C	175°C
Longitudinal change		≤ 10%	≤ 5%
Aging in circulating-air oven	150°C, 168hrs		
Tensile strength after aging	ASTM D412	≥ 10.3MPa	12MPa
Elongation at break after aging	ASTM D412	≥ 200%	250%
Cold shock	-65°C, 4hrs	No cracking	No cracking
Heat shock	200°C, 4hrs	No cracking or dropping	No cracking or dropping
Diesel resistance	23°C, 24hrs		
Tensile strength	ASTM D412	≥ 10.4MPa	12.2MPa
Elongation at break	ASTM D412	≥ 200%	300%
Diesel resistance	50°C, 24hrs		
Tensile strength	ASTM D412	≥10.4MPa	11.9MPa
Elongation at break	ASTM D412	≥ 200%	300%

CR NEOPRENE HEAT-SHRINKABLE ELASTOMER TUBING

CR is cross-linked heat shrink neoprene elastomer tubing. It is for protection on wire harness and wire bundles where fluid resistance and flexible required.

Standard Colour = Black

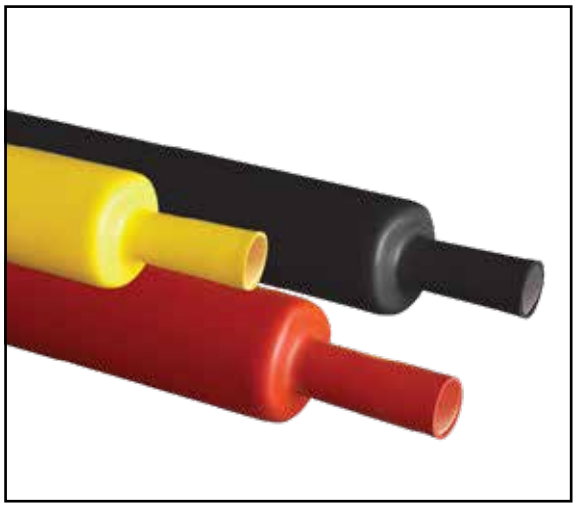


Product Number		As Supplied (mm)	After Recovery (mm)		
	Size (Inch)	Inside diameter	Inside diameter	Wall-thickness	Standard packing
CR0032-0	1/8	≥ 3.20	≤ 1.60	0.69 ± 0.22	50m
CR0048-0	3/16	≥ 4.80	≤ 2.50	0.83 ± 0.26	50m
CR0064-0	1/4	≥ 6.40	≤ 3.60	0.89 ± 0.26	50m
CR0095-0	3/8	≥ 9.50	≤ 5.40	1.01 ± 0.26	50m
CR0127-0	1/2	≥ 12.70	≤ 7.30	1.21 ± 0.38	30m
CR0160-0	5/8	≥ 16.00	≤ 9.10	1.32 ± 0.38	30m
CR0191-0	3/4	≥ 19.10	≤ 10.90	1.45 ± 0.38	30m
CR0222-0	7/8	≥ 22.22	≤ 12.70	1.65 ± 0.51	30m
CR0254-0	1	≥ 25.40	≤ 14.50	1.77 ± 0.51	30m
CR0318-0	1-1/4	≥ 31.80	≤ 18.10	2.20 ± 0.51	30m
CR0381-0	1-1/2	≥ 38.10	≤ 21.80	2.41 ± 0.51	30m
CR0445-0	1-3/4	≥ 44.50	≤ 25.40	2.71 ± 0.51	30m
CR0508-0	2	≥ 50.80	≤ 29.00	2.79 ± 0.51	1m
CR0762-0	3	≥ 76.20	≤ 43.40	3.17 ± 0.51	1m

Items	Test Mothods	Specifications	Typical value
Tensile strength	ASTM D412	≥ 10.3MPa	13MPa
Elongation at break	ASTM D412	≥ 225%	400%
Heat aging	121°C, 168hrs		
Tensile strength after aging	ASTM D412	≥ 8.3MPa	11.5MPa
Elongation at break after aging	ASTM D412	≥ 175%	300%
Low temperature flex	-70°C, 4hrs	No cracking	No cracking
Heat shock	200°C, 4hrs	No cracking, flowing or dropping	No cracking, flowing or dropping
Tensile strength after fluid resistance	23°C, 24hrs	≥ 6.9MPa	9MPa
Elongation after fluid resistance	23°C, 24hrs	≥ 175%	275%
Volume resistance	ASTM D876	≥ 1.0 x 10^{13}Ω.cm	1.0 x 10^{13}Ω.cm
Copper corrosion	150°C, 16hrs	No corrosion	No corrosion
Flammability	ASTM D2671	Pass	Pass

DWT HEAT-SHRINKABLE TUBING WITH MELTABLE LINER

DWT is adhesive-lined, flexible, halogen-free and flame-retardant polyolefin heat-shrinkable dual wall tubing which is RoHS compliant and meets Sony's environment-related substance requirements. This tubing has good mechanical strength and provides protection from fluids, moisture and corrosion. DWT is used in a wide variety of electrical application, including back end connector sealing, breakouts and connector-to-cable transitions. High expansion ratio makes it possible to repair most damaged cable jackets without removing connectors.



Standard Colour = Black, other colours available upon request

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = □ ; 9 =

Product Number		As supplied (mm)		After recovery (mm)		
	Size (Inch)	Min. Inside diameter	Nominal wall	Max. inside diameter	Total wall	Nominal adhesive wall
	DWT (2:1)					
DWT2-0012-0	3/64	≥ 1.20	0.30	≤ 0.60	0.45 ± 0.12	0.20
DWT2-0016-0	1/16	≥ 1.60	0.30	≤ 0.80	0.45 ± 0.12	0.20
DWT2-0024-0	3/32	≥ 2.40	0.35	≤ 1.20	0.55 ± 0.12	0.30
DWT2-0032-0	1/8	≥ 3.20	0.40	≤ 1.60	0.60 ± 0.15	0.30
DWT2-0048-0	3/16	≥ 4.80	0.40	≤ 2.40	0.75 ± 0.15	0.35
DWT2-0064-0	1/4	≥ 6.40	0.40	≤ 3.20	0.75 ± 0.15	0.35
DWT2-0095-0	3/8	≥ 9.50	0.40	≤ 4.80	0.80 ± 0.20	0.35
DWT2-0127-0	1/2	≥ 12.70	0.40	≤ 6.40	0.80 ± 0.20	0.35
DWT2-0191-0	3/4	≥ 19.10	0.50	≤ 9.50	0.95 ± 0.28	0.40
DWT2-0254-0	1	≥ 25.40	0.50	≤ 12.70	1.15 ± 0.28	0.45
	DWT (3:1)					
DWT3-0030-0	1/8	≥ 3.00	0.40	≤ 1.00	0.85 ± 0.28	0.35
DWT3-0048-0	3/16	≥ 4.80	0.40	≤ 1.50	1.05 ± 0.28	0.45
DWT3-0060-0	1/4	≥ 6.00	0.45	≤ 2.00	1.10 ± 0.28	0.45
DWT3-0090-0	3/8	≥ 9.00	0.60	≤ 3.00	1.45 ± 0.28	0.45
DWT3-0120-0	1/2	≥ 12.00	0.60	≤ 4.00	1.50 ± 0.38	0.45
DWT3-0190-0	3/4	≥ 19.00	0.75	≤ 6.00	2.00 ± 0.55	0.65
DWT3-0240-0	1	≥ 24.00	0.75	≤ 8.00	2.00 ± 0.55	0.65
DWT3-0318-0	1-1/4	≥ 31.80	0.80	≤ 11.00	2.20 ± 0.55	0.75
DWT3-0381-0	1-1/2	≥ 38.10	0.85	≤ 13.00	2.50 ± 0.55	1.00
DWT3-0500-0	2	≥ 50.00	1.00	≤ 17.00	2.50 ± 0.55	1.00
	DWT (4:1)					
DWT4-0040-0	4/1	≥ 4.00	0.40	≤ 1.00	1.10 ± 0.30	0.50
DWT4-0080-0	8/2	≥ 8.00	0.40	≤ 2.00	1.10 ± 0.30	0.50
DWT4-0120-0	12/3	≥ 12.00	0.50	≤ 3.00	1.40 ± 0.30	0.60
DWT4-0160-0	16/4	≥ 16.00	0.60	≤ 4.00	1.80 ± 0.30	0.75
DWT4-0240-0	24/6	≥ 24.00	0.75	≤ 6.00	2.25 ± 0.55	0.75
DWT4-0320-0	32/8	≥ 32.00	0.80	≤ 8.00	2.54 ± 0.55	1.00
DWT4-0520-0	52/13	≥ 52.00	1.00	≤ 13.00	2.60 ± 0.55	1.00

Items	Test Methods	Specifications
Shrink Temperature	UL224	110°C
Operating Temperature Range	UL224	-40°C ~ 125°C
Tensile Strength	ASTM D2671	≥ 10.4MPa
Elongation at break	ASTM D2671	≥ 200%
Radial shrinking ratio	UL224	≥ 50%
Longitudinal Change	UL224	≤ 10%
Aging in Circulating-air Oven	158.0 ± 1.0°C, 168hrs	
Tensile Strength after aging	ASTM D2671	≥ 7.3MPa

Items	Test Methods	Specifications
Elongation at break after aging	ASTM D2671	≥ 100%
Dielectric strength	ASTM D2671, AC2500V, 1min	No breakdwon
Volume resistance	ASTM D876	≥ 1.0 x 10^{13}Ω.cm
Flammability	UL224	VW - 1
Water absorption	ASTM D570	≤ 0.4%
Fluid Resistance	UL224	Excellent
Copper Corrosion	UL224	No Corrosion
Softening Point of meltable liner	Company standard	85°C ± 5°C
Peel Strength of meltable liner	ASTM D2671	> 80N/25mm

DWT (1000) ADHESIVE-LINED HEAT-SHRINKABLE TUBING

DWT(1000) is adhesive-lined, flexible, flame-retardant polyolefin heat-shrinkable dual-wall tubing. This tubing has good mechanical strength, oil-resistance and bio resistance when used for extreme environments and specialised protection.
DWT (1000) is widely used in jacketing for wire bundles and harnesses.

Standard colour = Black

Product Number	As Supplied (mm)	After Recovery (mm)		
	Min. Inside Diameter	Max. Inside diameter	Total wall	Adhesive Wall
DWT1000-201-0	≥ 6.06	≤ 3.18	0.737 ± 0.127	0.102
DWT1000-202-0	≥ 9.02	≤ 4.75	0.737 ± .0127	0.102
DWT1000-203-0	≥ 12.07	≤ 6.35	0.762 ± 0.127	0.127
DWT1000-204-0	≥ 18.0	≤ 9.53	0.889 ± 0.127	0.127
DWT1000-205-0	≥ 24.13	≤ 12.70	1.070 ± 0.178	0.178
DWT1000-206-0	≥ 35.20	≤ 19.05	1.190 ± 0.203	0.178
DWT1000-301-0	≥ 305	≤ 1.02	1.020 ± 0.254	0.508
DWT1000-302-0	≥ 6.10	≤ 2.04	1.020 ± 0.254	0.508
DWT1000-303-0	≥ 11.94	≤ 4.06	1.780 ± 0.356	0.762
DWT1000-304-0	≥ 23.87	≤ 8.13	2.540 ± 0.508	1.020
DWT1000-305-0	≥ 39.38	≤ 12.95	2.540 ± 0.508	1.020

Items	Test Methods	Specifications	Typical Values
Shrink Temperature			-55°C ~ 110°C
Operating Temperature Range			100°C ~ 140°C
Tensile Strength	ASTM D638	≥ 10.4MPa	14.1MPa
Elongation at break	ASTM D638	≥200%	329%
2% Scan modulus	ASTM D882	≤172MPa	153MPa
Heat Shock	250°C ± 3°C, 4hrs	No cracking, dripiing, flowing	Pass
Cold Shock	ASTM D745, -55°C ± 2°C	No cracking	Pass
Dielectic strength	ASTM D2671	≥ 19.7kV/mm	26kV/mm
Volume resistance	ASTM D876	≥1.0 x 10^{12}Ω.cm	3.6 x 10^{13}Ω.cm
Oil resistance	24°C ±3°C, 24hrs		
Aging in circulating-air oven	175°C ±2°C, 168hrs		
Tensile strength after aging	ASTM D638	≥6.9MPa	9.5MPa
Dielectric strength after aging	ASTM D2671	≥ 15.8kV/mm	24kV/mm

DWT (2000) HEAT-SHRINKABLE TUBING FOR AUTOMOTIVE BRAKE OIL LINE PROTECTION

DWT/2000) is specially designed for the protection for metal automotive pipes and fuel lines. This product is positioned on straight pipe lengths prior to the second end-nut filling. This product can effectively protect metal lines against damage caused by friction or corrosion, improving vehicle safety.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = □ ; 9 =

Product Number	Standard pipe diameter (mm)	Inside diameter as supplied (mm)	Wall thickness after recovered on the pipe (mm)
DWT(2000)-5	3.50	5.00	1.00
DWT(2000)-6	4.76	6.00	1.00
DWT(2000)-8	6.35	8.00	1.00
DWT(2000)-10	8.00	10.00	1.00
DWT(2000)-15	10.00	15.00	1.00

Items	Test Methods	Specifications
Operating temperature range	Company Standard	-40°C ~ 125°C
Minimum full recovery temperature	Company Standard	110°C
Longitudinal change	ASTM D2671	0 ~ 10%
Eccentricity	ASTm D2671	≤ 20%
Tensile strength	ASTM D2671	≥ 12MPa
Elongation at break	ASTM D2671	≥ 400%
Aging in circulation air-oven	158.0°C ± 1.0°C, 168hrs	
Tensile strength after aging	ASTM D2671	≥ 12MPa
Elongation at break after aging	ASTM D2671	≥ 270%
Deformation resistance	ASTM D746	≥ 50%
Impact resistance	ASTM D746, -35°C	No Cracking
Drop impact resistance	ASTM D746	No Cracking
Cold resistance	ASTM D746, -35°C, 1hrs	No Cracking
Stress cracking resistance	ASTM D1693, 50°C, 24hrs	No Cracking
Fluid resistance	ASTM D2671, 25°C, 72hrs	No Cracking
	ASTM D2761	Sulphuric acid (1.28 S.G)
	ASTM D2671	Sodium hydroxide (0.1N)
	ASTM D2671	Brake oil
	ASTM D2671	Unleaded petrol

DWT(3000) SEMI-RIGID HEAT-SHRINKABLE DUAL WALL TUBING

DWT(3000) is semi-rigid, flame-retardant, adhesive-lined polyolefin heat shrinkable tubing. It is designed to meet automotive requirements for sealing and electrical insulation when used for covering wire splices, terminations and components. It provides abrasion protection for wire splices is fluid-resistant and moistureproof, to guard against corrosion.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Product Number	As supplied (mm)	After recovery (mm)		
	Min. Inside diameter	Max. Inside diameter	Total Wall	Adhesive wall
DWT(3000)-1	≥ 5.72	≤ 1.27	1.20	0.56
DWT(3000)-2	≥ 7.44	≤ 1.65	1.52	0.76
DWT(3000)-3	≥ 10.82	≤ 2.41	1.91	1.02
DWT(3000)-4	≥ 17.78	≤ 4.45	2.41	1.37

Items	Test Mothods	Specifications
Operating Temperature range		-40°C ~ 135°C for jacket
Min. Shrink temperature		110°C
Longitudinal change	ASTM D2671	5%
Tensile strength	ASTM D2671	≥ 10.3MPa
Elongation at break	ASTM D2671	≥ 250%
Scant modulus at 2% (expanded)	ASTM D2671	≥ 137MPa
Heat shock	ASTM D2671, 250°C, 4hrs	No dripping, flowing or cracking of outer jacket
Dynamic cut through	ASTM D3032	≥ 16.3kg
Volume resistance	ASTM D2671	≥ 1.0 z 10^{12}Ω.cm
Flammability	ASTM D2671	Self-extinguishing within 30s
Tensile strength after aging	ASTM D2671	≥ 6.9MPa
Oil-resistance	97# oil, 23°C ± 3°C, 24hrs	No cracking
	IRM 902#	No cracking
	IRM 903#	No cracking

DWT(4000) SEMI-RIGID HEAT-SHRINKABLE DUAL WALL TUBING

DWT(4000) is adhesive-lined, semi-rigid, polyolefin heat shrink dual-wall tubing. It has good mechanical strength and frayresistance for wire harness terminals and features thicker adhesive for excellent an seal against fluid and moisture.
DWT(4000) is specially designed for use on automotive lines, stress relief on wire harnesses and anywhere oil resistance and abrasion protection are required.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Product Number	As supplied (mm)	After recovery (mm)		
	Min. Inside diameter	Max. Inside diameter	Total Wall	Adhesive wall
DWT(4000)-1	≥ 5.72	≤ 1.27	1.20	0.56
DWT(4000)-2	≥ 7.44	≤ 1.65	1.52	0.76
DWT(4000)-3	≥ 10.82	≤ 2.41	1.91	1.02
DWT(4000)-4	≥ 17.78	≤ 4.45	2.41	1.37

Items	Test Mothods	Specifications	Typical Value
Operating Temperature range	ASTM D2671		-40°C ~ 135°C for jacket
Shrink temperature			110°C ~ 135°C
Longitudinal change	ASTM D2671	0~10%	5%
Tensile strength	ASTM D2671	≥ 10.3MPa	18.87MPa
Elongation at break	ASTM D2671	≥ 250%	330%
Aging at 168h, 175°C ± 2°C	ASTM D3032	No cracking	Pass
Water Absorption	ASTM D570	≤ 1.0%	0.5%
Volume resistance	ASTM D2671	≥ 1.0 x 10^{12}Ω.cm	9.0 x 10^{14}Ω.cm

DWT(FR) HEAT-SHRINKABLE DUAL-WALL TUBING

DWT-FR is semi-rigid, flame-retardant polyolefin heat shrink duall-wall tubing. It is special designed for automotive wire harnesses and features good mechanical strength, sealing, oil-resistance and insulation properties.
DWT-FR is widely used for all kinds of automotive wire harnesses and is especially useful in harsh environments or where special protection is required.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

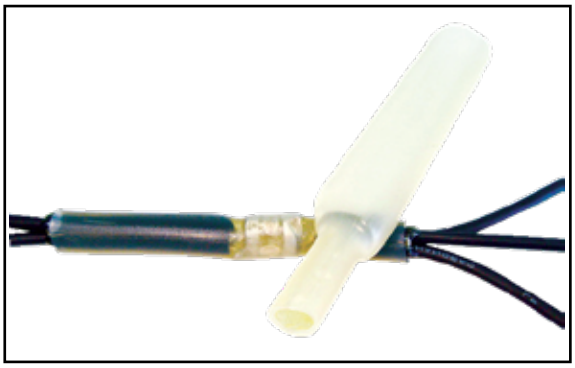
Size	As supplied (mm)	After recovery (mm)		
	Min. Inside diameter	Max. Inside diameter	Total Wall	Adhesive wall
7.6	≥ 7.60	≤ 1.65	1.50 ± 0.30	0.70
9.0	≥ 9.00	≤ 2.30	1.50 ± 0.40	0.70
11.6	≥ 11.60	≤ 2.54	2.30 ± 0.40	1.20
17.8	≥ 17.80	≤ 4.45	2.50 ± 0.40	1.20

Items	Test Mothods	Specifications
Shrink temperature	ASTM D2671	100°C ~ 150°C
Operating temperature range	Company standard	-40°C ~ 125°C for jacket
Tensile strength	ASTM D2671	≥ 10.4MPa
Elongation at break	ASTM D2671	≥ 200%
Longitudinal change	ASTM D2671	≤ 10%
Aging in circular-air oven	158.0°C ± 1.0°C, 168hrs	
Dielectric strength	ASTM D2671, AC2500V, 1min	No breakdown

Items	Test Mothods	Specifications
Volume resistance	ASTM D876	≥ 1.0 x 10^{13}Ω.cm
Flammability	UL224	≤ 60s
Water absorption	ASTM D570	≤ 0.4%
Fluid resistance	UL224	Excellent
Copper corrosion	UL224	No Corrosion
Softening point of meltable liner	Company Standard	110°C ± 5°C
Peel strength of meltable liner	ASTM D2671	> 80N / 25mm

DWT(RX) SEMI-RIGID HEAT-SHRINKABLE DUAL-WALL TUBING

-DWT-RX is clear, semi-rigid adhesive-lined heat-shrinkable polyolefin dual-wall tubing. It has excellent sealing, oil-resistance, insulation and mechanical strength properties.
DWT-RX is widely used for the special auto-bundling wires and harness.



* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Size	As supplied (mm)	After recovery (mm)		
	Min. Inside diameter	Max. Inside diameter	Total Wall	Adhesive wall
5.7	≥ 5.70	≤ 1..27	1.50 ± 0.30	0.70
8.0	≥ 8.00	≤ 1.65	1.80 ± 0.30	0.70
10.8	≥ 10.80	≤ 2.40	2.20 ± 0.50	1.20
17.8	≥ 17.00	≤ 4.45	2.40 ± 0.50	1.20

Items	Test Mothods	Specifications
Shrink temperature	ASTM D2671	100°C ~ 150°C
Operating temperature range	Company standard	-40°C ~ 125°C for jacket
Tensile strength	ASTM D2671	≥ 10.4MPa
Elongation at break	ASTM D2671	≥ 200%
Longitudinal change	ASTM D2671	≤ 10%
Aging in circular-air oven	158.0°C ± 1.0°C, 168hrs	
Dielectric strength	ASTM D2671, AC2500V, 1min	No breakdown

Items	Test Mothods	Specifications
Volume resistance	ASTM D876	≥ 1.0 x 10^{13}Ω.cm
Flammability	UL224	≤ 60s
Water absorption	ASTM D570	≤ 0.4%
Fluid resistance	UL224	Excellent
Copper corrosion	UL224	No Corrosion
Softening point of meltable liner	Company Standard	110°C ± 5°C
Peel strength of meltable liner	ASTM D2671	> 80N / 25mm

DWT(RO) SEMI-RIGID HEAT-SHRINKABLE DUAL-WALL TUBING

DWT-RO is flame-retardant, semi-rigid, adhesive-lined polyolefin heat shrink duall-wall tubing. It has excellent sealing, oil-resistance, insulation and mechanical strength properties.
DWT-RO is widely used for the special auto-bundling wires and harness.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

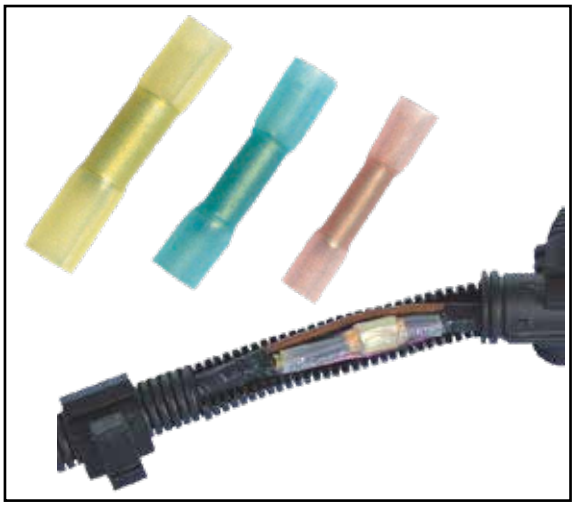
Size	As supplied (mm)	After recovery (mm)		
	Min. Inside diameter	Max. Inside diameter	Total Wall	Adhesive wall
5.7	≥ 5.70	≤ 1.27	1.45 ± 0.30	0.70
7.4	≥ 7.40	≤ 1.65	1.55 ± 0.30	0.70
11.0	≥ 11.00	≤ 2.40	2.35 ± 0.50	1.20
14.0	≥ 14.00	≤ 3.00	2.35 ± 0.50	1.20
17.8	≥ 18.30	≤ 4.5	2.35 ± 0.50	1.20

Items	Test Mothods	Specifications
Shrink temperature	ASTM D2671	110°C
Operating temperature range	Company standard	-40°C ~ 125°C for jacket
Tensile strength	ASTM D638	≥ 10.4MPa
Elongation at break	ASTM D638	≥ 200%
Cold Shock	ASTM D745, -40°C ± 2°C	No cracking
Dielectric strength	ASTM D2671	≥ 19.7kV/mm

Items	Test Mothods	Specifications
Volume resistance	ASTM D876	≥ 1.0 x 10^{12}Ω.cm
Tensile strength after aging	ASTM D638	≥ 7.3MPa
Elongation at break after againg	ASTM D638	≥ 100%
Dielectric strength after aging	ASTM D2671	≥ 15.8kV/mm
Softening point of meltable liner	Company Standard	110°C ± 5°C
Sealing	TL82324	≥ 1.0 x 10^{8}

DS(406) HEAT-SHRINKABLE BUTT SPLICE CONNECTORS

DS 406 are heat-shrinkable, insulating bull splice connectors featuring a deal seal. DS 406 connectors are environmentally sealed, polyolefin-insulated splices that provide one-step sealing for wire to wire splicing applications.



Characteristics:
- Protects splices from water condensation, salt and corrosion.
- Provides strain relief
- Protects against vibration in rugged environments.
- Completely insulates and protects electrical connections.
- Has adhesive lining for protection that is more reliable than conventional splices.

Applications:
- Automotive/truck wiring repair and maintenance.
- Automotive accessories installation.
- Marine electronics and Fleet maintenance.
- Commercial wiring in outdoor applications (pumps/pools/spas).
- Appliances.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Size	Butt splice dimensions (mm)		Colour	Wire Size	Conductor area	Wire dimensions (mm)	
	Min. ID (A)	Length (L)		(AWG)	(mm^2)	Min. Insulation OD	Max. Insulation OD
DS 406-001	≥ 3.68	31.75	Red	22 ~ 18	0.38 ~ 0.95	≥ 3.56	≤ 1.40
DS 406-002	≥ 4.57	31.75	Blue	16 ~ 14	1.20 ~ 2.50	≥ 4.45	≤ 2.03
DS 406-003	≥ 6.35	38.10	Yellow	12 ~ 10	3.00 ~ 6.00	≥ 6.22	≤ 2.79

Items	Specifications
Operating temperature range	-40°C ~ 125°C
Shrink ratio	4:1
Cut-through resistance	31kg
Flammability	Non flame retardant

Items	Specifications
Wire pullout after crimping and recovery	Red:11.3kg, Blue: 22.7kg, Yellow: 27.2kg
Solvent resistance	Isopropyl alcohol, Trichloroethylene, Gasoline, Battery acid, Diesel fuel, Motor oil, Antifreeze, Brake fluid, 5% Salt water
Dielectric strength, 2500V (AC)	Insulation resistance: 1000 megohms at 100V (DC)

HSSS HEAT SHRINKABLE SOLDER SLEEVING

CYG solder sleeve products offer reliable, cost effective ways to terminate wire and cable. In one easy step, it can electrically connect, insulate and seal the termination.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Part No.	Colour	Wire gauge	Inside Diameter (mm)
CYG-D0017	White	24-22	1.70
CYG-D0027	Red	22-18	2.70
CYG-D0045	Blue	16-14	4.50
CYG-D0060	Yellow	12-10	6.00

Items	Test Mothods	Specifications
Operating temperature		-55°C ~ 125°C
Shrink temperature		Min 150°C
Dielectric voltage	RT-1404	2.0kV

Items	Test Mothods	Specifications
Voltage rating	RT-1404	600V
Voltage drop	RT-1404	Less than 2.0mV
Copper corrosion	UL224	No corrosion

OFS HEAT-SHRINKABLE OPTICAL FIBER SPLICE PROTECTOR

A specially designed cross-linked polyolefin tubing system, with adhesive liner, providing strength and protection to optical fibre splices.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Type	Length	Hot melt tube (mm)		Stainless steel (mm)	
	(mm)	Inner Diameter	Length	Outer Diameter	Length
Big Size					
CYG-OFS-60B	60 ± 1.00	1.4 ±0.05	60 ± 1.00	1.5 ± 0.05	55 ± 1.00
CYG-OFS-45B	45 ± 1.00	1.4 ±0.05	45 ± 1.00	1.5 ± 0.05	40 ± 1.00
CYG-OFS-40B	40 ± 1.00	1.4 ±0.05	40 ± 1.00	1.5 ± 0.05	36 ± 1.00
CYG-OFS-23B	23 ± 1.00	1.4 ±0.05	23 ± 1.00	1.5 ± 0.05	18 ± 1.00
Middle Size					
CYG-OFS-61M	61 ± 1.00	1.3 ± 0.05	61 ± 1.00	1.2 ± 0.05	55 ± 1.00
CYG-OFS-60M	60 ± 1.00	1.3 ± 0.05	60 ± 1.00	1.2 ± 0.05	56 ± 1.00
CYG-OFS-45M	45 ± 1.00	1.3 ± 0.05	45 ± 1.00	1.2 ± 0.05	40 ± 1.00
CYG-OFS-40M	40 ± 1.00	1.3 ± 0.05	23 ± 1.00	1.2 ± 0.05	36 ± 1.00
CYG-OFS-30M	30 ± 1.00	1.3 ± 0.05	23 ± 1.00	1.2 ± 0.05	26 ± 1.00
CYG-OFS-25M	25 ± 1.00	1.3 ± 0.05	23 ± 1.00	1.2 ± 0.05	21 ± 1.00
Small Size					
CYG-OFS-60S	60 ±01.00	0.5 ± 0.05	60 ± 1.00	1.0 ± 0.05	56 ± 1.00
CYG-OFS-40S	40 ± 1.00	0.5 ± 0.05	40 ± 1.00	1.0 ± 0.05	36 ± 1.00
CYG-OFS-60SA	60 ± 1.00	1.3 ± 0.05	60 ± 1.00	1.0 ± 0.05	56 ± 1.00
CYG-OFS-40SA	40 ±1.00	1.3 ± 0.05	40 ± 1.00	1.0 ± 0.05	36 ± 1.00
Micro Size					
CYG-OFS-40T	40 ± 1.00	0.5 ± 0.05	40 ± 1.00	0.5 ± 0.05	40 ± 1.00
CYG-OFS-25T	25 ± 0.50	0.5 ± 0.05	25 ± 0.50	0.5 ± 0.05	25 ± 1.00
CYG-OFS-18T	18 ± 0.50	0.5 ± 0.05	18 ± 0.50	0.5 ± 0.05	18 ± 1.00
CYG-OFS-15T	15 ± 0.50	0.5 ± 0.05	15 ± 0.50	0.5 ± 0.05	15 ± 1.00
CYG-OFS-10T	10 ± 0.50	0.5 ± 0.05	10 ± 0.50	0.5 ± 0.05	10 ± 1.00

Items	Test methods	Specifications
Operating temperature		-55°C ~ 105°C
Tensile strength	ASTM D2671	≥ 18MPa
Ultimate elongation	ASTM D2671	700%
Density	ISO R1183D	0.94g/cm^3
Dielectric strength	IEC 243	20kV/mm
Dielectric constant	IEC 243	2.5max

MWTA ADHESIVE-LINED MEDIUM WALL HEAT-SHRINKABLE SLEEVING

MWTA is halogen free, adhesive lined heat shrink sleeving, which can provide the good mechanical protection and excellent water and moisture proof. It is designed for the application of electrical splices, cable terminations and joints, 3:1 ratio make it possible for the over irregular shape and large connectors.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Size	As supplied (mm)	After recovery (mm)		Standard Length
	Inside diameter	Inside diameter	Wall-thickness	
8/2	8.00	2.00	1.70	1.22m/pcs
12/3	10.00	3.00	2.00	1.22m/pcs
13/4	13.00	4.00	2.00	1.22m/pcs
16/5	16.00	5.00	2.20	1.22m/pcs
19/5	19.00	5.00	2.20	1.22m/pcs
22/6	22.00	6.00	2.50	1.22m/pcs
28/6	28.00	6.00	2.50	1.22m/pcs
33/8	33.00	8.00	2.50	1.22m/pcs
40/12	40.00	12.00	2.70	1.22m/pcs
45/12	45.00	12.00	2.70	1.22m/pcs
55/16	55.00	16.00	2.80	1.22m/pcs
65/19	65.00	19.00	2.80	1.22m/pcs
75/22	75.00	22.00	3.00	1.22m/pcs
85/25	85.00	25.00	3.00	1.22m/pcs
95/25	95.00	25.00	3.00	1.22m/pcs
115/34	115.00	34.00	3.20	1.22m/pcs
140/42	140.00	42.00	3.30	1.22m/pcs
160/50	160.00	50.00	3.30	1.22m/pcs
180/50	180.00	58.00	3.30	1.22m/pcs
205/65	205.00	65.00	3.30	1.22m/pcs

Items	Test Mothods	Specifications
Operation temperature	IEC 216	-55°C ~ 110°C
Shrink temperature	Company Standard	120°C
Longitudinal change	UL224	0 ~ 5%
Tensile strength	ASTM D2671	≥ 14MPa
Elongation	ASTM D2671	≥ 400%
Elongation after aging	ASTM D2671, 150°C ± 2°C, 168hrs	≥ 300%
Tensile strength after aging	ASTM D2671, 150°C ± 2°C, 168hrs	≥ 12MPa
Dielectric strength	IEC 243	≥ 20kV/mm
Volume resistivity	IEC 93	≥ 1 x 10^{14}Ω.cm
Copper corrosion	ASTM D2671	No corrosion
Water absorption	ISO62, 23°C, 14 days	≤ 0.2%

HWTA ADHESIVE-LINED HEAVY WALL HEAT-SHRINKABLE SLEEVING

HWTA is halogen free, adhesive lined heat shrink sleeving,it is widely used for the application to seal wire and cable connections. 3:1 ratio make it cover the largest application range offered in the industry, which can provide the good mechanical protection and excellent water and moisture proof. It is ideal used for buried insulation of the wire splicing, electrical connection and jacket repair.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Size	As supplied (mm)	After recovery (mm)		Standard Length
	Inside diameter	Inside diameter	Wall-thickness	
9/3	9.00	3.00	2.00	1.22m/pcs
13/4	12.00	4.00	2.40	1.22m/pcs
16/5	16.00	5.00	2.50	1.22m/pcs
19/5	19.00	5.00	2.50	1.22m/pcs
22/6	22.00	6.00	2.70	1.22m/pcs
33/8	33.00	8.00	3.20	1.22m/pcs
40/12	40.00	12.00	4.00	1.22m/pcs
45/12	45.00	12.00	4.00	1.22m/pcs
55/16	55.00	16.00	4.00	1.22m/pcs
65/19	65.00	19.00	4.00	1.22m/pcs
75/22	75.00	22.00	4.00	1.22m/pcs
80/22	80.00	22.00	4.00	1.22m/pcs
85/25	85.00	25.00	4.20	1.22m/pcs
95/30	95.00	30.00	4.20	1.22m/pcs
115/34	115.00	34.00	4.20	1.22m/pcs
130/36	130.00	36.00	4.20	1.22m/pcs
140/37	140.00	37.00	4.20	1.22m/pcs
160/50	160.00	50.00	4.20	1.22m/pcs
180/50	180.00	50.00	4.20	1.22m/pcs
200/60	200.00	60.00	4.20	1.22m/pcs

Items	Test Mothods	Specifications
Operation temperature	IEC 216	-55°C ~ 110°C
Shrink temperature	Company Standard	120°C
Longitudinal change	UL224	0 ~ 5%
Tensile strength	ASTM D2671	≥ 14MPa
Elongation	ASTM D2671	≥ 400%
Elongation after aging	ASTM D2671, 150°C ± 2°C, 168hrs	≥ 300%
Tensile strength after aging	ASTM D2671, 150°C ± 2°C, 168hrs	≥ 12MPa
Dielectric strength	IEC 243	≥ 20kV/mm
Volume resistivity	IEC 93	≥ 1 x 10^{14}Ω.cm
Copper corrosion	ASTM D2671	No corrosion
Water absorption	ISO62, 23°C, 14 days	≤ 0.2%

HWTA(6X) ADHESIVE-LINED HEAVY WALL HEAT-SHRINKABLE SLEEVING

HWTA(6X) is halogen free, adhesive lined hem shrink sleeving, it is widely used for the application to seal wire and cable connections. 6:1 ratio make it cover the largest application range offered in the industry, which can provide the good mechanical protection and excellent water and moisture proof. It is ideal used for buried insulation of the wire splicing, electrical connection and jacket repair.

* 0 = ■ ; 2 = ■ ; 4 = ■ ; 5 = ■ ; 6 = ■ ; 4/5 = ■ ; 9 = □

Size	As supplied (mm)	After recovery (mm)		Standard Length
	Inside diameter	Inside diameter	Wall-thickness	
19/3.2	19.00	3.20	3.20	1.22m/pcs
33/5.5	33.00	5.50	3.40	1.22m/pcs
44.4/7.4	44.40	7.40	3.60	1.22m/pcs
50.8/8.3	50.80	8.30	4.80	1.22m/pcs
69.8/11.7	69.80	11.70	4.80	1.22m/pcs
88.9/17.1	88.90	17.10	4.80	1.22m/pcs
119.4/22.9	119.40	22.90	4.80	1.22m/pcs

Items	Test Mothods	Specifications
Operation temperature	IEC 216	-55°C ~ 110°C
Shrink temperature	Company Standard	120°C
Tensile strength	ASTM D2671	≥ 13MPa
Elongation	ASTM D2671	≥ 400%
Elongation after aging	ASTM D2671, 150°C ± 2°C, 168hrs	≥ 300%
Tensile strength after aging	ASTM D2671, 150°C ± 2°C, 168hrs	≥ 12MPa
Dielectric strength	IEC 243	≥ 20kV/mm
Volume resistivity	IEC 93	≥ 1 x 10^{14}Ω.cm
Copper corrosion	ASTM D2671	No corrosion
Water absorption	ISO62, 23°C, 14 days	≤ 0.2%

SGS FIBERGLASS TUBING

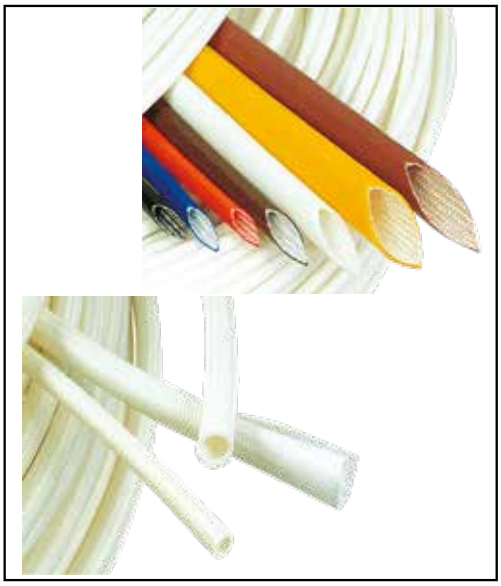
CB-SGS series tubing is flexible, flame-retardant, halogen-free and comprised of silicone resin continuously coated on electrical grade braided fibreglass tubing.
CB-SGS is widely used in many consumer appliances, lighting fixtures, stoves, oven and furnace controls, relays, breaker panels, switchgear and other commercial and industrial equipment.

Product No	SGS-15	SGS-25	SGS-40	SGS-70
Dielectric grade	C-2	C-1	B	A
Min. Ave. breakdown	1500V	2500V	4000V	7000V
Min. Individual	1000V	1800V	3000V	5000V
Operation temperature	-10°C ~ 200°C	-10°C ~ 200°C	-10°C ~ 200°C	-10°C ~ 200°C

Size: CB-SGS series are available in size 0.5mm through 25mm

SRS SERIES FIBERGLASS TUBING

Remarks:
CB-SRS_1, is Silicone rubber fibreglass (fiber inside and rubber outside)
CB-SRS_2, is Silicone rubber fibreglass (rubber inside and fiber outside)
CB-SRS series tubing is flexible, flame retardant, halogen free and is coated with silicone rubber under high temperature. It has good electrical insulation properties and is widely used in many consumer appliances, lighting fixtures, stoves, oven and furnace controls, relays, breaker panels, switchgear and other commercial and industrial equipment.



Product No	CB-SRS_1	CB-SRS_2
Dielectric grade	A	A
Min. Ave. breakdown	7000V	7000V
Min. Individual	5000V	6000V
Operation temperature	-10°C ~ 200°C	-10°C ~ 200°C

Size: CB-SRS series are available in size 1.0mm through 12mm

SRT SILICONE RUBBER TUBING

CB-SRT silicone rubber is ideally, suited for use in many automotive, home appliance, electrical/electronic, and aerospace custom rubber applications where resistance to both high and low temperature extremes is required.

Size: From 1mm through 15mm
Wall: 1mm
Basic Colour: Semi-transparent

HSCTM

HSC(TM) is used to identify wire and cable, tools, hoses and equipment in operating environments where temperatures range from -55°C to 135°C . It can withstand abrasion and exposure to cleaning solvents and other industrial fluids. Sleeves are flame-retardant and can be used for electrical insulation. This tubing can be custom printed with words and symbols on both sides by thermal transfer equipment and all markings are permanent after printing. Available in 2:1 and 3:1 shrink ratios and in many different sizes and shapes.
Certificate: UL, CUL, F-mark, Sony Green Partner Standard: UL224, AMS-DTL-23053/5, SAE-AS81531, MIL-STD-202 Standard colour: flat white and yellow

As Supplied			After Recovery		
Min ID (mm)	Nominal Wall (mm)	Max ID (mm)	Total Wall (mm)	Nominal Adhesive wall (mm)	CODE
					CB-DWT (3x)
3	0.57	1	1.00 ± 28	0.50	
4.8	0.57	1.5	1.00 ± 28	0.60	
6	0.57	2	1.00 ± 28	0.50	
9	0.64	3	1.40 ± 28	0.61	
12	0.80	4	1.78 ± 38	0.76	
19	0.93	6	2.25 ± 55	0.76	
24	1.00	8	2.54 ± 55	1.02	
31.8	1.00	11	2.54 ± 55	1.02	
38.1	1.00	13	2.54 ± 55	1.02	
50	1.00	17	2.54 ± 55	1.02	
					CB-DWT (4x)
4	0.40	1	1.00 ± 0.28	0.50	
8	0.40	2	1.10 ± 0.28	0.50	
12	0.50	3	1.40 ± 0.28	0.61	
16	0.60	4	1.78 ± 0.38	0.76	
24	0.75	6	2.25 ± 0.55	0.76	
32	0.80	8	2.54 ± 0.55	1.02	
52	0.80	13	2.60 ± 0.55	1.02	

Specification	
Shrink Temperature(°C)	110
Operating Temperature Range (°C)	55 - 125
Tensile Strength (Mpa)	≥ 10.4
Ultimate Elongation (%)	≥ 200
Radial shrinking ratio (%)	≥ 50
Longitudinal Change (%)	≤ 10
Aging in Circulating-air Oven	158.0 ± 1.0°C, 168hrs

After aging	
Tensile Strength(MPa)	≥ 7.3
Ultimate Elongation(%)	≥ 100
Volume Resistivity(Ω.cm)	≥ 1013
Dielectric Strength at 1 min AC2500V	No breakdown
Flammability	VW - 1
Water absorption	Less than 0.4%
Fluid Resistance	Excellent
Copper Corrosion	No Corrosion
Softening Point (°C)	120 ± 5
Tissue Strength (N/25mm)	>80

LK-22A - Cable and wire cutter for CU/AL

Cutting Range:	Up to 25mm^2
Length:	160mm
Max Diameter:	15mm
Weight:	0.19kg

Notes:
- Not Suitable for cutting steel wire, armoured cable and steel rope

LK-38A - Cable and wire cutter for CU/AL

Cutting Range:	Up to 35mm^2
Length:	190mm
Max Diameter:	7mm
Weight:	0.3kg

Notes:
- Not Suitable for cutting steel wire, armoured cable and steel rope

LK-22A - Cable and wire cutter for CU/AL

Cutting Range:	Up to 25mm^2
Length:	160mm
Max Diameter:	15mm
Weight:	0.19kg

Notes:
- Not Suitable for cutting steel wire, armoured cable and steel rope

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Length:	190mm
Max Diameter:	7mm
Weight:	0.3kg

Notes:
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Length:	160mm
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Weight:	0.19kg

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Cutting Range:	Up to 35mm^2
Length:	190mm
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Weight:	0.3kg

Notes:
- Not Suitable for cutting steel wire, armoured cable and steel rope

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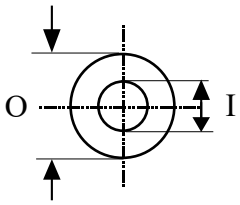


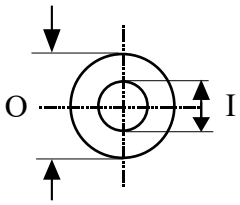
Nominal size (w)	Expanded range (1 - 10)		Code
mm	Min. (I)	Max. (O)	
3	1	6	53058
4	3	9	53059
5	5	16	53060
6	7	19	53061
8	8	24	53062
10	10	27	53063
12	14v	30	53064
14	18	35	53066
15	20	50	53065
16	30	60	53067
20	35	75	53068
25	40	80	53069
30	45	105	53070
40	64	120	53072
50			53073

Notes:
1. Nominal size indicates the flat width.
2. The Part No. will be followed by BK, YL, GN, RD and so on to indicate the colour of product.
3.This sleeving has expandable character, the following sizes are covered by the nearest: 16mm = 15mm, 19mm = 20mm, 32mm = 30mm, 38mm = 40mm, 51mm = 50mm
4. Special packages, sizes and colours can be supplied upon request
5. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Material	Polyester
Operating Range	-50°C ~ +150°C
Melt Point	250+/-5°C
Flammability	VW-1
Certificate	UL, CSA, RoHS, PFOS, REACH, Halogen Free
Standard Colour	Black and Grey
Cutting Tool	Hot Knife

PPS EXPANDABLE SLEEVING

Expandable braided sleeving is made of PolyPhenylene SOlfide (PPS) monofilament UL94 V-0. It is commonly used in high temperature environments. It has high abrasion resistance, chemical resistance, high temperature stability, low moisture absorption, excellent dimensional stability.



Nominal size (w)		Expanded range		Code
Inch	mm	Min. (I)	Max. (O)	
1/8”	3	1	6	
1/4”	6	3	9	
5/16”	8	5	16	
3/8”	10	7	19	
1/2”	12	8	24	
5/8”	15	10	27	
3/4”	20	14	30	
1”	25	18	35	
1-1/4”	30	20	50	
1-1/2”	40	30	60	
1-3/4”	45	35	75	
2”	50	40	80	
2-1/2”	64	45	105	
3”	76	64	120	

Notes:
1. Nominal size indicates the flat width.
2. The Part No. will be followed by BK, YL, GN, RD and so on to indicate the colour of product.
3.This sleeving has expandable character, the following sizes are covered by the nearest: 16mm = 15mm, 19mm = 20mm, 32mm = 30mm, 38mm = 40mm, 51mm = 50mm
4. Special packages, sizes and colours can be supplied upon request
5. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Material	PPS (PolyPhenylene Sulfide)
Operating Range	-70°C ~ +200°C
Melt Point	285°C
Flammability	UL 94 V-0
Certificate	RoHS
Standard Colour	Black and Grey
Cutting Tool	Hot Knife
Other Features	Acids, solvents and fuels resistant

JJD-FrH expandable sleeving offers an excellent protection in many industrial applications and also can provide an agreeable personalization and identification of the brand. It's possible to realise a wide range of patterns and colours upon request.

Nominal Size (W)		Expanded range		Code
		Min. (I)	Max. (O)	
1/8"	**3**	**1**	**6**	
1/4"	6	3	9	
5/16"	8	5	16	
3/8"	10	7	19	
1/2"	12	8	24	
5/8"	15	10	27	
3/4"	20	14	30	
11"	25	18	35	
1-1/4"	30	20	50	
1-1/2"	40	30	60	
1-3/4"	45	35	75	
2"	50	40	80	
2-1/2"	64	45	105	
3"	76	64	120	

Notes:
1. Nominal size indicates the flat width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the sleeving
3. This sleeving has expandable characters, the following sizes are covered by the nearest: 16mm = 15mm, 19mm = 20mm, 32mm = 30mm, 38mm = 40mm, 51mm = 50mm
4. Special packages, sizes and colours can be supplied upon request
5. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Material	Polyester
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black and Colour
Certificates	UL, CSA, RoHS, PFOS, REACH, Halogen Free
Cutting Tool	Hot Knife

HEAT SHRINK CABLE END CAP

Insulcap is used to seal the ends of all types of cables & protect from ingress of water/moisture. The caps are manufactured from high quality cross linked polyolefin material.
Compatible with most commonly used Cable jackets i.e. XLPE, PVC, PILC or rubber sheathed cable.
Hot melt adhesive lining provides permanent seal on irregular cable sheaths.
Excellent resistance to weathering, moisture, contamination and adverse environmental conditions, according to IP 68 (Ingress Protection)
- Tamper Proof application: Custom logo/print with special non-removable ink marks permanent seal on End cap after Shrinking, thereby avoiding claims in case of Pilferage of cable length.
- Valved End caps (V0 available for pressurized application for Telecom cables
- Special Relief valved End caps (RV) available for degassing application in High Voltage Power cables.
- Live end cap kit available for sealing Live Cables.
- Conductive End caps are available with Conductive mastic

Cable Range	Ds	Df	Ls	Tf	
	min	max	min	±10%	
2.5 - 4	**6**	**2**	**25**	**2.0**	
2.5 - 6	8	2	25	2.0	
5 - 8	12	4	40	2.3	
5 - 8	12	4	58	2.3	
5 - 11	14	4	40	2.3	
5 - 11	14	4	58	2.3	
10 - 16	20	7.5	55	2.3	
10 - 16	20	8	75	2.5	
10 - 20	25	8	55	2.3	
10 - 20	25	8	75	2.5	
13 - 26	3	11	75	2.5	
13 - 26	30	11	110	2.5	
13 - 30	35	11	75	2.5	
13 - 30	35	11	115	2.5	
17 - 35	40	15	90	3.3	
17 - 35	40	15	120	3.3	
17 - 40	45	15	90	3.3	
17 - 40	45	15	120	3.3	
30 - 47	55	25	125	3.5	
30 - 47	55	25	170	3.5	
30 - 55	63	25	125	3.5	
30 - 55	63	25	170	3.5	
42 - 68	75	35	140	4.0	
42 - 68	75	35	180	4.0	
42 - 78	85	36	140	4.0	
42 - 78	85	35	180	4.0	
55 - 90	100	45	160	4.0	
55 - 90	100	45	200	4.0	
55 - 110	120	45	160	4.0	
55 - 110	120	45	200	4.0	
75 - 120	130	60	160	4.6	
75 - 120	130	65	300	4.6	
75 - 145	158	60	165	4.6	
75 - 145	158	65	165	5.5	
75 - 145	160	65	300	4.5	
140 - 165	190	125	220	4.0	
140 - 200	230	125	220	4.0	
140 - 280	310	120	220	7.0	
230 - 360	400	204	220	6.0	
230 - 460	500	204	220	6.0v	

Technical Data		
PROPERTIES	**VALUE**	**STANDARD**
Physical		
Tensile Strength	$_{12}$ N/mm^2 (Mpa) (min.)	ASTM D_{638}
Ultimate Elongation	350% (min)	ASTM D_{638}
Density	1.05 ± 0,2 gm/cm^2	ASTM D_{792}
Hardness	45 ± 10 Shore D	ASTM D_{2240}
Water Absorption	0.2% (max.)	ASTM D_{570}
Thermal		
Accelerated ageing	(120ºC for 500hrs)	ASTM D_{2671}
Tensile Strength	11 N/mm2 (Mpa) (min)	ASTM D_{638}
Ultimate Elongation	300% (min)	ASTM D_{638}
Low Temp. Flexibility	No Cracking	ASTM D_{2671}
(-40ºC for 4 hrs)		
Heat Shock (250ºC for 30 min)	No cracking or flowing	ESI 09-11
Shrink Temperature	125ºC	IEC 216
Continuous Temp. Limit	-40 to +100ºC	IEC 216
Electrical		
Dielectric Strength	12kV/mm (min)	ASTM D149
Volume Resistivity	1 x 10^{14} Ohm.cm (min)	ASTM D257
Dielectric Constant	5 (max)	ASTM D150

JDD-PA braided sleeving is made of nylon 6.6 monofilament which offers excellent performance of abrasion resistance. It maintains a high degree of flexibility and it can resists to many chemical agents. Uniquely shaped monofilament provides smooth, soft, slick surface resisting snags when dragged over rough surfaces.

Nominal Size (W)		Expanded range		Code
		Min. (I)	Max. (O)	
1/8”	**3**	**1**	**6**	
1/4”	6	3	9	
5/16”	8	5	16	
3/8”	10	7	19	
1/2”	12	8	24	
5/8”	16	10	27	
3/4”	19	14	30	
11”	25	18	35	
1-1/4”	32	20	50	
1-1/2”	38	30	60	
1-3/4”	45	35	75	
2”	50	40	80	
2-1/2”	64	45	105	
3”	76	64	120	

Notes:
1. Nominal size indicates the flat width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the sleeving
3. This sleeving has expandable characters, the following sizes are covered by the nearest: 16mm = 15mm, 19mm = 20mm, 32mm = 30mm, 38mm = 40mm, 51mm = 50mm
4. Special packages, sizes and colours can be supplied upon request
5. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Material	Polyester
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black and Colour
Certificates	UL, CSA, RoHS, PFOS, REACH, Halogen Free
Cutting Tool	Hot Knife

SELF-CLOSING CABLE WRAP

JDD-SCS self-closing wrap is a non-expandable sleeving woven from monofilament (weft) and multifilament (warp) polyester yarns. It provides a lightweight, cost-effective and tough solution for the protection of a wide range of components. Its inherent flexibility allows it to bend, coil and conform to irregular shapes, while its open design allows it to be installed on completed assemblies.

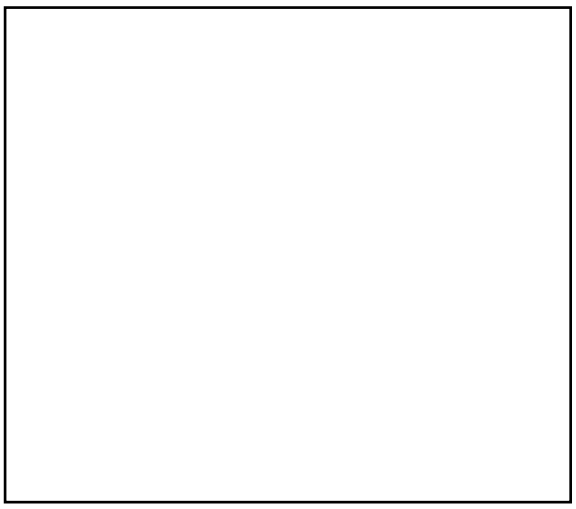
Size (d)	Max. bundle Dia.	Code
5.0	**6.0**	
8.0	9.0	
10.0	11.0	
13.0	14.0	
16.0	17.0	
19.0	20.0	
25.0	27.0	
29.0	31.0	
32.0	34.0	
38.0	40.0	
50.0	52.0	

Notes:
1. Nominal size indicates the flat width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the sleeving
3. This sleeving has expandable characters, the following sizes are covered by the nearest: 16mm = 15mm, 19mm = 20mm, 32mm = 30mm, 38mm = 40mm, 51mm = 50mm
4. Special packages, sizes and colours can be supplied upon request
5. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Material	Polyester monofilament and multifilament
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	DIN5510, BS6853
Standard Colour	Black
Certificates	RoHS
Cutting Tool	Hot Knife

Self-closing braided wrap

JDD-SCW self closing wrap offers innovative solutions for the protection of breakout areas and provides easy removal when it is necessary for an inspection or maintenance of cables. The special open structure allows to be installed after other components, for example copper terminals an connectors. A strong resilience protects wires and cables and meanwhile provides exceptional abrasion and flame resistance.



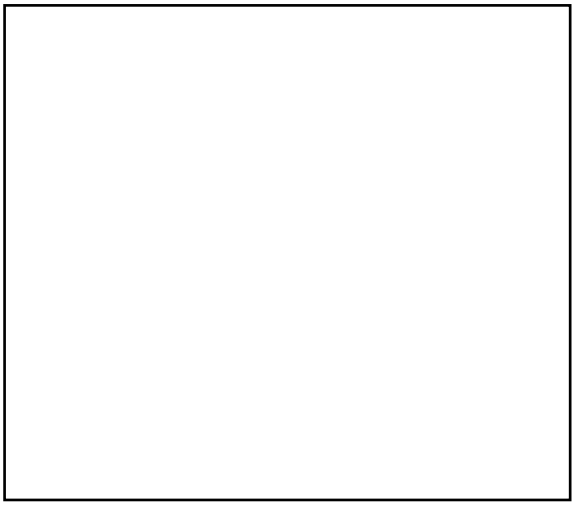
Size (d)	Overlap (%)	Max. bundle Dia.	Code
6	25%	7	
9		10	
13		14	
16		17	
19		20	
25		26	
32		33	
38		40	
50		52	

Technical Data	
Material	Polyester
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	UL94-V2
Standard Colour	Black
Certificates	RoHS, Halogen Free
Cutting Tool	Hot Knife, Scissors

Notes:
1. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
2. Special packages, sizes and colours can be supplied upon request
3. All numerical data are average or typical value, not including customised sizes.

POLYESTER SELF-CLOSING WRAP

JDD-SCP self-closing wrap is woven by flammability class UL 94 V0 polyester monofilament. It provides excellent flame resistance, heat dispersion and durable protection. The special open structure provides easy removal when necessary for an inspection or maintenance of wire harnesses.



Size (d)	Overlap (%)	Max. bundle Dia.	Code
5	75%	6	
8		9	
1		14	
19		20	
25		26	
29		30	
38		40	

Technical Data	
Material	Polyester
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	DIN5510, VW-1
Standard Colour	Black
Certificates	RoHS, Halogen Free
Cutting Tool	Hot Knife, Scissors

Notes:
1. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
2. Special packages, sizes and colours can be supplied upon request
3. All numerical data are average or typical value, not including customised sizes.

VELCRO MULTIFILAMENT WRAP

JDD-PVTW Velcro multifilament wrap is a non-expandable sleeving woven from polyester multifilament yarns. It has lightweight, high strength, excellent flame and abrasion resistance. The product can be easily wrapped and closed over the cable bundle. It can be re-opened rapidly to permit cables to be added or removed and breakouts can be made simple by bringing cables our through the Velcro.

I.D. (I)	Spread width (W)	Code
20	**80**	
25	**95**	
30	**115**	
35	**130**	
40	**146**	
45	**162**	
50	178	

Technical Data	
Material	Polyester
Operating range	-60º - +125ºC
Melt Point	230 +/- 10ºC
Flammability	VW-1
Standard Colour	Black
Certificates	RoHS, Halogen Free
Cutting Tool	Hot Knife

Notes:
1. I.D. indicates round inner diameter. Nominal size indicates the flat width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
3. Special packages, sizes and colours can be supplied upon request
4. All numerical data are average or typical value, not including customised sizes.

VELCRO BRAIDED WRAP

JDD-VCW Velcro braided wrap can help to create a tidy and well-regulated environment. It can be easily wrapped and closed over the cables. It can be re-opened rapidly to manage cables to be added or removed and breakouts can be made simply by bringing cables out through Velcro. Open weave design easily conforms to many irregular shapes.

Nominal size	Velcro width	Max. bundle dia.	Code
13	**10**	**8**	
19	**10**	**12**	
32	**20**	**20**	
51	**20**	**32**	
64	**20**	**40**	

Technical Data	
Wrap Material	Polyester
Velcro Material	Polyamide
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black, white and grey
Certificates	RoHSvvv
Cutting Tool	Hot Knife

Notes:
1. I.D. indicates round inner diameter. Nominal size indicates the flat width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
3. Special packages, sizes and colours can be supplied upon request
4. All numerical data are average or typical value, not including customised sizes.

VELCRO SHIELDING WRAP

SSW Velcro shielding wrap consists of a highly flexible tinned copper shielding mesh using an internal shield overlap, a grounding strap and a heavy duty zipper wrap. It is not only providing excellent EMI shielding, but also good anti-noise, flame retardant and anti-abrasion.

I.D. (I)	O.D. (O)	Code
16	10-16	
20	17-20	
30	21-30	
50	31-50	

Notes:
1. I.D. indicates round inner diameter. Nominal size indicates the flat width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
3. Special packages, sizes and colours can be supplied upon request
4. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Wrap Material	Polyester
Velcro Material	Polyamide
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	DIN5510
Standard Colour	Black, white and grey
Certificates	RoHS, Halogen Free, DIN$_{5510}$
Cutting Tool	Scissors

VELCRO CARPET WRAP

JDD-DHS double hook wrap consist of polyester multifilament and nylon Velcro. It's a good idea for fixing and protecting the wire and cable which are exposed in carpeted area. The special construction makes it easy to remove from the wire and cable. This kind of product can offer excellent abrasion resistance.

Nominal size (W)	Wall Thickness (T)	Code
76	0.7	
100	0.7	

Notes:
1. I.D. indicates round inner diameter. Nominal size indicates the flat width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
3. Special packages, sizes and colours can be supplied upon request
4. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Wrap Material	Polyester multifilament
Velcro Material	Polyamide
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black
Certificates	RoHS
Cutting Tool	Scissors and Hot Knife

ZIPPED BRAIDED WRAP

JDD-ZW can install a sleeving on the cable easily just like closing your coat with a zipper. Zipper braided wrap can offer this solution for you. It can offer an additional protection against flame and abrasion. It allows you to install and uninstall wires and cables very quickly and easily due to its special structure.

Nominal size (W)	Max Bundle Dia. (I)	Code
12	8	
20	15	
30	20	
50	35	
64	45	

Notes:
1. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
2. Special packages, sizes and colours can be supplied upon request
3. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Wrap Material	Polyester
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black
Certificates	RoHS

PET high anti-abrasion sleeving

JDD-FRL has an abrasion resistance 300% more than standard Polyester expandable sleeving. It is a good solution for where conflict happen between different parts, meanwhile critical surface protection is required. It provides exceptional mechanical characteristics with flexible and high abrasion, easy to slip on a bundle of cables.

Nominal size (W)		Expanded range		
Inch	mm	Min (I)	Max (O)	Code
1/8”	3	1	6	
1/4”	6	3	9	
5/16”	8	5	16	
3/8”	10	7	19	
1/2”	12	8	24	
5/8”	16	10	27	
3/4”	19	14	30	
1”	25	18	35	
1-1/4”	32	20	50	
1-1/2”	38	30	60	
1-3/4”	45	35	75	
2”	50	40	80	
2-1/2”	64	45	105	
3”	76	64	120	

Notes:
1. Nominal size indicates the flar width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
3. This sleeving has expandable characters, the following sizes are covered by the nearest: 16mm = 15mm, 19mm = 20mm, 32mm = 30mm, 38mm = 40mm, 51mm = 50mm
4. Special packages, sizes and colours can be supplied upon request
5. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Wrap Material	Polyester
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black
Certificates	RoHS, UL, CSA, REACH, Halogen Free
Cutting Tool	Hot Knife

COLD CUT SLEEVING

JDD-CC cold cut sleeving can be cut with a common scissors without obvious fray. It has more advantages than standard polyester sleeving, softer and easier to be used in the outdoor field where the power of a hot knife could not be available. It also provides the same excellent protection of anti-abrasion as standard polyester sleeving.

Nominal size (W)		Expanded range		
Inch	mm	Min (I)	Max (O)	Code
1/8”	3	1	5	
1/4”	6	3	8	
5/16”	8	5	10	
3/8”	10	7	12	
1/2”	12	8	14	
5/8”	16	10	18	
3/4”	19	14	23	
1”	25	18	28	
1-1/4”	32	20	35	
1-1/2”	38	30	42	
1-3/4”	45	35	48	
2”	50	40	54	
2-1/2”	64	45	70	
3”	76	64	80	

Notes:
1. Nominal size indicates the flar width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
3. This sleeving has expandable characters, the following sizes are covered by the nearest: 16mm = 15mm, 19mm = 20mm, 32mm = 30mm, 38mm = 40mm, 51mm = 50mm
4. Special packages, sizes and colours can be supplied upon request
5. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Wrap Material	Polyester
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black and grey
Certificates	RoHSUL, CSA, RoHS
Cutting Tool	Scissors

JDD-HSS heat shrinkable braided sleeving consists of polyester multifilament and special modified polyolefin filament, it will shrink when exposed to heat, this unique woven construction makes it extremely flexible, easy to install on the hoses with irregular shapes. It is suitable to use in rough environments, providing excellent abrasion resistance and noise reduction.

As supplied (D)	After recovered (d)	Code
10.0	5.0	
12.0	6.0	
20.0	10.0	
25.0	12.5	
30.0	15.0	
34.0	17.0	
40.0	20.0	
50.0	25.0	
60.0	30.0	
70.0	35.0	
80.0	40.0	

Notes:
1. Nominal size indicates the flar width.
2. The part number will be followed with BK, GR and so on to indicate the colour of the wrap
3. Special packages, sizes and colours can be supplied upon request
4. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Wrap Material	Polyolefin & Polyester
Operating range	-40º - +125ºC
Shrinkage Temp	110º - 185ºC
Minimum Fully recovery temp	120ºC
Shrink ratio	2:1
Standard Colour	Black
Certificates	RoHS, Halogen Free
Tool	Heat gun, Oven

POLYESTER TEXTILE SLEEVE

JDD-NSSP polyester textile sleeve consists of polyester multifilament. With the particularly smooth inner wall, it could reduce the frictional resistance problems, provides easy installation. The tight woven construction helps dispense the flow of fluid in aruptured hose.

Flat width (W)	Round I.D.	Wall Thick-ness (T)	Code
27	17	1.0	
31	20	1.0	
36	23	1.0	
39	25	1.0	
42	27	1.0	
49	31	1.0	
52	33	1.0	
54	36	1.0	
63	40	1.0	
69	44	1.0	
74	47	1.0	
83	53	1.0	
86	55	1.0	
94	60	1.0	
104	66	1.0	
115	73	1.0	
146	93	1.0	
176	112	1.0	

Notes:
1. Special packages, sizes and colours can be supplied upon request
2. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Wrap Material	Polyester
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black with white printing (other colours on request)
Certificates	RoHS, ISO 6945, MSHA
Cutting Tool	Scissors and hot knife

JDD-NSSN nylon textile protective sleeve consists of nylon multifilament. This kind of tubular sleeves are uniquely designed for the protection of people, environment and machinery against any possible hydraulic hose oil leakage or spill. The tight woven construction can provide excellent abrasion resistance and high degree of burst resistance.

Flat width (W)	Round I.D.	Wall Thick-ness (T)	Code
27	17	1.0	
31	20	1.0	
36	23	1.0	
39	25	1.0	
42	27	1.0	
49	31	1.0	
52	33	1.0	
54	36	1.0	
63	40	1.0	
69	44	1.0	
74	47	1.0	
83	53	1.0	
86	55	1.0	
94	60	1.0	
104	66	1.0	
115	73	1.0	
146	93	1.0	
176	112	1.0	

Notes:
1. Special packages, sizes and colours can be supplied upon request
2. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Wrap Material	Polyester
Operating range	-60º - +125ºC
Melting Point	230+/-10ºC
Standard Colour	Black with white printing (other colours on request)
Certificates	RoHS, ISO 6945, MSHA
Tool	Scissors and hot knife

FIRE-PROOF SLEEVING

Fire-proof sleeving is fabricated from a dense E-glass fibreglass with a thick coating of self-extinguishing high temperature silicone rubber which in engineered to protect hoses, cables and wire harness from damage due to exposure to extreme heat, open flame and moulten splash.

Fire-proof sleeving also provides a high degree of insulation value, protecting hot or cold or cryogenic lines, pipes and tubing from heat and cold loss, proving energy savings and abrasion resistance.

ID (d) mm	(D) mm	Wall thick-ness (mm)	Code
15±2	19±2	2.2	
20±2	25±2	2.5	
25±2	31±2	2.8	
30±2	36±2	3.0	
35±2	41±2	3.2	
40±2	47±2	3.5	
45±2	53±2	3.8	
50±3	59±3	4.0	
55±3	64±3	4.2	
60±3	70±3	4.5	
65±3	75±3	4.5	
70±3	80±3	4.8	
75±3	85±3	4.8	
80±3	90±3	5.0	
85±3	96±3	5.3	
90±3	101±3	5.6	
95±3	106±3	5.8	
100±3	112±3	6.0	

Notes:
1. Special packages, sizes and colours can be supplied upon request
2. All numerical data are average or typical value, not including customised sizes.

Technical Data	
Sleeving Material	Fibreglass fibre
Coating Material	Silicone
Operating range	-50º - +150ºC
Melt Point	240 +/- 10ºC
Flammability	VW-1
Standard Colour	Black with white printing (other colours on request)
Certificates	RoHS, ISO 6945, MSHA
Cutting Tool	Scissors and hot knife