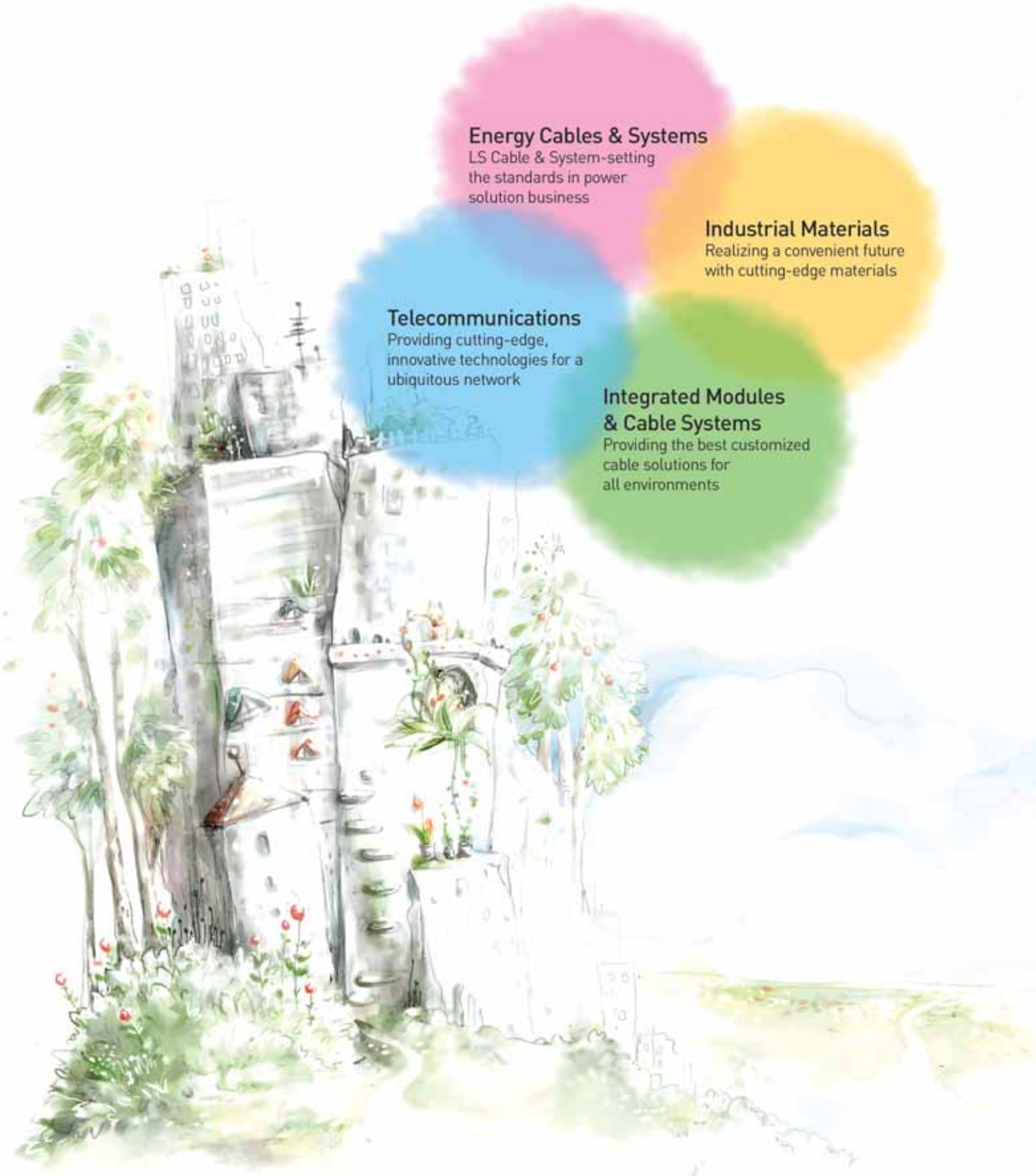
LS Cable & System
Leading Solution

LS TUBE

LS Heat-Shrinkable Tubing




Energy Cables & Systems
LS Cable & System-setting the standards in power solution business
Industrial Materials
Realizing a convenient future with cutting-edge materials
Telecommunications
Providing cutting-edge, innovative technologies for a ubiquitous network
Integrated Modules & Cable Systems
Providing the best customized cable solutions for all environments

Total Solution Provider for Electric Power and Telecommunication Industries

LS Cable & System, the longtime de facto holding company of LS Group, officially transformed into a holding company in July of 2008. The company's operations now encompass a total solution for electric power and telecommunication industries.

The latest change in corporate structure comes as the company is accelerating efforts to improve management efficiency in rapidly expanding markets. The move also results from efforts to effect a more responsible and transparent management structure. Management is now prepared to take more aggressive action to enhance our businesses and to identify new growth engines. The holding company will take the lead in fostering new growth engines and in identifying lucrative investment opportunities, while the company's other business units will focus on improving management and on making operations more efficient. With the continued support of the holding company, LS Cable & System will spearhead efforts to strengthen our business expertise, corporate competitiveness and management.

Toward the Global Leading Cable Company

In August of 2008 LS Cable & System acquired Superior Essex, North America's largest cable company, making LS Cable & System the third-largest player in the global cable industry. Superior Essex's flagship line of magnet wires and telecommunication cables further strengthened LS Cable & System's product lineup, which had focused on power cables, fiber optic cables and industrial materials. Superior Essex's extensive North America and European production and distribution networks will help LS Cable & System cement a presence in the region and bring the company one step closer to becoming a full-fledged global enterprise.

Superior Essex

Superior Essex Inc., a FORTUNE 1,000 company, is one of the largest wire and cable manufacturers in the world. The company manufactures and supplies a broad portfolio of wire and cable products for the communications, energy, automotive, industrial, and commercial & residential end-markets. It is a leading manufacturer of magnet wire, fabricated insulation products, and copper and fiber optic communications wire and cable. It is also a leading distributor of magnet wire, insulation and related products.

LS TUBE

Heat Shrink Technology



LS Tube, a division of LS Cable & System, covers a complete range of heat-shrinkable tubing products, all of which are developed to meet industry requirements, including AMS-DTL-23053, UL and CSA. Our cross link technology assures the reliable quality of our products and provides lot-to-lot consistency.

Our commitment to develop solutions to address our customers needs and challenges keep our heat shrink technology on the cutting edge and our know-how in the field more valuable.






This booklet covers most of our products and their detailed product information. On the next page you will be guided how to decode the serial number; quickly identify the features and specifications of products; and describe specific products to our sales representative.

For a quick overview and selection of all products, please refer to Quick Selection Chart.

If you have a question or request please contact our Sales & Service team at offices worldwide, which are listed in Global Network. For the updates please visit our website www.lscable.com.

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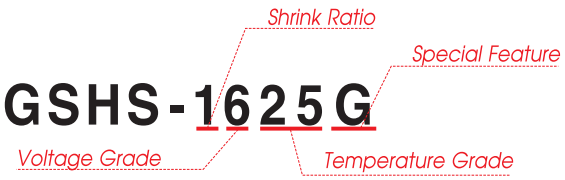
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How to read the product serial number



Shrink Ratio

1 indicates 50% (2:1)
2 indicates 30% (3:2)
3 indicates 65% (3:1)
4 indicates 75% (4:1)

Voltage Grade

3 indicates 300V
6 indicates 600V

Except for 6 in 1625GT, which indicates 300V

Temperature Grade

05 indicates 105℃
25 indicates 125℃
35 indicates 135℃
50 indicates 150℃
75 indicates 175℃
90 indicates 90℃

Special Feature

T for Thin-wall
W for Waterproof with an adhesive
N for Non flame retardant
S for Semi-rigid
F for Flexible
HF for Halogen free
G for Non toxic

How to read the visual cues



This visual cue indicates that the product has such shrink ratio as shown.



This visual cue indicates that the product is flame retardant.



This visual cue indicates that the product has a dual wall (adhesive applied).



This visual cue indicates that the product meets AMS Specifications.

How to order our products

To order our products please contact our sales team

12F~17F, LS Tower, 127 LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, 431-848, Korea
Tel. 82-2-2189-9239 Fax. 82-2-2189-8991
E-mail. ohit@lscns.com

When you order our products

please specify the following information to our sales representative :
Product serial number / Wall thickness x Size of diameter / Color of the product,
e.g. GSHS-4635WT / 0.25mm x 3.5mm / Black

Quick Selection Chart

Type	Product	Shrink Ratio	Minimum Shrink Temperature (℃)	Operating Temperature (℃)	Voltage (V)	Flame Retardant	Adhesive	UL File No.	CSA File No.	AMS Spec.	Standard Color	Special Color
Single Wall	GSHS-1625G	2:1	90	-55 ~ 125	600	■		E84393			■	
	GSHS-1625G-HF					■						
	GSHS-1625GT-HF		80		300	■						
	LS-1625FS		90		600	■						
	GSHS-1635F			-55 ~ 135	600			E84393	LR55659	AMS-DTL-23053/5		
	GSHS-1635F YL/GN					■						
	GSHS-1635S		130			■				AMS-DTL-23053/6	■	
	GSHS-3635	3:1	90			■		E84393				
	GSHS-4635	4:1				■		E153276				
Dual Wall	GSHS-1625BS	3:1	130	-55 ~ 105	600		■	E153276			■	
	GSHS-1625W	2:1	120	-55 ~ 125		■	■			AMS-DTL-23053/4 class2		
	GSHS-2690NW	3:2		-30~90			■					
	LS-2690R						■					
	GSHS-3625WS	3:1	130	-55~135	600	■	■	E153276		AMS-DTL-23053/4 class1		
	GSHS-3635W		120			■	■			AMS-DTL-23053/4 class3		
	GSHS-4635WS	4:1	130			■	■					
	GSHS-4635WT		120			■	■					
	GSHS-4650WS		130			■	■					
	LG-CATV	3:1	120	-55 ~ 120			■					
	LS-PHWT-FR					■	■	E84393				
	LS-PMWT-FR					■	■					
Special	GSHS-1675	2:1	175	-55 ~ 175	600	■		E84393	LR55659	AMS-DTL-23053/8		
	LG-BBHV	2.5:1	120			■						
	LG-BBLV				2500	■						
	CRFR	2:1	135	-70 ~ 121	1000	■				AMS-DTL-23053/1 class2	■	
	DRET			-75 ~ 120		■				AMS-DTL-23053/16		
	LS-DR150		175	-75 ~ 150		■						
	LS-V200			-55 ~ 200		■				AMS-DTL-23053/13		
	LG-GSP	3:1	90	-55 ~ 105		■						
Non Heat-shrinkable	EIT-600			-55 ~ 125	600	■		E153276				
	TITR-600			-55 ~ 175		■						
	SPIT-HF			-55 ~ 105	300	■		E340792				

white yellow red blue green gray violet orange brown clear YL/GN

For clear products, UL & CSA recognizations are not available (including flame retardant).
Operating temperature range is based on crosslinked outer wall.

GSHS-1625G

Non-toxic Flexible Polyolefin Tubing



Special Features

- Low smoke and acid gas emission.
- It has excellent flame retardance, flexibility, and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.

Key Specifications

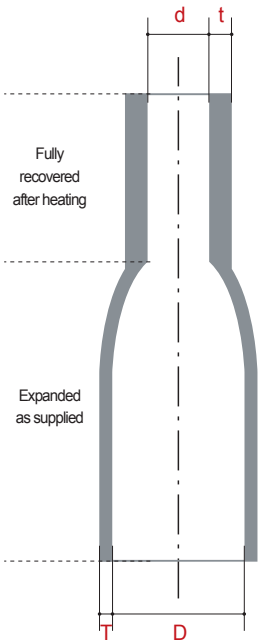
- Operating temperature range : -55℃ ~ 125℃(except clear products)
- Flammability : UL VW-1, -F- mark(except clear products)
- Minimum shrink temperature : 90℃
- Shrink ratio : 50% or more in radial direction
- Standards
  UL 224(File No. E84393 : VW-1, 600V, 125℃, except clear products)

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 412 UL 224
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 412 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Low temperature flexibility		No crack @ −30℃x1hrs	ASTM D 2671
	Secant modulus		Max. 173MPa	UL 224
Electrical	Dielectric voltage withstand	Unaged	Min. 2,500V/1min.	UL 224
		Aged		158℃/168hrs
	Volume resistivity		Min. 1×10^{14} Ω−cm	ASTM D 257
Chemical	Copper corrosion		No corrosion	UL 224
	Flammability		Pass	UL 224

Available Colors

black | white | yellow | red | blue | green | gray | violet | orange | brown | clear

Dimension



• Size range : 1 ~ 60 mm (3/64 ~ 5 inch), special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	1.0	1.0	0.50	0.20	0.36	200
	1.5	1.5	0.75	0.20	0.36	200
	2.0	2.0	1.00	0.20	0.44	200
	2.5	2.5	1.25	0.25	0.44	200
	3.0	3.0	1.50	0.25	0.44	200
	3.5	3.5	1.75	0.25	0.44	200
	4.0	4.0	2.00	0.25	0.44	200
	5.0	5.0	2.50	0.25	0.56	100
	5.5	5.5	2.75	0.25	0.56	100
	6.0	6.0	3.00	0.25	0.56	100
	7.0	7.0	3.50	0.25	0.56	100
	8.0	8.0	4.00	0.25	0.56	50
	9.0	9.0	4.50	0.25	0.56	75
	10.0	10.0	5.00	0.25	0.56	75
	11.0	11.0	5.50	0.25	0.56	75
	12.0	12.0	6.00	0.25	0.56	75
	13.0	13.0	6.50	0.30	0.69	75
	14.0	14.0	7.00	0.30	0.69	50
	15.0	15.0	7.50	0.30	0.69	50
	16.0	16.0	8.00	0.30	0.69	50
	18.0	18.0	9.00	0.35	0.76	50
	20.0	20.0	10.00	0.35	0.76	50
	22.0	22.0	11.00	0.40	0.76	50
	24.0	24.0	12.00	0.40	0.76	50
	25.0	25.0	12.50	0.40	0.86	50
	26.0	26.0	13.00	0.40	0.86	50
	28.0	28.0	14.00	0.40	0.86	50
	30.0	30.0	15.00	0.40	0.86	50
	32.0	32.0	16.00	0.40	0.86	50
	38.0	38.0	19.00	0.43	0.86	31
	50.0	50.0	25.00	0.50	0.97	31
	60.0	60.0	30.00	0.55	1.07	31
U.S. Customary System (Inch)	3/64	1.2	0.58	0.20	0.33	200
	1/16	1.6	0.79	0.20	0.36	200
	3/32	2.4	1.17	0.25	0.43	200
	1/8	3.2	1.57	0.25	0.43	200
	3/16	4.8	2.36	0.25	0.43	100
	1/4	6.4	3.18	0.30	0.56	100
	3/8	9.6	4.75	0.30	0.56	100
	1/2	12.7	6.35	0.30	0.56	50
	3/4	19.1	9.53	0.35	0.69	50
	1	25.4	12.70	0.40	0.76	50
	1-1/2	38.1	19.00	0.43	0.86	50
	2	50.8	25.40	0.50	0.97	31
	2-1/2	63.5	31.75	0.55	1.17	31
	3	76.2	38.10	0.60	1.17	31
	4	101.6	50.80	0.70	1.17	31
	5	127.0	63.50	0.70	1.17	31

GSHS-1625G-HF

Halogen Free, Flexible Polyolefin Tubing



Special Features

- The shrinking temperature is very low and it can shrink very quickly.
- Narrow size range that covers a wide range of diameters, allowing reduced inventory.
- It accommodates an irregular or jagged shape.
- It has excellent fire-resistance, flexibility, and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wire.

Key Specifications

- Operating temperature range : -55℃ to 125℃.
- Flammability : UL VW-1
- Minimum shrink temperature : 90℃.
- Shrink ratio : 50% or more in radial direction.

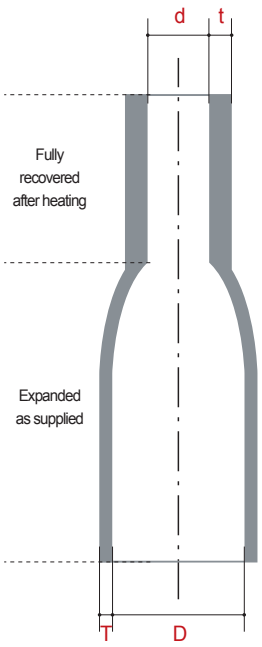
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 412 UL 224
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 412 UL 224 153℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Low temperature flexibility		No crack @ -30℃x1hrs	ASTM D 2671
	Secant modulus		Max. 173MPa	UL 224
Electrical	Dielectric Voltage withstand	Unaged	Min. 2500V/1min.	UL 224
		Aged		158℃/168hrs
	Volume resistivity		Min. $1x10^{14}$ Ω-cm	ASTM D 257
Chemical	Copper corrosion		No corrosion	UL 224 158℃/168hrs
	Copper stability Elongation		No sign of degradation Min. 100%	
	Flammability (VW-1)		Pass	UL 224

Available Colors

black

Dimension

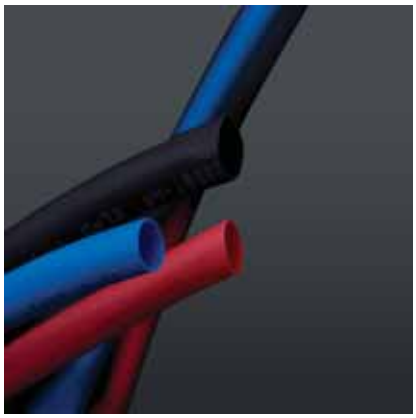
• Size range : 1 ~ 10mm, special size are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	1.0	1.0	0.50	0.20	0.36	200
	1.5	1.5	0.75	0.20	0.36	200
	2.0	2.0	1.00	0.20	0.44	200
	2.5	2.5	1.25	0.25	0.44	200
	3.0	3.0	1.50	0.25	0.44	200
	3.5	3.5	1.75	0.25	0.44	200
	4.0	4.0	2.00	0.25	0.44	200
	5.0	5.0	2.50	0.25	0.56	100
	5.5	5.5	2.75	0.25	0.56	100
	6.0	6.0	3.00	0.25	0.56	100
	7.0	7.0	3.50	0.25	0.56	100
	8.0	8.0	4.00	0.25	0.56	100
	9.0	9.0	4.50	0.25	0.56	100
	10.0	10.0	5.00	0.25	0.56	100

GSHS-1625GT-HF

Halogen Free, Flexible, Thin-wall Polyolefin Tubing



Special Features

- Low smoke and acid gas emission.
- Its particularly rapid installation reduces the possibility of damage to sensitive components.
- It has excellent flame retardance, flexibility, and insulation.
- Halogenfree

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.

Key Specifications

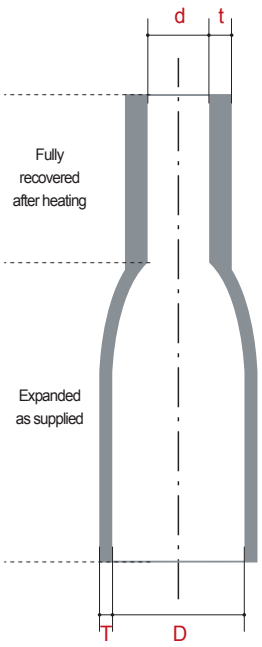
- Operating temperature range : -55℃~ 125℃
- Flammability : UL VW-1
- Minimum shrink temperature : 80℃
- Shrink ratio : 50% or more in radial direction

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 412 UL 224
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 412 UL 224 153℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Low temperature flexibility		No crack @ -30℃x1hrs	ASTM D 2671
	Secant modulus		Max. 173MPa	UL 224
Electrical	Dielectric Voltage withstand	Unaged	Min. 2500V/1min.	UL 224
		Aged		158℃/168hrs
	Volume resistivity		Min. $1x10^{14}\Omega$-cm	ASTM D 257
Chemical	Copper corrosion		No corrosion	UL 224 158℃/168hrs
	Copper stability Elongation		No sign of degradation Min. 100%	
	Flammability (VW-1)		Pass	UL 224
	Halogen content		Br < 800ppm Cl < 800ppm	

Available Colors

black

Dimension



• Size range : 1 ~ 10mm(3/64 ~ 1/4 inch), special size are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	1.0	1.0	0.50	0.10	0.18	100
	1.5	1.5	0.75	0.10	0.18	100
	2.0	2.0	1.00	0.10	0.18	200
	2.5	2.5	1.25	0.15	0.25	200
	3.0	3.0	1.50	0.15	0.25	200
	3.5	3.5	1.75	0.15	0.25	200
	4.0	4.0	2.00	0.15	0.25	200
	5.0	5.0	2.50	0.15	0.25	100
	6.0	6.0	3.00	0.15	0.25	100
	7.0	7.0	3.50	0.15	0.25	100
	8.0	8.0	4.00	0.15	0.28	100
	9.0	9.0	4.50	0.16	0.28	100
	10.0	10.0	5.00	0.16	0.28	100
U.S. Customary System (Inch)	3/64	1.2	0.58	0.10	0.18	200
	1/16	1.6	0.79	0.10	0.18	200
	3/32	2.4	1.17	0.15	0.25	200
	1/8	3.2	1.57	0.15	0.25	200
	3/16	4.8	2.36	0.15	0.25	100
	1/4	6.4	3.18	0.15	0.25	100

LS-1625FS

Flexible Polyolefin Tubing



Special Features

- It is flexible and very fast to shrink where maximum efficiency in high volume commercial application is required
- It meets automotive flame propagation standard MVSS 302

Application

- Suitable for applications where heat sensitive wire and cable is used.
- Electrical termination insulation covering of heat sensitive device, cosmetic covering and mechanical protection

Key Specifications

- Operating temperature range : -55℃~ 125℃
- Flammability : MVSS 302
- Minimum shrink temperature : 80℃
- Shrink ratio : 50% or more in radial direction
- UL 224(Reference standard, except flammability)

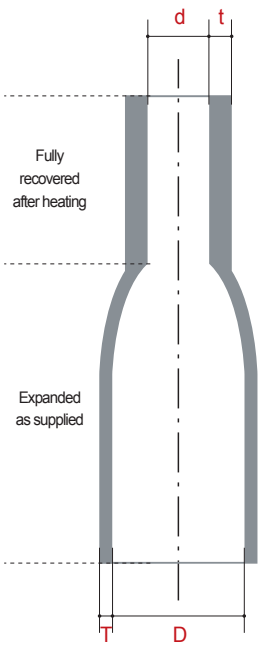
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 412 UL 224
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 412 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Low temperature flexibility		No crack @ -30℃x1hrs	ASTM D 2671
	Secant modulus		Max. 173MPa	UL 224
Electrical	Dielectric voltage withstand	Unaged	Min. 2,500V/1min.	UL 224
		Aged		158℃/168hrs
	Volume resistivity		Min. $1x10^{14}$Ω-cm	ASTM D 257
Chemical	Copper corrosion		No corrosion	UL 224 158℃/168hrs
	Copper stability elongation		No sign of degradation Min. 100%	
	Flammability		Pass	MVSS 302

Available Colors

black

Dimension

- Size range : 1 ~ 60 mm (3/64 ~ 5 inch), special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	1.0	1.0	0.50	0.20	0.36	200
	1.5	1.5	0.75	0.20	0.36	200
	2.0	2.0	1.00	0.20	0.44	200
	2.5	2.5	1.25	0.25	0.44	200
	3.0	3.0	1.50	0.25	0.44	200
	3.5	3.5	1.75	0.25	0.44	200
	4.0	4.0	2.00	0.25	0.44	200
	5.0	5.0	2.50	0.25	0.56	100
	5.5	5.5	2.75	0.25	0.56	100
	6.0	6.0	3.00	0.25	0.56	100
	7.0	7.0	3.50	0.25	0.56	100
	8.0	8.0	4.00	0.25	0.56	100
	9.0	9.0	4.50	0.25	0.56	100
	10.0	10.0	5.00	0.25	0.56	100
	11.0	11.0	5.50	0.25	0.56	100
	12.0	12.0	6.00	0.25	0.56	100
	13.0	13.0	6.50	0.30	0.69	50
	14.0	14.0	7.00	0.30	0.69	50
	15.0	15.0	7.50	0.30	0.69	50
	16.0	16.0	8.00	0.30	0.69	50
	18.0	18.0	9.00	0.35	0.76	50
	20.0	20.0	10.00	0.35	0.76	50
	22.0	22.0	11.00	0.40	0.76	50
	24.0	24.0	12.00	0.40	0.76	50
	25.0	25.0	12.50	0.40	0.86	50
	26.0	26.0	13.00	0.40	0.86	50
	28.0	28.0	14.00	0.40	0.86	50
	30.0	30.0	15.00	0.40	0.86	50
	32.0	32.0	16.00	0.40	0.86	50
	38.0	38.0	19.00	0.43	0.86	50
	50.0	50.0	25.00	0.50	0.97	31
	60.0	60.0	30.00	0.55	1.07	31
U.S. Customary System (Inch)	3/64	1.2	0.58	0.20	0.33	200
	1/16	1.6	0.79	0.20	0.36	200
	3/32	2.4	1.17	0.25	0.43	200
	1/8	3.2	1.57	0.25	0.43	200
	3/16	4.8	2.36	0.25	0.43	100
	1/4	6.4	3.18	0.30	0.56	100
	3/8	9.6	4.75	0.30	0.56	100
	1/2	12.7	6.35	0.30	0.56	50
	3/4	19.1	9.53	0.35	0.69	50
	1	25.4	12.70	0.40	0.76	50
	1-1/2	38.1	19.00	0.43	0.86	50
	2	50.8	25.40	0.50	0.97	31
	2-1/2	63.5	31.75	0.55	1.17	31
	3	76.2	38.10	0.60	1.17	31
	4	101.6	50.80	0.70	1.17	31
	5	127.0	63.50	0.70	1.17	31

GSHS-1635F

Flexible Polyolefin Tubing



Special Features

- It has excellent flame retardance, flexibility, and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.

Key Specifications

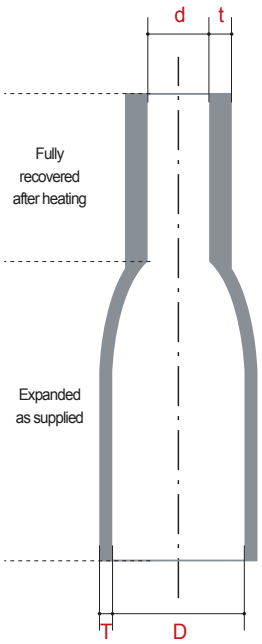
- Operating temperature range : -55℃ ~ 135℃
- Flammability : UL VW-1, -F- mark (except clear products)
- Minimum shrink temperature : 90℃
- Shrink ratio : 50% or more in radial direction
- Standards
  UL 224 (File No. E84393 : VW-1, 600V, 125℃, except clear products)
  AMS-DTL-23053/5 : 600V, 135℃, Class 1 or Class 3, Class 2 (clear products only)

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 638 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 638 MIL-I-23053 175℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Max. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1×10^{14} Ω-cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 175℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	UL 224
	Fungus resistance		Pass	ASTM G 21

Available Colors

black | white | yellow | red | blue | green | gray | violet | orange | brown | clear

Dimension

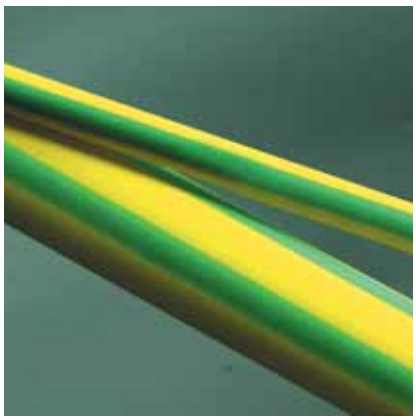


• Size range : 1 ~ 60 mm (3/64 ~ 5 inch), special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	1.0	1.0	0.50	0.20	0.36	200
	1.5	1.5	0.75	0.20	0.36	200
	2.0	2.0	1.00	0.20	0.44	200
	2.5	2.5	1.25	0.25	0.44	200
	3.0	3.0	1.50	0.25	0.44	200
	3.5	3.5	1.75	0.25	0.44	200
	4.0	4.0	2.00	0.25	0.44	200
	5.0	5.0	2.50	0.25	0.56	100
	5.5	5.5	2.75	0.25	0.56	100
	6.0	6.0	3.00	0.25	0.56	100
	7.0	7.0	3.50	0.25	0.56	100
	8.0	8.0	4.00	0.25	0.56	100
	9.0	9.0	4.50	0.25	0.56	100
	10.0	10.0	5.00	0.25	0.56	100
	11.0	11.0	5.50	0.25	0.56	100
	12.0	12.0	6.00	0.25	0.56	100
	13.0	13.0	6.50	0.30	0.69	50
	14.0	14.0	7.00	0.30	0.69	50
	15.0	15.0	7.50	0.30	0.69	50
	16.0	16.0	8.00	0.30	0.69	50
	18.0	18.0	9.00	0.35	0.76	50
	20.0	20.0	10.00	0.35	0.76	50
	22.0	22.0	11.00	0.40	0.76	50
	24.0	24.0	12.00	0.40	0.76	50
	25.0	25.0	12.50	0.40	0.86	50
	26.0	26.0	13.00	0.40	0.86	50
	28.0	28.0	14.00	0.40	0.86	50
	30.0	30.0	15.00	0.40	0.86	50
	32.0	32.0	16.00	0.40	0.86	50
	38.0	38.0	19.00	0.43	0.86	31
	50.0	50.0	25.00	0.50	0.97	31
	60.0	60.0	30.00	0.55	1.07	31
U.S. Customary System (Inch)	3/64	1.2	0.58	0.20	0.33	200
	1/16	1.6	0.79	0.20	0.36	200
	3/32	2.4	1.17	0.25	0.43	200
	1/8	3.2	1.57	0.25	0.43	200
	3/16	4.8	2.36	0.25	0.43	100
	1/4	6.4	3.18	0.30	0.56	100
	3/8	9.6	4.75	0.30	0.56	100
	1/2	12.7	6.35	0.30	0.56	50
	3/4	19.1	9.53	0.35	0.69	50
	1	25.4	12.70	0.40	0.76	50
	1-1/2	38.1	19.00	0.43	0.86	50
	2	50.8	25.40	0.50	0.97	31
	2-1/2	63.5	31.75	0.55	1.17	31
	3	76.2	38.10	0.60	1.17	31
	4	101.6	50.80	0.70	1.17	31
	5	127.0	63.50	0.70	1.17	31

GSHS-1635F YL/GN

Flexible Polyolefin Tubing



Special Features

- It is specially color-coded: yellow with green stripes.
- It has excellent flame retardance, flexibility, and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires especially where the international electrical ground designation is intended.

Key Specifications

- Operating temperature range : -55℃~ 135℃
- Flammability : UL VW-1, -F- mark (except clear products)
- Minimum shrink temperature : 90℃
- Shrink ratio : 50% or more in radial direction
- Standards
  UL 224 (File No. E84393 : VW-1, 600V, 125℃)
  UL Approved product name : GSHS-1635F
  AMS-DTL-23053/5 : 600V, 135℃, Class 1 or Class 3

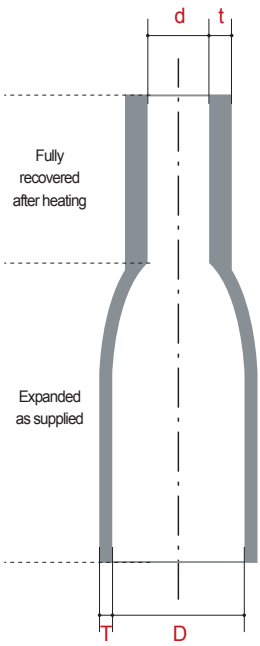
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 638 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 638 MIL-I-23053 175℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Max. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. $1x10^{14}\Omega$-cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 175℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	UL 224
	Fungus resistance		Pass	ASTM G 21

Available Colors



Dimension

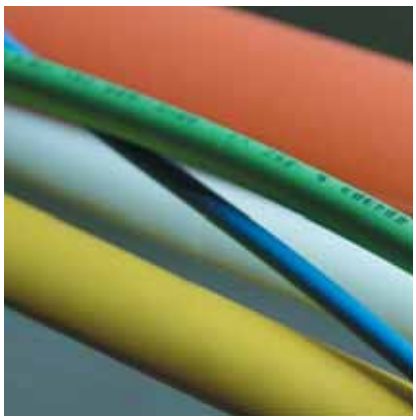
• Size range : 1 ~ 38 mm (3/64 ~ 1-1/2 inch), special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	1.0	1.0	0.50	0.20	0.36	200
	1.5	1.5	0.75	0.20	0.36	200
	2.0	2.0	1.00	0.20	0.44	200
	2.5	2.5	1.25	0.25	0.44	200
	3.0	3.0	1.50	0.25	0.44	200
	3.5	3.5	1.75	0.25	0.44	200
	4.0	4.0	2.00	0.25	0.44	200
	5.0	5.0	2.50	0.25	0.56	100
	5.5	5.5	2.75	0.25	0.56	100
	6.0	6.0	3.00	0.25	0.56	100
	7.0	7.0	3.50	0.25	0.56	100
	8.0	8.0	4.00	0.25	0.56	100
	9.0	9.0	4.50	0.25	0.56	100
	10.0	10.0	5.00	0.25	0.56	100
	11.0	11.0	5.50	0.25	0.56	100
	12.0	12.0	6.00	0.25	0.56	100
	13.0	13.0	6.50	0.30	0.69	50
	14.0	14.0	7.00	0.30	0.69	50
	15.0	15.0	7.50	0.30	0.69	50
	16.0	16.0	8.00	0.30	0.69	50
	18.0	18.0	9.00	0.35	0.76	50
	20.0	20.0	10.00	0.35	0.76	50
	22.0	22.0	11.00	0.40	0.76	50
	24.0	24.0	12.00	0.40	0.76	50
	25.0	25.0	12.50	0.40	0.86	50
	26.0	26.0	13.00	0.40	0.86	50
	28.0	28.0	14.00	0.40	0.86	50
	30.0	30.0	15.00	0.40	0.86	50
	32.0	32.0	16.00	0.40	0.86	50
	38.0	38.0	19.00	0.43	0.86	31
U.S. Customary System (Inch)	3/64	1.2	0.58	0.20	0.33	200
	1/16	1.6	0.79	0.20	0.36	200
	3/32	2.4	1.17	0.25	0.43	200
	1/8	3.2	1.57	0.25	0.43	200
	3/16	4.8	2.36	0.25	0.43	100
	1/4	6.4	3.18	0.30	0.56	100
	3/8	9.6	4.75	0.30	0.56	100
	1/2	12.7	6.35	0.30	0.56	50
	3/4	19.1	9.53	0.35	0.69	50
	1	25.4	12.70	0.40	0.76	50
	1-1/2	38.1	19.00	0.43	0.86	50

GSHS-1635S

Semi-rigid Polyolefin Tubing



Special Features

- Its tough abrasion resistance is suitable for delicate components in the mechanical environment.
- It has excellent flame retardance and insulation.

Application

- Suitable for electric insulation, strain relief, bonding, and termination of wire splices and soldered/crimped connections.

Key Specifications

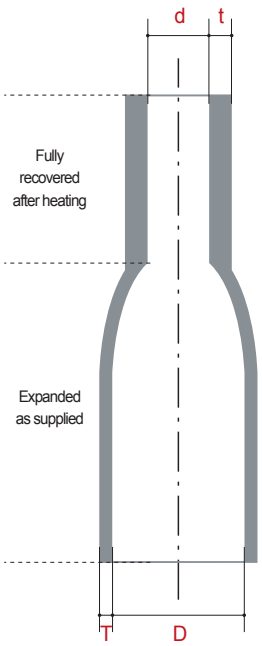
- Operating temperature range : -55℃~ 135℃
- Flammability : ASTM D 2671 Procedure B(except clear products)
- Minimum shrink temperature : 130℃
- Shrink ratio : 50% or more in radial direction
- Standards
  AMS-DTL-23053/6 : 600V, 135℃, Class 1 and Class 2 (clear products only)

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.40kgf/㎟	ASTM D 412 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 1.00kgf/㎟	ASTM D 412 MIL-I-23053 175℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	ASTM D 2671
	Secant modulus		Min. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. $1x10^{14}$Ω-cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 1.14kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 150℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	ASTM D 2671
	Fungus resistance		Pass	ASTM G 21

Available Colors

black | white | yellow | red | blue | green | gray | violet | orange | brown | clear

Dimension



• Size range : 3/64 ~ 1 inch, special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
U.S. Customary System (Inch)	3/64	1.2	0.58	0.30	0.43	200
	1/16	1.6	0.79	0.25	0.43	200
	3/32	2.4	1.17	0.25	0.43	200
	1/8	3.2	1.57	0.25	0.43	200
	3/16	4.8	2.36	0.30	0.56	100
	1/4	6.4	3.18	0.30	0.56	100
	3/8	9.6	4.75	0.35	0.68	1.2
	1/2	12.7	6.35	0.35	0.68	1.2
	3/4	19.1	9.53	0.40	0.77	1.2
	1	25.4	12.70	0.40	0.77	1.2

GSHS-3635

Flexible Polyolefin Tubing



Special Features

- Narrow size range that covers a wide range of diameters, allowing reduced inventory.
- It accommodates an irregular or jagged shape.
- It has excellent flame retardance, flexibility, and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.

Key Specifications

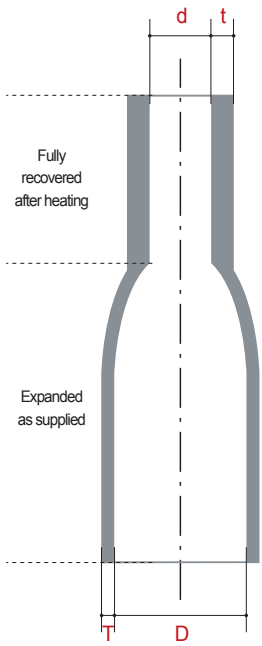
- Operating temperature range : -55℃~ 135℃
- Flammability : -F- mark ,UL VW-1 (except clear products)
- Minimum shrink temperature : 90℃
- Shrink ratio : 67% or more in radial direction
- Standards
  UL 224 (File No. E84393 : 600V, 125℃)
  AMS-DTL-23053/5 : 600V, 135℃, Class 1 (over expanded)

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 638 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 638 MIL-I-23053 175℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Max. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1x10^{14}Ω-㎝	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 175℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	UL 224
	Fungus resistance		Pass	ASTM G 21

Available Colors

black | white | yellow | red | blue | green | gray | violet | orange | brown | clear

Dimension



• Size range : 1.5 ~ 50 mm, special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	1.5	1.5	0.5	0.23	0.40	200
	3.0	3.0	1.0	0.26	0.50	200
	4.5	4.5	1.5	0.26	0.54	100
	6.0	6.0	2.0	0.27	0.59	100
	9.0	9.0	3.0	0.28	0.68	100
	12.0	12.0	4.0	0.28	0.68	100
	16.0	16.0	5.3	0.30	0.68	50
	18.0	18.0	6.0	0.41	0.77	50
	19.0	19.0	6.0	0.35	0.80	50
	22.0	22.0	8.0	0.25	0.60	50
	24.0	24.0	8.0	0.45	0.90	50
	38.0	38.0	13.0	0.50	1.04	50
	50.0	50.0	17.0	0.55	1.30	31

GSHS-4635

Flexible Polyolefin Tubing



Special Features

- Narrow size range that covers a wide range of diameters, allowing reduced inventory.
- It accommodates an irregular or jagged shape.
- It has excellent flame retardance, flexibility, and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.

Key Specifications

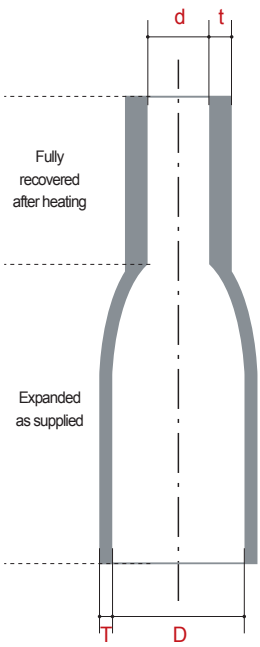
- Operating temperature range : -55℃~ 135℃
- Flammability : UL VW-1, CSA OFT
- Minimum shrink temperature : 90℃
- Shrink ratio : 75% or more in radial direction
- Standards
  UL 224 (File No. E153276 : 600V, 125℃)
  AMS-DTL-23053/5 : 600V, 135℃, Class 1 (over expanded)

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 638 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 638 MIL-I-23053 175℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Max. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1×10^{14} Ω-㎝	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 175℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability (VW-1)		Pass	UL 224
	Fungus resistance		Pass	ASTM G 21

Available Colors

black white yellow red blue green gray violet orange brown

Dimension



• Size range : 12 ~ 32 mm (3/4 inch), special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	12.0	12.0	3.0	0.35	0.96	100
	25.4	25.4	7.0	0.35	0.96	50
	32.0	32.0	8.0	0.40	1.50	50
U.S. Customary System (Inch)	3/4	19.1	4.7	0.35	0.96	50

GSHS-1625BS

Semi-rigid Polyolefin Tubing



Special Features

- It is specially designed for butt splicing.
- Its tough abrasion resistance is suitable for delicate components in mechanical environments.
- It has excellent insulation.

Application

- Suitable for electric insulation, strain relief, bonding, and termination of wire splices and soldered/crimped connections.

Key Specifications

- Operating temperature range : -55℃ ~ 105℃
- Minimum shrink temperature : 130℃
- Shrink ratio : 67% or more in radial direction
- Standards
  UL 224 (File No. E153276 : 600V, 105℃)

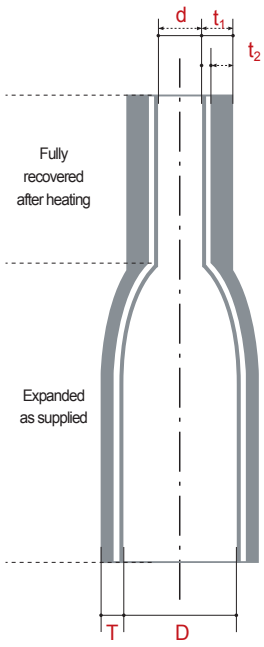
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.41kgf/㎟	ASTM D 412 UL 224
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.99kgf/㎟	ASTM D 412 UL 224 136℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Low temperature flexibility		No crack @ −30℃x1hr	UL 224
	Secant modulus		Min. 173MPa	UL 224
Electrical	Dielectric voltage withstand	Unaged	Min. 2,500V/1min.	UL 224
		Aged		136℃/168hrs
	Volume resistivity		Min. 1x10^{14}Ω−㎝	ASTM D 257
Chemical	Copper corrosion		No corrosion	UL 224 136℃/168hrs
	Copper stability elongation		No sign of degradation Min. 100%	

Available Colors

tinted yellow | tinted red | tinted blue

Dimension

- Size range : 3 ~ 8.5 mm, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
Metric System (mm)	3.0	3.0	1.2	0.30	0.65	0.25	200
	3.5	3.5	1.3	0.30	0.75	0.25	200
	4.5	4.7	1.6	0.45	1.00	0.35	100
	5.5	5.7	2.0	0.45	1.10	0.40	100
	6.5	6.7	2.3	0.50	1.10	0.45	100
	7.5	7.4	2.5	0.50	1.30	0.45	100
	8.0	8.0	3.0	0.65	1.40	0.50	100
	8.5	8.5	3.0	0.65	1.40	0.50	100

GSHS-1625W

Flexible Dual-wall Polyolefin Tubing



Special Features

- It has excellent flame retardance, flexibility, and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.
- Upon application of heat over 110℃, Adhesive line meltable

Key Specifications

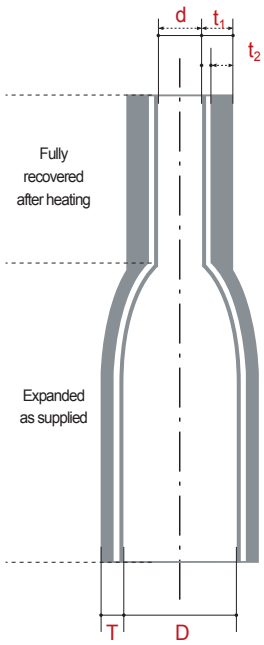
- Operating temperature range : -55℃ ~ 125℃ (Crosslinked outer wall)
- Flammability : UL VW-1 (Outside layer only)
- Minimum shrink temperature : 120℃
- Shrink ratio : 50% or more in radial direction
- Standards
  UL 224 (File No. E153276 : 600V, 125℃, except clear products)
  AMS-DTL-23053/4 Class 2

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 412 UL 224
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 412 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Low temperature flexibility		No crack @ −55℃x4hrs	ASTM D 2671
	Secant modulus		Max. 173MPa	UL 224
Electrical	Dielectric voltage withstand	Unaged	Min. 2,500V/1min.	UL 224
		Aged		158℃/168hrs
	Volume resistivity		Min. $1x10^{14}$ Ω−cm	ASTM D 257
Chemical	Copper corrosion		No corrosion	UL 224 158℃/168hrs
	Copper stability elongation		No sign of degradation Min. 100%	
	Flammability		Pass	UL 224

Available Colors

black white yellow red blue green gray violet orange brown clear

Dimension

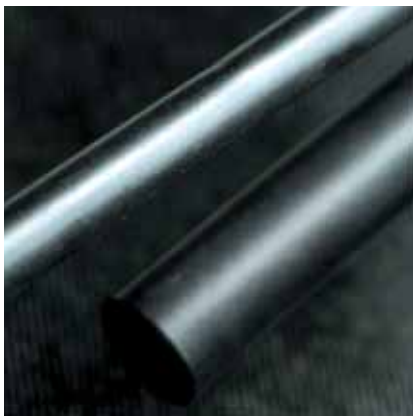


• Size range : 5 mm (1/8 ~ 1.5 inch), special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
Metric System (mm)	5.0	5.0	2.5	0.50	1.05	0.35	1.2
U.S. Customary System (Inch)	1/8	3.2	1.57	0.25	0.60	0.20	1.2
	3/16	4.8	2.36	0.25	0.60	0.20	1.2
	1/4	6.4	3.18	0.30	0.75	0.20	1.2
	3/8	9.6	4.75	0.30	0.80	0.25	1.2
	1/2	12.7	6.35	0.30	0.80	0.25	1.2
	3/4	19.1	9.53	0.35	0.90	0.25	1.2
	1	25.4	12.70	0.40	1.05	0.30	1.2
	1.5	38.1	19.10	0.43	1.20	0.30	1.2

GSHS-2690NW

Flexible Dual-wall Polyolefin Tubing for the Fuel, Brake Pipe System



Special Features

- With a very thin-wall, hot-melt liner it is specially designed for the application to the fuel, brake, and power-steering pipes of automobiles.
- It has excellent flexibility and insulation.

Application

- Specially designed for the application to the fuel, brake, and power-steering pipes of automobiles.
- Prevents pipe corrosion from fluid, water, or chemical penetration and mechanical damage.

Key Specifications

- Operating temperature range : -35℃ ~ 90℃
- Minimum shrink temperature : 120℃
- Shrink ratio : 25% or more in radial direction
- Standards
  MS231-18 (Hyundai Automotive Specifications for Tubing)

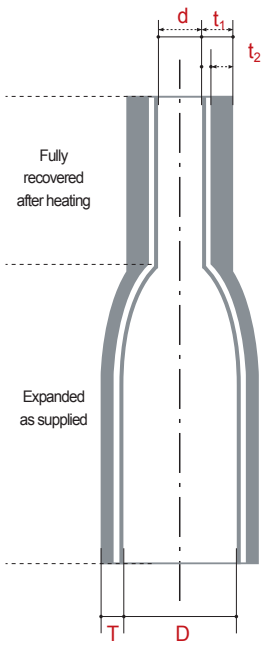
Properties		Values	Test Methods
Unaged	Tensile strength	Min. 1.2kgf/㎟	MS231-18
	Elonagation	Min. 300%	
Aged	Tensile strength	Min. 1.2kgf/㎟	
	Elongation	Min. 270%	
Cold impact		Max -35℃	
Impact resistance		No crack	
Heat deformation retention		Max 60%	
Stress cracking		No crack	
Shrinkage ratio		Max. 5%	
Contact ability		Full contact	
Heat cycle		pass	
Fluid resistance		pass	

Available Colors

black

Dimension

- Size range : 4.5 ~ 18 mm, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
Metric System (mm)	4.5	4.5	3.1	0.60	0.80	0.10	300
	6.0	6.0	4.5	0.70	1.00	0.10	300
	8.0	8.0	6.1	0.70	1.00	0.10	200
	9.0	9.0	6.5	0.70	1.00	0.10	200
	11.0	11.0	7.9	0.75	1.10	0.10	100
	13.0	13.0	9.0	0.75	1.10	0.10	100
	15.0	14.5	10.5	0.75	1.20	0.10	100
	18.0	18.0	10.5	0.70	1.20	0.10	100

LS-2690R

Semi-Rigid Dual-wall Polyolefin Tubing for the Fuel, Brake Pipe System



Special Features

- With a very thin-wall, hot-melt liner it is specially designed for the application to the fuel, brake, and power-steering NYGAL pipes of automobiles.
- It has excellent physical properties and insulation.

Application

- Specially designed for the application to the fuel, brake, and power-steering pipes of automobiles.
- Prevents pipe corrosion from fluid, water, or chemical penetration and mechanical damage.

Key Specifications

- Operating temperature range : -35℃ ~ 90℃
- Minimum shrink temperature : 120℃
- Shrink ratio : 25% or more in radial direction
- Standards
  MS231-18 (Hyundai Automotive Specifications for Tubing)

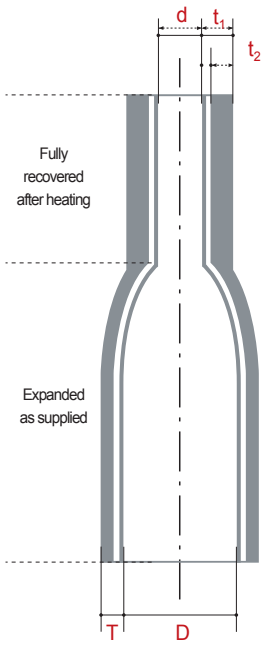
Properties		Values	Test Methods
Unaged	Tensile strength	Min. 1.2kgf/㎟	MS231-18
	Elonagation	Min. 300%	
Aged	Tensile strength	Min. 1.2kgf/㎟	
	Elongation	Min. 270%	
Cold impact		Max -35℃	
Impact resistance		No crack	
Heat deformation retention		Max 60%	
Stress cracking		No crack	
Shrinkage ratio		Max. 5%	
Contact ability		Full contact	
Heat cycle		pass	
Fluid resistance		pass	

Available Colors

black

Dimension

• Size range : 4.5 ~ 18 mm, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
Metric System (mm)	4.5	4.5	3.1	0.60	0.80	0.10	300
	6.0	6.0	4.5	0.70	1.00	0.10	300
	8.0	8.0	6.1	0.70	1.00	0.10	200
	9.0	9.0	6.5	0.70	1.00	0.10	200
	11.0	11.0	7.9	0.75	1.10	0.10	100
	13.0	13.0	9.0	0.75	1.10	0.10	100
	15.0	14.5	10.5	0.75	1.20	0.10	100
	18.0	18.0	10.5	0.70	1.20	0.10	100

GSHS-3625WS

Semi-rigid Dual-wall Polyolefin Tubing



Special Features

- Narrow size range that covers a wide range of diameters, allowing reduced inventory.
- It accommodates an irregular or jagged shape.
- It has excellent flame retardance and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, color coding, and moisture-proof encapsulating.
- Upon application of heat over 110℃, Adhesive line meltable

Key Specifications

- Operating temperature range : -55℃ ~ 135℃
- Flammability : ASTM D 2671 Procedure B (Reference, Outside layer only, execpt clear products)
- Minimum shrink temperature : 130℃
- Shrink ratio :67% or more in radial direction
- Standards
  UL 224 (File No. E153276 : 600V, 125℃, except clear)
  AMS-DTL-23053/4 Class 1

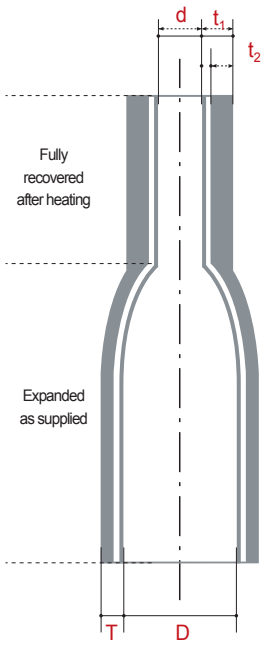
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.40kgf/㎟	ASTM D 412 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 1.00kgf/㎟	ASTM D 412 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Min. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. $1x10^{14}\Omega$-cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 1.14kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 150℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability (Procedure B)		Pass	ASTM D 2671
	Fungus resistance		Pass	ASTM G 21

Available Colors

black white yellow red blue green gray violet orange brown clear

Dimension

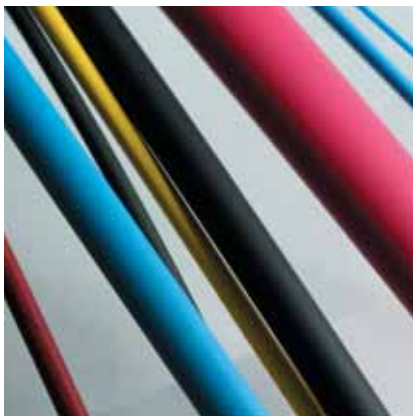
- Size range : 1/8 ~ 1 inch, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
U.S. Customary System (Inch)	1/8	3.2	0.6	0.40	0.96	0.50	100
	3/16	4.8	1.5	0.45	1.09	0.64	100
	1/4	6.4	2.0	0.50	1.19	0.69	100
	3/8	9.5	3.4	0.50	1.27	0.76	1.2
	1/2	12.7	5.0	0.60	1.39	0.89	1.2
	3/4	19.1	8.0	0.70	1.65	1.02	1.2
	1	25.4	10.2	0.80	1.90	1.02	1.2

GSHS-3635W

Flexible Dual-wall Polyolefin Tubing



Special Features

- Narrow size range that covers a wide range of diameters, allowing reduced inventory.
- It accommodates an irregular or jagged shape.
- It has excellent flame retardance, flexibility, and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.
- Upon application of heat over 110℃, Adhesive line meltable

Key Specifications

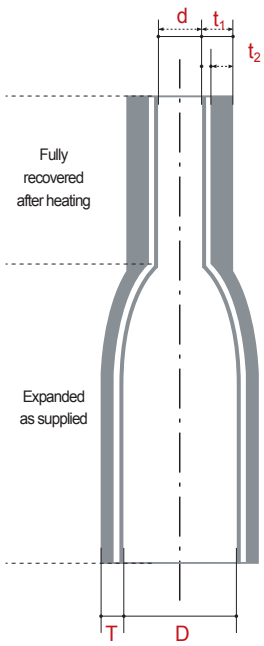
- Operating temperature range : -55℃ ~ 135℃(Crosslinked outer wall)
- Flammability : UL VW-1, CSA OFT (Outside layer only, except clear products)
- Minimum shrink temperature : 120℃
- Shrink ratio : 67% or more in radial direction
- Standards
  UL 224 (File No. E153276 : 600V, 125℃, except clear products)
  AMS-DTL-23053/4 Class 3

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 638 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 638 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Max. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1x10^{14}Ω-㎝	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 175℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	ASTM D 2671 Procedure B
	Fungus resistance		Pass	ASTM G 21

Available Colors

black | white | yellow | red | blue | green | gray | violet | orange | brown | clear

Dimension

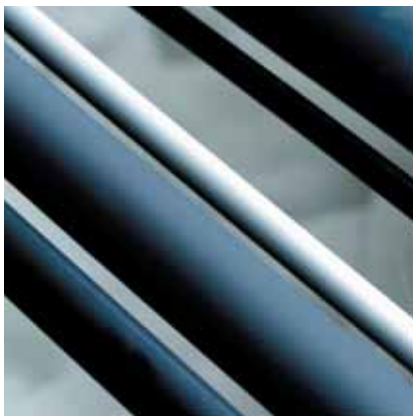


• Size range : 3 ~ 38 mm (1/8 ~ 1.5 inch), special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
Metric System (mm)	3.0	3.0	1.0	0.53	1.00	0.40	1.2
	4.0	4.0	1.3	0.40	0.90	0.40	1.2
	4.5	4.5	1.5	0.48	1.10	0.50	1.2
	5.0	5.0	2.0	0.45	1.00	0.50	1.2
	6.0	6.0	2.0	0.45	1.20	0.55	1.2
	9.0	9.0	3.0	0.50	1.30	0.65	1.2
	12.0	12.0	4.0	0.55	1.35	0.75	1.2
	16.0	16.0	5.3	0.50	1.35	0.70	1.2
	19.0	19.0	6.0	0.77	2.00	1.05	1.2
	24.0	24.0	8.0	0.78	2.20	0.90	1.2
	27.0	27.0	9.0	0.90	2.20	1.20	1.2
	31.0	31.0	11.0	0.80	2.20	1.20	1.2
	32.0	32.0	11.5	0.92	2.00	1.20	1.2
	38.0	38.0	13.0	0.76	2.30	1.20	1.2
U.S. Customary System (Inch)	1/8	3.2	1.0	0.53	1.00	0.40	1.2
	3/16	4.8	1.6	0.48	1.00	0.50	1.2
	1/4	6.4	2.1	0.45	1.00	0.59	1.2
	3/8	9.6	3.2	0.50	1.20	0.65	1.2
	1/2	12.7	4.2	0.50	1.35	0.79	1.2
	3/4	19.1	6.4	0.77	2.00	1.09	1.2
	1	25.4	8.4	0.70	2.00	0.93	1.2
	1.5	38.1	12.7	0.76	2.00	1.20	1.2

GSHS-4635WS

Semi-rigid Dual-wall Polyolefin Tubing



Special Features

- Narrow size range that covers a wide range of diameters, allowing reduced inventory.
- It accommodates an irregular or jagged shape.
- It has excellent flame retardance and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.
- Upon application of heat over 110℃, Adhesive line meltable

Key Specifications

- Operating temperature range : -30℃ ~ 135℃(Crosslinked outer wall)
- Flammability : ASTM D 2671 Procedure B (Reference, Outside layer only, except clear products)
- Minimum shrink temperature : 130℃
- Shrink ratio :75% or more in radial direction
- Standards
  UL 224 (File No. E153276 : 600V, 125℃, except clear product)
  ES 91409(HMT) by Hyundai Motors

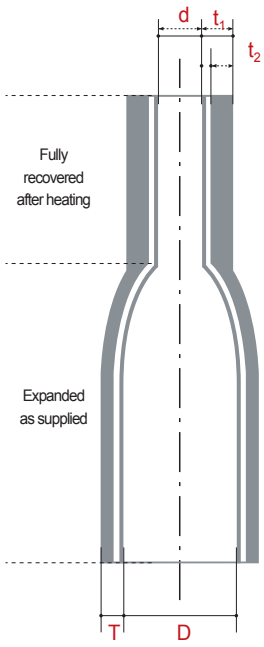
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.40kgf/㎟	ASTM D 412 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 1.00kgf/㎟	ASTM D 412 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Cold bend		No crack @ -30℃x1hr	UL 224
	Secant modulus		Min. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. $1x10^{14}\Omega$-cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 1.14kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 150℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability (Procedure B)		Pass	ASTM D 2671
	Fungus resistance		Pass	ASTM G 21

HMT : Hot Melt Tube

Available Colors

black | white | yellow | red | blue | green | gray | violet | orange | brown | clear

Dimension



• Size range : 6 ~ 18 mm, special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
Metric System (mm)	6.0	6.0	1.27	0.40	1.20	0.56	100
	8.0	8.0	1.65	0.50	1.20	0.76	100
	11.0	11.0	2.41	0.60	1.90	1.02	1.2
	15.0	15.0	3.75	0.65	2.15	1.09	1.2
	18.0	18.0	4.45	0.70	2.40	1.37	1.2

GSHS-4635WT

Thin & Dual-wall Polyolefin Tubing



Special Features

- Narrow size range that covers a wide range of diameters, allowing reduced inventory.
- It accommodates an irregular or jagged shape.
- It has excellent flame retardance and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.
- Upon application of heat over 110℃, Adhesive line meltable

Key Specifications

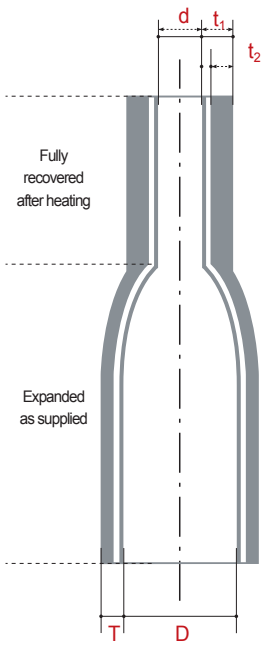
- Operating temperature range : -30℃ ~ 135℃(Crosslinked outer wall)
- Flammability : UL VW-1, CSA OFT (Outside layer only)
- Minimum shrink temperature : 120℃
- Shrink ratio : 75% or more in radial direction
- Standards
  UL 224 (File No. E153276 : 600V, 125℃, except clear product)

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 638 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 638 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	MIL-I-23053
	Cold bend		No crack @ -30℃x1hr	UL 224
	Secant modulus		Max. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1x10^{14}Ω-㎝	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 121℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	ASTM D 2671 Procedure B
	Fungus resistance		Pass	ASTM G 21

Available Colors

black | white | yellow | red | blue | green | gray | violet | orange | brown | clear

Dimension



• Size range : 4 ~ 52 mm, special sizes are negotiable.

Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
Metric System (mm)	4.0	4.0	1.0	0.45	0.90	0.45	1.2
	8.0	8.0	2.0	0.35	0.90	0.45	1.2
	12.0	12.0	3.0	0.50	1.30	0.60	1.2
	13.0	13.0	3.3	0.50	1.30	0.65	1.2
	16.0	16.0	4.0	0.60	1.60	0.75	1.2
	24.0	24.0	6.0	0.75	2.10	0.75	1.2
	32.0	32.0	8.0	0.80	2.30	1.00	1.2
	52.0	52.0	13.0	0.80	2.50	0.90	1.2

GSHS-4650WS

Semi-rigid Dual-wall Polyolefin Tubing (Extended Temperature Range)



Special Features

- It is formulated to function properly within an extended temperature range.
- It has excellent flame retardance and insulation.

Application

- Designed for the insulation and encapsulation of wire splicing in the environment as inside the automotive.
- Upon application of heat over 150℃, Adhesive line meltable

Key Specifications

- Operating temperature range : -30℃ ~ 135℃(Crosslinked outer wall)
- Flammability : UL VW-1 (Reference, Outside layer & Adhesive line)
- Minimum shrink temperature : 130℃
- Shrink ratio : 75% or more in radial direction
- Standards
  UL 224 (File No. E153276 : 600V, 125℃, except clear product)
  ES 91409(SHMT) by Hyundai Motors

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.40kgf/㎟	ASTM D 412 MIL-I-23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 1.00kgf/㎟	ASTM D 412 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Cold bend		No crack @ -30℃x1hr	UL 224
	Secant modulus		Min. 173MPa	ASTM D 882
Electrical	Dielectric strength		Min. 19.7kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1x10^{14}Ω-cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 1.14kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Copper corrosion		No corrosion	MIL-I-23053 150℃/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability (Procedure B)		Pass	ASTM D 2671
	Fungus resistance		Pass	ASTM G 21

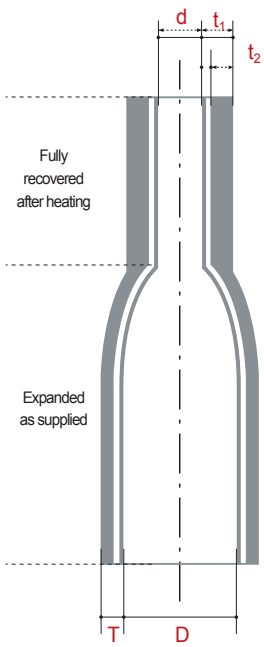
SHMT : Super Hot Melt Tube

Available Colors

black white yellow red blue green gray violet orange brown

Dimension

- Size range : 6 ~ 18 mm, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)			Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	After recovery		
					Total Min. t_1	Adhesive Min. t_2	
Metric System (mm)	6.0	6.0	1.27	0.40	1.20	0.56	100
	8.0	8.0	2.00	0.50	1.20	0.76	100
	11.0	11.0	2.41	0.60	1.90	1.02	1.2
	15.0	15.0	3.75	0.65	2.15	1.09	1.2
	18.0	18.0	4.45	0.70	2.40	1.37	1.2

LS-CATV

Adhesive-lined, Flexible, Heavy-wall Polyolefin Tubing



Special Features

- Its fast and simple installation allows a clean and easy re-entry of the connector.
- Its high-performance adhesive provides an absolute waterproof encapsulation.
- It has excellent flexibility and insulation.

Application

- Excellent cable protection, which fits cable TV network industry.

Key Specifications

- Operating temperature range : -55℃ ~ 125℃
- Minimum shrink temperature : 120℃
- Shrink ratio : 67% or more in radial direction

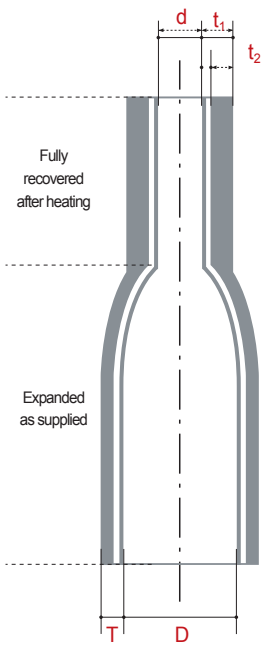
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.06kgf/㎟	ASTM D 412
		Elongation	Min. 300%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 412 150℃/168hrs
		Elongation	Min. 200%	
	Heat shock		No crack @225℃x4hrs	ASTM D 2671
	Adhesive peel strength to	Polyethylene	110N/25㎜	ASTM D 1000
		Aluminum	80N/25㎜	
	Low temperature flexibility		No crack @ −55℃x4hrs	ASTM D 2671
Electrical	Dielectric strength		Min. 13.8kV/㎜	ASTM D 149
	Volume resistivity		Min. 1x10¹⁴Ω−cm	ASTM D 257
Chemical	Water absorption		Max. 0.1%	ASTM D 570 23℃/24hrs
	Water penetration		No penetration	50℃x14days

Available Colors

black

Dimension

- Size range : 10 ~ 70 mm, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t_1	
Metric System (mm)	10.0	10.0	3.0	0.70	1.50	1.2
	19.0	19.0	6.0	0.60	1.50	1.2
	27.0	27.0	9.0	1.10	2.70	1.2
	33.0	33.0	9.0	1.00	2.70	1.2
	38.0	38.0	13.0	1.20	3.00	1.2
	43.0	43.0	13.0	1.10	3.00	1.2
	51.0	51.0	18.0	1.20	3.00	1.2
	70.0	70.0	25.0	1.60	3.90	1.2

LS-PHWT-FR

Flame-retardant Adhesive-lined Heavy-wall Polyolefin Tubing



Special Features

- Its high performance adhesive provides an absolute waterproof encapsulation.
- It provides excellent mechanical protection and insulation.

Application

- Designed for the insulation and encapsulation of wire splicing, electrical connection, jacket repair, and termination.
- Suitable for submergible or direct buried installation.

Key Specifications

- Operating temperature range : -55℃ ~ 120℃
- Flammability : VTFT (IEEE 383)
- Minimum shrink temperature : 120℃
- Shrink ratio : 67% or more in radial direction
- Standards
  AMS-DTL-23053/15 (Reference Standard)
  DNV & ABS□s Rules for Classifiction of Ships and Offshore Unit
  DNV Certificate No. E-7978
  ABS Certificate No. 06-BK 155018
  UL 224(File No. : E84393 600V, 125℃, except clear products)

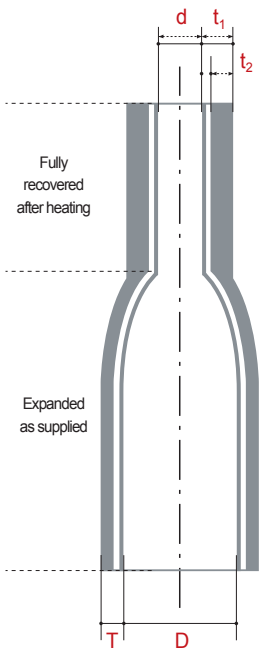
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.06kgf/㎟	ASTM D 412 ASTM D 2671
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.76kgf/㎟	ASTM D 412 ASTM D 2671 150℃/168hrs
		Elongation	Min. 100%	
	Low temperature flexibility		No crack @ −55℃x4hrs	ASTM D 2671
	Heat shock		No crack @225℃x4hrs	ASTM D 2671
	Thermal endurance		TI/120℃	IEC 60216
Electrical	Dielectric strength		Min. 7.9kV/㎜	ASTM D 149/2671
	Volume resistivity		Min. 1×10^{15}Ω−㎝	IEC 60093
Chemical	Flammability		Pass	IEE 383 VTFT
	Water absorption		Max. 0.5% @23℃x24hrs	ASTM D 570
	Fungus resistance		Pass	ASTM G 21
	Fluid resistance	Retention of tensile strength	ASTM No. 2 or IRM 902 oil @ 70℃x 4hrs Min. 0.53kgf/㎟	ASTM D 412 ASTM D 2671
		Retention of elongation	Min. 100%	

Available Colors

black red

Dimension

- Size range : 9 ~ 130 mm, special sizes are negotiable.



Standard Size (Metric size)	Expanded (mm)	Recovered (mm)			Standard Spool Length (m)
	ID	ID	WT		
	Min. D	Nom. d	Nom. T_1	Nom. T_2	
9	9.0	2.2	2.20	1.80	1.2
13	13.0	2.4	3.20	2.40	1.2
20	20.0	3.8	3.50	2.40	1.2
28	28.0	5.6	4.60	3.40	1.2
33	33.0	5.6	4.60	3.40	1.2
38	38.0	9.6	4.50	3.30	1.2
43	43.0	10.0	4.90	3.70	1.2
51	51.0	13.2	5.50	4.10	1.2
70	70.0	18.2	5.50	4.10	1.2
85	85.0	21.8	5.50	4.10	1.2
90	90.0	27.2	5.50	4.10	1.2
100	100.0	27.2	6.00	4.60	1.2
130	130.0	31.7	5.80	4.40	1.2

LS-PMWT-FR

Flame-retardant Adhesive-lined Medium-wall Polyolefin Tubing



Special Features

- Its high performance adhesive provides an absolute waterproof encapsulation.
- It provides excellent mechanical protection and insulation.

Application

- Designed for the insulation and encapsulation of wire splicing, electrical connection, jacket repair, and termination.
- Suitable for submergible or direct buried installation.

Key Specifications

- Operating temperature range : -55℃ ~ 125℃
- Flammability : VTFT (IEEE 383)
- Minimum shrink temperature : 120℃
- Shrink ratio : 67% or more in radial direction
- Standards
  DNV & ABS□s Rules for Classification of Ships and Offshore Unit
  DNV Certificate NO. E-7977
  ABS Certificate NO. 06-BK 155018
  AMS-DTL-23053/15 (Reference Standard)
  UL 224(File No. : E84393 600V, 125℃, except clear products)

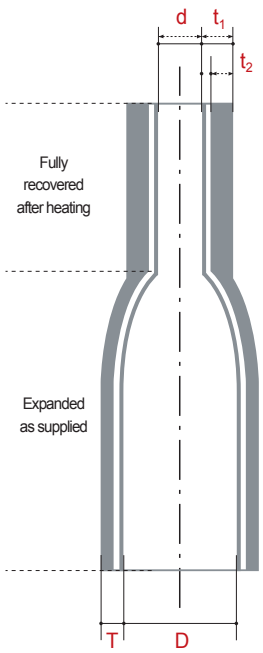
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.06kgf/㎟	ASTM D 412 ASTM D 2671
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.76kgf/㎟	ASTM D 412 ASTM D 2671 150℃/168hrs
		Elongation	Min. 100%	
	Low temperature flexibility		No crack @ −55℃x4hrs	ASTM D 2671
	Heat shock		No crack @225℃x4hrs	ASTM D 2671
	Thermal endurance		TI/120℃	IEC 60216
Electrical	Dielectric strength		Min. 7.9kV/㎜	ASTM D 149/2671
	Volume resistivity		Min. 1x10^{6} Ω-㎝	IEC 60093
Chemical	Flammability		Pass	IEE 383 VTFT
	Water absorption		Max. 0.5% @23℃x24hrs	ASTM D 570
	Fungus resistance		Pass	ASTM G 21
	Fluid resistance	Retention of tensile strength	ASTM No. 2 or IRM 902 oil @ 70℃x 4hrs Min. 0.53kgf/㎟	ASTM D 412 ASTM D 2671
		Retention of elongation	Min. 100%	

Available Colors

black red

Dimension

• Size range : 10 ~ 160 mm, special sizes are negotiable.



Standard Size (Metric size)	Expanded (mm)	Recovered (mm)			Standard Spool Length (m)
	ID	ID	WT		
	Min. D	Nom. d	Nom. T_1	Nom. T_2	
7	7.0	1.5	1.50	1.00	1.2
10	10.0	2.0	1.50	1.00	1.2
16	16.0	3.0	2.80	1.80	1.2
18	18.0	3.3	2.80	1.80	1.2
25	25.0	5.6	3.50	2.30	1.2
27	27.0	5.6	3.50	2.30	1.2
30	30.0	7.6	3.50	2.30	1.2
35	35.0	9.6	3.50	2.30	1.2
40	40.0	10.8	3.50	2.40	1.2
45	45.0	9.6	4.90	3.70	1.2
50	50.0	13.2	4.00	2.60	1.2
63	63.0	18.2	4.70	3.30	1.2
70	70.0	18.2	4.70	3.30	1.2
75	75.0	21.7	4.70	3.30	1.2
85	85.0	21.7	4.70	3.30	1.2
90	90.0	22.0	4.80	3.30	1.2
95	95.0	28.0	4.80	3.30	1.2
100	100.0	30.0	4.80	3.30	1.2
115	115.0	33.0	4.80	3.30	1.2
140	140.0	36.1	4.95	3.65	1.2
160	160.0	45.8	4.60	3.50	1.2

GSHS-1675

Rigid Polyvinylidene Fluoride Tubing



Special Features

- It is specially designed for the environment where mechanical/chemical resistance is needed.
- It has excellent flame retardance and insulation.

Application

- Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- Light-duty harnessing, jacketing, bundling, and color coding of electric wires.

Key Specifications

- Operating temperature range : -55℃ ~ 175℃
- Flammability : UL VW-1 , CSA OFT
- Minimum shrink temperature : 175℃
- Shrink ratio : 50% or more in radial direction
- Standards
  UL 224 (File No. E84393 : VW-1, 600V, 150℃)
  CSA C22.2 (File No. LR55659 : OFT, 600V, 150℃)
  AMS-DTL-23053/8 Class 1, 600V, 175℃

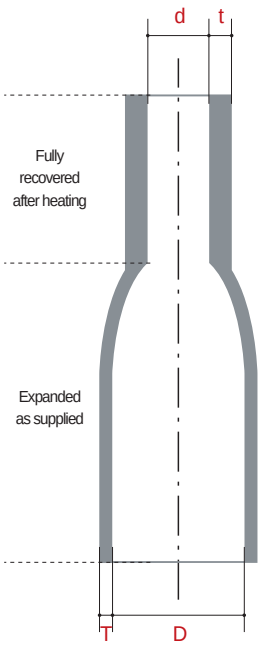
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 3.52kgf/㎟	ASTM D 412 MIL-I-23053
		Elongation	Min. 150%	
	Aged	Tensile strength	Min. 1.48kgf/㎟	MIL-I-23053 250℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @300℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Min. 828MPa	ASTM D 882
Electrical	Dielectric strength		Size to 0.5"Min. 31.5kV/㎜	ASTM D 2671
			Size over 0.5"Min. 23.6kV/㎜	
	Volume resistivity		Min. $1x10^{13}\Omega$-㎝	ASTM D 876
Chemical	Copper corrosion		No corrosion	UL 224 180℃/168hrs
	Copper stability elongation		No sign of degradation Min. 100%	
	Flammability		Pass	UL 224

Available Colors

black blue clear red

Dimension

• Size range : 1 ~ 35 mm (3/64 ~ 1 inch), special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	1	1.0	0.50	0.10	0.178	1.2
	3	3.0	1.50	0.12	0.229	1.2
	4	4.0	2.00	0.12	0.203	1.2
	8	8.0	4.00	0.13	0.229	1.2
	30	30.0	15.00	0.20	0.406	1.2
	35	35.0	17.50	0.20	0.406	1.2
	40	40.0	20.00	0.20	0.406	1.2
U.S. Customary System (Inch)	3/64	1.3	0.60	0.10	0.203	1.2
	1/16	1.8	0.79	0.10	0.203	1.2
	3/32	2.5	1.19	0.12	0.229	1.2
	1/8	3.4	1.59	0.12	0.229	1.2
	3/16	4.9	2.38	0.12	0.229	1.2
	1/4	6.4	3.18	0.14	0.279	1.2
	3/8	9.5	4.76	0.14	0.279	1.2
	1/2	12.7	6.35	0.14	0.279	1.2
	3/4	19.1	9.53	0.18	0.356	1.2
	1	25.7	12.70	0.20	0.406	1.2
	1/5	38	19.10	0.20	0.406	1.2

LG-BBHV

High Voltage Busbar Insulation Tubing



Special Features

- Non-halogenated ethylene propylene rubber.
- Fast and easy installation/removal.
- It provides protection against flashover and accidentally induced discharge.
- It has excellent resistance to corona attack and surface tracking.

Application

- Tubing for both copper and aluminum busbars with rectangular/circular cross section.
- Applicable up to 25kV system voltage when used according to Quick Selection Chart.

Key Specifications

- Standards
  Qualification report for BBHV

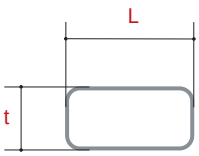
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.02kgf/㎟	ASTM D 638 ASTM D 2671 ISO 37
		Elongation	Min. 300%	
	Aged	Tensile strength	Min. 1.02kgf/㎟	ASTM D 638 ASTM D 2671 121℃/168hrs
		Elongation	Min. 200%	
	Heat shock		No crack @225℃x4hrs	ASTM D 2671
	Thermal endurance		TI/105℃	IEC 60216
	Low temperature flexibility		No crack @ −40℃x4hrs	ASTM D 2671
Electrical	Dielectric strength		Min. 18kV/㎜	IEC 60243
	Volume resistivity		Min. $1x10^{14}$Ω−㎝	IEC 60093
	Tracking resistance		Class 1A2.5	IEC 60587
Chemical	Smoke Index		Max. 77	NES 711
	Toxicity Index		Max. 2.95	NES 713
	Flammability		Pass	ANSI/IEEE C37.20

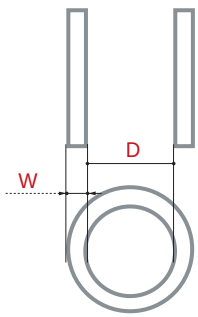
Available Colors

brown

Dimension

• Size range : 15/06 ~ 150/60 mm, special sizes are negotiable.





Size		Application Range (Busbar,mm)	D(mm) Inside Diameter		W(mm) Wall Thickness		Standard Spool Length (m)
		2(L + t)	as supplied (min)	after recovery (max)	as supplied (nom)	after recovery (nom)	
Metric System (mm)	15/06	24~34	15	6	1.1	2.0	25
	25/10	34~44	25	10	0.9	1.9	25
	30/12	44~60	30	12	1.1	2.3	30
	40/16	60~80	40	16	1.1	2.5	30
	50/20	80~105	50	20	1.1	2.5	30
	60/25	90~120	60	25	1.1	2.5	30
	75/30	105~140	75	30	1.1	2.5	30
	100/40	140~180	100	40	1.1	2.5	30
	120/50	180~220	120	50	1.3	2.8	30
	150/60	220~270	150	60	1.1	2.8	30

• Above busbar range is recommended by LS

LG-BBLV

Low Voltage Busbar Insulation Tubing



Special Features

- Medium-wall tubing for the insulation up to 1kV.
- It provides protection against flashover by an accidental busbar bridging.
- It has excellent heat emission.
- It has excellent UV and weather resistance.
- It has excellent flame retardance and insulation.
- It has an outstanding shelf life at 50℃ without any deterioration in performance.

Application

- Suitable for both exposed and enclosed busbars.
- Suitable for connection among switchgears, motor control centers and other electrical equipments.
- Suitable for outdoor use.

Key Specifications

- Standards
  Qualification report for BBLV

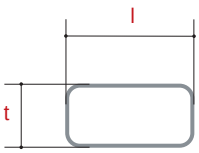
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.2kgf/㎟	ASTM D 638 ASTM D 2671 ISO 37
		Elongation	Min. 350%	
	Aged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 2671 150℃/168hrs
		Elongation	Min. 200%	
	Heat shock		No crack @225℃x4hrs	ASTM D 2671
	Thermal endurance		TI/105℃	IEC 60216
	Low temperature flexibility		No crack @ −40℃x4hrs	ASTM D 2671
	Impact brittleness		Pass @ −40℃	ASTM D 746
Electrical	Dielectric strength		Min. 13kV/㎜	IEC 60243
	Volume resistivity		Min. 10^{13}Ω −㎝	IEC 60093
	Tracking resistance		No track	ASTM D 3638
Chemical	Water absorption		Max. 0.5%	ASTM D 570
	Copper corrosion		No corrosion	ASTM D 2671
	Toxicity Index		Max. 10	NES 713
	Flammability		Pass	IEEE 27

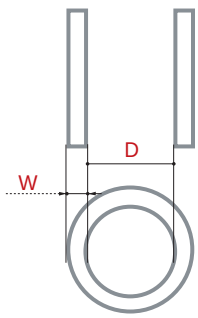
Available Colors

black

Dimension

- Size range : 15/06 ~ 175/70 mm, special sizes are negotiable.





Size		Application Range (Busbar,mm)	D(mm) Inside Diameter		W(mm) Wall Thickness		Standard Spool Length (m)
		2(l+t)	as supplied (min)	after recovery (max)	as supplied (nom)	after recovery (nom)	
Metric System (mm)	15/06	24~36	15	6	0.5	1.5	30
	30/12	42~76	30	12	0.5	1.5	30
	50/20	68~120	50	20	0.5	1.5	30
	75/30	100~172	75	30	0.5	1.5	30
	100/40	132~220	100	40	0.5	1.5	30
	120/50	164~244	120	50	0.5	1.5	30
	150/50	172~314	150	50	0.5	1.5	30

- Above busbar range is recommended by LS

CRFR

Flexible Chlorinated Polyolefin Tubing



Special Features

- It has excellent retardance to fluid and solvent: lubricating oil, ground vehicle fuel, or hydraulic fluid.
- It has excellent flame retardance and insulation.

Application

- Suitable for various insulation and strain relief.
- Abrasion protection for cable harnessing and wire bundling for military industries.

Key Specifications

- Operating temperature range : -70℃ ~ 121℃
- Flammability : ASTM D 2671 Procedure A, C
- Minimum Shrink temperature : 135℃
- Shrink ratio : 50% or more in radial direction
- Standards
  AMS-DTL-23053/1 Class 1 and Class 2

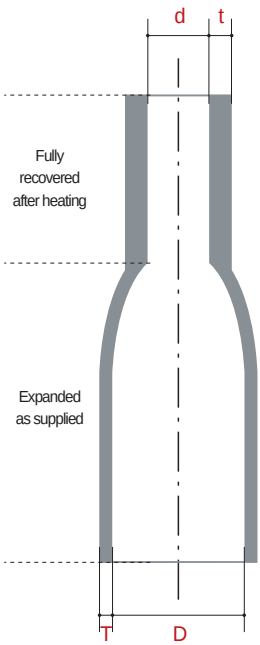
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.06kgf/㎟	ASTM D 412
		Elongation	Min. 250%	
		Tensile stress @100% Elongation	Max. 1.06kgf/㎟	
	Aged	Tensile strength	Min. 0.85kgf/㎟	ASTM D 412 121℃/168hrs
		Elongation	Min. 200%	
	Heat shock		Pass @200℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -70℃x4hrs	MIL-I-23053
	2% Secant modulus		Max. 17.59kgf/㎟	ASTM D 2671
	Hardness		SHORE A 80±5	ASTM D 2240
Electrical	Dielectric strength		Min. 11.8kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1x10^{11}Ω -㎝	ASTM D 876
Chemical	Copper corrosion		No corrosion	121℃/168hrs
	Copper mirror corrosion		No corrosion	150℃/16hrs
	Fluid resistance	Tensile strength	Min. 0.70kgf/㎟	MIL-I-23053 23℃/24hrs
		Elongation	Min. 250%	
	Flammability		Pass	ASTM D 2671
	Fungus resistance		Pass	ASTM G 21

Available Colors

black

Dimension

• Size range : 3/32 ~ 1-1/2 inch, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
U.S. Customary System (Inch)	3/32	2.4	1.20	0.45	0.70	200
	1/8	3.2	1.57	0.45	0.70	200
	3/16	4.8	2.36	0.45	0.75	100
	1/4	6.4	3.60	0.45	0.89	100
	3/8	9.6	5.40	0.50	1.01	31
	1/2	12.7	7.30	0.60	1.21	31
	5/8	15.9	9.10	0.65	1.32	31
	3/4	19.1	10.90	0.70	1.44	31
	1	25.4	14.50	0.85	1.77	25
	1-1/4	31.8	18.10	1.00	2.20	20
	1-1/2	38.1	21.80	1.10	2.41	20

DRET

Diesel-resistant, Flexible, Elastomeric Polyolefin Tubing



Special Features

- It has excellent retardance to fluid and solvent: lubricating oil, ground vehicle fuel, or hydraulic fluid.
- It has excellent flame retardance and insulation.

Application

- Suitable for various insulation and strain relief.
- Abrasion protection for cable harnessing and wire bundling for military industries.

Key Specifications

- Operating temperature range : -75℃ ~ 120℃
- Flammability : ASTM D 2671 Procedure A, C
- Minimum Shrink temperature : 135℃
- Shrink ratio : 50% or more in radial direction
- Standards
  AMS-DTL-23053/16

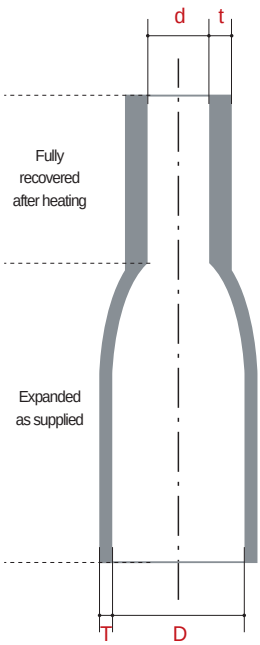
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.20kgf/㎟	ASTM D 412
		Elongation	Min. 250%	
		Tensile stress @100% Elongation	Max. 1.06kgf/㎟	
	Aged	Tensile strength	Min. 1.06kgf/㎟	ASTM D 412 150℃/168hrs
		Elongation	Min. 200%	
	Heat shock		Pass @200℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -65℃x4hrs	MIL-I-23053
Electrical	Dielectric strength		Min. 11.9kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1x10^{13}Ω-㎝	ASTM D 876
	Restricted shrinkage		No crack@ 2000V x1min.	MIL-I-23053
Chemical	Copper corrosion		No corrosion	121℃/16hrs
	Copper mirror corrosion		No corrosion	135℃/16hrs
	Fluid resistance	Tensile strength	Min. 1.06kgf/㎟	MIL-I-23053 23℃/24hrs
		Elongation	Min. 200%	
		Dielectric strength	Min. 7.9kV/㎜	
	Flammability (Procedure A)		Pass	ASTM D 2671
	Water absorption		Max. 2%	ASTM D 570
	Fungus resistance		Pass	ASTM G 21

Available Colors

black

Dimension

- Size range : 3/32 ~ 1-1/2 inch, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
U.S. Customary System (Inch)	3/32	2.4	1.20	0.45	0.70	200
	1/8	3.2	1.57	0.45	0.70	200
	3/16	4.8	2.36	0.45	0.75	100
	1/4	6.4	3.60	0.45	0.89	100
	3/8	9.6	5.40	0.50	1.01	31
	1/2	12.7	7.30	0.60	1.21	31
	5/8	15.9	9.10	0.65	1.32	31
	3/4	19.1	10.90	0.70	1.44	31
	1	25.4	14.50	0.85	1.77	25
	1-1/4	31.8	18.10	1.00	2.20	20
	1-1/2	38.1	21.80	1.10	2.41	20

LS-DR150

Diesel-resistant, Flexible, Elastomeric Polyolefin Tubing



Special Features

- It has excellent retardance to fluid and solvent: lubricating oil, ground vehicle fuel, or hydraulic fluid.
- It has excellent flame retardance and insulation.

Application

- Suitable for various insulation and strain relief.
- Abrasion protection for cable harnessing and wire bundling for military industries.

Key Specifications

- Operating temperature range : -75℃ ~ 150℃
- Flammability : ASTM D 2671 Procedure A, C
- Minimum Shrink temperature : 150℃
- Shrink ratio : 50% or more in radial direction
- Standards
  AMS-DTL-23053/16

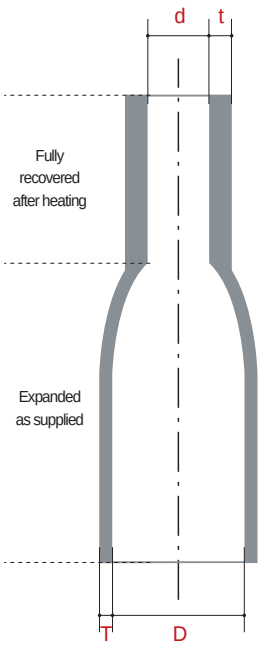
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.20kgf/㎟	ASTM D 412
		Elongation	Min. 250%	
		Tensile stress @100% Elongation	Max. 1.06kgf/㎟	
	Aged	Tensile strength	Min. 1.06kgf/㎟	ASTM D 412 160℃/168hrs
		Elongation	Min. 200%	
	Heat shock		Pass @200℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -65℃x4hrs	MIL-I-23053
Electrical	Dielectric strength		Min. 11.9kV/㎜	ASTM D 2671
	Volume resistivity		Min. 1x10¹³Ω-㎝	ASTM D 876
	Restricted shrinkage		No crack@ 2000V x1min.	MIL-I-23053
Chemical	Copper corrosion		No corrosion	121℃/16hrs
	Copper mirror corrosion		No corrosion	135℃/16hrs
	Fluid resistance	Tensile strength	Min. 1.06kgf/㎟	MIL-I-23053 23℃/24hrs
		Elongation	Min. 200%	
		Dielectric strength	Min. 7.9kV/㎜	
	Flammability (Procedure A)		Pass	ASTM D 2671
	Water absorption		Max. 2%	ASTM D 570
	Fungus resistance		Pass	ASTM G 21

Available Colors

black

Dimension

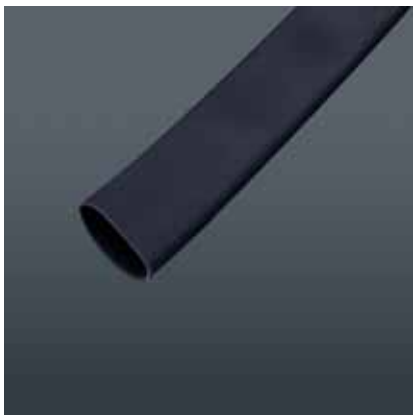
- Size range : 3/32 ~ 1-1/2 inch, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
U.S. Customary System (Inch)	3/32	2.4	1.20	0.45	0.70	200
	1/8	3.2	1.57	0.45	0.70	200
	3/16	4.8	2.36	0.45	0.75	100
	1/4	6.4	3.60	0.45	0.89	100
	3/8	9.6	5.40	0.50	1.01	31
	1/2	12.7	7.30	0.60	1.21	31
	5/8	15.9	9.10	0.65	1.32	31
	3/4	19.1	10.90	0.70	1.44	31
	1	25.4	14.50	0.85	1.77	25
	1-1/4	31.8	18.10	1.00	2.20	20
	1-1/2	38.1	21.80	1.10	2.41	20

LS-V200

Fluoro Elastomeric Tubing



Special Features

- It has high resistance to impact and abrasion, chemical resistance

Application

- It has excellent resistance to a wide variety of fuels, lubricants, acids, and solvents at elevated temperatures
- It has flexibility at low temperatures without cracking

Key Specifications

- Operating temperature range : -55℃~200℃.
- Flammability : ASTM D 2671 Procedure A.
- Minimum shrink temperature : 100℃.
- Shrink ratio : 50% or more in radical direction.
- Standards
  AMS-DTL-23053/13

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 0.84 kgf/㎟	ASTM D 412 200%/10min
		Elongation	Min. 250%	
		200% Tensile stress	Max. 1.40 kgf/㎟	
		Dielectric strength	Min. 7.9 kV/㎜	
	Aged	Tensile strength	Min. 0.84kgf/㎟	ASTM D 412 250_/168 hrs
		Elongation	Min. 200%	
	Heat shock		No crack	300℃/4hrs
	Low temperature flexibility		No crack	-40℃
	Secant modulus		No crack	200℃
Electrical	Voltage withstand		Pass	2,000V/min
	volume resistivity		Min. 1.0×10⁹Ω-㎝	ASTM D 876
Chemical	Copper corrosion		No pitting or corrosion	175℃/16hrs
	Water absorption		Max. 0.5% @ 23℃/24hrs	ASTM D 570
	Fluid resistance (Refer to below test fluid)	Tensile strength	Min. 0.84 kgf/㎟	ASTM D 570
		Elongation	Min. 250%	
	Fungus resistance		Pass	ASTM G 21
	Flammability		Pass	ASTM D2671 Procedure A

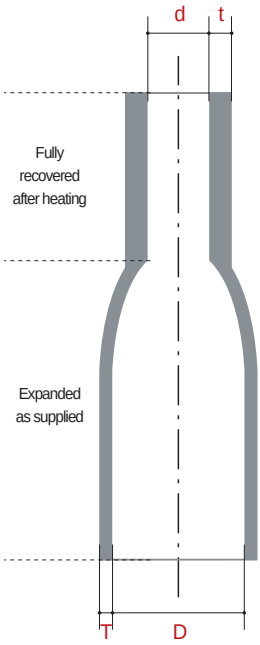
Available Colors

black

- Other colors are available upon request.

Dimension

- Size range : 1/8~1-1/2 inch, special size are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
U.S. Customary System (Inch)	1/8	3.18	1.57	0.41	0.65	200
	3/16	4.75	2.39	0.48	0.70	200
	1/4	6.35	3.18	0.46	0.70	100
	3/8	9.53	4.75	0.44	0.70	100
	1/2	12.70	6.35	0.44	0.70	31
	5/8	15.90	7.92	0.53	0.86	31
	3/4	19.10	9.53	0.53	0.86	31
	7/8	22.20	11.10	0.58	0.97	31
	1	25.40	12.70	0.60	0.97	25
	1-1/4	31.80	15.90	0.69	1.00	20
	1-1/2	38.10	19.10	0.69	1.00	20

LG-GSP

Thin-wall Polyolefin Tubing for the Gas Spring Protection



Special Features

- It accommodates a wide dimensional difference.
- It has excellent abrasion resistance.
- It has excellent flexibility and insulation.

Application

- Specially designed for the application to the gas spring of automobiles.

Key Specifications

- Operating temperature range : -55℃ ~ 105℃
- Minimum shrink temperature : 90℃
- Shrink ratio : 67% or more in radial direction
- Standards
  UL 224 (Reference Standard)

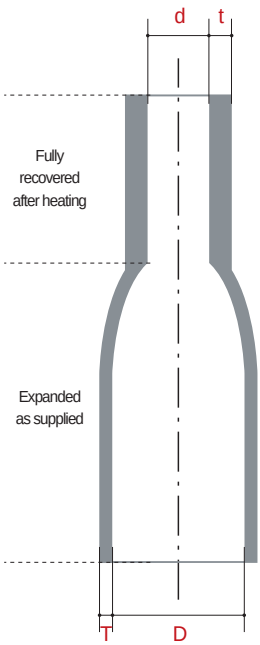
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 638
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 368 UL 224 136℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Max. 173MPa	ASTM D 882
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/㎟	MIL-I-23053 24℃/24hrs
		Dielectric strength	Min. 15.8kV/㎜	
	Fungus resistance		Pass	ASTM G 21

Available Colors

black

Dimension

• Size range : 20 mm, special sizes are negotiable.



Size of Diameter		Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
		as supplied Min. D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
Metric System (mm)	20	20.0	8.0	0.25	0.70	100

EIT-600

Non Heat-shrinkable Flexible Polyolefin Tubing



Special Features

- It has excellent flame retardance, flexibility, and insulation.

Application

- Suitable for various insulation of wires.

Key Specifications

- Operating temperature range : -55℃ ~ 125℃
- Flammability : UL VW-1 (except clear products)
- Standards
  UL 224 (File No. E153276 : VW-1, 600V, 125℃)

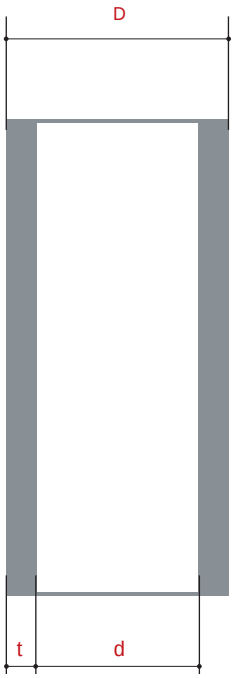
Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/㎟	ASTM D 412 UL 224
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/㎟	ASTM D 412 UL 224 158℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250℃x4hrs	UL 224
	Low temperature flexibility		No crack @ −55℃x4hrs	ASTM D 2671
	Secant modulus		Max. 173MPa	UL 224
Electrical	Dielectric Voltage withstand	Unaged	Min. 2,500V/1min.	UL 224
		Aged		158℃/168hrs
	Volume resistivity		Min. 1x10^{14}Ω−㎝	ASTM D 257
Chemical	Copper corrosion		No corrosion	UL 224 158℃/168hrs
	Copper stability elongation		No sign of degradation Min. 100%	
	Flammability		Pass	UL 224

Available Colors

black | white | yellow | red | blue | green | gray | violet | orange | brown

Dimension

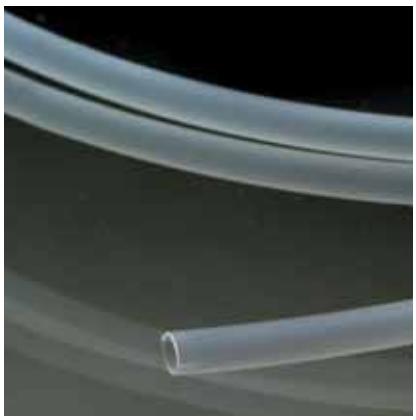
- Size range : 1 ~ 22 mm, special sizes are negotiable.



Size of Diameter		Nominal Inside Diameter d(mm)	Nominal Wall Tnickness t(mm)	Nominal Outer Diameter D(mm)	Standard Spool Length (m)
Metric System (mm)	1.0	1.20	0.60	2.40	200
	3.0	3.20	0.60	4.40	200
	3.5	3.60	0.60	4.80	200
	4.0	4.50	0.60	5.70	200
	5.0	5.30	0.65	6.60	100
	6.0	6.40	0.60	7.60	100
	8.0	8.50	0.60	9.70	100
	9.0	9.50	0.60	10.70	100
	10.0	10.50	0.60	11.70	100
	11.0	11.50	0.60	12.70	100
	12.0	12.50	0.60	13.70	100
	13.0	13.50	0.60	14.70	100
	14.0	14.50	0.80	16.10	100
	16.0	16.50	0.90	18.30	100
	18.0	18.50	0.90	20.30	50
	20.0	20.50	1.00	22.50	50
	22.0	22.70	1.10	24.90	50

TITR-600

Non Heat-shrinkable Semi-rigid Polyvinylidene Fluoride Tubing



Special Features

- It has excellent flame retardance and insulation.

Application

- Protective insulation and covering for wires.

Key Specifications

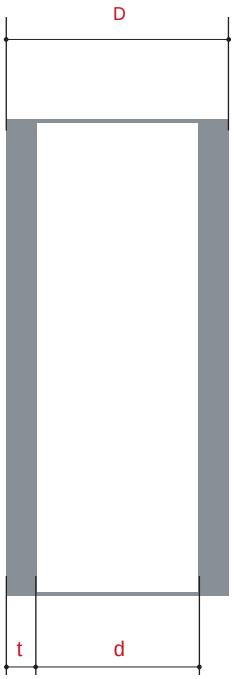
- Operating temperature range : -55℃~ 175℃
- Flammability : UL VW-1 (Reference)

Properties			Values	Test Methods
Physical	Unaged	Tensile strength	Min. 3.52kgf/㎟	ASTM D 412 MIL-I-23053
		Elongation	Min. 150%	
	Aged	Tensile strength	Min. 1.48kgf/㎟	MIL-I-23053 250℃/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @300℃x4hrs	MIL-I-23053
	Low temperature flexibility		No crack @ -55℃x4hrs	MIL-I-23053
	Secant modulus		Min. 828MPa	ASTM D 882
Electrical	Dielectric strength		Size to 0.5"Min. 31.5kV/㎜	ASTM D 2671
			Size over 0.5"Min. 23.6kV/㎜	
	Volume resistivity		Min. 1x10^{13}Ω-㎝	ASTM D 876
Chemical	Copper corrosion		No corrosion	UL 224 180℃/168hrs
	Copper stability elongation		No sign of degradation Min. 100%	
	Flammability		Pass	UL 224

Available Colors

black blue clear

Dimension

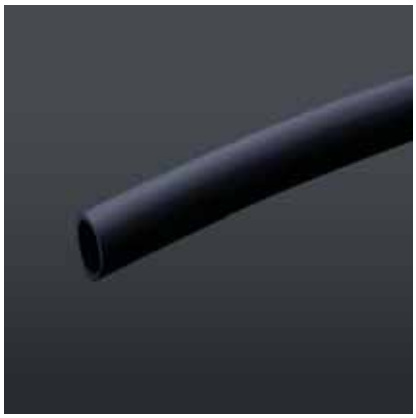


• Size range : 3.2 ~ 6 mm, special sizes are negotiable.

Size of Diameter		Nominal Inside Diameter d(mm)	Nominal Wall Tnickness t(mm)	Nominal Outer Diameter D(mm)	Standard Spool Length (m)
Metric System (mm)	3.2	3.2	0.40	4.00	100
	3.5	3.5	0.40	4.30	100
	4.0	4.0	0.30	4.60	100
	4.8	4.8	0.30	5.40	100
	6.0	6.0	0.30	6.60	100

LS-SPIT-HF

Non-Heat Shrinkable



Special Features

- It has excellent flame retardance, flexibility, and insulation

Application

- Suitable for various insulation of wires
- Protective insulation and covering for LCD wires

Key Specifications

- Operating temperature range : -30℃~105℃.
- Flammability : UL V-0(0.25T), VW-1
- Minimum shrink temperature : 90℃.

Properties				Values	Test Methods
Physical	Unaged	Tensile strength		Min. 1.06 kgf/㎟	ASTM D 638
		Elongation		Min. 100%	
	Aged	Tensile strength		Min. 0.75kgf/㎟	ASTM D 638 UL224 136℃/168 hrs
		Elongation		Min. 100%	
	Low temperature flexibility			No cracking	131℃/14days 1500V/60 seconds
	Heat-resistance properties			No breakdown	
	Heat shock			No crack	160℃/4hrs
	Flexibility			No crack	-30℃
Electrical	Dielectric strength		Unaged	No crack	136℃/7 days
			Aged	Min. 2,500V/1min	UL224 136℃/7days
	Volume resistivity			Min. $1.0\times10^{10}\Omega$-cm	ASTM D 876
Chemical	Copper Corrosion			No corrosion	136℃/7 days
	Flammability			Pass.	UL224
	Longitudinal shrinkage			0 ~ -1%	80℃/48 hrs@80%

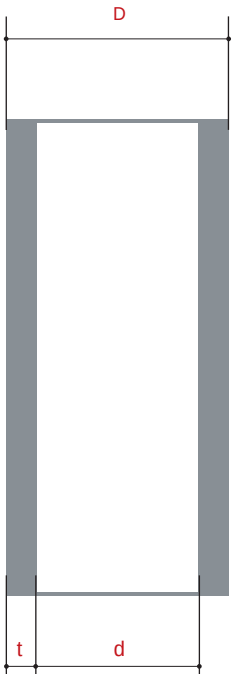
Available Colors

black

- Other colors are available upon request.

Dimension

- Size range : 4mm, special size are negotiable.



Size of Diameter		Nominal Inside Diameter d(mm)	Nominal Wall Tnickness t(mm)	Nominal Outer Diameter D(mm)	Standard Spool Length (m)
Metric System(mm)	4.0	4.0	0.50	5.00	400
	4.0	4.0	0.75	5.50	400

Cable End Cap

P/N : LS-CEC



Application

Protecting the unused cable end from the environmental effects.
Insulation on the unused end of electrical cable connected to supply.
The caps are suitable for full range of electrical cable of PVC, XLPE, and rubber jakets. Heat shrinkable end caps whose dimension will shrink to a predetermined size up on the application of heat above 125 deg. c.

Typical feature

Color : black
Coating type : flim from or spiral from.

*For pressurized telecom cables, the end caps are fitted with a non return air valve

LS P/N	Body ID		Full Length	Cable Range	Option	Carton Capacity
	S	R				
LS-CEC 1003	10	3	35	4 – 9		13,600
LS-CEC 1505	15	4.5	45	5 – 12		10,000
LS-CEC 2006	20	6.0	63	7 – 17	Valve	4,000
LS-CEC 2509	25	8.5	70	10 – 22		2,500
LS-CEC 4015	40	14.5	102	17 – 34		886
LS-CEC 6324	63	24	118	28 – 55		336
LS-CEC 7838	78	38	130	43 – 70		216
LS-CEC 10057	100	57	155	65 – 90		100
LS-CEC 12057	120	57	155	75 – 110		72
LS-CEC 14557	145	57	155	80 – 135		45

• S stands for *Supplied* within table above • R stands for *Recovered* within table above

Skirt & Shed

P/N : LS-CS



Application

Heat Shrinkable Skirts are used for extending the creepage path form the medium voltage cable termination, thereby saving the length of the cable and reducing the size of the switch gear cabinet required for this purpose. Skirt are suitable for termination of the complete range of electrical cables of XLPE and PILC types. Heat Shrinkable Sheds are used primarily to protect the crutch of the PILC3-core cable while installing and connecting an outdoor termination by restricting thr individual cable cores from over bending away from the crutch

Typical feature

Color : orange red
The HV sheds & Skirts are electrically insulating, anti tracking, erosion resistant, weather proof and flame retardant

Single

LS P/N	HV Shed Diameter		Skirt Dia.	Neck-L
	S	R	O-R	L-S
LS-CS 13712	37.0	12.0	80.0	20.0
LS-CS 13716	37.0	16.0	90.0	25.0
LS-CS 15716	57.0	16.0	115.0	25.0
LS-CS 15725	57.0	25.0	125.0	30.0
LS-CS 17535	75.0	35.0	145.0	35.0

• S stands for *Supplied* within table above • R stands for *Recovered* within table above

Triple

LS P/N	HV Shed Diameter		Height	Neck-L
	S	R	L-R	M-S
LS-CS 13712	37.0	15.0	135.0	26.0
LS-CS 13716	45.0	23.0	165.0	28.0
LS-CS 15716	65.0	29.0	165.0	28.0

• S stands for *Supplied* within table above • R stands for *Recovered* within table above

Angle & Boots

P/N : LS-RAB / LS-SB



Application

Insulation and sealing for bushings in cable-end boxes intergral with switch-gear and transformers. The mastic sealant provides a water-tightenvironmental seal to the bushing. The Angles & Boots are also supplied as a part of heat shrinkable cable termination up to 36kV for operation in air-filled cable-end boxes, designed with reduced clearances for compound filling. the boots are designed to withstand surges induced during the operational life of the termination.
Color of the MV boots is reddish brown. The Angles & Boots are electrically insulating, anti-tracking, UV resistant, water proof and flame retardant.

Type	LS P/N	Bushing-end Diameter		Cable-end Diameter		Length M	Lenght N	Full Length L
		R	S	R	S	R	R	R
LS-RAB	LS-BOOT R1	35.0	81.0	15.0	27.0	125.0	145.0	–
	LS-BOOT R2	35.0	81.0	15.0	48.0	125.0	145.0	–
	LS-BOOT R3	35.0	81.0	25.0	48.0	125.0	145.0	–
	LS-BOOT R4	35.0	95.0	25.0	70.0	125.0	145.0	–
LS-SB	LS-BOOT S1	35.0	81.0	18.0	35.0	140.0	45.0	220.0
	LS-BOOT S2	35.0	81.0	18.0	60.0	140.0	45.0	220.0

• S stands for *Supplied* within table above • R stands for *Recovered* within table above

Cable Breakout

P/N : LS-CB



Application

Insulation and sealing over the crutch of multi-core cables.
The hot melt adhesive provides a water tight environmental seal to the cable.
The LV breakouts are used as an intergral part of cable terminations up to 1kV.
Heat shrinkable low voltage breakouts whose dimension will shrink to a pre-determined size upon the application of heat above 125℃

Typical feature

Color : black
Finger No. : 2~4.
Hot melt : poly-amide based hot melt adhesive.

LS P/N	Finger	Body ID		Finger ID		Full	Finger	Carton
	#	S	R	S	R	Length	Length	Capacity
LS-CB 23310	2	33	10	14	3	90	20	1,500
LS-CB 26022		60	22	24	6.7	120	35	560
LS-CB 33814	3	38	14	15	4	110	20	4,000
LS-CB 36022		60	22	26	8	185	45	224
LS-CB 38033		80	33	36	16	210	50	108
LS-CB 311047		110	47	48	20	225	75	52
LS-CB 312547		125	47	55	20	250	75	40
LS-CB 314054		140	54	62	27	240	65	30
LS-CB 43814	4	38	14	15	3.2	105	25	1,000
LS-CB 45014		50	14	15	3.2	105	25	780
LS-CB 45525		55	25	20	6	180	45	252
LS-CB 46525		65	25	25	6	180	45	200
LS-CB 47222		72	22	25	8.5	190	45	170
LS-CB 410033		100	33	35	14	215	50	80
LS-CB 412547		125	47	45	20	245	72	48

• S stands for *Supplied* within table above • R stands for *Recovered* within table above

Conductive Cable Breakout

P/N : LS-CCB



Application

The conductive cable breakout used as an intergral part of 3-core terminations up to 36kV and also 3-core cable joints up to 36kV

Typical feature

Color : black
Finger No. : 3.
Sealant : butyl rubber based mastic which is electrical insulating and water-proof.

LS P/N	Finger #	Body ID		Finger ID		Recovered Body T.	Recovered Finger T.	Recovered Full Length	Recovered Finger Length
		S	R	S	R				
LS-CCB 36022	3	60	22	24	3.75	3.75	3.00	185	45
LS-CCB 38033		80	33	36	4.00	4.00	3.25	210	50
LS-CCB 311047		110	47	48	3.80	3.80	3.00	225	75
LS-CCB 312547		125	47	55	4.25	4.25	3.50	250	75
LS-CCB 314054		140	54	62	4.00	4.00	2.50	240	65

• S stands for *Supplied* within table above • R stands for *Recovered* within table above

Cable Breakout for Medium Voltage

P/N : LS-CB-MV



Application

Heat shrink non-tracking medium voltage breakouts used for insulation and sealing over the crutch of multi-core cable up to 36kV

Typical feature

Color : brown
Finger No. : 3.
Sealant : butyl rubber based mastic which is electrical insulating and water-proof and anti-tracking

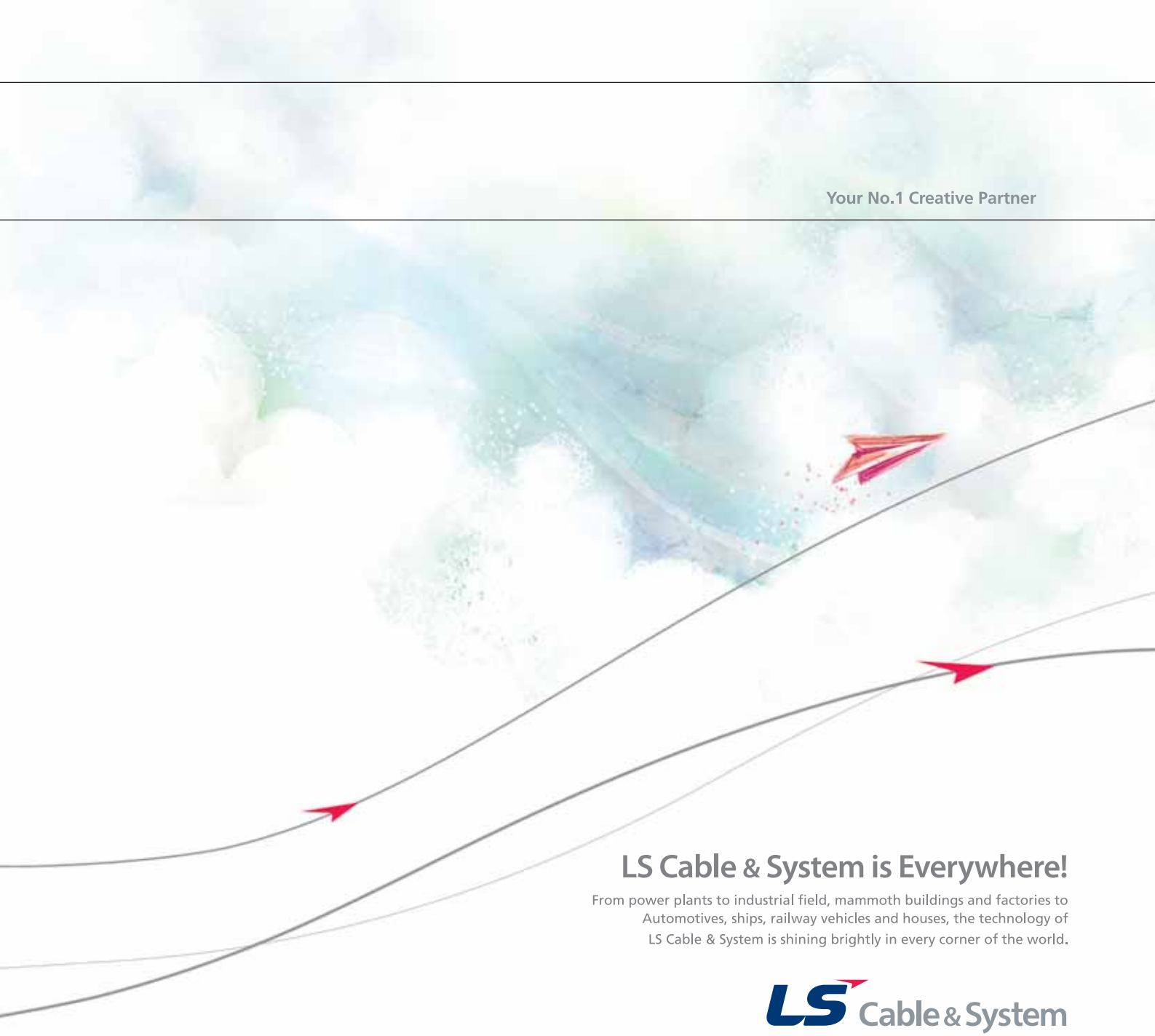
LS P/N	Finger #	Body ID		Finger ID		Recovered Body T.	Recovered Finger T.	Recovered Full Length	Recovered Finger Length
		S	R	S	R				
LS-CCB 360 22	3	60	22	24	3.75	3.75	3.00	185	45
LS-CCB 380 33		80	33	36	4.00	4.00	3.25	210	50
LS-CCB 311047		110	47	48	3.80	3.80	3.00	225	75
LS-CCB 312547		125	47	55	4.25	4.25	3.50	250	75
LS-CCB 314054		140	54	62	4.00	4.00	2.50	240	65

• S stands for *Supplied* within table above • R stands for *Recovered* within table above

Quality Certificates



We do what it takes to earn quality certifications like ISO 9001, ISO/TS 16949 and ISO 14001, which sets standards for process control and manufacturing flow.



LS Cable & System is Everywhere!

From power plants to industrial field, mammoth buildings and factories to Automotives, ships, railway vehicles and houses, the technology of LS Cable & System is shining brightly in every corner of the world.

LS Cable & System



Products & Systems of LS Cable & System

A Convenient World through the Use of Cable

Energy Cables & Systems

LS Cable & System-setting the standards in power solution business

LS Cable & System provides highly customized electric power systems from power transmission & distribution solutions to marine, ship vessels, nuclear power and wind power systems.
Our turnkey solutions encompass the entire power transmission & distribution system from architecture, provision of raw materials, and installation, to maintenance and repair. We also lead the industry in developing cutting-edge products, such as superconducting cables, submarine cables and IT solutions for electric power.
We provide customized total solutions for a wide array of industries from nuclear power plants, manufacturing plants, railways, marine and ship vessel systems to wind power generation systems. Busduct system, which efficiently and effectively delivers high-capacity electricity, and the fire-retardant low toxic cables are a result of our decades-long commitment to creating eco-friendly products.



- Submarine Power Cable
- Super-conduction Cable System
- EHV, HV, MV, LV Cable
- OHTL, OPGW
- IT Solutions for Electric Power
- Control & Instrument Cable
- Halogen-free Cable
- Busduct System
- Industrial Specialty Cable

Telecommunications

Providing cutting-edge, innovative technologies for a ubiquitous network



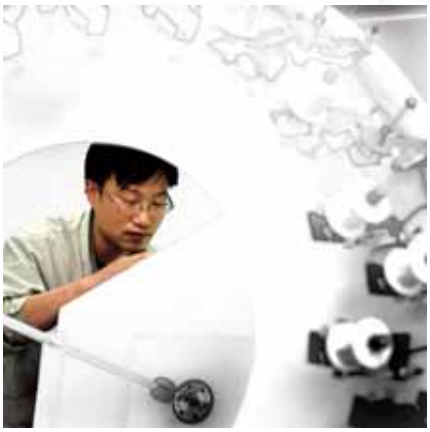
Amid the convergence of broadcasting and telecommunications, and accelerating growth of broadband and wireless networks, the telecommunications industry is undergoing a major transformation. In this rapidly evolving landscape, LS Cable & System leads the industry with customized solutions and services that meets the demanding needs of our clients worldwide. We have developed the following solutions with the scalability to serve both the private and public sector: ① NI (Network Integration) / SI (System Integration), ② ITS (Intelligent Transport Solution), and ③ UTS (Ubiquitous Total Solution).
Our quest to remain at the forefront of network technology and trends has led us to develop the following cutting-edge products: fiber-optic telecom solution, 10G Ethernet-level converged integrated cabling system, RF coaxial cable system, G-PON-based FTTH solution and LS-HFC (Hybrid Fiber Coaxial), which is 200-Mbps high-speed cable TV network system. Our broad product portfolio and technical prowess have made us a market leader in the global telecommunications industry.

- Optical Fiber, Optical Fiber Cable
- FTTH Solutions
- RF Solutions
- Wireless Transmission System
- Coaxial Cable, UTP Cable
- QPS (Quadruple Play Service) System

Integrated Modules & Cable Systems

Providing the best customized cable solutions for all environments

Our dedication to meeting our clients need for faster, smaller, safer and more convenient products has kept us ahead of our peers on the technology curve. As such, our cables and modules are widely used in industrial installations, electronic devices, automobiles, aircrafts, and even military equipments and installations.
We have also maintained our commitment to developing a wide array of eco-friendly products that are safer, more efficient, and produce fewer pollutants.
Our technological breakthroughs have led us to the development of the following innovative products: MCX (Micro-Coaxial cables) for internal wiring of mobile phones, FA (Factory Automation) cables for plant automation systems, eco-friendly cables for LCDs, eco-friendly PP (Polypropylene) cables for automobiles, electric solutions for hybrid vehicles, and heat shrinkable tubes that can endure temperatures up to 135℃



- Industrial Cable & Module
- Automotive Wire & Cable
- Tube Components

Industrial Materials

Realizing a convenient future with cutting-edge materials

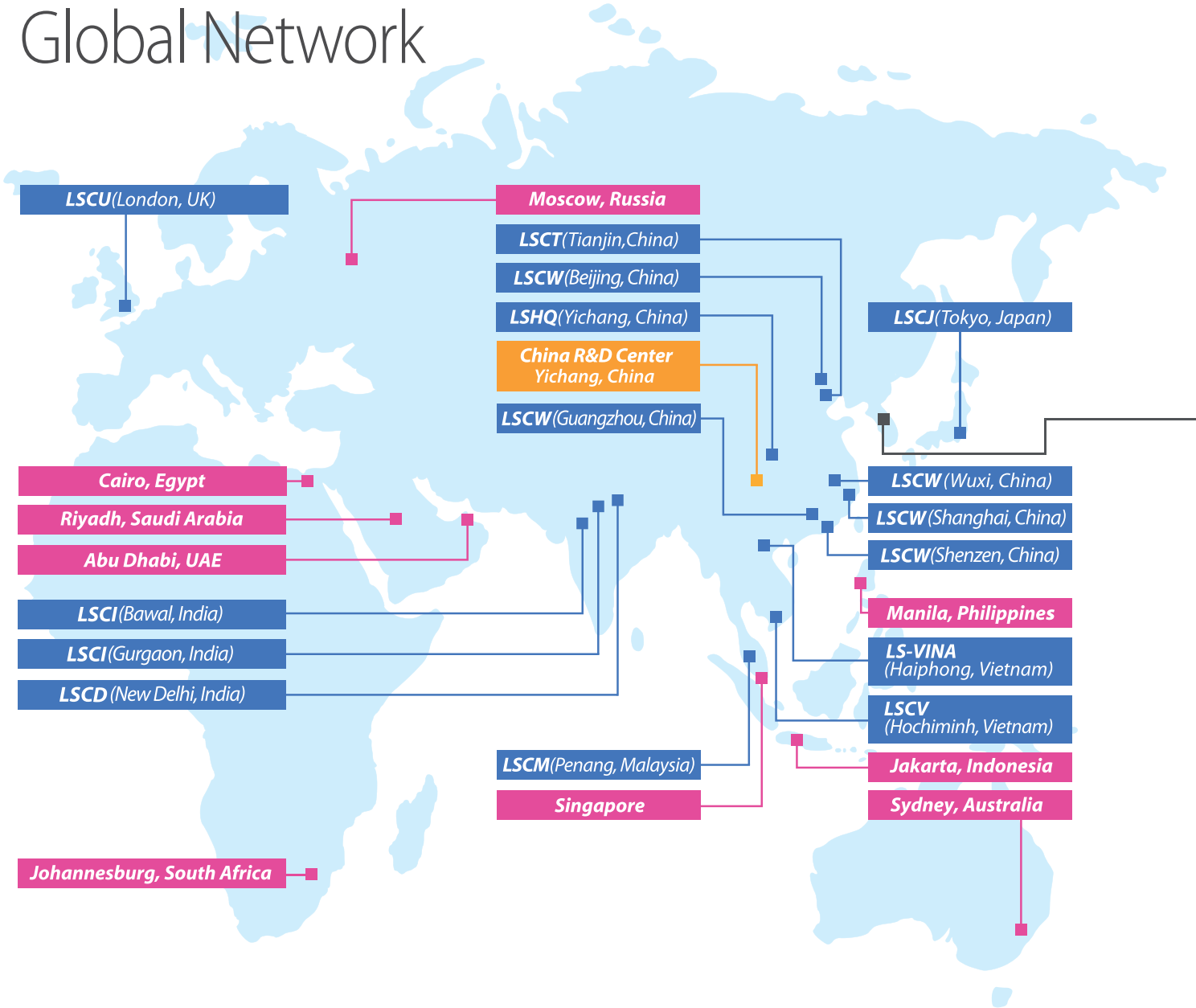


Based on LS Cable & System's production know-how and technologies in copper, aluminum and rubber treatment, the company is ramping up production of high value-added products, such as high-purity 8mm copper rods for vehicle wires and 0.03mm copper rod for ultra-fine wires.
The cutting-edge technologies of our precision rectangular winding wires, suitable for hybrid vehicle motors and car generators, and eXtra Thermal Aluminum Alloy (XTAL) are bolstering LS Cable & System's brand power here and abroad. Our continuous efforts to develop innovative new materials have also led us to produce oxide free copper (OFC), alternative to copper alloy, and so on. Furthermore, all these new developments are coming about as the company makes inroads in the global cable market through its localization efforts.
With years of experience and technologies in compounding treatment, LS Cable & System produces industrial rubber products and rubber tiles, the flooring material used in construction. Global demand for our flocking-based carpet tiles, featuring excellent convenience and sanitary engineering, is booming.

- Magnet Wires
- Copper Rod
- Aluminum Materials
- Rubber Tiles



Global Network



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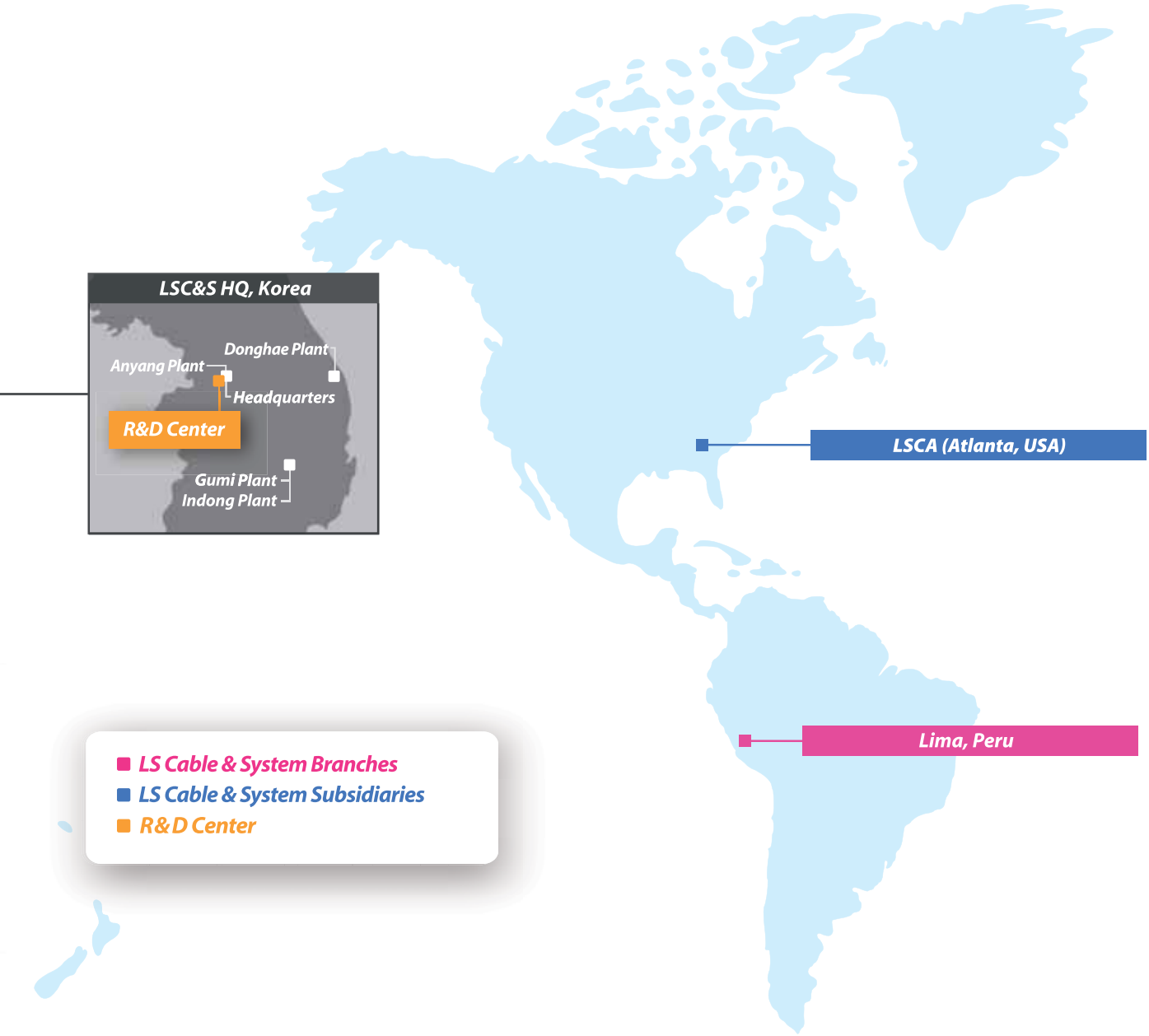
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Production : Magent Wire

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Nov. 2014

Greater Value Together

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