Heat Shrink Tubing and Devices

Product Catalog

www.elenets.com

About Us

Worldwide Service

Elenets General Electronics Corp. regards itself as a solution provider that brings you the best electronic components at the most competitive prices. As a specialist in the heat shrink materials industry, we are among the few polymer extrusion companies who are capable to provide environment-friendly heat shrinkable materials. We work closely with our internal and external clients and serve them with reliable products for diverse purposes. With more than ten years experiences in the field of heat shrinkable material, we understand what our customers' needs and where they are heading. We are here to ensure all the customer's concerns end at one stop.

Heat Shrinkable Products

With ten years experiences in the field, Elenets provides the complete source for heat shrink products and related technology. Our products include polyolefin, fluoropolymer, elastomer, PVC heat shrink based materials in thin, medium, and heavy wall tubing, as well as heat shrink accessories and equipments. Our Heat Shrink Tubings are UL/CSA approved and passed KEMA test. Environment protection is our company's philosophy; all of our products pass RoHS compliance that restricts the use of hazardous substances. With the listed certifications and recognitions, our reliable and environment-friendly products have been safely applied on a wide range of applications, such as parts, wires, cables and pipes in the fields of electronics, power, telecommunication, petrochemical industry, automotive industry, and national defense. In particular, our heat shrink products had been used in High-speed rail projects as well as Shenzhou spacecraft program and had earned high reputation from those projects.

Customized Design

Our specialized team has expertise on the market trends and how electronics supply works. Our specialists can assist you with special material guidance, prototype development and process design. In addition to our existing heat shrink tubing and materials, we also provide custom options in color, size, cutting length, and adhesive-wall thickness. Tell us about your request, Elenets will ensure the best and profitable electronic supply for your business. The commitment to develop unique and market-driven solutions of custom applications has earned outstanding satisfaction from our customers.

Single-Wall Polyolefin Tubing

Universal Heat Shrink Tubing

Military Spec Heat Shrink Tubing

Dual Wall (Adhesive-Lined) Tubing

Flexible Adhesive-Lined Polyolefin Tubing

Military Spec Adhesive-Lined Heat Shrink Tubing

Medium and Heavy-Duty Tubing

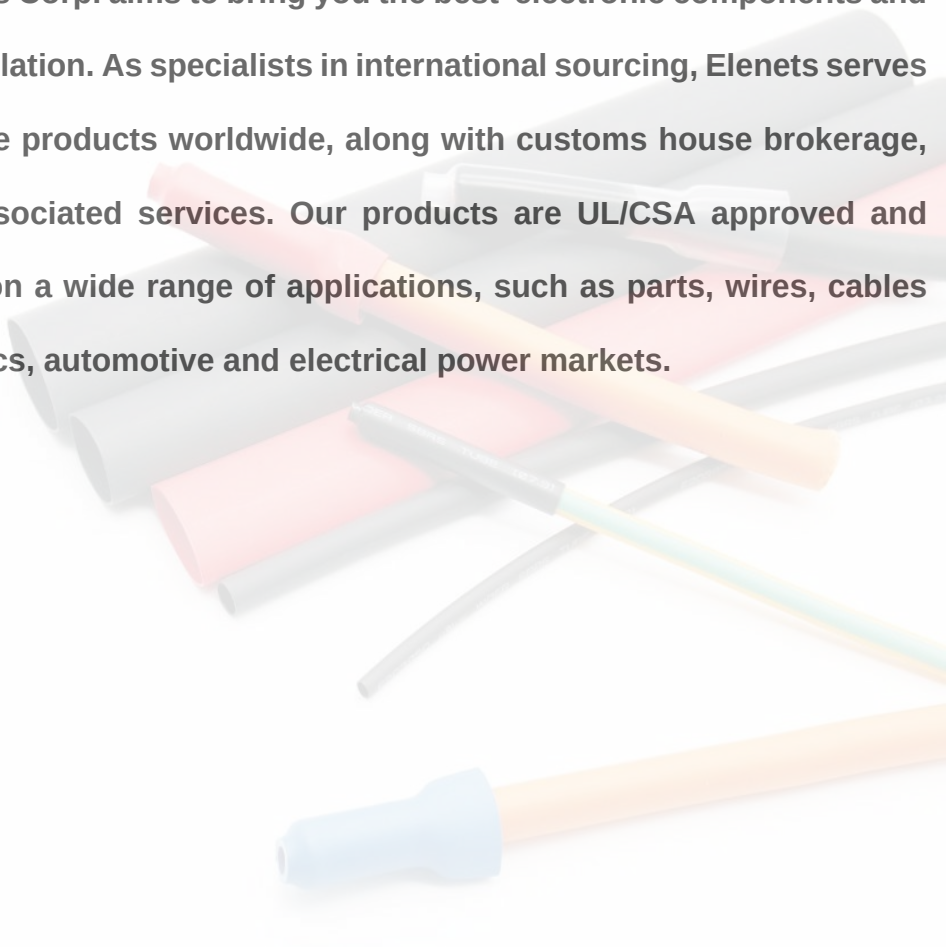
Heat Shrinkable Busbar Insulation Tubing

Special Purpose Tubing

Elenets®

Heat Shrink Products

Elenets General Electronics Corp. aims to bring you the best electronic components and solutions for electrical insulation. As specialists in international sourcing, Elenets serves you the most cost-effective products worldwide, along with customs house brokerage, freight forwarding and associated services. Our products are UL/CSA approved and RoHS compliant, applied on a wide range of applications, such as parts, wires, cables and pipes for the electronics, automotive and electrical power markets.



Single Wall Polyolefin Tubing

Universal Heat Shrink Tubing

Military Spec Heat Shrink Tubing

Single-Wall Polyolefin Tubing

Elenets Single Wall Heat Shrink Tubing Products provide an outstanding performance as a shrink-fit electrical insulation over wire bundles. Our tubing offer general purpose protection and connection. The typical applications of our single wall tubing include lightweight wire harness covering, wire marking, wire bundling, component packaging and fire-resistant covering involving electronics, automotive, military and aerospace sectors.

-- Universal heat shrink tubing --

ES (2X)

Flame-retardant, universal heat shrink tubing with excellent physical and mechanical properties; Flexible; Shrink Ratio 2:1

Applications

Cost-effective choice for routine electrical insulation and mechanical protection applications, such as splice sealing, strain relief for fine gauge wire and fiber optic cables, thermal insulation of substrates, pipes, hoses and cables, and moisture, fungus, and weather resistant for outdoor applications.

Features

•Flexible •Flame retardant
•Shrink ratio 2:1
•Initial shrinkage temperature: ⩾ 84°C
•Fully shrink temperature: ⩾ 120°C
•Continuous operating temperature: -55°C to 125°C

Specification/Standards

UL	CAN/CSA	RoHS
UL224	C22.2 NO198.1-99	✓

Typical Properties

Property	Test Method	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4
Ultimate Elongation (%)	ASTM D 2671	⩾200
Tensile Strength after Heat Aging (MPa)	158°C x168h	⩾7.3
Ultimate Elongation after Heat Aging (%)	158°C x168h	⩾100
Longitudinal Change (%)	ASTM D 2671	±5%
Flammability	ASTM D 2671 C	VW-1
Voltage Withstand	UL 224, 2500V, 60s	No breakdown
Dielectric Strength (kV/mm)	ASTM D 149	⩾15
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness (Normal) mm
1/16	(1)	1.5±0.2	0.65	0.28
	(1.5)	2.0±0.2	0.85	0.32
3/32	(2)	2.5±0.2	1.0	0.35
	(2.5)	3.0±0.2	1.3	0.38
1/8	(3)	3.5±0.2	1.5	0.4.0
	(3.5)	4.0±0.2	1.8	0.42
	(4)	4.5±0.2	2.0	0.45
3/16	(4.5)	5.0±0.2	2.3	0.50
	(5)	5.5±0.2	2.5	0.55
1/4	(6)	6.5±0.2	3.0	0.55
5/16	(7)	7.5±0.3	3.5	0.55
	(8)	8.5±0.3	4.0	0.60
3/8	(9)	9.5±0.3	4.5	0.60
	(10)	10.5±0.3	5.0	0.60
	(11)	11.5±0.3	5.5	0.60
1/2	(12)	12.5±0.3	6.0	0.60
	(13)	13.5±0.3	6.5	0.65
	(14)	14.5±0.3	7.0	0.65
5/8	(15)	15.5±0.4	7.5	0.70
	(16)	16.5±0.4	8.0	0.70
	(17)	17.5±0.4	8.5	0.70
3/4	(18)	19.0±0.5	9.0	0.80
	(20)	21.0±0.5	10.0	0.80
	(22)	23.0±0.5	11.0	0.80
1	(25)	26.0±0.5	12.5	0.90
	(28)	29.0±0.5	14.0	0.90
1-1/4	(30)	31.5±1.0	15.0	0.95
1-1/2	(35)	36.5±1.0	17.5	1.00
	(40)	41.5±1.0	20.0	1.00
2	(50)	⩾50	25.0	1.00
	(60)	⩾60	31.0	1.30
	(70)	⩾70	36.0	1.30
3, 4, 5, 6, 7 inch are available				

-- Universal heat shrink tubing --

ES (3X)

Flame-retardant, universal heat shrink tubing with excellent physical and mechanical properties; Flexible; Shrink Ratio 3:1

Applications

Cost-effective choice for routine electrical insulation and mechanical protection applications. The 3:1 shrink ratio makes this tubing the insulation of choice for irregular components with large diameter variation.

Features

•Shrink ratio 3:1

•Initial shrinkage temperature: ⩾ 84°C

•Fully shrink temperature: ⩾ 120°C

•Continuous operating temperature: -55°C to 125°C

Specification/Standards

UL	CAN/CSA	RoHS
UL224	C22.2 NO198.1-99	✓

Typical Properties

Property	Test Method	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4
Ultimate Elongation (%)	ASTM D 2671	⩾200
Tensile Strength after Heat Aging (MPa)	158°C x168h	⩾7.3
Ultimate Elongation after Heat Aging (%)	158°C x168h	⩾100
Longitudinal Change (%)	ASTM D 2671	±5%
Flammability	ASTM D 2671 C	VW-1
Voltage Withstand	UL 224, 2500V, 60s	No breakdown
Dielectric Strength (kV/mm)	ASTM D 149	⩾15
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness (Normal) mm
1/16	(1.5)	1.6±0.1	⩽0.5	0.45±0.10
1/8	(3)	3.2±0.1	⩽1.0	0.55±0.10
3/16	(4.5)	4.7±0.1	⩽1.5	0.60±0.10
1/4	(6)	6.2±0.1	⩽2.0	0.65±0.10
3/8	(9)	9.3±0.2	⩽3.0	0.75±0.15
1/2	(12)	12.3±0.2	⩽4.0	0.75±0.15
5/8	(15)	15.3±0.2	⩽5.0	0.80±0.15
3/4	(18)	18.3±0.2	⩽6.0	0.85±0.15
1	(24)	24.4±0.3	⩽8.0	1.00±0.20
1-1/4	(30)	30.4±0.3	⩽10.0	1.15±0.20
1-1/2	(39)	39.6±0.5	⩽13.0	1.50±0.20
2	(50)	50.6±0.5	⩽16.0	2.50±0.20
	(60)	61.5±1.0	⩽20.0	2.60±0.20
	(70)	71.5±1.0	⩽23.0	2.60±0.20
3	(80)	81.5±1.0	⩽26.0	2.60±0.20
	(90)	91.5±1.0	⩽30.0	2.60±0.20
4	(100)	101.5±1.0	⩽33.0	2.60±0.20

TS (2X)

Ultra thin wall, very flexible, flame-retardant heat shrink tubing; Shrink Ratio 2:1

Applications

Typically used where rapid shrinking and space saving are required. The extra thin wall enables rapid shrinking, reducing installation time and risk of damage to temperature sensitive components. It also provides space saving in applications of high-density wiring, small connector assemblies and electronic components.

Features

•Ultra thin wall •Flexible •Flame retardant
•Shrink ratio 2:1
•Initial shrinkage temperature: ⩾ 70°C
•Fully shrink temperature: ⩾ 110°C
•Continuous operating temperature: -45°C to 125°C

Specification/Standards

UL	CAN/CSA	RoHS
UL224	C22.2 NO198.1-99	✓

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness (Normal) mm
1/16	(1)	1.4±0.2	0.65	0.20
	(1.5)	1.9±0.2	0.85	0.20
3/32	(2)	2.4±0.2	1.0	0.22
	(2.5)	2.9±0.2	1.3	0.25
1/8	(3)	3.4±0.2	1.5	0.28
	(3.5)	3.9±0.2	1.8	0.28
	(4)	4.4±0.2	2.0	0.30
3/16	(4.5)	4.9±0.2	2.3	0.30
	(5)	5.5±0.2	2.5	0.32
1/4	(6)	6.5±0.2	3.0	0.32
5/16	(7)	7.5±0.3	3.5	0.32
	(8)	8.5±0.3	4.0	0.32
3/8	(9)	9.5±0.3	4.5	0.35
	(10)	10.5±0.3	5.0	0.35
	(11)	11.5±0.3	5.5	0.40
1/2	(12)	12.5±0.3	6.0	0.40
	(13)	13.5±0.3	6.5	0.40
	(14)	14.5±0.3	7.0	0.40
5/8	(15)	15.5±0.4	7.5	0.40
	(16)	16.5±0.4	8.0	0.40
	(17)	17.5±0.4	8.5	0.40
3/4	(18)	18.5±0.4	9.0	0.42
	(20)	20.5±0.5	10.0	0.45
	(22)	22.5±0.5	11.0	0.45
1	(25)	25.5±0.5	12.5	0.45

Typical Properties

Property	Test Method	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4
Ultimate Elongation (%)	ASTM D 2671	⩾200
Tensile Strength after Heat Aging (MPa)	158°C x168h	⩾7.3
Ultimate Elongation after Heat Aging (%)	158°C x168h	⩾100
Longitudinal Change (%)	ASTM D 2671	±5%
Flammability	ASTM D 2671 C	VW-1
Dielectric Strength (kV/mm)	ASTM D 149	⩾15
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$

-- Universal heat shrink tubing --

SW-105 (2X)

105°C low-temperature, non self-extinguishing, flexible heat shrink tubing; Shrink ratio 2:1

Applications

SW-105 offers an excellent balance of electrical, mechanical, and thermal properties. Shrink starts at 70°C, which makes it ideal for quick insulating and bundling of wire harnesses and components.

Features

- Halogen free
- Shrink ratio 2:1
- Initial shrinkage temperature: ⩾ 70°C
- Fully shrink temperature: ⩾ 105°C
- Continuous operating temperature: -55°C to 105°C

Specification/Standards

UL	CAN/CSA	RoHS
UL224	C22.2 NO198.1-99	✓

Typical Properties

Property	Test Method	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4
Ultimate Elongation (%)	ASTM D 2671	⩾200
Tensile Strength after Heat Aging (MPa)	136°C x168h	⩾7.3
Ultimate Elongation after Heat Aging (%)	136°C x168h	⩾100
Voltage Withstand	2500V, 60s	No breakdown
Dielectric Strength (kV/mm)	ASTM D 149	⩾15
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness (Normal) mm
3/64	(0.9)	0.9±0.2	0.50	0.22
	(1.1)	1.1±0.2	0.65	0.28
1/16	(1.5)	1.5±0.2	0.85	0.32
	(2)	2.0±0.2	1.00	0.35
3/32	(2.5)	2.5±0.2	1.30	0.38
	(3)	3.0±0.2	1.50	0.40
1/8	(3.5)	3.5±0.2	1.80	0.42
	(4)	4.0±0.2	2.00	0.50
	(4.5)	4.5±0.2	2.30	0.55
3/16	(5)	5.0±0.2	2.50	0.55
	(5.5)	5.5±0.2	3.00	0.55
1/4	(6)	6.5±0.2	3.50	0.60
5/16	(7)	7.5±0.3	4.00	0.60
	(8)	8.5±0.3	4.50	0.60
3/8	(9)	9.5±0.3	5.00	0.60
	(10)	10.5±0.3	5.50	0.60
	(11)	11.5±0.3	6.00	0.65
1/2	(12)	12.5±0.3	6.50	0.65
	(13)	13.5±0.3	7.00	0.70
	(14)	14.5±0.3	7.50	0.70
5/8	(15)	15.5±0.4	8.00	0.70
	(16)	16.5±0.4	8.50	0.80
	(17)	17.5±0.4	9.00	0.80
3/4	(18)	19.0±0.5	10.0	0.80
	(20)	21.0±0.5	11.0	0.90
	(22)	23.0±0.5	12.5	0.90
1	(25)	26.0±0.5	14.0	0.95
	(28)	29.0±0.5	15.0	1.00
1-1/4	(30)	31.5±1.0	17.5	1.00
	(35)	36.5±1.0	20.0	1.00
1-1/2	(40)	41.5±1.0	22.5	1.00
	(45)	46.0±1.0	25.0	1.00

-- Universal heat shrink tubing --

SW-150 (2X)

150°C flame-retardant, flexible, heat shrink tubing;
Shrink ratio 2:1

Applications

Typically used for applications need superior mechanical and chemical (abrasion, cut-through, and strain relief, corrosion), thermal, and fluid-resistance performance in demanding environments. Widely used to provide insulation and strain relief of wire terminations and connections. Used for jacketing wire bundles and light-duty harnesses where superior abrasion resistance is a plus. Also used to identify and color code electrical connections and wire bundles.

Features

•Flame retardant •Good resistance to regular fluids and solvents
•Shrink ratio 2:1
•Initial shrinkage temperature: ⩾ 84°C
•Fully shrink temperature: ⩾ 120°C
•Continuous operating temperature: -55°C to 150°C

Specification/Standards

UL	CAN/CSA	RoHS
UL224	C22.2 NO198.1-99	✓

Typical Properties

Property	Test Method	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4
Ultimate Elongation (%)	ASTM D 2671	⩾200
Tensile Strength after Heat Aging (MPa)	180°C x168h	⩾7.3
Ultimate Elongation after Heat Aging (%)	180°C x168h	⩾100
Corrosion	UI224	±5%
Flammability	ASTM D 2671 C	VW-1
Voltage Withstand	UL 224, 2500V, 60s	No breakdown
Heat Shock (%)	UL 224, 250°C x 4h	No cracks, flowing or dripping
Cold Blend	-30°C x 1h	No cracks
Dielectric Strength (kV/mm)	ASTM D 149	⩾15
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$
Water Absorption (%)	UL 224	⩽0.5

Standard Sizes and Dimensions

Ordering Size in. (mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness (Normal) mm
3/64 (1.2)	1.2	0.6	0.33
1/16 (1.6)	1.6	0.8	0.33
3/32 (2.4)	2.4	1.2	0.44
1/8 (3.2)	3.2	1.6	0.44
3/16 (4.8)	4.8	2.4	0.44
1/4 (6.4)	6.4	3.2	0.56
5/16 (7.9)	7.9	4.0	0.56
3/8 (9.5)	9.5	4.8	0.56
1/2 (12.7)	12.7	6.4	0.56
5/8 (15.9)	15.9	8.0	0.69
3/4 (19.1)	19.1	9.5	0.69
1 (25.4)	25.4	12.7	0.77
1-1/4 (31.8)	31.8	15.9	0.87
1-1/2 (38.1)	38.1	19.1	0.87
2 (50.8)	50.8	25.4	0.97
3 (76.2)	76.2	38.1	1.17
4 (101.6)	101.6	50.8	1.17
5 (127.0)	127.0	63.5	1.17
6 (152.4)	152.4	76.2	1.17

-- Military Spec Heat Shrink Tubing --

SF-135 (2X)

Flame-retardant, flexible, multi-purpose, Military Spec heat shrink tubing; Shrink ratio 2:1

Applications

Typically used for splice sealing and lightweight wire harness covering, wire marking, wire bundling, component packaging and fire-resistant covering.

Features

•Flame retardant •Flexible •Shrink ratio 2:1

•Initial shrinkage temperature: ⩾ 84°C •Fully shrink temperature: ⩾ 120°C

•Continuous operating temperature: -55°C to 135°C

Specification/Standards

Military	UL	CAN/CSA	RoHS
SAE-AMS-DTL-23053/5 Class 1&3	UL224	C22.2 NO198.1-99	✓

Typical Properties

Property	Test Method	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4
Ultimate Elongation (%)	ASTM D 2671	⩾200
Tensile Strength after Heat Aging (MPa)	175°C x168h	⩾7.3
Ultimate Elongation after Heat Aging (%)	175°C x168h	⩾100
Longitudinal Change (%)	ASTM D 2671	±5%
Flammability	ASTM D 2671 C	VW-1
Voltage Withstand	UL 224, 2500V, 60s	No breakdown
Heat Shock	UL 224, 250°C x 4h	No cracks, flowing or dripping
Dielectric Strength (kV/mm)	ASTM D 149	⩾15
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$

Standard Sizes and Dimensions

Ordering Size in. (mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness (Normal) mm
3/64 (0.8)	1.3±0.1	⩽0.58	0.41±0.07
1/16 (1.2)	1.7±0.1	⩽0.79	0.43±0.07
3/32 (2)	2.5±0.1	⩽1.17	0.51±0.07
1/8 (3)	3.5±0.1	⩽1.58	0.51±0.07
3/16 (4.5)	5.0±0.1	⩽2.36	0.51±0.07
1/4 (6)	6.6±0.1	⩽3.18	0.64±0.07
3/8 (9)	9.65±0.1	⩽4.75	0.64±0.07
1/2 (12)	13.0±0.2	⩽6.35	0.64±0.07
3/4 (18)	19.5±0.3	⩽9.53	0.76±0.07
1 (25)	26.0±0.3	⩽12.7	0.89±0.07
5/4 (30)	31.0±0.5	⩽15.0	0.89±0.07
3/2 (38)	39.0±0.5	⩽19.1	1.00±0.07
2 (50)	52.5±0.5	⩽25.4	1.15±0.07
3 (75)	79.0±2.0	⩽38.1	1.27±0.07
4 (100)	104.0±2.0	⩽50.8	1.40±0.07

-- Military Spec Heat Shrink Tubing --

SF-135 (3X)

Flame-retardant, flexible, multi-purpose, Military Spec heat shrink tubing; Shrink ratio 3:1

Applications

Typically used for splice sealing and lightweight wire harness covering, wire marking, wire bundling, component packaging and fire-resistant covering.

Features

•Flame retardant •Flexible •Shrink ratio 2:1

•Initial shrinkage temperature: ⩾ 84°C •Fully shrink temperature: ⩾ 120°C

•Continuous operating temperature: -55°C to 135°C

Specification/Standards

Military	UL	CAN/CSA	RoHS
SAE-AMS-DTL-23053/5 Class 1&3	UL224	C22.2 NO198.1-99	✓

Typical Properties

Property	Test Method	Typical Performance
Tensile strength (MPa)	ASTM D 2671	⩾10.4
Ultimate Elongation (%)	ASTM D 2671	⩾200
Tensile Strength after Heat Aging (MPa)	175°C x168h	⩾7.3
Ultimate Elongation after Heat Aging (%)	175°C x168h	⩾100
Longitudinal Change (%)	ASTM D 2671	±5%
Flammability	ASTM D 2671 C	VW-1
Voltage Withstand	UL 224, 2500V, 60s	No breakdown
Heat Shock	UL 224, 250°C x 4h	No cracks, flowing or dripping
Dielectric Strength (kV/mm)	ASTM D 149	⩾15
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness (Normal) mm
1/16	(1.5)	1.6±0.1	⩽0.5	0.45±0.10
1/8	(3)	3.2±0.1	⩽1.0	0.55±0.10
3/16	(4.5)	4.7±0.1	⩽1.5	0.60±0.10
1/4	(6)	6.2±0.1	⩽2.0	0.65±0.10
3/8	(9)	9.3±0.2	⩽3.0	0.75±0.15
1/2	(12)	12.3±0.2	⩽4.0	0.75±0.15
5/8	(15)	15.3±0.2	⩽5.0	0.80±0.15
3/4	(18)	18.3±0.2	⩽6.0	0.85±0.15
1	(24)	24.4±0.3	⩽8.0	1.00±0.20
1-1/4	(30)	30.4±0.3	⩽10.0	1.15±0.20
1-1/2	(39)	39.6±0.5	⩽13.0	1.50±0.20
2	(50)	50.6±0.5	⩽16.0	2.50±0.20
	(60)	61.5±1.0	⩽20.0	2.60±0.20
	(70)	71.5±1.0	⩽23.0	2.60±0.20
3	(80)	81.5±1.0	⩽26.0	2.60±0.20
	(90)	91.5±1.0	⩽30.0	2.60±0.20
4	(100)	101.5±1.0	⩽33.0	2.60±0.20

Dual Wall (Adhesive-Lined) Products

Universal Heat Shrink Tubing

Military Spec Adhesive-Lined Heat Shrink Tubing

Heat Shrink Tubing For Automotive Wiring Harnesses

Heat Shrink Tubing For Automotive Oil-Pipe Protection

Thick Adhesive-Lined Polyolefin Tubing

Heat Shrink End Caps And Repair Sleeve

Dual Wall (Adhesive-Lined) Products

Elenets Dual Wall Heat Shrink Tubing Products provide a wide range of jacket material and adhesive combinations. We allow our clients to customize the combination to meet their specific needs. The outer jacket provides abrasion resistance while inner adhesive line forms environmental seal against moisture penetration. The typical applications of our dual wall tubing include automotive and marine wire harness, wire splices, breakouts, and connector-to-cable transitions involving electronics, automotive, oil-pipe and variety of areas.

-- Flexible Adhesive-Lined Polyolefin Tubing --

DE (2X)

Flexible, adhesive-lined, polyolefin heat shrink tubing; Shrink ratio 2:1

Applications

Typically used to seal and protect in-line splices, bimetallic joints, and components from fluids, moisture, and corrosion. Repairs damaged wire insulation, especially where flexibility is required. Provides one step electrical insulation and moisture sealing.

Features

•Superior sealing against water, moisture or other contaminants •Out jacket flame retardant

•Inner adhesive bonds to plastics, steel and polyethylene •Shrink ratio 2:1

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Specification/Standards

UL	RoHS
UL224	✓

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
1/16	(1.6)	1.6	0.8	0.60±0.15	0.30±0.1
3/32	(2.4)	2.4	1.2	0.70±0.15	0.35±0.1
1/8	(3.2)	3.2	1.6	0.70±0.15	0.35±0.1
3/16	(4.8)	4.8	2.4	0.80±0.15	0.40±0.1
1/4	(6.4)	6.4	3.2	0.80±0.15	0.40±0.1
5/16	(7.9)	7.9	3.9	0.90±0.15	0.45±0.1
3/8	(9.5)	9.5	4.8	0.90±0.15	0.45±0.1
1/2	(12.7)	12.7	6.4	0.95±0.20	0.45±0.1
5/8	(15.9)	15.9	7.9	0.95±0.20	0.45±0.1
3/4	(19.1)	19.1	9.5	1.00±0.20	0.45±0.1
1	(25.4)	25.4	12.7	1.10±0.20	0.50±0.1
1-1/4	(31.8)	31.8	15.0	1.15±0.20	0.50±0.1
1-1/2	(38.1)	38.1	19.0	1.25±0.20	0.50±0.1
1-3/4	(44.5)	44.5	22.0	1.35±0.20	0.55±0.1
2	(50.8)	50.8	25.4	1.50±0.25	0.60±0.1

-- Flexible Adhesive-Lined Polyolefin Tubing --

Typical Properties

Property	Test Method	Stantard	Typical Performance
Tensile Strength (Mpa)	ASTM D 2671	≥10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	≥300	450
Tensile Strength after Heat Aging (Mpa)	UL224 158°C x168h	≥7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	≥200	350
Flammability	ASTM D 2671 B		Self-extinguish within 30s
Dielectric Strength (kV/mm)	IEC243	≥15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	≥1014	2.5 x 1014

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Flexible Adhesive-Lined Polyolefin Tubing --

DE (3X)

Flexible, adhesive-lined, polyolefin heat shrink tubing; Shrink ratio 3:1

Applications

Typically used to seal and protect in-line splices, bimetallic joints, and components from fluids, moisture, and corrosion. Repairs damaged wire insulation, especially where flexibility is required. Provides one step electrical insulation and moisture sealing.

Features

•Superior sealing against water, moisture or other contaminants •Out jacket flame retardant

•Inner adhesive bonds to plastics, steel and polyethylene •Shrink ratio 3:1

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
1/8	(3.2)	3.2	1	0.95±0.15	0.40±0.10
3/16	(4.8)	4.8	1.6	1.10±0.15	0.40±0.10
1/4	(6.4)	6.4	2.2	1.20±0.15	0.45±0.12
5/16	(7.9)	7.9	2.7	1.35±0.15	0.50±0.12
3/8	(9.5)	9.5	3.2	1.45±0.20	0.50±0.12
1/2	(12.7)	12.7	4.2	1.70±0.20	0.50±0.12
5/8	(15)	15	5.2	1.80±0.20	0.55±0.15
3/4	(19.1)	19.1	6.3	2.00±0.20	0.55±0.15
1	(25.4)	25.4	8.5	2.10±0.25	0.55±0.15
1-1/4	(30)	30	10.2	2.20±0.25	0.60±0.15
1-1/2	(39)	39	13.5	2.40±0.25	0.60±0.15
2	(50)	50	17	2.70±0.25	0.70±0.15
2-1/2	(64)	64	21	3.00±0.30	0.70±0.15
3	(75)	75	25	3.00±0.30	1.00±0.20
3-1/2	(90)	90	30	3.00±0.30	1.00±0.20
4	(100)	100	34	3.00±0.30	1.00±0.20
5	(125)	125	42	3.00±0.30	1.00±0.20

Typical Properties

Property	Test Method	Stantard	Typical Performance
Tensile Strength (Mpa)	ASTM D 2671	≥10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	≥300	450
Tensile Strength after Heat Aging (Mpa)	UL224 158°C x168h	≥7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	≥200	350
Flammability	ASTM D 2671 B		Self-extinguish within 30s
Dielectric Strength (kV/mm)	IEC243	≥15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	≥1014	2.5 x 1014

Specification/Standards

UL	RoHS
UL224	✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Flexible Adhesive-Lined Polyolefin Tubing --

DE (4X)

Flexible, adhesive-lined, polyolefin heat shrink tubing; Shrink ratio 4:1

Applications

Typically used to seal and protect in-line splices, bimetallic joints, and components from fluids, moisture, and corrosion. High shrink ratio is suitable for insulation of irregular shaped connectors and components. This versatile shrinkable tubing provides one step electrical insulation and moisture sealing.

Features

•Superior sealing against water, moisture or other contaminants •Out jacket flame retardant

•Inner adhesive bonds to plastics, steel and polyethylene •Shrink ratio 4:1

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
5/32	(4)	4.0	1.0	1.00±0.15	0.40±0.15
1/4	(6)	6.0	1.5	1.10±0.15	0.40±0.15
5/16	(8)	8.0	2.0	1.50±0.15	0.50±0.15
1/2	(12)	12.0	3.0	1.70±0.15	0.50±0.15
5/8	(16)	16.0	4.0	2.00±0.15	0.60±0.15
25/32	(20)	20.0	5.0	2.30±0.25	0.60±0.15
1	(24)	24.0	6.0	2.60±0.25	0.60±0.15
1-1/4	(32)	32.0	8.0	3.00±0.30	0.70±0.15
1-1/2	(40)	40.0	10.0	3.00±0.30	0.70±0.15
2	(52)	52.0	13.0	3.30±0.30	0.70±0.15

Typical Properties

Property	Test Method	Stantard	Typical Performance
Tensile Strength (Mpa)	ASTM D 2671	≥10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	≥300	450
Tensile Strength after Heat Aging (Mpa)	UL224 158°C x168h	≥7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	≥200	350
Flammability	ASTM D 2671 B		Self-extinguish within 30s
Dielectric Strength (kV/mm)	IEC243	≥15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	≥1014	2.5 x 1014

Specification/Standards

UL	RoHS
UL224	✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Military Spec Adhesive-Lined Heat Shrink Tubing --

DF-135 (3X)

Highly flame-retardant, flexible, adhesive-lined, Military Spec polyolefin heat shrink tubing; Shrink ratio 3:1

Applications

Typically used in applications that require both flame retardant and environmental sealing capability. The high shrink ratio is ideal for irregular shaped connectors and components.

Features

•Highly flame retardant •Superior sealing against water, moisture or other contaminants

•Inner adhesive bonds to plastics, steel and polyethylene •Shrink ratio 3:1

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -55°C to 135°C

Specification/Standards

Military	UL	RoHS
SAE-AMS-DTL-23053/4	UL224	✓

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
1/8	(3.2)	3.2	1.0	0.95±0.15	0.40±0.10
3/16	(4.8)	4.8	1.6	1.10±0.15	0.40±0.10
1/4	(6)	6.0	2.2	1.20±0.15	0.45±0.10
5/16	(7.9)	7.9	2.7	1.35±0.15	0.50±0.10
3/8	(9.5)	9.5	3.2	1.45±0.20	0.50±0.10
1/2	(12.7)	12.7	4.2	1.70±0.20	0.50±0.15
5/8	(15)	15.0	5.2	1.80±0.20	0.55±0.15
3/4	(19.1)	19.1	6.3	2.00±0.2 0	0.55±0.20
1	(25.4)	25.4	8.5	2.10±0.25	0.55±0.20
1-1/4	(30)	30.0	10.2	2.20±0.25	0.60±0.20
1-1/2	(39)	39.0	13.5	2.40±0.25	0.60±0.20
2	(50)	50.0	17.0	2.70±0.25	0.80±0.20

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾12	12.5
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	MIL-DTL-23053/4	⩾8.4	8.5
Ultimate Elongation after Heat Aging (%)	MIL-DTL-23053/4	⩾100	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Military Spec Adhesive-Lined Heat Shrink Tubing --

DF-135 (4X)

Highly flame-retardant, flexible, adhesive-lined, Military Spec polyolefin heat shrink tubing; Shrink ratio 4:1

Applications

Typically used in applications that require both flame retardant and environmental sealing capability. The high shrink ratio is ideal for irregular shaped connectors and components.

Features

•Highly flame retardant •Superior sealing against water, moisture or other contaminants

•Inner adhesive bonds to plastics, steel and polyethylene •Shrink ratio 4:1

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -55°C to 135°C

Specification/Standards

Military	UL	RoHS
SAE-AMS-DTL-23053/4	UL224	✓

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
5/32	(4)	4.0	1.0	1.0±0.15	0.4±0.15
1/4	(6)	6.0	1.5	1.1±0.15	0.4±0.15
5/16	(8)	8.0	2.0	1.5±0.15	0.5±0.15
1/2	(12)	12.0	3.0	1.7±0.15	0.5±0.15
5/8	(16)	16.0	4.0	2.0±0.15	0.6±0.15
25/32	(20)	20.0	5.0	2.3±0.25	0.6±0.15
1	(24)	24.0	6.0	2.6±0.25	0.6±0.15
1-1/4	(32)	32.0	8.0	3.0±0.30	0.7±0.15
1-1/2	(40)	40.0	10.0	3.0±0.30	0.7±0.15
2	(52)	52.0	13.0	3.3±0.30	0.7±0.20

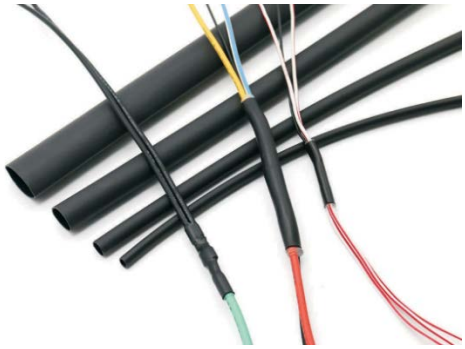
Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾12	12.5
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	MIL-DTL-23053/4	⩾8.4	8.5
Ultimate Elongation after Heat Aging (%)	MIL-DTL-23053/4	⩾100	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Heat Shrink Tubing For Automotive Wiring Harnesses --



DW-R (4X)

Semi-rigid, high shrink ratio, adhesive-lined heat shrink tubing for automotive wiring harnesses; Shrink ratio 4:1

Applications

Environmentally seals and protects a wide variety of electrical applications, including back-end connector sealing, breakouts, and connector-to-cable transitions. The high shrike ratio makes it possible for irregular components with large diameter variation and ideal to repair most damaged cable jackets without removing connectors. In addition, semi-rigid tubing provides strain relief and abrasion protection to wire splices, terminals and other components.

Features

•Semi-rigid •High shrink ratio

•High resistance to common automotive fluids and solvents •Shrink ratio 4:1

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
5/32	(4)	4.0	0.95	1.40±0.2	0.50±0.1
1/4	(6)	6.0	1.27	1.70±0.2	0.60±0.1
5/16	(8)	8.0	1.65	2.00±0.2	0.75±0.1
1/2	(12)	12.0	2.41	2.45±0.2	1.20±0.2
3/4	(18)	18.0	4.45	2.60±0.2	1.40±0.2

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	8.5
Ultimate Elongation after Heat Aged (%)	UL224 158°C x168h	⩾200	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Specification/Standards

UL	RoHS
UL224	✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Heat Shrink Tubing For Automotive Wiring Harnesses --

DW-RF (4X)

Highly flame-retardant, semi-rigid, adhesive-lined heat shrink tubing for automotive wiring harnesses; Shrink ratio 4:1

Applications

Environmentally seals and protects a wide variety of electrical applications, including back-end connector sealing, breakouts, and connector-to-cable transitions. The high shrike ratio makes it possible for irregular components with large diameter variation and ideal to repair most damaged cable jackets without removing connectors. In addition, semi-rigid tubing provides strain relief and abrasion protection to wire splices, terminals and other components.

Features

•Semi-rigid •Highly flame-retardant (Both outer jacket and adhesive liner)

•High resistance to common automotive fluids and solvents •Shrink ratio 4:1

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
5/32	(4)	4.0	0.95	1.40±0.2	0.50±0.1
1/4	(6)	6.0	1.27	1.70±0.2	0.60±0.1
5/16	(8)	8.0	1.65	2.00±0.2	0.75±0.1
1/2	(12)	12.0	2.41	2.45±0.2	1.20±0.2
3/4	(18)	18.0	4.45	2.60±0.2	1.40±0.2

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	8.5
Ultimate Elongation after Heat Aged (%)	UL224 158°C x168h	⩾200	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Specification/Standards

UL	RoHS
UL224	✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

DW-L (4X)

Low-temperature, adhesive-lined heat shrink tubing for automotive wiring harnesses; Shrink ratio 4:1

Applications

This high shrike ratio, adhesive lined shrinkable tubing is widely used to seal and protect connections and harnesses, including back-end connector sealing, breakouts, and connector-to-cable transitions, especially ideal for irregular components with large diameter variation and suitable to repair most damaged cable jackets without removing connectors. In addition, this product can shrink at a relatively lower temperature. This feature is aim to avoid wire damage under heat.

Features

•4:1 shrink ratio allows for fewer sizes to cover numerous splice configurations and diameters

•Adhesive bonds readily to PVC, XLPE and PP-EPDM cable jackets

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 110°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
5/32	(4)	4.0	0.95	1.40±0.20	0.50±0.20
1/4	(6)	6.0	1.27	1.70±0.20	0.60±0.20
5/16	(8)	8.0	1.65	2.00±0.20	0.75±0.20
1/2	(12)	12.0	2.41	2.45±0.20	1.20±0.20
3/4	(18)	18.0	4.45	2.60±0.20	1.40±0.20

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	8.5
Ultimate Elongation after Heat Aged (%)	UL224 158°C x168h	⩾200	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	⩾10^{14}	2.5 x 10^{14}

Specification/Standards

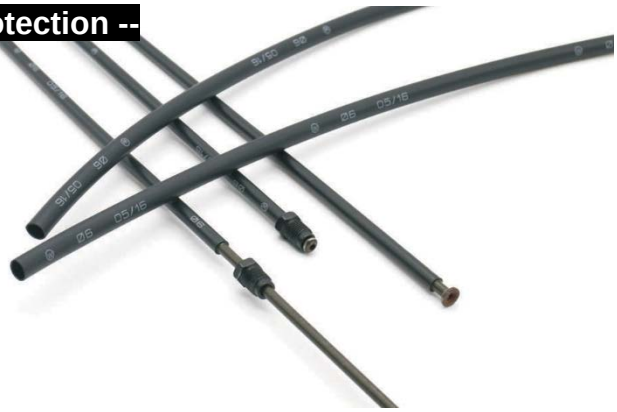
UL	RoHS
UL224	✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Heat Shrink Tubing For Automotive Oil-Pipe Protection --

DW-O



Adhesive-lined, heat shrink tubing for automotive oil-pipe protection

Applications

Typically designed for automotive oil-pipe protection, providing protection to break line, fuel line, hydraulic line and other metal pipeline which is subject to bending or clamping during manufacturing, installation or operation. The strongly bonded adhesive layer is very hard to be peeled off from pipeline.

Features

•Semi-rigid outer jacket •Strongly bonded adhesive liner •Easy installation

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 105°C

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
3/16	(5)	5.0	3.2	1.2±0.2	0.2±0.1
1/4	(6)	6.0	4.5	1.2±0.2	0.2±0.1
5/16	(8)	8.0	6.1	1.3±0.2	0.2±0.1
7/16	(11)	11.0	7.1	1.3±0.2	0.2±0.1
1/2	(13)	13.0	9.8	1.3±0.2	0.2±0.1
5/8	(15)	15.0	11.5	1.3±0.2	0.2±0.1

Typical Properties

Property	Test Method	Standard
Tensile Strength (MPa)	ASTM D 2671	⩾10.4
Ultimate Elongation (%)	ASTM D 2671	⩾300
Longitudinal Change	ASTM D 2671	-5%~+5%
Tensile Strength after Heat Aging (MPa)	120°C X 24hr	⩾12
Non-deformability	140°C, 10min, 2kg/cm^2, loaded 5 min	⩽60%
Low-temperature Impact	ASTM D 746	-35°C, no cracking
Impact Resistance to Fall	Room temperature&-40°C X 30min, impacted by a weight of 200g, 0.5m height	No cracking
Stress-crack Resistance	ASTM D 876	No cracking
Chemical Reagents Resistance: 0.1 mol/L H2SO4, 0.1 mol/L NaOH, Brake Fluid, Engine Oil, Gasoline	No abnormal appearance	20°C, 120hr

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.5%
Softening Point (°C)	ASTM E28	105±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Thick Adhesive-Lined Polyolefin Tubing --

DTK (3X)

Thick-wall, low-temperature, adhesive-lined, flexible polyolefin heat shrink tubing; Shrink ratio 3:1

Applications

Manufactured by co-extrusion of polyolefin and hot-melt adhesive. The thick adhesive liner is designed to provide both insulation and sealing to protected articles. This tubing is typically used to protect bundle wires and metal tubes against water and moisture.

Features

•Thick adhesive liner •Low shrink temperature •Flexible •Shrink ratio 3:1

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 110°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Ordering Size in.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm	Recovered Adhesive Thickness mm
1/8	(3.2)	3.2	1.0	0.95±0.15	0.45±0.1
3/16	(4.8)	4.8	1.6	1.20±0.15	0.60±0.1
1/4	(6.4)	6.4	2.2	1.35±0.15	0.70±0.1
5/16	(7.9)	7.9	2.7	1.50±0.15	0.75±0.1
3/8	(9.5)	9.5	3.2	1.65±0.15	0.85±0.1
1/2	(12.7)	12.7	4.2	1.80±0.20	0.90±0.1
5/8	(15)	15.0	5.2	1.80±0.20	0.90±0.1
3/4	(19.1)	19.1	6.3	2.00±0.20	1.00±0.1
1	(25.4)	25.4	8.5	2.10±0.20	1.05±0.1
5/4	(30)	30.0	10.2	2.20±0.20	1.05±0.1
1-1/2	(38.1)	38.1	13.5	2.40±0.20	1.15±0.1

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4	11
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	⩾200	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	⩾10^{14}	2.5 x 10^{14}

Specification/Approvals

UL	RoHS
UL224	✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.5%
Softening Point (°C)	ASTM E28	105±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

HSDW-CAPS (4X)

Adhesive-lined, heat shrinkable insulating caps;
Shrink ratio 4:1

Applications

HSDW-CAPS is adhesive lined heat shrink insulation caps specifically designed to insulate, seal and protect end or stub splices in wiring harnesses and electronic assemblies. The adhesive lining forms a permanent, flexible and water-resistant barrier, and allows sealing and insulating connections much faster than conventional methods.

Features

•High shrink ratio •Seals & protects against water, moisture and chemical •Quick installation

•Strong bonding to PVC, XLPE and PP-EPDM cable jackets

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Code	Size (mm)	Standard Length(mm)		Expanded	Recoverd			
		A	B	Internal Diameter Min(mm)	Internal Diameter Max(mm)	Outer Layer Thickness (mm)	Adhesive Thickness (mm)	Total Wall Thickness (mm)
C-1	3.2	22.0	12.7	3.2	0.80	0.64	0.56	1.20
C-2	4.8	25.4	15.2	4.8	1.30	0.76	0.76	1.52
C-3	6.4	28.4	15.2	6.4	1.52	1.00	0.91	1.91
C-4	9.5	31.8	18.3	9.5	2.00	1.08	1.00	2.08
C-5	12.7	38.1	21.6	12.7	2.41	1.30	1.24	2.54

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	⩾200	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Specification/Standards

RoHS
✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

HSDW-CAPSR (4X)

Semi-rigid, adhesive-lined, heat shrinkable insulating caps; Shrink ratio 4:1

Applications

HSDW-CAPSR is semi-rigid, adhesive lined heat shrink insulating caps specifically designed to insulate, seal and protect end or stub splices under extreme operating conditions. The semi-rigid and high shrink ratio makes the end cap suitable for heavy-duty applications.

Features

•Extra mechanical protection •High shrink ratio •Seals & protects against water, moisture and chemical

•Strong bonding to PVC, XLPE and PP-EPDM cable jackets •Quick installation

•Initial shrinkage temperature: ⩾ 80°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Code	Size (mm)	Standard Length (mm)	Expanded	Recoverd			
			Internal Diameter Min(mm)	Internal Diameter Max(mm)	Outer Layer Thickness (mm)	Adhesive Thickness (mm)	Total Wall Thickness (mm)
R-1	3.2	22.0	3.2	0.80	0.64	0.56	1.20
R-2	4.8	25.4	4.8	1.30	0.76	0.76	1.52
R-3	6.4	28.4	6.4	1.52	1.00	0.91	1.91
R-4	9.5	31.8	9.5	2.00	1.08	1.00	2.08
R-5	12.7	38.1	12.7	2.41	1.30	1.24	2.54

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	⩾200	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	⩾10^{14}	2.5 x 10^{14}

Specification/Standards

RoHS
✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Heat Shrink End Caps And Repair Sleeve --

HSDW-CT (4X)

Semi-rigid adhesive-lined heat shrink insulation connectors; Shrink ratio 4:1

Applications

HSDW-CT heat shrink insulation connectors are crystal clear, semi-rigid, and adhesive lined tubing with integral solderless splice; this connector provides a rugged environmentally sealed type of wire connector for wide range of AWG. With high shrink ratio, these connectors ideally insulate, seal and protect joints from physical abuse, abrasion, water, salt and other corrosive elements.

Features

•Exceptional clarity for visual confirmation of sealing •Inner adhesive bonds to plastics, rubbers & metals chemical •Seals & protects against water, corrosive compounds, moisture &contaminants

•Tough, durable heat shrink tubing resists mechanical damages

•Meet & conforms to OEM wiring specifications for installation & repairs

•Initial shrinkage temperature: ⩾ 90°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Code	Size		Tube Diameter			Color	Standard Package
	AWG	mm2	Expanded Min(mm)2	Recovered Max(mm)2	Length (mm)		
CT-1	22-18	0.5-1.0	4.8	1.2	35.0	red	1000pc/bag
CT-2	16-14	1.5-2.5	5.5	1.4	35.0	blue	1000pc/bag
CT-3	12-10	4.0-6.0	6.5	1.5	42.0	yellow	500pc/bag

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾14	16
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	15
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	⩾200	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	⩾10^{14}	2.5 x 10^{14}

Specification/Standards

RoHS
✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D1000	120N/25mm
Peel Strength (AL)	ASTM D1000	80N/25mm

HSDW-TAPE (1.4X)

Adhesive-lined, cross-linked polyolefin heat shrink tape; Shrink ratio 1.4:1

Applications

HSDW-TAPE is specifically designed for sealing joints which require vacuum tight, waterproof, or corrosion-free environments, and widely used in buried and overhead pipelines in petroleum and natural gas industries.

Features

•Working hermetically in vacuum and ventilation systems

•Strongly leaktight against moisture and other contaminants

•Powerful bonding to wide range of surfaces, such as steel, epoxy, PE, FBE etc.

•High resistance to bending, vibrations and other mechanical stresses over a wide range of temperatures

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 120°C

•Continuous operating temperature: -45°C to 125°C

Specification/Standards

RoHS
✓

Standard Sizes and Dimensions

Ordering Number	Width (mm)	Wall Thickness (mm)	Standard Lenghth (m)
WRSJD-0825	25.0	0.8	1.80±0.20
WRSJD-0850	50.0	3.0	2.00±0.20
WRSJD-08100	100.0	4.0	2.30±0.20
WRSJD-1025	25.0	5.0	2.30±0.20
WRSJD-1050	50.0	6.0	2.50±0.20
WRSJD-10100	100.0	6.0	2.70±0.20

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾14	15
Ultimate Elongation (%)	ASTM D 2671	⩾400	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾12	12.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	⩾300	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D1000	120N/25mm
Peel Strength (AL)	ASTM D1000	80N/25mm

Medium and Heavy-Duty Tubing

Medium-Duty Tubing

Heavy-Duty Tubing

Medium and Heavy Wall Polyolefin Tubing

Elenets Medium and Heavy Wall Heat Shrink Tubing Products are committed to provide increased insulation, excellent environmental sealing, extreme impact and abrasion resistance to meet particular requirement. Our special designed medium & heavy wall products install easily and has large shrink ratio to accommodate effective insulating and sealing. The typical applications of our median &heavy wall tubing include large transitions, splices and battery cables involving electricity and mass transportation market.

-- Medium-Duty Tubing --

MEE

Flame-retardant, medium wall, adhesive-lined heat shrink tubing.

Applications

Typically designed for low voltage electrical mechanical application where light weight and flexibility are required.

Features

•Flame retardant •Thermoplastic adhesive liner •Impact and abrasion resistance

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Specification/Standards

RoHS
✓

Standard Sizes and Dimensions

Ordering Size (mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Jacket Thickness mm	Recovered Adhesive Thickness mm	Recovered Total Wall Thickness (Normal) mm
10.2	10.2	3.0	1.35±0.20	0.50±0.15	1.85±0.25
16	16.0	5.0	1.40±0.20	0.60±0.15	2.00±0.25
19.1	19.1	5.6	1.70±0.20	0.70±0.15	2.40±0.25
25.0	25.0	8.0	2.00±0.20	0.70±0.15	2 .70±0.25
28.0	28.0	9.0	2.00±0.20	0.80±0.20	2.80±0.25
35.0	35.0	10.2	2.00±0.20	0.80±0.20	2.80±0.25
38.1	38.1	12.0	2.00±0.20	0.80±0.20	2.80±0.25
43.2	43.2	12.7	2.10±0.25	0.80±0.20	2.90±0.25
55.0	55.0	19.0	2.10±0.25	0.80±0.20	2.90±0.25
63.0	63.0	22.0	2.20±0.25	0.80±0.20	3.00±0.25
75.0	75.0	25.0	2.90±0.25	0.80±0.20	3.70±0.30
85.0	85.0	25.0	2.90±0.25	0.80±0.20	3.70±0.30
95.0	95.0	29.0	3.10±0.30	0.80±0.20	3.90±0.30
115.0	115.0	34.0	3.10±0.30	0.80±0.20	3.90±0.30
140.0	140.0	42.0	3.30±0.30	0.80±0.20	4.10±0.30
160.0	160.0	48.0	3.30±0.30	0.80±0.20	4.10±0.30
180.0	180.0	58.0	3.30±0.30	0.80±0.20	4.10±0.30
200.0	200.0	60.0	3.30±0.30	0.80±0.20	4.10±0.30
230.0	230.0	69.0	3.30±0.30	0.80±0.20	4.10±0.30

-- Medium-Duty Tubing --

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	≥10.4	11. 5
Ultimate Elongation (%)	ASTM D 2671	≥300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	≥7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	≥200	350
Dielectric Strength (kV/mm)	IEC243	≥15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Medium-Duty Tubing --

MEE-R

Semi-rigid, high resistance, medium wall, adhesive-lined heat shrink tubing.

Applications

Typically designed for a variety of low voltage electrical and mechanical application. The thermoplastic adhesive liner provides complete environmental insulation and moisture sealing to cable splice and terminations. This heat shrink tubing also provides strain relief to delicate wire connections and high resistance to impact and abrasion.

Features

- High impact and abrasion resistance
- Not flame-retardant
- Thermoplastic adhesive liner
- Initial shrinkage temperature: ⩾ 70°C
- Fully shrink temperature: ⩾ 125°C
- Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Ordering Size (mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Jacket Thickness mm	Recovered Adhesive Thickness mm	Recovered Total Wall Thickness (Normal) mm
6.0	6.0	2.0	1.40±0.20	0.45±0.10	1.85±0.25
8.0	8.0	2.0	1.40±0.20	0.45±0.10	1.85±0.25
10.2	10.2	3.0	1.40±0.20	0.50±0.10	1.90±0.25
12.0	12.0	3.0	1.40±0.20	0.50±0.10	1.90±0.25
16.0	16.0	5.0	1.50±0.20	0.55±0.15	2.15±0.30
19.1	19.1	5.6	1.80±0.20	0.60±0.15	2.40±0.30
22.0	22.0	6.0	2.00±0.30	0.60±0.15	2.60±0.30
25.0	25.0	8.0	2.00±0.30	0.60±0.15	2.70±0.30
28.0	28.0	6.0	2.40±0.30	0.95±0.15	3.30±0.35
33.0	33.0	8.0	2.50±0.30	0.80±0.15	3.30±0.35
38.1	38.1	12.0	2.40±0.30	0.80±0.15	3.30±0.35
43.2	43.2	12.7	2.50±0.30	0.80±0.15	3.30±0.35
55.0	55.0	16.0	2.50±0.30	0.80±0.15	3.30±0.35
65.0	65.0	19.0	2.50±0.30	0.80±0.15	3.30±0.35
75.0	75.0	22.0	2.90±0.30	0.80±0.15	3.70±0.40
85.0	85.0	25.0	2.90±0.30	0.80±0.15	3.70±0.40
95.0	95.0	30.0	3.00±0.30	0.80±0.15	3.80±0.40
115.0	115.0	34.0	3.00±0.30	0.80±0.15	3.80±0.40
140.0	140.0	42.0	3.00±0.30	0.80±0.15	3.90±0.40
160.0	160.0	50.0	3.10±0.30	0.80±0.15	3.90±0.40
180.0	180.0	65.0	3.10±0.30	0.80±0.15	3.90±0.40
200.0	200.0	69.0	3.10±0.30	0.80±0.15	3.90±0.40
230.0	230.0	78.0	3.10±0.30	0.80±0.15	3.90±0.40

-- Medium-Duty Tubing --

Specification/Standards

RoHS
✓

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	≥14	15
Ultimate Elongation (%)	ASTM D 2671	≥400	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	≥12	12.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	≥300	350
Dielectric Strength (kV/mm)	IEC243	≥15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	≤0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

HEE

Flame-retardant, heavy wall, adhesive-lined heat shrink tubing

Applications

HEE tubing insulates and protects electrical splice and terminations where maximum flame retardancy and exceptional insulating and sealing characteristics are required.

Features

•Flame retardant •Thermoplastic adhesive liner

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Standard Sizes and Dimensions

Ordering Size (mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Jacket Thickness mm	Recovered Adhesive Thickness mm	Recovered Total Wall Thickness (Normal) mm
9.0	9.0	3.0	2.00±0.20	0 .45±0.10	2.45 ±0.25
13.0	13.0	4.0	2.30±0.20	0 .45±0.10	2.75 ±0.25
28.0	28.0	9.0	2.30±0.20	0 .70±0.10	3.00 ±0.25
33.0	33.0	10.2	2.90±0.20	0 .70±0.10	3.60 ±0.25
38.1	38.1	12.0	3.10±0.20	0 .70±0.15	3.80 ±0.30
43.2	43.2	12.7	3.40±0.20	0 .70±0.20	4.10 ±0.35
51.0	51.0	16.0	3.40±0.20	0 .70±0.20	4.10 ±0.35
70.0	70.0	21.0	3.60±0.20	0 .80±0.20	4.40 ±0.35
85.0	85.0	25.0	3.60±0.20	0 .80±0.20	4.40 ±0.35
105.0	105.0	30.0	3.80±0.20	0 .80±0.20	4.60 ±0.35
120.0	120.0	39.0	3.80±0.20	0 .80±0.20	4.60 ±0.35
140.0	140.0	42.0	3.80±0.20	0 .80±0.20	4.60 ±0.35

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	⩾300	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	⩾200	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Specification/Standards

RoHS
✓

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	⩽0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

-- Heavy-Duty Tubing --

HEE-R

Semi-rigid, high resistance, heavy wall, adhesive-lined heat shrink tubing.

Applications

Typically used for more robust insulating, protecting and a wide variety of low-voltage electrical applications.

Features

•Rated for 1kV, 90°C application •Not flame-retardant

•High impact, abrasion, corrosion and chemical resistance

•Withstands severe mechanical requirements of U.R.D., submersible and direct burial installations

•Initial shrinkage temperature: ⩾ 70°C •Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -45°C to 125°C

Specification/Standards

RoHS
✓

Standard Sizes and Dimensions

Ordering Size (mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Jacket Thickness mm	Recovered Adhesive Thickness mm	Recovered Total Wall Thickness (Normal) mm
8.0	8.0	2.0	1.80±0.20	0.55±0.10	2.35±0.25
9.0	9.0	3.0	2.00±0.20	0.55±0.10	2.55±0.25
13.0	13.0	4.0	2.30±0.20	0.55±0.10	2.85±0.25
16.0	16.0	5.0	2.30±0.20	0.60±0.10	2.90±0.25
22.0	22.0	6.0	2.50±0.20	0.60±0.15	3.10±0.30
28.0	28.0	6.0	2.70±0.20	0.70±0.20	3.40±0.35
33.0	33.0	8.0	2.80±0.30	0.80±0.15	3.60±0.35
38.1	38.1	12.0	3.10±0.30	0.80±0.15	3.90±0.35
43.2	43.2	12.0	3.50±0.30	0.80±0.15	4.30±0.40
55.0	55.0	16.0	3.60±0.30	0.80±0.15	4.40±0.40
65.0	65.0	19.0	3.60±0.30	0.80±0.15	4.30±0.40
75.0	75.0	22.0	3.60±0.30	0.80±0.15	4.30±0.40
85.0	85.0	25.0	3.60±0.30	0.80±0.15	4.30±0.40
95.0	95.0	30.0	3.60±0.30	0.80±0.15	4.30±0.40
105.0	105.0	30.0	3.80±0.30	0.80±0.15	4.60±0.40
120.0	120.0	39.0	3.80±0.30	0.80±0.15	4.30±0.40
140.0	140.0	42.0	3.80±0.30	0.80±0.15	4.30±0.40
160.0	160.0	50.0	3.80±0.30	0.80±0.15	4.30±0.40
180.0	180.0	60.0	3.80±0.30	0.80±0.15	4.30±0.40
200.0	200.0	69.0	3.80±0.30	0.80±0.15	4.30±0.40
230.0	230.0	78.0	4.10±0.30	0.80±0.15	4.90±0.40

Typical Properties

Property	Test Method	Standard	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	≥14	15
Ultimate Elongation (%)	ASTM D 2671	≥400	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	≥12	12.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	≥300	350
Dielectric Strength (kV/mm)	IEC243	≥15	17.5
Volume Resistivity (ohm-cm)	ASTM D 876	$\geqslant 10^{14}$	2.5×10^{14}

Hot Melt Adhesive Property

Property	Test Method	Standard
Water Absorption	ASTM D570	≤0.2%
Softening Point (°C)	ASTM E28	90±5
Peel Strength (PE)	ASTM D 1000	120N/25mm
Peel Strength (AL)	ASTM D 1000	80N/25mm

Heat Shrinkable Busbar Insulation Tubing

Heat Shrinkable Busbar Insulation Tubing

Heat shrinkable bus bar tubing provides durable and reliable protection that prevents failures and downtime in applications from 1 – 35 kV. Our special heat shrinkable bus bar tubing covers and insulates rectangular, square or round bus bars, resists splitting and solvents, and provides excellent tracking resistance.

-- Heat Shrink Busbar Tubing --

FBTM

Flexible medium wall 1~25kV busbar insulation tubing.

Applications

FBTM is made of special formulated radiative cross-linked halogen free compounds. It provides high resistance to tracking and arcing, as well as to enhance the insulation properties of bus-bar in switchgear and substation. They are suitable for applications in insulating medium voltage bus bars, cable termination and joints from 1kV to 25kV.

Features

•Flame retardant •Anti-track •Halogen free

•Reduced bus bar clearance requirements •Protect against accidental flashover

•Tested to IEC60684 standards for medium voltage switch-gear applications to above 25kV

•Initial shrinkage temperature: ⩾ 70°C

•Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -40°C to 125°C

Specification/Standards

RoHS
✓

Standard Sizes and Dimensions

Ordering Size (mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm
15	15±0.8	6	1.9
20	20±0.8	8	1.9
25	25±0.8	10	2.3
30	30±0.8	12	2.5
40	40±2.0	16	2.7
50	50±2.0	20	2.7
65	65±2.0	25	2.7
75	75±3.0	30	2.7
85	85±3.0	35	2.9
100	100±4.0	40	2.9
120	120±4.0	50	3.0
150	150±4.0	60	3.0
180	180±5.0	72	3.0
210	210±5.0	105	3.0
230	230±5.0	115	3.1

Typical Properties

Property	Test Method	Standard
Tensile Strength (MPa)	ASTM D 2671	⩾8.0
Ultimate Elongation (%)	ASTM D 2671	⩾300
Tensile Strength after Heat Aging (MPa)	ASTM D 2671 130℃×168h	⩾6.4
Ultimate Elongation after Heat Aging (%)	ASTM D 2671 130℃×168h	⩾100
Water Absorption / %	ASTM D 570A	≤ 0.5
Heat Shock	160℃×4h	No Cracking
Low Temperature Performance(below -40℃)	ASTM D 2671 Procedure C	No Cracking
Flame-retardant Test (Oxygen index OI)	ASTM D 2863	⩾28
Breakdown Strength kV/mm	ASTM D 149	⩾20
Volume Resistivity (ohm-cm)	IEC 60093	⩾4.3×10^{14}
Hardness (Shore A)	ASTM D 2240	⩽90

-- Heat Shrink Busbar Tubing --

FBTH

Flexible 35kV busbar insulation tubing.

Applications

FBTH is made of special formulated radiative cross-linked halogen free compounds. It provides high resistance to tracking and arcing, as well as to enhance the insulation properties of bus-bar in switchgear and substation. FBTH is the enhanced version of FBTM. It provides higher resistance to tracking and arcing, which are suitable for applications in insulating high voltage bus bars, cable termination and joints up to 35kV.

Features

•Flame retardant •Anti-track •Halogen free

•Reduced bus bar clearance requirements •Protect against accidental flashover

•Initial shrinkage temperature: ⩾ 70°C

•Fully shrink temperature: ⩾ 125°C

•Continuous operating temperature: -40°C to 125°C

Specification/Standards

RoHS
✓

Standard Sizes and Dimensions

Ordering Size (mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Total Wall Thickness (Normal) mm
20	20±1	8	3.9
25	25±1	10	3.9
30	30±1	12	3.9
40	40±1	16	3.9
50	50±2	20	3.9
60	60±3	24	3.9
70	70±3	28	3.9
80	80±3	32	3.9
100	100±4	40	3.9
120	120±4	48	3.9
150	150±4	60	3.9
180	180±5	72	3.9
210	210±5	84	3.9

Typical Properties

Property	Test Method	Standard
Tensile Strength (MPa)	ASTM D 2671	⩾8.0
Ultimate Elongation (%)	ASTM D 2671	⩾300
Tensile Strength after Heat Aging (MPa)	ASTM D 2671 130℃×168h	⩾6.4
Ultimate Elongation after Heat Aging (%)	ASTM D 2671 130℃×168h	⩾100
Water Absorption / %	ASTM D 570A	≤ 0.5
Heat Shock	160℃×4h	No Cracking
Low Temperature Performance(below -40℃)	ASTM D 2671 Procedure C	No Cracking
Flame-retardant Test (Oxygen index OI)	ASTM D 2863	⩾28
Breakdown Strength kV/mm	ASTM D 149	⩾20
Volume Resistivity (ohm-cm)	IEC 60093	$\geqslant 4.3\times10^{14}$
Hardness (Shore A)	ASTM D 2240	⩽90

Special Purpose Tubing

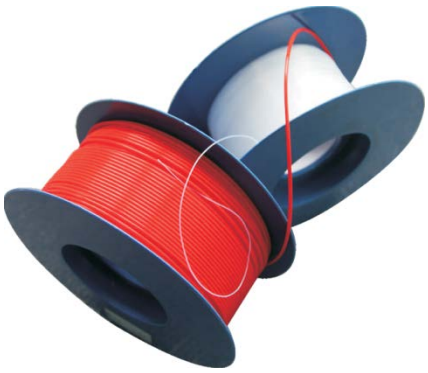
Special Purpose Tubing

Elenets Special Purpose Heat Shrink Tubing Products provide special material tubing for exclusive applications. Our special purpose tubing is made of materials ranging from elastomers to fluoropolymers, offering increased protection against extreme temperatures and harsh operating environments. The typical applications of our special purpose tubing include cable protection, wire harness, brake line evolving automotive, military and industrial area.

-- PTFE Teflon Tubing --

TFE

PTFE Teflon Tubing



Applications

Specially designed for protecting applications in extreme electrical chemical and thermal environment.

Features

•Chemical insert •High temperature resistance •High pressure resistance
•Corrosion resistance (acid/alkali resistance, oil proof)
•Standard: UL224 VW-1C-UL CSA22.20FT •UL file number: E203950
•Continuous operating temperature: -80°C to 200°C

Specification/Approvals

UL	RoHS
UL224	✓

Typical Properties

Property	Test Method	Standard
Tensile Strength (MPa)	ASTM D 2671	⩾25
Elongation (%)	ASTM D 2671	⩾300
Flammability	VW-1	Pass
Dielectric Strength (kV/mm)	IEC 60243	⩾26
Volume Resistivity (ohm-cm)	ASTM D876	⩾1014

Standard Sizes and Dimensions

Ordering Size (AWG)	Expanded I.D. (Minimum) mm	External Diameter		
		(S)	(T)	(L)
30	0.30±0.10	0.80±0.10	0.70±0.10	0.60±0.10
28	0.38±0.10	0.88±0.10	0.78±0.10	0.68±0.10
26	0.46±0.10	0.96±0.10	0.86±0.10	0.76±0.10
24	0.56±0.10	1.16±0.10	1.06±0.10	0.86±0.10
23	0.66±0.10	1.26±0.10	1.16±0.10	0.96±0.10
22	0.71±0.10	1.31±0.10	1.21±0.10	1.01±0.10
21	0.81±0.10	1.41±0.10	1.31±0.10	1.11±0.10
20	0.86±0.10	1.66±0.10	1.46±0.10	1.16±0.10
19	0.96±0.20	1.76±0.20	1.56±0.20	1.26±0.20
18	1.07±0.20	1.87±0.20	1.67±0.20	1.37±0.20
17	1.19±0.20	1.99±0.20	1.79±0.20	1.49±0.20
16	1.34±0.20	2.14±0.20	1.94±0.20	1.64±0.20
15	1.50±0.20	2.30±0.20	2.10±0.20	1.80±0.20
14	1.68±0.20	2.48±0.20	2.28±0.20	2.08±0.20
13	1.93±0.20	2.73±0.20	2.53±0.20	2.33±0.20
12	2.16±0.25	2.96±0.25	2.76±0.25	2.56±0.25
11	2.41±0.25	3.21±0.25	3.01±0.25	2.81±0.25
10	2.86±0.25	3.49±0.25	3.29±0.25	3.09±0.25
9	3.00±0.25	4.00±0.25	3.80±0.25	3.40±0.25
8	3.38±0.25	4.38±0.25	4.18±0.25	3.78±0.25
7	3.76±0.25	4.76±0.25	4.56±0.25	4.16±0.25
6	4.22±0.25	5.22±0.25	5.02±0.25	4.80±0.25
5	4.72±0.25	5.72±0.25	5.52±0.25	5.32±0.25
4	5.28±0.30	6.28±0.30	6.08±0.30	5.88±0.25
3	5.94±0.30	6.94±0.30	6.74±0.30	6.54±0.25
2	6.68±0.30	7.68±0.30	7.48±0.30	7.28±0.25
1	7.46±0.30	8.46±0.30	8.26±0.30	8.06±0.25
0	8.38±0.30	9.38±0.30	9.18±0.30	8.98±0.25

-- Heat Shrink Teflon Tubing --

TFE200 (1.7X)

Heat shrink Teflon tubing; Shrink ratio 1.7:1

Applications

TFE200 can be widely used in science & technology field, such as chemistry, mechanical industries, astronautic industry, vehicles, transformers, communications, etc.

Features

•High performance for anti-corrosion (anti-acid/alkali/chemical/oil) •Standard color: Clear

•High voltage resistance •Shrink ratio 1.7:1

•Shrink temperature: ⩾ 350°C •Continuous operating temperature: -65°C to 200°C

Typical Properties

Property	Test Method	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	19
Elongation (%)	ASTM D 2671	200
Cold Impact (-65°C)	ASTMD 2671 Method C	No cracking
Flammability	ASTM D 2671	VW-1
Dielectric Strength (kV/mm)	IEC243	26
Volume Resistivity (ohm-cm)	ASTM D876	1.0 X 10^{16}

Standard Sizes and Dimensions

Ordering Size In.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Expanded Wall Thickness mm	Recovered Wall Thickness mm
1/16	(1)	1.0±0.2	⩽0.6	0.12±0.05	0.20±0.05
	(1.5)	1.5±0.2	⩽0.9	0.12±0.05	0.20±0.05
3/32	(2)	2.0±0.2	⩽1.3	0.12±0.05	0.20±0.05
	(2.5)	2.5±0.2	⩽1.5	0.12±0.05	0.20±0.05
1/8	(3)	3.0±0.2	⩽1.8	0.12±0.05	0.20±0.05
	(3.5)	3.5±0.2	⩽2.0	0.12±0.05	0.20±0.05
	(4)	4.0±0.3	⩽2.5	0.15±0.05	0.25±0.05
3/16	(4.5)	4.5±0.3	⩽2.8	0.15±0.05	0.25±0.05
	(5)	5.0±0.3	⩽3.0	0.15±0.05	0.25±0.05
1/4	(6)	6.0±0.3	⩽3.8	0.15±0.05	0.25±0.05
5/16	(7)	7.0±0.3	⩽4.0	0.15±0.05	0.25±0.05
	(8)	8.0±0.3	⩽4.8	0.15±0.05	0.30±0.05
3/8	(9)	9.0±0.3	⩽5.0	0.20±0.05	0.30±0.05
	(10)	10.0±0.3	⩽5.8	0.20±0.05	0.30±0.05
	(11)	11.0±0.3	⩽6.4	0.20±0.05	0.30±0.05
1/2	(12)	12.0±0.3	⩽7.0	0.20±0.05	0.30±0.05
	(13)	13.0±0.3	⩽7.5	0.20±0.05	0.35±0.05
	(14)	14.0±0.3	⩽8.0	0.20±0.05	0.35±0.05

W150 (2X)

Diesel resistant, flexible, elastomeric heat shrink tubing; Shrink ratio 2:1

Applications

Diesel Resistant Flexible Elastomeric Heat Shrink Tubing W150 is designed for protecting cables, wire harness and brake lined in transportation and military applications where resistance to diesel, oil, hydraulic fluids and other chemicals is critical.

Features

•Long-term resistance to diesel, hydraulic fluid and chemical •Flame retardant •Flexible

•High abrasion and cut resistance •Shrink ratio 2:1

•Initial shrinkage temperature: ⩾ 90°C

•Fully shrink temperature: ⩾ 130°C

•Continuous operating temperature: -55°C to 150°C

Standard Sizes and Dimensions

Ordering Size In.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness mm
1/8	(3.2)	3.2	1.6	0.76±0.15
3/16	(4.8)	4.8	2.4	0.84±0.15
1/4	(6.4)	6.4	3.2	0.89±0.15
3/8	(9.5)	9.5	4.8	1.02±0.20
1/2	(12.7)	12.7	6.4	1.22±0.20
3/4	(19)	19.0	9.5	1.45±0.28
1	(25.4)	25.4	12.7	1.78±0.28
1-1/2	(38.1)	38.1	19.0	2.41±0.41
2	(50.8)	50.8	25.4	2.79±0.41
3	(76)	76.0	38.0	3.18±0.50

Typical Properties

Property	Test Method	Standard Performance	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾10.4	11.5
Ultimate Elongation (%)	ASTM D 2671	⩾400	450
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾8.0	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	⩾220	350
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Flammability	VW-1	Pass	Pass

-- Fluoroelastomer Heat Shrink Teflon Tubing --

GT200 (2X)

Thin wall, fluoroelastomer heat shrink tubing; Shrink ratio 2:1

Applications

GT200 is suitable for use in electronic systems and components in automotive, military/aerospace and industrial applications requiring outstanding hear and fluid resistance.

Features

•High withstand to corrosive fluid in extreme temperature •Flame retardant

•Easy to be stamped •Very flexible •Shrink ratio 2:1

•Initial shrinkage temperature: ⩾ 100°C

•Fully shrink temperature: ⩾ 175°C

•Continuous operating temperature: -55°C to 200°C

Standard Sizes and Dimensions

Ordering Size In.	(mm)	Expanded I.D. (Minimum) mm	Recovered I.D. (Maximum) mm	Recovered Wall Thickness mm
1/8	(3.2)	3.2	1.6	0.75±0.20
3/16	(4.8)	4.8	2.4	0.89±0.20
1/4	(6.4)	6.4	3.2	0.89±0.20
3/8	(9.5)	9.5	4.8	0.89±0.20
1/2	(12.7)	12.7	6.4	0.89±0.20
3/4	(19)	19.0	9.5	1.07±0.20
1	(25.4)	25.4	12.7	1.25±0.20
1-1/2	(38.1)	38.1	19.0	1.4±0.20
2	(50.8)	50.8	25.4	1.65±0.20

Typical Properties

Property	Test Method	Standard Performance	Typical Performance
Tensile Strength (MPa)	ASTM D 2671	⩾8.5	10
Ultimate Elongation (%)	ASTM D 2671	⩾250	300
Tensile Strength after Heat Aging (MPa)	UL224 158°C x168h	⩾7.3	8.5
Ultimate Elongation after Heat Aging (%)	UL224 158°C x168h	⩾200	250
Dielectric Strength (kV/mm)	IEC243	⩾15	17.5
Volume Resistivity (ohm-cm)	ASTM D876	⩾1.0×10^9	2.5×10^9
Flammability	VW-1	Pass	Pass

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