

-- 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: $\geq 84^{\circ}\text{C}$
- Fully shrink temperature: $\geq 120^{\circ}\text{C}$
- 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)	$175^{\circ}\text{C} \times 168\text{h}$	≥ 7.3
Ultimate Elongation after Heat Aging (%)	$175^{\circ}\text{C} \times 168\text{h}$	≥ 100
Longitudinal Change (%)	ASTM D 2671	$\pm 5\%$
Flammability	ASTM D 2671 C	VW-1
Voltage Withstand	UL 224, 2500V, 60s	No breakdown
Heat Shock	UL 224, $250^{\circ}\text{C} \times 4\text{h}$	No cracks, flowing or dripping
Dielectric Strength (kV/mm)	ASTM D 149	≥ 15
Volume Resistivity (ohm-cm)	ASTM D 876	$\geq 10^{14}$

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

Elenets®

Heat Shrink Tubing and Devices

Product Catalog

Single-Wall Polyolefin Tubing

Universal Heat Shrink Tubing

- ES (2X)
Flame-retardant, universal heat shrink tubing with excellent physical and mechanical properties.
- ES (3X)
Flame-retardant, universal heat shrink tubing with excellent physical and mechanical properties.
- TS (2X)
Ultra thin wall, very flexible, flame-retardant heat shrink tubing.
- SW-105 (2X)
105°C low-temperature, non self-extinguishing, flexible heat shrink tubing.
- SW-150 (2X)
150°C flame-retardant, flexible heat shrink tubing.

Military Spec Heat Shrink Tubing

- SF-135 (2X)
Flame-retardant, flexible, multi-purpose, Military Spec heat shrink tubing.
- SF-135 (3X)
Flame-retardant, flexible, multi-purpose, Military Spec heat shrink tubing.

Dual Wall (Adhesive-Lined) Tubing

Flexible Adhesive-Lined Polyolefin Tubing

- DE (2X)
Flexible, adhesive-lined, polyolefin heat shrink tubing.
- DE (3X)
Flexible, adhesive-lined, polyolefin heat shrink tubing.

DE (4X)
Flexible, adhesive-lined, polyolefin heat shrink tubing.

Military Spec Adhesive-Lined Heat Shrink Tubing

DF-135 (3X)
Highly flame-retardant, flexible, adhesive-lined, Military Spec polyolefin heat shrink tubing.

DF-135 (4X)
Highly flame-retardant, flexible, adhesive-lined, Military Spec polyolefin heat shrink tubing.

Heat Shrink Tubing For Automotive Wiring Harnesses

DW-R (4X)
Semi-rigid, high shrink ratio, adhesive-lined heat shrink tubing for automotive wiring harnesses.

DW-RF (4X)
Highly flame-retardant, semi-rigid, adhesive-lined heat shrink tubing for automotive wiring harnesses.

DW-L (4X)
Low-temperature, adhesive-lined heat shrink tubing for automotive wiring harnesses.

Heat Shrink Tubing For Automotive Oil-Pipe Protection

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

Thick Adhesive-Lined Polyolefin Tubing

DTK (3X)
Thick-wall, low-temperature adhesive-lined, flexible, polyolefin heat shrink tubing.

Heat Shrink End Caps And Repair Sleeve

HSDW-CAPS (4X)
Adhesive-lined, heat shrinkable insulating caps.

HSDW-CAPSR (4X)
Semi-rigid, adhesive-lined, heat shrinkable insulating caps.

HSDW-CT (4X)
Semi-rigid adhesive-lined heat shrink insulation connectors.

HSDW-TAPE (1.4X)
Adhesive-lined, cross-linked polyolefin heat shrink tape.

Medium and Heavy-Duty Tubing

Medium-Duty Tubing

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

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

Heavy-Duty Tubing

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

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

Heat Shrinkable Busbar Insulation Tubing

FBTM
Flexible medium wall 1~25kV busbar insulation tubing.

FBTH
Flexible 35kV busbar insulation tubing.

Special Purpose Tubing

TFE
PTFE Teflon tubing.

TFE200 (1.7X)
Heat shrink Teflon tubing.

W150 (2X)
Diesel resistant, flexible, elastomeric heat shrink tubing.

GT200 (2X)
Thin wall, fluoroelastomer heat shrink tubing.

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