

-- 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 shrink 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: $\geq 70^{\circ}\text{C}$
- Fully shrink temperature: $\geq 125^{\circ}\text{C}$
- 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 $\pm$ 0.2	0.50 $\pm$ 0.1
1/4	(6)	6.0	1.27	1.70 $\pm$ 0.2	0.60 $\pm$ 0.1
5/16	(8)	8.0	1.65	2.00 $\pm$ 0.2	0.75 $\pm$ 0.1
1/2	(12)	12.0	2.41	2.45 $\pm$ 0.2	1.20 $\pm$ 0.2
3/4	(18)	18.0	4.45	2.60 $\pm$ 0.2	1.40 $\pm$ 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	$\geq 10^{14}$	2.5×10^{14}

Specification/Standards

UL	RoHS
UL224	✓

Hot Melt Adhesive Property

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

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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