

## -- 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:  $\geq 70^{\circ}\text{C}$
- Fully shrink temperature:  $\geq 125^{\circ}\text{C}$
- Continuous operating temperature:  $-45^{\circ}\text{C}$  to  $125^{\circ}\text{C}$



## Specification/Standards

### RoHS

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## 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

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### Typical Properties

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

### 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

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# 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.

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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.

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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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