



EV High Voltage Heat Shrink Tubing

Technical Specifications

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Overview

Kable Kontrol High Voltage Heat Shrink Tubing uses a specialized polyolefin material, capable of withstanding higher voltage than its basic counterpart. This product has an operating temperature of -67°F to $+257^{\circ}\text{F}$. The bright orange color aids in identifying high-voltage cables, following SAE safety guidelines.

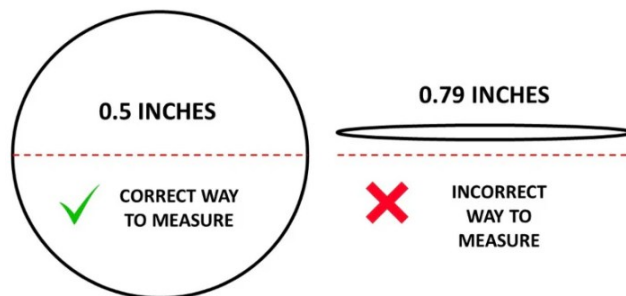
Kable Kontrol High Voltage Heat Shrink Tubing features a 2:1 shrink ratio, ensuring a tight, secure fit over wires, connectors and cables for superior insulation and protection against moisture, wear, and electrical shorts.

Country of Origin: China

SKU	Inside Diameter	Color	Sizing (ft)
HSTW125-21-075-200-OR	3/4"	Or	200'
HSTW125-21-100-100-OR	1"	Or	100'
HSTW125-21-125-100-OR	1-1/4"	Or	100'
HSTW125-21-150-100-OR	1-1/2"	Or	100'

Note: Inside Diameters for Heat Shrink Tubing are measured as **ROUND Tube**,
Not FLAT.

BELOW IS AN EXAMPLE OF OUR 1/2 INCHES TUBING MEASUREMENTS:



Size		As Supplied (mm)		After Shrinkage (mm)		Application Range (mm)
inches	mm	Inside Diameter	Wall Thickness	Inside Diameter	Wall Thickness	
3/4"	18	19.0 ± 0.5	0.70 ± 0.20	≤ 9.00	1.35 ± 0.20	18
1"	25	26.0 ± 0.5	0.70 ± 0.20	≤ 12.50	1.35 ± 0.20	25
1-1/4"	30	31.5 ± 1.0	0.70 ± 0.20	≤ 15.00	1.35 ± 0.20	25-35
1-1/2"	40	41.5 ± 1.0	0.70 ± 0.20	≤ 20.00	1.35 ± 0.20	35-45

Typical Property Data

<i>Physical Properties</i>		<i>Test</i>	<i>Result / Value</i>
Tensile Strength (MPa)		UL224	≥10.4
Elongation (%)		UL224	≥200
Tensile Strength After Aging (MPa)		UL224; 158°C x 168hr	≥7.3
Elongation After Aging (%)		UL224; 158°C x 168hr	≥100
Heat Shock		UL224	No viscosity, no cracking
Cold Blend		UL224; -30°C x 1hr	No cracking
<i>Electrical Properties</i>			
Dielectric Withstand	300V	UL224; 1500V 1 min	Without breakdown
	600V	UL224; 2500V 1 min	Without breakdown
Dielectric Strength (kV/mm)		UL224	≥15
Volume Resistance (Ω.cm)		UL224	≥1x10 ¹⁴
<i>Chemical Properties</i>			
Copper Stability		UL224; 158°C x 168hr	Pass
Anti Corrosion		UL224; 158°C x 168hr	VW-1
Flammability		UL94	V-0 (Sample Thickness: 3mm)

(Fig 1.1)

Voltage Resistance

Kable Kontrol EV High Voltage Heat Shrink Tubing is designed to provide electrical insulation for applications up to 2,500 volts. It has a dielectric strength of at least 15 kV/mm and a volume resistance of at least $1 \times 10^{14} \Omega \cdot \text{cm}$, ensuring effective insulation for high-voltage applications.

UV Resistance

Kable Kontrol EV High Voltage Heat Shrink Tubing is resistant to UV exposure, giving ample protection to electrical systems from potential hazards.

Chemical Resistance

Kable Kontrol EV High Voltage Heat Shrink Tubing is built to withstand acidic and alkaline environments, making it suitable for demanding industrial and transportation applications.

Flame Resistance

Kable Kontrol EV High Voltage Heat Shrink Tubing complies with UL94 V-0 standards, signifying that the material stops burning within 10 seconds after ignition and does not drip flaming particles.

Effects of Heat Aging

Kable Kontrol EV High Voltage Heat Shrink Tubing complies with UL224 standards, meaning after being subjected to 158°C (316.4°F) for 168 hours, the tubing maintains a tensile strength of at least 7.3 MPa and an elongation of at least 100%. These results indicate that the tubing retains its mechanical properties effectively after prolonged exposure to high temperatures.

Hydrolytic Stability and Water Absorption

Kable Kontrol Polyolefin Heat Shrink Tubing exhibits excellent hydrolytic stability due to their non-polar, hydrophobic molecular structure, which makes it highly resistant to hydrolysis and degradation in water. Water is not readily absorbed, with absorption typically below 0.01%.

Shelf Life & Loss of Weight with Aging

Kable Kontrol Polyolefin Heat Shrink Tubing has a shelf life of 10 years. Past the shelf life, aging affects polyolefin by gradually degrading its mechanical and chemical properties due to environmental factors such as heat, oxygen, UV radiation, and moisture. Over time, oxidation leads to chain scission, embrittlement, discoloration, and a decline in tensile strength and flexibility. UV exposure accelerates this process by breaking molecular bonds, resulting in surface cracking and chalking. Thermal aging can cause molecular rearrangements, reducing impact resistance and elasticity.

Effects of Radiation

Radiation affects **Polyolefins** by inducing chemical changes that can lead to crosslinking or degradation, depending on factors like dose and environment. At moderate radiation doses, crosslinking can enhance mechanical strength, thermal stability, and chemical resistance, making the material more durable. However, at higher doses or in the presence of oxygen, oxidative degradation can occur, leading to chain scission, embrittlement, discoloration, and loss of mechanical properties.

UL Standards & Engagement UL Standards & Engagement

UL standard is a published set of best practices for manufacturing and testing the safety, security, and sustainability of a product or system, developed and voted on by experts across industries and interests.

Kable Kontrol Single Wall Heat Shrink Tubing Possess the following UL certifications:

- UL Listed, File E536025
- UL224; A certification to identify a product that safely insulates electrical components, maintain structural integrity under stress, and resist burning under specific conditions.

Kable Kontrol Single Wall Heat Shrink Tubing complies with RoHS regulations.

RoHS is a European Union Regulation that restricts the use of 10 hazardous substances in electrical and electronic equipment. It aims to reduce environmental pollution and protect human health by limiting toxic materials.