



深圳市沃尔核材股份有限公司  
SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO.,LTD.

## Product Specification

Product Name	Heat Shrink Semi-conductive Tube	Supplier Code	
Specification	All Specifications	Customer Code	

Supplier Approval (Shenzhen Woer Heat-shrinkable Material Co., Ltd.)

Drafted/Date	Verified/Date
Wei Wei/June 1, 2020	Hu Jun/ June 1, 2020

Customer Approval

Customer Approval /Date		
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## 1. Scope

This approval specifies technical requirement, package, storage and specification of the heat shrink semi-conductive tubes.

## 2. Standards

ASTM-D-638 (GB/T 1040)

Standard test methods for tensile properties of plastics

IEC 60093 (GB/T 1410)

Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials

ASTM-D-5510 (GB/T 7141)

Plastics-Methods of heat aging

ISO 974 (GB/T 5470)

Plastics-Determination of the brittleness temperature by impact

ISO 868(GB/T 2411)

Plastics and ebonite-Determination of indentation hardness by means of a durometer (Shore hardness)

## 3. Technical requirements

### 3.1 Product properties

Woer heat shrink semi-conductive tubes are made of cross-linked polyolefin.

Standard color: Black.

### 3.2 Appearance

The surface of the stress control tube should be smooth and clean, and free of pinholes or cracks visible to the unaided eye.

### 3.3 Heat shrink properties

Start to shrink at 90°C, and fully recovered at 130°C

Longitudinal shrink ratio:  $\leq 10\%$

Radial shrink ratio:  $\geq 50\%$

Wall thickness non-uniformity:  $\leq 30\%$ .

### 3.4 Physical and chemical properties: See Table 1.

### 3.5 Product specification: See Table 2.

## 4. Package, Transportation and Storage

4.1 Products can be packed according to customer' s requirement.

4.2 These products are non-hazardous. Keep in clean, cool, dry, well-ventilated storage area. During transportation and storage, pay attention to rain and sun and keep away from sources of ignition.

Table 1. Technical Data

Property	Test Method	Standard Value
Tensile Strength	ASTM-D-638	$\geq 10\text{MPa}$
Elongation at Break	ASTM-D-638	$\geq 350\%$
Tensile Strength Variation After Heat Aging (130°C×168h)	ASTM-D-5510	$\leq \pm 20\%$
Elongation at Break Variation After Heat Aging (130°C×168h)	ASTM-D-5510	$\leq \pm 20\%$
Volume Resistivity	IEC 60093	$\leq 1 \times 10^3 \Omega \cdot \text{cm}$
Hardness (Shore A)	ISO 868	$\geq 80$
Heat Shock	160°C, 4h	No Crack
Brittle Temperature	ISO 974	-40°C

Table 2. Product Specification

Spec.	As Supplied/mm		After Recovered/mm	
	Inner Diameter Min	Wall Thickness ( $\pm 0.3$ )	Inner Diameter Max	Wall Thickness ( $\pm 0.3$ )
$\Phi 45/17$	45	0.9	17	2.3
$\Phi 50/20$	50	0.9	20	2.3
$\Phi 55/23$	55	0.9	23	2.3
$\Phi 60/24$	60	0.9	24	2.3
$\Phi 65/25$	65	0.8	25	2.3
$\Phi 75/29$	75	1.0	29	2.7
$\Phi 90/30$	90	0.8	30	2.7
$\Phi 100/36$	100	0.9	36	2.7
$\Phi 120/37$	120	0.8	37	2.7
$\Phi 150/55$	150	0.8	55	3.4