Product Specification Approval Document

Revision: A/0

Customer Name: ASIA MACHINE ELECTRICAL EQUIPMENT JOINT STOCK COMPANY			
Name: Halogen-free, phosphorus-free heat shrink tubing			
Color: Black, White, Clear, Red, Blue, Yellow, Green (or Custom Color)			
Size: Φ0.6 - Φ180.0			
Type: K125			
Editor/ Date	Rujun Liang Sept 2024	Review/ Date	Dingqiang Hu Sept 2024

Description

Made of high-quality, irradiation-crosslinked polyolefin material with a temperature rating of 125°C, this product offers excellent electrical, physical, and chemical properties. It is ideal for insulation and jacketing of wire harnesses, cables, and coated components. Halogen-free and red phosphorus-free, it meets RoHS environmental standards.

Features

- 2:1 shrink ratio for versatile applications
- Superior electrical insulation, durability, and chemical resistance
- Soft and flexible for easy installation
- Outstanding flame retardancy for enhanced safety
- Wide operating temperature range from -55°C to 125°C
- Precise shrink temperatures for reliable performance

- Product Dimensions (mm)

Size	Minimum Expanded (mm)		Maximum Recovered as Supplied After Heating (mm)		Packing Length (Meter/Roll)
	Inside Diameter	Wall-thickness	Inside Diameter	Wall-thickness	
Φ0.6	0.9±0.2	0.15±0.03	≤0.40	0.28±0.06	400
Φ0.8	1.1±0.2	0.15±0.03	≤0.50	0.30±0.06	400
Φ1.0	1.5±0.2	0.18±0.03	≤0.65	0.36±0.08	400
Φ1.5	2.0±0.3	0.18±0.03	≤0.85	0.36±0.08	400
Φ2.0	2.5±0.3	0.20±0.04	≤1.00	0.40±0.08	400
Φ2.5	3.0±0.3	0.20±0.04	≤1.25	0.40±0.08	400
Φ3.0	3.5±0.4	0.20±0.04	≤1.5	0.40±0.08	400
Φ3.5	4.0±0.4	0.22±0.04	≤1.75	0.44±0.08	400
Φ4.0	4.5±0.4	0.25±0.04	≤2.0	0.50±0.08	400
Φ4.5	5.0±0.4	0.25±0.04	≤2.25	0.50±0.08	200
Φ5.0	5.5±0.4	0.25±0.04	≤2.5	0.50±0.08	200
Φ5.5	6.0±0.4	0.25±0.04	≤2.75	0.50±0.08	200
Φ6.0	6.5±0.4	0.25±0.04	≤3.0	0.50±0.08	200
Φ6.5	7.0±0.4	0.28±0.04	≤3.25	0.56±0.08	200
Φ7.0	7.5±0.4	0.28±0.04	≤3.5	0.56±0.08	100
Φ8.0	8.5±0.5	0.28±0.05	≤4.0	0.56±0.10	100
Φ8.5	9.0±0.5	0.28±0.05	≤4.25	0.56±0.10	100
Φ9.0	9.5±0.5	0.28±0.05	≤4.5	0.56±0.10	100
Φ10	10.5±0.5	0.28±0.05	≤5.0	0.56±0.10	100
Φ11	11.5±0.5	0.28±0.05	≤5.5	0.56±0.10	100
Φ12	12.5±0.5	0.28±0.05	≤6.0	0.56±0.10	100
Φ13	13.5±0.5	0.32±0.06	≤6.5	0.62±0.10	100
Φ14	14.5±0.5	0.32±0.06	≤7.0	0.62±0.10	100
Φ15	15.5±0.5	0.36±0.10	≤7.5	0.66±0.10	100
Φ16	16.5±0.5	0.36±0.10	≤8.0	0.66±0.10	100
Φ17	17.5±0.5	0.38±0.10	≤8.5	0.68±0.10	100
Φ18	19.0±1.0	0.38±0.10	≤9.0	0.68±0.10	100
Φ20	21.0±1.0	0.38±0.10	≤10.0	0.70±0.10	100
Φ22	23.0±1.0	0.38±0.10	≤11.0	0.70±0.10	100
Φ25	26.0±1.0	0.38±0.15	≤12.5	0.76±0.15	50
Φ28	29.0±1.0	0.40±0.15	≤14.0	0.80±0.15	50

Size	Minimum Expanded (mm)		Maximum Recovered as Supplied After Heating (mm)		Packing Length (Meter/Roll)
	Inside Diameter	Wall-thickness	Inside Diameter	Wall-thickness	
Φ30	31.0±2.0	0.40±0.15	≤15.0	0.80±0.15	50
Φ35	36.0±2.0	0.45±0.15	≤17.5	0.85±0.15	50
Φ40	41.0±2.0	0.45±0.15	≤20.0	0.90±0.15	50
Φ45	46.0±2.0	0.45±0.15	≤22.5	0.90±0.15	25
Φ50	52.0±2.0	0.50±0.15	≤25.0	1.00±0.15	25
Φ60	62.0±2.0	0.65±0.15	≤30.0	1.30±0.20	25
Φ70	72.0±2.0	0.65±0.15	≤35.0	1.30±0.20	25
Φ80	82.0±2.0	0.65±0.15	≤40.0	1.30±0.20	25
Φ90	92.0±2.0	0.65±0.15	≤45.0	1.30±0.20	25
Φ100	102.0±2.0	0.65±0.15	≤50.0	1.30±0.20	25
Φ120	122.0±2.0	0.65±0.15	≤60.0	1.30±0.20	25
Φ150	153.0±3.0	0.65±0.18	≤75.0	1.35±0.20	25
Φ180	183.0±3.0	0.65±0.18	≤90.0	1.35±0.20	25

- Performance metrics

Performance	Requirement	Test	Typical Value
Longitudinal shrinkage rate	±10%	ASTM D 2671	±7%
Tensile strength	≥10.4 MPa	ASTM D 638	≥11MPa
Elongation at break	≥200%	ASTM D 638	≥400%
Elongation at break after aging (Thermal aging at 158°C for 168 hours)	≥100% min.	ASTM D 638	≥400%
Thermal shock at 200°C for 4 hours	No cracks	ASTM D 2671	Passed
Low temperature flexibility At -55°C for 4 hours	No cracks	ASTM D 2671	Passed
Dielectric strength	2500V,60sec, No cracks	ASTM D 2671	Passed
Breakdown strength	≥12 KV/mm	ASTM D 2671	15 KV/mm
Volume resistivity	$\geq 10^{12}\Omega\cdot cm$	ASTM D 876	$\geq 10^{13}\Omega\cdot cm$
Corrosive	No corrosion	ASTM D 2671	Passed

Certificate of Material

The outer layer of the K125 single-wall heat shrink tubing provided by our company is made of high-quality radiation cross-linked modified flame-retardant polyolefin. It possesses excellent shrinkage, physical, electrical, abrasion resistance, and flame retardancy properties. The product complies with environmental regulations such as the EU RoHS Directive.

The main components are as follows:

Raw material	Content	CAS.NO.
EVA	55%	9002-88-4
POE	15%	27177-07-7
Flame retardants	15%	84852-53-9
Magnesium hydroxide	10%	1309-42-8
Masterbatch	4%	83524-75-8
Antioxidant 1010	1%	6683-19-8

Guangdong Yilian Electronic Technology Co., Ltd

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