

# 绝缘套管选型手册

INSULATION CASING  
PRODUCT CATALOGUE

HUA PENG 



苏州华鹏热缩材料有限公司

HUAPENG (SUZHOU) HEAT-SHRINKABLE MATERIALS CO LTD

# 企业简介

## COMPANY PROFILE

苏州华鹏热缩材料有限公司成立于1999年，于2014年收购吴江科杰电子有限公司，全面接管公司的生产经营，力求更好的满足客户的需求。公司集研发、生产、销售绝缘套管专业的制造商，我司自主研发生产一系列绝缘套管，所生产的全部产品都已通过ISO9000质量认证体系并获得美国UL认证、IATF16949国际认证、SGS、ROHS环保检测等多种证书，公司目前服务于全球80多个国家，6000多家客户，给客户产品带来全方位的整套保护，在这里没有解决不了的难题，华鹏给您最优质、最齐全的解决方案。

公司主要产品有：环保热缩套管，UL高温热缩管，高收缩率热缩管，带胶双壁热缩管，硅树脂玻璃纤维套管，聚酯套管，高性能复合套管，标识套管，PE热缩套管、PTFE热缩套管、硅胶热缩套管、硅胶套管、PTFE铁氟龙绝缘套管、内胶外纤套管、PE绝缘套管、内纤外胶套管、PVC绝缘套管等。

二十多年来，公司每一个员工一步一个脚印，一步一个台阶，稳重务实、创新求变，力争为客户提供至善至美的产品和优质服务！让客户满意、实现双赢是我们的经营目标，华鹏希望与您携手，共创辉煌，我们期待您的合作！

Suzhou Huapeng Heat-Shrinkable materials Co., Ltd. was founded in 1999, and purchased Wujiang Kejie Electronics Co., Ltd. in 2014, taking over the production and operation of the company in an all-round way, striving to better meet the needs of customers. We are a professional manufacturer of R&D, production and sales of insulating sleeves. Our company independently develops and produces a series of insulating sleeves. All products have passed ISO9000 quality certification system, UL certification, IATF16949 international certification, SGS,ROHS report and so on. At present, Huapeng serves more than 80 countries and 6000 customers around the world. The products are widely used in many fields, giving our customer products a full range of protection. There are no unsolvable problems. Here, we can give you the best quality and the most complete solution.

The main products of the company are: Environment friendly Heat-shrinkable Tubes, UL high temperature Heat-shrinkable Tubes, High shrinkage Heat-shrinkable Tubes, Dual-wall Heat-shrinkable Tubes with adhesive, Silicone coated fiber glass Sleeves, Polyester Tubes, High Performance composite Tubes, Identification sleeves, PE Heat-shrinkable Tubes, PTFE Heat-shrinkable Tubes, Silicone Rubber Heat-shrinkable Tubes, Extruded Silicone Rubber Tubes, PTFE Teflon Tubes, Inside Silicone Rubber and Outside Fiberglass Sleeves, Non-Heat Shrinkable PE Tubes, Inside Fiberglass and Outside Silicone Rubber Sleeves , Non-Heat Shrinkable PVC Tubes, etc.

Over the past 20 years, every employee of the company steps by step, steady and pragmatic, innovative and changing, striving to provide customers with perfect products and high-quality services! Our business goal is to satisfy our customers and achieve win-win results. We look forward to your cooperation!

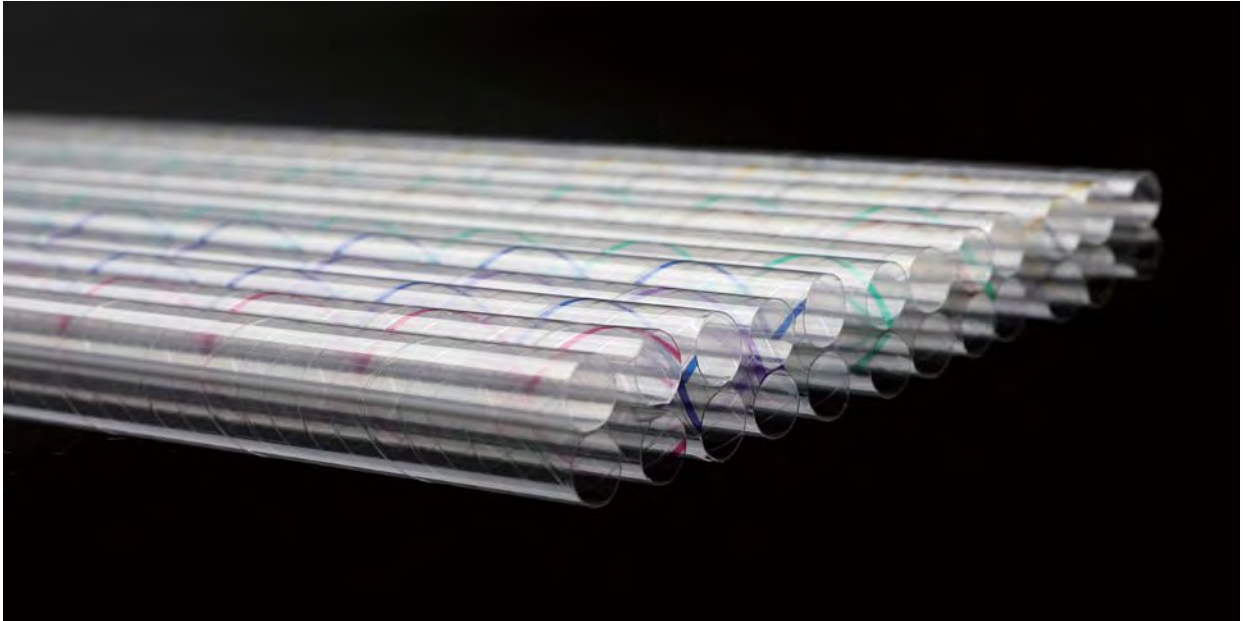


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### 套管规格

- 内径: 0.026 英寸 ~ 2 英寸 (0.66 mm ~ 50.8 mm)
- 长度: 0.062 英寸 ~ 48 英寸 (1.57 mm ~ 1219 mm)
- 壁厚: 0.001 英寸 ~ 0.03 英寸 (0.0254 mm ~ 0.76 mm)
- 颜色: 透明, 彩色, 条纹

### Specification

- Inside diameter: 0.026 inch ~ 2 inch (0.66 mm ~ 50.8 mm)
- Length: 0.062 inch ~ 48 inch (1.57 mm ~ 1219 mm)
- Wall Thickness: 0.001 inch ~ 0.03 inch (0.0254 mm ~ 0.76 mm)
- Color: Transparent, color, stripe

### 应用

主要应用于焊点、接头、线圈、变压器、马达、电线、电热元件、电容、电话继电器等, 耐高温绝缘及机械保护。

UL认证: E338254

### Application

Mostly used for welding point, contact, loop, transformer, motor, electrical wire, electric heating component, capacitance, telephony relay etc. for temperature resistance and insulation, mechanism protection.

UL NO.E338254

# H-PET 聚酯套管

## H-PET Polyester Tubes

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### 主要参数 Main Parameter

项目 Item	参数 Parameters
熔点 Melting point	250°C-265°C
工作温度 Working temperature	-60°C-150°C
电解质强度 (耐压) Electrolyte strength (withstand voltage)	2500V/MH,25°C60CYCLE 2000V/MH,150°C60CYCLE
吸水性 Water absorption	1%MAX,24Hr Immersion25°C
在铜质上之腐蚀效果 Corrosion effect on copper	无腐蚀 No Corrosion
在酸性物、天那水、油、油漆等工业溶剂或溶解物中的溶解性。Solubility in industrial solvents or solutes such as acids, thinner, oil, paint, etc.	不溶解 Insoluble
抗菌性、抗腐蚀性 Antibacterial, anti-erosive	良好 Good
韧性 (折、弯、撕等) Toughness (bending, tearing, etc.)	良好 Good
阻燃性 Flame retardancy	Slow to self-extinguishing
热塑性 Thermoplasticity	—
表皮强度 Skin strength	400g/cm <sup>2</sup> (MIN)
颜色 Color	透明 Transparent
绝缘性 Insulation	—
其他 (外观) Other (appearance)	表面光亮、无拉毛和麻点、管内外无杂质 The surface is bright, without galling and pitting, and no impurities inside and outside the tube

性能 Capability	品种 Variety		
	普通型 Polyester	低缩型 Low Shrinkable Polyester	热缩型 Heat Shrinkable Polyester
收缩率(径向) shrinkable rate(radical)	<2%	8-12%	≥32%
收缩率(纵向)s hrinkable rate(portrait)	<2%	8-12%	≥35%
工作温度 working temperature	-60°C~150°C		
融化温度 melting temperature	250°C~265°C		
击穿电压 voltage to strike through	25°C (50Hz) 2650 伏 0.0254mm/min 25°C (50Hz) 2650volto0.0254mm/min 125°C (50Hz) 2125 伏 0.0254mm/min 125°C (50Hz) 2125volto0.0254mm/min		
可燃性 flammability	自熄 spontaneous quench		
抗性 resistance	耐酸碱腐蚀、防浸渍、防霉菌、抗电晕放电、耐工业溶剂、防外界机械破坏、耐油及特殊液体侵蚀。Resistance to acid, alkali, immersion, mildew, corona discharge, industrial solvents, external mechanical damage, oil and special liquid erosion.		
吸水性 sopping capacity	经 24 小时浸渍后, 最大吸水率为 75% After 24hours of maceration, the maximum rate of sop is 75%		
三甲苯萃取率 toluene extraction	<2%		

# H-PIT聚酰亚胺套管

## H-PIT Polyimide Tubes



### 套管规格

- 内径: 0.026 英寸 ~ 2 英寸 (0.66 mm ~ 50.8 mm)
- 长度: 0.062 英寸 ~ 48 英寸 (1.57 mm ~ 1219 mm)
- 壁厚: 0.001 英寸 ~ 0.03 英寸 (0.0254 mm ~ 0.76 mm)

### Specification

- Inside diameter: 0.026 inch ~ 2 inch (0.66 mm ~ 50.8 mm)
- Length: 0.062 inch ~ 48 inch (1.57 mm ~ 1219 mm)
- Wall Thickness: 0.001 inch ~ 0.03 inch (0.0254 mm ~ 0.76 mm)

### 应用

Kapton®核心是在高温时提供优良的机械性能和使用性能；保持在高温下的介电强度和尺寸稳定性；  
适合H级应用和温度高达200°C的环境

### Application

Kapton core at providing excellent mechanical properties and performance at the high temperature; Maintain dielectric strength and dimensional stability at high temperatures; Suitable for Class H applications and temperature up to 200°C

# H-PIT聚酰亚胺套管

## H-PIT Polyimide Tubes

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### 主要参数 Main Parameter

性能 Property	标准值 Typical Value— 1 mil (25 μ m) film			测试方法 Test Method
	-195 °C	25°C	200°C	
极限抗拉强度 Ultimate Tensile Strength (MD) kg/cm <sup>2</sup> MPa	2450 241	1750 172	12000 117	ASTM D 882-64T
屈服点 Yield Point (MD) kg/cm <sup>2</sup> MPa	—	700 69	420 41	ASTM D 882-64T
5% 伸长应力产生 Stress at 5% Elongation (MD) kg/cm <sup>2</sup> MPa	—	910 90	600 59	ASTM D 882-64T
断裂伸长率 Ultimate Elongation (MD) %	2	70	90	ASTM D 882-64T
拉伸模量 Tensile Modulus (MD) kg/cm <sup>2</sup> MPa	35800 3500	30000 2950	18200 8000	ASTM D 882-64T
冲击强度 Impact Strength (D) kg/cm N/m	—	6 0.6	—	杜邦™气动冲击试验 DuPont™ Pneumatic Impact Test
耐折强度 Folding Endurance (MIT)循环 cycles	—	10000	—	ASTM D 2176-63T
撕裂强度-蔓延 (Tear strength - Elmendorf) g mN	—	8 78	—	ASTM D 1922-61T
撕裂强度-蔓延 (Tear strength-Graves) g mN	—	510 5	—	ASTM D 1004-61
爆破试验 Bursting Test (Mullen 马伦) kg/cm kPa	—	5.25 517	—	ASTM D 774-63T
密度 Density Mg/m <sup>2</sup>	—	1.42	—	ASTM D 1505-63T
摩擦系数 Coefficient of Friction Kinetic (Film to Film 薄膜对薄膜)	—	0.42	—	ASTM D 1894-63
折光指数 Refractive Index(贝克线 Becke Line )	—	1.78	—	物理百科全书,第一科 Encyclopedia of physics, Volume1
区域因素 Area Factor m <sup>2</sup> /kg	—	28	—	计算 Calculation





### 套管规格

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- 壁厚: 0.001 英寸 ~ 0.03 英寸 (0.0254 mm ~ 0.76 mm)

### Specification

- Inside diameter: 0.026 inch ~ 2 inch (0.66 mm ~ 50.8 mm)
- Length: 0.062 inch ~ 48 inch (1.57 mm ~ 1219 mm)
- Wall Thickness: 0.001 inch ~ 0.03 inch (0.0254 mm ~ 0.76 mm)

### 应用

杜邦NOMEX®适用于H级应用，并可耐高温达180°C，UL认证材料组成，抗化学品和溶剂

### Application

DuPont NOMEX is suitable for Class H applications and temperature up to 180°C condition;  
Constructed from UL approved materials Resists chemical and solvent attack

# H-NST诺梅克斯套管

## H-NST Nomex Tubes

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### 主要参数 Main Parameter

电气性能 Electrical Properties				
基本材质性能 Property of Base Material	50μm (2 mil)	75μm (3 mil)	125μm (5 mil)	测试方法 Test Method
绝缘强度 Dielectric strength (AC Rapid Rise) (V/mil)	430	550	680	ASTMD149
介电强度 Dielectric constant at 60Hz	1.6	1.6	2.4	ASTM D3426
注：符合 IEC 243-1，9.1 米对应设置为 50mm 电极的除外 Note: Corresponds with IEC 243-1, 9.1mm except for electrode set up of 50mm				

物理性能 Physical Properties				
基本材质性能 Property of Base Materials	50μm (2 mil)	75μm (3 mil)	125μm (5 mil)	测试方法 Test Method
重量 Weight g/m2	41	63	116	ASTMD646
比重 Density g/cc	0.72	0.08	0.13	/

机械性能 Mechanical Properties						
基本材质性能 Property of Base Materials		50μm (2 mil)	75μm (3 mil)	125μm (5 mil)	测试方法 Test Method	
抗张强度 Tensile Strength (Newtons/cm)	纵向 MD	39	65	137	ASTM D828	
	横向 TD	18	32	66		
断裂伸长率 Elongation Before Failure (%)	纵向 MD	9	11	15	ASTM D828	
	横向 TD	6	8	12		
撕裂 Elmendorf Tear (N)	纵向 MD	0.8	1.2	3.4	TAPP1-414	
	横向 TD	1.6	2.3	5.2		
初始抗撕裂强度 Initial Tear Strength (Newtons)	纵向 MD	11	16	33	TAPP1-414	
	横向 TD	6	8	17		
收缩率在 300°C Shrinkage at 300°C (%)	纵向 MD	2.2	1.1	0.9	ASTM D1004	
	横向 TD	0.1	0.0	0.0		

# H-FSG硅树脂玻纤套管

## H-FSG Silicone Coated Fiber Glass Sleeving



### 产品说明

无碱玻璃纤维纱编织后经高温处理，表面经有机硅共聚树脂涂敷处理制成，耐高温(200℃)

耐高压：

H-FSG-1G 7000V及以上,H-FSG-2G 4000V

H-FSG-3G 2500V,H-FSG-4G 1500V

H-FSG-5G 1200V,H-FSG-6G 无耐压要求

阻燃 UL1441 VW-1 / 良好的机械性能 / 良好的绝缘性 / 能良好的柔软性

通过UL认证，认证号：E338253 / E324238

### Product Description

Silicone fiber glass braid material

High temperature resistance(200℃)

High voltage withstand:

H-FSG-1G 7000V& above,H-FSG-2G 4000V,

H-FSG-3G 2500V,H-FSG-4G 1500V,H-FSG-5G 1200V,

H-FSG-6G No requirements of pressure

Flame retardant UL1441 VW-1 / Good machanical properties / Good insulation /Good flexibility

Passed the UL testing UL NO.E338253 / E324238

### 应用

广泛应用于F级、H级绝缘电机、家用电器绝缘、电气绝缘等。

### Application

Widely used in used in F-grade and H-grade motors, home electrical appliances dielectric, etc.

# H-FSG硅树脂玻纤套管

## H-FSG Silicone Coated Fiber Glass Sleeving

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### 主要参数 Main Parameter

项目 Item	性能指标 Value
连续使用温度范围 Continuous Operating Temperature	60°C+100°C
耐温性 Temperature Endurance	200°C+2°C 168 小时 1/2 原电压值 200°C+2°C 168 hours 1/2 the original voltage value
热老化 Aging Test	260°C、6 小时、无裂纹 260°C, 6 hours, No cracking
冷弯曲 Cold Bend	无裂纹 No cracking
燃烧(VW-1)Flame Retardance	<30 秒 <30 seconds
体积电阻 Volume Resistance	10 <sup>11</sup> Ωcm

标准内径(mm) Standard inside diameter	内径公差(mm) Inside diameter tolerance	最小壁厚(mm) Min wall thickness	包装 (米/卷) Package (M/R)
0.8	-0.1 +0.30	0.18	200
1.0	-0.1 +0.30	0.18	200
1.5	-0.1 +0.30	0.18	200
2.0	-0.1 +0.35	0.18	200
2.5	-0.1 +0.35	0.18	200
3.0	-0.1 +0.35	0.23	200
3.5	-0.1 +0.40	0.23	200
4.0	-0.1 +0.40	0.23	200
4.5	-0.1 +0.40	0.23	200
5.0	-0.1 +0.50	0.28	100
5.5	-0.1 +0.50	0.28	100
6.0	-0.1 +0.50	0.28	100
7.0	-0.2 +0.60	0.28	100
8.0	-0.2 +0.60	0.32	100
9.0	-0.2 +0.60	0.32	50
10	-0.3 +0.80	0.32	50
11	-0.3 +0.80	0.40	50
12	-0.3 +0.80	0.40	50
13	-0.3 +1.00	0.40	50
14	-0.3 +1.00	0.40	50
15	-0.3 +1.00	0.40	50
16	-0.3 +1.00	0.40	50
18	-0.3 +1.00	0.40	50
20	-0.3 +1.00	0.40	50

注：其他尺寸和颜色可定制  
Note: other sizes and colors can be customized

# H-AFS+XG 丙烯酸玻璃纤维套管

## H-AFS+XG Acrylic Coated Fiberglass Sleeving



### 产品说明 Product Description

H-AFS+XG绝缘管是通过固化改性丙烯酸树脂在连续编织的玻璃纤维上制作而成的，耐大多数酸、有机溶剂、油、水和展现出良好的耐碱性能。它们与改良性聚酯、丙烯酸、环氧树脂、酚醛和缩醛漆包线相兼容，和可设计用在155℃环境下长期运行并无任何电气或物理性能损失。

耐高压：

H-AFS+1G 7000V及以上，

H-AFS-2G 4000V，

H-AFS-3G 2500V， H-AFS-4G 1500V，

H-AFS-5G 1200V，

H-AFS-6G 无耐压要求

H-AFS+XG Sleeves are produced by curing a modified acrylic resin on continuous fiberglass braid, It is resistant to most acids, organic solvents, oils and water and exhibit fair resistance to alkalis. They are compatible with modified polyester, acrylic, epoxy, phenolic and formvar wire enamels and are designed to perform for long periods in a 155° C range without loss of any electrical or physical properties.

High voltage withstand:

H-AFS+1G 7000V及以上， H-AFS-2G 4000V，

H-AFS-3G 2500V， H-AFS-4G 1500V，

H-AFS-5G 1200V，

H-AFS-6G NO requirements of pressure

### 应用

H-AFS+XG绝缘套管用于绝缘导线和异步分相和集成分子力电机。他们也可以用在干式和油冷变压器，发电机和其他湿敏设备上，以及家用电器，照明灯具，仪表电路和控制。其他用途包括开关柜、开关设备、焊接设备和其他承受连续使用温度155℃的商业设备，特别是那些需求绝缘系统兼容性的。

### Application

H-AFS+XG insulation Sleeves are used to insulate leads and crossovers in fractional and integral horsepower motors. They also are used in dry and oil-filled transformers, generators and other moisture-sensitive equipment, as well as in home appliances, lighting fixtures, instrument circuits and

# H-AFS+XG 丙烯酸玻璃纤维套管

## H-AFS+XG Acrylic Coated Fiberglass Sleeving

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### 主要参数 Main Parameter

性能 Property	测试方式 Procedure	参数 Performance
物理性能 Physical		
抗张强度, 涂层 Tensile Strength, Coating	ASTM-D412	850PSI
断裂伸长率, 涂层 Ultimate Elongation, Coating	ASTM-D412	150%@20° C
撕裂强度, 涂层 Tear Strength, Coating	ASTM-D624	60PSI
弹性和韧性, 涂层 Flexibility and Toughness, Coating	UL1441	通过(渗透性试验) Passes (Penetration Test)
化学性能 Chemical		
耐油和耐溶剂性能 Oil and Solvent Resistance	MIL-I-3190/3	极好 Passes (Good)
耐酸性 Resistance to Acids and Alkalis	—	极好 Passes (Good)
耐腐蚀性 Corrosion Resistance	to electrolyte formation.	好, 不含氯或其他材料超作用 Good. Contains no chlorine or other materials contributing
兼容性 Compatibility	UL1446	好, 兼容改性聚酯、丙烯酸、环氧、酚醛和缩醛漆包线 Good. Compatible with modified polyester, acrylic, epoxy, phenolic and formvar wire enameled
电气性能 Electrical		
水解稳定性(336小时@70度恒温水) Hydrolytic Stability after 336 hrs. @ 70° C Cover Constant Water Reflux	MIL-I-3190/3	最低平均电压 1500V 1500 volts min. avg.
热性能 Thermal	—	—
耐热性 Thermal Endurance	MIL-I-3190/3&UL 1441	CLASS 155° C
脆性温度 Brittleness Temperature	ASTM-D350	-25° C
阻燃性 Flame Resistance	UL1441	通过 VW-1,H-AFS-5G 仅 Passes (VW -1), H-AFS-5G only.
耐电阻封装温度 Resistance to Potting Temperature	MIL-I-3190/3	无砂眼,15分钟后流出或裂缝清晰可见 @225° C No blisters, flow or cracks visible after 15 min. @ 225° C
备注: 以上的信息是真实可靠的, 但是, 有些独特的应用, 每个最终用途都应该被评估以满足其特定的需求。 Information contained here is precise and reliable. However, being unique, each end-use should be evaluated to satisfy its specific requirements 内径壁厚参照 H-FSG 硅树脂玻纤套管 Inner wall thickness refers to H-FSG silicone coated fiber glass sleeving		

# H-BFS 玄武岩交叉花纹管

## H-BFS Crossing-braid sleeving (Grade H, -60°C~+220°C)



### 产品说明

H-BFS 系列交叉花纹管是由耐高温石英玻璃纤维纱加特殊火山岩矿石纤维纱（熔点可达700°C以上）交叉混合纺织后，再涂柔软自熄性耐高温树脂经特殊工艺（500°C高温脱硫脱蜡）并经200°C高温专业硫化烘干而制成。H-BFS系列交叉花纹管长期耐温可达250°C，内层纤维可经受350°C以上的瞬间高温。

耐高压：

H-BFS-1G 7000V及以上，  
H-BFS-2G 4000V，  
H-BFS-3G 2500V，  
H-BFS-4G 1500V，  
H-BFS-5G 1200V，  
H-BFS-6G 无耐压要求

### Product Description

H-BFS series products are manufactured from fiberglass yarns and basalt fiber yarns impregnated with silicone resin. The inner sleeve is a special crossing-braid method. Especially basalt fiber yarn melting point can over 700°C. Most silicone resin is characterized, chiefly, by its capability of performing satisfactorily at elevated temperature. H-BFS sleeve, in addition to providing superior dielectric and thermal protection. It can work at 250°C for long time and the temperature of the inner sleeve can reach 350°C at the peak. Its high temperature performance places it in a 220°C classification.

High voltage withstand:

H-BFS-1G 7000V and above,  
H-BFS-2G 4000V,  
H-BFS-3G 2500V,  
H-BFS-4G 1500V,  
H-BFS-5G 1200V,  
H-BFS-6G NO requirements of pressure

# H-BFS 玄武岩交叉花纹管

## H-BFS Crossing-braid sleeving (Grade H, -60°C~+220°C)

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### 应用

H-BFS 交叉花纹套管有着极好弯曲性和回弹性，其可以广泛应用于航空动力系统的管路绝缘以及注塑模具行业的热流道系统中的感应线束保护及热绝缘。同时，由于该产品表面有着非常好看的特殊纹理，现也正逐步应用于各种高端汽车类线束的绝缘隔热保护（能有效阻隔或避免汽车内电子线路因改，老化或其他原因发生短路，胶皮自燃而产生的汽车自燃现象。）

### Application

H-BFS crossing-braided sleeving's superior dielectric strength, high and low temperature performance, and excellent bending and flexibility, flame resistance make it ideally suited for use in aeronautical power systems and hot runner system wire harness. Meanwhile, because H-BFS has a very nice special texture, it can be also gradually used in the high quality automotive harness for isolating thermal protection, it can effectively avoid to automotive self-igniting caused by changing wire and wire line aging or other reasons.

### 主要参数 Main Parameter

项目 Item	性能 Properties
工作温度 Working temperature	-60° C to 220° C
阻燃等级 Flame retardant	UL 1441 VW-1
热老化测试 Heat aging testing at 220° C,8hrs	外层无脆裂无裂纹 No cracking of outer.
冷弯曲性测试 Low temperature bending testing at -60° C ,6hrs	外层无脆裂无裂纹 No cracking of outer.
体积电阻 Volume Resistance	1011Ω cm

注：内径壁厚参照 H-FSG 硅树脂玻纤套管  
Note:Inner wall thickness refers to H-FSG silicone coated fiber glass sleeving



# H-PSG 聚氨酯玻璃纤维套管

## H-PSG Polyurethane varnish coated fiberglass sleeve



### 产品说明

H-PSG 聚氨酯玻璃纤维套管是用玻璃纤维编织和特殊PU树脂涂层的生产而成的一种绝缘套管并能符合UL1441的标准。H-PSG具有绝缘强度高，弹性非常好，灵活性极强，抗张强度高，耐变压器油和各种溶剂（苯乙烯，二甲苯，乙醇等）和浸渍树脂及漆的优异性能。同时，还怕与烙铁相接触。

耐高压：

H-PSG-1G 7000V及以上，  
H-PSG-2G 4000V，  
H-PSG-3G 2500V，  
H-PSG-4G 1500V，  
H-PSG-5G 1200V，  
H-PSG-6G 无耐压要求

### Product Description

H-PSG with UL 1441 standard is an electric insulating sleeve made of braiding fiber glass coated a special polyurethane varnish. H-PSG is characterized by high dielectric strength, very good elasticity, extreme flexibility, good tensile strength and excellent resistance to transformer oil and various solvents (styrene, xylene, ethanol, etc.) and impregnating resins and varnishes. Meanwhile, it can resist contact with the soldering iron.

High voltage withstand:

H-PSG-1G 7000V and above,  
H-PSG-2G 4000V,  
H-PSG-3G 2500V,  
H-PSG-4G 1500V,  
H-PSG-5G 1200V,  
H-PSG-6G NO requirements of pressure

# H-PSG 聚氨酯玻璃纤维套管

## H-PSG Polyurethane varnish coated fiberglass sleeve



### 应用

H-PSG 由于其与浸渍漆树脂和光油漆树脂（烘箱烘干及空气干燥方法）相兼容，其良好的耐化学性适用保护电气连接和终端,如汽车行业，电气绝缘，电机及变压器结构等。

### Application

H-PSG can be compatible with impregnating and finishing varnishes and resins (oven-dry as well as air-drying method), it has excellent chemical resistance widely used in automotive industry ,electrical insulation ,motor and transformer construction, ect.

### 主要参数 Main Parameter

性能 Property	测试方法 Testing	普通型 Non-flame resistance	
工作温度 Working temperature	——	-40 °C to 155 °C	
耐热性能 Thermal overcharge and aging resistance	实际操作测试 Simulation of real operating conditions	在 175°C 仍保持柔软 Maintains its flexibility at +175°C峰值最高达 225°C 数小时 Peaks at 225 °C (few hours)	
阻燃性 Flammability	UL1441 horizontal flame test	自熄 Self-extinguishing	
冷弯曲性 Cold bending resistance	UL 1441	无脆裂 No cracking	
柔软性 Flexibility	UL 1441	套管表面无脆裂，外层漆也没有脱落。 Passes. There are neither cracks to be observed on the surface of the sleeving, nor does the varnish film come off	
抗磨损性 Abrasion resistance	LV 312-3 室温条件 at room temperature	Class B	
体积电阻率 Volume resistance	ASTM D 257	1.5*10 <sup>13</sup> Ohms, cm	
耐化学性 Chemical resistance	DIN EN 60684/ DIN 40620 Customer specifications 在 室温条件下放置 24 小时 Storage time 24h at room temperature Chemical externally spread	耐乙醇 ethyl alcohol resistance	通过 Passes
		耐二甲苯 xylene resistance	通过 Passes
		耐三氯苯乙烷 trichloroethane	通过 Passes
		耐苯乙烯 Styrene resistance	通过 Passes
		耐变压器油 transformer oil resistance	通过 Passes
		兼容 F 级绝缘漆 Compatibility with Class F insulating varnishes	通过 Passes
注：内径壁厚参照 H-FSG 硅树脂玻纤套管 Note: Inner wall thickness refers to H-FSG silicone coated fiber glass sleeving			



### 产品说明

材料: 内层为玻璃纤维编织, 外层为挤压硅橡胶涂层  
 可耐电压 4K-10KV 工作温度  $-60^{\circ}\text{C}\sim+200^{\circ}\text{C}$   
 颜色: 白、红、黑、棕、黄  
 试验电压: 4000V/15000V 阻燃 UL1441 VW-1  
 良好的绝缘性能

### Product Description

Material: extruded silicone rubber and fiberglass braid  
 Withstand Voltage: 4000V-10000V  
 Operation temperature:  $-60^{\circ}\text{C}\sim+200^{\circ}\text{C}$   
 Braid Colours: white/red/black/brown/yellow  
 Testing Voltage: 4000V/15000V  
 Flammability: UL1441 VW-1  
 Good flexibility

### 应用

一般应用于电子电器、照明灯具、工业机器、电热制品等高温场所之配线。

### Application

The wiring for usage in thermal places where a range of household appliances, illuminative lamps, industrial machines are operated.

# 内纤外胶套管

Inside Fiberglass and Outside Silicone Rubber Sleeving

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## 主要参数 Main Parameter

项目 Item	性能指标 VALUE
连续使用温度范围 Continuous Operating Temperature	-60℃+200℃
耐温性 Temperature Endurance	200℃±2℃ 168 小时 ≥ 1/2 原电压值 200℃+2℃ 168 hours 1/2 the original voltage value
热老化 Aging Test	260℃、0.6 小时、无裂纹 260℃, 6 hours, No cracking
冷弯曲 Cold Bend	无裂纹 No cracking
水平燃烧 Horizontal Flame test	<30 秒 <30 seconds
燃烧(VW—1)Flame Retardance	<30 秒 <30 seconds
体积电阻 Volume resistance	10 <sup>11</sup> Ωcm

规格 Specification 内径(mm)	Cat NO: 4000V 200℃		Cat NO :7000V 200℃		Cat NO: 10000V 200℃	
	最低壁厚 Minimum wall thickness(mm)	每卷长度 Mt/coils (m)	最低壁厚 Minimum wall thickness(mm)	每卷长度 Mt/coils (m)	最低壁厚 Minimum wall thickness( mm)	每卷长度 Mt/coils (m)
1.0	0.50	100	0.60	100	0.80	100
1.5	0.50	100	0.60	100	0.80	100
2.0	0.55	100	0.65	100	0.80	100
2.5	0.55	100	0.65	100	0.80	100
3.0	0.55	100	0.65	100	0.80	100
4.0	0.60	100	0.65	100	0.80	100
5.0	0.65	100	0.65	100	0.80	100
6.0	0.65	100	0.70	100	0.95	100
7.0	0.65	100	0.70	100	0.95	100
8.0	0.70	50	0.70	50	0.95	50
9.0	0.70	50	0.75	50	0.95	50
10.0	0.80	50	0.85	50	1.00	50
11.0	0.80	50	0.85	50	1.00	50
12.0	0.85	50	0.85	50	1.00	50
MAX20.0	0.90	1	0.90	1	1.20	1

注：其他尺寸和颜色可制

Note: other sizes and colors can be customized

内径壁厚参照 H-FSG 硅树脂玻纤套管

Inner wall thickness refers to H-FSG silicone coated fiber glass sleeving



### 产品说明

材料: 外层为玻璃纤维编织, 内层为挤出硅橡胶  
 工作电压 4000V-10000V 工作温度 -60℃~+200℃  
 颜色: 白、红、黑、棕、黄  
 试验电压: 4000V-10000V 阻燃 UL1441 VW-1  
 良好的绝缘、机械性能、耐油耐酸

### Product Description

Material: extruded silicone rubber and fiberglass braid  
 Operation Voltage: 4000V-10000V  
 Operation temperature: -60℃~+200℃  
 Braid Colours: white/red/black/brown/yellow  
 Testing Voltage: 4000V-10000V  
 Flammability: UL1441 VW-1  
 Good flexibility and mechanical properties Resistance to acid & oil

### 应用

一般应用于电子电器、照明灯具、工业机器、电热制品等高温场所之配线。

### Application

The wiring for usage in thermal places where a range of household appliances, illuminative lamps, industrial machines are operated.

# 内胶外纤套管

Inside Silicone Rubber and Outside Fiberglass Sleeving



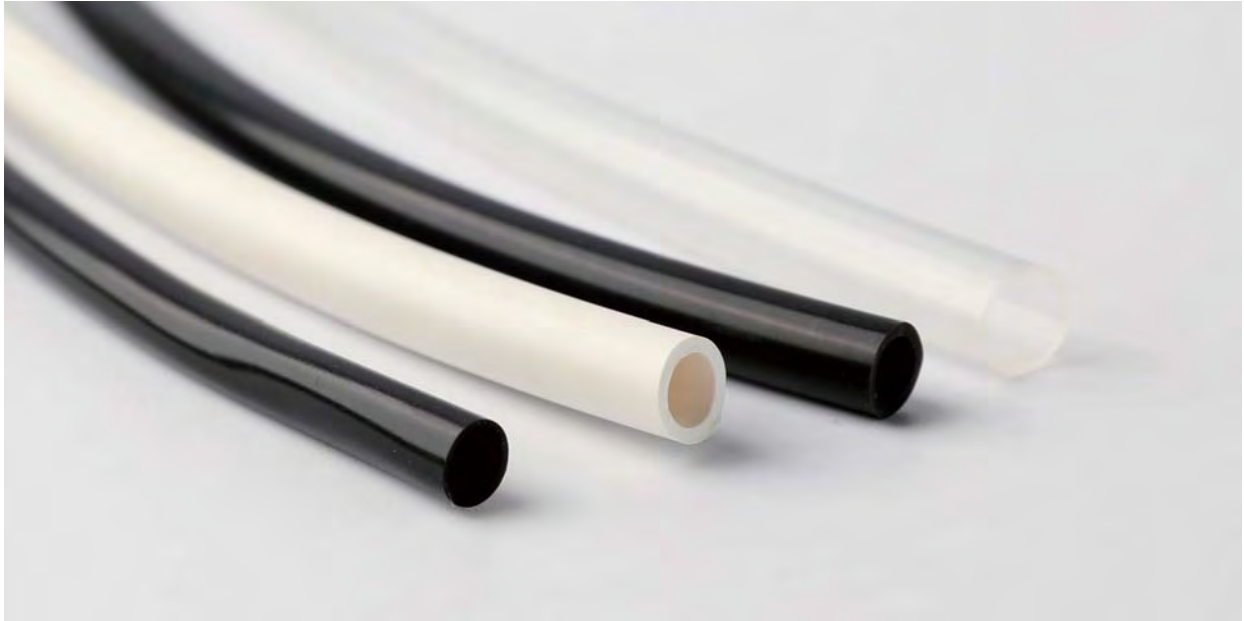
## 主要参数 Main Parameter

性能 Performance	指标 Index
加热后的弯曲性 Bending after heating	编织层：无可见的开裂或剥落，原色明显可见。硅橡胶管无溶化、变形或冒烟。试验温度 180℃±2℃，24±1 小时 Braided layer: no visible cracking or peeling, the primary color is obvious. The silicone rubber tube has no melting, deformation or smoke. The test temperature is 180 °C ± 2 °C for 24 ± 1 h
低温时的弯曲性 Bending at low temperature	编织层：无可见的开裂或剥落，原色明显可见。硅橡胶管无僵硬、变形。试验温度 -10±2℃，30±10 分钟。Braided layer: no visible cracking or peeling, the primary color is obvious. The silicone rubber tube has no rigidity and deformation. The test temperature - 10±2 °C , 30±10 minutes

规格 Specification 内径(mm)	最低壁厚 Minimum wall thickness (mm)	平均壁厚 Average wall thickness (mm)	每卷长度 Mt/coils (m)
1.00	0.45	0.60	200
2.00	0.50	0.60	200
2.50	0.50	0.70	100
3.00	0.55	0.80	100
4.00	0.70	1.00	100
4.20	0.70	1.00	100
4.50	0.70	1.00	100
5.00	0.80	1.00	100
6.00	1.00	1.20	100
7.00	1.00	1.20	50
8.00	1.00	1.20	50
9.00	1.20	1.50	50
10.0	1.20	1.50	50
MAX20.0	1.60	2.00	50

# 硅胶绝缘套管

## Silicone Rubber Insulation Tubes



### 产品说明 Product Description

硅橡胶材料  
 可耐电压 2.5~10KV  
 工作温度 -50℃~200℃  
 优良的绝缘性能  
 优良的稳定性  
 耐油耐化学腐蚀  
 良好的柔软性  
 绿色环保  
 通过UL认证 / 认证号: E473382

Silicone rubber material  
 Withstand Voltage: 2.5~10KV  
 Operation temperature: -50℃~200℃  
 Excellent insulation characters  
 Excellent stability  
 Resistance to oil and chemical  
 Good flexibility  
 Environmentally friendly choice  
 Passed the UL testing / UL NO.E473382

### 应用

一般应用于医疗器械、家用电器、航天航空、军工、汽车制造、电子元器件、变压器、马达等。

### Application

General usage for medical equipments, home appliances, aircrafts, military equipments and automobiles, electric components, transformers, motors, etc.

### 主要参数 Main Parameter

电介质强度 Dielectric strength	比重 Specific gravity	硬度 Hardness shore A	抗张强度 Tensile strength N/mm	撕裂强度 Tear strength N/mm	伸张率 Elongation %	线性收缩率 Dshrinkage Rate %	压缩变形率 Compression set % 22Hr @177C	温度变化 Temperature transmutation
≥7.0kv	1.2	60±2	≥6.5	≥14	296	2.7~3.0	30	-50° C~200° C

# 硅胶绝缘套管

## Silicone Rubber Insulation Tubes

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性能 Performance 2/5000		阻燃性 Flame retardancy	普通型 Common type
抗张强度 Tensile strength	Mpa{Kg/cm <sup>2</sup> }	6.9{70}	6.9{70}
伸张性 Tensibility	%	400	400
撕裂强度 Tear strength	KN/m{Kgf/cm}	24.5{25}	24.5{25}
体积电阻率 Volume resistivity	$\Omega \cdot m$ { $\Omega \cdot m$ }	$2 \times 10^{12}$ $2 \times 10^{14}$	$2 \times 10^{12}$ $2 \times 10^{14}$
介电强度 Dielectric strength	KV/mm	25	25
介电常数 Dielectric constant	50Hz	3.2	3.2
介质损耗角正切 Tangent of dielectric loss angle	50Hz	0.001	0.001
阻燃性 Flame retardancy	UL-224	VW-1	—
使用温度范围 Operating temperature range	(°C)	-50~+200	-50~+200

内径 mm Inside diameter		壁厚 mm Wall thickness				包装 mm Package
标准 Standard	公差 Tolerance	2.5KV	4.0KV	6.0KV	7.0KV	M/R
0.5	±0.2	0.5	—	—	—	200
1.0	±0.2	0.5	1.00	1.50	2.00	200
1.5	±0.3	0.5	1.00	1.50	2.00	200
2.0	±0.3	0.5	1.00	1.50	2.00	200
2.5	±0.3	0.5	1.00	1.50	2.00	200
3.0	±0.3	0.5	1.00	1.50	2.00	100
3.5	±0.3	0.5	1.00	1.50	2.00	100
4.0	±0.3	0.5	1.00	1.50	2.00	100
4.5	±0.3	0.5	1.00	1.50	2.00	100
5.0	±0.3	0.5	1.00	1.50	2.00	100
6.0	±0.5	0.5	1.00	1.50	2.00	100
7.0	±0.5	0.5	1.00	1.50	2.00	100
8.0	±0.5	0.5	1.00	1.50	2.00	100
9.0	±0.5	0.5	1.00	1.50	2.00	100
10.0	±0.5	0.5	1.00	1.50	2.00	50
11.0	±0.5	—	1.00	1.50	2.00	50
12.0	±0.5	—	1.00	1.50	2.00	50
13.0	±0.5	—	1.00	1.50	2.00	50
14.0	±0.6	—	1.00	1.50	2.00	50
15.0	±0.6	—	1.00	1.50	2.00	50
16.0	±0.6	—	1.00	1.50	2.00	50
17.0	±0.6	—	1.00	1.50	2.00	50
18.0	±0.6	—	1.00	1.50	2.00	50
19.0	±0.6	—	1.00	1.50	2.00	50
20.0	±0.6	—	1.00	1.50	2.00	50



# 硅胶热缩套管

## Silicone Rubber Heat-shrinkable Tubes



### 产品说明

硅橡胶热缩套管是针对电子零件的绝缘、保护而设计开发的产品。热缩套管加热时，套管内径迅速收缩一半，将被保护的电子部件紧紧包覆在套管内，而不受外界环境的影响。其不同于其它套管的优点是耐温能达到200℃。

通过UL认证 / 认证号：E473382

### Product Description

Silicone Rubber Heat-shrinkable Tube is applied for insulation purpose of electrical parts, power cable terminations etc., resistance to weather, even in severest outdoor conditions such as hot, cold, humidity or saline area etc.. It's operating temperature can be up to 200℃.

Passed the UL testing / UL NO.E473382

### 应用

一般应用于医疗器械、家用电器、航天航空、军工、汽车制造、电子元器件、变压器、马达等。

### Application

General usage for medical equipments, home appliances, aircrafts, military equipments and automobiles, electric components, transformers, motors, etc.

# 硅胶热缩套管

## Silicone Rubber Heat-shrinkable Tubes



### 主要参数 Main Parameter

比重 proportion 25°C	1.2
硬度 Hardness JIS-A	70
抗拉强度 Tensile strength)MPa(kgf/cm)	6.9 (70)
伸长性 Elongation (%)	400
撕裂强度 Tear strength JIS- AkN/m (kgf/cm) J	24.5 (25)
体积电阻率 Volume resistivity $\Omega \cdot m$ ( $\Omega \cdot m$ )	$2 \times 10^{12}$ ( $2 \times 10^{14}$ )
崩溃电压率 (Breakdown Voltage) 1mm 时 (KV)	25
介电常数 electric constant (*) 50Hz	3.2
介质损耗角正切 $\tan \delta > 50\text{Hz}$ Tangent of dielectric loss angle $\tan \delta >$	0.001
阻燃性 Flame retardancy UL-224	—
使用温度范围 Operating temperature range (°C)	-50~+200
收缩比率 Shrinkage ratio (%)	1.7:1
收缩温度 Shrinkage temperature°C	150 以上

规格(∅) Specification Size	收缩前尺寸(mm) Sides before shrink		收缩后尺寸(mm) Sides after shrink		包装 Package	
	内径 Inside diameter	壁厚 Wall thickness	内径 Inside diameter	壁厚 Wall thickness	A	B
1.5	1.7±0.2	0.5±0.1	0.8±0.1	1.0±0.2	25×1M	4×5M
3.0	3.2±0.2	0.5±0.1	1.8±0.1	1.0±0.2	25×1M	4×5M
4.0	4.5±0.3	0.5±0.1	2.2±0.1	1.0±0.2	25×1M	4×5M
5.0	5.6±0.3	0.5±0.1	2.9±0.1	1.0±0.2	25×1M	4×5M
6.0	6.6±0.3	0.5±0.1	3.3±0.1	1.0±0.2	25×1M	4×5M
8.0	8.6±0.4	0.5±0.1	4.3±0.1	1.0±0.2	25×1M	4×5M
10	10±1.0	0.5±0.1	5.0±0.1	1.0±0.2	25×1M	4×5M
12	12±1.0	0.7±0.1	6.0±0.1	1.5±0.2	10×1M	2×5M
17	17±1.0	0.7±0.1	8.5±0.1	1.5±0.2	10×1M	2×5M
20	20±1.0	1.0±0.1	12±0.1	2.0±0.3	10×1M	2×5M
25	25±1.0	1.0±0.1	14±0.1	2.0±0.3	5×1M	1×5M
30	30±1.0	1.0±0.1	16±0.1	3.0±0.3	5×1M	1×5M
45	45±1.0	1.5±0.1	23±0.1	3.0±0.3	5×1M	1×5M
55	55±1.0	1.5±0.1	29±0.1	3.0±0.3	5×1M	1×5M
65	65±1.0	1.5±0.1	35±0.1	3.0±0.3	5×1M	1×5M
80	80±1.0	1.5±0.1	43±0.1	3.0±0.3	5×1M	1×5M
100	100±1.0	1.5±0.1	55±0.1	3.0±0.3	5×1M	1×5M

注：其他尺寸和颜色可定制  
Note: other sizes and colors can be customized



### 产品说明

耐高温(260°C)

阻燃

耐强酸

超薄管壁

通过UL认证 / 认证号: E473382

### Product Description

High temperature resistance(260°C)

Flame retardant

Resistance to acid

Thin wall thickness

Passed the UL testing / UL NO.E473382

### 应用

广泛应用于化学、仪器、电热、机械工业、航天、汽车、医疗、电子变压器、通讯等科技工业。

### Application

Be used in wide range of chemicals instruments, electric heating and mechanical industries. They are also applied in the industries of astronautics, vehicles, medicals, electronic transform-

# PTFE铁氟龙绝缘套管

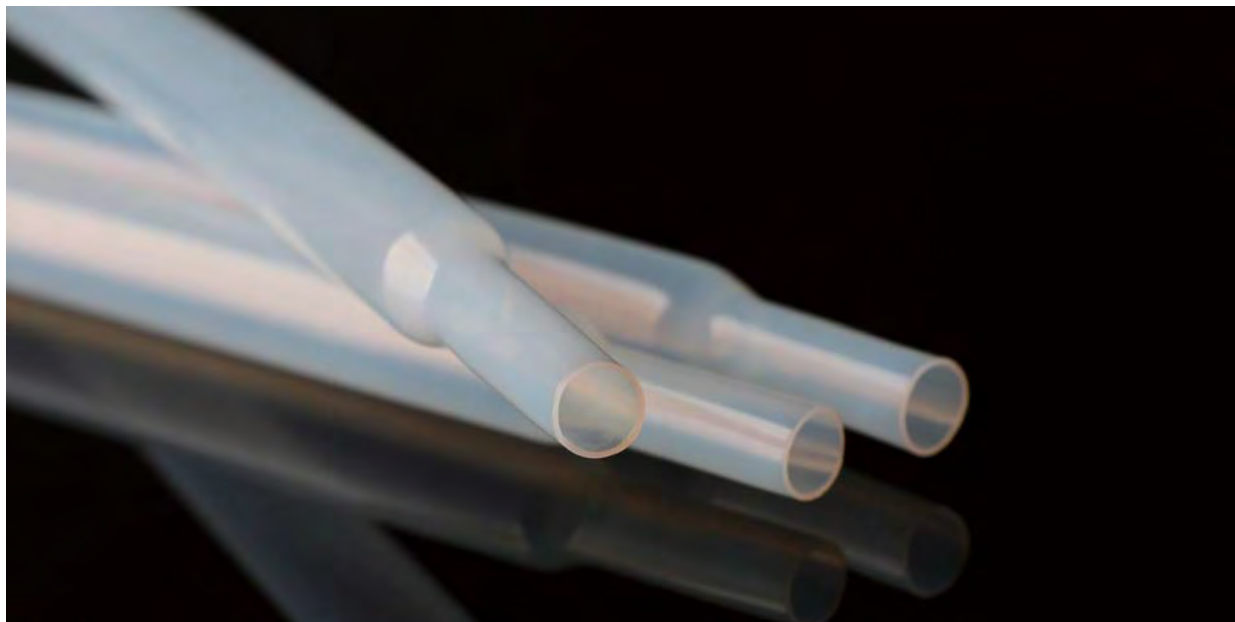
## PTFE Teflon Tubes

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### 主要参数 Main Properties

项目 Project	试验方法 Test method	单位 Unit	特性要求 Specification Requirement
比重 Proportion	ASTM D792	—	2.16
抗长强度 Long strength	ASTM D638	Mpa	24.5
伸张度 Elongation	ASTM D638	%	350
弯曲系数 Bending coefficient	ASTM D790	—	490
撞击强度 Impact strength	ASTM D256 + 23°C-54°CJ/	—	-No break-107
硬度 Hardness	ASTM D2240	Shore D	55
摩擦系数 Friction coefficient	—		0.1
熔点 Melting point	—	°C	327
使用温度 Operating temperatures	—	°C	260
可燃性 Flammability	UL-224	—	94V-O
介质常数 Dielectric constant	ASTM D150	—	2.1
散逸因数 Dissipation Factor	ASTM D150	—	0.0002
电弧系数 Arc coefficient	—	S	> 300
固有体积电阻 Natural volume resistance	ASTM D257	cm	> 10 <sup>18</sup>
耐候性 Weatherability	Weather-O-meter (2000h)	—	No break/无变化 Unchanged
耐熔性 Fusibility	ASTM D543	—	优 Excellent
耐化学 Chemical resistance	ASTM D543	—	优 Excellent

Size AWG	ID (mm)			OD (mm)			— M/R
	MIN	MOR	MAX	S TYPE	T TYPE	L TYPE	
30	0.25	0.30	0.38	0.76	0.76	0.60	305
28	0.33	0.38	0.46	0.84	0.84	0.68	305
26	0.41	0.46	0.53	0.92	0.92	0.76	305
24	0.51	0.56	0.66	1.16	1.06	0.86	305
23	0.58	0.66	0.74	1.26	1.16	0.96	305
22	0.66	0.71	0.81	1.31	1.21	1.01	305
21	0.74	0.81	0.89	1.41	1.31	1.11	305
20	0.81	0.86	0.97	1.66	1.46	1.16	305
19	0.91	0.96	1.07	1.76	1.56	1.26	305
18	1.01	1.07	1.17	1.87	1.67	1.37	305
17	1.14	1.19	1.32	1.99	1.79	1.49	305
16	1.29	1.34	1.47	2.14	1.94	1.64	305
15	1.45	1.50	1.65	2.30	2.10	1.80	305
14	1.62	1.68	1.83	2.48	2.28	2.08	305
13	1.83	1.93	2.05	2.73	2.53	2.33	152.5
12	2.05	2.16	2.31	2.96	2.77	2.56	152.5
11	2.31	2.41	2.57	3.21	3.01	2.81	152.5
10	2.59	2.69	2.84	3.49	3.29	3.09	152.5
9	2.90	3.00	3.10	4.00	3.76	3.40	100
8	3.28	3.38	3.53	4.38	4.14	3.78	100
7	3.65	3.76	3.94	4.76	4.52	4.16	100
6	4.11	4.22	4.41	5.22	4.98	4.72	100
5	4.62	4.72	4.95	5.72	5.48	5.22	100
4	5.18	5.28	5.53	6.28	6.04	5.78	100
3	5.81	5.94	6.20	6.94	6.70	6.44	100
2	6.55	6.68	6.93	7.68	7.44	7.18	100
1	7.34	7.46	7.75	8.46	8.22	7.96	100
0	8.26	8.38	8.69	9.38	9.14	8.88	100



## 产品说明

收缩比率 1.7:1, 4:1  
工作温度 -55°C~200°C  
额定电压600V  
阻燃 UL224 VW-1  
良好的绝缘性能  
耐磨损  
防腐蚀

## Product Description

Shrink ratio: 1.7:1, 4:1  
Operation temperature: -55°C~200°C  
Rated voltage 600V  
Flame retardant UL224 VW-1  
Excellent insulation  
Resistance to abrasion  
Resistance to acid & oil

## 应用

一般应用于电线，焊点，绝缘终端，连接点或部件等的保护。

## Application

General usage for the protection of the electric wire, soldered joint, insulated terminal, conjunction orders and the electric parts, etc.

# 铁氟龙热缩套管

## Teflon Heat-shrinkable Tubes

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### 主要参数 Main Properties

项目 Item	特性要求 Specification Requirement	项目 Item	特性要求 Specification Requirement	
比重 proportion g/cm <sup>3</sup>	2.10	可燃性 Flammability	VW-1	
抗张强度 Tensile strength Mpa	20.5	介质常数 Dielectric constant	2.1	
弯曲强度 Bending strength Mpa	400	散逸因数 Dissipation Factor	0.0002	
撞击强度 Impact strength	-No break-107	电弧系数 Arc coefficient	> 300	
硬度 Hardness (Shore D)	85	耐候性 Weatherability	No Break	
摩擦系数 Friction coefficient	0.1	耐化学腐蚀 Chemical resistance	优 Excellent	
收缩温度 Shrinkage temperature (°C)	≥280°C	体积电阻率 Volume resistivity (Ω/cm)	> 10 <sup>18</sup>	
吸水率 Water absorption	≤0.01%	击穿强度 Breakdown strength (KV/mm)	30	
轴向收缩率 Axial shrinkage (%)	≤5%	燃烧性 Flammability	VW-1	
空气烘箱老化 Aging of air oven	300°C	同心率 Concentricity (%)	≥60	
老化后 After aging	抗张强度 Tensile strength Mpa	20	使用温度 Operating temperatures (°C)	-80~300°C
	断裂伸长率 Elongation at break (%)	200	断裂伸长率 Elongation at break (%)	330

规格 Specification (mm)	1.7:1 收缩后最小内径 Sides after shrink min inside diameter (mm)	4:1 收缩后最小内径 Sides after shrink min inside diameter (mm)	收缩后最小壁厚 Sides after shrink min wall thickness (mm)	标准长度 Standard length (m)
1.0	0.6	0.25	0.20	200
2.0	1.2	0.30	0.20	100
3.0	1.8	0.45	0.23	100
4.0	2.4	0.60	0.23	100
6.0	3.6	1.5	0.23	1.22
8.0	4.8	—	0.28	1.22
10.0	6.0	—	0.28	1.22
12.0	7.2	—	0.28	1.22
15.0	9.0	—	0.36	1.22
20.0	12.0	—	0.41	1.22



## 产品说明 Product Description

耐高低温，工作温度-200~+260℃；不粘性，易清洁；优秀的机械性能；化学惰性，低摩擦性；高绝缘性，阻燃；无毒害，具有生理惰性；耐候性，低吸水性

Temperature range: -200~+260℃; No sticking, easy to clean; Excellent mechanical properties; Chemically resistant, Low flammability; High insulation, flame retardant; No poison, physiological inertia; Climate resistance, low water absorption

## 应用 Application

凭借其优异的耐热、耐酸、耐碱、耐磨、防粘、耐紫外、高透明度的性能，被广泛应用于：航空航天、通信行业中各种频率电线电缆护套管、半导体制造装置、发电厂热交换器等领域。

With its excellent heat resistance, acid resistance, alkali resistance, wear resistance, anti sticking, UV resistance, high transparency performance, it is widely used in various frequency wire and cable casings, semiconductor manufacturing equipment, power plant heat exchanger and other fields in aerospace, communication industry

## 主要参数 Main Properties

性能 Property	项目 Item	性能指标 Value	单位 Unit	测试方法 Method
基本性能 Physical	比重 Specific gravity	2.12-2.17	—	ASTM D792
	吸水率 Water absorption	<0.01	%	ASTM D570
	氧指数 Oxygen index	>95	%	ASTM D2863
机械性能 Mechanical	拉伸强度 Tensile strength	25~35	MPa	ASTM D638
	断裂伸长率 Elongation at break	250~420	%	
电气性能 Electrical	介电常数 Dielectric constant	60Hz, 2.1	—	ASTM D1531
		60MHz, 2.1	—	
	体积电阻率 Volume resistivity	> 10 <sup>18</sup>	Q! cm	ASTM D257
	介电击穿强度 Dielectric strength	> 500	V/mil	ASTM D149
热性能 Thermal	熔点(DSC) Melting Point	305±10	℃	—
阻燃性能 Flame retardancy	阻燃等级 Flammability Classification	V-0	—	UL94

# H-PFA套管

## H-PFA Tubes

# 41

### 主要参数 Main Parameter

产品规格 Size (mm)					
(热收缩型, 收缩比: 1.3:1 Heat shrinkable, Shrink ratio: 1.3:1)					
收缩前内径 Inside diameter before shrinkage Min	收缩后内径 Inside diameter after shrinkage Max	收缩后壁厚 Wall thickness after contraction	收缩前内径 Inside diameter before shrinkage Min	收缩后内径 Inside diameter after shrinkage Max	收缩后壁厚 Wall thickness after contraction
0.79	0.69	0.20±0.05	7.4	5.8	0.28±0.10
0.91	0.80	0.20±0.05	7.9	6.4	0.28±0.10
1.1	1.0	0.20±0.05	9.2	7.2	0.30±0.10
1.5	1.2	0.20±0.05	10.2	7.9	0.30±0.10
1.9	1.6	0.23±0.05	12.7	9.7	0.38±0.10
2.3	1.8	0.23±0.05	14.7	11.4	0.50±0.10
2.9	2.3	0.23±0.05	16.9	13.0	0.50±0.10
3.6	2.9	0.25±0.07	21.1	16.1	0.64±0.10
4.0	3.2	0.25±0.07	29.7	22.7	0.90±0.10
4.6	3.6	0.25±0.07	33.8	25.9	0.90±0.10
5.0	4.0	0.28±0.10	38.1	29.1	0.90±0.10
5.7	4.6	0.28±0.10	42.3	32.3	0.90±0.10
6.4	5.0	0.28±0.10	46.6	35.3	0.90±0.10

注: 尺寸可定制  
Note: Size can be customized

产品规格 Size (mm)					
(不收缩型 Non heat shrinkable tube)					
毛细管 Capillary Tube		精密配管 Precision Tube		普通管 Ordinary tube	
外径 Outside diameter	内径 Inside diameter	外径 Outside diameter	内径 Inside diameter	外径 Outside diameter	内径 Inside diameter
0.9	0.5	1.78	1.28	2	1.6
1.0	0.6	2.16	1.50	3	2.2
1.1	0.7	2.56	1.90	4	3.2
1.2	0.8	3.00	2.44	6	5
1.3	0.9	3.80	3.40	8	7
1.4	1.0	4.50	3.64	10	9
1.5	0.9	5.00	4.12	12	11
1.6	1.0	5.95	5.55	16	14
1.8	1.4	6.00	5.24	20	18
1.9	1.5	9.90	9.30	36	32

注: 标准颜色为透明, 颜色、尺寸可以根据客户需求定制  
Note: standard color clear(natural), other color and size could be customized





### 产品说明 Product Description

耐高低温，工作温度-200~+200℃；不粘性，易清洁；优秀的机械性能；化学惰性，低摩擦性；高绝缘性，阻燃；无毒害，具有生理惰性；耐候性，低吸水性

Temperature range: -200~+200℃; No sticking, easy to clean; Excellent mechanical properties; Chemically resistant, Low flammability; High insulation, flame retardant; No poison, physiological inertia; Climate resistance, low water absorption

### 应用 Application

凭借其优异的耐热、耐酸、耐碱、耐磨、防粘、耐紫外、高透明度的性能，被广泛应用于：航空航天、通信行业中各种频率电线电缆护套管、半导体制造装置、发电厂热交换器等领域。

With its excellent heat resistance, acid resistance, alkali resistance, wear resistance, anti sticking, UV resistance, high transparency performance, it is widely used in various frequency wire and cable casings, semiconductor manufacturing equipment, power plant heat exchanger and other fields in aerospace,

### 主要参数 Main Properties

性能 Property	项目 project	性能指标 Value	单位 Unit	测试方法 Method
基本性能 Physical	比重 Specific gravity	2.12-2.17	—	ASTM D792
	吸水率 Water absorption	< 0.01	%	ASTM D570
	氧指数 Oxygen index	> 95	%	ASTM D2863
机械性能 Mechanical	拉伸强度 Tensile strength	18~34	MPa	ASTM D638
	断裂伸长率 Elongation at break	245-400	%	
电气性能 Electrical	介电常数 Dielectric constant	60Hz, 2.1	—	ASTM DI531
		60MH 乙 2.1	—	
	损耗角正切 Loss tangent	105 Hz, 0.0003	—	
		106 Hz, 0.0006	—	
体积电阻率 Volume resistivity	> 10 <sup>18</sup>	Q • cm	ASTM D257	
介电击穿强度 Dielectric strength	500-600	V/mil	ASTM DI49	
热性能 Thermal	熔点(DSC) Melting Point	265±15	° C	—
阻燃性能 Flame retardancy	阻燃等级 Flammability Classification	V-0	—	UL94

# H-FEP套管

## H-FEP Tubes

# 43

### 主要参数 Main Properties

产品规格 Size (mm)					
(热收缩型, 收缩比: 1.3:1 Heat shrinkable, Shrink ratio: 1.3:1)					
收缩前内径 Inside diameter before shrinkage Min	收缩后内径 Inside diameter after shrinkage Max	收缩后壁厚 Wall thickness after contraction	收缩前内径 Inside diameter before shrinkage Min	收缩后内径 Inside diameter after shrinkage Max	收缩后壁厚 Wall thickness after contraction
0.79	0.69	0.20±0.05	7.4	5.8	0.28±0.10
0.91	0.80	0.20±0.05	7.9	6.4	0.28±0.10
1.1	1.0	0.20±0.05	9.2	7.2	0.30±0.10
1.5	1.2	0.20±0.05	10.2	7.9	0.30±0.10
1.9	1.6	0.23±0.05	12.7	9.7	0.38±0.10
2.3	1.8	0.23±0.05	14.7	11.4	0.50±0.10
2.9	2.3	0.23±0.05	16.9	13.0	0.50±0.10
3.6	2.9	0.25±0.07	21.1	16.1	0.64±0.10
4.0	3.2	0.25±0.07	29.7	22.7	0.90±0.10
4.6	3.6	0.25±0.07	33.8	25.9	0.90±0.10
5.0	4.0	0.28±0.10	38.1	29.1	0.90±0.10
5.7	4.6	0.28±0.10	42.3	32.3	0.90±0.10
6.4	5.0	0.28±0.10	46.6	35.3	0.90±0.10

注: 尺寸可定制  
Note: Size can be customized!

产品规格 Size (mm)					
(不收缩型 Non heat shrinkable tube)					
毛细管 Capillary Tube		精密配管 Precision Tube		普通管 Ordinary tube	
外径 Outside diameter	内径 Inside diameter	外径 Outside diameter	内径 Inside diameter	外径 Outside diameter	内径 Inside diameter
0.9	0.5	1.78	1.28	2	1.6
1.0	0.6	2.16	1.50	3	2.2
1.1	0.7	2.56	1.90	4	3.2
1.2	0.8	3.00	2.44	6	5
1.3	0.9	3.80	3.40	8	7
1.4	1.0	4.50	3.64	10	9
1.5	0.9	5.00	4.12	12	11
1.6	1.0	5.95	5.55	16	14
1.8	1.4	6.00	5.24	20	18
1.9	1.5	9.90	9.30	36	32

注: 标准颜色为透明, 颜色、尺寸可以根据客户需求定制  
Note: standard color clear(natural), other color and size could be customized!

# PE绝缘套管

## Non-Heat Shrinkable PE Tubes



### 产品说明

耐高温  
额定电压 600V  
优良的阻燃性能  
良好的绝缘性能  
良好的柔软性  
符合环保标准要求，是PVC的升级替代产品  
耐油耐酸

### Product Description

High temperature resistance  
Rated voltage 600V  
Excellent flame retardant  
Excellent insulation  
Good flexibility  
The product is in accordance with the requirements of environmental protection standards, which is an upgrade alternative products of PVC

### 应用

广泛应用于电子元件、家电、汽车、机械、玩具、文体用品等领域

### Application

It is suitable for insulation purpose of electronics, automobil termina lugs, small electrical parts, lead wires of toy motors and transformers etc.

# PE绝缘套管

## Non-Heat Shrinkable PE Tubes

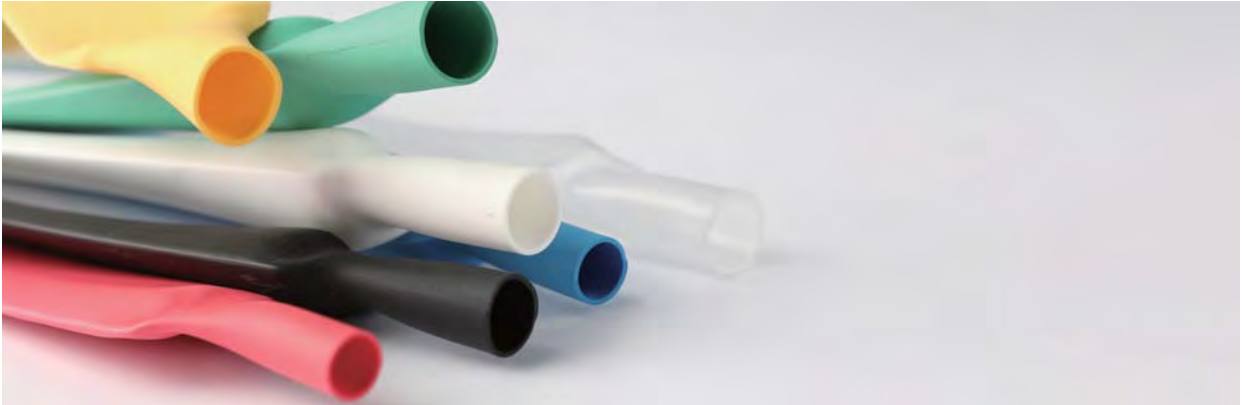
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### 主要参数 Main Parameter

项目 Item	测试方法 Test method	指标 Index	典型值 Typical value
温度等级 Temperature degree	UL221	125°C	125°C
长度变化率 Length change rate	ASTM D2671	-5%~+5%	-3%
拉伸强度 Tensile strength	ASTM D638	≥10.4MPa	14.0MPa
热空气老化测试 Hot air aging test	158.0° C/168h	—	—
热老化拉伸强度 Thermal aging tensile strength	ASTM D638	≥7.3MPa	9.3MPa
热老化断裂伸长率 Thermal aging elongation at break	ASTM D638	≥100%	200%
电压等级 Voltage rating	UL224	300V/600V	300V/600V
体积电阻率 Volume resistivity	ASTM D2671	≥1x10 <sup>12</sup> Ω·cm	3.6x10 <sup>12</sup> Ω·cm
击穿电压 Breakdown voltage	UL224	2500V (60s)无击穿 No breakdown	无击穿 No breakdown
热冲击 Thermal shock	UL224/250°C±3°C/4h	不滴、不流、不裂 No drip, no flow and no crack	合格 Qualified
冷弯取 Cold bend	UL224/-55°C/1h	不裂 No crack	合格 Qualified
铜腐蚀 Copper corrosion	UL224/158° C/168h	无腐蚀 No corrosion	无腐蚀 No corrosion

规格 Specification (Ø)	成品内径 Inner diameter of finished product (mm)	壁厚 Wall thickness (mm)	
		300V	600V
0.9	0.95±0.05	0.38±0.05	0.5±0.06
1.4	1.45±0.05	0.38±0.05	0.62±0.06
2.0	2.05±0.05	0.38±0.05	0.62±0.06
2.5	2.55±0.05	0.38±0.05	0.62±0.06
3.0	3.10±0.10	0.50±0.06	0.62±0.06
3.4	3.50±0.10	0.50±0.06	0.62±0.06
4.0	4.10±0.10	0.50±0.06	0.62±0.06
4.8	4.90±0.10	0.50±0.06	0.62±0.06
5.8	5.90±0.10	0.50±0.06	0.62±0.06
6.3	6.40±0.10	0.50±0.06	0.62±0.06
6.8	6.90±0.10	0.50±0.06	0.62±0.06
7.3	7.40±0.10	0.50±0.06	0.62±0.06
7.8	7.90±0.10	0.50±0.06	0.62±0.06
8.8	8.90±0.10	0.50±0.06	0.62±0.06
9.7	9.85±0.15	0.50±0.06	0.62±0.06
10.6	10.80±0.20	0.50±0.06	0.62±0.06
11.6	11.80±0.20	0.50±0.06	0.62±0.06
12.6	12.80±0.20	0.62±0.06	0.75±0.06
13.6	13.80±0.20	0.62±0.06	0.75±0.06
14.6	14.80±0.20	0.62±0.06	0.75±0.06
15.6	15.80±0.20	0.62±0.06	0.75±0.06

注：其他尺寸和颜色可定制  
Note: other sizes and colors can be customized



### 产品说明 Product Description

执行标准: UL224; 热缩倍率: 2:1; 阻燃: UL224 VW-1; 起始收缩温度:  $\geq +84^{\circ}\text{C}$ ; 完全收缩温度:  $\geq +125^{\circ}\text{C}$ ; 使用温度:  $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$ ; 环保标准: RoHS; 额定电压: 600V; 标准颜色: 黑色, 也可做白, 红, 黄, 绿, 蓝等十种国际标准颜色; 通过UL认证, 认证号: E473382 / E473405

Executive standard: UL224; Hot shrinkage ratio: 2:1; Hot shrinkage ratio: 2:1; Flame retardant: UL224 VW-1; Initial shrinkage temperature:  $\geq +84^{\circ}\text{C}$ ; Complete shrinkage temperature:  $\geq +125^{\circ}\text{C}$ ; Usage temperature:  $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$ ; Environmental protection standard: RoHS; Rated voltage: 600V; Standard color: Black, can also be white, red, yellow, green, blue and other ten international standard colors  
Pass the UL testing UL NO: E473382 / E473405

### 应用 Application

125°C阻燃热缩管由辐射交联聚烯烃材料构成, 理化电气性能优异, 主要功能是线束保护, 连接件的电绝缘, 焊点防锈防腐, 机械防护等。阻燃特性可以有效地保护管线与元器件, 广泛用于汽车零部件保护, 船舶, 飞机制造等领域。125°C flame retardant heat shrinkable tube is made of radiation crosslinked polyolefin material, excellent physical, chemical and electrical performance, the main function is wire harness protection, electrical insulation of connectors, anti rust and anti-corrosion of soldered joints, mechanical protection, etc. Flame retardant can effectively protect pipelines and components, widely used in automobile parts protection, ship, aircraft manufacturing and other fields. This tubing may be used in a wide variety of automobile parts protection, ship, aircraft manufacturing and other fields.

### 主要特性参数 Main Properties

性能 Performance	实验方法 Experimental method	指标 Index
拉伸强度 (MPa) Tensile Strength	ASTM D 2671	$\geq 10.4$
断裂伸长率 (%) Elongation	ASTM D 2671	$\geq 200$
老化后拉伸强度 (MPa) Tensile strength after aging	158° C CX68h	$\geq 7.3$
老化后断裂伸长率 (%) Elongation after aging	158° C CX68h	$\geq 100$
轴向变化率 (%) Longitudinal Changing Ratio	ASTM D 2671	-5~+5
阻燃性 Flame retardancy	ASTM D 2671 方法 C ASTM D 2671 Method C	VW-1
耐电压 (600v) Withstand voltage	UL 224	2500v.1min 不击穿 No breakdown
击穿强度 (与耐电压二选一) (kv/mm) Dielectric strength (And withstand voltage alternative)	ASTM D 149	$\geq 15$
体积电阻率 ( $\Omega\text{-cm}$ ) Volume resistivity	IEC 60093	$\geq 10 \sim 14$

# PE阻燃热缩管(普通型)

## Flame retardant Heat-shrinkable PE Tubes(Ordinary)

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### 主要参数 Main Parameter

规格 Specification size ( $\varnothing$ )	供货内径 mm Supply inside diameter	全缩后尺寸 Sides after shrink		标准包装 米/盘 Standard package M/Plate	适用范围 mm Scope of application
		内径 Inside diameter	壁厚 Wall thickness		
0.6/0.40	0.9±0.20	≤0.40	0.33±0.10	200	0.4-0.7
0.8/0.50	1.10±0.20	≤0.50	0.33±0.10	200	0.6-0.8
1.0/0.65	1.50±0.20	≤0.65	0.36±0.10	200	0.75-0.9
1.5/0.85	2.00±0.20	≤0.85	0.36±0.10	200	0.95-1.4
2.0/1.00	2.50±0.20	≤1.00	0.45±0.10	200	1.1-1.8
2.5/1.30	3.00±0.20	≤1.30	0.45±0.10	200	1.35-2.3
3.0/1.50	3.50±0.20	≤1.50	0.45±0.10	200	1.6-2.7
3.5/1.80	4.00±0.20	≤1.80	0.45±0.10	200	1.85-3.2
4.0/2.00	4.70±0.20	≤2.00	0.45±0.10	200	2.1-3.6
4.5/2.30	5.00±0.20	≤2.30	0.45±0.10	100	2.35-4.0
5.0/2.50	5.50±0.20	≤2.50	0.56±0.10	100	2.6-4.5
6.0/3.00	6.50±0.20	≤3.00	0.56±0.10	100	3.1-5.4
7.0/3.50	7.50±0.30	≤3.50	0.56±0.10	100	3.7-6.3
8.0/4.00	8.50±0.30	≤4.00	0.56±0.10	100	4.2-7.2
9.0/4.50	9.50±0.30	≤4.50	0.56±0.10	100	4.7-8.0
10/5.00	10.50±0.30	≤5.00	0.56±0.10	100	5.2-9.0
11/5.50	11.50±0.30	≤5.50	0.56±0.10	100	5.7-10
12/6.00	12.50±0.30	≤6.00	0.56±0.10	100	6.2-11
13/6.50	13.50±0.30	≤6.50	0.56±0.10	100	6.7-12
14/7.00	14.50±0.30	≤7.00	0.70±0.10	100	7.3-13
15/7.50	15.50±0.40	≤7.50	0.70±0.10	100	7.8-14
16/8.00	16.50±0.40	≤8.00	0.70±0.10	100	8.3-15
17/8.50	17.50±0.40	≤8.50	0.70±0.10	100	8.8-16
18/9.00	19.00±0.50	≤9.00	0.70±0.10	100	9.3-17
20/10.0	22.00±0.50	≤10.0	0.80±0.15	100	10.4-19
22/11.0	24.00±0.50	≤11.0	0.80±0.15	100	11.4-21
25/12.5	26.00±0.50	≤12.5	0.90±0.15	50	12.8-24
28/14.0	29.00±0.50	≤14.0	0.90±0.15	50	14.4-29
30/15.0	31.50±1.00	≤15.0	0.90±0.15	50	16-29
35/17.5	36.50±1.00	≤17.5	1.00±0.15	50	18-34
40/20.0	41.50±1.00	≤20.0	1.00±0.15	50	21-39
45/22.0	46.50±1.50	≤22.5	1.00±0.15	25	23.5-44
50/25.0	≥50	≤25.0	1.10±0.15	25	26-49
60/35.0	≥60	≤30.0	1.10±0.15	25	35-50
70/35.0	≥70	≤35.0	1.20±0.15	25	40-60
80/40.0	≥80	≤40.0	1.30±0.20	25	45-70
90/45.0	≥90	≤45.5	1.30±0.20	25	50-80
100/50.0	≥100	≤50.0	1.30±0.20	25	55-85
120/60.0	≥120	≤60.0	1.30±0.20	25	65-100
150/75.0	≥150	≤75.0	1.30±0.20	25	80-120
180/90.0	≥180	≤90.0	1.30±0.20	25	85-150
210/105.0	≥210	≤105.0	1.30±0.30	25	110-180
230/115.0	≥230	≤115.5	1.30±0.30	25	120-210
250/125.0	≥250	≤125.0	1.30±0.30	25	130-230
300/150.0	≥300	≤150.0	1.30±0.30	25	160-250

# PE热缩套管(超薄型)

## Heat-shrinkable PE Tubes(Thin Wall)



### 产品说明 Product Description

125℃ UL PE材料;工作温度 -55℃~125℃;额定电压 300V;阻燃 UL224 VW-1;良好的绝缘性能;良好的柔软性;耐油耐酸  
通过UL认证,认证号: E473382 / E473405

Special 125℃ extruded PE material: Operation temperature: -55℃~125℃; Rated voltage 300V; Flame retardant UL224 VW-1;Excellent insulation;Good flexibility;Resistance to acid & oil

Passed the UL testing, UL NO.E473382 / E473405

### 应用 Application

适用于各种商业用途, 广泛用于线束加工、家用电器、马达、仪器制造、电子原件等行业。

Suitable for multi-purpose commercial usage. Popular used in wide range of wires assembling, home electrical appliance, motors, instruments manufacturing and electronic components.

### 主要参数 Main Parameter

项目 Project	特性 Characteristic	项目 Project	特性 Characteristic
收缩温度 Shrinkage temperature℃	90	燃烧性 Flammability	VW-1
径向收缩率 Radial shrinkage %	≥ 50	同心率 Concentricity	≥ 65%
轴向收缩率 Axial shrinkage%	≤ 5	击穿强度 Breakdown strength KV/mm	≥ 15
空气烘箱老化 Aging of air oven	158.0±1.0℃放置 7天 158.0±1.0℃ Place 7days	抗张强度 Tensile strength MPa	≥ 10.4
	134.4±1.0℃放置 60天 134.4±1.0℃ Place 60 days	体积电阻率 Volume resistivity Ω.cm	10 <sup>14</sup>
老化后 After aging	抗张强度 Tensile strength MPa	断裂伸张率 Elongation at break%	≥ 200
	断裂伸张率 Elongation at break%	连续使用温度范围 Continuous Operating Temperature℃	- 55~125

# PE热缩套管(超薄型)

## Heat-shrinkable PE Tubes(Thin Wall)

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### 主要参数 Main Parameter

收缩比例 2:1 Shrinkage ratio 2:1				
规格(∅) Specifications SIZE	收缩前尺寸 (mm) Sides before shrink		完全收缩后尺寸 (mm) Sides after shrink	
	内径 Internal diameter	平均壁厚 Average wall thickness	内径 Internal diameter	平均壁厚 Average wall thickness
0.6	0.80±0.20	0.12±0.06	≤0.35	0.25±0.06
0.8	1.10±0.20	0.10±0.05	≤0.45	0.25±0.06
1.0	1.50±0.30	0.10±0.05	≤0.60	0.25±0.06
1.5	2.00±0.30	0.10±0.05	≤0.80	0.25±0.06
2.0	2.5±0.30	0.13±0.06	≤1.00	0.28±0.06
2.5	3.00±0.30	0.15±0.06	≤1.25	0.28±0.06
3.0	3.50±0.30	0.15±0.06	≤1.50	0.30±0.06
3.5	4.00±0.30	0.15±0.06	≤1.75	0.30±0.06
4.0	4.50±0.30	0.15±0.06	≤2.00	0.30±0.06
5.0	5.50±0.30	0.15±0.06	≤2.50	0.30±0.06
6.0	6.50±0.40	0.15±0.06	≤3.00	0.30±0.06
7.0	7.60±0.40	0.18±0.08	≤3.50	0.36±0.08
8.0	8.60±0.40	0.18±0.08	≤4.00	0.36±0.08
9.0	9.60±0.40	0.18±0.08	≤4.50	0.36±0.08
10	10.60±0.40	0.18±0.08	≤5.00	0.36±0.08
11	11.60±0.50	0.18±0.08	≤5.50	0.36±0.08
12	12.60±0.50	0.18±0.08	≤6.00	0.36±0.08
13	13.60±0.50	0.20±0.08	≤6.50	0.40±0.10
14	14.60±0.50	0.20±0.08	≤7.00	0.40±0.10
15	15.60±0.50	0.20±0.08	≤7.50	0.40±0.10
16	16.60±0.50	0.20±0.08	≤8.00	0.40±0.10
17	17.60±0.50	0.20±0.08	≤8.50	0.40±0.10
18	18.70±0.50	0.20±0.08	≤9.00	0.40±0.10
20	20.70±0.50	0.20±0.08	≤10.0	0.40±0.10
22	22.70±0.50	0.20±0.08	≤11.0	0.40±0.10
25	25.80±0.50	0.20±0.08	≤12.5	0.40±0.10
30	31.00±0.50	0.23±0.08	≤15.0	0.48±0.10
35	34.00±1.00	0.18±0.06	≤17.5	0.36±0.10

注：其它尺寸可定制  
Note: other sizes can be customized



# 双壁热缩套管

## Dual-wall Heat-shrinkable Tubes



### 产品说明 Product Description

内层附有热熔胶的半柔性热缩管。外层是由辐射交联聚烯烃组成，内层是专门设计的胶性内壁；加热时内壁熔融，并随外壁收缩填充孔隙或缝隙，冷却后，双壁管壁厚均匀、坚实。工作温度-55℃~125℃；阻燃UL224 VW-1；通过UL认证 / 认证号：E473382

Manufactured by co-extrusion of irradiated crosslinking polyolefin and specifically design hot melt adhesive.

Operating temperature:-55℃~125℃;Flame retardant UL224 VW-1;  
Passed the UL testing . UL NO.E473382

### 产品说明 Product Description

适用于各种商业用途，广泛用于线束加工、家用电器、马达、仪器制造、电子原件等行业。

Suitable for multi-purpose commercial usage. Popular used in wide range of wires assembling, home electrical appliance, motors, instruments manufacturing and electronic components.

### 主要参数 Main Parameter

项目 Project	特性 Characteristic	
收缩温度 Shrinkage temperature	110℃	
运行温度 Operating temperature	-55℃~125℃	
径向收缩率 Radial shrinkage%	≥50%	
纵向长度变化率 Longitudinal length change rate	≤10%	
拉伸强度 Tensile strength	≥10.4MPa	
断裂伸长率 Elongation at break	≥200%	
热空气老化测试 Hot air aging test	158.0℃±1.0℃, 168h	
老化后 After aging	拉伸强度 Tensile strength	≥7.3MPa
	断裂伸长率 Elongation at break	≥100%
体积电阻率 Volume resistivity	≥10 <sup>13</sup> Ω·cm	
耐压 Withstand voltage	2500v (60s), 无击穿 No breakdown	
阻燃性 Flame retardancy	VW-1	
吸水率 Water absorption	≤0.4%	
耐溶剂性 Solvent resistance	优 Good	
软化点 Softening point	120℃±5℃	
剥离强度 Peel strength	>80N/25mm	

规格 Size 英制 Imperial unit	收缩前 Before contraction		收缩后 After contraction		
	最小内径(mm) Minimum diameter	壁厚(mm) Thickness	最大内径(mm) Maximum Diameter	总壁厚(mm) Total thickness	胶层厚度(mm) Rubber thickness
收缩倍率 2:1 超薄 Shrinkage ratio 2:1 ultrathin					
3/64	1.2	0.22	≤0.6	0.35±0.12	0.15
1/16	1.6	0.22	≤0.8	0.35±0.12	0.15
3/32	2.4	0.28	≤1.2	0.45±0.12	0.20
1/8	3.2	0.30	≤1.6	0.50±0.15	0.20
3/16	4.8	0.30	≤2.4	0.50±0.15	0.20
1/4	6.4	0.35	≤3.2	0.65±0.15	0.20
3/8	9.5	0.35	≤4.8	0.65±0.28	0.25
1/2	12.7	0.35	≤6.4	0.65±0.28	0.25
3/4	19.1	0.40	≤9.5	0.75±0.28	0.25
1	25.4	0.40	≤12.7	0.77±0.28	0.30
1-1/2	38.1	0.52	≤19	1.00±0.41	0.30
2	50.8	0.52	≤25.4	1.00±0.41	0.30

# 双壁热缩套管

## Dual-wall Heat-shrinkable Tubes

规格 Size		供货内径 Inside diameter of supply (mm)	全收缩后尺寸(mm) Dimensions after full shrinkage nun			标准包装 Standard packing 米/盘, 米/根 Meter per plate, meter per root
英制 Imperial unit	mm		内径 Inner diameter	总壁厚 Total thickness	胶层壁厚 Rubber thickness	
收缩倍率 2:1 Shrinkage ratio 2:1						
1/16	1.6	1.60	≤0.80	0.60±0.30	0.30±0.20	200
3/32	2.4	2.40	≤1.20	0.70±0.30	0.35±0.20	200
1/8	3.2	3.20	≤1.60	0.70±0.30	0.35±0.20	200
3/16	4.8	4.80	≤2.40	0.80±0.30	0.40±0.20	100
1/4	6.4	6.40	≤3.20	0.80±0.30	0.40±0.20	100
5/16	7.9	7.90	≤3.90	0.90±0.30	0.45±0.20	100
3/8	9.5	9.50	≤4.80	0.90±0.30	0.45±0.20	50
1/2	12.7	12.70	≤6.40	0.95±0.40	0.45±0.20	1.22
5/8	15.9	15.90	≤7.90	0.95±0.40	0.45±0.20	1.22
3/4	19.1	19.10	≤9.50	1.00±0.40	0.45±0.20	1.22
1	25.4	25.40	≤12.70	1.10±0.40	0.50±0.20	1.22
1-1/4	31.8	31.80	≤15.00	1.15±0.40	0.50±0.20	1.22
收缩倍率 3:1 Shrinkage ratio 3:1						
3/32	2.4	≥2.40	≤0.80	0.80±0.30	0.40±0.20	200
1/8	3.2	≥3.20	≤1.00	0.90±0.30	0.40±0.20	200
3/16	4.8	≥4.80	≤1.60	1.05±0.30	0.40±0.20	100
1/4	6.4	≥6.40	≤2.20	1.25±0.30	0.45±0.20	100
5/16	7.9	≥7.90	≤2.70	1.35±0.30	0.45±0.20	100
3/8	9.5	≥9.50	≤3.20	1.45±0.30	0.50±0.20	50
1/2	12.7	≥12.70	≤4.20	1.65±0.30	0.50±0.20	1.22
5/8	15.0	≥15.00	≤5.20	1.80±0.30	0.55±0.30	1.22
3/4	19.1	≥19.10	≤6.30	1.95±0.30	0.60±0.30	1.22
1	25.4	≥25.40	≤8.50	2.00±0.40	0.60±0.30	1.22
1-1/4	30.0	≥30.00	≤10.20	2.15±0.40	0.65±0.30	1.22
1-1/2	39.0	≥39.00	≤13.50	2.45±0.40	0.75±0.30	1.22
2	50.0	≥50.00	≤17.00	2.75±0.40	0.80±0.30	1.22
2-1/2	64.0	≥64.00	≤21.00	3.05±0.40	1.05±0.30	1.22
3	75.0	≥76.00	≤25.00	3.05±0.50	1.05±0.40	1.22
3-1/2	90.0	≥90.00	≤30.00	3.05±0.50	1.05±0.40	1.22
4	100.0	≥100.00	≤34.00	3.10±0.50	1.10±0.40	1.22
5	125.0	≥125.00	≤42.00	3.10±0.50	1.10±0.40	1.22
收缩倍率 4:1 Shrinkage ratio 4:1						
2/13	4.0	≥4.00	≤1.0	1.05±0.30	0.50±0.30	200
1/4	6.0	≥6.00	≤1.5	1.15±0.30	0.50±0.30	100
5/16	8.0	≥8.00	≤2.0	1.15±0.30	0.60±0.30	100
1/2	12.0	≥12.00	≤3.0	1.75±0.30	0.60±0.30	1.22
5/8	16.0	≥16.00	≤4.0	2.00±0.30	0.70±0.30	1.22
15/19	20.0	≥20.00	≤5.0	2.30±0.40	0.70±0.30	1.22
1	24.0	≥24.00	≤6.0	2.60±0.40	0.75±0.30	1.22
1-1/4	32.0	≥32.0	≤8.0	3.00±0.50	0.90±0.30	1.22
2	52.0	≥52.0	≤13.0	3.35±0.50	0.95±0.30	1.22
注: 其它尺寸可定制 Note: other sizes can be customized						



### 产品说明 Product Description

125°C UL PE材料  
工作温度 -55°C~125°C  
额定电压 600V  
阻燃 UL224 VW-1  
良好的绝缘性能  
良好的柔软性  
耐油耐酸

### Product Description

Special 125°C extruded PE material  
Operation temperature: -55°C~125°C  
Rated voltage 600V  
Flame retardant UL224 VW-1  
Excellent insulation  
Good flexibility  
Resistance to acid & oil

### 应用

用于炊具、机挂线、电子元器件、变压器、温度保险丝保护。

### Application

General usage for cooking appliances, hook up wires, electric components, transformers, temperature fuses protection, etc.

# 黄绿热缩套管

## Yellow/Green Striped Heat-shrinkable Tubes

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### 主要参数 Main Parameter

项目 Project	特性 Characteristic	项目 Project	特性 Characteristic
收缩温度 Shrinkage temperature °C	90	燃烧性 Flammability	VW-1
径向收缩率 Radial shrinkage %	≥50	同心率 Concentricity	≥65%
轴向收缩率 Axial shrinkage%	≤5	击穿强度 Breakdown strength KV/mm	≥15
空气烘箱老化 Aging of air oven	158.0±1.0°C放置 7天 Place 7 days	抗张强度 tensile strength MPa	≥10.4
	134.0±1.0°C放置 60天 Place 60 days	体积电阻率 Volume resistivity Ω.cm	10 <sup>14</sup>
		断裂伸张率 Elongation at break%	≥200
老化后 After aging	抗张强度 Tensile strength MPa	连续使用温度范围 Continuous Operating Temperature °C	-55~125
	断裂伸张率 Elongation at break%		
			≥100

### 收缩比例 2:1 Shrinkage ratio 2:1

规格(Ø) Specification Size	收的尺寸(*) Sides before shrink		完全收络后尺寸(m) Sides after shrink	
	内径 Inside diameter	平均壁厚 Average wall thickness	内径 Inside diameter	平均壁厚 Average wall thickness
2.0	2.50±0.20	0.20±0.08	≤1.00	0.42±0.08
2.5	3.00±0.2	0.22±0.08	≤1.25	0.42±0.08
3.0	3.50±0.30	0.25±0.10	≤1.50	0.46±0.08
3.5	4.00±0.30	0.25±0.10	≤1.75	0.46±0.08
4.0	4.50±0.30	0.25±0.10	≤2.00	0.48±0.08
4.5	5.00±0.30	0.25±0.10	≤2.25	0.50±0.10
5.0	5.50±0.40	0.25±0.10	≤2.50	0.50±0.10
6.0	6.50±0.40	0.28±0.12	≤3.00	0.56±0.10
6.5	7.00±0.40	0.28±0.12	≤3.25	0.56±0.10
7.0	7.50±0.40	0.30±0.12	≤3.50	0.58±0.10
8.0	8.50±0.50	0.30±0.12	≤4.00	0.60±0.10
9.0	9.50±0.50	0.30±0.12	≤4.50	0.60±0.10
10	10.5±0.50	0.30±0.12	≤5.00	0.60±0.10
11	11.5±0.50	0.30±0.12	≤5.50	0.60±0.10
12	12.5±0.50	0.30±0.12	≤6.00	0.60±0.10
13	13.5±0.50	0.36±0.12	≤6.50	0.65±0.12
14	14.5±0.50	0.36±0.12	≤7.00	0.65±0.12
15	15.5±0.50	0.36±0.12	≤7.50	0.65±0.12
16	16.5±0.50	0.36±0.12	≤8.00	0.65±0.12
17	17.5±0.50	0.36±0.12	≤8.50	0.65±0.12
18	18.7±0.60	0.40±0.15	≤9.00	0.70±0.12
20	20.7±0.60	0.40±0.15	≤10.0	0.75±0.15
22	22.7±0.60	0.40±0.15	≤11.0	0.80±0.15
25	25.7±0.70	0.40±0.15	≤12.5	0.90±0.15
28	29.0±0.70	0.45±0.20	≤14.0	0.95±0.20
30	31.0±0.70	0.45±0.20	≤15.0	0.95±0.20

注：其它尺寸可定制  
Note: other sizes can be customized

## 3: 1热缩套管

### 3: 1 Striped Heat-shrinkable Tubes



#### 产品说明

收缩比率: 3:1  
收缩温度低、收缩速度快  
工作温度: -55°C~125°C  
额定电压: 600V  
阻燃UL224 VW-1  
良好的机械性能  
耐油耐酸

#### Product Description

Shrink ratio: 3:1  
Low recovery temperature, rapidly shrinking speed  
Operation temperature: -55°C~125°C  
Rated voltage 600V  
Flame retardant UL224 VW-1  
Good mechanical properties  
Resistance to acid & oil

#### 应用

用于炊具、机挂线、电子元器件、变压器、温度保险丝保护。

#### Application

General usage for cooking appliances, hook up wires, electric components, transformers, temperature fuses protection, etc.

# 3:1热缩套管

## 3:1 Striped Heat-shrinkable Tubes

### 主要参数 Main Parameter

项目 Project	特性 Characteristic	项目 Project	特性 Characteristic
收缩温度 Shrinkage temperature °C	90	燃烧性 Flammability	VW-1
径向收缩率 Radial shrinkage %	≥ 60	同心率 Concentricity	≥ 65%
轴向收缩率 Axial shrinkage %	≤ 15	击穿强度 Breakdown strength KV/mm	≥ 15
空气烘箱老化 Aging of air oven	158.0±1.0°C放置 7 天 Place 7 days	抗张强度 Tensile strength MPa	≥ 10.4
	134.0±1.0°C放置 60 天 Place 60 days	体积电阻率 Elongation at break Ω.cm	10 <sup>14</sup>
		断裂伸张率 Elongation at break %	≥ 200
老化后 After aging	抗张强度 Tensile strength MPa	连续使用温度范围 Continuous Operating Temperature °C	-55~125
	断裂伸张率 Elongation at break%		
			≥ 100

### 收缩比例 3:1 Shrinkage ratio 3:1

规格 (∅) Specification SIZE	收缩前尺寸 (mm) Sides before shrink		完全收缩后尺寸 (mm) Sides after shrink	
	内径 Inside diameter	平均壁厚 Average wall thickness	内径 Inside diameter	平均壁厚 Average wall thickness
1.5	≥ 1.50	0.18±0.08	≤ 0.50	0.40±0.10
3.0	≥ 3.00	0.20±0.08	≤ 1.00	0.55±0.10
4.5	≥ 4.50	0.20±0.08	≤ 1.50	0.55±0.10
6.0	≥ 6.00	0.22±0.10	≤ 2.00	0.60±0.15
9.0	≥ 9.00	0.25±0.10	≤ 3.00	0.70±0.15
12	≥ 12.00	0.25±0.10	≤ 4.00	0.70±0.15
15	≥ 15.00	0.25±0.10	≤ 5.00	0.70±0.15
18	≥ 18.00	0.30±0.12	≤ 6.00	0.80±0.20
24	≥ 24.00	0.36±0.15	≤ 8.00	1.00±0.20
28	≥ 28.00	0.36±0.15	≤ 9.30	1.00±0.20
30	≥ 30.00	0.36±0.15	≤ 10.0	1.00±0.20

注：其它尺寸可定制  
Note: other sizes can be customized



### 产品说明

105°C UL PVC材料  
 工作温度-5°C~105°C  
 耐寒工作温度-30°C~105°C  
 额定电压300V, 600V  
 阻燃 UL224 VW-1  
 良好的绝缘性能 / 良好的柔软性 / 耐油耐酸  
 保护机挂线和引线  
 通过UL认证 / 认证号: E473382

### Product Description

105°C UL PVC material  
 Operating temperature:-5°C~105°C  
 Cold resistance of working temperature-30°C~105°C  
 Rated voltage300V,600V  
 Flame retardant UL224 VW-1  
 Excellent insulation/ Good flexibility/ Resistance to acid& oil  
 Hook up wire & lead wire protection  
 Passed the UL testing / UL NO.E473382

### 应用

一般应用于电器，线束，变压器，马达引线等的绝缘和保护。

### Application

For general insulation and protection for appliance, wire harness, transformer, lead wire of motors, etc.

# PVC绝缘套管

## Non-Heat Shrinkable PVC Tubes

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### 主要参数 Main Parameter

项目 Item	性能指标 Value	
连续使用温度范围(° c) Continuous operating temperature	-5-105	
抗张强度(MPa) Tensile strength	≥0.4	
断裂伸长率(%) Ultimate elongation	≥100	
空气烘箱老化 Aging in circulating air oven	(136.0±1.0)° C, 7 天, 7days at 136.0±1.0° C	
老化后 After aging	抗张强度(MPa) Tensile strength	≥7.28
	断裂伸长率(%) Ultimate elongation	≥70
电压等级(V) Potential rating	300V, 600V	
体积电阻率(Ω*cm) Volume resistivity	≥10 <sup>10</sup>	
击穿电压(V) Potential rating	≥2500(60 秒) ≥2500(60S), no breakdown	
裸铜腐蚀性 Corrosion of bare copper	无腐蚀 No corrosion	
热冲击 Heat shock	无裂纹 No cracking	
冷弯曲 cold bend	无裂纹!No cracking	

编号 AWG Serial number	内径及公差 mm Tolerance about inside diameter	包装 M/R Package	壁厚 Wall thickness mm	
			300V	600V
18	1.07±0.15	500	0.35	0.50
17	1.20±0.15	500	0.35	0.50
16	1.30±0.15	500	0.35	0.50
15	1.50±0.20	500	0.35	0.50
14	1.60±0.20	500	0.35	0.50
13	1.90±0.20	500	0.35	0.50
12	2.10±0.20	500	0.35	0.50
11	2.40±0.20	500	0.35	0.50
10	2.70±0.20	500	0.35	0.50
9	3.00±0.20	500	0.45	0.50
8	3.30±0.20	500	0.45	0.50
7	3.80±0.30	500	0.45	0.60
6	4.20±0.30	500	0.45	0.60
5	4.80±0.30	500	0.45	0.60
4	5.30±0.40	500	0.45	0.60
3	5.90±0.40	500	0.45	0.60
2	6.70±0.40	400	0.45	0.60
1	7.40±0.40	400	0.45	0.60
0	8.20±0.40	300	0.45	0.60
5/16	8.00±0.40	300	0.45	0.60
3/8	9.50±0.40	200	—	0.60
7/16	11.10±0.40	200	—	0.60
1/2	12.70±0.40	100	—	0.60
9/16	14.30±0.40	100	—	0.80
5/8	15.90±0.40	100	—	0.80
3/4	19.00±0.50	100	—	0.80
7/8	22.20±0.50	100	—	0.80
1#	25.40±0.50	100	—	0.80

注：其他尺寸和颜色可定制  
Note: other sizes and colors can be customized





## 产品说明

单芯或多芯裸铜线及镀锡线  
耐热温度及电压：130℃~150℃,300V  
150℃~200℃,600V  
绝缘强度：50KV~70KV/mm  
颜色：桃红、橙黄  
三层绝缘保护，没有针孔现象

## Product Description

Conductor, solid and stranded copper & tin plated copper  
Temperature & Voltage rating:  
130℃~150℃,300V 150℃~200℃,600V  
Intensity of the insulation: 50KV~70KV/mm  
Braid Colours: pink/orange  
Triple insulated wire offers extra protection against pinholes

## 应用

适用于电源供应器、变压器绝缘线、手机充电器绝缘线。

## Application

Suitable for transformer insulation wire of power supplies & AC/DC adapters and mobile phone battery chargers.

# 铁氟龙三层绝缘线

## Tefzel Triple Insulation Wire

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### 主要参数 Main Parameter

编号 Item No.	导体直径 Conductor diameter (mm)	绝缘厚度 Insulation thickness (mm)	外径 Outside diameter (mm)
TRW(B)-012	0.12	0.1	0.32
TRW(B)-014	0.14	0.1	0.34
TRW(B)-016	0.16	0.1	0.36
TRW(B)-020	0.20	0.1	0.40
TRW(B)-022	0.22	0.1	0.42
TRW(B)-025	0.25	0.1	0.45
TRW(B)-030	0.30	0.1	0.50
TRW(B)-032	0.32	0.1	0.52
TRW(B)-035	0.35	0.1	0.55
TRW(B)-040	0.40	0.1	0.60
TRW(B)-045	0.45	0.1	0.65
TRW(B)-050	0.50	0.1	0.70
TRW(B)-055	0.55	0.1	0.75
TRW(B)-060	0.60	0.1	0.80
TRW(B)-065	0.65	0.1	0.85
TRW(B)-070	0.70	0.1	0.90
TRW(B)-075	0.75	0.1	0.95
TRW(B)-080	0.80	0.1	1.00
TRW(B)-085	0.85	0.1	1.05
TRW(B)-090	0.90	0.1	1.10
TRW(B)-095	0.95	0.1	1.15
TRW(B)-100	1.00	0.1	1.20



地址：江苏省苏州市吴江区同安东路6号

电话：0512-6603 2048 0512-6563 1124 传真：0512-65631975 邮箱：sales@huapengrs.com

No.6 Tong'an East Rd., Wujiang District, Suzhou City

Tel:86-512-6603 2048 0512-6563 1124 Fax:86-512-6563 1975 E-mail:sales@huapengrs.com

2021年10月第八次印刷

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