



**SHRINK  
TECH**



# **PRODUCT CATALOGUE**

**2018-2019**

Since launching the company the **SHRINKTECH®** seeks to explore new application areas. Our goal is, that besides the continual quality developing in a competitive price and creative solutions, we provide added value and benefits for our partners.

Our colleagues are at your disposal all around whole Europe to solve your problems. In our company you will find standard products and also special custom made parts at one place, regardless if you are a global player or just local small manufacturer. If in your company is any unsolved issue or new idea please look after our colleagues, so they can find a solution.

#### MORE THAN JUST A SUPPLIER.





## **Product quality**

To our partners delivering to the American markets, we offer products with UL qualifications. Manufacturing is operated according to ISO9001 ISO14000 and ISO TS16949 process management. According to the requirements of producers of the automotive industry, our products are IMDS registered.

In our product range you can find wide range of cable management accessories such a complete heat shrinkable product portfolio (tubes, caps, cable break out, repair sleeves), insulated and non insulated cor-end terminals, coated glass fiber sleeves with acrylic, PUR and silicon, PVC insulation tubes, cable identification labels, cableties, adhesive tapes and other insulating material from Mylar®, Kapton®, Kynar® and Nomex®. We also produce soft PVC end caps according to the customer specification.





## Our services

We cut tubes to size according to our partners requests. Depending on the sizes, our cutting capacity from diameters of 1.2 to the heat-shrink tube size of 39.1 (in case of thin wall tubes) may reach 1000000 pieces a day.

### Heat shrink tube marking

According to customer requests, we provide marking for cables and tubes in white, yellow and black in the requested size, and we can print images, bar-codes and texts in characters. In case your company uses heat-shrink tubes for marking, but in a quantity that would not require the purchase of a printer, our company is happy to produce the requested printer for you.

### **Environmental protection**

We work with various hazardous materials, but that doesn't mean the nature should get short end of it. We take pride in creating environmental friendly products, and we continuously working to acquire the most important certifications in this way.

### **Registration, Evaluation, Authorisation and Restriction of Chemicals**

REACH A program designed by EU to keep record of substance registration, evaluation, authorization, and restrictions. REACH (Registration, Evaluation, Authorization, and Restrictions of Chemicals) is a standard that set to promote better health for human beings and the environment protection. It focuses on the prevention of chemical pollution. REACH replaces 40 existing EU chemicals-related directives and regulations. Started from June 1, 2007, REACH had begun to enforce registration, evaluation, authorization and implementation of safety monitoring on all chemical products trading in and out of Europe market.

### **Registration, Evaluation, Authorisation and Restriction of Chemicals**

Since July 2006, all Electronic products sold in the European territory must comply with the provisions of the EU's RoHS directive, other countries such as United States, Japan and China also have to follow the development of green-related laws. RoHS Standard regulates the electric devices that operate in voltages under 1,000V AC or 1,500V DC.



### **Low Smoke, Halogen Free Product Specifications**

After the European Union announced the ROHS directive , U.S., Japan, China and other countries have announced similar policies to promote Green process. In addition to the regulatory frameworks issued by these countries, Greenpeace further requested the manufacturers not to apply polyvinyl chloride (PVC) and Brominated flame retardants (BFRs) in their electronic products completely. The products that comply with this standard are qualify as the environmentally safe electric products that are both lead-free and halogen-free.





### **Electronics**

We assist our partners with innovative solutions for improving cycle times and simplifying the installation of our products. We are in close cooperation with the electronics industry.



### **Automotive**

Shrinktech® helps develop and implement productivity-boosting solutions for the automotive industry, creating a partnership that can help you keep production costs low.



### **Railways**

Our products for railways are characterised by innovative solutions and raw materials of excellent quality. For this special application we have developed materials with consistent performance in all conditions.



### **Electrical**

We also offer solutions for our partners involved in the construction or operation of low-voltage grids.

Shrinktech offers both heat shrink products and products that can be installed without use of an oven to its partners, which allow them to provide the required power supply.



### Telecom

In addition to classic cable fittings we also offer innovative solutions for players in the telecommunications industry, whether involved with cable, satellite or mobile networks.



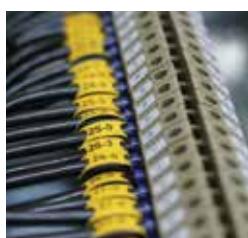
### Energy

We provide solutions both for fossil fuel-based and wind or solar power plants. Our products are resistant to environmental effects, heat, cold, and UV radiation.



### Lighting

Our products for this special field are manufactured from extremely heat-resistant materials, and can be incorporated into LED or traditional lighting technologies. Our comprehensive product spectrum offers solutions ranging from LED lights to the installation of public lighting.



### Electrical installation

Shrinktech® offers a wide range of products to its electrician and electrical cabinet manufacturing partners for the installation, bundling, and marking of cables. You can count on our colleagues and wholesale partners anytime and anywhere.

## Extrusion

Thanks to our 27-year experience, today we can extrude more than 100 tons of raw materials per year with our 13 extruders. From various raw materials, such as PVC, HDPE, LDPE, PP, PS, POM, etc., we produce profiles and tubes for electrical engineering and automotive industry, agriculture and also white goods technology. We guarantee the benefit on the market due to good quality and securing high-quality raw materials.

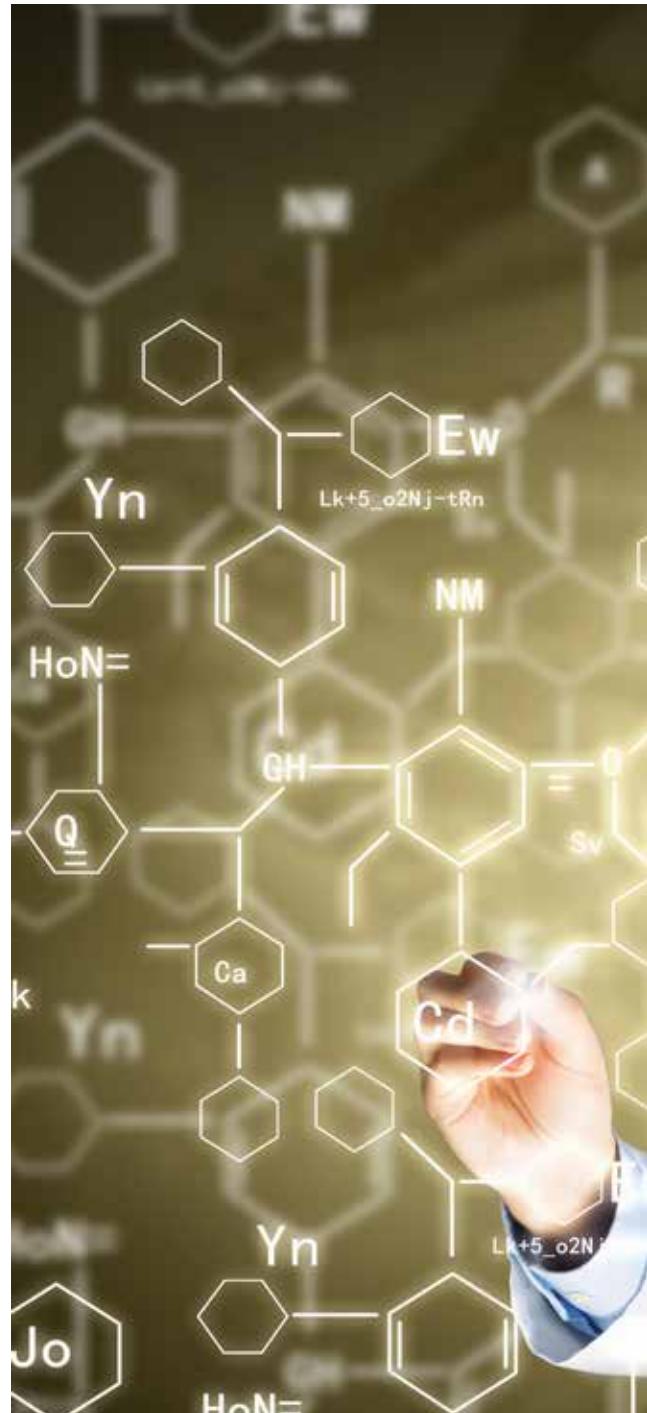
## Injection moulding

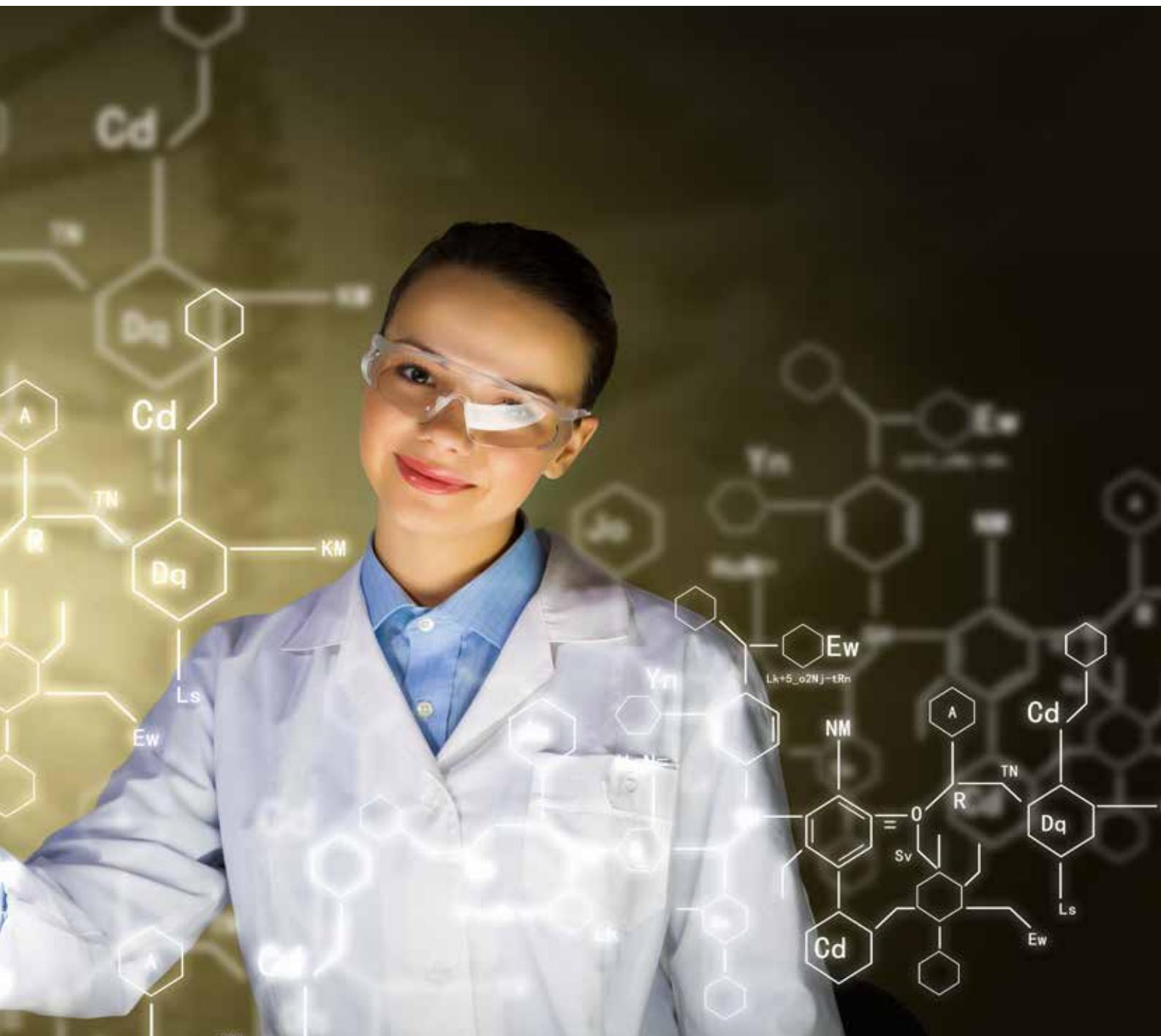
For 15 years in the industry, we have been producing firstly the products with high accuracy and technical content with small volume. We participated in several unique development improvements with our customers. In the Arburg and Engel machines, we can inject products from 1-2 grams up to 1 kilogram from PA, PP, PS, PE, POM, PVC raw materials. We make the products for the electronic and electrical engineering industry, and for the needs of people as well.

## Dip moulding

Our 5-year experience is continuously improved also with target machines partially developed by us. We make protective caps and plugs for electrical engineering and automotive industry.

Our technology is more cost-effective than injecting in case when the number of pieces is smaller and there are not necessary all designed product parameters to be accurate in the dimension. Depending on a product, we can guarantee either internal or external dimensions, and we can effectively coat metal objects regardless of shape or material.









## **HEAT SHRINK PRODUCTS**



## 40% faster

The infra red shrinking machine SM-03C

saves your time. It shrinks 40% faster

than conventional heat gun.

Using this technology you can significantly

improve the product cycle time, which can

reduce production cost and optimize your resources



## ■ ■ More than **80%** **energy savings**

Shrinktech® infrared machine saves your money.

IR shrink has not just smaller consumption  
than the conventional heat-power blower,  
but a technology which is not required to operate  
continuously for several hours to ensure that  
the device delivers the maximum performance.



 **60%**  
**less defects**

We give the quality to your hands.

Shrinktech® infrared machine is flexibility reduces  
the risk of burns of cable or shrink tube.



## 3x **longer lifetime**

Shrinktech® infrared machine supports  
the continuous production.

The machine has been designed to last  
more years, without being replaced.

There are no parts which can be damaged or broken.



# **99%** **faster maximum** **power output**

With Shrinktech® infrared device we make you more effective because it delivers 99% quicker the full performance than a traditional hot air. This improves power consumption and production cycle as well.



## **85% more quiet**

Shrinktech® infrared machine makes more satisfied employees because it is not using hot air flow but infrared light for shrinking, so it includes just one quiet and discrete cooling fan.



## Industrial usage

The Shrinktech® infrared device is targeted specifically for industrial users.

Robust stable housing, adaptable solutions for production, footswitch or optical sensor for more efficiently works.



## Flexible set up

We customize the Shrinktech® infrared machine to your needs. You can set up the performance and time according to your requirements.

The automatic timer will switch off of the machine if it is not used, so it minimize your energy consumption. Continious adjustable power output for appropriate shrinking quality.



**+ 95% Reduce the  
possibility of accident  
at work by**

Stable, robust housing against accidentally turn overs  
for reducing the risk if injuries...



## SM-03C Infra-red shrink equipment

	Technical specification
Nominal voltage	230VAC
Power of Consumption	max. 600VA
Capacity of ceramic infra lamps	2 × 500VA
Temperature range	200°C...°450C
Temperature set up	programmable by 5°C steps
Timing alarming sound	between 1sec...99sec
Start timing	approaching by switch
Sound display	beep (different at start and end)
Programming	by key
Display	LCD display, 2 × 16 digits displaying operating program, temperature and elapsed time
Powersave mode	If no activity over 1hour period, automatic switch off
Size	320mm × 280mm × 260mm (w × l × h)

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## ShrinkTech® heat shrink product list

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Name	Description	Material	Shrinkratio	Temperature	Page
<b>STS</b>	Excellent general propertie	Polyolefin	2:1	125°C	28
<b>STYG</b>	Yellow-green high quality polyolefin tubing	Polyolefin	2:1	125°C	29
<b>ST55</b>	Excellent general propertie	Polyolefin	2:1	125°C	30
<b>ST300</b>	High shrink ratio tubing witout adhesive line per meter	Polyolefin	3:1	125°C	31
<b>ST350</b>	Dual wall tubing with adhesive line per meter	Polyolefin	3:1	125°C	32
<b>STSB</b>	Heat shrink tube for universal use in box	Polyolefin	2:1	125°C	33
<b>ST135</b>	Very flexible, high quality poliolefin tubing	Polyolefin	2:1	135°C	34
<b>ST3X</b>	High shrink ratio poliolefine tubing	Polyolefin	3:1	125°C	35
<b>ST3XF</b>	High flamme, retardant high shink ratio poliolefine tubing	Polyolefin	3:1	135°C	36
<b>ST4X</b>	High shrink ratio poliolefine tubing	Polyolefin	4:1	125°C	37
<b>ST3XA</b>	High shrink ratio dual wall tubing	Polyolefin	3:1	125°C	38
<b>ST4XA</b>	High shrink ratio dual wall tubing	Polyolefin	4:1	125°C	39
<b>ST4XA-GR</b>	High shrink ratio semirigid dual wall tubing	Polyolefin	4:1	125°C	40
<b>STL</b>	Very low shrinking temperature and high flexibility	Polyolefin	2:1	125°C	41
<b>STHF</b>	Halogen-free thin wall heat shrink tubing	Polyolefin	2:1	105°C	42
<b>STU</b>	Ultra thin wall heat shrink tube	Polyolefin	2:1	125°C	43
<b>STS150</b>	Special poliolefine tubing with high oparting temperature	Polyolefin	2:1	150°C	44
<b>ST150</b>	Shiny black and clear high preformance PVDF tubing	Kynar®	2:1	150°C	45
<b>ST175</b>	Semirigid PVDF tubing with high operating temperature	Kynar®	2:1	175°C	46
<b>ST200</b>	Very high performance elastomeric tubing	Viton®	2:1	200°C	47
<b>STD</b>	Diesel resistant tubing for automotiv and military	Fluoroelastomer	2:1	150°C	48
<b>STCA</b>	Shiny survace black tubing	Polyolefin	2:1	105°C	49
<b>STFE-HS</b>	High flame retardant, special PTFE heat shrink tube	Teflon®	1,7:1	260°C	50
<b>STFE-RC</b>	Special PTFE heat shrink roll cover	Teflon®	2:1,6	200°C	51
<b>STFHS</b>	High flexibility, high flame retardant silikon heat shrink tube	Silicon	2:1	200°C	52

## ShrinkTech® heat shrink product list

Name	Description	Material	Shrinkratio	Temperature	Page
<b>STHSP</b>	Semirigid PVC heat shrink tube	PVC	2:1	105°C	53
<b>TSTH</b>	Twin shrink tube PTFE / FEP	FEP/Teflon®	1,3:1	150°C	54
<b>LAR</b>	Special Mylar® heat shrink tube	Mylar®	1,3:1	150°C	55
<b>LARCTS</b>	Special Mylar® heat shrink cap	Mylar®	1,3:1	150°C	56
<b>LARC</b>	Special Mylar® heat shrink cap	Mylar®	1,3:1	150°C	57
<b>LARN/ LARNC</b>	High flame retardant special preformance tube and cap	Mylar®/Nomex®	1,3:1	180°C	58
<b>STM/ STMA</b>	Medium wall heat shrink tube with and without adhesive	Polyolefin	3:1	110°C	59
<b>STH/ STHA</b>	Heavy wall heat shrink tube with and without internal adhesive	Polyolefin	3:1	110°C	60
<b>STECL</b>	Heat shrink end cap	Polyolefin	3:1	110°C	61
<b>STECC</b>	Conductive heat shrink end cap	Polyolefin	3:1	110°C	62
<b>STEC-DG</b>	De-gassing heat shrink end cap	Polyolefin	3:1	110°C	63
<b>STEC-V</b>	Heat shrink end cap with ventil	Polyolefin	3:1	110°C	64
<b>STCFT</b>	Anode cap	Polyolefin	3:1	110°C	65
<b>STBR</b>	2-6 fingers low voltage breakout	Polyolefin	3:1	110°C	66
<b>STLV</b>	Low voltage heat shrink joint kit	Polyolefin	3:1	110°C	67
<b>STWRS</b>	Wrap around repair sleeves	Polyolefin	3:1	110°C	68
<b>STW</b>	Wrap around repair tape	Polyolefin	3:1	50°C	69
<b>SMS</b>	Straight plug	Polyolefin / Fruoropolimer	3:1	up to 200°C	70
<b>SMSC</b>	Right angled muolded shapes	Polyolefin / Fruoropolimer	3:1	up to 200°C	71
<b>SMYD</b>	2 way moulded shapes	Polyolefin / Fruoropolimer	3:1	up to 200°C	72
<b>SMYT</b>	3 way moulded shapes	Polyolefin / Fruoropolimer	3:1	up to 200°C	73
<b>SMYQ</b>	4 way moulded shapes	Polyolefin / Fruoropolimer	3:1	up to 200°C	74
<b>SMT</b>	Heat shrink T branch	Polyolefin / Fruoropolimer	3:1	up to 200°C	75
<b>STBM/ STBH</b>	ShrinkTech® high Voltage insulating tubes	Polyolefin	3:1	up to 200°C	76
<b>CST</b>	Cold shrink tubing	Silicon	3:1	200 °C	77

## Overview of applications for heat shrink Tubing

When selecting the correct heat shrink tubing size, it is important to bear in mind the 80:20 rule. The heat shrink tubing must shrink by at least 20% and not more than 80% of its complete shrinkage capacity to achieve the right result. In our overview of applications you will find the best heat shrink tube for every cable diameter. The 80:20 rule has of course been taken into account in the table.

Heat shrinkable Tubing with a shrink ratio of 2:1

**Standard products:**

STS, ST55, STYG, ST135, STL, STHF, STU,

**Special products:**

STS150, ST150, ST175, ST200, STDR, STCA,  
STFE-HS, STFE/FEP

Heat shrinkable Tubing with a shrink high ratio

**Shrink ratio 2:1**

Size mm		Cable/Wire diameter
1.2/0.6		0.7 mm
		1.1 mm
		1.4 mm
3.2/1.6	2.4/1.2	1.9 mm
		2.2 mm
		2.9 mm
	4.8/2.4	3.8 mm
6.4/3.2		4.3 mm
		5.7 mm
		5.8 mm
	9.5/4.7	7.7 mm
12.7/6.4		8.6 mm
		11.4 mm
	19.1/9.5	15.2 mm
25.4/12.7		17.2 mm
		22.9 mm
	38.1/19.1	30.5 mm
50.8/25.4		34.3 mm
		45.7 mm
101.6/50.8	76.2/38.1	61.0 mm
		68.6 mm
		91.4 mm

**Shrink ratio 3:1**

Size mm	Cable/Wire diameter
1.5/0.5	0.7 mm
	1.3 mm
4.5/1.5	1.4 mm
	2.6 mm
9/3	3.8 mm
	5.2 mm
	5.6 mm
12/4	8.4 mm
	10.4 mm
18/6	11.2 mm
	15.6 mm
	18.4 mm
24/8	20.8 mm
39/13	34.6 mm

**Shrink ratio 4:1**

Size mm	Cable/Wire diameter
4/1	0.7 mm
	1.3 mm
6/1.5	1.4 mm
	2.6 mm
8/2	2.8 mm
	5.2 mm
	5.6 mm
12/3	8.4 mm
16/4	10.4 mm
	11.2 mm
24/6	15.6 mm
	18.4 mm
40/10	20.8 mm
	34.6 mm

Conversion from imperial to metrics									
Zoll	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	3/16"	1/4"	3/8"
mm	0.8	1.2	1.6	2.0	2.4	3.2	4.8	6.4	9.5
Zoll	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"
mm	12.7	15.9	19.1	25.4	31.8	38.1	50.8	76.2	101.6

### The right heat shrink tube

The 80:20 rule means that a heat shrink tube should shrink by a maximum of 80% and a minimum of 20%. For example: A cable with a diameter of 5 mm is to be wrapped in heat shrinkable tubing. In theory both sizes 6/2 and 12/4 would be suitable since the required diameter of 5 mm lies within the shrink range of both tube sizes.

Maximum shrink (100%)



Maximum shrinkage = 4 mm

Optimum shrink max. ( 80%)



Shrinkage of 3.2 mm

Optimum shrink min. ( 20%)



Shrinkage of 0.8 mm

Size 6/2 has a range of application of between 2.8 mm and 5.2 mm and is therefore suitable for the cable diameter of 5 mm.

Maximum shrink (100%)



Maximum shrinkage = 8 mm

Optimum shrink max. ( 80%)



Shrinkage of 6.4 mm

Optimum shrink min. ( 20%)



Shrinkage of 1.6 mm

The smallest application diameter of size 12/4 is 5.6 mm. This size is therefore unsuitable for a cable diameter of 5 mm.

## STS

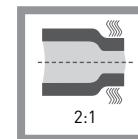
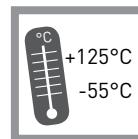
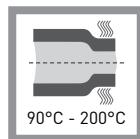
### ShrinkTech® thin wall heat shrink tubing for universal use

Insulating, identifying cables without changing the wire's diameter. The low shrink temperature recovery reduces installation time and eliminates heat damage on the application.



- Flexible
- UL224, 125°C, VW-1
- Environmental friendly
- Free from toxic
- heavy metal compounds

- **Material:**  
modified polyolefin
- **Colour:**  
Black, red, white, green, yellow, brown, blue, purple, orange, grey, pink, transparent\*
- **Packaging:**  
per meter in box



Property	Method of test	Value
Temperature at continuous duty	UL 224	-55°C to +125°C
Tensile strength	ASTM D 638	>14MPa
Elongation at break	ASTM D 638	>400%
Longitudinal shrinkage	UL 224	0± 5%
Eccentricity	ASTM D 2671	<20%
Dielectric strength	IEC93	>20kV/mm
Volume resistance	ASTM D 2671	>10 <sup>14</sup> Ω.cm
Copper stability	ISO62	Pass

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STS-012	1.2	0.6	0.3	200	O
STS-016	1.6	0.8	0.3	200	O
STS-024	2.4	1.2	0.4	200	O
STS-032	3.2	1.6	0.5	200	O
STS-048	4.8	2.4	0.5	100	O
STS-064	6.4	3.2	0.6	100	O
STS-095	9.5	4.8	0.6	100	F
STS-127	12.7	6.4	0.6	50	F
STS-190	19.0	9.5	0.8	30	F
STS-254	25.4	12.7	0.9	30	F
STS-318	31.8	15.9	0.9	30	F
STS-381	38.1	19.0	1.0	30	F
STS-508	50.8	25.4	1.1	30	F

\*Non flame retardant



Used for electrical grounding, protecting and insulating wires and for identifying earth cables.

▪ **Material:**

modified polyolefin

▪ **Colour:**

Yellow-green striped

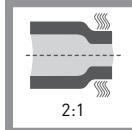
▪ **Packaging:**

spool

- Flexible
- UL 224, 125 °C, VW-1
- Flame retardant
- Environmental friendly,
- Free from toxic
- Heavy metal
- Compounds






Property	Method of test	Value
Temperature at continuous duty	UL 224	-55°C to +125°C
Tensile strength	ASTM D 638	>14MPa
Elongation at break	ASTM D 638	>400%
Longitudinal shrinkage	UL 224	0± 5%
Eccentricity	ASTM D 2671	<20%
Dielectric strength	IEC93	>20kV/mm
Volume resistance	ASTM D 2671	>10 <sup>14</sup> Ω.cm
Copper stability	ISO62	Pass

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STYG-012	1.2	0.6	0.3	200	O
STYG-016	1.6	0.8	0.3	200	O
STYG-024	2.4	1.2	0.4	200	O
STYG-032	3.2	1.6	0.5	200	O
STYG-048	4.8	2.4	0.5	100	O
STYG-064	6.4	3.2	0.6	100	O
STYG-095	9.5	4.8	0.6	100	F
STYG-127	12.7	6.4	0.6	50	F
STYG-190	19.0	9.5	0.8	30	F
STYG-254	25.4	12.7	0.9	30	F
STYG-318	31.8	15.9	0.9	30	F
STYG-381	38.1	19.0	1.0	30	F
STYG-508	50.8	25.4	1.1	30	F

## ST55

ShrinkTech® ST55 thin wall heat shrink tube for universal use

Insulating, identifying cables without changing the wire's diameter. The low shrink temperature recovery reduces installation time and eliminates heat damage on the application.

- UL 224, 125 °C, VW-1
- Flexible
- Flame retardant
- Environmental friendly, free from toxic heavy metal compounds



▪ **Material:**

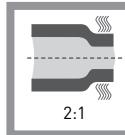
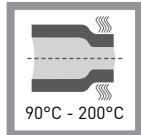
modified polyolefin

▪ **Colour:**

Black, red, white, green, yellow, brown, blue

▪ **Packaging:**

per meter in box



Property	Method of test	Value
Temperature at continuous duty	UL 224	-55°C to +125°C
Tensile strength	ASTM D 638	>14MPa
Elongation at break	ASTM D 638	>400%
Longitudinal shrinkage	UL 224	0± 5%
Eccentricity	ASTM D 2671	<20%
Dielectric strength	IEC93	>20kV/mm
Volume resistance	ASTM D 2671	>10 <sup>14</sup> Ω.cm
Copper stability	ISO62	Pass

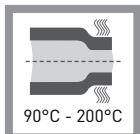
Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	PCS / box (m)	Shape
	Min.as supplied	Max. fully recovered			
ST55-024	2.4	1.2	0.4	20	O
ST55-032	3.2	1.6	0.5	20	O
ST55-048	4.8	2.4	0.5	15	O
ST55-064	6.4	3.2	0.6	10	O
ST55-095	9.5	4.8	0.6	10	F
ST55-127	12.7	6.4	0.6	10	F
ST55-190	19.0	9.5	0.8	10	F
ST55-254	25.4	12.7	0.9	10	F
ST55-318	31.8	15.9	0.9	5	F
ST55-381	38.1	19.0	1.0	5	F
ST55-508	50.8	25.4	1.1	5	F

**ShrinkTech® high shrink ratio tubing without adhesive**


Suitable for electronics industry, where components are of irregular sizes and shapes. Provides both insulation and sealing for protected articles. Recommended for open air use as well since it is UV stabilised.

- **Material:**  
modified polyolefin
- **Colour:**  
black
- **Packaging:**  
per meter in box

- Without adhesive
- UL 224, 125 °C, VW-1
- Flexible
- Flame retardant
- Environmental friendly,



Property	Method of test	Value
Tensile strength	ASTM D 638	14 MPa
Elongation at break	ASTM D 638	400%
Elongation at break after ageing	ASTM D 638 (175°C / 168 hrs)	300 %
Flammability	UL 224 VW-1	Pass
Heat shock (250°C / 4 hrs)	ASTM D 2671	No cracking or dropping
Cold bendt (-55°C / 4 hrs)	ASTM D 2671	No cracking
Dielectric strength	ASTM D 150	22kV/mm
Volume resistance	ASTM D 876	>10 <sup>14</sup> Ω.cm
Copper stability	UL 224	Pass
Water absorption	ASTM D 570	0.15%
Fluid resistance	SAE-AMS-DTL-23053/5	Pass
Longitudinal shrinkage	UL 224	0± 5%
Eccentricity	UL 224	30%

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	PCS / box (m)	Shape
	Min.as supplied	Max. fully recovered			
ST300-024	2.4	0.8	0.5	20	O
ST300-030	3.0	1.0	0.5	20	O
ST300-048	4.8	1.6	0.5	15	O
ST300-060	6.0	2.0	0.5	10	O
ST300-090	9.0	3.0	0.6	10	O
ST300-120	12.0	4.0	0.6	10	F
ST300-180	18.0	6.0	0.6	10	F
ST300-240	24.0	8.0	0.6	10	F

# ST350

## ShrinkTech® dual wall tubing with adhesive

Manufactured by co-extrusion of polyolefin and hot-melt adhesive. Suitable for electronics and automotive industry where components are of irregular sizes, shapes and protection against water and moisture are important. Provides both insulation and sealing for protected articles.



▪ **Material:**

modified polyolefin

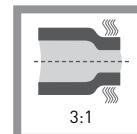
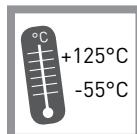
▪ **Colour:**

black

▪ **Packaging:**

per meter in box

- High shrink ratio
- Flame retardant
- Waterproof
- UL 224, 125C, VW-1
- Environmental friendly, free from toxic heavy metal compounds
- Very flexible



Property	Method of test	Value
Tensile strength	ASTM D 2671	10.4MPa
Tensile strength after ageing (158°C / 168 hrs)	ASTM D 2671	70%
Elongation at break	ASTM D 2671	min.200%
Elongation at break after ageing (158°C / 168 hrs)	ASTM D 2671	min. 100%
Heat shock (250 / °C 4 hrs)	ASTM D 2671	No cracking
Cold tolerance (-30 / °C 1 hrs)	ASTM D 2671	No cracking
Water absorption	ASTM D 570	<0,5%
Volume resistance	ASTM D 876	10 <sup>14</sup> Ω.cm
Dielectric strength	ASTM D 150	20kV / mm
Copper stability	UL 224 158°C /168 h	Pass
Flammability	SAE-AMS-DTL-23035/5	Self-extinguishing in 30sec

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	PCS / box (m)	Shape
	Min.as supplied	Max. fully recovered			
ST350-030	3.0	1.0	1.0 + 0.50	20	0
ST350-048	4.8	1.6	1.0 + 0.50	15	0
ST350-060	6.0	2.0	1.0 + 0.60	10	0
ST350-090	9.0	3.0	1.4 + 0.60	10	0
ST350-120	12.0	4.0	1.6 + 0.70	10	0
ST350-180	18.0	6.0	2.1 + 0.80	10	0
ST350-240	24.0	8.0	2.5 + 1.10	10	0



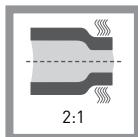
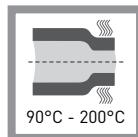
Insulating, identifying cables without changing the wire's diameter. The low shrink temperature recovery reduces installation time and eliminates heat damage on the application.

- Flexible
- UL224, 125°C, VW-1
- Environmental friendly, free from toxic heavy metal compounds

▪ **Material:**  
modified polyolefin

▪ **Colour:**  
black, red, green, blue,  
brown, white, yellow, transparent

▪ **Packaging:**  
spool in box



Property	Method of test	Value
Temperature at continuous duty	UL 224	-55°C to +125°C
Tensile strength	ASTM D 638	>14MPa
Elongation at break	ASTM D 638	>400%
Longitudinal shrinkage	UL 224	0± 5%
Eccentricity	ASTM D 2671	<20%
Dielectric strength	IEC93	>20kV/mm
Volume resistance	ASTM D 2671	>10 <sup>14</sup> Ω.cm
Copper stability	ISO62	Pass

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Box (m)	Shape
	Min.as supplied	Max. fully recovered			
STSB-012	1.2	0.6	0.3	15	O
STSB-016	1.6	0.8	0.3	15	O
STSB-024	2.4	1.2	0.4	15	O
STSB-032	3.2	1.6	0.5	10	O
STSB-048	4.8	2.4	0.5	10	O
STSB-064	6.4	3.2	0.6	10	O
STSB-095	9.5	4.8	0.6	10	F
STSB-127	12.7	6.4	0.6	5	F
STSB-190	19.0	9.5	0.8	5	F
STSB-254	25.4	12.7	0.9	5	F

# ST135

## ShrinkTech® 135 °C heat resistant tube

Provides excellent insulation and good mechanical strength. Perfect for insulating, coding, bundling and protecting sets of cables and connections. Recommended for electronics and automotive industries.

- Environmental friendly, free from
- toxic heavy metal compounds
- Highly flame retardant
- Very flexible
- UL 224, 125°C, VW-1
- MIL-I-23053 military spec.
- Resistant to common fluids and solvents



- **Material:**  
modified polyolefin
- **Colour:** black, transparent, other colors available on request
- **Packaging:**  
spool



Property	Method of test	Value
Operating temperature	UL 224	-55°C to +135°C
Tensile strength	ASTM D 638	>14MPa
Elongation at break	ASTM D 638	>600%
Longitudinal shrinkage	UL 224	0± 5%
Eccentricity	ASTM D 2671	<20%
Dielectric strength	ASTM D 149	>20kV/mm
Volume resistance	ASTM D 2671	>10 <sup>14</sup> Ω.cm
Copper stability	ISO62	Pass

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST135-012	1.2	0.6	0.3	200	O
ST135-016	1.6	0.8	0.3	200	O
ST135-024	2.4	1.2	0.4	200	O
ST135-032	3.2	1.6	0.5	200	O
ST135-048	4.8	2.4	0.5	100	O
ST135-064	6.4	3.2	0.6	100	O
ST135-095	9.5	4.8	0.6	100	F
ST135-127	12.7	6.4	0.6	50	F
ST135-190	19.0	9.5	0.8	30	F
ST135-254	25.4	12.7	0.9	30	F
ST135-318	31.8	15.9	0.9	30	F
ST135-381	38.1	19.0	1.0	30	F
ST135-508	50.8	25.4	1.1	30	F

## ShrinkTech® high shrink ratio tubing without adhesive



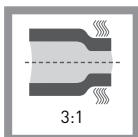
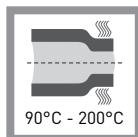
Suitable for electronics and automotive industry, where components are of irregular sizes and shapes. Provides both insulation and sealing for protected articles. Recommended for open air use as well since it is UV stabilised.

▪ **Material:**  
modified polyolefin

▪ **Colour:**  
black, other colors available on request

▪ **Packaging:**  
spool

- Without adhesive
- UL 224, 125 °C, VW-1
- Flexible
- Flame retardant
- Environmental friendly, free from toxic heavy metal compounds



Property	Method of test	Value
Tensile strength	ASTM D 638	14 MPa
Elongation at break	ASTM D 638	400%
Elongation at break after ageing	ASTM D 638 (175°C / 168 hrs)	300 %
Flammability	UL 224 VW-1	Pass
Heat shock (250°C / 4 hrs)	ASTM D 2671	No cracking or dropping
Cold bendt (-55°C / 4 hrs)	ASTM D 2671	No cracking
Dielectric strength	ASTM D 150	22kV/mm
Volume resistance	ASTM D 876	>10 <sup>14</sup> Ω.cm
Copper stability	UL 224	Pass
Water absorption	ASTM D 570	0.15%
Fluid resistance	SAE-AMS-DTL-23053/5	Pass
Longitudinal shrinkage	UL 224	0± 5%
Eccentricity	UL 224	30%

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST3X-015	1.5	0.5	0.4	200	O
ST3X-024	2.4	0.8	0.5	150	O
ST3X-030	3.0	1.0	0.5	150	O
ST3X-048	4.8	1.6	0.5	75	O
ST3X-060	6.0	2.0	0.5	75	O
ST3X-090	9.0	3.0	0.6	75	O
ST3X-120	12.0	4.0	0.6	50	F
ST3X-180	18.0	6.0	0.6	50	F
ST3X-240	24.0	8.0	0.6	30	F
ST3X-390	39.0	13.0	0.8	30	F

## ST3XF

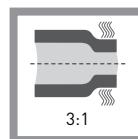
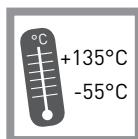
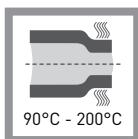
### ShrinkTech® high shrink ratio tubing without adhesive

Suitable for electronics and automotive industry, where components are of irregular sizes and shapes. Provides both insulation and sealing for protected articles. Recommended for open air use as well since it is UV stabilised.



- SAE-AMS-DTL-23053/5
- UL 224, 125 °C, VW-1
- Very Flexible
- Flame retardant

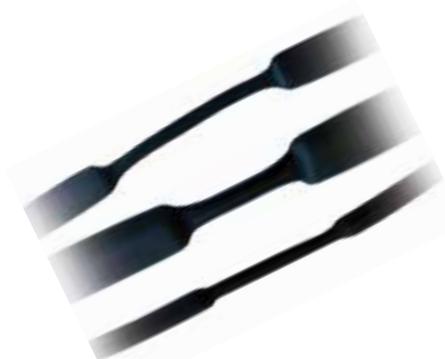
- **Material:**  
modified polyolefin ST135
- **Colour:**  
black other colour are available
- **Packaging:**  
spool



Property	Method of test	Value
Tensile strength	ASTM D 2671	14 MPa
Elongation at break	ASTM D 2671	500 %
Elongation at break after ageing	ASTM D 2671 (175°C / 168 hrs)	350 %
Tensile strength after ageing	ASTM D 2671	12 MPa
Flammability	UL 224 V W-1	Pass
Voltage withstand	ASTM D 2671 2500V 1min	No breakdown
Dielectric strength	ASTM D 2671	20kV/mm
Volume resistance	ASTM D 2671	10 <sup>14</sup> Ω.cm
Copper stability	UL 224	Pass
Copper corrosion	UL 224	No corrosion
Fluid resistance	SAE-AMS-DTL-23053/5	Pass
Longitudinal shrinkage	UL 224	0±5%
Eccentricity	ASTM D 2671	35%

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST3XF-015	1.5	0.5	0.4	200	O
ST3XF-024	2.4	0.8	0.5	150	O
ST3XF-030	3.0	1.0	0.5	150	O
ST3XF-048	4.8	1.6	0.5	75	O
ST3XF-060	6.0	2.0	0.5	75	O
ST3XF-090	9.0	3.0	0.6	75	O
ST3XF-120	12.0	4.0	0.6	50	F
ST3XF-180	18.0	6.0	0.6	50	F
ST3XF-240	24.0	8.0	0.6	30	F
ST3XF-390	39.0	13.0	0.8	30	F

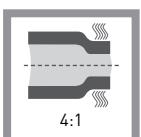
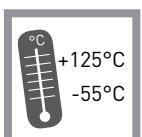
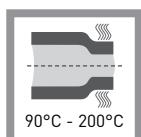
## ShrinkTech® high shrink ratio tubing without adhesive



Suitable for electronics and automotive industry, where components are of irregular sizes and shapes. Provides both insulation and sealing for protected articles. Recommended for open air use as well since it is UV stabilised.

- **Material:**  
modified polyolefin
- **Colour:**  
black, other colors available on request
- **Packaging:**  
spool

- Without adhesive
- UL 224, 125 °C, VW-1
- Flexible
- Flame retardant
- Environmental friendly, free from toxic heavy metal compounds



Property	Method of test	Value
Tensile strength	ASTM D 2671	14 MPa
Elongation at break	ASTM D 2671	800%
Elongation at break after ageing	ASTM D 2671 (175°C / 168 hrs)	350 %
Flammability	UL 224 VW-1	Flammable
Heat shock (250°C / 4 hrs)	ASTM D 2671	No cracking or dropping
Cold bendt (-55°C / 4 hrs)	ASTM D 2671	No cracking
Dielectric strength	ASTM D 150	22kV/mm
Volume resistance	ASTM D 876	>10 <sup>14</sup> Ω.cm
Copper stability	UL 224	Pass
Water absorption	ASTM D 570	0.15%

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST4X-040	4.0	1.0	0.5	200	O
ST4X-060	6.0	1.5	0.5	100	O
ST4X-080	8.0	2.0	0.5	100	O
ST4X-120	12.0	3.0	0.6	100	F
ST4X-160	16.0	4.0	0.6	100	F
ST4X-240	24.0	6.0	0.6	100	F
ST4X-320	32.0	8.0	0.8	50	F

## ST3XA

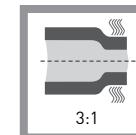
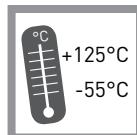
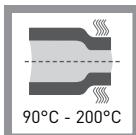
### ShrinkTech® dual wall tubing with adhesive

Manufactured by co-extrusion of polyolefin and hot-melt adhesive. Suitable for electronics and automotive industry where components are of irregular sizes, shapes and protection against water and moisture are important. Provides both insulation and sealing for protected articles.



- High shrink ratio
- Flame retardant
- Waterproof
- UL 224, 125C, VW-1
- Environmental friendly, free from toxic heavy metal compounds
- Very flexible

- **Material:** modified polyolefin
- **Colour:** black, other colors available on request
- **Packaging:** spool



Property	Method of test	Value
Tensile strength	ASTM D 2671	10.4MPa
Tensile strength after ageing (158°C / 168 hrs)	ASTM D 2671	70%
Elongation at break	ASTM D 2671	min.200%
Elongation at break after ageing (158°C / 168 hrs)	ASTM D 2671	min. 100%
Heat shock (250 / °C 4 hrs)	ASTM D 2671	No cracking
Cold tolerance (-30 / °C 1 hrs)	ASTM D 2671	No cracking
Water absorption	ASTM D 570	<0,5%
Volume resistance	ASTM D 876	10 <sup>14</sup> Ω.cm
Dielectric strength	ASTM D 150	20kV / mm
Copper stability	UL 224 158°C /168 h	Pass
Flammability	SAE-AMS-DTL-23035/5	Self-extinguishing in 30sec

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST3XA-030	3.0	1.0	1.0 + 0.50	150	0
ST3XA-048	4.8	1.6	1.0 + 0.50	75	0
ST3XA-060	6.0	2.0	1.0 + 0.60	75	0
ST3XA-090	9.0	3.0	1.4 + 0.60	75	0
ST3XA-120	12.0	4.0	1.6 + 0.70	50	0
ST3XA-180	18.0	6.0	2.1 + 0.80	50	0
ST3XA-240	24.0	8.0	2.5 + 1.10	30	0
ST3XA-390	39.0	13.0	2.5 + 1.20	30	0

**ShrinkTech® dual wall tubing with adhesive**


Manufactured by co-extrusion of polyolefin and hot-melt adhesive. Suitable for electronics and automotive industry where components are of irregular sizes, shapes and protection against water and moisture are important. Provides both insulation and sealing for protected articles.

**▪ Material:**

modified polyolefin

**▪ Colour:**

black, other colors available on request

**▪ Packaging:**

spool or per meter

- High shrink ratio

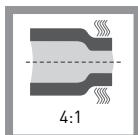
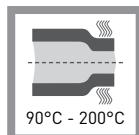
- Flame retardant

- Waterproof

- UL 224, 125C, VW-1

- Environmental friendly, free from toxic heavy metal compounds

- Very flexible



Property	Method of test	Value
Tensile strength	ASTM D 2671	10.4MPa
Tensile strength after ageing (158°C / 168 hrs)	ASTM D 2671	70%
Elongation at break	ASTM D 2671	min.200%
Elongation at break after ageing (158°C / 168 hrs)	ASTM D 2671	min. 100%
Heat shock (250 / °C 4 hrs)	ASTM D 2671	No cracking
Cold tolerance (-30 / °C 1 hrs)	ASTM D 2671	No cracking
Water absorption	ASTM D 570	<0,5%
Volume resistance	ASTM D 876	10 <sup>14</sup> Ω.cm
Copper stability	UL 224 158°C /168 h	Pass
Flammability	SAE-AMS-DTL-23035/5	Self-extinguishing in 30sec
Longitudinal shrinkage	UL 224	0% - 10%
Voltage withstand AC2400V / 60sec	ASTM D 2671	No breakdown

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST4XA-040	4.0	1.0	1.0 + 0.50	150/1.22	0
ST4XA-060	6.0	1.5	1.2 + 0.60	100/1.22	0
ST4XA-080	8.0	2.0	1.6 + 0.75	50/1.22	0
ST4XA-120	12.0	3.0	1.9 + 1.00	50/1.22	0
ST4XA-160	16.0	4.0	2.1 + 1.05	50/1.22	0
ST4XA-180	18.0	4.5	2.4 + 1.20	25/1.22	0
ST4XA-240	24.0	6.0	2.5 + 1.25	25/1.22	0
ST4XA-320	32.0	8.0	2.5 + 1.25	25/1.22	0

# ST4XA-GR

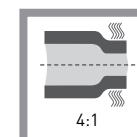
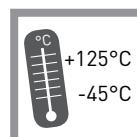
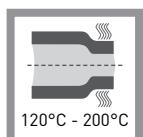
## Dual wall semirigid tubing with adhesive

High shrink ratio allows a few sizes to cover a wide range of splice and component diameter, mechanically tough tubing provides strain relief and abrasion protection of wire splices, terminals and other components. Suitable for electronics and automotive industry where components are of irregular sizes, shapes and protection against water and moisture are important.



- **Material:**  
modified polyolefin
- **Colour:**  
black, transparent
- **Packaging:**  
spool

- Environmental friendly, free from toxic and heavy metal compounds
- UL 224, 125°C, VW-1
- High shrink ratio
- Flame retardant
- Waterproof
- Semirigid



Property	Method of test	Value
Tensile strength	ASTM D 2671	10.4MPa
Tensile strength after ageing (158°C / 168 hrs)	ASTM D 2671	70%
Elongation at break	ASTM D 2671	min.300%
Elongation at break after ageing (158°C / 168 hrs)	ASTM D 2671	min. 200%
Heat shock (250 / °C 4 hrs)	ASTM D 2671	No cracking
Cold tolerance (-30 / °C 1 hrs)	ASTM D 2671	No cracking
Water absorption	ASTM D 570	<0,2%
Volume resistance	ASTM D 876	10 <sup>14</sup> Ω.cm
Copper stability	UL 224 158°C /168 h	Pass
Flammability	SAE-AMS-DTL-23035/5	Self-extinguishing in 30sec
Longitudinal shrinkage	UL 224	0% - 10%
Dielectric strength	ASTM D 2671	No breakdown

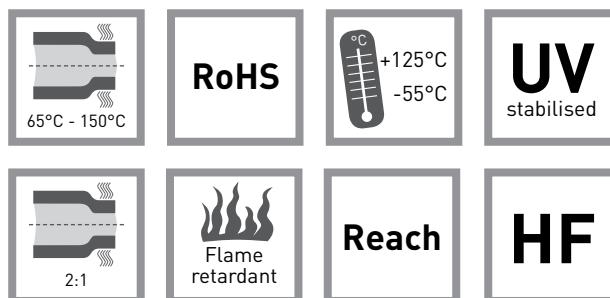
Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST4XA-010-GR	4	0,95	1.20+/-0.20	0.50+/-0.10	200
ST4XA-060-GR	5.7	1,27	1.30+/-0.20	0.60+/-0.10	100
ST4XA-080-GR	7.5	1,65	1.65+/-0.20	0.75+/-0.10	100
ST4XA-120-GR	11.5	2,41	2.0+/-0.20	1.20+/-0.20	25
ST4XA-180-GR	18	4,45	2.5+/-0.20	1.40+/-0.20	25



Ideal for applications where heat sensitive components are used. Hence this special material starts shrinking on already 65 °C

- Halogen-free
- Flexible
- MVSS 302
- Environmental friendly, free from toxic heavy metal compounds

- **Material:**  
modified polyolefin
- **Colour:**  
black
- **Packaging:**  
spools



Property	Method of test	Value
Tensile strength	ASTM D 638	15MPa
Tensile strength after ageing (158°C / 168 hrs)	ASTM D 638	11MPa
Elongation at break	ASTM D 638	450%
Elongation at break after ageing (158°C / 168 hrs)	ASTM D 638	300%
Heat shock (200 / °C 4 hrs)	ASTM D 2671	No cracking
Cold tolerance (-55 / °C 4 hrs)	ASTM D 2671	No cracking
Dielectric strength	ASTM D 150	22kV/mm
Volume resistance	ASTM D 876	10 <sup>14</sup> Ω.cm
Copper stability	UL 224	Pass
Longitudinal shrinkage	UL 224	0% - 10%

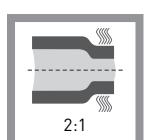
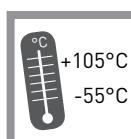
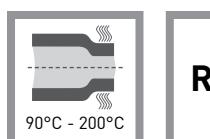
Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min. as supplied	Max. fully recovered			
STL-016	1.6	0.8	0.5	200	O
STL-024	2.4	1.2	0.5	200	O
STL-032	3.2	1.6	0.5	200	O
STL-048	4.8	2.4	0.5	100	O
STL-064	6.4	3.2	0.6	100	O
STL-095	9.5	4.8	0.6	100	F
STL-127	12.7	6.4	0.6	50	F
STL-190	19.0	9.5	0.8	30	F
STL-254	25.4	12.7	0.9	30	F
STL-318	31.8	15.9	1.0	30	F
STL-381	38.1	19.0	1.0	30	F
STL-508	50.8	25.4	1.1	30	F

## STHF

### ShrinkTech® thin wall halogen-free tubing

This tube responds to the highest environmental requests, made with specially designed halogenfree polyolefin. It produces neither toxic smoke nor harmful substances, ideal for underground applications where zero halogen cables & accessories are in demand.

- Halogen-free
- Flexible
- UL224, 125°C, VW-1
- Environmental friendly,



▪ **Material:**

modified polyolefin

▪ **Colour:**

black

▪ **Packaging:**

spools

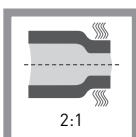
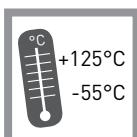
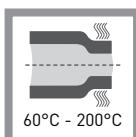
Property	Method of test	Value
Operating temperature	IEC 216	-55 °C to +105°C
Tensile strength	ASTM D 2761	>10.4 MPa
Elongation at break	ASTM D 2761	>200%
Longitudinal shrinkage	UL 224	<± 3%
Eccentricity	ASTM D 2761	<30%
Heat shock	250°C , 4hrs.	No break or dropping
Flammability	SAE-AMS-DTL-23053/5	Pass

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STHF-012	1.2	0.6	0.4	200	O
STHF-016	1.6	0.8	0.4	200	O
STHF-024	2.4	1.2	0.5	200	O
STHF-032	3.2	1.6	0.5	200	O
STHF-048	4.8	2.4	0.5	100	O
STHF-064	6.4	3.2	0.6	100	O
STHF-095	9.5	4.8	0.6	100	F
STHF-127	12.7	6.4	0.6	50	F
STHF-190	19.0	9.5	0.7	30	F
STHF-254	25.4	12.7	0.8	30	F
STHF-318	31.8	15.9	0.90	30	F
STHF-381	38.1	19.0	1.00	30	F
STHF-508	50.8	25.4	1.10	30	F



Insulating, identifying cables without changing the wire's diameter. The low shrink temperature recovery reduces installation time and eliminates heat damage on the application.

- **Material:** modified polyolefin
- **Colour:** black
- **Packaging:** spools
- Ultra thin wall
- Low shrink temperature
- Flexible
- UL 224, 125°C, VW-1, 300V
- Flame retardant
- Environmental friendly, free from toxic heavy metal compounds



Property	Method of test	Value
Temperature at continuous duty	IEC216	-55 °C to +125°C
Tensile strength	ASTMD2671	>14 MPa
Elongation at break	ASTMD2671	>400%
Longitudinal shrinkage	UL 224	<± 5%
Eccentricity	ASTM D 2671	<30%
Elongation at break after ageing	158°C/168hrs	>300%
Flammability	VW-1	Flammable
Dielectric strength	IEC243	>20kV/mm
Volume resistance	IEC93	>10 <sup>14</sup> Ω.cm
Copper stability	ASTM D2671	Pass

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STU-012	1.2	0.6	0.20	200	O
STU-016	1.6	0.8	0.20	200	O
STU-024	2.4	1.2	0.25	200	O
STU-032	3.2	1.6	0.25	200	O
STU-048	4.8	2.4	0.25	100	O
STU-064	6.4	3.2	0.28	100	O
STU-095	9.5	4.8	0.28	100	F
STU-127	12.7	6.4	0.28	50	F
STU-190	19.0	9.5	0.35	30	F
STU-254	25.4	12.7	0.40	30	F

# STS150

## ShrinkTech® standard 150°C

It's reliably protects for wires, solder joints terminals, protection from most industrial fluid solvents and fluid chemicals. Can be used for jacketing and bundling of wires where abrasion resistance and flexibility are required.

- Highly flame retardant
- Environmental friendly, free from toxic heavy metal compounds
- Flexible
- UL 224, 150 °C, VW-1



- **Material:** modified polyolefin
- **Colour:** black
- **Packaging:** spools



Property	Method of test	Value
Tensile strength	ASTM D2671	>10.4 MPa
Elongation at break	ASTM D2671	>200%
Longitudinal shrinkage	UL 224	>5%
Tensile strength after ageing (180°C / 168 hrs)	UL 224 180°C/168h	>7.3 MPa
Elongation at break after ageing (180°C / 168 hrs)	UL 224 180°C/168h	<100%
Heat shock (250 °C / 4 hrs)	UL 224 250°C/4h	No cracking or dropping
Cold tolerance (-30°C / 1 hrs)	UL 224 -30°C/1h	No cracking
Dielectric strength	IEC243	>15kV/mm
Volume resistance	IEC93	>10 <sup>14</sup> Ω.cm
Copper stability	UL 224	Pass
Flammability	UL 224	VW -1
Water absorption	UL 224	<0.5
Corrosion	UL 224	Pass

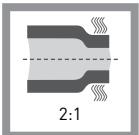
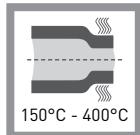
Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STS150-012	1.2	0.6	0.33	200	O
STS150-016	1.6	0.8	0.33	200	O
STS150-024	2.4	1.2	0.44	200	O
STS150-032	3.2	1.6	0.44	200	O
STS150-048	4.8	2.4	0.44	100	O
STS150-064	6.4	3.2	0.56	100	O
STS150-095	9.5	4.8	0.56	50	F
STS150-127	12.7	6.4	0.56	50	F
STS150-190	19.0	9.5	0.69	30	F
STS150-254	25.4	12.7	0.77	30	F
STS150-318	31.8	15.9	0.87	30	F



- **Material:** Kynar modified polyvinyl fluoroid
- **Colour:** black, transparent
- **Packaging:** spool

It's reliably protects for wires, solder joints terminals, protection from most industrial fluid solvents and fluid chemicals. Can be used for jacketing and bundling of wires where abrasion resistance and flexibility are required.

- Environmental friendly, free from toxic heavy metal compounds
- UL 224, 125°C, VW-1,
- Extremely resistant to mechanical and chemical damage
- Semi-rigid
- Flame retardant
- MIL-I-23053 Military spec.
- Extreme thin wall



Property	Method of test	Value
Operating temperature	IEC216	-55 °C to +150°C
Tensile strength	ASTM D 638	Min. 30 MPa
Elongation at break	ASTM D 638	Min.150%
Elongation at break after ageing	225°C /168hrs	Min.100%
Heat shock	275°C /4hrs	No cracking or dropping
Cold bend	-55°C/4hrs	No cracking
Dielectric strength	ASTM D 2671	Min. 2.5kV/1min
Volume resistance	ASTM D 876	>10 <sup>13</sup> Ω.cm
Copper stability	180°C /168hrs	No corrosion
Flammability	VW-1	Pass

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST150-012	1.2	0.6	0.25	200	O
ST150-016	1.6	0.8	0.25	200	O
ST150-024	2.4	1.2	0.27	200	O
ST150-032	3.2	1.6	0.27	200	O
ST150-048	4.8	2.4	0.27	100	O
ST150-064	6.4	3.2	0.33	100	O
ST150-095	9.5	4.8	0.33	50	F
ST150-127	12.7	6.4	0.33	50	F
ST150-190	19.0	9.5	0.43	30	F
ST150-254	25.4	12.7	0.48	30	F
ST150-318	31.8	15.9	0.48	30	F

# ST175

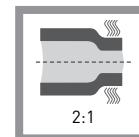
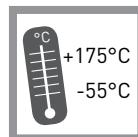
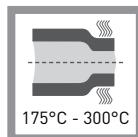
## ShrinkTech® 175°C

High performance PVDF tubing. Excellent to insulate from high temperatures. It's reliably protects for wires, solder joints, terminals, connections and components from most industrial fuels, solvents and chemicals. Recommended for electronics and automotive industry.



- Environmental friendly, free from toxic heavy metal compounds
- Flame retardant
- Semi-rigid
- UL 224, 125 °C, VW-1
- MIL-I-23053 Military spec.
- Extremely thin walled

- **Material:** Kynar® modified polyvinyl fluoroid
- **Colour:** black, transparent
- **Packaging:** spool



Property	Method of test	Value
Operating temperature	IEC216	-55 °C to +175°C
Tensile strength	ASTM D 638	Min. 34.5 MPa
Elongation at break	ASTM D 638	Min. 150%
Elongation at break after ageing	250°C /168hrs	Min. 50%
Heat shock	300°C /1hr	No cracking or dropping
Cold bend	-55°C /1hr	No cracking
Dielectric strength	ASTM D 2671	Min. 30kV/mm
Volume resistance	ASTM D 876	>10 <sup>13</sup> Ω.cm
Flammability	VW-1	Pass

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST175-012	1.2	0.6	0.25	200	O
ST175-016	1.6	0.8	0.25	200	O
ST175-024	2.4	1.2	0.27	200	O
ST175-032	3.2	1.6	0.27	200	O
ST175-048	4.8	2.4	0.27	100	O
ST175-064	6.4	3.2	0.33	100	O
ST175-095	9.5	4.8	0.33	50	F
ST175-127	12.7	6.4	0.33	50	F
ST175-190	19.0	9.5	0.43	30	F
ST175-254	25.4	12.7	0.48	30	F
ST175-318	31.8	15.9	0.48	30	F

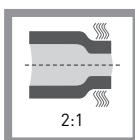
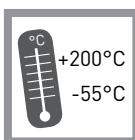
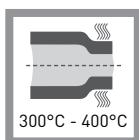


- **Material:**  
Viton™ fluoroelastomer
- **Colour:**  
black
- **Packaging:**  
spool

Very high performance elastomeric tubing (Viton™). Suitable for applications requiring high resistance to corrosive fluids, fuels, lubricants, acids and solvents at elevated temperature (up to 200 °C).

Frequently used in harsh environments such as defence, aerospace or marine.

- MIL-I-23053 Military spec.
- UL 224, 125°C, VW-1,
- Very flexible
- Flame retardant
- Environmental friendly, free from toxic heavy metal compounds



Property	Method of test	Value
Operating temperature	IEC216	-55 °C to +200°C
Tensile strength	ASTM D 638	Min. 8.5 MPa
Elongation at break	ASTM D 638	Min. 250%
Elongation at break after ageing	250°C /168hrs	Min. 200%
Heat shock	300°C /4hr	No cracking or dropping
Flexibility	ASTM D 412	Max.13.8 MPa
Dielectric strength	ASTM D 2671	Min. 7.9 kV/mm
Volume resistance	ASTM D 876	Min. $10^{13}\Omega\cdot\text{cm}$
Copper stability	SAE-AMS-DTL-23053/18	Pass
Flammability	ASTM D 2671	Self-extinguish after 15 min

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
ST200-032	3.2	1.6	0.76	61.0	O
ST200-048	4.8	2.4	0.90	61.0	O
ST200-064	6.4	3.2	0.90	30.5	O
ST200-095	9.5	4.8	0.90	30.5	F
ST200-127	12.7	6.4	1.10	30.5	F
ST200-190	19.0	9.5	1.30	15.0	F
ST200-254	25.4	12.7	1.65	1.22	F
ST200-381	38.1	19.0	1.90	1.22	F
ST200-508	50.8	25.4	2.80	1.22	F

# STDR

## ShrinkTech® diesel resistant tubing

Very flexible elastomer tube which preserves its quality in extreme weather conditions. Highly resistant to corrosive materials, fuels, hydraulic oil and diesel oil. Recommended for automotive, defence, aerospace and high tech industries.



- Extremely resistant to mechanical and chemical damage
- Diesel resistant
- Very flexible
- Flame retardant
- Environmental friendly, free from toxic heavy metal compounds
- MIL-I-23053

- **Material:**  
Modified fluoroelastomer
- **Colour:**  
Black
- **Packaging:**  
Spool



Property	Method of test	Value
Operating temperature	IEC216	-75 °C to +150 °C
Tensile strength	ASTM D 2671	Min. 13 MPa
Elongation at break	ASTM D 2671	Min. 500%
Elongation at break after ageing	160°C /168hrs	Min. 220%
Heat shock	215°C /4hr	No cracking or dropping
Volume resistance	ASTM D 876	Min.10 <sup>9</sup> Ω.cm
Flexibility	ASTM D 882	Max. 50 MPa
Fluid resistance elongation	ISO 37 24 Hrs.	Min. 300 %
Fluid resistance tensile strength	ISO 37 24 Hrs.	Min. 10 MPa
Flammability	ASTM D 2671	Self-extinguish after 15 sec

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STDR-032	3.2	1.6	0.76	50	O
STDR-048	4.8	2.4	0.85	50	O
STDR-064	6.4	3.2	0.90	50	O
STDR-095	9.5	4.8	1.03	50	O
STDR-127	12.7	6.4	1.23	30	O
STDR-190	19.0	9.5	1.43	30	F
STDR-254	25.4	12.7	1.80	30	F
STDR-318	31.8	15.9	2.40	15	F

**ShrinkTech® heat shrink tube with high shine**


Thin wall shiny heat shrink tube which is perfect for insulating and fixing components. Recommended for automotive and telecom industry. Extra shiny surface.

- Environmental friendly, free from toxic heavy metal compounds
- Age resistant
- Extremely shiny surface
- Resistant to fluids and oil
- Flame retardant

**▪ Material:**

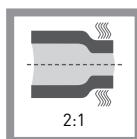
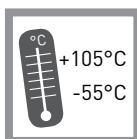
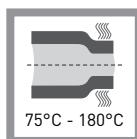
Modified polyolefine

**▪ Colour:**

Shiny black, other colour are available on request

**▪ Packaging:**

Spool or cutted pieces available on request

**▪ Other sizes are available**


Property	Method of test		Value
Heat ageing tensile strength	136°C / 168h		>11 MPa
Tensile strength	ASTM D 2671		> 12 MPa
Ultimate elongation	ASTM D 2671		> 400%
Longitudinal shrinkage	UL 224		0± 5%
Eccentricity	ASTM D 2671		<30%
Voltage withstand	ASTM D 2671 AC 2 500V 1min		No breakdown
Volume resistance	ASTM D 2671		>Min.10 <sup>14</sup> Ω.cm
Copper stability	UL 224		Pass
Copper corrosion	UL 224		No corrosion

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STCA-024	2.40	1.20	0.30	200	0
STCA-032	3.20	1.60	0.30	200	0
STCA-048	4.80	2.40	0.35	100	0
STCA-064	6.40	3.20	0.35	100	0
STCA-095	9.50	4.80	0.35	100	0
STCA-127	12.7	6.40	0.45	50	0
STCA-191	19.1	9.50	0.50	50	0

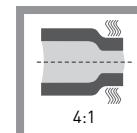
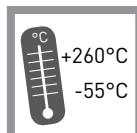
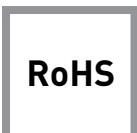
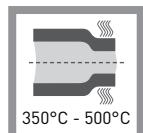
# STFE-HS

## ShrinkTech® heat shrink PTFE

Shrintech PTFE heat shrink tubing has the outstanding properties of PTFE offering excellent chemical resistance, high temperature resistance, excellent electrical insulation and low friction.

Heat shrink tubing is the optimum method to offer a protective jacket for applications in extreme environments of heat, corrosion, shock and moisture.

- **Material:** PTFE
- **Colour:** Clear
- **Packaging:** PCS
- Extremely resistant to mechanical and chemical damage
- Diesel resistant
- Flame retardant
- Environmental friendly, free from toxic heavy metal compounds
- Peak point up to 275°C



Property	Method of test	Value
Operating temperature	IEC216	-55°C to +260°C
Low temperature flexibility	AMS-DTL-23053	no cracking
Flammability	ASTM D 876	non-burning
Elongation at break after ageing	250°C /168hrs	Min. 225%
Water absorption	ASTM D 570	0.01% max.
Fluid resistance elongation	AMS-DTL-23053	no change in properties
Dielectric strength	ASTM D 2671	Min. 40 kV/mm
Volume resistance	ASTM D 876	Min. 10 <sup>18</sup> Ω.cm
Tensile strength	ASTM D 638	2500 psi min
Corrosion (Copper Contact)	AMS-DTL-23053	non-corrosive

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STFE-HS-019	1.9	0.62	0.23	1 or 1.2	O
STFE-HS-032	3.2	0.98	0.25	1 or 1.2	O
STFE-HS-048	4.8	1.27	0.30	1 or 1.2	O
STFE-HS-064	6.4	1.60	0.30	1 or 1.2	O
STFE-HS-095	9.5	2.44	0.30	1 or 1.2	O
STFE-HS-127	12.7	3.66	0.38	1 or 1.2	O
STFE-HS-160	16.0	4.50	0.38	1 or 1.2	F
STFE-HS-191	19.1	5.70	0.38	1 or 1.2	F
STFE-HS-254	25.4	7.60	0.38	1 or 1.2	F
STFE-HS-381	38.1	10.16	0.38	1 or 1.2	F



Our PTFE sleeves are applied to a variety of rolls and tubes guaranteeing the unique properties provided by Shrinktech. We supply you the perfect quality for your requested diameter! The application of the sleeves is a simple process: the sleeve is slipped over the roller and heated with a hot air gun, which allows the sleeve to shrink to a tight fit on the roll.

### Shrinktech roll covers offer the following advantages:

- No sticking, picking or dirty rollers anymore
- Prevents corrosion
- Less maintenance
- Cost effective
- Handles delicate materials
- Avoid paper breaks
- Also used on curved (banana) stretch rollers
- Higher production speed and better quality
- Chemical resistance
- Fast & easy replacement

- We supplies a range shrinkable sleeves ranging from Ø 0.38 mm. up to 2.000 mm.
- Larger diameters are available on request.
- Seamless STFE shrinkable sleeves are extruded up to Ø 550 mm.
- For larger diameters, the sleeves are sealed.
- STFE RC shrinkable sleeves are used in paper, textile, graphic, chemical, electronic, aviation, space and food industries.

#### ▪ Material:

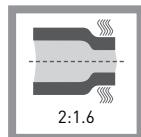
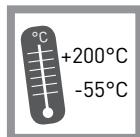
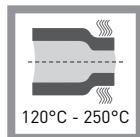
PTFE

#### ▪ Colour:

Clear

#### ▪ Packaging:

PCS



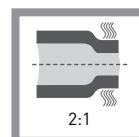
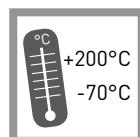
Property	Method of test	Value
Operating temperature	IEC 216	-55°C to +200°C
Coefficient of thermal Conductivity	ASTM D 638	0,24 W/m/k
Coefficient of thermal expansion	ASTM D 638	9,4 x 10(5)mm/m/°C
Elongation at break after ageing	250°C /168hrs	Min. 200%
Melting Point	IEC 216	305°C
Flex life (cycles)	149 °C	5000000
Dielectric strength	ASTM D 2671	Min. 2.1 kV/mm
Volume resistance	ASTM D 876	Min. 10 <sup>14</sup> Ω.cm
Tensile Strength at break (at 23 °C)	ASTM D 2671	28N/m <sup>2</sup>
Water Absorption	ASTM D 2671	0.03%

# STF HS

**ShrinkTech® Silicone elastomer heat shrink tube**

**Application:** STFHS is suitable for high and low temperatures applications where a great exibility is required.

- **Material:** Silicone elastomer
- **Colour:** Grey
- **Packaging:** Spools
- Environmental friendly
- Free from toxic heavy metal compounds
- Peac up to 275°C
- Flame retardant
- Flexible

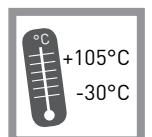
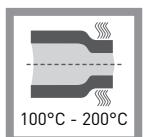


Property	Method of test	Value
Tensile strength	ISO / R37	50 kg / cm <sup>2</sup>
Elongation at break	ISO / R37	330 %
Working temperature		-70°C - +200°C
Hardness	ASTMD 2240	70 Shore A
Specic gravity	ISO / R1183	1.23
Flamability	ASTMC 542	20kV/mm
Dielectric strength	IEC 243	10 <sup>15</sup> Ω.cm
Volume resistance	ASTMD 876	Self-extinguishing

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STFHS-030	3.0	1.5	1.0	5	O
STFHS-050	5.0	2.5	1.0	5	O
STFHS-080	8.0	4.0	1.0	5	O
STFHS-110	11.0	5.5	1.5	5	O
STFHS-160	16.0	8.0	1.5	5	O
STFHS-220	22.0	11.0	2.0	5	F
STFHS-320	32.0	16.0	2.0	5	F
STFHS-430	43.0	21.5	3.0	5	F
STFHS-550	55.0	27.5	3.0	5	F
STFHS-660	66.0	33.0	3.0	5	F
STFHS-700	70.0	35.0	3.0	5	F
STFHS-800	80.0	40.0	3.0	5	F

**ShrinkTech® thin wall PVC heat shrink tube**


- **Material:** Modied PVC
- **Colour:** black other colour are request
- **Packaging:** Spools
- Environmental friendly ROHS 2011/65/EU
- UL 224, 105°C , VW-1
- Flame retardant
- Flexible
- Reach


**Reach**

Property	Method of test	Value
Temperature at continuous duty	UL 224	-30°C to +105°C
Tensile strength	ISO 37	>23MPa
Elongation at break	ISO 37	>350%
Elongation at break after ageing	ASTM D 2671 168h 136°C	>250%
Heatshock	UL224 4H 180°C	no droping
Eccentricity	ASTM D 2671	<35%
Dielectric strength	UL 224	>20kV/mm
Restricted recovery	IEC243	Passed
Water absorption	ASTM D 570	0.50 %
Chemical resistance	ISO 1817, ISO 37, MIL-1-23053	Good
Flammability	UL224	Passed

Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)	Shape
	Min.as supplied	Max. fully recovered			
STHSP-024	2.4	1.2	0.51	300	O
STHSP-032	3.2	1.6	0.51	300	O
STHSP-048	3.2	2.4	0.51	300	O
STHSP-064	6.4	3.2	0.65	300	O
STHSP-095	9.5	4.8	0.65	150	O
STHSP-127	12.7	6.4	0.65	100	O
STHSP-190	13.0	9.5	0.83	50	F
STHSP-254	25.4	12.7	0.90	50	F
STHSP-318	31.8	15.9	0.90	50	F
STHSP-381	38.1	19.0	1.03	50	F
STHSP-508	50.8	25.4	1.15	50	F

# TSTH

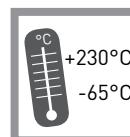
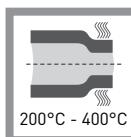
## ShrinkTech® Twin-shrink tube PTFE /FEP

Twin-Shrink is constructed with an external layer of PTFE heat shrink and an inner layer of FEP. This product is designed to provide a tight and moisture resistant bond over wires, cables, connectors, sensors, terminals, splices, and many other components.

When heated the outer layer of PTFE shrinks tightly over inserted parts while the inner FEP layer bows into a solid or near-solid encapsulation with. Twin-Shrink provides all of the outstanding electrical, chemical, and mechanical properties of PTFE and FEP combined into a superior heat shrink for the most secure encapsulations.

- Excellent chemical resistance
- Excellent dielectric strength
- Protection against corrosion
- Working temperature up to 232 °C
- Sterilizable
- Tight, moisture-proof encapsulation
- DIN 53455

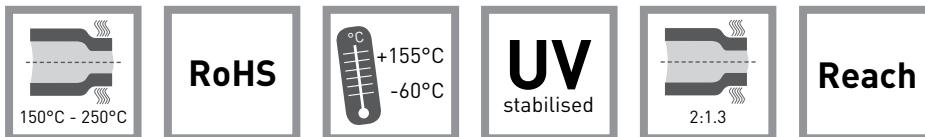
- **Material:**  
PTFE
- **Colour:**  
white, other colour are available on request
- **Packaging:**  
PCS



Article No.	Internal diameter		Wall thickness fully recovered (mm)	Length (mm)
	Min. as supplied	Max. fully recovered		
TSTH-036	0.91	0	N/A	1220
TSTH-060	1.52	0	N/A	1220
TSTH-130	3.30	0	N/A	1220
TSTH-160	4.06	0	N/A	1220
TSTH-190	4.82	1.57	0.89	1220
TSTH-250	6.35	3.17	0.89	1220
TSTH-350	8.89	4.82	0.89	1220
TSTH-450	11.43	7.92	1.39	1220
TSTH-700	17.78	11.17	1.39	1220
TSTH-950	24.13	16.00	1.65	1220
TSTH-065L	1.65	0.00	N/A	1220
TSTH-115L	2.92	1.14	0.38	1220
TSTH-130L	3.30	1.52	0.38	1220
TSTH-180L	4.57	1.65	0.38	1220
TSTH-190L	4.82	1.77	0.38	1220
TSTH-240L	6.09	3.81	0.50	1220
TSTH-350L	8.89	5.33	0.63	1220
TSTH-480L	12.19	8.00	0.81	1220
TSTH-700L	17.78	12.70	1.01	1220
TSTH-1000L	25.40	17.78	1.14	1220

LAR heat shrink tube prevents line failures in both hermetic motors and in general purpose use by securing and insulating electrical connections. Shrink-on fitting provides comprehensive mechanical and electrical protection, cutting line failures arising from vulnerable connections. LAR tube is particularly suitable to use in hermetic systems due to refrigerant compatibility and low extractables.

- Multilayer Dupont™ Mylar® construction suitable for Class B applications
- and operating temperature up to 155°C in continuous use
- Material: Dupont™ Mylar®
- Colour: transparent
- 30 -35% shrink secures and insulated components, wires and connections
- Quick and easy 10 second shrink-on application
- Constructed from UL approved film
- Wall thickness starts from 0,050mm
- More features available with internal diameters of 1,5 to 210mm
- Compatible with most refrigerant and oil combinations



Property	Method of test	Value
Tensile strength MD and TD (MPA)	ASTM D 882	190 and 260 (37 µm)
Modulus MD and TD (MPA)	ASTM D 882	2.10 and 3.60 (37 µm)
Yield (m²/kg)		19.1 (37 µm)
Elongation MD and TD(%)	ASTM D 882	170 and 110 (37 µm)
Water vapour transmission rate	ASTM F1249 (g/m² /24h)	38°C, 90% relative humidity
Oxygen permeability bef./after shrinkage	ASTM F3985 (cc/m² /24h)	75 / 30-45(37 µm)
Dielectric strength (kV)	ASTM D 149	3.5 (37 µm)

Shrinkage Properties of Base Film	Shrinkage rate	Shrink temp.
MD	30%	5 mins 150°C
TD	30%	5 mins 150°C
MD	30%	5 mins 175°C
TD	30%	5 mins 175°C

# LARCTS

ShrinkTech® LARCTS continuous tubing sleeve for Class B applications, without joins

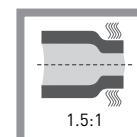
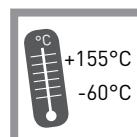
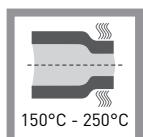
## Continuous shrink sleeve

This product design meets the requirements of noise reduction sleeves for rotors typically used in the manufacture of washing machine motors. The continuous tube is supplied on rolls to allow it to be used on automated machines.



**Applications:** The positining and thermal retraction/ thermoforming cycle enables extensive use of automatic production equipment, as used in the electric household appliance and automotive sectors. Rotor cover, packaging battery sleeves and lead out wire jacketing all benet from a continuous formed tube.

- LARCTS tubing is an ideal solution for rotor noise reduction
- Low cost - various grades available
- Constructed from UL approved lm
- Wall thickness starts from 0,050mm
- More features available with layat widths of 10.0 to 240mm
- Ease of assembly - no joints
- Flat Dupont™ Mylar® construction suitable for Class B applications and operating temperature up to 155°C in continuous use (shortly up to 220°C)
- Material: Dupont™ Mylar®
- Colour: transparent



Property	Method of test	Value
Tensile strength MD and TD (MPA)	ASTM D 882	190 and 260 (37 µm)
Modulus MD and TD (MPA)	ASTM D 882	2.10 and 3.60 (37 µm)
Yield (m²/kg)		19.1 (37 µm)
Elongation MD and TD(%)	ASTM D 882	170 and 110 (37 µm)
Water vapour transmission rate	ASTM F1249 (g/m² /24h)	38°C, 90% relative humidity
Oxygen permeability bef./after shrinkage	ASTM F3985 (cc/m² /24h)	75 / 30-45(37 µm)
Dielectric strength (kV)	ASTM D 149	3.5 (37 µm)

Shrinkage Properties of Base Film	Shrinkage rate	Shrink temp.
MD	30%	5 mins 150°C
TD	30%	5 mins 150°C
MD	35%	5 mins 175°C
TD	35%	5 mins 175°C

**ShrinkTech® LARC cost-effective heat shrink cap for wire connetions  
in hermetic electric motors.**



LARC heat shrink caps prevents line failures in hermetic motors by securing and insulating electrical connections. Shrink-on tting both prevents the dispersal of debris withing a motor and provides comprehensive mechanical and electrical protection, cutting line failures arising from vulnerable connections.

LARC maintain high dielectric strength and cut through resistance in the most demanding applications. They are widely used to provide secondary insulation and mechanical protection for wiring looms and are particulary suited to use in hermetic and open motors.

- 30 -35% shrink secures and insulated components, wires and connections
- Quick and easy 10 second shrink-on application
- Constructed from UL approved lm
- Wall thickness starts from 0,10mm
- More features available with internal diameters of 2.0 to 60mm
- Compatible with most refrigerant and oil combinations

- Multilayer Dupont™ Mylar® construction suitable for Class B applications
- and operating temperature up to 155°C in continuous use
- Material: Dupont™ Mylar®
- Colour: transparent , blue



Property	Method of test	Value
Tensile strength MD and TD (MPA)	ASTM D 882	190 and 260 (37 µm)
Modulus MD and TD (MPA)	ASTM D 882	2.10 and 3.60 (37 µm)
Yield (m²/kg)		19.1 (37 µm)
Elongation MD and TD(%)	ASTM D 882	170 and 110 (37 µm)
Water vapour transmission rate	ASTM F1249 (g/m² /24h)	38°C, 90% relative humidity
Oxygen permeability bef./after shrinkage	ASTM F3985 (cc/m² /24h)	75 / 30-45(37 µm)
Dielectric strength (kV)	ASTM D 149	3.5 (37 µm)

Shrinkage Properties of Base Film	Shrinkage rate	Shrink temp.
MD	30%	5 mins 150°C
TD	30%	5 mins 150°C
MD	30%	5 mins 175°C
TD	30%	5 mins 175°C

# LARN /LARNC

## Mylar® Nomex® heat shrink tube and end caps

This heat shrink end caps prevent line failures in electric motors by securing and insulating electrical connections.

LARN and LARNC heat-shrink tube and end caps maintain high dielectric strength and cut through resistance in the most demanding Class F applications, withstanding short term exposure to temperatures of up to 160°C.

Recommended for electric motors manufacturers.



- 30% shrink comprehensively secures and insulates components, wires and connections
- Quick and easy 10 second shrink-on application
- Superb dielectric and cut through strength across operating temperatures
- Constructed from UL recognised materials
- Five layer DuPont™ Mylar® and DuPont™ Nomex® construction is suitable for Class F applications and operating temperatures of 155°C in continuous use
- Available with internal diameters from 2.50mm to 8.00mm
- Wall thicknesses from 0.24mm
- Colour coding allows fast identification of sizes and components in motor windings

### Outer Mylar®

Property	Typical Value 37.5 HS lm (37 µm)	Test Condition	Test Method
Dielectric strength (minimum kV)	3.5	-	ASTM D 149
Tensile strength (Mpa)		-	
Machine direction (MD)	190	-	ASTM D 882
Transverse direction (TD)	260	-	ASTM D 882
Yield (m²/kg)	19.10	-	
Modulus (Mpa) MD	2,100	-	ASTM D 882
TD	3,600	-	ASTM D 882
Elongation (%) MD	170	-	ASTM D 882
TD	110	-	ASTM D 882
Water vapour transmission rate (g/m²/24 hrs)	15	38°C, 90% Relative Humidity	ASTM F 1249
Oxygen permeability (cc/m²/24 hrs)	75	Before shrinkage	ASTM D 3985
	30-45	After shrinkage	ASTM D 3985
Melt point	253-255°C (526-528K)		ASTM D 3148-82

### Inner Nomex®

Property of Base Material	Internal diameter (mm)		Test Condition	Test Method
	0.130mm	0.180mm		
Dielectric strength (kV/mm)	12	12	AC Rapid Rise	ASTM D 149
Dielectric constant	1.3	1.3	10³ Hz	ASTM D 150
Dissipation factor	0.005	0.005	10³ Hz	ASTM D 150

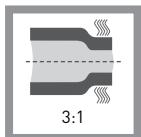
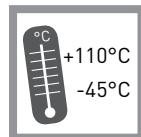


Perfect for numerous low voltage electrical and mechanical applications, where lighter weight and greater flexibility are important.

Recommended for applications where mechanical protection, waterproofing and sealing of connectors components within the tubing are essential.

- Halogen-free
- Waterproof
- Extremely resistant to mechanical damage
- Flexible
- Environmental friendly

- **Material:**  
modified polyolefin
- **Colour:**  
black
- **Packaging:**  
per meter



Article No.		Internal diameter (mm)		Wall thickness fully recovered (mm)	Length (mm)
Without adhesive	With adhesive	Min.as supplied	Max. fully recovered		
STM-009	STMA-009	9.0	3.0	1.7	1000
STM-012	STMA-012	12.0	4.0	2.2	1000
STM-016	STMA-016	16.0	5.0	2.5	1000
STM-022	STMA-022	22.0	6.0	2.3	1000
-	STMA-028	28.0	6.0	2.3	1000
STM-033	STMA-033	33.0	8.0	2.3	1000
STM-040	STMA-040	40.0	12.0	2.7	1000
STM-055	STMA-055	55.0	16.0	2.8	1000
STM-065	STMA-065	65.0	19.0	3.0	1000
STM-074	STMA-075	75.0	22.0	3.0	1000
STM-085	STMA-085	85.0	25.0	3.0	1000
STM-095	STMA-095	95.0	25.0	3.0	1000
STM-115	STMA-115	115.0	34.0	3.0	1000
STM-140	STMA-140	140.0	42.0	3.0	1000
STM-160	STMA-160	160.0	50.0	3.0	1000
STM-175	STMA-175	175.0	55.0	3.5	1000
STM-200	STMA-200	200.0	65.0	3.5	1000

## STH/STHA

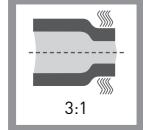
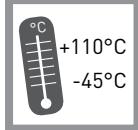
ShrinkTech® heavy wall tubing with or without internal adhesive

Designed for applications to seal and protect electrical and communication connections. Provides excellent mechanical protection to cable joints and terminations, flexible gas pipes, etc.



- Halogen-free
- Waterproof
- Extremely resistant to mechanical damage
- Environmental friendly, free from toxic heavy metal compounds

- **Material:**  
modified polyolefin
- **Colour:**  
black
- **Packaging:**  
per meter



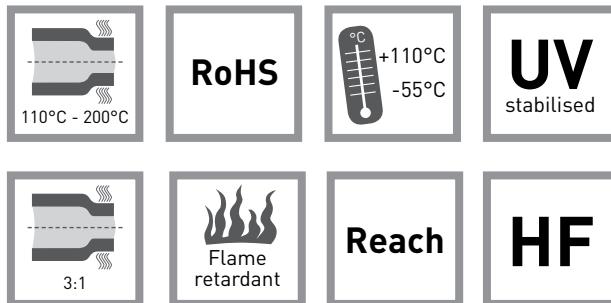
Article No.		Internal diameter (mm)		Wall thickness fully recovered (mm)	Length (mm)
Without adhesive	With adhesive	Min. as supplied	Max. fully recovered		
STH-009	STHA-009	9.0	3.0	1.8	1000
STH-013	STHA-013	13.0	4.0	2.4	1000
STH-022	STHA-022	22.0	6.0	2.7	1000
-	STHA-028	28.0	6.0	2.7	1000
STH-033	STHA-033	33.0	8.0	3.2	1000
STH-040	STHA-040	40.0	12.0	4.1	1000
STH-045	STHA-045	45.0	13.0	4.1	1000
STH-055	STHA-055	55.0	16.0	4.1	1000
STH-065	STHA-065	65.0	19.0	4.3	1000
STH-075	STHA-075	75.0	22.0	4.3	1000
STH-085	STHA-085	85.0	25.0	4.3	1000
STH-095	STHA-095	95.0	29.0	4.3	1000
STH-115	STHA-115	115.0	34.0	4.3	1000
STH-130	STHA-130	130.0	36.0	4.3	1000
STH-160	STHA-160	160.0	55.0	4.3	1000
STH-175	STHA-175	175.0	55.0	4.3	1000



Recommended for use both in open air and on underground power distribution cables with PVC, lead or XLPE sheets. Definitive recovery with the layer of spiral coated hot melt adhesive. Protects power cables up to 1 kV and telecommunication cables. Resistant to oxydation, ozone, UV radiation.

- Waterproof
- Environmentally friendly, free from toxic and heavy metal compounds
- UV stabilised

- **Material:**  
modified polyolefin  
+ internal adhesive
- **Colour:**  
black
- **Packaging:**  
per unit



Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Length (mm)	Cable diameter (mm)	Cable size (mm²)
	Min. as supplied	Max. fully recovered				
STECL-012	12	4.0	2.0	40	4-10	2.5-6
STECL-014	14	4.5	2.0	45	5-12	4-10
STECL-020	20	6.0	2.3	55	6-16	6-35
STECL-025	25	8.0	2.3	83	10-20	25-50
STECL-035	35	16.0	3.0	83	17-30	70-150
STECL-040	40	16.0	3.0	83	18-32	70-185
STECL-055	55	26.0	3.3	103	28-48	120-300
STECL-075	75	36.0	3.5	120	45-65	185-400
STECL-100	100	50.0	4.0	140	55-90	240-500
STECL-120	120	60.0	4.0	150	65-110	240-630
STECL-145	145	60.0	4.0	150	70-130	240-630
STECL-160	160	82.0	4.0	150	90-150	300-800
STECL-200	200	90.0	4.2	160	100-180	400-1000

# STECC

## ShrinkTech® conductive end cap

Shrinktech® conductive end caps are used to seal cable ends where there are live power cables in the close proximity of the cable that has to be sealed. The conductive mastic coated end cap serves the function of neutralizing any potential induced in the cable due to the electric field around live cables. The end caps are made from thermally stabilized, cross linked, semi-conductive polymeric material.



- **Material:**

modified polyolefin + internal adhesive

- **Colour:**

black

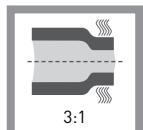
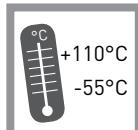
- **Packaging:**

per unit

- Waterproof

- Environmentally friendly, free from toxic and heavy metal compounds

- UV stabilised



Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Length (mm)	Cable diameter (mm)	Cable size (mm <sup>2</sup> )
	Min. as supplied	Max. fully recovered				
STECC-012	12	4.0	2.0	40	4-10	2.5-6
STECC-014	14	4.5	2.0	45	5-12	4-10
STECC-020	20	6.0	2.3	55	6-16	6-35
STECC-025	25	8.0	2.3	83	10-20	25-50
STECC-035	35	16.0	3.0	83	17-30	70-150
STECC-040	40	16.0	3.0	83	18-32	70-185
STECC-055	55	26.0	3.3	103	28-48	120-300
STECC-075	75	36.0	3.5	120	45-65	185-400
STECC-100	100	50.0	4.0	140	55-90	240-500
STECC-120	120	60.0	4.0	150	65-110	240-630
STECC-145	145	60.0	4.0	150	70-130	240-630
STECC-160	160	82.0	4.0	150	90-150	300-800
STECC-200	200	90.0	4.2	160	100-180	400-1000

### ShrinkTech® de-gassing heat shrink end cap



De Gassing is heat shrinkable end caps, supplied with relief valve, are used for sealing high voltage cable ( up to 33kV) to release the constantly evolving gas generated inside the cable during transportation and storage in hot climate conditions..

- Waterproof
- Provides additional security to cables by relieving the pressure generated by residual gases.
- Automatically release gas when pressure rise above 3 psi. eliminates possibility of accidental re caused due to trapped Methane gas while removing the end cap.
- Possibility to reduce the timing of de-gassing (heating) chamber, thereby saving in energy and time.
- Ensures gas/defect free cables.
- Each relief valve is factory tested for gas release.

▪ **Material:**

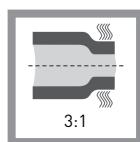
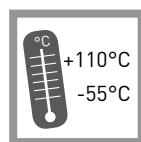
modified polyolefin  
+ internal adhesive

▪ **Colour:**

black

▪ **Packaging:**

per unit



Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Length (mm)	Cable diameter (mm)	Cable size (mm <sup>2</sup> )
	Min.as supplied	Max. fully recovered				
STEC-DG-020	20	6.0	2.3	55	6-16	6-35
STEC-DG-025	25	8.0	2.3	83	10-20	25-50
STEC-DG-035	35	16.0	3.0	83	17-30	70-150
STEC-DG-040	40	16.0	3.0	83	18-32	70-185
STEC-DG-055	55	26.0	3.3	103	28-48	120-300
STEC-DG-075	75	36.0	3.5	120	45-65	185-400
STEC-DG-100	100	50.0	4.0	140	55-90	240-500
STEC-DG-120	120	60.0	4.0	150	65-110	240-630
STEC-DG-145	145	60.0	4.0	150	70-130	240-630
STEC-DG-160	160	82.0	4.0	150	90-150	300-800
STEC-DG-200	200	90.0	4.2	160	100-180	400-1000

## STEC-V

### ShrinkTech® heat shrink end cap with ventil

Shrinktech® insulcap is used to seal the ends of all types of heat shrinkable End caps to protect from ingress of water/moisture. The caps are manufactured from high quality cross linked polyolefin material. Compatible with most commonly used cable jackets i.e. XLPE, PVC, PILC or rubber sheathed cable. Hot melt adhesive lining provides permanent seal on irregular cable sheaths. Excellent resistance to weathering, moisture, contamination and adverse environmental conditions, according to IP 68 (Ingress Protection)



▪ **Material:**

modified polyolefin + internal adhesive

▪ **Colour:**

black

▪ **Packaging:**

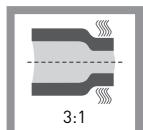
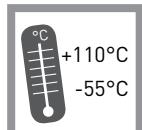
per unit

▪ **Waterproof**

▪ Environmentally friendly, free from toxic and heavy metal compounds

▪ UV stabilised

▪ Ventil



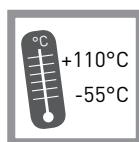
Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Length (mm)	Cable diameter (mm)	Cable size (mm <sup>2</sup> )
	Min. as supplied	Max. fully recovered				
STEC-V-020	20	6.0	2.3	55	6-16	6-35
STEC-V-025	25	8.0	2.3	83	10-20	25-50
STEC-V-035	35	16.0	3.0	83	17-30	70-150
STEC-V-040	40	16.0	3.0	83	18-32	70-185
STEC-V-055	55	26.0	3.3	103	28-48	120-300
STEC-V-075	75	36.0	3.5	120	45-65	185-400
STEC-V-100	100	50.0	4.0	140	55-90	240-500
STEC-V-120	120	60.0	4.0	150	65-110	240-630
STEC-V-145	145	60.0	4.0	150	70-130	240-630
STEC-V-160	160	82.0	4.0	150	90-150	300-800
STEC-V-200	200	90.0	4.2	160	100-180	400-1000



Anode cap is heat shrinkable cap, used to seal and protect the critical connection between the lead wire and anode. It provides stress relief, moisture proofing and electrical insulation at the lead wire exit point. It is the ideal solution to the problem of premature system failure due to corrosion causing lead wire to come out of the anode. It is made from a highly cross-linked polyolefin material. Rubber based mastic coating inside the cap adheres to Anode material and wire insulation which provides water tight sealing according to IP 68.

- Environmental friendly, free from toxic heavy metal compounds
- Waterproof
- Flexible
- Adhesive lined

- **Material:**  
polyolefin + internal adhesive
- **Colour:**  
black
- **Packaging:**  
per unit



Property	Method of test		Value
Tensile strength	ASTM D 2671		≥13 MPa
Ultimate elongation	ASTM D 2671		≥300%
Tensile strength after aging	ASTM D 2671/120°C 168h		≥10 MPa
Ultimate elongation after aging	ASTM D 2671/120°C 168h		≥250%
Dielectric strength	ASTM D 2671		≥15 kV/mm
Volume resistance	IEC 93		≥10 <sup>13</sup> Ω.cm
Water absorption	ISO 62		≤1%

Article No.	OD (mm)		ID (mm)		Recovered length ± 10%		Recovered wall ± 10%	
	a*[Min.]	b*[Max.]	a*[Min.]	b*[Max.]	L (mm)	F (mm)	Dw (mm)	Iw (mm)
STCFT-060	85	42	15	5	130	45	2.5	2.8
STCFT-085	60	30	45	10	130	45	2.5	4.5
STCFT-100	100	52	20	8	150	65	3.0	3.0
STCFT-101	100	50	20	8	210	70	3.0	3.0
STCFT-150	150	92	14	5	150	55	3.5	3.5
STCFT-160	160	92	60	20	150	50	3.2	3.0
STCFT-161	160	92	100	45	150	50	3.5	3.5

# STBR

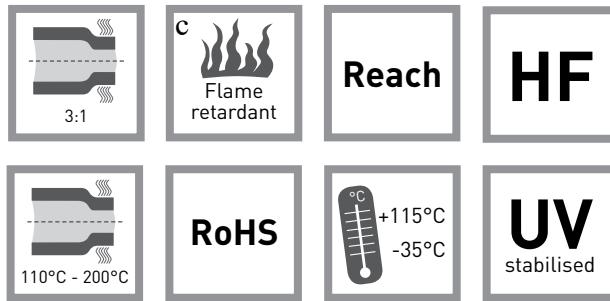
## ShrinkTech® low voltage cable breakouts

Heat shrinkable cable breakouts provide environmental seal to the crutch of 2, 3, 4, 5, 6 core plastic and paper insulated cables rated up to 1.1kV. The breakouts are made from thermally stabilised cross-linked polymeric material and are internally coated with hot-melt adhesive.



- Rigid
- Waterproof
- Environmental friendly, free from toxic heavy metal compounds
- UV stabilised

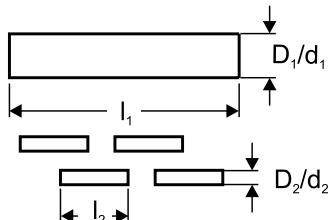
- **Material**  
Modified polyolefin with adhesive
- **Colours**  
Black
- **Packaging**  
Per unit



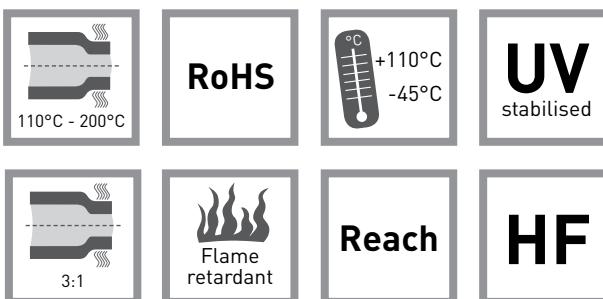
Article No.	Internal diameter (mm)		Wall thickness fully recovered ±20% (mm)	Cable size (mm <sup>2</sup> )
	Min.as supplied	Max. fully recovered		
STBR2-030	30 / 12	10 / 4	1.5 / 1.0	4-16
STBR2-050	50 / 21	24 / 7	3.0 / 2.5	16-70
STBR2-090	90 / 43	45 / 15	2.2 / 2.2	95-240
STBR3-030	25 / 9	9 / 3	2.5 / 1.8	1.5-10
STBR3-035	35 / 13	15 / 4	2.5 / 1.8	4-25
STBR3-055	55 / 25	23 / 8	3.3 / 2.5	16-70
STBR3-075	75 / 35	28 / 13	3.5 / 3.0	50-240
STBR3-110	110 / 50	35 / 17	4.0 / 3.5	120-300
STBR4-030	28 / 8	9 / 2	2.2 / 1.7	2.5-16
STBR4-035	35 / 13	15 / 4	2.5 / 1.8	4-25
STBR4-045	47 / 20	23 / 8	4.0 / 3.0	16-70
STBR4-060	60 / 25	25 / 8	4.2 / 2.5	50-120
STBR4-080	78 / 30	36 / 12	4.0 / 3.0	120-240
STBR4-095	95 / 35	36 / 14	3.5 / 3.0	150-300
STBR4-120	117 / 46	36 / 14	3.5 / 3.0	185-400
STBR5-035	35 / 20	15 / 3	2.5 / 1.8	4-25
STBR5-050	50 / 15	15 / 3	4.0 / 2.0	16-50
STBR5-065	65 / 20	21 / 8	3.5 / 2.3	35-90
STBR5-070	70 / 20	15 / 3	4.0 / 2.0	70-120

**ShrinkTech® low voltage heat shrinkable joints for 0.6/1.0(1.2)kV.**


- Waterproof
- Extremely resistant to mechanical damage
- **Material**  
modified polyolefin
- **Packaging**  
kit



Heat shrinkable technology is one of the worlds most simple and cost effective jointing system. When connecting 1kV power cables, Shrinktech® heat shrink tubing will insulate a variety of cables with XLPE, PVC, and MI/MIND paper insulation. All Shrinktech kits are designed to be compact and range taking resulting in lower cost and reduced stock quantities. Shrinktech's advanced polymer technology ensures high performing standards of both tubing and the adhesive. Performance and long term reliability are guaranteed, with excellent weathering resistance.



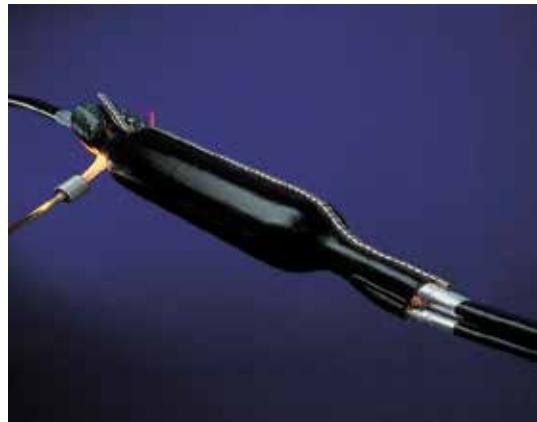
Property	Method of test	Value
Operating temperature	IEC 216	-55°C to +110°C
Tensile Strength	ASTM D 638	>14 MPa
Elongation at break	ASTM D 638	>400%
Density	ASTM D 792	1.05g/cm³
Longitudinal shrinkage	UL 224	0% to 10%
Eccentricity	ASTM D 2671	<30%
Elongation at break after ageing	150°C / 168hrs	>300%
Dielectric strength	IEC243	>20kV/mm
Volume resistance	IEC 93	>10¹⁴Ω.cm
Copper stability	ASTM D 2671	Pass
Resistance to stress cracking -50°C	ASTM D 1693	No cracking
Water absorption	ISO 62	<0.25%
Peel strength (PE)	DIN 30672	4 N/cm
Softening point	ASTM D E8	80°C
Resistance to fungus and decay	ISO 846	Pass

Article No.		Cable diameter (mm²)	Outside heat shrink tube			Inside heat shrink tube		
			Length l1	Internal diameter D1/d1	PCS	Length l2	Internal diameter D1/d1	PCS
STLV1	2,5-10	4x2,5 - 4x10	300	34/8	1	80	12/3	4
STLV2	6-25	4x6 - 4x25	400	56/16	1	125	19/6	4
STLV3	6-25/5	5x6 - 5x25	400	56/16	1	125	19/6	5
STLV4	16-50	4x16 - 4x50	600	73/22	1	160	30/8	4
STLV5	25-70	4x25 - 4x70	700	73/22	1	200	30/8	4
STLV6	35-185	4x35 - 4x185	750	90/25	1	250	30/8	4
STLV7	120-240	4x120 - 4x240	900	130/40	1	300	41/12	4
STLV8	240/1x120	3x240 + 1x120	880	90/25	1	300	41/12	3
						200	30/8	1

## SWRS

### ShrinkTech® wrap around repair sleeves

This wrap around repair sleeves are mainly used for repairing outer/inner sheath of cables. These sleeves are also used for providing corrosion protection to the metallic parts of the cables that are exposed to polluted environment and for making telecom cable joints. WRS Sleeves are made from thermally stabilized cross linked weather resistant polymeric material and are coated internally with thermo resistant hot melt adhesive.



- Waterproof
- Environmentally friendly, free from toxic and heavy metal compounds
- UV stabilised
- **Material:** modified polyolefin, internal adhesive with stainless steel channel
- **Colour:** black
- **Packaging:** per unit other length are available

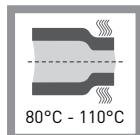
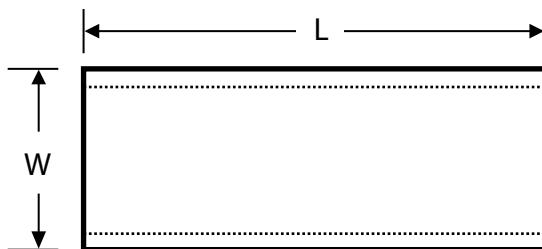


Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm) min.	Length (mm)	Width (mm)
	Min. as supplied	Max. fully recovered			
SWRS-040	43	10	0,9	1000	145
SWRS-050	52	15	0,9	1000	175
SWRS-070	76	22	0,9	1000	260
SWRS-100	100	30	0,9	1000	355
SWRS-140	138	38	0,9	1000	450
SWRS-185	185	55	0,9	1000	590
SWRS-250	250	98	0,9	1000	720

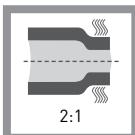
This heat shrinkable flexible tape is a spirally hand wrapped, radiation cross-linked anticorrosion tape, used at the pipe bends where other semi-rigid or rigid tapes are not usable. The installation is carried out directly on the cleaned and prepared pipe surface without any primer. During installation STWRAP should be used around with a 50% overlapping. The backing layer is heated and shrinks well around the pipe, while the sealing adhesive melts and forced into all surface irregularities forming a thorough coating and a complete bond with the substrate. As it's easy to apply at any size at any length.

- **Material:**  
modified polyolefin with hot melt adhesive
- **Colour:**  
black
- **Packaging:**  
spool
- Waterproof
- Extremely resistant to mechanical damage
- Flexible
- Environmental friendly

**L** length  
**W** width



**RoHS**



**HF**



Article No.	Widths W (mm) Min. as supplied	Wall thickness fully recovered (mm) ± 20%	Length L (m)
STW-050	50.0	0.8 + 0.7	15 or 30
STW-075	75.0	0.8 + 0.7	15 or 30
STW-100	100.0	0.8 + 0.7	15 or 30

## SMS

### ShrinkTech® straight plug-and-socket connector terminal casing

Straight plug-and-socket connector terminal casing. This style is used in conjunction with circular grooved adaptor, providing protection against environmental stresses. Typically used on airborne harnesses. Low profile and lightweight. Rib locates on circular backshell.

- **Material**

Modified polyolefin flexible up to 135°C

Fluoropolimer up to 200°C

Modified polyolefin semirigid oil and solvent retardant up tp 135°C

- **Colours**

Black

- **Packaging**

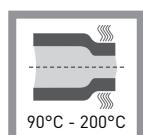
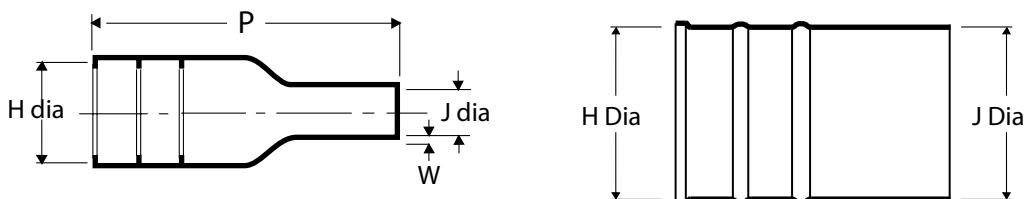
Per unit

- Flexible or semirigid

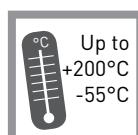
- High operating temperature

- Low shrink temperature

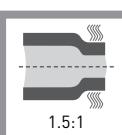
- Environmental friendly, free from toxic heavy metal compounds



**RoHS**



**UV**  
stabilised



Flame  
retardant

**Reach**

Article No.	Internal diameter (mm) H/J		Wall thickness fully recovered (mm)	Length (mm)	Shape
	Min.as supplied	Max. fully recovered			
SMS1	19.0/6.0	13.5/3.5	1.8	53.0	I
SMS2	19.0/18.0	5.0/3.0	1.6	36.0	I
SMS3	24.0/24.0	10.0/5.0	1.9	38.0	I
SMS4	28.5/28.5	14.0/5.9	1.9	60.5	I
SMS5	31.0/31.0	17.0/6.6	2.0	75.0	I
SMS6	36.0/36.0	21.1/7.8	2.2	87.0	I
SMS7	43.0/43.0	28.0/10.8	2.2	113.5	I
SMS8	55.0/55.0	34.0/18.5	2.2	135.0	I

Heat Shrinkable moulded shapes for plug-and-connectors. This style provides connector cable strain relief and can be installed directly onto connector rearthread. Strain relief for connector cable. Easy re-entry for repair when combined with hot melt adhesive. Used widely in military and aerospace industry

- Flexible or semirigid
- High operating temperature
- Low shrink temperature
- Environmental friendly, free from toxic heavy metal compounds

#### ▪ Material

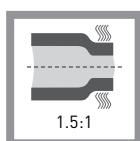
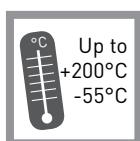
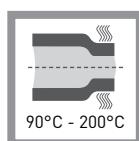
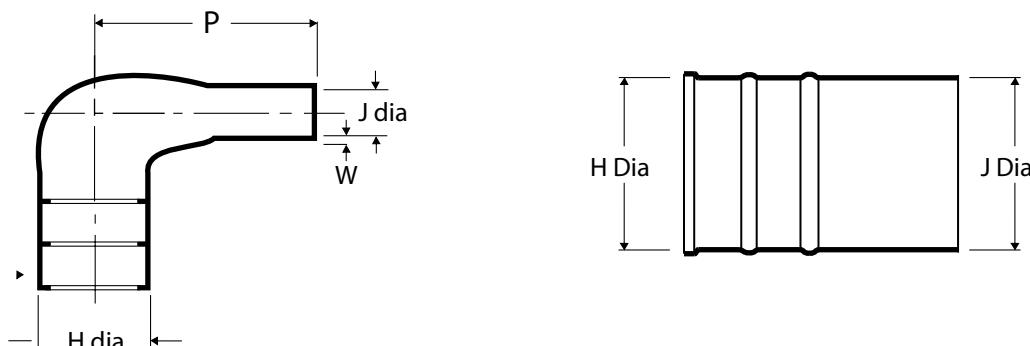
Modified polyolefin flexible up to 135°C  
Fluoropolimer up to 200°C  
Modified polyolefin semirigid oil and solvent retardant up tp 135°C

#### ▪ Colours

Black

#### ▪ Packaging

Per unit



Article No.	Internal diameter (mm) H/J		Wall thickness fully recovered (mm)	Length (mm)	Shape
	Min.as supplied	Max. fully recovered			
SMSC1	24.0/24.0	9.0/4.5	1.5	200	C
SMSC2	28.5/28.5	14.0/6.0	1.5	200	C
SMSC3	31.0/31.0	17.0/6.6	1.8	200	C
SMSC4	36.0/36.0	21.0/8.0	1.9	30	C
SMSC5	43.0/43.0	27.0/9.0	2.2	30	C
SMSC6	55.0/22.0	34.0/14.0	3.0	30	C

# SMYD

## ShrinkTech® heat shrinkable 2 way moulded shape

Cable breakouts are manufactured from a tough cross-linked polyolefin containing a flame retardant. This allows the breakouts to be used for both interior and exterior applications. They offer excellent electrical and mechanical protection. Cable breakouts are supplied with an adhesive inner coating for reliable environmental sealing, and are available for 2, 3, and 4 core cables.

### ▪ Material

Modified polyolefin flexible up to 135°C

Fluoropolymer up to 200°C

Modified polyolefin semirigid oil and solvent retardant up tp 135°C

- Flexible or semirigid

- High operating temperature

- Low shrink temperature

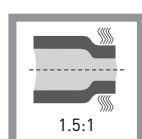
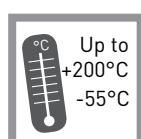
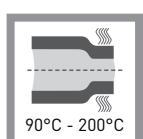
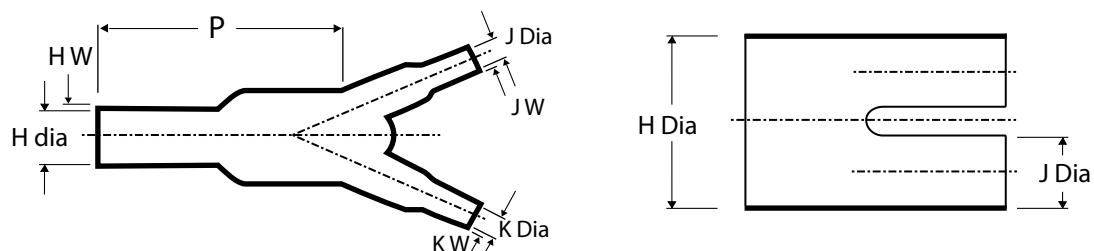
- Environmental friendly, free from toxic heavy metal compounds

### ▪ Colours

Black

### ▪ Packaging

Per unit



Article No.	Internal diameter (mm) H/J		Wall thickness fully recovered (mm)	Length (mm)	Shape
	Min.as supplied	Max. fully recovered			
SMYD1	14.5/7.0	7.0/2.2	5.5/1.2	50.0	Y
SMYD2	26.5/26.5	13.0/2.5	12.0/1.5	90.0	Y
SMYD3	39.0/27.0	17.0/3.2	17.0/2.5	160.0	Y

Cable breakouts are manufactured from a tough cross-linked polyolefin containing a flame retardant. This allows the breakouts to be used for both interior and exterior applications. They offer excellent electrical and mechanical protection. Cable breakouts are supplied with an adhesive inner coating for reliable environmental sealing, and are available for 2, 3, and 4 core cables.

- Flexible or semirigid
- High operating temperature
- Low shrink temperature
- Environmental friendly, free from toxic heavy metal compounds

▪ **Material**

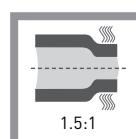
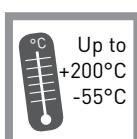
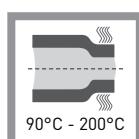
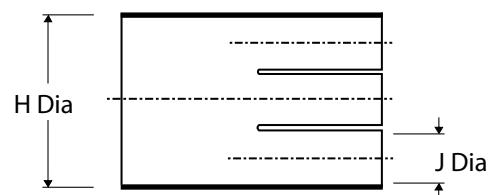
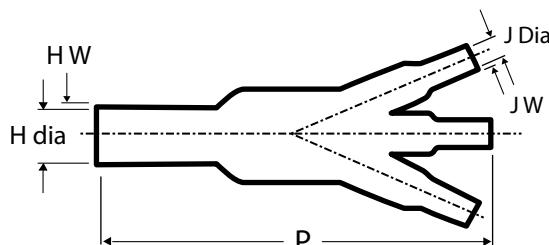
Modified polyolefin flexible up to 135°C  
Fluoropolimer up to 200°C  
Modified polyolefin semirigid oil and solvent retardant up tp 135°C

▪ **Colours**

Black

▪ **Packaging**

Per unit



Article No.	Internal diameter (mm) H/J		Wall thickness fully recovered (mm)	Length (mm)	Shape
	Min.as supplied	Max. fully recovered			
SMYT1	13.0/7.0	6.0/3.0	1.8/1.2	55.0	Y
SMYT2	27.0/13.0	13.5/6.9	2.5/2.2	112.0	Y
SMYT3	39.0/19.0	16.5/8.5	3.2/2.5	150.0	Y

## SMYQ

ShrinkTech® heat shrinkable 4 way moulded shape

Cable breakouts are manufactured from a tough cross-linked polyolefin containing a flame retardant. This allows the breakouts to be used for both interior and exterior applications. They offer excellent electrical and mechanical protection. Cable breakouts are supplied with an adhesive inner coating for reliable environmental sealing, and are available for 2, 3, and 4 core cables.



▪ **Material**

Modified polyolefin flexible up to 135°C

Fluoropolimer up to 200°C

Modified polyolefin semirigid oil and solvent retardant up tp 135°C

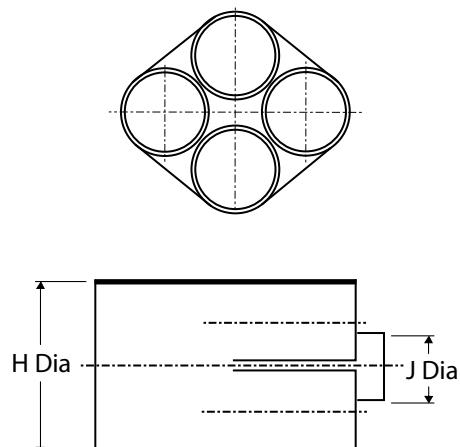
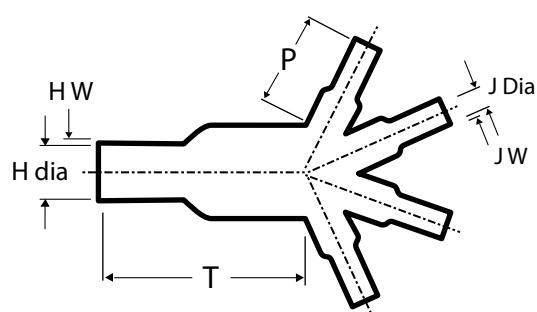
- Flexible or semirigid
- High operating temperature
- Low shrink temperature
- Environmental friendly, free from toxic heavy metal compounds

▪ **Colours**

Black

▪ **Packaging**

Per unit



Article No.	Internal diameter (mm) H/J		Wall thickness fully recovered (mm)	Length (mm)	Shape
	Min.as supplied	Max. fully recovered			
SMYQ1	13.0/7.0	5.5/3.0	2.0/1.2	70.0	Y
SMYQ2	27.0/13.0	13.5/6.0	2.5/1.8	108.0	Y
SMYQ3	39.0/19.0	18.0/8.5	3.0/2.0	150.0	Y

90° (right angled) transition parts (T-joints) are used for simple time saving insulation of the branch point of cable, where it splits into single wires. Adhesive lined T-joints also serve to relieve the mechanical tension and protect against corrosion in cable harness .

- Flexible or semirigid
- High operating temperature
- Low shrink temperature
- Environmental friendly, free from toxic heavy metal compounds

#### ▪ Material

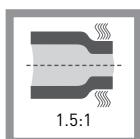
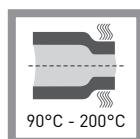
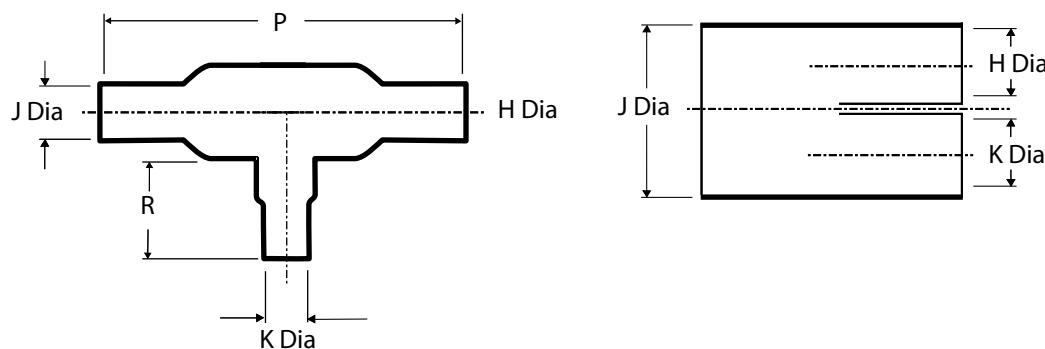
Modified polyolefin flexible up to 135°C  
Fluoropolimer up to 200°C  
Modified polyolefin semirigid oil and solvent retardant up tp 135°C

#### ▪ Colours

Black

#### ▪ Packaging

Per unit



Article No.	Internal diameter (mm) H/J		Wall thickness fully recovered (mm)	Length (mm)	Shape
	Min.as supplied	Max. fully recovered			
SMT1	13.0/7.0	3.6/3.6	1.8	30/15	T
SMT2	25.0/13.0	6.9/6.9	1.8	60/30	T
SMT3	50.0/27.0	13.5/13.5	2.2	120/60	T
SMT4	100.0/56.0	30.2/30.2	2.5	246/123	T

## STBM / STBH

ShrinkTech® high voltage insulating tubes  
medium wall / heavy wall

Heat shrinkable insulating tubes are used to build up insulation over the connector area in High voltage Plastic and Paper insulates cable straight through joints rated up to 36kV. The insulating tubes are made from thermally stabilised cross linked high resistance polymeric material.



- **Material:**  
modified polyolefin
- **Colour:**  
red
- **Packaging:**  
spool or 1.22m pcs
- High voltage resistance
- Extremely resistant to mechanical damage
- Flexible
- Environmental friendly



Article No.		Internal diameter (mm)		Wall thickness fully recovered (mm)	
medium wall	heavy wall	Min.as supplied	Max. fully recovered	STBM	STBH
STBM-015	-	15.0	6.0	2.5	-
STBM-025	STBH-025	25.0	10.0	2.9	4.0
STBM-030	-	30.0	12.0	2.9	-
STBM-040	STBH-040	40.0	16.0	2.9	4.0
STBM-050	STBH-050	50.0	20.0	2.9	4.0
STBM-065	-	65.0	25.0	2.9	-
STBM-075	STBH-075	75.0	30.0	2.9	4.0
-	STBH-095	95.0	30.0	-	4.0
STBM-100	-	100.0	40.0	2.9	-
STBM-120	STBH-120	120.0	25.0	2.9	4.1
-	STBH-180	180.0	30.0	-	4.1



- Provide electrical insulation for all solid dielectric (rubber and plastic) insulated wire and cable splicing rated to 36 kV
- Provide physical protection and moisture sealing for couplings hoses, connectors and terminal lugs
- Cable jacket and sheath repairs
- Environmental sealing for communication connectors and other non-electrical applications
- Corrosion protection for fittings and couplings

▪ **Material:**

liquid silicone rubber

▪ **Colour:**

black, grey

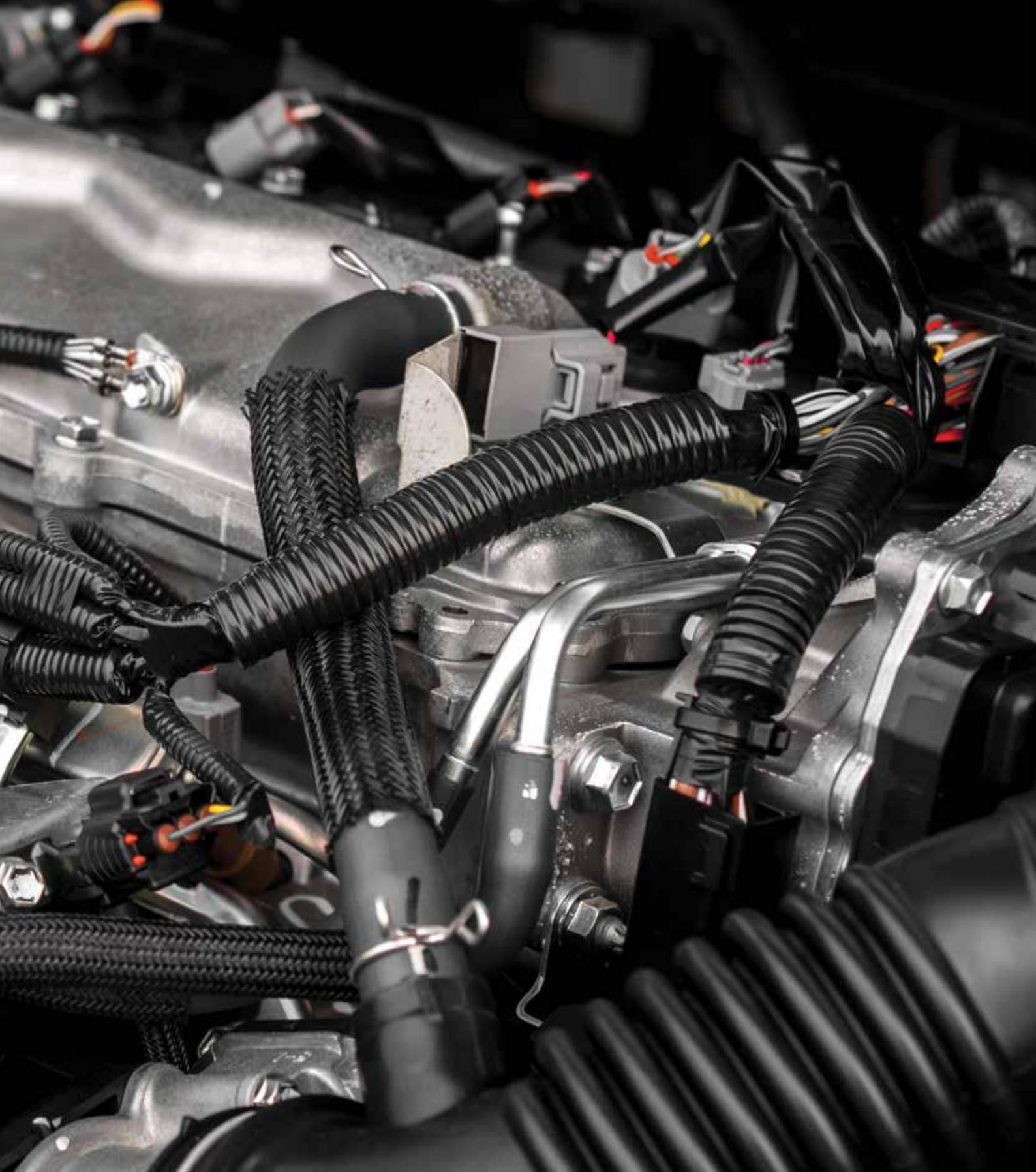
▪ **Packaging:**

per unit



Article No.	As supplied		After recovery		Application range	Length (mm)
	Internal diameter	Internal diameter	Wall thickness			
CST-020	20	6.0	2.0	8-15	450	
CST-030	30	10.0	2.0	12-25	490	
CST-035	35	14.0	2.0	16-28	450	
CST-040	40	16.0	2.0	18-33	450	
CST-047	47	19.0	2.0	21-40	470	
CST-053	53	23.0	2.0	25-46	500	
CST-065	65	23.0	3.0	25-55	500	
CST-070	70	28.0	3.0	30-60	500	
CST-080	80	34.0	3.0	36-70	500	
CST-104	104	40.0	3.5	42-94	430	
CST-111	110	35.0	6.0	37-100	430	
CST-112	110	58.0	6.0	60-100	430	





## INSULATING TUBE PRODUCTS

## Insulating tube product list

Name	Description	Material	Temperature	Page
<b>M70</b>	Highly flexible PVC tubing	PVC	70°C	81
	PVC tube sizes matrix	PVC	All	82
<b>M105</b>	High temperature PVC tubing	PVC	105°C	83
<b>STI105 UL</b>	UL approved high temperature PVC tubing	PVC	105°C	84
<b>STF-AR</b>	Acryl impregnated fiberglass insulating tube up to 1,5kV	Fiberglass acrill	155°C	85
<b>STF-PR</b>	PUR coated fiberglass insulating tube up to 1,5kV	Fiberglass PUR	155°C	86
<b>STF-ALSI</b>	ALU coated fiberglass insulating tubing up to 4kV	Fiberglass ALU silicon	250°C	87
<b>STF SIL</b>	Silicon coated fiberglass insulating tubing up to 15kV	Fiberglass silicon	up to 300°C	88
<b>STF-ALU</b>	heat protection alu shield fiberglass tubing for automotiv.	Fiberglass alu	200°C	89
<b>SBPA</b>	Expandable braided sleeve	PA6.6	125°C	90
<b>SBPE</b>	Expandable braided sleeve	PET	150°C	91
<b>SPPS</b>	High temperature PPS sleeve	PPS	200°C	92
<b>SCW</b>	Special designed self closing wrap	PET	150°C	93
<b>SHS</b>	Heat shrinkable braided sleeve	Poliolefin and poliester	125°C	94
<b>SKS</b>	High temperature and high tensile carbon sleeve	Carbon multifilament	650°C	95
<b>STC6</b>	High flexibility PA corrugated tube for machinery	PA 6.6	120°C	96
<b>STC-PP</b>	High flexibility PP corrugated tube for machinery	PP	90°C	97
<b>STC-PVC</b>	High flexibility PVC corrugated tube for building industry	PVC	70°C	98
<b>STC-AL</b>	High flexibility ALU corrugated tube for automotive	ALU fiberglass	250°C	99
<b>LKT</b>	Heat protection Kapton tube	Kapton®	250°C	100
<b>LKTC</b>	Heat protection non shrink Kapton® Nomex® cap	Kapton® / Nomex®	180°C	101
<b>LKF</b>	Special design Kapton® Teflo®n tube	Kapton® / Teflon®	200°C	102
<b>LNT</b>	Nomex® paper tube	Nomex®	180°C	103
<b>LMNT</b>	Special design Nomex® Mylar® non shrink tube	Mylar® / Nomex®	155°C	104
<b>STEC-F</b>	High flexibility cable end cap	PVC	70°C	105
<b>STSL</b>	Special design Kapton® Teflo®n tube	Silicone	up to 260°C	106
<b>SRFE-R</b>	High temperature resistant PTFE rod	PTFE	260°C	107
<b>STFE-S</b>	High temperature resistant PTFE sheet	PTFE	260°C	108
<b>STFE-T</b>	non shrink insulatingPTFE tube	PTFE	260°C	109

**ShrinkTech® non heat resistant insulating tubing for universal use 70°C**


PVC tubing is a flexible flame retardant not heat shrinkable tubing which has excellent electrical and physical performances, and outstanding acid fastness and corrosion resistivity. This tubing is suitable for insulation purpose of electronics, automotive, lead wires of motors and transformers. We deliver this standard product from stock.

- Environmental friendly, free from toxic heavy metal compounds
- Flexible
- Good mechanical resistance
- Watertight

**▪ Material:**

PVC

**▪ Colour:**

Black Other colours are available

**▪ Packaging:**

 spool, other cut lengths  
 and other diameters are available





Property	Method of test	Value
Temperature class		B
Operating temperature		-20°C - +70°C
Dielectrical strength		16 kV/mm
Density		1.4± 0.03
Hardness		85 ± 3 ShA
Resistance at break		>17 MPa
Elongation at break		> 280 %

Article No.	Internal diameter (mm)	Wall thickness (mm)	Spools (m)	Shape
M70-020	2.0	0.4	1000	O
M70-030	3.0	0.4	1000	O
M70-040	4.0	0.5	200	O
M70-050	5.0	0.5	200	O
M70-060	6.0	0.5	200	O
M70-070	7.0	0.5	100	O
M70-080	8.0	0.5	100	F
M70-090	9.0	0.5	100	F
M70-100	10.0	0.6	50	F
M70-120	12.0	0.6	50	F
M70-140	14.0	0.6	30	F
M70-160	16.0	0.6	30	F
M70-180	18.0	0.6	30	F

### PVC tube size and article number chart

	Wall Thickness (mm)					
	0.2	0.25	0.3	0.4	0.5	0.6
0.5	M70-005-02	M70-005-025	M70-005-03	M70-005-04		
0.8	M70-008-02	M70-008-025	M70-008-03	M70-008-04		
1	M70-010-02	M70-010-025	M70-010-03	M70-010-04		
2			M70-020-03	M70-020-04	M70-020-05	M70-020-06
3			M70-030-03	M70-030-04	M70-030-05	M70-030-06
	0.5	0.6	0.7	0.8	1.0	1.2
4	M70-040-05	M70-040-06	M70-040-07	M70-040-08	M70-040-10	
5	M70-050-05	M70-050-06	M70-050-07	M70-050-08	M70-050-10	
6	M70-060-05	M70-060-06	M70-060-07	M70-060-08	M70-060-10	
7	M70-070-05	M70-070-06	M70-070-07	M70-070-08	M70-070-10	
8	M70-080-05	M70-080-06	M70-080-07	M70-080-08	M70-080-10	
9	M70-090-05	M70-090-06	M70-090-07	M70-090-08	M70-090-10	
10	M70-100-05	M70-100-06	M70-100-07	M70-100-08	M70-100-10	
11	M70-110-05	M70-110-06	M70-110-07	M70-110-08	M70-110-10	
12	M70-120-05	M70-120-06	M70-120-07	M70-120-08	M70-120-10	
13	M70-130-05	M70-130-06	M70-130-07	M70-130-08	M70-130-10	
14	M70-140-05	M70-140-06	M70-140-07	M70-140-08	M70-140-10	M70-140-12
15	M70-150-05	M70-150-06	M70-150-07	M70-150-08	M70-150-10	M70-150-12
16	M70-160-05	M70-160-06	M70-160-07	M70-160-08	M70-160-10	M70-160-12
17	M70-170-05	M70-170-06	M70-170-07	M70-170-08	M70-170-10	M70-170-12
18	M70-180-05	M70-180-06	M70-180-07	M70-180-08	M70-180-10	M70-180-12
19	M70-190-05	M70-190-06	M70-190-07	M70-190-08	M70-190-10	M70-190-12
20	M70-200-05	M70-200-06	M70-200-07	M70-200-08	M70-200-10	M70-200-12
21	M70-210-05	M70-210-06	M70-210-07	M70-210-08	M70-210-10	M70-210-12
22	M70-220-05	M70-220-06	M70-220-07	M70-220-08	M70-220-10	M70-220-12
23	M70-230-05	M70-230-06	M70-230-07	M70-230-08	M70-230-10	M70-230-12
24	M70-240-05	M70-240-06	M70-240-07	M70-240-08	M70-240-10	M70-240-12
25	M70-250-05	M70-250-06	M70-250-07	M70-250-08	M70-250-10	M70-250-12
26	M70-260-05	M70-260-06	M70-260-07	M70-260-08	M70-260-10	M70-260-12
27	M70-270-05	M70-270-06	M70-270-07	M70-270-08	M70-270-10	M70-270-12
28	M70-280-05	M70-280-06	M70-280-07	M70-280-08	M70-280-10	M70-280-12
29	M70-290-05	M70-290-06	M70-290-07	M70-290-08	M70-290-10	M70-290-12
30	M70-300-05	M70-300-06	M70-300-07	M70-300-08	M70-300-10	M70-300-12
31	M70-310-05	M70-310-06	M70-310-07	M70-310-08	M70-310-10	M70-310-12
32	M70-320-05	M70-320-06	M70-320-07	M70-320-08	M70-320-10	M70-320-12
33	M70-330-05	M70-330-06	M70-330-07	M70-330-08	M70-330-10	M70-330-12
34	M70-340-05	M70-340-06	M70-340-07	M70-340-08	M70-340-10	M70-340-12
35	M70-350-05	M70-350-06	M70-350-07	M70-350-08	M70-350-10	M70-350-12
38	M70-380-05	M70-380-06	M70-380-07	M70-380-08	M70-380-10	M70-380-12

**ShrinkTech® heat resistant insulating tubing for universal use 105°C**


PVC tubing is a flexible flame retardant not heat shrinkable tubing which has excellent electrical and physical performances, and outstanding acid fastness and corrosion resistivity. This tubing is suitable for insulation purpose of electronics, automotive, lead wires of motors and transformers.

**▪ Material:**

PVC

**▪ Colour:**

Black Other colours are available

**▪ Packaging:**

 spool, other cut lengths  
and other diameters are available

**RoHS**

**UV**  
stabilised

**Reach**

Property	Method of test	Value
Temperature class		B
Operating temperature		-15°C - +105°C
Dielectrical strength		16 kV/mm
Density		1.40± 0.03
Hardness		86 ± 3 ShA
Resistance at break		≥ 16 MPa
Elongation at break		≥ 280 %

Article No.	Internal diameter (mm)	Wall thickness (mm)	Spools (m)	Shape
M105-020	2.0	0.4	1000	O
M105-030	3.0	0.5	1000	O
M105-040	4.0	0.5	1000	O
M105-050	5.0	0.5	800	O
M105-060	6.0	0.5	600	O
M105-070	7.0	0.5	500	O
M105-080	8.0	0.5	400	F
M105-090	9.0	0.5	400	F
M105-100	10.0	0.5	250	F
M105-120	12.0	0.6	200	F
M105-140	14.0	0.6	200	F
M105-160	16.0	0.7	100	F
M105-180	18.0	0.7	100	F

# STI 105 UL

ShrinkTech® Insulating tubing for universal use 105°C UL

PVC tubing is a flexible flame retardant heat shrinkable tubing which has excellent electrical and physical performances, and outstanding acid fastness and corrosion resistivity. This tubing is suitable for insulation purpose of electronics, automotive, lead wires of motors and transformers.



▪ **Material:**

PVC

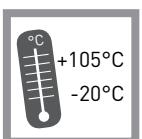
▪ **Colour:**

Black Other colours are available

▪ **Packaging:**

spool, other cut lengths  
and other diameters are available

- Environmental friendly, free from toxic heavy metal compounds
- Flexible
- Good mechanical resistance
- Watertight
- UL 94



Property	Method of test	Value
Temperature class		B
Operating temperature		-15°C - +105°C
Dielectrical strength		16 kV/mm
Density		1.40± 0.03
Hardness		86 ± 3 ShA
Resistance at break		≥ 16 MPa
Elongation at break		≥280 %

Article No.	Internal diameter (mm)	Wall thickness (mm)	Spools (m)	Shape
STI105UL-020	2.0	0.4	200	O
STI105UL-030	3.0	0.5	200	O
STI105UL-040	4.0	0.5	200	O
STI105UL-050	5.0	0.6	200	O
STI105UL-060	6.0	0.6	100	O
STI105UL-070	7.0	0.6	100	O
STI105UL-080	8.0	0.8	100	F
STI105UL-090	9.0	0.9	50	F
STI105UL-100	10.0	0.9	30	F
STI105UL-120	12.0	1.0	30	F
STI105UL-140	14.0	1.0	30	F
STI105UL-160	16.0	1.0	30	F
STI105UL-180	18.0	1.2	30	F

**ShrinkTech® braided fiberglass impregnated sleeving coated with Acril.**  
**Class F electrical insulating sleeving up to 3kV**

This tough abrasion resistant sleeving has good exibility. Electrical properties are maintained after exing. The sleeving is compatible with most insulating varnishes and is capable of short-term operation above its thermal classication. Major users are motor and transformer manufacture.

- Environmental friendly  
ROHS 2011/65/EU
- Good mechanical resistance
- Resistant to hydrocarbons
- Resistant to transformer oil
- Good behaviour with liquid fuels
- Watertight
- 60 Shore A
- Watertight

- **Material:**  
fiberglass with Acril
- **Colour:**  
natural other colour are available
- **Packaging:**  
spool, other cut length are available



Property	Method of test	Value
Heat resistance 48h at + 180°C	IEC 60684 Part 2 Clause 13	No cracking
Flammability	UL 1441	passed
Cold resistance at -40°C	IEC 60684 Part 2 Clause 14	No cracking
Chemical resistance	Simulation of real operating conditions	compatible
Dielectric strength 25 mm. Inst. B / D	UL 1441	>4 kV
Dielectric strength 250 mm. Inst. B / D Lowest Value	IEC 60684	>4 kV
Dielectric strength 250 mm. Inst. B / D Central Value	IEC 60684	>5 kV

Article No.	Internal diameter (mm)	Min. Wall thickness (mm)	Spools (m)	Shape	Nominal Bore + tolerance (mm)
STF-005-AR	0.5	0.2	400	O	0.6 +0.3
STF-008-AR	0.8	0.2	400	O	0.9 +0.3
STF-010-AR	1.0	0.3	400	O	1.1 +0.3
STF-015-AR	1.5	0.3	300	O	1.6 +0.3
STF-020-AR	2.0	0.3	200	O	2.1 +0.3
STF-025-AR	2.5	0.3	200	O	2.6 +0.3
STF-030-AR	3.0	0.4	200	O	3.1 +0.4
STF-035-AR	3.5	0.4	200	O	3.6 +0.4
STF-040-AR	4.0	0.4	200	O	4.1 +0.4
STF-050-AR	5.0	0.4	100	F	5.1 +0.4
STF-060-AR	6.0	0.4	100	F	6.1 +0.4
STF-070-AR	7.0	0.0	100	F	7.1 +0.4
STF-080-AR	8.0	0.5	100	F	8.1 +0.5

\*Size up to 20mm

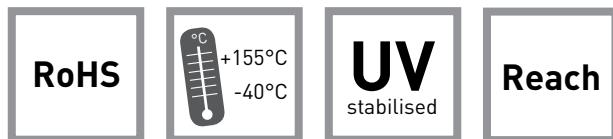
# STF PR

**ShrinkTech® PUR impregnated fiberglass electrical insulated sleeving. Class F**

This tough abrasion resistant sleeving has good flexibility. Electrical properties are maintained after extrusion. The sleeving is compatible with most insulating varnishes and is capable of short-term operation above its thermal classification. Major users are motor and transformer manufacture.



- Environmental friendly  
RoHS 2011/65/EU
- Very flexible
- Reach
- Good mechanical resistance
- Watertight
- UL1441
- Flame retardant
- 60 Shore A
- Resistant to hydrocarbons
- Resistant to transformer oil
- Good behaviour with liquid fuels
- Size up to 14mm
- **Material:**  
fiberglass with PUR
- **Colour:**  
Natural
- **Packaging:**  
spool



Property	Method of test	Value
Heat resistance 48h at + 180°C	IEC 60684 Part 2 Clause 13	No cracking
Flammability	UL 1441	passed
Cold resistance at -40°C	IEC 60684 Part 2 Clause 14	No cracking
Chemical resistance	Simulation of real operating conditions	compatible
Dielectric strength 25 mm. Inst. B / D	UL 1441	>4 kV
Dielectric strength 250 mm. Inst. B / D Lowest Value	IEC 60684	>4 kV
Dielectric strength 250 mm. Inst. B / D Central Value	IEC 60684	>5 kV

Article No.	Internal diameter (mm)	Min. Wall thickness (mm)	Spools (m)	Shape	Nominal Bore + tolerance (mm)
STF-005-PR	0.5	0.2	400	0	0.6 +0.3
STF-008-PR	0.8	0.2	400	0	0.9 +0.3
STF-010-PR	1.0	0.3	400	0	1.1 +0.3
STF-015-PR	1.5	0.3	300	0	1.6 +0.3
STF-020-PR	2.0	0.3	200	0	2.1 +0.3
STF-025-PR	2.5	0.3	200	0	2.6 +0.3
STF-030-PR	3.0	0.4	200	0	3.1 +0.4
STF-035-PR	3.5	0.4	200	0	3.6 +0.4
STF-040-PR	4.0	0.4	200	0	4.1 +0.4
STF-050-PR	5.0	0.4	100	F	5.1 +0.4
STF-060-PR	6.0	0.4	100	F	6.1 +0.4
STF-070-PR	7.0	0.0	100	F	7.1 +0.4
STF-080-PR	8.0	0.5	100	F	8.1 +0.5

This tough abrasion resistant sleeving has good flexibility. Electrical properties are maintained after flexing. The STF-ALSI offers high flexibility in working temperature ranging from -60°C up to +250°C

▪ **Material:**

fiberglass with aluminium silicon rubber

▪ **Colour:**

Grey

▪ **Packaging:**

spool

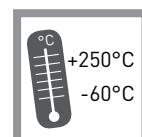
▪ Environmental friendly ROHS 2011/65/EU

▪ Very flexible

▪ Watertight

▪ UL1441

- Resistant to hydrocarbons
- Resistant to transformer oil
- Good behaviour with soldering iron
- Good behaviour with liquid fuels
- Good mechanical resistance
- Self extinguishing
- Size up to 45 mm
- Resistant to transformer oil
- Halogen free
- Flame retardant
- 60 Shore A



Property	Method of test	Value
Heat resistance 4h at + 290 °C	IEC 60684 Part 2 Clause 13	No cracking
Flammability	FMVSS 302	passed
Cold resistance at -60°C	IEC 60684 Part 2 Clause 14	No cracking
Chemical resistance	Simulation of real operating conditions	compatible
Dielectric strength	IEC 60684	>4 kV

Article No.	Internal diameter (mm)	Min. Wall thickness (mm)	Spools (m)	Shape	Nominal Bore + tolerance (mm)
STF-005-ALSI	0.5	0.2	400	O	0.6 +0.3
STF-008-ALSI	0.8	0.2	400	O	0.9 +0.3
STF-010-ALSI	1.0	0.3	400	O	1.1 +0.3
STF-015-ALSI	1.5	0.3	300	O	1.6 +0.3
STF-020-ALSI	2.0	0.3	200	O	2.1 +0.3
STF-025-ALSI	2.5	0.3	200	O	2.6 +0.3
STF-030-ALSI	3.0	0.4	200	O	3.1 +0.4
STF-035-ALSI	3.5	0.4	200	O	3.6 +0.4
STF-040-ALSI	4.0	0.4	200	O	4.1 +0.4
STF-050-ALSI	5.0	0.4	100	F	5.1 +0.4
STF-060-ALSI	6.0	0.4	100	F	6.1 +0.4
STF-070-ALSI	7.0	0.0	100	F	7.1 +0.4
STF-080-ALSI	8.0	0.5	100	F	8.1 +0.5

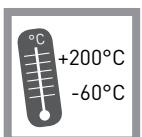
## STF -SIL

**ShrinkTech® fiberglass sleeving coated with Silicon.**  
**Class C electrical insulating sleeving up to 15 kV**

This tough abrasion resistant sleeving has good flexibility. Electrical properties are maintained after flexing. The sleeving is compatible with most insulating varnishes and capable of short term operation above its thermal classification. Major users are motor and transformer manufacture.



- Good mechanical resistance
- Watertight
- Resistant to hydrocarbons
- Resistant to transformer oil
- Good behaviour with liquid fuels
- Size up to 20mm
- Environmental friendly
- ROHS 2011/65/EU
- UL E360058
- Very flexible
- Reach
- Dielectric strength up to 15kV
- Flame retardant



- **Material:**  
fiberglass with silicon coating
- **Colour:**  
red other colour are available
- **Packaging:**  
spool other size are available

Property	Method of test	Value
Heat resistance 48h at + 200°C	IEC 60684 Part 2 Clause 13	No cracking
Flammability	UL 1441	passed
Cold resistance at -60°C	IEC 60684 Part 2 Clause 14	No cracking
Chemical resistance	Simulation of real operating conditions	compatible
Dielectric strength 250 mm. Inst. B / D	UL 1441	>15 kV
Dielectric strength 250 mm. Inst. B / D Lowest Value	IEC 60684	>15 kV

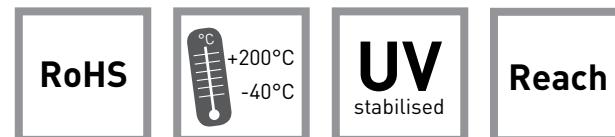
Article No.	Internal diameter (mm)	Min. Wall thickness (mm)	Spools (m)	Shape	Nominal Bore + tolerance (mm)
STF-005-SIL	0.5	0.2	400	0	0.6 +0.3
STF-008-SIL	0.8	0.2	400	0	0.9 +0.3
STF-010-SIL	1.0	0.3	400	0	1.1 +0.3
STF-015-SIL	1.5	0.3	300	0	1.6 +0.3
STF-020-SIL	2.0	0.3	200	0	2.1 +0.3
STF-025-SIL	2.5	0.3	200	0	2.6 +0.3
STF-030-SIL	3.0	0.4	200	0	3.1 +0.4
STF-035-SIL	3.5	0.4	200	0	3.6 +0.4
STF-040-SIL	4.0	0.4	200	0	4.1 +0.4
STF-050-SIL	5.0	0.4	100	F	5.1 +0.4
STF-060-SIL	6.0	0.4	100	F	6.1 +0.4
STF-070-SIL	7.0	0.0	100	F	7.1 +0.4
STF-080-SIL	8.0	0.5	100	F	8.1 +0.5



STF-ALU is a flexible sleeve made of fiberglass braid covered with an aluminum foil. The tube offers a continuous working temperature of -40°C up to +200°C. Its smooth and reflective outer surface provides a very reflective barrier to radiant heat. Used within the automotive sector.

- Environmental friendly
- ROHS 2011/65/EU
- Good mechanical resistance
- Watertight
- Resistant to hydrocarbons
- Resistant to oil
- Size up to 100mm
- Very flexible

- **Material:**  
fiberglass with ALU
- **Colour:**  
Alu
- **Packaging:**  
spool



Property	Method of test	Value
Operating temperature		-40°C - +200°C
Thermal endurance - radiation 6h at 550°C	25mm above radiant heat source	No delamination
Thermal endurance - Aging	Oven aging 1 000h at 200°C	No delamination
Low temperature exibility	4h at -40°C	No delamination
Flammability	FMVSS 302	Self extinguishing
Flammability	D45 1333	Type B
Fluid resistance	D47 1924	No delamination

Article No.	Internal diameter (mm)	Min. Wall thickness (mm)	Spools (m)	Shape	Recommended range of use (mm)
STF-005-ALU	5.0	0.4	400	F	4.0 - 6.0
STF-008-ALU	8.0	0.4	400	F	7.0 - 9.0
STF-011-ALU	11.0	0.4	400	F	10-12
STF-014-ALU	14.0	0.4	300	F	13-15
STF-017-ALU	17.0	0.4	200	F	16-19
STF-021-ALU	21.0	0.4	200	F	20-22
STF-024-ALU	24.0	0.4	200	F	23-25
STF-028-ALU	28.0	0.4	200	F	26-31
STF-035-ALU	35.0	0.4	200	F	32-38
STF-045-ALU	45.0	0.4	200	F	40-50
STF-070-ALU	70.0	0.4	100	F	65-75
STF-095-ALU	95.0	0.4	100	F	90-100

## SBPA

### ShrinkTech® expandable braided sleeve

PA is suited for the mechanical protection of wire harnesses, hoses and all other applications where exceptional flexibility combined with superior abrasion/cut resistance is required. It also serves as an economical means for wire bundling that will not trap heat or moisture, expanding over irregular shapes, and then contracting to conform and grip..



- Environmental friendly,
- Expanded up to 300%
- Halogen-free
- Flexible
- UL225 WV-1

- **Material:**  
PA 6.6
- **Colour:**  
black, grey
- **Packaging:**  
spools



Property	Method of test	Value
Operating temperature		-50°C +125°C
Peak temperature		+220°C
Melting point		+250°C
Tensile Strength		100,000 PSI
Fammability	UL 224 V W -1	Low Smoke
Expanded		up to 300%
Smoke toxicity		Halogen free
Chemical		Unaffected by most chemicals

Article No.	Internal diameter (mm)		Spool length (m)	Shape
	Min diameter	Max. diameter		
SBPA-040	3	6	200	O
SBPA-050	4	8	200	O
SBPA-080	5	10	200	O
SBPA-100	7	12	100	O
SBPA-120	8	14	100	O
SBPA-160	12	18	100	F
SBPA-200	15	23	100	F
SBPA-250	18	28	50	F
SBPA-300	25	32	50	F
SBPA-400	30	44	50	F
SBPA-500	40	55	50	F
SBPA-600	50	65	50	F



Due to its expandable nature, PET's unique braided construction enables quick and easy installation over large connectors. Possible applications include wires, harnesses, cables, hoses, springs, rods, and chains. It is readily used in the automotive, computer, industrial, scuba, electronics, wire harness, A/V industries and the army.

- Environmental friendly
- Expanded up to 300%
- Halogen-free
- Flexible
- UL225 WV-1

▪ **Material:**

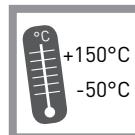
PET

▪ **Colour:**

black, grey

▪ **Packaging:**

spools




Property	Method of test	Value
Operating temperature		-50°C +150°C
Peak temperature		+175°C
Melting point		+250°C
Tensile Strength		100,000 PSI
Flammability	UL 224 VW -1	Low Smoke
Expanded		up to 300%
Smoke toxicity		Halogen free
Chemical		Unaffected by most chemicals

Article No.	Internal diameter (mm)		Spool length (m)	Shape
	Min diameter	Max. diameter		
SBPE-103	1	5	200	O
SBPE-104	2	7	200	O
SBPE-105	3	9	200	O
SBPE-106	4	11	100	O
SBPE-108	5	12	100	O
SBPE-110	7	15	100	F
SBPE-112	8	17	100	F
SBPE-115	10	21	100	F
SBPE-120	14	27	100	F
SBPE-125	18	34	100	F
SBPE-130	28	47	100	F
SBPE-140	35	64	100	F
SBPE-150	45	75	100	F

# SPPS

## SPPS expandable sleeving

ShrinkTech's SPPS expandable braided sleeving is made of PolyPhenylene Sulfide PPS monofilament UL94 V-0. It is commonly used in high temperature environments. It has high abrasion resistance, chemical resistance, high temperature stability, low moisture absorption, excellent dimensional stability.



- Other features  
Acids, solvents and fuels  
resistant
- Operating range  
-70°C+200°C
- Melt point  
285°C±10°C
- Flammability UL94 V-0

- **Material**  
PPSPolyphenylene sulfide
- **Standard color**  
Black and natural
- **Cutting tool**  
Hot Knife
- **Packaging**  
Spool



Article No.	Nominal size (mm)	Expanded range (mm)		Standard spool
		Min.I	Max. O	
SPPS-003	3	1	6	1000 m
SPPS-006	6	3	9	500 m
SPPS-008	8	5	16	350 m
SPPS-010	10	7	19	350 m
SPPS-012	12	8	24	300 m
SPPS-016	16	10	27	250 m
SPPS-019	19	14	30	200 m
SPPS-025	25	18	35	200 m
SPPS-032	30	20	50	150 m
SPPS-038	40	30	60	100 m
SPPS-045	45	35	75	100 m
SPPS-050	50	40	80	100 m
SPPS-064	64	45	105	100 m
SPPS-076	76	64	120	100 m



ShrinkTech's SCW self-closing wrap is a non-expandable sleeving woven from monofilament weft and multifilament warp polyester yarns. It provides a lightweight, cost-effective and tough solution for the protection of a wide range of components. Its inherent flexibility allows it to bend, coil and conform to irregular shapes, while its open design allows it to be installed on completed assemblies.

▪ **Material**

Polyester monofilament and multifilament

▪ **Standard colour**

Black

▪ **Cutting tool**

Hot knife

▪ **Packaging**

Spool

▪ **Operating range**

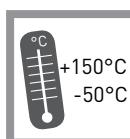
-50°C - +150°C

▪ **Melt point**

240±10°C

▪ **Flammability**

DIN5510, BS6853



Article No.	Size (d) (mm)	Max. bundle Dia. (mm)	Length (m)
SCW-005	5.0	6.0	100 m
SCW-008	8.0	9.0	100 m
SCW-010	10.0	11.0	100 m
SCW-013	13.0	14.0	50 m
SCW-016	16.0	17.0	25 m
SCW-019	19.0	20.0	25 m
SCW-025	25.0	27.0	25 m
SCW-029	29.0	31.0	25 m
SCW-032	32.0	34.0	25 m
SCW-038	38.0	40.0	25 m
SCW-050	50.0	52.0	25 m

# SHS

## Heat shrinkable braided sleevein

ShrinkTech's SHS heat shrinkable braided sleeving consist of polyester multifilament and special modified polyolefin filament, it will shrink when expose to heat source, this unique woven construction makes it extremely flexible, easy to install on the hoses with irregular shapes. Suitable used in rough environments, providing excellent abrasion resistance and noise reduction.

- |                          |                         |
|--------------------------|-------------------------|
| ▪ Shrinkable ratio       | ▪ <b>Material</b>       |
| 1.7:1                    | Silicone                |
| ▪ Operating range        | ▪ <b>Standard color</b> |
| -50°C~+200°C             | black and grey          |
| ▪ Longitudinal shrinkage | ▪ <b>Packaging</b>      |
| 5%                       | spool                   |
| ▪ Flammability           |                         |
| VW-1                     |                         |
| ▪ Tool                   |                         |
| Heat gun,oven            |                         |



Article No.	As.supplied (mm)		After recovery (mm)		Packaging Spool (m)
	I.D.	Wallthickness	I.D.	Wallthickness	
SHS-001	1.0	0.80±0.15	≤0.6	1.1±0.15	200
SHS-002	2.0	0.80±0.15	≤1.2	1.1±0.15	200
SHS-003	3.0	0.80±0.15	≤1.8	1.1±0.15	200
SHS-004	4.0	0.80±0.15	≤2.5	1.1±0.15	200
SHS-005	5.0	0.80±0.15	≤3.0	1.1±0.15	100
SHS-006	6.0	0.80±0.15	≤3.8	1.1±0.15	100
SHS-007	7.0	0.80±0.15	≤4.0	1.1±0.15	100
SHS-008	8.0	0.80±0.15	≤4.8	1.1±0.15	100
SHS-009	9.0	0.80±0.15	≤5.0	1.1±0.15	100
SHS-010	10.0	1.50±0.15	≤6.5	2.5±0.15	50
SHS-012	12.0	1.50±0.15	≤7.0	2.5±0.15	50
SHS-015	15.0	1.50±0.15	≤9.0	2.5±0.15	50
SHS-020	20.0	1.50±0.15	≤13.0	2.5±0.15	25
SHS-025	25.0	1.50±0.15	≤15.0	2.5±0.15	25
SHS-030	30.0	1.50±0.15	≤18.0	2.5±0.15	25
SHS-035	35.0	1.50±0.15	≤20.0	2.5±0.15	25
SHS-040	40.0	1.50±0.15	≤25.0	2.5±0.15	25



ShrinkTech's SKS consist of exceptional carbon fiber yarn that allows an amazing strength, high thermal resistance and extreme lightweight. Our carbon fiber sleeving will form itself to accommodate uneven or asymmetrical surfaces while providing full radial stability and torsional strength.

**▪ Material**

Carbon fiber

**▪ Standard colour**

Black

**▪ Packaging**

Spool

**▪ Others features**

Conductive character

**▪ Cutting tool**

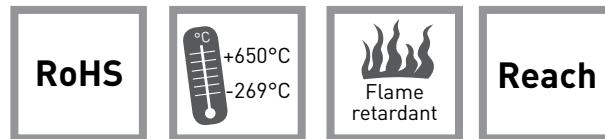
Scissors

**▪ Operating range**

-269°C--+650°C

**▪ Flammability**

VW-1



Article No.	Nominal size (mm)	Expanded range (mm)	Spool (m)
SKS-003	3.0	1-4	500l
SKS-006	6.0	5-8	300
SKS-008	8.0	6-10	250
SKS-010	10.0	7-13	250
SKS-012	12.0	8-16	200
SKS-015	15.0	10-20	200
SKS-020	20.0	14-26	150
SKS-025	25.0	18-33	150
SKS-030	30.0	20-39	100
SKS-040	40.0	30-52	100
SKS-050	50.0	40-65	100

## STC6

### ShrinkTech® polyamid corrugated tube

Mechanic equipment and machine production, aviation and aerospace industries, and electrical installation panel, automotiv sector.

- Enviromental friendly, free from toxic and heavy compounds
- Resistant to oil and benzin up to 100°C
- Resistant to solvent and low acid
- UL 94 on compound
- Flame retardant
- Abrasion resistant
- High exibility and high fatigue life
- High impact strength 350N



▪ **Material:**

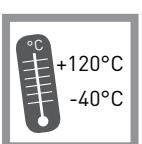
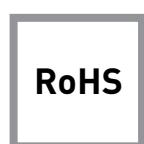
polyamid 6

▪ **Colour:**

black, other colour are available on request

▪ **Packaging:**

spools



Article No.	Diameterer (mm)		Nominal diameterer (mm)	Spools	Shape
	Inside	Outside			
STC6-01	6.5	10.0	7.0	100	0
STC6-02	8.5	12.0	8.5	100	0
STC6-03	10.0	13.0	9.0	100	0
STC6-04	12	15.8	11.0	50	0
STC6-05	14.2	18.4	13.6	50	0
STC6-06	16.5	21.2	16.0	50	0
STC6-07	23.0	28.4	21.0	50	0
STC6-08	29.0	34.5	29.0	25	0
STC6-09	36.0	42.5	36.0	25	0
STC6-10	48.0	54.5	48.0	25	0



Mechanic equipment and machine production, aviation and aerospace industries, and electrical installation panel, automotiv sector.

- Enviromental friendly, free from toxic and heavy compounds
- Resistant to solvent and low acid
- UL 94 on compound
- Flame retardant
- Abrasion resistant
- UV resistant
- High exibility and high fatique life

- **Material:**  
Polypropylene
- **Colour:**  
black
- **Packaging:**  
spools



Article No.	Diameterer (mm)		Nominal diameterer (mm)	Spools	Shape
	Inside	Outside			
STCPP-01	6.5	10.0	7.0	100	0
STCPP-02	8.5	12.0	8.5	100	0
STCPP-03	10.0	13.0	9.0	100	0
STCPP-04	12	15.8	11.0	50	0
STCPP-05	14.2	18.4	13.6	50	0
STCPP-06	16.5	21.2	16.0	50	0
STCPP-07	23.0	28.4	21.0	50	0
STCPP-08	29.0	34.5	29.0	25	0
STCPP-09	36.0	42.5	36.0	25	0
STCPP-10	48.0	54.5	48.0	25	0

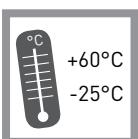
# STC-PVC

ShrinkTech® PVC corrugated tube for building industry

Four-digit code species the quality of the tube and hence indicates the field of application.



- Environmental friendly, free from toxic and heavy compounds
- Self-extinguishable PVC
- They can be installed in all degree of flammability from A-C3.
- EN 61386 ed.2:09
- High flexibility and high fatigue life
- High impact strength 320N and 750N



- **Material:**  
PVC
- **Colour:**  
dark grey, light grey
- **Packaging:**  
spools

Article No.	Diameterer (mm)		Spools (m)	Strength (N)
	Inside	Outside		
STCPVC-01	16.0	10.7	25/50/100	320
STCPVC-02	20.0	14.1	25/50/100	320
STCPVC-03	25.0	18.0	25/50/100	320
STCPVC-04	32.0	24.3	25/50/100	320
STCPVC-05	16.0	10.7	25/50/100	750
STCPVC-06	20.0	14.1	25/50/100	750
STCPVC-07	25.0	18.0	25/50/100	750
STCPVC-08	32.0	24.3	25/50/100	750

## Corrugated tubes with pilot

Article No.	Diameterer (mm)		Spools (m)	Strength (N)
	Inside	Outside		
STCPVC-01P	16.0	10.7	25/50/100	320
STCPVC-02P	20.0	14.1	25/50/100	320
STCPVC-03P	25.0	18.0	25/50/100	320
STCPVC-04P	32.0	24.3	25/50/100	320
STCPVC-05P	16.0	10.7	25/50/100	750
STCPVC-06P	20.0	14.1	25/50/100	750
STCPVC-07P	25.0	18.0	25/50/100	750
STCPVC-08P	32.0	24.3	25/50/100	750

Due to the high reactivity of their bright aluminium surfaces the heat protection products are much more resistant to radiation exposure. Depending on the installation conditions the temperature of the radiation source can be multiple times higher than the above-mentioned temperatures e.g. 700°C - 800°C. Tube construction: 3-layered grooved heat protection tube, glass fabric, aluminium.

- Environmental friendly, free from toxic and heavy compounds
- Flexible



Property	Value
Length	in cut lengths or in coils of up to 20 m
Tolerances length	up to 400 mm ±5 mm, more than 400 mm ±1%
Number of corrugations	min.400 C/m
Bending radius based on the neutral line	approx. 1.5xID
Temperature resistance	-40 °C up to +250 °C
Test Conditions	-40 °C, 4 hours +250 °C, 48 hours

Article No.	Internal diameter (mm)		Wall thickness (mm)	Tolerance (mm)
	Min.as supplied	Tolerance		
STC-AL-01	8	0.6	1.1	0.3
STC-AL-02	10	0.6	1.2	0.3
STC-AL-03	12	0.6	1.2	0.3
STC-AL-04	14	0.6	1.3	0.3
STC-AL-05	18	0.6	1.6	0.3
STC-AL-06	20	0.8	1.6	0.3
STC-AL-07	22	0.8	1.6	0.3
STC-AL-08	24.5	0.8	1.6	0.3
STC-AL-09	26	0.8	1.6	0.3
STC-AL-10	28	0.8	1.6	0.3
STC-AL-11	30	0.8	1.6	0.3
STC-AL-12	32	0.8	1.6	0.3
STC-AL-13	34	0.8	1.6	0.3
STC-AL-14	36	0.8	1.7	0.3
STC-AL-15	38.5	0.8	1.7	0.3
STC-AL-16	40	0.8	1.7	0.3

## LKT

Non shrink tube. Exceptional dielectric strength and performance at high temperatures.

Multilayered precision wound protective tube made from DuPont™ Kapton® film. LKT Non-Shrink Tube is ultra-stable and maintains its dielectric strength at high temperatures. It is suited to applications where an ultra-thin walled electrically insulating tube is required to perform at high temperatures.



- DuPont™ Kapton® HN construction provides excellent mechanical properties and performance at high temperatures
- Available with internal diameters from 1.60mm to 210.00mm, with wall thicknesses as fine as 0.028mm
- Suitable for Class H applications and temperatures up to 250°C depending on application
- UL recognised DuPont™ Kapton® film construction maintains high dielectric strength (25µm thickness 276V/µm) and dimensional stability at high and low temperatures
- Wall thicknesses available from 0.028mm
- Maintains dielectric strength when exposed to radiation

Property	Typical Value - 1 mil (25 µm) lm			Test Condition	Test Method
	-195°C	25°C	200°C		
Dielectric strength (kV)	10.8	7.0	5.6	60 cycles	ASTM D 149-64
Volume resistivity	-	1016 ohm/m	10 <sup>12</sup> ohm/m	-	ASTM D 257-61
Corona start voltage	-	465 volts	-	50% Relative Humidity	ASTM D 1868-61T

Property	Typical Value - 1 mil (25 µm) lm			Test Method
	-195°C	25°C	200°C	
Ultimate tensile strength (MD) kg/cm <sup>2</sup> MPa	2450 241	1750 172	1200 117	ASTM D 882-64T
Yield point (MD) kg/cm <sup>2</sup> MPa	-	700 69	420 41	ASTM D 882-64T
Stress to produce 5% elongation (MD) kg/cm <sup>2</sup> MPa	-	910 90	600 59	ASTM D 882-64T
Ultimate elongation (MD) %	2	70	90	ASTM D 882-64T
Tensile modulus (MD) kg/cm <sup>2</sup> MPa	35800 3500	30000 2950	18200 1800	ASTM D 882-64T
Impact strength (D) kg/cm N/m	-	6 0.6	-	DuPont™ Pneumatic Impact Test

Property	Typical Value - 1 mil (25 µm) lm		Test Condition	Test Method
Zero strength temperature	815°C		1.4 kg/cm <sup>2</sup> (138 kPa) load for 5 secs	Hot Bar (DuPont™ Test)
Flammability	Self-extinguishing		-	-
Property	0.130mm	0.180mm	Test Condition	Test Method
Dielectric strength (kV/mm)	12	12	AC Rapid Rise	ASTM D149
Dielectric constant	1.3	1.3	10 <sup>3</sup> Hz	ASTM D150
Dissipation factor	0.005	0.005	10 <sup>3</sup> Hz	ASTM D150

## Non-shrink end caps with Varnish



Multilayered precision wound protective end cap made from DuPont™ Kapton® film and Nomex®. Designed for use in varnish impregnated electrical motors, LKTC end caps maintain electrical resistivity, dimensional stability and strength at high temperatures and in the most demanding applications. Sonic welded seal is chemically resilient and further contributes to the robustness and reliability of the eventual product.

- An effective component: consistently easy to apply
- Mechanical and dielectric performance improves with varnish impregnation
- Unique 5 layer DuPont™ Nomex® grade 411 and Kapton® HN construction provides excellent mechanical and dielectric strength
- Available with internal diameters from 2.00mm
- Suitable for Class H applications and temperatures up to 180°C
- Constructed from UL recognised materials
- Maintains dielectric mechanical and cut-through strength across applications

Property	Typical Value - 1 mil (25 µm) lm			Test Condition	Test Method
	-195°C	25°C	200°C		
Dielectric strength (kV)	10.8	7.0	5.6	60 cycles	ASTM D 149-64
Volume resistivity	-	1016 ohm/m	10 <sup>12</sup> ohm/m	-	ASTM D 257-61
Corona start voltage	-	465 volts	-	50% Relat. Humidity	ASTM D 1868-61T

Property	Typical Value - 1 mil (25 µm) lm			Test Method
	-195°C	25°C	200°C	
Ultimate tensile strength (MD) kg/cm <sup>2</sup> MPa	2450 241	1750 172	1200 117	ASTM D 882-64T
Yield Point (MD) kg/cm <sup>2</sup> MPa	-	700 69	420 41	ASTM D 882-64T
Stress to produce 5% elongation (MD) kg/cm <sup>2</sup> MPa	-	910 90	600 59	ASTM D 882-64T
Ultimate elongation (MD) %	2	70	90	ASTM D 882-64T
Tensile modulus (MD) kg/cm <sup>2</sup> MPa	35800 3500	30000 2950	18200 1800	ASTM D 882-64T
Impact strength (D) kg/cm N/m	-	6 0.6	-	DuPont™ Pneumatic Impact Test

Property	Typical Value - 1 mil (25 µm) lm		Test Condition	Test Method
Zero strength temperature	815°C		1.4 kg/cm <sup>2</sup> (138 kPa) load for 5s	Hot Bar (DuPont™ test)
Flammability	Self-extinguishing		-	-
Property	0.130mm	0.180mm	Test Condition	Test Method
Dielectric strength (kV/mm)	12	12	AC rapid rise	ASTM D149
Dielectric constant	1.3	1.3	10 <sup>3</sup> Hz	ASTM D150
Dissipation factor	0.005	0.005	10 <sup>3</sup> Hz	ASTM D150

## LKF

### Non-shrink tube. FEP and polyimide perform in demanding applications.

LKF non-shrink tube is a precision wound protective tube and insulator made from DuPont™ Kapton® film, coated with Teflon FEP®. Teflon® FEP coated Kapton® Tube maintains its electrical resistivity, dimensional stability and strength at high temperatures and in the most demanding applications.

LKF non-shrink tube is particularly suitable for use where very thin sections of insulating tube must maintain high dielectric and mechanical strength at operating temperatures of up to 200°C and where resistance to moisture is needed. Glueless welded construction ensures that only FEP and polyimide are present in the product.

- DuPont™ Kapton® core provides excellent mechanical properties and performance at high temperatures
- DuPont™ Teflon® FEP coating resists moisture, chemical and solvent attack
- Maintains dielectric strength and dimensional stability at high temperatures
- Construction is suitable for Class H applications and temperatures up to 200°C
- Available with internal diameters from 1.60mm, with wall thicknesses as fine as 0.075mm
- Entirely constructed from UL recognised materials
- No-glue construction is chemically stable and will not precipitate material into its environment, regardless of temperature or moisture
- Tubes of any diameter and length can be supplied with a variety of film and coating thicknesses to match detailed requirements for physical properties

### Film Construction Properties Kapton® FN

Thickness Kapton® HN mm	0.0127	0.0254	0.0508	0.0508
Property	Thickness FEP mm	0.0127	0.0127	0.0127
Dielectric strength				
Total volts		6,300	4,000	11,400
volts/mil	4,000	4,200		3,800
Dissipation constant	-	3.0	-	3.1
Dissipation factor	-	.0014	-	.0011
Volume resistivity (ohm-cm.)				
25°C	1017	1018	7x1017	8x1017
200°C	-	1014	-	9x1013
Ultimate tensile				
Strength (MD) (psi)				
25°C	15,000	17,000	25,000	17,000
200°C	10,000	11,000	16,000	11,000
Yield point (MD) at 3% (psi)				
25°C	6,000	7,300	10,000	7,300
200°C	5,000	4,000	8,000	4,000
Ultimate				
Elongation (MD)				
25°C	50%	75%	80%	>80%
200°C		85%		
Weight % Polyimide	40	57	73	57
Weight % FEP	60	43	27	43
Density	1.79	1.67	1.57	1.67



- Available with internal diameters from 2.00mm to 200.00mm
- Sizes available include a variety of wall thicknesses, from 0.105mm to 0.80mm
- Tube may be supplied in white with a coloured line for identification purposes
- Constructed from UL recognised material
- DuPont™ Nomex® construction is suitable for Class H applications and temperatures up to 180°C

Precision wound insulator provides heat and chemical resistance. Multilayered precision wound protective tube made from grade 410 DuPont™ Nomex® calendered aramid paper. LNT Non-Shrink Tube maintains its resistive properties, shape, cut through and tear-strength at high temperatures.

LNT non-shrink tube is suitable for protecting wiring and connection in electric motors, in aerospace and automotive applications. Consistent characteristics and ease of application give manufacturers a cost efficient means to boost the mechanical reliability of electrical systems. It is also used as bolt insulation in the oil and gas and chemical industries.

- DuPont™ Nomex® calendered construction maintains high dielectric strength (10mil retains 780V/mil at 96% humidity)
- Resists chemical and solvent attack
- Available to match metric or imperial bolt sizes
- Construction using 0.05mm, 0.08mm or 0.125mm aramid paper to suit the application at hand

Property of Base Material	50µm (2 mil)	75µm (3 mil)	125µm (5 mil)	Test Method
Dielectric strength (AC Rapid Rise) (V/mil)	430	550	680	ASTM D149*
Dielectric constant at 60Hz	1.6	1.6	2.4	ASTM D3426
Weight g/m2	41	63	116	ASTM D646
Density [g/cc]	0.72	0.08	0.13	
Tensile strength (newtons/cm)				
Along machine direction (MD)	39	65	137	ASTM D828
Across machine direction (TD)	18	32	66	
Elongation Before Failure (%)	Oven Dry	50%	96%	Test Method
DuPont™ Nomex® grade 410 - 0.25mm				
Dielectric strength (AC rapid rise) kV/mm (V/mil)	33.5 (850)	32.1 (815)	30.7 (780)	ASTM D149
Dielectric constant				
at 60Hz	2.5	2.7	3.2	ASTM D150
at 1KHz	2.3	2.6	3.1	
Volume Resistivity (ohm/cm)	6x1016	2x1016	2x1014	ASTM D257

## LMNT

Non shrink tube. Flexible technology for robust insulation.

LMNT non-shrink tube prevents line failures in electric motors by securing and insulating wiring and electrical connections. Easy, slide-on fitting provides robust mechanical and electrical protection, both in production and in use.



LMNT non-shrink tube maintains high dielectric strength and cut through resistance in the most demanding Class F applications. Consistent characteristics and ease of application give manufacturers a proven, cost efficient means to boost the mechanical and electrical reliability of a wide range of products.

- Superb dielectric and cut through strength across operating temperatures
- Robust DuPont™ Mylar® and Nomex® grade 410 construction
- Suitable for Class F applications and operating temperatures of 155°C in continuous use
- Flexible technology can be applied to almost any insulation problem
  
- Constructed from UL recognised material
- Available with internal diameters from 2.00mm to 200.00mm
- A comprehensive range of wall thicknesses is available to match virtually any insulation application
- Tight manufacturing tolerances and product resilience suits bulk process engineering environments

### Performance data for DuPont™ Nomex® Grade 410

Property of Base Material	50µm (2 mil)	75µm (3 mil)	125µm (5 mil)	Test Method
Dielectric strength (AC rapid rise) (V/mil)	430	550	680	ASTM D149*
Dielectric constant at 60Hz	1.6	1.6	2.4	ASTM D3426
Weight g/m <sup>2</sup>	41	63	116	ASTM D646
Density [g/cc]	0.72	0.08	0.13	
Tensile strength (newtons/cm)				
Machine direction (MD)	39	65	137	ASTM D828
Transverse direction (TD)	18	32	66	
Elongation before Failure (%)				
MD	9	11	15	ASTM D828
TD	6	8	12	

Custom made caps in all dimensions. This is FlexOcap line of flexible insulating caps. FlexOcap can be produced in any dimension, wall thickness and length and colors. Ideal for long lasting insulation and protection of cable end and splices as well. Made from soft PVC for economical, quick and easy solution. No tools are needed for installation.

Recommended for cable size 1,5-400mm<sup>2</sup>.



▪ **Material:**

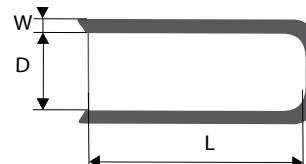
PVC ShoreA 40-70

▪ **Colour:** Black or grey (Art.no. with -Gr) other colour available on request

▪ **Packaging:**

PCS

- Easy and very flexible system of end closing
- Available in nearly every diameter, length, wall thickness
- Environmental friendly
- In special form are available on request



Article No.	Plastic internal diameter (mm)	Wall thickness (mm) +/- 20%	Length +/- 2 (mm)	MOQ (pcs)
STEC-025-F	2.5	0.75	3.0 - 40.0	10000
STEC-040-F	4.0	0.75	3.0 - 40.0	10000
STEC-050-F	5.0	1.0	5.0 - 70.0	10000
STEC-060-F	6.0	1.3	5.0 - 70.0	5000
STEC-070-F	7.0	1.3	5.0 - 70.0	5000
STEC-080-F	8.0	1.5	5.0 - 70.0	5000
STEC-100-F	10.0	1.5	5.0 - 70.0	5000
STEC-120-F	12.0	1.5	5.0 - 70.0	5000
STEC-150-F	15.0	1.5	5.0 - 70.0	5000
STEC-180-F	18.0	1.5	5.0 - 70.0	5000
STEC-200-F	20.0	1.5	5.0 - 70.0	5000
STEC-250-F	25.0	1.5	5.0 - 70.0	1000
STEC-300-F	30.0	1.8	5.0 - 70.0	1000
STEC-350-F	35.0	1.8	5.0 - 70.0	1000
STEC-400-F	40.0	1.9	5.0 - 70.0	1000
STEC-450-F	45.0	2.0	5.0 - 70.0	1000
STEC-500-F	50.0	2.0	5.0 - 70.0	500
STEC-600-F	60.0	2.0	5.0 - 70.0	500
STEC-700-F	70.0	2.1	5.0 - 70.0	500

# STSL

## ShrinkTech® silicone tube

The silicone tube can be used in a wide range of temperatures. It preserves flexibility in extremely low and high temperature as well.

ideal for application where the temperature is continuously high during operation. Recommended for electrical industry. It's available with or without talcum.

We can make sizes up to 25mm

- Environmental friendly, free from toxic and heavy compounds
- Resistant to solvent and low acid
- Flame retardant
- Very flexible
- Extremely temperature resistant
- 60 shore A
- Temperature range up to 260°C
- Different sizes and wall thickness are available on request

- **Material:**  
silicone
- **Colour:**  
transparent other colour are available on request
- **Packaging:**  
spools



Article No.	Diameter (mm)		Wall thickness (mm)	Spools	Shape
	Inside	Outside			
STSL-005	0.5	1.5	0.5	500	0
STSL-010	1.0	3.0	1.0	500	0
STSL-015	1.5	2.5	0.5	500	0
STSL-020	2.0	3.0	0.5	200	0
STSL-030	3.0	4.0	0.5	200	0
STSL-040	4.0	5.0	0.5	200	0
STSL-050	5.0	6.0	0.5	100	0
STSL-060	6.0	7.0	0.5	100	0
STSL-070	7.0	8.0	0.5	100	0
STSL-080	8.0	9.0	0.5	100	0

Provide a low-friction, non-stick surface suitable for use as machining stock for all kinds of chemical, electrical and mechanical components where the outstanding performance characteristics of PTFE are required.

Other applications include seals, gaskets and numerous machined components and products. Various fillers are available to modify the properties of PTFE to meet application requirements.

▪ **Material:**

PTFE

▪ **Colour:**

white, other colour are available on request

▪ **Packaging:**

PCS

- Excellent electrical characteristics
- Good chemical resistance
- Weathering resistance
- Environmental friendly
- Anti-adhesive
- Dielectric superiority



Diameter (mm)	Length (mm)	Length (mm)
1, 2, 3, 4,	endless on reel	
5, 6, 7, 8, 10, 12, 15, 16, 18, 20, 25, 28, 30, 32, 35, 40,	1000	2000
45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100,	1000	2000
110, 120, 130, 140, 150, 160, 170, 180, 190, 200,	1000	2000
210, 220, 230, 240, 250, 260, 270, 280, 300,	300	-
310, 320, 330, 340, 350, 360, 370, 380, 390, 400,	100	-
410, 420, 440, 450, 460, 470, 480, 490, 500,	100	-

## STFE-S

### ShrinkTech® PTFE sheet

Molded PTFE sheets provide a low-friction, non-stick surface suitable for use in high-temperature and high-dielectric applications. This item is available in cut-to-size sheets and can be supplied etched one-side, etched two-side, or with a self-adhesive acrylic backing (pressure sensitive tape).

Molded sheets are available in thicknesses ranging from 3/16 inches to 9 inches. Standard sizes can be produced in the following dimensions:

- Excellent electrical characteristics
- Good chemical corrosion resistance
- Weathering resistance
- Environmental friendly
- Anti-adhesive
- Dielectric superiority

- **Material:**  
PTFE
- **Colour:**  
white, other colour are available on request
- **Packaging:**  
PCS



Thickness (mm)	Size (mm)				
	1000x1000	1200x1200	1500x1500	1800x1800	2000x2000
2.0	✓	✓	✓	✓	-
3.0	✓	✓	✓	-	-
4.0	✓	✓	✓	✓	✓
5.0	✓	✓	✓	✓	✓
6.0	✓	✓	✓	✓	✓
8.0	✓	✓	✓	✓	✓
10.0	✓	✓	✓	✓	✓
15.0	✓	✓	✓	✓	✓
20.0	✓	✓	✓	✓	✓
25.0	✓	✓	✓	✓	✓
30.0	✓	✓	✓	✓	✓
40.0	✓	✓	✓	✓	✓
50.0	✓	✓	✓	✓	✓
60.0	✓	✓	✓	✓	✓
70.0	✓	✓	✓	✓	✓
80.0	✓	✓	✓	-	-

ShrinTech® PTFE tubing has the outstanding properties of PTFE offering excellent chemical resistance, high temperature resistance, excellent electrical insulation and low friction.

Tubing is the optimum method to offer a protective jacket for applications in extreme environments of heat, corrosion, shock and moisture. UL224 E360058

▪ **Material:**

PTFE

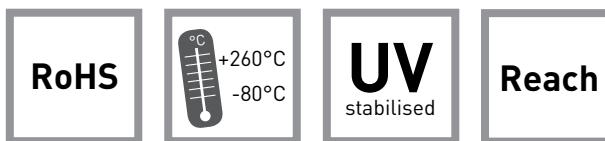
▪ **Colour:**

transparent, other colour are available on request

▪ **Packaging:**

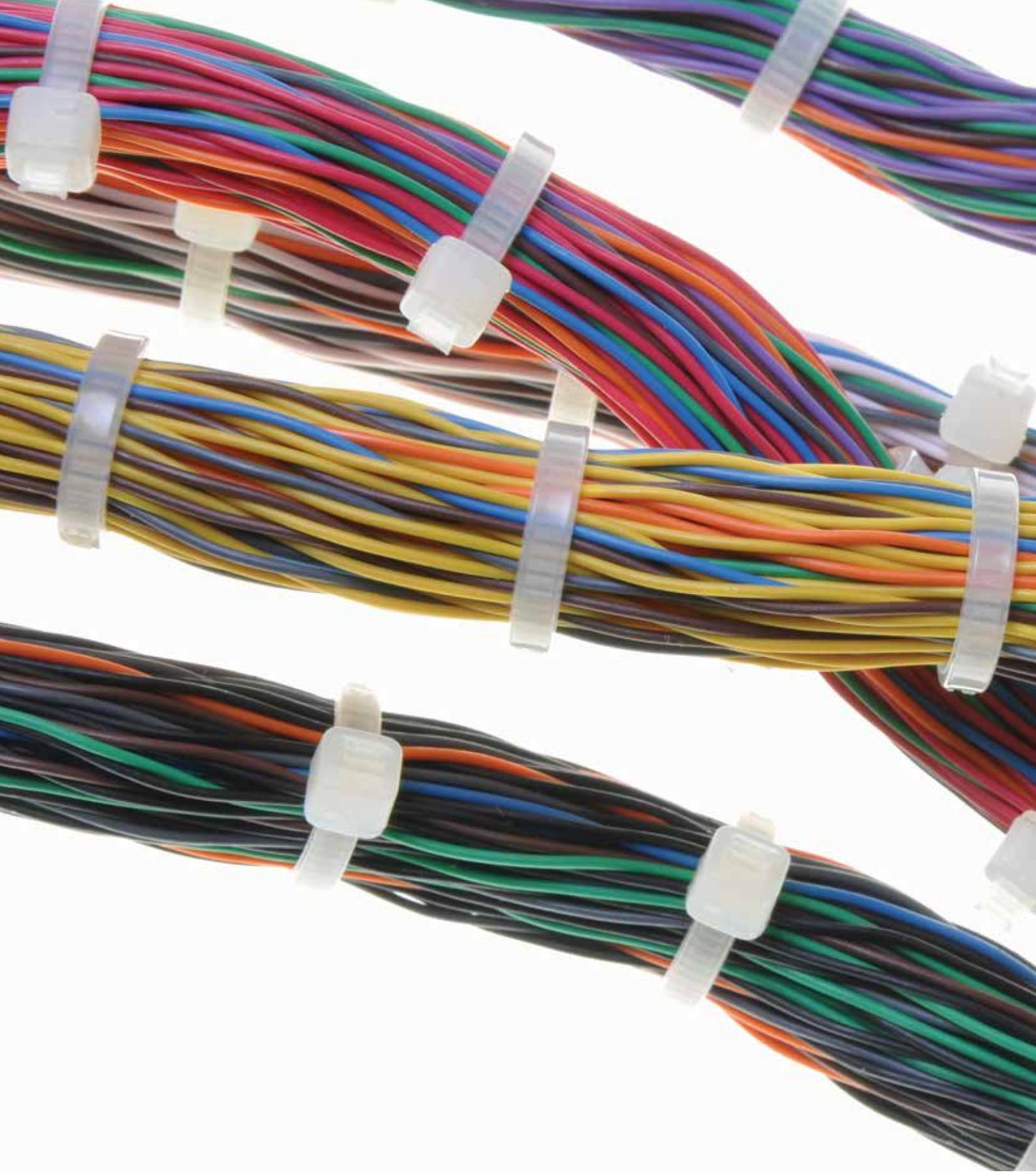
PCS

- Excellent electrical characteristics
- Good chemical corrosion resistance
- Weathering resistance
- Environmental friendly
- Anti-adhesive
- Dielectric superiority



Property	Method of test	Value
UL rated temperature	UL 224	-80°C to +200°C
Operating temperature		up to +260°C
Flammability	UL 224	VW-1
Elongation at break after ageing	ASTM D 638 250°C /168hrs	min.350%
Water absorption	ASTM D 570	0.01% max.
Solvent resistance	ASTM D 543	no change no properties
Dielectric strength	UL 224 (60s)	2.5kV
Volume resistance	ASTM D 256	min. 10 <sup>18</sup> Ω.cm
Tensile strength	ASTM D 638	24.5 MPa
Specific gravity	ASTM D 792	2.16 g/cm <sup>3</sup>
Rated voltage	UL224	600V
Flexural modulus	ASTM D 790	490MPa
Hardness (Shore D)	ASTM D 2240	55
Dielectric constant at 10 <sup>3</sup> - 10 <sup>6</sup> Hz	ASTM D 150	2.1

Article No.	Diameterer (mm)		Wall thickness (mm)	Spools	Shape
	Inside	Outside			
STFE-018	1.07	1.67	0.3	500	0
STFE-016	1.34	1.94	0.3	500	0
STFE-014	1.68	2.28	0.3	500	0
STFE-012	2.16	2.76	0.3	200	0
STFE-010	2.69	3.29	0.3	200	0
STFE-008	3.38	4.18	0.4	200	0
STFE-006	4.22	5.02	0.4	100	0
STFE-004	5.28	6.08	0.4	100	0
STFE-002	6.68	7.48	0.4	100	0
STFE-000	8.38	9.18	0.4	100	0





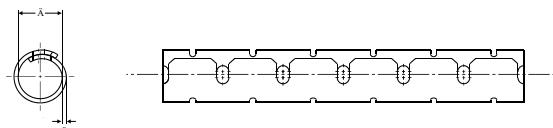
**CABLE TIE PRODUCTS**

## Cable tie product list

Name	Description	Material	Temperature	Page
<b>SSE</b>	Spiral wrappings	PP	100°C	112
<b>CTS</b>	Standard PA cable tie	PA 6.6	85°C	113
<b>CTHR</b>	High temperature PA cable tie	PA 6.6	120°C	114
<b>CTDL</b>	Special design double loop cable tie	PA 6.6	85°C	115
<b>CTMH</b>	Mountable head cable tie	PA 6.6	85°C	115
<b>CTLS</b>	Heat lashing cable tie	PA 6.6	85°C	116
<b>CTPA</b>	Special head cable tie	PA 6.6	85°C	116
<b>CTPP</b>	PP cable tie for chemicals	PP	85°C	117
<b>CTP</b>	Push mount cable tie	PA 6.6	85°C	118
<b>CTSS</b>	Steel cable tie	Steel	500°C	119
<b>CT</b>	Self adhesive cable tie mounts	PA 6.6	85°C	120
<b>CTAC</b>	Air condition tube tie	PA 6.6	85°C	117
<b>CTB</b>	Bead tie for packaging	PA 6.6	85°C	120
<b>SST</b>	Spiral wrappings	PE	110°C	121

### Spiral wrappings easy entry

- **Material:** PP
- **Colour:** black
- **Temperature range:** -60°C - + 100 °C



Article No.	Internal diameter	Wall thickness (mm)	Max. bundle diameter	Lenght (m)
SSE-08	8	0.85	6-9	25
SSE-16	16	0.85	10-16	25
SSE-20	20	0.95	17-21	25
SSE-25	25	1.05	21-27	25
SSE-30	30	1.05	27-31	25



CTS serie could be used in any electrical cabinet, electrical and electronic harnesses to secure wire & cable bundles. CTS is the standard serie suitable for standard application.

- Flexible
- UL 94V-2

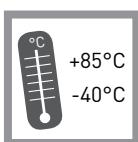
▪ **Material:**

Polyamid 6.6

▪ **Colour:**

black, white,

other colours are available



Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Min. bundle diameter (mm)	Max. tensile strenght (kg)
CTS-080A	2.4	80	18	1	8
CTS-100A	2.5	100	25	1	8
CTS-120A	2.5	120	30	1	8
CTS-140A	2.5	142	35	1	8
CTS-160A	2.5	165	44	1	8
CTS-200A	2.5	203	55	1	8
CTS-120B	3.2	120	30	2	18
CTS-150B	3.6	150	39	2	18
CTS-200B	3.6	203	55	2	18
CTS-300B	3.6	292	85	2	18
CTS-370B	3.6	368	102	2	18
CTS-120C	4.8	120	30	2.5	22
CTS-160C	4.8	160	42	2.5	22
CTS-190C	4.8	190	52	3	22
CTS-250C	4.8	250	74	3.5	22
CTS-300C	4.8	310	89	3.5	22
CTS-370C	4.8	368	102	3.5	22
CTS-450C	4.8	450	133	3.5	22
CTS-200D	7.6	203	55	10	55
CTS-300D	7.6	300	88	10	55
CTS-370D	7.6	380	110	15	55
CTS-430D	8	450	133	40	55
CTS-530D	8	550	166	40	55
CTS-770D	9	762	236	40	80
CTS-830D	9	812	246	40	80
CTS-1168D	9	1168	360	40	80
CTS-230E	12.7	230	53	8	114
CTS-380E	12.7	380	110	30	114
CTS-550E	12.7	550	166	40	114
CTS-730E	12.7	730	225	40	114
CTS-1000E	12.7	1030	317	40	114

# CTHR

ShrinkTech® heat resistant cable tie

CTHR serie could be used in any electrical cabinet, electrical and electronic harnesses to secure wire & cable bundles



▪ **Material:**

Polyamid 6.6

▪ **Colour:**

black, other colours are available

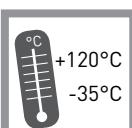
▪ **Packaging:**

100 pcs / box

▪ **Flexible**

▪ **Resistant to:** oils and greases,  
salt and diluted acids.

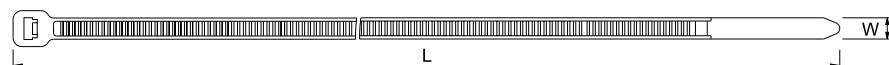
**RoHS**



**UV**  
stabilised



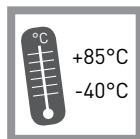
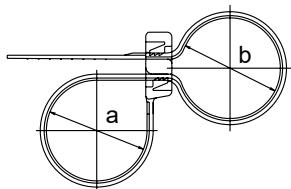
**Reach**



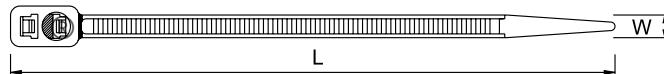
Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Min. bundle diameter (mm)	Max. tensile strength (kg)
CTHR-100A	2.5	100	20	1	8
CTHR-120A	2.5	120	25	1	8
CTHR-140A	2.5	140	32	1	8
CTHR-160A	2.5	160	38	1	8
CTHR-200A	2.5	200	50	1	8
CTHR-140B	3.6	140	32	1	18
CTHR-190B	3.6	190	38	1	18
CTHR-200B	3.6	200	50	1	18
CTHR-300B	3.6	300	77	1	18
CTHR-370B	3.6	370	102	1	18
CTHR-200C	4.8	2th	50	1	22
CTHR-300C	4.8	300	77	1	22
CTHR-370C	4.8	370	102	1	22
CTHR-200D	7.6	200	50	1	54
CTHR-300D	7.6	300	77	1	54
CTHR-370D	7.6	370	102	1	54
CTHR-770D	9.0	770	228	40	79.4

- Flexible
- UL 94V-2
- Mil. Spec. 23190D
- Resistant to: oils and greases, salt and diluted acids.

- **Material:**  
Polyamid 6.6)
- **Colour:**  
black, other colours are available
- **Packaging:**  
100 pcs / box or 1000 pcs / box



**CTDL ShrinkTech® double loop cable tie**



Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Min. bundle diameter (mm)	Max. tensile strength (kg)
CTDL-200C	4.8	200	47/45	2.5/2.0	22
CTDL-300C	4.8	300	72/70	2.5/2.0	22
CTDL-370C	4.8	370	100/97	2.5/2.0	22

**CTMH ShrinkTech® mountable head cable ties**



Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Hole diameter (mm)	Max. tensile strength (kg)
CTMH-100A	2.5	100	25	3.2	8.1
CTMH-150B	3.6	150	32	4.2	18.2
CTMH-200C	4.8	200	50	5.5	22.2
CTMH-200D	7.6	200	50	5.7	54.4
CTMH-300D	7.6	300	76	5.7	54.4
CTMH-370D	7.6	370	122	6.3	54.4

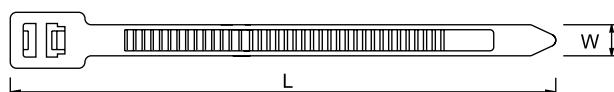
## CTL<sup>S</sup> / CTPA

### CTL<sup>S</sup> ShrinkTech® heat lashing cable tie UL-94V-2

Resistant to oils and greases, salt and diluted acids. After fixing the binder, the rest of the binder can be inserted through the extra eye which increases its tensile force and prevents it slipping.

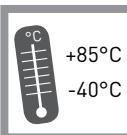

  
**RoHS**


  
**UV**  
stabilised

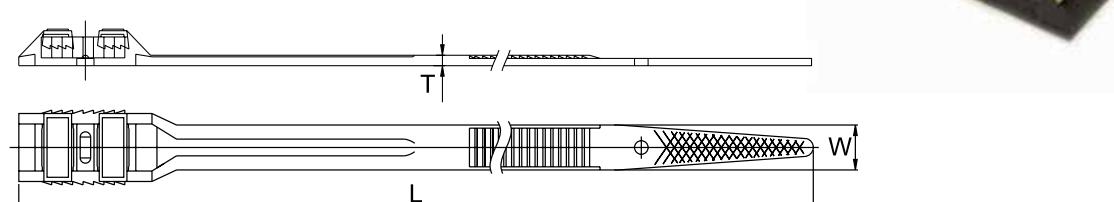

  
**Reach**


Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Min. bundle diameter (mm)	Max. tensile strength (kg)
CTL <sup>S</sup> -240E	12.6	240	50	2	114
CTL <sup>S</sup> -490E	12.6	490	120	2	114
CTL <sup>S</sup> -590E	12.6	590	152	5	114
CTL <sup>S</sup> -740E	12.6	740	204	5	114
CTL <sup>S</sup> -890E	12.6	890	232	7	114
CTL <sup>S</sup> -1040E	12.6	1040	295	12	114

### CTPA ShrinkTech® flet head cable tie PA12


  
**RoHS**


  
**UV**  
stabilised


  
**Reach**


- Colour: black, Other colours are available
- EDF tested - approached MIL-S-23190E.
- Resistant to: oils and greases, salt and diluted acids.

- **Material:** PA12
- **Color:** black

Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Min. bundle diameter (mm)	Max. tensile strength (kg)
CTPA-180	9	180	40	3	35
CTPA-260	9	265	53	3	50
CTPA-360	9	360	83	3	50

**CTPP ShrinkTech® polypropylene cable tie UL94V-2**


- Resistant to: acid resistant (special for the Chemical industry).
- **Colour:** seagreen, Other colours are available
- **Material:** Polypropilene



Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Min. bundle diameter (mm)	Max. tensile strength (kg)
CTPP-100A	2.5	100	22	1	4.9
CTPP-190C	4.8	188	46	2	13.2
CTPP-300C	4.8	300	76	2	13.2
CTPP-370C	4.8	368	102	2	13.2
CTPP-200D	7.6	200	50	4	22.2
CTPP-370D	7.6	368	102	4	22.2

**CTAC air conditioner tube ties**


Special design for fixing air condition tube or water pipe.  
Fix on the wall with screw or nail before fastening the pipe.

- **Material:** PE
- **Color:** white, other colors are available

Part No.	Approx. length (mm)	Approx. width (mm)	Hole diameter (mm)	Max. bundle dia. (mm)	Min. loop tensile strength (kg)	Thickness (mm)
CTAC-250	235	20	Ø 4.5	73	20	2.4
CTAC-290	275	20	Ø 4.5	85	20	2.4

## CTP

### ShrinkTech® push mount cable tie

CTP serie could be used in any electrical cabinet, electrical and electronic harnesses to secure wire & cable bundles. CTP is the standard serie suitable for standard application.



▪ **Material:**

Polyamid 6.6

▪ **Colour:**

black, white

Other colours are available

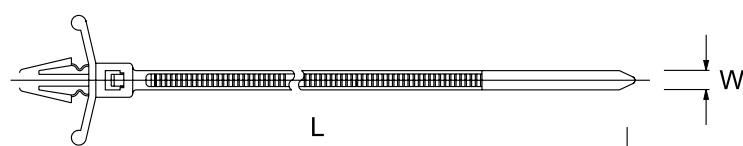
▪ **Packaging:**

100 pcs / box or 1000 pcs / box

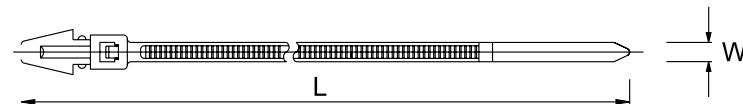
▪ Flexible

▪ UL 94V-2

▪ Resistant to: oils and greases,  
salt and diluted acids



Article No.	Width (mm)	Length (mm)	Hole diameter (mm)	Max. bundle diameter (mm)	D / S (mm)	Max. tensile strength (kg)
CTP-110A	2,5	110	4	22	2.4/4.8	8.1
CTP-130B	3.2	130	4.8	28	3.2/6.4	22.2
CTP-130C	4.8	130	6.4	25	3.2/6.4	22.2
CTP-170C	4.8	170	6.4	38	3.2/6.4	22.2
CTP-190C	4.8	190	6.4	45	3.2/6.4	22.2



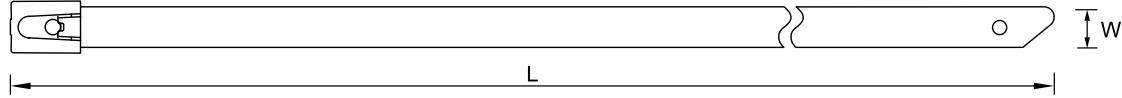
Article No.	Width (mm)	Length (mm)	Hole diameter (mm)	Max. bundle diameter (mm)	D / S (mm)	Max. tensile strength (kg)
CTP-150B	3.6	150	5.2	32	2.8/5.2	13.6
CTP-200C	4.8	200	6.3	45	3.6/6.3	22.2



CTSS serie could be used in any electrical cabinet, electrical and electronic harnesses to secure wire & cable bundles.

- Flexible
- Type AISI 302/304
- DIN 14300-14301

- **Material:**  
Stainless steel
- **Colour:**  
Steel
- **Packaging:**  
100 pcs / box

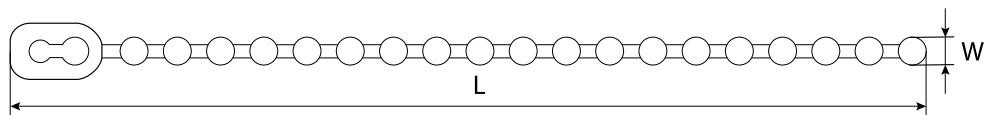


Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Min. bundle diameter (mm)	Max. tensile strength (kg)
CTSS-130C	4.5	130	33	3	46
CTSS-200C	4.5	200	50	3	46
CTSS-300C	4.5	300	76	3	46
CTSS-370C	4.5	370	102	3	46
CTSS-520C	4.5	520	156	3	46
CTSS-680C	4.5	680	207	3	46
CTSS-840C	4.5	840	257	3	46
CTSS-200D	8	200	50	5	114
CTSS-300D	8	300	76	5	114
CTSS-370D	8	370	102	5	114
CTSS-500D	8	500	150	5	114
CTSS-680D	8	680	207	5	114
CTSS-840D	8	840	257	5	114
CTSS-1020D	8	1020	312	5	114

# CTB / CT

## CTB Bead tie for packaging

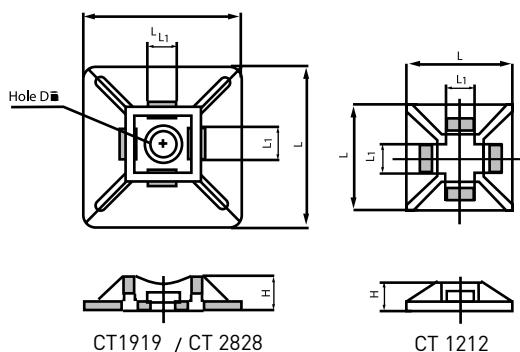
- **Material:**  
Polyamid 6.6
- **Colour:**  
black, white, other colours are available
- **Packaging:**  
100 pcs / box or 1000 pcs / box
- **Flexible**
- **UL 94V-2**



Article No	Length (mm)	Width (mm)	Min. bundle diameter (mm)	Min. loop tensile strength (kg)
CTB-100	107	2.3	29	4

Other size are available

## CT Self adhesive cable tie mounts

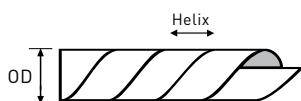


Article No.		L (mm)	H (mm)	L1 (mm)	D (mm)	Packing (pcs)
Black	White					
CT-1212-B	CT-1212-W	12.7	3.2	3.2	-	100
CT-1919-B	CT-1919-W	19.0	4.4	4.0	Ø 3.5	100
CT-2828-B	CT-2828-W	27.7	5.7	5.3	Ø 5.7	100

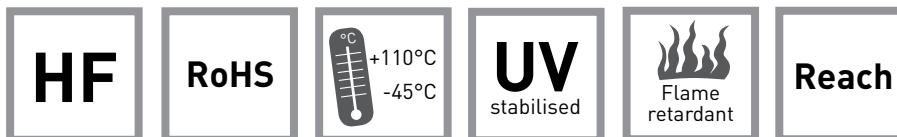
## ShrinkTech spiral cable protection

PE spiral tubing for very economic and flexible bundling and mechanical protection of cables, wires and tubing for automotive, cable connection, panel builders, cabinets and general purpose. high resistance against under vacuum process.

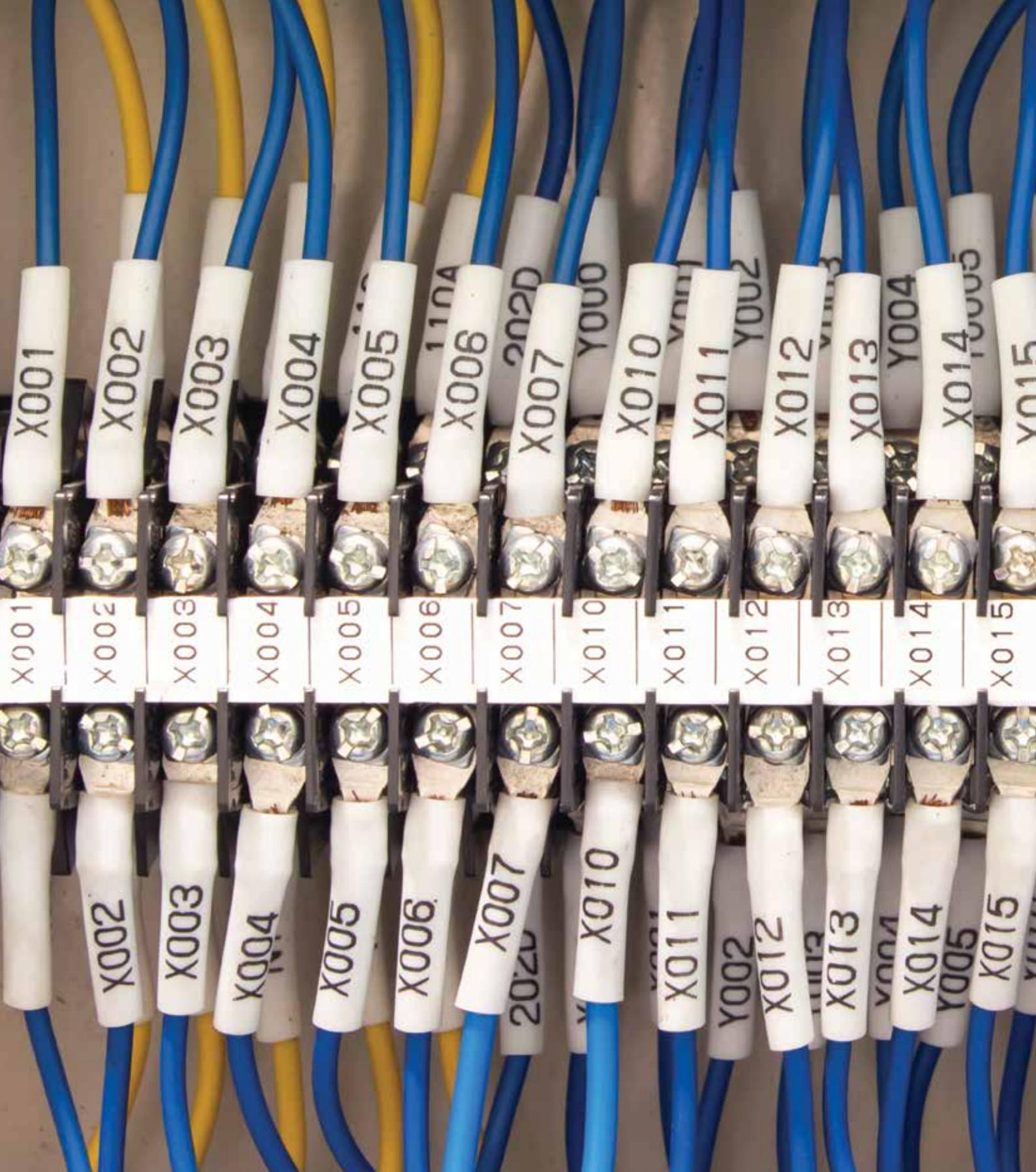
- **Material:**  
Polyethylene
- **Colour:**  
black, white, other colours are available
- **Packaging:**  
spool

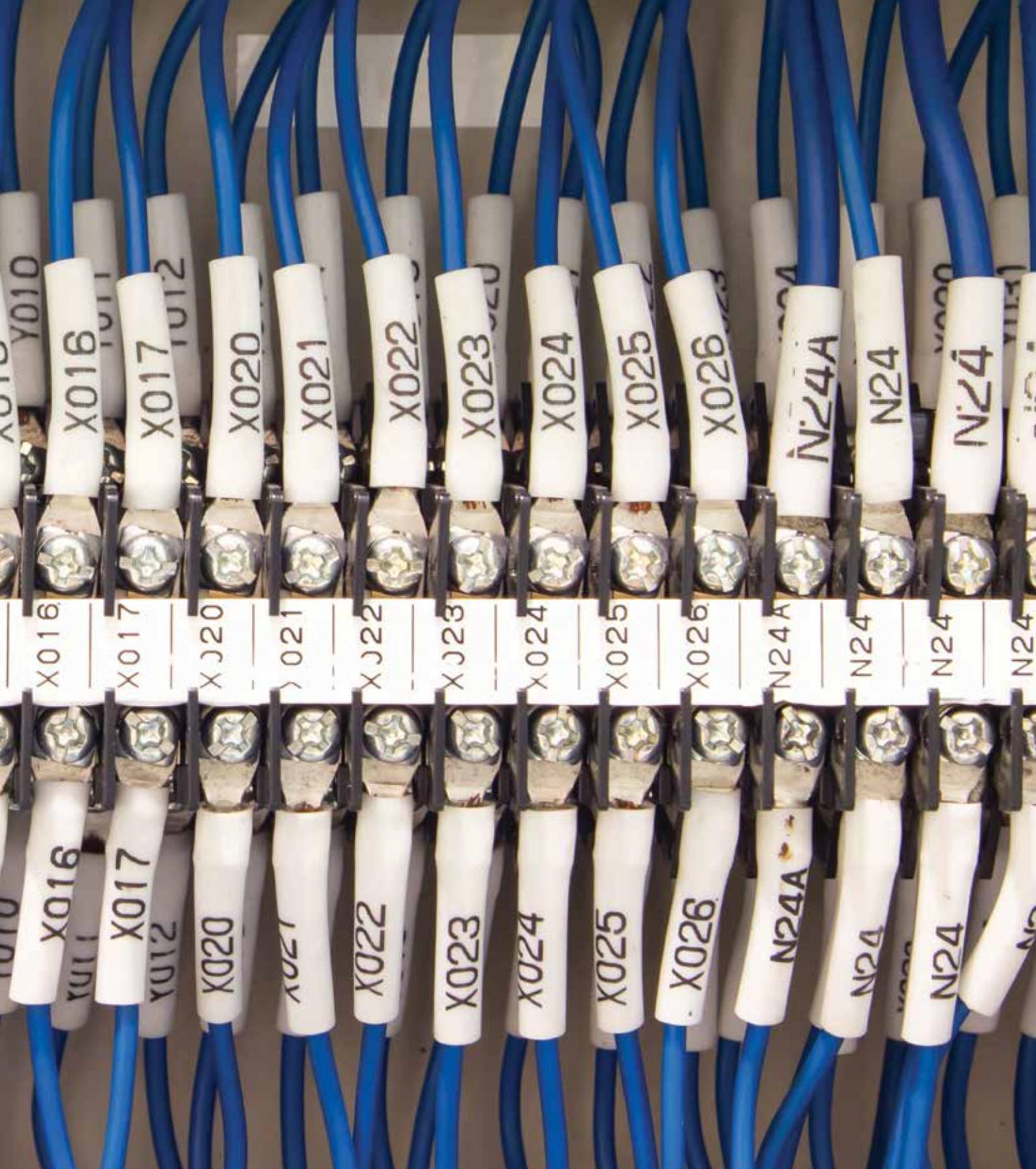


- Easy and very flexible system of bundling
- Ideal for vacuum resin infusion process
- Available in nearly every diameter, wall thickness and helix
- Environmental friendly
- Spiral structure allow cables to branch out at any point
- Easy wire breakouts



Article No.	Diameter (mm)		Normal wall thickness (mm)	Bundle capacity diameter (mm)	Helix (mm)
	Outside	Inside			
SST-035	3.5	2.3	0.60	3-15	4.2
SST-050	5.0	3.7	0.65	4-20	7
SST-060	6.0	4.0	1.00	5-40	7
SST-080	8.0	6.5	0.75	7-40	10
SST-090	9.0	7.0	1.00	8-45	11
SST-100	10.0	8.2	0.85	9-50	12
SST-110	11.0	9.0	1.00	10-50	12
SST-115	11.5	8.5	1.50	10-50	12
SST-120	12.0	9.0	1.50	11-55	14
SST-121	12.0	10.0	1.00	11-70	14
SST-140	14.0	12.0	1.00	13-80	16
SST-150	15.0	12.0	1.50	13-90	15
SST-170	17.0	15.0	1.00	16-90	19
SST-190	19.0	16.0	1.50	17-130	22
SST-200	20.0	17.6	1.20	18-120	22
SST-240	24.0	20.0	2.00	21-150	20
SST-250	25.0	22.2	1.40	23-150	27





**MARKING SYSTEM PRODUCTS**

## Marking system product list

Name	Description	Material	Temperature	Page
<b>CAB SQUIX</b>	CAB termo transfer marker printer	-	-	125
<b>EOS1</b>	CAB termo transfer marker printer	-	-	129
<b>Nice label</b>	Design software for CAB printer	-	-	132
<b>STS-P</b>	Standard printable heat shrink tube	Polyolefin	125°C	133
<b>STS-P3X</b>	High shrink ratio printable heat shrink tube	Polyolefin	125°C	134
<b>STD-P</b>	Diesel resistant heat printable heat shrink tub	Polyolefin	135°C	135
<b>ST135-P</b>	Military grade printable heat shrink tube	Polyolefin	135°C	136
<b>STHF-P</b>	Halogen free printable heat shrink tube	Polyolefin	125°C	137
<b>MFHF</b>	Cable tie flat marker tag - halogen free	Polyolefin	125°C	138
<b>CTIM</b>	Marker cable tie	PA 6.6	85°C	139
<b>CTPM</b>	Marker cable tie	PA 6.6	85°C	139
<b>STR</b>	Ribbon for thermotransfer printer	wax / resine	-C	140
<b>MSL</b>	Self laminated label	PA 6.6	85°C	141
<b>MPL</b>	Paper Label	paper	-	141
<b>MEL</b>	PE label	PE	85°C	141
<b>MTL</b>	PET label	PET	120°C	141
<b>MTSL</b>	PET silver label	PET	120°C	141



# SQUIX

## Label and heat shrink tube printer

The printer mechanics and the chassis are made of high quality materials and perfectly match in terms of shape and function.

A large number of peripherals and software enable customers-specific solution.

The professional SQUIX label and heat shrink tube printers are the further development of the successful A+ printer series.

They fit with a wide range of industrial applications. They have been developed with focus on easy and convenient operation and high reliability.

# ShrinkTech® & cab

## SQUIX PRINTER

### 1. Big graphic display

White backlight guarantees optimal legibility.

### 2. Ribbon retainer

Easy and centred insertion of the ribbon with the three-part tightening axles. Due to the imprinted spacer positioning of the ribbon is facilitated.

### 3. Easy adjustment

The print head is pressed down with two sliding toggles. One is mounted to the left label margin, the other one is pushed to the right label margin.

### 4. Material guide

Precise printing due to the material guide located directly behind the print roller. The width is adjusted with a spindle.

### 5. Peripheral connection

Add-on modules like cutter, external rewinder, present sensor, peel-off adapter and applicators can be easily connected via USB peripheral interface. All peripheral devices are put onto the printer with two gudgeons and fixed with a bolt.

### 6. Solid, buckling resistant metal chassis

It is made of dye-cast aluminium. All devices are assembled to it.



### 7. Roll holder

Applicable for core diameters as of 38 mm. (we include adapters for core diameters from 76 mm for a better winding of the labels). The spring mounted margin stop ensures constant tension while feeding and therefore a highly precise imprint.

### 8. Only one tool for all maintenance tasks

The Allen key is located ready to hand directly at the printer while feeding and therefore a highly precise imprint.

### 9. Integration into SAP R/3

In collaboration with SAP cab developed the so-called "Replace method" in order to control the cab printers with SAPScript from SAP/R3.

As Silver Level-partner in SAP's Printer Vendor Program cab has access to the SAP development area for optimal printer support in an SAP environment.



### 10. Stand alone operation

The layout of the labels is created either with the label software or direct programming via text editor directly on the PC.

Label formats fonts and graphic data, serial data and data base contents are saved or imported on the CF memory card or the internal IFFS printer memory.

# ShrinkTech® & cab

## SQUIX PRINTER



1. Print head		
Print method	Thermal transfer	Direct
Print resolution dpi	300 dpi	600dpi
Print speed up to mm/s	30-125	30-100
Print width mm	105.6	105.6
2. Material		
Labels, continous rolls or fan-folded	paper, cardboard, textile, Synthetics PE, PP, PVC, PA, PI,	
Material thickness mm	0.055-1.2	
Weight g/m	60-250	
Width	Label (mm)	4-106
	carrier material (mm)	25-110
	flat pressed tube up to 0,4 thick	3-110
Height (mm)	5-1000	
	Total diameter up to (mm)	210
Media roll:	Core diameter (mm)	38-100
	Winding direction	outside or inside
Gap height: Material sensor, Cutter up to (mm)	4.5	
3. Ribbon		
Ink	outside or inside	
Roll diameter up to mm	80	
Core diameter mm	25	
Ribbon length variable up to m	500	
Width mm	50-114	
4. Dimensions of the printer		
Height x Depth mm	270 x 446	
Width mm	242	
Weight kg	9	
5. Label sensor		
See-through sensor	or leading edge of the label or punching marks and end of material	
Distance from the center to the left mm	0-53	
6. Electronics		
Processor 32 Bit ColdFire (Mhz)	266	
RAM MB	64	
IFFS Memory MB Flash	8	
Slot for memory CompactFlash-card Type I	yes	
7. Operation panel		
Buttons/LED display	Pause, Feed, Cancel, Menue, Enter, 4 x Cursor	
LCD graphic display	Text 4 lines, ca. 20 digits per line	
Width x Height mm	60 x 40	

8. Interfaces		
Standard	RS232 C 1.200 up to 230.400 Baud/8 Bit, USB 2.0 High Speed Slave for PC-connection, Ethernet 10/100 Base T, LPD, RawIP-Printing, ftp-Printing, DHCP, HTTP, FTP, SMTP, SNMP, TIME, Zeroconf, mDNS, SOAP	
Option	Centronics bi-directional acc. IEEE 1284, WLAN card 802.11b/g WEP/WPA PSK [TKIP]	
9. Monitoring		
Stop printing if	End of ribbon End of labels Printhead open Direct	
On the display	Data reception WLAN field intensity Ethernet state Used memory Temperature printhead Access to memory card Remaining quantity of ribbon	Clock Date sheet abc Debug Input buffer
10. Settings		
digital or analog clock	time	
system settings	date	
print parameters	interfaces	
25 language settings	security	
11. Test routines		
System diagnosis	When switched on with testing of printhead, font list, device list, WLAN state, profile of label, test grid, monitor mode, PPP state	
Status reports	Extensive status print with information about setting, e.g. print length counter, runtime counter etc. Request of machine state via software command. Detailed status messages on the display, e.g. network error-no link, barcode error etc.	
12. Fonts		
Font type	5 Bitmap fonts incl. OCR-A, OCR-B and 3 Vector fonts Swiss 721, Swiss 721 Bold and Monospace 821 available internally, loadable TrueType fonts. Optional Chinese (simplified Chinese) Optional Thai.	

# ShrinkTech® &

## SQUIX PRINTER

Character sets	Windows 1250 up to 1257, DOS 437, 737, 775, 850, 852, 857, 862, 864, 866, 869, EBCDIC 500, ISO 8859-1 up to -10 and -13 up to -16, WinOEM 720, UTF-8, Macintosh Roman, DEC MCS, K0I8-R. All West and East European latin, cyrillic, greek, hebrew and arabic characters are supported. Optional Thai and Chinese
<b>13. Graphics</b>	
Graphic elements	Line, arrow, box, circle, ellipse, filled and filled with fading
Graphic formats	PCX, IMG, BMP, TIF, MAC, GIF, PNG
<b>14. Codes</b>	
Linear Barcodes	Code 39, Code 93 Interleaved 2/5, Code 39 Teljes ASCII, Ident- and lead, Code 128 A, B, C, EAN 8, 13 JAN 8, 13, EAN/UCC 128, MSI, EAN/UPC Appendix 2, Plessey, EAN/UPC Appendix 5 Postnet, FIM, RSS 14, HIBC, UPC A, E, EO
2D-Codes	Aztec, Codablock F, Data Matrix, PDF 417, Micro PDF 417, UPS Maxicode, QR-Code, RSS 14 truncated, limited, stacked and stacked omnidirectional, EAN-Datamatrix
All codes variable in height, module width and ratio. Orientation 0°, 90°, 180°, 270°. Optionally with check digit, printed characters and Start/Stop code depending on code type.	
<b>15. Software</b>	
Programming	J-Script direct programming abc-Basic Compiler Database Connector
System diagnosis/ Administration	printer monitoring Network Manager
Operating systems	2000, XP32/64 bit, 2003 32/64 bit, Vista 32/64 bit OS X printer driver from version 10.3 Suse 9.0, CUPS based
<b>16. Operation data</b>	
Power supply	100 - 240V ~ 50/60 Hz, PFC
Power consumption	Max. 300 W
Temperature	10 - 35°C
Humidity	30 - 85% not condensing
Approvals	CE, FCC A, CD, CCC, UL

### Perforation cutter and cutter PCU4

The perforation cutter also permits the perforation of the material in order to separate it manually.

<b>1. Cutting and performing</b>	
Cuts/min.	
Cutting	120
Perforating	150
Stop print job if	Final position not reached
<b>2. Material</b>	
Weight	60-300 g/m2
Material thickness	0.05-1.2 mm
Width up to	110 mm
Cutting length	< 5 mm
Gap height up to	4.5 mm
<b>3. Perforating</b>	
Web width	0.5 mm
Web distances	2.5/10 mm



**ShrinkTech® & cab**



**Label and heat shrink  
tube printer**

**EOS1**

# ShrinkTech® & cab

## EOS1 PRINTER

Printhead					Electronics							
Printing method					Processor high speed 32 Bit clock rate MHz							
Print resolution dpi					400							
Print width up to mm					RAM MB							
Print speed mm/s					64							
Material <sup>1)</sup> on rolls or fanfolded					Memory IFFS MB Flash							
Labels	Paper, cardboard, textiles, plastics such as PET, PE, PP, PVC, PU, acrylate, PI	Thickness mm	Width mm	Height <sup>2)</sup> mm	16							
		0,055 - 0,7	single lane 10 - 116 multi lane 5 - 116	6 - 1000	Battery buffer for real-time clock with printout of time and date							
Continuous material	liner paper 60 - 110 g/m <sup>2</sup>	0,055 - 0,10	25 - 120	endless	Data storage on shut-down							
	cardboard 80 - 180 g/m <sup>2</sup>	0,10- 0,20	6 - 120	10-100	Warning signal: acoustic signal in case of error							
	plastic film PVC	0,30	6 - 60		Interfaces							
		0,50	6 - 30		RS232C 1.200 up to 230.400 Baud/8Bit Option							
	flat pressed tubes	0,40 - 0,70	5 - 85		USB 2.0 full speed device for PC connection							
Media roll		at core Ø mm	EOS1	EOS4	Ethernet 10 / 100 Base T, LPD, RawIP-Printing, ftp-Printing, DHCP, HTTP, FTP, SMTP, SNMP, TIME, Zeroconf, mDNS, SOAP							
Outside Ø mm		38 / 40	155	210	Peripheral connection							
		76	152,4	203,2	WLAN USB Stick 54 Mbps Option							
Winding direction		outside or inside										
		only outside during cutting										
Ribbon												
Ink		outside or inside										
Roll diameter up to mm		72										
Core diameter mm		25,4										
Ribbon length variable up to m		360										
Width mm		50 - 114										
Printer dimensions		EOS1	EOS4	Cutter								
Height x Depth x Width mm		189 x 322 x 253	245 x 412 x 264	Cutting length from mm								
Weight kg		4	5	10								
Label sensor												
Gap sensor		for leading edge of the label or punching marks and end of material										
Reflective sensor from the bottom		for black mark										
Distance from the center to the left mm		0 - 58										
Temperature/ Humidity												
		Operation: + 5 - 40°C / 10 - 85% not condensing Storage: + 0 - 60°C / 20 - 80% not condensing Transport: - 25 - 60°C / 20 - 80% not condensing										

# ShrinkTech® & cab

## EOS1 PRINTER



Settings			
	Digital or analog clock System settings Print parameters 25 language settings	Time Date Interfaces Security	
On the Display			
	Data reception Ethernet state Temperature print-head	Clock Date sheet Ribbon capacity	Bluetooth Cutter WLAN
Monitoring			
Stop printing if	End of ribbon End of labels Printhead open Final position of cutter not reached cutter pivoted		
Test routines			
System diagnosis	when switched on incl. printhead testing		
Short status, status print	Font list, device list, WLAN status, profile of label, test grid, monitor mode, PPP status		
Status reports	Printout informing about settings and print length counter, runtime counter. Status request via software commands. Status messages on the display such as network error – no link, barcode error, etc.		
Fonts / Graphics / Barcodes			
	All technical data identical with A4+M.		

- 1) All material details are approximate values.  
 Small labels, very thin, narrow, thick or stiff materials as well as labels with strong adhesives need to be tested.
- 2) Please pay attention to the minimum label height when cutting and dispensing.



### EOS1 Cutter

The cutter is used to precisely cut all printable materials. An additional perforation and cutter, e.g. for heat shrink tubes, is available on demand.

- The new EOS series combines all functions of a solid industrial printer with highest ease of operation.

**EOS1** the compact for small work space. For label rolls up to 155 mm diameter.

**EOS4** for label rolls up to 210 mm diameter. All technical data identical with EOS1.

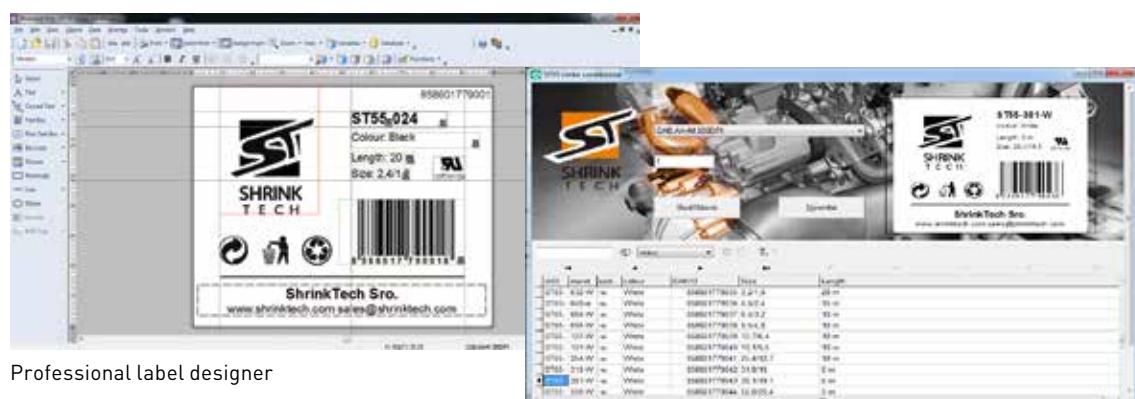
- Three USB interfaces connect a standard PC keyboard, scanner or USB memory stick.
- The big, clearly laid out touchscreen LCD display is easy to operate.
- In stand-alone mode the label data is entered via keyboard directly into the printer. A PC is not necessary any more.
- Due to the high-tech electronics, the intelligent printhead and efficient power supply the EOS is particularly energy efficient and environmentally friendly.
- The housing of the EOS devices are made of high-class ABS synthetic with translucent cover and are perfectly harmonized in their form and function.
- The cab label software cablabel R2+ optimally supports all printer functions.

**EOS1 with cutter and external roll retainer for roll diameters up to 400 mm.**

# ShrinkTech®

## Professional labeling for industry

NiceLabel software helps you quickly design labels and create an efficient printing process so you can focus on running your business instead of worrying about print errors every day. Quickly design professional labels without making investments in training and coding.



Professional label designer

Design &amp; Print



### DESIGN & PRINT

Start producing professional labels without IT help.



### DESIGN & CONTROLLED PRINT

Streamline label printing to control labor costs and eliminate errors.



### MANAGED DESIGN & CONTROLLED PRINT

Standardize your entire labeling process to meet compliance requirements.

#### DESIGNER EXPRESS DESIGNER PRO



Label design



On-demand printing

#### POWERFORMS POWERFORMS SUITE



Label design



On-demand printing



Application builder



Integrated printing

#### LMS PRO LMS ENTERPRISE



Label design



On-demand printing



Application builder - P



Integrated printing



Document management



Quality management



Extra thin, flatten, printable heat shrink tube for universal use. Recommended for automotive, electronics industries for the purpose of labelling cables. The infinite form allows to apply in any size, so reducing the costs.

▪ **Material**

Modified polyolefin

▪ **Colours**

Yellow, white other colours are available on request

▪ **Packaging**

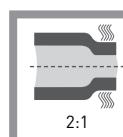
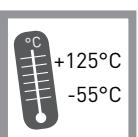
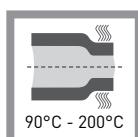
100m spool

▪ **Flexibility**

▪ **UL224, 125°C, VW-1**

▪ Environmental friendly,  
free from toxic heavy metal  
compounds

▪ **Extremly flat**



Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)
	Min.as supplied	Max. fully recovered		
STS-P-032	3.2	1.6	0.3	100
STS-P-048	4.8	2.4	0.3	100
STS-P-064	6.4	3.2	0.4	100
STS-P-095	9.5	4.8	0.5	100
STS-P-127	12.7	6.5	0.5	100
STS-P-191	19.1	9.5	0.6	100
STS-P-254	25.4	12.7	0.6	100
STS-P-381	38.1	19.1	0.6	100

# STS-P3X

ShrinkTech® standard printable heat shrink tube

Extra thin, flatten, printable heat shrink tube for universal use. Recommended for automotive, electronics industries for the purpose of labelling cables. The infinite form allows to apply in any size, so reducing the costs.



▪ **Material:**

Modified polyolefin

▪ **Colour:**

Yellow, white, other colour are available on request

▪ **Packaging:**

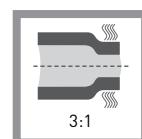
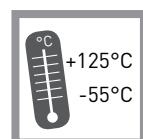
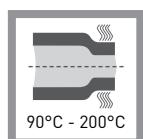
100m spool

▪ **Flexibility**

▪ UL224, 125°C, VW-1

▪ Environmental friendly, free from toxic heavy metal compounds

▪ Extremly flat



Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)
	Min.as supplied	Max. fully recovered		
STS-P3X-030	3.0	1.0	0.3	100
STS-P3X-048	4.8	1.6	0.3	100
STS-P3X-060	6.0	2.0	0.4	100
STS-P3X-090	9.0	9.0	0.5	100
STS-P3X-120	12.0	4.0	0.5	100
STS-P3X-180	18.0	6.0	0.6	100
STS-P3X-240	24.0	8.0	0.6	100
STS-P3X-390	39.0	13.0	0.6	100

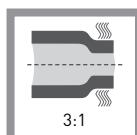
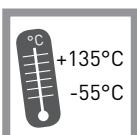
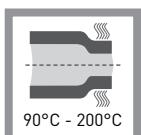


Extra thin, flatten, printable heat shrink tube for universal use. Recommended for electronics and automotive industries for the purpose of identifying and labelling cables. The infinite form allows to apply in any size, so reducing the costs.

The oil-resistant heat shrink tube and label is permanent solution in any circumstances.

- Flexible
- UL224, 125°C, VW-1
- Environmental friendly, free from toxic heavy metal compounds
- MIL-I-23053
- Shrink tube and label resistant to diesel oil

- **Material**  
Modified polyolefin
- **Colours**  
Yellow, white
- **Packaging**  
100m spool



Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)
	Min. as supplied	Max. fully recovered		
STD-P-030	3.0	1.0	0.3	100
STD-P-048	4.8	1.6	0.3	100
STD-P-060	6.0	2.0	0.4	100
STD-P-090	9.0	3.0	0.5	100
STD-P-120	12.0	4.0	0.5	100
STD-P-180	18.0	6.0	0.6	100
STD-P-240	24.0	8.0	0.6	100

# ST135-P

ShrinkTech® printable tube with military standard

Extra thin, flatten, printable heat shrink tube for universal use. Recommended for automotive, high-tech, aerospace and defence industries for the purpose of labelling cables. The infinite form allows to apply in any size, so reducing the costs.



▪ **Material**

Modified polyolefin

▪ **Colours**

Yellow, white, other colours are available

▪ **Packaging**

100m spool

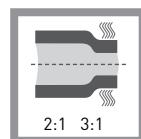
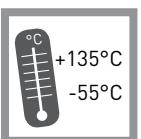
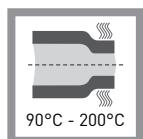
▪ Flexible

▪ UL224, 125°C, VW-1

▪ Environmental friendly, free from toxic heavy metal compounds

▪ Military standard MIL-I-23053

▪ Extremly flat



Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)
	Min.as supplied	Max. fully recovered		
ST135-P3X-030	3.0	1.0	0.3	100
ST135-P3X-048	4.8	1.6	0.3	100
ST135-P3X-060	6.0	2.0	0.4	100
ST135-P3X-090	9.0	3.0	0.5	100
ST135-P3X-120	12.0	4.0	0.5	100
ST135-P3X-180	18.0	6.0	0.6	100
ST135-P3X-240	24.0	8.0	0.6	100
ST135-P-032	3.2	1.6	0.3	100
ST135-P-048	4.8	2.4	0.3	100
ST135-P-064	6.4	3.2	0.4	100
ST135-P-095	9.5	4.8	0.5	100
ST135-P-127	12.7	6.5	0.5	100
ST135-P-191	19.1	9.5	0.6	100
ST135-P-254	25.4	12.7	0.6	100

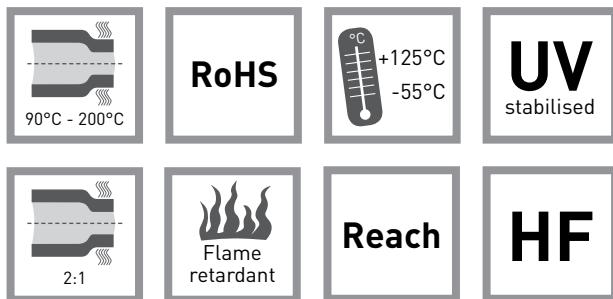


Extra thin, flatten, printable heat shrink tube for universal use. Recommended for electronics and automotive industries for the purpose of identifying and labelling cables. The infinite form allows to apply in any size, so reducing the costs.

The oil-resistant heat shrink tube and label is permanent solution in any circumstances.

- Flexible
- UL224, 125°C, VW-1
- Environmental friendly, free from toxic heavy metal compounds
- Halogen free

- **Material**  
Modified polyolefin
- **Colours**  
Yellow, white
- **Packaging**  
100m spool

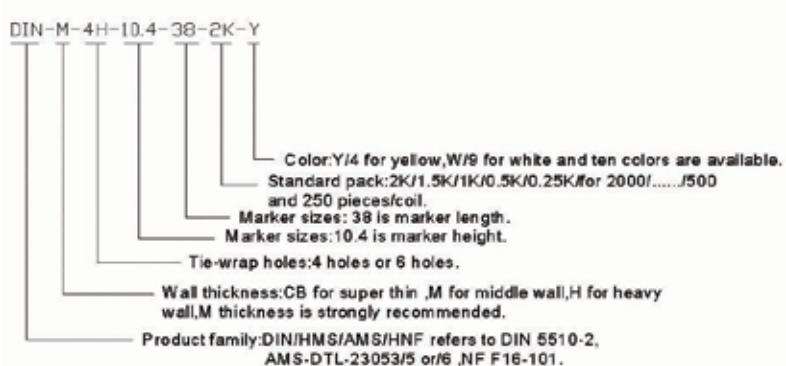
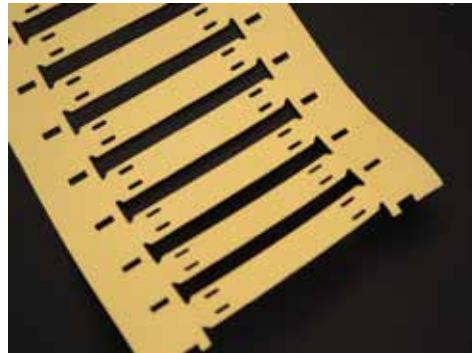


Article No.	Internal diameter (mm)		Wall thickness fully recovered (mm)	Spools (m)
	Min. as supplied	Max. fully recovered		
STHF-P-032	3.2	1.6	0.3	100
STHF-P-048	4.8	2.4	0.3	100
STHF-P-064	6.4	3.2	0.4	100
STHF-P-095	9.5	4.8	0.5	100
STHF-P-127	12.7	6.5	0.5	100
STHF-P-191	19.1	9.5	0.6	100
STHF-P-254	25.4	12.7	0.6	100

## MFHF

### Cable tie flat marker tag - halogen free

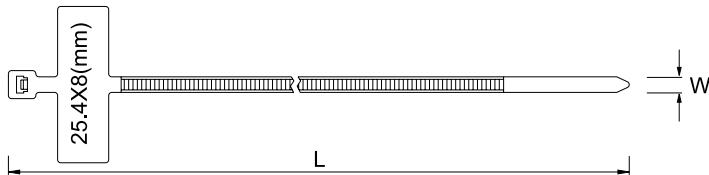
Markers can be easily removed from the carrier, and applied to cables and wire bundles using cable dies. Thermal transfer printer and MFHF are recommended for meeting printing performance requirements of SAE AS 81531 and MIL-STD-202F. According to the structure of label card, it is made of the environment-friendly polyolefin materials by means of bombardment and cross-link of high energy electron bunch. DIN tag is halogen free, operating temperature -40°C-125°C.



Property	Length	Test method
Tensile strength (MPa)	≥10.3	ASTM D2671
Tensile strength after ageing (MPa)	≥6.9	
Ultimate elongation (%)	≥200	
Voltage withstand(V)	2500 V, 60s, Pass	UL224
Dielectric strength (MV/m)	≥19.7	ASTM D2671
Dielectric strength after ageing (MV/m)	≥15.8	
Volume resistivity (Ω·cm)	≥10 <sup>14</sup>	ASTM D2671
Water absorption (%)	≤1.0	ASTM D 570
Corrosion	Pass	UL 224
Heat shock	No flowing or dripping	UL 224
Low temperature flexibility	No cracks	UL 224
Flammability	pass	DIN 5510-2

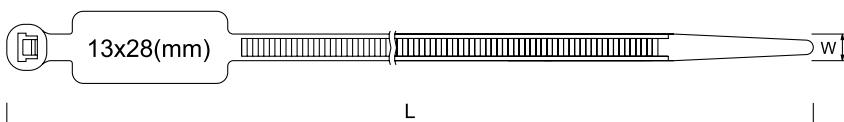
Article No.	Description	Pack size (pcs/roil)	Marker high (mm)	Marker length (mm)	Printable range (mm)	Length (mm)
MFHF-1	DIN-M-4H-10.4- 45- 2K-W-B-P1-*	2000	10.4	45	6.4	25
MFHF-2	DIN-M-4H-10.4 -53- 2K-W-B-P1-*	2000	10.4	53	6.4	33
MFHF-3	DIN-M-4H-10.4 -64- 2K-W-B-P1-*	2000	10.4	64	6.4	44
MFHF-4	DIN-M-6H-10.4 -76- 2K-W-B-P1-*	2000	10.4	76	6.4	56
MFHF-5	DIN-M-6H-10.4 -90- 2K-W-B-P1-*	2000	10.4	90	6.4	70
MFHF-6	DIN-M-4H-12.0 -102- 2K-W-B-P1-*	2000	12.0	102	8.0	82
MFHF-7	DIN-M-4H-15.0- 45-1.5K-W-B-P1-*	1500	15.0	45	11.0	25
MFHF-8	DIN-M-4H-15.0 -53-1.5K-W-B-P1-*	1500	15.0	53	11.0	33
MFHF-9	DIN-M-4H-15.0 -64-1.5K-W-B-P1-*	1500	15.0	64	11.0	44
MFHF-10	DIN-M-6H-15.0 -76-1.5K-W-B-P1-*	1500	15.0	76	11.0	56
MFHF-11	DIN-M-6H-15.0 -90-1.5K-W-B-P1-*	1500	15.0	90	11.0	70
MFHF-12	DIN-M-4H-20.3 -45- 1K-W-B-P1-*	1000	20.3	45	16.3	25
MFHF-13	DIN-M-4H-20.3 -53- 1K-W-B-P1-*	1000	20.3	53	16.3	33
MFHF-14	DIN-M-4H-20.3 -64- 1K-W-B-P1-*	1000	20.3	64	16.3	44
MFHF-15	DIN-M-6H-20.3 -76- 1K-W-B-P1-*	1000	20.3	76	16.3	56
MFHF-16	DIN-M-6H-20.3 -90- 1K-W-B-*P1-*	1000	20.3	90	16.3	70
MFHF-17	DIN-M-4H-25.4 -45- 1K-W-B-*P1-*	1000	25.4	45	21.4	25
MFHF-18	DIN-M-4H-25.4 -53- 1K-W-B-*P1-*	1000	25.4	53	21.4	33
MFHF-19	DIN-M-4H-25.4 -64- 1K-W-B-*P1-*	1000	25.4	64	21.4	44
MFHF-20	DIN-M-6H-25.4 -76- 1K-W-B-*P1-*	1000	25.4	76	21.4	56
MFHF-21	DIN-M-6H-25.4 -90- 1K-W-B-*P1-*	1000	25.4	90	21.4	70

## CTIM, CTPM, ShrinkTech® marker cable tie UL94V-2



- Resistant to:  
oils and greases, salt and diluted acids.
- Installation temperature:  
10°C - 30°C

Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Label dimension (mm)	Max. tensile strength (kg)
CTPM-100A	2.5	100	25	25x8	8
CTPM-110A	2.5	110	25	25x8	8
CTMP-200A	2.5	200	50	30x15	8



Article No.	Width (mm)	Length (mm)	Max. bundle diameter (mm)	Label dimension (mm)	Max. tensile strength (kg)
CTIM-130A	2.5	130	25	28x20	8
CTIM-200C	4.6	200	50	28x13	22
CTIM-270C	4.6	270	75	28x13	22



## Labels and ribbons for CAB thermotransfer printers

We offer both labels and thermal transfer ribbons as well. Thermal transfer color ribbons for label printers can be purchased from Shrintkech in many different qualities for various applications and implementations.

Browse our assortment and find wax ribbons, wax/resin ribbons and resin ribbons for your professional label prints.



Article no.	Description	Colour	Size	
			Width (mm)	Length (m)
STRR	resin ribbon for plastik marker	black*	30-100	300
STRW	wax ribbon for paper marker	black*	40-100t	300
STRWR	wax/resin ribbon for universal use	black*	40-100	300

\* Other colour are available on request.

# MSL / MPL / MEL / MTL /MTSL

Paper, PET, PE, PET silver, self laminated marker label



Our wide range of labels on roll offers every label on roll from permanently adherent to removable labels made of synthetic materials like PET, Pet silver and PE or paper to cable markers and customized labels, you are sure to find exactly what you need in our assortment. All offered labels made of paper or foil are especially suited for thermal transfer printing. Choose between permanently adherent or removable labels, as well as different shapes and colors.



## Sizes and colours:

Sizes and colours of labels can be made according to customer specification. For further details please contact our sales representative.

Article no.	Description	Colour	Size	Operating temperature
MSL	self lamintaned cabel marker label	white / transparent	special size on request	-40 °C to +150 °C
MPL	paper label for universal use	white *	special size on request	-20 °C to +50 °C
MEL	PE label for automotiv	white *	special size on request	-25 °C to +85 °C
MTL	PET label for electronics	white	special size on request	-40 °C to +150 °C
MTSL	PET SILVER label for electronics	grey / silver	special size on request	-40 °C to +150 °C

\* Other colour are available on request.







**INSTALLATION**

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## Installation product list

Name	Description	Material	Temperature	Page
<b>tape</b>	masking tapes	-	-	146
<b>tape</b>	double sided tapes	-	-	146
<b>tape</b>	packaging tapes	-	-	145
<b>tape</b>	special tapes	-	-	145
<b>IPC</b>	push in wire connector - compact type	PA 6.6	80°C	147
<b>IPR</b>	push in wire connector - releasable type	Polycarbon/Polyamide	105°C	148
<b>IPU</b>	push in wire connector - unik type	Polycarbon/Polyamide	105°C	149
<b>IPL</b>	push in wire connector - easy link lighting	PA 6.6	80°C	150
<b>ITB</b>	Terminal blocks	PA6.6 / PP / PE	up to 120°C	151
<b>STRL/ STMRL</b>	Poliamide cable glands - standard	PA 6.6	80°C	152
<b>STMRL</b>	Poliamide cable glands - multihole metric	PA 6.6	80°C	153
<b>STRL</b>	Poliamide cable glands - multihole PG	PA 6.6	80°C	154
<b>STMRL / STRL</b>	Flat hole cable glands PG and metric	PA 6.6	80°C	155
<b>NM/ NPG</b>	Lock nuts for cable glands metric / PG	PA 6.6	80°C	156
<b>BMRL/ BRL</b>	Brass cable glands PG and metric	Brass	105°C	157
<b>BNM/ BRPG</b>	Lock nuts for brass cable glands PG and metric	Brass	500°C	158
<b>SVP</b>	ventillator plug for lighting PA6.6 or brass	PA 6.6 or brass	105°C	159

# PACKING TAPES / CLOTH TAPES / SPECIAL TAPES



Backing	Color	Adhesive	Total thickness (mm)	Adhesion (N/25 mm)	Temperature (°C)
PVC	Transparent	Natural Rubber	0.052	4.50	60
PVC	White	Natural Rubber	0.052	4.50	60
Reinforced with Glass fibers	Transparent	Hot Melt	0.135	22.50	60
Reinforced with Glass fibers	Transparent	Hot Melt	0.135	22.50	60
PP	Blue	Rubber	0.074	3.50	60
PVC	Blue/ Green /Yellow	Rubber	0.058	5.00	60
PVC	Orange	Rubber	0.058	5.00	60
Aluminium	Grey	Acrylic	0.055	18.00	120
Supported Aluminium (FSK)	Grey	Acrylic	0.08	18.00	120
Aluminium	Grey	Acrylic	0.065	18.00	120
Glass Cloth	White	Acrylic	0.18	20.00	155
PE coated cloth	Grey	Hot Melt	0.18	10.00	60
Cloth (Cotton or polyester)	Black / White	Rubber	0.25	6.00	120

Backing	Color	Adhesive	Total thickness (mm)	Adhesion (N/25 mm)	Temperature (°C)
PVC	Yellow/Black Cross	Acrylic	0.18	16.00	80
PVC	Yellow / Red / Green / Blue	Acrylic	0.18	16.00	80
Polyester	Yellow	Acrylic	0.055	7.85	130
Kapton	Amber	Silicone	0.055	7.85	200
PE, Physical Cross-linked	Grey	-	Between 2 and 20 mm	-	100
PE, Chemical Cross-linked	Grey	-	Between 2 and 20 mm	-	100
EPDM	Black	-	Between 2 and 20 mm	-	70
EVA	Black	-	Between 2 and 20 mm	-	50
PE	Yellow / White / Blue / Green / Red	Acrylic	0,35	6.00	80
PE	Yellow / White / Blue / Green / Red	Acrylic	0,35	7.00	80
AA-WA	Black Transparent Red	Acrylic	0,15	5	50
PVC	White	Acrylic	0,15	-	70

## MASKING TAPES / DOUBLE SIDED TAPES

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Backing	Color	Adhesive	Total thickness (mm)	Adhesion (N/25 mm)	Temperature (°C)
Crepe paper	White	Solvent	0.13	8.80	80
Crepe paper	White	Solvent	0.14	9.80	80
Crepe paper	White	Rubber	0.15	9.30	95
Crepe paper	White	Rubber	0.155	9.80	110
Paper	Beige	Acrylic	0.15	5.40	120
Crepe paper	Brown	Rubber	0.135	7.25	80
Crepe paper	White	Rubber	0.135	7.25	80
Polyester	Transparent	Silicon	0.055	10.00	180
Polyester	Transparent	Silicon	0.09	10.00	180
Paper	Blue	Acrylic	0.15	6.00	100

Backing	Color	Adhesive	Total thickness (mm)	Adhesion (N/25 mm)	Temperature (°C)
PET Film	Transparent	Acrylic	0,22	24.00	90
PET Film	Transparent	Acrylic	0,16	20.00	120
-	Transparent	Acrylic	0.08	-	90
-	Transparent	Acrylic	0.08	-	90
PVC Film	White	Acrylic	0.21	24.00	90
PET Film	Black	Acrylic	0.2	18.00	100
Non Woven	Transparent	Hot Melt	0.1	20.00	60
Non Woven	Transparent	Acrylic	0.1	18.00	100
Non Woven	Transparent	Hot Melt	0.1	20.00	60
Non Woven	Transparent	Acrylic	0.16	18.00	120
Non Woven	Transparent	Acrylic	0.09	14.00	100
BOPP Film	Transparent	Acrylic	0.09	18.00	120
BOPP Film	Transparent	Hot Melt	0.1	22.00	60
OPP Film	Transparent	Hot Melt	0.11	22.00	60
PET Film	Transparent	Hot Melt	0.1	22.00	60
Cloth	White	Acrylic	0.4	20.00	100
OPP	White	Acrylic	0.14	18.	100

## Push in wire connector - Compact type



▪ **Material:**

Polycarbonate and Polyamide 6.6  
Tinned copper plate, spring steel  
and steel frame

▪ **Colour:**

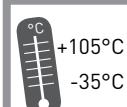
Orange, red, yellow, grey, black

▪ **Package:**

Bag

- Accepts rigid/solid conductors up to 2,5 mm<sup>2</sup> / 22~12 AWG
- 25% more compact in size than original types with cost-saving effectiveness (see picture)
- Does not require twisting and taping

**RoHS**



**Reach**

**CE**



Product image	Article No.	Color	cable size (mm <sup>2</sup> )	Range
	IPC-2	● (Red)	1.0-2.5	24A / 450V
	IPC-3	● (Orange)	1.0-2.5	24A / 450V
	IPC-4	● (Yellow)	1.0-2.5	24A / 450V
	IPC-5	● (Black)	1.0-2.5	24A / 450V
	IPC-8	● (Black)	1.0-2.5	24A / 450V

## IPR

### Push in wire connector - Releasable type

▪ **Material:**

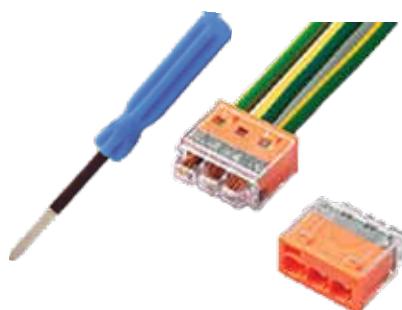
Polycarbonate and Polyamide 6.6  
Tinned copper plate, spring steel  
and steel frame

▪ **Colour:**

Orange

▪ **Package:**

Bag



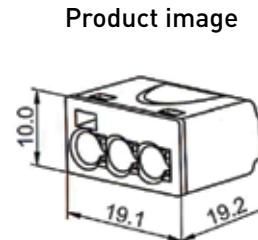
- Accepts rigid/solid and flexible/stranded conductors up to 4 mm<sup>2</sup> / 12 AWG
- Easy insert of stranded conductors with the operating tool (optional), 0,5 mm<sup>2</sup>/18 AWG and larger solid conductors are not required the operating tool
- Rated to 600V max for building wiring and 1000V max for lighting fixtures and signs
- For use in building distribution and junction boxes as well as in lighting and other appliances
- Can be reused

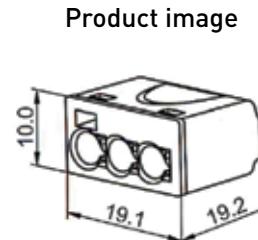
**RoHS**

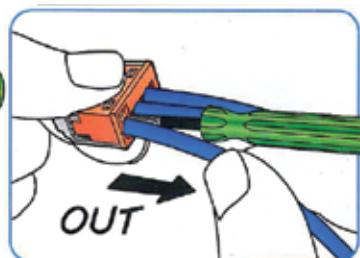
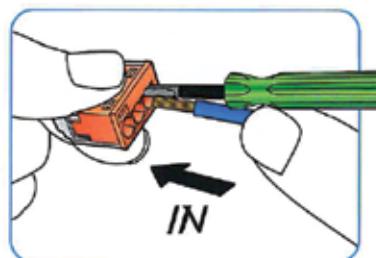
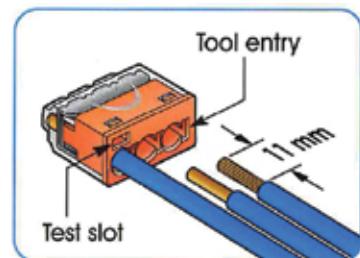


**Reach**

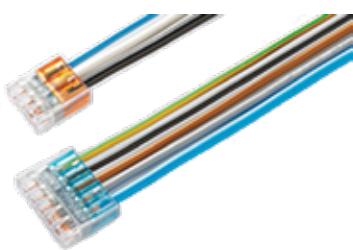
**CE**



Product image	Article No.	Color	cable size (mm <sup>2</sup> )	Range
	IPR-3	● Orange	0.5 - 4.0	32A



### Push in wire connector - Unik type



▪ **Material:**

Polycarbonate  
Tinned copper plate, spring steel  
and steel frame

▪ **Colour:**

Yellow, orange, natural, blue, purple, black

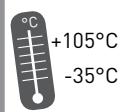
▪ **Package:**

Bag

- Accepts rigid/solid and flexible/stranded conductors up to 2,5 mm<sup>2</sup> / 22~12 AWG
- Hardened stainless steel insert restricts pull-out, yet requires a very low insertion force
- Rated to 600V max for building wiring and 1000V max for lighting fixtures and signs
- Does not require twisting and taping



RoHS

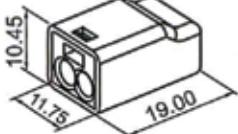
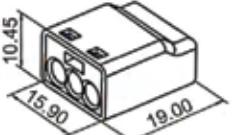
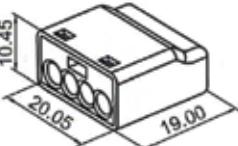
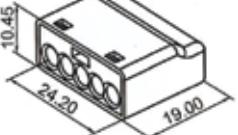
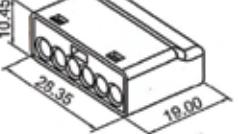
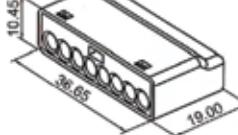



Reach



CE



Product image	Article No.	Color	cable size (mm <sup>2</sup> )	Range
	IPU-2		0.5-2.5	24A
	IPU-3		0.5-2.5	24A
	IPU-4		0.5-2.5	24A
	IPU-5		0.5-2.5	24A
	IPU-6		0.5-2.5	24A
	IPU-8		0.5-2.5	24A

# IPL

## Push in wire connector - Easy link lighting

▪ **Material:**

Polyamide 6.6  
Tinned copper and spring steel

▪ **Colour:**

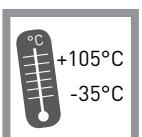
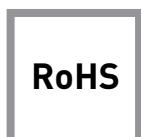
White, grey

▪ **Package:**

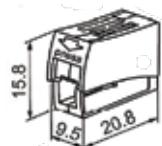
Bag



- For use between solid and stranded connectors up to 2,5 mm<sup>2</sup> / 18~12 AWG
- Does not require twisting and taping
- Test slot permits easy testing with a voltage tester
- Can be reused
- Excellent for lighting fixtures
- UL 94 Class V-2



Product image



Article No.

IPL-1

Color



cable size (mm<sup>2</sup>)

0.75-2.5

IPL-2



0.75-2.5





- Quality assurance CE/96/EC
- Applicable standard:
- EN60998-1: 2004 & EN60988-2-1: 2004

**Only PP material:**

- Good bounce impact force
- Low transparency and rigidity
- Flame retardant

**Only PA material:**

- Flame retardant to UL 94 Class V-2
- Solvent resistant
- Good bounce impact force

**Only PE material:**

- Good pliability, transparency and extensibility
- Solvent and radiation resistant

**▪ Standard material:**

PA 6.6 / PVC, PP material are

available on request

brass

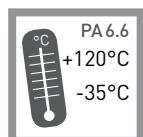
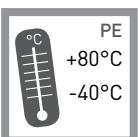
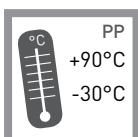
galvanized iron

**▪ Colour:**

Black, white

**▪ Package:**

PCS



\*Only PA and PP

Article No.			Poles	Colour	Size (mm <sup>2</sup> )	Screw size	Voltage rate	Rating A
PA	PP	PE						
ITB-A1W	ITB-P1W	ITB-E1W	12	●	2.5 - 4.0	M 2.5	380V	3A
ITB-A1B	ITB-P1B	ITB-E1B	12	●	2.5 - 4.0	M 2.5	380V	3A
ITB-A2W	ITB-P2W	ITB-E2W	12	●	4.0 - 6.0	M 3.0	380V	6A
ITB-A2B	ITB-P2B	ITB-E2B	12	●	4.0 - 6.0	M 3.0	380V	6A
ITB-A3W	ITB-P3W	ITB-E3W	12	●	6.0 - 10.0	M 3.0	380V	10A
ITB-A3B	ITB-P3B	ITB-E3B	12	●	6.0 - 10.0	M 3.0	380V	10A
ITB-A4W	ITB-P4W	ITB-E4W	12	●	10.0 - 12.0	M 3.5	380V	15A
ITB-A4B	ITB-P4B	ITB-E4B	12	●	10.0 - 12.0	M 3.5	380V	15A
ITB-A5W	ITB-P5W	ITB-E5W	12	●	12.0 - 14.0	M 4.0	380V	20A
ITB-A5B	ITB-P5B	ITB-E5B	12	●	12.0 - 14.0	M 4.0	380V	20A
ITB-A6W	ITB-P6W	ITB-E6W	12	●	16	M 4.0	380V	30A
ITB-A6B	ITB-P6B	ITB-E6B	12	●	16	M 4.0	380V	30A
ITB-A7W	ITB-P7W	ITB-E7W	12	●	25	M 4.0	380V	60A
ITB-A7B	ITB-P7B	ITB-E7B	12	●	25	M 4.0	380V	60A
ITB-A8W	ITB-P8W	ITB-E8W	12	●	35	M 5.0	400V	80A
ITB-A8B	ITB-P8B	ITB-E8B	12	●	35	M 5.0	400V	80A
ITB-A9W	ITB-P9W	ITB-E9W	12	●	40	M 6.0	450V	100A
ITB-A9B	ITB-P9B	ITB-E9B	12	●	40	M 6.0	450V	100A

# STMRL

## Polyamide cable glands

- Plastic series are separated from other cable glands
- High heat and impact resistance
- Anti lock system provides superior antivibration protection
- TPV rubber seal
- Ensures a firm grip on the cable that each point equal to 360°
- Connection thread norm (EN 60423)
- Slippery surface for easy cable access
- Short term temperature range +150°C
- According to EN 50262

**▪ Material**

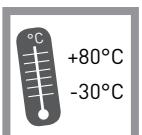
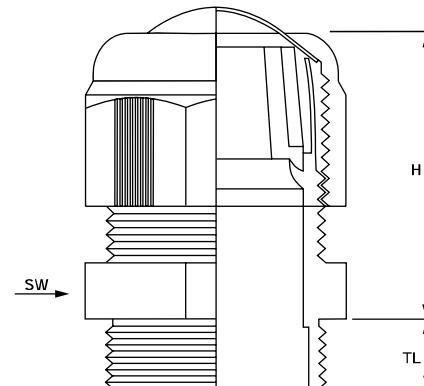
Polyamide raw material

**▪ Colors**

Black, dark grey, light grey

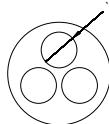
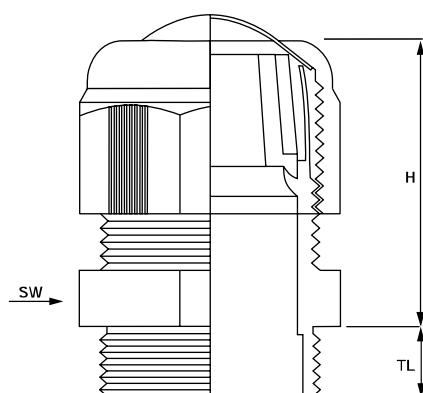
**▪ Package**

Bag



Article No.	Size	Diameter range (mm)	TL (mm)	SW (mm)	H max. (mm)
STMRL 01	M12x1.5	3.0 - 6.5	8	15	24
STMRL 02	M16x1.5	4.0 - 8.0	8	19	28
STMRL 03	M16x1.5	5.0 - 10.0	10	22	29
STMRL 04	M20x1.5	6.0 - 12.0	10	24	29
STMRL 05	M20x1.5	10.0 - 14.0	10	27	33
STMRL 06	M25x1.5	13.0 - 18.0	10	33	38
STMRL 07	M32x1.5	18.0 - 25.0	10	42	41
STMRL 08	M40x1.5	22.0 - 32.0	10	53	51
STMRL 09	M50x1.5	30.0 - 38.0	18	60	53
STMRL 10	M63x1.5	34.0 - 44.0	18	70	55
STR 01	PG 7	3.0 - 6.5	8	15	24
STR 02	PG 9	4.0 - 8.0	8	19	28
STR 03	PG 11	5.0 - 10.0	8	22	29
STR 04	PG 13.5	6.0 - 12.0	9	24	29
STR 05	PG 16	10.0 - 14.0	9	27	33
STR 06	PG 21	13.0 - 18.0	11	33	38
STR 07	PG 29	18.0 - 25.0	11	42	41
STR 08	PG 36	22.0 - 32.0	13	53	51
STR 09	PG 42	30.0 - 38.0	13	50	53
STR 10	PG 48	34.0 - 44.0	14	65	55

## Polyamide flat hole, metric cable glands



- Plastic series are separated from other cable glands
- High heat and impact resistance
- Anti lock system provides superior antivibration protection
- TPV rubber seal
- Ensures a firm grip on the cable that each point equal to 360°
- Connection thread norm (EN 60423)
- Slippery surface for easy cable access
- Short term temperature range +150°C
- According to EN 50262

▪ **Material**

Polyamide raw material

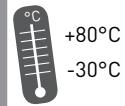
▪ **Colors**

Black, dark grey, light grey

▪ **Package**

Bag

**RoHS**



**UV**  
stabilised



**Reach**

**HF**

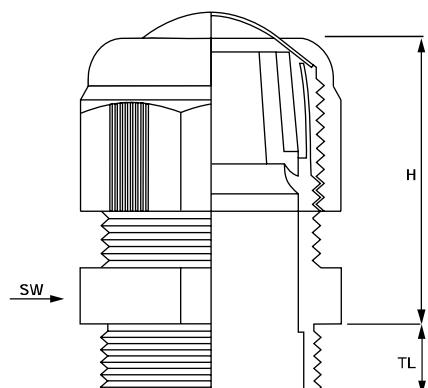
**IP65**

Article No.	Size	Number of holes (pcs)	C diameter (mm)
STMRL 02A3	M 16 x 1.5	2	3
STMRL 02B3	M 16 x 1.5	3	3
STMRL 02C3	M 16 x 1.5	4	3
STMRL 03A4	M 16 x 1.5	2	4
STMRL 03A5	M 16 x 1.5	2	5
STMRL 03B4	M 16 x 1.5	3	4
STMRL 03B5	M 16 x 1.5	3	5
STMRL 04A5	M 20 x 1.5	2	5
STMRL 04A6	M 20 x 1.5	2	6
STMRL 04B4	M 20 x 1.5	3	4
STMRL 04B5	M 20 x 1.5	3	5
STMRL 05A4	M 20 x 1.5	2	4
STMRL 05A7	M 20 x 1.5	2	7
STMRL 05B4	M 20 x 1.5	3	4
STMRL 05B6	M 20 x 1.5	3	6
STMRL 05C5	M 20 x 1.5	4	5
STMRL 06A8	M 25 x 1.5	2	8
STMRL 06A9	M 25 x 1.5	2	9
STMRL 06B7	M 25 x 1.5	3	7
STMRL 06B8	M 25 x 1.5	3	8
STMRL 06C7	M 25 x 1.5	4	7
STMRL 06G3	M 25 x 1.5	8	3
STMRL 06G4	M 25 x 1.5	8	4
STMRL 07C9	M 32 x 1.5	4	9
STMRL 0703	M 32 x 1.5	16	3
STMRL 08E8	M 40 x 1.5	6	8

# STR

## Polyamide cable glands. Multi hole PG

- Plastic series are separated from other cable glands
- High heat and impact resistance
- Anti lock system provides superior antivibration protection
- TPV rubber seal
- Ensures a firm grip on the cable that each point equal to 360°
- Connection thread norm (DIN 40430)
- Slippery surface for easy cable access
- Short term temperature range +150°C
- Multi hole cable glands that ensures IP protection, are used in need of multi cable access



### ▪ Material

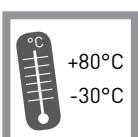
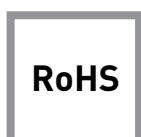
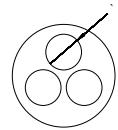
Polyamide 6.6

### ▪ Colors

Black, dark grey, light grey

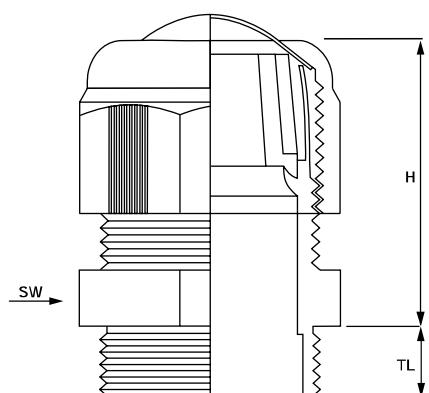
### ▪ Package

Bag

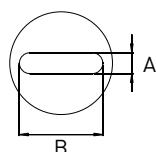


Article No.	Size	Number of holes (pcs)	C diameter (mm)
SRL 02A3	PG 9	2	3
SRL 02B3	PG 9	3	3
SRL 02C3	PG 9	4	3
SRL 03A4	PG 11	2	4
SRL 03A5	PG 11	2	5
SRL 03B4	PG 11	3	4
SRL 03B5	PG 11	3	5
SRL 04A5	PG 13.5	2	5
SRL 04A6	PG 13.5	2	6
SRL 04B4	PG 13.5	3	4
SRL 04B5	PG 13.5	3	5
SRL 05A4	PG 16	2	4
SRL 05A7	PG 16	2	7
SRL 05B4	PG 16	3	4
SRL 05B6	PG 16	3	6
SRL 05C5	PG 16	4	5
SRL 06A8	PG 21	2	8
SRL 06A9	PG 21	2	9
SRL 06B7	PG 21	3	7
SRL 06B8	PG 21	3	8
SRL 06C7	PG 21	4	7
SRL 06G3	PG 21	8	3
SRL 06G4	PG 21	8	4
SRL 07C9	PG 29	4	9
SRL 0703	PG 29	16	3
SRL 08E8	PG 36	6	8

## Polyamide cable glands. Flat hole PG and metrik



- Plastic series are separated from other cable glands
- High heat and impact resistance
- Anti lock system provides superior antivibration protection
- TPV rubber seal
- Ensures a firm grip on the cable that each point equal to 360°
- Connection thread norm (EN 60423)
- Slippery surface for easy cable access
- Short term temperature range +150°C
- According to EN 50262



- **Material**  
Polyamide raw material
- **Colors**  
Black, dark grey, light grey
- **Package**  
Bag

**RoHS**



**UV**  
stabilised



**Reach**

**HF**

**IP65**

Article No.	Size	A (mm)	B (mm)
SMRL 05 FH	M 20 x 1.5	7	13
SMRL 06 FH	M 25 x 1.5	7	15
SMRL 07 FH	M 32 x 1.5	8	22
SMRL 08 FH	M 40 x 1.5	10	28
SMRL 09 FH	M 50 x 1.5	12	33
SMRL 10 FH	M 63 x 1.5	14	45

Article No.	Size	A (mm)	B (mm)
SRL 05 FH	PG 16	7	13
SRL 06 FH	PG 21	7	15
SRL 07 FH	PG 29	8	22
SRL 08 FH	PG 36	10	28
SRL 09 FH	PG 42	12	33
SRL 10 FH	PG 48	14	45

# NM / NPG

## Polyamide lock nuts metric and PG

- Plastic series are separated from other lock nuts due to the following characteristics
- 30% glass fiber reinforced lock nut that resistance to high temperature and compression
- Connection thread norms (DIN 40430 / EN 60423)
- Short term temperature range +150°C
- Roughing surface that prevents gliding

▪ **Material**

Polyamide

▪ **Colors**

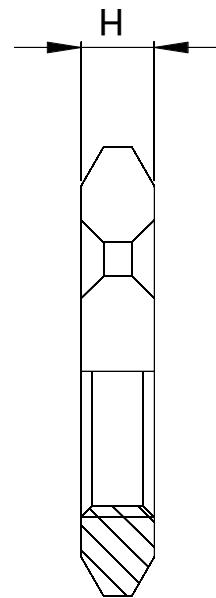
Black,

dark grey,

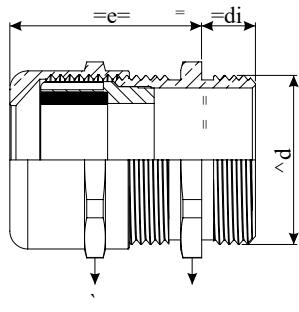
light grey

▪ **Package**

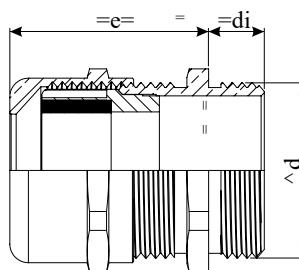
Bag



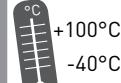
Article No.	Size	H (mm)	(mm)
NM-01	M 12 x 1.5	5	18
NM-02	M 16 x 1.5	5	22
NM-03	M 20 x 1.5	6	26
NM-04	M 25 x 1.5	6	32
NM-05	M 32 x 1.5	7	41
NM-06	M 40 x 1.5	7	50
NM-07	M 50 x 1.5	8	60
NM-08	M 63 x 1.5	8	75
NPG-01	PG 7	5	19
NPG-02	PG 9	5	22
NPG-03	PG 11	5	24
NPG-04	PG 13.5	6	27
NPG-05	PG 16	6	30
NPG-06	PG 21	7	36
NPG-07	PG 29	7	46
NPG-08	PG 36	8	60
NPG-09	PG 42	8	65
NPG-10	PG 48	8	70



- Metal series are separated from other cable glands due to the following characteristics;
- Brass, nickel plated
- High heat and impact resistance
- TPV rubber seal
- Ensures a firm grip on the cable that each point equal to 360°
- Connection thread norm (EN 60423 / DIN 40430)
- Nitrile butadiene rubber (NBR O-ring)



- **Material**  
Brass
- **Colors**  
Silver
- **Package**  
PCS

**RoHS****UV**  
stabilised**Reach****HF****IP68**

Article No.	Size	H (mm)	GL (mm)	B (mm)	C (mm)	(mm)
BMRL-01	M 12 x 1.5	19	6	14	14	3 - 6.5
BMRL-02	M 16 x 1.5	21	7	18	17	4 - 8
BMRL-03	M 20 x 1.5	23	8	22	22	6 - 12
BMRL-04	M 25 x 1.5	24	8	27	24	10 - 14
BMRL-05	M 32 x 1.5	25	9	34	30	13 - 18
BMRL-06	M 40 x 1.5	31	9	43	40	18 - 25
BMRL-07	M 50 x 1.5	37	9	55	50	22 - 32
BMRL-08	M 63 x 1.5	38	14	68	64	34 - 44

Article No.	Size	H (mm)	GL (mm)	(mm)	(mm)
BRL-01	PG 7	19	6	14	3 - 6.5
BRL-02	PG 9	21	6	17	4 - 8
BRL-03	PG 11	22	6	20	5 - 10
BRL-04	PG 13.5	23	6.5	22	6 - 12
BRL-05	PG 16	24	6.5	24	10 - 14
BRL-06	PG 21	25	7	30	13 - 18
BRL-07	PG 29	31	8	40	18 - 25
BRL-08	PG 36	37	10	50	22 - 32
BRL-09	PG 42	37	12	57	30 - 38
BRL-10	PG 48	38	14	64	34 - 44

# BMN / BNPG

## Metal lock nuts brass

- **Material**

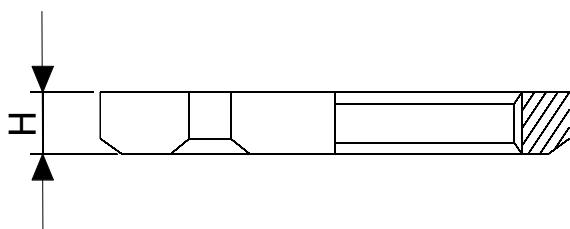
Brass

- **Colors**

Silver

- **Package**

PCS



- Brass, nickel plated
- High heat and impact resistance
- Connection thread norms  
(DIN 40430 / EN 60423)
- Mostly used in every units of brass  
PG & Metric threads assembling


**RoHS**


**UV**  
stabilised

Flame  
retardant


**Reach**

**HF**

Article No.	Size	H (mm)	 (mm)
BNM-01	M 12 x 1.5	5	15
BNM-02	M 16 x 1.5	5	19
BNM-03	M 20 x 1.5	6	24
BNM-04	M 25 x 1.5	6	30
BNM-05	M 32 x 1.5	7	36
BNM-06	M 40 x 1.5	7	45
BNM-07	M 50 x 1.5	8	55
BNM-08	M 63 x 1.5	8	68
BNPG-01	PG 7	2.8	15
BNPG-02	PG 9	2.8	18
BNPG-03	PG 11	3	21
BNPG-04	PG 13.5	3	23
BNPG-05	PG 16	3	26
BNPG-06	PG 21	3.5	32
BNPG-07	PG 29	4	40
BNPG-08	PG 36	5	50
BNPG-09	PG 42	5	60
BNPG-10	PG 48	5.5	64



- Ventillator plugs are IP68 rated and reduce the adverse affects of humidity in the environment by preventing pressure increase inside the enclosure and limiting temperature increase through air circulation.
- Allow the passage of air for ventilation and heat dissipation, yet prevent moisture intrusion;

- Pressure compensating seal prevents buildup of pressure inside of electronic enclosures due to environmental temperature cycling;
- Filter Membrane prevents moisture and particulate contamination in electronic enclosures integral sealing ring ensure a superior seal at mounting hole location, every time IP65, 67 68 rated.

▪ **Material:**

MS58 brass / stainless steel/ polyamide 6.6

▪ **Colors**

Silver or grey

▪ **Package**

PCS

## SIZE

- SVP-1 brass ventilation plug
- SVP-2 stainless steel ventilation plug
- SVP-3 polyamide 6.6 ventilation plug

## TECHNICAL DETAILS

▪ **Membrane material**

acrylic co polymer

▪ **Membrane feature**

hydrophobic - oleophobic

▪ **O-ring**

(EPDM / NBR)

▪ **Protection degree IP68**

▪ **Working temperature of Polyamid**

-40°C - +85°C

▪ **Working temperature of brass and steel**

- 40°C - + 105°C

▪ **Available membrane Perm.**

High 120 L / Hour S

▪ **Torque value**

0.5- 1.0 Nm / 1.0 - 1.5 Nm

▪ **Water Intrusion Pressure**

S 0.9bar M 0.5bar H 0.2bar UH 0.1Bar

▪ **Thread Size**

M12x1,5mm





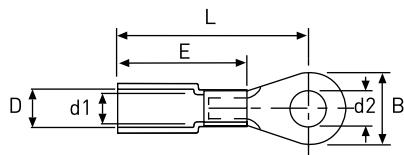
## TERMINAL PRODUCTS

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## Terminal product list

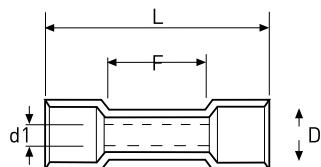
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Name	Description	Material	Temperature	Page
<b>STIR</b>	Heat shrinkable ring terminals - Waterproof	Polyolefin / Copper	125°C	163
<b>TCS</b>	Heat shrinkable butt connector - Waterproof	Polyolefin / Copper	125°C	163
<b>STIF</b>	Heat shrinkable spade terminals - Waterproof	Polyolefin / Copper	125°C	163
<b>STIW</b>	Heat Shrinkable male disconnector	Polyolefin / Copper	125°C	164
<b>STIM</b>	Half isolated heat shrinkable female disconnector	Polyolefin / Copper	125°C	164
<b>STFIM</b>	Full isolated heat shrinkable female disconnector	Polyolefin / Copper	125°C	164
<b>TSSN</b>	Solder butt connector	Polyolefin / Copper	85°C	164
<b>TISEC</b>	Solder grip end connector	Polyolefin / Copper	85°C	165
<b>TIR</b>	PVC ring terminals	PVC / Copper	75°C	165
<b>TIP</b>	PVC pin terminals	PVC / Copper	75°C	166
<b>TIF</b>	PVC spade terminals	PVC / Copper	75°C	166
<b>TFIS</b>	PVC butt connectors (extended)	PVC / Copper	75°C	167
<b>TFVP</b>	PVC butt connectors	PVC / Copper	75°C	167
<b>TIW</b>	Half insulated PVC female disconnector	PVC / Copper	75°C	167
<b>TFIW</b>	Full insulated PVC female disconnecto	PVC / Copper	75°C	168
<b>TIM</b>	PVC male disconnector	PVC / Copper	75°C	168
<b>TICE</b>	Insulated cord end terminal	PP / Copper	85°C	169
<b>TNIC</b>	Non-insulated core end terminals, DIN46228	Copper	-	170
<b>TNIT</b>	Non-insulated tube terminals	Copper	-	171
<b>TICT</b>	Insulated twin cord end terminal	PP / Copper	85°C	168
<b>TNIR</b>	Non-insulated ring terminals DIN46235	Copper	-	172
<b>TNIB</b>	Non-insulated butt connector	Copper	-	174



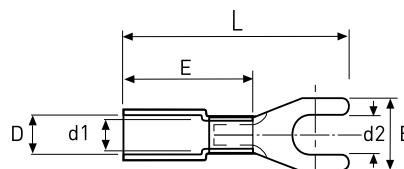
**Heat shrinkable ring terminals**  
Waterproof, heat resistant up to +125°C

Article No.	Cable size AWG	Cable size (mm <sup>2</sup> )	B	D	d1	d2	E	L
STIR-1	22~16	0.5~1.5	8	4.5	1.7	4.3	18.5	26
STIR-2	22~16	0.5~1.5	8	4.5	1.7	5.3	18.5	26
STIR-3	22~16	0.5~1.5	11.6	4.5	1.7	6.5	18.5	31.5
STIR-4	22~16	0.5~1.5	11.6	4.5	1.7	8.4	18.5	31.5
STIR-5	22~16	0.5~1.5	13.6	4.5	1.7	10.5	18.5	40.5
STIR-6	16~14	1.5~2.5	8.5	5.5	2.3	4.3	20.5	28.5
STIR-7	16~14	1.5~2.5	9.5	5.5	2.3	5.3	20.5	28.5
STIR-8	16~14	1.5~2.5	12	5.5	2.3	6.5	20.5	33.5
STIR-9	16~14	1.5~2.5	12	5.5	2.3	8.4	20.5	33.5
STIR-10	16~14	1.5~2.5	13.6	5.5	2.3	10.5	20.5	37.2
STIR-11	12~10	4~6	9.5	6.5	3.4	4.3	23.5	33
STIR-12	12~10	4~6	9.5	6.5	3.4	5.3	23.5	33
STIR-13	12~10	4~6	12	6.5	3.4	6.5	23.5	36.5
STIR-14	12~10	4~6	15	6.5	3.4	8.4	23.5	41
STIR-15	12~10	4~6	15	6.5	3.4	10.5	23.5	41
STIR-16	12~10	4~6	19.2	6.5	3.4	13	23.5	45.5



**Heat shrinkable butt connector**  
Waterproof, heat resistant up to +125 °C

Article No.	Cable size AWG	Cable size (mm <sup>2</sup> )	D	d1	F	L	Colour
TCS-1	26~19	0.3~0.8	2.1	1.2	12	24	○
TCS-2	19~16	0.8~2.0	4.5	1.6	15	37	●
TCS-3	16~14	2~4	5.5	2.3	15	37	■
TCS-4	12~10	4~6	6.5	3.6	15	41	■

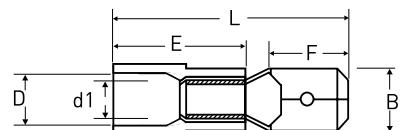


**Heat Shrinkable spade terminals**  
Waterproof, heat resistant up to +125°C

Article No.	Cable size AWG	Cable size (mm <sup>2</sup> )	B	D	d1	d2	E	L
STIF-1	22~16	0.5~1.5	8	4.5	1.7	4.3	18.5	26
STIF-2	22~16	0.5~1.5	8	4.5	1.7	5.3	18.5	26
STIF-3	22~16	1.5~2.5	8.5	5.5	2.3	4.3	20.5	27.5
STIF-4	16~14	1.5~2.5	9.5	5.5	2.3	5.3	20.5	28.5
STIF-5	12~10	4~6	9.5	6.5	3.4	4.3	23.5	32.5
STIF-6	12~10	4~6	9.5	6.5	3.4	5.3	23.5	32.5

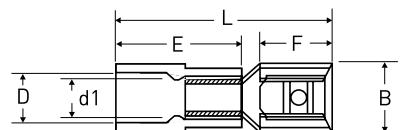
## STIW / STIM / STFIM / TSSN

**Heat shrinkable male disconnector**  
heat resistant up to +125°C



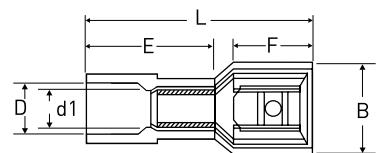
Article No.	Cable size AWG	Cable size mm²	Size	B	D	d1	E	F	L
STIW-1	22~16	0.5~1.5	6.4x0.8	6.6	4.5	1.7	26.5	7.9	36
STIW-2	16~14	1.5~2.5	6.4x0.8	6.6	5.5	2.3	26.5	7.9	36
STIW-3	12~10	4~6	6.4x0.8	6.6	7.5	3.4	26.5	7.9	36

**Half isolated heat shrinkable female disconnector**  
heat resistant up to +125°C



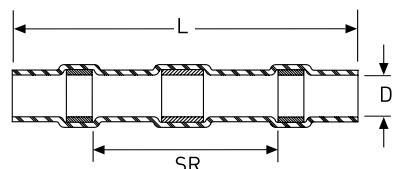
Article No.	Cable size AWG	Cable size mm²	Size	B	D	d1	E	F	L
STIM-1	22~16	0.5~1.5	6.3x0.8	6.5	4.5	1.7	26.5	7.9	36
STIM-2	16~14	1.5~2.5	6.3x0.8	6.5	5.5	2.3	26.5	7.9	36
STIM-3	12~10	4~6	6.3x0.8	6.5	7.5	3.4	26.5	7.9	36

**Full isolated heat shrinkable female disconnector**  
heat resistant up to +125°C



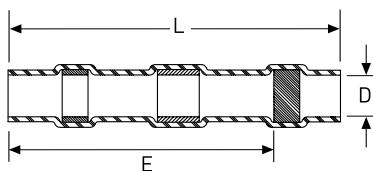
Article No.	Cable size AWG	Cable size mm²	Size	B	D	d1	E	F	L
STFIM-1	22~16	0.5~1.5	6.3x0.8	6.5	7.5	1.7	18	7.9	28
STFIM-2	16~14	1.5~2.5	6.3x0.8	6.5	7.5	2.3	18	7.9	28
STFIM-3	12~10	4~6	6.3x0.8	6.5	7.5	3.4	18	7.9	28

**Solder butt connector**  
Temperaturate up to +85°C



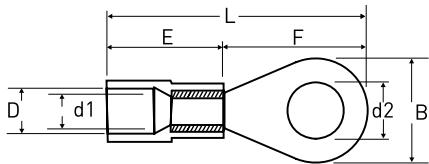
Article No.	Cable size AWG	Cable mm²	D	L	Shrinkage rate	Colour
TSSN-1	22~18	0.3~0.8	1.7	26	1.7 - 0.4 mm	○
TSSN-2	18~14	0.8~2.0	2.7	42	2.7 - 1.3 mm	●
TSSN-3	14~11	2.0~4.0	4.5	42	4.5 - 1.8 mm	■
TSSN-4	11~10	4~6	6	42	6 - 2.8 mm	■

**Solder grip end connector**  
Temperaturte up to +85°C



Article No.	Cable size AWG	Cable mm <sup>2</sup>	D	E	L	Bundle max. (mm)	Colour
TISEC-1	12	3.3	3.6	26	38.3	3.3	○
TISEC-2	11	4.5	5	23.5	37.7	4.5	●
TISEC-3	9	7.0	7.5	26.5	45.5	7	■
TISEC-4	8	9.0	9.4	25.5	45	9	■

**PVC ring terminals**  
Temperaturte -20°C - +75°C

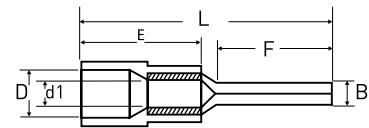


Article No.	Cable size AWG	Cable mm <sup>2</sup>	B	D	d1	d2	E	F	L	Colour
TIR-1	22~16	0.5~1.5	5.5	4.3	1.7	3.3	10	4.8	17.5	●
TIR-2	22~16	0.5~1.5	6.6	4.3	1.7	3.8	10	6.3	19.4	●
TIR-3	22~16	0.5~1.5	8	4.3	1.7	3.8	10	7	20.8	●
TIR-4	22~16	0.5~1.5	6.6	4.3	1.7	4.4	10	6.3	19.4	●
TIR-5	22~16	0.5~1.5	8	4.3	1.7	5.4	10	7	20.8	●
TIR-6	22~16	0.5~1.5	10	4.3	1.7	6.6	10	8	23	■
TIR-7	22~16	0.5~1.5	11.8	4.3	1.7	8.5	10	11	26.7	●
TIR-8	22~16	0.5~1.5	13.6	4.3	1.7	10.6	10	13.9	30.5	●
TIR-9	16~14	1.5~2.5	6.6	4	2.4	3.3	10	4.7	17.8	■
TIR-10	16~14	1.5~2.5	6.6	4	2.4	3.8	10	6.3	19.4	■
TIR-11	16~14	1.5~2.5	8.5	4	2.4	4.4	10	7.8	21.8	■
TIR-12	16~14	1.5~2.5	9.6	4	2.4	5.4	10	7.1	21.8	■
TIR-13	16~14	1.5~2.5	11	4.8	2.3	6.6	10	11	26.5	■
TIR-14	16~14	1.5~2.5	11.8	4	2.4	8.5	10	11	26.7	■
TIR-15	16~14	1.5~2.5	13.6	4	2.4	10.6	10	13.9	30.5	■
TIR-16	16~14	1.5~2.5	18	4.8	2.3	13	10	15	34	■
TIR-17	12~10	4~6	7.2	6.7	3.5	3.8	13	6.1	22.5	■
TIR-18	12~10	4~6	7.2	6.7	3.5	4.4	13	6.1	16.4	■
TIR-19	12~10	4~6	9.5	6.7	3.5	4.4	13	8.9	26.6	■
TIR-20	12~10	4~6	9.5	6.7	3.5	5.4	13	8.9	26.6	■
TIR-21	12~10	4~6	11	6.7	3.5	6.6	13	9.5	28	■
TIR-22	12~10	4~6	14	6.7	3.5	8.4	13	13	33	■
TIR-23	12~10	4~6	15	6.7	3.5	10.6	13	13.5	33.8	■
TIR-24	12~10	4~6	18	6.7	3.5	13	13	15	37	■

## TIP / TIF

### PVC pin terminals

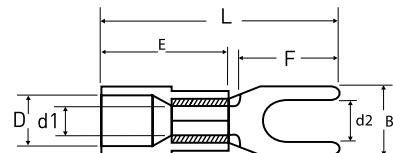
Temperatute: -20°C - +75°C



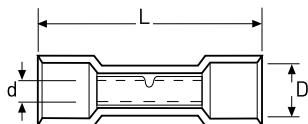
Article No.	Cable size AWG	Cable size mm <sup>2</sup>	B	D	d1	E	F	L	Colour
TIP-1	22~16	0.5~1.5	1.9	4.3	1.7	10	9	19	■
TIP-2	22~16	0.5~1.5	1.9	4.3	1.7	10	10	20	■
TIP-3	22~16	0.5~1.5	1.9	4.3	1.7	10	12	22	■
TIP-4	16~14	1.5~2.5	1.9	4.8	2.3	10	9	19	■
TIP-5	16~14	1.5~2.5	1.9	4.8	2.3	10	12	22	■
TIP-6	12~10	4~6	2.8	6.7	3.5	13	14	27	■

### PVC spade terminals

Temperatute: -20°C - +75°C

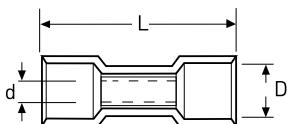


Article No.	Cable size AWG	Cable size mm <sup>2</sup>	B	D	d1	d2	E	F	L	Colour
TIF-1	22~16	0.5~1.5	5.7	4.3	1.7	3.3	10	6.5	21	■
TIF-2	22~16	0.5~1.5	6.4	4.3	1.7	3.8	10	6.5	21	■
TIF-3	22~16	0.5~1.5	6.4	4.3	1.7	4.4	10	6.5	21	■
TIF-4	22~16	0.5~1.5	7.2	4.3	1.7	4.4	10	6.5	21	■
TIF-5	22~16	0.5~1.5	8.1	4.3	1.7	5.4	10	6.5	21	■
TIF-6	22~16	0.5~1.5	9.5	4.3	1.7	6.6	10	6.5	21	■
TIF-7	16~14	1.5~2.5	5.7	4.8	2.3	3.3	10	6.5	21	■
TIF-8	16~14	1.5~2.5	6.4	4.8	2.3	3.8	10	6.5	21	■
TIF-9	16~14	1.5~2.5	7.2	4.8	2.3	3.8	10	6.5	21	■
TIF-10	16~14	1.5~2.5	6.4	4.8	2.3	4.4	10	6.5	21	■
TIF-11	16~14	1.5~2.5	7.2	4.8	2.3	4.4	10	6.5	21	■
TIF-12	16~14	1.5~2.5	8.1	4.8	2.3	4.4	10	6.5	21	■
TIF-13	16~14	1.5~2.5	8.1	4.8	2.3	5.4	10	6.5	21	■
TIF-14	16~14	1.5~2.5	-	-	2.3	5.4	10	6.5	21	■
TIF-15	16~14	1.5~2.5	12	4.8	2.3	6.6	10	11	27	■
TIF-16	12~10	4~6	8.3	6.7	3.5	3.8	13	7	25.5	■
TIF-17	12~10	4~6	8.3	6.7	3.5	4.4	13	7	25.5	■
TIF-18	12~10	4~6	9	6.7	3.5	4.4	13	7	25.5	■
TIF-19	12~10	4~6	9	6.7	3.5	5.4	13	7	25.5	■
TIF-20	12~10	4~6	12	6.7	3.5	6.6	13	12	31.5	■
TIF-21	12~10	4~6	14	6.7	3.5	8.5	13	11.5	30.5	■

**PVC butt connectors (extended)**

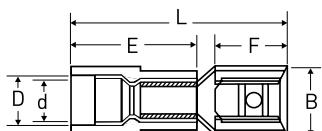
Temperatute: -20°C - +75°C

Article No.	Cable size AWG	Cable size mm <sup>2</sup>	D	d1	L	Colour
TFIS-1	22~16	0.5~1.5	4.3	1.7	26	● Red
TFIS-2	16~14	1.5~2.5	4.8	2.3	26	● Blue
TFIS-3	12~10	4~6	6.7	3.4	27	● Yellow
TFIS-4	10	8	8	8.5	35.5	● Red

**PVC butt connectors**

Temperatute: -20°C - +75°C

Article No.	Cable size AWG	Cable size mm <sup>2</sup>	D	d1	L	Colour
TFVP-1	22~16	0.5~1.5	4.1	1.7	18	● Red
TFVP-2	16~14	1.5~2.5	4.5	2.3	18	● Blue
TFVP-3	12~10	4~6	6.5	3.6	21	● Yellow

**Half insulated PVC female disconnector**

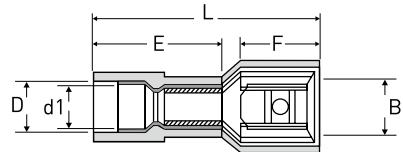
Temperatute: -20°C - +75°C

Article No.	Cable size AWG	Cable size mm <sup>2</sup>	Size	B	D	d	E	F	L	Colour
TIW-1	22~16	0.5~1.5	2.8x0.5	3.2	3.3	1.7	10	6.5	18.8	● Red
TIW-2	22~16	0.5~1.5	2.8x0.8	3.2	3.3	1.7	10	6.5	18.8	● Red
TIW-3	22~16	0.5~1.5	4.75x0.5	5	3.3	1.7	10	6.4	19.2	● Red
TIW-4	22~16	0.5~1.5	4.75x0.8	5	3.3	1.7	10	6.4	19.2	● Red
TIW-5	22~16	0.5~1.5	6.35x0.8	6.5	3.3	1.7	10	7.2	20.8	● Red
TIW-6	22~16	0.5~1.5	8.0x0.8	8.2	3.3	1.7	10	10.2	24.5	● Red
TIW-7	16~14	1.5~2.5	2.8x0.5	3.2	4.1	2.3	10	6.5	19.2	● Blue
TIW-8	16~14	1.5~2.5	2.8x0.8	3.2	4.1	2.3	10	6.5	19.2	● Blue
TIW-9	16~14	1.5~2.5	4.75x0.5	5	4.1	2.3	10	6.4	19.2	● Blue
TIW-10	16~14	1.5~2.5	5.75x0.8	5	4.1	2.3	10	6.4	19.2	● Blue
TIW-11	16~14	1.5~2.5	6.35x0.8	6.5	4.1	2.3	10	7.2	20.8	● Blue
TIW-12	16~14	1.5~2.5	8.0x0.8	8.2	4.1	2.3	10	10.2	24.5	● Blue
TIW-13	16~14	1.5~2.5	9.4x1.2	10	4.1	2.3	10	12	25.6	● Blue
TIW-14	12~10	4~6	6.35x0.8	6.5	5.6	3.4	13	7.2	23.8	● Yellow
TIW-15	12~10	4~6	9.4x1.2	10	5.6	3.4	13	12	28.6	● Yellow

# TFIW / TIM / TICT

## Full insulated PVC female disconnector

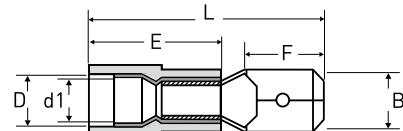
Temperatute: -20°C - +75°C



Article No.	Cable size AWG	Cable size mm²	Size	B	D	d1	E	F	L	Colour
TFIW-1	22~16	0.5~1.5	2.8x0.5	3.2	3.3	1.9	10.5	6.5	19	●
TFIW-2	22~16	0.5~1.5	2.8x0.8	3.2	3.3	1.9	10.5	6.5	19	●
TFIW-3	22~16	0.5~1.5	4.75x0.5	5	3.3	1.7	10.5	6.4	19	●
TFIW-4	22~16	0.5~1.5	4.75x0.8	5	3.3	1.7	10.5	6.4	19	●
TFIW-5	22~16	0.5~1.5	6.35x0.8	6.5	3.3	1.7	10.5	7.2	21.8	●
TFIW-6	16~14	1.5~2.5	2.8x0.5	3.2	4.1	2.5	10.5	6.5	19	●
TFIW-7	16~14	1.5~2.5	2.8x0.8	3.2	4.1	2.3	10.5	6.5	19	●
TFIW-8	16~14	1.5~2.5	4.75x0.5	5	4.1	2.3	10.5	6.4	19	●
TFIW-9	16~14	1.5~2.5	4.75x0.8	5	4.1	2.3	10.5	6.4	19	●
TFIW-10	16~14	1.5~2.5	6.35x0.8	6.5	4.1	2.3	10.5	7.2	21.8	●
TFIW-11	12~10	4~6	6.35x0.8	6.5	5.6	3.4	10.9	7.2	23.8	●

## PVC male disconnector

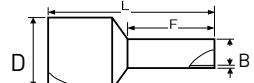
Temperatute. -20°C - +75 °C



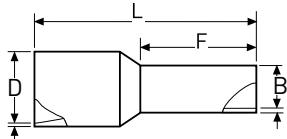
Article No.	Cable size AWG	Cable size mm²	Size	B	D	d1	E	F	L	Colour
TIM-1	22~16	0.5~1.5	2.8x0.5	2.8	3.3	1.7	10	6.5	18.7	●
TIM-2	22~16	0.5~1.5	2.8x0.8	2.8	3.3	1.7	10	6.5	18.7	●
TIM-3	22~16	0.5~1.5	4.75x0.5	4.8	3.3	1.7	10	6.5	19.2	●
TIM-4	22~16	0.5~1.5	4.75x0.8	4.8	3.3	1.7	10	6.7	19.2	●
TIM-5	22~16	0.5~1.5	6.35x0.8	6.35	3.3	1.7	10	7.6	20.8	●
TIM-6	16~14	1.5~2.5	2.8x0.5	2.8	4.1	2.3	10	6.5	18.7	●
TIM-7	16~14	1.5~2.5	2.8x0.8	2.8	4.1	2.3	10	6.5	18.7	●
TIM-8	16~14	1.5~2.5	4.75x0.5	4.8	4.1	2.3	10	6.5	19.2	●
TIM-9	16~14	1.5~2.5	4.75x0.8	4.8	4.1	2.3	10	6.7	19.2	●
TIM-10	16~14	1.5~2.5	6.35x0.8	6.35	4.1	2.3	10	7.6	20.8	●
TIM-11	12~10	4~6	6.35x0.8	6.35	5.6	3.4	13	7.6	24	●

## PP insulated twin cord end terminals

Temperatute: -20°C - +85 °C



Article No.	Cable size AWG	Cable size mm²	B	D	F	L	Colour
TICT-0515-0	20	0.5	1.5	2.5	8	15	●
TICT-07515-W	18	0.75	1.8	2.8	8	15	○
TICT-115-Y	17	1.0	2.05	3.4	8	15	■
TICT-1516-R	15	1.5	2.3	3.6	8	16	●
TICT-25185-B	13	2.5	2.8	4.2	10	18.5	●
TICT-4023-Gr	11	4.0	3.7	4.9	12	23	■
TICT-6026-K	9	6.0	4.8	6.9	14	26	●

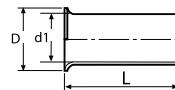


**PP insulated cord end terminals**  
Temperatute: -20°C - +85 °C

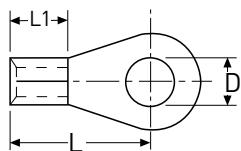
Article No.	Cable size AWG	Cable size mm <sup>2</sup>	B	D	F	L	Colour
TICE0.106-Gr	29	0.14	0.7	1.6	6.00	10	■
TICE0.108-Gr	29	0.14	0.7	1.6	8.00	12	■
TICE0.206-LB	26	0.25	0.75	1.9	6.00	10	■
TICE0.208-LB	26	0.25	0.75	1.9	8.00	12	■
TICE0.306-Q	23	0.34	0.8	1.9	6.00	10	■
TICE0.308-Q	23	0.34	0.8	1.9	8.00	12	■
TICE0.506-O	20	0.50	1	2.6	6.00	10	■
TICE0.508-O	20	0.50	1	2.6	8.00	12	■
TICE0.510-O	20	0.50	1	2.6	10.00	14	■
TICE0.512-O	20	0.50	1	2.6	12.00	16	■
TICE0.7506-W	18	0.75	1.2	2.8	6.00	10	○
TICE0.7508-W	18	0.75	1.2	2.8	8.00	12	○
TICE0.7510-W	18	0.75	1.2	2.8	10.00	14	○
TICE0.7512-W	18	0.75	1.2	2.8	12.00	16	○
TICE1.006-Y	17	1.00	1.4	3	6.00	10	■
TICE1.008-Y	17	1.00	1.4	3	8.00	12	■
TICE1.010-Y	17	1.00	1.4	3	10.00	14	■
TICE1.012-Y	17	1.00	1.4	3	12.00	16	■
TICE1.508-R	15	1.50	1.7	3.5	8.00	12	■
TICE1.510-R	15	1.50	1.7	3.5	10.00	14	■
TICE1.512-R	15	1.50	1.7	3.5	12.00	16	■
TICE2.508-B	13	2.50	1.7	3.5	8.00	12	■
TICE2.510-B	13	2.50	2.2	4.2	10.00	14	■
TICE2.512-B	13	2.50	2.2	4.2	12.00	16	■
TICE2.518-B	13	2.50	2.2	4.2	18.00	22	■
TICE4.010-GR	11	4.00	2.2	4.2	10.00	16	■
TICE4.012-GR	11	4.00	2.8	4.8	12.00	18	■
TICE4.018-GR	11	4.00	2.8	4.8	18.00	24	■
TICE6.012-K	9	6.00	2.8	4.8	12.00	16	■
TICE6.018-K	9	6.00	3.5	6.3	18.00	24	■
TICE1012-I	7	10.00	3.5	6.3	12.00	18	■
TICE1018-I	7	10.00	4.5	7.6	18.00	24	■
TICE1612-G	5	16.00	4.5	7.6	12.00	17	■
TICE1618-G	5	16.00	5.8	8.8	18.00	23	■
TICE2516-BR	3	25.00	5.8	8.8	16.00	26	■
TICE2522-BR	3	25.00	7.3	11.2	22.00	27	■
TICE3516-E	2	35.00	7.3	11.2	16.00	23	■
TICE3525-E	2	35.00	8.3	12.7	25.00	32	■
TICE5020-U	1/0	50.00	8.3	12.7	20.00	27	■
TICE5020-U	1/0	50.00	8.3	12.7	25.00	32	■
TICE7021-Y	3/0	70.00	10.3	15	21.00	28	■
TICE9525-R	2/0	95.00	10.3	15	25.00	32	■
TICE12027-B	5/0	120.00	12.7	16.5	27.00	36	■
TICE15032-Y	6/0	150.00	15.5	18	32.00	40	■

# TNIC

**Non-insulated cord end terminals, DIN46228**

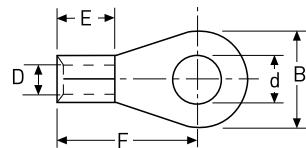


Article No.	Cable size AWG	Cable size mm <sup>2</sup>	D	d1	L
TNIC-0.506	22	0.5	2.1	1	6
TNIC-0.508	22	0.5	2.1	1	8
TNIC-0.510	22	0.5	2.1	1	10
TNIC-0.7506	22	0.75	2.3	1.2	6
TNIC-0.7508	22	0.75	2.3	1.2	8
TNIC-0.7510	22	0.75	2.3	1.2	10
TNIC-0.7512	22	0.75	2.3	1.2	12
TNIC-106	22	1	2.5	1.4	6
TNIC-108	22	1	2.5	1.4	8
TNIC-110	22	1	2.5	1.4	10
TNIC-120	22	1	2.5	1.4	12
TNIC-1.506	16	1.5	2.8	1.7	6
TNIC-1.508	16	1.5	2.8	1.7	8
TNIC-1.510	16	1.5	2.8	1.7	10
TNIC-1.512	16	1.5	2.8	1.7	12
TNIC-2.507	14	2.5	3.4	2.2	7
TNIC-2.508	14	2.5	3.4	2.2	8
TNIC-2.510	14	2.5	3.4	2.2	10
TNIC-2.512	14	2.5	3.4	2.2	12
TNIC-2.518	14	2.5	3.4	2.2	18
TNIC-408	12	4	4	2.8	8
TNIC-409	12	4	4	2.8	9
TNIC-410	12	4	4	2.8	10
TNIC-412	12	4	4	2.8	12
TNIC-415	12	4	4	2.8	15
TNIC-418	12	4	4	2.8	18
TNIC-610	10	6	4.7	3.5	10
TNIC-612	10	6	4.7	3.5	12
TNIC-615	10	6	4.7	3.5	15
TNIC-618	10	6	4.7	3.5	18
TNIC-1012	8	10	5.8	4.5	12
TNIC-1015	8	10	5.8	4.5	15
TNIC-1018	8	10	5.8	4.5	18
TNIC-1612	6	16	7.5	5.8	12
TNIC-1615	6	16	7.5	5.8	15
TNIC-1618	6	16	7.5	5.8	18
TNIC-2515	4	25	9.5	7.3	15
TNIC-2516	4	25	9.5	7.3	16
TNIC-2618	4	25	9.5	7.3	18
TNIC-2520	4	25	9.5	7.3	20
TNIC-2522	4	25	9.5	7.3	22
TNIC-3616	2	35	11	8.3	16
TNIC-3618	2	35	11	8.3	18
TNIC-3520	2	35	11	8.3	20
TNIC-3525	2	35	11	8.3	25
TNIC-5018	1/0	50	13	10.3	18
TNIC-5020	1/0	50	13	10.3	20
TNIC-5022	1/0	50	13	10.3	22
TNIC-5025	1/0	50	13	10.3	25

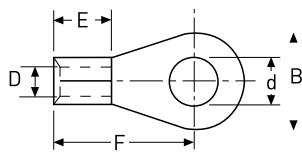
**Non-insulated tube terminals**


Article No.	D	L1	L
TNIT 1.5-3	3	6.0	15.3
TNIT 1.5-4	4	6.0	17.0
TNIT 1.5-6	6	6.0	22.5
TNIT 2.5-3	3	6.0	15.3
TNIT 2.5-4	4	6.0	17.0
TNIT 2.5-5	5	6.0	18.8
TNIT 2.5-6	6	6.0	22.5
TNIT 2.5-8	8	6.0	27.8
TNIT 4-5	5	8.0	21.8
TNIT 4-6	6	8.0	25.5
TNIT 4-8	8	8.0	30.5
TNIT 6-5	5	9.0	27.5
TNIT 6-6	6	9.0	27.5
TNIT 6-8	8	9.0	33.0
TNIT 6-10	10	9.0	37.0
TNIT 6-12	13	9.0	41.0
TNIT 10-5	5	10.0	28.5
TNIT 10-6	6	10.0	28.5
TNIT 10-8	8	10.0	35.0
TNIT 10-10	10	10.0	39.0
TNIT 10-12	13	10.0	42.0
TNIT 16-5	5	13.0	32.5
TNIT 16-6	6	13.0	33.3
TNIT 16-8	8	13.0	37.5
TNIT 16-10	10	13.0	41.5
TNIT 16-12	13	13.0	45.0
TNIT 16-14	15	13.0	45.0
TNIT 25-5	5	15.0	37.5
TNIT 25-6	6	15.0	37.5
TNIT 25-8	8	15.0	42.0
TNIT 25-10	10	15.0	46.0
TNIT 25-12	13	15.0	48.0
TNIT 25-14	15	15.0	52.5
TNIT 35-6	6	17.0	39.5
TNIT 35-8	8	17.0	44.0
TNIT 35-10	10	17.0	49.0
TNIT 35-12	13	17.0	51.0
TNIT 35-14	15	17.0	54.5
TNIT 35-16	17	17.0	58.0
TNIT 50-6	6	19.0	47.0
TNIT 50-8	8	19.0	47.0
TNIT 50-10	10	19.0	51.0
TNIT 50-12	13	19.0	56.0

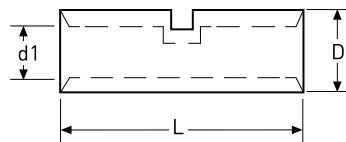
Article No.	D	L1	L
TNIT 50-14	15	19.0	59.5
TNIT 50-16	17	19.0	62.0
TNIT 50-20	21	19.0	67.0
TNIT 70-6	6	21.0	53.0
TNIT 70-8	8	21.0	53.0
TNIT 70-10	10	21.0	56.0
TNIT 70-12	13	21.0	59.0
TNIT 70-14	15	21.0	62.5
TNIT 70-16	17	21.0	66.0
TNIT 70-20	21	21.0	72.0
TNIT 95-8	8	25.0	60.0
TNIT 95-10	10	25.0	60.0
TNIT 95-12	13	25.0	62.0
TNIT 95-14	15	25.0	65.5
TNIT 95-16	17	25.0	70.0
TNIT 95-20	21	26.0	82.0
TNIT 120-8	8	26.0	65.0
TNIT 120-10	10	26.0	65.0
TNIT 120-12	13	26.0	65.0
TNIT 120-14	15	26.0	67.0
TNIT 120-16	17	26.0	70.0
TNIT 120-20	21	28.0	85.0
TNIT 150-8	8	30.0	70.0
TNIT 150-10	10	30.0	72.0
TNIT 150-12	13	30.0	72.0
TNIT 150-14	15	30.0	72.0
TNIT 150-16	17	30.0	74.0
TNIT 150-20	21	30.0	88.0
TNIT 185-10	10	30.0	83.0
TNIT 185-12	13	30.0	83.0
TNIT 185-14	15	30.0	83.0
TNIT 185-16	17	30.0	83.0
TNIT 185-20	21	30.0	91.0
TNIT 240-10	10	35.0	93.5
TNIT 240-12	13	35.0	93.5
TNIT 240-14	15	35.0	93.5
TNIT 240-16	17	35.0	93.5
TNIT 240-20	21	35.0	93.5
TNIT 300-12	13	44.0	111.0
TNIT 300-14	15	44.0	111.0
TNIT 300-16	17	44.0	111.0
TNIT 300-20	21	44.0	111.0
TNIT 400-16	17	52.0	132.0

**Non-insulated ring terminals DIN46235**


Article No.	Cable size mm <sup>2</sup>	Hole size (d)	E	B	L	D out	D int
TNIR 0.5-2	0.5	2,2	5	10	12,5	4	1
TNIR 0.5-2.5	0.5	2,7	5	10	12,5	4	1
TNIR 0.5-3	0.5	3,2	5	10	12,5	4	1
TNIR 0.5-3.5	0.5	3,7	6	12	15	4	1
TNIR 0.5-4	0.5	4,3	6,5	12	15,2	4	1
TNIR 0.5-5	0.5	5,3	8	12	16	4	1
TNIR 1.5-2.5	1.5	2,7	6	11	14	5	1,6
TNIR 1.5-3	1.5	3,2	6	11	14	5	1,6
TNIR 1.5-3.5	1.5	3,7	6	11	14	5	1,6
TNIR 1.5-4	1.5	4,3	8	12	16	5	1,6
TNIR 1.5-5	1.5	5,3	10	13	18	5	1,6
TNIR 1.5-6	1.5	6,5	11	15	20,5	5	1,6
TNIR 1.5-8	1.5	8,4	14	16	23	5	1,6
TNIR 1.5-10	1.5	10,5	18	18	27	5	1,6
TNIR 2.5-3	2.5	3,2	6	11	14	5	2,3
TNIR 2.5-3.5	2.5	3,7	6	11	14	5	2,3
TNIR 2.5-4	2.5	4,3	8	12	16	5	2,3
TNIR 2.5-5	2.5	5,3	10	14	19	5	2,3
TNIR 2.5-6	2.5	6,5	11	16	21,5	5	2,3
TNIR 2.5-8	2.5	8,4	14	17	24	5	2,3
TNIR 2.5-10	2.5	10,5	18	18	27	5	2,3
TNIR 2.5-12	2.5	13	19,2	16	30,6	5	2,3
TNIR 6-4	6	4,3	8	14	18	6	3,6
TNIR 6-5	6	5,3	10	15	20	6	3,6
TNIR 6-6	6	6,5	11	16	21,5	6	3,6
TNIR 6-8	6	8,4	14	19	26	6	3,6
TNIR 6-10	6	10,5	18	21	30	6	3,6
TNIR 6-12	6	13	19	26,5	36	6	3,6
TNIR 10-5	10	5,3	10	16	21	8	4,5
TNIR 10-6	10	6,5	11	17	22,5	8	4,5
TNIR 10-8	10	8,4	14	20	27	8	4,5
TNIR 10-10	10	10,5	18	21	30	8	4,5
TNIR 10-12	10	13	22	23	34	8	4,5
TNIR 16-5	16	5,3	11	20	25,5	10	5,8
TNIR 16-6	16	6,5	11	20	25,5	10	5,8
TNIR 16-8	16	8,4	14	22	29	10	5,8
TNIR 16-10	16	10,5	18	24	33	10	5,8
TNIR 16-12	16	13	22	26	37	10	5,8


**Non-insulated ring terminals DIN46235**

Article No.	Cable size mm <sup>2</sup>	Hole size (d)	E	B	L	D out	D int
TNIR 25-5	25	5,3	12	25	31	11	7,5
TNIR 25-6	25	6,5	12	25	31	11	7,5
TNIR 25-8	25	8,4	16	25	33	11	7,5
TNIR 25-10	25	10,5	18	26	35	11	7,5
TNIR 25-12	25	13	22	31	42	11	7,5
TNIR 25-16	25	17	28	35	49	11	7,5
TNIR 35-6	35	6,5	15	26	33,5	12	9
TNIR 35-8	35	8,4	16	26	34	12	9
TNIR 35-10	35	10,5	18	27	36	12	9
TNIR 35-12	35	13	22	31	42	12	9
TNIR 35-16	35	17	28	36	50	12	9
TNIR 50-6	50	6,5	18	34	43	16	11
TNIR 50-8	50	8,4	18	34	43	16	11
TNIR 50-10	50	10,5	18	34	43	16	11
TNIR 50-12	50	13	22	36	47	16	11
TNIR 50-16	50	17	28	40	54	16	11
TNIR 70-6	70	6,5	22	38	49	18	13
TNIR 70-8	70	8,4	22	38	49	18	13
TNIR 70-10	70	10,5	22	38	49	18	13
TNIR 70-12	70	13	22	38	49	18	13
TNIR 70-16	70	17	28	42	56	18	13
TNIR 95-8	95	8,4	24	42	54	20	15
TNIR 95-10	95	10,5	24	42	54	20	15
TNIR 95-12	95	13	24	42	54	20	15
TNIR 95-16	95	17	28	44	58	20	15
TNIR 120-8	120	8,4	24	44	56	22	16,5
TNIR 120-10	120	10,5	24	44	56	22	16,5
TNIR 120-12	120	13	24	44	56	22	16,5
TNIR 120-16	120	17	28	48	62	22	16,5
TNIR 150-10	150	10,5	30	50	65	24	19
TNIR 150-12	150	13	30	50	65	24	19
TNIR 150-16	150	17	30	50	65	24	19
TNIR 185-10	185	10,5	36	50	68	28	21
TNIR 185-12	185	13	36	50	68	28	21
TNIR 185-16	185	17	36	50	68	28	21
TNIR 240-10	240	10,5	38	56	75	32	23,5
TNIR 240-12	240	13	38	56	75	32	23,5
TNIR 240-16	240	17	38	56	75	32	23,5

**Non-insulated butt connector**


Article No.	Cable size AWG	Cable size DIN mm <sup>2</sup>	D	d1	L
TNIB-1	22~16	-	3.3	1.9	15
TNIB-2	16~14	-	4	2.3	15
TNIB-3	12~10	-	5.5	3.6	15
TNIB-4	12~10	-	5.5	3.6	19
TNIB-5	8	-	7.1	5.1	22.5
TNIB-6	6	-	9	6.4	27.5
TNIB-7	4	-	11.4	8.2	30.5
TNIB-8	2	-	13.3	10.1	33.5
TNIB-9	1/0	-	15.4	12	36
TNIB-10	2/0	-	17.4	14	37.8
TNIB-11	3/0	-	19.4	15.4	39.5
TNIB-12	4/0	-	22	17.6	39.5
TNIB-13	250 kcmil	-	24.1	19.2	43.4
TNIB-14	300 kcmil	-	26	20.9	55.5
TNIB-15	350 kcmil	-	28.6	22	58.5
TNIB-16	400 kcmil	-	32.5	25.7	64.5
TNIB-17	450 kcmil	-	32.5	25.7	64.5
TNIB-18	500 kcmil	-	37	29	73.5
TNIB 1.5	-	1.5	3.3	1.9	16.5
TNIB 2.5	-	2.5	4	2.6	22
TNIB 4	-	4	4.8	3.5	25.2
TNIB 6	-	6	5.5	3.8	25.2
TNIB-4-6	-	4~6	5.2	3.5	25.5
TNIB 12	-	12	6.5	4.5	30
TNIB 16	-	16	7.5	5.5	32.5
TNIB 25	-	25	9.5	7	35.5
TNIB 35	-	35	11	8.5	40.5
TNIB 50	-	50	13	10	40.5
TNIB 70	-	70	15	11.5	45.5
TNIB 95	-	95	18	13.5	50.5
TNIB 120	-	120	19.5	15	65.5
TNIB 150	-	150	22	16.5	70.5
TNIB 185	-	185	25	19	75.5
TNIB 240	-	240	27.5	21	80.5
TNIB 300	-	300	30.5	23.5	90.5
TNIB 400	-	400	34	27	100





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