





## Heat Shrinkable Tubing

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### 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

HFT-A, TL27, TF21, TF24, VITON®-E, TK20, TK29, TFE-2, TR27, TCN20, SE28

Shrink ratio 2:1 Size mm		Cable/Wire Diameter
1.2/0.6		0.7 mm
		1.1 mm
3.2/1.6	2.4/1.2	1.4 mm
		1.9 mm
		2.2 mm
		2.9 mm
6.4/3.2	4.8/2.4	3.8 mm
		4.3 mm
		5.7 mm
12.7/6.4	9.5/4.7	5.8 mm
		7.7 mm
		8.6 mm
		11.4 mm
		15.2 mm
25.4/12.7	19.1/9.5	17.2 mm
		22.9 mm
		30.5 mm
50.8/25.4	38.1/19.1	34.3 mm
		45.7 mm
		61.0 mm
101.6/50.8	76.2/38.1	68.6 mm
		91.4 mm

#### Heat Shrinkable Tubing with a shrinkage ratio of 3:1

With the optimal shrinkage ratio of 3:1, you can cover a wide range of applications with just a few sizes. This leads to reduced stock expenditure and requires less space. 3:1 heat shrink tubes: TF34, TF31, EPS-300, TCN20 overexpanded, TA32, TA37

Shrink ratio 3:1 Size mm		Cable/Wire Diameter
1.5/0.5		0.7 mm
		1.3 mm
6/2	3/1	1.4 mm
		2.6 mm
		2.8 mm
		5.2 mm
18/6	12/4	5.6 mm
		8.4 mm
		10.4 mm
40/13	24/8	11.2 mm
		15.6 mm
		18.4 mm
		20.8 mm
		34.6 mm

#### Conversion from imperial to metric

<b>Inch</b>	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	3/16"	1/4"	3/8"
<b>mm</b>	0.8	1.2	1.6	2.0	2.4	3.2	4.8	6.4	9.5
<b>Inch</b>	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	3"	4"
<b>mm</b>	12.7	15.9	19.1	25.4	31.8	38.1	50.8	76.2	101.6

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## 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 5mm is to be wrapped in heat shrink tubing. In theory both sizes 6/2 and 12/4 would be suitable, since the required diameter of 5mm lies within the shrink range of both tube sizes.

#### Size 6/2

##### Maximum shrink (100 %)



Shrinkage of 4 mm

##### Optimum shrinkage max. (80 %)



Shrinkage of 0.8 mm

##### Optimum shrinkage min. (20 %)



Shrinkage of 3.2 mm

#### Size 12/4

##### Maximum shrink (100 %)



Shrinkage of 8 mm

##### Optimum shrinkage max. (80 %)



Shrinkage of 6.4 mm

##### Optimum shrinkage min. (20 %)



Shrinkage of 1.6 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.

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

#### Calculator tool for Heat Shrink Tubing

The calculator tool for heat shrink tubing is a selection guide for shrink tubing sizes based on the object to be covered.

Fill in your specification and the calculator presents the right tubing size according to the 80:20 rule. Find more information under <http://www.HellermannTyton.co.uk/heatshrink-calculator/>

The calculator tool also checks if the heat shrink tubing you have chosen is suitable for your application. For example you can find the heat shrink tubing with the Product Search on the HellermannTyton website.



## Heatshrinkable Tubing Overview

TYPE	Packaging type	Variant	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogen-free	Colour	Specifications	Page	
TCN20		Thin-Wall	PO-X	2:1	-55 °C to +125 °C	1.2 - 50.8		Black	3, 14, 15	151	
TCN20 over-expanded			PO-X	3:1	-55 °C to +125 °C	2.4 - 38.0		Black	3, 14, 15	152	
HFT-A			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black	1, 3, 4, 7, 9, 10, 11, 12, 13, 14, 15, 16	153	
TF21			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black, Blue, Green-Yellow, Orange, Red, White, Yellow	3, 6, 10, 13, 14, 15	154, 155, 156	
TF24			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6	HF ✓	Transparent	4, 13, 16	157	
TF31			PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0		Black, Blue, Green, Green-Yellow, Red, White, Yellow	3, 14, 15	158, 159, 160	
TF34			PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0	HF ✓	Transparent		161	
EPS-300			Thin-Wall Hot melt adhesive	PO-X	3:1	-55 °C to +125 °C	3.0 - 40.0		Black	13	162
EPS-400				PO-X	4:1	-55 °C to +125 °C	4.0 - 32.0		Black	13	162
SA47			Standard-Wall Hot melt adhesive	PO-X	4:1	-40 °C to +125 °C	5.75 - 32.0	HF ✓	Clear		163
SA47-LA		PO-X		4:1	-40 °C to +125 °C	5.75 - 52.0	HF ✓	Clear		164	
SA47-HT		PO-X		4:1	-40 °C to +150 °C	7.6 - 32.0		Black		165	
SE28		Standard-Wall	POA	2:1	-75 °C to +150 °C	3.2 - 102.0		Black	10, 13, 16	166	
TK20		Thin-Wall	PVDF	2:1	-55 °C to +175 °C	1.2 - 50.8		Transparent	1, 11, 12, 13, 14, 15, 16	167	
Viton®-E		Standard-Wall	FPMX	2:1	-55 °C to +220 °C	3.2 - 50.8		Black	7, 16	168	
TR27		Thin-Wall	PO-X	2:1	-40 °C to +105 °C	3.2 - 50.8	HF ✓	Black	4, 2, 8	150	

## Heatshrinkable Tubing Overview

### SPECIFICATION

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Please refer to the Approvals Overview for further information, see page: 250, 251



### Heat Shrinkable Tubing 2:1 - Flame retardant

#### TR27

TR27 is used in applications where toxic emissions evolved in a fire must be minimised, e.g. heavily populated buildings or safety sensitive areas like tunnels, hospitals, schools, theatres, mass transit vehicles and computer centres.

#### Features and Benefits

- Thin walled, flexible polyolefin tubing
- Optional available with adhesive or as thick walled version (SR27)
- Halogen free and excellent flame-retardant properties
- Meets various industrial standards



TR27 is ideal for safety sensitive areas.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Minimum Shrink Temperature</b>	+115 °C
<b>Longitudinal change after shrinkage</b>	+5 %/-10 % max.
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	Limited Fire Hazard, Halogen free, Low generation of toxic gases and corrosive acid, Low smoke generation
<b>Specifications</b>	DEF STAN 59-97 Type 8, EN 45545: 2013, LUL Engineering Standard E1042:A6



TR27 is mainly used in the railway industry.



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TR27-3.2/1.6	3.2	1/8 "	1.6	0.51	150 m	Black (BK)	315-50320
TR27-4.8/2.4	4.8	3/16 "	2.4	0.51	60 m	Black (BK)	315-50480
TR27-6.4/3.2	6.4	1/4 "	3.2	0.64	60 m	Black (BK)	315-50640
TR27-9.5/4.8	9.5	3/8 "	4.8	0.64	60 m	Black (BK)	315-50950
TR27-12.7/6.4	12.7	1/2 "	6.4	0.64	60 m	Black (BK)	315-51270
TR27-19.1/9.5	19.1	3/4 "	9.5	0.76	60 m	Black (BK)	315-51900
TR27-25.4/12.7	25.4	1 "	12.7	0.89	60 m	Black (BK)	315-52540
TR27-38.1/19.1	38.1	1-1/2 "	19.1	1.02	60 m	Black (BK)	315-53810
TR27-50.8/25.4	50.8	2 "	25.4	1.14	60 m	Black (BK)	315-55100

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.



### Low-Heat Shrinkable Tubing 2:1

#### TCN20 - self extinguishing

TCN20 is suitable for a wide range of applications such as electrical insulation, mechanical protection and cable bundling.

#### Features and Benefits

- Thin walled general purpose polyolefin tubing
- Highly flame-retardant, UL224 VW-1, CSA
- Fast shrinking
- Low shrink temperature



Heat Shrink Tubing TCN20.



Detailed Information about Heatguns please refer to page 242.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+/- 5 %
<b>Dielectric Strength</b>	20kV/mm according to ASTM D2671
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	CSA, UL224 125 °C 600V VW-1

RoHS 



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TCN20-1.2/0.6	1.2	3/64 "	0.6	0.30	300 m	Black (BK)	300-73010
TCN20-1.6/0.8	1.6	1/16 "	0.8	0.35	300 m	Black (BK)	300-73020
TCN20-2.4/1.2	2.4	3/32 "	1.2	0.45	300 m	Black (BK)	300-73030
TCN20-3.2/1.6	3.2	1/8 "	1.6	0.45	300 m	Black (BK)	300-73040
TCN20-4.8/2.4	4.8	3/16 "	2.4	0.50	300 m	Black (BK)	300-73050
TCN20-6.4/3.2	6.4	1/4 "	3.2	0.55	300 m	Black (BK)	300-73060
TCN20-9.5/4.8	9.5	3/8 "	4.8	0.55	100 m	Black (BK)	300-73070
TCN20-12.7/6.4	12.7	1/2 "	6.4	0.65	100 m	Black (BK)	300-73080
TCN20-19.1/9.5	19.1	3/4 "	9.5	0.80	60 m	Black (BK)	300-73090
TCN20-25.4/12.7	25.4	1 "	12.7	0.90	60 m	Black (BK)	300-73100
TCN20-38.1/19.1	38.1	1-1/2 "	19.1	1.02	30 m	Black (BK)	300-73110
TCN20-50.8/25.4	50.8	2 "	25.4	1.15	30 m	Black (BK)	300-73120

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### Heat Shrinkable Tubing 3:1 - Self extinguishing

#### TCN20 overexpanded

Mechanical, electrical and corrosion protection applications for parts with high diameter variances. This fast shrinking tubing makes it suitable for high volume production.

#### Features and Benefits

- Thin walled overexpanded polyolefin tubing
- Inch size tubing with 3:1 shrink ratio
- Very fast shrinking and low shrink temperature
- Highly flame-retardant, UL224 VW-1



Heat shrink tubing TCN20 overexpanded.



Detailed Information about Heatguns please refer to page 242.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+/- 5 %
<b>Dielectric Strength</b>	20kV/mm according to ASTM D2671
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	CSA, UL224 125 °C 600V VW-1



RoHS

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TCN20-2.4/0.8	2.4	0.8	0.40	300 m	Black (BK)	300-73130
TCN20-3.2/1.2	3.2	1.2	0.50	300 m	Black (BK)	300-73140
TCN20-4.8/1.6	4.8	1.6	0.50	300 m	Black (BK)	300-73150
TCN20-6.6/2.4	6.6	2.4	0.55	300 m	Black (BK)	300-73160
TCN20-9.5/3.2	9.5	3.2	0.65	100 m	Black (BK)	300-73170
TCN20-12.7/4.8	12.7	4.8	0.75	100 m	Black (BK)	300-73180
TCN20-19.0/6.4	19.0	6.4	0.75	60 m	Black (BK)	300-73190
TCN20-25.4/9.5	25.4	9.5	0.79	60 m	Black (BK)	300-73200
TCN20-38.0/12.7	38.0	12.7	0.95	30 m	Black (BK)	300-73210

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### Heat Shrinkable Tubing 2:1 flexible and coloured

#### HFT-A - self extinguishing

This high performance thin wall tubing is used extensively for electrical and mechanical protection. It is also well proven for sleeve marking to identify wiring circuits. It shrinks uniformly to form a permanent insulation covering.

The transparent version is used for bundling and cable protection where visual inspection is required. It is often used as a see through protective sleeve over cable markers.

#### Features and Benefits

- Flexible heat shrink tubing
- Fast shrinking, easy handling, good mechanical strength
- Easy to print on
- Wide range of colours
- Internal diameters up to 4 inches (101.6 mm)
- UL-224 ,CSA listed and VG approved



Standard sizes available in colours black, red, blue, yellow, white and green-yellow.



HFT-A conforms to major standards used in all Defence industries.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+5 %/-10 %
<b>Dielectric Strength</b>	20 kV/mm according to IEC 60684 P2
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	ASN-E0126, CSA, DEF STAN 59-97/3, LEA, MIL-DTL-23053/5C, NF F 00-608, NSA937211, PAN6493, SAE - AMS - DTL-23053/5C, UL224 125 °C 600V, VG 95343



Heat Shrinkable Tubing 2:1



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
HFT-A-1.2/0.6	1.2	3/64 "	0.6	0.40	400 m	Black (BK)	VG 95343 T05 A 001 A	305-01200
HFT-A-1.6/0.8	1.6	1/16 "	0.8	0.40	400 m	Black (BK)	VG 95343 T05 A 002 A	305-01600
HFT-A-2.4/1.2	2.4	3/32 "	1.2	0.50	400 m	Black (BK)	VG 95343 T05 A 003 A	305-02400
HFT-A-3.2/1.6	3.2	1/8 "	1.6	0.50	400 m	Black (BK)	VG 95343 T05 A 004 A	305-03200
HFT-A-4.8/2.4	4.8	3/16 "	2.4	0.50	300 m	Black (BK)	VG 95343 T05 A 005 A	305-04800
HFT-A-6.4/3.2	6.4	1/4 "	3.2	0.60	300 m	Black (BK)	VG 95343 T05 A 006 A	305-06400
HFT-A-9.5/4.8	9.5	3/8 "	4.8	0.60	150 m	Black (BK)	VG 95343 T05 A 007 A	305-09500
HFT-A-12.7/6.4	12.7	1/2 "	6.4	0.60	100 m	Black (BK)	VG 95343 T05 A 008 A	305-12700
HFT-A-19.0/9.5	19.0	3/4 "	9.5	0.80	50 m	Black (BK)	VG 95343 T05 A 009 A	305-19000
HFT-A-25.4/12.7	25.4	1 "	12.7	0.90	50 m	Black (BK)	VG 95343 T05 A 010 A	305-25400
HFT-A-38.0/19.0	38.0	1-1/2 "	19.0	1.00	50 m	Black (BK)	VG 95343 T05 A 011 A	305-38100
HFT-A-50.8/25.4	51.0	2 "	25.4	1.10	35 m	Black (BK)	VG 95343 T05 A 012 A	305-50800
HFT-A-76.0/38.0	76.0	3 "	38.0	1.30	25 m	Black (BK)	VG 95343 T05 A 013 A	305-76200
HFT-A-101.6/50.8	101.6	4 "	50.8	1.40	25 m	Black (BK)	VG 95343 T05 A 014 A	305-91600

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### Heat Shrinkable Tubing 2:1 flexible and coloured

#### TF21

Due to its versatility TF21 is suitable for a wide range of applications like electrical insulations, mechanical protection and marking.

#### Features and Benefits

- Thin walled, flexible polyolefin tubing
- Fast shrinking and low shrink temperature
- Meets and exceeds lots of industrial standards
- Big variety of different colours and sizes
- Printable
- Flame retarded and UL224 VW1 listed



TF21 – available in a wide range of colours and sizes.



**Detailed Information about Heatguns please refer to page 242.**



**Cut lengths available on request. Please contact us!**



One Step to the Web!



Heat Shrinkable Tubing 2:1

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+90 °C
<b>Longitudinal change after shrinkage</b>	+/-5 %
<b>Dielectric Strength</b>	37 kV/mm
<b>Flammability</b>	ASTM D876
<b>Specifications</b>	CSA, JAR/FAR 25.853, NF F 00-608, SAE - AMS - DTL-23053/5 Class 1, UL224 125 °C 600V VW-1

**RoHS** ✓

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF21-1.2/0.6	1.2	3/64 "	0.6	0.41	100 m	Blue (BU)	309-20126
	1.2	3/64 "	0.6	0.41	100 m	Red (RD)	309-20122
	1.2	3/64 "	0.6	0.41	100 m	White (WH)	309-20129
	1.2	3/64 "	0.6	0.41	100 m	Yellow (YE)	309-20124
	1.2	3/64 "	0.6	0.41	300 m	Black (BK)	309-10120
TF21-1.6/0.8	1.6	1/16 "	0.8	0.43	100 m	Blue (BU)	309-20166
	1.6	1/16 "	0.8	0.43	100 m	Red (RD)	309-20162
	1.6	1/16 "	0.8	0.43	100 m	White (WH)	309-20169
	1.6	1/16 "	0.8	0.43	100 m	Yellow (YE)	309-20164
	1.6	1/16 "	0.8	0.43	300 m	Black (BK)	309-10160

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## Heat Shrinkable Tubing 2:1 flexible and coloured

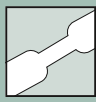
### TF21

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF21-2.4/1.2	2.4	3/32 "	1.2	0.51	100 m	Blue (BU)	309-20246
	2.4	3/32 "	1.2	0.51	100 m	Green-Yellow (GNYE)	309-40247
	2.4	3/32 "	1.2	0.51	100 m	Red (RD)	309-20242
	2.4	3/32 "	1.2	0.51	100 m	White (WH)	309-20249
	2.4	3/32 "	1.2	0.51	100 m	Yellow (YE)	309-20244
	2.4	3/32 "	1.2	0.51	300 m	Black (BK)	309-10240
TF21-3.2/1.6	3.2	1/8 "	1.6	0.51	100 m	Blue (BU)	309-20326
	3.2	1/8 "	1.6	0.51	100 m	Green-Yellow (GNYE)	309-40327
	3.2	1/8 "	1.6	0.51	100 m	Red (RD)	309-20322
	3.2	1/8 "	1.6	0.51	100 m	White (WH)	309-20329
	3.2	1/8 "	1.6	0.51	100 m	Yellow (YE)	309-20324
	3.2	1/8 "	1.6	0.51	300 m	Black (BK)	309-10320
TF21-4.8/2.4	4.8	3/16 "	2.4	0.51	60 m	Blue (BU)	309-50486
	4.8	3/16 "	2.4	0.51	60 m	Green-Yellow (GNYE)	309-50487
	4.8	3/16 "	2.4	0.51	60 m	Red (RD)	309-50482
	4.8	3/16 "	2.4	0.51	60 m	White (WH)	309-50489
	4.8	3/16 "	2.4	0.51	60 m	Yellow (YE)	309-50484
	4.8	3/16 "	2.4	0.51	75 m	Orange (OG)	309-20483
	4.8	3/16 "	2.4	0.51	300 m	Black (BK)	309-10480
TF21-6.4/3.2	6.4	1/4 "	3.2	0.64	60 m	Blue (BU)	309-50646
	6.4	1/4 "	3.2	0.64	60 m	Green-Yellow (GNYE)	309-50647
	6.4	1/4 "	3.2	0.64	60 m	Red (RD)	309-50642
	6.4	1/4 "	3.2	0.64	60 m	White (WH)	309-50649
	6.4	1/4 "	3.2	0.64	60 m	Yellow (YE)	309-50644
	6.4	1/4 "	3.2	0.64	300 m	Black (BK)	309-10640
TF21-9.5/4.8	9.5	3/8 "	4.8	0.64	50 m	Blue (BU)	309-20956
	9.5	3/8 "	4.8	0.64	50 m	Green-Yellow (GNYE)	309-50957
	9.5	3/8 "	4.8	0.64	50 m	Orange (OG)	309-20953
	9.5	3/8 "	4.8	0.64	50 m	Red (RD)	309-20952
	9.5	3/8 "	4.8	0.64	50 m	White (WH)	309-20959
	9.5	3/8 "	4.8	0.64	50 m	Yellow (YE)	309-20954
	9.5	3/8 "	4.8	0.64	150 m	Black (BK)	309-10950
TF21-12.7/6.4	12.7	1/2 "	6.4	0.64	50 m	Blue (BU)	309-21276
	12.7	1/2 "	6.4	0.64	50 m	Green-Yellow (GNYE)	309-41277
	12.7	1/2 "	6.4	0.64	50 m	Red (RD)	309-21272
	12.7	1/2 "	6.4	0.64	50 m	White (WH)	309-21279
	12.7	1/2 "	6.4	0.64	50 m	Yellow (YE)	309-21274
	12.7	1/2 "	6.4	0.64	100 m	Black (BK)	309-11270

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.



### Heat Shrinkable Tubing 2:1 flexible and coloured

#### TF21

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF21-19.0/9.5	19.1	3/4 "	9.5	0.76	25 m	Orange (OG)	309-21903
	19.1	3/4 "	9.5	0.76	50 m	Black (BK)	309-11900
	19.1	3/4 "	9.5	0.76	50 m	Blue (BU)	309-11906
	19.1	3/4 "	9.5	0.76	50 m	Green-Yellow (GNYE)	309-11907
	19.1	3/4 "	9.5	0.76	50 m	Red (RD)	309-11902
	19.1	3/4 "	9.5	0.76	50 m	White (WH)	309-11909
	19.1	3/4 "	9.5	0.76	50 m	Yellow (YE)	309-11904
TF21-25.4/12.7	25.4	1 "	12.7	0.89	50 m	Black (BK)	309-12540
	25.4	1 "	12.7	0.89	50 m	Blue (BU)	309-12546
	25.4	1 "	12.7	0.89	50 m	Green-Yellow (GNYE)	309-12547
	25.4	1 "	12.7	0.89	50 m	Red (RD)	309-12542
	25.4	1 "	12.7	0.89	50 m	White (WH)	309-12549
	25.4	1 "	12.7	0.89	50 m	Yellow (YE)	309-12544
TF21-38.0/19.0	38.1	1-1/2 "	19.1	1.02	60 m	Black (BK)	309-13810
	38.1	1-1/2 "	19.1	1.02	60 m	Blue (BU)	309-13816
	38.1	1-1/2 "	19.1	1.02	60 m	Green-Yellow (GNYE)	309-13817
	38.1	1-1/2 "	19.1	1.02	60 m	Red (RD)	309-13812
	38.1	1-1/2 "	19.1	1.02	60 m	White (WH)	309-13819
	38.1	1-1/2 "	19.1	1.02	60 m	Yellow (YE)	309-13814
TF21-50.8/25.4	50.8	2 "	25.4	1.14	60 m	Black (BK)	309-15080
	50.8	2 "	25.4	1.14	60 m	Blue (BU)	309-15086
	50.8	2 "	25.4	1.14	60 m	Green-Yellow (GNYE)	309-15087
	50.8	2 "	25.4	1.14	60 m	Red (RD)	309-15082
	50.8	2 "	25.4	1.14	60 m	White (WH)	309-15089
	50.8	2 "	25.4	1.14	60 m	Yellow (YE)	309-15084
TF21-76.0/38.0	76.2	3 "	38.1	1.27	30 m	Black (BK)	309-17600
	76.2	3 "	38.1	1.27	30 m	Blue (BU)	309-17606
	76.2	3 "	38.1	1.27	30 m	Red (RD)	309-17602
	76.2	3 "	38.1	1.27	30 m	White (WH)	309-17609
	76.2	3 "	38.1	1.27	30 m	Yellow (YE)	309-17604
TF21-101.6/50.8	101.6	4 "	50.8	1.40	15 m	Black (BK)	309-11020
	101.6	4 "	50.8	1.40	15 m	Blue (BU)	309-11026
	101.6	4 "	50.8	1.40	15 m	Red (RD)	309-11022
	101.6	4 "	50.8	1.40	15 m	White (WH)	309-11029
	101.6	4 "	50.8	1.40	15 m	Yellow (YE)	309-11024

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



**Detailed Information about Heatguns please refer to page 242.**



Please note! Not all products listed on this page may have this approval.



### Heat Shrinkable Tubing 2:1 flexible and transparent

#### TF24

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and Benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Halogen free
- Good mechanical and chemical resistance
- VG-approval and additional industrial approvals



TF24 transparent tubing with 2:1 shrink ratio.



Cut lengths available on request.  
Please contact us!



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	+/- 5 % max.
<b>Dielectric Strength</b>	≥ 30 kV/mm min. according to ASTM D2171
<b>Flammability</b>	not flame retarded
<b>Specifications</b>	DEF STAN 59-97 Type 2B, SAE - AMS - DTL-23053/5 Class 2, VG 95343



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
TF24-1.2/0.6	1.2	3/64 "	0.6	0.41	100 m	Transparent (CL)	VG 95343 T05 B 001 M	309-40123
TF24-1.6/0.8	1.6	1/16 "	0.8	0.43	100 m	Transparent (CL)	VG 95343 T05 B 002 M	309-40163
TF24-2.4/1.2	2.4	3/32 "	1.2	0.51	100 m	Transparent (CL)	VG 95343 T05 B 003 M	309-40243
TF24-3.2/1.6	3.2	1/8 "	1.6	0.51	100 m	Transparent (CL)	VG 95343 T05 B 004 M	309-40323
TF24-4.8/2.4	4.8	3/16 "	2.4	0.51	60 m	Transparent (CL)	VG 95343 T05 B 005 M	309-50483
TF24-6.4/3.2	6.4	1/4 "	3.2	0.64	60 m	Transparent (CL)	VG 95343 T05 B 006 M	309-50643
TF24-9.5/4.8	9.5	3/8 "	4.8	0.64	50 m	Transparent (CL)	VG 95343 T05 B 007 M	309-40953
TF24-12.7/6.4	12.7	1/2 "	6.4	0.64	50 m	Transparent (CL)	VG 95343 T05 B 008 M	309-41273
TF24-19.1/9.5	19.1	3/4 "	9.5	0.76	50 m	Transparent (CL)	VG 95343 T05 B 009 M	309-31903
TF24-25.4/12.7	25.4	1 "	12.7	0.89	50 m	Transparent (CL)	VG 95343 T05 B 010 M	309-32543
TF24-38.1/19.1	38.1	1-1/2 "	19.1	1.02	60 m	Transparent (CL)	VG 95343 T05 B 011 M	309-33813
TF24-50.8/25.4	50.8	2 "	25.4	1.14	60 m	Transparent (CL)	VG 95343 T05 B 012 M	309-35083
TF24-76.2/38.1	76.2	3 "	38.1	1.27	30 m	Transparent (CL)	VG 95343 T05 B 013 M	309-37603
TF24-101.6/50.8	101.6	4 "	50.8	1.40	15 m	Transparent (CL)	VG 95343 T05 B 014 M	309-31023

All dimensions in mm. Subject to technical changes.  
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Please note! Not all products listed on this page may have this approval.



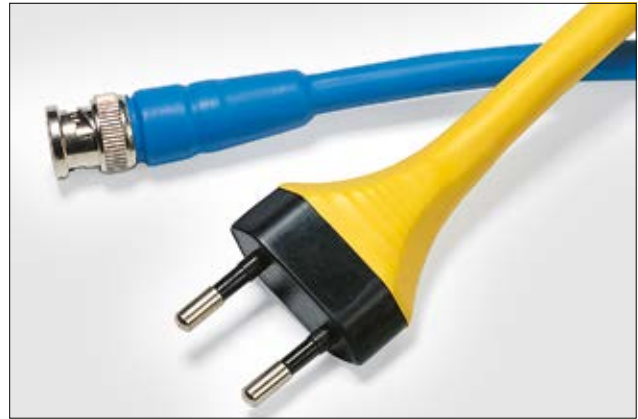
### Heat Shrinkable Tubing 3:1 flexible and coloured

#### TF31

If higher fire protection is a requirement heat shrinkable tubing TF31 is a good choice. It is used for protection insulation and identification wires, cables and light duty harnesses.

#### Features and Benefits

- Thin walled, very flexible polyolefin tubing
- Few sizes cover a wide range of diameters allowing reduced inventory
- Fast shrinking and low shrink temperature
- Flame-retardant, UL224 VW1 listed



TF31 with 3:1 shrink ratio allowing for a wider range of application.



**Cut lengths available on request.  
Please contact us!**

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+90 °C
<b>Longitudinal change after shrinkage</b>	+5 %/-15 %
<b>Dielectric Strength</b>	37 kV/mm
<b>Flammability</b>	ASTM D876
<b>Specifications</b>	CSA, UL224 125 °C 600V VW-1

**RoHS** ✓



Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF31-1.5/0.5	1.5	0.5	0.50	30 m	Black (BK)	333-30150
	1.5	0.5	0.50	30 m	Blue (BU)	333-30156
	1.5	0.5	0.50	30 m	Green (GN)	333-30155
	1.5	0.5	0.50	30 m	Green-Yellow (GNYE)	333-30157
	1.5	0.5	0.50	30 m	Red (RD)	333-30152
	1.5	0.5	0.50	30 m	White (WH)	333-30159
	1.5	0.5	0.50	30 m	Yellow (YE)	333-30154
	1.5	0.5	0.50	300 m	Black (BK)	333-20150

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.



### Heat Shrinkable Tubing 3:1 flexible and coloured

TF31



Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF31-3/1	3.0	1.0	0.60	30 m	Black (BK)	333-30300
	3.0	1.0	0.60	30 m	Blue (BU)	333-30306
	3.0	1.0	0.60	30 m	Green (GN)	333-30305
	3.0	1.0	0.60	30 m	Green-Yellow (GNYE)	333-30307
	3.0	1.0	0.60	30 m	Red (RD)	333-30302
	3.0	1.0	0.60	30 m	White (WH)	333-30309
	3.0	1.0	0.60	30 m	Yellow (YE)	333-30304
		3.0	1.0	0.60	150 m	Black (BK)
TF31-6/2	6.0	2.0	0.70	30 m	Black (BK)	333-30600
	6.0	2.0	0.70	30 m	Blue (BU)	333-30606
	6.0	2.0	0.70	30 m	Green (GN)	333-30605
	6.0	2.0	0.70	30 m	Green-Yellow (GNYE)	333-30607
	6.0	2.0	0.70	30 m	Red (RD)	333-30602
	6.0	2.0	0.70	30 m	White (WH)	333-30609
	6.0	2.0	0.70	30 m	Yellow (YE)	333-30604
		6.0	2.0	0.70	150 m	Black (BK)
TF31-9/3	9.0	3.0	0.80	30 m	Black (BK)	333-30900
	9.0	3.0	0.80	30 m	Blue (BU)	333-30906
	9.0	3.0	0.80	30 m	Green (GN)	333-30905
	9.0	3.0	0.80	30 m	Green-Yellow (GNYE)	333-30907
	9.0	3.0	0.80	30 m	Red (RD)	333-30902
	9.0	3.0	0.80	30 m	White (WH)	333-30909
	9.0	3.0	0.80	30 m	Yellow (YE)	333-30904
		9.0	3.0	0.80	150 m	Black (BK)
TF31-12/4	12.0	4.0	0.85	30 m	Black (BK)	333-31200
	12.0	4.0	0.85	30 m	Blue (BU)	333-31206
	12.0	4.0	0.85	30 m	Green (GN)	333-31205
	12.0	4.0	0.85	30 m	Green-Yellow (GNYE)	333-31207
	12.0	4.0	0.85	30 m	Red (RD)	333-31202
	12.0	4.0	0.85	30 m	White (WH)	333-31209
	12.0	4.0	0.85	30 m	Yellow (YE)	333-31204
		12.0	4.0	0.85	100 m	Black (BK)

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.



### Heat Shrinkable Tubing 3:1 flexible and coloured

TF31



Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF31-18/6	18.0	6.0	1.00	30 m	Black (BK)	333-31800
	18.0	6.0	1.00	30 m	Blue (BU)	333-31806
	18.0	6.0	1.00	30 m	Green (GN)	333-31805
	18.0	6.0	1.00	30 m	Green-Yellow (GNYE)	333-31807
	18.0	6.0	1.00	30 m	Red (RD)	333-31802
	18.0	6.0	1.00	30 m	White (WH)	333-31809
	18.0	6.0	1.00	30 m	Yellow (YE)	333-31804
	18.0	6.0	1.00	60 m	Black (BK)	333-41800
TF31-24/8	24.0	8.0	1.20	30 m	Black (BK)	333-32400
	24.0	8.0	1.20	30 m	Blue (BU)	333-32406
	24.0	8.0	1.20	30 m	Green (GN)	333-32405
	24.0	8.0	1.20	30 m	Green-Yellow (GNYE)	333-32407
	24.0	8.0	1.20	30 m	Red (RD)	333-32402
	24.0	8.0	1.20	30 m	White (WH)	333-32409
	24.0	8.0	1.20	30 m	Yellow (YE)	333-32404
	24.0	8.0	1.20	60 m	Black (BK)	333-42400
TF31-40/13	40.0	13.0	1.25	30 m	Black (BK)	333-34000
	40.0	13.0	1.25	30 m	Blue (BU)	333-34006
	40.0	13.0	1.25	30 m	Green (GN)	333-34005
	40.0	13.0	1.25	30 m	Red (RD)	333-34002
	40.0	13.0	1.25	30 m	White (WH)	333-34009
	40.0	13.0	1.25	30 m	Yellow (YE)	333-34004
	40.0	13.0	1.25	30 m	Black (BK)	333-34000
	40.0	13.0	1.25	60 m	Black (BK)	333-24000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.



### Heat Shrinkable Tubing 3:1 flexible and transparent

#### TF34

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and Benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Few sizes cover a wide range of diameters allowing reduced inventory
- Halogen free



TF34 transparent tubing with 3:1 shrink ratio allowing for a wider range of application.



**Cut lengths available on request.  
Please contact us!**



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	-5 % max.
<b>Dielectric Strength</b>	46 kV/mm
<b>Flammability</b>	not flame retarded



Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF34-1.5/0.5	1.5	0.5	0.50	30 m	Transparent (CL)	333-30153
TF34-3/1	3.0	1.0	0.50	30 m	Transparent (CL)	333-30303
TF34-6/2	6.0	2.0	0.70	30 m	Transparent (CL)	333-30603
TF34-9/3	9.0	3.0	0.80	30 m	Transparent (CL)	333-30903
TF34-12/4	12.0	4.0	0.85	30 m	Transparent (CL)	333-31203
TF34-18/6	18.0	6.0	1.00	30 m	Transparent (CL)	333-31803
TF34-24/8	24.0	8.0	1.20	30 m	Transparent (CL)	333-32403
TF34-40/13	40.0	13.0	1.25	30 m	Transparent (CL)	333-34003

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing adhesive lined

**EPS-300 - 3:1 shrink ratio**

**EPS-400 - 4:1 shrink ratio**

Heat shrinkable tubing EPS seals and protects a wide variety of electrical applications like back end connector sealing, connector-to-cable transitions and splices.

#### Features and Benefits

- Flexible, thin walled polyolefin heat shrink tubing
- With coextruded hot melt adhesive inner wall
- Protects against moisture
- Provides an environmental sealing of complex parts



PTA300 and PTA400 offer high shrink ratios and protection against humidity.



**Cut lengths available on request. Please contact us!**



Heat Shrinkable Tubing 3:1 with adhesive



Heat Shrinkable Tubing 4:1 with adhesive

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Softening Point Adhesive</b>	+90 °C
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	ASTM D2671 (outer layer only)
<b>Specifications</b>	SAE - AMS - DTL-23053 / 4

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TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Shrink Ratio	Article-No.
EPS-300-3/1	3.0	1.0	1.00	400 m	Black (BK)	3:1	340-03010
EPS-300-6/2	6.0	2.0	1.00	300 m	Black (BK)	3:1	340-06020
EPS-300-9/3	9.0	3.0	1.40	150 m	Black (BK)	3:1	340-09030
EPS-300-12/4	12.0	4.0	1.80	100 m	Black (BK)	3:1	340-12040
EPS-300-19/6	19.0	6.0	2.20	50 m	Black (BK)	3:1	340-19060
EPS-300-24/8	24.0	8.0	2.50	25 m	Black (BK)	3:1	340-24080
EPS-300-40/13	40.0	13.0	2.50	25 m	Black (BK)	3:1	340-40130

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Shrink Ratio	Article-No.
EPS-400-4/1	4.0	1.0	1.00	300 m	Black (BK)	4:1	341-04010
EPS-400-8/2	8.0	2.0	1.00	150 m	Black (BK)	4:1	341-08020
EPS-400-12/3	12.0	3.0	1.40	100 m	Black (BK)	4:1	341-12030
EPS-400-16/4	16.0	4.0	1.80	100 m	Black (BK)	4:1	341-16040
EPS-400-24/6	24.0	6.0	2.20	50 m	Black (BK)	4:1	341-24060
EPS-400-32/8	32.0	8.0	2.50	25 m	Black (BK)	4:1	341-32080

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.

### Heat Shrinkable Tubing adhesive lined - 1.2 m lengths

#### SA47 - standard wall, 4:1 shrink ratio

SA47 is a semi-rigid halogen free polyolefin tubing with a thick inner liner of hot melt adhesive. It has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Tubing is clear and hot melt adhesive is black.

#### Features and Benefits

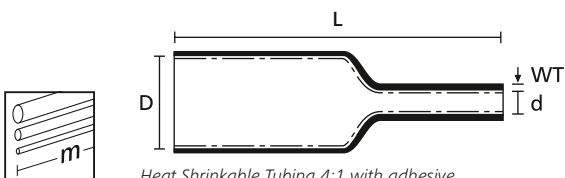
- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing is clear and hot melt adhesive black
- Provides an environmental sealing of complex parts
- Halogen free



Heat shrink tubing SA47 for splice application.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Melting Point</b>	starting from +110 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm

**i** SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.



Heat Shrinkable Tubing 4:1 with adhesive

**i** Cut lengths available on request. Please contact us!

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
SA47 5,75/1,25	5.75	1.25	1.15	1.2 m	Clear (CL)	301-10000
SA47 7,5/1,65	7.5	1.65	1.40	1.2 m	Clear (CL)	301-10001
SA47 11,0/2,4	11.0	2.4	1.80	1.2 m	Clear (CL)	301-10002
SA47 18,3/4,35	18.3	4.35	2.20	1.2 m	Clear (CL)	301-10003
SA47 24/6	24.0	6.0	2.54	1.2 m	Clear (CL)	301-10005
SA47 32/8	32.0	8.0	2.54	1.2 m	Clear (CL)	301-10004

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing adhesive lined - 1.2 m lengths

#### SA47-LA - standard wall, 4:1 shrink ratio

SA47-LA is a semi-rigid halogen free polyolefin tubing with an inner liner of hot melt adhesive. It has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Tubing is clear and hot melt adhesive is black.

SA47-LA is specially designed with less adhesive for cable connections.

#### Features and Benefits

- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing is clear and hot melt adhesive black
- Provides an environmental sealing of complex parts
- Halogen free



Heat shrink tubing SA47-LA for cable connection.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Melting Point</b>	starting from +110 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm



SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.



Cut lengths available on request. Please contact us!



Heat Shrinkable Tubing 4:1 with adhesive



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
SA47-LA 5,75/1,25	5.75	1.25	1.15	1.2 m	Clear (CL)	301-10020
SA47-LA 7,5/1,65	7.5	1.65	1.40	1.2 m	Clear (CL)	301-10021
SA47-LA 11,0/2,4	11.0	2.4	1.80	1.2 m	Clear (CL)	301-10022
SA47-LA 18,3/4,35	18.3	4.35	2.20	1.2 m	Clear (CL)	301-10023
SA47-LA 24/6	24.0	6.0	2.54	1.2 m	Clear (CL)	301-10024
SA47-LA 32/8	32.0	8.0	2.54	1.2 m	Clear (CL)	301-10025
SA47-LA 52/13	52.0	13.0	3.00	1.2 m	Clear (CL)	301-10026

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### Heat Shrinkable Tubing adhesive lined - 1.2 m lengths

**SA47-HT - standard wall, 4:1 shrink ratio**

SA47-HT is a semi-rigid flame retardant polyolefin tubing with a thick inner liner of hot melt adhesive. The tubing has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Suitable for high temperature applications up to 150 °C. Tubing is black and hot melt adhesive is black.

#### Features and Benefits

- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing and hot melt adhesive is black
- Provides an environmental sealing of complex parts
- For high temperature applications up to 150 °C
- Flame retardant



**SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.**



**Cut lengths available on request. Please contact us!**



Heat Shrinkable Tubing 4:1 with adhesive



Heat shrink tubing SA47-HT for 150 °C application.



SA47-HT provides optimum protection against moisture in high temperature applications.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Minimum Shrink Temperature</b>	+130 °C
<b>Melting Point</b>	starting from +120 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm
<b>Flammability</b>	Self extinguishing



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
SA47-HT 7,6/1,7	7.6	1.7	1.52	1.2 m	Black (BK)	301-10010
SA47-HT 9,0/2,3	9.0	2.3	1.52	1.2 m	Black (BK)	301-10011
SA47-HT 11,6/2,5	11.6	2.5	2.29	1.2 m	Black (BK)	301-10012
SA47-HT 17,8/4,4	17.8	4.4	2.54	1.2 m	Black (BK)	301-10013
SA47-HT 24/6	24.0	6.0	2.54	1.2 m	Black (BK)	301-10015
SA47-HT 32/8	32.0	8.0	2.54	1.2 m	Black (BK)	301-10014

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Heat Shrinkable Tubing 2:1 - Elastomer

#### SE28

SE28 is used for long-term protection of cables and wire harnesses in military equipment, motor sports, and aviation.

#### Features and Benefits

- Flexible, high performance elastomeric heat shrink tubing
- Used in aerospace, defence, railway and automotive applications
- Resistant to diesel fuel, aviation and hydraulic fluids
- Provides a reliable protection against abrasion and mechanical damage
- Very suitable for protecting cables and wire harnesses



SE28 tubing.

<b>MATERIAL</b>	Elastomer, cross-linked (POA)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-75 °C to +150 °C
<b>Minimum Shrink Temperature</b>	+170 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	VG 95343
<b>Specifications</b>	NF F 00-608, SAE - AMS - DTL-23053, VG 95343



SE28 is mainly used in high performance applications.

**RoHS** ✓



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
SE28 3,2/1,6	3.2	1.6	0.70	150 m	Black (BK)	VG 95343 T05 D 001 A	342-20000
SE28 4,8/2,4	4.8	2.4	0.80	60 m	Black (BK)	VG 95343 T05 D 002 A	342-20010
SE28 6,4/3,2	6.4	3.2	0.90	60 m	Black (BK)	VG 95343 T05 D 003 A	342-20020
SE28 9,5/4,8	9.5	4.8	1.00	60 m	Black (BK)	VG 95343 T05 D 004 A	342-20030
SE28 12,7/6,4	12.7	6.4	1.20	60 m	Black (BK)	VG 95343 T05 D 005 A	342-20040
SE28 19,0/9,5	19.0	9.5	1.40	30 m	Black (BK)	VG 95343 T05 D 006 A	342-20050
SE28 25,4/12,7	25.4	12.7	1.80	30 m	Black (BK)	VG 95343 T05 D 007 A	342-20060
SE28 38,0/19,0	38.0	19.0	2.40	30 m	Black (BK)	VG 95343 T05 D 008 A	342-20070
SE28 51,0/25,4	51.0	25.4	2.80	30 m	Black (BK)	VG 95343 T05 D 009 A	342-20080
SE28 76,0/38,0	76.0	38.0	3.20	15 m	Black (BK)	VG 95343 T05 D 010 A	342-20090
SE28 101,2/51,0	102.0	51.0	3.50	10 m	Black (BK)	VG 95343 T05 D 011 A	342-20100

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.



### Heat Shrinkable Tubing 2:1 - PVDF

#### TK20

Typical applications of this translucent tubing are where high-temperature performance is required. Also very suitable for applications that ask for visual inspection of covered components, or if a low friction surface is needed. TK20 is also used as oil stop for energy cables.

This thin walled, translucent heat shrink tubing is often used for chemical applications.

#### Features and Benefits

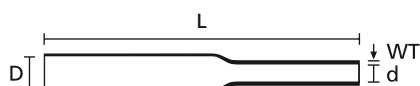
- Semi-rigid heat shrinkable tubing made of PVDF
- Thin walled and tough
- For higher temperature applications
- Very good mechanical strength, abrasion resistance and chemical resistance
- Meets various industrial standards
- Self extinguishing, UL 224 VW1 listed



*This thin walled, translucent heat shrink tubing is often used for chemical applications.*

Detailed Information about Heatguns please refer to page 242.

<b>MATERIAL</b>	Polyvinylidene Fluoride (PVDF)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +175 °C
<b>Minimum Shrink Temperature</b>	+175 °C
<b>Longitudinal change after shrinkage</b>	+/-10 % max
<b>Dielectric Strength</b>	≥ 30 kV/mm min. according to ASTM D2171
<b>Flammability</b>	UL224 VW-1
<b>Specifications</b>	ASN-E0718, PAN6491, SAE - AMS - DTL-23053 / 8, UL224 150 °C 600V VW-1, VG 95343



Heat Shrinkable Tubing 2:1

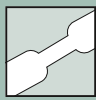
**RoHS**

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Designation as per VG-Norm	Article-No.
TK20-1.2/0.6	1.2	3/64 "	0.6	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 001 M	331-00129
TK20-1.6/0.8	1.6	1/16 "	0.8	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 002 M	311-00169
TK20-2.4/1.2	2.4	3/32 "	1.2	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 003 M	311-00249
TK20-3.2/1.6	3.2	1/8 "	1.6	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 004 M	311-00329
TK20-4.8/2.4	4.8	3/16 "	2.4	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 005 M	311-00489
TK20-6.4/3.2	6.4	1/4 "	3.2	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 006 M	311-00649
TK20-9.5/4.8	9.5	3/8 "	4.8	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 007 M	311-00959
TK20-12.7/6.4	12.7	1/2 "	6.4	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 008 M	311-01279
TK20-19.1/9.5	19.1	3/4 "	9.5	0.43	1.2 m	Transparent (CL)	VG 95343 T05 F 009 M	311-01909
TK20-25.4/12.7	25.4	1 "	12.7	0.48	1.2 m	Transparent (CL)	VG 95343 T05 F 010 M	311-02549
TK20-38.1/19.1	38.1	1-1/2 "	19.1	0.51	1.2 m	Transparent (CL)	-	311-03819
TK20-50.8/25.4	50.8	2 "	25.4	0.51	1.2 m	Transparent (CL)	-	311-05089

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.



### Heat Shrinkable Tubing 2:1 - Fluoroelastomer

#### Viton®-E

Viton®-E is used for reliable protection against aggressive chemicals in high temperature environments like engine compartments and turbines. It is also used when protective tubings are required to remain flexible at low temperatures.

#### Features and Benefits

- High temperature resistant fluoroelastomeric heat shrink tubing
- Very good electrical, chemical and mechanical features
- Resistant to many fuels, oils and lubricants
- Flexible even at very low temperatures



Viton®-E for flexibility and protection against aggressive chemicals.



Detailed Information about Heatguns please refer to page 242.

<b>MATERIAL</b>	Fluoropolymer cross-linked (FPMX)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +220 °C
<b>Minimum Shrink Temperature</b>	+175 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	15 kV/mm
<b>Flammability</b>	VG 95343
<b>Insulation Class</b>	C (VDE 0530)
<b>Specifications</b>	LEA, VG 95343

RoHS



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
VITON®-E-3.2/1.6	3.2	1/8 "	1.6	0.70	50 m	Black (BK)	VG 95343 T05 E 001 A	330-00320
VITON®-E-4.8/2.4	4.8	3/16 "	2.4	0.80	50 m	Black (BK)	VG 95343 T05 E 002 A	330-00480
VITON®-E-6.4/3.2	6.4	1/4 "	3.2	0.90	50 m	Black (BK)	VG 95343 T05 E 003 A	330-00640
VITON®-E-9.5/4.8	9.5	3/8 "	4.8	1.00	25 m	Black (BK)	VG 95343 T05 E 004 A	330-00950
VITON®-E-12.7/6.4	12.7	1/2 "	6.4	1.20	25 m	Black (BK)	VG 95343 T05 E 005 A	330-01270
VITON®-E-19.0/9.5	19.0	3/4 "	9.5	1.40	25 m	Black (BK)	VG 95343 T05 E 006 A	330-01900
VITON®-E-25.4/12.7	25.4	1 "	12.7	1.80	25 m	Black (BK)	VG 95343 T05 E 007 A	330-02540
VITON®-E-38.0/19.0	38.0	1-1/2 "	19.0	2.40	15 m	Black (BK)	VG 95343 T05 E 008 A	330-03810
VITON®-E-50.8/25.4	50.8	2 "	25.4	2.80	15 m	Black (BK)	VG 95343 T05 E 009 A	330-05080

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



Please note! Not all products listed on this page may have this approval.

## Heat Shrinkable Moulded Shapes



The moulded shapes catalogue offers a wide range of 42 moulded parts. The extensive product line includes low profile, bulbous and lipped types for use on circular and D-type connectors as well as complex multiway transitions. They can be sealed with our special adhesives and encapsulants to ensure the proper degree of mechanical support, strain relief and environmental protection. A range of specially formulated materials is available to meet a variety of performance requirements.