

Date of issue: April 2016



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## 2.1 Heat Shrinkable Tubing

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## 2.2 Heat Shrinkable Moulded Shapes

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## 2.3 Non 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
6.4/3.2	4.8/2.4	2.9 mm
		3.8 mm
12.7/6.4	9.5/4.7	4.3 mm
		5.7 mm
		5.8 mm
25.4/12.7	19.1/9.5	7.7 mm
		8.6 mm
50.8/25.4	38.1/19.1	11.4 mm
		15.2 mm
		17.2 mm
101.6/50.8	76.2/38.1	22.9 mm
		30.5 mm
		34.3 mm
		45.7 mm
		61.0 mm
		68.6 mm
		91.4 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

VITON® is a registered trademark of DuPont.

### 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
18/6	12/4	5.2 mm
		5.6 mm
40/13	24/8	8.4 mm
		10.4 mm
		11.2 mm
		15.6 mm
		18.4 mm
		20.8 mm
		34.6 mm

## 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 5 mm 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 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.

#### 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

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.

## Heat Shrinkable Tubing Overview










TYPE	Packaging type	Variant	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogenfree	Colour	Specifications	Page
ShrinKit 321 Basic		Thin-Wall	PO-X	3:1	-55 °C to +135 °C			Black	14	193
ShrinKit 321 Universal Basic			PO-X	3:1	-55 °C to +135 °C			Various	14	194
ShrinKit 321 Universal			PO-X	3:1	-55 °C to +135 °C			Various	14	195
ShrinKit 321-A Basic		Thin-Wall Hot melt adhesive	PO-X	3:1	-55 °C to +110 °C			Black, Transparent	14	196
ShrinKit 321-A			PO-X	3:1	-55 °C to +110 °C			Black, Transparent	14	197
HIS-A			PO-X	3:1	-55 °C to +125 °C	3.0 - 24.0		Black, Transparent	3, 14, 15, 16	198
TREDUX			PO-X	2:1, 3:1	-55 °C to +135 °C	1.5 - 101.6		Black, Green-Yellow	3, 14, 15, 16	200
HIS-Pack			PO-X	2:1	-55 °C to +125 °C	1.2 - 25.4		Black, Blue, Green-Yellow, Red, Transparent	14, 15, 16	201
HIS-3			PO-X	3:1	-55 °C to +135 °C	1.5 - 24.0		Black, Blue, Green-Yellow, Red, Transparent	3, 14, 15, 16	203
HIS-3 BAG			PO-X	3:1	-55 °C to +135 °C	1.5 - 12.0		Black, Blue, Brown, Green-Yellow, Grey, Red, Transparent	14, 15, 16	205
LVR		Thin-Wall	PVC	2:1	-30 °C to +105 °C	2.4 - 25.4		Black	15, 16	207
TL27			PO-X	2:1	-55 °C to +135 °C	1.2 - 50.8	<b>HF</b> ✓	Black		208
TCN20			PO-X	2:1	-55 °C to +125 °C	1.2 - 50.8		Black	3, 15, 16	209
TCN20 overexpanded			PO-X	3:1	-55 °C to +125 °C	2.4 - 38.0		Black	3, 15, 16	210
HFT-A			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black, Blue, Green-Yellow, Red, White, Yellow	1, 3, 4, 8, 10, 11, 12, 13, 14, 15, 16, 17	211
TF21			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black, Blue, Green-Yellow, Red, White, Yellow	3, 7, 11, 14, 15, 16	214

### Heat Shrinkable Tubing Overview


















TYPE	Packaging type	Variant	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogenfree	Colour	Specifications	Page
TF24		Thin-Wall	PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6	HF ✓	Transparent	4, 14, 17	217
TF31			PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0		Black, Blue, Green, Green-Yellow, Red, White, Yellow	3, 15, 16	218
TF34			PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0	HF ✓	Transparent		221
TA32		Thin-Wall Hot melt adhesive	PO-X	3:1	-55 °C to +125 °C	3.2 - 40.0		Black	3, 14, 15, 16	222
TA42			PO-X	4:1	-55 °C to +125 °C	4.0 - 52.0		Black	14, 15, 16	223
EPS-300			PO-X	3:1	-55 °C to +110 °C	3.0 - 40.0		Black	14	224
EPS-400			PO-X	4:1	-55 °C to +110 °C	4.0 - 32.0		Black	14	224
MA40		Medium-Wall Hot melt adhesive	PO-X	4:1	-55 °C to +110 °C	8.0 - 55.0		Black	6	225
TREDUX MA47			PO-X	up to 4:1	-55 °C to +110 °C	12.0 - 95.0	HF ✓	Black		226
MA47			PO-X	up to 4:1	-55 °C to +110 °C	12.0 - 140.0	HF ✓	Black		227
MU47		Medium-Wall	PO-X	up to 4:1	-55 °C to +110 °C	12.0 - 140.0	HF ✓	Black		227
RMS		Medium-Wall Hot melt adhesive	PO-X	up to 4.5:1	-40 °C to +120 °C	43 - 185	HF ✓	Black		229
HA40		Thick-Wall Hot melt adhesive	PO-X	4:1	-55 °C to +110 °C	9.0 - 92.0		Black	6	230
TREDUX HA47			PO-X	up to 3.5:1	-55 °C to +110 °C	19.0 - 85.0	HF ✓	Black		231
HA47			PO-X	up to 3.5:1	-55 °C to +110 °C	9.0 - 180.0	HF ✓	Black		232
HA67			PO-X	6:1	-55 °C to +110 °C	19.0 - 235.0	HF ✓	Black		233
TR27		Thin-Wall	PO-X	2:1	-40 °C to +105 °C	3.2 - 50.8	HF ✓	Black	2, 4, 9	234



## Heat Shrinkable Tubing Overview

TYPE	Packaging type	Variant	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogenfree	Colour	Specifications	Page
TA37		Thin-Wall Hot melt adhesive	PO-X	3:1	-40 °C to +105 °C	3.0 - 120	HF ✓	Black	2	235
SA47		Standard-Wall EVA hot melt adhesive	PO-X	4:1	-40 °C to +125 °C	5.75 - 32.0	HF ✓	Clear		236
SA47-LA		Standard-Wall EVA hot melt adhesive	PO-X	4:1	-40 °C to +125 °C	5.75 - 52.0	HF ✓	Clear		237
SA47-HT			PO-X	4:1	-40 °C to +150 °C	7.6 - 32.0		Black		238
SE28		Standard-Wall	POA	2:1	-75 °C to +150 °C	3.2 - 102.0		Black	11, 14, 17	239
TK20		Thin-Wall	PVDF	2:1	-55 °C to +175 °C	1.2 - 50.8		Transparent	1, 12, 13, 14, 15, 16, 17	240
Viton®-E		Standard-Wall	FPMX	2:1	-55 °C to +220 °C	3.2 - 50.8		Black	8, 17	241
TFE2		Thin-Wall	PTFE	2:1	-70 °C to +260 °C	0.86 - 11.94		Transparent		242
TFE4			PTFE	4:1	-70 °C to +260 °C	1.98 - 31.75		Transparent	12	243

## SPECIFICATION

1 	2 	3 	4 	5 	6 	7 	
8 	9 	10 	11 	12 	13 	14 	
15 	16 	17 					

Please refer to the Approvals Overview for further information, see page: 542.



### Heat Shrinkable Tubing 3:1 in a Kit

#### ShrinkKit 321 Basic - black

The compact and handy kit belongs to the basic equipment for every assembler. Its ideal shrink ratio of 3:1 replaces many differently sized tubing.

#### Features and Benefits

- Compact and handy kit
- Black tubing
- Application range from 1 mm to 16 mm
- 220 precut pieces in five sizes



ShrinkKit 321 Basic.



Detailed Information about Heatguns please refer to page 529.

<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 %/-10 % max.
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 2671
<b>Flammability</b>	Self extinguishing
<b>Insulation Class</b>	B (VDE 0530)
<b>Specifications</b>	SAE - AMS - DTL-23053/5 Class 1



Heat Shrinkable Tubing 3:1



COMP.	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Colour	Content (pcs.)	Article-No.
1	1.5	0.5	35.0	0.45	Black (BK)	50	380-03001
2	6.0	2.0	35.0	0.70	Black (BK)	30	
3	3.0	1.0	35.0	0.55	Black (BK)	25	
4	6.0	2.0	35.0	0.70	Black (BK)	15	
5	6.0	2.0	35.0	0.70	Black (BK)	15	
6	3.0	1.0	35.0	0.55	Black (BK)	25	
7	1.5	0.5	35.0	0.45	Black (BK)	50	
8	12.0	4.0	80.0	0.70	Black (BK)	5	
	18.0	6.0	80.0	0.80	Black (BK)	5	

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



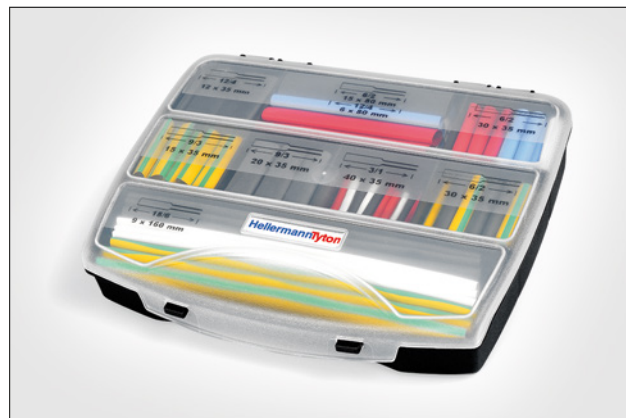
## Heat Shrinkable Tubing 3:1 in a Kit

### ShrinKit 321 Universal Basic

With ShrinKit 321 HellermannTyton has set a new standard in heat shrink tubing: ShrinKit tubings cover many applications with their ideal shrink ratio of 3:1.

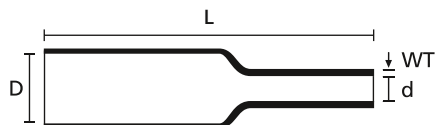
#### Features and Benefits

- Compact and handy kit
- Black and coloured tubing
- Application range from 1 mm up to 16 mm



ShrinKit 321 Universal Basic.

<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 %/-10 % max.
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 2671
<b>Flammability</b>	Self extinguishing
<b>Insulation Class</b>	B (VDE 0530)
<b>Specifications</b>	SAE - AMS - DTL-23053/5 Class 1



Heat Shrinkable Tubing 3:1

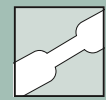
RoHS

COMP.	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Colour	Content	Article-No.
1	12.0	4.0	35.0	0.70	Black (BK)	12	380-03005
2	6.0	2.0	80.0	0.70	Blue (BU)	5	
	6.0	2.0	80.0	0.70	Red (RD)	5	
	6.0	2.0	80.0	0.70	White (WH)	5	
	12.0	4.0	80.0	0.70	Black (BK)	2	
	12.0	4.0	80.0	0.70	Blue (BU)	2	
	12.0	4.0	80.0	0.70	Red (RD)	2	
3	6.0	2.0	35.0	0.70	Blue (BU)	10	
	6.0	2.0	35.0	0.70	Red (RD)	10	
	6.0	2.0	35.0	0.70	White (WH)	10	
4	9.0	3.0	35.0	0.70	Green/Yellow (GNYE)	15	
5	9.0	3.0	35.0	0.70	Black (BK)	20	
6	3.0	1.0	35.0	0.55	Black (BK)	10	
	3.0	1.0	35.0	0.55	Blue (BU)	10	
	3.0	1.0	35.0	0.55	Red (RD)	10	
	3.0	1.0	35.0	0.55	White (WH)	10	
7	6.0	2.0	35.0	0.70	Black (BK)	20	
	6.0	2.0	35.0	0.70	Green/Yellow (GNYE)	10	
8	18.0	6.0	160.0	0.80	Black (BK)	3	
	18.0	6.0	160.0	0.80	Green/Yellow (GNYE)	3	
	18.0	6.0	160.0	0.80	White (WH)	3	

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 in a Kit

#### ShrinKit 321 Universal

With ShrinKit 321 HellermannTyton has set a new standard in heat shrink tubing: ShrinKit tubings cover many applications with their ideal shrink ratio of 3:1.

#### Features and Benefits

- Attractive and reusable kit
- Wide range of sizes, colours and lengths
- For insulation, bend protection and identification
- Case can be re-used for storing nails, screws, nuts, fish hooks, etc.
- Size of compartments changeable by simply moving yellow space dividers

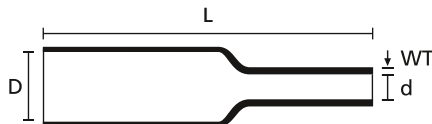


ShrinKit 321 Universal.



Detailed Information about Heatguns please refer to page 529.

<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 %/-10 % max.
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 2671
<b>Flammability</b>	self-extinguishing (except for transparent)
<b>Insulation Class</b>	B (VDE 0530)
<b>Specifications</b>	SAE - AMS - DTL-23053/5 Class 1 (colours), SAE - AMS - DTL-23053/5 Class 2 (clear)



Heat Shrinkable Tubing 3:1



COMP.	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Colour	Content (pcs.)	Article-No.
1	6.0	2.0	60.0	0.70	Black (BK)	50	380-03002
2	12.0	4.0	100.0	0.70	Black (BK)	15	
3	24.0	8.0	200.0	1.00	Black (BK)	10	
4	6.0	2.0	60.0	0.70	Green/Yellow (GNYE)	50	
5	3.0	1.0	50.0	0.55	Transparent (CL)	100	
6	3.0	1.0	50.0	0.55	Black (BK)	100	
7	12.0	4.0	100.0	0.70	Transparent (CL)	15	
8	12.0	4.0	100.0	0.70	Red (RD)	15	
9	3.0	1.0	50.0	0.55	Red (RD)	100	
10	3.0	1.0	40.0	0.55	Blue (BU)	100	
11	3.0	1.0	40.0	0.55	Green/Yellow (GNYE)	100	
12	1.5	0.5	40.0	0.45	Black (BK)	75	
	1.5	0.5	40.0	0.45	Green/Yellow (GNYE)	75	
13	6.0	2.0	60.0	0.70	Blue (BU)	50	
14	6.0	2.0	60.0	0.70	Red (RD)	50	
15	6.0	2.0	60.0	0.70	Transparent (CL)	50	
16	12.0	4.0	170.0	0.70	Green/Yellow (GNYE)	10	
17	12.0	4.0	170.0	0.70	Blue (BU)	10	

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



## Heat Shrinkable Tubing 3:1 in a Kit

### Shrinkit 321-A Basic - with adhesive liner

The black tubing is mainly used for environmental sealing of splices and connectors. The transparent tubing is typically used for protection of cable markers.

#### Features and Benefits

- Adhesive lined heat shrink tubing
- Attractive and reusable kit ideal for assembling and identification
- Inner wall melts when heated and is forced into gaps
- Adhesive forms seal against moisture as tubing cools
- Black tubes mainly for the protection of connectors and splices
- Clear tubing ideal for protection of printed label markers
- Case can be re-used for storing nails, screws, nuts, fish hooks, etc.



Shrinkit 321-A Basic.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	+1 %/-15 % max.
<b>Dielectric Strength</b>	15 kV/mm according to ASTM D2671
<b>Flammability</b>	self-extinguishing (except for transparent)
<b>Insulation Class</b>	A (VDE 0530)
<b>Specifications</b>	SAE - AMS - DTL-23053/4 Class 3 (except clear)



Heat Shrinkable Tubing 3:1 with adhesive



COMP.	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Colour	Content (pcs.)	Article-No.
1	3.0	1.0	35.0	1.00	Black (BK)	25	380-03004
2	12.0	4.0	35.0	1.70	Black (BK)	10	
3	3.0	1.0	35.0	1.00	Transparent (CL)	25	
4	6.0	2.0	35.0	1.10	Black (BK)	15	
5	6.0	2.0	35.0	1.10	Transparent (CL)	15	
6	6.0	2.0	35.0	1.10	Transparent (CL)	15	
7	6.0	2.0	35.0	1.10	Black (BK)	15	
8	12.0	4.0	80.0	1.70	Black (BK)	5	
	12.0	4.0	80.0	1.70	Transparent (CL)	5	

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 in a Kit

#### ShrinkKit 321-A - with adhesive liner

The black tubing is mainly used for environmental sealing of splices and connectors. The transparent tubing is typically used for protection of cable markers.

#### Features and Benefits

- Adhesive lined heat shrink tubing
- Attractive and reusable kit ideal for assembling and identification
- Inner wall melts when heated and is forced into gaps
- Adhesive forms seal against moisture as tubing cools
- Black tubing mainly for the protection of connectors and splices
- Clear tubing ideal for protection of printed label markers
- Case can be re-used for storing nails, screws, nuts, fish hooks, etc.
- Compartment size changeable by simply moving yellow space dividers



ShrinkKit 321-A.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	+1 %/-15 % max.
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	self-extinguishing (except for transparent)
<b>Insulation Class</b>	A (VDE 0530)
<b>Specifications</b>	SAE - AMS - DTL-23053/4 Class 3 (except clear)



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Heat Shrinkable Tubing 3:1 with adhesive



COMP.	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Colour	Content (pcs.)	Article-No.
1	24.0	8.0	200.0	2.50	Black (BK)	5	380-03003
2	12.0	4.0	65.0	1.70	Transparent (CL)	15	
3	6.0	2.0	50.0	1.10	Black (BK)	20	
	6.0	2.0	50.0	1.10	Transparent (CL)	20	
4	12.0	4.0	65.0	1.70	Black (BK)	15	
5	3.0	1.0	50.0	1.00	Black (BK)	50	
	3.0	1.0	50.0	1.00	Transparent (CL)	50	
6	6.0	2.0	35.0	1.10	Black (BK)	30	
	6.0	2.0	35.0	1.10	Transparent (CL)	30	
7	24.0	8.0	200.0	2.50	Transparent (CL)	5	
8	12.0	4.0	100.0	1.70	Black (BK)	15	
9	12.0	4.0	100.0	1.70	Black (BK)	15	
10	12.0	4.0	100.0	1.70	Transparent (CL)	15	
11	3.0	1.0	40.0	1.00	Black (BK)	50	
	3.0	1.0	40.0	1.00	Transparent (CL)	50	

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 on a Reel

#### HIS-A - with adhesive liner

HIS-A forms a seal against moisture and protect against corrosion and mechanical abrasion.

#### Features and Benefits

- Adhesive lined heat shrink tubing
- Inner wall melts when heated and is forced into gaps
- Adhesive forms seal against moisture as tubing cools
- Protects components
- Available in black and transparent
- 6 sizes for wide range of applications



HIS-A - with adhesive liner



**Detailed Information about Heatguns please refer to page 529.**

<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>	-10 % max.
<b>Softening Point Adhesive</b>	+85 °C
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	UL224 VW-1 (except clear)
<b>Insulation Class</b>	A (VDE 0530)
<b>Specifications</b>	CSA, SAE - AMS - DTL-23053 / 4 , UL224 125 °C 600V VW-1



Heat Shrinkable Tubing 3:1 with adhesive



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
HIS-A-3/1	3.0	1.0	1.00	10 m	Black (BK)	308-10300
	3.0	1.0	1.00	10 m	Transparent (CL)	308-10303
HIS-A-6/2	6.0	2.0	1.00	5 m	Black (BK)	308-10600
	6.0	2.0	1.00	5 m	Transparent (CL)	308-10603
HIS-A-9/3	9.0	3.0	1.40	5 m	Black (BK)	308-10900
	9.0	3.0	1.40	5 m	Transparent (CL)	308-10903
HIS-A-12/4	12.0	4.0	1.80	5 m	Black (BK)	308-11200
	12.0	4.0	1.80	5 m	Transparent (CL)	308-11203
HIS-A-18/6	18.0	6.0	2.25	4 m	Black (BK)	308-11800
	18.0	6.0	2.25	4 m	Transparent (CL)	308-11803
HIS-A-24/8	24.0	8.0	2.50	3 m	Black (BK)	308-12400
	24.0	8.0	2.50	3 m	Transparent (CL)	308-12403

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



For product specific approvals and specifications please refer to the Appendix.



### Point of Sale Display for TREDUX

#### TREDUX-Display

With TREDUX HellermannTyton has set a new standard in heat shrink tubing.

TREDUX offers a complete range of thin, medium and thick wall tubing cut into 1 meter length.

All tubing are labeled with an EAN barcode securely packed in display boxes.

They can be removed individually for occasional use in smaller quantities.

With the practical, valuable metal point of sale display is an optimal product presentation guaranteed.

The following table is a proposed content for a TREDUX-Display.

#### Features and Benefits

- Complete range of thin, medium- and thick wall heatshrink tubing in one display
- All tubings can be sold in single 1 meter length or entire carton
- Pick of single tube possible allowing job specific purchasing
- Optimised stock based on usage based display content
- Holder for end user brochures available attached to display



The TREDUX display.



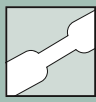
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TYPE	Content	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
<b>TREDUX-Display</b>							
TREDUX-Display	-	-	-	-	1 pcs.	Blue (BU)	319-30000
<b>TREDUX HA47 thick wall - with adhesive liner</b>							
TREDUX-HA47-19/6	1	19.0	6.0	2.70	10 pcs.	Black (BK)	321-50190
TREDUX-HA47-33/8	1	33.0	8.0	3.20	5 pcs.	Black (BK)	321-50330
TREDUX-HA47-45/12	1	45.0	12.0	4.10	4 pcs.	Black (BK)	321-50450
<b>TREDUX MA47 medium wall - with adhesive liner</b>							
TREDUX-MA47-19/6	1	19.0	6.0	2.50	10 pcs.	Black (BK)	323-50190
TREDUX-MA47-40/12	1	40.0	12.0	2.50	4 pcs.	Black (BK)	323-50400
TREDUX-MA47-30/8	2	30.0	8.0	2.50	6 pcs.	Black (BK)	323-50300
<b>TREDUX thin wall</b>							
TREDUX-1.5/0.5	1	1.5	0.5	0.50	20 pcs.	Black (BK)	319-00150
TREDUX-3/1	1	3.0	1.0	0.60	20 pcs.	Green-Yellow (GNYE)	319-00307
TREDUX-6/2	1	6.0	2.0	0.70	15 pcs.	Green-Yellow (GNYE)	319-00607
TREDUX-12/4	1	12.0	4.0	0.85	10 pcs.	Green-Yellow (GNYE)	319-01207
TREDUX-24/8	1	24.0	8.0	1.20	5 pcs.	Black (BK)	319-02400
TREDUX-3/1	2	3.0	1.0	0.60	20 pcs.	Black (BK)	319-00300
TREDUX-6/2	2	6.0	2.0	0.70	15 pcs.	Black (BK)	319-00600
TREDUX-12/4	4	12.0	4.0	0.85	10 pcs.	Black (BK)	319-01200

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





### Heat Shrinkable Tubing up to 3:1 - 1 m lengths

#### TREDUX thin wall

TREDUX thin wall heat shrink tubing is used for general electrical insulation and mechanical protection of cables and wires.

#### Features and Benefits

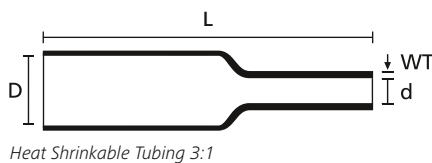
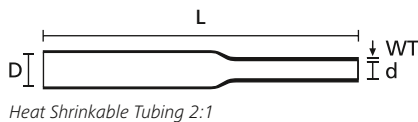
- Thin walled, flexible, cross-linked polyolefin tubing
- 1m shrink tubing lengths delivered in handy display carton
- 9 sizes from 1.5 mm to 101.6 mm
- Colours: black and yellow/green



**More colours on request.  
Please contact us!**



One Step to the Web!



TREDUX shrinks a maximum of 3:1.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)	
<b>Shrink Ratio</b>	2:1	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C	
<b>Minimum Shrink Temperature</b>	+100 °C	
<b>Longitudinal change after shrinkage</b>	+/-5 % max.	
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 150	
<b>Flammability</b>	UL224 VW-1	
<b>Specifications</b>	CSA, SAE - AMS - DTL-23053/5 Class 1 and 3, SAE - AMS - DTL-23053/5 Class 2 (clear), UL224 125 °C 600V VW-1	

**RoHS** ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Pack Cont.	Colour	Shrink Ratio	Article-No.
TREDUX-1.5/0.5	1.5	0.5	0.50	1.0 m	20 pcs.	Black (BK)	3:1	319-00150
	1.5	0.5	0.50	1.0 m	20 pcs.	Green-Yellow (GNYE)	3:1	319-00157
TREDUX-3/1	3.0	1.0	0.60	1.0 m	20 pcs.	Black (BK)	3:1	319-00300
	3.0	1.0	0.60	1.0 m	20 pcs.	Green-Yellow (GNYE)	3:1	319-00307
TREDUX-6/2	6.0	2.0	0.70	1.0 m	15 pcs.	Black (BK)	3:1	319-00600
	6.0	2.0	0.70	1.0 m	15 pcs.	Green-Yellow (GNYE)	3:1	319-00607
TREDUX-12/4	12.0	4.0	0.85	1.0 m	10 pcs.	Black (BK)	3:1	319-01200
	12.0	4.0	0.85	1.0 m	10 pcs.	Green-Yellow (GNYE)	3:1	319-01207
TREDUX-24/8	24.0	8.0	1.20	1.0 m	5 pcs.	Black (BK)	3:1	319-02400
	24.0	8.0	1.20	1.0 m	5 pcs.	Green-Yellow (GNYE)	3:1	319-02407
TREDUX-38.1/19.1	38.1	19.1	1.02	1.0 m	6 pcs.	Black (BK)	2:1	319-03800
	38.1	19.1	1.02	1.0 m	6 pcs.	Green-Yellow (GNYE)	2:1	319-03807
TREDUX-50.8/25.4	50.8	25.4	1.14	1.0 m	6 pcs.	Black (BK)	2:1	319-05100
TREDUX-76.2/38.1	76.2	38.1	1.27	1.0 m	3 pcs.	Black (BK)	2:1	319-07600
TREDUX-101.6/50.8	101.6	50.8	1.40	1.0 m	2 pcs.	Black (BK)	2:1	319-10200

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



For product specific approvals and specifications please refer to the Appendix.



### Storage Rack for HIS-Boxes

#### HIS-Service Station

HIS general purpose heat shrink tubing provides a reliable insulation and protects against corrosion and mechanical influences. The handy dispenser is ideal for small and medium size projects on-site. The sturdy metal HIS Service Station comes with a cutter and can store all sizes and colours. The Service Station can be mounted to the wall in the work shop or service-van.

#### Features and Benefits

- Contains up to 5 dispenser boxes
- Place on bench or mount to wall
- Special cutter included for easily cutting tubing length to size



HIS-Service Station contains 5 dispensers and a special cutter.

TYPE	Description	Article-No.
HIS Service Station	HIS-Service Station incl. cutter, contents: 5 dispensers HIS-3 (shrink ratio: 3:1), black, sizes are as follows: HIS-3/1, HIS-6/2, HIS-12/4 (2 pcs.), HIS-24/8	365-30100
HIS Rack/Rite On	HIS-Service Station incl. cutter, contents: 5 dispensers HIS-Pack (shrink ratio: 2:1), black, sizes are as follows: HIS-1/8, HIS-3/16, HIS-1/4, HIS-3/8, HIS 1/2	365-20000
HIS Service Station	HIS-Service Station incl. cutter, empty	300-30000

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

### Heat Shrinkable Tubing 2:1 on a Reel

#### HIS-PACK

HIS-PACK is used in general purpose of electrical insulation with a high level of protection against corrosion and mechanical abrasion.

#### Features and Benefits

- Cross-linked Polyolefin, thin-wall and flexible
- Handy dispenser box including table showing application size range
- Available in black, red, blue, transparent and yellow/green
- 10 sizes from 1.2 mm to 25.4 mm



HIS-PACK.



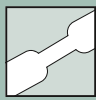
**Detailed Information about Heatguns please refer to page 529.**

<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>	UL224 VW-1 (except clear)
<b>Specifications</b>	SAE - AMS - DTL-23053/5 Class 1 and 3, SAE - AMS - DTL-23053/5 Class 2 (clear), UL224 125 °C 600V VW-1



For product specific approvals and specifications please refer to the Appendix.





### Heat Shrinkable Tubing 2:1 on a Reel

#### HIS-PACK

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
HIS-PACK-1.2/0.6	1.2	3/64 "	0.6	0.40	10 m	Black (BK)	300-30120
	1.2	3/64 "	0.6	0.40	10 m	Blue (BU)	300-30126
	1.2	3/64 "	0.6	0.40	10 m	Red (RD)	300-30122
	1.2	3/64 "	0.6	0.40	10 m	Transparent (CL)	300-30123
HIS-PACK-1.6/0.8	1.6	1/16 "	0.8	0.40	10 m	Black (BK)	300-30160
	1.6	1/16 "	0.8	0.40	10 m	Blue (BU)	300-30166
	1.6	1/16 "	0.8	0.40	10 m	Red (RD)	300-30162
	1.6	1/16 "	0.8	0.40	10 m	Transparent (CL)	300-30163
HIS-PACK-2.4/1.2	2.4	3/32 "	1.2	0.50	10 m	Black (BK)	300-30240
	2.4	3/32 "	1.2	0.50	10 m	Blue (BU)	300-30246
	2.4	3/32 "	1.2	0.50	10 m	Red (RD)	300-30242
	2.4	3/32 "	1.2	0.50	10 m	Transparent (CL)	300-30243
HIS-PACK-3.2/1.6	3.2	1/8 "	1.6	0.50	10 m	Black (BK)	300-30320
	3.2	1/8 "	1.6	0.50	10 m	Blue (BU)	300-30326
	3.2	1/8 "	1.6	0.50	10 m	Green-Yellow (GNYE)	300-30327
	3.2	1/8 "	1.6	0.50	10 m	Red (RD)	300-30322
	3.2	1/8 "	1.6	0.50	10 m	Transparent (CL)	300-30323
HIS-PACK-4.8/2.4	4.8	3/16 "	2.4	0.50	10 m	Black (BK)	300-30480
	4.8	3/16 "	2.4	0.50	10 m	Blue (BU)	300-30486
	4.8	3/16 "	2.4	0.50	10 m	Green-Yellow (GNYE)	300-30487
	4.8	3/16 "	2.4	0.50	10 m	Red (RD)	300-30482
	4.8	3/16 "	2.4	0.50	10 m	Transparent (CL)	300-30483
HIS-PACK-6.4/3.2	6.4	1/4 "	3.2	0.60	5 m	Black (BK)	300-30640
	6.4	1/4 "	3.2	0.60	5 m	Blue (BU)	300-30646
	6.4	1/4 "	3.2	0.60	5 m	Green-Yellow (GNYE)	300-30647
	6.4	1/4 "	3.2	0.60	5 m	Red (RD)	300-30642
	6.4	1/4 "	3.2	0.60	5 m	Transparent (CL)	300-30643
HIS-PACK-9.5/4.7	9.5	3/8 "	4.7	0.60	5 m	Black (BK)	300-30950
	9.5	3/8 "	4.7	0.60	5 m	Blue (BU)	300-30956
	9.5	3/8 "	4.7	0.60	5 m	Green-Yellow (GNYE)	300-30957
	9.5	3/8 "	4.7	0.60	5 m	Red (RD)	300-30952
	9.5	3/8 "	4.7	0.60	5 m	Transparent (CL)	300-30953
HIS-PACK-12.7/6.4	12.7	1/2 "	6.4	0.60	5 m	Black (BK)	300-31270
	12.7	1/2 "	6.4	0.60	5 m	Blue (BU)	300-31276
	12.7	1/2 "	6.4	0.60	5 m	Green-Yellow (GNYE)	300-31277
	12.7	1/2 "	6.4	0.60	5 m	Red (RD)	300-31272
	12.7	1/2 "	6.4	0.60	5 m	Transparent (CL)	300-31273
HIS-PACK-19.1/9.5	19.1	3/4 "	9.5	0.80	5 m	Black (BK)	300-31900
	19.1	3/4 "	9.5	0.80	5 m	Blue (BU)	300-31906
	19.1	3/4 "	9.5	0.80	5 m	Green-Yellow (GNYE)	300-31907
	19.1	3/4 "	9.5	0.80	5 m	Red (RD)	300-31902
	19.1	3/4 "	9.5	0.80	5 m	Transparent (CL)	300-31903
HIS-PACK-25.4/12.7	25.4	1 "	12.7	0.90	5 m	Black (BK)	300-32540
	25.4	1 "	12.7	0.90	5 m	Blue (BU)	300-32546
	25.4	1 "	12.7	0.90	5 m	Green-Yellow (GNYE)	300-32547
	25.4	1 "	12.7	0.90	5 m	Red (RD)	300-32542
	25.4	1 "	12.7	0.90	5 m	Transparent (CL)	300-32543

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



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 on a Reel

#### HIS-3

HIS-3 is used in general purpose of electrical insulation with a high level of protection against corrosion and mechanical abrasion.

#### Features and Benefits

- Unlined tubing in handy dispenser packs
- High shrink ratio (3:1) tubing
- Fits highly variable substrate dimensions
- Only 6 sizes for application diameter range of 1 mm up to 20 mm, reduce inventory by half



HIS-3 can fit highly variable substrate dimensions.



**Detailed Information about Heatguns please refer to page 529.**



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>	+100 °C
<b>Longitudinal change after shrinkage</b>	-5 % max.
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 150
<b>Flammability</b>	UL224 VW-1 (except clear)
<b>Insulation Class</b>	B (VDE 0530)
<b>Specifications</b>	CSA, SAE - AMS - DTL-23053/5 Class 1 and 3, SAE - AMS - DTL-23053/5 Class 2 (clear), UL224 125 °C 600V VW-1



Heat Shrinkable Tubing 3:1



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
<b>HIS-3-1.5/0.5</b>	1.5	0.5	0.45	10 m	Black (BK)	308-30150
	1.5	0.5	0.45	10 m	Blue (BU)	308-30156
	1.5	0.5	0.45	10 m	Red (RD)	308-30152
	1.5	0.5	0.45	10 m	Transparent (CL)	308-30153
<b>HIS-3-3/1</b>	3.0	1.0	0.55	10 m	Black (BK)	308-30300
	3.0	1.0	0.55	10 m	Blue (BU)	308-30306
	3.0	1.0	0.55	10 m	Green-Yellow (GNYE)	308-30307
	3.0	1.0	0.55	10 m	Red (RD)	308-30302
	3.0	1.0	0.55	10 m	Transparent (CL)	308-30303
<b>HIS-3-6/2</b>	6.0	2.0	0.65	5 m	Black (BK)	308-30600
	6.0	2.0	0.65	5 m	Blue (BU)	308-30606
	6.0	2.0	0.65	5 m	Green-Yellow (GNYE)	308-30607
	6.0	2.0	0.65	5 m	Red (RD)	308-30602
	6.0	2.0	0.65	5 m	Transparent (CL)	308-30603

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



For product specific approvals and specifications please refer to the Appendix.



## Heat Shrinkable Tubing 3:1 on a Reel

HIS-3



Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
HIS-3-9/3	9.0	3.0	0.75	5 m	Black (BK)	308-30900
	9.0	3.0	0.75	5 m	Blue (BU)	308-30906
	9.0	3.0	0.75	5 m	Green-Yellow (GNYE)	308-30907
	9.0	3.0	0.75	5 m	Red (RD)	308-30902
	9.0	3.0	0.75	5 m	Transparent (CL)	308-30903
HIS-3-12/4	12.0	4.0	0.80	5 m	Black (BK)	308-31200
	12.0	4.0	0.80	5 m	Blue (BU)	308-31206
	12.0	4.0	0.80	5 m	Green-Yellow (GNYE)	308-31207
	12.0	4.0	0.80	5 m	Red (RD)	308-31202
	12.0	4.0	0.80	5 m	Transparent (CL)	308-31203
HIS-3-18/6	18.0	6.0	0.90	4 m	Black (BK)	308-31800
	18.0	6.0	0.90	4 m	Blue (BU)	308-31806
	18.0	6.0	0.90	4 m	Green-Yellow (GNYE)	308-31807
	18.0	6.0	0.90	4 m	Red (RD)	308-31802
	18.0	6.0	0.90	4 m	Transparent (CL)	308-31803
HIS-3-24/8	24.0	8.0	1.20	3 m	Black (BK)	308-32400
	24.0	8.0	1.20	3 m	Blue (BU)	308-32406
	24.0	8.0	1.20	3 m	Green-Yellow (GNYE)	308-32407
	24.0	8.0	1.20	3 m	Red (RD)	308-32402
	24.0	8.0	1.20	3 m	Transparent (CL)	308-32403

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



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 in blister bags

#### HIS-3 BAG

HIS-3 BAG tubings are useable for insulation and protection of cables and harnesses.

#### Features and Benefits

- Thin walled and flexible tubing made of cross-linked Polyolefin
- High shrink ratio (3:1) tubing
- Handy, small packaging with 10 pre-cut pieces of 200 mm

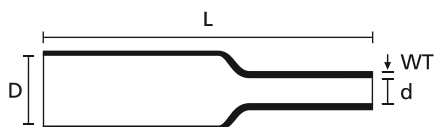


HIS-3 BAG available in seven colours and four sizes.



Detailed Information about Heatguns please refer to page 529.

<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>	+100 °C
<b>Longitudinal change after shrinkage</b>	-5 % max.
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 150
<b>Flammability</b>	UL224 VW-1 (except clear)
<b>Specifications</b>	SAE - AMS - DTL-23053/5 Class 1 and 3, SAE - AMS - DTL-23053/5 Class 2 (clear), UL224 125 °C 600V VW-1



Heat Shrinkable Tubing 3:1

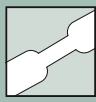
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TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Pack Cont.	Colour	Article-No.
<b>HIS-3-BAG-1.5/0.5</b>	1.5	0.5	0.45	200.0	10 pcs.	Black (BK)	308-30151
	1.5	0.5	0.45	200.0	10 pcs.	Blue (BU)	308-30161
	1.5	0.5	0.45	200.0	10 pcs.	Brown (BN)	308-30163
	1.5	0.5	0.45	200.0	10 pcs.	Green-Yellow (GNYE)	308-30165
	1.5	0.5	0.45	200.0	10 pcs.	Grey (GY)	308-30162
	1.5	0.5	0.45	200.0	10 pcs.	Red (RD)	308-30160
	1.5	0.5	0.45	200.0	10 pcs.	Transparent (CL)	308-30164
<b>HIS-3-BAG-3/1</b>	3.0	1.0	0.55	200.0	10 pcs.	Black (BK)	308-30310
	3.0	1.0	0.55	200.0	10 pcs.	Blue (BU)	308-30312
	3.0	1.0	0.55	200.0	10 pcs.	Brown (BN)	308-30314
	3.0	1.0	0.55	200.0	10 pcs.	Green-Yellow (GNYE)	308-30316
	3.0	1.0	0.55	200.0	10 pcs.	Grey (GY)	308-30313
	3.0	1.0	0.55	200.0	10 pcs.	Red (RD)	308-30311
	3.0	1.0	0.55	200.0	10 pcs.	Transparent (CL)	308-30315

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

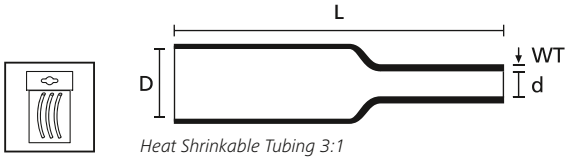


For product specific approvals and specifications please refer to the Appendix.



## Heat Shrinkable Tubing 3:1 in blister bags

## HIS-3 BAG



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Pack Cont.	Colour	Article-No.
HIS-3-BAG-6/2	6.0	2.0	0.65	200.0	10 pcs.	Black (BK)	308-30610
	6.0	2.0	0.65	200.0	10 pcs.	Blue (BU)	308-30612
	6.0	2.0	0.65	200.0	10 pcs.	Brown (BN)	308-30614
	6.0	2.0	0.65	200.0	10 pcs.	Grey (GY)	308-30613
	6.0	2.0	0.65	200.0	10 pcs.	Red (RD)	308-30611
	6.0	2.0	0.65	200.0	10 pcs.	Transparent (CL)	308-30615
	6.0	2.0	0.65	200.0	10 pcs.	Green-Yellow (GNYE)	308-30617
HIS-3-BAG-12/4	12.0	4.0	0.80	200.0	10 pcs.	Black (BK)	308-31210
	12.0	4.0	0.80	200.0	10 pcs.	Blue (BU)	308-31212
	12.0	4.0	0.80	200.0	10 pcs.	Brown (BN)	308-31214
	12.0	4.0	0.80	200.0	10 pcs.	Grey (GY)	308-31213
	12.0	4.0	0.80	200.0	10 pcs.	Red (RD)	308-31211
	12.0	4.0	0.80	200.0	10 pcs.	Transparent (CL)	308-31215
	12.0	4.0	0.80	200.0	10 pcs.	Green-Yellow (GNYE)	308-31217

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



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 2:1 - PVC

#### LVR

LVR can be used for cable joints, low voltage bus bars and batteries.

#### Features and Benefits

- PVC heat shrinkable tubing
- Self-extinguishing
- Good chemical resistance and mechanical protection



LVR used for mechanical protection.



**Detailed Information about Heatguns please refer to page 529.**

<b>MATERIAL</b>	Flexible Polyvinyl Chloride, cadmium free (PVC)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-30 °C to +105 °C
<b>Minimum Shrink Temperature</b>	+135 °C
<b>Longitudinal change after shrinkage</b>	+/-10 % max
<b>Dielectric Strength</b>	15 kV/mm according to IEC 243
<b>Shelf life</b>	12 Months max.
<b>Stocking Temperature</b>	+25 °C max.
<b>Flammability</b>	ASTM D2671
<b>Specifications</b>	UL224 105 °C 600V



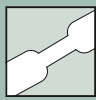
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
LVR-2.4/1.2	2.4	1.2	0.40	250 m	Black (BK)	344-00240
LVR-3.2/1.6	3.2	1.6	0.40	250 m	Black (BK)	344-00320
LVR-4.8/2.4	4.8	2.4	0.50	250 m	Black (BK)	344-00480
LVR-6.4/3.2	6.4	3.2	0.60	250 m	Black (BK)	344-00640
LVR-9.5/4.8	9.5	4.8	0.60	125 m	Black (BK)	344-00950
LVR-12.7/6.4	12.7	6.4	0.70	75 m	Black (BK)	344-01270
LVR-19.1/9.5	19.0	9.5	0.80	100 m	Black (BK)	344-01900
LVR-25.4/12.7	25.4	12.7	1.00	100 m	Black (BK)	344-02540

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



For product specific approvals and specifications please refer to the Appendix.





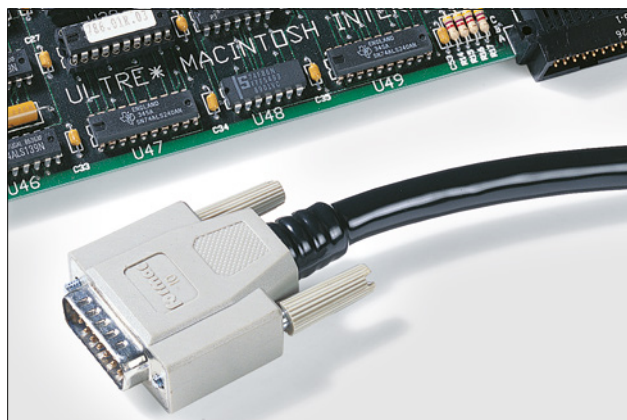
### Low-Heat Shrinkable Tubing 2:1

#### TL27 - halogen free

The product has a low shrink temperature which offers very fast recovery. Application fields include covering of heat sensitive parts, mechanical protection and cosmetic covering.

#### Features and Benefits

- Very low shrink temperature
- Fast shrinking
- Halogen free



TL27 – a very flexible tubing for automotive or applications where halogens cannot be accepted.

<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 %/-15 %
<b>Dielectric Strength</b>	>20 kV/mm
<b>Flammability</b>	FMVSS 302



Heat Shrinkable Tubing 2:1



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TL27-1.2/0.6	1.2	3/64 "	0.6	0.31	500 m	Black (BK)	302-20120
TL27-1.6/0.8	1.6	1/16 "	0.8	0.33	500 m	Black (BK)	302-20160
TL27-2.4/1.2	2.4	3/32 "	1.2	0.36	500 m	Black (BK)	302-30240
TL27-3.2/1.6	3.2	1/8 "	1.6	0.39	300 m	Black (BK)	302-30320
TL27-4.8/2.4	4.8	3/16 "	2.4	0.42	150 m	Black (BK)	302-30480
TL27-6.4/3.2	6.4	1/4 "	3.2	0.45	100 m	Black (BK)	302-30640
TL27-9.5/4.8	9.5	3/8 "	4.8	0.48	100 m	Black (BK)	302-30950
TL27-12.7/6.4	12.7	1/2 "	6.4	0.52	100 m	Black (BK)	302-21270
TL27-19.1/9.5	19.1	3/4 "	9.5	0.58	100 m	Black (BK)	302-31900
TL27-25.4/12.7	25.4	1 "	12.7	0.67	100 m	Black (BK)	302-32540
TL27-38.1/19.1	38.1	1-1/2 "	19.1	0.76	100 m	Black (BK)	302-23810
TL27-50.8/25.4	50.8	2 "	25.4	0.85	100 m	Black (BK)	302-25080

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.



### 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 529.**

<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



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

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



For product specific approvals and specifications please refer to the Appendix.



### 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.

<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



Heat Shrinkable Tubing 3:1

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

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



For product specific approvals and specifications please refer to the Appendix.



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

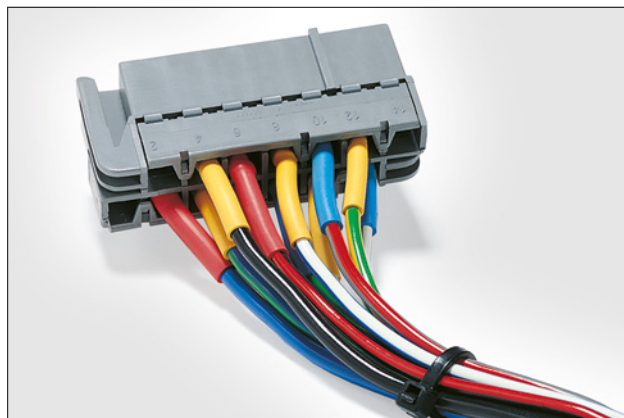
#### HFT-A - self extinguishing

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



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

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

<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

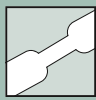


TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
<b>HFT-A-1.2/0.6</b>	1.2	3/64 "	0.6	0.40	400 m	Black (BK)	VG 95343 T05 A 001A	305-01200
	1.2	3/64 "	0.6	0.40	400 m	Blue (BU)	VG 95343 T05 A 001 G	305-01206
	1.2	3/64 "	0.6	0.40	400 m	Red (RD)	VG 95343 T05 A 001 C	305-01202
	1.2	3/64 "	0.6	0.40	400 m	White (WH)	VG 95343 T05 A 001 L	305-01209
	1.2	3/64 "	0.6	0.40	400 m	Yellow (YE)	VG 95343 T05 A 001 E	305-01204
<b>HFT-A-1.6/0.8</b>	1.6	1/16 "	0.8	0.40	400 m	Black (BK)	VG 95343 T05 A 002 A	305-01600
	1.6	1/16 "	0.8	0.40	400 m	Blue (BU)	VG 95343 T05 A 002 G	305-01606
	1.6	1/16 "	0.8	0.40	400 m	Red (RD)	VG 95343 T05 A 002 C	305-01602
	1.6	1/16 "	0.8	0.40	400 m	White (WH)	VG 95343 T05 A 002 L	305-01609
	1.6	1/16 "	0.8	0.40	400 m	Yellow (YE)	VG 95343 T05 A 002 E	305-01604

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



For product specific approvals and specifications please refer to the Appendix.



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

#### HFT-A - self extinguishing



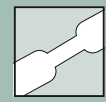
Heat Shrinkable Tubing 2:1

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-2.4/1.2	2.4	3/32 "	1.2	0.50	100 m	Blue (BU)	VG 95343 T05 A 003 G	305-02406
	2.4	3/32 "	1.2	0.50	100 m	Red (RD)	VG 95343 T05 A 003 C	305-02402
	2.4	3/32 "	1.2	0.50	100 m	White (WH)	VG 95343 T05 A 003 L	305-02409
	2.4	3/32 "	1.2	0.50	100 m	Yellow (YE)	VG 95343 T05 A 003 E	305-02404
	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	100 m	Blue (BU)	VG 95343 T05 A 004 G	305-03206
	3.2	1/8 "	1.6	0.50	100 m	Green-Yellow (GNYE)	VG 95343 T05 A 004 N	305-03245
	3.2	1/8 "	1.6	0.50	100 m	Red (RD)	VG 95343 T05 A 004 C	305-03202
	3.2	1/8 "	1.6	0.50	100 m	White (WH)	VG 95343 T05 A 004 L	305-03209
	3.2	1/8 "	1.6	0.50	100 m	Yellow (YE)	VG 95343 T05 A 004 E	305-03204
	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	75 m	Blue (BU)	VG 95343 T05 A 005 G	305-04806
	4.8	3/16 "	2.4	0.50	75 m	Green-Yellow (GNYE)	VG 95343 T05 A 005 N	305-04845
	4.8	3/16 "	2.4	0.50	75 m	Red (RD)	VG 95343 T05 A 005 C	305-04802
	4.8	3/16 "	2.4	0.50	75 m	White (WH)	VG 95343 T05 A 005 L	305-04809
	4.8	3/16 "	2.4	0.50	75 m	Yellow (YE)	VG 95343 T05 A 005 E	305-04804
	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	75 m	Blue (BU)	VG 95343 T05 A 006 G	305-06406
	6.4	1/4 "	3.2	0.60	75 m	Green-Yellow (GNYE)	VG 95343 T05 A 006 N	305-06445
	6.4	1/4 "	3.2	0.60	75 m	Red (RD)	VG 95343 T05 A 006 C	305-06402
	6.4	1/4 "	3.2	0.60	75 m	White (WH)	VG 95343 T05 A 006 L	305-06409
	6.4	1/4 "	3.2	0.60	75 m	Yellow (YE)	VG 95343 T05 A 006 E	305-06404
	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	50 m	Blue (BU)	VG 95343 T05 A007 G	305-09506
	9.5	3/8 "	4.8	0.60	50 m	Green-Yellow (GNYE)	VG 95343 T05 A007 N	305-09545
	9.5	3/8 "	4.8	0.60	50 m	Red (RD)	VG 95343 T05 A007 C	305-09502
	9.5	3/8 "	4.8	0.60	50 m	White (WH)	VG 95343 T05 A007 L	305-09509
	9.5	3/8 "	4.8	0.60	50 m	Yellow (YE)	VG 95343 T05 A007 E	305-09504
	9.5	3/8 "	4.8	0.60	150 m	Black (BK)	VG 95343 T05 A007 A	305-09500
HFT-A-12.7/6.4	12.7	1/2 "	6.4	0.60	50 m	Blue (BU)	VG 95343 T05 A 008 G	305-12706
	12.7	1/2 "	6.4	0.60	50 m	Green-Yellow (GNYE)	VG 95343 T05 A 008 N	305-12745
	12.7	1/2 "	6.4	0.60	50 m	Red (RD)	VG 95343 T05 A 008 C	305-12702
	12.7	1/2 "	6.4	0.60	50 m	White (WH)	VG 95343 T05 A 008 L	305-12709
	12.7	1/2 "	6.4	0.60	50 m	Yellow (YE)	VG 95343 T05 A 008 E	305-12704
	12.7	1/2 "	6.4	0.60	100 m	Black (BK)	VG 95343 T05 A 008 A	305-12700

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



For product specific approvals and specifications please refer to the Appendix.



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

#### HFT-A - self extinguishing

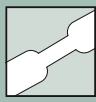


TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
HFT-A-19.0/9.5	19.0	3/4 "	9.5	0.80	25 m	Blue (BU)	VG 95343 T05 A 009 G	305-19006
	19.0	3/4 "	9.5	0.80	25 m	Green-Yellow (GNYE)	VG 95343 T05 A 009 N	305-19045
	19.0	3/4 "	9.5	0.80	25 m	Red (RD)	VG 95343 T05 A 009 C	305-19002
	19.0	3/4 "	9.5	0.80	25 m	White (WH)	VG 95343 T05 A 009 L	305-19009
	19.0	3/4 "	9.5	0.80	25 m	Yellow (YE)	VG 95343 T05 A 009 E	305-19004
	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	25 m	Blue (BU)	VG 95343 T05 A 010 G	305-25406
	25.4	1 "	12.7	0.90	25 m	Green-Yellow (GNYE)	VG 95343 T05 A 010 N	305-25445
	25.4	1 "	12.7	0.90	25 m	Red (RD)	VG 95343 T05 A 010 C	305-25402
	25.4	1 "	12.7	0.90	25 m	White (WH)	VG 95343 T05 A 010 L	305-25409
	25.4	1 "	12.7	0.90	25 m	Yellow (YE)	VG 95343 T05 A 010 E	305-25404
	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
	38.0	1-1/2 "	19.0	1.00	50 m	Blue (BU)	VG 95343 T05 A 011 G	305-38106
	38.0	1-1/2 "	19.0	1.00	50 m	Green-Yellow (GNYE)	VG 95343 T05 A 011 N	305-38145
	38.0	1-1/2 "	19.0	1.00	50 m	Red (RD)	VG 95343 T05 A 011 C	305-38102
	38.0	1-1/2 "	19.0	1.00	50 m	White (WH)	VG 95343 T05 A 011 L	305-38109
	38.0	1-1/2 "	19.0	1.00	50 m	Yellow (YE)	VG 95343 T05 A 011 E	305-38104
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
	51.0	2 "	25.4	1.10	35 m	Blue (BU)	VG 95343 T05 A 012 G	305-50806
	51.0	2 "	25.4	1.10	35 m	Red (RD)	VG 95343 T05 A 012 C	305-50802
	51.0	2 "	25.4	1.10	35 m	White (WH)	VG 95343 T05 A 012 L	305-50809
	51.0	2 "	25.4	1.10	35 m	Yellow (YE)	VG 95343 T05 A 012 E	305-50804
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
	76.0	3 "	38.0	1.30	25 m	Blue (BU)	VG 95343 T05 A 013 G	305-76206
	76.0	3 "	38.0	1.30	25 m	Red (RD)	VG 95343 T05 A 013 C	305-76202
	76.0	3 "	38.0	1.30	25 m	White (WH)	VG 95343 T05 A 013 L	305-76209
	76.0	3 "	38.0	1.30	25 m	Yellow (YE)	VG 95343 T05 A 013 E	305-76204
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
	101.6	4 "	50.8	1.40	25 m	Blue (BU)	VG 95343 T05 A 014 G	305-91606
	101.6	4 "	50.8	1.40	25 m	Red (RD)	VG 95343 T05 A 014 C	305-91602
	101.6	4 "	50.8	1.40	25 m	White (WH)	VG 95343 T05 A 014 L	305-91609
	101.6	4 "	50.8	1.40	25 m	Yellow (YE)	VG 95343 T05 A 014 E	305-91604

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



For product specific approvals and specifications please refer to the Appendix.



### 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 529.**



**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>	+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



Heat Shrinkable Tubing 2:1



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
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

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



For product specific approvals and specifications please refer to the Appendix.



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

#### TF21



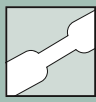
TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
TF21-3.2/1.6	3.2	1/8 "	1.6	0.51	100 m	Blue (BU)	309-20326
	3.2	1/8 "	1.6	0.51	100 m	Green-Yellow (GNYE)	309-40327
	3.2	1/8 "	1.6	0.51	100 m	Red (RD)	309-20322
	3.2	1/8 "	1.6	0.51	100 m	White (WH)	309-20329
	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	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	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
TF21-19.0/9.5	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

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



For product specific approvals and specifications please refer to the Appendix.





## Heat Shrinkable Tubing 2:1 flexible and coloured

TF21



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
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 529.**



For product specific approvals and specifications please refer to the Appendix.



### 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!**



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<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)	VG95343T05B001M	309-40123
TF24-1.6/0.8	1.6	1/16 "	0.8	0.43	100 m	Transparent (CL)	VG95343T05B002M	309-40163
TF24-2.4/1.2	2.4	3/32 "	1.2	0.51	100 m	Transparent (CL)	VG95343T05B003M	309-40243
TF24-3.2/1.6	3.2	1/8 "	1.6	0.51	100 m	Transparent (CL)	VG95343T05B004M	309-40323
TF24-4.8/2.4	4.8	3/16 "	2.4	0.51	60 m	Transparent (CL)	VG95343T05B005M	309-50483
TF24-6.4/3.2	6.4	1/4 "	3.2	0.64	60 m	Transparent (CL)	VG95343T05B006M	309-50643
TF24-9.5/4.8	9.5	3/8 "	4.8	0.64	50 m	Transparent (CL)	VG95343T05B007M	309-40953
TF24-12.7/6.4	12.7	1/2 "	6.4	0.64	50 m	Transparent (CL)	VG95343T05B008M	309-41273
TF24-19.1/9.5	19.1	3/4 "	9.5	0.76	50 m	Transparent (CL)	VG95343T05B009M	309-31903
TF24-25.4/12.7	25.4	1 "	12.7	0.89	50 m	Transparent (CL)	VG95343T05B010M	309-32543
TF24-38.1/19.1	38.1	1-1/2 "	19.1	1.02	60 m	Transparent (CL)	VG95343T05B011M	309-33813
TF24-50.8/25.4	50.8	2 "	25.4	1.14	60 m	Transparent (CL)	VG95343T05B012M	309-35083
TF24-76.2/38.1	76.2	3 "	38.1	1.27	30 m	Transparent (CL)	VG95343T05B013M	309-37603
TF24-101.6/50.8	101.6	4 "	50.8	1.40	15 m	Transparent (CL)	VG95343T05B014M	309-31023

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



For product specific approvals and specifications please refer to the Appendix.



### 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



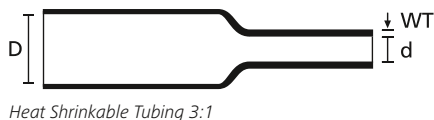
**Detailed Information about Heatguns please refer to page 529.**



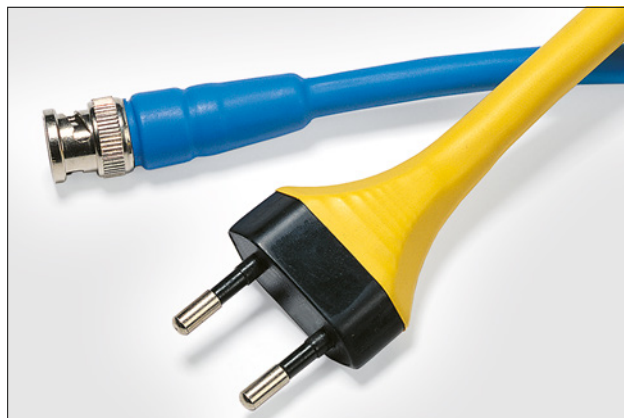
**Cut lengths available on request. Please contact us!**



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**RoHS** ✓



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

<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

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
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)	333-40300

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



For product specific approvals and specifications please refer to the Appendix.



### 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.
TF31-6/2	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)	333-40600
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)	333-20900
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)	333-21200
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

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

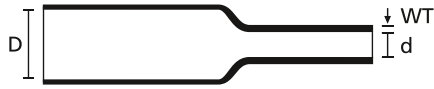


For product specific approvals and specifications please refer to the Appendix.



## Heat Shrinkable Tubing 3:1 flexible and coloured

TF31



Heat Shrinkable Tubing 3:1



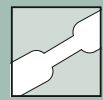
Detailed Information about Heatguns please refer to page 529.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Article-No.
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	Green-Yellow (GNYE)	333-34007
	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	60 m	Black (BK)	333-24000

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



For product specific approvals and specifications please refer to the Appendix.



### 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.



Detailed Information about Heatguns please refer to page 529.



One Step to the Web!

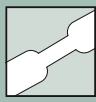
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	-5 % max.
<b>Dielectric Strength</b>	46 kV/mm
<b>Flammability</b>	not flame retarded



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.

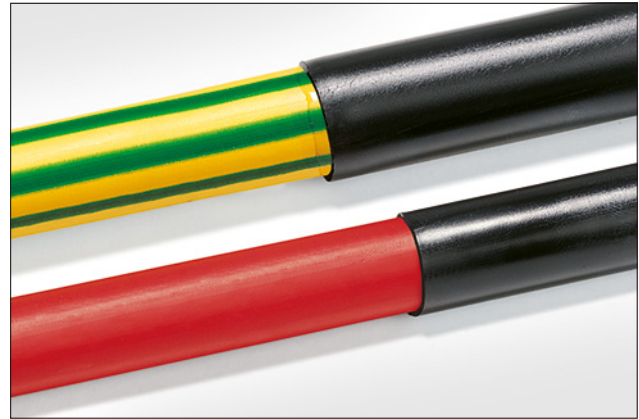


### Heat Shrinkable Tubing adhesive lined - 1.2 m lengths

TA32/TA42 is designed for environmental sealing and electrical insulation of wire splices, terminations and components.

#### Features and Benefits

- Thin walled adhesive-lined heat shrink tubing
- Highly flame retardant
- Outer wall conforms to UL224



TA32 and TA42 are UL224 listed adhesive lined tubing. Available in 3:1 and 4:1 shrink ratio.



Cut lengths available on request. Please contact us!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Softening Point Adhesive</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	-15 % max.
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	UL224
<b>Specifications</b>	CSA, SAE - AMS - DTL-23053/4 Class 3, UL224 125 °C 600V

RoHS

#### TA32 - thin wall, 3:1 shrink ratio



Heat Shrinkable Tubing 3:1 with adhesive

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Shrink Ratio	Article-No.
TA32-3/1	3.2	0.6	0.95	1.2 m	Black (BK)	3:1	318-30300
TA32 4.5/1.5	4.5	1.5	1.10	1.2 m	Black (BK)	3:1	318-30450
TA32-6/2	6.0	2.0	1.20	1.2 m	Black (BK)	3:1	318-30600
TA32-9/3	9.0	3.0	1.30	1.2 m	Black (BK)	3:1	318-30900
TA32-12/4	12.0	4.0	1.40	1.2 m	Black (BK)	3:1	318-31200
TA32-19/6	19.0	6.0	1.80	1.2 m	Black (BK)	3:1	318-31900
TA32-24/8	24.0	8.0	2.50	1.2 m	Black (BK)	3:1	318-32400
TA32-40/13	40.0	13.0	2.50	1.2 m	Black (BK)	3:1	318-34000

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

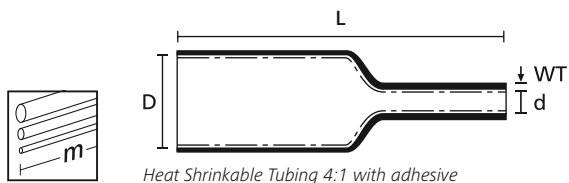


For product specific approvals and specifications please refer to the Appendix.



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

TA42 - thin wall, 4:1 shrink ratio



Detailed Information about  
Heatguns please refer to page 529.

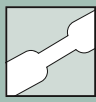
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Shrink Ratio	Article-No.
TA42-4/1	4.0	1.0	1.00	1.2 m	Black (BK)	4:1	318-40400
TA42-8/2	8.0	2.0	1.20	1.2 m	Black (BK)	4:1	318-40800
TA42-12/3	12.0	3.0	1.40	1.2 m	Black (BK)	4:1	318-41200
TA42-16/4	16.0	4.0	1.80	1.2 m	Black (BK)	4:1	318-41600
TA42-24/6	24.0	6.0	2.25	1.2 m	Black (BK)	4:1	318-42400
TA42-32/8	32.0	8.0	2.55	1.2 m	Black (BK)	4:1	318-43200
TA42-52/13	52.0	13.0	2.55	1.2 m	Black (BK)	4:1	318-45200

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



For product specific approvals and specifications please refer to the Appendix.





### 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

**RoHS** ✓

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.



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 4:1 - Flame retardant

#### MA40 - medium wall adhesive lined

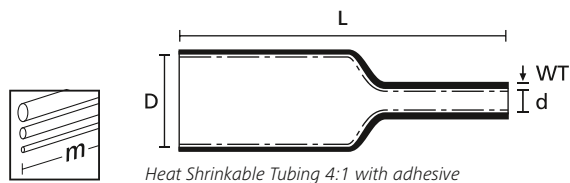
Designed for low voltage cable joints and terminations in shipbuilding. Insulates and protects against moisture.

#### Features and Benefits

- Medium wall adhesive lined shrink tubing for low voltage power cables
- Designed for shipbuilding, Germanische Lloyd approved
- Flame retarded
- UV and weather resistant
- Excellent mechanical performance



MA40 medium wall, adhesive lined and flame retarded tubing for shipbuilding applications.



<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>18 kV/mm
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	GL



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
MA40 8/2	8.0	2.0	1.70	1.0 m	Black (BK)	323-00100
MA40 12/3	12.0	3.0	2.00	1.0 m	Black (BK)	323-00101
MA40 16/5	16.0	5.0	2.00	1.0 m	Black (BK)	323-00103
MA40 22/6	22.0	6.0	2.40	1.0 m	Black (BK)	323-00104
MA40 33/8	33.0	8.0	2.50	1.0 m	Black (BK)	323-00105
MA40 40/12	40.0	12.0	2.50	1.0 m	Black (BK)	323-00106
MA40 55/16	55.0	16.0	2.70	1.0 m	Black (BK)	323-00107

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



For product specific approvals and specifications please refer to the Appendix.



## Heat Shrinkable Tubing up to 4:1 - 1 m lengths

### TREDUX MA47 medium wall - with adhesive liner

Suitable for insulation and protection of low voltage cable joints and terminations.

#### Features and Benefits

- Medium walled heat shrink tubing
- Securely packed in display boxes for use in smaller quantities
- Supplied in lengths of 1 m
- Thermoplastic adhesive liner for protection from moisture and weathering



MA47 and MU47 medium wall tubing - lined and unlined.



Detailed Information about Heatguns please refer to page 529.

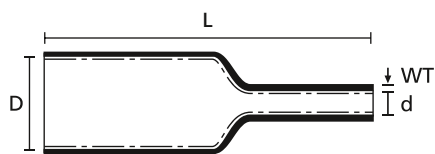


One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded
<b>Insulation Class</b>	A (VDE 0530)

HF ✓

RoHS ✓



Heat Shrinkable Tubing 4:1 with adhesive

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Pack Cont.	Colour	Article-No.
TREDUX-MA47-12/3	12.0	3.0	2.00	1.0 m	6 pcs.	Black (BK)	323-50120
TREDUX-MA47-19/6	19.0	6.0	2.50	1.0 m	10 pcs.	Black (BK)	323-50190
TREDUX-MA47-30/8	30.0	8.0	2.50	1.0 m	6 pcs.	Black (BK)	323-50300
TREDUX-MA47-40/12	40.0	12.0	2.50	1.0 m	4 pcs.	Black (BK)	323-50400
TREDUX-MA47-50/16	50.0	16.0	2.70	1.0 m	2 pcs.	Black (BK)	323-50500
TREDUX-MA47-63/19	63.0	19.0	2.80	1.0 m	2 pcs.	Black (BK)	323-50630
TREDUX-MA47-75/22	75.0	22.0	3.00	1.0 m	2 pcs.	Black (BK)	323-50750
TREDUX-MA47-95/30	95.0	30.0	3.00	1.0 m	1 pcs.	Black (BK)	323-50950

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing up to 4:1 - 1 m lengths

Insulation and Protection of low voltage cable joints and terminations above and below ground.

#### Features and Benefits

- Medium walled tubing with robust insulation characteristics
- Shrink tubing for above and underground cable applications
- Protects cable joints and terminations in low voltage applications
- Coated inside with thermoplastic adhesive
- Protects against humidity and other environmental impacts after shrinking



MA47 and MU47 medium wall tubing - lined and unlined.



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

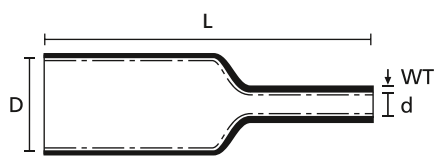


**Detailed Information about Heatguns please refer to page 529.**

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded
<b>Insulation Class</b>	A (VDE 0530)



#### MA47 - medium wall adhesive lined



Heat Shrinkable Tubing 4:1 with adhesive

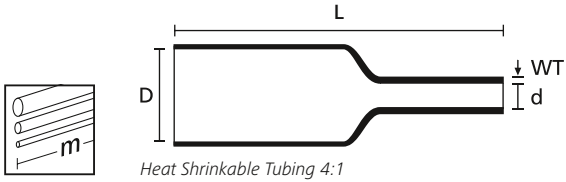
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
MA47-12/3	12.0	3.0	2.00	1.0 m	Black (BK)	323-20120
MA47-19/6	19.0	6.0	2.50	1.0 m	Black (BK)	323-20190
MA47-30/8	30.0	8.0	2.50	1.0 m	Black (BK)	323-20300
MA47-40/12	40.0	12.0	2.50	1.0 m	Black (BK)	323-20400
MA47-50/16	50.0	16.0	2.70	1.0 m	Black (BK)	323-20500
MA47-63/19	63.0	19.0	2.80	1.0 m	Black (BK)	323-20630
MA47-75/22	75.0	22.0	3.00	1.0 m	Black (BK)	323-20750
MA47-95/30	95.0	30.0	3.00	1.0 m	Black (BK)	323-20950
MA47-115/34	115.0	34.0	3.00	1.0 m	Black (BK)	323-21150
MA47-140/42	140.0	42.0	3.00	1.0 m	Black (BK)	323-21400

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



## Heat Shrinkable Tubing up to 4:1 - 1 m lengths

## MU47 - medium wall unlined



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
MU47-12/3	12.0	3.0	2.00	1.0 m	Black (BK)	323-10120
MU47-19/6	19.0	6.0	2.20	1.0 m	Black (BK)	323-10190
MU47-30/8	30.0	8.0	2.50	1.0 m	Black (BK)	323-10300
MU47-40/12	40.0	12.0	2.50	1.0 m	Black (BK)	323-10400
MU47-50/16	50.0	16.0	2.70	1.0 m	Black (BK)	323-10500
MU47-63/19	63.0	19.0	2.80	1.0 m	Black (BK)	323-10630
MU47-75/22	75.0	22.0	3.00	1.0 m	Black (BK)	323-10750
MU47-95/30	95.0	30.0	3.00	1.0 m	Black (BK)	323-10950
MU47 115/34	115.0	34.0	3.00	1.0 m	Black (BK)	323-11150
MU47-140/42	140.0	42.0	3.00	1.0 m	Black (BK)	323-11400

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



### Heat Shrinkable Cable Repair Sleeves

#### RMS

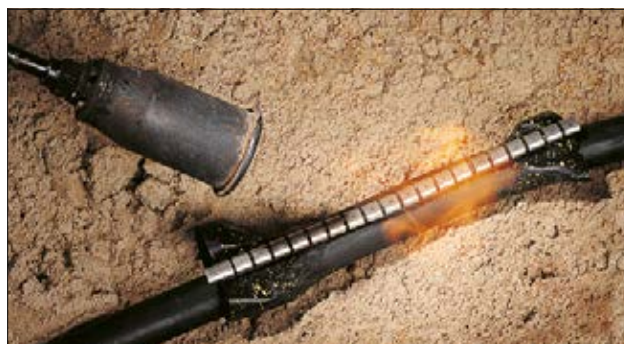
RMS wrap-around sleeves are easy to install.

#### Features and Benefits

- Fast, moisture proof and permanent repair of cable jackets
- Only 6 sizes for a wide range of cable diameters: from 10 mm up to 160 mm
- Available in 4 standard lengths, custom lengths available on request
- Each RMS kit is ready for use and comes with instruction sheet, abrasive strip and cleaning sachet
- Weather resistant and halogen free
- TCP (thermo-chromatic paint) spots indicate the sleeve has been sufficiently heated



Application video: RMS

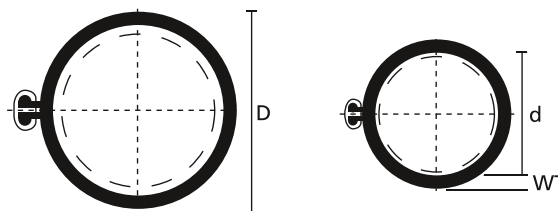


RMS wrap-around sleeves for rapid and secure cable repair on site.

<b>MATERIAL</b>	Polyolefin, Chemically cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 4.5:1
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Softening Point Adhesive</b>	+105 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	30 kV/mm
<b>Flammability</b>	not flame retarded



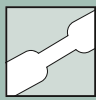
RMS: Repair sleeve, steel closure, abrasive strip, cleaning sachet, instruction sheet.



Cable Repair Sleeve RMS with adhesive

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Suitable for Cable Ø from/to	Length (L)	Colour	Article-No.
<b>RMS 43-10</b>	43	10.0	2.30	15 - 35	250.0	Black (BK)	450-20000
	43	10.0	2.30	15 - 35	500.0	Black (BK)	450-20001
	43	10.0	2.30	15 - 35	750.0	Black (BK)	450-20004
	43	10.0	2.30	15 - 35	1,000.0	Black (BK)	450-20002
<b>RMS 52-15</b>	52	15.0	2.30	20 - 45	250.0	Black (BK)	450-20010
	52	15.0	2.30	20 - 45	500.0	Black (BK)	450-20011
	52	15.0	2.30	20 - 45	750.0	Black (BK)	450-20014
	52	15.0	2.30	20 - 45	1,000.0	Black (BK)	450-20012
<b>RMS 76-22</b>	76	22.0	2.50	28 - 65	500.0	Black (BK)	450-20021
	76	22.0	2.50	28 - 65	750.0	Black (BK)	450-20024
	76	22.0	2.50	28 - 65	1,000.0	Black (BK)	450-20022
<b>RMS 100-30</b>	100	30.0	2.54	35 - 85	500.0	Black (BK)	450-20030
	100	30.0	2.54	35 - 85	1,000.0	Black (BK)	450-20031
<b>RMS 139-38</b>	139	38.0	2.77	45 - 120	1,000.0	Black (BK)	450-20041
<b>RMS 185-55</b>	185	55.0	2.74	65 - 160	1,000.0	Black (BK)	450-20050

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



## Heat Shrinkable Tubing 4:1 - Flame retardant

### HA40 - thick wall adhesive lined

Designed for low voltage cable joints and terminations in shipbuilding. Insulates and protects against moisture.

#### Features and Benefits

- Thick walled adhesive lined shrink tubing for low voltage power cables
- Designed for shipbuilding, Germanische Lloyd approved
- Flame retarded
- UV and weather resistant
- Excellent mechanical performance



HA40 thick wall, adhesive lined and flame retarded tubing for shipbuilding applications.



Detailed Information about Heatguns please refer to page 529.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>18 kV/mm
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	GL

LFH ✓

RoHS ✓



Heat Shrinkable Tubing 4:1 with adhesive

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
HA40 9/3	9.0	3.0	1.80	1.0 m	Black (BK)	321-00100
HA40 13/4	13.0	4.0	2.20	1.0 m	Black (BK)	321-00101
HA40 22/6	22.0	6.0	2.70	1.0 m	Black (BK)	321-00102
HA40 33/8	33.0	8.0	2.70	1.0 m	Black (BK)	321-00103
HA40 40/12	40.0	12.0	4.00	1.0 m	Black (BK)	321-00104
HA40 55/16	55.0	16.0	4.00	1.0 m	Black (BK)	321-00105
HA40 75/22	75.0	22.0	4.10	1.0 m	Black (BK)	321-00106
HA40 92/25	92.0	25.0	4.20	1.0 m	Black (BK)	321-00107

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



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing up to 3,5:1 - 1 m lengths

#### TREDUX HA47 thick wall - with adhesive liner

The toughness and the weatherability of TREDUX thick wall tubing makes it suitable for exposed applications and underground cable joints.

#### Features and Benefits

- Thick walled polyolefin adhesive-lined tubing
- Standard 1m lengths
- Securely packed in display carton for use in smaller quantities
- For low and medium voltage power applications



TREDUX HA47 - application below ground.

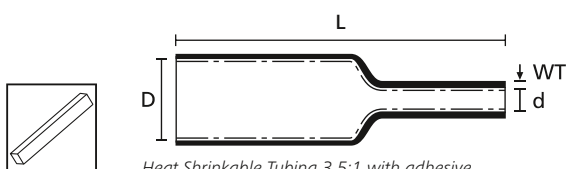


Detailed Information about Heatguns please refer to page 529.



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 3.5:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Pack Cont.	Colour	Article-No.
TREDUX-HA47-19/6	19.0	6.0	2.70	1.0 m	10 pcs.	Black (BK)	321-50190
TREDUX-HA47-33/8	33.0	8.0	3.20	1.0 m	5 pcs.	Black (BK)	321-50330
TREDUX-HA47-45/12	45.0	12.0	4.10	1.0 m	4 pcs.	Black (BK)	321-50450
TREDUX-HA47-51/16	51.0	16.0	4.10	1.0 m	2 pcs.	Black (BK)	321-50510
TREDUX-HA47-68/22	68.0	22.0	4.10	1.0 m	1 pcs.	Black (BK)	321-50680
TREDUX-HA47-85/25	85.0	25.4	4.30	1.0 m	1 pcs.	Black (BK)	321-50850

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





## Heat Shrinkable Tubing up to 3,5:1 - 1 m lengths

### HA47 - thick wall adhesive lined

The toughness and weatherability makes it well suited for exposed applications and underground cable joints and cable terminations.

#### Features and Benefits

- Thick walled polyolefin adhesive-lined sleeving
- Thermoplastic adhesive protects against moisture and weathering
- Used for low voltage power applications

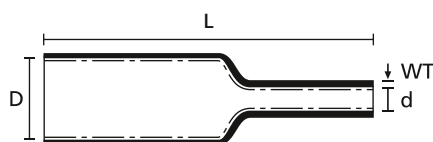


HA47 – Heavy wall adhesive lined tubing.



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

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 3.5:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded
<b>Insulation Class</b>	A (VDE 0530)



Heat Shrinkable Tubing 3.5:1 with adhesive

HF ✓

RoHS ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
HA47-9/3	9.0	3.0	1.80	1.0 m	Black (BK)	321-20090
HA47-13/4	13.0	4.0	2.40	1.0 m	Black (BK)	321-20130
HA47-19/6	19.0	6.0	2.70	1.0 m	Black (BK)	321-20180
HA47-33/8	33.0	8.0	3.20	1.0 m	Black (BK)	321-20280
HA47-45/12	45.0	12.0	4.10	1.0 m	Black (BK)	321-20450
HA47-51/16	51.0	16.0	4.10	1.0 m	Black (BK)	321-20510
HA47-68/22	68.0	22.0	4.10	1.0 m	Black (BK)	321-20680
HA47-85/25	85.0	25.0	4.30	1.0 m	Black (BK)	321-20850
HA47-105/30	105.0	30.0	4.30	1.0 m	Black (BK)	321-20900
HA47-130/36	130.0	36.0	4.30	1.0 m	Black (BK)	321-21300
HA47-160/50	160.0	50.0	4.30	1.0 m	Black (BK)	321-21600
HA47-180/50	180.0	50.0	4.30	1.0 m	Black (BK)	321-21850

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



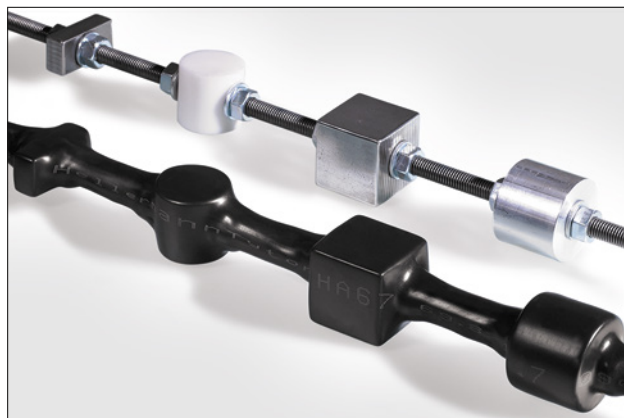
### Heat Shrinkable Tubing 6:1, adhesive lined in 1 m cuts

#### HA67

Insulates, seals and protects large size differences between connectors and cables.

#### Features and Benefits

- High shrink ratio, heavy-duty heat shrinkable tubing
- Thermoplastic adhesive-lined tubing
- Conforms well to highly variable substrate dimensions
- Simplifies cable repair
- Passes over large connectors and shrinks onto much smaller cable jackets
- Environmental sealing and excellent insulation
- Resistant to impact and abrasion

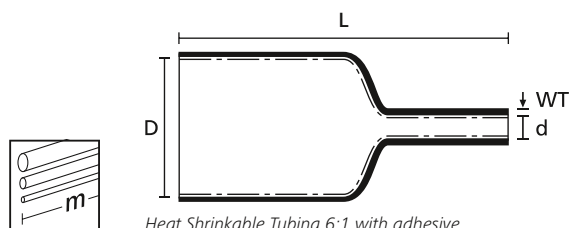


Due to the high shrink ratio HA67 is suitable for complex shapes and dimensions.



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	6:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20kV/mm according to ASTM D2671
<b>Flammability</b>	not flame retarded

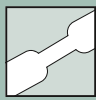


Heat Shrinkable Tubing 6:1 with adhesive



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
HA67-19.0/3.2	19.0	3.2	3.20	1,220.0	Black (BK)	321-30000
HA67-33.0/5.5	33.0	5.5	3.40	1,220.0	Black (BK)	321-30100
HA67-44.4/7.4	44.4	7.4	3.60	1,220.0	Black (BK)	321-30200
HA67-50.8/8.3	50.8	8.3	4.80	1,220.0	Black (BK)	321-30300
HA67-69.8/11.7	69.8	11.7	4.80	1,220.0	Black (BK)	321-30400
HA67-88.9/17.1	88.9	17.1	4.80	1,220.0	Black (BK)	321-30500
HA67-119.4/22.9	119.4	22.9	4.80	1,220.0	Black (BK)	321-30600
HA67-235.0/40.0	235.0	40.0	4.80	1,220.0	Black (BK)	321-30700

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



## 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

<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 ideal for safety sensitive areas.



TR27 is mainly used in the railway industry.



Heat Shrinkable Tubing 2:1



Detailed Information about Heatguns please refer to page 529.

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.

DEF STAN

EN



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 3:1 - Flame retardant

#### TA37 - thin wall adhesive lined

TA37 shrink tubing has a low smoke index and excellent flame retardant properties to meet strict fire security standards in electrical insulation.

#### Features and Benefits

- Thin wall adhesive lined heat shrink tubing
- Halogen Free
- Flame Retarded
- Combination of these three (halogen free, adhesive lined and flame retarded) product properties is unique
- Tubing conforms to London Underground specification LUL E1042-A6, BS6853



TA37 - adhesive lined tubing for safety sensitive areas.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Minimum Shrink Temperature</b>	+150 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-15 % max.
<b>Flammability</b>	Self extinguishing
<b>Specifications</b>	conforms to BS6853, conforms to LUL E1042:A6, EN 45545: 2013



Mainly used in railway applications.



Heat Shrinkable Tubing 3:1 with adhesive



One Step to the Web!

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Article-No.
TA37 3-1	3.0	1.0	0.95	1.2 m	Black (BK)	315-13000
TA37 4,5-1,5	4.5	1.5	1.10	1.2 m	Black (BK)	315-13001
TA37 6-2	6.0	2.0	1.20	1.2 m	Black (BK)	315-13002
TA37 9-3	9.0	3.0	1.30	1.2 m	Black (BK)	315-13003
TA37 12-4	12	4.0	1.40	1.2 m	Black (BK)	315-13004
TA37 19-6	19	6.0	1.80	1.2 m	Black (BK)	315-13005
TA37 24-8	24	8.0	2.50	1.2 m	Black (BK)	315-13006
TA37 40-13	40	13.0	2.50	1.2 m	Black (BK)	315-13007
TA37 50-19	50	19.0	4.00	1.2 m	Black (BK)	315-13008
TA37 75-25	75	25.0	3.00	1.2 m	Black (BK)	315-13009
TA37 120-45	120	45.0	4.00	1.2 m	Black (BK)	315-13011

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



For product specific approvals and specifications please refer to the Appendix.



## 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



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!

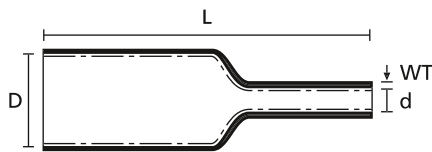


Heat shrink tubing SA47 for splice application.

<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

HF ✓

RoHS ✓



Heat Shrinkable Tubing 4:1 with adhesive



One Step to the Web!

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



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

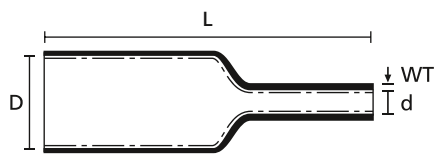


**Cut lengths available on request. Please contact us!**



Heat shrink tubing SA47-LA for cable connection.

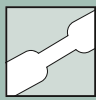
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Minimum Shrink Temperature</b>	+110 °C
<b>Melting Point</b>	starting from +110 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm



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

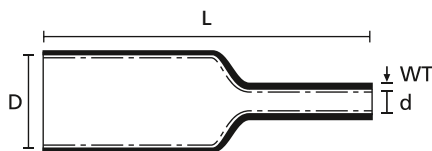
- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing and hot melt adhesive is black
- Provides an environmental sealing of complex parts
- For high temperature applications up to 150 °C
- Flame retardant

<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

RoHS



One Step to the Web!



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.

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

**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-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.



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 T 05 D 001 A	342-20000
SE28 4,8/2,4	4.8	2.4	0.80	60 m	Black (BK)	VG 95343 T 05 D 002 A	342-20010
SE28 6,4/3,2	6.4	3.2	0.90	60 m	Black (BK)	VG 95343 T 05 D 003 A	342-20020
SE28 9,5/4,8	9.5	4.8	1.00	60 m	Black (BK)	VG 95343 T 05 D 004 A	342-20030
SE28 12,7/6,4	12.7	6.4	1.20	60 m	Black (BK)	VG 95343 T 05 D 005 A	342-20040
SE28 19,0/9,5	19.0	9.5	1.40	30 m	Black (BK)	VG 95343 T 05 D 006 A	342-20050
SE28 25,4/12,7	25.4	12.7	1.80	30 m	Black (BK)	VG 95343 T 05 D 007 A	342-20060
SE28 38,0/19,0	38.0	19.0	2.40	30 m	Black (BK)	VG 95343 T 05 D 008 A	342-20070
SE28 51,0/25,4	51.0	25.4	2.80	30 m	Black (BK)	VG 95343 T 05 D 009 A	342-20080
SE28 76,0/38,0	76.0	38.0	3.20	15 m	Black (BK)	VG 95343 T 05 D 010 A	342-20090
SE28 101,2/51,0	102.0	51.0	3.50	10 m	Black (BK)	VG 95343 T 05 D 011 A	342-20100

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



For product specific approvals and specifications please refer to the Appendix.





## 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

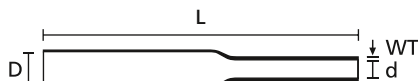


*This thin walled, translucent heat shrink tubing is often used for chemical applications.*



**Detailed Information about Heatguns please refer to page 529.**

<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, NSA937494, 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)	VG95343T05F001M	331-00129
TK20-1.6/0.8	1.6	1/16 "	0.8	0.25	1.2 m	Transparent (CL)	VG95343T05F002M	311-00169
TK20-2.4/1.2	2.4	3/32 "	1.2	0.25	1.2 m	Transparent (CL)	VG95343T05F003M	311-00249
TK20-3.2/1.6	3.2	1/8 "	1.6	0.25	1.2 m	Transparent (CL)	VG95343T05F004M	311-00329
TK20-4.8/2.4	4.8	3/16 "	2.4	0.25	1.2 m	Transparent (CL)	VG95343T05F005M	311-00489
TK20-6.4/3.2	6.4	1/4 "	3.2	0.30	1.2 m	Transparent (CL)	VG95343T05F006M	311-00649
TK20-9.5/4.8	9.5	3/8 "	4.8	0.30	1.2 m	Transparent (CL)	VG95343T05F007M	311-00959
TK20-12.7/6.4	12.7	1/2 "	6.4	0.30	1.2 m	Transparent (CL)	VG95343T05F008M	311-01279
TK20-19.1/9.5	19.1	3/4 "	9.5	0.43	1.2 m	Transparent (CL)	VG95343T05F009M	311-01909
TK20-25.4/12.7	25.4	1 "	12.7	0.48	1.2 m	Transparent (CL)	VG95343T05F010M	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.



For product specific approvals and specifications please refer to the Appendix.



### 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 529.

<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



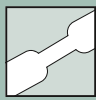
Heat Shrinkable Tubing 2:1

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 T 05 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 T 05 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 T 05 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 T 05 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 T 05 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 T 05 E 006 A	330-01900
VITON®-E-25.4/12.7	25.4	1 "	12.7	1.80	25 m	Black (BK)	VG 95343 T 05 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 T 05 E 008 A	330-03810
VITON®-E-50.8/25.4	50.8	2 "	25.4	2.80	15 m	Black (BK)	VG 95343 T 05 E 009 A	330-05080

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



For product specific approvals and specifications please refer to the Appendix.



## Heat Shrinkable Tubing - PTFE

TFE is ideal for high temperature applications, when resistance to aggressive fluids is required or a very thin walled tubing is needed, for example in pH-measuring instruments. TFE tubing is also used to reduce movement due to friction, covering cylinders for example.

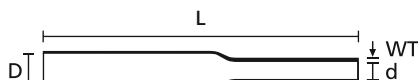
### Features and Benefits

- PTFE heat shrink tubing
- Very high temperature resistance
- Extra thin wall translucent tubing
- High abrasion resistance and good resistance against aggressive chemicals
- Available in either 2:1 (TFE2) or 4:1 (TFE4) shrink ratios



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

### TFE2 2:1



Heat Shrinkable Tubing 2:1



TFE is available in either 2:1 or 4:1 shrink ratios.

<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-70 °C to +260 °C
<b>Minimum Shrink Temperature</b>	+350 °C
<b>Longitudinal change after shrinkage</b>	-20 % max.
<b>Dielectric Strength</b>	40 kV/mm according to DIN 53481
<b>Flammability</b>	Non burning

**RoHS** ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wire Size (AWG)	Wall (WT)	Length (L)	Colour	Shrink Ratio	Article-No.
TFE2-30	0.86	0.38	30	0.23	1.2 m	Transparent (CL)	2:1	336-00079
TFE2-28	0.96	0.46	28	0.23	1.2 m	Transparent (CL)	2:1	336-00099
TFE2-26	1.17	0.56	26	0.23	1.2 m	Transparent (CL)	2:1	336-00109
TFE2-24	1.27	0.69	24	0.25	1.2 m	Transparent (CL)	2:1	336-00139
TFE2-22	1.39	0.82	22	0.25	1.2 m	Transparent (CL)	2:1	336-00149
TFE2-20	1.52	0.99	20	0.30	1.2 m	Transparent (CL)	2:1	336-00159
TFE2-18	1.93	1.25	18	0.30	1.2 m	Transparent (CL)	2:1	336-00199
TFE2-16	2.36	1.55	16	0.30	1.2 m	Transparent (CL)	2:1	336-00249
TFE2-14	3.05	1.83	14	0.30	1.2 m	Transparent (CL)	2:1	336-00319
TFE2-12	3.81	2.26	12	0.30	1.2 m	Transparent (CL)	2:1	336-00399
TFE2-10	4.85	2.85	10	0.30	1.2 m	Transparent (CL)	2:1	336-00489
TFE2-8	6.10	3.58	8	0.38	1.2 m	Transparent (CL)	2:1	336-00619
TFE2-6	7.67	4.52	6	0.38	1.2 m	Transparent (CL)	2:1	336-00779
TFE2-4	9.40	5.69	4	0.38	1.2 m	Transparent (CL)	2:1	336-00949
TFE2-2	10.92	7.06	2	0.38	1.2 m	Transparent (CL)	2:1	336-01109
TFE2-0	11.94	8.81	0	0.38	1.2 m	Transparent (CL)	2:1	336-01209

All dimensions in mm. Subject to technical changes.

AWG: American Wire Gauge Minimum Order Quantity (MOQ) may differ from package content.



### Heat Shrinkable Tubing - PTFE

TFE4 4:1



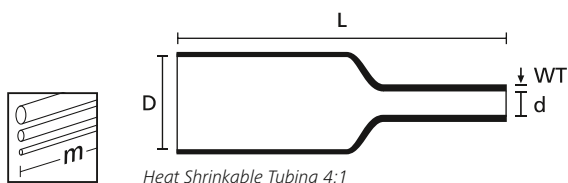
Detailed Information about Heatguns please refer to page 529.



Cut lengths available on request. Please contact us!

<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-70 °C to +260 °C
<b>Minimum Shrink Temperature</b>	+350 °C
<b>Longitudinal change after shrinkage</b>	-20 % max.
<b>Dielectric Strength</b>	40 kV/mm according to DIN 53481
<b>Flammability</b>	Non burning
<b>Specifications</b>	NSA937210

RoHS



TYPE	Supplied Ø D min.	Recov. Ø d max.	Size (imperial)	Wall (WT)	Length (L)	Colour	Shrink Ratio	Article-No.
TFE4-5/64	1.98	0.64	5/64 "	0.22	1.2 m	Transparent (CL)	4:1	339-00209
TFE4-1/8	3.17	0.94	1/8 "	0.25	1.2 m	Transparent (CL)	4:1	339-00329
TFE4-3/16	4.75	1.27	3/16 "	0.30	1.2 m	Transparent (CL)	4:1	339-00340
TFE4-1/4	6.35	1.60	1/4 "	0.30	1.2 m	Transparent (CL)	4:1	339-00649
TFE4-3/8	9.52	2.44	3/8 "	0.30	1.2 m	Transparent (CL)	4:1	339-00959
TFE4-1/2	12.7	3.66	1/2 "	0.38	1.2 m	Transparent (CL)	4:1	339-01279
TFE4-5/8	15.87	4.52	5/8 "	0.38	1.2 m	Transparent (CL)	4:1	339-01599
TFE4-3/4	19.05	5.69	3/4 "	0.38	1.2 m	Transparent (CL)	4:1	339-01909
TFE4-1	25.4	7.06	1 "	0.38	1.2 m	Transparent (CL)	4:1	339-02549
TFE4-1 1/4	31.75	8.82	1-1/4 "	0.38	1.2 m	Transparent (CL)	4:1	339-03189

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



For product specific approvals and specifications please refer to the Appendix.

## Adhesive for Heat Shrinkable Moulded Shapes

Adhesive Specifications							
	W / W2	W8	W21	W24	WM250	V9500	HMT200A
<b>Adhesive</b>	Hot melt adhesive	EVA hot melt adhesive	Modified polyamide hot melt adhesive	High performance, pre-coat, 1 part epoxy	Hot melt adhesive	Two part, black, epoxy adhesive	Hot melt adhesive tape
<b>Operating Temperature</b>	-55 °C to +80 °C	-55 °C to +105 °C	-55 °C to +120 °C	-70 °C to +220 °C	-55 °C to +80 °C	-75 °C to +150 °C	-55 °C to +105 °C
<b>Softening Point Adhesive</b>	+95 °C	+110 °C	+120 °C		+95 °C		+110 °C
<b>Supplied Form</b>	pre-applied	pre-applied	pre-applied	pre-applied	pre-applied	cardridge	tape
<b>Shelf life</b>	5 years	5 years	5 years	5 years	5 years	18 months	5 years
<b>Solvent Resistance</b>	Fair under splash conditions	Fair under splash conditions	Saline: Very good De-icing fluid: Good Diesel: Excellent Lubricating Oil: Good Hydraulic Oil: Excellent Aviation Fuel: Good Automotive Fuel: Good	De-icing fluid: Excellent Petrol: Excellent Lubricating Oil: Excellent Hydraulic Oil: Excellent	Fair under splash conditions	De-icing fluid: Excellent, Petrol: Excellent, Lubricating Oil: Excellent, Hydraulic Oil: Excellent	Fair under splash conditions



A wider range of material / adhesive combinations are available in the Moulded Shapes Catalogue.

**Materials for Heat Shrinkable Moulded Shapes**

<b>Material Specifications</b>						
	<b>-9</b>	<b>H</b>	<b>G</b>	<b>B7</b>	<b>B8</b>	<b>L</b>
<b>Material</b>	Modified elastomer blend	Flexible limited fire hazard material	Fluid resistant elastomer	Semi-rigid flame retarded polyolefin	Semi-rigid flame retarded polyolefin	Flexible flame retarded fluoroelastomer
<b>Operating Temperature</b>	-55 °C to +120 °C	-55 °C to +105 °C	-75 °C to +150 °C	-55 °C to +135 °C	-55 °C to +100 °C	-55 °C to +200 °C
<b>Min. Shrink Temperature</b>	+135 °C	+135 °C	+135 °C	+135 °C	+135 °C	+175 °C
<b>Specification</b>	SCX15112	DEF STAN 59-97, BSG198 Part 5, VG 95343 Part 29, 30 NAVSEA 5617649	DEF STAN 59-97, BSG198 Part 5	MIL-I-81765/1 Type 1, DEF STAN 59-97, BSG198 Part 5	EA-TS 09-11	DEF STAN 59-97, BSG198 Part 5, MIL-81765/4
<b>Tensile Strength</b>	12 MPa	10 MPa	15 MPa	13 MPa	15 MPa	12 MPa
<b>Elongation at break</b>	500 %	450 %	580 %	500 %	500 %	300 %
<b>Dielectric Strength</b>	20 kV/mm	15 kV/mm	14 kV/mm	14 kV/mm	15 kV/mm	8 kV/mm
<b>Flammability for Material</b>	excellent	excellent	excellent	excellent	good	excellent
<b>Features and Benefits</b>	Good physical and reasonable chemical resistance	Low smoke Halogen free	Excellent resistance to fuels	Good physical and chemical resistance	Good physical and reasonable chemical resistance	High temperature excellent chemical resistance
<b>Typical Application</b>	Military and general high performance harnessing	Ships, submarines & railways	Military and general high performance harnessing	Military and general high performance harnessing	Power/utility shapes	Military and high performance harnessing



### Order Example

Type:

XXX(X)-X(X)-XXXX(X)



Example:

2 0 6 - 3 - G W 2 4



Other product styles are available. Please refer to Moulded Shapes catalogue.

### Low Profile Boots Product Overview

Page

#### Convolute Boots

Helashrink 313C Series, with adapter lip



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#### Shim Boots

Helashrink 313E Series, without adapter lip



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#### Straight Boots

Helashrink 313F Series, with adapter lip



#### Right Angle Boots

Helashrink 333F Series, with adapter lip, 90° angle



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### Low Profile Boots Product Overview

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#### Transition Boots

Helashrink 412H Series, side breakout



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#### Transition Boots

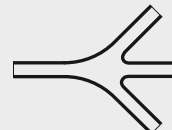
Helashrink 492H Series, 1 to 2 cables



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#### Transition Boots

Helashrink 573H Series, 1 to 3 cables




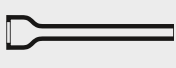









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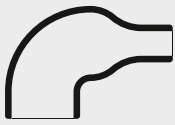
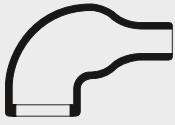











One Step to the Web!

**Bulbous Boots  
Product Overview**

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<b>4-Way Outlet Shapes</b> Helashrink 400 Series, in line, low voltage		268
<b>Low voltage</b> Helashrink PEC Series, pinched		269
<b>Low voltage</b> Helashrink 1600 Series		270





### Low Profile Convolute Boots

#### Helashrink 313C Series, with adapter lip

#### Features and Benefits

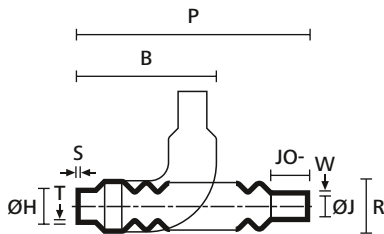
- For circular grooved adapters to provide strain relief
- Excellent environmental sealing with adhesive
- Convoluted design grants flexibility for different cable outlet angles



313C722-774 Series supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

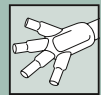


For Material / Adhesive information please refer to page 244.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R max.	JO ± 10%	W min	B nom	T ± 0.5	S ± 0.5	Article-No.
313C722-9	14.2	6.9	11.1	4.8	12.6	21.1	17.3	1.5	62.4	1.3	1.5	422-00001
313C732-9	22.4	11.7	17.7	8.1	133.3	26.5	19.8	1.5	67.8	1.3	1.5	422-00101
313C743-9	34.0	17.5	26.9	12.7	146.0	32.7	22.3	1.5	73.4	1.3	1.8	422-00201
313C753-9	44.2	22.3	36.5	17.5	158.7	37.8	25.4	1.5	78.2	1.3	1.8	422-00302
313C764-9	53.8	27.9	45.7	22.3	171.4	42.9	28.4	1.5	82.8	2.0	1.8	422-00400
313C774-9	77.2	4.6	54.6	22.8	236.2	62.2	25.4	1.5	138.4	2.0	2.0	422-00501

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.

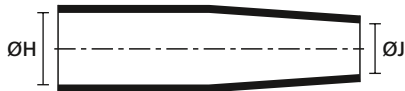


### Low Profile Shim Boots

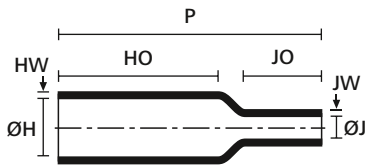
**Helashrink 313E Series, without adapter lip**

#### Features and Benefits

- Used to build up or shim a cable diameter
- Facilitates better fit for components in cable harness



a: Expanded form (supplied)



b: Fully recovered form (after heating)



313E445-457 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HO ± 10%	HW ± 25%	JW ± 25%	JO ± 10%	Article-No.
313E447-9	2.8	14.7	2.6	9.9	63.5	41.1	41.1	1.5	1.5	16.5	422-10100
313E445-9	12.7	12.7	11.1	3.3	63.5	41.1	41.1	1.5	1.5	15.7	422-10000
313E457-9	22.1	22.1	2.6	9.9	53.3	27.9	27.9	2.3	1.5	14.0	422-10300
313E455-9	22.1	22.1	11.2	3.3	53.3	27.9	27.9	2.3	1.5	15.7	422-10200

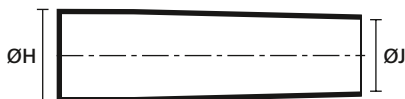
All dimensions in mm. Subject to technical changes. For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.

### Low Profile Straight Boots

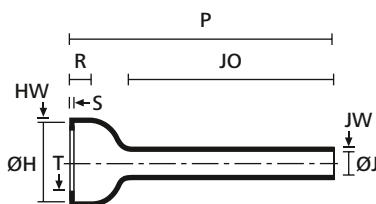
**Helashrink 313F Series, with adapter lip**

#### Features and Benefits

- Connector strain relief for small cable diameters requiring high shrink ratio



a: Expanded form (supplied)



b: Fully recovered form (after heating)



313F322-396 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 15%	T ± 0.8	JO ± 10%	HW ± 1.5	S ± 1.5	Article-No.
313F343-9	3.9	18.5	24.3	8.9	138.6	12.1	1.3	112.7	1.7	1.7	422-20200
313F322-9	23.8	9.9	17.2	6.6	105.9	11.6	1.3	86.3	1.5	1.5	422-20000
313F332-9	27.1	13.2	2.8	7.6	121.1	12.1	1.3	98.5	1.5	1.5	422-20100
313F353-9	35.6	22.1	28.7	1.1	159.5	12.1	1.3	13.8	1.7	1.7	422-20300
313F364-9	38.8	28.2	31.4	1.9	177.8	13.9	1.8	142.2	1.7	1.7	422-20400
313F374-9	42.2	32.2	38.3	12.7	203.2	15.2	1.8	163.0	1.7	1.7	422-20500
313F385-9	51.5	45.4	45.4	14.9	203.2	15.2	1.8	157.7	1.7	1.7	422-20600
313F396-9	62.7	45.4	53.3	16.7	228.6	16.0	1.8	153.1	1.7	1.7	422-20700

All dimensions in mm. Subject to technical changes. For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.



#### Low Profile Right Angle Boots

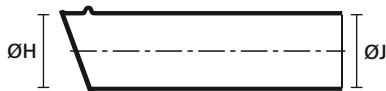
Helashrink 333F-Series, with adapter lip, 90° angle

##### Features and Benefits

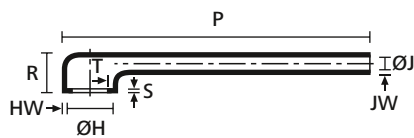
- Connector strain relief for small cable diameters requiring high shrink ratio



333F322-385 series as supplied / recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



For Material / Adhesive information please refer to page 244.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 15%	T ± 0.8	HW ± 1.5	JW ± 0.8	S ± 1.5	Article-No.
333F343-9	3.9	18.5	24.3	8.9	146.3	2.8	1.3	1.7	1.5	1.7	422-30100
333F322-9	23.8	9.9	17.2	6.6	105.1	18.5	1.3	1.5	1.5	1.5	422-30000
333F332-9	27.1	13.2	2.8	7.6	115.8	19.8	1.3	1.5	1.5	1.5	422-30004
333F353-9	35.3	21.6	28.7	1.1	172.2	21.8	1.3	1.7	1.5	1.7	422-30200
333F364-9	38.8	27.9	31.4	1.9	185.1	24.1	1.8	1.7	1.5	1.7	422-30301
333F374-9	45.2	34.0	38.3	12.1	213.6	27.4	1.8	1.7	1.5	1.7	422-30400
333F385-9	51.5	41.1	44.4	15.0	224.5	29.4	1.7	1.7	1.7	1.7	422-30500

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.

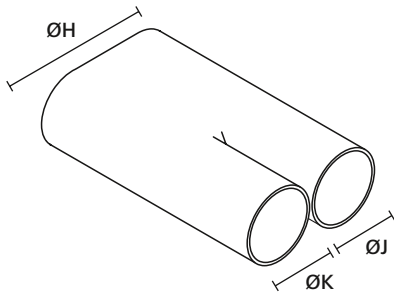


### Low Profile Transition Boots

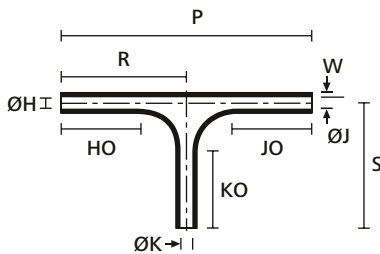
Helashrink 412H Series, side breakout

#### Features and Benefits

- Connector cable strain relief
- Used with circular adapter



a: Expanded form (supplied)



b: Fully recovered form (after heating)



412H622-625 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ/K min. a	ØJ/K max. b	HO/JO/KO ± 10%	P nom	W nom	R/S nom	Article-No.
412H624-9	6.1	20.0	4.1	20	63.5	175.7	1.5	87.8	422-40200
412H622-9	19.8	6.6	13.2	6.6	25.4	8.7	1.0	4.3	422-40000
412H623-9	34.2	11.4	22.8	6.6	41.1	12.3	1.3	6.1	422-40100
412H625-9	83.3	33.2	54.8	33.2	88.9	242.3	1.7	121.1	422-40300

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.



### Low Profile Transition Boots

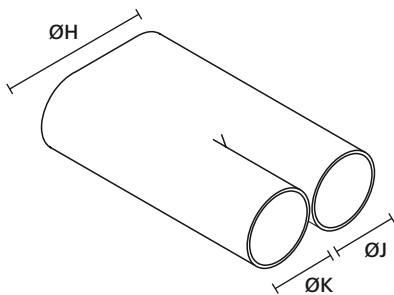
Helashrink 492H Series, 1 to 2 cables

#### Features and Benefits

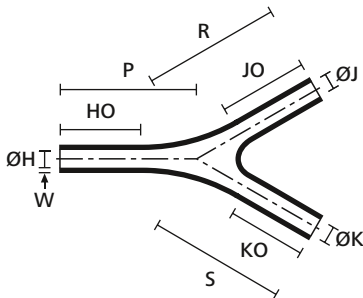
- For cable harness breakouts or transitions
- Strain relief, sealing and mechanical protection



492H412-415 Series supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



For Material / Adhesive information please refer to page 244.

TYPE	ØH min. a	ØH max. b	ØJ/K min. a	ØJ/K max. b	HO/JO/KO ± 15%	W nom	P/R/S nom	Article-No.
492H414-9	6.1	20.0	4.1	20	63.5	1.5	94.7	422-50202
492H412-9	19.8	6.6	13.2	6.6	25.4	1.0	4.6	422-50000
492H413-9	34.2	11.4	22.8	11.4	41.1	1.3	62.9	422-50101
492H415-9	83.3	33.2	54.8	33.2	49.7	1.7	133.8	422-50302

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.

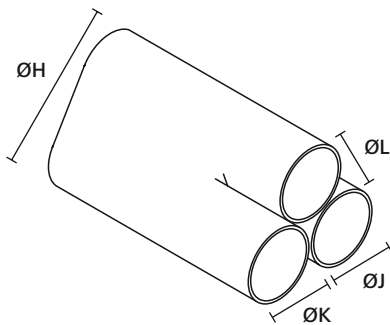


### Low Profile Transition Boots

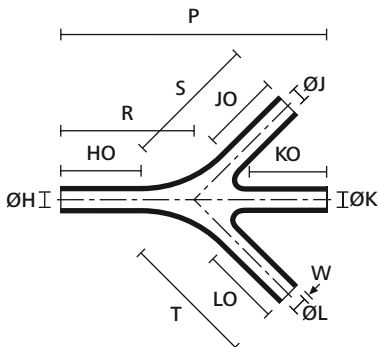
Helashrink 573H Series, 1 to 3 cables

#### Features and Benefits

- For cable harness breakouts or transitions
- Strain relief, sealing and mechanical protection



a: Expanded form (supplied)



b: Fully recovered form (after heating)



573H532-535 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ/K/L min. a	ØJ/K/L max. b	P nom	R/S/T nom	W nom	HO/JO /KO/LO ± 15%	Article-No.
573H534-9	6.1	20.0	36	20	207.2	103.6	1.5	63.5	422-60202
573H532-9	19.8	6.6	13.2	6.6	85.8	42.9	1.0	25.4	422-60000
573H533-9	34.2	11.4	2.5	11.4	135.6	67.8	1.3	41.1	422-60100
573H535-9	99.8	33.2	54.8	33.2	294.6	147.3	1.7	88.9	422-60302

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.



### Bottle Shapes, VG style

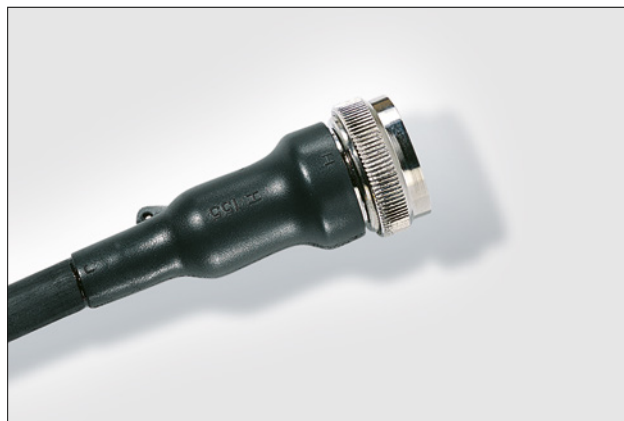
#### Helashrink 150 Series, with rib

#### Features and Benefits

- Use in conjunction with circular grooved adaptor
- For strain relief and environmental sealing



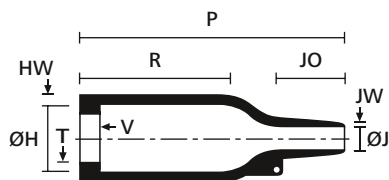
For Material / Adhesive information please refer to page 244.



150 Series boot recovered onto a connector.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



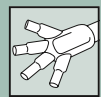
150 Series supplied.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	JO ± 10%	HW ± 20%	JW ± 20%	V max	T ± 20%	Designation as per VG-Norm	Article-No.
152-41-G	24.0	10.5	24.0	6.0	26.0	9.0	10.0	1.6	0.5	3.3	1.0	VG 95343 T06 A 001 A	401-52780
152-42-G	24.0	10.5	24.0	6.0	38.0	21.0	10.0	1.6	0.5	3.3	1.0	VG 95343 T06 B 001 A	401-52880
153-41-G	25.0	14.0	9.0	3.5	40.0	13.0	16.0	1.8	0.5	3.3	1.0	VG 95343 T06 A 002 A	401-53780
153-42-G	25.0	14.0	9.0	3.5	55.0	28.0	16.0	1.8	0.5	3.3	1.0	VG 95343 T06 B 002 A	401-53880
154-41-G	30.0	14.0	30.0	6.0	43.0	20.0	13.0	1.8	1.0	3.3	1.0	VG 95343 T06 A 003 A	401-54780
154-42-G	30.0	14.0	30.0	6.0	55.0	32.0	13.0	1.8	1.0	3.3	1.0	VG 95343 T06 B 003 A	401-54880
155-42-G	31.0	18.0	31.0	7.0	67.0	35.0	18.0	1.8	1.0	3.3	1.0	VG 95343 T06 B 004 A	401-55880
156-41-G	36.0	22.5	36.0	8.5	60.0	22.0	20.0	2.0	1.0	3.3	1.0	VG 95343 T06 A 005 A	401-56780
156-42-G	36.0	22.5	36.0	8.5	80.0	42.0	20.0	2.0	1.0	3.3	1.0	VG 95343 T06 B 005 A	401-56880
157-41-G	43.0	28.0	43.0	10.0	60.0	21.0	20.0	2.2	1.0	3.3	1.7	VG 95343 T06 A 006 A	401-57780
157-42-G	43.0	28.0	43.0	10.0	79.0	41.0	20.0	2.2	1.0	3.3	1.7	VG 95343 T06 B 006 A	401-57880
157-43-G	43.0	28.0	43.0	10.0	99.0	61.0	20.0	2.2	1.0	3.3	1.7	VG 95343 T06 C 001 A	401-57980
158-41-G	60.0	35.0	60.0	16.0	90.0	32.0	38.0	3.2	1.5	3.3	1.7	VG 95343 T06 A 007 A	401-58780
158-42-G	60.0	35.0	60.0	16.0	110.0	52.0	38.0	3.2	1.5	3.3	1.7	VG 95343 T06 B 007 A	401-58880
158-43-G	60.0	35.0	60.0	16.0	130.0	72.0	38.0	3.2	1.5	3.3	1.7	VG 95343 T06 C 002 A	401-58980
159-41-G	66.0	45.0	66.0	17.0	130.0	50.0	50.0	3.8	2.0	3.3	2.0	VG 95343 T06 A 008 A	401-59780
159-42-G	66.0	45.0	66.0	17.0	150.0	70.0	50.0	3.8	2.0	3.3	2.0	VG 95343 T06 B 008 A	401-59880
159-43-G	66.0	45.0	66.0	17.0	171.0	90.0	50.0	3.8	2.0	3.3	2.0	VG 95343 T06 C 003 A	401-59980
160-41-G	82.0	58.0	82.0	27.0	137.0	37.0	62.0	3.8	3.8	3.3	2.0	VG 95343 T06 A 009 A	401-60780
160-42-G	82.0	58.0	82.0	27.0	158.0	58.0	62.0	3.8	3.8	3.3	2.0	VG 95343 T06 B 009 A	401-60880
160-43-G	82.0	58.0	82.0	27.0	213.0	113.0	62.0	3.8	3.8	3.3	2.0	VG 95343 T06 C 004 A	401-60980

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Bottle Shapes, MIL-Style

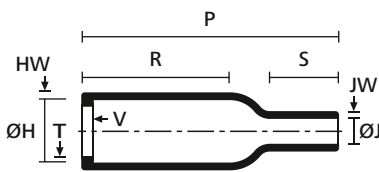
#### Helashrink 100 Series, with rib

#### Features and Benefits

- With circular grooved adaptor for strain relief
- Combine with complementary adhesives for environmental sealing



a: Expanded form (supplied)



b: Fully recovered form (after heating)



100 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%	S nom	Article-No.
113-4-G	10.7	7.9	4.6	2.0	25.4	14.5	1.3	1.0	3.0	1.0	4.6	401-13480

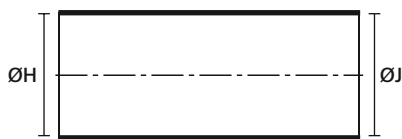
All dimensions in mm. Subject to technical changes.

### Bottle Shapes

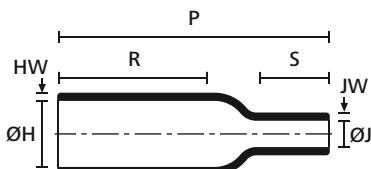
#### Helashrink 100 Series, without rib

#### Features and Benefits

- Strain relief for connector cable
- Easy re-entry for repair when combined with hot melt adhesive



a: Expanded form (supplied)



b: Fully recovered form (after heating)



100 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R max.	HW ± 20%	JW ± 30%	S nom	Article-No.
113-1-G	10.7	7.9	4.6	2.0	25.4	14.5	1.3	1.0	4.6	401-13180

All dimensions in mm. Subject to technical changes.





### Long Outlet Shape, VG style

Helashrink 130 Series, with rib, low profile

#### Features and Benefits

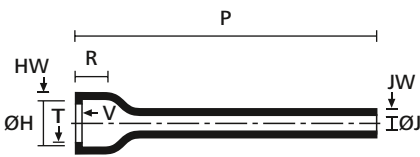
- Low profile and lightweight
- Typically used on airborne harnesses
- Rib locates on circular backshell



135-1-G as supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



For Material / Adhesive information please refer to page 244.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V max	T ± 10%	Designation as per VG-Norm	Article-No.
129-1-G	22.0	12.0	22.0	6.5	76.0	12.0	1.5	1.1	3.3	1.0	VG95343T06D001A	401-29180
130-1-G	25.5	15.0	25.5	7.5	83.0	12.0	1.5	1.1	3.3	1.0	VG95343T06D002A	401-30180
131-1-G	29.0	19.0	29.0	8.5	89.0	12.0	1.8	1.1	3.3	1.0	VG95343T06D003A	401-31180
132-1-G	34.0	23.0	34.0	10.0	102.0	12.0	1.8	1.1	3.3	1.0	VG95343T06D004A	401-32180
133-1-G	37.0	30.0	37.0	11.0	108.0	14.0	2.0	1.1	3.3	1.7	VG95343T06D005A	401-33180
134-1-G	43.5	34.0	43.5	12.0	114.0	15.0	2.0	1.1	3.3	1.7	VG95343T06D006A	401-34180
135-1-G	50.0	41.0	50.0	14.5	118.0	15.0	2.3	1.4	3.3	1.7	VG95343T06D007A	401-35180
136-1-G	62.5	47.0	62.5	18.0	121.0	16.0	2.5	1.4	3.3	2.0	VG95343T06D008A	401-36180
138-1-G	69.0	60.0	69.0	20.0	127.0	16.0	2.5	1.4	3.3	2.0	VG95343T06D009A	401-38180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Bottle Shapes, VG style

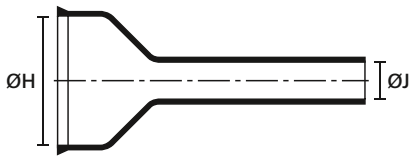
#### Helashrink 170 Series, with rib

#### Features and Benefits

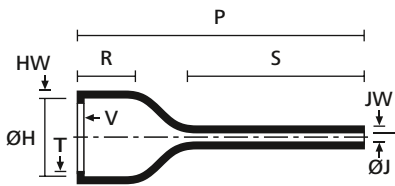
- Cable strain relief for partially loaded connectors
- Small cable diameters
- Use with our W24 adhesive for excellent chemical resistance



177-1-G as supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	T ± 20%	HW ± 20%	JW nom.	V max	S nom	Designation as per VG-Norm	Article-No.
176-1-G	19.3	13.0	6.3	2.1	60.0	11.7	1.0	1.5	1.1	3.3	38.0	VG95343T06D011A	401-76180
177-1-G	26.1	19.1	7.6	2.6	74.0	12.2	1.0	1.8	1.1	3.3	45.0	VG95343T06D012A	401-77180
178-1-G	34.2	26.0	9.6	3.1	84.0	12.2	1.0	1.8	1.1	3.3	51.0	VG95343T06D013A	401-78180
179-1-G	43.6	34.1	11.4	3.6	100.0	12.2	1.7	1.8	1.1	3.3	58.0	VG95343T06D014A	401-79180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Bottle Shapes, VG style

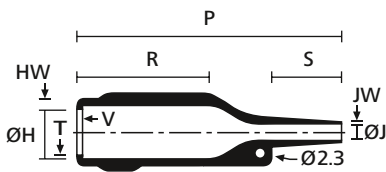
#### Helashrink 190 Series, with external ribs

#### Features and Benefits

- Specifically for small audio connectors
- Multiple external ribs to improve grip in harsh conditions



a: Expanded form (supplied)



b: Fully recovered form (after heating)



199-4-G supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%	S nom	Designation as per VG-Norm	Article-No.
199-4-G	17.5	14.0	7.0	4.3	70.0	35.0	1.8	0.5	1.5	1.0	20.0	VG95343T06A010A	401-99480

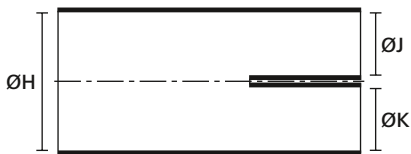
All dimensions in mm. Subject to technical changes.

### 2-Way Outlet Shapes

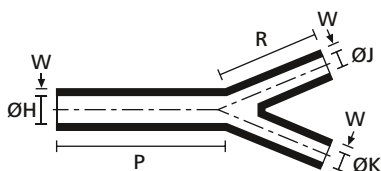
#### Helashrink 200 Series, low profile

#### Features and Benefits

- For harnesses which route multi-core cables in different directions
- High ratio expansion for quick and easy installation
- Mechanical tension relief



a: Expanded form (supplied)



b: Fully recovered form (after heating)



200 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	W ± 20%	Article-No.
201-1-G	19.0	9.4	6.4	14.0	6.4	14.0	50.8	30.5	1.5	402-01180
201-2-G	31.8	9.4	15.7	6.4	15.7	6.4	50.8	30.5	1.5	402-01220

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### 2-Way Outlet Shapes, VG style

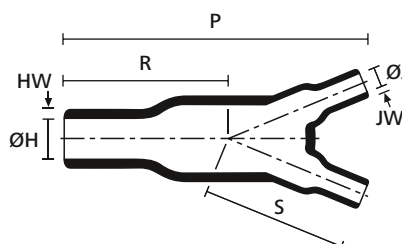
#### Helashrink 200 Series

#### Features and Benefits

- Mechanical tension relief in cable harnesses



a: Expanded form (supplied)



b: Fully recovered form (after heating)



Two-way outlet shape 223-2 supplied / fully recovered.



For Material / Adhesive information please refer to page 244.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	JW ± 30%	JW nom.	S nom.	Designation as per VG-Norm	Article-No.
206-1-G	13.0	6.0	7.0	3.0	41.0	19.0	1.5	-	1.0	1.0	19.0	VG95343T08C001A	402-06180
212-1-G	14.5	8.0	8.5	5.5	82.6	83.0	2.3	-	2.0	2.0	63.0	VG95343T08C005A	402-12180
213-1-G	17.3	7.9	11.1	7.9	140.0	83.1	2.3	2.3	-	1.0	64.0	-	402-13180
203-1-G	27.0	12.0	13.0	6.0	80.0	43.0	2.5	-	1.5	1.5	43.0	VG95343T08C002A	402-03180
204-1-G	39.0	18.0	27.0	12.0	66.0	81.0	3.1	-	2.5	2.0	81.0	VG95343T08C003A	402-04180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### 3-Way Outlet Shapes, VG style

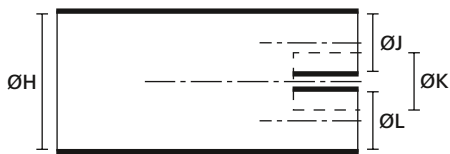
#### Helashrink 300 Series

#### Features and Benefits

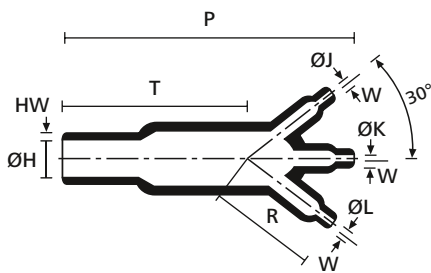
- Cable strain relief and mechanical protection at harness transition points
- All outlets clearly marked to aid orientation during installation



304-1-G supplied / fully recovered.



a: Expanded form (supplied)



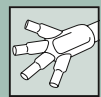
b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ/K/L min. a	ØJ/K/L max. b	P ± 10%	R ± 10%	HW ± 30%	W ± 20%	T ± 10%	Designation as per VG-Norm	Article-No.
306-1-G	13.0	6.5	6.5	3.5	46.0	25.4	1.5	1.0	20.3	VG95343T08D001A	403-06180
304-1-G	27.0	13.5	13	7.0	93.0	50.3	2.5	1.5	42.9	VG95343T08D002A	403-04180
310-1-G	38.5	19.0	19	10.0	135.0	73.7	3.0	1.8	61.0	VG95343T08D003A	403-10180
311-1-G	55.5	25.5	27	12.5	192.0	103.1	4.5	3.1	88.9	VG95343T08D004A	403-11180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.

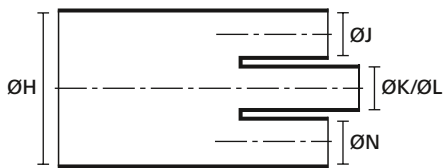


### 4-Way Outlet Shapes, VG style

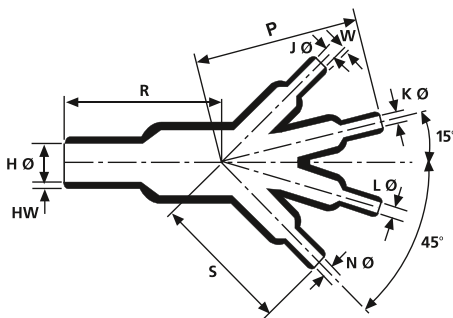
#### Helashrink 400 Series

#### Features and Benefits

- All outlets clearly marked to aid orientation during installation
- Cable strain relief and mechanical protection at harness transition points



a: Expanded form (supplied)



b: Fully recovered form (after heating)



442-1 supplied / fully recovered.



For Material / Adhesive information please refer to page 244.

TYPE	ØH min. a	ØH max. b	ØJ/K/L/N min. a	ØJ/K/L/N max. b	P ± 10%	R ± 10%	S ± 10%	HW ± 20%	W ± 10%	S nom	Designation as per VG-Norm	Article-No.
411-1-G	19.0	10.0	9.5	5.5	36.1	35.6	32.0	1.8	1.0	32.0	VG95343T08E002A	404-11180
403-1-G	27.0	13.0	13.0	7.0	51.8	49.0	45.0	2.5	1.0	45.0	VG95343T08E004A	404-03180
413-1-G	38.6	19.0	19.0	10.0	74.9	75.0	65.3	1.8	1.0	65.0	VG95343T08E005A	404-13180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.

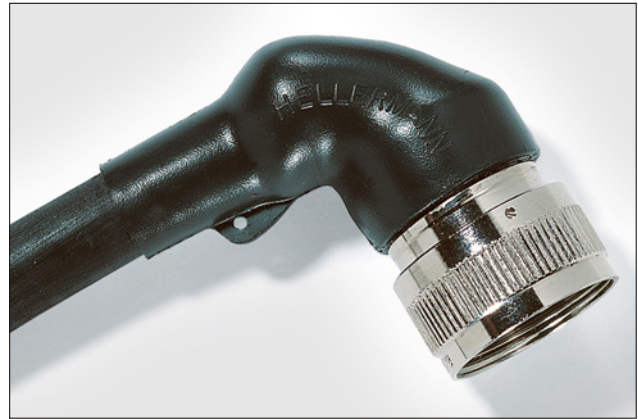


#### Right-Angle Shapes, VG-Style

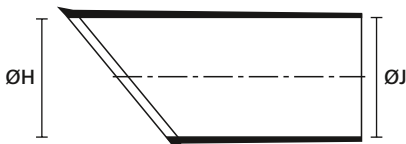
##### Helashrink 1100 Series, with rib

#### Features and Benefits

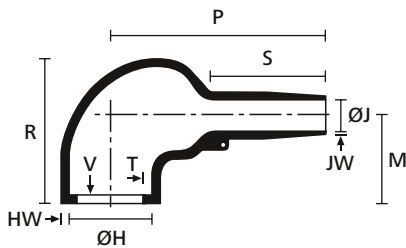
- Used in conjunction with a circular grooved adaptor
- Provides strain relief and an environmental seal



1152-4-G recovered on to a connector.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



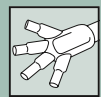
1155-4 supplied.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V max	T ± 20%	M nom	S nom	Designation as per VG-Norm	Article-No.
1152-4-G	24.0	10.5	24.0	6.0	26.0	25.0	1.3	0.5	3.3	1.0	19	10.0	VG95343T06E001A	411-52480
1154-4-G	30.0	15.5	30.0	6.0	32.0	27.0	1.5	0.8	3.3	1.0	19	12.0	VG95343T06E002A	411-54480
1155-4-G	31.0	18.0	31.0	7.0	40.0	31.0	1.8	1.0	3.3	1.0	21	15.0	VG95343T06E003A	411-55480
1156-4-G	36.0	22.5	36.0	8.5	46.0	38.0	1.8	1.0	3.3	1.0	26	15.0	VG95343T06E004A	411-56480
1157-4-G	43.0	28.5	43.0	10.0	55.0	45.0	2.0	1.0	3.3	1.7	30	16.0	VG95343T06E005A	411-57480
1158-4-G	60.0	35.0	60.0	16.0	80.0	54.0	3.3	1.5	3.3	1.7	35	30.0	VG95343T06E006A	411-58480
1159-4-G	66.0	45.0	66.0	17.0	108.0	68.0	3.8	2.0	3.3	2.0	42	51.0	VG95343T06E007A	411-59480
1160-4-G	82.0	61.0	82.0	25.0	118.0	84.0	4.0	4.0	3.3	2.0	52	39.0	VG95343T06E008A	411-60480

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Right-Angle Shapes, MIL style

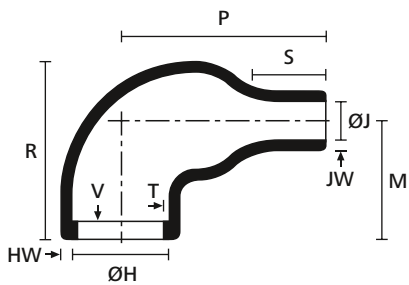
#### Helashrink 1100 Series, with rib

#### Features and Benefits

- Used in conjunction with a circular grooved adaptor for strain relief



a: Expanded form (supplied)



b: Fully recovered form (after heating)



1108-4 supplied / fully recovered.



For Material / Adhesive information please refer to page 244.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 30%	V max	T ± 20%	M nom	S nom	Article-No.
1108-4-G	16.5	7.9	16.5	3.8	17.3	20.1	1.0	1.6	3.3	1.0	15.2	5.1	411-08480

All dimensions in mm. Subject to technical changes.

### Right-Angle Shapes

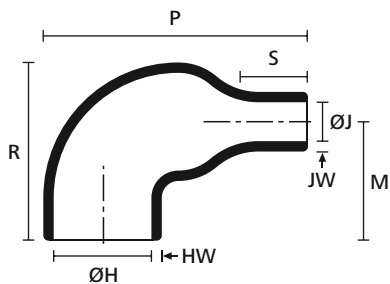
#### Helashrink 1100 Series, without rib

#### Features and Benefits

- Strain relief for connector cable
- Easy re-entry for repair when combined with hot melt adhesive



a: Expanded form (supplied)



b: Fully recovered form (after heating)



1108-1 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 30%	M nom	S nom	Article-No.
1108-1-G	16.5	7.9	16.5	3.8	17.3	20.1	1.0	1.6	15.2	5.1	411-08180

All dimensions in mm. Subject to technical changes.





### Right-Angle Shapes, VG style/MIL style

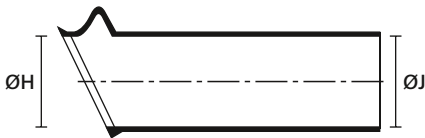
Helashrink 1100 Series, with rib, low profile

#### Features and Benefits

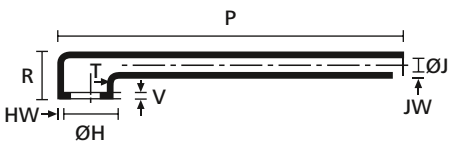
- Lightweight, low profile, compact strain relief and mechanical protection
- Typically used on airborne harnesses



1123-1-G Supplied and recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



**For Material / Adhesive information please refer to page 244.**

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 30%	T ± 10%	V ± 10%	Designation as per VG-Norm	Article-No.
1121-1-G	22.0	12.0	22.0	6.5	70.0	19.0	1.5	1.1	1.0	3.0	VG95343T06F001A	411-21180
1122-1-G	25.5	15.0	25.0	7.5	79.0	20.0	1.5	1.1	1.0	3.0	VG95343T06F002A	411-22180
1123-1-G	29.0	19.0	29.0	8.5	89.0	21.0	1.8	1.1	1.0	3.0	VG95343T06F003A	411-23180
1124-1-G	34.0	23.0	34.0	10.0	102.0	22.0	1.8	1.1	1.0	3.0	VG95343T06F004A	411-24180
1125-1-G	37.0	30.0	37.0	11.0	108.0	24.0	2.0	1.1	1.7	3.0	VG95343T06F005A	411-25180
1126-1-G	43.5	34.0	43.5	12.0	121.0	27.0	2.0	1.1	1.7	3.0	VG95343T06F006A	411-26180
1127-1-G	50.0	41.5	50.0	14.5	132.0	30.0	2.3	1.4	1.7	3.0	VG95343T06F007A	411-27180
1128-1-G	62.5	47.0	62.5	18.0	133.0	33.0	2.5	1.4	2.0	3.0	VG95343T06F008A	411-28180
1129-1-G	69.0	60.0	69.0	20.0	137.0	35.0	2.5	1.4	2.0	3.0	VG95343T06F009A	411-29180
1141-1-G	82.0	67.0	82.0	23.0	140.0	45.0	2.5	1.4	2.0	3.0	VG95343T06F010A	411-41180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Right-Angle Shapes, VG style

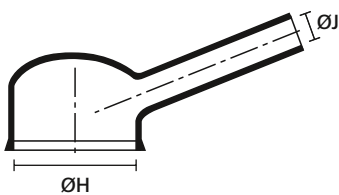
**Helashrink 1100 Series, with rib, low profile, high ratio**

#### Features and Benefits

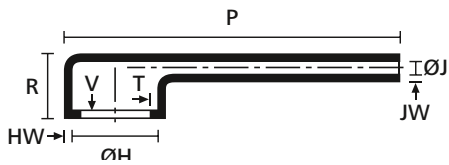
- Use in applications of partially loaded connectors with small cable diameters
- Tail design for easy orientation prior to cooling
- Strain relief for connector cable



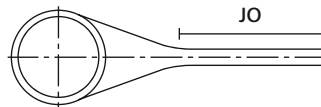
1135-1-G Supplied and recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	JO ± 10%	V max	T ± 20%	Designation as per VG-Norm	Article-No.
1133-1-G	19.0	13.0	6.0	2.0	44.0	16.3	1.5	1.1	21.8	3.3	1.0	VG95343T06F011A	411-33180
1134-1-G	26.0	19.0	7.5	2.5	67.0	18.0	1.8	1.1	29.2	3.3	1.0	VG95343T18H001A	411-34180
1135-1-G	34.0	26.0	9.5	3.0	81.0	18.8	1.8	1.1	35.3	3.3	1.0	VG95343T06F013A	411-35180
1136-1-G	43.5	34.0	11.5	3.5	116.0	21.3	1.8	1.1	47.0	3.3	1.7	VG95343T06F014A	411-36180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### T-Shapes, VG style

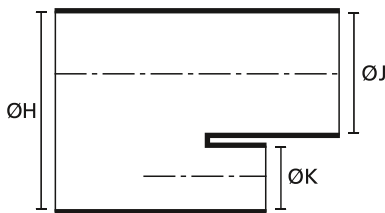
#### Helashrink 1200 Series

#### Features and Benefits

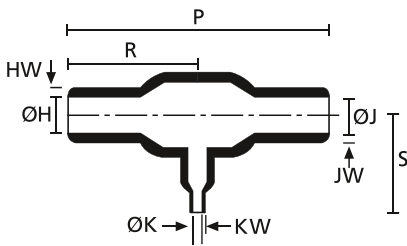
- Strain relief, sealing and mechanical protection on cable harnesses



1202-1-G recovered onto a cable harness.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



For Material / Adhesive information please refer to page 244.

TYPE	ØH/J min. a	ØH/J max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 30%	S ± 10%	KW ± 20%	Designation as per VG-Norm	Article-No.
1206-1-G	6.6	3.0	6.6	3.0	29.7	14.7	1.0	1.0	14.7	1.0	VG95343T08A009A	412-06180
1203-1-G	13.2	6.0	6.5	3.0	52.0	26.0	1.5	1.5	19.3	1.0	VG95343T08A001A	412-03180
1202-1-G	13.2	6.1	13.2	6.1	58.7	29.2	1.5	1.5	29.2	1.5	VG95343T08A010A	412-02180
1205-1-G	17.7	8.9	7.6	3.8	50.8	25.4	1.5	1.5	25.4	1.0	-	412-05180
1201-1-G	17.7	8.9	10.1	5.1	47.5	23.6	1.5	1.5	23.6	1.0	VG95343T08A007A	412-01180
1207-1-G	26.9	12.4	26.9	12.4	120.1	55.9	2.5	2.5	59.9	2.5	VG95343T08A011A	412-07180
1209-1-G	27	12.4	13.2	6.0	108.0	54.0	2.5	2.5	38.6	1.5	VG95343T08A002A	412-09180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.

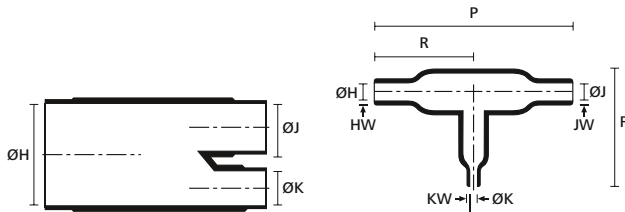


### T-Shapes, VG-Style

#### Helashrink 1200 Series, off-set

#### Features and Benefits

- For strain relief, sealing and mechanical protection
- Use adhesive for cable transition on harness, if environmental sealing is required



a: Expanded form (supplied)

b: Fully recovered form (after heating)



1204-1 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	KW ± 20%	F ± 15%	Designation as per VG-Norm	Article-No.
1204-1-G	13.0	7.5	6.5	4.0	6.5	4.0	56.0	33.0	1.5	1.0	1.0	27	VG95343T08A016A	412-04180
1216-1-G	33.0	13.0	16.5	6.5	16.5	6.5	97.0	54.0	2.5	1.5	1.5	-	VG95343T08A017A	412-16180

All dimensions in mm. Subject to technical changes.

## DEF STAN VG

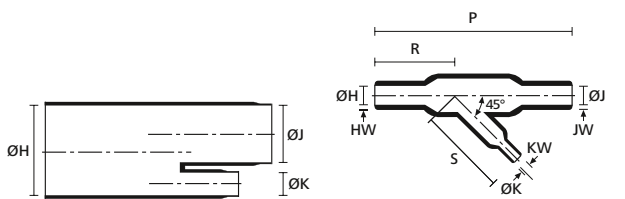
For product specific approvals and specifications please refer to the Appendix.

### Angled T-Shapes, VG style

#### Helashrink 1300 Series, 30° & 45° angle

#### Features and Benefits

- Strain relief, sealing and mechanical protection on cable harnesses



a: Expanded form (supplied)

b: Fully recovered form (after heating)



1303-1-G supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	HW ± 30%	JW ± 30%	KW ± 20%	S ± 10%	Angle	Designation as per VG-Norm	Article-No.
1306-1-G	13.0	6.0	6.5	3.0	6.5	3.0	45.0	23.0	1.5	1.0	1.5	21.5	45 °	VG95343T06B010A	413-06180
1301-1-G	13.0	7.0	13.0	7.0	7.0	3.5	50.0	23.0	1.5	1.5	1.0	23.0	45 °	VG95343T08B001A	413-01180
1302-1-G	27.0	13.0	27.0	13.0	7.0	3.5	93.0	41.0	2.5	2.5	1.0	36.0	45 °	VG95343T08B004A	413-02180
1303-1-G	27.0	14.0	27.0	14.0	13.0	7.5	145.0	70.0	1.5	1.5	1.5	54.0	45 °	VG95343T08B002A	413-03180
1311-1-G	30.4	15.0	30.4	15.0	20.3	10.0	83.0	32.0	2.5	2.5	1.8	51.0	30 °	VG95343T08B003A	413-11180

All dimensions in mm. Subject to technical changes.

## JN VG

For product specific approvals and specifications please refer to the Appendix.



### 2-Way Outlet Shapes, Breakout Boots

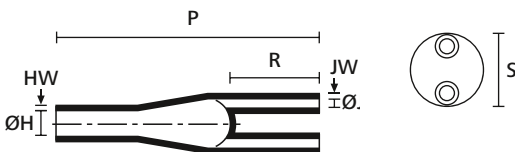
Helashrink 200 Series, in line, low voltage

#### Features and Benefits

- Easy, time-saving insulation of cable branch point where it splits into single wires
- Adhesive to relieve mechanical tension in cable harnesses



a: Expanded form (supplied)



b: Fully recovered form (after heating)



223-2 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom	Article-No.
216-3-B8W	21.0	9.4	9.0	2.8	76.5	20.0	1.6	1.6	14.0	402-16039
223-2-B8W	33.0	9.4	17.5	4.1	94.0	30.0	1.5	1.2	20.0	402-23058
218-2-B8W	49.0	22.9	20.0	7.6	119.0	34.0	3.2	3.2	30.0	402-18051

All dimensions in mm. Subject to technical changes.

### 4-Way Outlet Shapes, Breakout Boots

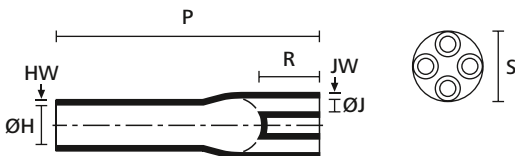
Helashrink 400 Series, in line, low voltage

#### Features and Benefits

- Easy, time-saving insulation of cable branch point where it splits into single wires
- Made of tough, cross-linked, Polyolefin
- Adhesive to relieve mechanical tension in cable harnesses



a: Expanded form (supplied)



b: Fully recovered form (after heating)



400 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom	Article-No.
442-1-B8WM250	28.0	9.0	9.0	1.8	78.0	17.0	2.7	2.0	20.0	404-42009
408-2-B8W2	35.0	12.0	15.0	3.0	95.0	24.0	2.5	2.0	22.0	404-08022
418-4-B8W2	60.0	22.9	30.0	6.4	202.0	38.1	4.1	3.3	38.1	404-18020

All dimensions in mm. Subject to technical changes.



### Pinched End Caps

#### Helashrink PEC Series, low voltage

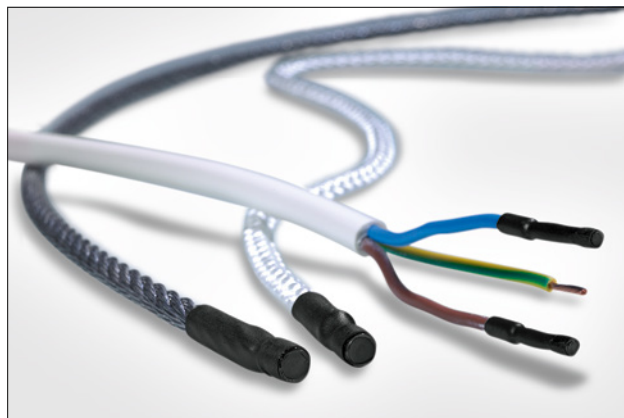
Pinched End Caps can be used for mechanical and environmental protection of stub splices in electrical harnesses. Due to the fast and easy installation, these caps can be used for non-electrical applications as well.

#### Features and Benefits

- Small size End Caps
- Fast and easy application
- With Inner adhesive layer for moisture sealing
- 3:1 shrink ratio
- Different diameters for wide application range
- Other lengths available on request



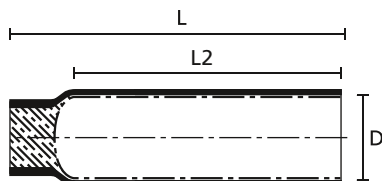
One Step to the Web!



The appropriate end cap for every cable diameter, and cable types.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Colour</b>	Black (BK)
<b>Shrink Ratio</b>	3:1
<b>Minimum Shrink Temperature</b>	+120 °C
<b>Operating Temperature</b>	-45 °C to +125 °C
<b>Dielectric Strength</b>	15 kV/mm according to IEC 60684 P2
<b>Flammability</b>	self-extinguishing in 30 seconds according to SAE-AMS-DTL-23053/4

RoHS



PEC-Series expanded.



PEC-Series recovered.



For Material / Adhesive information please refer to page 244.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Length (L2)	Pack Cont.	Article-No.
PEC-3/1	3.0	1.0	1.00	25.0	20.0	50 pcs.	416-00000
PEC-4.8/1.5	4.8	1.5	1.00	30.0	25.0	50 pcs.	416-00003
PEC-6/2	6.0	2.0	1.00	30.0	25.0	50 pcs.	416-00001
PEC-9/3	9.0	3.0	1.40	35.0	27.0	50 pcs.	416-00002

All dimensions in mm. Subject to technical changes.



## End Caps

### Helashrink 1600 Series, low voltage

End caps are suitable for use on both polymeric and paper insulated, lead jacketed cables which may include aluminium or steel armouring.

#### Features and Benefits

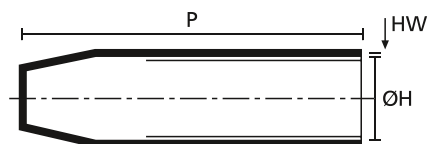
- Seal cables during storage or transportation
- Insulating cap for live LV cables (0.6/1kV)
- Adhesive lining for excellent environmental seal
- High shrink ratio to minimise number of sizes needed
- Outer end seal marked with lightning flashes to indicate live circuit
- Can be fitted with air valves for pressurised cable applications
- High shrink ratio to minimise number of sizes needed



The appropriate end cap for every cable diameter, and cable types.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Colour</b>	Black (BK)
<b>Shrink Ratio</b>	up to 3:1
<b>Minimum Shrink Temperature</b>	+135 °C
<b>Operating Temperature</b>	-55 °C to +80 °C
<b>Dielectric Strength</b>	15 kV/mm
<b>Flammability</b>	ASTM D635

RoHS



For Material / Adhesive information please refer to page 244.

TYPE	Bundle Ø min.	Bundle Ø max.	ØH min. a	ØH max. b	P ± 10%	HW ± 20%	Article-No.
1612-1-B5W2	4.0	8.0	10.0	4.0	33.5	2.0	416-12046
1613-1-B8W	6.5	16.0	20.0	6.0	55.3	2.3	416-13060
1602-1-B5W2	10.0	20.0	23.0	9.4	64.0	2.0	416-02008
1614-1-B5W2	16.0	32.0	40.0	15.0	90.0	3.0	416-14047
1615-1-B5W2	26.0	51.0	63.0	25.0	143.0	3.3	416-15035
1617-1-B5W2	32.0	61.0	76.0	30.0	158.0	4.0	416-17033
1616-1-B5W2	48.0	80.0	100.0	45.0	162.0	4.0	416-16053
1609-1-B5W2	65.0	110.0	120.0	60.0	150.0	4.0	416-09000
1610-1-B5W2	90.0	135.0	160.0	82.0	146.0	4.0	416-10000

All dimensions in mm. Subject to technical changes.



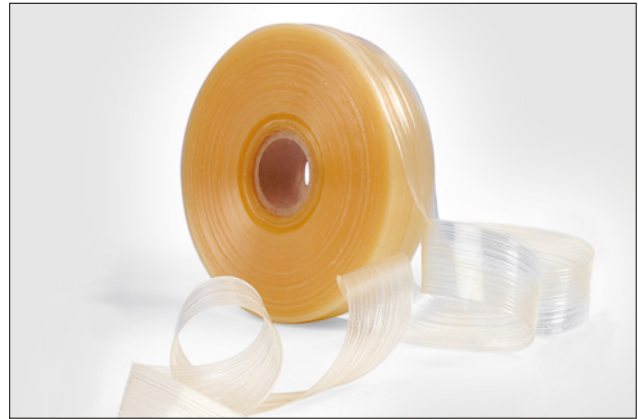
### Hot Melt Tape for Heat Shrinkable Tubing and Shapes

#### HMT200A

Designed for use with heat shrink sleeving and mouldings.

#### Features and Benefits

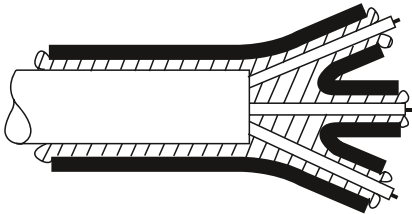
- Hot melt tape flows when heated to seal against moisture
- For heat shrink tubing and mouldings



HMT200A-Tape.



Adhesive tape HMT200A for sealing against humidity.



HMT200A

<b>MATERIAL</b>	Ethylenevinylacetate (EVA)
<b>Operating Temperature</b>	-55 °C to +105 °C
<b>Specifications</b>	DEF Stan 59-97 Type W (w)



TYPE	Thickness (T)	Width (W)	Colour	Reel Length	Article-No.
HMT200A	0.25	25.0	Translucent (TT)	10 m	354-02260
	0.25	25.0	Translucent (TT)	50 m	354-02259

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



For product specific approvals and specifications please refer to the Appendix.





## Two-Component Adhesive for Heat Shrinkable Tubing and Shapes

### V9500

#### Features and Benefits

- High performance, two-part epoxy adhesive
- Very resistant to most solvents and fuels, even at elevated temperatures
- Two different packages available
- V9500 available in 10g bags for manual mixing
- Processing set: emery paper, small mixing bowl and wooden spatula
- High performance bonding
- Meets military requirements for heat shrinkable components for harnesses
- VG-approved



Two-component epoxy adhesive V9500.

<b>MATERIAL</b>	Epoxy resins (EP)
<b>Colour</b>	Black (BK)
<b>Curing Temperature</b>	+135 °C
<b>Curing Time</b>	24 hours at +25 °C, 2 hours at +85 °C
<b>Operating Temperature</b>	-75 °C to +150 °C
<b>Specifications</b>	VG 95343



The V9500 applicator gun guarantees the clean and precise coating of special fittings.



For Material / Adhesive information please refer to page 244.

TYPE	Description	Designation as per VG-Norm	Article-No.
V9500 Epoxy Kit	5 x 10g sachets (50g), 5 x mixing pots, 5 x mixing sticks, 5 x emery papers	VG 95343 T15 A 001 A	627-95000
	1 x dual cartridge (50g), 5 x mixing pots, 5 x mixing sticks, 5 x emery papers	VG 95343 T15 A 002 B	627-95001
V9500 Epoxy Cartridge	Two-component adhesive cartridge	VG 95343 T15 A	627-95002
V9500 Applicator Gun	Applicator gun	VG 95343 T15 DA	627-95003
V9500 Applicator Nozzle	Mixing nozzle	VG 95343 T15 MA	627-95004

All dimensions in mm. Subject to technical changes.

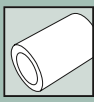


For product specific approvals and specifications please refer to the Appendix.

## 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.



### Rubber Tubing, Chloroprene

The chloroprene tubings (H) are ideally suited to rigorous environments such as aerospace, mass transit and defence markets.

As the material is highly elastic, it's original size can be expanded 500 % on application and 200 % in continuous use.

To save time and effort when fitting the tubing, try the HellermannTyton K, S and SS three prong tools (see Chapter 6.3) and the Hellerine lubricant (see Chapter 2.3), which are specially designed for use with HellermannTyton chloroprene tubing.

#### Features and Benefits

- Highly elastic, easy to fit chloroprene tubing
- Withstands up to 120°C intermittent temperature
- Covers many cable diameters with one size
- Available in cut lengths

#### Helsyn H



Chloroprene tubing



H rubber tubing is highly flexible and easy to apply.

<b>MATERIAL</b>	Chloroprene (CR)
<b>Operating Temperature</b>	-65 °C to +95 °C, intermittent 120 °C
<b>Flammability</b>	UL94 HB
<b>Elongation at break</b>	min. 500 %
<b>Specifications</b>	BS-3858 Type 1, BS-4G-198 Part 1 Type 1, DEF STAN 59-15 D2

**RoHS** ✓

TYPE	Supplied Ø D min.	Wall (WT)	Reel Length	Pack Cont.	Colour	Article-No.
H12BKX100M	1.2	0.70	100 m	100 m	Black (BK)	608-01200
H15BKX100M	1.5	0.80	100 m	100 m	Black (BK)	608-01201
H25BKX100M	2.5	0.80	100 m	100 m	Black (BK)	608-01203
H30BKX100M	3.0	0.80	100 m	100 m	Black (BK)	608-01204
H40BKX100M	4.0	1.00	100 m	100 m	Black (BK)	608-01205
H50BKX100M	5.0	1.00	100 m	100 m	Black (BK)	608-01206
H75BKX25M	7.5	1.30	25 m	25 m	Black (BK)	608-01207

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



TYPE	Supplied Ø D min.	Wall (WT)	Length (L)	Pack Cont.	Colour	Article-No.
H12X20BK	1.2	0.70	20.0	1,000 pcs.	Black (BK)	600-02498
H15X20BK	1.5	0.80	20.0	1,000 pcs.	Black (BK)	600-02929
H25X25BK	2.5	0.80	25.0	1,000 pcs.	Black (BK)	600-02934
H30X25BK	3.0	0.80	25.0	1,000 pcs.	Black (BK)	600-02938
H40X30BK	4.0	1.00	30.0	500 pcs.	Black (BK)	600-02947
H50X25BK	5.0	1.00	25.0	500 pcs.	Black (BK)	600-02949
H75X30BK	7.5	1.30	30.0	250 pcs.	Black (BK)	600-02198

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

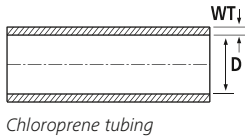
**BS DEF STAN**

For product specific approvals and specifications please refer to the Appendix.



## Rubber Tubing, Chloroprene

### Helsyn TH



Chloroprene tubing

TYPE	Supplied Ø D min.	Wall (WT)	Reel Length	Pack Cont.	Colour	Article-No.
TH100BKX25M	10.0	1.00	25 m	25 m	Black (BK)	608-01208
TH120BKX25M	12.0	1.00	25 m	25 m	Black (BK)	608-01209
TH140BKX20M	14.0	1.10	20 m	20 m	Black (BK)	608-01210
TH170BKX20M	17.0	1.20	20 m	20 m	Black (BK)	608-01202

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



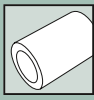
TYPE	Supplied Ø D min.	Wall (WT)	Length (L)	Pack Cont.	Colour	Article-No.
TH100X35BK	10.0	1.00	35.0	100 pcs.	Black (BK)	600-02493
TH120X50BK	12.0	1.00	50.0	100 pcs.	Black (BK)	600-02495
TH140X50BK	14.0	1.10	50.0	100 pcs.	Black (BK)	600-02496
TH170X50BK	17.0	1.20	50.0	100 pcs.	Black (BK)	600-02497

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Installation aid for tubing and grommets

#### Hellerine

Hellerine lubricant for tubing and grommets installations.

#### Features and Benefits

- Effective aid for affixing elastomer sleeves
- Universally employable
- Evaporates after installation
- Consists of 99 % vegetable oils
- Discoloration-free
- Offered in 250 ml bottle or in cans of 5 lt or 20 lt



Hellerine lubricant in 284ml plastic bottle.

TYPE	Description	Article-No.
HELLERINE 0.25 LITER	Hellerine assembly aid, 0.25 litre	625-00250
HELLERINE 5 LITER	Hellerine assembly aid, 5 litre	625-05000
HELLERINE 20 LITER	Hellerine assembly aid, 20 litre	625-06000

All dimensions in mm. Subject to technical changes.

The perfect packaging size for every need!



*ShrinKit 321 Universal.*



*HIS-3 BAG available in seven colours and four sizes.*



*SBPE spiral binding is also available in practical 5m lengths.*



*HIS-A - with adhesive liner*



For more information please contact us!



*Highly flexible and with good adhesion levels HelaTape Flex 15 can be used in several applications.*