

Insulation



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Use our flow chart to find the correct heatshrink tubing for your particular application.

Begin your search in the flow chart at the START point. You will be guided through Diagrams 1 to 4 to the target according to your heatshrink tubing requirements. Using the "yes/no" and "either/or" decisions, you will be able to select the correct heatshrink tubing with ease.

Of course, you can always call us whenever you wish on our usual telephone numbers.

Diagram 1

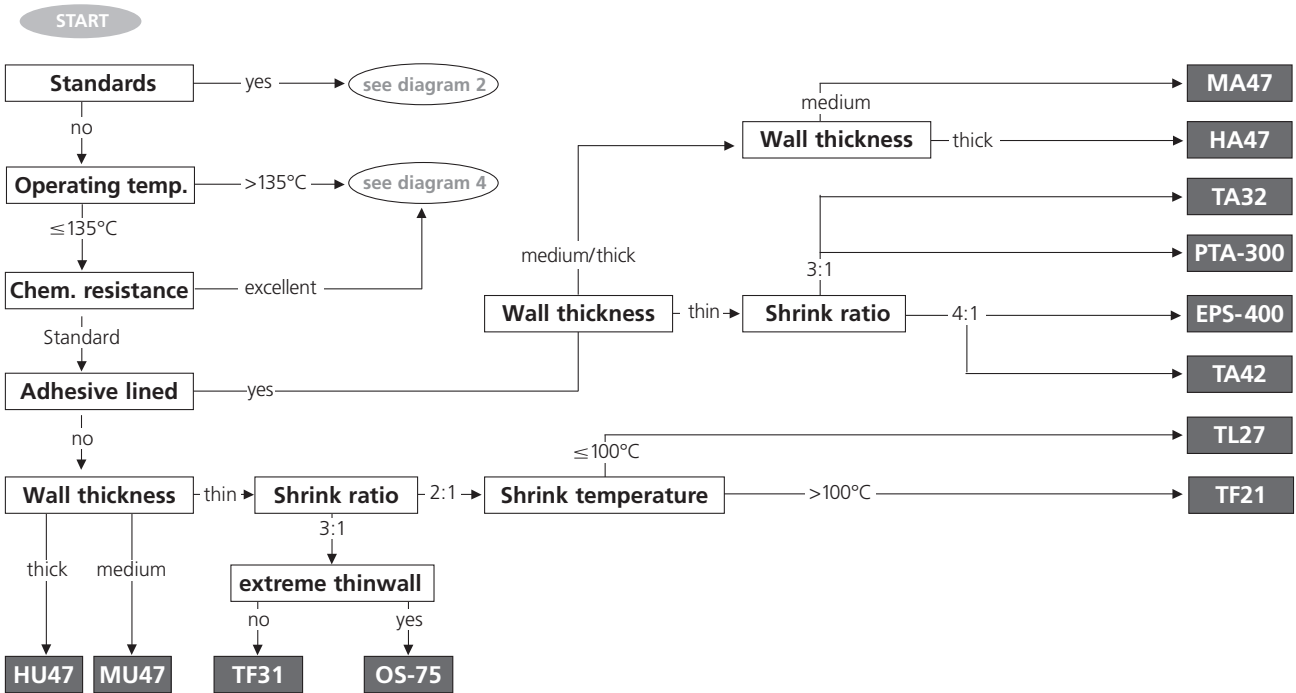


Diagram 2

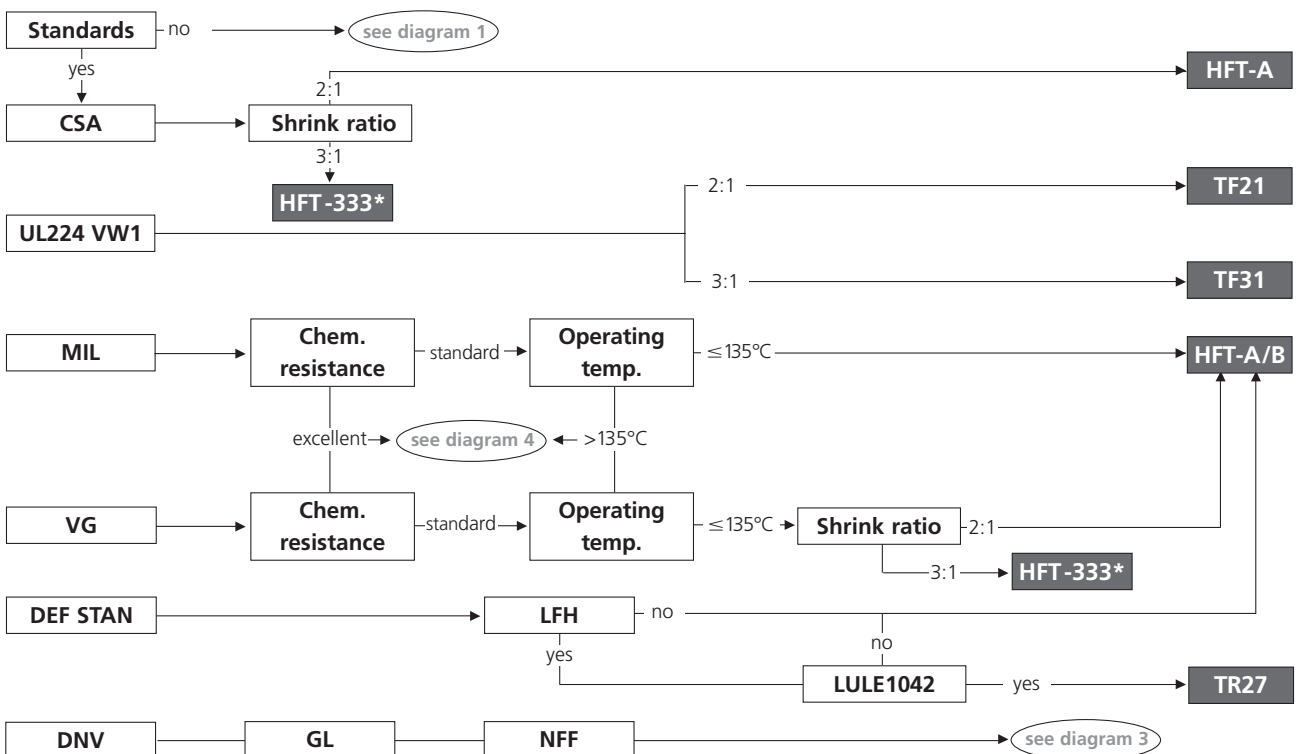


Diagram 3

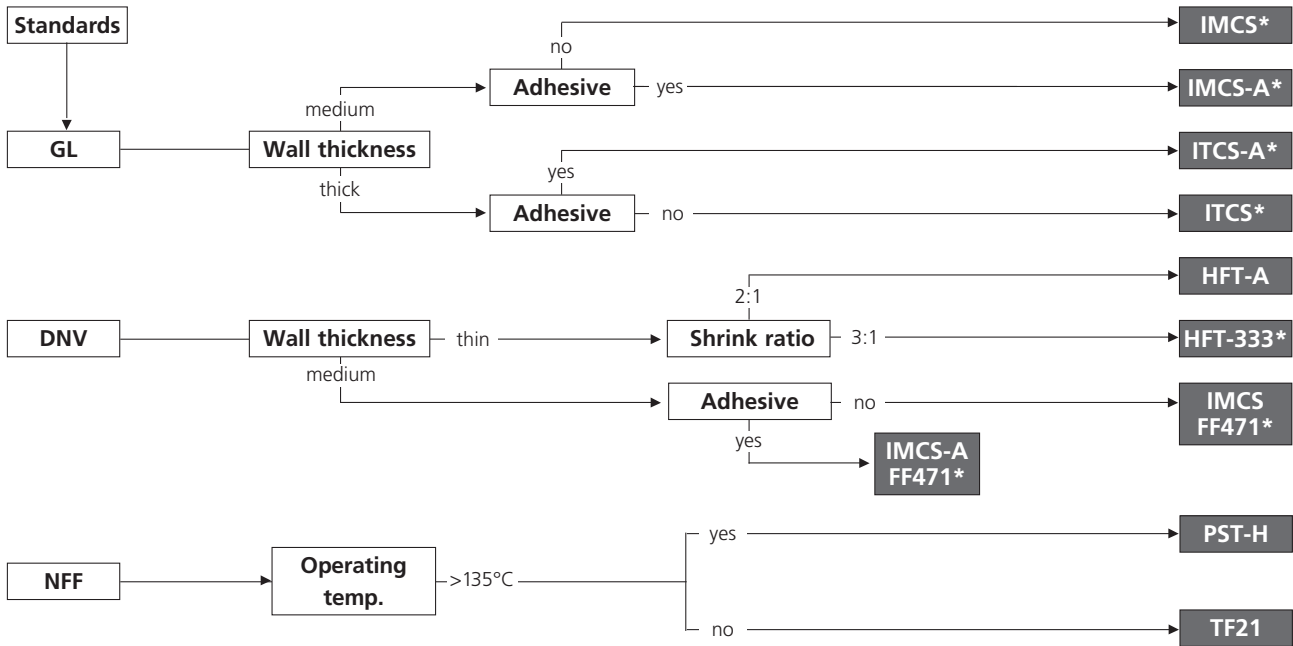
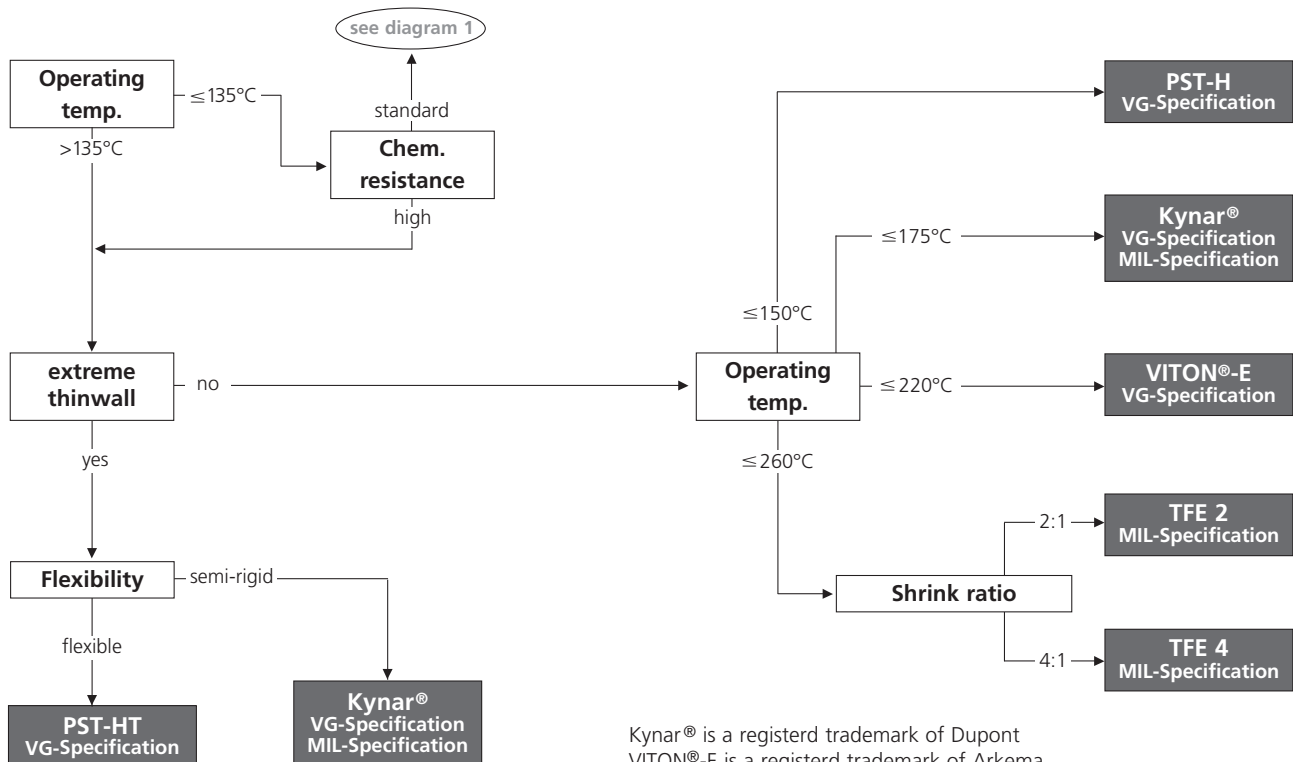


Diagram 4



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 VITON®-E is a registered trademark of Arkema

- suitable
 - of limited suitability
 - ++ very good
 - + good
 - o limited
- These details are only rough guide values.
They should be regarded as a material specification and are no substitute for a suitability test. Please see our datasheets for further details.

Type	Page	Material	Operating Temperature [°C]	Shrink Ratio	Longitudinal change after complete shrinkage [%]
Heatshrink Tubing Kits					
ShrinKit 321 Universal	180	POX	-55 °C to +135 °C	3:1	+/-5% max.
ShrinKit 321-A	181	POX	-55 °C to +110 °C	3:1	+1%/-15% max.
ShrinKit 321 Basic	182	POX	-55 °C to +135 °C	3:1	+/-5% max.
HIS-Pack	185	POX	-55 °C to +135 °C	2:1	-5% max.
HIS-3	183	POX	-55 °C to +125 °C	3:1	-10% max.
HIS-A	183	POX	-55 °C to +110 °C	3:1	-10% max.
TREDUX	187	POX	-55 °C to +125 °C	3:1 from 1.5 / 0.5 mm to 24 / 8 mm, 2:1 from 38.1/19.1 mm to 101.6 / 50.8 mm	+/-5% max.
Heatshrink Tubing PVC					
LVR	192	PVC	-30 °C to +105 °C	2:1	+/-10% max
Heatshrink Tubing, Thin Wall					
HFT-A	193	POX	-55 °C to +135 °C	2:1	-5% max.
HFT-B	196	POX	-55 °C to +135 °C	2:1	-5% max.
TC30	198	POX	-55 °C to +125 °C	3:1	-15% max.
TCN20	197	POX	-55 °C to +125 °C	2:1	+/- 5%
TL27	199	POX	-55 °C to +135 °C	2:1	+5%/-15%
TF21	200	POX	-55 °C to +135 °C	2:1	+/- 5%
TF24	203	POX	-55 °C to +135 °C	2:1	+/-5% max.
TF31	204	POX	-55 °C to +135 °C	3:1	-10% max
Heatshrink Tubing, Thin Dual Wall					
EPS-300	207	POX	-55 °C to +110 °C	3:1	-10% max.
EPS-400	207	POX	-55 °C to +110 °C	4:1	-10% max.
TA32	208	POX	-55 °C to +125 °C	3:1	-15% max.
TA42	208	POX	-55 °C to +125 °C	4:1	-15% max.
Heatshrink Tubing, Medium Wall					
MU47	209	POX	-55 °C to +110 °C	up to 4:1	-10% max
Heatshrink Tubing, Medium Dual Wall					
TREDUX MA47	189	POX	-55 °C to +80 °C	up to 4:1	-10% max
MA47	209	POX	-55 °C to +80 °C	up to 4:1	-10% max.

Technical data					Resistant properties					Possible applications								Applications					
Dielectric strength [kV/mm]	Self-extinguishing	Silicone-free	Copper compatibility (non-corrosive)	Printable	UV light*	Solvents	Fuels	Acids and bases	Harnessmaker	Electronics	Automotive industry	Motor sport	Rail-borne vehicles	Military	Aviation	Ship building	Repair of underground cables	Energy supply	Electrical insulation	Colour marking	Strain relief	Anti-kinking protection	Protection against moisture
20 kV/mm according to ASTM D 2671	Yes	Yes	Yes		+	+	o	+	■	■									■	■		■	
15 kV/mm according to IEC 60684 P2	Yes**	Yes	Yes		+	+	o	+	■	■									■	■		■	■
20 kV/mm according to ASTM D 2671	Yes	Yes	Yes		+	+	o	+	■	■									■	■		■	
25 kV/mm according to IEC 60684 P2	Yes	Yes	Yes		+	+	o	+	■										■	■	■		
25 kV according to ASTM D 876	Yes	Yes	Yes		+	+	o	+	■										■	■	■		
15 kV/mm according to IEC 60684 P2	Yes**	Yes			+	+	o	+	■										■				■
20 kV/mm	Yes	Yes	Yes		+	+	o	+	■										■		■		
15 kV/mm according to IEC 243	Yes	Yes	Yes		+	o	o	o	■										■		■	■	
20 kV/mm according to IEC 60684 P2	Yes	Yes	Yes	Yes	+	+	+	+	■				■	■	■				■	■	■		
20 kV/mm according to IEC 60684 P2		Yes	Yes	Yes	+	+	+	+	■					■	■				■	■	■		
19.7 kV/mm	Yes	Yes	Yes	Yes	+	+	o	+	■		■								■	■	■		
20kV/mm according to ASTM D2671	Yes	Yes	Yes	Yes	+	+	o	+	■		■								■	■	■		
22 kV/mm according to IEC 60684 P2	Yes	Yes	Yes		+	+	o	+	■	■	■								■	■	■		
37 kV/mm	Yes	Yes	Yes		+	+	+	+	■					■	■				■	■	■		
46 kV/mm	Yes	Yes	Yes	Yes	+	+	+	+	■					■	■				■	■	■		
37 kV/mm	Yes	Yes	Yes	Yes	+	+	+	+	■					■	■				■	■	■		
15 kV/mm according to IEC 60684 P2	Yes**				+	+	o	+	■		■			■	■				■		■	■	
15 kV/mm according to IEC 60684 P2	Yes**	Yes	Yes		+	+	o	+	■	■	■								■	■	■		■
15 kV/mm according to IEC 60684 P2	Yes**	Yes	Yes		+	+	o	+	■	■	■								■	■	■		■
15 kV/mm according to IEC 60684 P2	Yes**	Yes	Yes		+	+	o	+	■	■	■								■	■	■		■
20 kV/mm	Yes	Yes	Yes		+	o	o	+									■	■	■	■	■		■
20 kV/mm		Yes	Yes		+	o	o	+									■	■	■	■	■		■
20 kV/mm		Yes	Yes		+	o	o	+									■	■	■	■	■		■

* Only valid for Central European climate.
 ** only outer sleeve

■ suitable

□ of limited suitability

++ very good

+ good

o limited

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Type	Page	Material	Operating Temperature [°C]	Shrink Ratio	Longitudinal change after complete shrinkage [%]
Heatshrink Tubing, Heavy Wall					
HU47	210	POX	-55 °C to +110 °C	up to 3.5:1	-10% max
Heatshrink Tubing, Heavy Dual Wall					
TREDUX HA47	190	POX	-55 °C to +80 °C	up to 3.5:1	-10% max
HA47	210	POX	-55 °C to +80 °C	up to 3.5:1	-10% max.
Heatshrink Tubing for Special Purposes					
PST-H	211	PES	-75 °C to +150 °C	2:1	-10% max.
PST-HT	212	PES	-75 °C to +150 °C	2:1	-10% max.
Viton-E	213	FPMX	-55 °C to +200 °C	2:1	-10% max.
Kynar	214	PVDFX	-55 °C to +175 °C	2:1	-5% max.
TFE2	215	PTFE	-70 °C to +260 °C	2:1	-20% max.
TR27	216	POX	-40 °C to +105 °C	2:1	+5%/-10% max.

Type	Page	Material	Operating Temperature [°C]	Shrink Ratio
Shapes				
Series 100-1300-G	218	POX	-75 °C to 150 °C	up to 3:1
Series 100-1300-GW24	218	PEEX	-75 °C to 150 °C	up to 3:1
Series 100-1300-HW21	218	POX	-55 °C to 105 °C	up to 3:1
Blowmoulded -9	226	POX	-55 °C to 120 °C	up to 3:1
HEK End Caps	231	POX	-55 °C to 70 °C	up to 3:1
HEV Cable Breakout Boots	232	POX	-55 °C to 70 °C	up to 3:1
Adhesive				
Helashrink HMT200A	191	EVA	-55 °C to +105 °C	–
Two-Part Epoxy Adhesive V9500	230	EP	-75 °C to +150 °C	–

■ suitable

□ of limited suitability

++ very good

+ good

o limited

These details are only rough guide values.

They should be regarded as a material specification and are no substitute for a suitability test. Please see our datasheets for further details.

Type	Page	Material	Operating Temperature [°C]
PVC Tubing and Sleeving			
Helvin P	234	PVC	-65 °C to +105 °C, Intermittent +135 °C
Helvin XY	235	PVC	-65 °C to +105 °C, Intermittent +135 °C
Helvin PVCB	236	PVC	-65 °C to +105 °C, Intermittent +135 °C
LFH Tubing and Sleeving			
LFH-tubing LFPT	237	PO	-40 °C to +90 °C, Intermittent +120 °C
Rubber Tubing and Sleeving			
Helsyn rubber tubing H	238	CR	-65 °C to +95 °C, Intermittent 120 °C
Helsyn HS, HT rubber tubing	239	CR	-25 °C to +100 °C
Helsyn PVC-Nitrile rubber tubing NT	240	PVC/NR	-65 °C to +120 °C, Intermittent 150 °C
Helsyn Silicone rubber tubing SLP	241	SI	-65 °C to +180 °C, Intermittent 250 °C
PTFE Tubing and Sleeving			
PTFE tubing FE	242	PTFE	-65 °C to +250 °C, Intermittent +350 °C



Overview of applications for heatshrink tubing

When selecting the correct heatshrink tubing size, it is important to bear in mind the 80:20 rule. The heatshrink 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 heatshrink tube for every cable diameter. The 80:20 rule has of course been taken into account in the table.

Heatshrink tubing with a shrink ratio of 2:1

HIS-Pack; LVR; HFT-A; HFT-B; TL27; TF21; TF24; PST-H; PST-HT; VITON-E®; Kynar®; TFE-2; TR27; TCN20

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

Heatshrink 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 heatshrink tubes: HIS-3; HIS-A; TREDUX; TF31; TF34; TC30; EPS300; TA32; ShrinKit 321 Universal; ShrinKit 321 Basic; ShrinKit 321-A

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

Conversion from imperial to metric

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

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KYNAR® is a registered trademark of Arkema.

The right heatshrink tube

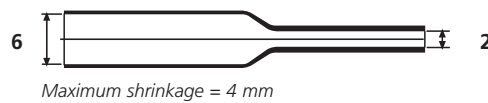
The **80:20 rule** means that a heatshrink tube should shrink by a **maximum of 80%** and a **minimum of 20%**.

For example:

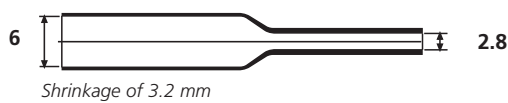
A cable with a diameter of 5 mm is to be wrapped in heatshrink tubing. In theory both sizes 6/2 and 12/4 would be suitable, since the required diameter of 5 mm lies within the shrink range of both tube sizes.

Size 6/2

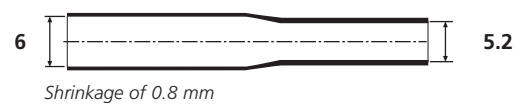
Maximum shrink (100%)



Optimum shrinkage max. (80%)



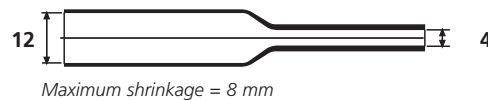
Optimum shrinkage min. (20%)



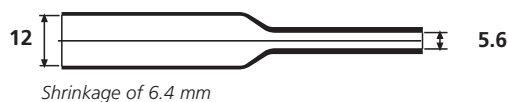
Size 6/2 has a range of application of between 2.8 mm and 5.2 mm and is therefore suitable for the cable diameter of 5 mm.

Size 12/4

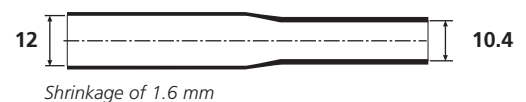
Maximum shrink (100%)



Optimum shrinkage max. (80%)



Optimum shrinkage min. (20%)



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



ShrinkKit 3z1 is a family of three heat shrink tubing assortments in attractive and handy assembly kits. The range consists of ShrinkKit 3z1 Universal, ShrinkKit 3z1 Basic and ShrinkKit 3z1-A (a dual wall tubing). With their ideal shrink ratio of 3:1 these products re-place many differently sized tubing solutions by fitting almost any heat shrink requirements. Choosing the required product is simplicity itself as the tubings are clearly identified by size, length and content printed on every compartment of the assortment boxes.



The right tubing size at hand for any application: ShrinkKit 3z1 Universal, ShrinkKit 3z1-A and ShrinkKit 3z1 Basic.

ShrinkKit 3z1 Universal

Features and Benefits

The attractive and reusable kit is the solution for almost every heat shrink task. The big variety of sizes, colours and lengths offers a wide number of applications: insulation, bend protection or identification. The 3:1 shrink ratio can easily cope with substrates of varying diameter.

Content

This kit contains a range of general purpose tubing lengths clearly sorted in various sizes and colours. Its ideal shrink ratio of 3:1 replaces many differently sized tubings. The application range from 1 mm to 20 mm can be covered with ShrinkKit 3z1 Universal.

New Standard: Shrink Ratio 3:1



Shrink ratio 3:1 for a wider range of application.

Material Data

Material	Polyolefin, cross-linked (POX)
Shrink Ratio	3:1
Longitudinal change after shrinkage	+5%/-10% max.
Minimum Shrink Temperature	+90 °C
Operating Temperature	-55 °C to +135 °C
Insulation Class	B (VDE 0530)
Dielectric Strength	20 kV/mm according to ASTM D 2671
Flammability	self-extinguishing (except for transparent)

Technical Table

Article-No.	Comp.	Supplied Ø D	Recov. Ø d	Length (L)	Colour	Number of tubes
380-03002 ShrinkKit 3z1 Universal	1	6	2	603	Black (BK)	50
	2	12	4	100	Black (BK)	15
	3	24	8	200	Black (BK)	10
	4	6	2	60	Green-Yellow (GNYE)	50
	5	3	1	50	Transparent (CL)	100
	6	3	1	50	Black (BK)	100
	7	12	4	100	Transparent (CL)	15
	8	12	4	100	Red (RD)	15
	9	3	1	50	Red (RD)	100
	10	3	1	40	Blue (BU)	100
	11	3	1	40	Green-Yellow (GNYE)	100
	12	1.5	0.5	40	Black (BK)	75
	12	1.5	0.5	40	Green-Yellow (GNYE)	75
	13	6	2	60	Blue (BU)	50
	14	6	2	60	Red (RD)	50
	15	6	2	60	Transparent (CL)	50
	16	12	4	170	Green-Yellow (GNYE)	10
17	12	4	170	Blue (BU)	10	

All dimensions in mm. Subject to technical changes.



ShrinKit 321-A

Features and Benefits

ShrinKit 321-A is dual wall heat shrink tubing with a 3:1 shrink ratio. The attractive and reusable kit is ideal for assembling and identification. The inner wall melts when heated and is forced into gaps. When the tubing cools down the adhesive forms a seal against the moisture and protects components. The black tubes are mainly used for the protection of connectors and splices, the clear tubing is ideal for the protection of printed label markers. ShrinKit 321-A covers a wide range of applications due to its ideal 3:1 shrink ratio.

When all tubing has been consumed the case can be re-used for storing nails, screws, nuts, fish hooks, et cetera. The size of the compartments can be changed by simply moving the yellow space dividers.

Content

This kit contains a range of general purpose tubing lengths clearly sorted. Four different sizes are included in black and clear.



ShrinKit 321-A: permanent protection of identification solutions.



ShrinKit 321-A.

**New:
With Adhesive**

Material Data	
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	3:1
Longitudinal change after shrinkage	+1%/-15% max.
Minimum Shrink Temperature	+110 °C
Operating Temperature	-55 °C to +110 °C
Dielectric Strength	11,8 kV/mm according to ASTM D 2671
Flammability	self-extinguishing outer wall (black only)

Technical Table						
Article-No.	Comp.	Supplied Ø D	Recov. Ø d	Length (L)	Colour	Number of tubes
380-03003 ShrinKit 321-A	1	24	8	200	Black (BK)	5
	2	12	4	65	Transparent (CL)	15
Pack Cont.	3	6	2	50	Black (BK)	20
	3	6	2	50	Transparent (CL)	20
	4	12	4	65	Black (BK)	15
	5	3	1	50	Black (BK)	50
	5	3	1	50	Transparent (CL)	50
	6	6	2	35	Black (BK)	30
	6	6	2	35	Transparent (CL)	30
	7	24	8	200	Transparent (CL)	5
	8	12	4	100	Black (BK)	15
	9	12	4	100	Black (BK)	15
	10	12	4	100	Transparent (CL)	15
11	3	1	40	Black (BK)	50	
11	3	1	40	Transparent (CL)	50	

All dimensions in mm. Subject to technical changes.



ShrinKit 321 Basic

Features and Benefits

This compact and handy kit is part of the basic toolbox for every assembler. Its ideal shrink ratio of 3:1 replaces many differently sized tubings. An application range from 1 mm to 16 mm can be covered with ShrinKit 321 Basic.

Content

This kit contains a selection of widely used black tubing in seven sizes and different lengths.



ShrinKit 321 Basic.

Material Data

Material	Polyolefin, cross-linked (POX)
Shrink Ratio	3:1
Longitudinal change after shrinkage	+5%/-10% max.
Minimum Shrink Temperature	+90 °C
Operating Temperature	-55 °C to +135 °C
Dielectric Strength	20 kV/mm according to ASTM D 2671
Flammability	Self extinguishing

Technical Table

Article-No.	Comp.	Supplied Ø D	Recov. Ø d	Length (L)	Colour	Number of tubes
380-03001 ShrinKit 321 Basic	1	1.5	0.5	35	Black (BK)	50
	2	6	2	35	Black (BK)	30
Pack Cont.	3	3	1	35	Black (BK)	25
	4	6	2	35	Black (BK)	15
	5	6	2	35	Black (BK)	15
	6	3	1	35	Black (BK)	25
	7	1.5	0.5	35	Black (BK)	50
	8	18	6	80	Black (BK)	5
	8	12	4	80	Black (BK)	5

All dimensions in mm. Subject to technical changes.



HIS is a range of two heat shrink tubing types in handy dispenser boxes. The range consists of HIS-3 and HIS-A (a dual wall tubing) with 3:1 shrink ratios. With their ideal shrink ratio of 3:1 these products replace many differently sized tubing solutions by fitting almost any heat shrink task. The handy dispenser boxes allow for proper storage and the tubing can remain dust-free even after breaking open a package.

HIS-3

Features and Benefits

HIS-3 with 3:1 shrink ratio is the new generation of tubing in dispenser packs fitting highly variable substrate dimensions. Another great benefit of HIS-3 is that only 5 sizes cover the same range of diameters from 1mm up to 20mm in 10 sizes of 2:1 shrink ratio tubing, thus reducing the inventory by half. To complete the range sizes 9/3 and 18/6 are also available.

Application

- General purpose electrical insulation
- Coloured Identification
- Protection against corrosion and mechanical abrasion

HIS-A

Features and Benefits

HIS-A is dual wall tubing with a 3:1 shrink ratio. The inner wall melts when heated and is forced into gaps. When the tubing cools down the adhesive forms a seal against moisture and protects the components. HIS-A is now available in black and clear and comes in 6 sizes covering a wide range of applications due to its 3:1 shrink ratio.

Application

- Forms a seal against moisture
- Protection against corrosion and mechanical abrasion



HIS-3 can fit highly variable substrate dimensions.

Material Data	
Type	HIS-3
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	3:1
Longitudinal change after shrinkage	-10% max.
Minimum Shrink Temperature	+110 °C
Operating Temperature	-55 °C to +125 °C
Dielectric Strength	25 kV according to ASTM D 876
Flammability	ASTM D2671



Material Data	
Type	HIS-A
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	3:1
Longitudinal change after shrinkage	-10% max.
Minimum Shrink Temperature	+120 °C
Operating Temperature	-55 °C to +110 °C
Dielectric Strength	15 kV/mm according to IEC 60684 P2
Flammability	ASTM D2671 (outer layer only)





HIS-3

Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Pack Cont. (m)	Colour
308-30150	HIS-3-1,5/0,5	1.5	0.5	0.50	10	Black (BK)
308-30152	HIS-3-1,5/0,5	1.5	0.5	0.50	10	Red (RD)
308-30153	HIS-3-1,5/0,5	1.5	0.5	0.50	10	Transparent (CL)
308-30156	HIS-3-1,5/0,5	1.5	0.5	0.50	10	Blue (BU)
308-30300	HIS-3-3/1	3.0	1.0	0.60	10	Black (BK)
308-30302	HIS-3-3/1	3.0	1.0	0.60	10	Red (RD)
308-30303	HIS-3-3/1	3.0	1.0	0.60	10	Transparent (CL)
308-30306	HIS-3-3/1	3.0	1.0	0.60	10	Blue (BU)
308-30307	HIS-3-3/1	3.0	1.0	0.60	10	Green-Yellow (GNYE)
308-30600	HIS-3-6/2	6.0	2.0	0.70	5	Black (BK)
308-30602	HIS-3-6/2	6.0	2.0	0.70	5	Red (RD)
308-30603	HIS-3-6/2	6.0	2.0	0.70	5	Transparent (CL)
308-30606	HIS-3-6/2	6.0	2.0	0.70	5	Blue (BU)
308-30607	HIS-3-6/2	6.0	2.0	0.70	5	Green-Yellow (GNYE)
308-30900	HIS-3-9/3	9.0	3.0	0.80	5	Black (BK)
308-30902	HIS-3-9/3	9.0	3.0	0.80	5	Red (RD)
308-30903	HIS-3-9/3	9.0	3.0	0.80	5	Transparent (CL)
308-30906	HIS-3-9/3	9.0	3.0	0.80	5	Blue (BU)
308-30907	HIS-3-9/3	9.0	3.0	0.80	5	Green-Yellow (GNYE)
308-31200	HIS-3-12/4	12.0	4.0	0.85	5	Black (BK)
308-31202	HIS-3-12/4	12.0	4.0	0.85	5	Red (RD)
308-31203	HIS-3-12/4	12.0	4.0	0.85	5	Transparent (CL)
308-31206	HIS-3-12/4	12.0	4.0	0.85	5	Blue (BU)
308-31207	HIS-3-12/4	12.0	4.0	0.85	5	Green-Yellow (GNYE)
308-31800	HIS-3-18/6	18.0	6.0	1.00	4	Black (BK)
308-31802	HIS-3-18/6	18.0	6.0	1.00	4	Red (RD)
308-31803	HIS-3-18/6	18.0	6.0	1.00	4	Transparent (CL)
308-31806	HIS-3-18/6	18.0	6.0	1.00	4	Blue (BU)
308-31807	HIS-3-18/6	18.0	6.0	1.00	4	Green-Yellow (GNYE)
308-32400	HIS-3-24/8	24.0	8.0	1.20	3	Black (BK)
308-32402	HIS-3-24/8	24.0	8.0	1.20	3	Red (RD)
308-32403	HIS-3-24/8	24.0	8.0	1.20	3	Transparent (CL)
308-32406	HIS-3-24/8	24.0	8.0	1.20	3	Blue (BU)
308-32407	HIS-3-24/8	24.0	8.0	1.20	3	Green-Yellow (GNYE)

All dimensions in mm. Subject to technical changes.

HIS-A

Technical Table

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

All dimensions in mm. Subject to technical changes.



HIS-Service Station

This sturdy Service Station contains up to 5 dispensers. It can be put on a bench or mounted to a wall. A special cutter is included and makes it easy to cut the tubing length as desired

Technical Table	
Article-No.	Description
365-30100	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
365-20000	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 and one RiteOn Starter Pack
300-30000	HIS-Service Station incl. cutter, empty



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

HIS-Pack

Features and Benefits

- E-beam Crosslinked Polyolefin, thin-wall and flexible
- Shrink ratio 2:1
- Available in colours: black, red, blue, transparent and yellow/green.
- 10 sizes from 1.2 mm to 25.4 mm
- Handy dispenser box including table with full range of applications

Application

- General purpose electrical insulation
- Protection against corrosion and mechanical abrasion



HIS-A.

Material Data	
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	2:1
Longitudinal change after shrinkage	-5% max.
Minimum Shrink Temperature	+120 °C
Operating Temperature	-55 °C to +135 °C
Dielectric Strength	25 kV/mm according to IEC 60684 P2
Flammability	ASTM D2671





HIS-Pack

Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Pack Cont. (m)	Colour
300-30120	HIS-Pack 1,2/0,6	1.2	0.6	0.40	10	Black (BK)
300-30122	HIS-Pack 1,2/0,6	1.2	0.6	0.40	10	Red (RD)
300-30123	HIS-Pack 1,2/0,6	1.2	0.6	0.40	10	Transparent (CL)
300-30126	HIS-Pack 1,2/0,6	1.2	0.6	0.40	10	Blue (BU)
300-30160	HIS-Pack 1,6/0,8	1.6	0.8	0.40	10	Black (BK)
300-30162	HIS-Pack 1,6/0,8	1.6	0.8	0.40	10	Red (RD)
300-30163	HIS-Pack 1,6/0,8	1.6	0.8	0.40	10	Transparent (CL)
300-30166	HIS-Pack 1,6/0,8	1.6	0.8	0.40	10	Blue (BU)
300-30240	HIS-Pack 2,4/1,2	2.4	1.2	0.50	10	Black (BK)
300-30242	HIS-Pack 2,4/1,2	2.4	1.2	0.50	10	Red (RD)
300-30243	HIS-Pack 2,4/1,2	2.4	1.2	0.50	10	Transparent (CL)
300-30246	HIS-Pack 2,4/1,2	2.4	1.2	0.50	10	Blue (BU)
300-30320	HIS-Pack 3,2/1,6	3.2	1.6	0.50	10	Black (BK)
300-30322	HIS-Pack 3,2/1,6	3.2	1.6	0.50	10	Red (RD)
300-30323	HIS-Pack 3,2/1,6	3.2	1.6	0.50	10	Transparent (CL)
300-30326	HIS-Pack 3,2/1,6	3.2	1.6	0.50	10	Blue (BU)
300-30327	HIS-Pack 3,2/1,6	3.2	1.6	0.50	10	Green-Yellow (GNYE)
300-30480	HIS-Pack 4,8/2,4	4.8	2.4	0.50	10	Black (BK)
300-30482	HIS-Pack 4,8/2,4	4.8	2.4	0.50	10	Red (RD)
300-30483	HIS-Pack 4,8/2,4	4.8	2.4	0.50	10	Transparent (CL)
300-30486	HIS-Pack 4,8/2,4	4.8	2.4	0.50	10	Blue (BU)
300-30487	HIS-Pack 4,8/2,4	4.8	2.4	0.50	10	Green-Yellow (GNYE)
300-30640	HIS-Pack 6,4/3,2	6.4	3.2	0.60	5	Black (BK)
300-30642	HIS-Pack 6,4/3,2	6.4	3.2	0.60	5	Red (RD)
300-30643	HIS-Pack 6,4/3,2	6.4	3.2	0.60	5	Transparent (CL)
300-30646	HIS-Pack 6,4/3,2	6.4	3.2	0.60	5	Blue (BU)
300-30647	HIS-Pack 6,4/3,2	6.4	3.2	0.60	5	Green-Yellow (GNYE)
300-30950	HIS-Pack 9,5/4,7	9.5	4.7	0.60	5	Black (BK)
300-30952	HIS-Pack 9,5/4,7	9.5	4.7	0.60	5	Red (RD)
300-30953	HIS-Pack 9,5/4,7	9.5	4.7	0.60	5	Transparent (CL)
300-30956	HIS-Pack 9,5/4,7	9.5	4.7	0.60	5	Blue (BU)
300-30957	HIS-Pack 9,5/4,7	9.5	4.7	0.60	5	Green-Yellow (GNYE)
300-31270	HIS-Pack 12,7/6,4	12.7	6.4	0.60	5	Black (BK)
300-31272	HIS-Pack 12,7/6,4	12.7	6.4	0.60	5	Red (RD)
300-31273	HIS-Pack 12,7/6,4	12.7	6.4	0.60	5	Transparent (CL)
300-31276	HIS-Pack 12,7/6,4	12.7	6.4	0.60	5	Blue (BU)
300-31277	HIS-Pack 12,7/6,4	12.7	6.4	0.60	5	Green-Yellow (GNYE)
300-31900	HIS-Pack 19,1/9,5	19.1	9.5	0.80	5	Black (BK)
300-31902	HIS-Pack 19,1/9,5	19.1	9.5	0.80	5	Red (RD)
300-31903	HIS-Pack 19,1/9,5	19.1	9.5	0.80	5	Transparent (CL)
300-31906	HIS-Pack 19,1/9,5	19.1	9.5	0.80	5	Blue (BU)
300-31907	HIS-Pack 19,1/9,5	19.1	9.5	0.80	5	Green-Yellow (GNYE)
300-32540	HIS-Pack 25,4/12,7	25.4	12.7	0.90	5	Black (BK)
300-32542	HIS-Pack 25,4/12,7	25.4	12.7	0.90	5	Red (RD)
300-32543	HIS-Pack 25,4/12,7	25.4	12.7	0.90	5	Transparent (CL)
300-32546	HIS-Pack 25,4/12,7	25.4	12.7	0.90	5	Blue (BU)
300-32547	HIS-Pack 25,4/12,7	25.4	12.7	0.90	5	Green-Yellow (GNYE)

All dimensions in mm. Subject to technical changes.



TREDUX display

Features and Benefits

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 1m-length. All TREDUX tubing is offered in practical 1meter lengths. Securely packed in display boxes, they can be removed individually for occasional use in smaller quantities.

The shrink ratio 3:1 conforms very well to highly variable substrate dimensions and replaces many differently sized tubing solutions by fitting almost any heat shrink task. This reduces stock cost, and saves space.

All tubing are labeled with an EAN barcode. This allows for a fast and error-free billing as well as the complete registration of the stock.

The carton can be opened easily at the pre-perforated top and provides a clear presentation of the heatshrink range. Thus, the tubing is presented in a clear and attractive way. The display allows quick and individual selection of type, colour and size of the requested tubing.



The TREDUX display.



The TREDUX Mixpack.

Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Pack Cont. (piece/1m)	Colour
Proposed content for a TREDUX display						
319-00150	TREDUX 1,5/0,5	1.5	0.5	0.50	20	Black (BK)
319-00300	TREDUX 3/1	3.0	1.0	0.60	20	Black (BK)
319-00300	TREDUX 3/1	3.0	1.0	0.60	20	Black (BK)
319-00600	TREDUX 6/2	6.0	2.0	0.70	15	Black (BK)
319-00600	TREDUX 6/2	6.0	2.0	0.70	15	Black (BK)
319-01200	TREDUX 12/4	12.0	4.0	0.85	10	Black (BK)
319-01200	TREDUX 12/4	12.0	4.0	0.85	10	Black (BK)
319-01200	TREDUX 12/4	12.0	4.0	0.85	10	Black (BK)
319-01200	TREDUX 12/4	12.0	4.0	0.85	10	Black (BK)
319-02400	TREDUX 24/8	24.0	8.0	1.20	5	Black (BK)
319-00307	TREDUX 3/1-GNYE	3.0	1.0	0.60	20	Green-Yellow (GNYE)
319-00607	TREDUX 6/2-GNYE	6.0	2.0	0.70	15	Green-Yellow (GNYE)
319-01207	TREDUX 12/4-GNYE	12.0	4.0	0.85	10	Green-Yellow (GNYE)
323-50120	TREDUX MA47 - 12/3	12.0	3.0	2.00	6	Black (BK)
323-50120	TREDUX MA47 - 12/3	12.0	3.0	2.00	6	Black (BK)
323-50190	TREDUX MA47 - 19/6	19.0	6.0	2.50	10	Black (BK)
323-50300	TREDUX MA47 - 30/8	30.0	8.0	2.50	6	Black (BK)
323-50300	TREDUX MA47 - 30/8	30.0	8.0	2.50	6	Black (BK)
323-50400	TREDUX MA47 - 40/12	40.0	12.0	2.50	4	Black (BK)
321-50130	TREDUX HA47 - 13/4	13.0	4.0	2.40	6	Black (BK)
321-50130	TREDUX HA47 - 13/4	13.0	4.0	2.40	6	Black (BK)
321-50190	TREDUX HA47 - 19/6	19.0	6.0	2.70	10	Black (BK)
321-50330	TREDUX HA47 - 33/8	33.0	8.0	3.20	5	Black (BK)
321-50450	TREDUX HA47 - 45/12	45.0	12.0	4.10	4	Black (BK)
319-30000	TREDUX-Display	-	-	-	1	Blue (BU)

All dimensions in mm. Subject to technical changes.



TREDUX thin wall

Features and Benefits

TREDUX is a thin wall, flexible tubing with a shrink ratio of 3:1 and is made from cross-linked polyolefin. Available in 1 m lengths, 9 sizes from 1.5 mm to 101.6 mm and colours black and yellow/green. All 1 m lengths are delivered in a display carton.

Application

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



TREDUX shrinks a maximum of 3:1.

Material Data	
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	3:1 from 1.5 / 0.5 mm to 24 / 8 mm, 2:1 from 38.1/19.1 mm to 101.6 / 50.8 mm
Minimum Shrink Temperature	+90 °C
Operating Temperature	-55 °C to +125 °C
Dielectric Strength	20 kV/mm
Flammability	ASTM D2671



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Pack Cont. (piece/1m)	Colour
319-00150	TREDUX 1,5/0,5	1.5	0.5	0.50	20	Black (BK)
319-00157	TREDUX 1,5/0,5-GNYE	1.5	0.5	0.50	20	Green-Yellow (GNYE)
319-00300	TREDUX 3/1	3.0	1.0	0.60	20	Black (BK)
319-00307	TREDUX 3/1-GNYE	3.0	1.0	0.60	20	Green-Yellow (GNYE)
319-00600	TREDUX 6/2	6.0	2.0	0.70	15	Black (BK)
319-00607	TREDUX 6/2-GNYE	6.0	2.0	0.70	15	Green-Yellow (GNYE)
319-01200	TREDUX 12/4	12.0	4.0	0.85	10	Black (BK)
319-01207	TREDUX 12/4-GNYE	12.0	4.0	0.85	10	Green-Yellow (GNYE)
319-02400	TREDUX 24/8	24.0	8.0	1.20	5	Black (BK)
319-02407	TREDUX 24/8-GNYE	24.0	8.0	1.20	5	Green-Yellow (GNYE)
319-03800	TREDUX 38,1/19,1	38.1	19.1	1.02	6	Black (BK)
319-03807	TREDUX 38,1/19,1-GNYE	38.1	19.1	1.02	6	Green-Yellow (GNYE)
319-05100	TREDUX 50,8/25,4	50.8	25.4	1.14	6	Black (BK)
319-07600	TREDUX 76,2/38,1	76.2	38.1	1.27	3	Black (BK)
319-10200	TREDUX 101,6/50,8	101.6	50.8	1.40	2	Black (BK)

All dimensions in mm. Subject to technical changes.



TREDUX MA47, Medium wall adhesive lined

Features and Benefits

TREDUX MA47 medium wall heatshrink tubing with a shrink ratio of 4:1 is resistant to solvents, acids and alkaline solutions and offers especially good mechanical strength. The thermoplastic adhesive liner provides good moisture sealing and weathering protection.

TREDUX tubing are cut to lengths of 1 meter. Securely packed in display boxes, they can be removed individually for occasional use in smaller quantities.

Application

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



Medium wall tubing MA47 with shrink ratio 4:1 and adhesive liner.

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	up to 4:1
Minimum Shrink Temperature	+120 °C
Operating Temperature	-55 °C to +80 °C
Dielectric Strength	20 kV/mm
Longitudinal change after shrinkage	-10% max



Technical Table

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

All dimensions in mm. Subject to technical changes.



TREDUX HA47, Thick wall adhesive lined

Features and Benefits

TREDUX HA47 is a thick walled polyolefin adhesive lined tubing for low and medium voltage power applications. All tubings are cut to lengths of 1 meter. Securely packed in a display carton, they can be removed individually for occasional use in smaller quantities.

Application

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



TREDUX HA47 – application below ground.

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	up to 3.5:1
Minimum Shrink Temperature	+120 °C
Operating Temperature	-55 °C to +80 °C
Dielectric Strength	20 kV/mm
Longitudinal change after shrinkage	-10% max



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Pack Cont. (piece/1m)
321-50130	TREDUX HA47 - 13/4	13.0	4.0	2.40	6
321-50190	TREDUX HA47 - 19/6	19.0	6.0	2.70	10
321-50330	TREDUX HA47 - 33/8	33.0	8.0	3.20	5
321-50450	TREDUX HA47 - 45/12	45.0	12.0	4.10	4
321-50510	TREDUX HA47 - 51/16	51.0	16.0	4.10	2
321-50680	TREDUX HA47 - 68/22	68.0	22.0	4.10	1
321-50850	TREDUX HA47 - 85/25	85.0	25.0	4.30	1

All dimensions in mm. Subject to technical changes.



Helashrink HMT200A

Features and Benefits

The hot melt tape flows when heated and provides permanent air and water tight seals.

Application

Designed for use with heat shrink sleeving and mouldings.

Application Method

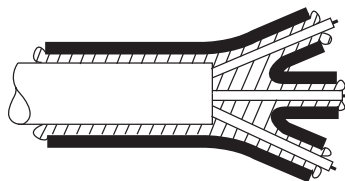
1. Clean and preheat the part to be protected.
2. Wrap the tape around the part and overlap.
3. Put the tubing or heatshrinkable shape over the tape and shrink down.



HMT200A-tape.



Adhesive tape HMT200A for sealing against humidity.



HMT200A

Material Data	
Material	Ethylenevinylacetate (EVA)
Colour	Transparent (CL)
Operating Temperature	-50 °C to +105 °C
Melting Point	Starting from +95 °C



Technical Table				
Article-No.	Type	Thickness (T)	Width (W)	Reel Length (m)
354-02259	HMT200A	0.25	25.0	50

All dimensions in mm. Subject to technical changes.



Isolvin® LVR

Features and Benefits

LVR is a self extinguishing PVC heat shrink tubing. It has good dielectric strength, good chemical resistance and provides mechanical protection.

Application

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



LVR used for mechanical protection.

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



LVR

Technical Table					
Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
344-10100	LVR 1.2/0.6	1.2	0.6	0.40	500
344-10201	LVR 1.6/0.8	1.6	0.8	0.40	500
344-10301	LVR 2.4/1.2	2.4	1.2	0.40	500
344-10401	LVR 3.2/1.6	3.2	1.6	0.40	500
344-10501	LVR 4.8/2.4	4.8	2.4	0.50	500
344-10601	LVR 6.4/3.2	6.4	3.2	0.60	250
344-10802	LVR 9.5/4.8	9.5	4.8	0.60	150
344-10902	LVR 12.7/6.4	12.7	6.4	0.70	100
344-11002	LVR 15.9/7.9	15.9	7.9	0.80	50
344-11100	LVR 19.0/9.5	19.0	9.5	0.80	50
344-11201	LVR 25.4/12.7	25.4	12.7	1.00	50

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Insultite HFT-A, HFT-B

Features and Benefits

This flexible heat shrink tubing has many excellent properties including fast shrinking, easy handling, good mechanical strength and resistance against chemicals and solvents. It is UL and CSA approved, easy to print on and available in a wide range of colours and internal diameters up to 4 inches (101.6mm).

HFT-A is coloured and self extinguishing.

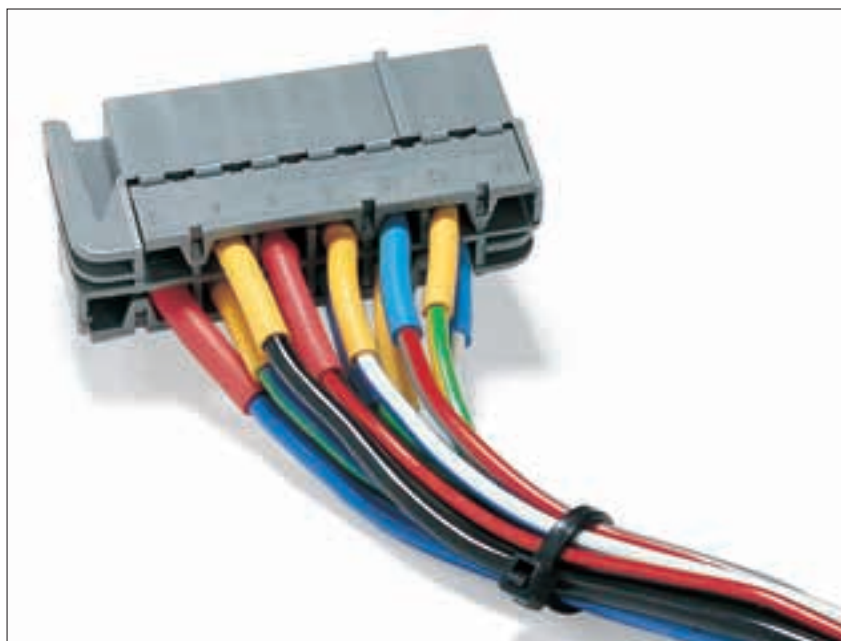
HFT-B is transparent and halogen free.



Application

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.



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

Material Data	
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	2:1
Longitudinal change after shrinkage	-5% max.
Minimum Shrink Temperature	+100 °C
Operating Temperature	-55 °C to +135 °C
Insulation Class	B (VDE 0530)
Dielectric Strength	20 kV/mm according to IEC 60684 P2
Flammability	Self extinguishing
Specification	DEF STAN 59-97/3, SAE - AMS - DTL-23053 / 5C, CSA, NFF 00-608, UL224, DNV, VG 95343



Technical Table			
Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.
HFT-A 1.2/0.6	1.2	0.6	0.40
HFT-A 1.6/0.8	1.6	0.8	0.40
HFT-A 2.4/1.2	2.4	1.2	0.50
HFT-A 3.2/1.6	3.2	1.6	0.50
HFT-A 4.8/2.4	4.8	2.4	0.50
HFT-A 6.4/3.2	6.4	3.2	0.60
HFT-A 9.5/4.8	9.5	4.8	0.60
HFT-A 12.7/6.4	12.7	6.4	0.60
HFT-A 19.0/9.5	19.0	9.5	0.80
HFT-A 25.4/12.7	25.4	12.7	0.90
HFT-A 38.0/19.0	38.0	19.0	1.00
HFT-A 50.8/25.4	50.8	25.4	1.10
HFT-A 76.0/38.0	76.0	38.0	1.30
HFT-A 101.6/50.8	101.6	50.8	1.40

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



HFT-A

Technical Table

Article-No.	Type	Designation as per VG-Norm	Colour	Reel Length (m)
305-01200	HFT-A 1.2/0.6	VG 95343 T05 A 001A	Black (BK)	400
305-01202	HFT-A 1.2/0.6	VG 95343 T05 A 001 C	Red (RD)	100
305-01204	HFT-A 1.2/0.6	VG 95343 T05 A 001 E	Yellow (YE)	100
305-01206	HFT-A 1.2/0.6	VG 95343 T05 A 001 G	Blue (BU)	100
305-01209	HFT-A 1.2/0.6	VG 95343 T05 A 001 L	White (WH)	100
305-01600	HFT-A 1.6/0.8	VG 95343 T05 A 002 A	Black (BK)	400
305-01602	HFT-A 1.6/0.8	VG 95343 T05 A 002 C	Red (RD)	100
305-01604	HFT-A 1.6/0.8	VG 95343 T05 A 002 E	Yellow (YE)	100
305-01606	HFT-A 1.6/0.8	VG 95343 T05 A 002 G	Blue (BU)	100
305-01609	HFT-A 1.6/0.8	VG 95343 T05 A 002 L	White (WH)	100
305-02400	HFT-A 2.4/1.2	VG 95343 T05 A 003 A	Black (BK)	400
305-02402	HFT-A 2.4/1.2	VG 95343 T05 A 003 C	Red (RD)	100
305-02404	HFT-A 2.4/1.2	VG 95343 T05 A 003 E	Yellow (YE)	100
305-02406	HFT-A 2.4/1.2	VG 95343 T05 A 003 G	Blue (BU)	100
305-02409	HFT-A 2.4/1.2	VG 95343 T05 A 003 L	White (WH)	100
305-03200	HFT-A 3.2/1.6	VG 95343 T05 A 004 A	Black (BK)	400
305-03202	HFT-A 3.2/1.6	VG 95343 T05 A 004 C	Red (RD)	100
305-03204	HFT-A 3.2/1.6	VG 95343 T05 A 004 E	Yellow (YE)	100
305-03206	HFT-A 3.2/1.6	VG 95343 T05 A 004 G	Blue (BU)	100
305-03209	HFT-A 3.2/1.6	VG 95343 T05 A 004 L	White (WH)	100
305-03245	HFT-A 3.2/1.6	VG 95343 T05 A 004 N	Green-Yellow (GNYE)	100
305-04800	HFT-A 4.8/2.4	VG 95343 T05 A 005 A	Black (BK)	300
305-04802	HFT-A 4.8/2.4	VG 95343 T05 A 005 C	Red (RD)	75
305-04804	HFT-A 4.8/2.4	VG 95343 T05 A 005 E	Yellow (YE)	75
305-04806	HFT-A 4.8/2.4	VG 95343 T05 A 005 G	Blue (BU)	75
305-04809	HFT-A 4.8/2.4	VG 95343 T05 A 005 L	White (WH)	75
305-04845	HFT-A 4.8/2.4	VG 95343 T05 A 005 N	Green-Yellow (GNYE)	75
305-06400	HFT-A 6.4/3.2	VG 95343 T05 A 006 A	Black (BK)	300
305-06402	HFT-A 6.4/3.2	VG 95343 T05 A 006 C	Red (RD)	75
305-06404	HFT-A 6.4/3.2	VG 95343 T05 A 006 E	Yellow (YE)	75
305-06406	HFT-A 6.4/3.2	VG 95343 T05 A 006 G	Blue (BU)	75
305-06409	HFT-A 6.4/3.2	VG 95343 T05 A 006 L	White (WH)	75
305-06445	HFT-A 6.4/3.2	VG 95343 T05 A 006 N	Green-Yellow (GNYE)	75
305-09500	HFT-A 9.5/4.8	VG 95343 T05 A007 A	Black (BK)	150
305-09502	HFT-A 9.5/4.8	VG 95343 T05 A007 C	Red (RD)	50
305-09504	HFT-A 9.5/4.8	VG 95343 T05 A007 E	Yellow (YE)	50
305-09506	HFT-A 9.5/4.8	VG 95343 T05 A007 G	Blue (BU)	50
305-09509	HFT-A 9.5/4.8	VG 95343 T05 A007 L	White (WH)	50
305-09545	HFT-A 9.5/4.8	VG 95343 T05 A007 N	Green-Yellow (GNYE)	50
305-12700	HFT-A 12.7/6.4	VG 95343 T05 A 008 A	Black (BK)	100
305-12702	HFT-A 12.7/6.4	VG 95343 T05 A 008 C	Red (RD)	50
305-12704	HFT-A 12.7/6.4	VG 95343 T05 A 008 E	Yellow (YE)	50
305-12706	HFT-A 12.7/6.4	VG 95343 T05 A 008 G	Blue (BU)	50
305-12709	HFT-A 12.7/6.4	VG 95343 T05 A 008 L	White (WH)	50
305-12745	HFT-A 12.7/6.4	VG 95343 T05 A 008 N	Green-Yellow (GNYE)	50



HFT-A

Technical Table

Article-No.	Type	Designation as per VG-Norm	Colour	Reel Length (m)
305-19000	HFT-A 19.0/9.5	VG 95343 T05 A 009 A	Black (BK)	50
305-19002	HFT-A 19.0/9.5	VG 95343 T05 A 009 C	Red (RD)	25
305-19004	HFT-A 19.0/9.5	VG 95343 T05 A 009 E	Yellow (YE)	25
305-19006	HFT-A 19.0/9.5	VG 95343 T05 A 009 G	Blue (BU)	25
305-19009	HFT-A 19.0/9.5	VG 95343 T05 A 009 L	White (WH)	25
305-19045	HFT-A 19.0/9.5	VG 95343 T05 A 009 N	Green-Yellow (GNYE)	25
305-25400	HFT-A 25.4/12.7	VG 95343 T05 A 010 A	Black (BK)	25
305-25402	HFT-A 25.4/12.7	VG 95343 T05 A 010 C	Red (RD)	25
305-25404	HFT-A 25.4/12.7	VG 95343 T05 A 010 E	Yellow (YE)	25
305-25406	HFT-A 25.4/12.7	VG 95343 T05 A 010 G	Blue (BU)	25
305-25409	HFT-A 25.4/12.7	VG 95343 T05 A 010 L	White (WH)	25
305-25445	HFT-A 25.4/12.7	VG 95343 T05 A 010 N	Green-Yellow (GNYE)	25
305-38100	HFT-A 38.0/19.0	VG 95343 T05 A 011 A	Black (BK)	50
305-38102	HFT-A 38.0/19.0	VG 95343 T05 A 011 C	Red (RD)	50
305-38104	HFT-A 38.0/19.0	VG 95343 T05 A 011 E	Yellow (YE)	50
305-38106	HFT-A 38.0/19.0	VG 95343 T05 A 011 G	Blue (BU)	50
305-38109	HFT-A 38.0/19.0	VG 95343 T05 A 011 L	White (WH)	50
305-38145	HFT-A 38.0/19.0	VG 95343 T05 A 011 N	Green-Yellow (GNYE)	50
305-50800	HFT-A 50.8/25.4	VG 95343 T05 A 012 A	Black (BK)	35
305-50802	HFT-A 50.8/25.4	VG 95343 T05 A 012 C	Red (RD)	35
305-50804	HFT-A 50.8/25.4	VG 95343 T05 A 012 E	Yellow (YE)	35
305-50806	HFT-A 50.8/25.4	VG 95343 T05 A 012 G	Blue (BU)	35
305-50809	HFT-A 50.8/25.4	VG 95343 T05 A 012 L	White (WH)	35
305-76200	HFT-A 76.0/38.0	VG 95343 T05 A 013 A	Black (BK)	25
305-76202	HFT-A 76.0/38.0	VG 95343 T05 A 013 C	Red (RD)	25
305-76204	HFT-A 76.0/38.0	VG 95343 T05 A 013 E	Yellow (YE)	25
305-76206	HFT-A 76.0/38.0	VG 95343 T05 A 013 G	Blue (BU)	25
305-76209	HFT-A 76.0/38.0	VG 95343 T05 A 013 L	White (WH)	25
305-91600	HFT-A 101.6/50.8	VG 95343 T05 A 014 A	Black (BK)	25
305-91602	HFT-A 101.6/50.8	VG 95343 T05 A 014 C	Red (RD)	25
305-91604	HFT-A 101.6/50.8	VG 95343 T05 A 014 E	Yellow (YE)	25
305-91606	HFT-A 101.6/50.8	VG 95343 T05 A 014 G	Blue (BU)	25
305-91609	HFT-A 101.6/50.8	VG 95343 T05 A014 L	White (WH)	25



HFT-B



HFT-B transparent tubing is ideal for protecting cable markers.

Material Data	
Material	Polyolefin, cross-linked (POX)
Colour	Transparent (CL)
Shrink Ratio	2:1
Longitudinal change after shrinkage	-5% max.
Minimum Shrink Temperature	+100 °C
Operating Temperature	-55 °C to +135 °C
Insulation Class	B (VDE 0530)
Dielectric Strength Specification	20 kV/mm according to IEC 60684 P2 SAE - AMS - DTL-23053 / 5C, MIL-DTL 23053/5C, DEF STAN 59-97/3, VG 95343



Technical Table

Article-No.	Type	Designation as per VG-Norm	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
305-01219	HFT-B 1.2/0.6	VG 95343 T05 B 001 M	1.2	0.6	0.40	100
305-01619	HFT-B 1.6/0.8	VG 95343 T05 B 002 M	1.6	0.8	0.40	100
305-91619	HFT-B 101.6/50.8	VG 95343 T05 B 014 M	101.6	50.8	1.40	25
305-12719	HFT-B 12.7/6.4	VG 95343 T05 B 008 M	12.7	6.4	0.60	50
305-19019	HFT-B 19.0/9.5	VG 95343 T05 B 009 M	19.0	9.5	0.80	25
305-02419	HFT-B 2.4/1.2	VG 95343 T05 B 003 M	2.4	1.2	0.50	100
305-25419	HFT-B 25.4/12.7	VG 95343 T05 B 010 M	25.4	12.7	0.90	25
305-03219	HFT-B 3.2/1.6	VG 95343 T05 B 004 M	3.2	1.6	0.50	100
305-38119	HFT-B 38.0/19.0	VG 95343 T05 B 011 M	38.0	19.0	1.00	50
305-04819	HFT-B 4.8/2.4	VG 95343 T05 B 005 M	4.8	2.4	0.50	75
305-50819	HFT-B 50.8/25.4	VG 95343 T05 B 012 M	50.8	25.4	1.10	35
305-06419	HFT-B 6.4/3.2	VG 95343 T05 B 006 M	6.4	3.2	0.60	75
305-76219	HFT-B 76.0/38.0	VG 95343 T05 B 013 M	1.3	38.0	1.30	25
305-09519	HFT-B 9.5/4.8	VG 95343 T05 B 007 M	9.5	4.8	0.60	50

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals!
For Product Specific Approvals please refer to the Appendix.



TCN20

Features and Benefits

TCN20 is a general purpose, flame-retardant polyolefin tubing with good resistance to common fluids and solvents. This flexible, 2:1 shrink ratio tubing has an excellent physical and electrical performance. The low shrink temperature and good mechanical strength means this tubing is widely used in the electrical, electronics and automotive industries.



Heat shrink tubing TCN20.

Application

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

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	2:1
Longitudinal change after shrinkage	+/- 5%
Minimum Shrink Temperature	+100 °C
Operating Temperature	-55 °C to +125 °C
Dielectric Strength	20kV/mm according to ASTM D2671
Flammability	Self extinguishing
Specification	UL224



TCN20

Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
300-73010	TCN20 1,2/0,6	1.2	0.6	0.30	300
300-73020	TCN20 1,6/0,8	1.6	0.8	0.35	300
300-73030	TCN20 2,4/1,2	2.4	1.2	0.45	300
300-73040	TCN20 3,2/1,6	3.2	1.6	0.45	300
300-73050	TCN20 4,8/2,4	4.8	2.4	0.50	300
300-73060	TCN20 6,4/3,2	6.4	3.2	0.55	300
300-73070	TCN20 9,5/4,8	9.5	4.7	0.55	150
300-73080	TCN20 12,7/6,4	12.7	6.4	0.65	100
300-73090	TCN20 19,1/9,5	19.1	9.5	0.80	60
300-73100	TCN20 25,4/12,7	25.4	12.7	0.90	60
300-73110	TCN20 38,1/19,1	38.0	19.0	1.02	30
300-73120	TCN20 50,8/25,4	50.8	25.4	1.15	30

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



TC30

TC30 is a general purpose polyolefin thin-wall tubing. It can cover components with highly variable diameters due to its high shrink ratio (3:1). It is suitable for many applications where a low-cost solution is required.

With a high shrink ratio inventory can be kept to a minimum as more applications can be covered with the same diameter tubing.



Securely insulated battery cable using TC30.



TC30 can be used for many applications, including antenna protection.

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	3:1
Longitudinal change after shrinkage	-15% max.
Minimum Shrink Temperature	+90 °C
Flammability	ASTM D2671
Operating Temperature	-55 °C to +125 °C
Dielectric Strength	19.7 kV/mm



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
311-20150	TC30 1,5-0,5	1.5	0.5	0.50	300
311-20300	TC30 3-1	3.0	1.0	0.60	150
311-20600	TC30 6-2	6.0	2.0	0.70	150
311-10900	TC30 9-3	9.0	3.0	0.80	300
311-11200	TC30 12-4	12.0	4.0	0.85	300
311-21800	TC30 18-6	18.0	6.0	1.00	60
311-22400	TC30 24-8	24.0	8.0	1.20	60

All dimensions in mm. Subject to technical changes.



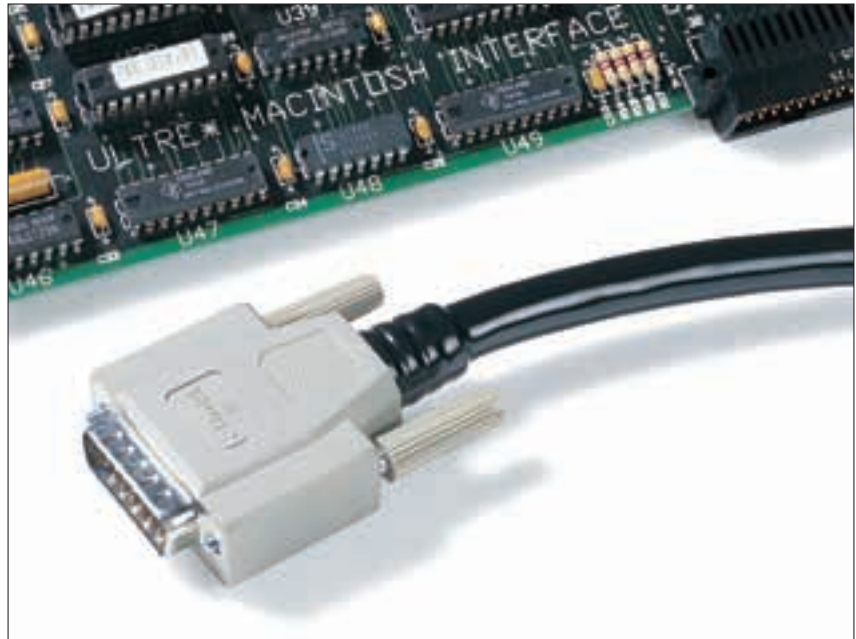
TL27

Features and Benefits

TL27 is halogen free, very flexible, light-weight polyolefin tubing. TL27 has been designed for automotive applications like covering pipes in cars and trucks.

Application

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.



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



Material Data	
Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	2:1
Operating Temperature	-55 °C to +135 °C
Minimum Shrink Temperature	+90 °C
Flammability	FMVSS 302
Longitudinal change after shrinkage	+5%/-15%



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
302-20120	TL27 1.2/0.6	1.2	0.6	0.31	500
302-20160	TL27 1.6/0.8	1.6	0.8	0.33	500
302-30240	TL27 2.4/1.2	2.4	1.2	0.36	500
302-30320	TL27 3.2/1.6	3.2	1.6	0.39	300
302-30480	TL27 4.8/2.4	4.8	2.4	0.42	150
302-30640	TL27 6.4/3.2	6.4	3.2	0.45	100
302-30950	TL27 9.5/4.8	9.5	4.8	0.48	100
302-21270	TL27 12.7/6.4	12.7	6.4	0.52	100
302-31900	TL27 19.1/9.5	19.1	9.5	0.58	100
302-32540	TL27 25.4/12.7	25.4	12.7	0.67	100
302-23810	TL27 38.1/19.1	38.1	19.1	0.76	100
302-25080	TL27 50.8/25.4	50.8	25.4	0.85	100

All dimensions in mm. Subject to technical changes.

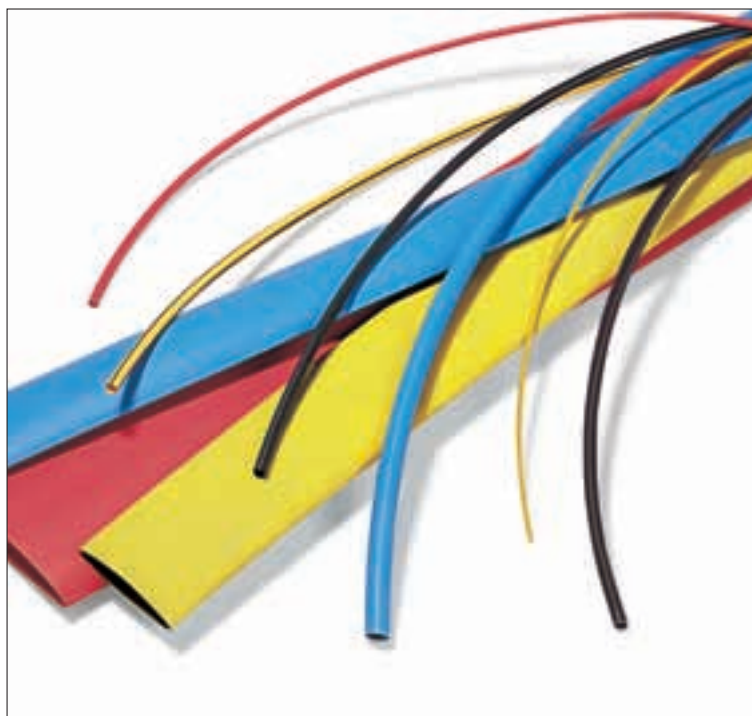


TF21

Features and Benefits

Quick and easy shrinking TF21 tubing is widely used for insulating, mechanical protection, strain relief, marking, and bundling.

The excellent balance of electrical, mechanical and chemical properties meet and exceed industrial standards. TF21 is UL-224 listed and available in a wide range of sizes and colours. A 3:1 shrink ratio version is also available as TF31.



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



Material Data

Material	Polyolefin, cross-linked (POX)
Shrink Ratio	2:1
Operating Temperature	-55 °C to +135 °C
Minimum Shrink Temperature	+90 °C
Flammability	ASTM D876
Longitudinal change after shrinkage	+/- 5%
Dielectric Strength	37 kV/mm
Specification	UL224 VW-1, BMW MV2307, NFF 00-608, CSA



Technical Table

Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.
TF21 1.2/0.6	1.2	0.6	0.41
TF21 1.6/0.8	1.6	0.8	0.43
TF21 2.4/1.2	2.4	1.2	0.51
TF21 3.2/1.6	3.2	1.6	0.51
TF21 4.8/2.4	4.8	2.4	0.51
TF21 6.4/3.2	6.4	3.2	0.64
TF21 9.5/4.8	9.5	4.8	0.64
TF21 12.7/6.4	12.7	6.4	0.64
TF21 19.1/9.5	19.1	9.5	0.76
TF21 25.4/12.7	25.4	12.7	0.89
TF21 38.1/19.1	38.1	19.1	1.02
TF21 50.8/25.4	50.8	25.4	1.14
TF21 76.2/38.1	76.2	38.1	1.27
TF21 101.6/50.8	101.6	50.8	1.40

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



TF21

Technical Table

Article-No.	Type	Colour	Pack Cont. (m)
309-10120	TF21 1.2/0.6	Black (BK)	300
309-20129	TF21 1.2/0.6	White (WH)	100
309-20122	TF21 1.2/0.6	Red (RD)	100
309-20124	TF21 1.2/0.6	Yellow (YE)	100
309-20126	TF21 1.2/0.6	Blue (BU)	100
309-10160	TF21 1.6/0.8	Black (BK)	300
309-20169	TF21 1.6/0.8	White (WH)	100
309-20162	TF21 1.6/0.8	Red (RD)	100
309-20164	TF21 1.6/0.8	Yellow (YE)	100
309-20166	TF21 1.6/0.8	Blue (BU)	100
309-10240	TF21 2.4/1.2	Black (BK)	300
309-20249	TF21 2.4/1.2	White (WH)	100
309-20242	TF21 2.4/1.2	Red (RD)	100
309-20244	TF21 2.4/1.2	Yellow (YE)	100
309-20246	TF21 2.4/1.2	Blue (BU)	100
309-40247	TF21 2.4/1.2	Green-Yellow (GNYE)	100
309-10320	TF21 3.2/1.6	Black (BK)	300
309-20329	TF21 3.2/1.6	White (WH)	100
309-20322	TF21 3.2/1.6	Red (RD)	100
309-20324	TF21 3.2/1.6	Yellow (YE)	100
309-20326	TF21 3.2/1.6	Blue (BU)	100
309-40327	TF21 3.2/1.6	Green-Yellow (GNYE)	100
309-10480	TF21 4.8/2.4	Black (BK)	300
309-50489	TF21 4.8/2.4	White (WH)	60
309-50482	TF21 4.8/2.4	Red (RD)	60
309-50484	TF21 4.8/2.4	Yellow (YE)	60
309-50486	TF21 4.8/2.4	Blue (BU)	60
309-50487	TF21 4.8/2.4	Green-Yellow (GNYE)	60
309-10640	TF21 6.4/3.2	Black (BK)	300
309-50649	TF21 6.4/3.2	White (WH)	60
309-50642	TF21 6.4/3.2	Red (RD)	60
309-50644	TF21 6.4/3.2	Yellow (YE)	60
309-50646	TF21 6.4/3.2	Blue (BU)	60
309-50647	TF21 6.4/3.2	Green-Yellow (GNYE)	60
309-10950	TF21 9.5/4.8	Black (BK)	150
309-20959	TF21 9.5/4.8	White (WH)	50
309-20952	TF21 9.5/4.8	Red (RD)	50
309-20954	TF21 9.5/4.8	Yellow (YE)	50
309-20956	TF21 9.5/4.8	Blue (BU)	50
309-50957	TF21 9.5/4.8	Green-Yellow (GNYE)	60



Detailed Information
about Heatguns
please refer to page 421.



TF21

Technical Table

Article-No.	Type	Colour	Pack Cont. (m)
309-11270	TF21 12.7/6.4	Black (BK)	100
309-21279	TF21 12.7/6.4	White (WH)	50
309-21272	TF21 12.7/6.4	Red (RD)	50
309-21274	TF21 12.7/6.4	Yellow (YE)	50
309-21276	TF21 12.7/6.4	Blue (BU)	50
309-41277	TF21 12.7/6.4	Green-Yellow (GNYE)	50
309-11900	TF21 19.0/9.5	Black (BK)	50
309-11909	TF21 19.0/9.5	White (WH)	50
309-11902	TF21 19.0/9.5	Red (RD)	50
309-11904	TF21 19.0/9.5	Yellow (YE)	50
309-11906	TF21 19.0/9.5	Blue (BU)	50
309-11907	TF21 19.0/9.5	Green-Yellow (GNYE)	50
309-12540	TF21 25.4/12.7	Black (BK)	50
309-12549	TF21 25.4/12.7	White (WH)	50
309-12542	TF21 25.4/12.7	Red (RD)	50
309-12544	TF21 25.4/12.7	Yellow (YE)	50
309-12546	TF21 25.4/12.7	Blue (BU)	50
309-12547	TF21 25.4/12.7	Green-Yellow (GNYE)	50
309-13810	TF21 38.0/19.0	Black (BK)	60
309-13819	TF21 38.0/19.0	White (WH)	60
309-13812	TF21 38.0/19.0	Red (RD)	60
309-13814	TF21 38.0/19.0	Yellow (YE)	60
309-13816	TF21 38.0/19.0	Blue (BU)	60
309-13817	TF21 38.0/19.0	Green-Yellow (GNYE)	60
309-15080	TF21 50.8/25.4	Black (BK)	60
309-15089	TF21 50.8/25.4	White (WH)	60
309-15082	TF21 50.8/25.4	Red (RD)	60
309-15084	TF21 50.8/25.4	Yellow (YE)	60
309-15086	TF21 50.8/25.4	Blue (BU)	60
309-15087	TF21 50.8/25.4	Green-Yellow (GNYE)	60
309-17600	TF21 76.0/38.0	Black (BK)	30
309-17609	TF21 76.0/38.0	White (WH)	30
309-17602	TF21 76.0/38.0	Red (RD)	30
309-17604	TF21 76.0/38.0	Yellow (YE)	30
309-17606	TF21 76.0/38.0	Blue (BU)	30
309-11020	TF21 101.6/50.8	Black (BK)	15
309-11029	TF21 101.6/50.8	White (WH)	15
309-11022	TF21 101.6/50.8	Red (RD)	15
309-11024	TF21 101.6/50.8	Yellow (YE)	15
309-11026	TF21 101.6/50.8	Blue (BU)	15

Cut lengths
available on request.
Please contact us!



TF 24

Features and Benefits

TF24 transparent tubing is ideal to protect wire and cable markers. The transparency allows for the inspectability of the substrate covered. TF24 is halogen free.



TF24 – ideal to protect cable markers.

Cut lengths available on request. Please contact us!



Material Data	
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	2:1
Operating Temperature	-55 °C to +135 °C
Minimum Shrink Temperature	+115 °C
Longitudinal change after shrinkage	+/-5% max.
Dielectric Strength	46 kV/mm
Specification	SAE - AMS - DTL-23053 / 5



Technical Table

Article-No.	Type	Wall (WT) nom.	Supplied Ø D	Recov. Ø d	Colour	Pack Cont. (m)
309-40123	TF24 1.2/0.6	0.41	1.2	0.6	Transparent (CL)	100
309-40163	TF24 1.6/0.8	0.43	1.6	0.8	Transparent (CL)	100
309-40243	TF24 2.4/1.2	1.51	2.4	1.2	Transparent (CL)	100
309-40323	TF24 3.2/1.6	0.51	3.2	1.6	Transparent (CL)	100
309-50483	TF24 4.8/2.4	0.51	4.8	2.4	Transparent (CL)	60
309-50643	TF24 6.4/3.2	0.64	6.4	3.2	Transparent (CL)	60
309-40953	TF24 9.5/4.8	0.64	9.5	4.8	Transparent (CL)	50
309-41273	TF24 12.7/6.4	0.64	12.7	6.4	Transparent (CL)	50
309-31903	TF24 19.0/9.5	0.76	19.1	9.5	Transparent (CL)	50
309-32543	TF24 25.4/12.7	0.89	25.4	25.4	Transparent (CL)	50
309-33813	TF24 38.0/19.5	1.02	38.1	19.1	Transparent (CL)	60
309-35083	TF24 50.8/25.4	1.14	50.8	25.4	Transparent (CL)	60
309-37603	TF24 76.0/38.0	1.27	76.2	38.1	Transparent (CL)	30
309-31023	TF24 101.6/50.8	1.40	101.6	50.8	Transparent (CL)	15

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.

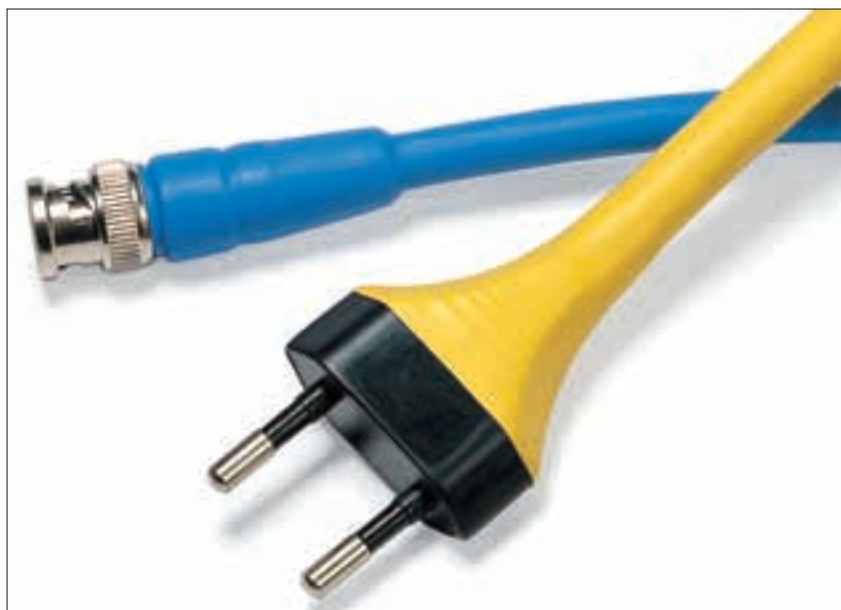


TF31

Features and Benefits

TF31 is a highly flame retardant polyolefin heatshrink that meets UL224VW-1. With its high shrink ratio TF31 can be used easily with varying substrates. Typical applications are for example; insulation and identification of wires, cables and light duty harnesses. It is available in a wide range of colours and sizes.

Inventory can be reduced significantly as only a few sizes cover a wide range of diameters.



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



**Detailed Information
about Heatguns
please refer to page 421.**

Material Data

Material	Polyolefin, cross-linked (POX)
Shrink Ratio	3:1
Operating Temperature	-55 °C to +135 °C
Minimum Shrink Temperature	+90 °C
Flammability	ASTM D876
Longitudinal change after shrinkage	-10% max
Dielectric Strength	37 kV/mm
Specification	UL 224 VW1, CSA



Technical Table

Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.
TF31 1,5/0,5	1.5	0.5	0.50
TF31 3/1	3.0	1.0	0.60
TF31 6/2	6.0	2.0	0.70
TF31 9/3	9.0	3.0	0.80
TF31 12/4	12.0	4.0	0.85
TF31 18/6	18.0	6.0	1.00
TF31 24/8	24.0	8.0	1.20
TF31 40/13	40.0	13.0	1.25

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



TF31

Technical Table

Article-No.	Type	Colour	Pack Cont. (m)
333-20150	TF31 1,5/0,5	Black (BK)	300
333-40300	TF31 3/1	Black (BK)	150
333-40600	TF31 6/2	Black (BK)	150
333-20900	TF31 9/3	Black (BK)	150
333-21200	TF31 12/4	Black (BK)	100
333-41800	TF31 18/6	Black (BK)	60
333-42400	TF31 24/8	Black (BK)	60
333-24000	TF31 40/13	Black (BK)	60

Cut lengths available on request. Please contact us!

Technical Table

Article-No.	Type	Colour	Pack Cont. (m)
333-30150	TF31 1,5/0,5	Black (BK)	30
333-30156	TF31 1,5/0,5	Blue (BU)	30
333-30155	TF31 1,5/0,5	Green (GN)	30
333-30157	TF31 1,5/0,5	Green-Yellow (GNYE)	30
333-30152	TF31 1,5/0,5	Red (RD)	30
333-30159	TF31 1,5/0,5	White (WH)	30
333-30154	TF31 1,5/0,5	Yellow (YE)	30
333-30306	TF31 3/1	Blue (BU)	30
333-30300	TF31 3/1	Black (BK)	30
333-30305	TF31 3/1	Green (GN)	30
333-30307	TF31 3/1	Green-Yellow (GNYE)	30
333-30302	TF31 3/1	Red (RD)	30
333-30309	TF31 3/1	White (WH)	30
333-30304	TF31 3/1	Yellow (YE)	30
333-30606	TF31 6/2	Blue (BU)	30
333-30600	TF31 6/2	Black (BK)	30
333-30605	TF31 6/2	Green (GN)	30
333-30607	TF31 6/2	Green-Yellow (GNYE)	30
333-30602	TF31 6/2	Red (RD)	30
333-30609	TF31 6/2	White (WH)	30
333-30604	TF31 6/2	Yellow (YE)	30
333-30906	TF31 9/3	Blue (BU)	30
333-30900	TF31 9/3	Black (BK)	30
333-30905	TF31 9/3	Green (GN)	30
333-30907	TF31 9/3	Green-Yellow (GNYE)	30
333-30902	TF31 9/3	Red (RD)	30
333-30909	TF31 9/3	White (WH)	30
333-30904	TF31 9/3	Yellow (YE)	30

Technical Table

Article-No.	Type	Colour	Pack Cont. (m)
333-31206	TF31 12/4	Blue (BU)	30
333-31200	TF31 12/4	Black (BK)	30
333-31205	TF31 12/4	Green (GN)	30
333-31207	TF31 12/4	Green-Yellow (GNYE)	30
333-31202	TF31 12/4	Red (RD)	30
333-31209	TF31 12/4	White (WH)	30
333-31204	TF31 12/4	Yellow (YE)	30
333-31806	TF31 18/6	Blue (BU)	30
333-31800	TF31 18/6	Black (BK)	30
333-31805	TF31 18/6	Green (GN)	30
333-31807	TF31 18/6	Green-Yellow (GNYE)	30
333-31802	TF31 18/6	Red (RD)	30
333-31809	TF31 18/6	White (WH)	30
333-31804	TF31 18/6	Yellow (YE)	30
333-32406	TF31 24/8	Blue (BU)	30
333-32400	TF31 24/8	Black (BK)	30
333-32405	TF31 24/8	Green (GN)	30
333-32407	TF31 24/8	Green-Yellow (GNYE)	30
333-32402	TF31 24/8	Red (RD)	30
333-32409	TF31 24/8	White (WH)	30
333-32404	TF31 24/8	Yellow (YE)	30
333-34006	TF31 40/13	Blue (BU)	30
333-34000	TF31 40/13	Black (BK)	30
333-34005	TF31 40/13	Green (GN)	30
333-34007	TF31 40/13	Green-Yellow (GNYE)	30
333-34002	TF31 40/13	Red (RD)	30
333-34009	TF31 40/13	White (WH)	30
333-34004	TF31 40/13	Yellow (YE)	30



TF34

Features and Benefits

This flexible, halogen free tubing provides good insulation, while the clear colour allows see-through of the covered items. For general purpose applications, bundling and jacketing of cables where visual inspection is required.



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

Cut lengths available on request. Please contact us!

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Transparent (CL)
Shrink Ratio	3:1
Operating Temperature	-55 °C to +135 °C
Minimum Shrink Temperature	+110 °C
Longitudinal change after shrinkage	-5% max.
Dielectric Strength	46 kV/mm



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Pack Cont. (m)
333-30153	TF34 1,5/0,5	1.5	0.5	0.50	30
333-30303	TF34 3/1	3.0	1.0	0.50	30
333-30603	TF34 6/2	6.0	2.0	0.70	30
333-30903	TF34 9/3	9.0	3.0	0.80	30
333-31203	TF34 12/4	12.0	4.0	0.85	30
333-31803	TF34 18/6	18.0	6.0	1.00	30
333-32403	TF34 24/8	24.0	8.0	1.20	30
333-34003	TF34 40/13	40.0	13.0	1.25	30

All dimensions in mm. Subject to technical changes.



EPS-300, EPS-400

Features and Benefits

EPS is a flexible and thin walled heat shrink tubing with a co-extruded hot melt adhesive inner wall. The adhesive flows easily to provide an environmental sealing of complex parts and protects against moisture.

Application

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



EPS-300 and EPS-400 offer high shrink ratios and protection against humidity.

Cut lengths available on request. Please contact us!



EPS-300, EPS-400

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	3:1, 4:1
Longitudinal change after shrinkage	-10% max.
Minimum Shrink Temperature	+120 °C
Operating Temperature	-55 °C to +110 °C
Dielectric Strength	15 kV/mm according to IEC 60684 P2
Flammability	ASTM D2671 (outer layer only)
Specification	MIL-DTL-23053 / 4, SAE - AMS - DTL-23053 / 4



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
EPS-300					
340-03010	EPS-300 3/1	3.0	1.0	1.00	400
340-06020	EPS-300 6/2	6.0	2.0	1.00	300
340-09030	EPS-300 9/3	9.0	3.0	1.40	150
340-12040	EPS-300 12/4	12.0	4.0	1.80	100
340-19060	EPS-300 19/6	19.0	6.0	2.20	50
340-24080	EPS-300 24/8	24.0	8.0	2.50	25
340-40130	EPS-300 40/13	40.0	13.0	2.50	25
EPS-400					
341-04010	EPS-400 4/1	4.0	1.0	1.00	300
341-08020	EPS-400 8/2	8.0	2.0	1.00	150
341-12030	EPS-400 12/3	12.0	3.0	1.40	100
341-16040	EPS-400 16/4	16.0	4.0	1.80	100
341-24060	EPS-400 24/6	24.0	6.0	2.20	50
341-32080	EPS-400 32/8	32.0	8.0	2.50	25

All dimensions in mm. Subject to technical changes.



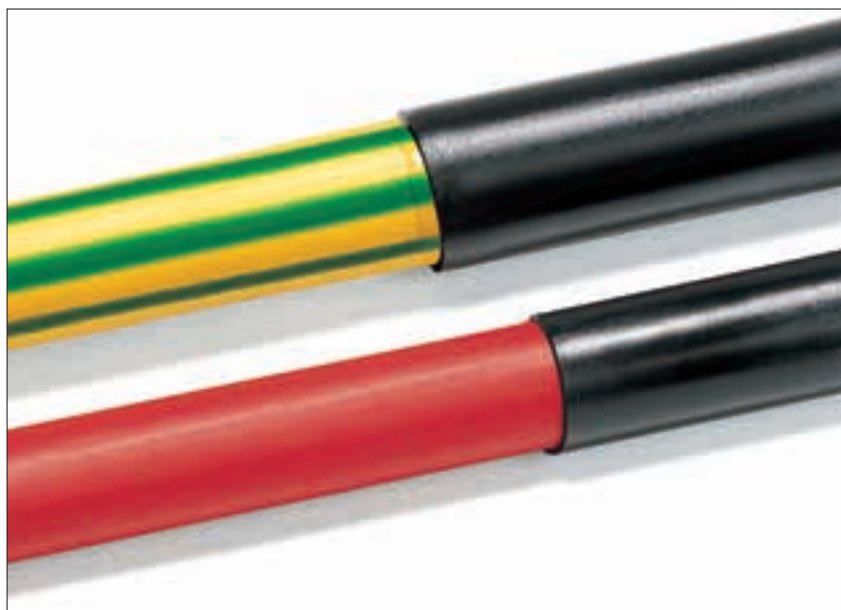
Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



TA32 and TA42

Features and Benefits

TA32 and TA42 are thin walled adhesive lined heat shrink tubings. Both TA32 and TA42 have an outer wall that is highly flame retardant and are UL224 approved. They have high shrink ratios making them ideal for variable substrates. The adhesive lining ensures that a good environmental seal can be maintained.



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

Some sizes available on reels.
Other colours available on request.
Please contact us!

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	3:1, 4:1
Operating Temperature	-55 °C to +125 °C
Minimum Shrink Temperature	+110 °C
Flammability	UL224
Longitudinal change after shrinkage	-15% max.
Dielectric Strength Specification	15 kV/mm according to IEC 60684 P2 UL224 125 °C 600V



TA32, TA42

Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Length (L) (m)
TA32					
318-30300	TA32 3/1	3.2	0.6	0.95	1.2
318-30450	TA32 4.5/1.5	4.5	1.5	1.10	1.2
318-30600	TA32 6/2	6.0	2.0	1.20	1.2
318-30900	TA32 9/3	9.0	3.0	1.30	1.2
318-31200	TA32 12/4	12.0	4.0	1.40	1.2
318-31900	TA32 19/6	19.0	6.0	1.80	1.2
318-32400	TA32 24/8	24.0	8.0	2.50	1.2
318-34000	TA32 40/13	40.0	13.0	2.50	1.2
TA42					
318-40400	TA42 4/1	4.0	1.0	1.00	1.2
318-40800	TA42 8/2	8.0	2.0	1.20	1.2
318-41200	TA42 12/3	12.0	3.0	1.40	1.2
318-41600	TA42 16/4	16.0	4.0	1.80	1.2
318-42400	TA42 24/6	24.0	6.0	2.25	1.2
318-43200	TA42 32/8	32.0	8.0	2.55	1.2
318-45200	TA42 52/13	52.0	13.0	2.55	1.2

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



MA47 and MU47 medium wall tubing

Features and Benefits

MA47 has been designed to protect cable joints and terminations in low voltage applications. The adhesive lining makes it especially suitable for above and underground cable applications.

This medium wall tubing is flexible yet has robust insulation characteristics. MA47 tubing is coated with a thermoplastic adhesive on the inside, which protects against humidity and other kinds of environmental impacts after shrinking.

Application

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



MA47 and MU47 medium wall tubing - lined and unlined.

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	up to 4:1
Operating Temperature	MA47-55 °C to +80 °C MU47-55 °C to +110 °C
Minimum Shrink Temperature	+120 °C
Longitudinal change after shrinkage	-10% max.
Dielectric Strength	20 kV/mm



Cut lengths available on request. Please contact us!



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Length (L) (m)
MA47 – medium wall adhesive lined					
323-20120	MA47 12/3	12.0	3.0	2.0	1.0
323-20190	MA47 19/6	19.0	6.0	2.5	1.0
323-20300	MA47 30/8	30.0	8.0	2.5	1.0
323-20400	MA47 40/12	40.0	12.0	2.5	1.0
323-20500	MA47 50/16	50.0	16.0	2.7	1.0
323-20630	MA47 63/19	63.0	19.0	2.8	1.0
323-20750	MA47 75/22	75.0	22.0	3.0	1.0
323-20950	MA47 95/30	95.0	30.0	3.0	1.0
323-21150	MA47 115/34	115.0	34.0	3.0	1.0
323-21400	MA47 140/42	140.0	42.0	3.0	1.0
MU47 – medium wall unlined					
323-10120	MU47 12/3	12.0	3.0	2.0	1.0
323-10190	MU47 19/6	19.0	6.0	2.2	1.0
323-10300	MU47 30/8	30.0	8.0	2.5	1.0
323-10400	MU47 40/12	40.0	12.0	2.5	1.0
323-10500	MU47 50/16	50.0	16.0	2.7	1.0
323-10630	MU47 63/19	63.0	19.0	2.8	1.0
323-10750	MU47 75/22	75.0	22.0	3.0	1.0
323-10950	MU47 95/30	95.0	30.0	3.0	1.0
323-11150	MU47 115/34	115.0	34.0	3.0	1.0
323-11400	MU47 140/42	140.0	42.0	3.0	1.0

All dimensions in mm. Subject to technical changes.



HA47 and HU47 thick wall tubing

Features and Benefits

HA47 is a thick walled polyolefin adhesive lined sleeving used for low voltage power applications. The thermoplastic adhesive provides good moisture sealing and weathering protection.

Application

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



HA47 – Heavy wall adhesive lined tubing.

Cut lengths available on request. Please contact us!

Material Data	
Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	up to 3.5:1
Operating Temperature	-55 °C to +80 °C -55 °C to +110 °C
Minimum Shrink Temperature	+120 °C
Longitudinal change after shrinkage	-10% max.
Dielectric Strength	20 kV/mm



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Length (L) (m)
HA47 – thick wall adhesive lined					
321-20090	HA47 9/3	9.0	3.0	1.8	1.0
321-20130	HA47 13/4	13.0	4.0	2.4	1.0
321-20180	HA47 19/6	19.0	6.0	2.7	1.0
321-20280	HA47 33/8	33.0	8.0	3.2	1.0
321-20450	HA47 45/12	45.0	12.0	4.1	1.0
321-20510	HA47 51/16	51.0	16.0	4.1	1.0
321-20680	HA47 68/22	68.0	22.0	4.1	1.0
321-20850	HA47 85/25	85.0	25.0	4.3	1.0
321-20900	HA47 105/30	105.0	30.0	4.3	1.0
321-21300	HA47 130/36	130.0	36.0	4.3	1.0
321-21600	HA47 160/50	160.0	50.0	4.3	1.0
321-21850	HA47 180/50	180.0	50.0	4.3	1.0
HU47 – thick wall unlined					
321-10090	HU47 9/3	9.0	3.0	1.8	1.0
321-10130	HU47 13/4	13.0	4.0	2.4	1.0
321-10180	HU47 19/6	19.0	6.0	2.7	1.0
321-10280	HU47 33/8	33.0	8.0	3.2	1.0
321-10450	HU47 45/12	45.0	12.0	4.1	1.0
321-10510	HU47 51/16	51.0	16.0	4.1	1.0
321-10680	HU47 68/22	68.0	22.0	4.1	1.0
321-10850	HU47 85/25	85.0	25.0	4.3	1.0
321-10900	HU47 90/30	90.0	30.0	4.3	1.0
321-11300	HU47 130/36	130.0	36.0	4.30	1.0
321-11600	HU47 160/50	160.0	50.0	4.3	1.0
321-11850	HU47 180/50	180.0	50.0	4.3	1.0

All dimensions in mm. Subject to technical changes.



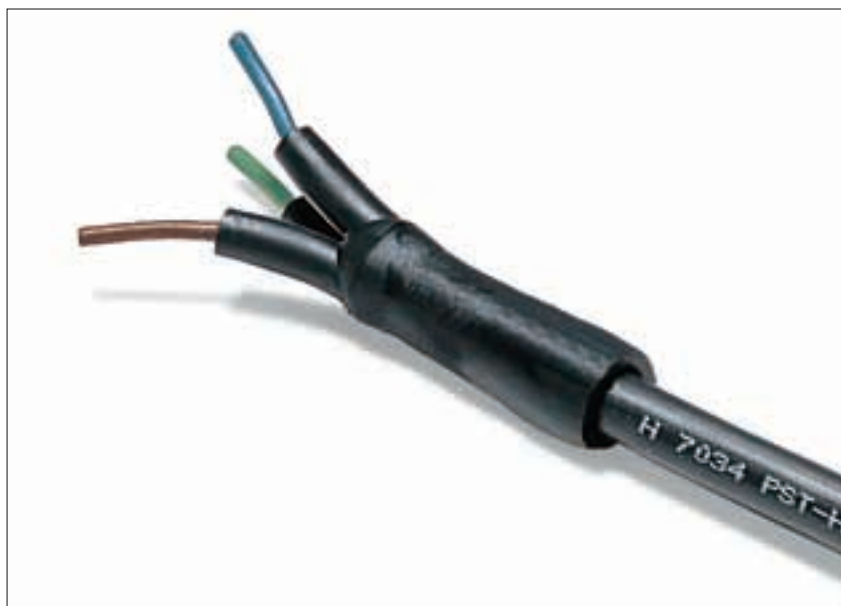
PST-H

Features and Benefits

PST-H is a flexible, high performance elastomeric tubing. This tubing is used in aerospace, defence, railway and automotive applications. PST-H is resistant to diesel, aviation and hydraulic fluids. It provides a reliable protection against abrasion and mechanical damage and is suitable for protecting cables and wire harnesses.

Application

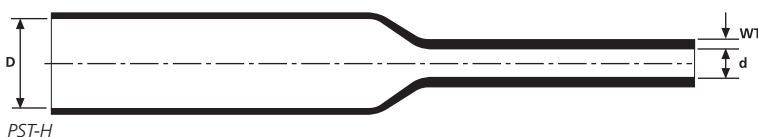
PST-HT is used for long-term protection of cables and wire harnesses in military equipment, motorsport and aviation.



PST-H tubing with a break out boot.

Cut lengths available on request. Please contact us!

Material Data	
Material	Elastomer cross-linked (PES)
Colour	Black (BK)
Shrink Ratio	2:1
Longitudinal change after shrinkage	-10% max.
Minimum Shrink Temperature	+135 °C
Operating Temperature	-75 °C to +150 °C
Dielectric Strength	20 kV/mm according to IEC 60684 P2
Flammability	Self extinguishing
Specification	DEF STAN 59-97/3, VG 95343, NFF 00-608



Technical Table

Article-No.	Type	Designation as per VG-Norm	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
342-20320	PST-H 3.2/1.6	VG 95343 T 05 D 001 A	3.2	1.6	0.70	400
342-20480	PST-H 4.8/2.4	VG 95343 T 05 D 002 A	4.8	2.4	0.80	300
342-20640	PST-H 6.4/3.2	VG 95343 T 05 D 003 A	6.4	3.2	0.90	300
342-20950	PST-H 9.5/4.8	VG 95343 T 05 D 004 A	9.5	4.8	1.00	150
342-21270	PST-H 12.7/6.4	VG 95343 T 05 D 005 A	12.7	6.4	1.20	100
342-21900	PST-H 19.0/9.5	VG 95343 T 05 D 006 A	19.0	9.5	1.40	50
342-22540	PST-H 25.4/12.7	VG 95343 T 05 D 007 A	25.4	12.7	1.80	50
342-23810	PST-H 38.0/19.0	VG 95343 T 05 D 008 A	38.0	19.0	2.40	30
342-25080	PST-H 51.0/25.4	VG 95343 T 05 D 009 A	51.0	25.4	2.80	20
342-27620	PST-H 76.0/38.0	VG 95343 T 05 D 010 A	76.0	38.0	3.20	15
342-29160	PST-H 102.0/51.0	VG 95343 T 05 D 011 A	102.0	51.0	3.50	15

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



PST-HT

Features and Benefits

The benefit of the thin walled and very flexible PST-HT tubing is in its lighter weight. It is used in areas where weight is a key factor, for example in aerospace applications or motorsport.

Application

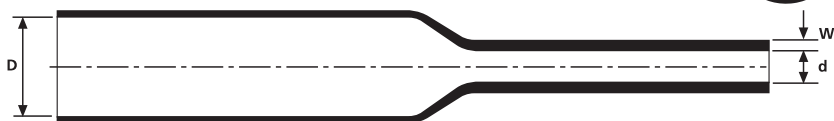
PST-HT is used for long-term protection of cables and wire harnesses in military equipment, motorsport and aviation.



Thin wall PST-HT tubing with a boot.

Cut lengths available on request. Please contact us!

Material Data	
Material	Elastomer cross-linked (PES)
Colour	Black (BK)
Shrink Ratio	2:1
Longitudinal change after shrinkage	-10% max.
Minimum Shrink Temperature	+135 °C
Operating Temperature	-75 °C to +150 °C
Dielectric Strength	20 kV/mm according to IEC 60684 P2
Flammability	Self extinguishing
Specification	DEF STAN 59-97/3, VG 95343, NFF 00-608



PST-HT

Technical Table

Article-No.	Type	Designation as per VG-Norm	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
342-30320	PST-HT 3.2/1.6	VG 95343 T 05 D 013 A	3.2	1.6	0.50	400
342-30480	PST-HT 4.8/2.4	VG 95343 T 05 D 014 A	4.8	2.4	0.50	300
342-30640	PST-HT 6.4/3.2	VG 95343 T 05 D 015 A	6.4	3.2	0.60	300
342-30950	PST-HT 9.5/4.8	VG 95343 T 05 D 016 A	9.5	4.8	0.60	150
342-31270	PST-HT 12.7/6.4	VG 95343 T 05 D 017 A	12.7	6.4	0.60	100
342-31900	PST-HT 19.0/9.5	VG 95343 T 05 D 018 A	19.0	9.5	0.80	50
342-32540	PST-HT 25.4/12.7	VG 95343 T 05 D 019 A	25.4	12.7	0.90	50
342-33810	PST-HT 38.0/19.0	VG 95343 T 05 D 020 A	38.0	19.0	1.00	30
342-35080	PST-HT 51.0/25.4	VG 95343 T 05 D 022 A	51.0	25.4	1.20	20

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Viton®-E

Features and Benefits

Viton®-E is a fluoroelastomeric heat shrink tubing. It remains flexible even at very low temperatures. It has extremely high resistance to chemicals and maintains its excellent mechanical strength and flexibility even after long term exposure to high temperatures. Viton-E tubing is approved to VG 95343/5E.

Application

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.

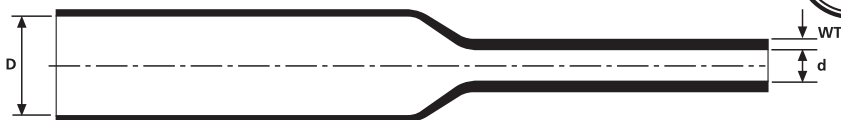


Viton®-E for flexibility and protection against aggressive chemicals.

Detailed Information about Heatguns please refer to page 421.

Cut lengths available on request. Please contact us!

Material Data	
Material	Fluoropolymer cross-linked (FPMX)
Colour	Black (BK)
Shrink Ratio	2:1
Longitudinal change after shrinkage	-10% max.
Minimum Shrink Temperature	+175 °C
Operating Temperature	-55 °C to +200 °C
Dielectric Strength	15 kV/mm according to IEC 60684 P2
Flammability	VG 95343
Specification	VG 95343



Viton®-E

Technical Table

Article-No.	Type	Designation as per VG-Norm	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Length (L) (m)
330-00320	VITON®-E 3,2/1,6	VG 95343 T 05 E 001 A	3.2	1.6	0.70	50.0
330-00480	VITON®-E 4,8/2,4	VG 95343 T 05 E 002 A	4.8	2.4	0.80	50.0
330-00640	VITON®-E 6,4/3,2	VG 95343 T 05 E 003 A	6.4	3.2	0.90	50.0
330-00950	VITON®-E 9,5/4,8	VG 95343 T 05 E 004 A	9.5	4.8	1.00	25.0
330-01270	VITON®-E 12,7/6,4	VG 95343 T 05 E 005 A	12.7	6.4	1.20	25.0
330-01900	VITON®-E 19,0/9,5	VG 95343 T 05 E 006 A	19.0	9.5	1.40	25.0
330-02540	VITON®-E 25,4/12,7	VG 95343 T 05 E 007 A	25.4	12.7	1.80	25.0
330-03810	VITON®-E 38,0/19,0	VG 95343 T 05 E 008 A	38.0	19.0	2.40	15.0
330-05080	VITON®-E 50,8/25,4	VG 95343 T 05 E 009 A	50.8	25.4	2.80	15.0

All dimensions in mm. Subject to technical changes.

Viton® is a registered trademark of DuPont.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



KYNAR®

Features and Benefits

This semi-rigid transparent heat shrink tubing has high chemical and puncture resistance. KYNAR® is extra thin wall tubing with a high temperature performance. It is self extinguishing and has very good electrical and mechanical qualities. The transparent material allows visual inspection of covered components.

Application

For electrical insulation and strain relief of connectors, solder joints, resistors, thermostats and many other parts.



KYNAR® used in a chemical laboratory.

More Information on Heatguns please refer to page 421.

Cut lengths available on request. Please contact us!

Material Data

Material	Polyvinylidene Fluoride (PVDF)
Colour	Transparent (CL)
Shrink Ratio	2:1
Longitudinal change after shrinkage	-5% max.
Minimum Shrink Temperature	+175 °C
Operating Temperature	-55 °C to +175 °C
Dielectric Strength	30 kV/mm according to IEC 60684 P2
Flammability	UL224 VW1
Specification	DEF STAN 59-97/3, UL224 VW-1, MIL-DTL-23053 / 8, VG 95343



Technical Table

Article-No.	Type	Designation as per VG-Norm	Supplied Ø D	Recov. Ø d	Wall (WT) nom.
332-00129	KYNAR® 3/64	VG 95343 T 05 F 001 M	1.2	0.6	0.25
332-00169	KYNAR® 1/16	VG 95343 T 05 F 001 M	1.6	0.8	0.25
332-00249	KYNAR® 3/32	VG 95343 T 05 F 003 M	2.4	1.2	0.25
332-00329	KYNAR® 1/8	VG 95343 T 05 F 004 M	3.2	1.6	0.25
332-00489	KYNAR® 3/16	VG 95343 T 05 F 005 M	4.8	2.4	0.25
332-00649	KYNAR® 1/4	VG 95343 T 05 F 006 M	6.4	3.2	0.30
332-00959	KYNAR® 3/8	VG 95343 T 05 F 007 M	9.5	4.8	0.30
332-01279	KYNAR® 1/2	VG 95343 T 05 F 008 M	12.7	6.4	0.30
332-01909	KYNAR® 3/4	VG 95343 T 05 F 009 M	19.0	9.5	0.43
332-02549	KYNAR® 1	VG 95343 T 05 F 010 M	25.4	12.7	0.48
332-03819	KYNAR® 1 1/2	–	38.0	19.0	0.51

All dimensions in mm. Subject to technical changes. Supplied in lengths of 1.22 m.

KYNAR® is a registered trademark of Arkema.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



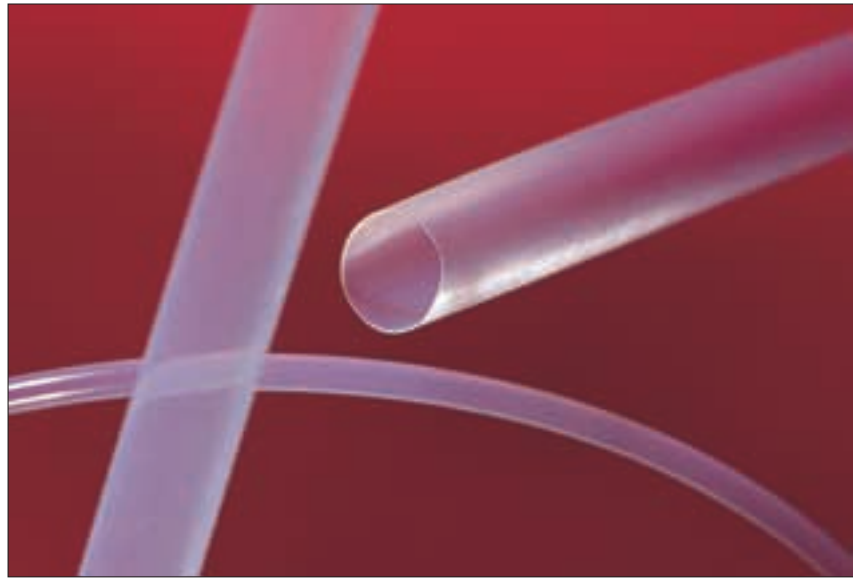
TFE2, TFE4

Features and Benefits

TFE heat shrink tubing is specified predominantly because of its very high temperature resistance. It is an extra thin walled transparent tubing that has both high abrasion resistance and good resistance against aggressive chemicals. TFE is available in either 2:1 (TFE2) or 4:1 (TFE4) shrink ratios.

Application

TFE is ideal for high temperature applications, where 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.



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

Technical Table

Article-No.	Type	Wire Size (AWG)	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Length (L) (m)
TFE2						
336-00079	TFE2-30	30	0.86	0.38	0.23	1.22
336-00099	TFE2-28	28	0.96	0.46	0.23	1.22
336-00109	TFE2-26	26	1.17	0.56	0.23	1.22
336-00139	TFE2-24	24	1.27	0.69	0.25	1.22
336-00149	TFE2-22	22	1.39	0.82	0.25	1.22
336-00159	TFE2-20	20	1.52	0.99	0.30	1.22
336-00199	TFE2-18	18	1.93	1.25	0.30	1.22
336-00249	TFE2-16	16	2.36	1.55	0.30	1.22
336-00319	TFE2-14	14	3.05	1.83	0.30	1.22
336-00399	TFE2-12	12	3.81	2.26	0.30	1.22
336-00489	TFE2-10	10	4.85	2.85	0.30	1.22
336-00619	TFE2-8	8	6.10	3.58	0.38	1.22
336-00779	TFE2-6	6	7.67	4.52	0.38	1.22
336-00949	TFE2-4	4	9.40	5.69	0.38	1.22
336-01109	TFE2-2	2	10.92	7.06	0.38	1.22
336-01209	TFE2-0	0	11.94	8.81	0.38	1.22
TFE4						
		Size/Inch				
339-00209	TFE4-5/64	5/64	1.98	0.64	0.22	1.22
339-00329	TFE4-1/8	1/8	3.17	0.94	0.25	1.22
339-00340	TFE4-3/16	3/16	4.75	1.27	0.30	1.22
339-00649	TFE4-1/4	1/4	6.35	1.60	0.30	1.22
339-00959	TFE4-3/8	3/8	9.52	2.44	0.30	1.22
339-01279	TFE4-1/2	1/2	12.7	3.66	0.38	1.22
339-01599	TFE4-5/8	5/8	15.87	4.52	0.38	1.22
339-01909	TFE4-3/4	3/4	19.05	5.69	0.38	1.22
339-02549	TFE4-1	1	25.4	7.06	0.38	1.22
339-03189	TFE4-1 1/4	1 1/4	31.75	8.82	0.38	1.22

All dimensions in mm. Subject to technical changes.

AWG American Wire Gauge

Material Data

Material	Polytetrafluoroethylene (PTFE)
Colour	Transparent (CL)
Shrink Ratio	2:1, 4:1
Operating Temperature	-65 °C to +260 °C
Minimum Shrink Temperature	+330 °C
Flammability	Non burning
Longitudinal change after shrinkage	-20% max.
Dielectric Strength	40 kV/mm according to DIN 53481
Specification	SAE - AMS - DTL-23053 / 12, MIL-DTL-23053 / 12



TFE2, TFE4



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



TR27

Features and Benefits

TR27 is a thin wall, halogen free tubing and is self-extinguishing with flame retardant properties. This tubing is also available in an adhesive lined version.

SR27 is a medium wall type. All these tubings have a low smoke index and excellent flame retardant properties.

Application

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.



TR27 is ideal for safety sensitive areas.



**Detailed Information
about Heatguns
please refer to page 421.**

Material Data

Material	Polyolefin, cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	2:1
Operating Temperature	-40 °C to +105 °C
Minimum Shrink Temperature	+115 °C
Flammability	Limited Fire Hazard, Halogen free, Low generation of toxic gases and corrosive acid, Low smoke generation
Longitudinal change after shrinkage	+5%/-10% max.
Dielectric Strength Specification	15 kV/mm according to IEC 60684 P2 DEF STAN 59-97/3, LUL Engineering Standard E1042:A6



Technical Table

Article-No.	Type	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Length (L) (m)
315-50320	TR27 3.2/1.6	3.2	1.6	0.51	150.0
315-50480	TR27 4.8/2.4	4.8	2.4	0.51	60.0
315-50640	TR27 6.4/3.2	6.4	3.2	0.64	60.0
315-50950	TR27 9.5/4.8	9.5	4.8	0.64	60.0
315-51270	TR27 12.7/6.4	12.7	6.4	0.64	60.0
315-51900	TR27 19.1/9.5	19.1	9.5	0.76	60.0
315-52540	TR27 25.4/12.7	25.4	12.7	0.89	60.0
315-53810	TR27 38.1/19.1	38.1	19.1	1.02	60.0
315-55100	TR27 50.8/25.4	50.8	25.4	1.14	60.0

All dimensions in mm. Subject to technical changes.



DEF STAN

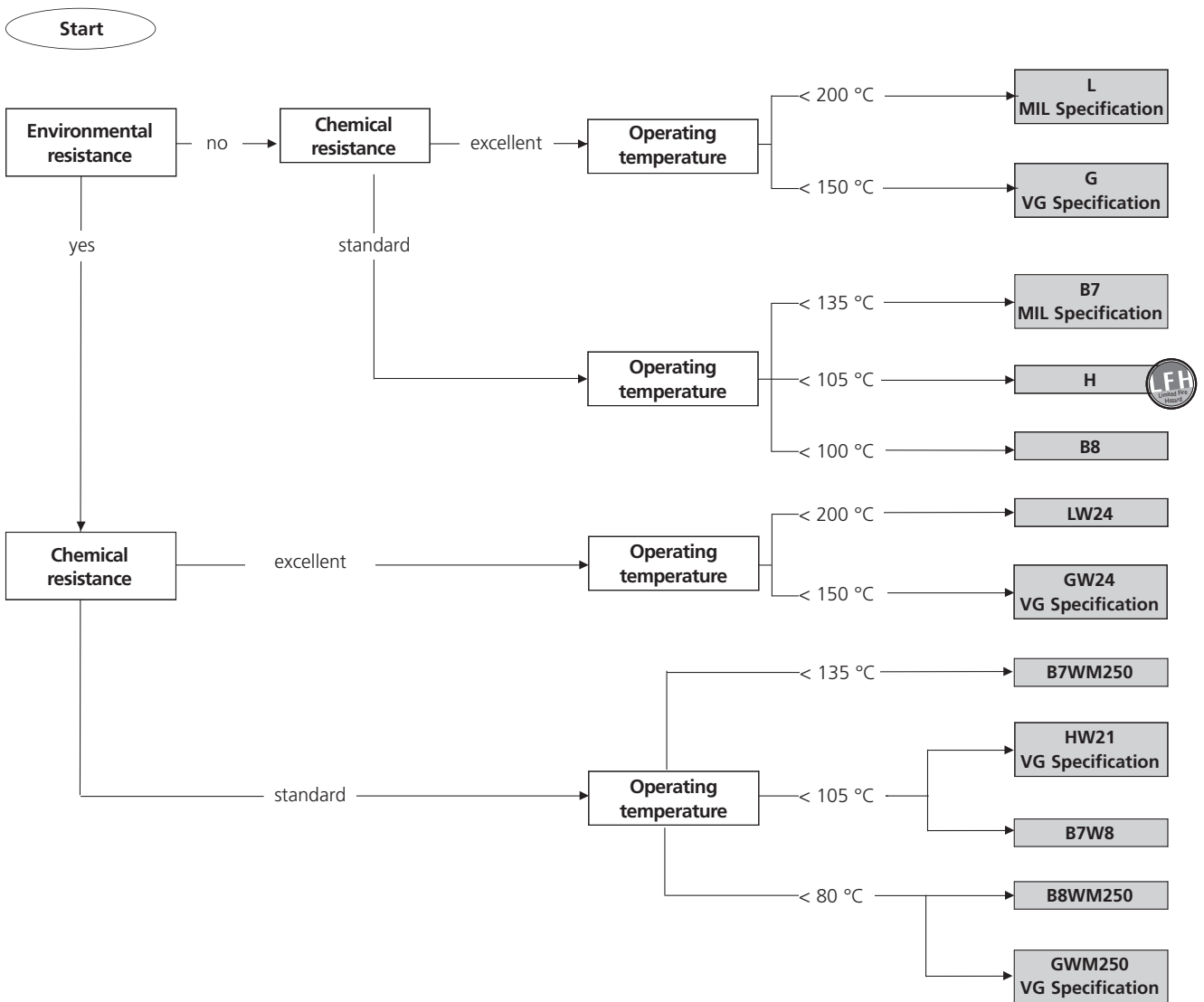
Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Use our flow chart to find the correct product or solution for your particular application.

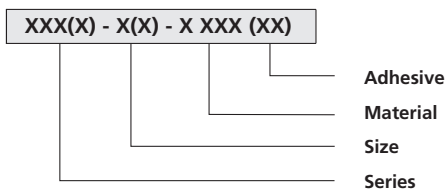
Begin your search in the flow chart at the START point. You will be guided through the page according to your requirements. Using the "yes/no" and "either/or" decisions, you will be able to select the correct product or solution.

Of course, you can always call us whenever you wish on our usual telephone numbers.

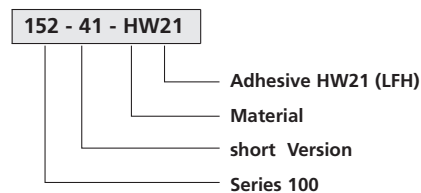


Order Example

Type:



Example:





Adhesives for moulded parts

In today's competitive environment, the assembly of wire harnesses must be both fast and reliable. With conventional methods however, speed and reliability can rarely be guaranteed. Therefore you should try HellermannTyton heat shrinkable moulded shapes.

Shapes made of H material are halogen-free and self-extinguishing. The shapes are coated with a hot melt adhesive (W21) that provides a reliable environmental seal. This adhesive has a low melting point and the post-cure time is minimal, taking only 45-60 seconds. HW21 material and adhesive combination is certified according to VG 95343 parts 29 and 30.

Heatshrinkable shapes made of elastomer material G can be pre-coated with W24 epoxy adhesive. After complete recovery of the shape no additional reheating of the adhesive joints is necessary.

Since GW24 parts are very fast shrinking, the processing time of HellermannTyton shapes can be reduced to just a few seconds! GW24 moulded parts have a shelf life of 5 years under normal conditions and do not have to be stored in closed packing. GW24 material and adhesive combination is certified according to VG 95343 parts 18 and 19.

Material specifications			
Description	G*	B7	H
Material	Fluid resistant elastomer	Semi-rigid flame retarded Polyolefin	Flexible Limited Fire Hazard Polyolefin
Application	standard material; excellent resistance against petrol	good mechanical and chemical resistance	low smoke emission, halogen free
Colour	Black (BK)	Black (BK)	Black (BK)
Minimum Shrink Temperature	+135 °C	+135 °C	+135 °C
Operating Temperature	-75 °C to +150 °C	-55 °C to +135 °C , Intermittent +225 °C	-55 °C to +105 °C
Dielectric Strength	14 kV/mm to ASTM D2671	14 kV/mm to ASTM D2671	15 kV/mm
Flexibility	Semi rigid	Semi rigid	Flexible
Flammability	VG 95343	ASTM D635	VG 95343
Specification	VG 95343 Part 6, 8, 9 DEF STAN 59-97 / 3	MIL-I-81765/1 Type 1 DEF STAN 59-97 / 3	VG 95343 Part 29, 30 NAVSEA 5617649, DEF STAN 59-97/3

* standard material

Material specifications			
Description	L	-9	B8
Material	Flexible flame retardant Fluorelastomer	Polyolefin, cross-linked (POX)Modified elastomer blend	Polyolefin, Chemically cross-linked (POX)Semi-rigid flame retarded Polyolefin
Application	high temperature resistance and excellent chemical properties	standard material for low profile boots	General Purpose for 0.6/1kV systems
Colour	Black (BK)	Black (BK)	Black (BK)
Minimum Shrink Temperature	+175 °C	+135 °C	+135 °C
Operating Temperature	-55 °C to +200 °C	-55 °C to +120 °C	-55 °C to +100 °C
Dielectric Strength	9 kV/mm to ASTM D2671	20 kV/mm to ASTM D2671	15 kV/mm
Flexibility	flexible	flexible	Semi rigid
Flammability	ASTM D635	ASTM D635	ASTM D635
Specification	DEF STAN 59-97/3; MIL-I-81765/4	SCX15112	Det Norske Veritas

Adhesive specifications				
Description	W24	W21	W8	WM250
Material	High performance, pre-coat, 1 part epoxy	Modified polyamide hot melt adhesive	EVA, High performance hot melt adhesive	General purpose Hot melt adhesive
Application	Specially modified to meet military cable and harness needs	High temperature hot melt adhesive	High temperature hot melt that compliments H material	Good general purpose adhesive
Softening Point	N/A	120 °C to ASTM E28	110 °C to ASTM E28	95 °C to ASTM E28
Operating Temperature	-75 °C to +200 °C	-55 °C to +120 °C	-55 °C to +105 °C	-50 °C to +80 °C
Peel Strength	VG 95343 Part 14	VG 95343 Part 14	VG 95343 Part 14	VG 95343 Part 14
Water Absorption at 25 °C	ASTM D570	ASTM D570	ASTM D570	ASTM D570
Solvent Resistance	Very good to excellent under most conditions	Very good under most especially saline conditions	Fair under splash conditions	Fair under splash conditions
Specification	VG 95343 Part 18, 19; DEF STAN 59-97/3	VG 95343 Part 29, 30	DEF STAN 59-97/3	DEF STAN 59-97/3



Helashrink 100 Series

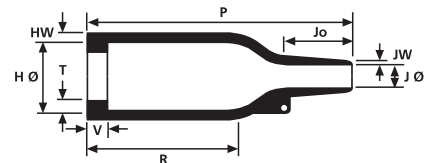
Straight plug-and-socket connector terminal casing. This style is used in conjunction with circular grooved adaptor, providing protection against environmental stresses. The inside lip has been designed to provide extra reinforced stress relief. Special fitting 199-4-G for audio plugs has external ribs for an improved grip.



Recovered 199-4-G, VG style shape for small audio connectors with external ribs for improved grip.



150 series boot recovered on to connector.



Technical Table

Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J min a	J max b	P ± 10%	R ± 10%	JO ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%
401-52780	152-41-G	VG 95343 T06 A 001 A	24.0	10.5	24.0	6.0	26.0	9.0	10.0	1.6	0.5	3.0	1.0
401-52880	152-42-G	VG 95343 T06 B 001 A	24.0	10.5	24.0	6.0	38.0	21.0	10.0	1.6	0.5	3.0	1.0
401-53780	153-41-G	VG 95343 T06 A 002 A	25.0	14.0	9.0	3.5	40.0	13.0	16.0	1.8	0.5	3.0	1.0
401-53880	153-42-G	VG 95343 T06 B 002 A	25.0	14.0	9.0	3.5	55.0	28.0	16.0	1.8	0.5	3.0	1.0
401-54780	154-41-G	VG 95343 T06 A 003 A	30.0	14.0	30.0	6.0	43.0	20.0	13.0	1.8	1.0	3.0	1.0
401-54880	154-42-G	VG 95343 T06 B 003 A	30.0	14.0	30.0	6.0	55.0	32.0	13.0	1.8	1.0	3.0	1.0
401-55780	155-41-G	VG 95343 T06 A 004 A	31.0	18.0	31.0	7.0	47.0	15.0	18.0	1.8	1.0	3.0	1.0
401-55880	155-42-G	VG 95343 T06 B 004 A	31.0	18.0	31.0	7.0	67.0	35.0	18.0	1.8	1.0	3.0	1.0
401-56780	156-41-G	VG 95343 T06 A 005 A	36.0	22.5	36.0	8.5	60.0	22.0	20.0	2.0	1.0	3.0	1.0
401-56880	156-42-G	VG 95343 T06 B 005 A	36.0	22.5	36.0	8.5	80.0	42.0	20.0	2.0	1.0	3.0	1.0
401-57780	157-41-G	VG 95343 T06 A 006 A	43.0	28.0	43.0	10.0	60.0	21.0	20.0	2.2	1.0	3.0	1.7
401-57880	157-42-G	VG 95343 T06 B 006 A	43.0	28.0	43.0	10.0	79.0	41.0	20.0	2.2	1.0	3.0	1.7
401-57980	157-43-G	VG 95343 T06 C 001 A	43.0	28.0	43.0	10.0	99.0	61.0	20.0	2.2	1.0	3.0	1.7
401-58780	158-41-G	VG 95343 T06 A 007 A	60.0	35.0	60.0	16.0	90.0	32.0	38.0	3.2	1.5	3.0	1.7
401-58880	158-42-G	VG 95343 T06 B 007 A	60.0	35.0	60.0	16.0	110.0	52.0	38.0	3.2	1.5	3.0	1.7
401-58980	158-43-G	VG 95343 T06 C 002 A	60.0	35.0	60.0	16.0	130.0	72.0	38.0	3.2	1.5	3.0	1.7
401-59780	159-41-G	VG 95343 T06 A 008 A	66.0	45.0	66.0	17.0	130.0	50.0	50.0	3.8	2.0	3.0	2.0
401-59880	159-42-G	VG 95343 T06 B 008 A	66.0	45.0	66.0	17.0	150.0	70.0	50.0	3.8	2.0	3.0	2.0
401-59980	159-43-G	VG 95343 T06 C 003 A	66.0	45.0	66.0	17.0	171.0	90.0	50.0	3.8	2.0	3.0	2.0
401-60780	160-41-G	VG 95343 T06 A 009 A	82.0	58.0	82.0	27.0	137.0	37.0	62.0	3.8	3.8	3.0	2.0
401-60880	160-42-G	VG 95343 T06 B 009 A	82.0	58.0	82.0	27.0	158.0	58.0	62.0	3.8	3.8	3.0	2.0
401-60980	160-43-G	VG 95343 T06 C 004 A	82.0	58.0	82.0	27.0	213.0	113.0	62.0	3.8	3.8	3.0	2.0
401-99480	199-4-G	VG 95343 T06 A 010 A	17.5	14.0	7.0	4.3	70.0	35.0	20.0	1.8	0.5	1.5	1.0
401-13180	113-1-G	-	10.7	7.9	4.6	2.0	25.4	14.5	4.6	1.3	1.0	-	1.0
401-13480	113-4-G	-	10.7	7.9	4.6	2.0	25.4	14.5	4.6	1.3	1.0	3.0	1.0

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request.

In addition, the moulded shapes can also be supplied with an inner coating or epoxy adhesives.

a as supplied
b recovered

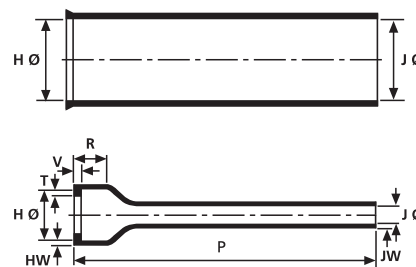


Helashrink 100 Series

Straight plug-and-socket connector terminal casing has protection against environmental stresses for circular plug connectors, according to VG. The inside lip is used for a reinforced stress relief.



135-1-G as supplied / fully recovered.



Technical Table

Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J min a	J max b	P ±10% = overall length	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 10%
401-29180	129-1-G	VG95343T06D001A	22.0	12.0	22.0	6.5	76.0	12.0	1.5	1.1	3.0	1.0
401-30180	130-1-G	VG95343T06D002A	25.5	15.0	25.5	7.5	83.0	12.0	1.5	1.1	3.0	1.0
401-31180	131-1-G	VG95343T06D003A	29.0	19.0	29.0	8.5	89.0	12.0	1.8	1.1	3.0	1.0
401-32180	132-1-G	VG95343T06D004A	34.0	23.0	34.0	10.0	102.0	12.0	1.8	1.1	3.0	1.0
401-33180	133-1-G	VG95343T06D005A	37.0	30.0	37.0	11.0	108.0	14.0	2.0	1.1	3.0	1.7
401-34180	134-1-G	VG95343T06D006A	43.5	34.0	43.5	12.0	114.0	15.0	2.0	1.1	3.0	1.7
401-35180	135-1-G	VG95343T06D007A	50.0	41.0	50.0	14.5	118.0	15.0	2.3	1.4	3.0	1.7
401-36180	136-1-G	VG95343T06D008A	62.5	47.0	62.5	18.0	121.0	16.0	2.5	1.4	3.0	2.0
401-38180	138-1-G	VG95343T06D009A	69.0	60.0	69.0	20.0	127.0	16.0	2.5	1.4	3.0	2.0
401-87180	187-1-G	VG95343T06D010A	81.5	67.0	81.5	23.0	133.0	16.0	2.5	1.4	3.0	2.0

All dimensions in mm. Subject to technical changes.

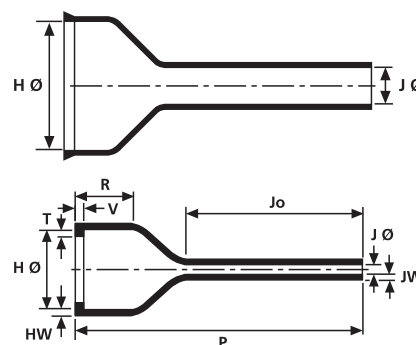
These moulded shapes are also available in various materials from our range, eg, B7, H, Land J on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt and epoxy adhesives, eg, W24, W1, W8 and WM250.

a as supplied
b recovered



177-1-G as supplied / fully recovered.



Technical Table

Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J min a	J max b	P ±10% = overall length	R ± 10%	JO ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 10%
401-76180	176-1-G	VG95343T06D011A	19.3	13.0	6.3	2.1	60.0	11.7	37.6	1.5	1.1	3.1	1.0
401-77180	177-1-G	VG95343T06D012A	26.1	19.1	7.6	2.6	74.0	12.2	45.0	1.8	1.1	3.1	1.0
401-78180	178-1-G	VG95343T06D013A	34.2	26.0	9.6	3.1	84.0	12.2	51.1	1.8	1.1	3.1	1.0
401-79180	179-1-G	VG95343T06D014A	43.6	34.1	11.4	3.6	100.0	12.2	60.0	1.8	1.1	3.1	1.7

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request.

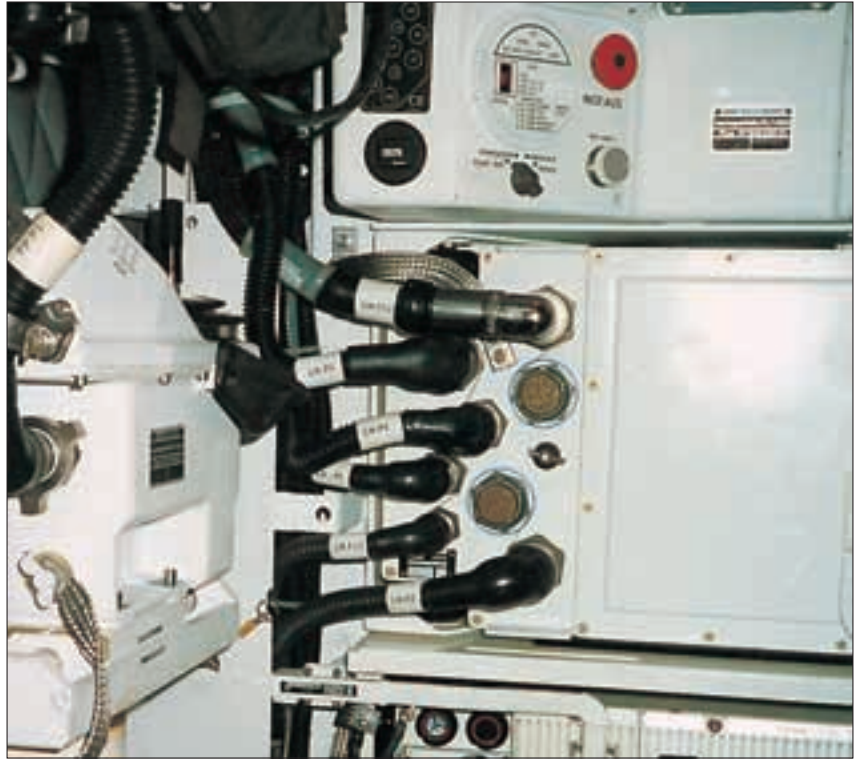
In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

a as supplied
b recovered

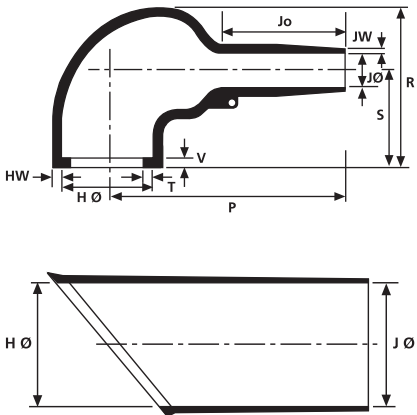


Helashrink 1100 Series

Right-angle, VG style shape with rib. This style provides connector cable strain relief and can be installed directly onto connector rear thread.



Space saving right-angle shapes used here in a military application.



1152-4-G recovered on to a connector.

Technical Table

Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J min a	J max b	P ± 10%	R ± 10%	S ± 10%	JO ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%
411-08180	1108-1-G	-	16.5	7.9	16.5	3.8	17.3	20.1	15.2	4.1	1.0	1.0	-	1.0
411-08480	1108-4-G	-	16.5	7.9	16.5	3.8	17.3	20.1	15.2	4.1	1.0	1.0	3.0	1.0
411-52480	1152-4-G	VG95343T06E001A	24.0	10.5	24.0	6.0	26.0	25.0	19.0	10.0	1.3	0.5	3.0	1.0
411-54480	1154-4-G	VG95343T06E002A	30.0	15.5	30.0	6.0	32.0	27.0	20.0	12.0	1.5	0.8	3.0	1.0
411-55480	1155-4-G	VG95343T06E003A	31.0	18.0	31.0	7.0	40.0	31.0	21.0	15.0	1.8	1.0	3.0	1.0
411-56480	1156-4-G	VG95343T06E004A	36.0	22.5	36.0	8.5	46.0	38.0	26.0	15.0	1.8	1.0	3.0	1.0
411-57480	1157-4-G	VG95343T06E005A	43.0	28.5	43.0	10.0	55.0	45.0	30.0	16.0	2.0	1.0	3.0	1.7
411-58480	1158-4-G	VG95343T06E006A	60.0	35.0	60.0	16.0	80.0	54.0	35.0	30.0	3.3	1.5	3.0	1.7
411-59480	1159-4-G	VG95343T06E007A	66.0	45.0	66.0	17.0	108.0	68.0	42.0	51.0	3.8	2.0	3.0	2.0
411-60480	1160-4-G	VG95343T06E008A	82.0	61.0	82.0	25.0	118.0	84.0	52.0	39.0	4.0	4.0	3.0	2.0

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

a as supplied
b recovered



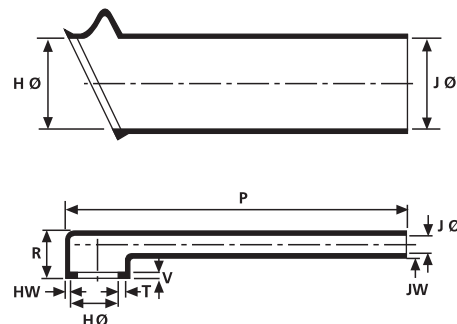
Helashrink 1100 Series

Right-angle, low profile shape with rib, VG/Mil style, often used on airborne harnesses to achieve low profile, compact strain relief and mechanical protection.

The photo below shows a shape style that provides connector strain relief and is used in applications of partially loaded connectors with small cable diameters.



1123-1-G Supplied and recovered.



Technical Table

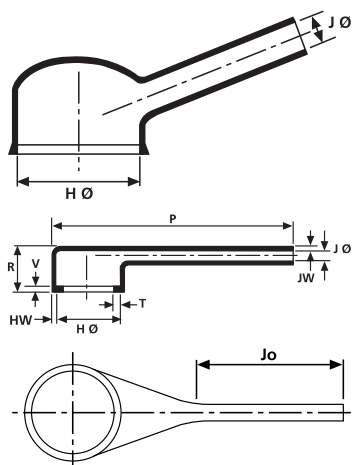
Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J min a	J max b	P ±10% = overall length	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 10%
411-21180	1121-1-G	VG95343T06F001A	22.0	12.0	22.0	6.5	70.0	19.0	1.5	1.1	3.0	1.0
411-22180	1122-1-G	VG95343T06F002A	25.5	15.0	25.0	7.5	79.0	20.0	1.5	1.1	3.0	1.0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

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

a as supplied
b recovered



1135-1-G Supplied and recovered.

Technical Table

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

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request.

In addition, the moulded shapes can also be supplied with an inner coating or epoxy adhesives.

a as supplied
b recovered

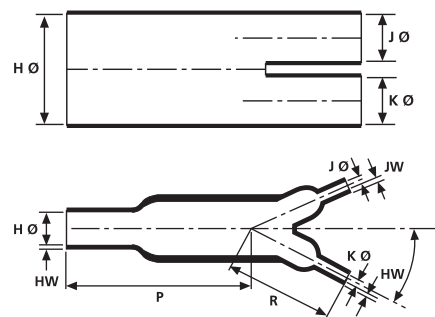


Helashrink 200 Series

Branching parts are used for easy, time-saving insulation of the branch point of a cable where it is split into single wires. Branching parts with hot-melt adhesive also serve to relieve the mechanical tension in cable harnesses.



Two-way outlet shape 203-1-G as supplied and recovered.



Technical Table

Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J/K min a	J/K max b	P ± 10%	R ± 10%	HW ± 20%	JW/KW ± 20%
402-06180	206-1-G	VG95343T08C001A	13.0	6.0	7.0	3.0	22.0	19.0	1.5	1.0
402-12180	212-1-G	VG95343T08C005A	14.5	8.0	8.5	5.5	82.6	63.5	2.3	2.0
402-13180	213-1-G	-	17.3	7.9	11.1	7.9	83.1	64.0	2.3	2.3
402-03180	203-1-G	VG95343T08C002A	27.0	12.0	13.0	6.0	39.0	43.0	2.5	1.5
402-04180	204-1-G	VG95343T08C003A	39.0	18.0	27.0	12.0	66.0	81.0	3.1	2.5
402-01180	201-1-G	-	19.0	9.4	6.4	14.0	50.8	30.5	1.5	1.5
402-01220	201-2-G	-	31.8	9.4	15.7	6.4	50.8	30.5	1.5	1.5

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

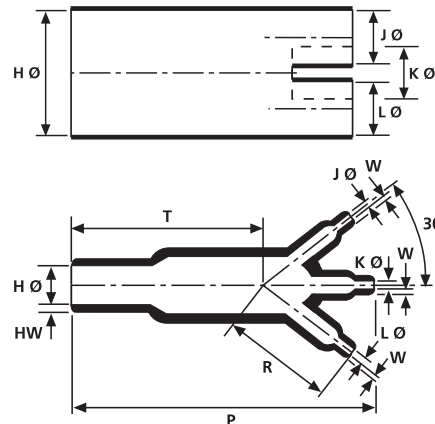
a as supplied
b recovered

Helashrink 300 Series

Branching parts are used for easy, time-saving insulation of the branch point of a cable where it is split into single wires. Branching parts with hot-melt adhesive also serve to relieve the mechanical tension in cable harnesses.



304-1-G as supplied / fully recovered.



Technical Table

Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J/K/L min a	J/K/L max b	P ± 10%	R ± 10%	HW ± 20%	W ± 20%	T ± 10%
403-06180	306-1-G	VG95343T08D001A	13.0	6.5	6.5	3.5	46.0	25.4	1.3	1.0	20.3
403-04180	304-1-G	VG95343T08D002A	27.0	13.5	13.0	7.0	93.0	50.3	2.5	1.5	42.9
403-10180	310-1-G	VG95343T08D003A	38.5	19.0	19.0	10.0	135.0	73.7	3.1	1.8	61.0
403-11180	311-1-G	VG95343T08D004A	55.5	25.5	27.0	12.5	192.0	103.1	4.6	3.1	88.9

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

a as supplied
b recovered

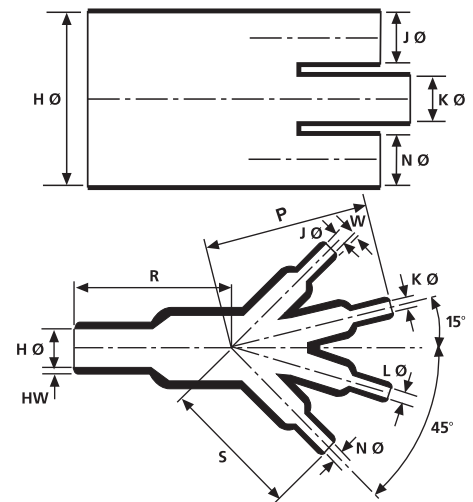


Helashrink 400 Series

Branching parts are used for easy, time-saving insulation of the branch point of a cable where it is split into single wires. Adhesive lined branching parts also serve to relieve the mechanical tension in cable harnesses.



403-1-G as supplied / recovered.



Technical Table

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

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request. In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

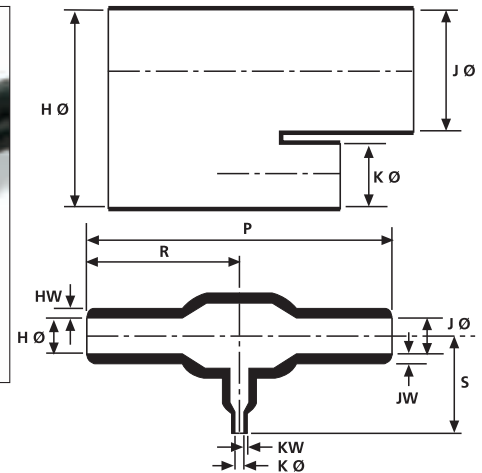
a as supplied
b recovered

Helashrink 1200 Series

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



Moulded shape 1202-1-G.



Technical Table

Article-No.	Type	Designation as per VG-Norm	H/J min a	H/J max b	K min a	K max b	P ± 10% = overall length	R ± 10%	S ± 10%	KW ± 20%	HW/JW ± 10%
412-06180	1206-1-G	VG95343T08A009A	6.6	3.0	6.6	3.0	29.7	14.7	14.7	1.0	1.0
412-03180	1203-1-G	VG95343T08A001A	13.2	6.0	6.5	3.0	52.0	26.0	19.3	1.0	1.5
412-02180	1202-1-G	VG95343T08A010A	13.2	6.1	13.2	6.1	58.7	29.2	29.2	1.5	1.5
412-05180	1205-1-G	-	17.7	8.9	7.6	3.8	50.8	25.4	25.4	1.0	1.5
412-01180	1201-1-G	VG95343T08A007A	17.7	8.9	10.1	5.1	47.5	23.6	23.6	1.0	1.5
412-09180	1209-1-G	VG95343T08A002A	27.0	12.4	13.2	6.0	108.0	54.0	38.6	1.5	2.5
412-07180	1207-1-G	VG95343T08A011A	26.9	12.4	26.9	12.4	120.1	55.9	59.9	2.5	2.5
412-04180	1204-1-G	VG95343T08A016A	13.0/6.5	7.5/4.0	6.5	4.0	56.0	33.0	19.3	1.0	1.5/1.0
412-16180	1216-1-G	VG95343T08A017A	33.0/16.5	13.0/6.5	16.5	6.5	97.0	54.0	38.5	1.5	2.5/1.5

All dimensions in mm. Subject to technical changes.

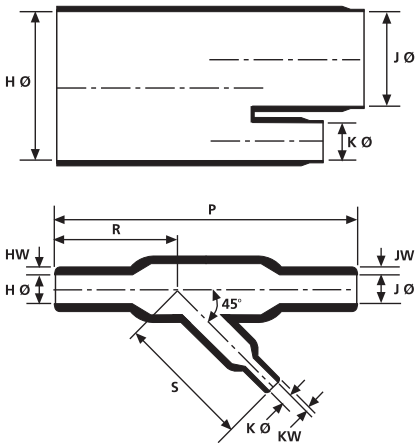
These moulded shapes are also available in the materials B7 and H, on request. In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

a as supplied
b recovered



Helashrink 1300 Series

45° transition parts (Y-joints) are used for a simple time-saving insulation of the branch point of a cable where it is divided into single wires. Y-joints with hot-melt adhesive also serve to relieve the mechanical tension in cable harnesses.



Angled T shape 1303-1-G as supplied/ recovered.

Technical Table

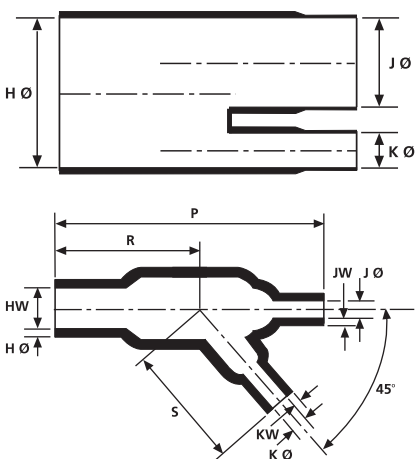
Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J min a	J max b	K min a	K max b	P ±10%= overall length	R ± 10%	S ± 10%	KW ± 20%	HW ± 20%	JW ± 20%
413-01180	1301-1-G	VG 95343 T08 B 001 A	13.0	7.0	13.0	7.0	7.0	3.5	50.0	23.0	23.0	1.0	1.5	1.5
413-02180	1302-1-G	VG 95343 T08 B 004 A	27.0	13.0	27.0	13.0	7.0	3.5	93.0	41.0	36.0	1.0	2.5	2.5
413-03180	1303-1-G	VG 95343 T08 B 002 A	27.0	14.0	27.0	14.0	13.0	7.5	145.0	70.0	54.0	1.5	2.5	2.5
413-13180	1313-1-G	VG 95343 T06 B 009 A	28.5	13.5	27.0	13.5	27.0	13.5	150.0	70.0	80.0	2.5	2.5	2.5
413-11180	1311-1-G*	VG 95343 T08 B 003 A	30.4	15.0	30.4	15.0	20.3	10.0	83.0	32.0	51.0	1.8	2.5	2.5

All dimensions in mm. Subject to technical changes. * 30° transition part

These moulded shapes are also available in the materials B7 and H, on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

a as supplied
b recovered



Angled T shape 1306-1-G as supplied/ recovered.

Technical Table

Article-No.	Type	Designation as per VG-Norm	H min a	H max b	J min a	J max b	K min a	K max b	P ±10%= overall length	R ± 10%	S ± 10%	KW ± 20%	HW ± 20%	JW ± 20%
413-06180	1306-1-G	VG95343T06B010A	13.0	6.0	6.5	3.0	6.5	3.0	45.0	23.0	21.5	1.5	1.0	1.0

All dimensions in mm. Subject to technical changes.

These moulded shapes are also available in the materials B7 and H, on request.

In addition, the moulded shapes can also be supplied with an inner coating from our range of hot-melt or epoxy adhesives.

a as supplied
b recovered



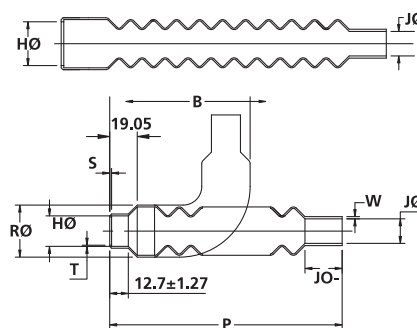
Helashrink 313C Series Convolute boot, low profile with adapter lip

This style is used with a circular grooved adapter to provide strain relief and if adhesive is used, excellent environmental sealing can be achieved.

The convolute design provides the flexibility to accommodate different cable outlet angles.



313C722-774 series as supplied / recovered.



Technical Table

Article-No.	Type	H DIA min a	H DIA max b	J DIA min a	J DIA max b	P ± 10% b	R max b	JO ± 1.8	W min b	B nom b	T ± 0.5	S ± 0.5
422-00001	313C722-9	14.2	6.9	11.1	4.8	120.6	21.1	17.3	1.5	62.4	1.3	1.5
422-00101	313C732-9	22.4	11.7	17.7	8.1	133.3	26.5	19.8	1.5	67.8	1.3	1.5
422-00201	313C743-9	34.0	17.5	26.9	12.7	146.0	32.7	22.3	1.5	73.4	1.3	1.8
422-00302	313C753-9	44.2	22.3	36.5	17.5	158.7	37.8	25.4	1.5	78.2	1.3	1.8
422-00400	313C764-9	53.8	27.9	45.7	22.3	171.4	42.9	28.4	1.5	82.8	2.0	1.8
422-00501	313C774-9	77.2	40.6	54.6	22.8	236.2	62.2	35.4	1.5	138.4	2.0	2.0

a as supplied
b recovered

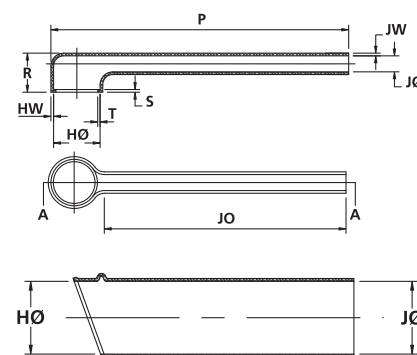
All dimensions in mm. Subject to technical changes.

Helashrink 333F Series Right angle, boot 90°, low profile with adapter lip

The boot provides connector strain relief in applications with partially loaded connectors, resulting in small cable diameters requiring a high shrink ratio.



333F322-385 series as supplied / recovered.



Technical Table

Article-No.	Type	H DIA min a	H DIA max b	J DIA min a	J DIA max b	P ± 10% b	R ± 15%	T ± 0.8	JO ± 10% b	HW ± 1.5	JW ± 0.8	S ± 1.5
422-30000	333F322-9	23.8	9.9	17.2	6.6	105.1	18.5	1.3	87.6	1.5	1.5	1.5
422-30004	333F332-9	27.1	13.2	20.8	7.6	115.8	19.8	1.3	99.0	1.5	1.5	1.5
422-30100	333F343-9	30.9	18.5	4.3	8.9	146.3	20.8	1.3	114.3	1.7	1.7	1.7
422-30200	333F353-9	35.3	21.6	28.7	10.1	172.2	21.8	1.3	132.5	1.7	1.5	1.7
422-30301	333F364-9	38.8	27.9	31.4	10.9	185.1	24.1	1.8	143.7	1.7	1.5	1.7
422-30400	333F374-9	45.2	34.0	38.3	12.1	213.6	27.4	1.8	169.0	1.7	1.5	1.7
422-30500	333F385-9	51.5	41.1	44.4	15.0	224.5	29.4	1.7	173.2	1.7	1.7	1.7

a as supplied
b recovered

All dimensions in mm. Subject to technical changes.

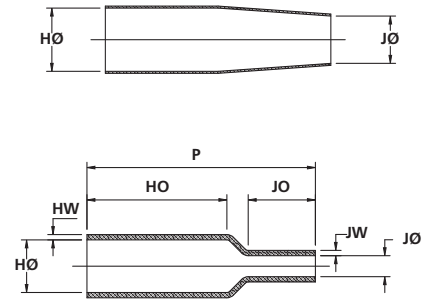


Helashrink 313E Series Shim boot, low profile, no adapter lip

This part is normally used to build up, or shim a cable diameter to facilitate a better fit for components in a cable harness.



313E445-457 series as supplied / recovered.



Technical Table

Article-No.	Type	H DIA min a	H DIA max b	J DIA min a	J DIA max b	P ± 10% b	JO ± 10% b
422-10000	313E445-9	14.7	12.7	11.1	3.3	63.5	15.7
422-10200	313E455-9	25.7	22.1	11.2	3.3	53.3	15.7
422-10100	313E447-9	20.8	14.7	20.6	9.9	63.5	16.5
422-10300	313E457-9	25.7	22.1	20.6	9.9	53.3	14.0

All dimensions in mm. Subject to technical changes.

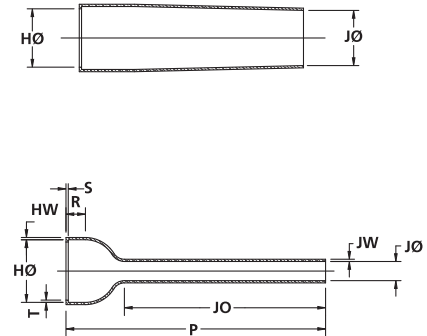
a as supplied
b recovered

Helashrink 313F Series Straight boot, low profile with adapter lip

This boot provides strain relief in applications with partially loaded connectors, resulting in small cable diameters requiring a high shrink ratio.



313F322-396 series as supplied / recovered



Technical Table

Article-No.	Type	H DIA min a	H DIA max b	J DIA min a	J DIA max b	P ± 10% b	R ± 15%	T ± 0.8	JO ± 10% b	HW ± 1.5	JW ± 0.8	S ± 1.5
422-20000	313F322-9	23.8	9.9	17.2	6.6	105.9	11.6	1.3	86.3	1.5	1.5	1.5
422-20100	313F332-9	27.1	13.2	20.8	7.6	121.1	12.1	1.3	98.5	1.5	1.5	1.5
422-20200	313F343-9	30.9	18.5	24.3	8.9	138.6	12.1	1.3	112.7	1.7	1.5	1.7
422-20300	313F353-9	35.6	22.1	28.7	10.1	159.5	12.1	1.3	130.8	1.7	1.5	1.7
422-20400	313F364-9	38.8	28.2	31.4	10.9	177.8	13.9	1.8	142.2	1.7	1.5	1.7
422-20500	313F374-9	42.2	32.2	38.3	12.7	203.2	15.2	1.8	163.0	1.7	1.5	1.7
422-20600	313F385-9	51.5	45.4	45.4	14.9	203.2	15.2	1.8	157.7	1.7	1.7	1.7
422-20700	313F396-9	62.7	45.4	53.3	16.7	228.6	16.0	1.8	153.1	1.7	1.7	1.7

All dimensions in mm. Subject to technical changes.

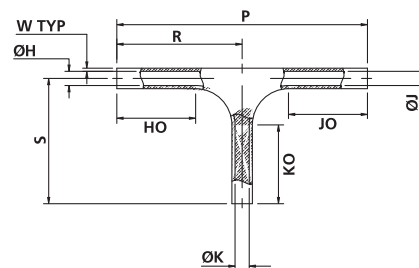
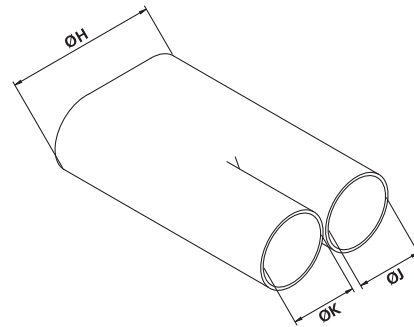


Helashrink 412H Series Transition, side breakout, low profile

This style provides connector cable strain relief and is used in conjunction with a circular grooved adapter.



412H622-625 as supplied / recovered.



Technical Table

Article-No.	Type	H DIA min a	H DIA max b	J DIA min a	J DIA max b	HO,JO & KO ± 10% b	P nom b	W nom b	R&S nom b
422-40000	412H622-9	19.8	6.6	13.2	6.6	25.4	80.7	1.0	40.3
422-40100	412H623-9	34.2	11.4	22.8	6.6	41.1	120.3	1.3	60.1
422-40200	412H624-9	60.1	20.0	40.1	20.0	63.5	175.7	1.5	87.8
422-40300	412H625-9	83.3	33.2	54.8	33.2	88.9	242.3	1.7	121.1

All dimensions in mm. Subject to technical changes.

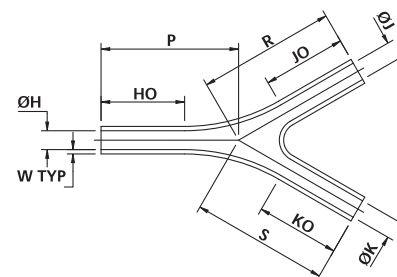
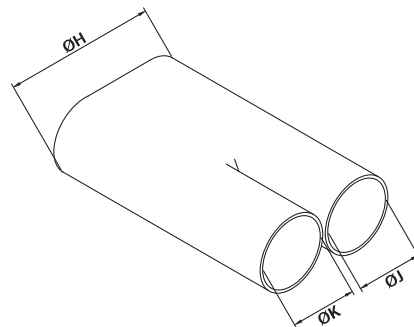
a as supplied
b recovered

Helashrink 492H Series Transition 1 to 2 cables, Y, low profile

This style provides strain relief, sealing and mechanical protection on cable harness break-outs or transitions.



492H412-415 series as supplied / recovered.



Technical Table

Article-No.	Type	H DIA min a	H DIA max b	HO,JO & KO ± 15% b	W nom b	P,R&S nom b	J & K DIA min a	J & K DIA max b
422-50000	492H412-9	19.8	6.6	25.4	1.0	40.6	13.2	6.6
422-50101	492H413-9	34.2	11.4	41.1	1.3	62.9	22.8	11.4
422-50202	492H414-9	60.1	20.0	63.5	1.5	94.7	40.1	20.0
422-50302	492H415-9	83.3	33.2	49.7	1.7	133.8	54.8	33.2
422-50200	492H414-9-01	60.1	20.0	31.7	1.5	94.7	40.1	20.0
422-50300	492H415-9-01	83.3	33.2	49.7	1.7	94.7	54.8	33.2

All dimensions in mm. Subject to technical changes.

a as supplied
b recovered

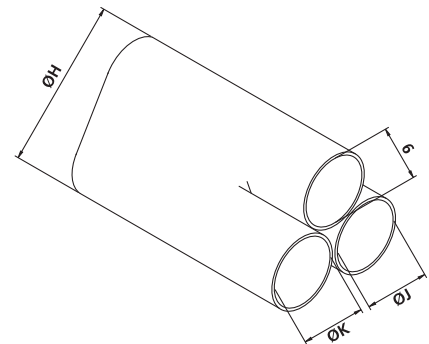
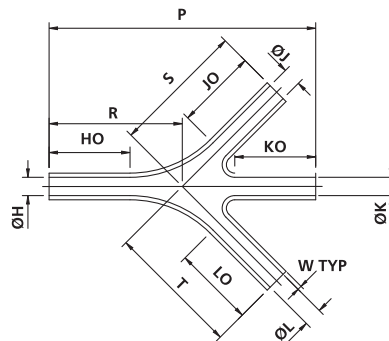


Helashrink 573H Series Transition, 1 to 3 cables, low profile

This style provides strain relief, sealing and mechanical protection on cable harness breakouts or transitions.



573H532-535 series as supplied / recovered.



Technical Table

Article-No.	Type	H DIA min a	H DIA max b	P nom b	R,S&T nom b	W nom b	J,K & L DIA min a	J,K & L Diamete r max b	HO,JO, KO & LO ± 3.8
422-60000	573H532-9	19.8	6.6	85.8	42.9	1.0	13.2	6.6	25.4
422-60100	573H533-9	34.2	11.4	135.6	67.8	1.3	20.5	11.4	41.1
422-60202	573H534-9	60.1	20.0	207.2	103.6	1.5	36.0	20.0	27.6
422-60302	573H535-9	99.8	33.2	294.6	147.3	1.7	54.8	33.2	88.9
422-60200	573H534-9-01	60.1	20.0	135.6	67.8	1.5	36.0	20.0	27.6
422-60300	573H535-9-01	99.8	33.2	207.2	103.6	1.7	54.8	33.2	45.4

a as supplied
b recovered

All dimensions in mm. Subject to technical changes.



Two-component epoxy resin adhesive V9500

This high performance, VG-approved, two part epoxy adhesive has been developed to meet the military requirements associated with heat shrinkable components for wire and cable harnesses. It has a very good resistance against most solvents and fuels, even at elevated temperatures. The two-part epoxy adhesive is available in two different packages.

When heat is applied during the shrinking of the moulded shape the two part components react, which results in a high performance bond.



Two-component epoxy adhesive V9500.

Material Data

Material	Epoxy resins (EP)
Colour	Black (BK)
Curing Temperature	+135 °C
Curing Time	24 hours at +25 °C, 2 hours at +85 °C
Operating Temperature	-75 °C to +150 °C
Specification	VG 95343 T15 DA



V9500 applicator gun

The V9500 dosing gun allows for clean processing and individual metering. It is employed in conjunction with the dual cartridges 627-95002.

The V9500 lockable cartridges are available with or without the processing set. The processing set is available in two versions (see table for contents).

The cartridges can be re-used even after a lapse of several days, because the closure prevents the adhesive from hardening.



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

Technical Table

Article-No.	Type	Designation as per VG-Norm	Content
627-95001	V9500 epoxy adhesive kit	VG 95343 T15 A 001 A	1 x dual cartridge (50g), 5 x mixing pots, 5 x mixing sticks, 5 x emery papers
627-95010	V9500 epoxy adhesive kit	VG 95343 T15 A 002 B	1 x dual cartridge (50g), 1 x mixing pot, 1 x mixing stick, 1 x emery paper, 3 x mixing nozzles
627-95002	V9500 Duo pack	VG 95343 T15 A	Two-component adhesive cartridge
627-95003	V9500 Applicator gun	VG 95343 T15 DA	Applicator gun
627-95004	V9500 Nozzle	VG 95343 T15 MA	Mixing nozzle

Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



HEK Cable End Caps

Features and Benefits

End caps are used to seal cables during storage or transportation. HEK end caps can be used as an insulating cap for live LV cables (0.6/1kV), and the cap is marked with a lightning flash to indicate a live circuit. The adhesive lining provides an excellent environmental seal.

End caps can be fitted with air valves for certain pressurised cable applications.

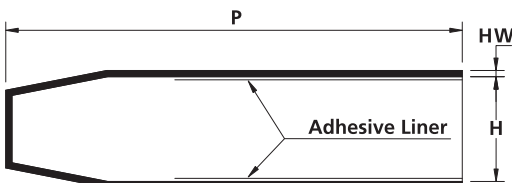
The high shrink ratio minimises the number of end cap sizes needed.

Application

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



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



HEK

Material Data	
Material	Polyolefin, Chemically cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	up to 3:1
Minimum Shrink Temperature	+135 °C
Operating Temperature	-55 °C to +80 °C
Dielectric Strength	15 kV/mm
Flammability	ASTM D635



Technical Table

Article-No.	Type	Recomm. application		H min a	H max b	Fully recovered	
		From	To			P ± 10%	HW ± 20%
HEK Standard Range							
416-12046	1612-1-B8W	4.0	8.0	10.0	4.0	33.5	2.0
416-13054	1613-1-B8W	8.0	16.0	20.0	7.5	55.3	2.3
416-14047	1614-1-B8W2	16.0	32.0	40.0	15.0	90.0	3.0
416-15035	1615-1-B8W2	26.0	51.0	63.0	25.0	143.0	3.3
416-15070	1615-2-B8W2	26.0	44.0	55.0	25.0	143.0	3.3
416-17033	1617-1-B8W2	32.0	61.0	76.0	30.0	158.0	4.0
416-16053	1616-1-B8W2	48.0	80.0	100.0	45.0	162.0	4.0
416-16110	1616-7-B8W	48.0	100.0	125.0	45.0	162.0	4.0
HEK Special Range							
416-18019	1618-1-B8W	6.0	11.0	14.0	6.0	55.3	2.3
416-01013	1601-1-B8W	10.0	19.0	23.8	9.4	89.0	2.0
416-20023	1620-1-B8W	13.0	28.0	35.0	12.7	184.0	3.3
416-08012	1608-1-B8W	70.0	130.0	159.0	63.5	127.0	3.3

a as supplied
b recovered

All dimensions in mm. Subject to technical changes.



HEV Cable Breakout Boots

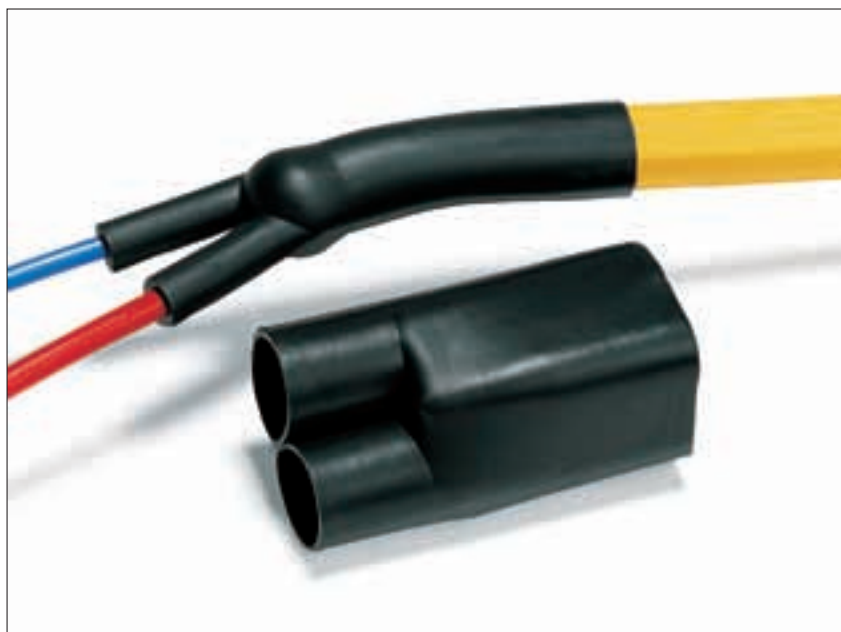
Features and Benefits

Cable breakout boots are designed for insulating and sealing a cable crotch, or conduit system, and provide excellent resistance to abrasion and weathering.

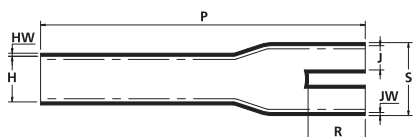
Application

Cable breakouts are manufactured from a tough cross-linked polyolefin containing a flame retardant. This allows the breakouts to be used for both interior and exterior applications. They offer excellent electrical and mechanical protection.

Cable breakouts are supplied with an adhesive inner coating for reliable environmental sealing, and are available for 2, 3, 4, 5 and 6 core cables.



HEV breakout boot for two-core cable.



HEV breakout boot



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.

Material Data

Material	Polyolefin, Chemically cross-linked (POX)
Colour	Black (BK)
Shrink Ratio	up to 3:1
Dielectric Strength	15 kV/mm
Minimum Shrink Temperature	+135 °C
Operating Temperature	-55 °C to +80 °C
Flammability	ASTM D635
Specification	Det Norske Veritas



Technical Table

Article-No.	Type	Recomm. application (mm ²)		H min a	H max b	J min a	J max b	Recovered				
		from	to					P ± 10%	R ± 10%	S nom	HW ± 20%	JW ± 20%
2 Finger Breakout Boot												
402-16007	216-1-B8W	2.5	10.0	21.0	9.4	9.0	2.8	76.5	20.0	15.0	1.6	1.6
402-23058	223-2-B8W	4.0	35.0	33.0	9.4	17.5	4.1	94.0	30.0	20.0	1.5	1.2
402-18051	218-2-B8W	50.0	150.0	49.0	22.9	20.0	7.6	119.0	34.0	30.0	3.2	3.2
402-19032	219-2-B8W	185	400	87.0	38.1	43.0	12.7	141.5	42.5	44.0	3.8	3.8
3 Finger Breakout Boot												
403-18046	318-2-B8W	4.0	16.0	25.0	9.1	9.0	3.0	76.5	20.0	16.0	2.5	2.5
403-19056	319-2-B8W	16.0	35.0	31.0	17.5	15.0	4.6	93.5	28.5	23.0	2.9	2.9
403-20031	320-2-B8W	50.0	150.0	63.0	22.5	26.0	9.0	180.0	44.0	37.0	3.0	2.0
403-24016	324-1-B8W	150	300.0	90.0	34.0	35.0	14.0	200.0	50.0	54.0	3.0	2.0
403-42006	342-1-B8W2	185	400	110.0	35.0	40.0	17.5	230.0	45.0	55.0	4.0	3.5
403-41005	341-1-B8W2	240	400.0	125.0	59.0	50.8	25.4	283.0	71.0	75.0	3.8	3.8
4 Finger Breakout Boot												
404-42022	442-1-B8W	2.5	10.0	28.0	9.0	9.0	1.8	78.0	17.0	20.0	2.7	2.0
404-08022	408-2-B8W2	4.0	35.0	35.0	12.0	15.0	3.0	95.0	24.0	22.0	2.5	2.0
404-09021	409-2-B8W2	35.0	70.0	47.4	22.9	21.5	6.4	165.0	38.1	38.1	4.1	3.3
404-18020	418-4-B8W2	70.0	150.0	60.0	22.9	30.0	6.4	202.0	38.1	38.0	4.1	3.3
404-44010	444-1-B8W2	150	300.0	78.7	35.6	38.1	12.5	240.0	55.0	55.0	4.0	3.5

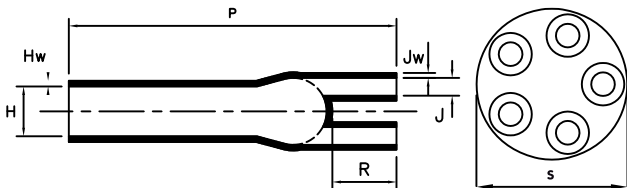
All Dimensions in mm, except for "mm²". Subject to technical changes.

a as supplied
b recovere



Helashrink 500 Series

Cable breakout boots are designed for insulating and sealing a cable crotch, or conduit system, and provide excellent resistance to abrasion and weathering.



Helashrink 500 Series supplied and recovered.

Technical Table

Article-No.	Type	H min a	H max b	J min a	J max b	P ± 10%	R ± 10%	HW ± 20%	S nom	JW ± 20%
405-08029	508-3-B8	89.0	24.5	33.0	7.5	180.0	30.0	3.5	48.0	3.0
405-08030	508-3-B8W	89.0	24.5	33.0	7.5	180.0	30.0	3.5	48.0	3.0

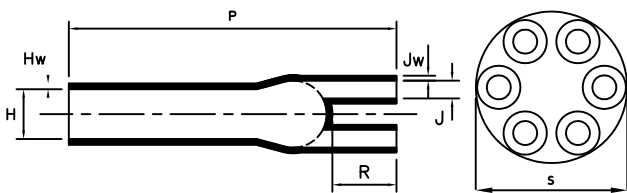
a as supplied
b recovered

All dimensions in mm. Subject to technical changes.

These moulded shapes can also be supplied with an inner coating of high temperature hot melt (W8) or epoxy adhesive (W24). Also available in G and H materials, upon request.

Helashrink 600 Series

Cable breakout boots are designed for insulating and sealing a cable crotch, or conduit system, and provide excellent resistance to abrasion and weathering.



Helashrink 600 Series supplied and recovered.

Technical Table

Article-No.	Type	H min a	H max b	J min a	J max b	P ± 10%	R ± 10%	HW ± 20%	S nom	JW ± 20%
406-08018	608-2-B8	61.0	37.0	21.0	9.0	152.0	56.0	3.2	46.0	3.2
406-08019	608-2-B8W	61.0	37.0	21.0	9.0	152.0	56.0	3.2	46.0	3.2
406-09010	609-2-B8	40.0	16.0	12.0	4.0	75.0	20.0	2.5	25.0	1.5
406-09020	609-2-B8W	40.0	16.0	12.0	4.0	75.0	20.0	2.5	25.0	1.5

a as supplied
b recovered

All dimensions in mm. Subject to technical changes.

These moulded shapes can also be supplied with an inner coating of high temperature hot melt (W8) or epoxy adhesive (W24). Also available in G and H materials, upon request.

2.3 Insulation Non Shrinkable Tubing



Helvin P

Features and Benefits

A thin wall section makes P sleeving ideal for minimising the overall diameter of loom assemblies.

Application

These high-grade PVC sleeves (P) have a thin wall that makes them ideal for insulating wire in areas where space is at a premium. They can be supplied as continuous tubing or cut lengths.

The tubing is available in international resistor colour code, pink and transparent.



Helvin P tubing.



Material Data	
Material	Polyvinylchloride (PVC)
Operating Temperature	-65 °C to +105 °C, Intermittent +135 °C
Flammability	UL94 V0 at 1mm thickness
Specification	UL224, BS 3858 Type 3, IEC 684-3-101 / 104, DEF STAN 59-15



Other colours and cut lengths available on request. Please contact us!

Technical Table					
Article-No.	Type	Colour	Ø D	Wall (WT) nom.	Reel Length (m)
172-03001	P10	Black (BK)	1.0	0.35	250
172-03036	P15	Black (BK)	1.5	0.35	250
172-03108	P30	Black (BK)	3.0	0.35	100
172-03123	P40	Black (BK)	4.0	0.35	50
172-03158	P55	Black (BK)	5.5	0.40	200
172-03170	P75	Black (BK)	7.5	0.50	100
172-03013	P100	Black (BK)	10.0	0.50	150
172-03048	P150	Black (BK)	15.0	0.50	50

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Helvin XY

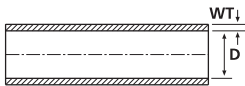
Features and Benefits

These high-grade PVC sleeves (XY) have a heavier wall that makes them ideal for insulating wire in areas where greater protection is required. They can be supplied as continuous tubing or cut lengths.

The tubing is available in new phase colours.



Helvin XY tubing.



Material Data	
Material	Polyvinylchloride (PVC)
Operating Temperature	-65 °C to +105 °C, Intermittent +135 °C
Flammability	UL94 V0 at 1mm thickness
Specification	DEF STAN 59-15 Type D1b, BS2848 Type 3, IEC 684-3-101 / 104, UL224



Other Colours available on request. Please contact us!

Technical Table

Article-No.	Type	Colour	Ø D	Wall (WT) nom.	Reel Length (m)
172-04003	XY10	Black (BK)	1.0	0.40	500
172-04032	XY15	Black (BK)	1.5	0.50	300
172-04052	XY20	Black (BK)	2.0	0.50	300
172-04040	XY150	Black (BK)	15.0	0.85	100

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Helvin PVCB

Features and Benefits

Commercial grade, highly flexible tubing that provides insulation and protection for cable and wire.

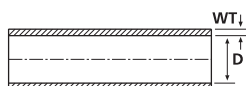
Application

These commercial grade PVC sleeves (PVCB) have a heavier wall that makes them ideal for insulating wire in areas where greater protection is required. They can be supplied as continuous tubing or cut lengths.

The tubing is available in black only.



Helvin PVCB tubing.



Material Data

Material	Polyvinylchloride (PVC)
Colour	Black (BK)
Operating Temperature	-65 °C to +105 °C, Intermittent +135 °C
Flammability	UL94 HB
Specification	BS2848 Type 3



Cut lengths available on request. Please contact us!

Technical Table

Article-No.	Type	Colour	Supplied Ø D	Wall (WT) nom.	Reel Length (m)
172-00051	PVCB15	Black (BK)	1.5	0.50	100
172-00055	PVCB20	Black (BK)	2.0	0.50	100
172-00064	PVCB30	Black (BK)	3.0	0.50	100
172-00071	PVCB40	Black (BK)	4.0	0.50	100
172-00077	PVCB50	Black (BK)	5.0	0.50	100
172-00081	PVCB60	Black (BK)	6.0	0.50	100
172-00088	PVCB90	Black (BK)	9.0	0.65	100
172-00047	PVCB120	Black (BK)	12.0	0.85	100
172-00061	PVCB250	Black (BK)	25.0	0.85	50

All dimensions in mm. Subject to technical changes.



LFH tubing LFPT

Features and Benefits

LFPT has been designed for use where limited fire hazard or zero halogen insulations are required.

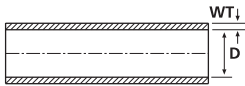
Application

These limited fire hazard (LFH) sleeves are zero halogen, making them ideal for protecting wire and cable in areas where smoke and fume emissions must be minimised. They are supplied as continuous tubing on reels.

The tubing is available in new phase colours.



LFH tubing LFPT.



Material Data

Material	Polyolefin
Operating Temperature	-40 °C to +90 °C, Intermittent +120 °C
Flammability	UL94 V0 at 3mm thickness
Specification	RSE STD 013 London Underground, IEC 684-3-165



Other colours and cut lengths available on request. Please contact us!

Technical Table

Article-No.	Type	Colour	Ø D	Wall (WT) nom.	Reel Length (m)
179-00009	LFPT10	Black (BK)	1.0	0.40	100
179-00018	LFPT15	Black (BK)	1.5	0.50	100
179-00027	LFPT20	Black (BK)	2.0	0.50	100
179-00004	LFPT30	Black (BK)	3.0	0.50	100
179-00036	LFPT40	Black (BK)	4.0	0.50	100
179-00046	LFPT60	Black (BK)	6.0	0.50	100
179-00001	LFPT100	Black (BK)	10.0	0.85	100
179-00002	LFPT150	Black (BK)	15.0	0.85	100

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Helsyn rubber tubing H

Features and Benefits

The high elasticity of the material ensures many cable diameters can be covered with one size of sleeve.

Can withstand up to 120°C intermittent temperature.

Application

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

As the material is highly elastic, its 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.



H rubber tubing is highly flexible and easy to apply.

Other colours and cut lengths available on request. Please contact us!

Material Data

Material	Chloroprene (CR)
Operating Temperature	-65 °C to +95 °C, Intermittent 120 °C
Flammability	UL94 HB
Specification	BS 3858 Type 1, IEC 684-3-116, BS 4 G 198 Part 1 Type 1, DEF STAN 59-15 D2



Technical Table

Article-No.	Type	Colour	Ø D	Wall (WT) nom.	Length (L)	Pack Cont. (pcs./bag)
600-01520	H12	Black (BK)	1.2	0.70	20	1000
600-01600	H15	Black (BK)	1.5	0.80	20	1000
600-01700	H20	Black (BK)	2.0	0.80	20	1000
600-01841	H30	Black (BK)	3.0	0.80	25	1000
600-01982	H50	Black (BK)	5.0	1.00	25	1000
600-02063	H75	Black (BK)	7.5	1.30	25	1000
600-02105	H100	Black (BK)	10.0	1.50	25	1000
600-02155	H150	Black (BK)	15.0	1.70	25	1000

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Helsyn HS, HT

Features and Benefits

Chloroprene tubing and grommets are highly elastic in nature. They have very good insulating characteristics and are easy to fit.

Application

For years, HellermannTyton tubing and grommets have been the engineer's preferred choice for electrical insulation and mechanical protection in a diverse range of electronic and electrical industries.

To save time and effort when fitting the tubing, try the HellermannTyton NA three pronged pliers (see Chapter 6.3) and the Hellerine lubricant (see end of Chapter), which are specially designed for use with HellermannTyton chloroprene tubing.



Chloroprene tubing

Material Data	
Material	Chloroprene (CR)
Operating Temperature	-25 °C to +100 °C
Flammability	UL94 HB and FMVSS-302
Elongation at break	min. 400%



Other colours and cut lengths available on request. Please contact us!



Chloroprene tubing

Technical Table

Article-No.	Type	Ø D	Wall (WT) nom.	Bundle Ø max.	Reel Length (m)	Colour
Tubing						
608-00100	HS0	1.25	0.50	2.0	100	Black (BK)
608-00150	HS1	1.75	0.50	3.5	100	Black (BK)
608-00200	HS1K	2.50	0.90	4.0	100	Black (BK)
608-00250	HS2	3.00	0.60	6.0	100	Black (BK)
608-00300	HS2K	4.00	1.50	8.5	50	Black (BK)
608-00350	HS3	5.00	0.70	9.0	100	Black (BK)
608-00400	HS4	7.50	0.80	13.0	25	Black (BK)
608-00450	HS5	10.00	1.00	20.0	25	Black (BK)
608-00500	HS8	12.00	1.00	23.0	25	Black (BK)
608-00550	HS9	14.00	1.00	25.0	20	Black (BK)
608-00600	HS10	17.00	1.00	28.0	20	Black (BK)

All dimensions in mm. Subject to technical changes.

Technical Table

Article-No.	Type	Ø D	Wall (WT) nom.	Bundle Ø max.	Length (L)	Colour
Grommets						
600-10200	HT0	1.25	0.50	2.0	20	Black (BK)
600-15200	HT1	1.75	0.50	3.5	20	Black (BK)
600-20250	HT1K	2.50	0.90	4.0	25	Black (BK)
600-25250	HT2	3.00	0.60	6.0	25	Black (BK)
600-30300	HT2K	4.00	1.50	8.0	30	Black (BK)
600-35250	HT3	5.00	0.70	9.0	25	Black (BK)
600-40300	HT4	7.50	0.80	13.0	30	Black (BK)
600-45350	HT5	10.00	1.00	20.0	35	Black (BK)
600-50500	HT8	12.00	1.00	23.0	50	Black (BK)
600-55500	HT9	14.00	1.00	25.0	50	Black (BK)
600-60500	HT10	17.00	1.00	28.0	50	Black (BK)

All dimensions in mm. Subject to technical changes.



Chloroprene tubing

2.3 Insulation Non Shrinkable Tubing



Helsyn PVC-Nitrile rubber tubing NT

Features and Benefits

The high elasticity of the material ensures many cable diameters can be covered with one size of sleeve.

Can withstand up to 150°C intermittent temperature.

Application

The PVC nitrile sleeves (NT) are ideally suited to rigorous environments such as aerospace, mass transit and defence.

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

Sleeves are available in international resistor colour code and pink.



NT rubber tubing is highly flexible and easy to apply.

Other colours and cut lengths available on request. Please contact us!

Material Data

Material	PVC / Nitrile
Operating Temperature	-65 °C to +120 °C, Intermittent 150 °C
Specification	BS 4G 198 Part 1 Type 2, BS 3858 Type 4, DEF STAN 59-15 Type D3, IEC 684-3-151



Technical Table

Article-No.	Type	Colour	Ø D	Wall (WT) nom.	Length (L)	Pack Cont. (pcs./bag)
602-01912	NT75	Black (BK)	7.5	1.30	25	1000
602-02005	NT100	Black (BK)	10.0	1.40	25	1000
602-02103	NT150	Black (BK)	15.0	1.40	25	1000

All dimensions in mm. Subject to technical changes.



Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Helsyn Silicone rubber tubing SLP

Features and Benefits

The high elasticity of the material ensures that many cable diameters can be recovered with one size of sleeve.

Can withstand up to 250°C intermittent temperature.

Application

The silicone sleeves (SLP) are halogen free and ideally suited to rigorous environments such as aerospace, mass transit and defence markets.

SLP can be used in areas where there will be large numbers of people in confined areas and sensitive equipment is housed.

Sleeves are available in international resistor colour code, pink and transparent



SLP rubber tubing is highly flexible and easy to apply.

Other colours and cut lengths available on request. Please contact us!

Material Data

Material	Silicone (SI)
Operating Temperature	-65 °C to +180 °C, Intermittent 250 °C
Flammability	UL94 HB
Specification	BS 2848 Type 5 Class 180T, BS 3858 Type 5 , BS 3G 198 Type 4



Technical Table

Article-No.	Type	Colour	Ø D	Wall (WT) nom.	Length (L)	Pack Cont. (pcs./bag)
606-00381	SLP15	Black (BK)	1.5	0.50	15	1000
606-00471	SLP30	Black (BK)	3.0	0.50	20	1000
606-00493	SLP40	Black (BK)	4.0	0.50	20	1000
606-00714	SLP50	Black (BK)	5.0	0.50	20	1000
606-00523	SLP70	Black (BK)	7.0	0.50	20	1000

All dimensions in mm. Subject to technical changes.

2.3 Insulation Non Shrinkable Tubing



PTFE tubing FE

Features and Benefits

FE tubing is specified predominantly because of its very high temperature resistance. It is a thin walled transparent or coloured tubing that has both high abrasion resistance and good resistance against aggressive chemicals.

Application

FE is ideal for high temperature applications, when resistance to aggressive fluids is required for example in high performance hose applications. FE tubing is also used to reduce movement due to friction, covering cable or wire.



PTFE tubing FE.

Other colours and cut lengths available on request. Please contact us!

Material Data

Material	Polytetrafluoroethylene (PTFE)
Operating Temperature	-65 °C to +250 °C, Intermittent +350 °C
Flammability	UL94 V0
Specification	DEF STAN 59-15 Type D6, BS 2848 Type 6 250T



Technical Table

Article-No.	Type	Colour	Ø D	Wall (WT) nom.	Reel Length (m)
178-00005	FE3	Natural (NA)	0.33	0.20	500.0 m
178-00012	FE4	Natural (NA)	0.38	0.25	500.0 m
178-00020	FE5	Natural (NA)	0.51	0.25	500.0 m
178-00056	FE9	Natural (NA)	0.89	0.25	500.0 m
178-00068	FE10	Natural (NA)	1.02	0.30	500.0 m
178-00083	FE11	Natural (NA)	1.14	0.30	500.0 m
178-00119	FE15	Natural (NA)	1.58	0.30	500.0 m
178-00143	FE19	Natural (NA)	1.91	0.30	250.0 m

All dimensions in mm. Subject to technical changes.

DEF STAN

Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



Hellerine lubricant

Hellerine is an effective aid for installation of elastomer sleeves. It slowly evaporates after installation so that sleeves can still be manipulated if necessary. Hellerine is ideal for lubricating most rubber and plastic markers and sleeves. Hellerine is available in a 284 ml bottle or 5 l container.



Hellerine lubricant in 284ml plastic bottle.

Technical Table

Article-No.	Description
625-00001	Hellerine M, 284 ml
625-00004	Hellerine M, 5 l

Subject to technical changes.