

Insulation



	Page
2.1 Heat Shrinkable Tubing	
Heatshrink Tubing Selection Guide	170
Material Overview	172
Overview of applications for heatshrink tubing	178
The right heatshrink tube	179
ShrinKit 321 Universal	180
ShrinKit 321-A	181
ShrinKit 321 Basic	182
HIS-3	183
HIS-A	183
HIS-Service Station	185
HIS-Pack	185
TREDUX display	187
TREDUX thin wall	188
TREDUX MA47, Medium wall adhesive lined	189
TREDUX HA47, Thick wall adhesive lined	190
Helashrink HMT200A	191
Isolvin® LVR	192
Insultite HFT-A, HFT-B	193
HFT-A	194

	Page
HFT-B	196
TCN20	197
TCN20 overexpanded	198
TL27	199
TF21	200
TF24	203
TF31	204
TF34	206
EPS-300, EPS-400	207
TA32 and TA42	208
MA47 and MU47 medium wall tubing	209
HA47 and HU47 thick wall tubing	210
PST-H	211
PST-HT	212
Viton®-E	213
KYNAR®	214
TFE2, TFE4	215
TR27	216

Insulation

	Page
2.2 Heatshrinkable Moulded Shapes	
Flowchart for Optimum Product Selection	217
Material and Adhesive Specifications for Moulded Shapes	218
Helashrink 100 Series	219
Helashrink 1100 Series	221
Helashrink 200 Series	223
Helashrink 300 Series	223
Helashrink 400 Series	224
Helashrink 1200 Series	224
Helashrink 1300 Series	225
Helashrink 313C Series Convoluted boot, low profile with adapter lip	226
Helashrink 333F Series Right angle, boot 90°, low profile with adapter lip	226
Helashrink 313E Series Shim boot, low profile, no adapter lip	227
Helashrink 313F Series Straight boot, low profile with adapter lip	227
Helashrink 412H Series Transition, side breakout, low profile	228
Helashrink 492H Series Transition 1 to 2 cables, Y, low profile	228

	Page
Helashrink 573H Series Transition, 1 to 3 cables, low profile	229
Two-component epoxy resin adhesive V9500	230
V9500 applicator gun	230
HEK Cable End Caps	231
HEV Cable Breakout Boots	232
Helashrink 500 Series	233
Helashrink 600 Series	233

2.3 Non Shrinkable Tubing

Helvin P	234
Helvin XY	235
Helvin PVCB	236
LFH tubing LFPT	237
Helsyn rubber tubing H	238
Helsyn HS, HT	239
Helsyn PVC-Nitrile rubber tubing NT	240
Helsyn Silicone rubber tubing SLP	241
PTFE tubing FE	242
Hellerine lubricant	243

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

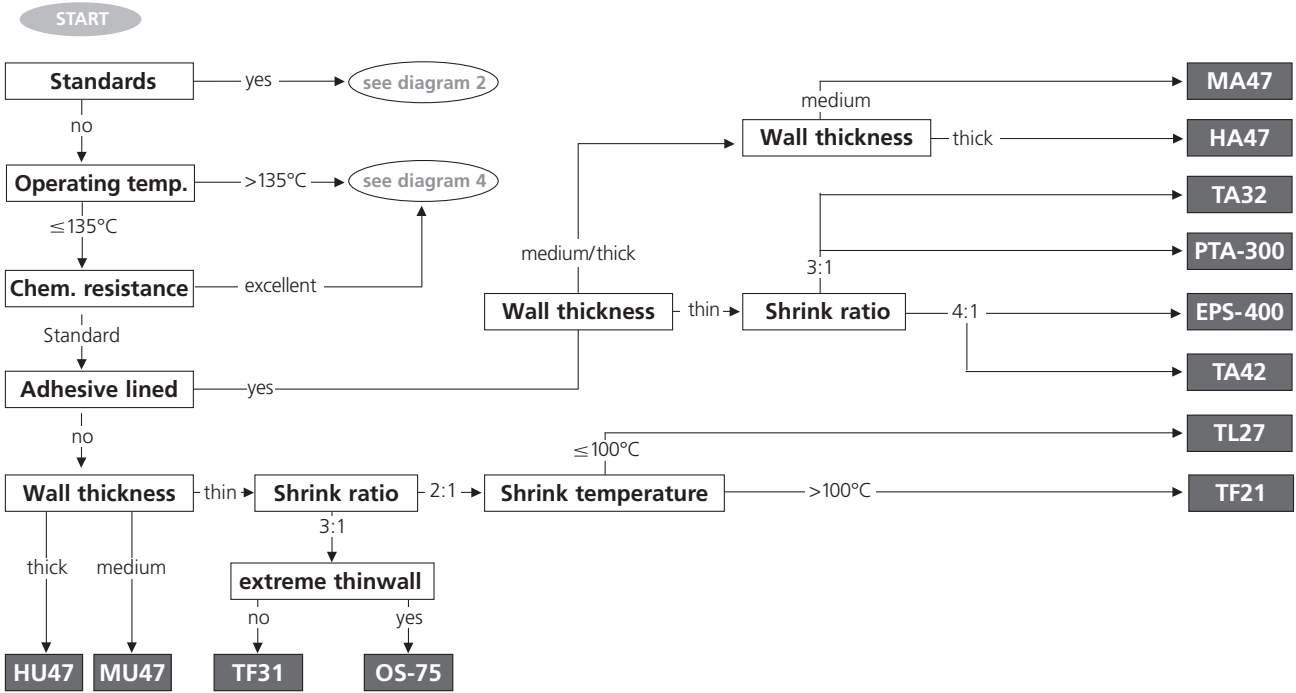


Diagram 2

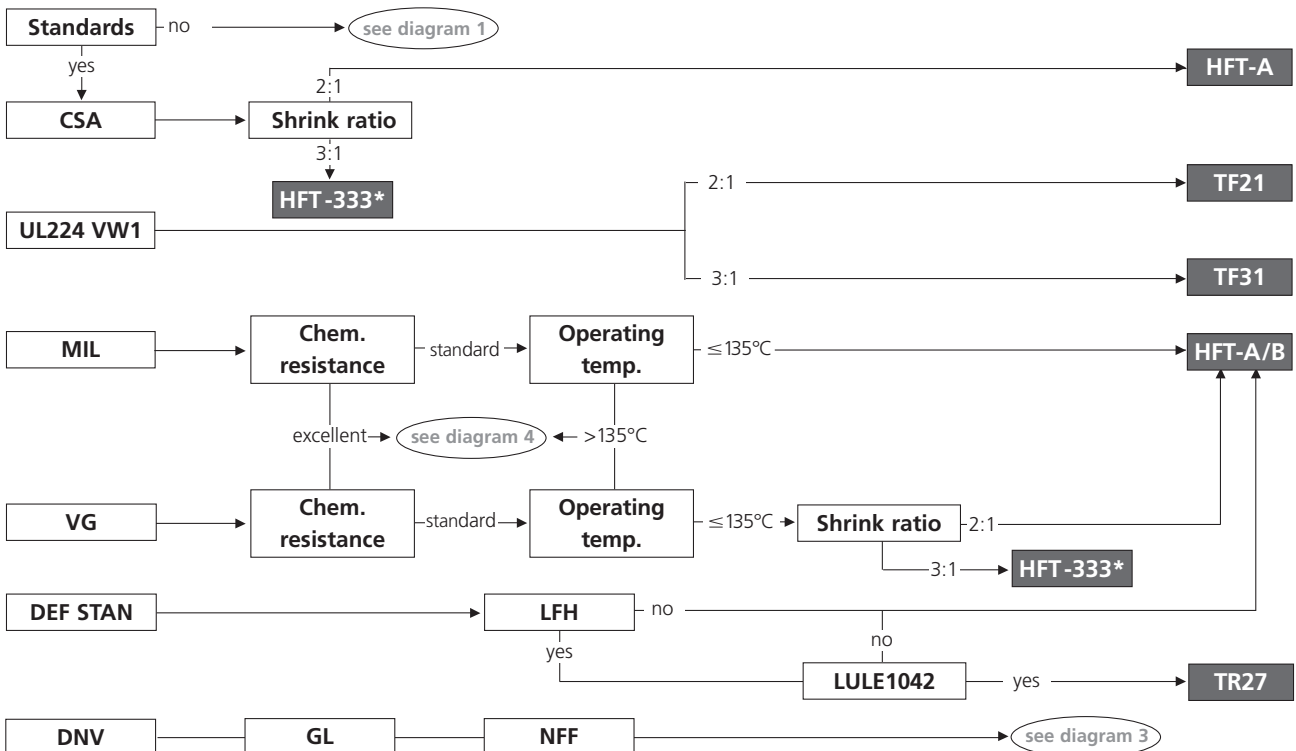


Diagram 3

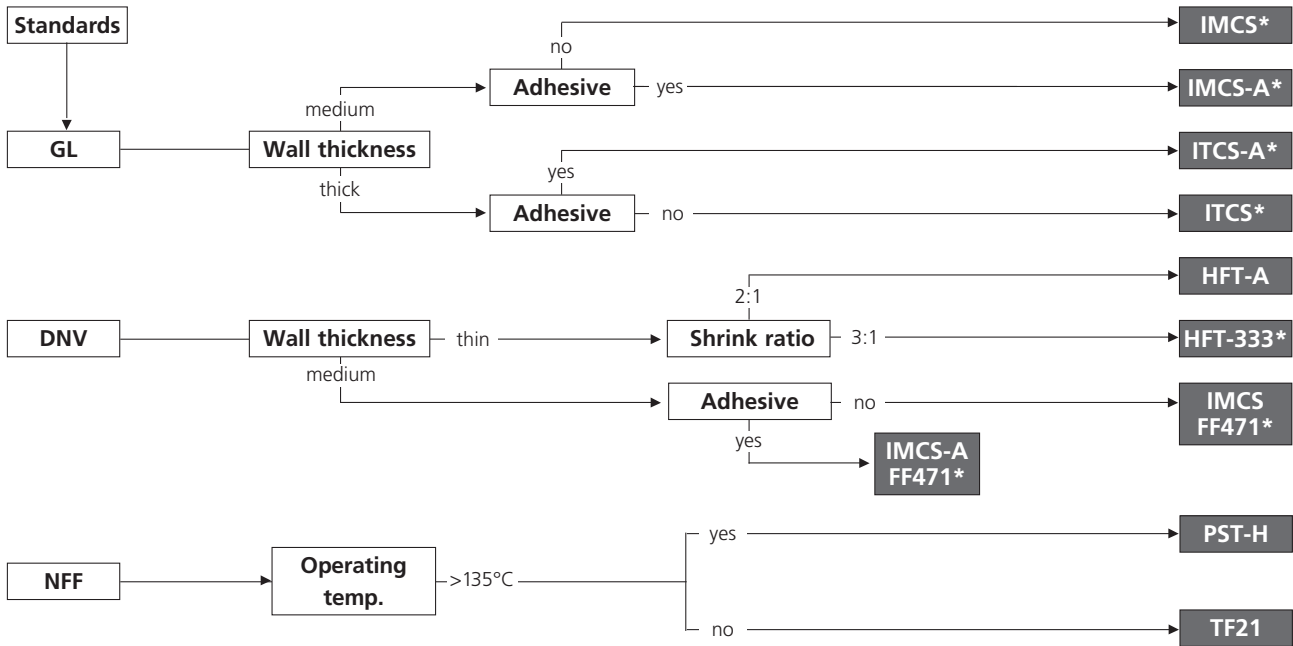
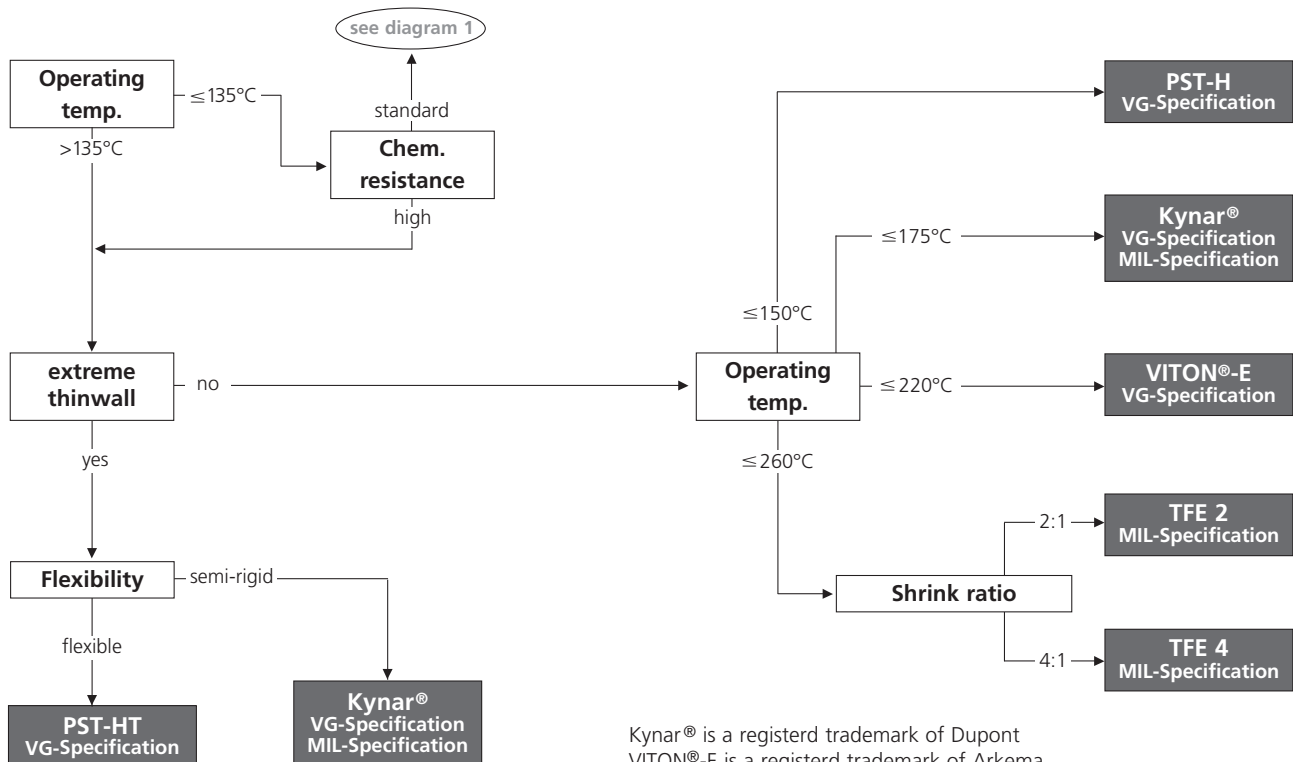


Diagram 4



Kynar® is a registered trademark of Dupont
 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

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, 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

Viton® is a registered trademark of DuPont.
KYNAR® is a registered trademark of Arkema.

The right heatshrink tube

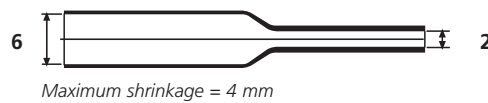
The **80:20 rule** means that a heatshrink tube should shrink by a **maximum of 80%** and a **minimum of 20%**.

For example:

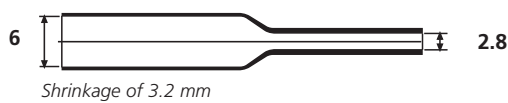
A cable with a diameter of 5 mm is to be wrapped in heatshrink tubing. In theory both sizes 6/2 and 12/4 would be suitable, since the required diameter of 5 mm lies within the shrink range of both tube sizes.

Size 6/2

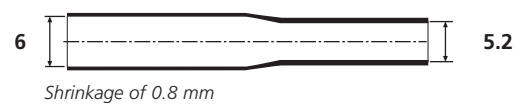
Maximum shrink (100%)



Optimum shrinkage max. (80%)



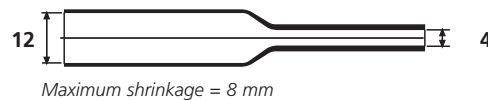
Optimum shrinkage min. (20%)



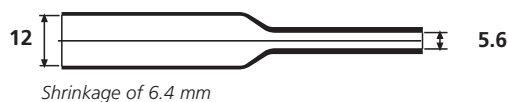
Size 6/2 has a range of application of between 2.8 mm and 5.2 mm and is therefore suitable for the cable diameter of 5 mm.

Size 12/4

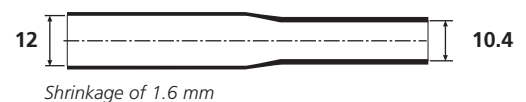
Maximum shrink (100%)



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.

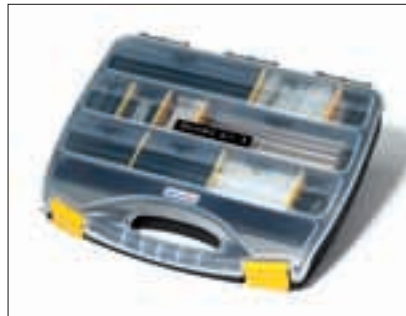
When all tubing has been consumed the case can be re-used for storing nails, screws, nuts, fish hooks, et cetera. The size of the compartments can be changed by simply moving the yellow space dividers.

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

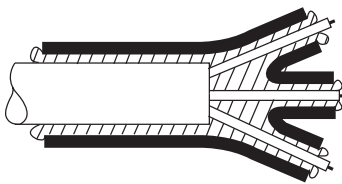
1. Clean and preheat the part to be protected.
2. Wrap the tape around the part and overlap.
3. Put the tubing or heatshrinkable shape over the tape and shrink down.



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.

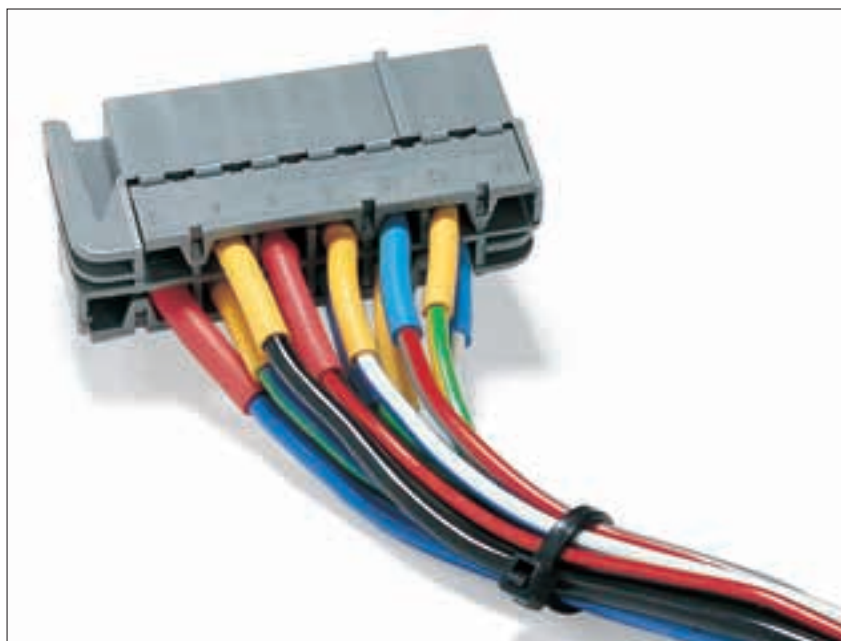
HFT-B is transparent and halogen free.



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

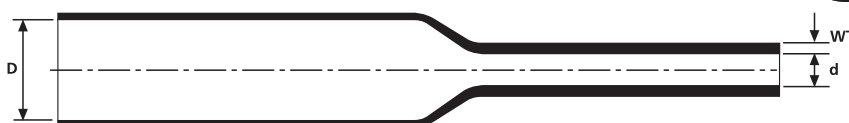


HFT-B



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.

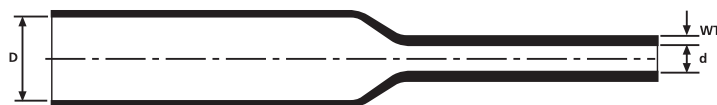


Heat shrink tubing TCN20.

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.



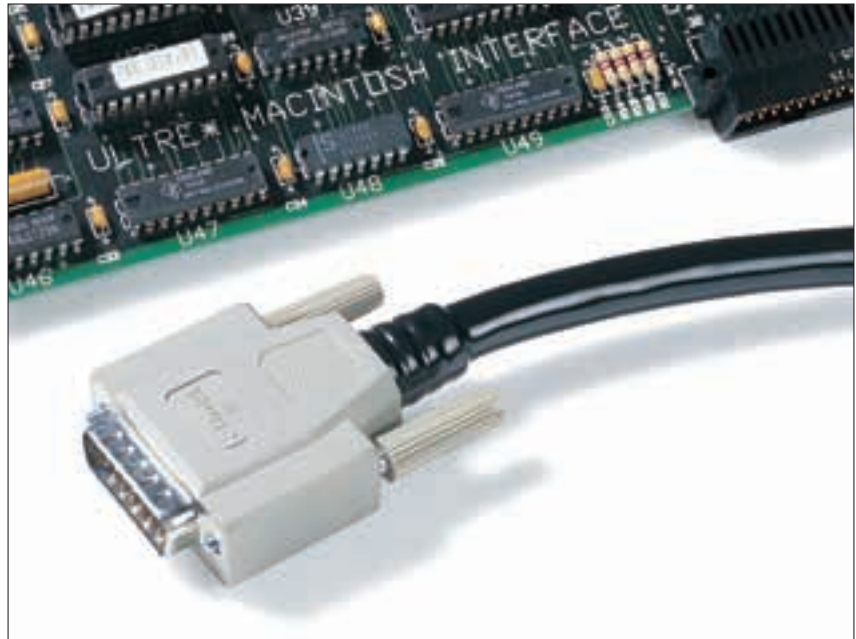
TL27

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.

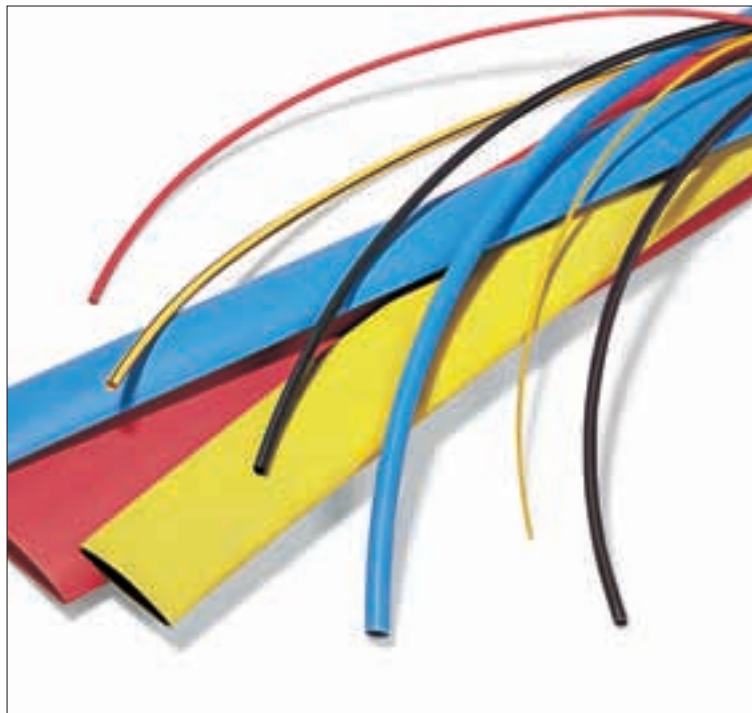


TF21

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.

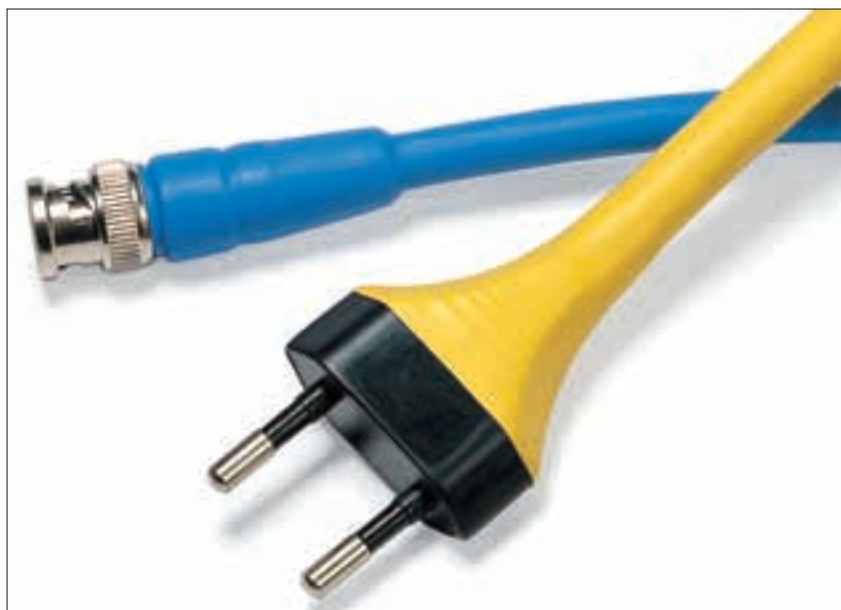


TF31

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.



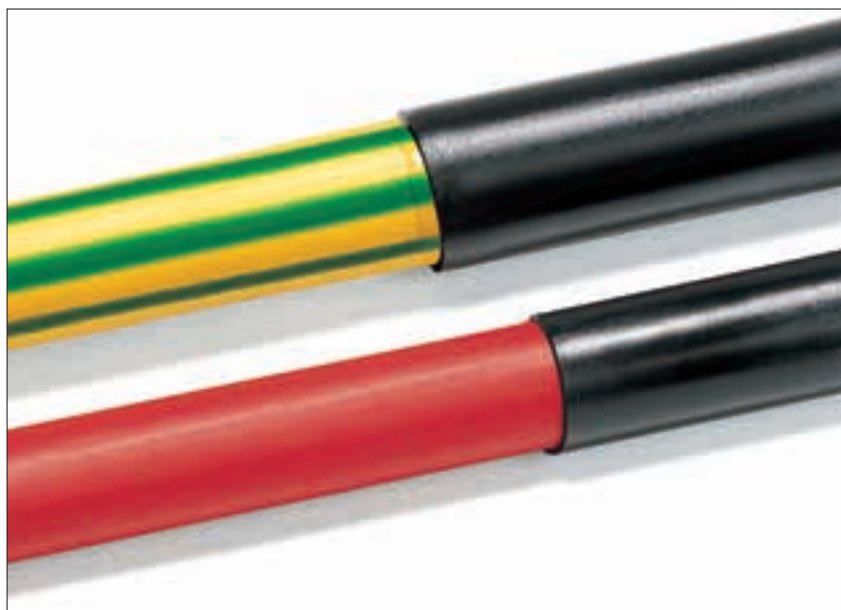
Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.



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.



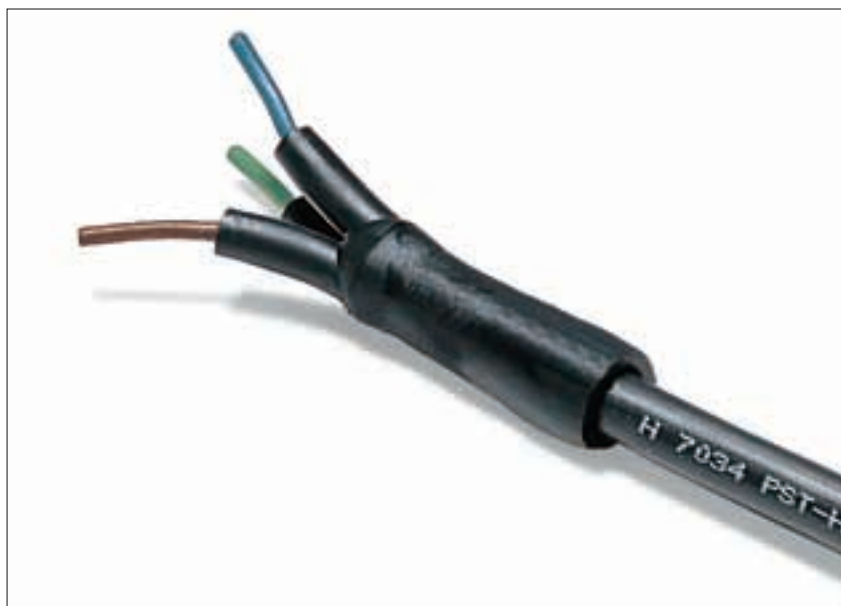
PST-H

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

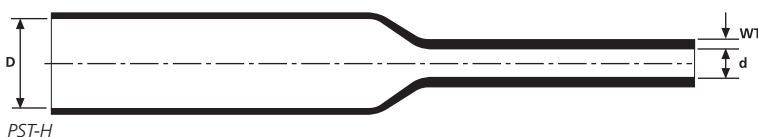
PST-HT is used for long-term protection of cables and wire harnesses in military equipment, motorsport and aviation.



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

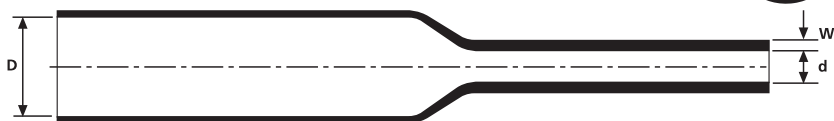
PST-HT is used for long-term protection of cables and wire harnesses in military equipment, motorsport and aviation.



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.

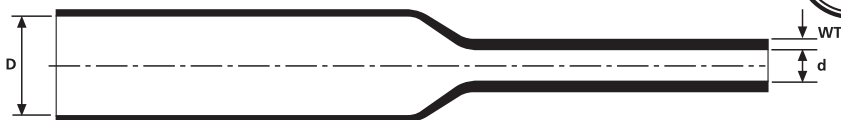


Viton®-E for flexibility and protection against aggressive chemicals.

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

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.



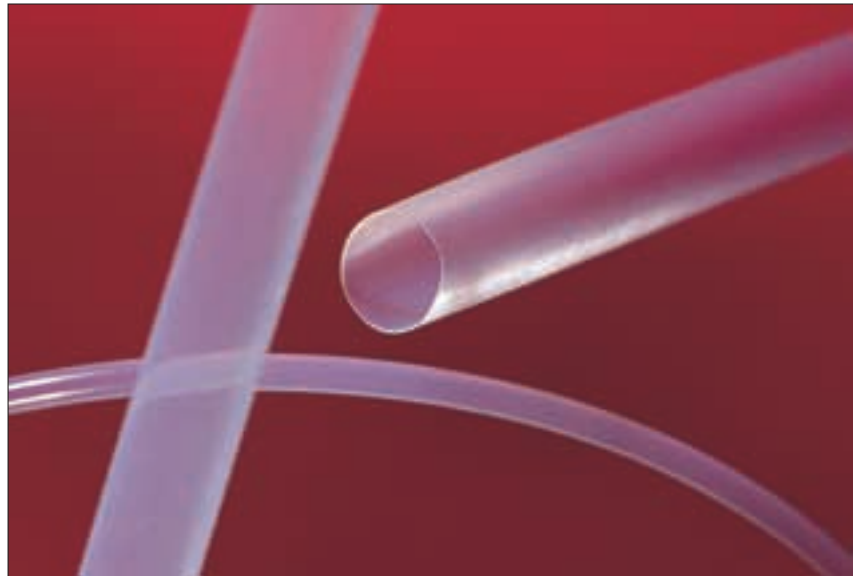
TFE2, TFE4

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.