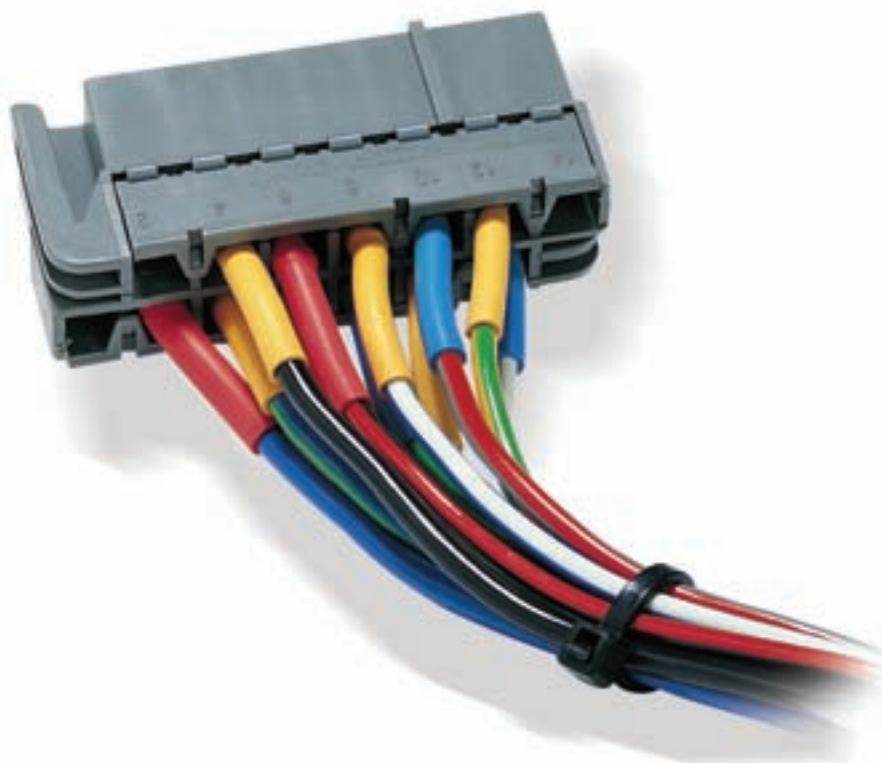


Heat Shrink

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Heatshrink Joint Kits

Features and Benefits

- Excellent impact and abrasion resistance
- Excellent environmental and UV properties
- Hot melt adhesive ensures excellent protection against moisture
- High electrical insulation properties
- Excellent strain relief and mechanical protection
- Quick and easy installation



Technical Table

Code	Application	Cable Size mm ² (3 & 4 Core)
HSJKL154	Standard	1.5 - 4
HSJKL616	Standard	6 - 16
HSJKL2550	Standard	25 - 50
HSJKL70150	Standard	70 - 150
HSJKL185300	Standard	185 - 300
HSJKS156	Submersible	1.5 - 6
HSJKS616	Submersible	6 - 16



Note:

- 1) **Standard kit** contains inner, outer and 4 ferrule heatshrink sleeves, 2 roll springs, tinned copper braid and instruction leaf et.
- 2) **Submersible kit** contains inner, outer and 4 ferrule heatshrink sleeves and instruction leaf et.
- 3) Due to variations in cable sizes possible no ferrules included.

Material Data

RoHS	Shrink Ratio	2:1
	Operating Temperature	-55°C to *135/110°C (*insulation/sheaths)
	Minimum Shrink Temperature	120°C
	Voltage Rating	600/1000V
	Material	Polyolefin
	Tensile (MPa) UL 224	>14
	Elongation (%) UL 224	>400
	Heat Ageing: Tensile Elongation UL 224	>10MPa
	Water Absorption ISO 62	<0.15%
	Eccentricity UL 224	<30%
	Copper Stability ASTM D 2671	Pass
	ESCR (Environmental Stress Crack Resistance) ASTM D 1693 (50°C)	No cracking
	Dielectric Strength ASTM D 2671	>20KV/mm
	Volume Resistivity ASTM D 257	10 ¹⁴ Ohm.cm

Technical Table

Code	Description	Quantity of Each Component	Content	
HTHSKBK	Heatshrink Kit Black	20/15/10/5	SGP 2.4, 4.8, 6.4 (40mm long) SGP 2.4, 4.8, 6.4, 9.5, 12.7, 19 (60mm long) SGP 12.7, 19 (75mm and 100mm long) SGP 19, 25.4 (200mm long)	
HTHSKCL	Heatshrink Kit Clear	20/15/10/5	SGP 2.4, 4.8, 6.4, 9.5, 12.7 (40mm long) SGP 2.4, 4.8, 6.4, 9.5, 12.7, 19 (60mm long) SGP 12.7, 19 (75mm and 100mm long) SGP 19, 25.4 (200mm long)	

Boxes can be purchased separately.

Commercial Grade Polyolefin

Is ideal for providing insulation of electrical connections, terminals, components and wiring systems. It requires a minimum shrink temperature of 120°C and is well suited to manual as well as automatic methods of application. Is very suitable for use as a continuous insulation sleeve in a variety of industrial applications.

Mini Reels

Technical Table

Code	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.	Qty per Box (m)
CP24R	2.4	1.2	0.5	20
CP32R	3.2	1.6	0.5	18
CP48R	4.8	2.4	0.5	16
CP64R	6.4	3.2	0.6	12
CP95R	9.5	4.8	0.6	10
CP127R	12.7	6.4	0.6	10
CP190R	19.0	9.5	0.8	5
CP254R	25.4	12.7	0.9	4

All dimensions in mm. Subject to technical changes.

Colours available: Black, Red, Blue, White, Yellow, Green/Yellow, Clear

Pre-Packs

Technical Table

Code	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.	Qty per Box (m)
CP24P	2.4	1.2	0.5	1
CP32P	3.2	1.6	0.5	1
CP48P	4.8	2.4	0.5	1
CP64P	6.4	3.2	0.6	1
CP95P	9.5	4.8	0.6	1
CP127P	12.7	6.4	0.6	1
CP190P	19.0	9.5	0.8	1
CP254P	25.4	12.7	0.9	1
CPPKITBK	2.4 - 4.8 x 10 each / 6.4 - 25.4 x 5 each - (Black)			
CPPKITCOL	2.4 - 12.7 x 5 each / 19.0 - 25.4 x 2 each - (Std Colours)			

All dimensions in mm. Except for quantity in metre (m).

Standard Colours: Black, Red, Blue, White, Yellow, Green/Yellow, Clear

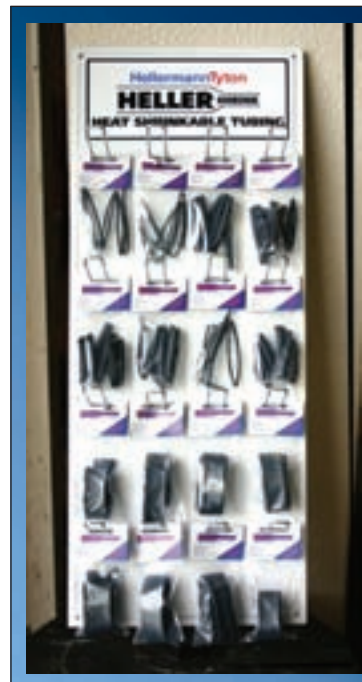
(Clear is not Self Extinguishing)



CP Mini Reels.

Material Data

RoHS	Type	Commercial Grade Polyolefin
	Shrink Ratio	2:1
	Longitudinal change after shrinkage	-5% max.
	Minimum Shrink Temperature (Metric)	+120°C
	Operating Temperature	-55°C to +135°C
	Dielectric Strength (metric)	25kV/mm
	Flammability	Flame retardant except for clear



SHSTDP (1 m Pack)

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

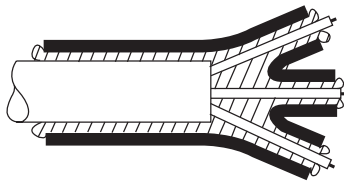
1. Clean and preheat the part to be protected.
2. Wrap the tape around the part and overlap.
3. Put the tubing or heat shrinkable shape over the tape and shrink down.



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

Code	Thickness (T)	Width (W)	Reel Length (m)
HMT200A	0.25	25.0	50m

All dimensions in mm. Subject to technical changes.

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 busbars and batteries.



LVR used for mechanical protection.

Material Data	
Material	
Colour	Standard colours + Green Yellow
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				
Code	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
LVR12	1.2	0.6	0.40	500
LVR16	1.6	0.8	0.40	500
LVR24	2.4	1.2	0.40	500
LVR32	3.2	1.6	0.40	500
LVR48	4.8	2.4	0.50	500
LVR64	6.4	3.2	0.60	250
LVR95	9.5	4.8	0.60	150
LVR127	12.7	6.4	0.70	100
LVR159	15.9	7.9	0.80	50
LVR190	19.0	9.5	0.80	50
LVR254	25.4	12.7	1.00	50

All dimensions in mm. Subject to technical changes.

Colours available: Black, Red, Blue, White, Yellow, Green/Yellow



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

SGP Grade Flame-retardant Polyolefin General Purpose Heat Shrink Tubing

Features and Benefits

SGP general purpose heatshrink tubing is a cost effective product for numerous commercial insulation applications. It provides effective electrical insulation and protection for in-line components, disconnect terminals and splices. It also bundles wires and cables for very flexible light-duty harnesses, use as strain-relieves for electrical wire connections and colour-codes wires, cables, terminals and components.

SGP grade is a range of cost-effectively made flame retarded, chemically cross linked polyolefin heatshrink tubing with a 2:1 shrink ratio and a temperature rating of 125°C. SGP tubing is very flexible and does not easily wrinkle when bent. It withstands higher temperature rating, provides better thermal stability and higher resistance to physical abuses than non-crosslinked materials. The product has an operating temperature range from -55°C to +125°C.

The product comes in blue, yellow, black, white, red and transparent. Other colours are also available upon request. All colour tubings are flame retarded except for transparent tubing. The product can be supplied in continuous reels or in pre-cut sleeves.

Technical Table

Code	Supplied O.D.	Recov. O.D.	Shrunk Wall mm (nominal)	Reel Length (m)
SGP16	1.6	0.8	0.430	300
SGP24	2.4	1.2	0.508	250
SGP32	3.2	1.6	0.508	150
SGP48	4.8	2.4	0.508	125
SGP64	6.4	3.2	0.635	65
SGP95	9.5	4.8	0.635	75
SGP127	12.7	6.4	0.635	75
SGP190	19.0	9.5	0.762	75
SGP254	25.4	12.7	0.889	50
SGP318	31.8	15.9	1.020	50
SGP381	38.1	19.1	1.020	25
SGP508	50.8	25.4	1.140	25
SGP762	76.2	38.1	1.27	25
SGP1016	101.6	50.8	1.40	25

All dimensions in mm. Subject to technical changes.

Colours available: Black, Red, Blue, White, Yellow, Green/Yellow



Heat shrink tubing SGP.

Material Data

Shrink Ratio	approx 2:1
Shrink Temperature Degree Cel	>90°C
Operating temperature test method IEC26	-55°C to 125°C
Tensile strength test method ASTM-D-638 N/mm ²	14 N/mm ²
Elongation test method ASTM-D-638%	300%
Low temp flexibility test method ASTM-D-2671 degree Cel	-55°C
Specific gravity test method ASTM-D-792	1.30 Max
Longitudinal change test method ASTM-D-638%	-10% Max
Dielectric strength test method ASTM-D-2671 KV/MM	20 KV/mm
Dielectric constant test method ASTM-D-150	3.0 Max
Flammability test method ASTM-D-2671	2-flame retarded
Water absorption test method ASTM-D-570	0.15 Max
Chemical resistance	Good
Copper Corrosion test method ASTM-D-2671B	Good
Fungus resistance test method MIL-7444	Insert
Volume resistance test method ASTM-D-257 ohm.cm	10 ¹⁴ ohm.cm
Specifications	UL-224 - 125°C: MIL-1-23053/5 Class 1

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-224 and CSA approved, easy to print on and available in a wide range of colours and internal diameters up to 101.6 mm.

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.

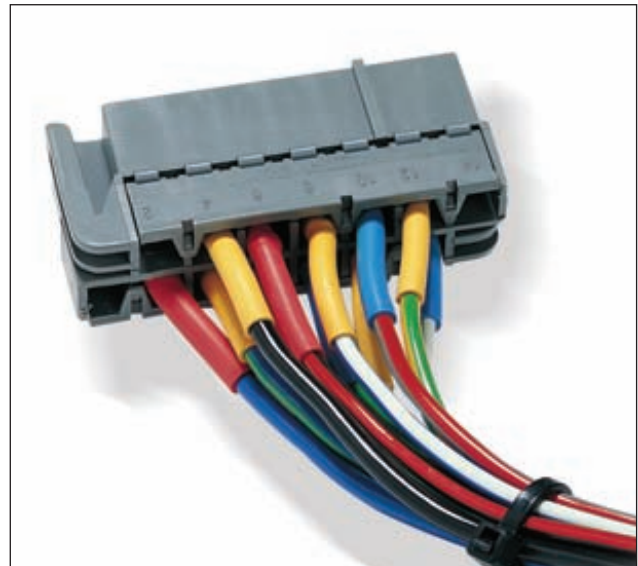
The transparent version is used for bundling and cable protection where visual inspection is required. It is often used as a see through protective sleeve over cable markers.

HFT-A is coloured and self extinguishing.
HFT-B is transparent and halogen free.

Technical Table

Code	Code	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.
HFT-A 12	HFT-B 12	1.2	0.6	0.4
HFT-A 16	HFT-B 16	1.6	0.8	0.4
HFT-A 24	HFT-B 24	2.4	1.2	0.5
HFT-A 32	HFT-B 32	3.2	1.6	0.5
HFT-A 48	HFT-B 48	4.8	2.4	0.5
HFT-A 64	HFT-B 64	6.4	3.2	0.6
HFT-A 95	HFT-B 95	9.5	4.8	0.6
HFT-A 127	HFT-B 127	12.7	6.4	0.6
HFT-A 190	HFT-B 190	19.0	9.5	0.8
HFT-A 254	HFT-B 254	25.4	12.7	0.9
HFT-A 380	HFT-B 380	38.0	19.0	1.0
HFT-A 508	HFT-B 508	50.8	25.4	1.1
HFT-A 760	HFT-B 760	76.0	38.0	1.3
HFT-A 1016	HFT-B 1016	101.6	50.8	1.4

All dimensions in mm. Subject to technical changes.



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



Material Data

RoHS	Material	Polyolefin, Cross-linked (POX)	
	Shrink Ratio	2:1	
	Longitudinal change after shrinkage	-5% max.	
	Minimum Shrink Temperature (Metric)	+100°C	
	Operating Temperature	-55°C to +135°C , Intermittent +225°C	
	Insulation Class	B (VDE 0530)	
	Dielectric Strength (metric)	20 kV/mm according to IEC 684 P2	
	Flammability	Self extinguishing	
	Specification	DEF STAN 59-97/3, CUL, Only HFT-A: UL224, MIL-DTL-23053/5C, SAE - AMS - DTL-23053 / 5C, CSA	

HFT-333 High Flexible High Shrink Ratio Polyolefin

HFT-333 is a highly flexible, fast shrinking tubing offering superior properties. With excellent chemical and thermal resistance it is capable of meeting the toughest demands of the aerospace, military and railway industries.

HFT-333 has a 3:1 shrink ratio and can therefore easily cope with components of varying diameter, with no tendency to split.

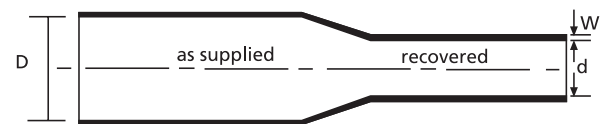
Technical Table

Code	Bore as supplied minimum (mm)	Bore recovered maximum (mm)	Wall thickness fully recovered (mm)	Standard colour
HFT1505	1.5	0.5	0.45	Black
HFT31	3.0	1.0	0.55	Black
HFT62	6.0	2.0	0.65	Black
HFT93	9.0	3.0	0.75	Black
HFT124	12.0	4.0	0.75	Black
HFT186	18.0	6.0	0.75	Black
HFT248	24.0	8.0	1.00	Black
HFT3913	39.0	13.0	1.15	Black

All dimensions in mm. Subject to technical changes.



HFT-333



Material Data

Material	Polyolefin
Continuous Operating Temp	-55°C to +135°C
Intermittent Temp	+225°C
Minimum Shrink Temp	+100°C
Tensile Strength	18 MPa
Elongation	500%
Secant Modulus	80 MPa (VFP)
Flammability	100 MPa (SFM) Self extinguishing
Dielectric Strength	25 KV/mm

RoHS

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.

Application

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



Heat shrink tubing TCN20.

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

Code	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
TCN20 12	1.2	0.6	0.30	300
TCN20 16	1.6	0.8	0.35	300
TCN20 24	2.4	1.2	0.45	300
TCN20 32	3.2	1.6	0.45	300
TCN20 48	4.8	2.4	0.50	300
TCN20 64	6.4	3.2	0.55	300
TCN20 95	9.5	4.7	0.55	150
TCN20 127	12.7	6.4	0.65	100
TCN20 191	19.1	9.5	0.80	60
TCN20 254	25.4	12.7	0.90	60
TCN20 381	38.0	19.0	1.02	30
TCN20 508	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.

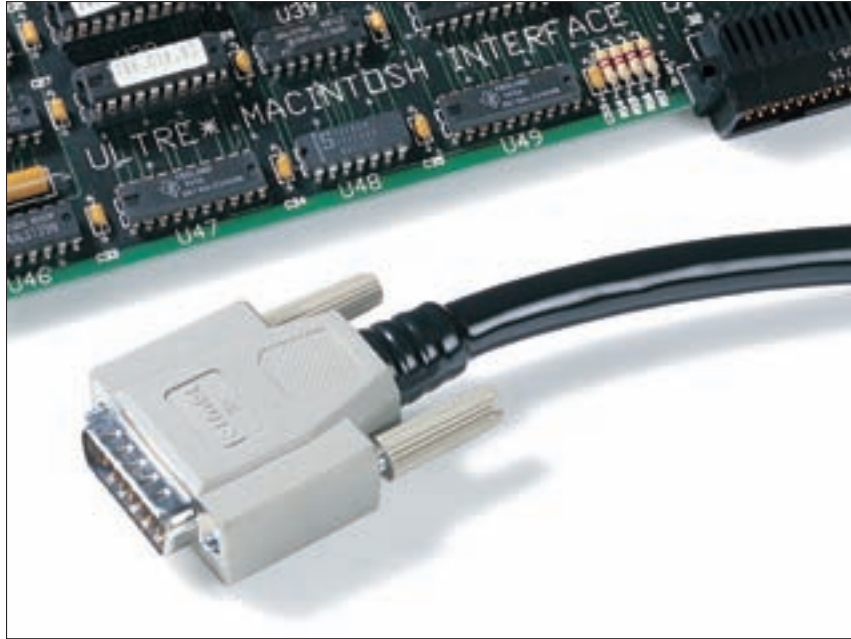
TL27

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.



TL27

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

Code	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
TL27 12	1.2	0.6	0.31	500
TL27 16	1.6	0.8	0.33	500
TL27 24	2.4	1.2	0.36	500
TL27 32	3.2	1.6	0.39	300
TL27 48	4.8	2.4	0.42	150
TL27 64	6.4	3.2	0.45	100
TL27 95	9.5	4.8	0.48	100
TL27 127	12.7	6.4	0.52	100
TL27 191	19.1	9.5	0.58	100
TL27 254	25.4	12.7	0.67	100
TL27 381	38.1	19.1	0.76	100
TL27 508	50.8	25.4	0.85	100

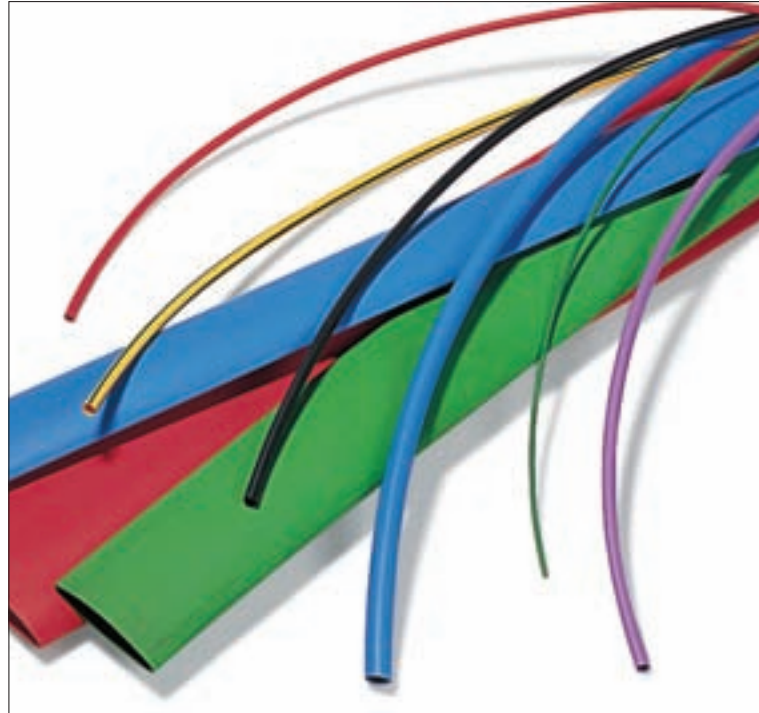
All dimensions in mm. Subject to technical changes.

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

Code	Supplied Ø D	Recov. Ø d	Wall (WT) nom.
TF21 12	1.2	0.6	0.41
TF21 16	1.6	0.8	0.43
TF21 24	2.4	1.2	0.51
TF21 32	3.2	1.6	0.51
TF21 48	4.8	2.4	0.51
TF21 64	6.4	3.2	0.64
TF21 95	9.5	4.8	0.64
TF21 127	12.7	6.4	0.64
TF21 191	19.1	9.5	0.76
TF21 254	25.4	12.7	0.89
TF21 381	38.1	19.1	1.02
TF21 508	50.8	25.4	1.14
TF21 762	76.2	38.1	1.27
TF21 1016	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.

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.



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

Code	Wall (WT) nom.	Supplied Ø D	Recov. Ø d	Colour	Standard Reel (m)
TF2412	0.41	1.2	0.6	Transparent (CL)	100
TF2416	0.43	1.6	0.8	Transparent (CL)	100
TF2424	1.51	2.4	1.2	Transparent (CL)	100
TF2432	0.51	3.2	1.6	Transparent (CL)	100
TF2448	0.51	4.8	2.4	Transparent (CL)	60
TF2464	0.64	6.4	3.2	Transparent (CL)	60
TF2495	0.64	9.5	4.8	Transparent (CL)	50
TF24127	0.64	12.7	6.4	Transparent (CL)	50
TF24190	0.76	19.1	9.5	Transparent (CL)	50
TF24254	0.89	25.4	25.4	Transparent (CL)	50
TF24380	1.02	38.1	19.1	Transparent (CL)	60
TF24508	1.14	50.8	25.4	Transparent (CL)	60
TF24760	1.27	76.2	38.1	Transparent (CL)	30
TF241016	1.40	101.6	50.8	Transparent (CL)	15

All dimensions in mm. Subject to technical changes.



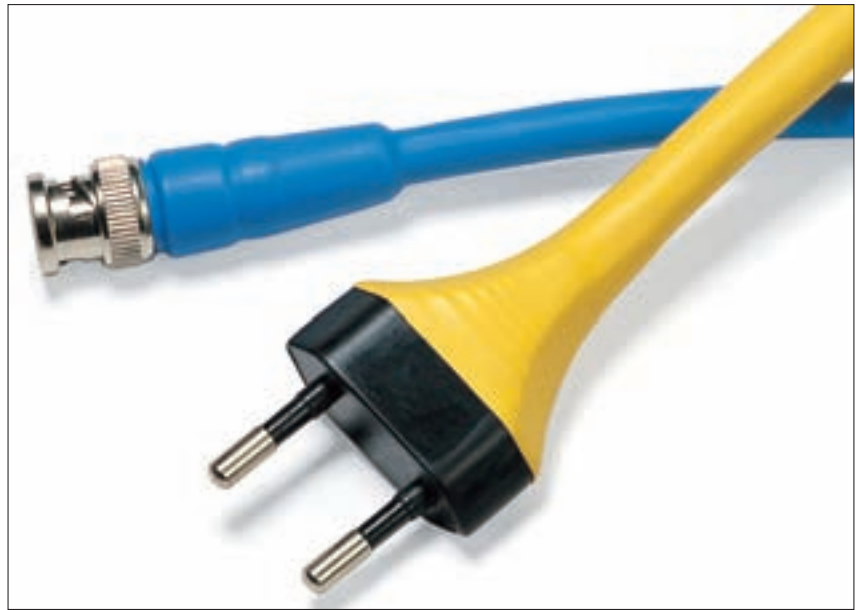
Please note! Not every product listed carries these approvals! For Product Specific Approvals please refer to the Appendix.

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.

Technical Table

Code	Supplied Ø D	Recov. Ø d	Wall (WT) nom.
TF3115	1.5	0.5	0.50
TF313	3.0	1.0	0.60
TF316	6.0	2.0	0.70
TF319	9.0	3.0	0.80
TF3112	12.0	4.0	0.85
TF3118	18.0	6.0	1.00
TF3124	24.0	8.0	1.20
TF3140	40.0	13.0	1.25

All dimensions in mm. Subject to technical changes.

Available in Standard colours and Green Yellow

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 Specification	37 kV/mm UL 224 VW1, CSA



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

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.

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

Code	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
TF3415	1.5	0.5	0.50	30
TF343	3.0	1.0	0.50	30
TF346	6.0	2.0	0.70	30
TF349	9.0	3.0	0.80	30
TF3412	12.0	4.0	0.85	30
TF3418	18.0	6.0	1.00	30
TF3424	24.0	8.0	1.20	30
TF3440	40.0	13.0	1.25	30

All dimensions in mm. Subject to technical changes.

Insultite EPS-300, EPS-400

Features and Benefits

EPS-300 is a flexible and thin walled heat shrink tubing with a co-extruded hot melt adhesive inner wall. The adhesive flows well to provide an environmental sealing of complex parts and protect against moisture.

Application

EPS-300 seals and protects a wide variety of electrical applications like back end connector sealing, connector to-cable transitions and splices.

Technical Table

Code	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.	Thickness of Adhesive (TA) nom.
EPS-300				
EPS-300 3/1	3	1	1.0	0.5
EPS-300 6/2	6	2	1.0	0.5
EPS-300 9/3	9	3	1.4	0.6
EPS-300 12/4	12	4	1.8	0.5
EPS-300 19/6	19	6	2.2	0.8
EPS-300 24/8	24	8	2.5	1.0
EPS-300 40/13	40	13	2.5	1.0
EPS-400				
EPS400-4/1	4.0	1.0	1.00	0.5
EPS400-8/2	8.0	2.0	1.00	0.5
EPS400-12/3	12.0	3.0	1.40	0.6
EPS400-16/4	16.0	4.0	1.80	0.8
EPS400-24/6	24.0	6.0	2.20	0.8
EPS400-32/8	32.0	8.0	2.50	1.0

All dimensions in mm. Subject to technical changes.



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



EPS-300, EPS-400

Material Data

RoHS	Material	Polyolefin, Cross-linked (POX)
	Colour	Black (BK)
	Shrink Ratio	3:1, 4:1
	Longitudinal change after shrinkage	-10% max.
	Minimum Shrink Temperature (Metric)	+120°C
	Operating Temperature	-55°C to +110°C
	Dielectric Strength (metric)	15 kV/mm according to IEC 684 P2
	Flammability	ASTM D2671 (outer layer only)
	Specification	MIL-DTL-23053 / 4, SAE - AMS - DTL-23053 / 4

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.

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

Code	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Length (L) (m)
HA47 – thick wall adhesive lined				
HA479	9.0	3.0	1.8	1.0
HA4713	13.0	4.0	2.4	1.0
HA4719	19.0	6.0	2.7	1.0
HA4733	33.0	8.0	3.2	1.0
HA4745	45.0	12.0	4.1	1.0
HA4751	51.0	16.0	4.1	1.0
HA4768	68.0	22.0	4.1	1.0
HA4785	85.0	25.0	4.3	1.0
HA47105	105.0	30.0	4.3	1.0
HA47130	130.0	36.0	4.3	1.0
HA47160	160.0	50.0	4.3	1.0
HA47180	180.0	50.0	4.3	1.0
HU47 – thick wall unlined				
HU479	9.0	3.0	1.8	1.0
HU4713	13.0	4.0	2.4	1.0
HU4719	19.0	6.0	2.7	1.0
HU4733	33.0	8.0	3.2	1.0
HU4745	45.0	12.0	4.1	1.0
HU4751	51.0	16.0	4.1	1.0
HU4768	68.0	22.0	4.1	1.0
HU4785	85.0	25.0	4.3	1.0
HU4790	90.0	30.0	4.3	1.0
HU47130	130.0	36.0	4.30	1.0
HU47160	160.0	50.0	4.3	1.0
HU47180	180.0	50.0	4.3	1.0

All dimensions in mm. Subject to technical changes.

Insultite, IMCS-A

Features and Benefits

This medium wall tubing is flexible yet has robust insulation characteristics. It has a good resistance against solvents, acids, and other chemical substances. IMCS-A tubing is coated with a thermoplastic adhesive on the inside, which protects against humidity and other kinds of environmental impacts after shrinking. The specially designed adhesive has excellent sealing properties.

Application

IMCS-A has been designed to protect cable joints and terminations in low voltage applications.



IMCS-A

Technical Table

IMCS-A Adhesive	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.	Wall (WT)	Thickness of Adhesive (TA) nom.
IMCS-A12	12.0	3.0	2.0	2.7	0.7
IMCS-A19	19.0	6	2.5	3.3	0.8
IMCS-A27	27.0	8.0	2.5	3.3	0.8
IMCS-A32	32.0	7.5	2.5	3.3	0.8
IMCS-A38	38.0	12.0	2.5	3.3	0.8
IMCS-A50	50.0	18.0	2.5	3.3	0.8
IMCS-A70	70.0	26.0	2.5	3.3	0.8
IMCS-A90	90.0	36.0	2.5	3.3	0.8
IMCS-A120	120.0	40.0	2.5	3.3	0.8

All dimensions in mm. Subject to technical changes.



IMCS-A heat shrinking tubing with a high (up to 4:1) shrink ratio.

Material Data

RoHS	Material	Polyolefin, Cross-linked (POX)
	Colour	Black (BK)
	Shrink Ratio	up to 4.5:1
	Longitudinal change after shrinkage	-10% max.
	Minimum Shrink Temperature (Metric)	+135°C
	Operating Temperature	-55°C to +130°C (IMCS-A +75°C)
	Dielectric Strength (metric)	10 kV/mm according to IEC 684 P2
	Flammability Specification	ASTM D876 (IMCS-A outer layer only) Germanischer Lloyd, Det Norske Veritas (IMCS F471 / IMCS-A F471)*



Please Note for Product Specific Approvals please refer to Appendix

Insultite 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.



PST-H tubing with a break out boot.



Thin wall PST-HT tubing with a boot.

Insultite 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 when in areas where weight is a key factor, for example in aerospace applications.

Application

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



PST-H, PST-HT

Material Data

RoHS	Material	Elastomer cross-linked (PES)
	Colour	Black (BK)
	Shrink Ratio	2:1
	Longitudinal change after shrinkage	-10% max.
	Minimum Shrink Temperature (Metric)	+135°C
	Operating Temperature	-75°C to +150°C
	Dielectric Strength (metric)	20 kV/mm according to IEC 684 P2
	Flammability	Self extinguishing
	Specification	DEF STAN 59-97/3, VG 95343

Technical Table

Code	Designation as per VG-Norm	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.	Reel Length (L)
Insultite PST-H					
PST-H 3.2/1.6	VG 95343 T 05 D 001 A	3.2	1.6	0.7	400
PST-H 4.8/2.4	VG 95343 T 05 D 002 A	4.8	2.4	0.8	300
PST-H 6.4/3.2	VG 95343 T 05 D 003 A	6.4	3.2	0.9	300
PST-H 9.5/4.8	VG 95343 T 05 D 004 A	9.5	4.8	1.0	100
PST-H 12.7/6.4	VG 95343 T 05 D 005 A	12.7	6.4	1.2	100
PST-H 19.0/9.5	VG 95343 T 05 D 006 A	19.0	9.5	1.4	50
PST-H 25.4/12.7	VG 95343 T 05 D 007 A	25.4	12.7	1.8	50
PST-H 38.0/19.0	VG 95343 T 05 D 008 A	38.0	19.0	2.4	30
PST-H 51.0/25.4	VG 95343 T 05 D 009 A	51.0	25.4	2.8	20
PST-H 76.0/38.0	VG 95343 T 05 D 010 A	76.0	38.0	3.2	15
PST-H 102.0/51.0	VG 95343 T 05 D 011 A	102.0	51.0	3.5	15
Insultite PST-HT					
PST-HT 3.2/1.6	VG 95343 T 05 D 013 A	3.2	1.6	0.5	400
PST-HT 4.8/2.4	VG 95343 T 05 D 014 A	4.8	2.4	0.5	300
PST-HT 6.4/3.2	VG 95343 T 05 D 015 A	6.4	3.2	0.6	300
PST-HT 9.5/4.8	VG 95343 T 05 D 016 A	9.5	4.8	0.6	150
PST-HT 12.7/6.4	VG 95343 T 05 D 017 A	12.7	6.4	0.6	100
PST-HT 19.0/9.5	VG 95343 T 05 D 018 A	19.0	9.5	0.8	50
PST-HT 25.4/12.7	VG 95343 T 05 D 019 A	25.4	12.7	0.9	50
PST-HT 38.0/19.0	VG 95343 T 05 D 020 A	38.0	19.0	1.0	30
PST-HT 51.0/25.4	VG 95343 T 05 D 022 A	51.0	25.4	1.2	20

All dimensions in mm. Subject to technical changes. **Minimum Order Quantity applicable**

Insultite 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



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

Material Data

RoHS	Material	Fluoroelastomer (FPM)
	Colour	Black (BK)
	Shrink Ratio	2:1
	Longitudinal change after shrinkage	-10% max.
	Minimum Shrink Temperature (Metric)	+175°C
	Operating Temperature	-55°C to +220°C
	Dielectric Strength (metric)	15 kV/mm according to IEC 684 P2
	Flammability	VG 95343
	Specification	VG 95343

Technical Table

Code	Designation as per VG-Norm	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.	Reel Length (L)
VITON®-E 3,2/1,6	VG 95343 T 05 E 001 A	3.2	1.6	0.7	50
VITON®-E 4,8/2,4	VG 95343 T 05 E 002 A	4.8	2.4	0.8	50
VITON®-E 6,4/3,2	VG 95343 T 05 E 003 A	6.4	3.2	0.9	50
VITON®-E 9,5/4,8	VG 95343 T 05 E 004 A	9.5	4.8	1.0	25
VITON®-E 12,7/6,4	VG 95343 T 05 E 005 A	12.7	6.4	1.2	25
VITON®-E 19,0/9,5	VG 95343 T 05 E 006 A	19.0	9.5	1.4	25
VITON®-E 25,4/12,7	VG 95343 T 05 E 007 A	25.4	12.7	1.8	25
VITON®-E 38,0/19,0	VG 95343 T 05 E 008 A	38.0	19.0	2.4	15
VITON®-E 50,8/25,4	VG 95343 T 05 E 009 A	50.8	25.4	2.8	15

All dimensions in mm. Subject to technical changes.

Viton® is a registered trademark of DuPont.



Please Note for Product Specific Approvals please refer to Appendix

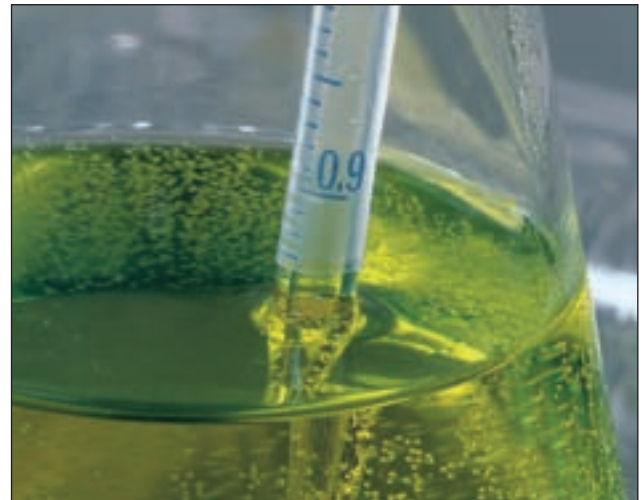
Insultite KYNAR®

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, thermostiches and many other parts.



KYNAR® used in a chemical laboratory.



Material Data

RoHS	Material	Polyvinylidene Fluoride (PVDF)
	Colour	Transparent (CL)
	Shrink Ratio	2:1
	Longitudinal change after shrinkage	-5% max.
	Minimum Shrink Temperature (Metric)	+175°C
	Operating Temperature	-55°C to +175°C
	Dielectric Strength (metric)	30 kV/mm according to IEC 684 P2
	Flammability	UL224 VW1
	Specification	DEF STAN 59-97/3, UL224 VW-1, MIL-DTL-23053 / 8, VG 95343

Technical Table

Code	Designation as per VG-Norm	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.
KYNAR® 3/64	VG 95343 T 05 F 001 M	1.2	0.6	0.25
KYNAR® 1/16	VG 95343 T 05 F 001 M	1.6	0.8	0.25
KYNAR® 3/32	VG 95343 T 05 F 003 M	2.4	1.2	0.25
KYNAR® 1/8	VG 95343 T 05 F 004 M	3.2	1.6	0.25
KYNAR® 3/16	VG 95343 T 05 F 005 M	4.8	2.4	0.25
KYNAR® 1/4	VG 95343 T 05 F 006 M	6.4	3.2	0.30
KYNAR® 3/8	VG 95343 T 05 F 007 M	9.5	4.8	0.30
KYNAR® 1/2	VG 95343 T 05 F 008 M	12.7	6.4	0.30
KYNAR® 3/4	VG 95343 T 05 F 009 M	19.0	9.5	0.43
KYNAR® 1	VG 95343 T 05 F 010 M	25.4	12.7	0.48
KYNAR® 1 1/2	—	38.0	19.0	0.51

All dimensions in mm. Subject to technical changes.

KYNAR® is a registered trademark of DuPont.



Please Note for Product Specific Approvals please refer to Appendix

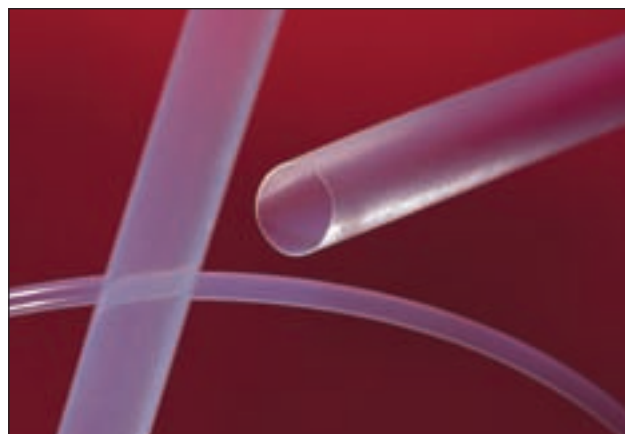
TFE2, TFE4

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 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.



TFE2, TFE4

Technical Table

Code	Supplied Ø D	Recov. Ø (D)	Wall (WT) nom.	Length (m)
TFE2-30	0.86	0.38	0.23	1,22
TFE2-28	0.96	0.46	0.23	1,22
TFE2-26	1.17	0.56	0.23	1,22
TFE2-24	1.27	0.69	0.25	1,22
TFE2-22	1.39	0.82	0.25	1,22
TFE2-20	1.52	0.99	0.30	1,22
TFE2-18	1.93	1.25	0.30	1,22
TFE2-16	2.36	1.55	0.30	1,22
TFE2-14	3.05	1.83	0.30	1,22
TFE2-12	3.81	2.26	0.30	1,22
TFE2-10	4.85	2.85	0.30	1,22
TFE2-8	6.10	3.58	0.38	1,22
TFE2-6	7.67	4.52	0.38	1,22
TFE2-4	9.4	5.69	0.38	1,22
TFE2-2	10.92	7.06	0.38	1,22
TFE2-0	11.94	8.81	0.38	1,22
TFE4-5/64	1.98	0.64	0.22	1,22
TFE4-1/8	3.17	0.94	0.25	1,22
TFE4-1/4	6.35	1.60	0.30	1,22
TFE4-3/8	9.52	2.44	0.30	1,22
TFE4-1/2	12.7	3.66	0.38	1,22
TFE4-5/8	15.87	4.52	0.38	1,22
TFE4-3/4	19.05	5.69	0.38	1,22
TFE4-1	25.4	7.06	0.38	1,22
TFE4-1 1/4	31.75	8.82	0.38	1,22

All dimensions in mm. Subject to technical changes.

Material Data

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

Material Data

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



Please Note for Product Specific Approvals please refer to 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.

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

Code	Supplied Ø D	Recov. Ø d	Wall (WT) nom.	Reel Length (m)
TR27 32	3.2	1.6	0.51	150
TR27 48	4.8	2.4	0.51	60
TR27 64	6.4	3.2	0.64	60
TR27 95	9.5	4.8	0.64	60
TR27 127	12.7	6.4	0.64	60
TR27 191	19.1	9.5	0.76	60
TR27 254	25.4	12.7	0.89	60
TR27 381	38.1	19.1	1.02	60
TR27 508	50.8	25.4	1.14	60

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.

HL1910E Electronic Hot Air Gun

Powerful, electronically controlled hot air gun with temperature control and cool air stage for dedicated DIY enthusiasts and frequent users.

Professional tool with high-spec features for virtually any hot air application. The switch on the grip handle for setting temperature and air flow is conveniently operated by one hand.

Settings

- Blower controlled by 3-speed operating switch.
- Cool air stage for rapid cooling on nozzle changing.

Features

- Electronic temperature control.
- Thermal fuse.
- Ergonomic soft grip handle.
- Soft stand for secure hold.
- Dual air vents.
- Industrial grade rubber power cord.
- Hand-held and self-resting.



Steinel HL1910E electronic

Technical Table			
Code	HL1910E		
Dimensions (lxwxh)	260 x 90 x 205mm		
Output	2000W		
Voltage	230-240V / 50Hz		
Stage	1	2	3
Airflow rate	150l/min.	300l/min.	500l/min.
Temperature	50°C	50 - 600°C	
Temperature setting	in 9 steps		
Temperature display	-		
Weight	850g		

HG2000E Hot Air Gun

Electronically controlled hot air gun with continuously variable temperature control and two air delivery stages.

HG 2000 E is distinguished by its low weight and slim-line form. This makes it ideal for prolonged, fatigue-free work in inaccessible places. Temperature is continuously variable, air flow rate can be adjusted to 2 stages.



Steinel HG2000E

Technical Table	
Code	HG2000E
Length / dia. (at knock guard)	325mm / 85mm
Voltage	230V / 50Hz (other voltages also available)
Output	2000W
Temperature	100-600°C, continuously adjustable
Airflow rate	at least 300l/min. / 500l/min. max.
Weight	620g
Accessories	Metal case (Optional - On request)
Prod. No.	342654

E4500 Gas Powered Hot Air Gun Kit

The E4500 kit consists of a cordless gas heating gun with protective spring and a range of accessories including two different sized nozzles and a gas cartridge.

This hot air gun is a very convenient tool which operates with a gas cartridge (Code P444, Butane/Propane). It has an automatic piezo electric ignition and a valve controlled temperature setting. The hot air gun can be operated on its stand for hands free use.

The gas cartridge has a continuous burn time of approx. 2 hours. The E4500 can be used with no connection to an electrical power supply and allows precise working in any position even in restricted spaces.

The E4500 hot air gun is suitable for shrinking all types of heat shrink products including tubing, shapes and cable repair sleeves. It can also be used for the bending and shaping of PVC pipes, soft soldering of copper pipes, sealing, defrosting, heating and paint stripping.

Technical Table

Code	Weight (kg)
E4500-Kit	0.76
P444	0.06
Z1 Wide Slot Nozzle	–
Z2 Deflector Nozzle	–
Z3 Reduction Nozzle	–

Subject to technical changes.



E4500 the cordless hot air gun, ideal for service jobs.



Practical hot air gun kit E4500 with accessories

Notes

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.