



CABLE TIES AND WIRING ACCESSORIES

Ihr autorisierter Distributor für Deutschland:

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PANDUIT Heat Shrink Tubing — Heat Shrink Tubing Quick Selection Guide

Quick reference for PANDUIT Heat Shrinking for specific location applications

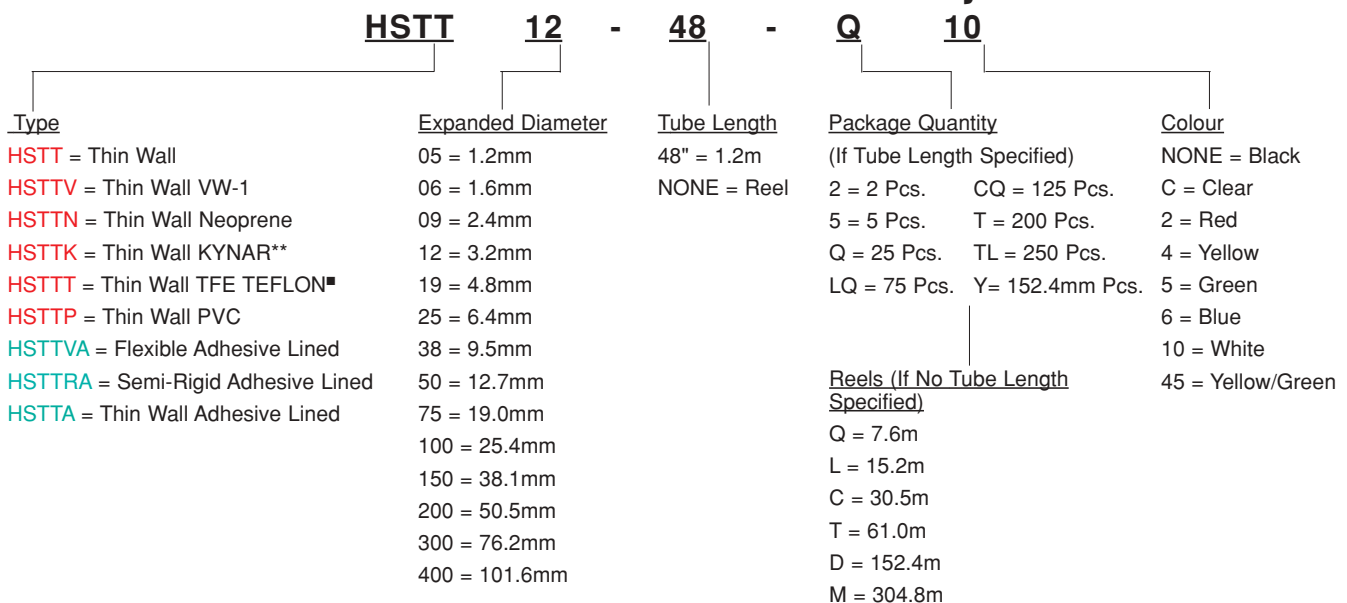
	DRY SHRINK™ HEAT SHRINK			DAMP SHRINK™ HEAT SHRINK			WET SHRINK™ HEAT SHRINK			
	HSTT	HSTTV	HSTTN	HSTTK	HSTTT	HSTTP	HSTTV A	HSTTR A	HSTTA	HST
U.L. Listed										X
UL Recognised	X‡	X		X		X				
CSA Certified	X‡✓	X✓				X✓				X**
VW-1-Rated		X		X		X				
Very Flexible		X	X							
Flexible	X					X	X		X	
Semi-Rigid				X	X			X		X
Thin Wall	X	X	X	X	X	X	X	X	X	
Thick Wall										X
Cross-Linked Material	X	X	X	X		X	X	X	X	X
Colours Available	X									X*
High Shrink Ratio								2:5:1	3:1	3:1
Flame Retardant	X‡	X	X	X	X	X	X	X	X	X
Adhesive Lined (Dual Wall)							X	X	X	X
Meets Military Specifications	X	X	X	X	X		X	X	X	X
Below Ground Application										X
High Temp Applications (>121°C)				X	X					
Highly Chemical Resistant				X	X					
Low Coefficient of Friction					X					
Custom Cut Lengths	X	X	X	X	X	X	X	X	X	X
Standard 152.4mm Pieces	X	X					X		X	
Standard 1.2m Lengths	X	X		X	X		X	X	X	X
Small 7.5m Reels	X	X	X			X				
Large Reels	X	X	X			X				
IP Rating	62	62	62	62	—	62	66	66	66	68
Found on Page...	145	149	152	154	153	151	155	157	156	158

CHARACTERISTICS

* Black/Red
 **Except red
 ‡Except Clear
 ✓Except sizes over 25.4mm

See page 163 for IP Technical information

Thin Wall Heat Shrink Part Number System



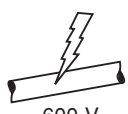
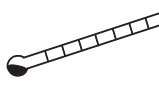



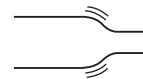


For Standard Packages containing 152.4mm lengths, refer to individual pages for complete part number offering.
 Note: The above information is to be used as a guide. For specific part number offerings review individual pages for verification.

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HSTT Heat Shrink in 1.2m Pieces and Reels

- General purpose heat shrink tubing for dry locations
- Applications include insulating, protecting, harnessing and identifying wires



Type	Materials		
HSTT	Polyolefin Cross-Linked		
 600 V	 -55°C to 135°C‡	 AMS-DTL-23053/5 Class 1 or Class 2	 Except Clear
 Flexible	 Shrink Ratio: ▲ 2:1	 Flame Retardant (Except Clear)	 Variety of Colours

‡ Maximum UL temperature range is 125°C

HSTT — Large Reels and 1.2m Pcs. 1.2mm to 4.8mm Expanded I.D.

Part Number (Black✓)	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTT05-48-Q	1.2	1.2	0.6	0.4	1.2	25	—
HSTT05-48-TL					1.2	250	—
HSTT05-C					30.5	1	10
HSTT05-M					304.8	1	2
HSTT06-48-Q	1.6	1.6	0.8	0.4	1.2	25	—
HSTT06-48-TL					1.2	250	—
HSTT06-C					30.5	1	10
HSTT06-M					304.8	1	2
HSTT09-48-Q	2.4	2.4	1.2	0.5	1.2	25	—
HSTT09-48-TL					1.2	250	—
HSTT09-C					30.5	1	10
HSTT09-M					304.8	1	2
HSTT12-48-Q	3.2	3.2	1.6	0.5	1.2	25	—
HSTT12-48-TL					1.2	250	—
HSTT12-C					30.5	1	10
HSTT12-M					304.8	1	2
HSTT19-48-Q	4.8	4.8	2.4	0.5	1.2	25	—
HSTT19-48-TL					1.2	250	—
HSTT19-C					30.5	1	10
HSTT19-M					304.8	1	2

*Order in multiples of Std.Pkg. Qty.

✓ For additional colour information, contact your customer service representative.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

Large Reels and 1.2m Pcs.

Part Number (Black✓)	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*	Std. Ctn. Qty.				
HSTT25-48-Q	6.4	6.4	3.2	0.6	1.2	25	—				
HSTT25-48-TL					1.2	250	—				
HSTT25-C					30.5	1	10				
HSTT25-D					152.4	1	2				
HSTT38-48-Q	9.5	9.5	4.8		1.2	25	—				
HSTT38-48-TL					1.2	250	—				
HSTT38-C					30.5	1	10				
HSTT38-T					61.0	1	2				
HSTT50-48-Q	12.7	12.7	6.4		1.2	25	—				
HSTT50-48-T					1.2	200	—				
HSTT50-C					30.5	1	10				
HSTT50-T					61.0	1	2				
HSTT75-48-5	19.0	19.0	9.5	0.8	1.2	5	—				
HSTT75-48-CQ					1.2	125	—				
HSTT75-C					30.5	1	10				
HSTT75-T					61.0	1	2				
HSTT100-48-5	25.4	25.4	12.7		0.9	1.2	5	—			
HSTT100-48-LQ						1.2	75	—			
HSTT100-C						30.5	1	2			
HSTT150-48-5	38.1	38.1	19.0			1.0	1.2	5	—		
HSTT150-C							30.5	1	2		
HSTT200-48-5	50.8	50.8	25.4				1.1	1.2	5	—	
HSTT200-L								15.2	1	2	
HSTT300-48-2	76.2	76.2	38.1					1.3	1.2	2	—
HSTT300-L				15.2					1	1	
HSTT400-48-2	101.6	101.6	50.8	1.4					1.2	2	—
HSTT400-L									15.2	1	1

*Order in multiples of Bulk Pkg. Qty.

✓ For additional colour information, contact your customer service representative.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

BGHSTT Heat Shrink

- General purpose heat shrink tubing for dry locations

BGHSTT in Standard Packages

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*	Std. Ctn. Qty.
BGHSTT05	1.2	1.2	0.6	0.4	13.0	1	10
BGHSTT06	1.6	1.6	0.8	0.4	13.0	1	10
BGHSTT09	2.4	2.4	1.2	0.5	12.5	1	10
BGHSTT12	3.2	3.2	1.6	0.5	12.5	1	10
BGHSTT19	4.8	4.8	2.4	0.5	10.5	1	10
BGHSTT25	6.4	6.4	3.2	0.6	8.5	1	10
BGHSTT38	9.5	9.5	4.8	0.6	7.5	1	10
BGHSTT50	12.7	12.7	6.4	0.6	7.5	1	10
BGHSTT75	19.0	19.0	9.5	0.8	6.0	1	10
BGHSTT100	25.4	25.4	12.7	0.9	4.3	1	10

HSTT Heat Shrink

Standard Pack of Heat Shrink — 152.4mm Pieces



Small package holds unused tube and fits easily in a tool box

- General purpose heat shrink tubing for dry locations
- Applications include insulating, protecting, harnessing and identifying wires



HSTT in Standard Packages

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length mm	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTT06-Y	1.6	1.6	0.8	0.4	152.4	26 pcs	10
HSTT09-Y	2.4	2.4	1.2	0.5	152.4	24 pcs	10
HSTT12-Y	3.2	3.2	1.6	0.5	152.4	20 pcs	10
HSTT19-Y	4.8	4.8	2.4	0.5	152.4	18 pcs	10
HSTT25-Y	6.4	6.4	3.2	0.6	152.4	14 pcs	10
HSTT38-Y	9.5	9.5	4.8	0.6	152.4	12 pcs	10
HSTT50-Y	12.7	12.7	6.4	0.6	152.4	10 pcs	10
HSTT75-Y	19.0	19.0	9.5	0.8	152.4	8 pcs	10
HSTT100-Y	25.4	25.4	12.7	0.9	152.4	6 pcs	10

*Order in multiples of Std. Pkg. Qty.

Standard Packs of Heat Shrink — 152.4mm Pieces

Small Package holds unused tube and fits easily in a tool box

- Assorted colours and diameters available



HSTT– Combination: Black and Colours — Single Diameter

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Colour	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTT06-YK1	1.6	1.6	0.8	8 pcs. black 3 pcs. of each colour**	1	10
HSTT09-YK1	2.4	2.4	1.2	6 pcs. black 3 pcs. of each colour**	1	10
HSTT12-YK1	3.2	3.2	1.6	2 pcs. black 3 pcs. of each colour**	1	10
HSTT19-YK1	4.8	4.8	2.4	6 pcs. black 2 pcs. of each colour**	1	10
HSTT25-YK1	6.4	6.4	3.2	2 pcs. black 2 pcs. of each colour**	1	10
HSTT38-YK1	9.5	9.5	4.8	6 pcs. black 1 pc. of each colour**	1	10
HSTT50-YK1	12.7	12.7	6.4	4 pcs. black 1 pc. of each colour**	1	10
HSTT75-YK1	19.0	19.0	9.5	2 pcs. black 1 pc. of each colour**	1	10
HSTT100-YK1	25.4	25.4	12.7	1 pc. black 1 pc. of each colour**	1	10

** Colours include Clear, Red, Yellow, Green, Blue and White.
For additional colour information, contact your customer service representative.

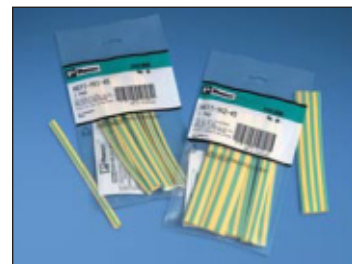
HSTT – Black Only — Multiple Diameters

Part Number	Nominal Diameter / Size	Black Number of Pieces by Diameter mm	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTT-YK1	Various - Smaller Range	2 pcs. each 1.6, 2.4, 3.2, 4.8, 6.4, 9.5, 12.7	1	10
HSTT-YK2	Various - Larger Range	2 pcs. each 9.5, 12.7, 19.0, 25.4	1	10



HSTT – Yellow/Green Stripe — Multiple Diameters

Part Number	Nominal Diameter / Size	Number of Pieces by Diameter mm	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTT-YK1-45	Various - Smaller Range	2 pcs. each 3.2, 4.8, 6.4, 9.5	1	10
HSTT-YK2-45	Various - Larger Range	2 pcs. each 9.5, 12.7, 19.0	1	10



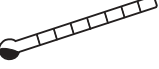







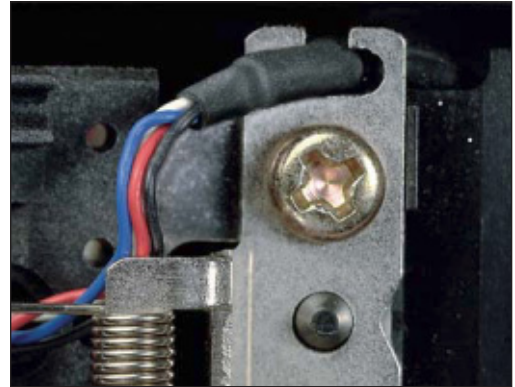
*Order in multiples of Std. Pkg. Qty.

HSTTV Heat Shrink in Small Reels and 1.2m Pieces

- For dry locations
- Highly flame retardant
- Meets UL VW-1 rating
- Fast Shrink Time



Type	Materials		
HSTTV	 Polyolefin Cross - Linked		
 600 V	 -55°C to 135°C ‡	 AMS-DTL-23053/5 Class 3	 VW-1 OFT
 Flexible	 Shrink Ratio: ▲ 2:1	 Highly Flame Retardant VW-1	



‡ Maximum UL Temperature Range is 125° C.

HSTTV in Bulk Packages — Small Reels & 1.2m Pcs.

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTV05-48-Q	1.2	1.2	0.6	0.4	1.2	25	—
HSTTV05-48-TL				0.4	1.2	250	—
HSTTV05-C				0.4	30.5	1	10
HSTTV06-48-Q	1.6	1.6	0.8	0.4	1.2	25	—
HSTTV06-48-TL				0.4	1.2	250	—
HSTTV06-C				0.4	30.5	1	10
HSTTV09-48-Q	2.4	2.4	1.2	0.5	1.2	25	—
HSTTV09-48-TL				0.5	1.2	250	—
HSTTV09-C				0.5	30.5	1	10
HSTTV12-48-Q	3.2	3.2	1.6	0.5	1.2	25	—
HSTTV12-48-TL				0.5	1.2	250	—
HSTTV12-C				0.5	30.5	1	—
HSTTV19-48-Q	4.8	4.8	2.4	0.5	1.2	25	—
HSTTV19-48-TL				0.5	1.2	250	—
HSTTV19-C				0.5	30.5	1	—
HSTTV25-48-Q	6.4	6.4	3.2	0.6	1.2	25	—
HSTTV25-48-TL				0.6	1.2	250	—
HSTTV25-C				0.6	30.5	1	—
HSTTV38-48-Q	9.5	9.5	4.8	0.6	1.2	25	—
HSTTV38-48-TL				0.6	1.2	250	—
HSTTV38-C				0.6	30.5	1	10
HSTTV50-48-Q	12.7	12.7	6.4	0.6	1.2	25	—
HSTTV50-48-T				0.6	1.2	200	—
HSTTV50-C				0.6	30.5	1	10
HSTTV75-48-5	19.0	19.0	9.5	0.8	1.2	5	—
HSTTV75-48-CQ				0.8	1.2	125	—
HSTTV75-C				0.8	30.5	1	10
HSTTV100-48-5	25.4	25.4	12.7	0.9	1.2	5	—
HSTTV100-48-LQ				0.9	1.2	75	—
HSTTV100-C				0.9	30.5	1	2
HSTTV150-48-5	38.1	38.1	19.0	1.0	1.2	5	—
HSTTV150-C				1.0	30.5	1	2

*Order in multiples of Std. Pkg. Qty.

✓ For additional colour information, contact your customer service representative.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

HSTTV Heat Shrink in 304.8m, and 61.0m Reels

Nominal Diameter (mm)	Length m	Part Number				Std. Pkg. Qty.*
		Black	Red	Yellow	Blue	
1.2	304.8	HSTTV05-M	HSTTV05-M2	HSTTV05-M4	HSTTV05-M6	1 Reel
1.6	304.8	HSTTV06-M	HSTTV06-M2	HSTTV06-M4	HSTTV06-M6	1 Reel
2.4	304.8	HSTTV09-M	HSTTV09-M2	HSTTV09-M4	HSTTV09-M6	1 Reel
3.2	304.8	HSTTV12-M	HSTTV12-M2	HSTTV12-M4	HSTTV12-M6	1 Reel
4.8	304.8	HSTTV19-M	HSTTV19-M2	HSTTV19-M4	HSTTV19-M6	1 Reel
6.4	152.4	HSTTV25-D	HSTTV25-D2	HSTTV25-D4	HSTTV25-D6	1 Reel
9.5	61.0	HSTTV38-T	HSTTV38-T2	HSTTV38-T4	HSTTV38-T6	1 Reel
12.7	61.0	HSTTV50-T	HSTTV50-T2	HSTTV50-T4	HSTTV50-T6	1 Reel
19.0	61.0	HSTTV75-T	HSTTV75-T2	HSTTV75-T4	HSTTV75-T6	1 Reel

* Order in multiples of Std. Pkg. Qty.

HSTTV Heat Shrink in 7.5m Reels

HSTTV in Standard Packages of 7.5m Reels — Black Only

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTV05-Q	1.2	1.2	0.6	0.4	7.5	1	10
HSTTV06-Q	1.6	1.6	0.8	0.4	7.5	1	10
HSTTV09-Q	2.4	2.4	1.2	0.5	7.5	1	10
HSTTV12-Q	3.2	3.2	1.6	0.5	7.5	1	10
HSTTV19-Q	4.8	4.8	2.4	0.5	7.5	1	10
HSTTV25-Q	6.4	6.4	3.2	0.6	7.5	1	10
HSTTV38-Q	9.5	9.5	4.8	0.6	7.5	1	10
HSTTV50-Q	12.7	12.7	6.4	0.6	7.5	1	10
HSTTV75-Q	19.0	19.0	9.5	0.8	7.5	1	10
HSTTV100-Q	25.4	25.4	12.7	0.9	7.5	1	2

* Order in multiples of Std. Pkg. Qty.



Standard Packs of Heat Shrink — 152.4mm Pieces

HSTTV — Single Diameter — Black Only

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTV05-Y	1.2	1.2	0.6	1	10
HSTTV06-Y	1.6	1.6	0.8	1	10
HSTTV09-Y	2.4	2.4	1.2	1	10
HSTTV12-Y	3.2	3.2	1.6	1	10
HSTTV19-Y	4.8	4.8	2.4	1	10
HSTTV25-Y	6.4	6.4	3.2	1	10
HSTTV38-Y	9.5	9.5	4.8	1	10
HSTTV50-Y	12.7	12.7	6.4	1	10
HSTTV75-Y	19.0	19.0	9.5	1	10
HSTTV100-Y	25.4	25.4	12.7	1	10


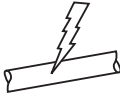
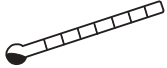




* Order in multiples of Std. Pkg. Qty.



HSTTP Heat Shrink

- For dry locations
- Flexible, highly flame retardant tubing
- Good resistance to most fuels and oils
- Good cut through and solder resistance



Type	Materials	
HSTTP	 Polyvinyl Chloride Cross-Linked	
 600 V	 -20°C to 105°C	
 Flexible	 Shrink Ratio: ▲ 2:1	 Highly Flame Retardant VW-1



HSTTP in Standard Packages — Reels — Black Only

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTP05-QY	1.2	1.2	0.6	0.5	7.5	1	10
HSTTP05-CY					30.5	1	2
HSTTP05-MY					304.8	1	2
HSTTP06-QY	1.6	1.6	0.8	0.5	7.5	1	10
HSTTP06-CY					30.5	1	2
HSTTP06-MY					304.8	1	2
HSTTP09-QY	2.4	2.4	1.2	0.6	7.5	1	10
HSTTP09-CY					30.5	1	2
HSTTP09-MY					304.8	1	2
HSTTP12-QY	3.2	3.2	1.6	0.6	7.5	1	10
HSTTP12-CY					30.5	1	2
HSTTP12-MY					304.8	1	2
HSTTP19-QY	4.8	4.8	2.4	0.6	7.5	1	10
HSTTP19-CY					30.5	1	2
HSTTP19-MY					304.8	1	2
HSTTP25-QY	6.4	6.4	3.2	0.6	7.5	1	10
HSTTP25-CY					30.5	1	2
HSTTP25-DY					152.4	1	2
HSTTP38-QY	9.5	9.5	4.8	0.8	7.5	1	10
HSTTP38-CY					30.5	1	2
HSTTP38-TY					61.0	1	2
HSTTP50-QY	12.7	12.7	6.4	0.8	7.5	1	10
HSTTP50-CY					30.5	1	2
HSTTP75-QY	19.0	19.0	9.5	0.9	7.5	1	10
HSTTP75-CY					30.5	1	2
HSTTP100-QY	25.4	25.4	12.7	1.0	7.5	1	2
HSTTP100-CY					30.5	1	2
HSTTP150-QY	38.1	38.1	19.0	1.1	7.5	1	2
HSTTP150-CY					30.5	1	2
HSTTP200-QY	50.8	50.8	25.4	1.3	7.5	1	2



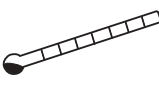


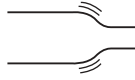

* Order in multiples of Std. Pkg. Qty.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

HSTTN Heat Shrink

- For dry locations
- Highly flexible tubing
- Offers excellent chemical resistance, especially to fuels and oils
- Highly flame retardant



Type	Materials	
HSTTN	 Elastomer Neoprene Cross-Linked	
 600 V	 -70°C to 121°C	 AMS-DTL-23053/1 Class 2
 Highly Flexible	 Shrink Ratio:▲ 2:1	 Highly Flame Retardant



HSTTN in Standard Packages — 7.5m and 30.5m Reels — Black Only

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*	Std. Ctn. Qty.*
HSTTN25-C	6.4	6.4	3.6	0.9	30.5	1	2
HSTTN38-C	9.5	9.5	5.4	1.0	30.5	1	2
HSTTN50-C	12.7	12.7	7.3	1.2	30.5	1	2
HSTTN63-C	15.9	15.9	9.1	1.3	30.5	1	2
HSTTN75-C	19.0	19.0	10.9	1.5	30.5	1	2
HSTTN88-C	22.2	22.2	12.7	1.7	30.5	1	2
HSTTN100-C	25.4	25.4	14.5	1.8	30.5	1	2
HSTTN125-C	31.8	31.8	18.1	2.2	30.5	1	2
HSTTN150-C	38.1	38.1	21.8	2.4	30.5	1	2
HSTTN200-Q	50.8	50.8	29.0	2.8	7.5	1	2
HSTTN300-Q	76.2	76.2	43.4	3.8	7.5	1	2


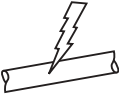
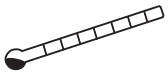




* Order in multiples of Std. Pkg. Qty.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

**HSTTT (TFE)
Heat Shrink**



- For dry locations
- Semi-rigid, highly heat resistant
- Offers the widest temperature range of any plastic material
- Colour is milky clear

Type	Materials	
HSTTT	 Polytetrafluoroethylene	
 600 V	 -67°C to 250°C	 AMS-DTL-23053/ 12 Class 3
 Semi-Rigid	 Shrink Ratio:▲ 2:1	 Non-Flammable



2:1 Shrink Ratio (Class 3) — HSTTT in Standard Packages 1.2m Pcs.

Part Number	Nominal Diameter	Min. Expanded I.D. mm	Max. Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*
HSTTT03-48-Q	30 AWG	0.9	0.4	0.2	1.2	25
HSTTT04-48-Q	28 AWG	1.0	0.5	0.2	1.2	25
HSTTT046-48-Q	26 AWG	1.2	0.5	0.3	1.2	25
HSTTT05-48-Q	24 AWG	1.3	0.7	0.3	1.2	25
HSTTT055-48-Q	22 AWG	1.4	0.8	0.3	1.2	25
HSTTT06-48-Q	20 AWG	1.5	1.0	0.3	1.2	25
HSTTT08-48-Q	18 AWG	1.9	1.2	0.3	1.2	25
HSTTT09-48-Q	16 AWG	2.3	1.6	0.3	1.2	25
HSTTT12-48-Q	14 AWG	3.0	1.8	0.3	1.2	25
HSTTT15-48-Q	12 AWG	3.8	2.3	0.3	1.2	25
HSTTT19-48-Q	10 AWG	4.9	2.8	0.3	1.2	25
HSTTT24-48-Q	8 AWG	6.0	3.6	0.4	1.2	25
HSTTT30-48-Q	6 AWG	7.7	4.5	0.4	1.2	25
HSTTT37-48-Q	4 AWG	9.4	5.7	0.4	1.2	25
HSTTT43-48-Q	2 AWG	10.9	7.0	0.4	1.2	25
HSTTT47-48-Q	0 AWG	11.9	8.8	0.4	1.2	25
HSTTT56-48-5	14.2	14.2	10.1	0.4	1.2	5
HSTTT66-48-5	15.9	16.6	11.7	0.5	1.2	5
HSTTT75-48-5	19.0	19.0	13.3	0.5	1.2	5
HSTTT93-48-5	23.6	23.6	16.6	0.5	1.2	5
HSTTT112-48-5	28.6	28.6	20.0	0.6	1.2	5
HSTTT131-48-2	33.3	33.3	23.1	0.8	1.2	2
HSTTT150-48-2	38.1	38.1	26.3	0.8	1.2	2

* Order in multiples of Std. Pkg. Qty.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

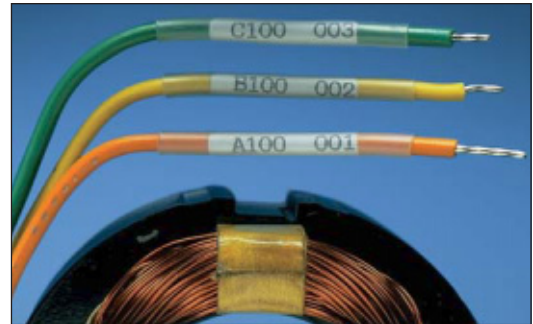
■TEFLON is a registered trademark of E.I. DuPont de Nemours Co.

HSTTK KYNAR™ Heat Shrink

- For dry locations
- Semi-rigid, highly heat resistant
- Offers excellent chemical and abrasion resistance
- Use in high temperature or solvent rich environment
- Colour is milky clear



Type	Materials		
HSTTK	Polyvinylidene Fluoride		
 600 V	 -55°C to 175°C	 AMS-DTL-23053/8	 VW-1
 Semi-Rigid	 Shrink Ratio: ▲ 2:1	 Highly Flame Retardant VW-1	



HSTTK in Standard Packages — 1.2m Pieces

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*
HSTTK05-48-Q	1.2	1.2	0.6	0.3	1.2	25
HSTTK06-48-Q	1.6	1.6	0.8	0.3	1.2	25
HSTTK09-48-Q	2.4	2.4	1.2	0.3	1.2	25
HSTTK12-48-Q	3.2	3.2	1.6	0.3	1.2	25
HSTTK19-48-Q	4.8	4.8	2.4	0.3	1.2	25
HSTTK25-48-Q	6.4	6.4	3.2	0.3	1.2	25
HSTTK38-48-Q	9.5	9.5	4.8	0.3	1.2	25
HSTTK50-48-5	12.7	12.7	6.4	0.3	1.2	5
HSTTK75-48-5	19.0	19.0	9.5	0.4	1.2	5
HSTTK100-48-5	25.4	25.4	12.7	0.5	1.2	5

* Order in multiples of Std. Pkg. Qty.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

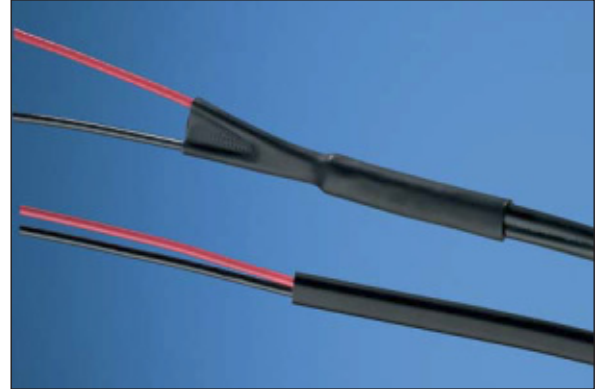
** KYNAR is a registered trademark of Atofina Chemicals, Inc.

HSTTVA Heat Shrink

- For damp locations
- Flexible tubing with an adhesive inner wall which seals and protects components from moisture and corrosion



Type	Materials	
HSTTVA	Polyolefin Cross-Linked with Adhesive	
 600 V	 -55°C to 110°C	 AMS-DTL-23053/4 Class 2
 Flexible	 Shrink Ratio:▲ 2:1	 Outer Wall Flame Retardant



HSTTVA in Standard Packages — 1.2m Pieces — Black Only

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*
HSTTVA12-48-Q	3.2	3.2	1.6	0.5	1.2	25
HSTTVA19-48-Q	4.8	4.8	2.4	0.6	1.2	25
HSTTVA25-48-Q	6.4	6.4	3.2	0.8	1.2	25
HSTTVA38-48-Q	9.5	9.5	4.8	0.8	1.2	25
HSTTVA50-48-5	12.7	12.7	6.4	0.8	1.2	5
HSTTVA75-48-5	19.0	19.0	9.5	0.9	1.2	5
HSTTVA100-48-5	25.4	25.4	12.7	1.2	1.2	5
HSTTVA150-48-5	38.1	38.1	19.0	1.2	1.2	5

Standard Packs of HSTTVA Heat Shrink — 152.4mm Pieces

HSTTVA– Black Only – Single Diameter

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTVA12-Y	3.2	3.2	1.6	1	10
HSTTVA19-Y	4.8	4.8	2.4	1	10
HSTTVA25-Y	6.4	6.4	3.2	1	10
HSTTVA38-Y	9.5	9.5	4.8	1	10
HSTTVA50-Y	12.7	12.7	6.4	1	10
HSTTVA75-Y	19.0	19.0	9.5	1	10
HSTTVA100-Y	25.4	25.4	12.7	1	10



* Order in multiples of Std. Pkg. Qty.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s

HSTTA Heat Shrink

- For damp locations
- Flexible tubing with adhesive inner wall, seals and protects components from moisture and corrosion
- The 3:1 shrink ratio is a benefit when working with connector to cable transitions



Type	Materials	
HSTTA	Polyolefin Cross-Linked with Adhesive	
 600 V	 -55°C to 110°C	 AMS-DTL-23053/4 Class 3
 Flexible	 Shrink Ratio:▲ 3:1	 Outer Wall Flame Retardant



HSTTA in Standard and Bulk Packages — 1.2m Pieces — Black Only

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*
HSTTA19-48-Q	4.8	4.8	1.6	1.0	1.2	25
HSTTA25-48-Q	6.4	6.4	2.0	1.0	1.2	25
HSTTA25-48-TL	6.4	6.4	2.0	1.0	1.2	250
HSTTA38-48-Q	9.5	9.5	3.0	1.4	1.2	25
HSTTA38-48-TL	9.5	9.5	3.0	1.4	1.2	250
HSTTA50-48-5	12.7	12.7	4.1	1.8	1.2	5
HSTTA50-48-T	12.7	12.7	4.1	1.8	1.2	200
HSTTA75-48-5	19.0	19.0	6.4	2.2	1.2	5
HSTTA75-48-C	19.0	19.0	6.4	2.2	1.2	100
HSTTA100-48-5	25.4	25.4	8.1	2.5	1.2	5
HSTTA100-48-L	25.4	25.4	8.1	2.5	1.2	50
HSTTA150-48-5	38.1	38.1	12.9	2.5	1.2	5
HSTTA150-48-Q	38.1	38.1	12.9	2.5	1.2	25

Standard Packs of HSTTA Heat Shrink — 152.4mm Pieces

HSTTA– Black Only – Single Diameter

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTA19-Y	4.8	4.8	1.6	1.0	1	10
HSTTA25-Y	6.4	6.4	2.0	1.0	1	10
HSTTA38-Y	9.5	9.5	3.0	1.4	1	10
HSTTA50-Y	12.7	12.7	4.1	1.8	1	10
HSTTA75-Y	19.0	19.0	6.4	2.2	1	10
HSTTA100-Y	25.4	25.4	8.1	2.5	1	10
HSTTA150-Y	38.1	38.1	12.9	2.5	1	10



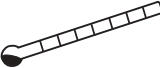





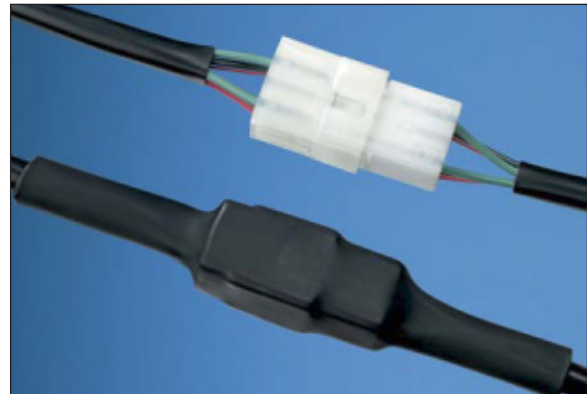
▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s * Order in multiples of Std. Pkg. Qty.

HSTTRA Heat Shrink

- For damp locations
- Semi-rigid tubing
- Adhesive inner wall which seals and protects components from moisture and corrosion
- Provides a rugged seal from the elements



Type	Materials	
HSTTRA	 Polyolefin Cross-Linked with Adhesive	
 600 V	 -55°C to 110°C	 AMS-DTL-23053/4 Class 1
 Semi-Rigid	 Shrink Ratio:▲ 2.5:1	



HSTTRA in Standard Packages — 1.2m Pieces — Black Only

Part Number	Nominal Diameter mm	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Length m	Std. Pkg. Qty.*
HSTTRA12-48-Q	3.2	3.2	0.6	1.0	1.2	25
HSTTRA19-48-Q	4.8	4.8	1.5	1.1	1.2	25
HSTTRA25-48-Q	6.4	6.4	2.0	1.2	1.2	25
HSTTRA38-48-Q	9.5	9.5	3.4	1.3	1.2	25
HSTTRA50-48-5	12.7	12.7	5.0	1.5	1.2	5
HSTTRA75-48-5	19.0	19.0	8.0	1.7	1.2	5
HSTTRA100-48-5	25.4	25.4	10.6	1.9	1.2	5

* Order in multiples of Std. Pkg. Qty.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s

HST Thick Wall Heat Shrink

- Suitable for wet locations and direct burial according to UL 486D
- Provides excellent protection above or below ground level
- Adhesive lined inner wall seals and protects against moisture



Type	Materials		
HST	Polyolefin Cross-Linked with Adhesive		
 600 V	 (-65°C to 110°C)	 AMS-DTL-23053/15 (HST only)	
 Rigid	 Shrink Ratio:▲ 3:1	 Flame Retardant	

(Black Only)
Including HST3.0

Listed 6R72
(except HST3.0)



Thick Wall Heat Shrink Part Number System

HST 0.4 - 3 - Q 2

Type	Expanded Diameter	Tube Length	Package Quantity	Colour
HST	0.4 = 10.2mm	3 = 76.2mm	1 = 1 Pc.	None = Black
	0.8 = 20.3mm	6 = 152.4mm	2 = 2 Pcs.	2 = Red
	1.1 = 27.9mm	9 = 228.6mm	3 = 3 Pcs.	
	1.5 = 38.1mm	12 = 304.8mm	5 = 5 Pcs.	
	2.0 = 50.8mm	48 = 1.2m	X = 10 Pcs.	
	3.0 = 76.2mm		Q = 25 Pcs.	

HST in Standard Packages

Part Number	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Conductor Size Range mm ²	Min. Cable O.D. mm	Max. Connector O.D. mm	Tube Length mm	Std. Pkg. Qty.*	Std. Ctn. Qty.
HST0.4-3-Q	10.1	3.8	2.3	4-16	4.3	8.9	76.2	25	100
HST0.4-6-3							152.4	3	30
HST0.4-6-X							152.4	10	100
HST0.4-48-5							1.2m	5	20
HST0.8-6-3	20.3	6.4	2.8	10-55	6.1	16.5	152.4	3	30
HST0.8-6-X							152.4	10	100
HST0.8-9-X							228.6	10	100
HST0.8-12-5							304.8	5	50
HST0.8-48-5	1.2m	5	20						
HST1.1-6-3	27.9	9.4	3.0	35-120	10.1	22.2	152.4	3	30
HST1.1-6-X							152.4	10	100
HST1.1-9-2							228.6	2	20
HST1.1-9-X							228.6	10	100
HST1.1-12-5							304.8	5	50
HST1.1-48-5							1.2m	5	20
HST1.5-9-X	38.1	12.7	4.3	95-185	15.2	30.2	228.6	10	100
HST1.5-12-1							304.8	1	10
HST1.5-12-5							304.8	5	50
HST1.5-48-5							1.2m	5	15
HST2.0-9-5	50.8	16.9	4.3	125-300	19.1	40.6	228.6	5	50
HST2.0-12-2							304.8	2	20
HST2.0-48-2							1.2m	2	8
HST3.0-12-2	76.2	25.4	4.3	300-625	30.5	57.2	304.8	2	20
HST3.0-48-2							1.2m	2	8

* Order in multiples of Std Pkg. Qty.

‡ For Red, add 2 to end of part number package suffix (Example HST0.4-3-Q2).

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

HSEC Thick Wall End Caps

- For wet locations
- Provides excellent protection for sealing ends of wire or cable
- Adhesive lined inner wall seals and protects against moisture

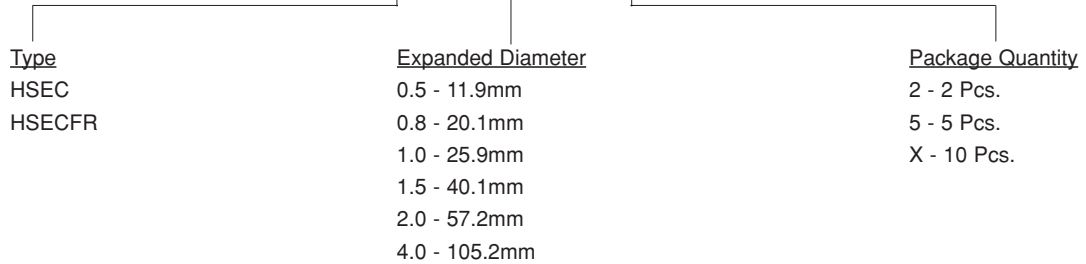


Type	Materials
HSEC	Polyolefin Cross-Linked
600 V	-55°C to 105°C
Rigid	Shrink Ratio:▲ 3:1



Thick Wall End Caps Part Number System

HSEC 0.5 - X



Thick Wall End Caps in Standard Packages — Black Only

Part Number	Min. Expanded I.D. mm	Maximum Recovered I.D. mm	Nominal Recovered Wall Thickness mm	Conductor Size Range mm	Cap Length mm	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSEC0.5-X	11.9	4.6	2.5	10 to 25	35.1	10	100
HSEC0.8-X	20.1	7.6	2.5	25 to 95	54.1	10	100
HSEC1.0-X	25.9	11.4	2.5	35 to 95	82.0	10	100
HSEC1.5-5	40.1	17.3	2.8	120 to 240	98.0	5	50
HSEC2.0-5	57.2	22.1	3.8	300 to 500	140.2	5	50
HSEC4.0-2	105.2	45.2	3.8	720 to 1000	175.3	2	10

Flame Retardant End Caps

HSECFR0.5-X	13.0	4.1	2.5	10 to 25	76.2	10	100
HSECFR0.8-X	19.0	6.1	2.5	25 to 95	88.9	10	100
HSECFR1.0-X	27.9	8.9	2.5	35 to 95	101.6	10	100
HSECFR1.5-5	38.1	11.9	3.8	120 to 240	114.3	5	50
HSECFR2.0-5	50.8	16.0	3.8	300 to 500	114.3	5	50

* Order in multiples of Std. Pkg. Qty.

▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s

Plastic Kit Boxes

Provides organised storage for a wide variety of parts in one convenient location




Informative label eliminates guess work:

- Specifies correct heat shrink usage based on wire range and connector size
- Provides reorder part number information




Once top is closed, loose pieces remain in their 6 compartments

Available with non-adhesive or adhesive lined heat shrink tubing for dry and damp locations




KP-HSTT1 Contents		For Dry Locations
Black Polyolefin <i>DRY-SHRINK</i> Heat Shrink Tubing (Type HSTT) In 152.4mm lengths 2:1 Shrink Ratio		
  		AMS-DTL-23053/5 Class 1
35 Each HSTT09 2.4mm I.D. HSTT12 3.2mm I.D.	21 Each HSTT19 4.8mm I.D. HSTT25 6.4mm I.D.	7 Each HSTT38 9.5mm I.D. HSTT50 12.7mm I.D.



KP-HSTT2 Contents		For Dry Locations
Multiple Colour Polyolefin <i>DRY-SHRINK</i> Heat Shrink Tubing (Type HSTT) In 152.4mm lengths 2:1 Shrink Ratio		
  		AMS-DTL-23053/5 Class 1 & 2
35 Each HSTT09 2.4mm I.D. - 7 Colours HSTT12 3.2mm I.D. - 7 Colours	21 Each HSTT19 4.8mm I.D. - 7 Colours HSTT25 6.4mm I.D. - 7 Colours	7 Each HSTT38 9.5mm I.D. - 7 Colours HSTT50 12.7mm I.D. - 7 Colours



KP-HSTTA Contents		For Damp Locations
Adhesive Lined Black Polyolefin <i>DAMP-SHRINK</i> Heat Shrink Tubing (Type HSTTA) In 152.4mm lengths 3:1 Shrink Ratio		
		AMS-DTL-23053/4 Class 3
14 Each HSTTA19 4.8mm I.D. 12 Each HSTTA25 6.4mm I.D.	10 Each HSTTA38 9.5mm I.D. 6 Each HSTTA50 12.7mm I.D.	3 Each HSTT75 19.0mm I.D. 2 Each HSTTA100 25.4mm I.D.

Heat Shrink Installation Instructions

General Instructions

Position heat shrink over the object to be covered. Using a heat gun, soft yellow flame torch, infrared heat source or oven, evenly heat the tubing until it has fully recovered and conforms to the object. Use caution not to char or burn the tubing.

Special Instructions for HSTTT

TFE tubing is the most difficult to shrink due to its high shrink temperature. TFE shrink tubing must be heated to the gel state 327°C to completely recover. This can be recognised when the tubing changes from milky white to clear colour. It can be shrunk with a heat gun or torch, however, it is very difficult to use these methods since they have a tendency to overheat the tube in one area while other areas remain too cool. The most reliable way to shrink TFE is in an oven. Position the heat shrink over the object to be covered and place it in an oven set at 427°C until the tubing turns clear. Once clear, remove assembly from oven to prevent over heating and allow it to cool at room temperature. Do not quench in cold air or water. Large objects, particularly metal tubing or rods, must be preheated to get a uniform shrink.

Size Selection for Heat Shrink Tubing

Generally, the largest tube that shrinks down tightly onto an object should be chosen. This allows the heat shrink tubing maximum stress relief and this will yield the longest service life.

Example:

A multi-conductor cable needs to be covered with HSTT Type *DRY-SHRINK* Heat Shrink. The area to be covered has a measured outside diameter of 17.8mm. The two possibilities are HSTT75-48-5 and HSTT100-48-5.

Part Number	Expanded I.D. mm	Recovered I.D. mm
HSTT75-48-5	19.0	9.5
HSTT100-48-5	25.4	12.7

The proper choice is HSTT100-48-5 since the tube will recover more than HSTT75-48-5. The HSTT75-48-5 will fit over the 17.8mm outside diameter; however, this is not the proper choice since it is smaller than the HSTT100-48-5. In general, heat shrink should recover at least 10-20% to reduce stress and yield the longest service life.

Recommended Tubing Size for Common Wire Types Based on Location For Insulated Wire, Non-insulated Wire and Insulated Wire With Copper Connectors

Instructions for tube selection:

1) Determine Location Type.

LOCATION:

DRY — IP62: A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.

DAMP — IP66: Partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture, such as some basements, some barns and some cold-storage warehouses.

WET — IP68: Installations underground or in concrete slabs or masonry in direct contact with the earth, and locations subject to saturation with water or other liquids, such as vehicle washing areas, and locations exposed to weather and unprotected.

2) Match wire size to location type under required application - insulated wire, non-insulated wire, or insulated wire with copper connectors.

3) Read corresponding part number.

4) Part numbers with "-Y" are packages containing 152.4mm pieces. Part numbers with "-48" are 1.2m pieces.

5) Part numbers shown below are for black heat shrink. Consult relevant catalogue section for colour options.

Wire Size mm ²	Insulated Wire			Uninsulated Wire			Insulated Wire with Copper Connector		
	DRY-SHRINK™	DAMP-SHRINK™	WET-SHRINK™	DRY-SHRINK™	DAMP-SHRINK™	WET-SHRINK™	DRY-SHRINK™	DAMP-SHRINK™	WET-SHRINK™
0.21	HSTT12-Y	HSTTA19-Y	—	—	—	—	HSTT12-Y	—	—
0.33	HSTT12-Y	HSTTA19-Y	—	—	—	—	HSTT12-Y	—	—
0.52	HSTT12-Y	HSTTA19-Y	—	HSTT06-Y	—	—	HSTTA19-Y	HSTTA19-Y	—
0.82	HSTT19-Y	HSTTA19-Y	—	HSTT06-Y	—	—	HSTTA19-Y	HSTTA19-Y	—
1.31	HSTT19-Y	HSTTA25-Y	—	HSTT06-Y	—	—	HSTTA19-Y	HSTTA25-Y	—
2.08	HSTT19-Y	HSTTA25-Y	—	HSTT12-Y	HSTTA19-Y	—	HSTTA19-Y	HSTTA25-Y	—
3.31	HSTT25-Y	HSTTA38-Y	HST0.4-48-5	HSTT12-Y	HSTTA19-Y	—	HSTT25-Y	HSTTA38-Y	HST0.4-48-5
5.26	HSTT25-Y	HSTTA38-Y	HST0.4-48-5	HSTT19-Y	HSTTA25-Y	—	HSTT25-Y	HSTTA38-Y	HST0.4-48-5
8.36	HSTT38-Y	HSTTA50-Y	HST0.4-48-5	HSTT25-Y	HSTTA25-Y	—	HSTT38-Y	HSTTA50-Y	HST0.4-48-5
13.3	HSTT50-Y	HSTTA50-Y	HST0.8-48-5	HSTT25-Y	HSTTA38-Y	HST0.4-48-5	HSTT50-Y	HSTTA50-Y	HST0.8-48-5
21.1	HSTT50-Y	HSTTA75-Y	HST0.8-48-5	HSTT38-Y	HSTTA38-Y	HST0.4-48-5	HSTT50-Y	HSTTA75-Y	HST0.8-48-5
26.7	HSTT50-Y	HSTTA75-Y	HST0.8-48-5	HSTT38-Y	HSTTA50-Y	HST0.4-48-5	HSTT50-Y	HSTTA75-Y	HST0.8-48-5
33.6	HSTT75-Y	HSTTA100-Y	HST0.8-48-5	HSTT50-Y	HSTTA50-Y	HST0.8-48-5	HSTT75-Y	HSTTA100-Y	HST0.8-48-5
42.4	HSTT75-Y	HSTTA100-Y	HST0.8-48-5	HSTT50-Y	HSTTA50-Y	HST0.8-48-5	HSTT75-Y	HSTTA100-Y	HST1.1-48-5
53.5	HSTT75-Y	HSTTA100-Y	HST1.1-48-5	HSTT50-Y	HSTTA75-Y	HST0.8-48-5	HSTT75-Y	HSTTA100-Y	HST1.1-48-5
67.4	HSTT100-Y	HSTTA100-Y	HST1.1-48-5	HSTT50-Y	HSTTA75-Y	HST0.8-48-5	HSTT100-Y	HSTTA100-Y	HST1.1-48-5
85	HSTT100-Y	HSTTA150-Y	HST1.1-48-5	HSTT75-Y	HSTTA100-Y	HST0.8-48-5	HSTT100-Y	HSTTA150-Y	HST1.5-48-5
107	HSTT100-Y	HSTTA150-Y	HST1.5-48-5	HSTT75-Y	HSTTA100-Y	HST1.1-48-5	HSTT100-Y	HSTTA150-Y	HST1.5-48-5
120	HSTT100-Y	HSTTA150-Y	HST1.5-48-5	HSTT100-Y	HSTTA100-Y	HST1.1-48-5	HSTT100-Y	HSTTA150-Y	HST1.5-48-5
150	HSTT150-48-5	HSTTA150-Y	HST1.5-48-5	HSTT100-Y	HSTTA100-Y	HST1.1-48-5	HSTT150-Y	HSTTA150-Y	HST1.5-48-5
185	HSTT150-48-5	HSTTA150-Y	HST1.5-48-5	HSTT100-Y	HSTTA150-Y	HST1.5-48-5	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2
—	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT100-Y	HSTTA150-Y	HST1.5-48-5	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2
240	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT100-Y	HSTTA150-Y	HST1.5-48-5	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2
300	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2
—	HSTT200-48-5	HSTTA150-Y	HST2.0-48-2	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT200-48-5	—	HST2.0-48-2
400	HSTT200-48-5	HSTTA150-Y	HST3.0-48-2	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT200-48-5	—	HST3.0-48-2
—	HSTT200-48-5	—	HST3.0-48-2	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT200-48-5	—	HST3.0-48-2
—	HSTT200-48-5	—	HST3.0-48-2	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT200-48-5	—	HST3.0-48-2
500	HSTT200-48-5	—	HST3.0-48-2	HSTT200-48-5	HSTTA150-Y	HST2.0-48-2	HSTT200-48-5	—	HST3.0-48-2
630	HSTT300-48-2	—	HST3.0-48-2	HSTT200-48-5	HSTTA150-Y	HST2.0-48-2	—	—	HST3.0-48-2
800	HSTT300-48-2	—	HST3.0-48-2	HSTT200-48-5	—	HST3.0-48-2	—	—	—
—	HSTT300-48-2	—	HST3.0-48-2	HSTT200-48-5	—	HST3.0-48-2	—	—	—
1000	HSTT300-48-2	—	HST3.0-48-2	HSTT200-48-5	—	HST3.0-48-2	—	—	—

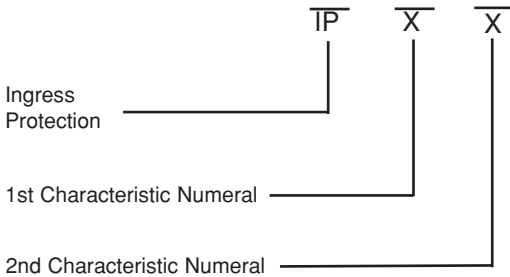
Sizing information is based on the following wire types: MTW, THHN, THWN, TFN, THW, TW, TF, RHW, RH, RHH AND UL1015.

THHN is the most common wire type.

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The IEC 529 international standard describes a system for classifying the degrees of protection provided by the enclosures of electrical equipment and is a recognised standard around the world. An independent test laboratory has tested *PANDUIT* Heat Shrink Tubing to the IEC 529 standard. The following information exhibits the IP ratings for *PANDUIT* Heat Shrink tubing.






The first characteristic numeral indicates the level of protection against the ingress of solid foreign objects.

The second characteristic numeral indicates the level of protection against the ingress of water.

1st Characteristic Numeral		
<i>PANDUIT</i> Heat Shrink	Ingress Protection (IP)	Meaning for Protection
	Against ingress of solid object	
	0	Non-Protected
	1	50mm diameter
	2	12.5mm diameter
	3	2.5mm diameter
	4	1.0mm diameter
	5	Dust Protected
<i>DRY-SHRINK™</i> , <i>DAMP-SHRINK™</i> and <i>WET-SHRINK™</i>	6	Dust Tight

2nd Characteristic Numeral		
<i>PANDUIT</i> Heat Shrink	Ingress Protection (IP)	Meaning for Protection
	Against ingress of water	
	0	Non-Protected
	1	Vertically Dripping
<i>DRY-SHRINK™</i> , Heat Shrink Tubing	2	Dripping (15° tilted)
	3	Spraying
	4	Splashing
	5	Jetting
<i>DAMP-SHRINK™</i> , Heat Shrink Tubing	6	Powerful Jetting
	7	Temporary Immersion
<i>WET-SHRINK™</i> , Heat Shrink Tubing	8	Continuous Immersion

	Intended Application Location	Ingress Protection Rating	Description
	DRY Locations not normally subject to moisture	IP62	Protected against the ingress of dust but not protected against the ingress of water
	DAMP Locations subjected to moderate degrees of water and moisture	IP66	Protected against the ingress of dust and protected against the ingress of power jet of water
	WET Locations are defined as underground burial or immersion in water	IP68	Protected against the ingress of dust and protected against the ingress of water to a depth of 10 metres

DRY-SHRINK™ Heat Shrink has been tested in accordance with EN 60529 paragraph 13.4 thereby providing *PANDUIT™ DRY-SHRINK™* Heat Shrink with an ingress protection rating of IP62.

DAMP-SHRINK™ Heat Shrink has been tested in accordance with EN 60529 paragraph 13.4 and with paragraph 14.2.6 thereby providing *PANDUIT™ DAMP-SHRINK™* with an ingress protection rating of IP66.

WET-SHRINK™ Heat Shrink has been tested in accordance with EN 60529 paragraph 13.4, paragraph 14.2.6 and with paragraph 14.2.7 thereby providing *WET-SHRINK™* Heat Shrink with an ingress protection rating of IP68. *PANDUIT™ WET-SHRINK™* Heat Shrink has passed EN 60529 paragraph 14.2.7 at depth of 10 metres.

Technical Data

General Information

Product Type	Typical Applications	Specific Gravity	Flammability	Water Absorption	Dielectric Strength	Page No.
HSTT	Economical and easy way to insulate, protect, harness and identify electrical and electronic components in a wide variety of applications. Black is U.V. Resistant.	Class 1, 1.35 Class 2, 1.0 ASTM D792	Class 1 Self Extinguishing Class 2 N/A ASTM D2671 Procedure B	0.5% MAX. ASTM D570	500 V/MIL. (19.7 Kv/mm)min. ASTM D2671	131 — 134
HSTTV	Use where UL recognition with VW-1 rating is required. Use where the wire component cannot tolerate higher shrink temperatures, reduces application time to insulate, protect, identify, etc. Black is U.V. Resistant.	1.50 ASTM D792	Self Extinguishing ASTM D2671 Procedure C	0.5% MAX. ASTM D570	500 V/MIL. (19.7 Kv/mm)min. ASTM D2671	135 — 136
HSTTVA	Seals and protects components from moisture and corrosion. Use where a flexible tubing is needed. Suitable for damp locations.	N/A	Self Extinguishing ASTM D2671 Procedure B	0.5% MAX. ASTM D570	500 V/MIL. (19.7 Kv/mm)min. ASTM D2671	141
HSTTRA	Environmentally seals and protects components forming a rugged and heavy duty covering. The 2.5:1 shrink ratio is a benefit when working with connector to cable transitions. Suitable for damp locations.	N/A	N/A	0.5% MAX. ASTM D570	500 V/MIL. (19.7Kv/mm)min ASTM D2671	143
HSTTA	Environmentally seals and protects components. The 3:1 shrink ratio is a benefit when working with connector to cable transitions. Suitable for damp locations.	N/A	Self Extinguishing ASTM D2671 Procedure B	1.0% MAX. ASTM D570	300 V/MIL. (11.8 Kv/mm)min. ASTM D2671	142
HST	Seals and protects electrical connections and splices above or below ground, 3:1 shrink ratio. Suitable for outdoor and wet locations.	1.2 MAX.	Self Extinguishing ASTM D2671 Procedure C	0.5% MAX. ASTM D570	200 V/MIL. (7.9 Kv/mm)min. ASTM D2671	144
HSTTP	Ripple free conformance around sharp bends as in appliance handles and bus bars. Good cut through and solder-iron resistance. Black is U.V. Resistant.	1.35 MAX.	Self Extinguishing ASTM D876	1.0% MAX. ASTM D570	400 V/MIL. (15.8 Kv/mm)min. ASTM D2671	137
HSTTN	Insulation and abrasion resistance, extensive military uses on vehicles and ship-board. Excellent chemical resistance especially to fuels and oils. Only available in Black.	1.30 ASTM D792	Self Extinguishing ASTM D876	1.0% MAX. ASTM D570	300 V/MIL. (11.8 Kv/mm)min. ASTM D2671	138
HSTTK	Protection and strain relief for wires or connectors in a high temperature or solvent rich environment. Insulation of heater leads.	1.8 MAX. ASTM D792	Pass MIL-DTL-23053/8B 4.6.15.3	0.5% MAX. ASTM D570	Size to (12.7mm) 800 V/MIL. (31.5Kv/mm)min Over (12.7mm) 600 V/MIL. (23.6Kv/mm)min ASTM D2671	140
HSTTT	High insulation and abrasion resistance. High temperature, strain relief, resists corrosive atmospheres, self lubrication and non wetting. Can be used with fibre optics and as a strain relief for high density connectors. U.V. Resistant	2.2 MAX. ASTM D792	N/A Non-flammable	0.01% MAX. ASTM D570	800 V/MIL. (31.5 Kv/mm)MIN. ASTM D2671	139

Non-Shrink PVC Tubing

- Provides insulation and protection for lead wires, wire harness assemblies, soldered joints and components in electrical and electronic equipment
- Material: Polyvinyl chloride (PVC)
- Voltage Rating: 300V and 600V
- All purpose, flexible, non-shrinkable
- Resistant to heat and moisture
- Applicable Specifications:
 UL224 VW-1
 CSA C22.2 No. 198.1
 ASTM D-922, Grade CFR
 MIL-I-631, Type F, Form U, Grade C
 Class 1, Category 1

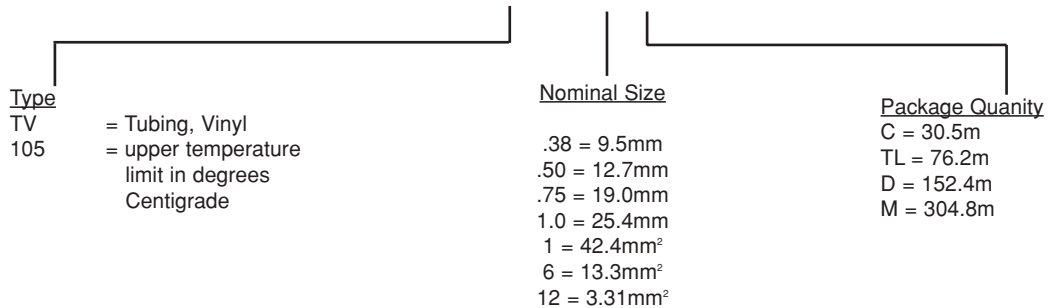


VW-1

The Functional Part Number System Makes Ordering Easy


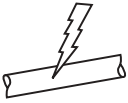
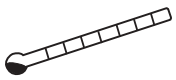




Non-Shrink PVC Tubing Part Number System

TV105 - 12 M



Non-Shrink PVC Tubing



Type	Materials	
TV105	 Polyvinyl Chloride	
 300V/600V**	 -20°C to 105°C	 MIL-I-631, Type F, Form U Grade C Class 1, Cat1
 Highly Flexible	 Oil Resistant	 Highly Flame Retardant VW-1

Part Number Clear	Part Number Black	Nominal Size/ Trade Name	Inside Diameter — mm		Wall Thickness mm	Maximum Voltage Rating	Std. Pkg. Qty.	Std. Ctn. Qty.
			Maximum	Minimum				
TV105-12MY	TV105-12M20Y	3.31mm ²	2.26	2.06	0.41	300V	304.8m	2 Reels
TV105-6MY	TV105-6M20Y	10.5mm ²	4.52	4.11	0.51		304.8m	2 Reels
TV105-1MY	TV105-1M20Y	42.4mm ²	7.89	7.34			304.8m	1 Reel
TV105-.38DY	TV105-.38D20Y	9.5	10.13	9.53	0.64	600V	152.4m	1 Reel
	TV105-.50D20Y	12.7	13.30	12.70			152.4m	1 Reel
TV105-.75TLY	TV105-.75TL20Y	19.0	19.96	19.05	0.89		76.2m	1 Reel
TV105-1.0CY	TV105-1.0C20Y	25.4	26.31	25.40			30.5m	2 Reels

PAN-WRAP™ Split Harness Wrap



PAN-WRAP Split Harness Wrap is an innovative addition to the PANDUIT Abrasion Protection Line. Engineered for wire harness protection, PAN-WRAP bundles and protects wire, cable and hoses. The PAN-WRAP design provides full 360° coverage with pre-cut slots for break-outs to maximise reliability and reduce installation time. PAN-WRAP tools are available for easy installation.

Features and Benefits

- Slotted walls allow wire break-outs to speed installation
- Flexible design allows manoeuvrability and protects wire and cables during movement
- New installation tool reduces installation time and lowers installed cost
- 360° abrasion protection improves product reliability

Applications:

- Wire Harness Assembly
- Transportation
- Commercial Appliances
- Industrial Robotics



Open PAN-WRAP Tool to enable the wire bundle to be inserted inside the tool.



Insert wire bundle inside tool. Close tool to secure the wire bundle and prepare to insert bundle into the PAN-WRAP Split Harness Wrap.



Insert end of tool into the end of Split Harness Wrap. Begin pulling the tool making certain that the Split Harness Wrap is feeding over the wire bundle.



Hold end of Split Harness Wrap and wire bundle while continuing to pull the tool, inserting the wire bundle into the length of the Split Harness Wrap.

Split Harness Wrap

Part Number	Size I.D. mm	Maximum Bundle Diameter mm	Material	Colour	Length m	Std. Pkg. Qty.
PW50F-T	12.7	13.97	Polyethylene	Natural	61.1	1
PW75F-C	19.1	20.32			30.5	1
PW100F-C	25.4	28.7			30.5	1
PW150F-L	38.1	41.4			15.2	1
PW50F-T20	12.7	13.97	Polyethylene	Black	61.1	1
PW75F-C20	19.1	20.32			30.5	1
PW100F-C20	25.4	28.7			30.5	1
PW150F-L20	38.1	41.4			15.2	1

Flame Retardant

PW50FR-T	12.7	13.97	Flame Retardant Polyethylene	Natural	61.1	1
PW75FR-C	19.1	20.32			30.5	1
PW100FR-C	25.4	28.7			30.5	1
PW150FR-L	38.1	41.4			15.2	1
PW50FR-T20	12.7	13.97	Flame Retardant Polyethylene	Black	61.1	1
PW75FR-C20	19.1	20.32			30.5	1
PW100FR-C20	25.4	28.7			30.5	1
PW150FR-L20	38.1	41.4			15.2	1

Tool

Part Number	Material	Colour	Size	Std. Pkg. Qty.
PWT50	ABS	White	—	1
PWT75	ABS	White	—	1
PWT100	ABS	White	—	1
PWT150	ABS	White	—	1

Spiral Wrap



Spiral Wrap



- Large variety of colours, materials and sizes
- Available in seven different materials and twelve different colours
- Can be used to colour code wire bundles
- Flexible, neat, fast
- Allows breakouts of single/multiple wires and re-routing of replacement wires
- Harness multiple cables into a single manageable bundle
- Abrasion protection for wires, cables, hoses and tubing
- Reusable
- Tool supplied in each package

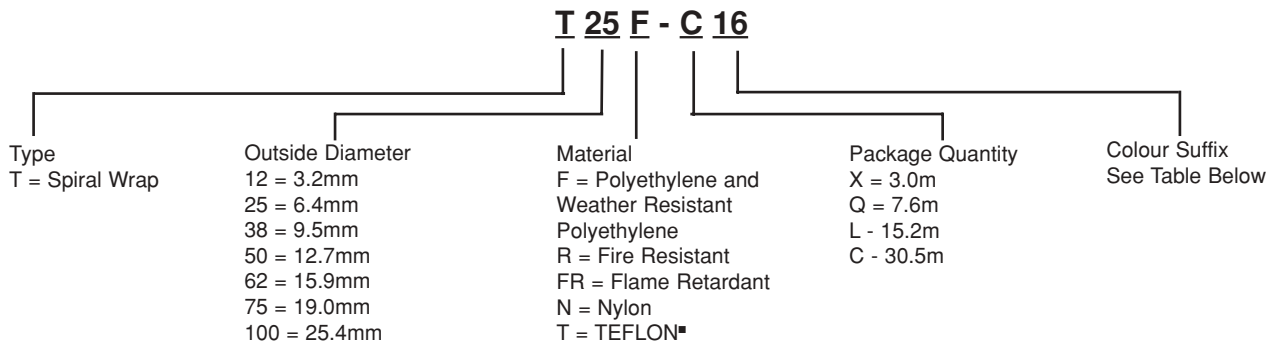
Suggested Applications



- Organise wires for communication and computer equipment where access to the wires is required
- In OEM applications for protecting tubes and harnesses
- Abrasion protection for control panel wiring
- Personal computer and printer wire organisation
- Protect glass tubes from abrasion and breakage
- Kink-proofing for all kinds of tubing ideal for laboratories
- Eliminates lacing cord and tie-offs
- Use orange or yellow spiral wrap for protecting and identifying fibre optic cables

The Functional Part Number System Makes Ordering Easy

Spiral Wrap Part Number Description



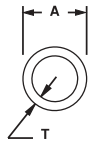
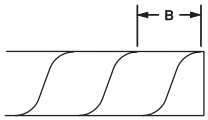
MATERIAL AVAILABILITY

Colour	Colour Suffix*	Polyethylene	Weather Resistant Polyethylene	Fire Resistant Polyethylene	Flame Retardant Polyethylene	Nylon	Weather Resistant Nylon	TEFLON [®]
Natural (Opaque to Translucent)	No Suffix will be listed	✓		• (Natural white)	• (Natural white)	✓		✓
Weather Resistant Black	0		✓				✓	
Brown	1	✓						
Red	2	✓						
Orange	3	✓						
Yellow	4	✓						
Green	5	✓						
Blue	6	✓						
Purple	7	✓						
Grey	8	✓						
White	10	✓						
Pink	16	✓						
Black	20			✓	✓			

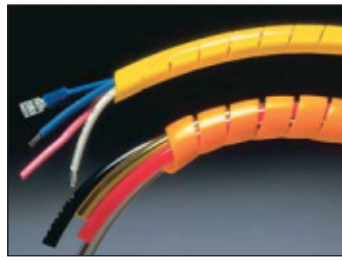
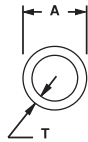
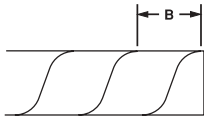
Blank= Not applicable

* Colours are stocked for 6.4mm and 12.7mm Polyethylene. Other sizes available, contact your customer service representative.

▪ TEFLON or equivalent fluorocarbon PTFE material is used. TEFLON is a registered trademark of E.I. DuPont de Nemours Co.

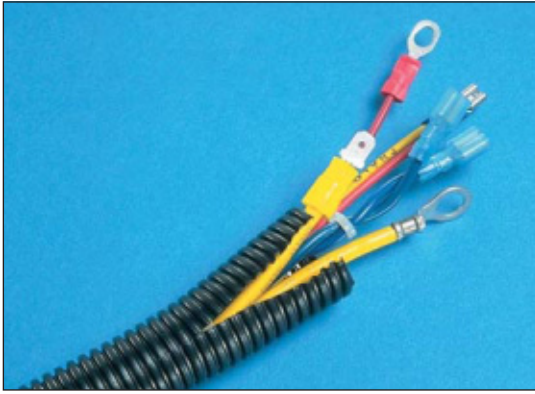


Part Number	Material	Colour	A Outside Dia. mm	B mm	T mm	Bundle Size mm	Std. Pkg. Qty.* m			
T12F-C	Polyethylene	Natural	3.2	5.5	0.76	1.6 - 12.7	30.5			
T19F-C										
T25F-C										
T25F-C1		Brown	4.8	6.4	0.89	3.2 - 25.4	30.5			
T25F-C10		White								
T25F-C16		Pink								
T25F-C2		Red								
T25F-C3		Orange								
T25F-C4		Yellow								
T25F-C5		Green								
T25F-C6		Blue								
T25F-C7		Purple								
T25F-C8		Grey								
T38F-C		Polyethylene	Natural	9.5	11.1	1.4	7.9 - 76.2	3.0		
T50F-X										
T50F-C										
T50F-C1	Brown		12.7	12.7	1.5	9.5 - 101.6	30.5			
T50F-C10	White									
T50F-C16	Pink									
T50F-C2	Red									
T50F-C3	Orange									
T50F-C4	Yellow									
T50F-C5	Green									
T50F-C6	Blue									
T50F-C7	Purple									
T50F-C8	Grey									
T62F-C	Polyethylene		Natural	15.9	16.0	1.57	12.7 - 114.3	30.5		
T75F-C				19.1	22.2	1.65	15.9 - 127			
T100F-C		25.4		28.6	1.78	22.2 - 152.4				
T12F-C0		Weather Resistant Polyethylene		Black	3.3	5.5	0.76		1.6 - 12.7	3.0
T25F-X0					6.4	9.5	1.02		4.8 - 50.8	
T25F-C0	9.5		11.1		1.4	7.9 - 76.2	30.5			
T38F-C0	12.7		12.7		1.5	9.5 - 101.6	3.0			
T50F-X0	15.9		16.0		1.57	12.7 - 114.3	30.5			
T50F-C0	19.1		22.2		1.65	15.9 - 127.0				
T62F-C0	25.4		28.6		1.78	22.2 - 152.4				
T75F-C0	Fire Resistant Polyethylene		Natural		3.3	5.5	0.76	1.6 - 12.7	30.5	
T12R-C			Natural		4.8	6.4	0.89	3.2 - 25.4		
T19R-C			Natural		6.4	9.5	1.02	4.8 - 50.8		
T25R-C		Black	9.5	1.02		4.8 - 50.8				
T25R-C20		Natural	9.5	11.1	1.4	7.9 - 76.2				
T38R-C		Natural	12.7	12.7	1.5	9.5 - 101.6				
T50R-C		Natural	15.9	15.9	1.57	12.7 - 114.3				
T62R-C		Natural	19.1	22.2	1.65	15.9 - 127.0				
T75R-C	Natural	25.4	28.6	1.78	22.2 - 152.4					
T100R-C										



Part Number	Material	Colour	A Outside Dia. mm	B mm	T mm	Bundle Size mm	Std. Pkg. Qty.* m
T12FR-C	Flame Retardant Polyethylene	Natural	3.3	5.5	0.76	1.6 - 12.7	30.5
T12FR-C20		Black		5.5	0.76	1.6 - 12.7	
T19FR-C		Natural	4.8	6.4	0.81	3.2 - 25.4	
T19FR-C20		Black		6.4	0.81	3.2 - 25.4	
T25FR-C		Natural	6.4	9.5	1.02	4.8 - 50.8	
T25FR-C20		Black		9.5	1.02	4.8 - 50.8	
T38FR-C		Natural	9.5	11.1	1.4	7.9 - 76.2	
T38FR-C20		Black		11.1	1.4	7.9 - 76.2	
T50FR-C		Natural	12.7	12.7	1.5	9.5 - 101.6	
T50FR-C20		Black		12.7	1.5	9.5 - 101.6	
T62FR-C		Natural	15.9	15.9	1.57	12.7 - 114.3	
T62FR-C20		Black		15.9	1.57	12.7 - 114.3	
T75FR-C		Natural	19.1	22.2	1.65	15.9 - 127.0	
T75FR-C20		Black		22.2	1.65	15.9 - 127.0	
T100FR-C		Natural	25.4	28.6	1.78	22.2 - 152.4	
T100FR-C20		Black		28.6	1.78	22.2 - 152.4	
T12N-C	Nylon (Black is Weather Resistant Nylon)	Natural	3.3	5.5	0.38	1.6 - 12.7	30.5
T12N-C0		Black		5.5	0.38	1.6 - 12.7	
T19N-C		Natural	4.8	6.4	0.51	3.2 - 25.4	
T19N-C0		Black		6.4	0.51	3.2 - 25.4	
T25N-C		Natural	6.4	9.5	0.58	4.8 - 50.8	
T25N-C0		Black		9.5	0.58	4.8 - 50.8	
T38N-C		Natural	9.7	11.1	0.76	7.9 - 76.2	
T38N-C0		Black		11.1	0.76	7.9 - 76.2	
T50N-C		Natural	12.7	12.7	0.81	9.5 - 101.6	
T50N-C0		Black		12.7	0.81	9.5 - 101.6	
T62N-C		Natural	15.9	15.9	0.89	12.7 - 114.3	
T62N-C0		Black		15.9	0.89	12.7 - 114.3	
T75N-C		Natural	19.1	22.2	1.01	15.9 - 127.0	
T75N-C0		Black		22.2	1.01	15.9 - 127.0	
T100N-C		Natural	25.4	28.6	1.0	22.2 - 152.4	
T100N-C0		Black		28.6	1.0	22.2 - 152.4	
T12T-C	TEFLON [®]	Natural	3.2	5.5	0.5	1.6 - 12.7	30.5
T19T-C			4.8	6.4	0.76	3.2 - 25.4	15.2
T25T-L			6.4	9.5	0.76	4.8 - 50.8	
T50T-Q			12.7	12.7	0.76	9.5 - 101.6	7.6
T62T-Q			15.9	15.9	0.76	12.7 - 114.3	
T75T-X			19.1	22.2	0.76	15.9 - 127.0	3.0
T100T-X			25.4	28.6	1.01	22.2 - 152.4	

*TEFLON is a registered trademark of E.I. DuPont de Nemours Co.

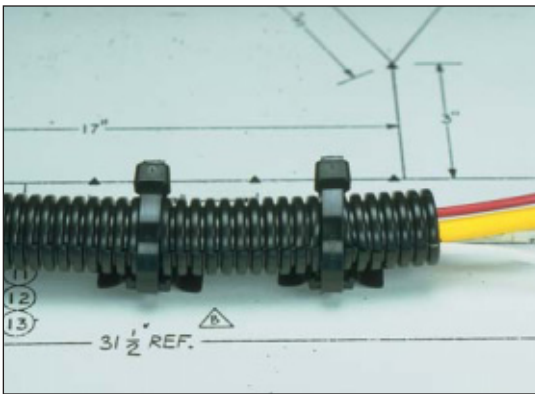


- PANDUIT Corrugated Loom Tubing is offered for applications where spiral wrap or braided expandable sleeving may be difficult to install or where they do not offer the amount of protection required
- Available in Heat Stabilised Nylon or Polyethylene, this product available with a lengthwise slit which makes it easy to install onto a bundle of wires or a pre-assembled harness assembly



Features and Benefits

- Protects and reduces the risk of damage to wiring
- Crush, impact and abrasion resistant
- Available in slit or solid wall
- Available in easy to handle 30.5 metre lengths
- Available in black, orange and yellow polyethylene and black heat stabilised nylon
- Secure with push type cable ties, adhesive or push type mounts



Suggested Applications

- Bundle wires in control panels
- Contain and organise loose and bundled wiring harnesses
- Route wires in automotive, truck, trailer, bus, conversion van, emergency service and recreational vehicle applications
- Protect wires in off road/mobile equipment
- Use in mining equipment
- Marine applications for protecting wires on boats and ships



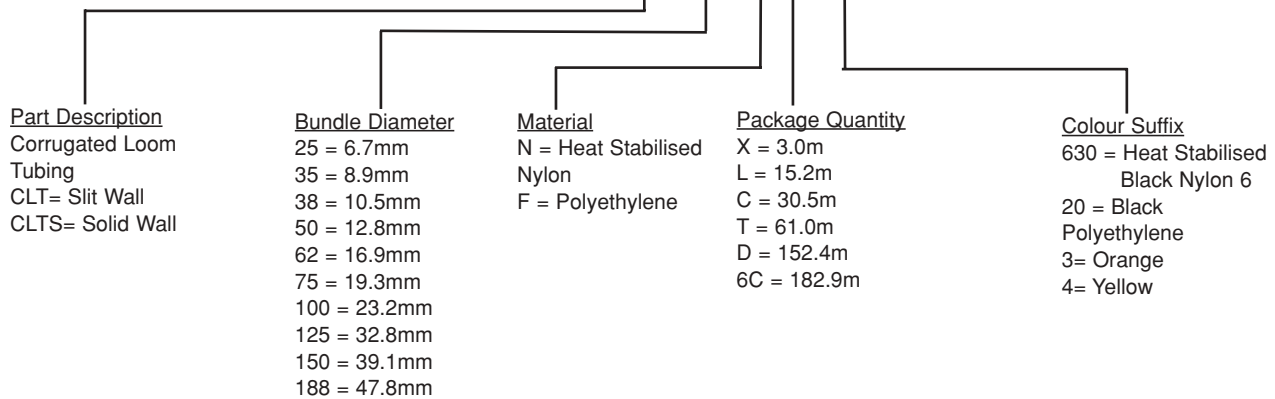
Wiring Accessories for Corrugated Loom Tubing

- Tie Harness Mounts have a specially designed location tab on the mount that aligns with grooves in corrugated loom tubing to ensure proper mount location during assembly

The Functional Part Number System Makes Ordering Easy

Corrugated Loom Tubing Part Number Description

Example: **CLT 100 N-C 630**



Part Number		Material	Colour	Inside Diameter mm	Outside Diameter mm	Length m	Std. Pkg. Qty.*		
Slit	Solid								
CLT25F-C20	CLTS25F-C20	Polyethylene	Black	6.7	9.9	30.5	1		
CLT35F-C20	CLTS35F-C20			8.9	12.7	30.5	1		
CLT38F-C20	CLTS38F-C20			10.5	14.2	30.5	1		
CLT50F-C20	CLTS50F-C20			12.8	17.0	30.5	1		
CLT62F-C20	CLTS62F-C20			16.9	21.1	30.5	1		
CLT75F-C20	CLTS75F-C20			19.3	23.8	30.5	1		
CLT100F-C20	CLTS100F-C20			23.2	27.7	30.5	1		
CLT125F-L20	CLTS125F-L20			32.8	38.1	15.2	1		
CLT150F-X20	**			39.1	47.2	3.0	1		
CLT150F-T20	**			39.1	47.2	61.0	1		
CLT150F-D20	CLTS150F-D20			39.1	47.2	152.4	1		
CLT188F-X20	**			47.8	55.1	3.0	1		
CLT188F-C20	**			47.8	55.1	30.5	1		
CLT188F-6C20	**			47.8	55.1	182.9	1		
CLT25F-C3	CLTS25F-C3			Polyethylene	Orange	6.7	9.9	30.5	1
CLT35F-C3	CLTS35F-C3					8.9	12.7	30.5	1
CLT38F-C3	CLTS38F-C3	10.5	14.2			30.5	1		
CLT50F-C3	CLTS50F-C3	12.8	17.0			30.5	1		
CLT62F-C3	CLTS62F-C3	16.9	21.1			30.5	1		
CLT75F-C3	CLTS75F-C3	19.3	23.8			30.5	1		
CLT100F-C3	CLTS100F-C3	23.2	27.7			30.5	1		
CLT125F-L3	CLTS125F-L3	32.8	38.1			15.2	1		
CLT150F-X3	**	39.1	47.2			3.0	1		
CLT150F-D3	CLTS150F-D3	39.1	47.2			152.4	1		
CLT188F-X3	**	47.8	55.1			3.0	1		
CLT188F-C3	**	47.8	55.1			30.5	1		
CLT150F-X4	**	Polyethylene	Yellow			39.1	47.2	3.0	1
CLT150F-D4	**					39.1	47.2	152.4	1
CLT188F-X4	**					47.8	55.1	3.0	1
CLT188F-C4	**					47.8	55.1	30.5	1
CLT25N-C630	CLTS25N-C	Heat Stabilised Black Nylon 6	Black	6.7	9.9	30.5	1		
CLT35N-C630	CLTS35N-C			8.9	12.7	30.5	1		
CLT38N-C630	CLTS38N-C			10.5	14.2	30.5	1		
CLT50N-C630	CLTS50N-C			12.8	17.0	30.5	1		
CLT62N-C630	CLTS62N-C			16.9	21.1	30.5	1		
CLT75N-C630	CLTS75N-C			19.3	23.8	30.5	1		
CLT100N-C630	CLTS100N-C			23.2	27.7	30.5	1		
CLT125N-L630	**			32.8	38.1	15.2	1		
CLT150N-D630	**			39.1	47.2	152.4	1		
CLT188N-6C630	**			47.8	55.1	182.9	1		

*Order the number of pieces required in multiples of standard package quantities.

WITH
PANDUIT Fittings



WITHOUT
PANDUIT Fittings

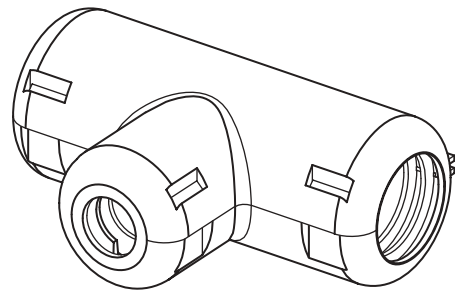
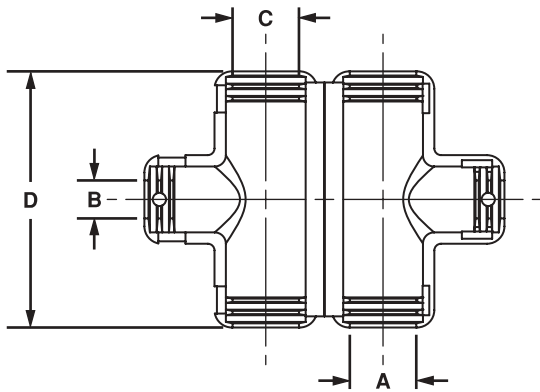


Features:

- Fast assembly
- Virtually eliminates taping
- Easy to assemble
- Locking latch design
- Durable polypropylene shell
- Works with most popular sizes

Benefits

- Reduces production time
- Improves system appearance
- Reduces operator fatigue
- Secures fittings firmly in place
- Protects wires
- Provides easy selection of Corrugated Loom Tubing fittings for application needs



Part Number	Dimensions mm				Material	Colour	Packaging*	
	A	B	C	D			Std. Pkg. Qty.*	Std. Ctn. Qty.
CF382538F-Q	12.45	8.6	12.45	52.3	Polypropylene	Black	25	100
CF502550F-Q	15.99		15.00	58.4				
CF503850F-Q	21.60	12.45	21.60	77.7				
CF752575F-Q		8.6						
CF753875F-Q		12.45						

*Order the number of pieces required in multiples of standard package quantities.

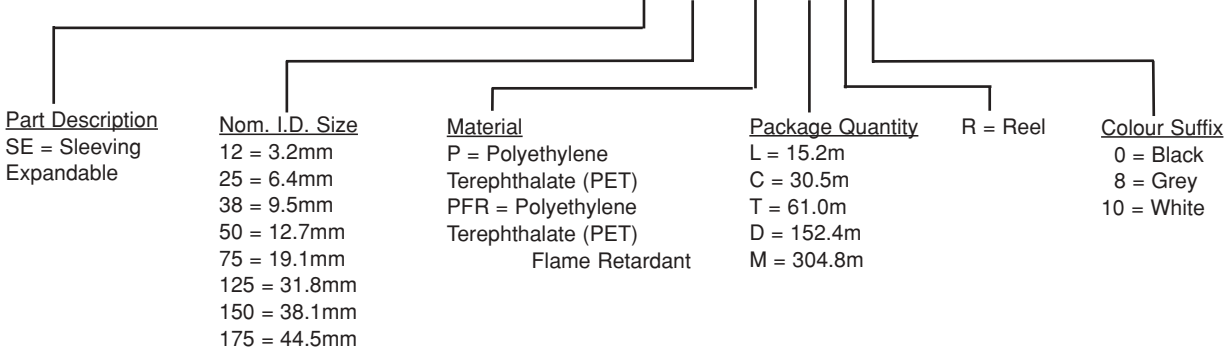


- Material: Polyethylene Terephthalate — PET
- Provides continuous abrasion resistance for wires, cables and tubing
- Lightweight, durable protection
- Highly flexible open weave will not trap heat or humidity
- Rated for use up to 125°C
- Allows for use with irregular shapes
- Stock colours: Black, grey and white



**The Functional Part Number System Makes Ordering Easy
Braided Expandable Sleeving Part Number Description**

Example: SE 25 PFR-M R 0



Part Number Black	Part Number Grey	Part Number White	Nominal I.D. mm	Nominal Diameter Range mm	Std. Pkg. Qty.* m	Std. Ctn. Qty.
SE12P-TR0	SE12P-TR8	—	3.2	2.4 to 6.4	61.0	4
SE12P-MR0	SE12P-MR8	SE12P-MR10			304.8	2
SE25P-TR0	SE25P-TR8	—	6.4	3.2 to 9.5	61.0	4
SE25P-MR0	SE25P-MR8	SE25P-MR10			304.8	2
SE38P-TR0	SE38P-TR8	—	9.5	4.7 to 14.3	61.0	4
SE38P-MR0	SE38P-MR8	SE38P-MR10			304.8	2
SE50P-CR0	SE50P-CR8	—	12.7	6.4 to 19.1	30.5	4
SE50P-DR0	SE50P-DR8	SE50P-DR10			152.4	2
SE75P-CR0	SE75P-CR8	—	19.1	12.7 to 31.8	30.5	4
SE75P-DR0	SE75P-DR8	SE75P-DR10			152.4	2
SE125P-LR0	SE125P-LR8	—	31.8	19.1 to 38.1	15.2	4
SE125P-TR0	SE125P-TR8	SE125P-TR10			61.0	2
SE150P-LR0	SE150P-LR8	—	38.1	25.4 to 57.2	15.2	4
SE150P-TR0	SE150P-TR8	SE150P-TR10			61.0	2
SE175P-TR0	—	—	44.5	31.8 to 69.8	61.0	2

*Order number of reels required.

PANDUIT™ Flame Retardant Braided Expandable Sleeving



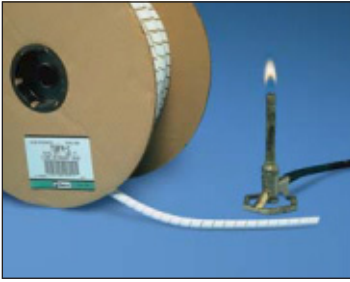
- Provides continuous abrasion resistance for wires, cables and tubing
- Lightweight, durable protection
- Highly flexible open weave will not trap heat or humidity
- Rated for use up to 125°C
- Allows for use with irregular shapes
- Self extinguishing, meets UL VW-1
- Stock colours: Black or grey with white tracer, or in white with black tracer to identify flame retardant material



Part Number Black	Part Number Grey	Part Number White	Nominal I.D. mm	Nominal Diameter Range mm	Std. Pkg. Qty.* m	Std. Ctn. Qty.
SE12PFR-TR0	SE12PFR-TR8	—	3.2	2.4 to 6.4	60.1	4
SE12PFR-MR0	SE12PFR-MR8	SE12PFR-MR10			304.8	2
SE25PFR-TR0	SE25PFR-TR8	—	6.4	3.2 to 9.5	60.1	4
SE25PFR-MR0	SE25PFR-MR8	SE25PFR-MR10			304.8	2
SE38PFR-TR0	SE38PFR-TR8	—	9.5	4.7 to 14.3	60.1	4
SE38PFR-MR0	SE38PFR-MR8	SE38PFR-MR10			304.8	2
SE50PFR-CR0	SE50PFR-CR8	—	12.7	6.4 to 19.1	30.5	4
SE50PFR-DR0	SE50PFR-DR8	SE50PFR-DR10			152.4	2
SE75PFR-CR0	SE75PFR-CR8	—	19.1	12.7 to 31.8	30.5	4
SE75PFR-DR0	SE75PFR-DR8	SE75PFR-DR10			152.4	2
SE125PFR-LR0	SE125PFR-LR8	—	31.8	19.1 to 38.1	15.2	4
SE125PFR-TR0	SE125PFR-TR8	SE125PFR-TR10			61.0	2
SE150PFR-LR0	SE150PFR-LR8	—	38.1	25.4 to 57.2	15.2	4
SE150PFR-TR0	SE150PFR-TR8	SE150PFR-TR10			61.0	2
SE175PFR-TR0	—	—	44.5	31.8 to 69.8	61.0	2

*Order number of reels required.

Abrasion Protection Products Flammability Tests and Classifications



- A number of test procedures have been developed which can be used for the evaluation and comparison of various materials to support combustion
- Review the following classifications to find which category is designed to suit your abrasion and protection applications

UL94 Vertical Burning Test

Test samples of material, with dimension $125 \pm 5\text{mm}$ by $13.0 \pm 5\text{mm}$ and provided in the minimum and maximum thickness of the intended end use product, are tested in an unconditioned (as manufactured) state and in a conditioned state (7 days at 75°C). The test requires the placement of a precisely controlled flame under a vertically supported specimen for a 10 second period. The flame is removed and the duration of flaming is recorded. If the flame extinguishes, the specimen is immediately subjected to a second 10 second ignition period. Duration of flaming is again recorded. A piece of 100% cotton is placed under the specimen. Also observed and documented is if the sample drips flaming particles that ignite the cotton indicator below.

Materials Classification

Criteria Conditions	V-0	V-1	V-2
Afterflame time for each individual specimen t_1 or t_2	$\leq 10\text{s}$	$\leq 30\text{s}$	$\leq 30\text{s}$
Total afterflame time for any condition set (t_1 plus t_2 for the 5 specimens)	$\leq 50\text{s}$	$\leq 250\text{s}$	$\leq 250\text{s}$
Afterflame plus afterglow time for each individual specimen after the second flame application ($t_2 + t_3$)	$\leq 30\text{s}$	$\leq 60\text{s}$	$\leq 60\text{s}$
Afterflame or afterglow of any specimen up to the holding clamp	No	No	No
Cotton indicator ignited by flaming particles or drops	No	No	Yes

t_1	Afterflame time after first flame application
t_2	Afterflame time after flame application
t_3	Afterglow time after second flame application

MATERIALS CLASSIFIED UL-94 HB

- Specimens shall have a maximum burn rate of $<38.1\text{mm./min}$ over 76.2mm of thickness of 3.0mm to 12.7mm
- Specimens shall have a maximum burn rate of $<76.2\text{mm./min}$ over 76.2mm for a thickness less than 3.0mm

UL224 VERTICAL WIRE FLAME TEST

Samples of fully recovered tubing are placed over a length of fine spring steel music wire. The test requires the precise placement of a controlled flame that contacts the heat shrink tubing. The flame is applied in five fifteen second intervals with a time period between applications. If the flame extinguishes immediately after the first flame removal, subsequent flame applications are made to the tubing. Duration of specimen flaming is noted. A piece of surgical cotton is placed under the specimen. If a flaming or glowing piece of tubing drips and ignites the cotton, this is also noted.

Abrasion Protection Materials Technical Data

		Ratings and Approvals			Physical Properties				Chemical Resistance			
		UL Temperature Index	Flammability (UL94)	Melting Temperature	Abrasion Resistance (Lower number is better)	Specific Gravity (D792)	Minimum Tensile (@23°C (psi)	Water Absorption (Max. 24 hrs.)	Organic Solvents	Alkalies	Acids	Petro-Chemicals
SPIRAL WRAP	Natural Polyethylene Lowest cost material for indoor use up to 50°C. Natural is available in all sizes.	-40°C to 50°C	HB	115°C	22 mg	.91 - .93	1400 (D368)	.01%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	Some Discolouration
	Weather Resistant Polyethylene This material has the same properties as natural polyethylene, and also has additives which allow it to resist the effects of ultraviolet light and acid rain in an outdoor environment. This product is available in black only.	-40°C to 50°C	HB	115°C	20 mg	.93 - 1.09	2000 (D368)	.03%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	No Discolouration
	Fire Resistant Polyethylene UL94-V2 Rating This material is self extinguishing and passes the UL 94 flame retardant test with V2 rating.	-40°C to 50°C	V-2	115°C	27 mg	1.00 - 1.30	1400 (D368)	.02%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	Some Discolouration
	Flame Retardant Polyethylene UL94-V0 Rating. This material is self extinguishing and passes the UL94 flame retardant test with a V0 rating.	-40°C to 90°C	V-0	132°C	22 mg	1.15	1500 (D368)	.02%	Resistant except to halogenated hydrocarbons	Resistant	Resistant	Resistant Some Discolouration
	Nylon 6.6 Nylon is strong, durable, self-extinguishing material for indoor use up to 65°C. It offers a combination of lightweight, wide temperature range, and high abrasion resistance. This material is suitable for applications where heavy vibration or stress exists on the wiring or tubing.	-40°C to 65°C	V-2	263°C	7 mg	1.13 - 1.15	12,400 (D368)	1.2%	Resistant except to halogenated hydrocarbons	Resistant	Not recommended	Resistant No Discolouration
	Weather Resistant Nylon This material has the same properties as natural Nylon and also has additives which allow it to resist the effects of ultraviolet light in an outdoor environment. This product is available in black only.	-40°C to 65°C	V-2	263°C	7 mg	1.13 - 1.15	12,000 (D368)	1.2%	Resistant except to halogenated hydrocarbons	Resistant	Not recommended	Resistant No Discolouration
	TEFLON‡ This material is a non-flammable, fluorocarbon resin material. Suitable for use in any application (including nuclear containment). It is rated up to 180°C. Colour: Opaque to Translucent	-240°C to 260°C	V-0	342°C	7 mg	2.13 - 2.22	3000 (D876)	.01%	Resistant	Resistant	Resistant	Resistant No Discolouration
PAN-WRAP	Natural Polyethylene Lowest cost material for indoor use up to 50°C. Natural is available in all sizes.	-40°C to 50°C	HB	115°C	22 mg	.91 - .93	1400 (D638)	.01%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	Some Discolouration
	Flame Retardant Polyethylene UL94-V0 Rating. This material is self extinguishing and passes the UL94 flame retardant test with a V0 rating.	-40°C to 90°C	V-0	132°C	22 mg	1.15	1500 (D638)	.02%	Resistant except to halogenated hydrocarbons	Resistant	Resistant	Resistant Some Discolouration
SLEEVING	Polyethylene Terephthalate (PET) This material is a thermoplastic polyester material designed for indoor applications. It is rated for use up to 125°C and will tolerate short-term exposure up to 230°C. Colours: Black, White and Grey	-70°C to 125°C	HB	260°C	—	1.31	100,000 (D876)	.08%	Resistant to some solvents	Resistant to most weak bases	Resistant	Resistant No Discolouration
	Flame Ret. Polyethylene Terephthalate (PET) This material is a self-extinguishing thermoplastic polyester that can be used indoors. It is also rated for use up to 125°C and will tolerate short term exposure up to 230°C. It is provided with tracers to identify the flame retardant material.	-70°C to 125°C	UL224 VW-1	320°C	—	1.39	100,000 (D876)	.08%	Resistant to some solvents	Resistant to most weak bases	Resistant	Resistant No Discolouration

NOTE: Typical operating temperature ranges are extended based on end use application and specific environment tests.
 ‡ Teflon or equivalent fluorocarbon PTFE is used. Teflon is the registered trademark of E.I. DuPont de Nemours Co.

Abrasion Protection Materials Technical Data

		Ratings and Approvals			Physical Properties			Chemical Resistance				
		UL Temperature Index	Flammability (UL94)	Melting Temperature	Abrasion Resistance (Lower number is better)	Specific Gravity (D792)	Minimum Tensile @23°C (psi)	Water Absorption (Max. 24 hrs.)	Organic Solvents	Alkalies	Acids	Petro-Chemicals
CLT	Black Polyethylene Lowest cost material is for use up to 50°C. Other colours may be available.	-40°C to 50°C	HB	—	—	.926 - .940	1500 (D638)	—	Resistant except to halogenated hydrocarbons	Resistant	Resistant	Resistant No Discolouration
	Nylon 6 Nylon is a strong, impact modified, heat stabilised, durable high abrasion resistant material.	-40°C to 110°C	V-2	211°C	—	1.06 - 1.16	8000 (D638)	1.3%	Resistant except to halogenated hydrocarbons	Resistant	Not recommended	Resistant No Discolouration
PVC	PVC Non-Shrink Tubing This material provides insulation and protection for continuous use at temperature -20°C to 105°C	-20°C to 105°C	UL224 VW-1	—	—	1.35	2500 (D876)	—	Resistant except to aromatic hydrocarbons, ketones and esters	Resistant	Resistant	Resistant No Discolouration
CLT FITTINGS	Black Polyethylene Lowest cost material is for use up to 65°C.	-40°C to 65°C	UL94 HB	150°C	—	1.04	3,900 (D638)	.02 - .03%	Resistant except to halogenated hydrocarbons	Resistant	Resistant except to strong oxidising acids	Resistant Some Discolouration
GROMMET EDGING	Natural Polyethylene Lowest cost material for indoor use up to 50°C. Natural is available in all sizes.	-40°C to 50°C	HB	115°C	22 mg	.91 - .93	1400 (D638)	.01%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	Some Discolouration
	Weather Resistant Polyethylene This material has the same properties as natural polyethylene, and also has additives which allow it to resist the effects of ultraviolet light and acid rain in an outdoor environment. This product is available in black only.	-40°C to 50°C	HB	115°C	20 mg	.93 - 1.09	2000 (D638)	.03%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	No Discolouration
	Flame Retardant Polyethylene UL94-V0 Rating This material is self extinguishing and passes the UL94 flame retardant test with a V0 rating.	-40°C to 60°C	V-0	132°C	22 mg	1.38	1200	.02%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	Some Discolouration
	Nylon Nylon is strong, durable, self-extinguishing material for indoor use up to 65°C It offers a combination of lightweight, wide temperature range, and high abrasion resistance. This material is suitable for applications where heavy vibration or stress exists on the wiring or tubing.	-40°C to 65°C	V-2	255°C	7 mg	1.03 - 1.15	12,400 (D638)	1.5%	Resistant except to phenols and formic acid	Resistant	Resistant to most weak acids	No Discolouration
ADH. LINED GROMMET	Natural Polyethylene Lowest cost material for indoor use up to 50°C. Natural is available in all sizes. (Adhesive Backed Grommet)	-40°C to 50°C	HB	115°C	22 mg	.91 - .93	1400 (D638)	.01%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	Some Discolouration
	Weather Resistant Polyethylene This material has the same properties as natural polyethylene only. Also has additives which allow it to resist the effects of ultraviolet light and acid rain in an outdoor environment. This product is available in black only. (Adhesive Lined Grommet)	-40°C to 50°C	HB	115°C	20 mg	.93 - .109	2000 (D638)	.03%	Resistant below 60°C except to chlorinated solvents	Resistant	Resistant except to oxidising acids	No Discolouration

NOTE: Typical operating temperature ranges are extended based on end use application and specific environment tests.

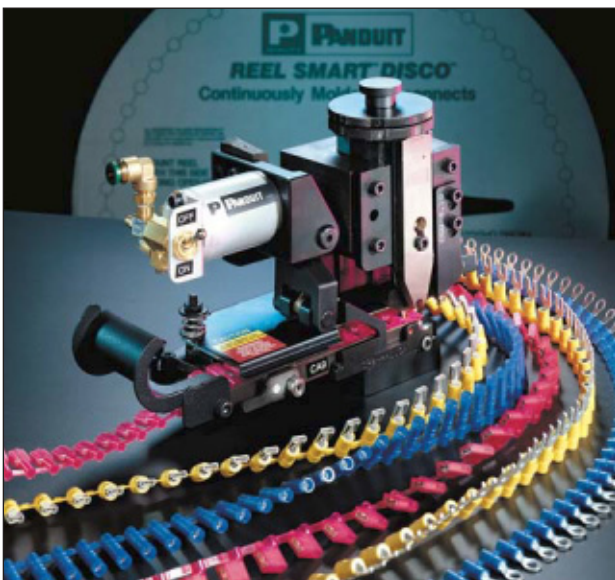
PAN-TERM™ Terminals, Disconnects and Splices



Designed and manufactured for fast assembly, long, reliable performance...

- Funnel entry available on vinyl and nylon insulated terminals and disconnects
- Made of electrolytically refined copper to provide optimum combination of crimp forming properties and low resistance, high conductivity terminations
- Offered in various types including rings, forks, locking forks and short locking forks
- Available sizes from 26 to 2 AWG and stud diameters from #2 to 12.7mm
- Disconnects are available in many styles including fully insulated. Splices and wire joints provide permanent, reliable connections
- Wide assortment of manual, controlled cycle, battery operated and pneumatic crimping tools which give you reliable connections at a lower installed cost

REEL SMART™ Continuously Moulded Reel-Fed Terminals, Disconnects and Splices



"Reel" productivity assures high volume production at significant savings...

- ONE TECHNOLOGY, one solution for continuously moulded Terminals, Butt Splices and Disconnects, including Fully Insulated Right Angle Female Disconnects and Pre-Assembled Locking Disconnects
- The *REEL SMART* Termination System for installing *PANDUIT* continuously moulded products provides the best solution for quality, reliable, high volume terminations
- This patented system offers an array of technical enhancements designed to dramatically reduce set-up time and the amount of downtime traditionally incurred with alternate systems
- Single, patented application terminates entire product line
- Applicators compatible with automatic wire processing machines and other manufacturer's presses