

# PAN-SHRINK™ Catalog

## SA# 101N48F-AIS

**PANDUIT®** DRY-SHRINK™, DAMP-SHRINK™ and WET-SHRINK™  
Heat Shrink and Abrasion Protection Products

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▲ KYNAR is a registered trademark of ELF Atochem

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

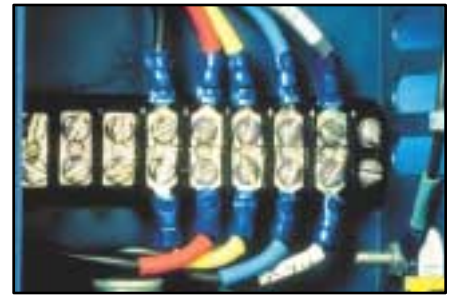
**PANDUIT DRY-SHRINK™, DAMP-SHRINK™ and WET-SHRINK™**  
Heat Shrink & Abrasion Protection Products

*PANDUIT® DRY-SHRINK, DAMP-SHRINK and WET-SHRINK* Heat Shrink Tubing provide an economical and easy way to insulate, protect, harness and identify electrical and electronic components in a wide variety of applications.

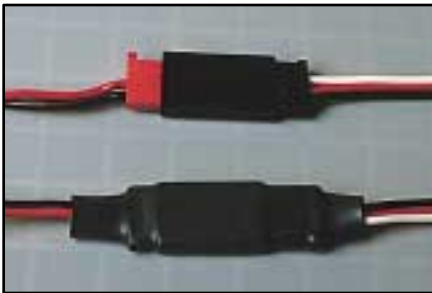
**INSULATE**



**IDENTIFY**



**PROTECT**



**HARNESS**



**ACCESSORIES**



**5 Types of Packaging**

**6" Pieces**



**4' Lengths**



**Custom Cut Pieces**  
(cut to your specifications)



**Small Reels**



**Large Reels**



**For Technical Assistance, call 866-405-6662**  
(Outside the U.S., see inside back cover for International Directory)

# PANDUIT® Heat Shrink Tubing — Heat Shrink Tubing Quick Selection Guide

Quick reference for PANDUIT Heat Shrink Tubing for specific location applications

CHARACTERISTICS

	HSTT	HSTTV	HSTTR	HSTTN	HSTTK	HSTTT	HSTTT4X	HSTTF	HSTTP	HSTTVA	HSTTRA	HSTTA	HST
U.L. Listed													X
UL Recognized	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	X			X	X
Thin Wall	X	X	X	X	X	X	X	X	X	X	X	X	X
Thick Wall													X
Cross-Linked Material	X	X	X	X	X					X	X	X	X
Colors Available	X	X											X*
High Shrink Ratio								4:1				2.5:1	3:1
Flame Retardant	X‡	X	X	X	X	X	X	X	X	X	X	X	X
Adhesive Lined (Dual Wall)											X	X	X
Meets Military Specification	X	X	X	X	X	X	X	X	X		X	X	X
Below Ground Application													X
High Temp Applications (>250°F)						X	X	X	X				
Highly Chemical Resistant						X	X	X	X				
Low Coefficient of Friction							X	X	X				
Custom Cut Lengths	X	X	X	X	X	X	X	X	X	X	X	X	X
Standard 6" pieces	X	X									X		X
Standard 4' lengths	X	X	X		X	X	X	X		X	X	X	X
Small 25' Reels	X	X		X						X			
Large Reels	X	X		X						X			
IP Rating	62	62	62	62	62	—	—	—	62	66	66	66	68
Found on Page. . .	4-10	11-13	14	16	19	17	17	18	15	20	22	21	23

See page 29 for IP Technical information

\* Black/Red

\*\*Except red

‡Except Clear

## Thin Wall Heat Shrink Part Number System

	<b>HSTT</b>	<b>12</b>	<b>-</b>	<b>48</b>	<b>-</b>	<b>Q</b>	<b>10</b>	
<u>Type</u>	<u>Expanded Diameter</u>	<u>Tube Length</u>		<u>Package Quantity</u> (If Tube Length Specified)		<u>Color</u>		
HSTT - Thin Wall	05 • 3/64" (1.2mm)	48" (1.2M)		2 • 2 Pcs.		NONE • Black		
HSTTD - Thin Wall Display	06 • 1/16" (1.6mm)	NONE • REEL		5 • 5 Pcs.		C • Clear		
HSTTV - Thin Wall VW-1	09 • 3/32" (2.4mm)			Q • 25 Pcs.		2 • Red		
HSTTR - Thin Wall Semi-Rigid	12 • 1/8" (3.2mm)			LQ • 75 Pcs.		4 • Yellow		
HSTTN - Thin Wall Neoprene	19 • 3/16" (4.8mm)			CQ • 125 Pcs.		5 • Green		
HSTTK - Thin Wall KYNAR▲	25 • 1/4" (6.4mm)			T • 200 Pcs.		6 • Blue		
HSTTT - Thin Wall TFE TEFLON■	38 • 3/8" (9.5mm)			TL • 250 Pcs.		10 • White		
HSTTT4X - Thin Wall TEFLON■ 4:1 Ratio	50 • 1/2" (12.7mm)					45 • Yellow/Green		
HSTTF - Thin Wall TEFLON■ FEP	75 • 3/4" (19.0mm)							
HSTTP - Thin Wall PVC	100 • 1" (25.4mm)			<u>Reels (If No Tube Length Specified)</u>				
HSTTVA - Flexible Adhesive Lined	150 • 1-1/2" (38.1mm)			Q • 25' (7.6M)				
HSTTRA - Semi-Rigid Adhesive Lined	200 • 2" (50.5mm)			L • 50' (15.2M)				
HSTTA - Thin Wall Adhesive Lined	300 • 3" (76.2mm)			C • 100' (30.5M)				
	400 • 4" (101.6mm)			T • 200' (61.0M)				
				D • 500' (152.4M)				
				M • 1000' (304.8M)				

For Standard Packages containing 6" 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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■ TEFLON is a registered trademark of E.I. DuPont Co.

# Flexible Polyolefin *DRY-SHRINK*™ Heat Shrink Tubing

## HSTT Heat Shrink in 4' (1.2M) Pieces and Reels

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




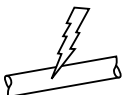
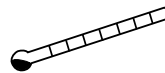





### Ordering Information — HSTT in Bulk Packages — Large Reels and 4' (1.2M) Pcs. (3/64" to 3/4" Expanded I.D.)

Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Bulk Pkg. Qty.*	Bulk Ctn. Qty.	Black
3/64"	.046" (1.2)	.023" (0.6)	.016" (0.4)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	25 Pcs. 250 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT05-48-Q HSTT05-48-TL HSTT05-C HSTT05-M
1/16"	.063" (1.6)	.031" (0.8)	.017" (0.4)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	25 Pcs. 250 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT06-48-Q HSTT06-48-TL HSTT06-C HSTT06-M
3/32"	.093" (2.4)	.046" (1.2)	.020" (0.5)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	25 Pcs. 250 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT09-48-Q HSTT09-48-TL HSTT09-C HSTT09-M
1/8"	.125" (3.2)	.062" (1.6)	.020" (0.5)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	25 Pcs. 250 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT12-48-Q HSTT12-48-TL HSTT12-C HSTT12-M
3/16"	.187" (4.8)	.093" (2.4)	.020" (0.5)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	25 Pcs. 250 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT19-48-Q HSTT19-48-TL HSTT19-C HSTT19-M
1/4"	.250" (6.4)	.125" (3.2)	.025" (0.6)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M) 1 Reel, 500' (152.4M)	25 Pcs. 250 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT25-48-Q HSTT25-48-TL HSTT25-C HSTT25-D
3/8"	.375" (9.5)	.187" (4.8)	.025" (0.6)	4' (1.2M) 4' (1.2M) 1 Reel 100' (30.5M) 1 Reel, 200' (61.0M)	25 Pcs. 250 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT38-48-Q HSTT38-48-TL HSTT38-C HSTT38-T
1/2"	.500" (12.7)	.250" (6.4)	.025" (0.6)	4' (1.2M) 4' (1.2M) 1 Reel 100' (30.5M) 1 Reel, 200' (61.0M)	25 Pcs. 200 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT50-48-Q HSTT50-48-T HSTT50-C HSTT50-T
3/4"	.750" (19.0)	.375" (9.5)	.030" (0.8)	4' (1.2M) 4' (1.2M) 1 Reel 100' (30.5M) 1 Reel, 200' (61.0M)	5 Pcs. 125 Pcs. 1 Reel 1 Reel	— — 10 Reels 2 Reels	HSTT75-48-5 HSTT75-48-CQ HSTT75-C HSTT75-T

\*Order in multiples of Bulk Pkg. Qty. Consult factory for colors not listed.  
See [page 29](#) for IP Technical Information




# Flexible Polyolefin *DRY-SHRINK™* Heat Shrink Tubing

Type	Materials		
HSTT	 <b>Polyolefin Cross-Linked</b>		
 600V	 -67°F to 275°F (-55°C to 135°C †)	 AMS-DTL-23053/5 Class 1 or Class 2	 Variety of Colors
 Flexible	 Shrink Ratio: 2:1	 Flame Retardant (Except Clear)	

† Maximum UL temperature range is 125°C



Need help selecting a heat shrink type or size? Request a Heat Shrink Selection Guide, SA 102N66-AIS.

 Clear	Red	Yellow	Green	Blue	White	Yellow/ Green
HSTT05-48-QC HSTT05-48-TLC HSTT05-CC HSTT05-MC	HSTT05-48-Q2 — HSTT05-C2 HSTT05-M2	HSTT05-48-Q4 — — HSTT05-M4	HSTT05-48-Q5 — — HSTT05-M5	HSTT05-48-Q6 — — HSTT05-M6	HSTT05-48-Q10 — — HSTT05-M10	— — — —
HSTT06-48-QC HSTT06-48-TLC HSTT06-CC HSTT06-MC	HSTT06-48-Q2 — HSTT06-C2 HSTT06-M2	HSTT06-48-Q4 — — HSTT06-M4	HSTT06-48-Q5 — — HSTT06-M5	HSTT06-48-Q6 — — HSTT06-M6	HSTT06-48-Q10 — — HSTT06-M10	— — — —
HSTT09-48-QC HSTT09-48-TLC HSTT09-CC HSTT09-MC	HSTT09-48-Q2 — HSTT09-C2 HSTT09-M2	HSTT09-48-Q4 — — HSTT09-M4	HSTT09-48-Q5 — — HSTT09-M5	HSTT09-48-Q6 — — HSTT09-M6	HSTT09-48-Q10 — — HSTT09-M10	— — — —
HSTT12-48-QC HSTT12-48-TLC HSTT12-CC HSTT12-MC	HSTT12-48-Q2 — HSTT12-C2 HSTT12-M2	HSTT12-48-Q4 — — HSTT12-M4	HSTT12-48-Q5 — — HSTT12-M5	HSTT12-48-Q6 — — HSTT12-M6	HSTT12-48-Q10 — — HSTT12-M10	HSTT12-48-Q45 — — HSTT12-M45
HSTT19-48-QC HSTT19-48-TLC HSTT19-CC HSTT19-MC	HSTT19-48-Q2 — HSTT19-C2 HSTT19-M2	HSTT19-48-Q4 — — HSTT19-M4	HSTT19-48-Q5 — — HSTT19-M5	HSTT19-48-Q6 — — HSTT19-M6	HSTT19-48-Q10 — — HSTT19-M10	HSTT19-48-Q45 — — HSTT19-M45
HSTT25-48-QC HSTT25-48-TLC HSTT25-CC HSTT25-DC	HSTT25-48-Q2 — HSTT25-C2 HSTT25-D2	HSTT25-48-Q4 — — HSTT25-D4	HSTT25-48-Q5 — — HSTT25-D5	HSTT25-48-Q6 — — HSTT25-D6	HSTT25-48-Q10 — — HSTT25-D10	HSTT25-48-Q45 — — HSTT25-D45
HSTT38-48-QC HSTT38-48-TLC HSTT38-CC HSTT38-TC	HSTT38-48-Q2 — HSTT38-C2 HSTT38-T2	HSTT38-48-Q4 — — HSTT38-T4	HSTT38-48-Q5 — — HSTT38-T5	HSTT38-48-Q6 — — HSTT38-T6	HSTT38-48-Q10 — — HSTT38-T10	HSTT38-48-Q45 — — HSTT38-T45
HSTT50-48-QC HSTT50-48-TC HSTT50-CC HSTT50-TC	HSTT50-48-Q2 — HSTT50-C2 HSTT50-T2	HSTT50-48-Q4 — — HSTT50-T4	HSTT50-48-Q5 — — HSTT50-T5	HSTT50-48-Q6 — — HSTT50-T6	HSTT50-48-Q10 — — HSTT50-T10	HSTT50-48-Q45 — — HSTT50-T45
HSTT75-48-5C HSTT75-48-CQC HSTT75-CC HSTT75-TC	HSTT75-48-5-2 — HSTT75-C2 HSTT75-T2	HSTT75-48-5-4 — — HSTT75-T4	HSTT75-48-5-5 — — HSTT75-T5	HSTT75-48-5-6 — — HSTT75-T6	HSTT75-48-5-10 — — HSTT75-T10	HSTT75-48-545 — — HSTT75-T45

# Flexible Polyolefin *DRY-SHRINK*™ Heat Shrink Tubing

## HSTT Heat Shrink in 4' (1.2M) Pieces and Reels continued

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



### Ordering Information — HSTT in Bulk Packages — Large Reels and 4' (1.2M) Pcs. (1" to 4" Expanded I.D.)

Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Bulk Pkg. Qty.*	Bulk Ctn. Qty.	Black
1"	1.00" (25.4)	.500" (12.7)	.035" (0.9)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	5 Pcs. 75 Pcs. 1 Reel	— — 2 Reels	HSTT100-48-5 HSTT100-48-LQ HSTT100-C
1 1/2"	1.50" (38.1)	.750" (19.0)	.040" (1.0)	4' (1.2M) 1 Reel, 100' (30.5M)	5 Pcs. 1 Reel	— 2 Reels	HSTT150-48-5 HSTT150-C
2"	2.00" (50.8)	1.00" (25.4)	.045" (1.1)	4' (1.2M) 1 Reel, 50' (15.2M)	5 Pcs. 1 Reel	— 2 Reels	HSTT200-48-5 HSTT200-L
3"	3.00" (76.2)	1.50" (38.1)	.050" (1.3)	4' (1.2M) 1 Reel, 50' (15.2M)	2 Pcs. 1 Reel	— —	HSTT300-48-2 HSTT300-L
4"	4.00" (101.6)	2.00" (50.8)	.055" (1.4)	4' (1.2M) 1 Reel, 50' (15.2M)	2 Pcs. 1 Reel	— —	HSTT400-48-2 HSTT400-L

\* Order in multiples of Bulk Pkg. Qty. Consult factory for colors not listed.

Note: HSTT300-48-2, HSTT300-48-2C, HSTT400-48-2 and HSTT400-48-2C are classified as standard packaged items rather than bulk packaged.


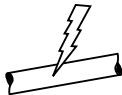
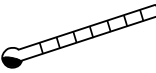






## HSTT Heat Shrink on 25' (7.5M) Reels

### Ordering Information — HSTT in Standard Packages

Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*	Std. Ctn. Qty.	Black
3/64"	.046" (1.2)	.023" (0.6)	.016" (0.4)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT05-Q
1/16"	.063" (1.6)	.031" (0.8)	.017" (0.4)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT06-Q
3/32"	.093" (2.4)	.046" (1.2)	.020" (0.5)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT09-Q
1/8"	.125" (3.2)	.062" (1.6)	.020" (0.5)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT12-Q
3/16"	.187" (4.8)	.093" (2.4)	.020" (0.5)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT19-Q
1/4"	.250" (6.4)	.125" (3.2)	.025" (0.6)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT25-Q
3/8"	.375" (9.5)	.187" (4.8)	.025" (0.6)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT38-Q
1/2"	.500" (12.7)	.250" (6.4)	.025" (0.6)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT50-Q
3/4"	.750" (19.0)	.375" (9.5)	.030" (0.8)	1 Reel, 25' (7.5M)	1 Reel	10 Reels	HSTT75-Q

\* Order in multiples of Std. Pkg. Qty.

# Flexible Polyolefin *DRY-SHRINK*™ Heat Shrink Tubing

Type	Materials			
HSTT	 Polyolefin Cross-Linked			
 600V	 -67°F to 275°F (-55°C to 135°C <sup>†</sup> )	 AMS-DTL-23053/5 Class 1 or Class 2	 (Except Clear)	
 Flexible	 Shrink Ratio: 2:1	 Flame Retardant (Except Clear)	 Variety of Colors	



"Q-Box" (25' (7.5M) / Box)  
Unique Self-Dispensing Features

† Maximum UL temperature range is 125°C

Clear	Red	Yellow	Green	Blue	White	Yellow/ Green
HSTT100-48-5C HSTT100-48-LQC HSTT100-CC	HSTT100-48-5-2 — HSTT100-C2	HSTT100-48-5-4 — HSTT100-C4	HSTT100-48-5-5 — HSTT100-C5	HSTT100-48-5-6 — HSTT100-C6	HSTT100-48-5-10 — HSTT100-C10	HSTT100-48-5-45 — HSTT100-C45
HSTT150-48-5C HSTT150-CC	HSTT150-48-5-2 HSTT150-C2	HSTT150-48-5-4 HSTT150-C4	— —	HSTT150-48-5-6 HSTT150-C6	HSTT150-48-5-10 HSTT150-C10	— —
HSTT200-48-5C HSTT200-LC	HSTT200-48-5-2 HSTT200-L2	HSTT200-48-5-4 HSTT200-L4	— —	HSTT200-48-5-6 HSTT200-L6	HSTT200-48-5-10 HSTT200-L10	— —
HSTT300-48-2C —	— —	— —	— —	— —	— —	— —
HSTT400-48-2C —	— —	— —	— —	— —	— —	— —

Clear	Red	Yellow	Green	Blue	White	Yellow/ Green
HSTT05-QC	HSTT05-Q2	HSTT05-Q4	HSTT05-Q5	HSTT05-Q6	HSTT05-Q10	—
HSTT06-QC	HSTT06-Q2	HSTT06-Q4	HSTT06-Q5	HSTT06-Q6	HSTT06-Q10	—
HSTT09-QC	HSTT09-Q2	HSTT09-Q4	HSTT09-Q5	HSTT09-Q6	HSTT09-Q10	—
HSTT12-QC	HSTT12-Q2	HSTT12-Q4	HSTT12-Q5	HSTT12-Q6	HSTT12-Q10	HSTT12-Q45
HSTT19-QC	HSTT19-Q2	HSTT19-Q4	HSTT19-Q5	HSTT19-Q6	HSTT19-Q10	HSTT19-Q45
HSTT25-QC	HSTT25-Q2	HSTT25-Q4	HSTT25-Q5	HSTT25-Q6	HSTT25-Q10	HSTT25-Q45
HSTT38-QC	HSTT38-Q2	HSTT38-Q4	HSTT38-Q5	HSTT38-Q6	HSTT38-Q10	HSTT38-Q45
HSTT50-QC	HSTT50-Q2	HSTT50-Q4	HSTT50-Q5	HSTT50-Q6	HSTT50-Q10	HSTT50-Q45
HSTT75-QC	HSTT75-Q2	HSTT75-Q4	HSTT75-Q5	HSTT75-Q6	HSTT75-Q10	HSTT75-Q45

# Flexible Polyolefin *DRY-SHRINK™* Heat Shrink Tubing

## HSTT Heat Shrink Standard Packs of Heat Shrink — 6" (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

Type	Materials		
HSTT	Polyolefin Cross-Linked		
 600V	 -67°F to 275°F (-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 Colors



‡ Maximum UL temperature range is 125°C

### Ordering Information — HSTT in Standard Packages

Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Total No. Pcs.	Std. Pkg. Qty.*	Std. Ctn. Qty.	Black
1/16"	.063" (1.6)	.031" (0.8)	.017" (0.4)	1 Pc. 6" (152.4mm)	26	1 Pkg.	10 Pkgs.	HSTT06-Y**
3/32"	.093" (2.4)	.046" (1.2)	.020" (0.5)	1 Pc. 6" (152.4mm)	24	1 Pkg.	10 Pkgs.	HSTT09-Y**
1/8"	.125" (3.2)	.062" (1.6)	.020" (0.5)	1 Pc. 6" (152.4mm)	20	1 Pkg.	10 Pkgs.	HSTT12-Y**
3/16"	.187" (4.8)	.093" (2.4)	.020" (0.5)	1 Pc. 6" (152.4mm)	18	1 Pkg.	10 Pkgs.	HSTT19-Y**
1/4"	.250" (6.4)	.125" (3.2)	.025" (0.6)	1 Pc. 6" (152.4mm)	14	1 Pkg.	10 Pkgs.	HSTT25-Y**
3/8"	.375" (9.5)	.187" (4.8)	.025" (0.6)	1 Pc. 6" (152.4mm)	12	1 Pkg.	10 Pkgs.	HSTT38-Y**
1/2"	.500" (12.7)	.250" (6.4)	.025" (0.6)	1 Pc. 6" (152.4mm)	10	1 Pkg.	10 Pkgs.	HSTT50-Y**
3/4"	.750" (19.0)	.375" (9.5)	.030" (0.8)	1 Pc. 6" (152.4mm)	8	1 Pkg.	10 Pkgs.	HSTT75-Y**
1"	1.00" (25.4)	.500" (12.7)	.035" (0.9)	1 Pc. 6" (152.4mm)	6	1 Pkg.	10 Pkgs.	HSTT100-Y**

\*Order in multiples of Std. Pkg. Qty.

\*\*For Colors, add C (Clear), 2 (Red), 4 (Yellow), 5 (Green), 6 (Blue) and 10 (White) to end of part number package suffix (Example: HSTT06-YC).



## Standard Packs of Heat Shrink — 6" (152.4mm) Pieces

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

- Assorted colors and diameters available



### HSTT– Combination: Black and Colors — Single Diameter

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Total No. Pcs.	Black No. Pcs.	Each Color No. Pcs.	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTT06-YK1	1/16"	.063" (1.6)	.031" (0.8)	26	8	3	1 Pkg.	10 Pkgs.
HSTT09-YK1	3/32"	.093" (2.4)	.046" (1.2)	24	6	3	1 Pkg.	10 Pkgs.
HSTT12-YK1	1/8"	.125" (3.2)	.062" (1.6)	20	2	3	1 Pkg.	10 Pkgs.
HSTT19-YK1	3/16"	.187" (4.8)	.093" (2.4)	18	6	2	1 Pkg.	10 Pkgs.
HSTT25-YK1	1/4"	.250" (6.4)	.125" (3.2)	14	2	2	1 Pkg.	10 Pkgs.
HSTT38-YK1	3/8"	.375" (9.5)	.187" (4.8)	12	6	1	1 Pkg.	10 Pkgs.
HSTT50-YK1	1/2"	.500" (12.7)	.250" (6.4)	10	4	1	1 Pkg.	10 Pkgs.
HSTT75-YK1	3/4"	.750" (19.0)	.375" (9.5)	8	2	1	1 Pkg.	10 Pkgs.
HSTT100-YK1	1"	1.00" (25.4)	.500" (12.7)	7	1	1	1 Pkg.	10 Pkgs.

\*Order in multiples of Std. Pkg. Qty.

NOTE: Colors include Clear, Red, Yellow, Green, Blue and White

### HSTT– Black Only — Multiple Diameters

Part Number	Nominal Diameter In.	Total Number of Pieces	Black Number of Pieces by Diameter	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTT-YK1	Various; Smaller Range	14	(2) pcs. each 1/8", 1/16", 3/16", 3/32", 1/4", 1/2", 3/8"	1 Pkg.	10 Pkgs.
HSTT-YK2	Various; Larger Range	8	(2) pcs. each 3/8", 1/2", 3/4", 1"	1 Pkg.	10 Pkgs.

\*Order in multiples of Std. Pkg. Qty.



### HSTT– Yellow/Green Stripe — Multiple Diameters

Part Number	Nominal Diameter In.	Total Number of Pieces	Number of Pieces by Diameter	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTT-YK1-45	Various; Smaller Range	8	(2) pcs. each 1/8", 3/16", 1/4", 3/8"	1 Pkg.	10 Pkgs.
HSTT-YK2-45	Various; Larger Range	6	(2) pcs. each 3/8", 1/2", 3/4"	1 Pkg.	10 Pkgs.

\*Order in multiples of Std. Pkg. Qty.



# Flexible Polyolefin *DRY-SHRINK*™ Heat Shrink Tubing

## HSTTD Heat Shrink in 4' (1.2M) Pieces with Bar Coded Tags for Distributor Display Areas

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



(Except Clear)



(Except Clear)

### Ordering Information — HSTTD in Standard Packages

Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	PC Length	Std. Pkg. Qty.*	Black
3/64"	.046" (1.2)	.023" (0.6)	.016" (0.4)	4' (1.2M)	25 Pcs.	HSTTD05-48-Q
1/16"	.063" (1.6)	.031" (0.8)	.017" (0.4)	4' (1.2M)	25 Pcs.	HSTTD06-48-Q**
3/32"	.093" (2.4)	.046" (1.2)	.020" (0.5)	4' (1.2M)	25 Pcs.	HSTTD09-48-Q**
1/8"	.125" (3.2)	.062" (1.6)	.020" (0.5)	4' (1.2M)	25 Pcs.	HSTTD12-48-Q**
3/16"	.187" (4.8)	.093" (2.4)	.020" (0.5)	4' (1.2M)	25 Pcs.	HSTTD19-48-Q**
1/4"	.250" (6.4)	.125" (3.2)	.025" (0.6)	4' (1.2M)	25 Pcs.	HSTTD25-48-Q**
3/8"	.375" (9.5)	.187" (4.8)	.025" (0.6)	4' (1.2M)	25 Pcs.	HSTTD38-48-Q**
1/2"	.500" (12.7)	.250" (6.4)	.025" (0.6)	4' (1.2M)	25 Pcs.	HSTTD50-48-Q**
3/4"	.750" (19.0)	.375" (9.5)	.030" (0.8)	4' (1.2M)	5 Pcs.	HSTTD75-48-5**
1"	1.00" (25.4)	.500" (12.7)	.035" (0.9)	4' (1.2M)	5 Pcs.	‡HSTTD100-48-5**

\*Order in multiples of Std. Pkg. Qty.

\*\*For Colors, add C (Clear), 2 (Red), 4 (Yellow), 5 (Green), 6 (Blue) and 10 (White) to end of part number package suffix (Example: HSTTD05-48-QC).

‡ For Colors, add C (Clear), 2 (Red) and 10 (White) to end of part number package suffix (Example: HSTTD100-48-5C)

### Ordering Information — HSTT in Pre-Packaged Cut Pieces (Bulk Qty. Only)

#### 1/2" (12.7mm) Lengths

Nominal Diameter In.	Bulk Pkg. Qty.*	Bulk Ctn. Qty.	Black	Clear
1/8"	10,000 Pcs.	—	HSTT12-5K	HSTT12-.5KC
3/16"	10,000 Pcs.	—	HSTT19-5K	HSTT19-.5KC
1/4"	5,000 Pcs.	—	HSTT25-5F	HSTT25-.5FC

\*Order in multiples of Bulk Pkg. Qty.



#### 1" (25.4mm) Lengths

Nominal Diameter In.	Bulk Pkg. Qty.*	Bulk Ctn. Qty.	Black	Clear
1/8"	10,000 Pcs.	—	HSTT12-1K	HSTT12-1KC
3/16"	10,000 Pcs.	—	HSTT19-1K	HSTT19-1KC
1/4"	5,000 Pcs.	—	HSTT25-1F	HSTT25-1FC


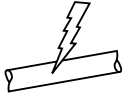
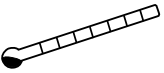





\*Order in multiples of Bulk Pkg. Qty.

# Flexible Polyolefin VW-1 *DRY-SHRINK™* Heat Shrink Tubing

## HSTTV Heat Shrink in 4' (1.2M) Pieces

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



Type	Materials		
HSTTV	 Polyolefin Cross-Linked		
 600V	 -67°F to 257°F (-55°C to 125°C*)	 AMS-DTL-23053/5 Class 3	 VW-1 OFT
 Flexible	 Shrink Ratio: 2:1	 Highly Flame Retardant VW-1	



## HSTTV in Bulk Packages — Small Reels & 4' (1.2M) Pcs.

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Bulk Pkg. Qty.*	Bulk Ctn. Qty.
HSTTV05-48-Q HSTTV05-48-TL HSTTV05-C	3/64"	.046" (1.2)	.023" (0.6)	.020" (0.5)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	25 Pcs. 250 Pcs. 1 Reel	— — 10 Reels
HSTTV06-48-Q HSTTV06-48-TL HSTTV06-C	1/16"	.063" (1.6)	.031" (0.8)	.020" (0.5)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	25 Pcs. 250 Pcs. 1 Reel	— — 10 Reels
HSTTV09-48-Q HSTTV09-48-TL HSTTV09-C	3/32"	.093" (2.4)	.046" (1.2)	.020" (0.5)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	25 Pcs. 250 Pcs. 1 Reel	— — 10 Reels
HSTTV12-48-Q HSTTV12-48-TL HSTTV12-C	1/8"	.125" (3.2)	.062" (1.6)	.020" (0.5)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	25 Pcs. 250 Pcs. 1 Reel	— — 10 Reels
HSTTV19-48-Q HSTTV19-48-TL HSTTV19-C	3/16"	.187" (4.8)	.093" (2.4)	.020" (0.5)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	25 Pcs. 250 Pcs. 1 Reel	— — 10 Reels
HSTTV25-48-Q HSTTV25-48-TL HSTTV25-C	1/4"	.250" (6.4)	.125" (3.2)	.025" (0.6)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	25 Pcs. 250 Pcs. 1 Reel	— — 10 Reels
HSTTV38-48-Q HSTTV38-48-TL HSTTV38-C	3/8"	.375" (9.5)	.187" (4.8)	.025" (0.6)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	25 Pcs. 250 Pcs. 1 Reel	— — 10 Reels
HSTTV50-48-Q HSTTV50-48-T HSTTV50-C	1/2"	.500" (12.7)	.250" (6.4)	.025" (0.6)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	25 Pcs. 200 Pcs. 1 Reel	— — 10 Reels
HSTTV75-48-5 HSTTV75-48-CQ HSTTV75-C	3/4"	.750" (19.0)	.375" (9.5)	.030" (0.8)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	5 Pcs. 125 Pcs. 1 Reel	— — 10 Reels
HSTTV100-48-5 HSTTV100-48-LQ HSTTV100-C	1"	1.00" (25.4)	.500" (12.7)	.035" (0.9)	4' (1.2M) 4' (1.2M) 1 Reel, 100' (30.5M)	5 Pcs. 75 Pcs. 1 Reel	— — 2 Reels
HSTTV150-48-5 HSTTV150-C	1 1/2"	1.50" (38.1)	.750" (19.0)	.040" (1.0)	4' (1.2M) 1 Reel, 100' (30.5M)	5 Pcs. 1 Reel	— 2 Reels

\* Order in multiples of Bulk Pkg. Qty.

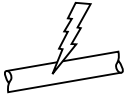
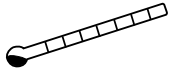





‡ Maximum UL Temperature Range is 125° C

# Flexible Polyolefin VW-1 *DRY-SHRINK*™ Heat Shrink Tubing

## HSTTV Heat Shrink Reels

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



Type	Materials		
HSTTV	Polyolefin Cross-Linked		
 600V	 -67°F to 257°F (-55°C to 125°C <sup>†</sup> )	 AMS-DTL-23053/5 Class 3	 VW-1 OFT
 Flexible	 Shrink Ratio: 2:1	 Highly Flame Retardant VW-1	



## HSTTV in Bulk Packages — Large Reels

Nominal Diameter In.	Length	Black	Red	Yellow	Blue	White	Bulk Pkg. Qty.*	Bulk Ctn. Qty.
3/64"	1 Reel, 1000' (304.8M)	HSTTV05-M	HSTTV05-M2	HSTTV05-M4	HSTTV05-M6	HSTTV05-M10	1 Reel	2 Reels
1/16"	1 Reel, 1000' (304.8M)	HSTTV06-M	HSTTV06-M2	HSTTV06-M4	HSTTV06-M6	HSTTV06-M10	1 Reel	2 Reels
3/32"	1 Reel, 1000' (304.8M)	HSTTV09-M	HSTTV09-M2	HSTTV09-M4	HSTTV09-M6	HSTTV09-M10	1 Reel	2 Reels
1/8"	1 Reel, 1000' (304.8M)	HSTTV12-M	HSTTV12-M2	HSTTV12-M4	HSTTV12-M6	HSTTV12-M10	1 Reel	2 Reels
3/16"	1 Reel, 1000' (304.8M)	HSTTV19-M	HSTTV19-M2	HSTTV19-M4	HSTTV19-M6	HSTTV19-M10	1 Reel	2 Reels
1/4"	1 Reel, 500' (152.4M)	HSTTV25-D	HSTTV25-D2	HSTTV25-D4	HSTTV25-D6	HSTTV25-D10	1 Reel	2 Reels
3/8"	1 Reel, 200' (61.0M)	HSTTV38-T	HSTTV38-T2	HSTTV38-T4	HSTTV38-T6	HSTTV38-T10	1 Reel	2 Reels
1/2"	1 Reel, 200' (61.0M)	HSTTV50-T	HSTTV50-T2	HSTTV50-T4	HSTTV50-T6	HSTTV50-T10	1 Reel	2 Reels
3/4"	1 Reel, 200' (61.0M)	HSTTV75-T	HSTTV75-T2	HSTTV75-T4	HSTTV75-T6	HSTTV75-T10	1 Reel	2 Reels

\* Order in multiples of Bulk Pkg. Qty.

† Maximum UL Temperature Range is 125° C.



**HSTTV Heat Shrink in 25' (7.5M) Reels**



**Ordering Information**

**HSTTV in Standard Packages of 25' (7.5M) Reels — Black Only**

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTV05-Q	3/64"	.046" (1.2)	.023" (0.6)	.020" (0.5)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV06-Q	1/16"	.063" (1.6)	.031" (0.8)	.020" (0.5)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV09-Q	3/32"	.093" (2.4)	.046" (1.2)	.020" (0.5)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV12-Q	1/8"	.125" (3.2)	.062" (1.6)	.020" (0.5)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV19-Q	3/16"	.187" (4.8)	.093" (2.4)	.020" (0.5)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV25-Q	1/4"	.250" (6.4)	.125" (3.2)	.025" (0.6)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV38-Q	3/8"	.375" (9.5)	.187" (4.8)	.025" (0.6)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV50-Q	1/2"	.500" (12.7)	.250" (6.4)	.025" (0.6)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV75-Q	3/4"	.750" (19.0)	.375" (9.5)	.030" (0.8)	1 Reel, 25' (7.5M)	1 Reel	10 Reels
HSTTV100-Q	1"	1.00" (25.4)	.500" (12.7)	.035" (0.9)	1 Reel, 25' (7.5M)	1 Reel	2 Reels

\* Order in multiples of Std. Pkg. Qty.

**Standard Packs of Heat Shrink — 6" (152.4mm) Pieces**



**Ordering Information**

**HSTTV — Single Diameter — Black Only**

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Total No. Pcs.	Black No. Pcs.	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTV05-Y	3/64"	.046" (1.2)	.023" (0.6)	26	26	1 Pkg.	10 Pkgs.
HSTTV06-Y	1/16"	.063" (1.6)	.031" (0.8)	26	26	1 Pkg.	10 Pkgs.
HSTTV09-Y	3/32"	.093" (2.4)	.046" (1.2)	24	24	1 Pkg.	10 Pkgs.
HSTTV12-Y	1/8"	.125" (3.2)	.062" (1.6)	20	20	1 Pkg.	10 Pkgs.
HSTTV19-Y	3/16"	.187" (4.8)	.093" (2.4)	18	18	1 Pkg.	10 Pkgs.
HSTTV25-Y	1/4"	.250" (6.4)	.125" (3.2)	14	14	1 Pkg.	10 Pkgs.
HSTTV38-Y	3/8"	.375" (9.5)	.187" (4.8)	12	12	1 Pkg.	10 Pkgs.
HSTTV50-Y	1/2"	.500" (12.7)	.250" (6.4)	10	10	1 Pkg.	10 Pkgs.
HSTTV75-Y	3/4"	.750" (19.0)	.375" (9.5)	8	8	1 Pkg.	10 Pkgs.
HSTTV100-Y	1"	1.00" (25.4)	.500" (12.7)	6	6	1 Pkg.	10 Pkgs.


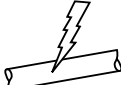
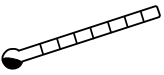




\* Order in multiples of Std. Pkg. Qty.

# Semi-Rigid Polyolefin *DRY-SHRINK™* Heat Shrink Tubing

## HSTTR Heat Shrink

- For dry locations
- Semi-rigid tubing offers excellent protection for delicate components
- Provides strain relief for soldered and crimped connections



Type	Materials	
HSTTR	 Polyolefin Cross-Linked	
 600V	 -67°F to 275°F (-55°C to 135°C)	 AMS-DTL-23053/6 Class 1
 Semi-Rigid	 Shrink Ratio: 2:1	 Flame Retardant



### Ordering Information — HSTTR in Standard Packages — 4' (1.2M) Pieces

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*
HSTTR05-48-Q	3/64"	.046" (1.2)	.023" (0.6)	.020" (0.5)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTR06-48-Q	1/16"	.063" (1.6)	.031" (0.8)	.020" (0.5)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTR09-48-Q	3/32"	.093" (2.4)	.046" (1.2)	.020" (0.5)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTR12-48-Q	1/8"	.125" (3.2)	.062" (1.6)	.020" (0.5)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTR19-48-Q	3/16"	.187" (4.8)	.093" (2.4)	.025" (0.6)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTR25-48-Q	1/4"	.250" (6.4)	.125" (3.2)	.025" (0.6)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTR38-48-Q	3/8"	.375" (9.5)	.187" (4.8)	.030" (0.8)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTR50-48-5	1/2"	.500" (12.7)	.250" (6.4)	.030" (0.8)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTR75-48-5	3/4"	.750" (19.0)	.375" (9.5)	.030" (0.8)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTR100-48-5	1"	1.00" (25.4)	.500" (12.7)	.035" (0.9)	1 Pc., 4' (1.2M)	5 Pcs.

\* 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
 600V	 -4°F to 221°F (-20°C to 105°C)	
 Flexible	 Shrink Ratio: 2:1	 Highly Flame Retardant VW-1



### Ordering Information — HSTTP in Standard Packages — Reels

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTP05-Q HSTTP05-C HSTTP05-M	3/64"	.046" (1.2)	.023" (0.6)	.020" (0.5)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	1 Reel 1 Reel 1 Reel	10 Reels 2 Reels 2 Reels
HSTTP06-Q HSTTP06-C HSTTP06-M	1/16"	.063" (1.6)	.031" (0.8)	.020" (0.5)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	1 Reel 1 Reel 1 Reel	10 Reels 2 Reels 2 Reels
HSTTP09-Q HSTTP09-C HSTTP09-M	3/32"	.093" (2.4)	.046" (1.2)	.025" (0.6)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	1 Reel 1 Reel 1 Reel	10 Reels 2 Reels 2 Reels
HSTTP12-Q HSTTP12-C HSTTP12-M	1/8"	.125" (3.2)	.062" (1.6)	.025" (0.6)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	1 Reel 1 Reel 1 Reel	10 Reels 2 Reels 2 Reels
HSTTP19-Q HSTTP19-C HSTTP19-M	3/16"	.187" (4.8)	.093" (2.4)	.025" (0.6)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M) 1 Reel, 1000' (304.8M)	1 Reel 1 Reel 1 Reel	10 Reels 2 Reels 2 Reels
HSTTP25-Q HSTTP25-C HSTTP25-D	1/4"	.250" (6.4)	.125" (3.2)	.025" (0.6)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M) 1 Reel, 500' (152.4M)	1 Reel 1 Reel 1 Reel	10 Reels 2 Reels 2 Reels
HSTTP38-Q HSTTP38-C HSTTP38-T	3/8"	.375" (9.5)	.187" (4.8)	.030" (0.8)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M) 1 Reel, 200' (61.0M)	1 Reel 1 Reel 1 Reel	10 Reels 2 Reels 2 Reels
HSTTP50-Q HSTTP50-C	1/2"	.500" (12.7)	.250" (6.4)	.030" (0.8)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M)	1 Reel 1 Reel	10 Reels 2 Reels
HSTTP75-Q HSTTP75-C	3/4"	.750" (19.0)	.375" (9.5)	.035" (0.9)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M)	1 Reel 1 Reel	10 Reels 2 Reels
HSTTP100-Q HSTTP100-C	1"	1.00" (25.4)	.500" (12.7)	.040" (1.0)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M)	1 Reel 1 Reel	2 Reels 2 Reels
HSTTP150-Q HSTTP150-C	1 1/2"	1.50" (38.1)	.750" (19.0)	.045" (1.1)	1 Reel, 25' (7.5M) 1 Reel, 100' (30.5M)	1 Reel 1 Reel	2 Reels 2 Reels
HSTTP200-X HSTTP200-Q	2"	2.00" (50.8)	1.00" (25.4)	.050" (1.3)	1 Reel, 10' (3.0m) 1 Reel, 25' (7.5M)	1 Reel 1 Reel	2 Reels 2 Reels

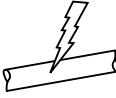
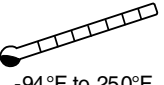




\* Order in multiples of Std. Pkg. Qty.

# Neoprene *DRY-SHRINK*™ Heat Shrink Tubing

## HSTTN Heat Shrink

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



Type	Materials	
HSTTN	Elastomer Neoprene Cross-Linked	
 600V	 -94°F to 250°F (-70°C to 121°C)	 AMS-DTL-23053/1 Class 2
 Highly Flexible	 Shrink Ratio▲: 2:1	 Highly Flame Retardant



## Ordering Information — HSTTN in Standard Packages — 25' (7.5M) and 100' (30.5M) Reels

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTN25-C	1/4"	.250" (6.4)	.143" (3.6)	.035" (0.9)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN38-C	3/8"	.375" (9.5)	.211" (5.4)	.040" (1.0)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN50-C	1/2"	.500" (12.7)	.286" (7.3)	.048" (1.2)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN63-C	5/8"	.625" (15.9)	.357" (9.1)	.052" (1.3)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN75-C	3/4"	.750" (19.0)	.428" (10.9)	.057" (1.5)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN88-C	7/8"	.875" (22.2)	.500" (12.7)	.065" (1.7)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN100-C	1"	1.00" (25.4)	.570" (14.5)	.070" (1.8)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN125-C	1 1/4"	1.25" (31.8)	.714" (18.1)	.087" (2.2)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN150-C	1 1/2"	1.50" (38.1)	.857" (21.8)	.095" (2.4)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN175-C	1 3/4"	1.75" (44.5)	1.00" (25.4)	.107" (2.7)	1 Reel, 100' (30.5M)	1 Reel	2 Reels
HSTTN200-Q	2"	2.00" (50.8)	1.140" (29.0)	.110" (2.8)	1 Reel, 25' (7.5M)	1 Reel	2 Reels
HSTTN300-Q	3"	3.00" (76.2)	1.710" (43.4)	.125" (3.8)	1 Reel, 25' (7.5M)	1 Reel	2 Reels

\* 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.




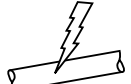
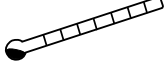


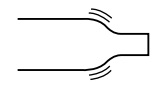

# TFE TEFLON<sup>‡</sup> DRY-SHRINK™ Heat Shrink Tubing

## HSTTT (TFE) Heat Shrink



- For dry locations
- Semi-rigid, highly heat resistant
- Offers the widest temperature range of any plastic material
- Also available with 4:1 shrink ratio
- Color is milky clear

NOTE: Special instructions on [page 28](#)

Type	Materials	
HSTTT HSTTT4X	 Polytetrafluoroethylene	
 600V	 -88°F to 482°F (-67°C to 250°C)	 AMS-DTL-23053/12 Class 3 or Class 5
 Semi-Rigid	 Shrink Ratio▲: 2:1 or 4:1	 Non-Flammable



### Ordering Information — 2:1 Shrink Ratio (Class 3) — HSTTT in Standard Packages — 4' (1.2M) Pcs.

Part Number	Nominal Diameter	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*
HSTTT03-48-Q	30 AWG	.034" (0.9)	.015" (0.4)	.009" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT04-48-Q	28 AWG	.038" (1.0)	.018" (0.5)	.009" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT046-48-Q	26 AWG	.046" (1.2)	.022" (0.5)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT05-48-Q	24 AWG	.050" (1.3)	.027" (0.7)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT055-48-Q	22 AWG	.055" (1.4)	.032" (0.8)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT06-48-Q	20 AWG	.060" (1.5)	.039" (1.0)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT08-48-Q	18 AWG	.076" (1.9)	.049" (1.2)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT09-48-Q	16 AWG	.093" (2.3)	.061" (1.6)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT12-48-Q	14 AWG	.120" (3.0)	.072" (1.8)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT15-48-Q	12 AWG	.150" (3.8)	.089" (2.3)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT19-48-Q	10 AWG	.191" (4.9)	.112" (2.8)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT24-48-Q	8 AWG	.240" (6.0)	.141" (3.6)	.015" (0.4)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT30-48-Q	6 AWG	.302" (7.7)	.178" (4.5)	.015" (0.4)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT37-48-Q	4 AWG	.370" (9.4)	.224" (5.7)	.015" (0.4)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT43-48-Q	2 AWG	.430" (10.9)	.278" (7.0)	.015" (0.4)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT47-48-Q	0 AWG	.470" (11.9)	.347" (8.8)	.015" (0.4)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT56-48-5	9/16"	.560" (14.2)	.399" (10.1)	.015" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT66-48-5	5/8"	.655" (16.6)	.462" (11.7)	.018" (0.5)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT75-48-5	3/4"	.750" (19.0)	.524" (13.3)	.018" (0.5)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT93-48-5	15/16"	.930" (23.6)	.655" (16.6)	.020" (0.5)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT112-48-5	1 1/8"	1.125" (28.6)	.786" (20.0)	.025" (0.6)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT131-48-2	1 5/16"	1.310" (33.3)	.911" (23.1)	.030" (0.8)	1 Pc., 4' (1.2M)	2 Pcs.
HSTTT150-48-2	1 1/2"	1.500" (38.1)	1.036" (26.3)	.030" (0.8)	1 Pc., 4' (1.2M)	2 Pcs.

### Ordering Information — 4:1 Shrink Ratio (Class 5) — HSTTT4X in Standard Packages — 4' (1.2M) Pcs.

Part Number	Nominal Diameter In. (mm)	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*
HSTTT4X08-48-Q	5/64" (2.0)	.078" (2.0)	.025" (0.6)	.009" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT4X12-48-Q	1/8" (3.3)	.125" (3.2)	.037" (0.9)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT4X25-48-Q	1/4" (6.3)	.250" (6.4)	.063" (1.6)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT4X38-48-Q	3/8" (9.5)	.375" (9.5)	.096" (2.4)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTT4X50-48-5	1/2" (12.7)	.500" (12.7)	.144" (3.7)	.015" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT4X63-48-5	5/8" (15.9)	.625" (15.9)	.178" (4.5)	.015" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT4X75-48-5	3/4" (19.1)	.750" (19.1)	.224" (5.7)	.015" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT4X88-48-5	7/8" (22.2)	.875" (22.2)	.244" (6.2)	.015" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT4X100-48-5	1" (25.4)	1.00" (25.4)	.278" (7.0)	.015" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTT4X125-48-5	1 1/4" (31.8)	1.25" (31.8)	.347" (8.8)	.015" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.

\* 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.



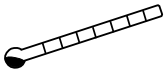


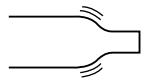

‡ TEFLON is a registered trademark of E.I. DuPont.

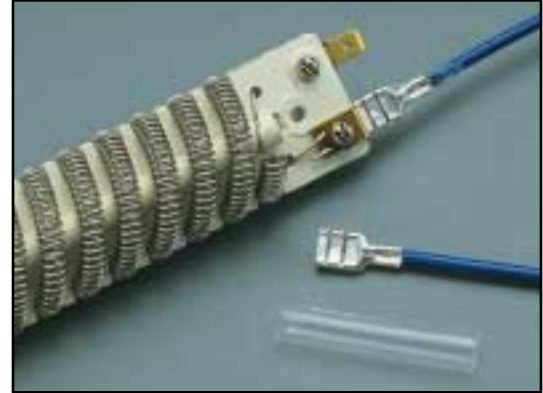
# FEP TEFLON<sup>‡</sup> DRY-SHRINK™ Heat Shrink Tubing

## HSTTF (FEP) Heat Shrink

- For dry locations
- Semi-rigid, highly heat resistant tubing
- Offers most of the same characteristics of HSTTT found on [page 17](#), but has a lower shrink temperature
- Tubing can be welded and tube ends sealed by melting
- Color is clear



Type	Materials	
HSTTF	 <b>Fluorinated Ethylene Propylene</b>	
 600V	 -88°F to 392°F (-67°C to 200°C)	 AMS-DTL-23053/ 11
 Semi-Rigid	 Shrink Ratio▲: 1.3:1	 Non-Flammable



### Ordering Information — HSTTF in Standard Packages — 4' (1.2M) Pieces

Part Number	Nominal Diameter	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*
HSTTF03-48-Q	24 AWG	.031" (0.8)	.027" (0.7)	.008" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF04-48-Q	22 AWG	.036" (0.9)	.032" (0.8)	.008" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF05-48-Q	20 AWG	.045" (1.1)	.039" (1.0)	.008" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF06-48-Q	18 AWG	.060" (1.5)	.049" (1.2)	.008" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF08-48-Q	16 AWG	.075" (1.9)	.061" (1.5)	.009" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF09-48-Q	14 AWG	.092" (2.3)	.072" (1.8)	.009" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF12-48-Q	12 AWG	.115" (2.9)	.089" (2.2)	.009" (0.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF14-48-Q	10 AWG	.141" (3.6)	.114" (2.9)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF16-48-Q	9 AWG	.158" (4.0)	.124" (3.2)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF18-48-Q	8 AWG	.180" (4.6)	.143" (3.6)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF20-48-Q	7 AWG	.197" (5.0)	.158" (4.0)	.011" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF23-48-Q	6 AWG	.225" (5.7)	.180" (4.6)	.011" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF25-48-Q	5 AWG	.248" (6.3)	.198" (5.0)	.011" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF29-48-Q	4 AWG	.290" (7.4)	.226" (5.7)	.011" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF31-48-Q	3 AWG	.310" (7.9)	.249" (6.3)	.011" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF36-48-Q	2 AWG	.365" (9.3)	.280" (7.1)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF40-48-Q	1 AWG	.400" (10.2)	.311" (7.9)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF44-48-Q	0 AWG	.440" (11.2)	.349" (8.9)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTF50-48-5	1/2"	.500" (12.7)	.383" (9.7)	.015" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTF66-48-5	5/8"	.666" (16.9)	.510" (13.0)	.020" (0.5)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTF100-48-5	1"	1.00" (25.4)	.764" (19.4)	.030" (0.8)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTF133-48-2	1 1/3"	1.33" (33.8)	1.02" (25.9)	.035" (0.9)	1 Pc., 4' (1.2M)	2 Pcs.
HSTTF200-48-2	2"	2.00" (50.8)	1.52" (38.6)	.035" (0.9)	1 Pc., 4' (1.2M)	2 Pcs.


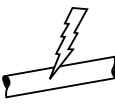






\* Order in multiples of Std. Pkg. Qty.

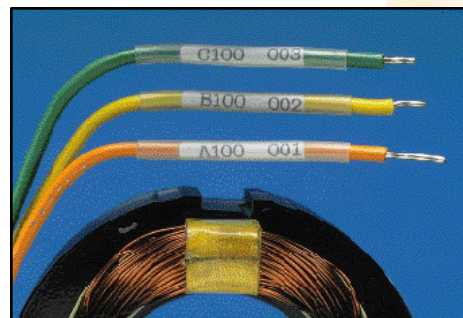
▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

## 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
- Color is clear



Type	Material		
HSTTK	 <b>Polyvinylidene Fluoride</b>		
 600V	 -67°F to 347°F (-55°C to 175°C)	 AMS-DTL-23053/8	 VW-1
 Semi-Rigid	 Shrink Ratio▲: 2:1	 Highly Flame Retardant VW-1	



### Ordering Information — HSTTK in Standard Packages — 4' (1.2M) Pieces

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*
HSTTK05-48-Q	3/64"	.046" (1.2)	.023" (0.6)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTK06-48-Q	1/16"	.063" (1.6)	.031" (0.8)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTK09-48-Q	3/32"	.093" (2.4)	.046" (1.2)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTK12-48-Q	1/8"	.125" (3.2)	.062" (1.6)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTK19-48-Q	3/16"	.187" (4.8)	.093" (2.4)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTK25-48-Q	1/4"	.250" (6.4)	.125" (3.2)	.010" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTK38-48-Q	3/8"	.375" (9.5)	.187" (4.8)	.012" (0.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTK50-48-5	1/2"	.500" (12.7)	.250" (6.4)	.012" (0.3)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTK75-48-5	3/4"	.750" (19.0)	.375" (9.5)	.017" (0.4)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTK100-48-5	1"	1.00" (25.4)	.500" (12.7)	.019" (0.5)	1 Pc., 4' (1.2M)	5 Pcs.

\* 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.



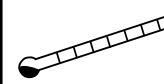






# Dual Wall Polyolefin **DAMP-SHRINK™** Heat Shrink Tubing

## HSTTVA Heat Shrink

- For damp locations
- Flexible tubing with an adhesive inner wall which seals and protects components from moisture and corrosion
- For use when a flexible adhesive lined tubing is needed



Type	Materials	
HSTTVA	 <b>Polyolefin Cross-Linked with Adhesive</b>	
 600V	 -67°F to 230°F (-55°C to 110°C)	 AMS-DTL-23053/4 Class 2
 Flexible	 Shrink Ratio: 2:1	 Outer Wall Flame Retardant



## Ordering Information — HSTTVA in Standard Packages — 4' (1.2M) Pieces

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*
HSTTVA12-48-Q	1/8"	.125" (3.2)	.062" (1.6)	.020" (0.5)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTVA19-48-Q	3/16"	.187" (4.8)	.093" (2.4)	.022" (0.6)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTVA25-48-Q	1/4"	.250" (6.4)	.125" (3.2)	.030" (0.8)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTVA38-48-Q	3/8"	.375" (9.5)	.187" (4.8)	.031" (0.8)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTVA50-48-5	1/2"	.500" (12.7)	.250" (6.4)	.032" (0.8)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTVA75-48-5	3/4"	.750" (19.0)	.375" (9.5)	.037" (0.9)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTVA100-48-5	1"	1.00" (25.4)	.500" (12.7)	.046" (1.2)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTVA150-48-5	1 1/2"	1.50" (38.1)	.750" (19.0)	.049" (1.2)	1 Pc., 4' (1.2M)	5 Pcs.

\* Order in multiples of Std. Pkg. Qty.

## Standard Packs of HSTTVA Heat Shrink — 6" (152.4mm) Pieces

HSTTVA— 2:1 Adhesive Lined – Black Only – Single Diameter

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Total No. of Pieces	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTVA12-Y	1/8"	.125" (3.2)	.062" (1.6)	7	1 Pkg.	10 Pkgs.
HSTTVA19-Y	3/16"	.187" (4.8)	.093" (2.4)	7	1 Pkg.	10 Pkgs.
HSTTVA25-Y	1/4"	.250" (6.4)	.125" (3.2)	5	1 Pkg.	10 Pkgs.
HSTTVA38-Y	3/8"	.375" (9.5)	.187" (4.8)	4	1 Pkg.	10 Pkgs.
HSTTVA50-Y	1/2"	.500" (12.7)	.250" (6.4)	4	1 Pkg.	10 Pkgs.
HSTTVA75-Y	3/4"	.750" (19.0)	.375" (9.5)	3	1 Pkg.	10 Pkgs.
HSTTVA100-Y	1"	1.00" (25.4)	.500" (12.7)	2	1 Pkg.	10 Pkgs.




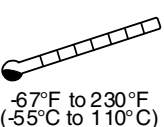




\*Order in multiples of Std. Pkg. Qty.

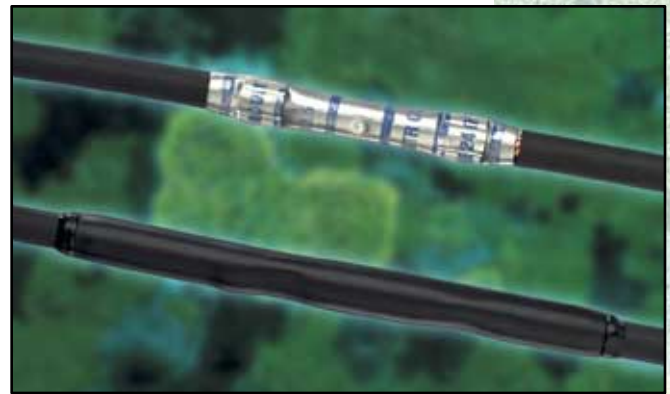


## HSTTA Heat Shrink

- 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	
 600V	 -67°F to 230°F (-55°C to 110°C)	 AMS-DTL-23053/4 Class 3
 Flexible	 Shrink Ratio: 3:1	 Outer Wall Flame Retardant



### Ordering Information — HSTTA in Standard and Bulk Packages — 4' (1.2M) Pieces

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*
HSTTA19-48-Q	3/16"	.187" (4.8)	.062" (1.6)	.040" (1.0)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTA25-48-Q	1/4"	.250" (6.4)	.080" (2.0)	.040" (1.0)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTA25-48-TL	1/4"	.250" (6.4)	.080" (2.0)	.040" (1.0)	1 Pc., 4' (1.2M)	250 Pcs.
HSTTA38-48-Q	3/8"	.375" (9.5)	.120" (3.0)	.055" (1.4)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTA38-48-TL	3/8"	.375" (9.5)	.120" (3.0)	.055" (1.4)	1 Pc., 4' (1.2M)	250 Pcs.
HSTTA50-48-5	1/2"	.500" (12.7)	.160" (4.1)	.070" (1.8)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTA50-48-T	1/2"	.500" (12.7)	.160" (4.1)	.070" (1.8)	1 Pc., 4' (1.2M)	200 Pcs.
HSTTA75-48-5	3/4"	.750" (19.0)	.250" (6.4)	.085" (2.2)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTA75-48-C	3/4"	.750" (19.0)	.250" (6.4)	.085" (2.2)	1 Pc., 4' (1.2M)	100 Pcs.
HSTTA100-48-5	1"	1.00" (25.4)	.320" (8.1)	.100" (2.5)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTA100-48-L	1"	1.00" (25.4)	.320" (8.1)	.100" (2.5)	1 Pc., 4' (1.2M)	50 Pcs.
HSTTA150-48-5	1 1/2"	1.50" (38.1)	.510" (12.9)	.100" (2.5)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTA150-48-Q	1 1/2"	1.50" (38.1)	.510" (12.9)	.100" (2.5)	1 Pc., 4' (1.2M)	25 Pcs.

\* 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.

### Standard Packs of HSTTA Heat Shrink — 6" (152.4mm) Pieces

#### HSTTA— Black Only – Single Diameter

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Total No. of Pieces	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSTTA19-Y	3/16"	.187" (4.8)	.062" (1.6)	6	1 Pkg.	10 Pkgs.
HSTTA25-Y	1/4"	.250" (6.4)	.080" (2.0)	4	1 Pkg.	10 Pkgs.
HSTTA38-Y	3/8"	.375" (9.5)	.120" (3.0)	3	1 Pkg.	10 Pkgs.
HSTTA50-Y	1/2"	.500" (12.7)	.160" (4.1)	3	1 Pkg.	10 Pkgs.
HSTTA75-Y	3/4"	.750" (19.0)	.250" (6.4)	2	1 Pkg.	10 Pkgs.
HSTTA100-Y	1"	1.00" (25.4)	.320" (8.1)	2	1 Pkg.	10 Pkgs.
HSTTA150-Y	1 1/2"	1.50" (38.1)	.510" (12.9)	1	1 Pkg.	10 Pkgs.



\*Order in multiples of Std. Pkg. Qty.



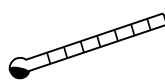


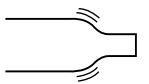
▲ Shrink ratios are approximations; please refer to above ordering information for the exact Min. Expanded and Max. Recovered I.D.'s.

# Dual Wall Polyolefin *DAMP-SHRINK*™ Heat Shrink Tubing

## 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	 <b>Polyolefin Cross-Linked with Adhesive</b>	
 600V	 -67°F to 230°F (-55°C to 110°C)	 AMS-DTL-23053/4 Class 1
 Semi-Rigid	 Shrink Ratio▲: 2.5:1	



### Ordering Information — HSTTRA in Standard Packages — 4' (1.2M) Pieces

Part Number	Nominal Diameter In.	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Length	Std. Pkg. Qty.*
HSTTRA12-48-Q	1/8"	.125" (3.2)	.023" (0.6)	.038" (1.0)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTRA19-48-Q	3/16"	.187" (4.8)	.060" (1.5)	.043" (1.1)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTRA25-48-Q	1/4"	.250" (6.4)	.080" (2.0)	.047" (1.2)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTRA38-48-Q	3/8"	.375" (9.5)	.135" (3.4)	.050" (1.3)	1 Pc., 4' (1.2M)	25 Pcs.
HSTTRA50-48-5	1/2"	.500" (12.7)	.195" (5.0)	.059" (1.5)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTRA75-48-5	3/4"	.750" (19.0)	.313" (8.0)	.065" (1.7)	1 Pc., 4' (1.2M)	5 Pcs.
HSTTRA100-48-5	1"	1.00" (25.4)	.400" (10.6)	.075" (1.9)	1 Pc., 4' (1.2M)	5 Pcs.

\* 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.

# Thick Wall Polyolefin WET-SHRINK™ Heat Shrink Tubing

## 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	Material		
HST	Polyolefin Cross-Linked with Adhesive		
 600V	 -85°F to 230°F (-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

Type	Expanded Diameter	PC Length	Package Quantity	Color
HST	0.4 - .40" (10.2mm)	3 - 3" (76.2mm)	1 - 1 Pcs.	None - Black
	0.8 - .80" (20.3mm)	6 - 6" (152.4mm)	2 - 2 Pcs.	2 - Red
	1.1 - 1.10" (27.9mm)	9 - 9" (228.6mm)	3 - 3 Pcs.	
	1.5 - 1.50" (38.1mm)	12 - 12" (304.8mm)	5 - 5 Pcs.	
	2.0 - 2.00" (50.8mm)	48 - 4' (1.2M)	X - 10 Pcs.	
	3.0 - 3.00" (76.2mm)		Q - 25 Pcs.	

## Ordering Information — HST in Standard Packages

Part Number	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Conductor Size Range AWG/MCM (mm²)	Minimum Cable O.D. In. (mm)	Maximum Connector O.D. In. (mm)	Tube Length In. (mm)	Std. Pkg. Qty.*	Std. Ctn. Qty.
HST0.4-3-Q‡ HST0.4-6-3 HST0.4-6-X‡ HST0.4-48-5‡	.40" (10.1)	.15" (3.8)	.09" (2.3)	#12-#6 (4-10)	0.170" (4.3)	.350" (8.9)	3" (76.2) 6" (152.4) 6" (152.4) 4' (1.2M)	25 Pcs. 3 Pcs. 10 Pcs. 5 Pcs.	100 Pcs. 30 Pcs. 100 Pcs. 20 Pcs.
HST0.8-6-3 HST0.8-6-X‡ HST0.8-9-X‡ HST0.8-12-5‡ HST0.8-48-5‡	.80" (20.3)	.20" (5.1)	.11" (2.8)	#8-#1/0 (10-50)	.240" (6.1)	.650" (16.5)	6" (152.4) 6" (152.4) 9" (228.6) 12" (304.8) 4' (1.2M)	3 Pcs. 10 Pcs. 10 Pcs. 5 Pcs. 5 Pcs.	30 Pcs. 100 Pcs. 100 Pcs. 50 Pcs. 20 Pcs.
HST1.1-6-3 HST1.1-6-X‡ HST1.1-9-2 HST1.1-9-X‡ HST1.1-12-5‡ HST1.1-48-5‡	1.10" (27.9)	.37" (9.4)	.12" (3.0)	#2-#4/0 (35-95)	.400" (10.1)	.875" (22.2)	6" (152.4) 6" (152.4) 9" (228.6) 9" (228.6) 12" (304.8) 4' (1.2M)	3 Pcs. 10 Pcs. 2 Pcs. 10 Pcs. 5 Pcs. 5 Pcs.	30 Pcs. 100 Pcs. 20 Pcs. 100 Pcs. 50 Pcs. 20 Pcs.
HST1.5-9-X HST1.5-12-1 HST1.5-12-5 HST1.5-48-5	1.50" (38.1)	.50" (12.7)	.17" (4.3)	#3/0-400 MCM (95-185)	.600" (15.2)	1.190" (30.2)	9" (228.6) 12" (304.8) 12" (304.8) 4' (1.2M)	10 Pcs. 1 Pcs. 5 Pcs. 5 Pcs.	100 Pcs. 10 Pcs. 50 Pcs. 20 Pcs.
HST2.0-9-5 HST2.0-12-2 HST2.0-48-2	2.00" (50.8)	.65" (16.5)	.17" (4.3)	250-750 MCM (240-500)	.750" (19.1)	1.600" (40.6)	9" (228.6) 12" (304.8) 12" (304.8) 4' (1.2M)	5 Pcs. 2 Pcs. 2 Pcs.	50 Pcs. 20 Pcs. 8 Pcs.
HST3.0-12-2 HST3.0-48-2	3.00" (76.2)	1.00" (25.4)	.17" (4.3)	600-1250 MCM (300-625)	1.20" (30.5)	2.250" (57.2)	12" (304.8) 4' (1.2M)	2 Pcs. 2 Pcs.	20 Pcs. 8 Pcs.

\* 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.



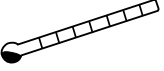




# Polyolefin **WET-SHRINK™** Thick Wall End Caps

## 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

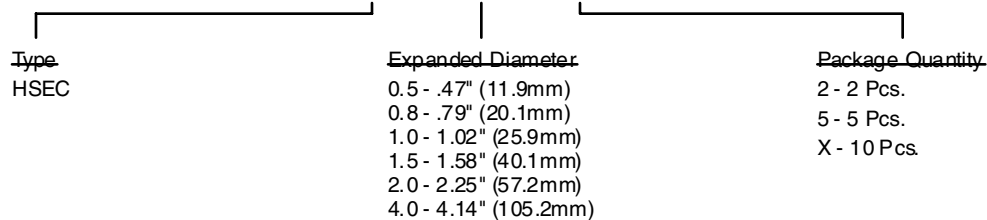


Type	Materials	
HSEC	 <b>Polyolefin Cross-Linked with Adhesive</b>	
 600V		-67°F to 221°F (-55°C to 105°C)
 Rigid		Shrink Ratio▲: 3:1



## Thick Wall End Caps Part Number System

**HSEC - 0.5 - X**



## Ordering Information — Thick Wall End Caps in Standard Packages

Part Number	Minimum Expanded I.D. In. (mm)	Maximum Recovered I.D. In. (mm)	Nominal Recovered Wall Thickness In. (mm)	Conductor Size	Cap Length In. (mm)	Std. Pkg. Qty.*	Std. Ctn. Qty.
HSEC0.5-X	.47" (11.9)	.18" (4.6)	.10" (2.5)	#8 TO #4 AWG (10 TO 25mm <sup>2</sup> )	1.38" (35.1)	10 Pcs.	100 Pcs.
HSEC0.8-X	.79" (20.1)	.30" (7.6)	.10" (2.5)	#4 TO 3/0 AWG (25 TO 95mm <sup>2</sup> )	2.13" (54.1)	10 Pcs.	100 Pcs.
HSEC1.0-X	1.02" (25.9)	.45" (11.4)	.10" (2.5)	#2 TO 4/0 AWG (35 TO 95mm <sup>2</sup> )	3.23" (82.0)	10 Pcs.	100 Pcs.
HSEC1.5-5	1.58" (40.1)	.68" (17.3)	.11" (2.8)	250 TO 500 MCM (120 TO 240mm <sup>2</sup> )	3.86" (98.0)	5 Pcs.	50 Pcs.
HSEC2.0-5	2.25" (57.2)	.87" (22.1)	.15" (3.8)	600 TO 1000 MCM (300 TO 500mm <sup>2</sup> )	5.52" (140.2)	5 Pcs.	50 Pcs.
HSEC4.0-2	4.14" (105.2)	1.78" (45.2)	.15" (3.8)	1500 TO 2000 MCM (720 TO 1000mm <sup>2</sup> )	6.90" (175.3)	2 Pcs.	10 Pcs.

\* 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.






# Heat Shrink Tubing Kits




## Plastic Kit Boxes

- Provides organized 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 6" (152.4mm) LENGTHS 2:1 SHRINK RATIO		
   <span style="float: right;">AMS-DTL-23053/5 CLASS 1</span>		
35 EACH HSTT09 3/32" (2.4mm) I.D. HSTT12 1/8" (3.2mm) I.D.	21 EACH HSTT19 3/16" (4.8mm) I.D. HSTT25 1/4" (6.4mm) I.D.	7 EACH HSTT38 3/8" (9.5mm) I.D. HSTT50 1/2" (12.7mm) I.D.



KP-HSTT2 Contents	For Dry Locations	
MULTIPLE COLOR POLYOLEFIN <i>DRY-SHRINK™</i> HEAT SHRINK TUBING (TYPE HSTT) IN 6" (152.4mm) LENGTHS 2:1 SHRINK RATIO		
   <span style="float: right;">AMS-DTL-23053/5 CLASS 1 &amp; 2</span>		
35 EACH HSTT09 3/32" (2.4mm) I.D. - 7 COLORS HSTT12 1/8" (3.2mm) I.D. - 7 COLORS	21 EACH HSTT19 3/16" (4.8mm) I.D. - 7 COLORS HSTT25 1/4" (6.4mm) I.D. - 7 COLORS	7 EACH HSTT38 3/8" (9.5mm) I.D. - 7 COLORS HSTT50 1/2" (12.7mm) I.D. - 7 COLORS

Note: Colors include: Red, Yellow, Green, Blue, White, Clear and Black



KP-HSTTA Contents	For Damp Locations	
ADHESIVE LINED BLACK POLYOLEFIN <i>DAMP-SHRINK™</i> HEAT SHRINK TUBING (TYPE HSTTA) IN 6" (152.4mm) LENGTHS 3:1 SHRINK RATIO		
 <span style="float: right;">AMS-DTL-23053/4 CLASS 3</span>		
14 EACH HSTTA19 3/16" (4.8mm) I.D.  12 EACH HSTTA25 1/4" (6.4mm) I.D.	10 EACH HSTTA38 3/8" (9.5mm) I.D.  6 EACH HSTTA50 1/2" (12.7mm) I.D.	3 EACH HSTTA75 3/4" (19.0mm) I.D.  2 EACH HSTTA100 1" (25.4mm) I.D.

Order number of kits required.

## Metal Kit Boxes

- Provides organized storage for a wide variety of parts in one convenient location
- Informative label eliminates guesswork:
  - 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 8 compartments
- Available with non-adhesive or adhesive lined heat shrink tubing for dry and damp locations



**DRY**  
**SHRINK™**  
HEAT SHRINK

K-HSTT1 Contents	For Dry Locations	
BLACK POLYOLEFIN <i>DRY-SHRINK™</i> HEAT SHRINK TUBING (TYPE HSTT) IN 6" (152.4mm) LENGTHS 2:1 SHRINK RATIO		
		AMS-DTL-23053/5 CLASS 1
42 EACH HSTT06 1/16" (1.6mm) I.D. HSTT12 1/8" (3.2mm) I.D.	28 EACH HSTT19 3/16" (4.8mm) I.D. 21 EACH HSTT25 1/4" (6.4mm) I.D. 14 EACH HSTT38 3/8" (9.5mm) I.D.	7 EACH HSTT50 1/2" (12.7mm) I.D. HSTT75 3/4" (19.0mm) I.D. HSTT100 1" (25.4mm) I.D.



**DRY**  
**SHRINK™**  
HEAT SHRINK

K-HSTT2 Contents	For Dry Locations	
MULTIPLE COLOR POLYOLEFIN <i>DRY-SHRINK</i> HEAT SHRINK TUBING (TYPE HSTT) IN 6" (152.4mm) LENGTHS 2:1 SHRINK RATIO		
		AMS-DTL-23053/5 CLASS 1 & 2
		(Except Clear)
		(Except Clear)
42 EACH HSTT06 1/16" (1.6mm) I.D. - 7 COLORS HSTT12 1/8" (3.2mm) I.D. - 7 COLORS	28 EACH HSTT19 3/16" (4.8mm) I.D. - 7 COLORS 21 EACH HSTT25 1/4" (6.4mm) I.D. - 7 COLORS 14 EACH HSTT38 3/8" (9.5mm) I.D. - 7 COLORS	7 EACH HSTT50 1/2" (12.7mm) I.D. - 7 COLORS HSTT75 3/4" (19.0mm) I.D. - 7 COLORS HSTT100 1" (25.4mm) I.D. - 7 COLORS

Note: Colors include: Red, Yellow, Green, Blue, White, Clear and Black



**DAMP**  
**SHRINK™**  
HEAT SHRINK

K-HSTTA Contents	For Damp Locations	
ADHESIVE LINED BLACK POLYOLEFIN <i>DAMP-SHRINK™</i> HEAT SHRINK TUBING (TYPE HSTTA) IN 6" (152.4mm) LENGTHS 3:1 SHRINK RATIO		
		AMS-DTL-23053/4 CLASS 3
24 EACH HSTTA19 3/16" (4.8mm) I.D. 20 EACH HSTTA25 1/4" (6.4mm) I.D.	14 EACH HSTTA38 3/8" (9.5mm) I.D. 10 EACH HSTTA50 1/2" (12.7mm) I.D.	6 EACH HSTTA75 3/4" (19.0mm) I.D. 4 EACH HSTTA100 1" (25.4mm) I.D. 2 EACH HSTTA150 1/2" (38.1mm) I.D.

Order number of kits required.



Mica insulation in the heat element provides extended life to HSG Heat Tools.



HSG Heat tool with stand



Heat Reflector Accessory slips onto heat tools



Heat Concentrator Accessory directs heat to reduce shrink time





DCT — Cutting Tool



Carrying Case

## Heat Tools

Part Number	 Listed 826N (Heat Tools only)	 (Heat Tools only)	Std. Pkg. Qty
Description			
HSG-115V-650	<ul style="list-style-type: none"> <li>High temperature tool — For use on <i>PANDUIT</i> HSTT, HSTTF, HSTTR, HSTTK, HSTTRA, HST and HSEC</li> <li>Air intake regulator varies temperature from 650°F (344°C) to 900°F (482°C) 115 Volt, 10 AMP</li> <li>Neoprene jacketed cord with molded strain relief</li> <li>Adjustable stand included</li> <li>Replaceable bearings, brushes and heating elements</li> </ul>		1
HSG-115V-500	<ul style="list-style-type: none"> <li>General purpose tool — For use on all types of heat shrink except <i>PANDUIT</i> HSTTT, HSTTF and HSTTK</li> <li>Air intake regulator varies temperature from 500°F (260°C) to 650°F (344°C) 115 Volt, 8 AMP</li> <li>Neoprene jacketed cord with molded strain relief</li> <li>Adjustable stand included</li> <li>Replaceable bearings, brushes and heating elements</li> </ul>		1
HSG-115V-300	<ul style="list-style-type: none"> <li>Low temperature tool — For use on small sizes of heat shrink when heat sensitive items are under or near the heat shrink tube</li> <li>Air intake regulator varies temperature from 300°F (145°C) to 450°F (232°C) 115 Volt, 6 AMP</li> <li>Neoprene jacketed cord with molded strain relief</li> <li>Adjustable stand included</li> <li>Replaceable bearings, brushes and heating elements</li> </ul>		1

## Accessories

Part Number	Description	Std. Pkg. Qty
HSG-A1	<ul style="list-style-type: none"> <li>Shrink tube reflector for tubing up to 3/4" inside diameter</li> <li>Directs heat around the tubing to reduce shrink time</li> </ul>	1
HSG-A2	<ul style="list-style-type: none"> <li>Shrink tube reflector for tubing up to 1 1/2" inside diameter</li> <li>Directs heat around the tubing to reduce shrink time</li> </ul>	1
HSG-A3	<ul style="list-style-type: none"> <li>Shrink tube concentrator</li> <li>Directs heat toward tubing and away from heat sensitive items</li> </ul>	1
HSG-A4	<ul style="list-style-type: none"> <li>Black polyethylene carrying case</li> <li>Stores heat tool, stand and all three accessories</li> </ul>	1
DCT	<ul style="list-style-type: none"> <li>Cutting tool for use with HST Thick Wall Heat Shrink Tubing only</li> </ul>	1

## Replacement Parts

Part Number	Description	Std. Pkg. Qty
HSG-P1	• Brush/Spring Kit	1
HSG-P2	• Switch 20 Amp	1
HSG-P3	• Bearing Kit	1
HSG-P4	• Heat Element 300°F	1
HSG-P5	• Heat Element 500°F	1
HSG-P6	• Thermo Cut-off switch for HSG-115V-300	1
HSG-P7	• Heat Element 650°F	1

Order number of heat tools, accessories and replacement parts required.

## Heat Shrink Process Defined

### Extrusion/Material

Various thermoplastic materials that will repeatedly melt and flow, such as polyolefin, PVC, etc., are extruded into tube form. If examined at a molecular level, the material would resemble long thin strands weakly connected at various points by crystalline structure. If left in this state, the performance of the tube would be limited to that of the base material.

### Cross Linking

Cross-linking creates high strength bonds between the molecular strands, in addition to the crystalline bonds. This is done with a high voltage or chemical treatment of the material. The cross-link bonds will not break down with heat; this transforms the material from a thermoplastic to a thermoset material that will not melt and flow. The result is a material with superior electrical and mechanical properties.

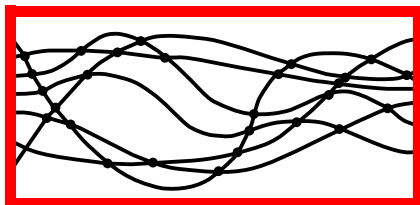
### Expansion

The cross-linked tube is heated and the crystalline bonds dissolve, however, the cross-link bonds remain. The tube now is softer and can be expanded. This causes the cross-link bonds to stretch. When cooled quickly, the crystalline bonds reform, freezing the tube in the expanded size. The tubing has now completed the manufacturing process.

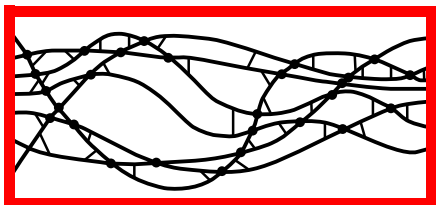
### Recovery

With the proper type and size of tube selected, the tube is placed over the object to be covered. Heat is now applied. This causes the crystalline bonds to dissolve again and the tube softens. The stretched cross-link bonds now return to their original length and the tube shrinks to the diameter it had when cross-linked, unless it encounters an object larger than this diameter. In this case, it conforms tightly to this object.

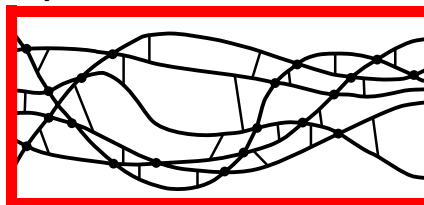
**Extrusion**



**Cross-Link**



**Expansion**



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## 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. See [page 24](#) for the shrink temperature of each type of Panduit tubing.

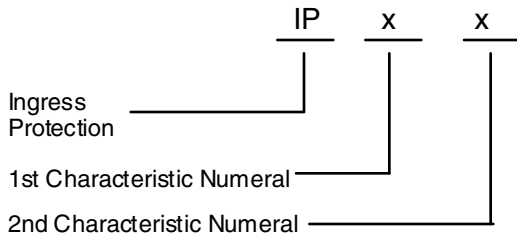
### Special Instructions for HSTTT and HSTTT4X

TFE tubing is the most difficult to shrink due to its high shrink temperature. TFE shrink tubing must be heated to the gel state 621° F (327° C) to completely recover. This can be recognized when the tubing changes from milky white to clear color. 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 800° F (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. FEP material, *PANDUIT* HSTTF, is easier to shrink and use of a heat gun, torch or oven will yield good results when the tube is heated to 350° F (177° C).



# IP (Ingress Protection) as defined by the International Standard

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



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
	<b>DRY</b> Locations not normally subject to moisture	<b>IP62</b>	Protected against the ingress of dust but not protected against the ingress of water.
	<b>DAMP</b> Locations subjected to moderate degrees of water and moisture	<b>IP66</b>	Protected against the ingress of dust and protected against the ingress of a power jet of water.
	<b>WET</b> Locations are defined as underground burial or immersion in water	<b>IP68</b>	Protected against the ingress of dust <i>and</i> protected against the ingress of water to a depth of 10 meters.

Does not include *PANDUIT® DRY-SHRINK HSTTT (TEFLON — TFE)* or *DRY-SHRINK HSTTF (TEFLON — FEP)*

*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 meters.

# Heat Shrink Selection Guide

## Recommended Tubing Size for Common Wire Types Based on Location

### For Insulated Wire, Uninsulated 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, uninsulated wire, or insulated wire with copper connectors.

3) Read corresponding part number.

4) Part numbers with "-Y" are packages containing 6" pieces. Part numbers with "-48" are 48" pieces.

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

Wire Size	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
24	HSTT12-Y	HSTTA19-Y	—	—	—	—	HSTT12-Y	—	—
22	HSTT12-Y	HSTTA19-Y	—	—	—	—	HSTT12-Y	—	—
20	HSTT12-Y	HSTTA19-Y	—	HSTT06-Y	—	—	HSTT19-Y	HSTTA19-Y	—
18	HSTT19-Y	HSTTA19-Y	—	HSTT06-Y	—	—	HSTT19-Y	HSTTA19-Y	—
16	HSTT19-Y	HSTTA25-Y	—	HSTT06-Y	—	—	HSTT19-Y	HSTTA25-Y	—
14	HSTT19-Y	HSTTA25-Y	—	HSTT12-Y	HSTTA19-Y	—	HSTT19-Y	HSTTA25-Y	—
12	HSTT25-Y	HSTTA38-Y	HST0.4-48-5	HSTT12-Y	HSTTA19-Y	—	HSTT25-Y	HSTTA38-Y	HST0.4-48-5
10	HSTT25-Y	HSTTA38-Y	HST0.4-48-5	HSTT19-Y	HSTTA25-Y	—	HSTT25-Y	HSTTA38-Y	HST0.4-48-5
8	HSTT38-Y	HSTTA50-Y	HST0.4-48-5	HSTT25-Y	HSTTA25-Y	—	HSTT38-Y	HSTTA50-Y	HST0.4-48-5
6	HSTT50-Y	HSTTA50-Y	HST0.8-48-5	HSTT25-Y	HSTTA38-Y	HST0.4-48-5	HSTT50-Y	HSTTA50-Y	HST0.8-48-5
4	HSTT50-Y	HSTTA75-Y	HST0.8-48-5	HSTT38-Y	HSTTA38-Y	HST0.4-48-5	HSTT50-Y	HSTTA75-Y	HST0.8-48-5
3	HSTT50-Y	HSTTA75-Y	HST0.8-48-5	HSTT38-Y	HSTTA50-Y	HST0.4-48-5	HSTT50-Y	HSTTA75-Y	HST0.8-48-5
2	HSTT75-Y	HSTTA100-Y	HST0.8-48-5	HSTT50-Y	HSTTA50-Y	HST0.8-48-5	HSTT75-Y	HSTTA100-Y	HST0.8-48-5
1	HSTT75-Y	HSTTA100-Y	HST0.8-48-5	HSTT50-Y	HSTTA50-Y	HST0.8-48-5	HSTT75-Y	HSTTA100-Y	HST1.1-48-5
1/0	HSTT75-Y	HSTTA100-Y	HST1.1-48-5	HSTT50-Y	HSTTA75-Y	HST0.8-48-5	HSTT75-Y	HSTTA100-Y	HST1.1-48-5
2/0	HSTT100-Y	HSTTA100-Y	HST1.1-48-5	HSTT50-Y	HSTTA75-Y	HST0.8-48-5	HSTT100-Y	HSTTA100-Y	HST1.1-48-5
3/0	HSTT100-Y	HSTTA150-Y	HST1.1-48-5	HSTT75-Y	HSTTA100-Y	HST0.8-48-5	HSTT100-Y	HSTTA150-Y	HST1.5-48-5
4/0	HSTT100-Y	HSTTA150-Y	HST1.5-48-5	HSTT75-Y	HSTTA100-Y	HST1.1-48-5	HSTT100-Y	HSTTA150-Y	HST1.5-48-5
250	HSTT100-Y	HSTTA150-Y	HST1.5-48-5	HSTT100-Y	HSTTA100-Y	HST1.1-48-5	HSTT100-Y	HSTTA150-Y	HST1.5-48-5
300	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
350	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
400	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
500	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
600	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
700	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
750	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
800	HSTT200-48-5	—	HST3.0-48-2	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT200-48-5	—	HST3.0-48-2
900	HSTT200-48-5	—	HST3.0-48-2	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2	HSTT200-48-5	—	HST3.0-48-2
1000	HSTT200-48-5	—	HST3.0-48-2	HSTT200-48-5	HSTTA150-Y	HST2.0-48-2	HSTT200-48-5	—	HST3.0-48-2
1250	HSTT300-48-2	—	HST3.0-48-2	HSTT200-48-5	HSTTA150-Y	HST2.0-48-2	—	—	HST3.0-48-2
1500	HSTT300-48-2	—	HST3.0-48-2	HSTT200-48-5	—	HST3.0-48-2	—	—	—
1750	HSTT300-48-2	—	HST3.0-48-2	HSTT200-48-5	—	HST3.0-48-2	—	—	—
2000	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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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:

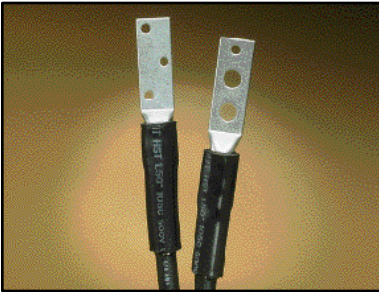
A multiconductor cable needs to be covered with HSTT Type DRY-SHRINK™ Heat Shrink. The area to be covered has a measured outside diameter of .700" (17.8mm). The two possibilities are HSTT75-48-5 and HSTT100-48-5.

Part Number	Expanded I.D. In. (mm)	Recovered I.D. In. (mm)
HSTT75-48-5	.750" (19.0)	.375" (9.5)
HSTT100-48-5	1.00" (25.4)	.500" (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 .700" (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.

Thick Wall Heat Shrink and Power Connector Selection Guide

Panduit thick wall heat shrink tubing, HST, provides excellent insulation, abrasion protection and strain relief for Panduit's lugs and splices. The HST, with internal hot melt adhesive, is UL Listed per UL486D and CSA Certified for direct burial. It is suitable for outdoor use and wet locations. The following charts on page 32 have been designed to assist in the selection of the correct thick wall heat shrink for a specific lug or splice size.



## Lugs

### Standard Barrel Copper

Lug Part Numbers	# of Holes	Heat Shrink Part Numbers
LCA8	NONE OR 1	HST0.4-3-Q
LCA6	NONE OR 1	HST0.8-6-X
LCA4	NONE OR 1	HST0.8-6-X
LCA2	NONE OR 1	HST0.8-6-X
LCA1	NONE OR 1	HST1.1-6-X
LCA1/0	NONE OR 1	HST1.1-6-X
LCA2/0	NONE OR 1	HST1.1-6-X
LCA3/0	NONE OR 1	HST1.5-9-X
LCA4/0	NONE OR 1	HST1.5-9-X
LCA250	NONE OR 1	HST1.5-9-X
LCA300	1	HST1.5-9-X
LCA350	1	HST2.0-9-5
LCA400	1	HST2.0-9-5
LCA500	1	HST2.0-9-5
LCA600	1	HST2.0-9-5
LCD8	2	HST0.4-3-Q
LCD6	2	HST0.8-6-X
LCD4	2	HST0.8-6-X
LCD2	2	HST0.8-6-X
LCD1	2	HST1.1-6-X
LCD1/0	NONE OR 2	HST1.1-6-X
LCD2/0	NONE OR 2	HST1.1-6-X
LCD3/0	NONE OR 2	HST1.5-9-X
LCD4/0	NONE OR 2	HST1.5-9-X
LCD250	NONE OR 2	HST1.5-9-X
LCD300	NONE OR 2	HST1.5-9-X
LCD350	NONE OR 2	HST2.0-9-5
LCD400	NONE OR 2	HST2.0-9-5
LCD500	NONE OR 2	HST2.0-9-5
LCD600	NONE OR 2	HST2.0-9-5
LCD750	NONE OR 2	HST3.0-12-2
LCD1000	NONE OR 2	HST3.0-12-2

### Long Barrel Copper

Lug Part Numbers	# of Holes	Heat Shrink Part Numbers
LCB8	1	HST0.4-3-Q
LCB6	1	HST0.8-6-X
LCB4	1	HST0.8-6-X
LCB2	1	HST0.8-6-X
LCB1	1	HST1.1-6-X
LCB1/0	1	HST1.1-6-X
LCB2/0	1	HST1.1-6-X
LCB3/0	1	HST1.5-9-X
LCB4/0	1	HST1.5-9-X
LCB250	1	HST1.5-9-X
LCB300	1	HST1.5-9-X
LCB350	1	HST2.0-9-5
LCB400	1	HST2.0-9-5
LCB500	1	HST2.0-9-5
LCB600	1	HST2.0-9-5
LCB750	1	HST3.0-12-2
LCB800	1	HST3.0-12-2
LCB1000	1	HST3.0-12-2
LCC8	NONE OR 2	HST0.4-3-Q
LCC6	NONE OR 2	HST0.8-6-X
LCC4	NONE OR 2	HST0.8-6-X
LCC2	NONE OR 2	HST0.8-6-X
LCC1	NONE OR 2	HST0.8-6-X
LCC1/0	NONE OR 2	HST1.1-6-X
LCC2/0	NONE OR 2	HST1.1-6-X
LCC3/0	NONE OR 2	HST1.5-9-X
LCC4/0	NONE OR 2	HST1.5-9-X
LCC250	NONE OR 2	HST1.5-9-X
LCC300	NONE OR 2	HST1.5-9-X
LCC350	NONE OR 2	HST2.0-9-5
LCC400	NONE OR 2	HST2.0-9-5
LCC500	NONE OR 2	HST2.0-9-5
LCC600	NONE OR 2	HST2.0-9-5
LCC750	NONE OR 2	HST3.0-12-2
LCC800	2	HST3.0-12-2
LCC1000	NONE OR 2	HST3.0-12-2

### Short Barrel Copper

Lug Part Numbers	# of Holes	Heat Shrink Part Numbers
LCAS8	1	HST0.4-3-Q
LCAS6	1	HST0.8-6-X
LCAS4	1	HST0.8-6-X
LCAS2	1	HST0.8-6-X
LCAS1	1	HST1.1-6-X
LCAS1/0	1	HST1.1-6-X
LCAS2/0	1	HST1.1-6-X
LCAS3/0	1	HST1.5-9-X
LCAS4/0	1	HST1.5-9-X
LCAS250	1	HST1.5-9-X

### Aluminum Lugs

Lug Part Numbers	# of Holes	Heat Shrink Part Numbers
LAA6	1	HST0.8-6-X
LAA4	1	HST0.8-6-X
LAA2	1	HST0.8-6-X
LAA1	1	HST1.1-6-X
LCA1	1	HST1.1-6-X
LAA1/0	1	HST1.1-6-X
LAA2/0	1	HST1.1-6-X
LAA3/0	1	HST1.5-9-X
LAA4/0	1	HST1.5-9-X
LAA250	1	HST1.5-9-X
LAA300	1	HST1.5-9-X
LAA350	1	HST2.0-9-5
LAA400	1	HST2.0-9-5
LAA500	1	HST2.0-9-5
LAA750	1	HST3.0-12-2
LAA1000	1	HST3.0-12-2
LAB1/0	2	HST1.1-6-X
LAB2/0	2	HST1.1-6-X
LAB3/0	2	HST1.5-9-X
LAB4/0	2	HST1.5-9-X
LAB250	2	HST1.5-9-X
LAB300	2	HST1.5-9-X
LAB350	2	HST2.0-9-5
LAB400	2	HST2.0-9-5
LAB500	2	HST2.0-9-5
LAB600	2	HST2.0-9-5
LAB750	2	HST3.0-12-2
LAB800	2	HST3.0-12-2
LAB1000	2	HST3.0-12-2

#### Lug Notes:

Heat Shrink tubing selected should cover the lug barrel and a minimum of 1 1/2" (2" on tubing size 1.5" and higher) of cable insulation. Shrink tubing at lug end first and continue toward cable end.

## Splices

### Standard Barrel Copper

Splice Part Numbers	Heat Shrink Part Numbers
SCS8	HST0.4-6-X
SCS6	HST0.8-6-X
SCS4	HST0.8-6-X
SCS2	HST0.8-6-X
SCS1	HST1.1-6-X
SCS1/0	HST1.1-6-X
SCS2/0	HST1.1-6-X
SCS3/0	HST1.5-9-X
SCS4/0	HST1.5-9-X
SCS250	HST1.5-9-X
SCS300	HST1.5-9-X
SCS350	HST2.0-9-5
SCS400	HST2.0-9-5
SCS500	HST2.0-9-5
SCS600	HST2.0-9-5
SCS750	HST3.0-12-2
SCS1000	HST3.0-12-2

### Long Barrel Copper

Splice Part Numbers	Heat Shrink Part Numbers
SCL8	HST0.4-6-X
SCL6	HST0.8-6-X
SCL4	HST0.8-6-X
SCL2	HST0.8-6-X
SCL1	HST1.1-6-X
SCL1/0	HST1.1-6-X
SCL2/0	HST1.1-6-X
SCL3/0	HST1.5-9-X
SCL4/0	HST1.5-9-X
SCL250	HST1.5-9-X
SCL300	HST1.5-9-X
SCL350	HST2.0-9-5
SCL400	HST2.0-9-5
SCL500	HST2.0-9-5
SCL600	HST2.0-9-5
SCL750	HST3.0-12-2
SCL1000	HST3.0-12-2

### Short Barrel Copper

Splice Part Numbers	Heat Shrink Part Numbers
SCSS8	HST0.4-6-X
SCSS6	HST0.8-6-X
SCSS4	HST0.8-6-X
SCSS2	HST0.8-6-X
SCSS1	HST1.1-6-X
SCSS1/0	HST1.1-6-X
SCSS2/0	HST1.1-6-X
SCSS3/0	HST1.5-9-X
SCSS4/0	HST1.5-9-X
SCSS250	HST1.5-9-X

### Aluminum Long Barrel

Splice Part Numbers	Heat Shrink Part Numbers
SA6	HST0.8-6-X
SA4	HST0.8-6-X
SA2	HST0.8-6-X
SA1	HST1.1-6-X
SA1/0	HST1.1-6-X
SA2/0	HST1.1-6-X
SA3/0	HST1.5-9-X
SA4/0	HST1.5-9-X
SA250	HST1.5-9-X
SA300	HST1.5-9-X
SA350	HST2.0-9-5
SA400	HST2.0-9-5
SA500	HST2.0-9-5
SA600	HST2.0-9-5
SA750	HST3.0-12-2
SA800	HST3.0-12-2
SA1000	HST3.0-12-2

#### Splice Notes:

Heat Shrink tubing selected should cover the splice barrel and a minimum of 1 1/2" (2" on tubing size 1.5" and higher) of cable insulation on each side of the splice. Shrink tubing at the center of the splice first, continue toward one cable end and then the other.

Power connector part no. is prefix which indicates lug type and cable size, see Power Connector Catalog (SA101N15C-NL) for complete part numbers.



## Technical Data

### General Information

Product Type	Material	Key Characteristics	Standard Sizes Expanded I.D.	Applicable Specifications	Standard Colors	Packaging
HSTT	<b>FLEXIBLE POLYOLEFIN</b> (Cross-linked)	Flexible Heat Shrink Tubing. Flame retardant. Class 2 (Clear) is not flame retardant.	3/64" to 4" (1.2 to 101.6mm)	AMS-DTL-23053/5 Class 1 (black & colors) Class 2 (Clear) UL Recognized (except clear). CSA Certified (except clear).	Black Clear White Red Yellow Blue Green Yellow/Green	6" pcs. 4' lengths, 25' to 1000' reels depending on diameter 1/2" and 1" cut pieces
HSTTV	<b>HIGHLY FLEXIBLE POLYOLEFIN</b> (Cross-linked)	Highly flexible heat shrink tubing, highly flame retardant, VW-1 rated. Fast shrink time.	3/32" to 1 1/2" (2.4 to 38.1mm)	UL (VW-1) Recognized CSA Certified AMS-DTL-23053/5 Class 3	Black Red Yellow Blue White	4' lengths 100' to 1000' reels depending on diameter
HSTTR	<b>SEMI-RIGID POLYOLEFIN</b> (Cross-linked)	Semi-rigid. High strength. Flame retardant.	3/64" to 1" (1.2 to 25.4mm)	AMS-DTL-23053/6 Class 1 (Black)	Black	4' lengths
HSTTVA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	Adhesive lined, flexible, flame retardant outer wall thin wall tubing.	1/8" to 1 1/2" (3.2 to 38.1mm)	AMS-DTL-23053/4 Class 2	Black	6" pcs. 4' lengths
HSTTRA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	Adhesive lined, flexible, flame retardant outer thin wall tubing. High shrink ratio.	1/8" to 1" (3.2 to 25.4mm)	AMS-DTL-23053/4 Class 1	Black	4' lengths
HSTTA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	Adhesive lined, flexible, flame retardant outer thin wall tubing. High shrink ratio.	3/16" to 1 1/2" (4.8 to 38.1mm)	AMS-DTL-23053/4 Class 3	Black	6" pcs. 4' lengths
HST	<b>HEAVY-WALL DUAL WALL POLYOLEFIN</b> (Cross-linked)	Excellent environmental protection, for use either above or below ground. Encapsulating inner wall.	0.4" to 3.0" (10.1 to 76.2mm)	AMS-DTL-23053/15 UL Listed CSA Certified	Black Red	3" pcs. 6" pcs. 9" pcs. 12" pcs. 4' lengths
HSTTP	<b>POLYVINYLCHLORIDE – PVC</b> (Cross-linked/Heat Shrinkable)	Flexible, highly flame retardant tubing. Resistant to most fuels and oils.	3/64" to 2" (1.2 to 50.8mm)	UL(VW-1) Recognized CSA Certified	Black	25' to 1000' reels depending on diameter
HSTTN	<b>ELASTOMER NEOPRENE</b> (Cross-linked)	Highly flexible, highly abrasion resistant, heavy duty, tough tubing. Highly flame retardant material. Extended operating temperature.	1/4" to 3" (6.4mm to 76.2mm)	AMS-DTL-23053/1 Class 2 Meets VW-1	Black	25' and 100' Reels
HSTTK	<b>FLUOROPLASTIC KYNAR▲</b> (Cross-linked)	Excellent abrasion and chemical resistance, highly flame retardant, semi-rigid, transparent insulation.	3/64" to 1" (1.2 to 25.4mm)	AMS-DTL-23053/8 UL (VW-1) Recognized	Clear	4' lengths
HSTTT	<b>FLUOROPLASTIC TEFLON■ (TFE) –</b> Polytetrafluorethylene	Highly heat resistant, highly chemical resistant, widest temperature range of any plastic material. Excellent outdoor exposure. A low coefficient of friction.	30 to 0 AWG and 9/16" to 1 1/2" (0.9 to 38.1mm)	AMS-DTL-23053/12 Class 3	Milky Clear	4' lengths
HSTTT4X	<b>FLUOROPLASTIC TEFLON■ (TFE) –</b> Polytetrafluorethylene	Highly heat resistant, highly chemical resistant, widest temperature range of any plastic material. Excellent outdoor exposure. A low coefficient of friction. High shrink ratio.	5/64" to 1 1/4" (2.0 to 31.8mm)	AMS-DTL-23053/12 Class 5	Milky Clear	4' lengths
HSTTF	<b>FLUOROPLASTIC TEFLON■ (FEP) –</b> Fluorinated Ethylene Propylene	Same as HSTTT characteristics plus it has lower shrink temperature.	24 to 0AWG and 1/2" to 2" (0.8 to 50.8mm)	AMS-DTL-25053/11 Class 1	Clear	4' lengths

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## Technical Data

### General Information

Product Type	Material	Operating Temperature Range	Shrink Temp.	Shrink Ratio ‡	Longitudinal Shrinkage	Typical Applications	Page No.
HSTT	<b>FLEXIBLE POLYOLEFIN</b> (Cross-linked)	-67°F (-55°C) to 275°F (135°C)	248°F (120°C)	2:1	+5% -5%	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.	4-10
HSTTV	<b>HIGHLY FLEXIBLE POLYOLEFIN</b> (Cross-linked)	-67°F (-55°C) to 257°F (125°C)	185°F (85°C)	2:1	+1% -10%	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.	11-13
HSTTR	<b>SEMI-RIGID POLYOLEFIN</b> (Cross-linked)	-67°F (-55°C) to 275°F (135°C)	275°F (135°C)	2:1	+5% -5%	Strain relief and insulation of soldered or crimped connections when protection is needed, tough covering for delicate components, capacitor covers, diodes and resistors. Black is U.V. Resistant.	14
HSTTVA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	-67°F (-55°C) to 230°F (110°C)	250°F (121°C)	2:1	+1% -5%	Seals and protects components from moisture and corrosion. Use where a flexible tubing is needed. Suitable for damp locations.	20
HSTTRA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	-67°F (-55°C) to 230°F (110°C)	392°F (200°C)	2.5:1	+1% -10%	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. Encapsulated components. Suitable for damp locations.	22
HSTTA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	-67°F (-55°C) to 230°F (110°C)	250°F (121°C)	3:1	+1% -15%	Environmentally seals and protects components. The 3:1 shrink ratio is a benefit when working with connector to cable transitions. Encapsulated components. Suitable for damp locations.	21
HST	<b>HEAVY-WALL DUAL WALL POLYOLEFIN</b> (Cross-linked)	-85°F (-65°C) to 230°F (110°C)	250°F (121°C)	3:1	+1% -10%	Seals and protects electrical connections and splices above or below ground, 3:1 shrink ratio. Suitable for outdoor and wet locations.	23
HSTTP	<b>POLYVINYL CHLORIDE – PVC</b> (Cross-linked/Heat Shrinkable)	-4°F (-20°C) to 221°F (105°C)	250°F (121°C)	2:1	+1% -20%	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.	15
HSTTN	<b>ELASTOMER NEOPRENE</b> (Cross-linked)	-94°F (-70°C) to 250°F (121°C)	275°F (135°C)	2:1	+1% -10%	Insulation and abrasion resistance, extensive military uses on vehicles and ship-board. Excellent chemical resistant especially to fuels and oils. Black is U.V. Resistant.	16
HSTTK	<b>FLUOROPLASTIC KYNAR▲</b> (Cross-linked)	-67°F (-55°C) to 347°F (175°C)	350°F (176°C)	2:1	+10% -10%	Protection and strain relief for wires or connectors in a high temperature or solvent rich environment. Insulation of heater leads.	19
HSTTT	<b>FLUOROPLASTIC TEFLON ■ (TFE) –</b> Polytetrafluorethylene	-88°F (-67°C) to 482°F (250°C)	625°F (329°C). See instructions on <a href="#">page 29</a>	2:1	+20% -20%	High insulation and abrasion resistance. High temperature, strain relief, resists corrosive atmospheres, self lubrication and non-wetting. Can be used with fiber optics and as a strain relief for high density connectors. U.V. Resistant	17
HSTTT4X	<b>FLUOROPLASTIC TEFLON ■ (TFE) –</b> Polytetrafluorethylene	-88°F (-67°C) to 482°F (250°C)	625°F (329°C). See instructions on <a href="#">page 29</a>	4:1	+20% -20%	High insulation and abrasion resistance. High temperature, strain relief, resists corrosive atmospheres, self lubrication and non-wetting. Can be used with fiber optics and as a strain relief for high density connectors. U.V. Resistant	17
HSTTF	<b>FLUOROPLASTIC TEFLON ■ (FEP) –</b> Fluorinated Ethylene Propylene	-88°F (-67°C) to 392°F (200°C)	350°F (176°C)	1.3:1	+15% -15%	All the advantages of TFE tubing plus the advantage of a lower shrink temperature. Can be used with fiber optics and as a strain relief for high density connectors. U.V. Resistant	18

‡ Dimensions are approximate. Refer to the ordering information for exact Minimum Expanded and Maximum Recovered I.D.

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**Technical Data**

**Specifications/Test Methods for PANDUIT Heat Shrink Tubing**

Product Type	Material	Tensile Strength	Ultimate Elongation	Heat Aging	Heat Shock	Low Temperature Flexibility	Secant Modulus
HSTT	<b>FLEXIBLE POLYOLEFN</b> (Cross-linked)	1500 P.S.I. (10.3 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	175°C/168 hrs. 100% MIN. Elongation	250°C/4 hrs. No dripping, No flowing, No cracking	-55°C/4 hrs. No cracking	25,000 P.S.I. (172.4 MPa) MAX. ASTM D882
HSTTV	<b>HIGHLY FLEXIBLE POLYOLEFN</b> (Cross-linked)	1500 P.S.I. (10.3 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	150°C/168 hrs. 100% MIN. Elongation	250°C/4 hrs. No dripping, No flowing, No cracking	-25°C/4 hrs. No cracking	25,000 P.S.I. (172.4 MPa) MAX. ASTM D882
HSTTR	<b>SEMI-RIGID POLYOLEFN</b> (Cross-linked)	2000 P.S.I. (13.8 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	175°C/168 hrs. 100% MIN. Elongation	250°C/4 hrs. No dripping, No flowing, No cracking	-55°C/4 hrs. No cracking	25,000 P.S.I. (172.4 MPa) MIN. ASTM D882
HSTTV A	<b>DUAL WALL POLYOLEFN</b> (Cross-linked)	1500 P.S.I. (10.3 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	175°C/168 hrs. No dripping No flowing No cracking	250°C/4 hrs. No dripping, No flowing, No cracking	N/A	25,000 P.S.I. (172.4 MPa) MAX. ASTM D882
HSTTR A	<b>DUAL WALL POLYOLEFN</b> (Cross-linked)	1500 P.S.I. (10.3 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	175°C/168 hrs. No dripping No flowing No cracking	250°C/4 hrs. No dripping, No flowing, No cracking	N/A	25,000 P.S.I. (172.4 MPa) MIN. ASTM D882
HSTTA	<b>DUAL WALL POLYOLEFN</b> (Cross-linked)	1300 P.S.I. (9.0 MPa) MIN. ASTM D638	250% (MIN.) ASTM D638	175°C/168 hrs. No dripping No flowing No cracking	250°C/4 hrs. No dripping, No flowing, No cracking	N/A	25,000 P.S.I. (172.4 MPa) MAX. ASTM D882
HST	<b>HEAVY-WALL DUAL WALL POLYOLEFIN</b> (Cross-linked)	1200 P.S.I. (8.3 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	175°C/168 hrs. 100% MIN. Elongation	225°C/4 hrs. No dripping, No flowing, No cracking	-55°C/4 hrs. No cracking	25,000 P.S.I. (172.4 MPa) MAX. ASTM D882
HSTTP	<b>POLYVINYLCHLORIDE – PVC</b> (Cross-linked/Heat Shrinkable)	2000 P.S.I. (13.8 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	135°C/168 hrs. 130% MIN Elongation	200°C/4 hrs. No dripping, No flowing, No cracking	No cracking ASTM 746	25,000 P.S.I. (172.4 MPa) MAX. ASTM D882
HSTTN	<b>ELASTOMER NEOPRENE</b> (Cross-linked)	1500 P.S.I. (10.3 MPa) MIN. ASTM D412	225% (MIN.) ASTM D412	121°C/168 hrs. 175% MIN. Elongation	200°C/4 hrs. No dripping, No flowing, No cracking	-70°C/4 hrs. No cracking	N/A
HSTTK	<b>FLUOROPLASTIC KYNAR▲</b> (Cross-linked)	5000 P.S.I. (34.5 MPa) MIN. ASTM D638	150% (MIN.) ASTM D638	250°C/168 hrs. 50% MIN. Elongation	300°C/4 hrs. No dripping, No flowing, No cracking	-55°C/4 hrs. No cracking	120,000 P.S.I. (690 MPa) MIN. ASTM D882
HSTTT	<b>FLUOROPLASTIC TEFLON ■ (TFE) –</b> Polytetrafluoroethylene	2500 P.S.I. (17.3 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	350°C/96 hrs. 200% MIN. Elongation	400°C/4 hrs. No dripping, No flowing, No cracking	-65°C/4 hrs. No cracking	N/A
HSTTT4X	<b>FLUOROPLASTIC TEFLON ■ (TFE) –</b> Polytetrafluoroethylene	2500 P.S.I. (17.3 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	350°C/96 hrs. 200% MIN. Elongation	400°C/4 hrs. No dripping, No flowing, No cracking	-65°C/4 hrs. No cracking	N/A
HSTTF	<b>FLUOROPLASTIC TEFLON ■ (FEP) –</b> Fluorinated Ethylene Propylene	2000 P.S.I. (13.8 MPa) MIN. ASTM D638	200% (MIN.) ASTM D638	250°C/96 hrs. 200% MIN. Elongation	N/A	-65°C/4 hrs. No cracking	N/A

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**Technical Data**

**Specifications/Test Methods for PANDUIT Heat Shrink Tubing**

Product Type	Material	Specific Gravity	Copper Corrosion	Flammability	Water Absorption	Fluid Resistance	Volume Resistivity	Dielectric Strength	Page No.
HSTT	<b>FLEXIBLE POLYOLEFIN</b> (Cross-linked)	Class 1, 1.35 Class 2, 1.0 ASTM D792	175°C/ 16 hrs. No corrosion	Class 1 Self Extinguishing Class 2 N/A ASTM D2671 Procedure B	0.5% MAX. ASTM D570	Tensile Strength 1000 P.S.I. MIN. (6.9MPa) Dielectric Strength 400 V/MIL MIN. (15.8 Kv/mm)	10 <sup>14</sup> MIN. ASTM D876	500 V/MIL. (19.7 Kv/mm) MIN. ASTM D2671	4-10
HSTTV	<b>HIGHLY FLEXIBLE POLYOLEFIN</b> (Cross-linked)	1.50 ASTM D792	175°C/ 16 hrs. No corrosion	Self Extinguishing ASTM D2671 Procedure C	0.5% MAX. ASTM D570	Tensile Strength 1000 P.S.I. MIN. (6.9MPa) Dielectric Strength 400 V/MIL MIN. (15.8 Kv/mm)	10 <sup>14</sup> MIN. ASTM D876	500 V/MIL. (19.7 Kv/mm) MIN. ASTM D2671	11-13
HSTTR	<b>SEMI-RIGID POLYOLEFIN</b> (Cross-linked)	1.35 ASTM D792	150°C/ 16 hrs. No corrosion	Self Extinguishing ASTM D2671 Procedure B	0.5% MAX. ASTM D570	Tensile Strength 1600 P.S.I. MIN. (11.1 MPa) Dielectric Strength 400 V/MIL MIN. (15.8 Kv/mm)	10 <sup>14</sup> MIN. ASTM D876	500 V/MIL. (19.7 Kv/mm) MIN. ASTM D2671	14
HSTTVA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	N/A	121°C/ 16 hrs. No corrosion	Self Extinguishing ASTM D2671 Procedure B	0.5% MAX. ASTM D570	Tensile Strength 1000 P.S.I. MIN. (6.9 MPa) Dielectric Strength 400 V/MIL MIN. (15.8 Kv/mm)	10 <sup>12</sup> MIN. ASTM D876	500 V/MIL. (19.7 Kv/mm) MIN. ASTM D2671	20
HSTTRA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	N/A	121°C/ 16 hrs. No corrosion	N/A	0.5% MAX. ASTM D570	Tensile Strength 1000 P.S.I. MIN. (6.9 MPa) Dielectric Strength 400 V/MIL MIN. (15.8 Kv/mm)	10 <sup>15</sup> MIN. ASTM D876	500 V/MIL. (19.7 Kv/mm) min. ASTM D2671	22
HSTTA	<b>DUAL WALL POLYOLEFIN</b> (Cross-linked)	N/A	121°C/ 16 hrs. No corrosion	Self Extinguishing ASTM D2671 Procedure B	1.0% MAX. ASTM D570	Tensile Strength 900 P.S.I. MIN. (6.2 MPa) Dielectric Strength 200 V/MIL MIN. (7.9 Kv/mm)	10 <sup>12</sup> MIN. ASTM D876	300 V/MIL. (11.8 Kv/mm) MIN. ASTM D2671	21
HST	<b>HEAVY-WALL DUAL WALL POLYOLEFIN</b> (Cross-linked)	1.2 MAX.	120°C/ 16 hrs. No corrosion	Self Extinguishing ASTM D2671 Procedure C	0.5% MAX. ASTM D570	Tensile Strength 750 P.S.I. MIN. (5.2 MPa) Dielectric Strength 200 V/MIL MIN. (7.9 Kv/mm)	10 <sup>13</sup> MIN. ASTM D876	200 V/MIL. (7.9 Kv/mm) MIN. ASTM D2671	23
HSTTP	<b>POLYVINYL-CHLORIDE – PVC</b> (Cross-linked/Heat Shrinkable)	1.35 MAX.	135°C/ 168 hrs. No corrosion	Self Extinguishing ASTM D876	1.0% MAX. ASTM D570	Tensile Strength 1800 P.S.I. MIN. (MPa) Dielectric Strength 280 V/MIL MIN.	10 <sup>11</sup> MIN. ASTM D876	400 V/MIL. (15.8 Kv/mm) MIN. ASTM D2671	15
HSTTN	<b>ELASTOMER NEOPRENE</b> (Cross-linked)	1.30 ASTM D792	150°C/ 16 hrs. No corrosion	Self Extinguishing ASTM D876	1.0% MAX. ASTM D570	Tensile Strength 1000 P.S.I. MIN. (6.9 MPa) Dielectric Strength 250 V/MIL MIN. (9.8 Kv/mm)	10 <sup>11</sup> MIN. ASTM D876	300V/MIL. (11.8 Kv/mm) MIN. ASTM D2671	16
HSTTK	<b>FLUOROPLASTIC KYNAR▲</b> (Cross-linked)	1.8 MAX. ASTM D792	** Non-corrosive	Pass MIL-DTL-23053/8B 4.6. 15.3	0.5% MAX. ASTM D570	Tensile Strength 5000 P.S.I. MIN. (34.5 MPa) Dielectric Strength 500 V/MIL MIN. (19.7 Kv/mm)	10 <sup>13</sup> MIN. ASTM D876	Size to .500" (12.7mm) 800V/MIL. (31.5 Kv/mm)min. Over .500" (12.7mm) 600 V/MIL (23.6 Kv/mm) min. ASTM D2671	19
HSTTT	<b>FLUOROPLASTIC TEFLON■ (TFE) –</b> Polytetrafluorethylene	2.2 MAX. ASTM D792	** Non-corrosive	N/A Non-flammable	0.01% MAX. ASTM D570	No change N/A	10 <sup>18</sup> MIN. ASTM D876	800 V/MIL. (31.5 Kv/mm) MIN. ASTM D2671	17
HSTTT4X	<b>FLUOROPLASTIC TEFLON■ (TFE) –</b> Polytetrafluorethylene	2.2 MAX. ASTM D792	** Non-corrosive	N/A Non-flammable	0.01% MAX. ASTM D570	No change N/A	10 <sup>18</sup> MIN. ASTM D876	800 V/MIL. (31.5 Kv/mm) MIN. ASTM D2671	17
HSTTF	<b>FLUOROPLASTIC TEFLON■ (FEP) –</b> Fluorinated Ethylene Propylene	2.2 MAX.	** Non-corrosive	N/A Non-flammable	0.01% MAX. ASTM D570	No change N/A	10 <sup>17</sup> MIN. ASTM D876	500 V/MIL. MIN. (19.7Kv/mm) MIN. ASTM D2671	18

\*\* Material is non-corrosive at operating temperatures



# Power Connectors used with *DRY-SHRINK*<sup>™</sup>, *DAMP-SHRINK*<sup>™</sup> and *WET-SHRINK*<sup>™</sup> Heat Shrink

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**PANDUIT**<sup>®</sup> offers a broad line of Power Connectors and Tools for virtually any application in sizes #14 AWG thru 1000 MCM. See Power Connector Catalog, SA101N15C-NL or Network Grounding Systems Catalog, SA101N516-NL for complete information.

## Selection

Panduit offers two basic styles of connectors, compression and mechanical, for use in grounding and power cable connections.

### Compression Connectors

Compression connectors provide reliable, permanently crimped connections in sizes matched for each conductor size. They are easy to install and provide a simplified means of inspection of a proper crimp.

Panduit *WET-SHRINK* Type HST Thick Wall Heat Shrink and Panduit Compression Splice Connectors are UL listed to standard 486D, for direct burial applications.

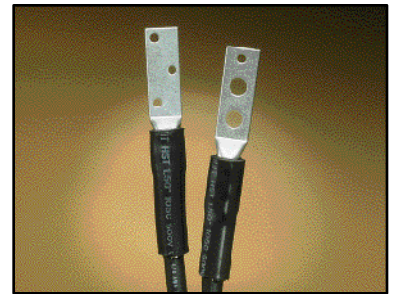
*WET-SHRINK* Type HST Thick Wall Heat Shrink insulates Panduit Compression Lug barrels in a wide variety of applications.



### Custom Lugs

Panduit has incorporated manufacturing processes that permit quick custom lug capabilities. Panduit offers a wide variety of dimensional choices for #8 AWG to 250 MCM copper compression lugs. Contact factory for complete details.

Panduit *DRY-SHRINK* Thin Wall Heat Shrink is available in custom cut lengths. Contact factory for details.

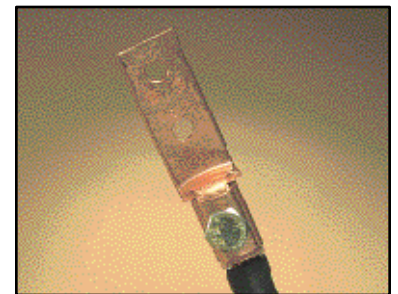


### Mechanical Connectors

Panduit offers this economical, reusable type of connector in many styles in both copper and dual rated aluminum types. Each size connector can be used for a wide range of conductor sizes which reduces inventory costs. Special installation tools are not required.

### Tooling

Panduit's broad line of crimping tools include hand operated controlled-cycle, hydraulic and battery powered. Also available are *UNI-DIE*<sup>™</sup> dieless tools.



# Non-Shrink PVC Tubing

## 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 (OFT)  
 ASTM D-922, Grade CFR  
 MIL-I-631, Type F, Form U, Grade C  
 Class 1, Category 1

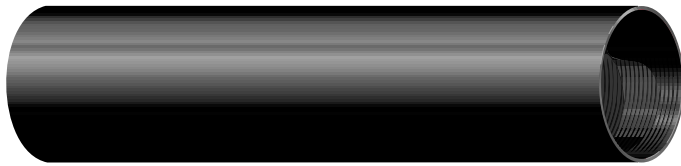




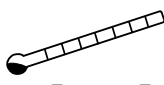




## The Functional Part Number System Makes Ordering Easy

### Non-Shrink PVC Tubing Part Number System

#### TV105 - 19 M

Type	Nominal Size		Package Quantity
TV105	24 - 24 AWG	4 - 4 AWG	L - 50' (15.2M)
	22 - 22 AWG	3 - 3 AWG	C - 100' (30.5M)
	20 - 20 AWG	2 - 2 AWG	TL - 250' (76.2M)
	19 - 19 AWG	1 - 1 AWG	D - 500' (152.4M)
	18 - 18 AWG	0 - 0 AWG	M - 1000' (304.8M)
	17 - 17 AWG	.25 - 1/4"	2.5M - 2500' (762M)
	16 - 16 AWG	.31 - 5/16"	
	15 - 15 AWG	.38 - 3/8"	
	14 - 14 AWG	.44 - 6/16"	
	13 - 13 AWG	.50 - 1/2"	
	12 - 12 AWG	.56 - 9/16"	
	11 - 11 AWG	.63 - 5/8"	
	10 - 10 AWG	.75 - 3/4"	
	9 - 9 AWG	.88 - 7/8"	
	8 - 8 AWG	1.0 - 1"	
	7 - 7 AWG	1.25 - 1 1/4"	
	6 - 6 AWG	1.50 - 1 1/2"	
	5 - 5 AWG		



Type	Materials	
<b>TV105</b>	 <b>Polyvinyl Chloride</b>	
 300V/600V**	 -4°F to 221°F (-20°C to 105°C)	 MIL-I-631, Type F, Form U Grade C Class 1, Cat 1
 Highly Flexible	 Oil Resistant	 Highly Flame Retardant VW-1

## PVC Tubing Ordering Information

Part Number Clear	Part Number Black	Nominal Size/ Trade Name	Inside Diameter- In. (mm)		Wall Thickness In. (mm)	Max. Volt Rating**	Std. Pkg. Qty.*	Std. Ctn. Qty.
			Maximum	Minimum				
TV105-242.5M	TV105-242.5M20	24 AWG	.027" (0.68)	.020" (0.51)	.012" (.30)	300V	1 Reel, 2500' (762M)	2 Reels
TV105-222.5M	TV105-222.5M20	22 AWG	.032" (0.81)	.025" (0.69)	.012" (.30)	300V	1 Reel, 2500' (762M)	2 Reels
TV105-20M	TV105-20M20	20 AWG	.039" (0.99)	.032" (0.81)	.016" (.41)	300V	1 Reel, 1000' (304.8M)	2 Reels
TV105-19M	TV105-19M20	19 AWG	.042" (1.06)	.036" (0.91)	.016" (.41)	300V	1 Reel, 1000' (304.8M)	2 Reels
TV105-18M	TV105-18M20	18 AWG	.049" (1.24)	.040" (1.02)	.016" (.41)	300V	1 Reel, 1000' (304.8M)	2 Reels
TV105-17M	TV105-17M20	17 AWG	.053" (1.34)	.045" (1.14)	.016" (.41)	300V	1 Reel, 1000' (304.8M)	2 Reels
TV105-16M	TV105-16M20	16 AWG	.061" (1.54)	.051" (1.30)	.016" (.41)	300V	1 Reel, 1000' (304.8M)	2 Reels
TV105-15M	TV105-15M20	15 AWG	.066" (1.67)	.057" (1.45)	.016" (.41)	300V	1 Reel, 1000' (304.8M)	2 Reels
TV105-14M	TV105-14M20	14 AWG	.072" (1.82)	.064" (1.63)	.016" (.41)	300V	1 Reel, 1000' (304.8M)	2 Reels
TV105-13M	TV105-13M20	13 AWG	.080" (2.03)	.072" (1.83)	.016" (.41)	300V	1 Reel, 1000' (304.8M)	2 Reels
TV105-12D	TV105-12D20	12 AWG	.089" (2.26)	.081" (2.06)	.016" (.41)	300V	1 Reel, 500' (152.4M)	2 Reels
TV105-11D	TV105-11D20	11 AWG	.101" (2.56)	.091" (2.31)	.016" (.41)	300V	1 Reel, 500' (152.4M)	2 Reels
TV105-10D	TV105-10D20	10 AWG	.112" (2.84)	.102" (2.59)	.016" (.41)	300V	1 Reel, 500' (152.4M)	2 Reels
TV105-9D	TV105-9D20	9 AWG	.124" (3.14)	.114" (2.90)	.020" (.51)	300V	1 Reel, 500' (152.4M)	2 Reels
TV105-8D	TV105-8D20	8 AWG	.141" (3.58)	.129" (3.28)	.020" (.51)	300V	1 Reel, 500' (152.4M)	2 Reels
TV105-7D	TV105-7D20	7 AWG	.158" (4.01)	.144" (3.66)	.020" (.51)	300V	1 Reel, 500' (152.4M)	2 Reels
TV105-6TL	TV105-6TL20	6 AWG	.178" (4.52)	.162" (4.11)	.020" (.51)	300V	1 Reel, 250' (76.2M)	2 Reels
TV105-5TL	TV105-5TL20	5 AWG	.198" (5.02)	.182" (4.62)	.020" (.51)	300V	1 Reel, 250' (76.2M)	2 Reels
TV105-4TL	TV105-4TL20	4 AWG	.224" (5.68)	.204" (5.18)	.020" (.51)	300V	1 Reel, 250' (76.2M)	2 Reels
TV105-3TL	TV105-3TL20	3 AWG	.249" (6.32)	.229" (5.82)	.020" (.51)	300V	1 Reel, 250' (76.2M)	2 Reels
TV105-2TL	TV105-2TL20	2 AWG	.278" (7.06)	.258" (6.55)	.020" (.51)	300V	1 Reel, 250' (76.2M)	2 Reels
TV105-1TL	TV105-1TL20	1 AWG	.311" (7.89)	.289" (7.34)	.020" (.51)	300V	1 Reel, 250' (76.2M)	2 Reels
TV105-0TL	TV105-0TL20	0 AWG	.347" (8.81)	.325" (8.26)	.020" (.51)	300V	1 Reel, 250' (76.2M)	2 Reels
TV105-.25TL	TV105-.25TL20	1/4"	.265" (6.73)	.245" (6.22)	.020" (.51)	300V	1 Reel, 250' (76.2M)	2 Reels
TV105-.31TL	TV105-.31TL20	5/16"	.334" (8.48)	.313" (7.95)	.025" (.64)	600V	1 Reel, 250' (76.2M)	2 Reels
TV105-.38TL	TV105-.38TL20	3/8"	.399" (10.13)	.375" (9.53)	.025" (.64)	600V	1 Reel, 250' (76.2M)	2 Reels
TV105-.44TL	TV105-.44TL20	7/16"	.462" (11.73)	.438" (11.13)	.025" (.64)	600V	1 Reel, 250' (76.2M)	2 Reels
TV105-.50TL	TV105-.50TL20	1/2"	.524" (13.30)	.500" (12.70)	.025" (.64)	600V	1 Reel, 250' (76.2M)	2 Reels
TV105-.56C	TV105-.56C20	9/16"	.585" (14.85)	.563" (14.30)	.030" (.76)	600V	1 Reel, 100' (30.5M)	2 Reels
TV105-.63C	TV105-.63C20	5/8"	.655" (16.63)	.625" (15.88)	.030" (.76)	600V	1 Reel, 100' (30.5M)	2 Reels
TV105-.75C	TV105-.75C20	3/4"	.786" (19.96)	.750" (19.05)	.035" (.89)	600V	1 Reel, 100' (30.5M)	2 Reels
TV105-.88C	TV105-.88C20	7/8"	.911" (23.13)	.875" (22.23)	.035" (.89)	600V	1 Reel, 100' (30.5M)	2 Reels
TV105-1.0L	TV105-1.0L20	1"	1.036" (26.31)	1.000" (25.40)	.035" (.89)	600V	1 Reel, 50' (15.2M)	2 Reels
TV105-1.25L	TV105-1.25L20	1 1/4"	1.290" (32.76)	1.250" (31.75)	.040" (1.02)	600V	1 Reel, 50' (15.2M)	2 Reels
TV105-1.50L	TV105-1.50L20	1 1/2"	1.550" (39.37)	1.500" (38.10)	.045" (1.14)	600V	1 Reel, 50' (15.2M)	2 Reels

\* Order in multiples of Std. Pkg. Qty.

\*\* UL Voltage Rating is a function of wall thickness.

## Abrasion Protection Products



### Spiral Wrapping

#### Features and Benefits



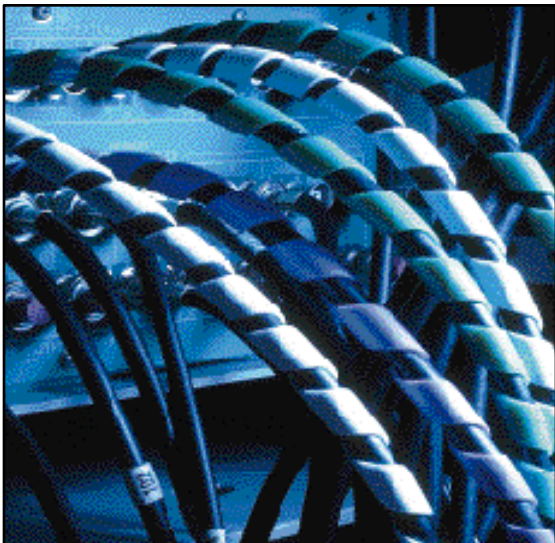
U.L. Recognized



- Largest variety of colors, materials and sizes
- Available in seven different materials and twelve different colors
- Colors conform to Communications Wiring Standards
- Color code wire bundles
- Flexible, neat, fast
- Allows breakouts of single/multiple wires and rerouting 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

### Spiral Wrapping Suggested Applications

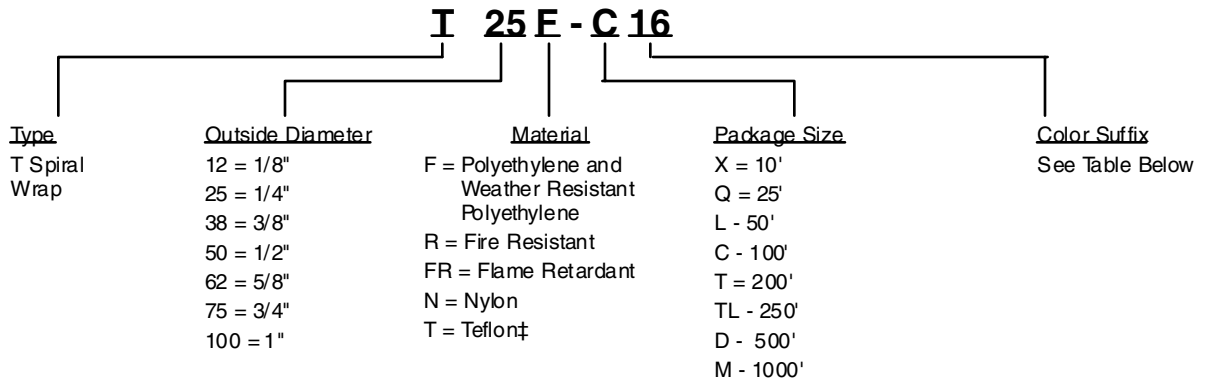
Use Panduit Spiral Wrapping in office and industrial environments for the following applications:



- Organize 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 organization
- 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 spiral wrapping for protecting and identifying fiber optic cables



**The Functional Part Number System Makes Ordering Easy**  
**Spiral Wrap Part Number Description**



**Color Availability**

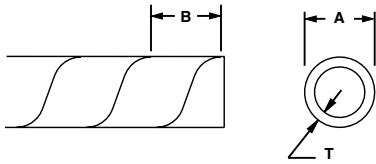
		Material						
Color	Color Suffix*	Polyethylene	Weather Resistant Polyethylene	Fire Resistant Polyethylene	Flame Retardant Polyethylene	Nylon	Weather Resistant Nylon	TEFLON‡
Natural (Clear)	Leave Blank			Natural Color is White	Natural Color is White			
Weather Resistant Black	0							
Brown	1							
Red	2							
Orange	3							
Yellow	4							
Green	5							
Blue	6							
Purple	7							
Gray	8							
White	10							
Pink	16							
Black	20							

Blank = Not applicable

\* Colors are stocked for 1/4" and 1/2" Polyethylene. Other sizes available. Contact factory.

# Spiral Wrapping

## Ordering Information — Spiral Wrapping

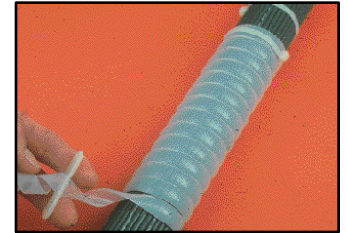
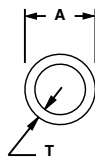
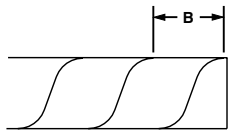


## Ordering Information — Spiral Wrapping

Part Number	Material	Color	A In. (mm)	B In. (mm)	T In. (mm)	Bundle Size In. (mm)	Length	Std. Pkg. Qty*
T12F-C	Polyethylene	Natural	0.125" (3.2)	0.218" (5.5)	0.03" (.76)	1/16" (1.6) – 1/2" (12.7)	100' (30.5M)	1 Pkg.
T19F-C		Natural	0.188" (4.8)	0.250" (6.4)	0.035" (0.89)	1/8" (3.2) - 1" (25.4)	100' (30.5M)	1 Pkg.
T25F-X		Natural	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	10' (3.0M)	1 Pkg.
T25F-C		Natural	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C1		Brown	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C10		White	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C16		Pink	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C2		Red	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C3		Orange	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C4		Yellow	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C5		Green	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C6		Blue	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C7		Purple	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T25F-C8		Gray	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T38F-C		Natural	0.375" (9.5)	0.437" (11.1)	0.055" (1.4)	5/16" (7.9) – 3" (76.2)	100' (30.5M)	1 Pkg.
T50F-X		Natural	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	10' (3.0M)	1 Pkg.
T50F-C		Natural	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C1		Brown	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C10		White	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C16		Pink	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C2		Red	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C3		Orange	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C4		Yellow	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C5		Green	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C6		Blue	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T50F-C7	Purple	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.	
T50F-C8	Gray	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.	
T62F-C	Natural	0.625" (15.9)	0.625" (15.9)	0.062" (1.57)	1/2" (12.7) – 4 1/2" (114.3)	100' (30.5M)	1 Pkg.	
T75F-C	Natural	0.75" (19.1)	0.875" (22.2)	0.065" (1.65)	5/8" (15.9) – 5" (127)	100' (30.5M)	1 Pkg.	
T100F-C	Natural	1" (25.4)	1.125" (28.6)	0.07" (1.78)	7/8" (22.2) – 6" (152.4)	100' (30.5M)	1 Pkg.	
T12F-C0	Weather Resistant Polyethylene	Black	0.125" (3.2)	0.218" (5.5)	0.03" (.76)	1/16" (1.6) – 1/2" (12.7)	100' (30.5M)	1 Pkg.
T19F-X0		Black	0.188" (4.8)	0.250" (6.4)	0.035" (0.89)	1/8" (3.2) - 1" (25.4)	10' (3.0M)	1 Pkg.
T25F-X0		Black	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	10' (3.0M)	1 Pkg.
T25F-C0		Black	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.
T38F-C0		Black	0.375" (9.5)	0.437" (11.1)	0.055" (1.4)	5/16" (7.9) – 3" (76.2)	100' (30.5M)	1 Pkg.
T50F-X0		Black	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	10' (3.0M)	1 Pkg.
T50F-C0		Black	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.
T62F-C0		Black	0.625" (15.9)	0.625" (15.9)	0.062" (1.57)	1/2" (12.7) – 4 1/2" (114.3)	100' (30.5M)	1 Pkg.
T75F-C0		Black	0.75" (19.1)	0.875" (22.2)	0.065" (1.65)	5/8" (15.9) – 5" (127)	100' (30.5M)	1 Pkg.
T100F-C0		Black	1" (25.4)	1.125" (28.6)	0.07" (1.78)	7/8" (22.2) – 6" (152.4)	100' (30.5M)	1 Pkg.

\*Order in multiples of Std. Pkg. Qty.

NOTE: Custom cut-to-length sizes are available upon request. Contact factory for details.



## Ordering Information — Spiral Wrapping

Part Number	Material	Color	A In. (mm)	B In. (mm)	T In. (mm)	Bundle Size In. (mm)	Length	Std. Pkg. Qty*	
T12R-C	Fire Resistant Polyethylene	White	0.125" (3.2)	0.218" (5.5)	0.03" (.76)	1/16" (1.6) – 1/2" (12.7)	100' (30.5M)	1 Pkg.	
T19R-C		White	0.188" (4.8)	0.250" (6.4)	0.035" (0.89)	1/8" (3.2) – 1" (25.4)	100' (30.5M)	1 Pkg.	
T25R-C		White	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.	
T25FR-C20		Black	0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.	
T38R-C		White	0.375" (9.5)	0.437" (11.1)	0.055" (1.4)	5/16" (7.9) – 3" (76.2)	100' (30.5M)	1 Pkg.	
T50R-C		White	0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.	
T62R-C		White	0.625" (15.9)	0.625" (15.9)	0.062" (1.57)	1/2" (12.7) – 4 1/2" (114.3)	100' (30.5M)	1 Pkg.	
T75R-C		White	0.75" (19.1)	0.875" (22.2)	0.065" (1.65)	5/8" (15.9) – 5" (127)	100' (30.5M)	1 Pkg.	
T100R-C		White	1" (25.4)	1.125" (28.6)	0.07" (1.78)	7/8" (22.2) – 6" (152.4)	100' (30.5M)	1 Pkg.	
T12FR-C		Flame Retardant Polyethylene	White	0.125" (3.2)	0.218" (5.5)	0.03" (.76)	1/16" (1.6) – 1/2" (12.7)	100' (30.5M)	1 Pkg.
T12FR-C20	Black		0.125" (3.2)	0.218" (5.5)	0.03" (.76)	1/16" (1.6) – 1/2" (12.7)	100' (30.5M)	1 Pkg.	
T19FR-C	White		0.188" (4.8)	0.250" (6.4)	0.032" (0.81)	1/8" (3.2) – 1" (25.4)	100' (30.5M)	1 Pkg.	
T19FR-C20	Black		0.188" (4.8)	0.250" (6.4)	0.032" (0.81)	1/8" (3.2) – 1" (25.4)	100' (30.5M)	1 Pkg.	
T25FR-C	White		0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.	
T25FR-C20	Black		0.25" (6.4)	0.375" (9.5)	0.04" (1.02)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.	
T38FR-C	White		0.375" (9.5)	0.437" (11.1)	0.055" (1.4)	5/16" (7.9) – 3" (76.2)	100' (30.5M)	1 Pkg.	
T38FR-C20	Black		0.375" (9.5)	0.437" (11.1)	0.055" (1.4)	5/16" (7.9) – 3" (76.2)	100' (30.5M)	1 Pkg.	
T50FR-C	White		0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.	
T50FR-C20	Black		0.5" (12.7)	0.5" (12.7)	0.06" (1.5)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.	
T62FR-C	White		0.625" (15.9)	0.625" (15.9)	0.062" (1.57)	1/2" (12.7) – 4 1/2" (114.3)	100' (30.5M)	1 Pkg.	
T62FR-C20	Black		0.625" (15.9)	0.625" (15.9)	0.062" (1.57)	1/2" (12.7) – 4 1/2" (114.3)	100' (30.5M)	1 Pkg.	
T75FR-C	White		0.75" (19.1)	0.875" (22.2)	0.065" (1.65)	5/8" (15.9) – 5" (127)	100' (30.5M)	1 Pkg.	
T75FR-C20	Black		0.75" (19.1)	0.875" (22.2)	0.065" (1.65)	5/8" (15.9) – 5" (127)	100' (30.5M)	1 Pkg.	
T100FR-C	White		1" (25.4)	1.125" (28.6)	0.07" (1.78)	7/8" (22.2) – 6" (152.4)	100' (30.5M)	1 Pkg.	
T100FR-C20	Black		1" (25.4)	1.125" (28.6)	0.07" (1.78)	7/8" (22.2) – 6" (152.4)	100' (30.5M)	1 Pkg.	
T12N-C	Nylon (Black Nylon is weather resistant)		Natural	0.125" (3.2)	0.218" (5.5)	0.015" (.38)	1/16" (1.6) – 1/2" (12.7)	100' (30.5M)	1 Pkg.
T12N-C0			Black	0.125" (3.2)	0.218" (5.5)	0.015" (.38)	1/16" (1.6) – 1/2" (12.7)	100' (30.5M)	1 Pkg.
T19N-C			Natural	0.188" (4.8)	0.250" (6.4)	0.020" (0.51)	1/8" (3.2) – 1" (25.4)	100' (30.5M)	1 Pkg.
T19N-C0		Black	0.188" (4.8)	0.250" (6.4)	0.020" (0.51)	1/8" (3.2) – 1" (25.4)	100' (30.5M)	1 Pkg.	
T25N-C		Natural	0.25" (6.4)	0.375" (9.5)	0.023" (.58)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.	
T25N-C0		Black	0.25" (6.4)	0.375" (9.5)	0.023" (.58)	3/16" (4.8) – 2" (50.8)	100' (30.5M)	1 Pkg.	
T38N-C		Natural	0.375" (9.5)	0.437" (11.1)	0.03" (.76)	5/16" (7.9) – 3" (76.2)	100' (30.5M)	1 Pkg.	
T38N-C0		Black	0.375" (9.5)	0.437" (11.1)	0.03" (.76)	5/16" (7.9) – 3" (76.2)	100' (30.5M)	1 Pkg.	
T50N-C		Natural	0.5" (12.7)	0.5" (12.7)	0.032" (.81)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.	
T50N-C0		Black	0.5" (12.7)	0.5" (12.7)	0.032" (.81)	3/8" (9.5) – 4" (101.6)	100' (30.5M)	1 Pkg.	
T62N-C		Natural	0.625" (15.9)	0.625" (15.9)	0.035" (.89)	1/2" (12.7) – 4 1/2" (114.3)	100' (30.5M)	1 Pkg.	
T62N-C0		Black	0.625" (15.9)	0.625" (15.9)	0.035" (.89)	1/2" (12.7) – 4 1/2" (114.3)	100' (30.5M)	1 Pkg.	
T75N-C		Natural	0.75" (19.1)	0.875" (22.2)	0.04" (1.01)	5/8" (15.9) – 5" (127)	100' (30.5M)	1 Pkg.	
T75N-C0		Black	0.75" (19.1)	0.875" (22.2)	0.04" (1.01)	5/8" (15.9) – 5" (127)	100' (30.5M)	1 Pkg.	
T100N-C		Natural	1" (25.4)	1.125" (28.6)	0.045" (1.0)	7/8" (22.2) – 6" (152.4)	100' (30.5M)	1 Pkg.	
T100N-C0		Black	1" (25.4)	1.125" (28.6)	0.045" (1.0)	7/8" (22.2) – 6" (152.4)	100' (30.5M)	1 Pkg.	
T12T-C	TEFLON‡	Natural	0.125" (3.2)	0.218" (5.5)	0.02" (.5)	1/16" (1.6) – 1/2" (12.7)	100' (30.5M)	1 Pkg.	
T19T-C		Natural	0.188" (4.8)	0.250" (6.4)	0.03" (.76)	1/8" (3.2) – 1" (25.4)	100' (30.5M)	1 Pkg.	
T25T-L		Natural	0.25" (6.4)	0.375" (9.5)	0.03" (.76)	3/16" (4.8) – 2" (50.8)	50' (15.2M)	1 Pkg.	
T50T-Q		Natural	0.5" (12.7)	0.5" (12.7)	0.03" (.76)	3/8" (9.5) – 4" (101.6)	25' (7.6M)	1 Pkg.	
T62T-Q		Natural	0.625" (15.9)	0.625" (15.9)	0.03" (.76)	1/2" (12.7) – 4 1/2" (114.3)	25' (7.6M)	1 Pkg.	
T75T-X		Natural	0.75" (19.1)	0.875" (22.2)	0.03" (.76)	5/8" (15.9) – 5" (127)	10' (3.0M)	1 Pkg.	
T100T-X		Natural	1" (25.4)	1.125" (28.6)	0.04" (1.01)	7/8" (22.2) – 6" (152.4)	10' (3.0M)	1 Pkg.	

\*Order in multiples of Std. Pkg. Qty.

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

NOTE: Custom cut-to-length sizes are available upon request. Contact factory for details.

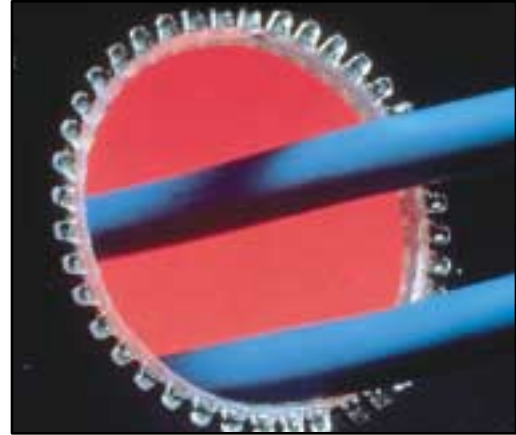
# Grommet Edging

## PANDUIT® Grommet Edging Features and Benefits



- Nylon grommet edging strips conform to the Military Standard MS21266

## Grommet Edging Suggested Applications



- Use the slotted wall in irregularly shaped and round panel holes
- Use the solid wall product on straight edges

Use these tables as a guide to determine *PANDUIT* Grommet Edging Sizes. The common sheet metal dimensions listed below are based on the "Manufacturers Standard Gauge for Steel."

Grommet Edging Military Cross Reference	
GE52-C	MS21266-1N
GE85-C	MS21266-2N
GE128-C	MS21266-3N
GE192-L	MS21266-4N
GE255-L	MS21266-5N
GE318-L	MS21266-6N
GE380-Q	MS21266-7N
GE510-Q	MS21266-8N

Gage	Manufacturer Standard Gage for Steel (In.)
5	0.2092
6	0.1943
7	0.1793
8	0.1644
9	0.1495
10	0.1345
11	0.1196
12	0.1046
13	0.0897

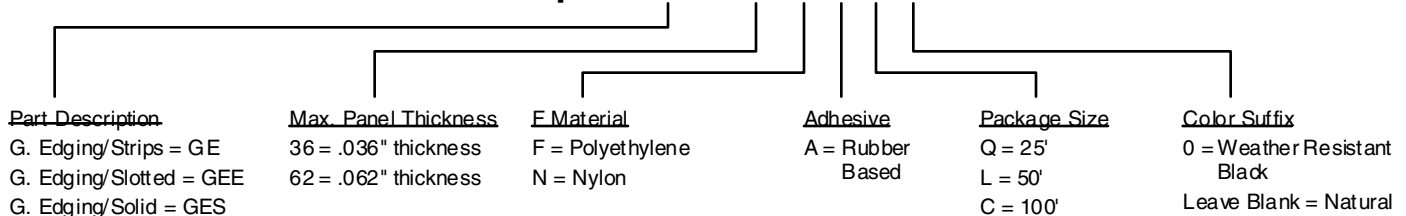
Gage	Manufacturer Standard Gage for Steel (In.)
14	0.0747
15	0.0673
16	0.0598
17	0.0538
18	0.0478
19	0.0418
20	0.0359
21	0.0329
22	0.0299

Gage	Manufacturer Standard Gage for Steel (In.)
23	0.0269
24	0.0239
25	0.0209
26	0.0179
27	0.0164
28	0.0149
29	0.0135
30	0.0120

## The Functional Part Number System Makes Ordering Easy

### Grommet Edging Part Number Description

Example: **GEE.36 F-A-C 0**






**PANDUIT® Grommet Edging**


Protects and insulates wires and cables from chafing against sharp edges

**Choose from five materials:**



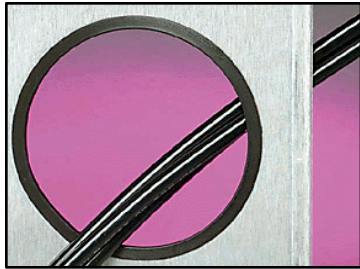
**Nylon**

- Self extinguishing
- For indoor use up to 149°F (65°C)



**Polyethylene**

- General purpose material for indoor use up to 122°F(50°C)
- Style GEE and GES provided in .030" (0.8mm) thick material, makes them highly flexible
- Available with slotted or solid wall construction



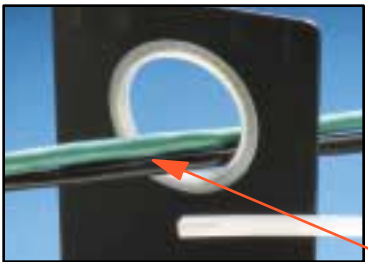
**Weather Resistant Polyethylene**

- For outdoor use up to 122°F (50°C)
- Excellent resistance to acid rain and ultra-violet light



**Flame Retardant Polyethylene**

- Will not support a flame
- Available with slotted or solid wall construction



**Adhesive Lined Polyethylene**

- Base is lined with a pressure sensitive adhesive
- Available in natural and weather resistant
- Adhesive ensures that the product will stay where it is installed

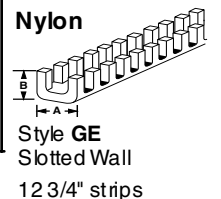
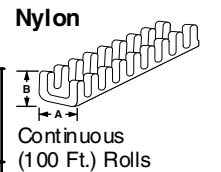
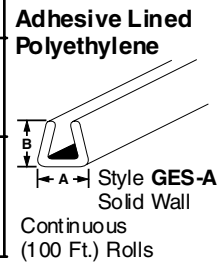
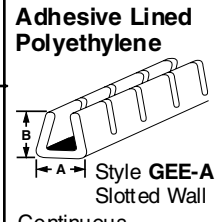
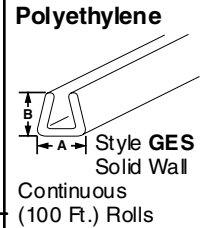
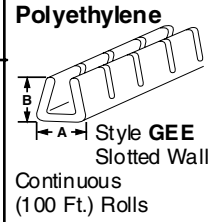
Adhesive Lined

# Grommet Edging

## Ordering Information—Grommet Edging

Panduit Part Number	Material	Color	Panel Thickness In. (mm)	Dimensions—In. (mm)		Feet Per Pkg.	Std. Pkg. Qty.*
				A	B		
GEE36F-C	Continuous Polyethylene (Slotted Wall)	Natural	.026" (.7) - .036" (.9)	.106" (2.7)	.117" (3.0)	100' (30.5M)	1 Roll
GEE36F-C0		Black	.026" (.7) - .036" (.9)	.106" (2.7)	.117" (3.0)	100' (30.5M)	1 Roll
GEE62F-C		Natural	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GEE62F-C0		Black	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GEE99F-C		Natural	.062" (1.6) - .099" (2.5)	.169" (4.3)	.186" (4.7)	100' (30.5M)	1 Roll
GEE99F-C0		Black	.062" (1.6) - .099" (2.5)	.169" (4.3)	.186" (4.7)	100' (30.5M)	1 Roll
GEE144F-C		Natural	.099" (2.5) - .144" (3.7)	.213" (5.4)	.222" (5.6)	100' (30.5M)	1 Roll
GEE144F-C0		Black	.099" (2.5) - .144" (3.7)	.213" (5.4)	.222" (5.6)	100' (30.5M)	1 Roll
GES36F-C	Continuous Polyethylene (Solid Wall)	Natural	.026" (.7) - .036" (.9)	.106" (2.7)	.117" (3.0)	100' (30.5M)	1 Roll
GES36F-C0		Black	.026" (.7) - .036" (.9)	.106" (2.7)	.117" (3.0)	100' (30.5M)	1 Roll
GES62F-C		Natural	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GES62F-C0		Black	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GES99F-C		Natural	.062" (1.6) - .099" (2.5)	.169" (4.3)	.186" (4.7)	100' (30.5M)	1 Roll
GES99F-C0		Black	.062" (1.6) - .099" (2.5)	.169" (4.3)	.186" (4.7)	100' (30.5M)	1 Roll
GES144F-C		Natural	.099" (2.5) - .144" (3.7)	.213" (5.4)	.222" (5.6)	100' (30.5M)	1 Roll
GES144F-C0		Black	.099" (2.5) - .144" (3.7)	.213" (5.4)	.222" (5.6)	100' (30.5M)	1 Roll
GES189F-C	Natural	.144" (3.7) - .189" (4.8)	.297" (7.6)	.301" (7.7)	100' (30.5M)	1 Roll	
GES189F-C0	Black	.144" (3.7) - .189" (4.8)	.297" (7.6)	.301" (7.7)	100' (30.5M)	1 Roll	
GEE62F-A-C	Continuous Polyethylene With ADHESIVE (Slotted Wall)	Natural	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GEE62F-A-C0		Black	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GEE99F-A-C		Natural	.062" (1.6) - .099" (2.5)	.169" (4.3)	.186" (4.7)	100' (30.5M)	1 Roll
GEE99F-A-C0		Black	.062" (1.6) - .099" (2.5)	.169" (4.3)	.186" (4.7)	100' (30.5M)	1 Roll
GEE144F-A-C		Natural	.099" (2.5) - .144" (3.7)	.213" (5.4)	.222" (5.6)	100' (30.5M)	1 Roll
GEE144F-A-C0		Black	.099" (2.5) - .144" (3.7)	.213" (5.4)	.222" (5.6)	100' (30.5M)	1 Roll
GES62F-A-C	Continuous Polyethylene With ADHESIVE (Solid Wall)	Natural	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GES62F-A-C0		Black	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GES99F-A-C		Natural	.062" (1.6) - .099" (2.5)	.169" (4.3)	.186" (4.7)	100' (30.5M)	1 Roll
GES99F-A-C0		Black	.062" (1.6) - .099" (2.5)	.169" (4.3)	.186" (4.7)	100' (30.5M)	1 Roll
GES144F-A-C		Natural	.099" (2.5) - .144" (3.7)	.213" (5.4)	.222" (5.6)	100' (30.5M)	1 Roll
GES144F-A-C0		Black	.099" (2.5) - .144" (3.7)	.213" (5.4)	.222" (5.6)	100' (30.5M)	1 Roll
GEE36FR-C	Flame Retardant Polyethylene (Slotted Wall)	Natural	.026" (.7) - .036" (.9)	.106" (2.7)	.117" (3.0)	100' (30.5M)	1 Roll
GEE62FR-C		Natural	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GEE99FR-C		Natural	.062" (1.6) - .099" (2.5)	.169" (4.3)	.155" (3.9)	100' (30.5M)	1 Roll
GEE144FR-C		Natural	.099" (2.5) - .144" (3.7)	.213" (5.4)	.232" (5.9)	100' (30.5M)	1 Roll
GES36FR-C	Flame Retardant Polyethylene (Solid Wall)	Natural	.026" (.7) - .036" (.9)	.106" (2.7)	.117" (3.0)	100' (30.5M)	1 Roll
GES62FR-C		Natural	.036" (.9) - .062" (1.6)	.131" (3.3)	.160" (4.1)	100' (30.5M)	1 Roll
GES99FR-C		Natural	.062" (1.6) - .099" (2.5)	.169" (4.3)	.155" (3.9)	100' (30.5M)	1 Roll
GES144FR-C		Natural	.099" (2.5) - .144" (3.7)	.213" (5.4)	.232" (5.9)	100' (30.5M)	1 Roll
GEE47N-C	Continuous Nylon (Slotted Wall)	Natural	.020" (.5) - .047" (1.2)	.130" (3.3)	.140" (3.5)	100' (30.5M)	1 Roll
GEE55N-C		Natural	.047" (1.2) - .055" (1.4)	.133" (3.4)	.140" (3.5)	100' (30.5M)	1 Roll
GEE71N-C		Natural	.055" (1.4) - .071" (1.8)	.150" (3.8)	.140" (3.5)	100' (30.5M)	1 Roll
GEE98N-C		Natural	.071" (1.8) - .098" (2.5)	.180" (4.6)	.140" (3.5)	100' (30.5M)	1 Roll
GEE134N-C		Natural	.098" (2.5) - .134" (3.4)	.210" (5.3)	.140" (3.5)	100' (30.5M)	1 Roll

\*Order in multiples of Std. Pkg. Qty.



Panduit Part Number	Material	Color	Panel Thickness In. (mm)	Dimensions—In. (mm)		Pieces Per Pkg.	Std. Pkg. Qty.*
GE52-C	Military Standard MS21266 12.75" Nylon Strips (-69) designates Flame Retardant ▲	Natural	.015" (.4) - .052" (1.3)	.150" (3.8)	.155" (3.9)	100 (30.5M)	Strips
GE52-C69▲		Natural	.015" (.4) - .052" (1.3)	.150" (3.8)	.155" (3.9)	100 (30.5M)	Strips
GE85-C		Natural	.052" (1.3) - .085" (2.2)	.175" (4.5)	.155" (3.9)	100 (30.5M)	Strips
GE85-C69▲		Natural	.052" (1.3) - .085" (2.2)	.175" (4.5)	.155" (3.9)	100 (30.5M)	Strips
GE128-C		Natural	.085" (2.2) - .128" (3.3)	.220" (5.6)	.155" (3.9)	100 (30.5M)	Strips
GE128-C69▲		Natural	.085" (2.2) - .128" (3.3)	.220" (5.6)	.155" (3.9)	100 (30.5M)	Strips
GE192-L		Natural	.128" (3.3) - .192" (4.9)	.325" (8.3)	.230" (5.8)	50 (15.2M)	Strips
GE192-L69▲		Natural	.128" (3.3) - .192" (4.9)	.325" (8.3)	.230" (5.8)	50 (15.2M)	Strips
GE255-L		Natural	.192" (4.9) - .255" (6.5)	.385" (9.8)	.240" (6.1)	50 (15.2M)	Strips
GE318-L		Natural	.255" (6.5) - .318" (8.1)	.455" (11.3)	.255" (6.5)	50 (15.2M)	Strips
GE380-Q		Natural	.318" (8.1) - .380" (9.7)	.515" (13.1)	.255" (6.5)	25 (7.6M)	Strips
GE510-Q		Natural	.380" (9.7) - .510" (13.0)	.640" (16.3)	.255" (6.5)	25 (7.6M)	Strips

\*Order in multiples of Std. Pkg. Qty.

\*\* Military Standard Nylon Strips (GE Series), order the number of strips required in multiples of Std. Pkg. Qty.

▲ This material is not listed under Military Standard MS21266.



## Corrugated Loom Tubing

- *PANDUIT*® Corrugated Loom Tubing is offered for applications where spiral wrapping or braided expandable sleeving may be difficult to install or where they do not offer the amount of protection required.
- Available in Nylon or Polyethylene, this product features 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
- Slit wall design for ease of installation
- Available in easy to handle 100' lengths
- Available in black and orange polyethylene and black heat stabilized nylon
- Mount it in place with push type cable ties, adhesive or push type mounts.



## Corrugated Loom Tubing Suggested Applications

- Bundle wires in control panels
- Contain and organize 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

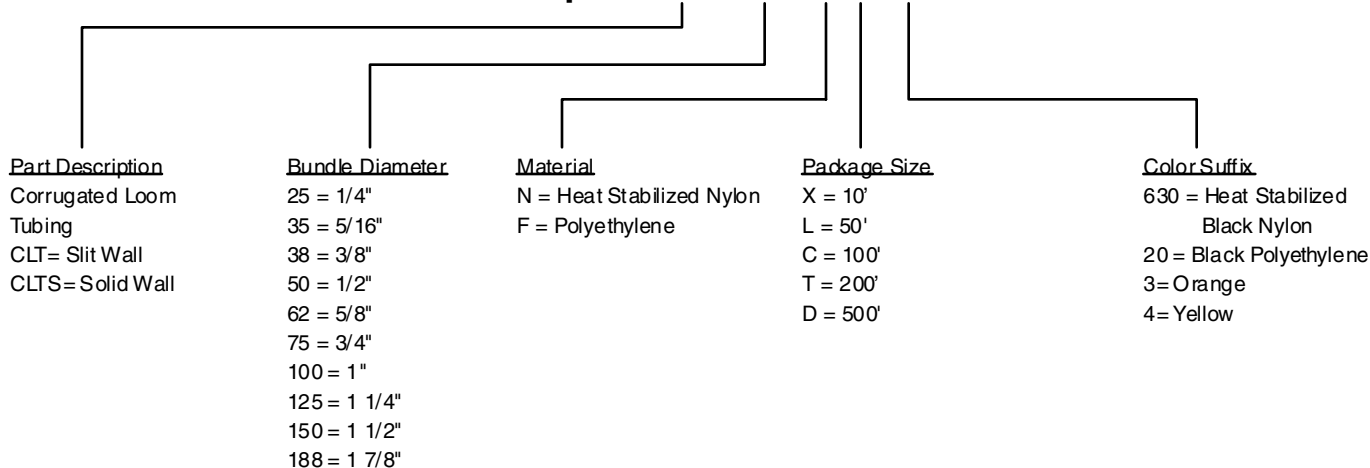
- Tie Harness Mounts have a specially designed location tab on the mount that aligns with grooves in corrugated loom tubing to ensure proper mount location during assembly. Refer to *PANDUIT* Cable Tie and Wiring Accessories Catalog, SA101N275C-WC for more information.

# Corrugated Loom Tubing

## The Functional Part Number System Makes Ordering Easy

### Corrugated Loom Tubing Part Number Description

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



### Ordering Information — Corrugated Loom Tubing

PANDUIT® Part Number		Material	Color	Inside Diameter	Outside Diameter	Feet Per Pkg.	Pkg. Qty.*									
Slit	Solid															
CLT25F-C20 CLT35F-C20 CLT38F-C20 CLT50F-C20 CLT62F-C20 CLT75F-C20 CLT100F-C20 CLT125F-L20 CLT150F-X20 CLT150F-T20 CLT150F-D20 CLT188F-X20 CLT188F-C20 CLT188F-6C20	CLTS25F-C CLTS35F-C CLTS38F-C CLTS50F-C CLTS62F-C CLTS75F-C CLTS100F-C CLTS125F-L ** ** CLTS150F-D ** ** **	Polyethylene	Black	.265" (6.7) .350" (8.9) .414" (10.5) .505" (12.8) .665" (16.9) .760" (19.3) .915" (23.2) 1.290" (32.8) 1.550" (39.1) 1.550" (39.1) 1.550" (39.1) 1.881" (47.8) 1.881" (47.8) 1.881" (47.8)	.390" (9.9) .500" (12.7) .556" (14.1) .670" (17.0) .830" (21.1) .935" (23.7) 1.090" (27.7) 1.500" (38.1) 1.860" (47.2) 1.860" (47.2) 1.860" (47.2) 2.169" (55.1) 2.169" (55.1) 2.169" (55.1)	100' 100' 100' 100' 100' 100' 100' 50' 10' 200' 500' 10' 100' 600'	1 Roll									
CLT25F-C3 CLT35F-C3 CLT38F-C3 CLT50F-C3 CLT62F-C3 CLT75F-C3 CLT100F-C3 CLT125F-L3 CLT150F-X3 CLT150F-T3 CLT150F-D3 CLT188F-X3 CLT188F-C3 CLT188F-6C3	CLTS25F-C3 CLTS35F-C3 CLTS38F-C3 CLTS50F-C3 CLTS62F-C3 CLTS75F-C3 CLTS100F-C3 CLTS125F-L3 ** ** CLTS150F-D3 ** ** **			Polyethylene	Orange	.265" (6.7) .350" (8.9) .414" (10.5) .505" (12.8) .665" (16.9) .760" (19.3) .915" (23.2) 1.290" (32.8) 1.550" (39.1) 1.550" (39.1) 1.550" (39.1) 1.881" (47.8) 1.881" (47.8) 1.881" (47.8)		.390" (9.9) .500" (12.7) .556" (14.1) .670" (17.0) .830" (21.1) .935" (23.7) 1.090" (27.7) 1.500" (38.1) 1.860" (47.2) 1.860" (47.2) 1.860" (47.2) 2.169" (55.1) 2.169" (55.1) 2.169" (55.1)	100' 100' 100' 100' 100' 100' 100' 50' 10' 200' 500' 10' 100' 600'	1 Roll						
CLT125F-L4 CLT150F-X4 CLT150F-T4 CLT150F-D4 CLT188F-X4 CLT188F-C4 CLT188F-6C4	** ** ** ** ** ** **					Polyethylene		Yellow	1.290" (32.8) 1.550" (39.1) 1.550" (39.1) 1.550" (39.1) 1.881" (47.8) 1.881" (47.8) 1.881" (47.8)		1.500" (38.1) 1.860" (47.2) 1.860" (47.2) 1.860" (47.2) 2.169" (55.1) 2.169" (55.1) 2.169" (55.1)	50' 10' 200' 500' 10' 100' 600'	1 Roll			
CLT25N-C630 CLT35N-C630 CLT38N-C630 CLT50N-C630 CLT62N-C630 CLT75N-C630 CLT100N-C630 CLT125N-L630 CLT150N-D630 CLT188N-6C630	CLTS25N-C CLTS35N-C CLTS38N-C CLTS50N-C CLTS62N-C CLTS75N-C CLTS100N-C CLTS125N-L CLTS150N-D **								Heat Stabilized Black Nylon		Black	.265" (6.7) .350" (8.9) .414" (10.5) .505" (12.8) .665" (16.9) .760" (19.3) .915" (23.2) 1.290" (32.8) 1.550" (39.1) 1.881" (47.8)		.390" (9.9) .500" (12.7) .556" (14.1) .670" (17.0) .830" (21.1) .935" (23.7) 1.090" (27.7) 1.500" (38.1) 1.860" (47.2) 2.169" (55.1)	100' 100' 100' 100' 100' 100' 100' 50' 500' 600'	1 Roll

\*Order number of rolls required.

\*\*Contact factory for additional sizes, materials, colors, and bulk packaging.



## Braided Expandable Sleeving — Polyethylene Terephthalate — PET

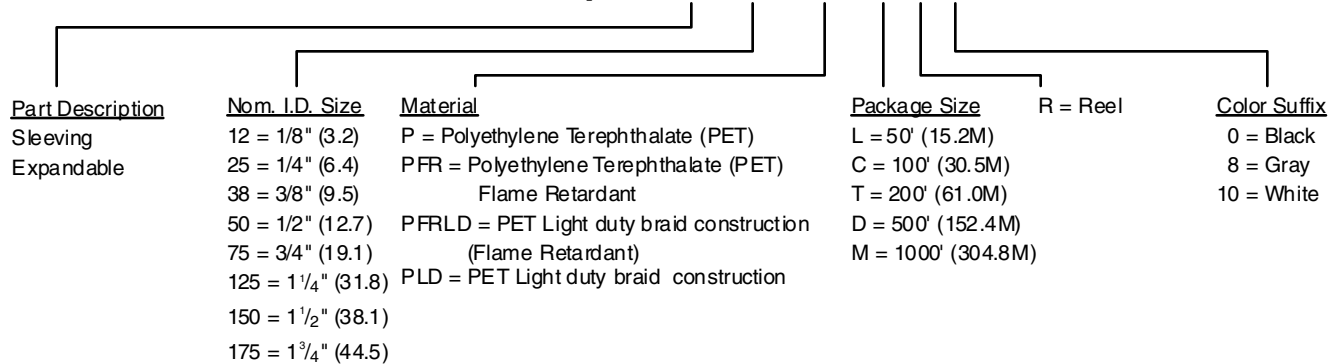


- Provides continuous abrasion resistance for wires, cables and tubing
- Lightweight, durable protection
- Highly flexible open weave will not trap heat or humidity
- Rated for use up to 257°F (125°C)
- Allows for use with irregular shapes
- Stock colors: Black, gray and white
- See [page 50](#) for cutting tools



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

**Example: SE 25 PFR-M R 0**



### Ordering Information — Braided Expandable Sleeving

Part Number Black	Part Number Gray	Part Number White	Nominal I.D. Inches (mm)	Nominal Diameter Range Inches (mm)	Std. Pkg. Qty.*	Std. Ctn. Qty.
SE12P-TR0 SE12P-MR0	SE12P-TR8 SE12P-MR8	— SE12P-MR10	.125" (3.2)	.094" to .250" (2.4) to (6.4)	1 Reel, 200' (61.0M) 1 Reel, 1000' (304.8M)	4 Reels 2 Reels
SE25P-TR0 SE25P-MR0 SE25PLD-MR0	SE25P-TR8 SE25P-MR8 —	— SE25P-MR10 —	.250" (6.4)	.125" to .375" (3.2) to (9.5)	1 Reel, 200' (61.0M) 1 Reel, 1000' (304.8M) 1 Reel, 1000' (304.8M)	4 Reels 2 Reels 2 Reels
SE38P-TR0 SE38P-MR0	SE38P-TR8 SE38P-MR8	— SE38P-MR10	.375" (9.5)	.188" to .562" (4.7) to (14.3)	1 Reel, 200' (61.0M) 1 Reel, 1000' (304.8M)	4 Reels 2 Reels
SE50P-CR0 SE50P-DR0	SE50P-CR8 SE50P-DR8	— SE50P-DR10	.500" (12.7)	.250" to .750" (6.4) to (19.1)	1 Reel, 100' (30.5M) 1 Reel, 500' (152.4M)	4 Reels 2 Reels
SE75P-CR0 SE75P-DR0	SE75P-CR8 SE75P-DR8	— SE75P-DR10	.750" (19.1)	.500" to 1.25" (12.7) to (31.8)	1 Reel, 100' (30.5M) 1 Reel, 500' (152.4M)	4 Reels 2 Reels
SE125P-LR0 SE125P-TR0	SE125P-LR8 SE125P-TR8	— SE125P-TR10	1.25" (31.8)	.750" to 1.50" (19.1) to (38.1)	1 Reel, 50' (15.2M) 1 Reel, 200' (61.0M)	4 Reels 2 Reels
SE150P-LR0 SE150P-TR0	SE150P-LR8 SE150P-TR8	— SE150P-TR10	1.50" (38.1)	1.00" to 2.25" (25.4) to (57.2)	1 Reel, 50' (15.2M) 1 Reel, 200' (61.0M)	4 Reels 2 Reels
SE175P-TR0	—	—	1.75" (44.5)	1.25" to 2.75" (31.8) to (69.8)	1 Reel, 200' (61.0M)	2 Reels

\* Order number of reels required.

# Flame Retardant Braided Expandable Sleeving

## Braided Expandable Sleeving — Flame Retardant 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 257°F (125°C)
- Allows for use with irregular shapes
- Self extinguishing, meets UL VW-1
- Stock colors: Black or gray with white tracer, or in white with black tracer to identify flame retardant material
- See bottom of this page for cutting tools



### Ordering Information — Flame Retardant Braided Expandable Sleeving

Part Number Black	Part Number Gray	Part Number White	Nominal I.D. Inches (mm)	Nominal Diameter Range Inches (mm)	Std. Pkg. Qty.*	Std. Ctn. Qty.
SE12PFR-TR0 SE12PFR-MR0	SE12PFR-TR8 SE12PFR-MR8	— SE12PFR-MR10	.125" (3.2)	.094" to .250" (2.4) to (6.4)	1 Reel, 200' (61.0M) 1 Reel, 1000' (304.8M)	4 Reels 2 Reels
SE25PFR-TR0 SE25PFR-MR0 SE25PFR-LD-MR0	SE25PFR-TR8 SE25PFR-MR8 —	— SE25PFR-MR10 —	.250" (6.4)	.125" to .375" (3.2) to (9.5)	1 Reel, 200' (61.0M) 1 Reel, 1000' (304.8M) 1 Reel, 1000' (304.8M)	4 Reels 2 Reels 2 Reels
SE38PFR-TR0 SE38PFR-MR0	SE38PFR-TR8 SE38PFR-MR8	— SE38PFR-MR10	.375" (9.5)	.188" to .625" (4.7) to (15.9)	1 Reel, 200' (61.0M) 1 Reel, 1000' (304.8M)	4 Reels 2 Reels
SE50PFR-CR0 SE50PFR-DR0	SE50PFR-CR8 SE50PFR-DR8	— SE50PFR-DR10	.500" (12.7)	.250" to .750" (6.4) to (19.1)	1 Reel, 100' (30.5M) 1 Reel, 500' (152.4M)	4 Reels 2 Reels
SE75PFR-CR0 SE75PFR-DR0	SE75PFR-CR8 SE75PFR-DR8	— SE75PFR-DR10	.750" (19.1)	.500" to 1.25" (12.7) to (31.8)	1 Reel, 100' (30.5M) 1 Reel, 500' (152.4M)	4 Reels 2 Reels
SE125PFR-LR0 SE125PFR-TR0	SE125PFR-LR8 SE125PFR-TR8	— SE125PFR-TR10	1.25" (31.8)	.750" to 1.50" (19.1) to (38.1)	1 Reel, 50' (15.2M) 1 Reel, 200' (61.0M)	4 Reels 2 Reels
SE150PFR-LR0 SE150PFR-TR0	SE150PFR-LR8 SE150PFR-TR8	— SE150PFR-TR10	1.50" (38.1)	1.00" to 2.25" (25.4) to (57.2)	1 Reel, 50' (15.2M) 1 Reel, 200' (61.0M)	4 Reels 2 Reels
SE175PFR-TR0	—	—	1.75" (44.5)	1.25" to 2.75" (31.8) to (69.8)	1 Reel, 200' (61.0M)	2 Reels

\* Order number of reels required.

### Tooling Head (HKBS)

#### Sleeving Cutter/End Sealer Blade —

Used with popular soldering guns to cut and seal sleeving.



### Bench Mount Cutter/End Sealer

Available Directly from Manufacturer



Pearson Industries  
P.O. Box 36  
Prattville, AL 36067  
(334) 365-5416

Part Number	Description	Std. Pkg. Qty*
HKBS	For dual straight shank soldering guns with .500" spacing Typical Guns: WELLER straight shank Model 8200; WEN Model 199 or 100	1

\* Order number of blades 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

Samples of material, with dimension 5" by 1/2" and the thickness of the intended end use product, are tested in a unaged "as manufactured" state and in an aged state (7 days at 158F° ,70°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 surgical cotton is placed under the specimen. If drips ignite the cotton, this fact is also recorded.

### MATERIALS CLASSIFIED 94V-0

Materials classified 94V-0 shall:

- Not have any specimens which burn with flaming combustion for more than 10 seconds after either application of the test flame.
- Not have a total flaming combustion time exceeding 50 seconds for the 10 flame applications for each set of five specimens.
- Not have any specimens which burn with flaming or glowing combustion up to the holding clamp.
- Not have any specimens which drip flaming particles that ignite the dry absorbent surgical cotton located 12" (305mm) below the test specimen.
- Not have any specimens with glowing combustion which persists for more than 30 seconds after the second removal of the test flame.

(Cont. on [page 52](#))

# Flammability Tests and Classifications

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## **MATERIALS CLASSIFIED 94V-1**

Materials classified 94V-1 shall:

- Not have a total flaming combustion time exceeding 250 seconds for the 10 flame applications for each set of five specimens.
- Not have any specimens which burn with flaming or glowing combustion up to the holding clamp.
- Not have any specimens which drip flaming particles that ignite the dry absorbent surgical cotton located 12"(305mm) below the test specimen.
- Not have an specimens with glowing combustion which persists for more than 60 seconds after the second removal of the test flame.

## **MATERIALS CLASSIFIED 94V-2**

Materials classified 94V-2 shall:

- Not have any specimens which burn with flaming combustion for more than 30 seconds after either application of the test flame.
- Not have a total flaming combustion time exceeding 250 seconds for the 10 flame applications for each set of five specimens.
- Not have any specimens which burn with flaming or glowing combustion up to the holding clamp.
- Be permitted to have specimens which drip flaming particles which burn only briefly some of which ignite the dry absorbent surgical cotton located 12" (305mm) below the test specimen.
- Not have any specimens with glowing combustion which persists for more than 60 seconds after the second removal of the test flame.

## **MATERIALS CLASSIFIED UL-94 HB**

- Specimens shall have a maximum burn rate of 1.5 in./min over 3 inches of thickness of 0.120" to 0.5".
- Specimens shall have a maximum burn rate of 2.5 in./min over 3 inches for a thickness less than 0.120".

## **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.

## **MATERIALS CLASSIFIED AS VW-1 SHALL:**

- Not flame or glow longer than 60 seconds following any of the five applications of the flame.
- Not ignite or damage more than 25% of kraft paper flag that is placed around the top of the tubing.
- Not have any specimens which drip flaming particles and ignite the surgical cotton located 9 1/2 inches below the test specimen.



# Abrasion Protection Products Technical Data

## Abrasion Protection Materials

### Technical Data

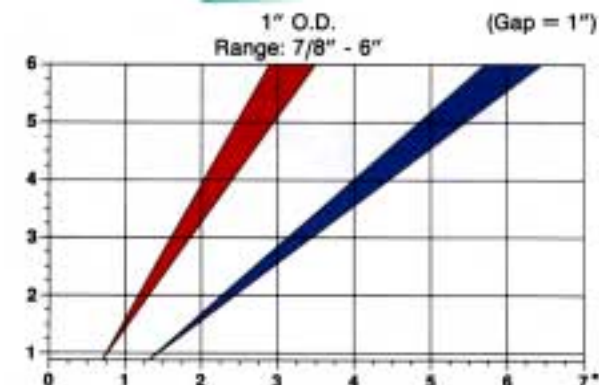
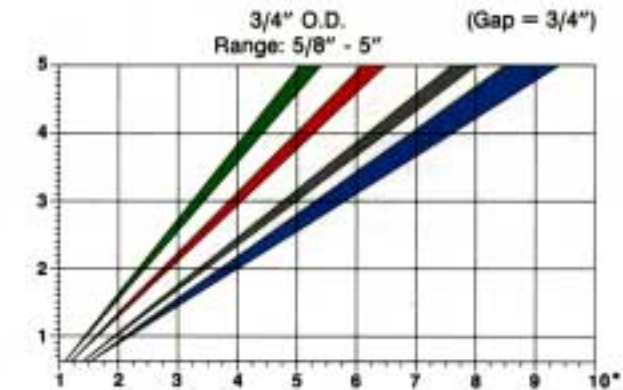
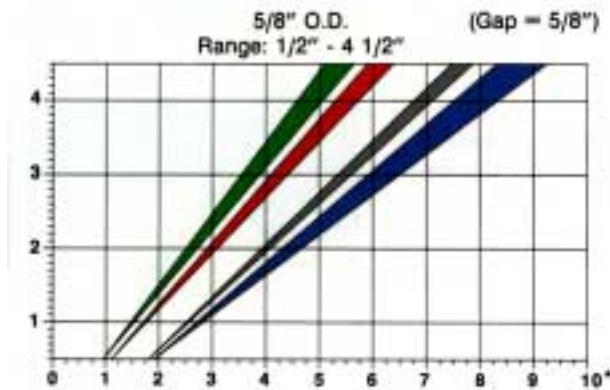
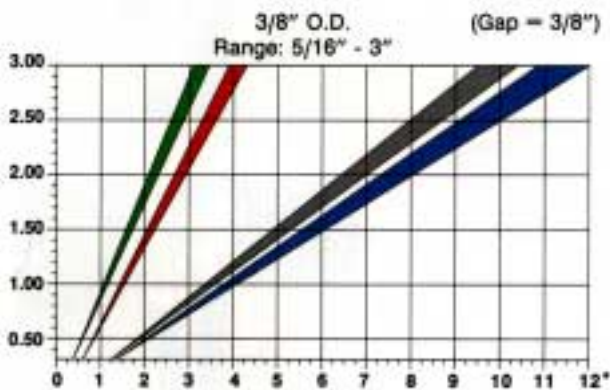
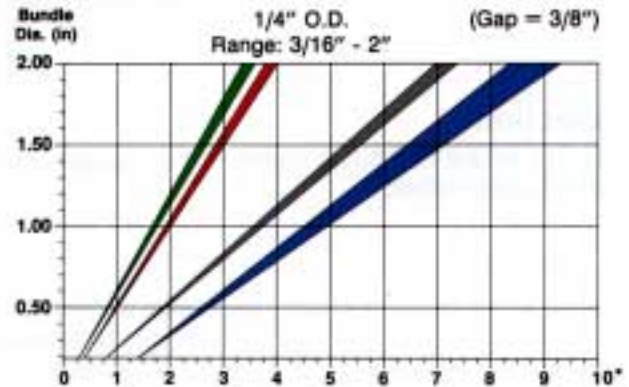
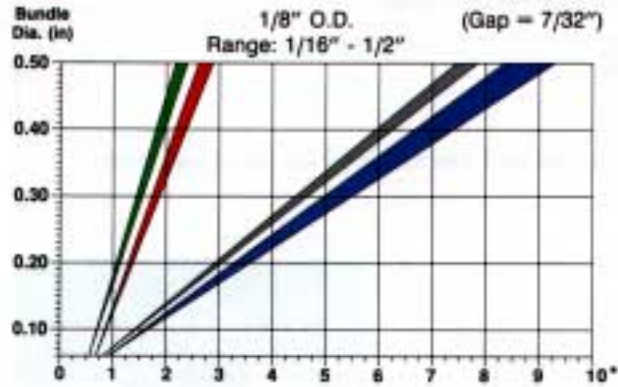
		Ratings and Approvals			Physical Properties				Chemical Resistance			
		UL Temperature Index	Flammability (UL94)	Melting Temperature	Abrasion Resistance (Lower number is better)	Specific Gravity (D792)	Minimum Tensile @ 23°C (psi)	Water Absorption (Max. 24 hrs.)	Organic Solvents	Alkalies	Acids	Petro-Chemicals
<b>SPIRAL WRAPPING &amp; GROMMET EDGING</b>	<b>Natural Polyethylene</b> Our lowest cost material for indoor use up to 122°F. Natural is available in all sizes. Colors are available in 1/4" and 1/2".	-40°F (-40°C) to 122°F (50°C)	HB	239°F (115°C)	22 mg	.91 - .93	1400 (D638)	.01%	Resistant below 140°F (60°C) except to chlorinated solvents	Resistant	Resistant except to oxidizing acids	Some Discoloration
	<b>Weather Resistant Polyethylene</b> 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°F (-40°C) to 122°F (50°C)	HB	239°F (115°C)	20 mg	.93 - 1.09	2000 (D638)	.03%	Resistant below 140°F (60°C) except to chlorinated solvents	Resistant	Resistant except to oxidizing acids	No Discoloration
	<b>Flame Retardant Polyethylene UL94-V2 Rating</b> This material is self extinguishing and passes the UL94 flame retardant test with a V2 rating	-40°F (-40°C) to 122°F (50°C)	V-2	239°F (115°C)	27 mg	1.00 - 1.30	1400 (D638)	.02%	Resistant below 140°F (60°C) except to chlorinated solvents	Resistant	Resistant except to oxidizing acids	Some Discoloration
	<b>Flame Retardant Polyethylene UL94-V0 Rating</b> This material is self extinguishing and passes the UL94 flame retardant test with a V0 rating	-40°F (-40°C) to 140°F (60°C)	V-0	270°F (132°C)	22 mg	1.38	1200	.02%	Resistant below 140°F (60°C) except to chlorinated solvents	Resistant	Resistant except to oxidizing acids	Some Discoloration
	<b>Nylon</b> Our Nylon is strong, durable, self-extinguishing material for indoor use up to 149°F. 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°F (-40°C) to 149°F (65°C)	V-2	491°F (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 Discoloration
	<b>Weather Resistant Nylon</b> 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°F (-40°C) to 149°F (65°C)	V-2	491°F (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 Discoloration
<b>SPIRAL WRAPPING</b>	<b>TEFLON†</b> This material is a non-flammable, fluorocarbon resin material. Suitable for use in any application (including nuclear containment). It is rated up to 356°F. Color: Natural with a bluish cast.	-40°F (-40°C) to 365°F (180°C)	V-0	520°F (271°C)	7 mg	2.10 - 2.20	2500 (D638)	.01%	Resistant	Resistant	Resistant except to fluorine and some halogens	No Discoloration
	<b>Polyethylene Terephthalate (PET)</b> This material is a thermoplastic polyester material designed for indoor applications. It is rated for use up to 257°F. Colors: Black, White and Gray.	-94°F (-70°C) to 257°F (125°C)	HB	500°F (260°C)	Contact Factory	1.31	100,000 (D638)	.08%	Not Recommended	Not Recommended	Resistant	No Discoloration
<b>SLEEVING</b>	<b>Flame Ret. Polyethylene Terephthalate (PET)</b> This material is a self-extinguishing thermoplastic polyester that can be used indoors. It is also rated for use up to 257°F and is provided in black with white tracer (to identify the flame retardant material).	-94°F (-70°C) to 257°F (125°C)	U.L. 224: VW-1	445°F (230°C)	Contact Factory	1.39	37,500 (D638)	.08%	Not Recommended	Not Recommended	Resistant	No Discoloration
	<b>Natural Polyethylene</b> Our lowest cost material is for continuous use at temperatures -40°F (-40°C) to 176°F (80°C).	N/A	HB	Contact Factory	Contact Factory	.926-.940	1529 (D638)	Contact Factory	Excellent	Excellent	Excellent	Good
<b>CLT</b>	<b>Nylon</b> Nylon is a strong, durable, high abrasion resistant material for continuous use at temperatures -40°F (-40°C) to 248°F (120°C).	N/A	HB	437°F (225°C)	Contact Factory	1.06-1.16	10,000 (D638)	Contact Factory	Excellent	Good	Fair	Good

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

†Teflon or equivalent fluorocarbon PTFE is used. Teflon is the registered trademark of E. I. DuPont.

# Abrasion Protection Products Technical Data

The approximate required length of spiral wrapping based on the bundle diameter can be determined by using the graphs below; they show length required (in feet) per foot of bundle.



- = Polyethylene, Gapped
- = Polyethylene, Butted
- = Nylon, TEFLON<sup>®</sup>, Gapped
- = Nylon, TEFLON<sup>®</sup>, Butted

\* Length of spiral wrapping (feet) per foot of bundle  
 • TEFLON is a registered trademark of E.I. DuPont Co.

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ISO-9001

## *Proof Positive of Panduit Quality*

With all the talk about high quality, it's nice to hear a completely objective voice now and then. ISO 9001 certification is proof positive that Panduit's focus on quality is from top to bottom and everywhere in between.

The ISO 9001 recognition indicates that we meet the most comprehensive international standards in design, purchasing, manufacturing, testing, documentation, shipping and service. And this means Panduit's high-quality products and services help you meet your ISO 9000 requirements while also reducing your quality and inspection costs.

The following Panduit products are manufactured at ISO 9001 registered Panduit facilities:

- ! Cable Ties
- ! Heat Shrink and Abrasion Protection Products
- ! Identification/Safety Products
- ! Network Connectivity Products
- ! Power Connectors
- ! Stainless Steel Ties & Accessories
- ! Surface Raceway
- ! Terminals
- ! Wiring Accessories
- ! Wiring Duct



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