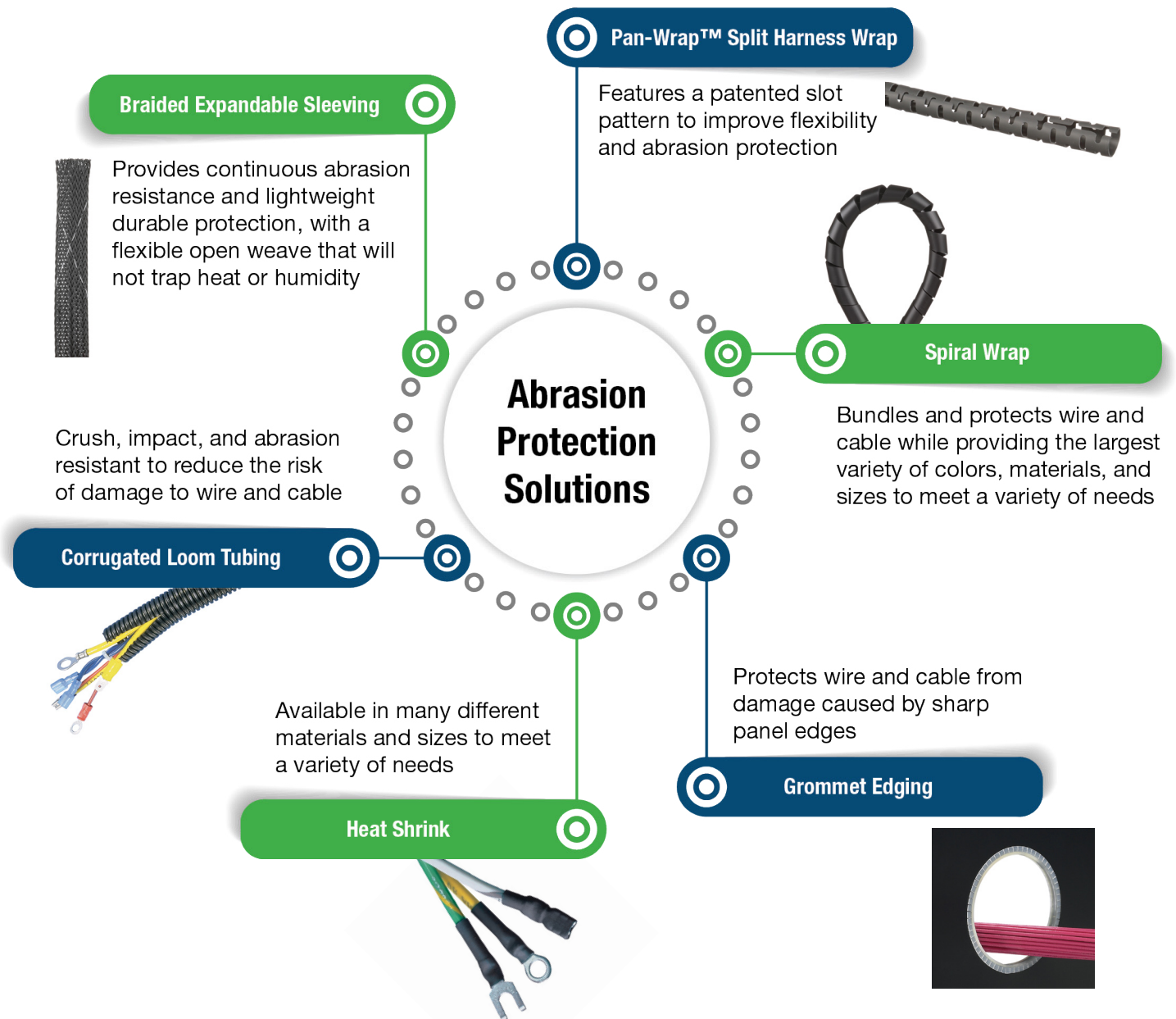


Panduit Abrasion Protection Products provide an economical and easy way to insulate, protect, bundle and color-code components and cable. A wide variety of sizes and materials are available to meet a broad range of indoor and outdoor applications.

To help assure optimum quality, Panduit abrasion protection products are designed and manufactured to meet applicable quality standards including International, UL, Military, ISO, and Aerospace.

Panduit abrasion protection products provide quality at the lowest installed cost. With a continued focus on new product development, Panduit continues to meet customer needs.

This document includes the featured and best selling parts for the Abrasion Protection Solution. For complete list of Abrasion Protection part numbers, visit [www.panduit.com](http://www.panduit.com).



Feature	Spiral Wrap	Pan-Wrap Split Harness Wrap	Braided Sleeving	Corrugated Tubing	Heat Shrink
Weather Resistant Options	Yes	No	Yes	Yes	Yes
Fully Enclosed Options	No	No	Yes	Yes	Yes
UL Recognized	Yes	Yes	Yes	No	Yes
Option to add cables after initial installation	No	Yes	Yes	Yes	No

Product	Application
<b>Spiral Wrap</b>	<ul style="list-style-type: none"> <li>– General purpose Abrasion Protection product for Wire Harness and bundling applications</li> <li>– Allows breakouts of single/multiple cables</li> <li>– Multiple colors allow for easy identification of cable bundles</li> <li>– Available in multiple materials</li> </ul>
<b>Pan-Wrap™ Split Harness Wrap</b>	<ul style="list-style-type: none"> <li>– Patented slot pattern provides improved flexibility &amp; abrasion protection in any application</li> <li>– Unique wall design provides for easy cable breakouts</li> <li>– Considerably reduces installation time</li> <li>– Large overlap accommodates a wide range of bundle diameters</li> </ul>
<b>Grommet Edging</b>	<ul style="list-style-type: none"> <li>– Covers sharp edges of panels to protect cables from abrasion</li> <li>– Solid and slotted designs available. Use slotted wall design on radiused surfaces.</li> <li>– Use solid wall design on straight surfaces.</li> <li>– Adhesive lined product is available to encourage product to stay in place on panel edge</li> </ul>
<b>Corrugated Loom Tubing</b>	<ul style="list-style-type: none"> <li>– Economical protection for cables in wire harness applications</li> <li>– Solid wall product allows complete protection of cable bundle</li> <li>– UV Resistant option available for demanding outdoor applications</li> <li>– Orange flame retardant and UV resistant options available for Electric Vehicle applications</li> </ul>
<b>Braided Sleeving</b>	<ul style="list-style-type: none"> <li>– Provides continuous abrasion protection for wires, cables, hoses &amp; tubing</li> <li>– Highly flexible open weave will not trap heat or humidity</li> <li>– Lightweight, durable protection</li> <li>– Compliant with US and European passenger rail standards</li> </ul>
<b>Non-Shrink PVC Tubing</b>	<ul style="list-style-type: none"> <li>– Provides insulation and protection for lead wires, wire harness assemblies, soldered joints and components in electrical and electronic equipment</li> <li>– Resistant to heat and moisture</li> </ul>
<b>Heat Shrink</b>	<ul style="list-style-type: none"> <li>– Applications include insulating, protecting, and color coding wires and cables</li> <li>– Use with terminals and lugs to provide a clean, safe, secure installation</li> </ul>
<b>Duct Seal</b>	<ul style="list-style-type: none"> <li>– Seals irregular openings from air and dust</li> <li>– Non-hardening sealant that adheres to metal, wood, masonry, and plastic</li> <li>– Provides vibration dampening</li> <li>– Safe and easy to use. Non-corrosive, non-toxic, no asbestos, will not stain or harm hands, and no unpleasant odor</li> </ul>



**Spiral Wrap - Standard Package Quantity: 1**

Part Number	Color	Length per Reel		Bundle Diameter Range		Outside Diameter		Temperature Range	Wall Thickness			
		Ft.	m	In.	mm	In.	mm		In.	mm		
<b>Polyethylene</b>												
<b>BEST SELLER</b> T25F-C	Natural	100	30.50	0.19 - 2.00	4.80 - 50.80	0.25	6.40	-40°F - 122°F (-40°C - 50°C)	0.04	1.02		
T25F-C10	White											
T25F-C3Y	Orange											
T25F-M		1,000	304.80									
<b>BEST SELLER</b> T38F-C	Natural	100	30.50	0.31 - 3.00	7.90 - 76.20	0.38	9.50		-40°F - 122°F (-40°C - 50°C)	0.06	1.40	
T38F-TL		250	76.20									
<b>BEST SELLER</b> T50F-C	Yellow	100	30.50	0.38 - 4.00	9.50 - 101.60	0.50	12.70			-40°F - 122°F (-40°C - 50°C)	0.06	1.52
<b>BEST SELLER</b> T50F-C4Y												
T50F-TL									Natural			
T50F-TL4Y	Yellow	250	76.20									
T62F-C	Natural	100	30.50	0.50 - 4.50	12.70 - 114.30	0.62	15.90		-40°F - 122°F (-40°C - 50°C)		0.06	1.57
T75F-C				0.63 - 5.00	15.90 - 127.00	0.75	19.10				0.07	1.65
T100F-C				0.88 - 6.00	22.20 - 152.40	1.00	25.40	0.07			1.78	
<b>Weather Resistant Polyethylene</b>												
T25F-C0	Black	100	30.50	0.19 - 2.00	4.80 - 50.80	0.25	6.40	-40°F - 122°F (-40°C - 50°C)			0.04	1.02
T38F-C0				0.31 - 3.00	7.90 - 76.20	0.38	9.50				0.06	1.40
T50F-C0				0.38 - 4.00	9.50 - 101.60	0.50	12.70				0.06	1.52
T50F-TL0		250	76.20									
T50F-X0		10	3.10									
T75F-C0		100	30.50	0.63 - 5.00	15.90 - 127.00	0.75	19.10			0.07	1.65	
T100F-C0				0.88 - 6.00	22.20 - 152.40	1.00	25.40			0.07	1.78	
<b>Fire Resistant Polyethylene</b>												
T25R-CY	Natural	100	30.50	0.19 - 2.00	4.80 - 50.80	0.25	6.40		-40°F - 122°F (-40°C - 50°C)	0.04	1.02	
T50R-CY				0.378 - 4.00	9.50 - 101.60	0.50	12.70			0.06	1.52	
T50R-TLY		250	76.20									
<b>Flame Retardant Polyethylene</b>												
T12FR-CY	Natural	100	30.50	0.06 - 0.50	1.60 - 12.70	0.12	3.20	-4°F - 122°F (-20°C - 50°C)	0.03	0.76		
T25FR-C20Y	Black			0.19 - 2.00	4.80 - 50.80	0.25	6.40		0.04	1.02		
T25FR-CY	Natural			0.31 - 3.00	7.90 - 76.20	0.38	9.50		0.06	1.40		
T38FR-C20Y	Black			0.38 - 4.00	9.50 - 101.60	0.50	12.70		0.06	1.52		
T50FR-C20Y	Natural			250	76.20							
T50FR-CY												
T50FR-TLY												
T75FR-C20Y	Black			100	30.50	0.63 - 5.00	15.90 - 127.00		0.75	19.10	0.07	1.65
T75FR-CY	Natural											



## Spiral Wrap - Standard Package Quantity: 1

Part Number	Color	Length per Reel		Bundle Diameter Range		Outside Diameter		Temperature Range	Wall Thickness		
		Ft.	m	In.	mm	In.	mm		In.	mm	
<b>Nylon</b>											
T25N-C	Natural	100	30.50	0.19 - 2.00	4.80 - 50.80	0.25	6.40	-40°F - 149°F (-40°C - 65°C)	0.02	0.58	
T38N-TL		250	76.20	0.31 - 3.00	0.31 - 3.00	0.38	9.50		0.03	0.76	
<b>Weather Resistant Nylon</b>											
T25N-C0	Black	100	30.50	0.19 - 2.00	4.80 - 50.80	0.25	6.40	-40°F - 149°F (-40°C - 65°C)	0.02	0.58	
T38N-C0				0.31 - 3.00	7.90 - 76.20	0.38	9.50		0.03	0.76	
T50N-TL0		250	76.20	0.38 - 4.00	9.50 - 101.60	0.50	12.70		0.03	0.81	
T62N-C0		100	30.50	0.50 - 4.50	12.70 - 114.30	0.62	15.90		0.04	0.89	
T100N-C0				0.88 - 6.00	22.20 - 152.40	1.00	25.40		0.05	1.14	
<b>Weather Resistant Polypropylene</b>											
T38P-C0	Black	100	30.50	0.31 - 3.00	7.90 - 76.20	0.38	9.50	-40°F - 239°F (-40°C - 115°C)	0.03	0.76	
T50P-C0				0.38 - 4.00	9.50 - 101.60	0.50	12.70				
T100P-C0				0.88 - 6.00	22.20 - 152.40	1.00	25.40				
<b>TFE</b>											
T12T-C	Natural	100	30.50	0.06 - 0.50	1.60 - 12.70	0.12	3.20	-454°F - 356°F (-270°C - 180°C)	0.03	0.76	
<b>BEST SELLER</b> T25T-L		50	15.20	0.19 - 2.00	4.80 - 50.80	0.25	6.40				
T38T-L				0.31 - 3.00	7.90 - 76.20	0.38	9.50				
<b>BEST SELLER</b> T50T-Q		25	7.60	0.38 - 4.00	9.50 - 101.60	0.50	12.70				
T62T-Q				0.50 - 4.50	12.70 - 114.30	0.62	15.90				
T75T-X				0.63 - 5.00	15.90 - 127.00	0.75	19.10				



## Pan-Wrap™ Split Harness Wrap\* - Standard Package Quantity: 1

Part Number	Color	Length per Reel		Max. Bundle Diameter		Min. Bundle Diameter		Temperature Range	Wall Thickness		
		Ft.	m	In.	mm	In.	mm		In.	mm	
<b>Polyethylene</b>											
PW50F-T	Natural	200	61.00	0.55	14.00	0.43	10.90	-40°F - 122°F (-40°C - 50°C)	0.50	12.70	
PW50F-T20	Black										
PW75F-C	Natural	100	30.50	0.81	20.60	0.55	14.00		0.75	19.10	
PW75F-C20	Black										
PW100F-C	Natural										
PW100F-C20	Black										
PW100F-C4	Yellow	1.00	25.40								
PW150F-L	Natural			50	15.20	1.63	41.30		1.13	28.60	1.50
<b>Flame Retardant Polyethylene</b>											
PW50FR-TY	Natural	200	61.00	0.55	14.00	0.43	10.90	-4°F - 122°F (-20°C - 50°C)	0.50	12.70	
PW50FR-T20Y	Black										
PW75FR-CY	Natural	100	30.50	0.81	20.60	0.55	14.00		0.75	19.10	
PW75FR-C20Y	Black										
PW100FR-CY	Natural										
PW100FR-C20Y	Black										
PW150FR-L20Y	Black	50	15.20	1.63	41.30	1.13	28.60		1.50	38.10	

\*Pan-Wrap™ Installation Tool required for proper installation.

## Pan-Wrap™ Installation Tool - Standard Package Quantity: 1



Part Number	For Use With
PWT50	PW50F- Series
PWT75	PW75F- Series
PWT100	PW100F- Series
PWT150	PW150F- Series

## Installation Instructions



Open Pan-Wrap™ Tool and insert bundle.



Close tool to contain bundle.



Slide Pan-Wrap™ Split Harness Wrap onto end of tool until approximately 3 inches of it covers the bundle.




Grasp end of Pan-Wrap™ Split Harness Wrap and bundle while pulling the tool along the bundle length.





## Corrugated Loom Tubing - Standard Package Quantity: 1

Part Number	Color	Length per Reel		Inside Diameter		Outside Diameter		Temperature Range
		Ft.	m	In.	mm	In.	mm	
<b>UV Resistant Polypropylene - Slit Wall</b>								
CLT75PUV-0	Black	4,265	1300	0.81	20.60	0.98	25.00	-40°F - 185°F (-40°C - 85°C)
CLT100PUV-0		2,329	710	1.14	29.01	1.36	34.49	
CLT150PUV-0		1,542	470	1.42	36.00	1.67	42.49	
CLT188PUV-0		885	270	1.89	48.01	2.15	54.51	
<b>Flame Retardant Nylon</b>								
CLT25NFR-3	Orange	2952	900	0.26	6.50	0.39	10.00	-40°F - 275°F (-40°C - 135°C)
CLT38NFR-3		1771	540	0.39	10.00	0.51	13.00	
CLT50NFR-3		1050	320	0.47	12.00	0.62	15.80	
CLT62NFR-3		656	200	0.67	17.00	0.83	21.20	
CLT75NFR-3		387	118	0.79	20.00	0.98	25.00	
CLT100NFR-3		184	56	1.14	29.00	1.36	34.50	
CLT125NFR-3		105	32	1.42	36.00	1.67	42.50	
CLT150NFR-3		85	25	1.89	48.00	2.14	54.50	
<b>Flame Retardant and UV Resistant Nylon</b>								
CLT25NFRUV-3	Orange	2952	900	0.26	6.50	0.39	10.00	-40°F - 275°F (-40°C - 135°C)
CLT38NFRUV-3		1771	540	0.39	10.00	0.51	13.00	
CLT50NFRUV-3		1050	320	0.47	12.00	0.62	15.80	
CLT62NFRUV-3		656	200	0.67	17.00	0.83	21.20	
CLT75NFRUV-3		387	118	0.79	20.00	0.98	25.00	
CLT100NFRUV-3		184	56	1.14	29.00	1.36	34.50	
CLT125NFRUV-3		105	32	1.42	36.00	1.67	42.50	
CLT150NFRUV-3		85	25	1.89	48.00	2.14	54.50	
<b>Polyethylene - Slit Wall</b>								
CLT25F-C20	Black	100	30.5	0.28	7.20	0.40	10.10	-40°F - 122°F (-40°C - 50°C)
CLT38F-C20				0.39	10.00	0.52	13.30	
CLT50F-C20	Orange	100	30.5	0.51	130.00	0.65	16.60	
CLT50F-C4				Yellow	0.66	16.90	0.85	
CLT62F-C20	Black	2000	609.6	0.77	19.50	0.94	23.90	
CLT75F-C20								
CLT75F-C3	Yellow	0.91	23.20	1.10	28.00			
CLT100F-C20	Black							
CLT100F-C3	Orange							
CLT100F-C4	Yellow							

## Corrugated Loom Tubing - Standard Package Quantity: 1

Part Number	Color	Length per Reel		Inside Diameter		Outside Diameter		Temperature Range	
		Ft.	m	In.	mm	In.	mm		
<b>Polyethylene - Slit Wall (continued)</b>									
 CLT125F-L20	Black	50	15.20	1.28	32.50	1.54	39.00	-40°F - 122°F (-40°C - 50°C)	
CLT150F-T20		200	61.00	1.58	40.00	1.85	47.00		
CLT150F-X20		10	3.10						
CLT150F-X4	Yellow								
CLT188F-C20	Black	100	30.50	1.85	47.00	2.19	55.70		
<b>Polyethylene - Solid Wall</b>									
CLTS25F-C	Black	100	30.50	0.28	7.20	0.40	10.10	-40°F - 122°F (-40°C - 50°C)	
<b>Nylon - Slit Wall</b>									
CLT25N-C630	Black	100	30.50	0.28	7.20	0.40	10.10	-40°F - 230°F (-40°C - 110°C)	
CLT38N-C630				0.39	10.00	0.52	13.30		
CLT50N-4M630		4,000	1,219.20	0.51	13.00	0.65	16.60		
CLT50N-C630		100	30.50	0.77	19.50	0.94	23.90		
CLT75N-C630									
CLT100N-125M630		1,250	381.00	0.91	23.20	1.10	28.00		
CLT100N-C630		100	30.50						
<b>Nylon - Solid Wall</b>									
CLTS25N-C	Black	100	30.50	0.28	7.20	0.40	10.10	-40°F - 230°F (-40°C - 110°C)	

## Braided Sleeving - Standard Package Quantity: 1

Part Number	Color	Nominal Diameter		Nominal Diameter Range		Length per Reel		Std. Ctn. Qty.	
		In.	mm	In.	mm	Ft.	m		
<b>PET Material</b>									
SE12P-TR0	Black	0.12	3.20	0.09 - 0.25	2.40 - 6.40	200	61.00	4	
SE25P-MR0	White	0.25	6.40	0.13 - 0.38	3.20 - 9.50	1000	304.80	2	
SE25P-MR10									
SE25P-MR8	Gray								
SE25P-TR0	Black	0.38	9.50	0.19 - 0.50	4.80 - 12.70	200	61.00	4	
SE38P-MR0						1000	304.80	2	
SE38P-TR0		200	61.00	4					
SE50P-CR0		0.50	12.70	0.25 - 0.75	6.40 - 19.10	100	30.50	4	
 SE50P-DR0						500	152.40	2	
SE75P-CR0		0.75	19.10	0.50 - 1.25	12.70 - 31.80	100	30.50	4	
 SE75P-DR0						500	152.40	2	



## Braided Sleeving - Standard Package Quantity: 1

Part Number	Color	Nominal Diameter		Nominal Diameter Range		Length per Reel		Std. Ctn. Qty.
		In.	mm	In.	mm	Ft.	m	

### PET Material *(continued)*

SE125P-LR0	Black	1.25	31.80	0.75 - 1.50	19.10 - 38.10	50	15.20	4
SE125P-TR0						200	61.00	2
SE125P-TR8	Gray							
SE150P-TR0	Black	1.50	38.10	1.00 - 2.13	25.40 - 54.00			
SE175P-TR0		1.75	44.50	1.25 - 2.75	31.80 - 69.90			

### Flame Retardant PET Material

SE12PFR-MR0	Black	0.12	3.20	0.09 - 0.25	2.40 - 6.40	1000	304.80	2
SE12PFR-TR0						200	61.00	4
SE25PFR-MR0	Gray	0.25	6.40	0.13 - 0.38	3.20 - 9.50	1000	304.80	2
SE25PFR-TR0						200	61.00	4
SE25PFR-TR8						200	61.00	4
SE38PFR-MR0	Black	0.38	9.50	0.19 - 0.50	4.80 - 12.70	1000	304.80	2
SE38PFR-TR0						200	61.00	4
SE50PFR-CR0	Black	0.50	12.70	0.25 - 0.75	6.40 - 19.10	100	30.50	2
SE50PFR-DR0						500	152.40	
SE75PFR-CR0	Black	0.75	19.10	0.50 - 1.25	12.70 - 31.80	100	30.50	4
SE75PFR-DR0						500	152.40	2
SE125PFR-TR0	Black	1.25	31.80	0.75 - 1.50	19.10 - 38.10	200	61.00	
SE150PFR-TR0						200	61.00	

BEST SELLER



### Pan-Wrap Split Braided Sleeving (PET)

SE38PS-CLR0	Black	0.38	9.50	0.31 - 0.38	7.87 - 9.65	150	45.70	2
SE50PS-CLR0		0.50	12.70	0.44 - 0.50	11.18 - 12.70	150		
SE75PS-CR0		0.75	19.10	0.63 - 0.75	16.00 - 19.05	100	30.50	
SE100PS-CR0		1.00	25.40	0.88 - 1.00	22.35 - 25.40			
SE125PS-LQR0		1.25	31.80	1.13 - 1.25	28.70 - 31.80	75	22.90	
SE200PS-LR0		2.00	50.80	1.75 - 2.00	44.50 - 50.80	50	15.20	
SE25PS-TR3	Orange	0.25	6.40	0.19 - 0.26	4.83 - 6.35	200	61.00	2
SE50PS-CLR3		0.50	12.70	0.44 - 0.50	11.18 - 12.70	150	45.70	
SE75PS-CR3		0.75	19.10	0.63 - 0.75	16.0 - 19.05	100	30.50	
SE100PS-CR3		1.00	25.40	0.88 - 1.00	22.35 - 25.40			
SE125PS-LQR3		1.25	31.80	1.13 - 1.25	28.7 - 31.80	75	22.90	
SE150PS-LQR3		1.50	38.10	1.38 - 1.50	35.05 - 38.10			
SE200PS-LR3		2.00	50.80	1.75 - 2.00	44.5 - 50.80	50	15.20	



## Braided Sleeving - Standard Package Quantity: 1

Part Number	Color	Nominal Diameter		Nominal Diameter Range		Length per Reel		Std. Ctn. Qty.
		In.	mm	In.	mm	Ft.	m	
<b>Pan-Wrap Split Braided Sleeving (Flame Retardant PET)</b>								
SE38PSFR-CLRO	Black	0.38	9.50	0.31 - 0.38	7.87 - 9.65	150	45.70	2
SE125PSFR-LQRO		1.25	31.80	1.13 - 1.25	28.70 - 31.80	75	22.90	
SE200PSFR-LRO		2.0	50.80	1.75 - 2.00	44.50 - 50.80	50	15.20	
<b>Fray Resistant (PET)</b>								
SE38PSC-TR0	Black	0.38	9.50	0.19 - 0.63	4.80 - 15.90	200	61.00	4
SE50PSC-CRO		0.50	12.70	0.25 - 0.75	6.40 - 19.10	100	30.50	
SE75PSC-CRO		0.75	19.10	0.63 - 1.00	15.90 - 25.40			



## Tinned Copper Braided Sleeving

Part Number	Color	Nominal Diameter		Current Capacity	Length per Roll	
		In.	mm		Ft.	m
SE25TC-C	Silver	0.25	6.40	53	100	30.50
SE50TC-L		0.50	12.70	62	50	15.20
SE100TC-L		1.00	25.40	120		
SE125TC-L		1.25	31.80	145		
SE150TC-L		1.50	38.00	165		
SE200TC-L		2.00	50.80	180		



## Insulating Fiberglass Tubing

Part Number	Color	Nominal Diameter		Wall Thickness		Length per Roll	
		In.	mm	In.	mm	Ft.	m
FT38-C	Silver	0.38	9.50	0.03	0.60	100	30.50
FT50-C		0.50	12.70				
FT62-C		0.63	15.90				
FT75-C		0.75	19.10				
FT100-C		1.00	25.40				
FT125-C		1.25	31.80				
FT150-C		1.50	38.00				
FT200-L		2.00	50.80			50	15.20
FT300-L		3.00	76.20				



## Heat Shrink

Part Number	Color	Nominal Diameter		Min. Expanded I.D.		Max. Recovered I.D.		Nominal Recovered Wall Thickness		Length		Std. Pkg. Qty.
		In.	mm	In.	mm	In.	mm	In.	mm	Ft.	m	

### Thin Wall Heat Shrink

HSTT06-CC	Clear	0.06	1.60	0.06	1.60	0.03	0.80	0.02	0.40	100	30.50	1 roll
HSTT09-48-Q	Black	0.09	2.40	0.09	2.40	0.05	1.20	0.02	0.50	4	1.20	25 pcs.
HSTT12-CC	Clear	0.13	3.20	0.13	3.20	0.06	1.60			100	30.50	1 roll
HSTT19-48-Q	Black	0.19	4.80	0.19	4.80	0.09	2.40	0.03	0.60	4	1.20	25 pcs.
HSTT19-48-Q45	Yellow Green											
HSTT25-48-Q	Black	0.25	6.40	0.25	6.40	0.13	3.20	0.03	0.60	100	30.50	1 roll
HSTT25-48-QC	Clear											
HSTT25-C	Black	0.38	9.50	0.38	9.50	0.19	4.80	0.03	0.60	4	1.20	25 pcs.
HSTT38-48-Q												
HSTT38-C										100	30.50	1 roll
HSTT50-48-5										4	1.20	25 pcs.
HSTT50-C	Clear	0.50	12.70	0.50	12.70	0.25	6.40	0.03	0.80	100	30.50	1 roll
HSTT50-CC												
HSTT75-48-5	Black	0.75	19.10	0.75	19.10	0.38	9.50	0.03	0.80	4	1.20	25 pcs.
HSTT75-C										100	30.50	1 roll
HSTT100-48-5										4	1.20	25 pcs.
HSTT100-C	Clear	1.00	25.40	1.00	25.40	0.50	12.70	0.04	0.90	100	30.50	1 roll
HSTT100-CC												
HSTT150-48-5	Black	1.50	38.10	1.50	38.10	0.75	19.10	0.04	1.00	4	1.20	5 pcs.
HSTT150-48-5C	Clear											
HSTT150-C	100									30.50	1 roll	
HSTT200-48-5	Black	2.00	50.80	2.00	50.80	1.00	25.40	0.05	1.10	4	1.20	5 pcs.
HSTT200-L												
HSTT300-L										50	15.20	1 roll

### TFE

HSTTT08-48-Q	Clear	18 AWG	1.90	0.08	1.90	0.05	1.20	0.01	0.30	4	1.20	25 pcs.
HSTTT30-48-Q		6 AWG	7.70	0.30	7.70	0.18	4.50	0.02	0.40			

### Medium Wall - Adhesive Lined

HSTTA25-48-TL	Black	0.25	6.40	0.25	6.40	0.08	2.00	0.04	1.00	4	1.20	250 pcs.
HSTTA50-48-5		0.50	12.70	0.50	12.70	0.16	4.10	0.07	1.80			5 pcs.
HSTTA75-48-5		0.75	19.10	0.75	19.10	0.25	6.40	0.09	2.20			
HSTTA100-48-5		1.00	25.40	1.00	25.40	0.32	8.10	0.10	2.50			
HSTTA150-48-5		1.50	38.10	1.50	38.10	0.51	12.90					
HSTTA150-48-Q		25 pcs.										



## Heat Shrink

Part Number	Color	Nominal Diameter		Min. Expanded I.D.		Max. Recovered I.D.		Nominal Recovered Wall Thickness		Length		Std. Pkg. Qty.
		In.	mm	In.	mm	In.	mm	In.	mm	Ft.	m	

### Semi-Rigid Adhesive Lined

<b>HSTTRA50-48-5</b>	Black	0.50	12.70	0.50	12.70	0.20	5.00	0.06	1.50	4	1.20	5 pcs.
----------------------	-------	------	-------	------	-------	------	------	------	------	---	------	--------

### Thick Wall Heat Shrink

<b>HST0.4-48-5Y</b>	Black	—	—	0.40	10.20	0.16	4.10	0.08	2.00	4	1.20	5 pcs.
<b>HST0.8-48-5Y</b>				0.75	19.10	0.22	5.60	0.09	2.30			
<b>HST0.8-6-XY</b>				6	152.40	10 pcs.						
<b>HST1.1-48-5Y</b>				1.10	27.90	0.38	9.50	0.12	3.00	4	1.20	5 pcs.
<b>HST1.5-48-5Y</b>				1.50	38.10	0.50	12.70	0.16	4.10			
<b>HST2.0-48-2Y</b>				2.00	50.80	0.67	16.90					
<b>HST3.0-48-2</b>				3.00	76.20	1.00	25.40	0.17	4.30			

### Heat Shrink End Caps

<b>HSEC0.5-X</b>	Black	—	—	0.47	11.90	0.18	4.60	0.09	2.20	1.5	37.60	10 pcs.
<b>HSEC0.8-X</b>				0.79	20.10	0.30	7.60	0.10	2.40	1.8	45.50	



## Heat Shrink Gun with Stand - Standard Package Quantity: 1

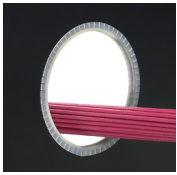


Part Number	For Use With
<b>HSG-115V-650</b>	Heat gun with stand. Temperature range of 700°F - 1000°F (371°C - 538°C)

## Non-Shrink Tubing - Standard Package Quantity: 1



Part Number	Color	Nominal Diameter	Length per Reel		Max. I.D.		Wall Thickness		Max. Voltage Rating
			Ft.	m	In.	mm	In.	mm	
<b>TV105-3M20Y</b>	Black	3 AWG	1000	304.80	0.25	6.32	0.02	0.51	300 V
<b>TV105-6M20Y</b>		6 AWG			0.18	4.52			
<b>TV105-.75TL20Y</b>		3/4	250	76.20	0.79	19.96	0.04	0.89	600 V
<b>TV105-1.0C20Y</b>		1	100	30.50	1.04	26.31			



## Grommet Edging - Standard Package Quantity: 1

Part Number	Width A		Height B		Panel Thickness Range		Material	Color	Temperature Range
	In.	mm	In.	mm	In.	mm			
<b>Slotted</b>									
GEE62F-C	0.13	3.30	0.16	4.10	0.04 - 0.06	0.90 - 1.60	Polyethylene	Natural	-40°F - 122°F (-40°C - 50°C)
GEE99F-C	0.17	4.30	0.19	4.70	0.06 - 0.10	1.60 - 2.50			
GEE144F-C	0.21	5.40	0.22	5.60	0.10 - 0.14	2.50 - 3.70			
GEE189F-C	0.30	7.60	0.30	7.60	0.14 - 0.19	3.70 - 4.80			
GEE189F-C0							Weather Resistant Polyethylene	Black	

## Slotted with Adhesive

<b>BEST SELLER</b>	GEE62F-A-C	0.13	3.30	0.16	4.10	0.04 - 0.06	0.90 - 1.60	Polyethylene	Natural	-40°F - 122°F (-40°C - 50°C)
	GEE62F-A-C0							Weather Resistant Polyethylene	Black	
<b>BEST SELLER</b>	GEE99F-A-C	0.17	4.30	0.19	4.70	0.06 - 0.10	1.60 - 2.50	Polyethylene	Natural	
	GEE99F-A-C0							Weather Resistant Polyethylene	Black	
<b>BEST SELLER</b>	GEE144F-A-C	0.21	5.40	0.22	5.60	0.10 - 0.14	2.50 - 3.70	Polyethylene	Natural	
	GEE144F-A-C0							Weather Resistant Polyethylene	Black	
	GEE189F-A-C	0.30	7.60	0.30	7.60	0.144 - 0.19	3.70 - 4.80	Polyethylene	Natural	
	GEE189F-A-C0							Weather Resistant Polyethylene	Black	

## Solid with Adhesive - Use on straight edges only

	GES62F-A-C	0.13	3.30	0.16	4.10	0.04 - 0.06	0.90 - 1.60	Polyethylene	Natural	-40°F - 122°F (-40°C - 50°C)
	GES62F-A-C0							Weather Resistant Polyethylene	Black	
	GES99F-A-C	0.17	4.30	0.19	4.70	0.06 - 0.10	1.60 - 2.50	Polyethylene	Natural	
	GES99F-A-C0							Weather Resistant Polyethylene	Black	
	GES189F-A-C	0.30	7.60	0.30	7.60	0.14 - 0.19	3.70 - 4.80	Polyethylene	Natural	
	GES189F-A-C0							Weather Resistant Polyethylene	Black	

## Nylon Lengths - Military Standard MS21266 in 12 3/4" Lengths

	GE85-C	0.18	4.50	0.16	3.90	0.05 - 0.09	1.30 - 2.20	Nylon 6.6	Natural	-40°F - 149°F (-40°C - 65°C)
	GE128-C	0.22	5.60			0.09 - 0.13	2.20 - 3.30			
	GE192-L	0.33	8.30	0.23	5.80	0.13 - 0.19	3.30 - 4.90			
	GE255-L	0.39	9.80	0.24	6.10	0.19 - 0.26	4.90 - 6.50			



## Duct Seal - Standard Package Quantity: 1

Part Number	Description
<b>BEST SELLER</b> DS1	Duct seal (sealing compound) 1 lb. package
DS5	Duct seal (sealing compound) 5 lb. package

Abrasion Protection Materials Technical Data	Ratings and Approvals			Chemical Resistance				Compliance
	UL Temperature Index	Flammability (UL 94)	Melting Temperature	Organic Solvents	Alkalies	Acids	Petro-Chemicals	UL Recognized
<b>Spiral Wrap</b>								
<b>Natural Polyethylene</b> Lowest cost material for indoor use up to 122°F. Natural is available in all sizes.	-40°F - 122°F (-40°C - 50°C)	HB	239°F (115°C)	Resistant below 140°F (60°C) except to chlorinated solvents	Resistant	Resistant except to oxidizing acids	Some Discoloration	UL File E141152
<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 - 122°F (-40°C - 50°C)		239°F (115°C)				No Discoloration	
<b>Fire Resistant Polyethylene*</b> UL94-V-2 Rating. This material is self extinguishing and passes the UL 94 flame retardant test with V-2 rating.	-40°F - 122°F (-40°C - 50°C)		V-2				239°F (115°C)	
<b>Flame Retardant Polyethylene*</b> Flame-retardant polyethylene material. Available in natural and black colors.	-4°F - 122°F (-20°C - 50°C)	N/A	270°F (132°C)	Resistant	Resistant	Resistant, Some Discoloration		
<b>Weather Resistant Polypropylene</b> This material is resistant to chemical attack and is suitable for harsh environment applications requiring UV/weather resistance and withstanding high temperatures.	-40°F - 239°F (-40°C - 115°C)	HB	334°F (168°C)			Resistant		
<b>Nylon 6.6</b> Nylon is strong, durable 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 - 149°F (-40°C - 65°C)		505°F (263°C)			Not recommended	Resistant, No Discoloration	
<b>Weather Resistant Nylon 6.6</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 - 149°F (-40°C - 65°C)							
<b>TFE‡*</b> This material is a non-flammable, fluorocarbon resin material. Highly resistant to most chemicals, high resistance to UV exposure, wide operating temperature range, can be used in cryogenic applications. Color: Opaque to Translucent.	-454°F - 356°F (-270°C - 180°C)	V-0	648°F (342°C)	Resistant	Resistant	Resistant		
<b>Pan-Wrap™ Split Harness Wrap</b>								
<b>Natural Polyethylene</b> Lowest cost material for indoor use up to 122°C. Natural is available in all sizes. Halogen free.	-40°F - 122°F (-40°C - 50°C)	HB	239°F (115°C)	Resistant below 140°F (60°C) except to chlorinated solvents	Resistant	Resistant except to oxidizing acids	Some Discoloration	UL File E141152
<b>Flame Retardant Polyethylene*</b> Flame-retardant polyethylene material. Available in natural and black colors.	-4°F - 122°F (-20°C - 50°C)	N/A	270°F (132°C)	Resistant except to halogenated hydrocarbons		Resistant	Resistant	

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

‡TFE is Polytetrafluoroethylene material.

\*Contains halogens. Other materials are halogen free.

Abrasion Protection Materials Technical Data	Ratings and Approvals			Chemical Resistance				Compliance
	UL Temperature Index	Flammability (UL 94)	Melting Temperature	Organic Solvents	Alkalies	Acids	Petro-Chemicals	UL Recognized
<b>Sleeving</b>								
<b>Polyethylene Terephthalate (PET)</b> This Braided Sleeving material is a thermoplastic polyester material designed for indoor applications. It is rated for use up to 257°F and will tolerate short term exposure up to 446°F.	-94°F - 257°F (-70°C - 125°C)	V-0	500°F (260°C)	Resistant to some solvents	Resistant to most weak bases	Resistant	Some Discoloration	UL File E116868
<b>Flame Retardant Polyethylene Terephthalate (PET)</b> This Braided Sleeving material is a self-extinguishing thermoplastic polyester that can be used indoors. It is also rated for use up to 257°F and will tolerate short term exposure up to 446°F. IT is provided with tracers to identify the flame retardant material.		UL 1441 VW-1	469°F (243°C)				Resistant, Some Discoloration	
<b>Tinned Copper</b> Provides shielding on harnesses and cable, for high end automotive applications, grounding straps, and EMI, RFI, and ESD Protection. Halogen Free.	N/A	Non-Flammable	1828°F (998°C)	Resistant	Resistant	Not Recommended	Resistant	N/A
<b>Aluminum Covered Fiberglass</b> An engineered lamination of an aluminized metallic heat shield to a layer of strong, tightly braided fiberglass insulation to provide superior protection from radiant heat by reflecting it away from sensitive electronics, wiring and hoses. Halogen Free.	-76°F - 491°F (-60°C - 255°C)	N/A	2,048°F (1,120°C)			Resistant		
<b>CLT</b>								
<b>Black Polyethylene</b> Lowest cost material is for use up to 122°F. Other colors may be available. Halogen free.	40°F - 122°F (-40°C - 50°C)	HB	—	Resistant except to halogenated hydrocarbons	Resistant	Resistant	Resistant, No Discoloration	N/A
<b>Black Polypropylene</b> Economical material with good impact strength. Suitable for harsh environment applications requiring UV/weather resistance. Halogen free.	-40°F - 185°F (-40°C - 85°C)		327°F (164°C)	Not resistant to halogenated hydrocarbons. Varies for others depending on the solvent.		Resistant except for chlorinated and fluorinated acids at high concentration and chromic acid		
<b>Nylon 6</b> Nylon is a strong, impact modified, heat stabilized, durable high abrasion resistant material. Halogen free.	-40°F - 230°F (-40°C - 110°C)		410°F (211°C)	Resistant except to halogenated hydrocarbons				
<b>Nylon - Flame Retardant</b> Strong, durable, and high abrasion resistant material suitable for demands of Electric Vehicle market. Halogen free. Orange	-40°F - 275°F (-40°C - 135°C)	UL94V-2	—	Resistant except to aromatic hydrocarbons, ketones and esters	Resistant	Not recommended	Resistant, No Discoloration	N/A
<b>Nylon - Flame Retardant - UV Resistant</b> Strong, durable, and high abrasion resistant material for demands of Electric Vehicle market. Suitable for applications requiring UV/weather resistance. Halogen free. Orange			—					
<b>PVC</b>								
<b>PVC Non-Shrink Tubing*</b> This material provides insulation and protection for continuous use at temperature -4°F to 221°F (-20°C to 105°C).	-4°F - 221°F (-20°C - 105°C)	UL 224 VW-1 **	—	Resistant except to aromatic hydrocarbons, ketones and esters	Resistant	Resistant	Resistant, No Discoloration	UL File E122770
<b>Nylon - Flame Retardant and UV Resistant</b> Strong, durable, and high abrasion resistant material suitable for demands of Electric Vehicle market. Suitable for use in outdoor environments. Orange	-40°F - 275°F (-40°C - 135°C)	UL94V-2	—			Not recommended		N/A

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

\*Contains halogens. Other materials are halogen free.

\*\*Limited sizes in Clear

Abrasion Protection Materials Technical Data	Ratings and Approvals			Chemical Resistance				Compliance
	UL Temperature Index	Flammability (UL 94)	Melting Temperature	Organic Solvents	Alkalies	Acids	Petro-Chemicals	UL Recognized
<b>Grommet Edging</b>								
<b>Natural Polyethylene</b> Lowest cost material for indoor use up to 122° F. Natural is available in all sizes.	-40°F - 122°F (-40°C - 50°C)	HB	239°F (115°C)	Resistant below 140°F (60°C) except to chlorinated solvents	Resistant	Resistant except to oxidizing acids	Some Discoloration	UL File E351393
<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.							No Discoloration	Adhesive lined products are not UL Recognized
<b>Nylon</b> 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 - 149°F (-40°C - 65°C)	V-0	491°F (255°C)	Resistant except to phenols and formic acid		Resistant to most weak acids	No Discoloration	N/A

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

\*Contains halogens. Other materials are halogen free.

\*\*Limited sizes in Clear

## Heat Shrink Installation Instructions

### General Instructions

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

### Special Instructions for HSTTT

TFE Heat Shrink is the most difficult to recover 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. Because of the unique characteristics of this material, a controlled temperature oven will achieve the most reliable results - it is difficult to consistently recover this product using a high-temp heat gun or similar heat source. These methods have a tendency to overheat the tube in one area while other areas remain cool.

When recovering onto objects, use a temperature controlled oven set at 660°F - 680°F (349°C - 360°C) for approximately 10 minutes is recommended. It is best to place the product on a fiberglass mat or suspend as opposed to contacting the oven rack. Do NOT heat the product above 700°F (371°C), or degradation damage to the TFE polymer will occur. The surrounding materials and the material you are shrinking onto must be capable of withstanding the shrink temperatures.

### 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 and maximize abrasion resistance and electrical insulation.

**Example:** A multi-conductor cable needs to be covered with HSTT Type Dry-Shrink™ Heat Shrink. The area to be covered has a measured outside diameter of 0.700 inch (17.8mm). The two possibilities are HSTT75-48-5 and HSTT100-48-5.

Part Number	Expander I.D.		Recovered I.D.	
	In.	mm	In.	mm
HSTT75-48-5	0.75	19.1	0.375	9.5
HSTT100-48-5	1.00	25.4	0.500	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 0.700 inch (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%.



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

#### For Insulated Wire, Non-Insulated Wire, and Insulated Wire with Copper Connectors

##### Instructions for Tube Selection:

1. Determine location type.

##### LOCATION:

**DRY:** 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:** 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, barns, and cold-storage warehouses.

**WET:** 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 location exposed to weather and unprotected.

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

3. Read corresponding part number.

4. Part numbers with “-Y” are packages containing 6 inch pieces. Part numbers with “-48” are 48 inch pieces.

5. Part numbers shown below are for black heat shrink.

Wire Size	Insulated Wire with Copper Connector			Uninsulated Wire		
	Dry-Shrink™	Damp-Shrink™	Wet-Shrink™	Dry-Shrink™	Damp-Shrink™	Wet-Shrink™
24	HSTT09-Y	HSTTA19-Y	—	—	—	—
22	HSTT09-Y	HSTTA19-Y	—	HSTT05-Y	—	—
20	HSTT12-Y	HSTTA19-Y	—	HSTT05-Y	—	—
18	HSTT12-Y	HSTTA19-Y	—	HSTT06-Y	—	—
16	HSTT19-Y	HSTTA25-Y	—	HSTT09-Y	—	—
14	HSTT19-Y	HSTTA25-Y	—	HSTT09-Y	HSTTA19-Y	—
12	HSTT25-Y	HSTTA38-Y	—	HSTT012-Y	HSTTA19-Y	—
10	HSTT25-Y	HSTTA38-Y	HST0.4-48-5Y	HSTT19-Y	HSTTA25-Y	—
8	HSTT38-Y	HSTTA50-Y	HST0.4-48-5Y	HSTT19-Y	HSTTA25-Y	—
6	HSTT50-Y	HSTTA50-Y	HST0.8-48-5Y	HSTT25-Y	HSTTA38-Y	HST0.4-48-5Y
4	HSTT50-Y	HSTTA75-Y	HST0.8-48-5Y	HSTT38-Y	HSTTA50-Y	HST0.4-48-5Y
3	HSTT50-Y	HSTTA75-Y	HST0.8-48-5Y	HSTT38-Y	HSTTA50-Y	HST0.4-48-5Y
2	HSTT75-Y	HSTTA100-Y	HST1.1-48-5Y	HSTT38-Y	HSTTA50-Y	HST0.8-48-5Y
1	HSTT75-Y	HSTTA100-Y	HST1.1-48-5Y	HSTT50-Y	HSTTA75-Y	HST0.8-48-5Y
1/0	HSTT75-Y	HSTTA100-Y	HST1.1-48-5Y	HSTT50-Y	HSTTA75-Y	HST0.8-48-5Y
2/0	HSTT100-Y	HSTTA150-Y	HST1.5-48-5Y	HSTT50-Y	HSTTA100-Y	HST0.8-48-5Y
3/0	HSTT100-Y	HSTTA150-Y	HST1.5-48-5Y	HSTT75-Y	HSTTA100-Y	HST1.1-48-5Y
4/0	HSTT100-Y	HSTTA150-Y	HST1.5-48-5Y	HSTT75-Y	HSTTA100-Y	HST1.1-48-5Y
250	HSTT100-Y	HSTTA150-Y	HST2.0-48-2Y	HSTT100-Y	HSTTA100-Y	HST1.1-48-5Y
300	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2Y	HSTT100-Y	HSTTA150-Y	HST1.5-48-5Y
350	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2Y	HSTT100-Y	HSTTA150-Y	HST1.5-48-5Y
400	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2Y	HSTT100-Y	HSTTA150-Y	HST1.5-48-5Y
500	HSTT150-48-5	HSTTA150-Y	HST2.0-48-2Y	HSTT100-Y	HSTTA150-Y	HST1.5-48-5Y
600	HSTT200-48-5	HSTTA150-Y	HST2.0-48-2Y	HSTT150-48-5	HSTTA150-Y	HST2.0-48-5Y
700	HSTT200-48-5	HSTTA150-Y	HST2.0-48-2Y	HSTT150-48-5	HSTTA150-Y	HST2.0-48-5Y
750	HSTT200-48-5	HSTTA150-Y	HST3.0-48-2Y	HSTT150-48-5	HSTTA150-Y	HST2.0-48-5Y
800	HSTT200-48-5	HSTTA150-Y	HST3.0-48-2Y	HSTT150-48-5	HSTTA150-Y	HST2.0-48-5Y
900	HSTT200-48-5	—	HST3.0-48-2Y	HSTT150-48-5	HSTTA150-Y	HST2.0-48-5Y
1000	HSTT200-48-5	—	HST3.0-48-2Y	HSTT150-48-5	HSTTA150-Y	HST2.0-48-5Y
1250	HSTT200-48-5	—	HST3.0-48-2Y	HSTT200-48-5	HSTTA150-Y	HST2.0-48-5Y
1500	HSTT300-48-5	—	HST3.0-48-2Y	HSTT200-48-5	—	HST2.0-48-5Y
1750	HSTT300-48-5	—	HST3.0-48-2Y	HSTT200-48-5	—	HST2.0-48-5Y
2000	HSTT300-48-5	—	HST3.0-48-2Y	HSTT200-48-5	—	HST2.0-48-5Y

Sizing information is based on the following wire types: MTW, THHN, THWN, TFN, THW, TW, TF, RHW, RH, RHH, and UL 1015.

THHN is the most common wire type.

Portions reprinted with permission from NFPA, the National Electrical Code® Handbook, Copyright 1996, National Fire Protection Association, Quincy, MA 02269.

\*All rights reserved. National Electrical Code and NEC are registered trademarks of the National Fire Protection Association, Inc., Quincy, MA 02269.



Since 1955, Panduit's culture of curiosity and passion for problem solving have enabled more meaningful connections between companies' business goals and their marketplace success. Panduit creates leading-edge physical, electrical, and network infrastructure solutions for enterprise-wide environments, from the data center to the telecom room, from the desktop to the plant floor. Headquartered in Tinley Park, IL, USA and operating in 112 global locations, Panduit's proven reputation for quality and technology leadership, coupled with a robust partner ecosystem, help support, sustain, and empower business growth in a connected world.

**For more information  
Visit us at [www.panduit.com](http://www.panduit.com)**

**Contact Panduit North America Customer Service by email: [cs@panduit.com](mailto:cs@panduit.com)  
or by phone: 800.777.3300**

THE INFORMATION CONTAINED IN THIS WHITE PAPER IS INTENDED AS A GUIDE FOR USE BY PERSONS HAVING TECHNICAL SKILL AT THEIR OWN DISCRETION AND RISK. BEFORE USING ANY PANDUIT PRODUCT, THE BUYER MUST DETERMINE THE SUITABILITY OF THE PRODUCT FOR HIS/HER INTENDED USE AND BUYER ASSUMES ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH. PANDUIT DISCLAIMS ANY LIABILITY ARISING FROM ANY INFORMATION CONTAINED HEREIN OR FOR ABSENCE OF THE SAME.

All Panduit products are subject to the terms, conditions, and limitations of its then current Limited Product Warranty, which can be found at [www.panduit.com/warranty](http://www.panduit.com/warranty).

\*All trademarks, service marks, trade names, product names, and logos appearing in this document are the property of their respective owners.

---

#### WORLDWIDE SUBSIDIARIES AND SALES OFFICES

PANDUIT US/CANADA  
Phone: 800.777.3300

PANDUIT EUROPE LTD.  
London, UK  
Phone: 44.20.8601.7200

PANDUIT SINGAPORE PTE. LTD.  
Republic of Singapore  
Phone: 65.6305.7575

PANDUIT JAPAN  
Tokyo, Japan  
Phone: 81.3.6863.6000

PANDUIT LATIN AMERICA  
Guadalajara, Mexico  
Phone: 52.33.3777.6000

PANDUIT AUSTRALIA PTY. LTD.  
Victoria, Australia  
Phone: 61.3.9794.9020