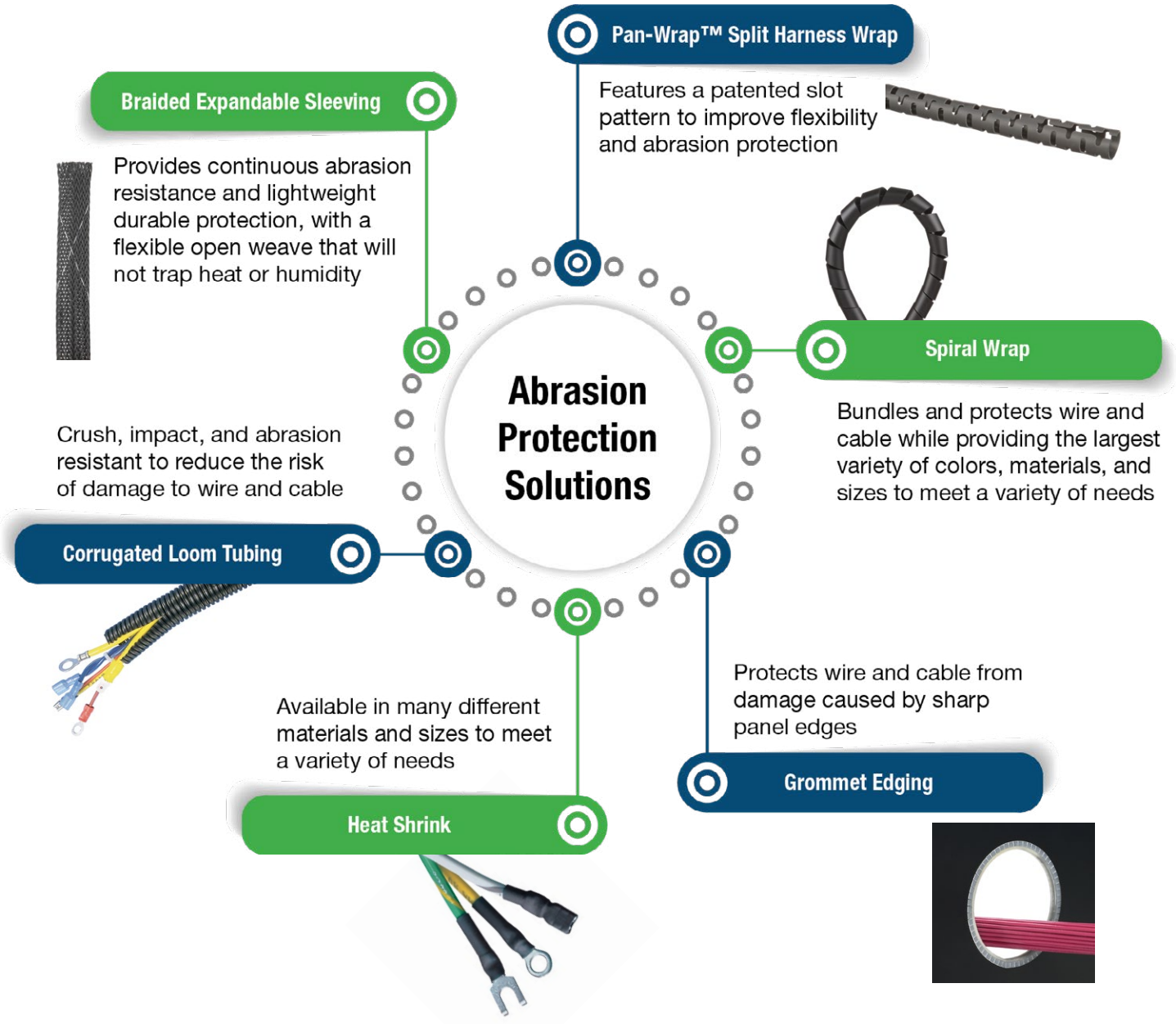
PANDUIT® Wire Abrasion Protection

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.



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
Spiral Wrap	- General purpose Abrasion Protection product for Wire Harness and bundling applications - Allows breakouts of single/multiple cables - Multiple colors allow for easy identification of cable bundles - Available in multiple materials - Simple installation tool supplied in each package
Pan-Wrap™ Split Harness Wrap	- Patented slot pattern provides improved flexibility & abrasion protection in any application - Unique wall design provides for easy cable breakouts - Considerably reduces installation time - Large overlap accommodates a wide range of bundle diameters
Grommet Edging	- Covers sharp edges of panels to protect cables from abrasion - Solid and slotted designs available. Use slotted wall design on radiused surfaces. - Use solid wall design on straight surfaces. - Adhesive lined product is available to encourage product to stay in place on panel edge
Corrugated Loom Tubing	- Economical protection for cables in wire harness applications - Solid wall product allows complete protection of cable bundle - UV Resistant option available for demanding outdoor applications
Braided Sleeving	- Provides continuous abrasion protection for wires, cables, hoses & tubing - Highly flexible open weave will not trap heat or humidity - Lightweight, durable protection - Compliant with US and European passenger rail standards
Non-Shrink PVC Tubing	- Provides insulation and protection for lead wires, wire hraness assemblies, soldered joints and components in electrical and electronic equipment - Resistant to heat and moisture
Heat Shrink	- Applications include insulating, protecting, and color coding wires and cables - Use with terminals and lugs to provide a clean, safe, secure installation
Duct Seal	- Seals irregular openings from air and dust - Non-hardening sealant that adheres to metal, wood, masonry, and plastic - Provides vibration dampening - Safe and easy to use. Non-corrosive, non-toxic, no asbestos, will not stain or harm hands, and no unpleasant odor



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
Polyethylene											
BEST SELLER	T25F-C	Natural	100	30.5	0.187-2.0	4.8 – 50.8	0.25	6.4	-40°F – 122°F (-40°C – 50°C)	0.040	1.02
	T25F-C10	White									
	T25F-C3Y	Orange									
	T25F-M	Natural	1,000	304.8							
BEST SELLER	T38F-C		100	30.5	0.312 - 3.0	7.9 – 76.2	0.38	9.5		0.055	1.40
	T38F-TL		250	76.2							
BEST SELLER	T50F-C		100	30.5	0.375 - 4.0	9.5 – 101.6	0.50	12.7		0.060	1.52
BEST SELLER	T50F-C4Y	Yellow									
	T50F-TL	Natural	250	76.2							
	T50F-TL4Y	Yellow									
	T62F-C	Natural	100	30.5	0.5 - 4.5	12.7 – 114.3	0.62	15.9		0.062	1.57
	T75F-C				0.625 - 5.0	15.9 – 127.0	0.75	19.1		0.065	1.65
	T100F-C				0.875 - 6.0	22.2 – 152.4	1.00	25.4		0.070	1.78
Weather Resistant Polyethylene											
	T25F-C0	Black	100	30.5	0.187-2.0	4.8 – 50.8	0.25	6.4	-40°F – 122°F (-40°C – 50°C)	0.040	1.02
	T38F-C0				0.312 - 3.0	7.9 – 76.2	0.38	9.5		0.055	1.40
BEST SELLER	T50F-C0				0.375 - 4.0	9.5 – 101.6	0.50	12.7		0.060	1.52
	T50F-TL0		250	76.2							
	T50F-X0		10	3.1							
	T75F-C0		100	30.5	0.625 - 5.0	15.9 – 127.0	0.75	19.1		0.065	1.65
	T100F-C0				0.875 - 6.0	22.2 – 152.4	1.00	25.4		0.070	1.78
Fire Resistant Polyethylene											
	T25R-CY	Natural	100	30.5	0.187-2.0	4.8 – 50.8	0.25	6.4	-40°F – 122°F (-40°C – 50°C)	0.040	1.02
	T50R-CY				0.375 - 4.0	9.5 – 101.6	0.50	12.7		0.060	1.52
	T50R-TLY		250	76.2							
Flame Retardant Polyethylene											
	T12FR-CY	Natural	100	30.5	0.0625 - 0.50	1.6 – 12.7	0.12	3.2	-4°F – 122°F (-20°C – 50°C)	0.030	0.76
	T25FR-C20Y	Black			0.187-2.0	4.8 – 50.8	0.25	6.4		0.040	1.02
	T25FR-CY	Natural									
	T38FR-C20Y	Black			0.312 - 3.0	7.9 – 76.2	0.38	9.5		0.055	1.40



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
Flame Retardant Polyethylene *(continued)*										
T50FR-C20Y	Black	100	30.5	0.375 - 4.0	9.5 – 101.6	0.50	12.7	-4°F – 122°F (-20°C – 50°C)	0.060	1.52
T50FR-CY	Natural									
T50FR-TLY		250	76.2							
T75FR-C20Y	Black	100	30.5	0.625 - 5.0	15.9 – 127.0	0.75	19.1		0.065	1.65
T75FR-CY	Natural									
Nylon										
T25N-C	Natural	100	30.5	0.187 - 2.0	4.8 – 50.8	0.25	6.4	-40°F – 149°F (-40°C – 65°C)	0.023	0.58
T38N-TL		250	76.2	0.312 - 3.0	5/16 – 3	0.38	9.5		0.030	0.76
Weather Resistant Nylon										
T25N-C0	Black	100	30.5	0.187 - 2.0	4.8 – 50.8	0.25	6.4	-40°F – 149°F (-40°C – 65°C)	0.023	0.58
T38N-C0				0.312 - 3.0	7.9 – 76.2	0.38	9.5		0.030	0.76
T50N-TL0		250	76.2	0.375 - 4.0	9.5 – 101.6	0.50	12.7		0.032	0.81
T62N-C0		100	30.5	0.50 - 4.5	12.7 – 114.3	0.62	15.9		0.035	0.89
T100N-C0				0.875 - 6.0	22.2 – 152.4	1.00	25.4		0.045	1.14
Weather Resistant Polypropylene										
T38P-C0	Black	100	30.5	0.312 - 3.0	7.9 – 76.2	0.38	9.5	-40°F – 239°F (-40°C – 115°C)	0.030	0.76
T50P-C0				0.375 - 4.0	9.5 – 101.6	0.50	12.7			
T100P-C0				0.875 - 6.0	22.2 – 152.4	1.00	25.4			
TFE										
T12T-C	Natural	100	30.5	0.0625 - 0.50	1.6 – 12.7	0.12	3.2	-454°F – 356°F (-270°C – 180°C)	0.020	0.51
BEST SELLER T25T-L		50	15.2	0.187 - 2.0	4.8 – 50.8	0.25	6.4		0.030	0.76
T38T-L				0.312 - 3.0	7.9 – 76.2	0.38	9.5			
BEST SELLER T50T-Q		25	7.6	0.375 - 4.0	9.5 – 101.6	0.50	12.7			
T62T-Q				0.50 - 4.5	12.7 – 114.3	0.62	15.9			
T75T-X		10	3.1	0.625 - 5.0	15.9 – 127.0	0.75	19.1			

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



Part Number	Color	Length per Reel		Max. Bundle Diameter		Min. Bundle Diameter		Temperature Range	Nominal Diameter	
		Ft.	m	In.	mm	In.	mm		In.	mm
Polyethylene										
PW50F-T	Natural	200	61.0	0.55	14.0	0.43	10.9	-40°F – 122°F (-40°C – 50°C)	0.50	12.7
PW50F-T20	Black									
PW75F-C	Natural	100	30.5	0.81	20.6	0.55	14.0		0.75	19.1
PW75F-C20	Black									
PW100F-C	Natural			1.13	28.6	0.81	20.6		1.00	25.4
PW100F-C20	Black									
PW100F-C4	Yellow									
PW150F-L	Natural	50	15.2	1.63	41.3	1.13	28.6		1.50	38.1
Flame Retardant Polyethylene										
PW50FR-TY	Natural	200	61.0	0.55	14.0	0.43	10.9	-4°F – 122°F (-20°C – 50°C)	0.50	12.7
PW50FR-T20Y	Black									
PW75FR-CY	Natural	100	30.5	0.81	20.6	0.55	14.0		0.75	19.1
PW75FR-C20Y	Black									
PW100FR-CY	Natural			1.13	28.6	0.81	20.6		1.00	25.4
PW100FR-C20Y	Black									
PW150FR-L20Y		50	15.2	1.63	41.3	1.13	28.6		1.50	38.1

*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” 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	
UV Resistant Polypropylene – Slit Wall									
NEW	CLT75PUV-0	Black	4,265	1300	0.811	20.6	0.984	25	-40°F – 185°F (-40°C – 85°C)
NEW	CLT100PUV-0		2,329	710	1.142	29.01	1.358	34.49	
NEW	CLT150PUV-0		1,542	470	1.417	36	1.673	42.49	
NEW	CLT188PUV-0		885	270	1.89	48.01	2.146	54.51	
Polyethylene - Slit Wall									
	CLT25F-C20	Black	100	30.5	0.28	7.2	0.40	10.1	-40°F – 122°F (-40°C – 50°C)
	CLT38F-C20				0.39	10.0	0.52	13.3	
BEST SELLER	CLT50F-C20				0.51	13.0	0.65	16.6	
	CLT50F-C3	Orange							
	CLT50F-C4	Yellow							
	CLT62F-C20	Black			0.66	16.9	0.85	21.1	
	CLT75F-2M20		2000	609.6	0.77	19.5	0.94	23.9	
BEST SELLER	CLT75F-C20		100	30.5					
	CLT75F-C3	Orange							
	CLT75F-C4	Yellow							
BEST SELLER	CLT100F-C20	Black			0.91	23.2	1.10	28.0	
	CLT100F-C3	Orange							
	CLT100F-C4	Yellow							
BEST SELLER	CLT125F-L20	Black	50	15.2	1.28	32.5	1.54	39.0	
	CLT150F-T20		200	61.0	1.58	40.0	1.85	47.0	
	CLT150F-X20		10	3.1					
	CLT150F-X4	Yellow							
	CLT188F-C20	Black	100	30.5	1.85	47.0	2.19	55.7	
Polyethylene - Solid Wall									
	CLTS25F-C	Black	100	30.5	0.28	7.2	0.40	10.1	-40°F – 122°F (-40°C – 50°C)

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	
Nylon - Slit Wall								
CLT25N-C630	Black	100	30.5	0.28	7.2	0.40	10.1	-40°F – 230°F (-40°C – 110°C)
CLT38N-C630				0.39	10.0	0.52	13.3	
CLT50N-4M630		4,000	1219.2	0.51	13.0	0.65	16.6	
CLT50N-C630		100	30.5					
CLT75N-C630				0.77	19.5	0.94	23.9	
CLT100N-125M630		1,250	381.0	0.91	23.2	1.10	28.0	
CLT100N-C630		100	30.5					
Nylon - Solid Wall								
CLTS25N-C	Black	100	30.5	0.28	7.2	0.40	10.1	-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	
PET Material								
SE12P-TR0	Black	0.12	3.2	0.094 – 0.250	2.4 – 6.4	200	61.0	4
SE25P-MR0	Black	0.25	6.4	0.125 – 0.375	3.2 – 9.5	1000	304.8	2
SE25P-MR10	White							
SE25P-MR8	Gray							
SE25P-TR0	Black					200	61.0	4
SE38P-MR0	Black	0.38	9.5	0.188 – 0.500	4.8 – 12.7	1000	304.8	2
SE38P-TR0	Black					200	61.0	4
SE50P-CR0	Black	0.50	12.7	0.250 – 0.750	6.4 – 19.1	100	30.5	4
BEST SELLER SE50P-DR0	Black					500	152.4	2
SE75P-CR0	Black	0.75	19.1	0.500 – 1.25	12.7 – 31.8	100	30.5	4
BEST SELLER SE75P-DR0	Black					500	152.4	2
SE125P-LR0	Black	1.25	31.8	0.750 – 1.50	19.1 – 38.1	50	15.2	4
SE125P-TR0	Black					200	61.0	2
SE125P-TR8	Gray							
SE150P-TR0	Black	1.50	38.1	1.00 – 2.13	25.4 – 54.0			
SE175P-TR0	Black	1.75	44.5	1.25 – 2.75	31.8 – 69.9			

Braided Sleeving *(continued)* - Standard Package Quantity: 1

	Part Number	Color	Nominal Diameter		Nominal Diameter Range		Length per Reel		Std. Ctn. Qty.
			In.	mm	In.	mm	Ft.	m	
Flame Retardant PET Material									
	SE12PFR-MR0	Black	0.12	3.2	0.094 – 0.250	2.4 – 6.4	1000	304.8	2
	SE12PFR-TR0	Black					200	61.0	4
	SE25PFR-MR0	Black	0.25	6.4	0.125 – 0.375	3.2 – 9.5	1000	304.8	2
	SE25PFR-TR0	Black					200	61.0	4
	SE25PFR-TR8	Gray							
	SE38PFR-MR0	Black	0.38	9.5	0.188 – 0.500	4.8 – 12.7	1000	304.8	2
	SE38PFR-TR0	Black					200	61.0	4
	SE50PFR-CR0	Black	0.50	12.7	0.250 – 0.750	6.4 – 19.1	100	30.5	
BEST SELLER	SE50PFR-DR0	Black					500	152.4	2
	SE75PFR-CR0	Black	0.75	19.1	0.500 – 1.25	12.7 – 31.8	100	30.5	4
	SE75PFR-DR0	Black					500	152.4	
	SE125PFR-TR0	Black	1.25	31.8	0.750 – 1.50	19.1 – 38.1	200	61.0	2
	SE150PFR-TR0	Black	1.50	38.1	1.00 – 2.13	25.4 – 54.0			
Pan-Wrap Braided Sleeving (PET)									
NEW	SE38PS-TR0	Black	0.375	9.5	0.027	0.7	200	61.0	2
	SE50PS-CLR0	Black	0.50	12.7			150	45.7	
	SE75PS-CR0	Black	0.75	19.1			100	30.5	
	SE100PS-CR0	Black	1.00	25.4					
NEW	SE125PS-CR0	Black	1.25	31.8					
NEW	SE200PS-LR0	Black	2.0	50.8			50	15.2	
Pan-Wrap Braided Sleeving (Flame Retardant PET)									
NEW	SE38PSFR-TR0	Black	0.375	9.5	0.027	0.7	200	61.0	2
NEW	SE125PSFR-CR0	Black	1.25	31.8			100	30.5	
NEW	SE200PSFR-LR0	Black	2.0	50.8			50	15.2	
Fray Resistant (PET)									
	SE38PSC-TR0	Black	0.38	9.5	0.19 – 0.63	4.8 – 15.9	200	61.0	4
	SE50PSC-CR0	Black	0.50	12.7	0.25 – 0.75	6.4 – 19.1	100	30.5	
	SE75PSC-CR0	Black	0.75	19.1	0.63 – 1.0	15.9 – 25.4			



Braided Sleeving *(continued)* - Standard Package Quantity: 1



Tinned Copper Braided Sleeving

	Part Number	Color	Nominal Diameter		Current Capacity	Length per Roll	
			In.	mm		Ft.	m
NEW	SE12TC-C	Silver	0.125	3.2	25	100	30.5
NEW	SE25TC-C		0.25	6.4	53		
NEW	SE38TC-C		0.375	9.5			
NEW	SE50TC-L		0.50	12.7	62	50	15.2
NEW	SE88TC-L		0.875	22.2	100		
NEW	SE100TC-L		1.0	25.4	120		
NEW	SE125TC-L		1.25	31.8	145		
NEW	SE150TC-L		1.50	38	165		
NEW	SE200TC-L		2.0	50.8	180		



Heavy Duty Nylon Braided Sleeving

	Part Number	Color	Nominal Diameter		Minimum Diameter		Maximum Diameter		Length per Roll	
			In.	mm	In.	mm	In.	mm	Ft.	m
NEW	SE38N-C	Black	0.375	9.5	0.25	6.4	0.50	12.7	100	30.5
NEW	SE50N-C		0.50	12.7	0.375	9.5	0.625	15.9		
NEW	SE75N-L		0.75	19.1	0.625	15.9	1.00	25.4	50	15.2
NEW	SE100N-L		1.0	25.4	0.875	22.2	1.25	31.8		
NEW	SE125N-L		1.25	31.8	1.00	25.4	1.50	38		
NEW	SE150N-Q		1.50	38	1.25	31.8	1.75	44.5	25	7.62
NEW	SE175N-Q		1.75	44.5	1.50	38	2.00	50.8		
NEW	SE200N-Q		2.0	50.8	1.75	44.5	2.75	69.9		
NEW	SE300N-Q		3.0	76.2	2.25	57.2	3.50	88.9		



Insulating Fiberglass Tubing

	Part Number	Color	Nominal Diameter		Wall Thickness		Length per Roll	
			In.	mm	In.	mm	Ft.	m
NEW	FT38-C	Silver	0.375	9.5	0.025	0.6	100	30.5
NEW	FT50-C		0.5	12.7				
NEW	FT62-C		0.625	15.9				
NEW	FT75-C		0.75	19.1				
NEW	FT100-C		1.0	25.4				
NEW	FT125-C		1.25	31.8				
NEW	FT150-C		1.5	38				
NEW	FT200-L		2.0	50.8			50	15.2
NEW	FT300-L		3.0	76.2				

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	0.063	1.6	0.063	1.6	.031	0.80	0.017	0.4	100	30.5	1 roll
HSTT09-48-Q	Black	0.093	2.4	0.093	2.4	0.046	1.2	0.02	0.5	4	1.2	25 pcs.
HSTT12-CC	Clear	0.125	3.2	0.125	3.2	0.062	1.6			100	30.5	1 roll
HSTT19-48-Q	Black	0.187	4.8	0.187	4.8	0.093	2.4			4	1.2	25 pcs.
HSTT19-48-Q45	Yellow Green											
HSTT25-48-Q	Black	0.250	6.4	0.250	6.4	0.125	3.2	0.025	0.6			
HSTT25-48-QC	Clear											
HSTT25-C	Black									100	30.5	1 roll
HSTT38-48-Q		0.375	9.5	0.375	9.5	0.187	4.8			4	1.2	25 pcs.
HSTT38-C										100	30.5	1 roll
HSTT50-48-5		0.500	12.7	0.500	12.7	0.250	6.4			4	1.2	25 pcs.
HSTT50-C										100	30.5	1 roll
HSTT50-CC	Clear											
HSTT75-48-5	Black	0.750	19.1	0.750	19.1	0.375	9.5	0.030	0.8	4	1.2	25 pcs.
HSTT75-C										100	30.5	1 roll
HSTT100-48-5		1.00	25.4	1.00	25.4	0.500	12.7	0.035	0.9	4	1.2	25 pcs.
HSTT100-C										100	30.5	1 roll
HSTT100-CC	Clear											
HSTT150-48-5	Black	1.50	38.1	1.5	38.1	0.75	19.1	0.04	1	4	1.2	5 pcs.
HSTT150-48-5C	Clear											
HSTT150-C	Black									100	30.5	1 roll
HSTT200-48-5		2	50.8	2	50.8	1.0	25.4	0.045	1.1	4	1.2	5 pcs.
HSTT200-L										50	15.2	1 roll
HSTT300-L		3	76.2	3	76.2	1.5	38.1	0.05	1.3			
TFE												
HSTTT08-48-Q	Clear	18 AWG	1.9	0.076	1.9	0.049	1.2	0.012	0.3	4	1.2	25 pcs.
HSTTT30-48-Q		6 AWG	7.7	0.302	7.7	0.178	4.5	0.015	0.4			
Medium Wall - Adhesive Lined												
HSTTA25-48-TL	Black	0.25	6.4	0.25	6.4	0.08	2.0	0.04	1	4	1.2	250 pcs.
HSTTA50-48-5		0.50	12.7	0.50	12.7	0.16	4.1	0.07	1.8			5 pcs.
HSTTA75-48-5		0.75	19.1	0.75	19.1	0.25	6.4	0.085	2.2			
HSTTA100-48-5		1	25.4	1	25.4	0.32	8.1	0.10	2.5			
HSTTA150-48-5		1.5	38.1	1.5	38.1	0.51	12.9					
HSTTA150-48-Q												25 pcs.

Heat Shrink *(continued)*



Part Number	Color	Nominal Diameter		Min. Expanded Nominal I.D.		Max. Recovered Nominal I.D.		Nominal Recovered Wall Thickness		Length		Std. Pkg. Qty.
		In.	mm	In.	mm	In.	mm	In.	mm	Ft.	m	
Semi-Rigid Adhesive Lined												
HSTTRA50-48-5	Black	0.5	12.7	0.5	12.7	0.195	5	0.055	1.5	4	1.2	5 pcs.
Thick Wall Heat Shrink												
HST0.4-48-5Y	Black	—	—	0.4	10.2	0.16	4.1	0.08	2	4	1.2	5 pcs.
HST0.8-48-5Y				0.75	19.1	0.22	5.6	0.09	2.3			
HST0.8-6-XY										6	152.4	10 pcs.
HST1.1-48-5Y				1.1	27.9	0.38	9.5	0.12	3	4	1.2	5 pcs.
HST1.5-48-5Y				1.5	38.1	0.5	12.7	0.16	4.1			
HST2.0-48-2Y				2	50.8	0.67	16.9					
HST3.0-48-2				3	76.2	1	25.4	0.17	4.3			2 pcs.
Heat Shrink End Caps												
HSEC0.5-X	Black	—	—	0.47	11.9	0.18	4.6	0.09	2.2	1.5	37.6	10 pcs.
HSEC0.8-X				0.79	20.1	0.3	7.6	0.1	2.4	1.8	45.5	



Heat Shrink Gun with Stand - Standard Package Quantity: 1

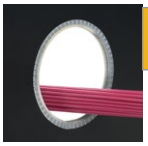


Part Number	Description
HSG-115V-650	Heat gun with stand. Temperature range of 700°F (371°C) to 1000°F (538°C)

Non-Shrink Tubing - Standard Package Quantity: 1

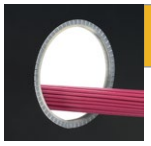


Part Number	Color	Nominal Diameter	Length per Reel		Max. I.D.		Wall Thickness		Max. Voltage Rating
			Ft.	m	In.	mm	In.	mm	
TV105-3M20Y	Black	3 AWG	1000	304.8	0.249	6.32	0.020	0.51	300 V
TV105-6M20Y		6 AWG			0.178	4.52			
TV105-.75TL20Y		3/4	250	76.2	0.786	19.96	0.035	0.89	600 V
TV105-1.0C20Y		1	100	30.5	1.036	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			
Slotted										
	GEE62F-C	0.13	3.3	0.16	4.1	0.036 – 0.062	0.9 – 1.6	Polyethylene	Natural	-40°F – 122°F (-40°C – 50°C)
	GEE99F-C	0.17	4.3	0.19	4.7	0.062 – 0.099	1.6 – 2.5			
	GEE144F-C	0.21	5.4	0.22	5.6	0.099 – 0.144	2.5 – 3.7			
NEW	GEE189F-C	0.30	7.6	0.30	7.6	0.144 - 0.189	3.7 - 4.8			
NEW	GEE189F-C0							Weather Resistant Polyethylene	Black	
Slotted with Adhesive										
BEST SELLER	GEE62F-A-C	0.13	3.3	0.16	4.1	0.036 – 0.062	0.9 – 1.6	Polyethylene	Natural	-40°F – 122°F (-40°C – 50°C)
	GEE62F-A-C0							Weather Resistant Polyethylene	Black	
BEST SELLER	GEE99F-A-C	0.17	4.3	0.19	4.7	0.062 – 0.099	1.6 – 2.5	Polyethylene	Natural	
	GEE99F-A-C0							Weather Resistant Polyethylene	Black	
BEST SELLER	GEE144F-A-C	0.21	5.4	0.22	5.6	0.099 – 0.144	2.5 – 3.7	Polyethylene	Natural	
	GEE144F-A-C0							Weather Resistant Polyethylene	Black	
NEW	GEE189F-A-C	0.30	7.6	0.30	7.6	0.144 - 0.189	3.7 - 4.8	Polyethylene	Natural	
NEW	GEE189F-A-C0							Weather Resistant Polyethylene	Black	
Solid with Adhesive – Use on straight edges only										
	GES62F-A-C	0.13	3.3	0.16	4.1	0.036 – 0.062	0.9 – 1.6	Polyethylene	Natural	-40°F – 122°F (-40°C – 50°C)
	GES62F-A-C0							Weather Resistant Polyethylene	Black	
	GES99F-A-C	0.17	4.3	0.19	4.7	0.062 – 0.099	1.6 – 2.5	Polyethylene	Natural	
	GES99F-A-C0							Weather Resistant Polyethylene	Black	
NEW	GES189F-A-C	0.30	7.6	0.30	7.6	0.144 - 0.189	3.7 - 4.8	Polyethylene	Natural	
NEW	GES189F-A-C0							Weather Resistant Polyethylene	Black	



Grommet Edging *(continued)* - Standard Package Quantity: 1

Part Number	Width A		Height B		Panel Thickness Range		Material	Color	Temperature Range
	In.	mm	In.	mm	In.	mm			
Nylon Lengths - Military Standard MS21266 in 12 3/4" Lengths									
GE85-C	0.18	4.5	0.16	3.9	0.052 - 0.085	1.3 - 2.2	Nylon 6.6	Natural	-40°F – 149°F (-40°C – 65°C)
GE128-C	0.22	5.6			0.085 – 0.128	2.2 – 3.3			
GE192-L	0.33	8.3	0.23	5.8	0.128 – 0.192	3.3 – 4.9			
GE255-L	0.39	9.8	0.24	6.1	0.192 – 0.255	4.9 – 6.5			

Duct Seal - Standard Package Quantity: 1



Part Number	Description
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
Spiral Wrap								
Natural Polyethylene Lowest cost material for indoor use up to 122°F. Natural is available in all sizes.	-40°F (-40°C) to 122°F (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
Weather Resistant Polyethylene This material has the same properties as natural polyethylene, and also has additives which allow it to resist the effects of ultraviolet light and acid rain in an outdoor environment. This product is available in black only.	-40°F (-40°C) to 122°F (50°C)	HB	239°F (115°C)				No Discoloration	
Fire Resistant Polyethylene* UL94-V-2 Rating. This material is self extinguishing and passes the UL 94 flame retardant test with V-2 rating.		V-2	239°F (115°C)				Some Discoloration	
Flame Retardant Polyethylene* UL94-V-0 Rating. This material is self extinguishing and passes the UL94 flame retardant test with a V-0 rating.	-4°F (-20°C) to 122°F (50°C)	V-0	270°F (132°C)	Resistant except to halogenated hydrocarbons	Resistant	Resistant	Resistant Some Discoloration	
Weather Resistant Polypropylene This material is resistant to chemical attack and is suitable for harsh environment applications requiring UV/weather resistance and withstanding high temperatures.	-40°F (-40°C) to 239°F (115°C)	HB	334°F (168°C)				Resistant No Discoloration	
Nylon 6.6 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 (-40°C) to 149°F (65°C)	HB	505°F (263°C)	Resistant except to halogenated hydrocarbons	Resistant	Not recommended	Resistant No Discoloration	
Weather Resistant Nylon 6.6 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.		HB						
TFE‡* 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 (-270°C) to 356°F (180°C)	V-0	648°F (342°C)	Resistant	Resistant	Resistant	Resistant No Discoloration	
Pan-Wrap™								
Natural Polyethylene Lowest cost material for indoor use up to 122°C. Natural is available in all sizes.	-40°F (-40°C) to 122°F (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
Flame Retardant Polyethylene* UL94-V-0 Rating. This material is self extinguishing and passes the UL94 flame retardant test with a V-0 rating.	-4°F (-20°C) to 122°F (50°C)	V-0	270°F (132°C)	Resistant except to halogenated hydrocarbons	Resistant	Resistant	Resistant Some Discoloration	

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
Sleeving								
Polyethylene Terephthalate (PET) This 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. Colors: Weather Resistant Black, White and Gray.	-94°F (-70°C) to 257°F (125°C)	V-0	500°F (260°C)	Resistant to some solvents	Resistant to most weak bases	Resistant	Some Discoloration	UL File E116868
Flame Retardant Polyethylene Terephthalate (PET) This 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	
Tinned Copper Provides shielding on harnesses and cable, for high end automotive applications, grounding straps, and EMI,RFI, and ESD Protection. Halogen Free.	N/A	Non-Flam-mable	1828°F (998°C)	Resistant	Resistant	Not Recommended	Resistant	N/A
Heavy Duty Nylon Strong filaments provide extreme cut and abrasion resistance while allowing for a smooth feel and reduced drag.	-40°F (-40°C) to 239°F (65°C)	UL94-HB	N/A	Resistant except to halogenated hydrocarbons	Resistant	Not Recommended	Resistant	N/A
Aluminum Covered Fiberglass 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 (-60°C) to 491°F (255°C)	N/A	2,048°F (1,120°C)	Resistant	Resistant	Resistant	Resistant	N/A
CLT								
Black Polyethylene Lowest cost material is for use up to 122°F. Other colors may be available.	40°F (-40°C) to 122°F (50°C)	HB	—	Resistant except to halogenated hydrocarbons	Resistant	Resistant	Resistant No Discoloration	N/A
Black Polypropylene Economical material with good impact strength. Suitable for harsh environment applications requiring UV/weather resistance.	-40°F (-40°C) to 185°F (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		
Nylon 6 Nylon is a strong, impact modified, heat stabilized, durable high abrasion resistant material.	-40°F (-40°C) to 230°F (110°C)		410°F (211°C)	Resistant except to halogenated hydrocarbons		Not recommended		
PVC								
PVC Non-Shrink Tubing* This material provides insulation and protection for continuous use at temperature -4°F (-20°C) to 221°F(105°C).	-4°F (-20°C) to 221°F (105°C)	UL 224 VW-1 **	—	Resistant except to aromatic hydrocarbons, ketones and esters	Resistant	Resistant	Resistant No Discoloration	UL File E122770
Grommet Edging								
Natural Polyethylene Lowest cost material for indoor use up to 122° F. Natural is available in all sizes.	-40°F (-40°C) to 122°F (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
Weather Resistant Polyethylene This material has the same properties as natural polyethylene, and also has additives which allow it to resist the effects of ultraviolet light and acid rain in an outdoor environment. This product is available in black only.					Resistant	Resistant except to oxidizing acids	No Discoloration	Adhesive lined products are not UL Recognized
Nylon 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-0	491°F (255°C)	Resistant except to phenols and formic acid	Resistant	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” (17.8mm). The two possibilities are HSTT75-48-5 and HSTT100-48-5.

Part Number	Expander I.D. In. (mm)	Recovered I.D. In. (mm)
HSTT75-48-5	0.750 (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.
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