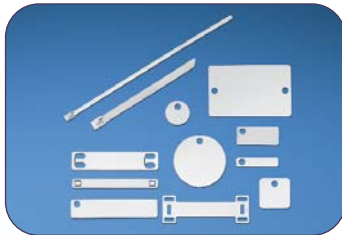
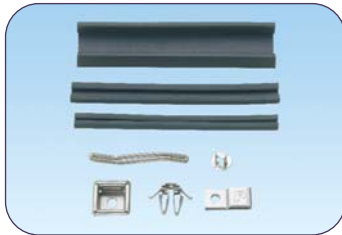
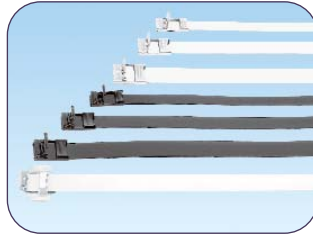


PAN-STEEL® SYSTEM

The Pan-Steel® System provides a strong, durable method of bundling and mechanical fastening, for all indoor, outdoor, and underground (including direct burial) applications. The ties are designed for use in critical applications where strength, vibration, radiation, weathering, corrosion and temperature extremes are a factor.



- Patented locking head design assures locking in any position, with a high rated loop tensile strength for a durable solution that delivers an extra margin of safety
- 201, 304, or 316 grade stainless steel provides a strong, long-lasting method of bundling and mechanical fastening in harsh environments
- Accessories available to protect, speed, and simplify the mounting of wires, cable, and tubing with Panduit® Pan-Steel® Stainless Steel Cable Ties
- Complete line of manual and powered installation tools available with controlled tension and automatic cut-off for lower installed cost
- Large selection of stainless steel marker plates, tags, and cable ties to deliver maximum design flexibility to match your specific application requirements; for details, refer to Permanent Identification Section E4

Panduit continues to develop stainless steel solutions for harsh environment applications by solving customer problems with innovative products and reliable tooling to achieve lowest installed cost.

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E3.
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B3.1

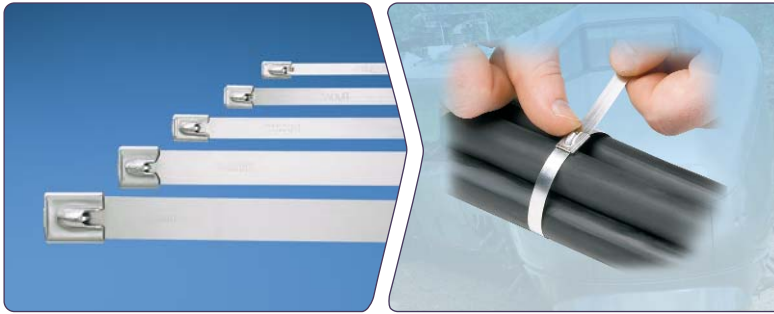
A.
System
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Pan-Steel® Products Overview

B1.
Cable Ties

Pan-Steel® Cable Ties

Pages B3.4 – B3.7, B3.11 – B3.13



- Designed for use in indoor, outdoor, and underground applications
- Self-locking head design speeds installation
- Strong, durable method of cable bundling
- Rounded edges assure cable protection and worker safety

C1.
Wiring
Duct

C2.
Surface
Raceway

Pan-Steel® Coated Cable Ties

Pages B3.8 – B3.9, B3.12 – B3.13



- Designed for use in indoor, outdoor, and underground applications
- Self-locking head design speeds installation
- Provides additional edge protection
- Prevents corrosion between dissimilar metals

C3.
Abrasion
Protection

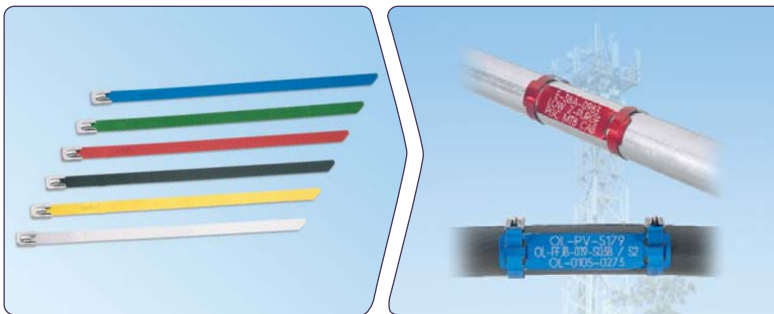
C4.
Cable
Management

D1.
Terminals

D2.
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Pan-Alum™ Cable Ties

Page B3.10



- Ideal for use in permanent identification and color-coding applications
- Five color options in addition to natural aluminum
- Lightweight construction for flexibility and ease of handling
- Used with aluminum marker plates for fast and easy installation

D3.
Grounding
Connectors

E1.
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E2.
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& Write-On
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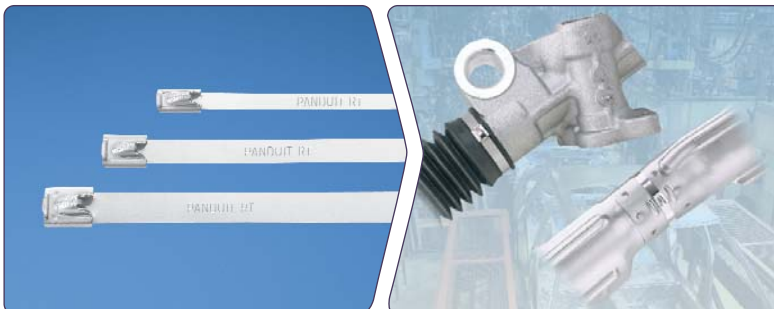
E4.
Permanent
Identification

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Pan-Steel® Retained Tension Ties

Pages B3.17 – B3.20



- Designed for use in Industrial, OEM, and Transportation Markets
- Provides tight bundling of armored cables, pipes, conduit and rigid materials
- Locks into place at any length along the tie body
- 360° seal design option eliminates gaps for a completely sealed installation

Pan-Steel® Products Overview (continued)

Installation Tools

Pages B3.14 – B3.16, B3.20, B3.26



- Used in production, maintenance, and construction applications
- Full line of lightweight, ergonomic hand tools
- Highest reliability in the industry
- Flush cut-off of ties limits exposure to sharp edges

Pan-Steel® Strapping

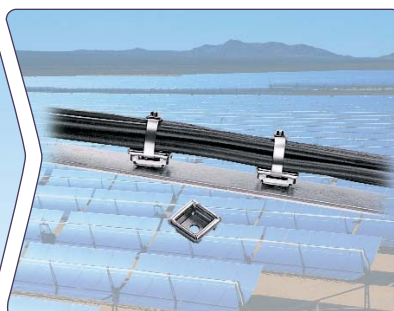
Pages B3.21 – B3.26



- Fold over design provides high retained tension
- Cut end is locked inside low profile buckle – no sharp edges
- Coil-in-box packaging option for job site versatility with minimum inventory
- Coated design option for additional edge protection

Accessories

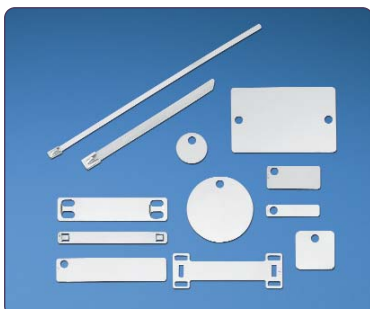
Pages B3.26 – B3.29



- Cushion sleeving provides full separation between ties and bundles
- Multiple mount options for range of applications and panel thicknesses
- Mounts secure ties to structure quickly and easily

Permanent Identification Products

Pages E4.1 – E4.6



- Withstand the test of time and provide legibility in harsh environments
- Factory Custom Marking Service creates custom embossed or laser etched metal plates, tags, and ties
- Portable marking tools for quick and easy on-site identification
- Large selection delivers maximum design flexibility

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Features and Benefits – Pan-Steel® Cable Ties

Panduit® Pan-Steel® Stainless Steel Ties are engineered for safety, productivity, and durability by providing round edges and smooth surfaces, easy threading, high loop tensile strength and tight clamping.

Self-Locking Head Construction

***Aggressive locking head**
Quicker locking,
tighter installation

***Lead in design**
Wider entrance for
easier threading

***Innovative
displacement lock**
Assures superior
locking strength

Unique locking ramp
Assures locking in
any position

Strengthening ribs
Stronger head increases
lock strength

Extended retaining tab
Increases overall tie strength

*Patented

Fully Rounded Edges



Panduit tie body



Other manufacturer's
tie body

The Pan-Steel® Stainless Steel Cable Tie features fully rounded edges to assure bundle protection and operator safety. Panduit not only removes the burr, but actually passes the material through a secondary process which removes the top and bottom corners of the material.

Self-Locking for Fast Installation



Self-locking design can be fastened by hand requiring no fold over or additional installation steps.



Pan-Steel® Installation Tools for adjustable tension control and automatic cut-off for quick, consistent, and secure installation.



Large selection of installation tools, the proper tool available to meet the requirements of every application. See pages B3.14 – B3.16.



Pan-Steel® System Accessories are used with Pan-Steel® Stainless Steel Cable Ties to speed and simplify the mounting of wires, cables, and tubing. Installation methods include screw mounts and push mounts. See pages B3.26 – B3.29.



Pan-Steel® Permanent Identification Solutions are designed for use with Panduit® Pan-Steel® Stainless Cable Ties and Pan-Alum™ Aluminum Cable Ties for quick and easy on-demand identification in harsh environments. See pages E4.1 – E4.6.

Part Number System for Pan-Steel® Cable Ties

MLT	6	S	—	CP	
Type	Bundle Diameter Reference (In.)	Cross Section		Standard Package Size	Material
MLT = Metal Locking Tie		S = Standard		Q = 25	
		LH = Light Heavy		L* = 50	(blank) = 304
		H = Heavy		LP** = 50	316 = 316
		EH = Extra-Heavy		CP = 100	
		EH15 = Extra-Heavy-15		*Standard Cross Section	
		SH = Super-Heavy		**Heavy Cross Section	



Pan-Steel® Self-Locking Cable Ties – MLT Series

- Self-locking head design speeds installation and locks into place at any length along the tie body
- Provides a strong, durable method of cable bundling
- Can be used in a wide range of indoor, outdoor, and underground (including direct burial) applications
- Smooth surfaces and rounded edges assures cable protection and worker safety
- Available in AISI 304 stainless steel for general-purpose applications
- Available in AISI 316 stainless steel for the most corrosive environments



Part Number	Max. Bundle Diameter		Length*		Min. Loop Tensile Strength**		Min. Bundle Diameter		Width		Thickness		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm	In.	mm			

AISI 304 Stainless Steel – For General Purpose

Standard Cross Section

MLT1S-CP	1.0	25	5.0	127	200	890	0.50	12.7	0.18	4.6	0.010	0.25	GS4MT, HTMT, PPTMT, ST2MT	100	500
MLT2S-CP	2.0	51	7.9	201	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT2S-L	2.0	51	7.9	201	200	890	0.50	12.7	0.18	4.6	0.010	0.25		50	500
MLT2.7S-CP	2.7	69	10.2	259	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT4S-CP	4.0	102	14.3	362	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT4S-L	4.0	102	14.3	362	200	890	0.50	12.7	0.18	4.6	0.010	0.25		50	500
MLT6S-CP	6.0	152	20.5	521	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT8S-CP	8.0	203	26.8	679	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT10S-CP	10.0	254	33.0	838	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT12S-Q	12.0	304	39.3	998	200	890	0.50	12.7	0.18	4.6	0.010	0.25		25	125
MLT14S-Q	14.0	355	45.5	1156	200	890	0.50	12.7	0.18	4.6	0.010	0.25		25	125
MLT15S-Q	15.0	380	49.2	1250	200	890	0.50	12.7	0.18	4.6	0.010	0.25		25	125

*Other lengths available, contact Panduit Customer Service.

**Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

***For information on installation tools, refer to pages B3.14 – B3.16.

Table continued on page B3.6

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	Max. Bundle Diameter		Length*		Min. Loop Tensile Strength**		Min. Bundle Diameter		Width		Thickness		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
Part Number	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm	In.	mm			
Light-Heavy Cross Section															
MLT2LH-LP	2.0	51	7.9	201	250	1112	0.50	12.7	0.25	6.4	0.010	0.25	GS4MT, HTMT, PPTMT, ST2MT	50	250
MLT4LH-LP	4.0	102	14.3	362	250	1112	0.50	12.7	0.25	6.4	0.010	0.25		50	250
MLT6LH-LP	6.0	152	20.5	521	250	1112	0.50	12.7	0.25	6.4	0.010	0.25		50	250
MLT8LH-LP	8.0	203	26.8	679	250	1112	0.50	12.7	0.25	6.4	0.010	0.25		50	250
Heavy Cross Section															
MLT2H-LP	2.0	51	7.9	201	450	2000	0.50	12.7	0.31	7.9	0.010	0.25	GS4MT, ST2MT, HTMT, PPTMT, PBTMT	50	250
MLT2.7H-LP	2.7	69	10.2	259	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT4H-LP	4.0	102	14.3	362	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT6H-LP	6.0	152	20.5	521	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT8H-LP	8.0	203	26.8	679	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT10H-LP	10.0	254	33.0	838	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT12H-Q	12.0	304	39.3	998	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		25	125
MLT14H-Q	14.0	355	45.5	1156	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		25	125
Extra-Heavy Cross Section															
MLT4EH-LP	4.0	102	17.1	434	600	2670	1.00	25.4	0.50	12.7	0.010	0.25	ST2MT, RT2HT, RT2HTN, PBTMT	50	250
MLT6EH-LP	6.0	152	23.4	594	600	2670	1.00	25.4	0.50	12.7	0.010	0.25		50	250
MLT8EH-LP	8.0	203	29.7	754	600	2670	1.00	25.4	0.50	12.7	0.010	0.25		50	250
MLT10EH-LP	10.0	254	35.9	912	600	2670	1.00	25.4	0.50	12.7	0.010	0.25		50	250
MLT12EH-Q	12.0	305	42.2	1072	600	2670	1.00	25.4	0.50	12.7	0.010	0.25		25	125
MLT4EH15-LP	4.0	102	17.1	434	700	3115	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MLT6EH15-LP	6.0	152	23.4	594	700	3115	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MLT8EH15-LP	8.0	203	29.7	754	700	3115	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MLT10EH15-LP	10.0	254	35.9	912	700	3115	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MLT12EH15-Q	12.0	305	42.2	1072	700	3115	1.00	25.4	0.50	12.7	0.015	0.38		25	125
Super-Heavy Cross Section															
MLT4SH-LP	4.0	102	17.1	434	900	4005	1.00	25.4	0.63	15.9	0.015	0.38	RT2HT, RT2HTN, PBTMT	50	250
MLT6SH-LP	6.0	152	23.4	594	900	4005	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MLT8SH-LP	8.0	203	29.7	754	900	4005	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MLT10SH-LP	10.0	254	35.9	912	900	4005	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MLT12SH-Q	12.0	305	42.2	1072	900	4005	1.00	25.4	0.63	15.9	0.015	0.38		25	125
AISI 316 Stainless Steel – For Superior Corrosion Resistance															
Standard Cross Section															
MLT1S-CP316	1.0	25	5.0	127	200	890	0.50	12.7	0.18	4.6	0.010	0.25	GS4MT, HTMT, PPTMT, ST2MT	100	500
MLT2S-CP316	2.0	51	7.9	201	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT2.7S-CP316	2.7	69	10.2	259	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT4S-CP316	4.0	102	14.3	362	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT6S-CP316	6.0	152	20.5	521	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT8S-CP316	8.0	203	26.8	679	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
MLT10S-CP316	10.0	254	33.0	838	200	890	0.50	12.7	0.18	4.6	0.010	0.25		100	500
Light-Heavy Cross Section															
MLT2LH-LP316	2.0	51	7.9	201	250	1112	0.50	12.7	0.25	6.4	0.010	0.25	GS4MT, HTMT, PPTMT, ST2MT	50	250
MLT4LH-LP316	4.0	102	14.3	362	250	1112	0.50	12.7	0.25	6.4	0.010	0.25		50	250
MLT6LH-LP316	6.0	152	20.5	521	250	1112	0.50	12.7	0.25	6.4	0.010	0.25		50	250
MLT8LH-LP316	8.0	203	26.8	679	250	1112	0.50	12.7	0.25	6.4	0.010	0.25		50	250

*Other lengths available, contact Panduit Customer Service.

**Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

***For information on installation tools, refer to pages B3.14 – B3.16.



Pan-Steel® Self-Locking Cable Ties – MLT Series (continued)

Part Number	Max. Bundle Diameter		Length*		Min. Loop Tensile Strength**		Min. Bundle Diameter		Width		Thickness		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm	In.	mm			
Heavy Cross Section															
MLT2H-LP316	2.0	51	7.9	201	450	2000	0.50	12.7	0.31	7.9	0.010	0.25	GS4MT, ST2MT, HTMT, PPTMT, PBTMT	50	250
MLT2.7H-LP316	2.7	69	10.2	259	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT4H-LP316	4.0	102	14.3	362	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT6H-LP316	6.0	152	20.5	521	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT8H-LP316	8.0	203	26.8	679	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
MLT10H-LP316	10.0	254	33.0	838	450	2000	0.50	12.7	0.31	7.9	0.010	0.25		50	250
Extra-Heavy Cross Section															
MLT4EH-LP316	4.0	102	17.1	434	600	2670	1.00	25.4	0.50	12.7	0.010	0.25	ST2MT, RT2HT, RT2HTN, PBTMT	50	250
MLT6EH-LP316	6.0	152	23.4	594	600	2670	1.00	25.4	0.50	12.7	0.010	0.25		50	250
MLT8EH-LP316	8.0	203	29.7	754	600	2670	1.00	25.4	0.50	12.7	0.010	0.25		50	250
MLT4EH15-LP316	4.0	102	17.1	434	700	3115	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MLT6EH15-LP316	6.0	152	23.4	594	700	3115	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MLT8EH15-LP316	8.0	203	29.7	754	700	3115	1.00	25.4	0.50	12.7	0.015	0.38		50	250
Super-Heavy Cross Section															
MLT4SH-LP316	4.0	102	17.1	434	900	4005	1.00	25.4	0.63	15.9	0.015	0.38	RT2HT, RT2HTN, PBTMT	50	250
MLT6SH-LP316	6.0	152	23.4	594	900	4005	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MLT8SH-LP316	8.0	203	29.7	754	900	4005	1.00	25.4	0.63	15.9	0.015	0.38		50	250

*Other lengths available, contact Panduit Customer Service.

**Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

***For information on installation tools, refer to pages B3.14 – B3.16.

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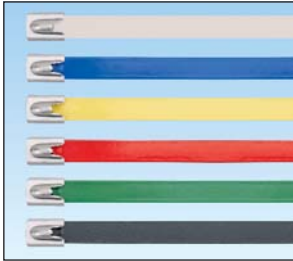
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Pan-Steel® Polyester Fully Coated Cable Ties – MLTFC Series

- Polyester coating available in six color options provides visual indication for easy identification in color-coding applications (heavy cross section only)
- Self-locking head design speeds installation and locks into place at any length along the tie body
- Polyester coating provides additional edge protection and prevents corrosion between dissimilar metals

- AISI 316 stainless steel for the most corrosive environments
- Available in standard, heavy, extra-heavy and super-heavy cross sections
- UV resistant, low smoke, halogen-free material
- Temperature tolerance -40°F (-40°C) to 302°F (150°C)



	Max. Bundle Diameter		Length*			Min. Loop Tensile Strength**		Width		Thickness^		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
Part Number	In.	mm	In.	mm	Color	Lbs.	N	In.	mm	In.	mm			
Standard Cross Section^^														
MLTFC2S-CP316	2.0	51	7.9	201	Black	100	445	0.18	4.6	0.010	0.25	GS4MT, HTMT, PPTMT, ST2MT	100	500
MLTFC4S-CP316	4.0	102	14.3	362	Black	100	445	0.18	4.6	0.010	0.25		100	500
MLTFC6S-CP316	6.0	152	20.5	521	Black	100	445	0.18	4.6	0.010	0.25		100	500
MLTFC8S-CP316	8.0	203	26.8	679	Black	100	445	0.18	4.6	0.010	0.25		100	500

Heavy Cross Section^^														
MLTFC2H-LP316RD	2.0	51	7.9	201	Red	250	1112	0.31	7.9	0.010	0.25	GS4MT, ST2MT, HTMT, PPTMT, PBTMT	50	250
MLTFC4H-LP316RD	4.0	102	14.3	362	Red	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC6H-LP316RD	6.0	152	20.5	521	Red	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC2H-LP316YL	2.0	51	7.9	201	Yellow	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC4H-LP316YL	4.0	102	14.3	362	Yellow	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC6H-LP316YL	6.0	152	20.5	521	Yellow	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC2H-LP316GR	2.0	51	7.9	201	Green	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC4H-LP316GR	4.0	102	14.3	362	Green	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC6H-LP316GR	6.0	152	20.5	521	Green	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC2H-LP316BU	2.0	51	7.9	201	Blue	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC4H-LP316BU	4.0	102	14.3	362	Blue	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC6H-LP316BU	6.0	152	20.5	521	Blue	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC2H-LP316WH	2.0	51	7.9	201	White	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC4H-LP316WH	4.0	102	14.3	362	White	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC6H-LP316WH	6.0	152	20.5	521	White	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC2H-LP316	2.0	51	7.9	201	Black	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC4H-LP316	4.0	102	14.3	362	Black	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC6H-LP316	6.0	152	20.5	521	Black	250	1112	0.31	7.9	0.010	0.25		50	250
MLTFC8H-LP316	8.0	203	26.8	679	Black	250	1112	0.31	7.9	0.010	0.25		50	250

Extra-Heavy Cross Section^^														
MLTFC4EH-LP316	4.0	102	17.1	434	Black	300	1335	0.50	12.7	0.010	0.25	ST2MT, RT2HT, RT2HTN, PBTMT	50	250
MLTFC6EH-LP316	6.0	152	23.4	594	Black	300	1335	0.50	12.7	0.010	0.25		50	250
MLTFC8EH-LP316	8.0	203	29.7	754	Black	300	1335	0.50	12.7	0.010	0.25		50	250

Super-Heavy Cross Section^^														
MLTFC4SH-LP316	4.0	102	17.1	434	Black	450	2000	0.63	15.9	0.015	0.38	RT2HT, RT2HTN, PBTMT	50	250
MLTFC6SH-LP316	6.0	152	23.4	594	Black	450	2000	0.63	15.9	0.015	0.38		50	250
MLTFC8SH-LP316	8.0	203	29.7	754	Black	450	2000	0.63	15.9	0.015	0.38		50	250

*Other lengths available, contact Panduit Customer Service.

**Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

***For information on installation tools, refer to pages B3.14 – B3.16.

^Base material less coating. ^^Minimum bundle diameter is .50"(12.7mm). ^^Minimum bundle diameter is 1.0"(25.4mm).

Pan-Steel® Nylon 11 Selectively Coated Cable Ties – MLTC Series

- Self-locking head design speeds installation and locks into place at any length along the tie body
- Nylon 11 coating provides additional edge protection and prevents corrosion between dissimilar metals
- AISI 316 stainless steel for the most corrosive environments
- Available in heavy cross section
- UV resistant, low smoke, halogen-free material
- Temperature tolerance -40°F (-40°C) to 285°F (140°C)



Part Number	Max. Bundle Diameter		Length*		Min. Loop Tensile Strength**		Min. Bundle Diameter		Width		Thickness^		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm	In.	mm			

AISI 316 Stainless Steel – For Nylon 11 Selectively Coated Cable Ties

Heavy Cross Section

Part Number	Max. Bundle Diameter	Length*	Min. Loop Tensile Strength**	Min. Bundle Diameter	Width	Thickness^	Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
MLTC2H-LP316	2.0	51	250	0.50	7.9	0.010	GS4MT, ST2MT, HTMT, PPTMT, PBTMT	50	250
MLTC4H-LP316	4.0	102	250	0.50	7.9	0.010		50	250
MLTC6H-LP316	6.0	152	250	0.50	7.9	0.010		50	250
MLTC8H-LP316	8.0	203	250	0.50	7.9	0.010		50	250
MLTC10H-LP316	10.0	254	250	0.50	7.9	0.010		50	250

*Other lengths available, contact Panduit Customer Service.

**Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

***For information on installation tools, refer to pages B3.14 – B3.16.

^Base material less coating.

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Pan-Alum™ Aluminum Cable Ties – MLT Series

- Self-locking head design speeds installation and locks into place at any length along the tie body
- Lightweight, aluminum construction for flexibility and ease of handling
- Five color options in addition to natural aluminum finish for color-coding applications
- Smooth surfaces and rounded edges assures cable protection and worker safety
- For use with Pan-Alum™ Marker Plates on page E4.5, for fast installation at the lowest installed cost



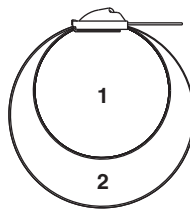
Part Number	Max. Bundle Diameter		Length		Color	Min. Loop Tensile Strength*		Min. Bundle Diameter		Width		Thickness		Recommended Installation Tool**	Std. Pkg. Qty.	Std. Ctn. Qty.
	In.	mm	In.	mm		Lbs.	N	In.	mm	In.	mm	In.	mm			
MLT1H-LPALBL	1.0	25	5.5	140	Black	50	222	0.50	12.7	0.31	7.9	0.012	0.03	ST2MT, HTMT	50	250
MLT2H-LPALBL	2.0	51	7.9	201	Black	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT4H-LPALBL	4.0	102	14.3	362	Black	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT1H-LPALRD	1.0	25	5.5	140	Red	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT2H-LPALRD	2.0	51	7.9	201	Red	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT4H-LPALRD	4.0	102	14.3	362	Red	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT1H-LPALYL	1.0	25	5.5	140	Yellow	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT2H-LPALYL	2.0	51	7.9	201	Yellow	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT4H-LPALYL	4.0	102	14.3	362	Yellow	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT1H-LPALGR	1.0	25	5.5	140	Green	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT2H-LPALGR	2.0	51	7.9	201	Green	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT4H-LPALGR	4.0	102	14.3	362	Green	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT1H-LPALBU	1.0	25	5.5	140	Blue	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT2H-LPALBU	2.0	51	7.9	201	Blue	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT4H-LPALBU	4.0	102	14.3	362	Blue	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT1H-LPAL	1.0	25	5.5	140	Aluminum	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT2H-LPAL	2.0	51	7.9	201	Aluminum	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250
MLT4H-LPAL	4.0	102	14.3	362	Aluminum	50	222	0.50	12.7	0.31	7.9	0.012	0.03		50	250

*Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

**For information on installation tools, refer to page B3.15.

Pan-Steel® Double Wrapped Cable Ties – MLTD Series

- Self-locking head design speeds installation and locks into place at any length along the tie body
- Cable tie body passes through the head two times for additional strength
- Available in heavy, extra-heavy, and super-heavy cross sections
- Available in AISI 304 stainless steel for general-purpose applications
- Available in AISI 316 stainless steel for the most corrosive environments
- Super-heavy double wrapped tested for short circuit applications up to 71.5 kA



Part Number	Max. Bundle Diameter		Length*		Min. Loop Tensile Strength**		Min. Bundle Diameter		Width		Thickness		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm	In.	mm			

AISI 304 Stainless Steel – MLTD Double Wrapped Ties

Heavy Cross Section

MLT2DH-L	2.0	51	18.5	470	600	2670	1.00	25.4	0.31	7.9	0.010	0.25	GS4MT, HTMT, PPTMT, ST2MT	50	250
MLT4DH-L	4.0	102	28.0	711	600	2670	1.00	25.4	0.31	7.9	0.010	0.25		50	250
MLT5DH-L	5.0	127	34.0	863	600	2670	1.00	25.4	0.31	7.9	0.010	0.25		50	250
MLT6DH-Q	6.0	152	40.0	1016	600	2670	1.00	25.4	0.31	7.9	0.010	0.25		25	250

Extra-Heavy Cross Section

MLT4DEH-Q	4.0	102	29.5	749	800	3560	1.00	25.4	0.50	12.7	0.010	0.25	ST2MT, RT2HT, RT2HTN, PBTMT	25	125
MLT6DEH-Q	6.0	152	41.5	1054	800	3560	1.00	25.4	0.50	12.7	0.010	0.25		25	125
MLT8DEH-Q	8.0	203	53.5	1359	800	3560	1.00	25.4	0.50	12.7	0.010	0.25		25	125
MLT4DEH15-Q	4.0	102	29.5	749	1000	4450	1.00	25.4	0.50	12.7	0.015	0.38		25	125
MLT6DEH15-Q	6.0	152	41.5	1054	1000	4450	1.00	25.4	0.50	12.7	0.015	0.38		25	125
MLT8DEH15-Q	8.0	203	53.5	1359	1000	4450	1.00	25.4	0.50	12.7	0.015	0.38		25	125

Super-Heavy Cross Section

MLT4DSH-Q	4.0	102	29.5	749	1200	5340	1.00	25.4	0.62	15.9	0.015	0.38	RT2HT, RT2HTN, PBTMT	25	125
MLT6DSH-Q	6.0	152	41.5	1054	1200	5340	1.00	25.4	0.62	15.9	0.015	0.38		25	125
MLT8DSH-Q	8.0	203	53.5	1359	1200	5340	1.00	25.4	0.62	15.9	0.015	0.38		25	125

AISI 316 Stainless Steel – For MLTD Double Wrapped Ties

Extra-Heavy Cross Section

MLT4DEH-Q316	4.0	102	29.5	749	800	3560	1.00	25.4	0.50	12.7	0.010	0.25	ST2MT, RT2HT, RT2HTN, PBTMT	25	125
MLT6DEH-Q316	6.0	152	41.5	1054	800	3560	1.00	25.4	0.50	12.7	0.010	0.25		25	125
MLT8DEH-Q316	8.0	203	53.5	1359	800	3560	1.00	25.4	0.50	12.7	0.010	0.25		25	125
MLT4DEH15-Q316	4.0	102	29.5	749	1000	4450	1.00	25.4	0.50	12.7	0.015	0.38		25	125
MLT6DEH15-Q316	6.0	152	41.5	1054	1000	4450	1.00	25.4	0.50	12.7	0.015	0.38		25	125
MLT8DEH15-Q316	8.0	203	53.5	1359	1000	4450	1.00	25.4	0.50	12.7	0.015	0.38		25	125

Super-Heavy Cross Section

MLT4DSH-Q316	4.0	102	29.5	749	1200	5340	1.00	25.4	0.63	15.9	0.015	0.38	RT2HT, RT2HTN, PBTMT	25	125
MLT6DSH-Q316	6.0	152	41.5	1054	1200	5340	1.00	25.4	0.63	15.9	0.015	0.38		25	125
MLT8DSH-Q316	8.0	203	53.5	1359	1200	5340	1.00	25.4	0.63	15.9	0.015	0.38		25	125

*Other lengths available, contact Panduit Customer Service.

**Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

***For information on installation tools, refer to pages B3.14 – B3.16.

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Pan-Steel® Custom Length Banding – MBS, MBH, MBEH and MBSH Series

- For applications that require various bundle diameters
- Supplied in reels of 82.50 feet (25.0m), 200.00 feet (60.9m), 250.00 feet (76.2m) or 1000.00 feet (304.8m)
- Provides job site versatility with minimum inventory
- Packaging speeds removal of steel and includes bundle diameter cut-off guide



Polyester coating (optional):

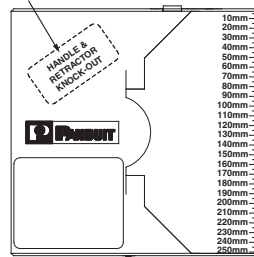
- Polyester coating provides additional edge protection and prevents corrosion between dissimilar metals
- UV resistant, low smoke, halogen-free material
- Temperature tolerance -40°F (-40°C) to 302°F (150°C)
- AISI 316 stainless steel for the most corrosive environments

KNOCK-OUT
HANDLE LOCATION
(BOTH SIDES)

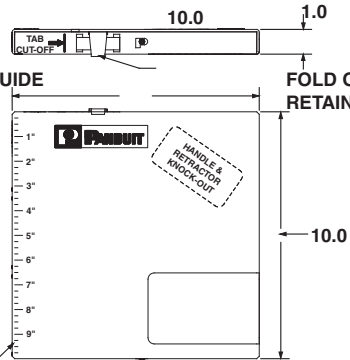
METRIC
MEASURE

DIAMETER
CUT-OFF GUIDE

FOLD OVER
RETAINER TAB



ENGLISH MEASURE



Part Number	Max. Bundle Diameter		Length*		Min. Loop Tensile Strength**		Min. Bundle Diameter		Width		Thickness^		Recommended Installation Tool***	Recommended Banding Head	Std. Pkg. Qty.†
	In.	mm	Ft.	m	Lbs.	N	In.	mm	In.	mm	In.	mm			

AISI 304 Stainless Steel — For General Purpose Banding

Standard Cross Section

MBS-TLR	Any	Any	250	76	100	445	0.50	12.7	0.18	4.4	0.010	0.25	GS4MT, ST2MT, HTMT, PPTMT	MTHS-C	1
MBS-MR	Any	Any	1000	305	100	445	0.50	12.7	0.18	4.4	0.010	0.25		MTHS-C	1

Heavy Cross Section

MBH-TLR	Any	Any	250	76	250	1112	0.50	12.7	0.31	7.9	0.010	0.25	GS4MT, ST2MT, HTMT, PPTMT, PBTMT	MTHH-C	1
MBH-MR	Any	Any	1000	305	250	1112	0.50	12.7	0.31	7.9	0.010	0.25		MTHH-C	1

Extra-Heavy Cross Section

MBEH-TLR	Any	Any	250	76	300	1335	1.00	25.4	0.50	12.7	0.010	0.25	ST2MT, RT2HT, RT2HTN, PBTMT	MTHEH-C	1
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Super-Heavy Cross Section

MBSH-TR	Any	Any	200	61	450	2000	1.00	25.4	0.63	15.9	0.015	0.38	RT2HT, RT2HTN, PBTMT	MTHSH-C	1
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AISI 316 Stainless Steel — For Superior Corrosion Resistance

Standard Cross Section

MBS-TLR316	Any	Any	250	76	100	445	0.50	12.7	0.18	4.4	0.010	0.25	GS4MT, ST2MT, HTMT, PPTMT	MTHS-C316	1
MBS-MR316	Any	Any	1000	305	100	445	0.50	12.7	0.18	4.4	0.010	0.25		MTHS-C316	1

Heavy Cross Section

MBH-TLR316	Any	Any	250	76	250	1112	0.50	12.7	0.31	7.9	0.010	0.25	GS4MT, ST2MT, HTMT, PPTMT, PBTMT	MTHH-C316	1
MBH-MR316	Any	Any	1000	305	250	1112	0.50	12.7	0.31	7.9	0.010	0.25		MTHH-C316	1

Extra-Heavy Cross Section

MBEH-TLR316	Any	Any	250	76	300	1335	1.00	25.4	0.50	12.7	0.010	0.25	ST2MT, RT2HT, RT2HTN, PBTMT	MTHEH-C316	1
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Super-Heavy Cross Section

MBSH-TR316	Any	Any	200	61	450	2000	1.00	25.4	0.63	15.9	0.015	0.38	RT2HT, RT2HTN, PBTMT	MTHSH-C316	1
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*Other lengths available, contact Panduit Customer Service.

**Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

***For information on installation tools, refer to pages B3.14 – B3.16.

^Base material less coating

‡Order in number of reels required.

Pan-Steel® Custom Length Banding – MBS, MBH, MBEH and MBSH Series

Part Number	Max. Bundle Diameter		Length*		Min. Loop Tensile Strength**		Min. Bundle Diameter		Width		Thickness^		Recommended Installation Tool***	Recommended Banding Head	Std. Pkg Qty.‡
	In.	mm	Ft.	m	Lbs.	N	In.	mm	In.	mm	In.	mm			
Polyester Coated AISI 316 Stainless Steel															
Heavy Cross Section															
MBCH-QR316	Any	Any	82	25	250	1112	0.50	12.7	0.31	7.9	0.010	0.25	GS4MT, ST2MT, HTMT, PPTMT, PBTMT	MTHCH-C316	1
Extra-Heavy Cross Section															
MBCEH-QR316	Any	Any	82	25	300	1335	1.00	25.4	0.50	12.7	0.010	0.25	ST2MT, RT2HT, RT2HTN, PBTMT	MTHCEH-C316	1
Super-Heavy Cross Section															
MBCSH-QR316	Any	Any	82	25	450	2000	1.00	25.4	0.63	15.9	0.015	0.38	RT2HT, RT2HTN, PBTMT	MTHCSH-C316	1

*Other lengths available, contact Panduit Customer Service.

**Per SAE Standard AS23190/3 (formerly MIL). For additional details, refer to page B3.32.

***For information on installation tools, refer to pages B3.14 – B3.16.

^Base material less coating

†Order in number of reels required.

To determine the proper amount of banding required, use the following formula:

Calculate S and H Cross Section Diameter inches (mm) x 3.14 + 3 inches (76mm)

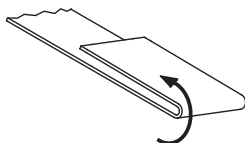
Calculate EH and SH Cross Section Diameter inches (mm) x 3.14 + 4.5 inches (114mm)

Pan-Steel® Custom Length Banding Heads – MTH Series

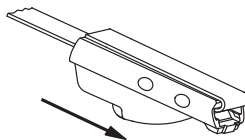
- Self-locking head design speeds installation and locks into place at any length along the tie body



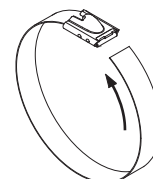
Part Number	Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
AISI 304 Stainless Steel			
MTHS-C	Loose piece banding head for standard cross section banding.	100	1000
MTHH-C	Loose piece banding head for heavy cross section banding.	100	1000
MTHEH-C	Loose piece banding head for extra-heavy cross section banding.	100	1000
MTHSH-C	Loose piece banding head for super-heavy cross section banding.	100	1000
AISI 316 Stainless Steel			
MTHS-C316	Loose piece banding head for standard cross section banding.	100	1000
MTHH-C316	Loose piece banding head for heavy cross section banding.	100	1000
MTHEH-C316	Loose piece banding head for extra-heavy cross section banding.	100	1000
MTHSH-C316	Loose piece banding head for super-heavy cross section banding.	100	1000
AISI 316 Coated Stainless Steel			
MTHCH-C316	Loose piece coated banding head for heavy cross section banding.	100	1000
MTHCEH-C316	Loose piece coated banding head for extra-heavy cross section banding.	100	1000
MTHCSH-C316	Loose piece coated banding head for super-heavy cross section banding.	100	1000



1) Take one end of the cut banding and bend back 1/2" (13mm).



2) Take a self-locking head and slide it the entire length of the band until it reaches the bend.



3) Bend tail flat against bottom of banding head to complete assembly.

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GS4MT Hand Operated Installation Tool

- Single handle operation for fast installation
- Cable tie side entry for immediate positioning of tie and tool
- Controlled tension, fully adjustable
- Easy removal of excess tie
- Qualified product listed per MIL Standard MS90387-3
- Automatically tensions and cuts off tie when predetermined tension is reached
- Installs standard .18 inch (4.6mm), light-heavy .25 inch (6.4mm) and heavy .31 inch (7.9mm) cross section ties



GS4MT

Part Number	Part Description	Std. Pkg. Qty.
GS4MT	Used with standard, light-heavy, and heavy cross section Pan-Steel® type MLT ties, type MLTC/MLTFC coated ties, and type MLTDH double wrapped ties.	1
K4M-BLD	Replacement cutter blade for GS4MT.	1
K4MTG	Replacement tension gripper for GS4MT.	1
CAMT	Cut-off accessory. Use this accessory with GS4MT tool to cut MBH or MBS continuous banding. Accessory drops in place for use.	1



Side Entry



CAMT

Tool Tension Locking Kits

- For applications requiring a locking device on either the selector knob (one cross section size and tension only) or tension level adjustment (but allow cross section size changes)



To lock selector knob and tension level.



To lock fine adjustment.

Part Number	Part Description	Std. Pkg. Qty.
TTLK3	Tool tension locking kit for GS4MT and PPTMT installation tools.	1

ST2MT Installation Tool

- Cable tie side entry for immediate positioning of tie and tool
- One hand operation – lightweight
- Easy removal of excess tie



- Tool tension is controlled by installer – twist action cut-off
- Rugged, lightweight, easy-to-operate pliers-type tool provides mechanical advantage

Part Number	Part Description	Std. Pkg. Qty.
ST2MT	Used with standard, light-heavy, heavy and extra-heavy cross section Pan-Steel® type MLT ties, type MLTC/MLTFC coated ties, and type MLTDH double wrapped ties.	1

RT2HT and RT2HTN Installation Tools

- Cable tie side entry for immediate positioning of tie and tool to speed installation
- Multi-position rear handle provides flexibility for a one or two hand installation



RT2HT



RT2HTN

- Narrow nose tool design option available for applications requiring installations in tight confined spaces
- Replacement cutter blade and handle available for RT2HT

Part Number	Part Description	Std. Pkg. Qty.
RT2HT	Used with extra-heavy, extra-heavy 15, and super-heavy cross section Pan-Steel® type MLT and MLTFC ties. Width of tool nose 2.60" (66.0mm).	1
RT2HTN	Narrow nose installation tool for use with extra-heavy, extra-heavy 15, and super-heavy cross section Pan-Steel® type MLT and MLTFC ties. Width of tool nose 1.06" (27.0mm).	1

HTMT Installation Tool

- Economical
- Coiled tie end remaining after tensioning assures a safe end



- Manual tension, no cut-off
- Installs ties parallel to the bundle

Part Number	Part Description	Std. Pkg. Qty.
HTMT	Used with standard, light-heavy, and heavy cross section Pan-Steel® type MLT ties, type MLTC/MLTFC coated ties, and type MLTDH double wrapped ties.	1

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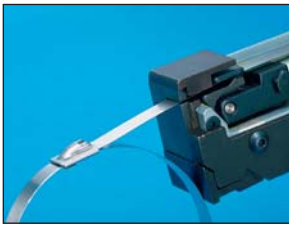
PPTMT Pneumatic Installation Tool

- Power assisted tool for fast and effortless installation
- Cable tie side entry for immediate positioning of tie and tool
- Controlled tension, fully adjustable
- Automatic cut-off

- One hand operation – lightweight
- Easy removal of excess tie
- Operates 85 PSI (586 KPA Bar) non-lubricated air and requires no special maintenance



PPTMT



Side Entry

Part Number	Part Description	Std. Pkg. Qty.
PPTMT	Pneumatic hand tool used with Pan-Steel® type MLT ties, type MLTC/MLTFC coated ties, and type MLTDH double wrapped ties. Automatically tensions and cuts off tie when predetermined tension is reached, providing more reliable and consistent installations. Ideal for high production applications. Installs standard .18" (4.6mm), light-heavy .25" (6.4mm), and heavy .31" (7.9mm) cross section ties.	1
PPH10	10.0' (3m) hose assembly (regulator to tool); includes a .13" (3.3mm) NPT male connector (to regulator) and .13" (3.3mm) female quick disconnect (to tool).	1
PL289N1	Filter/regulator .5 micron element, regulated range 3 – 100 psig, features .13" (3.3mm) NPT female output port (to hose PPH10) and .25" (6.4mm) male quick disconnect to source air line.	1
KPPTMTG	Replacement gripper kit for PPTMT.	1
KPPTMTB	Replacement blade kit for PPTMT.	1

NEW! PBTMT Battery Powered Installation Tool

- Lithium-Ion battery optimizes performance by installing more cable ties per charge
- Ergonomic tool design provides a compact lightweight body, reducing operator fatigue
- Automatic flush cut off enhances productivity with easy one hand installation
- Cable tie side entry allows quick side entry of tie into tool to speed installation

- 360° rotating head allows access to confined spaces
- Controlled tension mechanism provides consistent installations every time
- Battery indicator improves productivity with quick visual identification of battery life
- Variable speed trigger provides increased operator control, for easy installation



PBTMT



360° Rotating Head

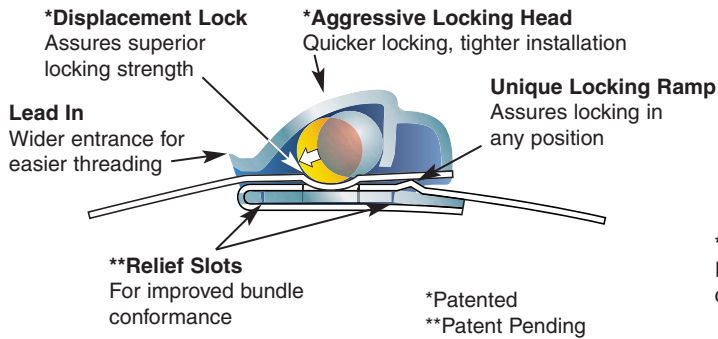
Part Number	Part Description	Std. Pkg. Qty.
PBTMT	Battery powered installation tool, for use with Pan-Steel® heavy, extra-heavy, and super-heavy cross section MLT style ties, and MLTD double wrapped style ties, 2 – 12 volt Lithium-Ion batteries and 115 volt, 60 Hz charger included.	1

Features and Benefits – Pan-Steel® Retained Tension Ties – MRT/MRS Series

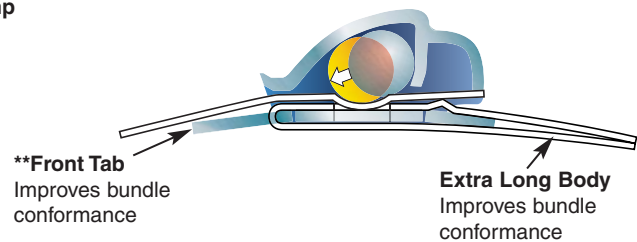
Panduit® Pan-Steel® Retained Tension Ties are engineered for safety, productivity, and durability by providing round edges and smooth surfaces, easy threading, high loop tensile strength and tight clamping.

Panduit Retained Tension Tie Technology

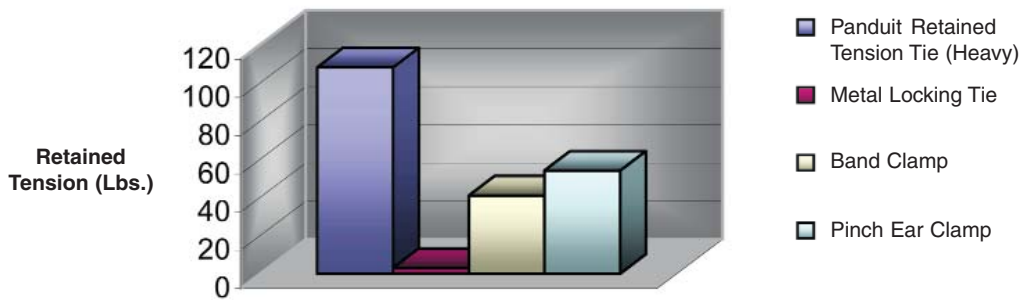
Features of Retained Tension Ties (MRT and MRS Series)



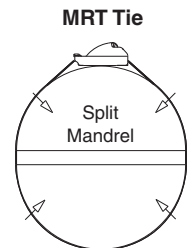
Additional Features of 360° Radial Seal Retained Tension Ties (MRS Series Only)



Retained Tension Performance Comparison**



**Representative sample, actual results may vary.



Retained Tension
Split mandrel test fixture measures retained tension of installed tie

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Part Number System for Pan-Steel® Retained Tension Ties – MRT Series

MRT	6	S	—	C	4
Type	Bundle Diameter Reference (In.)	Cross Section		Package Qty.	Material
MRT = Metal Retained Tension Tie		S = Standard LH = Light-Heavy H = Heavy		L = 50 C = 100	4 = 304

NEW! Pan-Steel® Retained Tension Ties – MRT Series

- Provide tight bundling of armored cables, pipes, conduit and other rigid materials in harsh conditions for a reliable, easy to install fastening solution
- Self-locking cable tie design locks into place at any length along the tie body, unlike fixed diameter band clamps
- Available in AISI 304 stainless steel with a thickness of 0.010" (0.25mm)



Part Number	Max. Bundle Diameter		Length		Min. Loop Tensile Strength		Min. Bundle Diameter		Width		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm			

AISI 304 Stainless Steel – For General Purpose

Standard Cross Section

MRT1S-C4	1.0	25	9.0	229	180	800	0.75	19.1	0.18	4.4	MTRTLS	100	500
MRT2S-C4	2.0	51	12.2	310	180	800	0.75	19.1	0.18	4.4		100	500
MRT4S-C4	4.0	102	18.5	470	180	800	0.75	19.1	0.18	4.4		100	500
MRT6S-C4	6.0	152	24.8	630	180	800	0.75	19.1	0.18	4.4		100	500

Light-Heavy Cross Section

MRT1.5LH-L4	1.5	38	10.6	269	225	1000	1.00	25.4	0.25	6.4	MTRTLS	50	250
MRT2LH-L4	2.0	51	12.2	310	225	1000	1.00	25.4	0.25	6.4		50	250
MRT4LH-L4	4.0	102	18.5	470	225	1000	1.00	25.4	0.25	6.4		50	250
MRT6LH-L4	6.0	152	24.8	630	225	1000	1.00	25.4	0.25	6.4		50	250

Heavy Cross Section

MRT1.5H-L4	1.5	38	10.6	269	400	1780	1.00	25.4	0.31	7.9	MTRTH	50	250
MRT2H-L4	2.0	51	12.2	310	400	1780	1.00	25.4	0.31	7.9		50	250
MRT4H-L4	4.0	102	18.5	470	400	1780	1.00	25.4	0.31	7.9		50	250
MRT6H-L4	6.0	152	24.8	630	400	1780	1.00	25.4	0.31	7.9		50	250

Double Wrapped – For Additional Strength

Standard Cross Section

MRT1.5DS-C4	1.5	38	14.4	366	250	1112	1.00	25.4	0.17	4.4	MTRTLS	100	500
MRT2.5DS-C4	2.5	63	20.7	526	250	1112	1.00	25.4	0.17	4.4		100	500

Light-Heavy Cross Section

MRT2.5DLH-L4	2.5	63	20.7	526	350	1556	1.00	25.4	0.25	6.4	MTRTLS	50	250
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Heavy Cross Section

MRT2DH-L4	2.0	51	18.5	470	550	2447	1.00	25.4	0.31	7.9	MTRTH	50	250
MRT4DH-L4	4.0	102	31.1	790	550	2447	1.00	25.4	0.31	7.9		50	250

***For information on installation tools, refer to page B3.20.

Part Number System for Pan-Steel® 360° Radial Seal Retained Tension Ties – MRS Series

MRS	6	S	—	C	4
Type	Bundle Diameter Reference (In.)	Cross Section		Package Qty.	Material
MRS = Metal Retained Tension 360° Radial Seal Tie		S = Standard LH = Light-Heavy H = Heavy		L = 50 C = 100	4 = 304

Pan-Steel® 360° Radial Seal Retained Tension Ties – MRS Series



- 360° radial seal eliminates gaps under the head of the tie to provide a completely sealed installation



- Self-locking cable tie design locks into place at any length along the tie body, unlike fixed diameter band clamps
- Available in AISI 304 stainless steel with a thickness of 0.010" (0.25mm)

Part Number	Max. Bundle Diameter		Length		Min. Loop Tensile Strength		Min. Bundle Diameter		Width		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm			

AISI 304 Stainless Steel – For General Purpose

Standard Cross Section

MRS1S-C4	1.0	25	9.0	229	180	800	0.75	19.1	0.18	4.4	MTRTLS	100	500
MRS2S-C4	2.0	51	12.2	310	180	800	0.75	19.1	0.18	4.4		100	500
MRS4S-C4	4.0	102	18.5	470	180	800	0.75	19.1	0.18	4.4		100	500
MRS6S-C4	6.0	152	24.8	630	180	800	0.75	19.1	0.18	4.4		100	500

Light-Heavy Cross Section

MRS1.5LH-L4	1.5	38	10.6	269	225	1000	1.00	25.4	0.25	6.4	MTRTLS	50	250
MRS2LH-L4	2.0	51	12.2	310	225	1000	1.00	25.4	0.25	6.4		50	250
MRS4LH-L4	4.0	102	18.5	470	225	1000	1.00	25.4	0.25	6.4		50	250
MRS6LH-L4	6.0	152	24.8	630	225	1000	1.00	25.4	0.25	6.4		50	250

Heavy Cross Section

MRS1.5H-L4	1.5	38	10.6	269	400	1780	1.00	25.4	0.31	7.9	MTRTH	50	250
MRS2H-L4	2.0	51	12.2	310	400	1780	1.00	25.4	0.31	7.9		50	250
MRS4H-L4	4.0	102	18.5	470	400	1780	1.00	25.4	0.31	7.9		50	250
MRS6H-L4	6.0	152	24.8	630	400	1780	1.00	25.4	0.31	7.9		50	250

***For information on installation tools, refer to page B3.20.

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MTRT Retained Tension Manual Installation Tools

- Adjustable detent mechanism provides user pre-set controlled tension for repeatable installations and maximum reliability
- Smooth cable tie cut-off eliminates burrs or sharp edges after installation to deliver added bundle protection and job site safety

- Tie tensioning mechanism provides improved durability compared to conventional gripper style tools
- Change over kits available to allow for installation of all tie cross sections with one tool



Part Number	Part Description	Std. Pkg. Qty.
MTRTH	Retained tension installation tool for use with Pan-Steel® heavy cross section MRT and MRS style ties and MRT double wrapped style ties.	1
MTRTLS	Retained tension installation tool for use with Pan-Steel® light-heavy and standard cross section MRT and MRS style ties and MRT double wrapped style ties.	1
KMTRTH	Change over kits allow for installation of heavy cross section MRT and MRS style ties, and MRT double wrapped style ties in MTRTH tools.	1
KMTRTLS	Change over kits allow for installation of light-heavy and standard cross section MRT and MRS style ties, and MRT double wrapped style ties in MTRTLS tools.	1

Features and Benefits – Pan-Steel® Strapping System

The Panduit® Pan-Steel® Stainless Steel Strapping is the ultimate solution for strapping applications. The buckle design and tension controlled installation tool offer a quick and safe installation for all harsh environments. Available in four widths 3/8" (9.5mm), 1/2" (12.7mm) 5/8" (15.9mm) and 3/4" (19.1mm) in base 201 (3/4" width only), 304, or 316 stainless steel with a temperature range of -112°F (-80°C) to 1000°F (538°C).

Unique Locking Methods Pan-Steel® Stainless Steel Strapping

*Hooked Clamping Tab

Bends strap body within retention area of buckle for increased loop tensile strength and full coverage of cut end of strap

*Cross Rib Support

Enhanced rigidity for higher loop tensile strength

Buckle Design

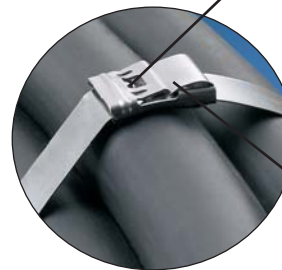
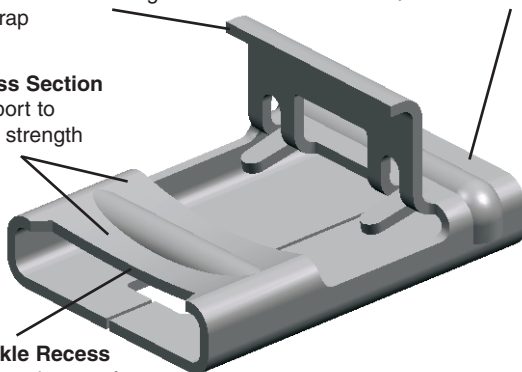
Provides a low finished profile

*Concave Cross Section

Enhanced support to improve tensile strength

*Concave Buckle Recess

Increases body resistance for increased loop tensile strength



No Sharp Edges

After tensioning, cut end is locked inside buckle

Pan-Steel® Stainless Steel MS75 Strapping

Hooked Clamping Tab

Provides full coverage of cut end of strap for enhanced safety

Buckle Screwdriver Slot

Allows use of screwdriver for buckle closure for a simple quick installation

No Sharp Edges

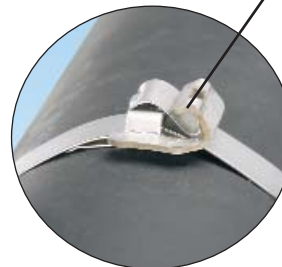
After tensioning, cut end is locked inside buckle

Buckle Bridge Teeth

Deliver additional body slip resistance for optimum strength

**Buckle Locking Tabs

Improve locking mechanism for higher strength



*Patented

**Patents Pending



Hand operated installation tools used with Panduit® Pan-Steel® Strapping. Tensions, cuts strapping, and secures the buckle tab. Easy to operate. See page B3.26.



Custom length strapping available for applications that require various bundle diameters, to provide job safety and versatility with minimum inventory. See page B3.25.

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The Panduit Method Reduces Installation Time

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1) Place strap around the material, insert tail of strap through buckle. Pull strapping tight and bend up to hold in place. Insert tail of strapping into tool nose section. Squeeze handle to tension.



2) Once proper tension is reached, maintain tension and raise tool 90° – 120° over buckle and pull down on cutter lever, cutting strap.



3) Remove tool, press cut end down and toward retaining tab.



4) Using the closure lever on the handle of the tool, bend retaining tab down and over cut end.



Provides finished, safe, and secure closure.

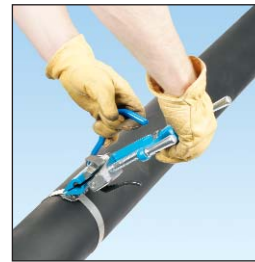
Pan-Steel® Stainless Steel MS75 Strapping



1) Place strap around the material, insert tail of strap through buckle. Pull strapping tight and bend up to hold in place.



2) Insert tail of strapping into tool nose section. Rotate handle to tension.



3) After tensioning raise tool 90° – 120° over buckle and pull down on cutter lever, cutting strap.



4) Remove tool, press cut end down toward retaining tab.



5) Using flathead screwdriver, bend retaining tab down and over cut end.



Provides finished, safe, and secure closure.

Part Number System for Discrete Length Strapping

MS

Type

MS = Metal Strap
MSC = Metal Strap
Coated

4

Bundle
Diameter
(In.)

W

Width

38

Inches

38 = 3/8
50 = 1/2
63 = 5/8
75 = 3/4

T

Thickness

15

15 = 0.015"

30 = 0.030"

L

Standard
Package Size

L = 50 Pcs.
Q = 25 Pcs.

4

Material

2 = 201 SS
4 = 304 SS
6 = 316 SS

Pan-Steel® Strapping – MS Series

- Fold over design provides high-retained tension in mechanical fastening and cable bundling applications
- After tensioning, cut end is locked inside low profile buckle – no sharp edges
- Can be used in a wide range of indoor, outdoor, and underground (including direct burial) applications
- Smooth surfaces and rounded edges assures cable protection and worker safety
- Available in AISI 201 (3/4" width only) and 304 stainless steel for general-purpose applications
- Available in AISI 316 stainless steel for the most corrosive environments



	Max. Bundle Diameter		Length*		Strap Breaking Strength		Min. Bundle Diameter				Thickness		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
Part Number	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm	In.	mm			
AISI 201 Stainless Steel															
MS4W75T30-Q2	4.0	102	20.2	513	2400	10656	1.00	25.4	0.75	19.1	0.030	0.76	BT75SDT	25	25
MS6W75T30-Q2	6.0	152	26.5	673	2400	10656	1.00	25.4	0.75	19.1	0.030	0.76		25	25
MS8W75T30-Q2	8.0	203	32.7	831	2400	10656	1.00	25.4	0.75	19.1	0.030	0.76		25	25
MS10W75T30-Q2	10.0	254	39.0	991	2400	10656	1.00	25.4	0.75	19.1	0.030	0.76		25	25
AISI 304 Stainless Steel															
MS2W38T15-L4	2.0	51	11.8	300	502	2229	1.00	25.4	0.38	9.5	0.015	0.38	BT2HT	50	250
MS4W38T15-L4	4.0	102	18.0	457	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MS6W38T15-L4	6.0	152	24.4	620	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MS8W38T15-L4	8.0	203	30.7	780	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MS10W38T15-L4	10.0	254	37.0	940	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MS4W50T15-L4	4.0	102	18.0	457	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MS6W50T15-L4	6.0	152	24.4	620	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MS8W50T15-L4	8.0	203	30.7	780	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MS10W50T15-L4	10.0	254	37.0	940	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MS4W63T15-L4	4.0	102	18.0	457	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MS6W63T15-L4	6.0	152	24.4	620	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MS8W63T15-L4	8.0	203	30.7	780	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MS10W63T15-L4	10.0	254	37.0	940	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
AISI 316 Stainless Steel															
MS2W38T15-L6	2.0	51	11.8	300	502	2229	1.00	25.4	0.38	9.5	0.015	0.38	BT2HT	50	250
MS4W38T15-L6	4.0	102	18.0	457	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MS6W38T15-L6	6.0	152	24.4	620	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MS8W38T15-L6	8.0	203	30.7	780	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MS10W38T15-L6	10.0	254	37.0	940	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MS4W50T15-L6	4.0	102	18.0	457	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MS6W50T15-L6	6.0	152	24.4	620	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MS8W50T15-L6	8.0	203	30.7	780	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MS10W50T15-L6	10.0	254	37.0	940	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MS4W63T15-L6	4.0	102	18.0	457	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MS6W63T15-L6	6.0	152	24.4	620	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MS8W63T15-L6	8.0	203	30.7	780	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MS10W63T15-L6	10.0	254	37.0	940	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250

*Other lengths available, contact Panduit Customer Service.

***For information on installation tool, refer to page B3.26.

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Pan-Steel® Nylon 11 Coated Strapping – MSC Series

- Fold over design provides high-retained tension in mechanical fastening and cable bundling applications
- After tensioning, cut end is locked inside low profile buckle – no sharp edges
- AISI 316 stainless steel for the most corrosive environments
- Available in 0.38 inch (9.5mm), 0.50 inch (12.7mm), 0.63 inch (15.9mm) cross sections
- UV resistant, low smoke, halogen-free material
- Temperature tolerance -40°F (-40°C) to 285°F (140°C)



Part Number	Max. Bundle Diameter		Length*		Strap Breaking Strength		Min. Bundle Diameter		Width		Thickness^		Recommended Installation Tool***	Std. Pkg. Qty.	Std. Ctn. Qty.
	In.	mm	In.	mm	Lbs.	N	In.	mm	In.	mm	In.	mm			
MSC2W38T15-L6	2.0	51	11.8	300	502	2229	1.00	25.4	0.38	9.5	0.015	0.38	BT2HT	50	250
MSC4W38T15-L6	4.0	102	18.0	457	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MSC6W38T15-L6	6.0	152	24.4	620	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MSC8W38T15-L6	8.0	203	30.7	780	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MSC10W38T15-L6	10.0	254	37.0	940	502	2229	1.00	25.4	0.38	9.5	0.015	0.38		50	250
MSC4W50T15-L6	4.0	102	18.0	457	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MSC6W50T15-L6	6.0	152	24.4	620	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MSC8W50T15-L6	8.0	203	30.7	780	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MSC10W50T15-L6	10.0	254	37.0	940	671	2979	1.00	25.4	0.50	12.7	0.015	0.38		50	250
MSC4W63T15-L6	4.0	102	18.0	457	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MSC6W63T15-L6	6.0	152	24.4	620	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MSC8W63T15-L6	8.0	203	30.7	780	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250
MSC10W63T15-L6	10.0	254	37.0	940	839	3725	1.00	25.4	0.63	15.9	0.015	0.38		50	250

*Other lengths available, contact Panduit Customer Service.

***For information on installation tools, refer to page B3.26.

^Base material less coating.

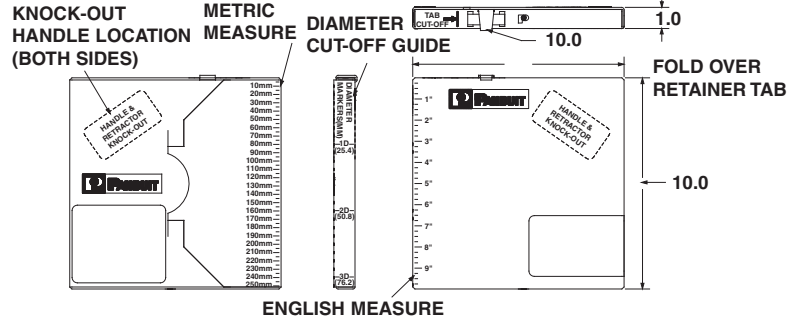
Pan-Steel® Custom Length Strapping

- Fold over design provides high retained tension in mechanical fastening and cable bundling applications
- After tensioning, cut end is locked inside low profile buckle – no sharp edges
- For applications that require various bundle diameters
- Supplied in reels of 82.5 feet (25m) (coated) or 100 feet (30.5m) (uncoated)



Nylon 11 coating (optional):

- Nylon 11 coating provides additional edge protection and prevents corrosion between dissimilar metals
- UV resistant, low smoke, halogen-free material
- Temperature tolerance -40°F (-40°C) to 285°F (140°C)
- AISI 316 stainless steel for the most corrosive environments



Part Number	Length*		Strap Breaking Strength		Width		Thickness^		Used with Buckle	Recommended Installation Tool***	Std. Pkg. Qty.‡
	Ft.	m	Lbs.	N	In.	mm	In.	mm			
304 Stainless Steel											
MSW75T30-CR2	100	30.5	2400	10656	0.75	19.1	0.030	0.80	MSBW75-C2	BT75SDT	1
304 Stainless Steel											
MSW38T15-CR4	100	30.5	502	2229	0.38	9.5	0.015	0.38	MSBW38-C4	BT2HT	1
MSW50T15-CR4	100	30.5	671	2979	0.50	12.7	0.015	0.38	MSBW50-C4		1
MSW63T15-CR4	100	30.5	839	3725	0.63	15.9	0.015	0.38	MSBW63-C4		1
316 Stainless Steel											
MSW38T15-CR6	100	30.5	502	2229	0.38	9.5	0.015	0.38	MSBW38-C6	BT2HT	1
MSW50T15-CR6	100	30.5	671	2979	0.50	12.7	0.015	0.38	MSBW50-C6		1
MSW63T15-CR6	100	30.5	839	3725	0.63	15.9	0.015	0.38	MSBW63-C6		1
Nylon Coated Custom Length Strapping											
MSCNW38T15-QR6	82.5	25.0	502	2229	0.38	9.5	0.015	0.38	MSBW38-C6	BT2HT	1
MSCNW50T15-QR6	82.5	25.0	671	2979	0.50	12.7	0.015	0.38	MSBW50-C6		1
MSCNW63T15-QR6	82.5	25.0	839	3725	0.63	15.9	0.015	0.38	MSBW63-C6		1

*Other lengths available, contact Panduit Customer Service. ^Base metal less coating.

‡Order in number of reels required. ***For information on installation tools, refer to page B3.26.

To determine the proper amount of strapping required, use the following formula:

Calculate Diameter inches (mm) x 3.14 + 6 inches (152.4 mm)

Pan-Steel® Buckles for Custom Length Strapping

- Buckle design provides a low finished profile
- After tensioning cut end is locked inside buckle – no sharp edges



Part Number	Material	Width		Part Description	Std. Pkg. Qty.	Std. Ctn. Qty.
		In.	mm			
AISI 201 Stainless Steel						
MSBW75-C2	201	0.75	19.1	Individual low profile buckles used with metal strapping.	100	—
AISI 304 Stainless Steel						
MSBW38-C4	304	0.38	9.5	Individual low profile buckles used with custom length strapping.	100	1000
MSBW50-C4	304	0.50	12.7		100	1000
MSBW63-C4	304	0.63	15.9		100	1000
AISI 316 Stainless Steel						
MSBW38-C6	316	0.38	9.5	Individual low profile buckles used with custom length strapping.	100	1000
MSBW50-C6	316	0.50	12.7		100	1000
MSBW63-C6	316	0.63	15.9		100	1000

For technical assistance in the U.S., call 866-405-6654 (outside the U.S., see inside back cover for directory)

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BT2HT Hand Operated Installation Tool for Strapping

- Strap side entry
- Multi-position rear handle provides flexibility for a one or two hand installation
- Adjustable tension control
- Easy removal of excess strap
- Installs (3) sizes: 0.38 inch (9.5mm), 0.50 inch (12.7mm), and 0.63 inch (15.9mm)
- Replacement cutter blade and handle available



Part Number	Part Description	Std. Pkg. Qty.
BT2HT	Installation tool for use with 0.38" (9.5mm), 0.50" (12.7mm), and 0.63" (15.9mm) widths of Panduit® Pan-Steel® Strapping. Tensions, cuts strapping, and secures the buckle tab. Lever cut off.	1
KRT2BLD	Replacement cutter blade for RT2HT and BT2HT.	1
KRT2HNDL	Replacement cutter handle for RT2HT and BT2HT.	1

NEW!

BT75SDT Hand Operated Installation Tool for MS75 Strapping

- Screw drive tension mechanism provides high tension with minimal effort, reducing operator fatigue
- Heavy duty construction offers a longer service life
- Strapping side entry allows quick side entry of the strap into tool to speed installation



Part Number	Part Description	Std. Pkg. Qty.
BT75SDT	Installation tool for use with 0.75" (19.1mm) width strapping only. Tensions and cuts strapping. Screwdriver required for buckle closure (not included).	1

PCS Cushion Sleeve

- Black neoprene sleeving used with Pan-Steel® Stainless Steel Ties, custom length banding, and MS strap
- Used on applications requiring improved gripping on non-resilient objects
- Can be used indoors or outdoors (excellent ultraviolet resistance, good resistance to petroleum, and many chemicals)
- Isolation between dissimilar metals allows the ties and straps to be used with aluminum cable tray
- Provides full separation between the ties and the bundle
- Operating temperature range -40°F (-40°C) to 200°F (93°C)



Part Number	Used with Pan-Steel® Ties/Strapping	Width		Length		Std. Pkg. Qty.†
		In.	mm	Ft.	m	
PCSS-B-CR	MLT/S	.33	8.4	100	30.5	1
PCSH-B-CR	MLT/LH/H	.47	11.9	100	30.5	1
PCSSH-B-CR*	MLT/EH/SH and MS Straps	.91	23.1	100	30.5	1

*Meets MIL-R-6855

†Order in number of reels required.

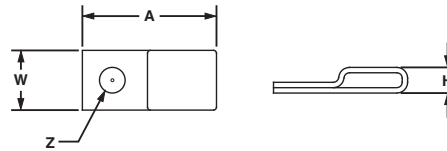
Pkg. -CR = 100 ft. (30.5m) reel.

Stainless Steel Tie Mounts

- Low profile
- One hole mounting



- For use with standard, light-heavy, and heavy cross section Pan-Steel® Ties as well as .38 inch (9.5mm) wide strapping
- 304 Stainless Steel



Part Number	Used with Pan-Steel® Ties/Strapping	Mounting Method*	Length A		Width W		Height H		Hole Diameter Z		Std. Pkg. Qty.	Std. Ctn. Qty.
			In.	mm	In.	mm	In.	mm	In.	mm		
MTM1H-C	MLTS/LH/H, MLTC/H, MLTFC/S/LH/H or MSW38	#8 (4mm) screw	.90	22.6	.40	10.2	.17	4.4	.17	4.4	100	1000
MTM1H10-C		#10 (5mm) screw	.90	22.6	.40	10.2	.17	4.4	.21	5.4	100	1000
MTM1H25-C		1/4" (6mm) screw	.90	22.6	.40	10.2	.17	4.4	.28	7.1	100	1000

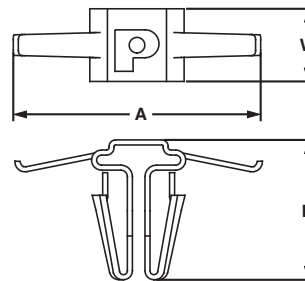
*Stainless steel screws are recommended for fastening to avoid corrosion problems associated with dissimilar metals.

Stainless Steel Push Mount

- No tapping required
- Used where only one side of the panel is accessible
- Nothing to assemble



- For use with standard, light-heavy, and heavy cross section Pan-Steel® Ties
- 304 Stainless Steel



Part Number	Used with Pan-Steel® Ties/Strapping	Mounting Method	Length A		Width W		Height H		Panel Thickness		Std. Pkg. Qty.	Std. Ctn. Qty.
			In.	mm	In.	mm	In.	mm	In.	mm		
MPWM-H56-Q	MLTS/LH/H, MLTC/H or MLTFC/S/LH/H	Inserted into pre-drilled hole 5/16" (8mm)	.98	24.7	.29	7.3	.56	14.2	.03 – .09	.8 – 2.4	25	250

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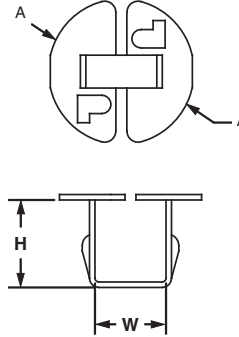
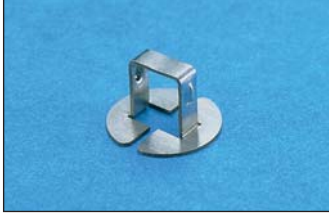
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Stainless Steel Push Button Mount

- Low profile
- No tapping required
- Designed for use only where both sides of the panel are accessible

- For use with standard cross section Pan-Steel® Ties
- 304 Stainless Steel

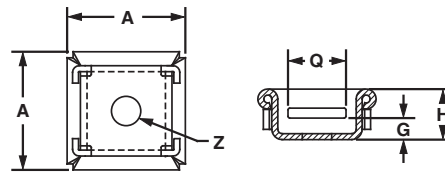
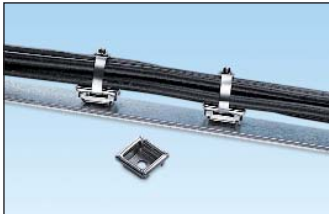


Part Number	Used with Pan-Steel® Ties/Strapping	Mounting Method	Diameter A		Width W		Height H		Panel Thickness		Std. Pkg. Qty.	Std. Ctn. Qty.
			In.	mm	In.	mm	In.	mm	In.	mm		
MBM-H25-Q	MLT/S or MLTFC/S	Inserted into pre-drilled hole .25" (6.4mm)	.40	10.0	.20	5.0	.26	6.5	.03 – .12	.8 – 3.0	25	250

Stainless Steel 2-Way Tie Mount

- Allows stainless steel cable ties to be inserted from either of two sides
- Low profile
- Single hole center mounting for maximum holding and stability
- Maximum screw head height .09 inches (2.3mm)

- For use with standard, light-heavy, and heavy cross section Pan-Steel® Ties
- 304 Stainless Steel



Part Number	Used with Pan-Steel® Ties/Strapping	Mounting Method*	Length A		Height H		Screw Head Height G		Slot Width Q		Hole Diameter Z		Std. Pkg. Qty.	Std. Ctn. Qty.
			In.	mm	In.	mm	In.	mm	In.	mm	In.	mm		
MTM2H-Q	MLTS/LH/H, MLTC/H or MLTFC/S/LH/H	#8 (4mm) screw	.71	18.0	.30	8.0	.09	2.3	.35	9.0	.17	4.5	25	250

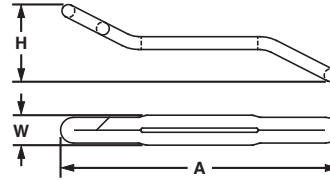
*Stainless steel screws are recommended for fastening to avoid corrosion problems associated with dissimilar metals.

Stainless Steel Bulkhead Mount

- Zero profile
- Mounts directly to surface
- Used where only one side of the panel is accessible

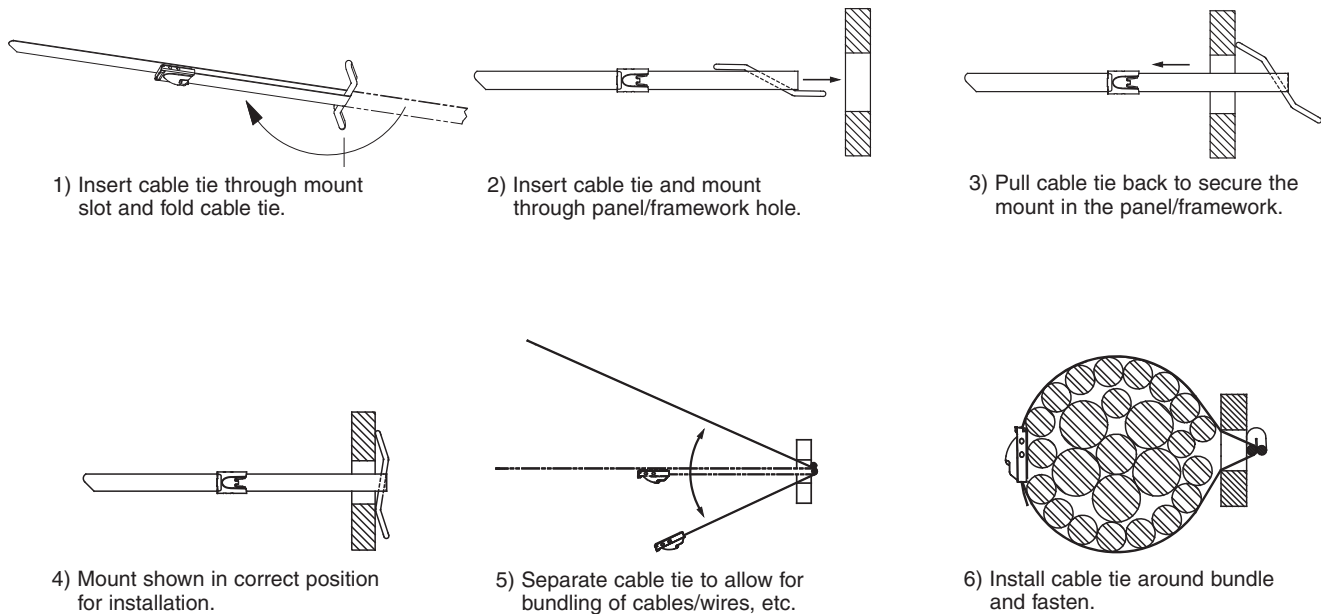


- Permanent, secure application
- Used with standard, light-heavy, and heavy cross section Pan-Steel® Ties
- 304 Stainless Steel



Part Number	Used with Pan-Steel® Ties/Strapping	Mounting Method	Length A		Width W		Height H		Max. Panel Thickness		Std. Pkg. Qty.	Std. Ctn. Qty.
			In.	mm	In.	mm	In.	mm	In.	mm		
MTMBH-Q	MLTS/LH/H/EH/SH, MLTC/H, or MLTFC/S/LH/H/EH/SH	Pre-drill hole size standard and light-heavy cross section MLT-S/LH .38" (9.5mm) – .50" (12.7mm). Heavy cross section MLT-H .50" (12.7mm) – .63" (15.9mm).	1.92	48.5	.21	5.3	.54	13.7	.50	12.7	25	250

To Install Bulkhead Mount:



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Stainless Steel Technical Information

Physical Characteristics of Stainless Steel and Aluminum

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	Pan-Steel® Stainless Steel MS Strapping and Buckles	Pan-Steel® Stainless Steel Marker Plates, Tags, and Cable Ties	Pan-Alum™ Aluminum Marker Plates and Cable Ties
Material:	201 Grade Stainless Steel	304 and 316 Grade Stainless Steel	Aluminum – Natural and Anodized
Maximum temperature rating:	538°C	538°C	100°C
Minimum temperature rating:	-80°C	-80°C	-80°C
RoHS:	Compliant	Compliant	Compliant
Flammability:	Non-Flammable	Non-Flammable	Non-Flammable
Ultraviolet light resistance:	Excellent	Excellent	Good



C1.
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Panduit Stainless Steel Cable Tie and Strapping Approvals

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Logo (Symbol)	Agency	Spec /Approval	Requirement	Applicable Products
	Underwriters Laboratories, Inc.	Listing E56854	Dimensional, tensile, temp., cycling, humidity	MLT-S, MLT-LH, MLT-H, MLTEH15, MLTSH, MLTDEH and MLTDSH in 304, and 316. MSW38T15, MSW50T15, MSW63T15, MSBW38, MSBW50, MSBW63 in both 304 and 316 material. MSCW38T15, MSCW50T15, MSCW63T15, MSCNW38T15, MLTFCs, SH, MLTCH, MSCNW50T15, and MSW63T15 in 316 material.
	Conformite European	Low Voltage Directive 73/23/EEC (amended 93/68/EEC) MLT cable ties and MS straps also meet the requirements from EN50146	CE Marking is required for products sold within the European Union. CE Marking Directives specify the minimum performance of these products. Applying the CE mark signifies compliance with essential requirements of specific directives.	All MLT, MRT, MRS ties and MS straps.
	Amer. Bureau of Shipping	Cert. #03-HS373867-PDA, 04-HS476898-PDA, 05-HS118592C/1-PDA, 06-HS152579-PDA, 05-HS118592A/2-PDA	Mechanical	All MLT ties and MS straps.
	Bureau Veritas	Cert. #04048/D2 BV	Material specification, dimensional, visual	All uncoated MLT ties in 304 and 316 material.
	Det Norske Veritas	Cert. # E-6540 E-6539	Salt mist test, tensile test, accelerated aging, vibration tests	All uncoated MLTS, MLTH, MLTE15, MLTDEH15, MLTSH, and MS strap coated and uncoated 316 material.
	Germanischer Lloyd	Cert. # 32666-83HH 51796-89HH	Mechanical	All uncoated stainless steel MLT ties and all MS straps.
	Lloyd's Register of Shipping	Cert. # 89/60123	Material specification, tensile test, vibration tests	All uncoated stainless steel MLT ties and all MS straps.
	RINA	Cert. # ELE71502CS	Material specification	All uncoated stainless steel MLT ties and all MS straps.
	SAE Int'l formerly US MIL	AS23190 formerly MS23109E	Dimensional, visual, vibration, temp. cycling, immersion	MLT-S and MLT-H ties in 304 and 306 material.
	US Coast Guard	File No.16703/46	Mechanical	MLT-H series cable ties.
	US Military	MIL-T-81306A/ MS90387-3	Mechanical	GS4MT installation tools.

Chemical Resistance at 70°F (21°C) Temperature

Chemical	%	304 and 316 Stainless Steel*	Chemical	%	304 and 316 Stainless Steel*	Chemical	%	304 and 316 Stainless Steel*	Chemical	%	304 and 316 Stainless Steel*
Arsenic Acid	40	E	Cider		E	Methyl Alcohol	100	E	Sodium Bisulfate	10	E
Acetone	100	E	Dichloroethane	100	E	Methyl Chloride	100	E	Sodium Borate	All	E
Aluminum Hydroxide	AQ C.S.	E	Diethyl Ether	100	E	Methyl Ethyl Ketone	100	E	Sodium Carbonate	5	E
Ammonium Carbonate	5	E	Ethyl Alcohol	100	E	Naphtha	100	E	Sodium Chlorate	25	E
Ammonium Hydroxide	10	E	Ethyl Chloride	100	E	Nitric Acid	30 – 70	E	Sodium Chloride	2	E
Ammonium Nitrate		E	Ethyl Glycol	100	E	Nitrous Acid	5	E	Sodium Fluoride	5	F
Ammonium Sulfate	10	S	Ferric Hydroxide	All	E	Oleic Acid	100	E	Sodium Hydroxide	10	E
Barium Carbonate	All	E	Ferric Nitrate	10	E	Oxalic Acid	10	E	Sodium Hyposulfite	AQ C.S.	E
Barium Chloride	5	E	Ferrous Sulfate	10	E	Paraffin	100	E	Sodium Nitrate	5	E
Barium Sulfate	10	E	Fuel Oil	100	E	Petroleum Ether	100	E	Sodium Nitrite	AQ C.S.	E
Barium Sulfide	10	E	Furfural	100	E	Phenol	90	E	Sodium Percolate	10	E
Benzene	100	E	Gallic Acid	AQ C.S.	E	Phosphoric Acid	10	E	Sodium Phosphate	5	E
Benzoic Acid	100	E	Gasoline	100	E	Picric Acid	1	S	Sodium Sulfate	5	E
Butyric Acid	50	E	Glycerine	100	E	Potassium Bromide	AQ C.S.	S	Sodium Thiosulfate	5	S
Calcium Carbonate	AQ C.S.	E	Hydrocyanic Acid	All	E	Potassium Carbonate 1%	—	E	Stearic Acid	100	E
Calcium Chlorate	10	E	Hydrogen Peroxide	30	E	Potassium Chlorate	AQ C.S.	E	Sulfur	100	E
Calcium Hydroxide	20	E	Hydrogen Sulfide	Dry	E	Potassium Dichromate	40	E	Sulfur Dioxide	All	E
Calcium Hydrochlorite	2	F	Iodoform	100	E	Potassium Ferrocyanide	25	E	Sulfuric Acid	100	E
Calcium Sulfate	2	E	Isopropyl Alcohol	100	E	Potassium hydroxide	5	E	Sulfuric Acid	5	F
Carbon Tetrachloride	—	—	Jet Fuel	100	E	Potassium Iodide	All	E	Tannic Acid	10	E
Chlorine (Wet)	—	F	Lactic Acid	100	E	Potassium Nitrate	50	E	Tartaric Acid	50	E
Chlorine (Dry)	—	F	Lanolin	10	E	Potassium Permanganate	5	E	Tetrahydrofuran	100	E
Chloroacetic Acid	30	F	Lead Acetate	5	E	Potassium Sulfate	5	E	Toluene	100	F
Chloroform	100	E	Magnesium Carbonate	All	E	Potassium Sulfide	AQ C.S.	E	Xylene	100	E
Chromic Acid	5	E	Magnesium Chloride	10	F	Propyl Alcohol	100	E	Zinc Chloride	70	E
Citric Acid	50	E	Magnesium Nitrate	All	E	Silver Nitrate	10	E	Zinc Nitrate	AQ C.S.	E
Copper Cyanide	10	E	Malic Acid	AQ C.S.	E	Sodium Acetate	60	E	Zinc Sulfate	AQ C.S.	E
Copper Nitrate	50	E	Mercury	100	E	Sodium Bicarbonate	All	E			

* E = Excellent, S = Satisfactory, F = Fair, AQ C.S. = Aqueous Cold Saturated, All = All % Concentrations.

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Rigorous Tests and Physical Properties of Stainless Steel

STRENGTH: Panduit® Pan-Steel® Stainless Steel Ties and Straps are tested per the SAE Standard AS23190 formerly U.S. Military Specification MIL-S-23190, minimum loop tensile test. This test consists of applying a tie to a split mandrel and then measuring the force required to separate the (two) halves until the tie fails. These minimum loop tensile strengths are given for the various products on pages B3.5 through B3.25.

TEMPERATURE EXTREMES: Panduit® Pan-Steel® Stainless Steel Ties and Straps are 100% stainless steel in the alloy provided (locking head, locking ball, and body all provided from the same grade of material ordered).

Various temperature tests have been successfully completed. One such test is the U.S. Military Temperature Cycling Test per Thermal Shock Method 107, Test Condition B of MIL-STD-202. This test exposes the parts from low temperature -85°F (-65°C) to high temperature 275°F (135°C) to low temperature -85°F (-65°C). After exposure, the parts must be free of cracks, distortions, breaks, release of locking device; and meet the minimum loop tensile requirements.



SHOCK AND VIBRATION: Panduit® Pan-Steel® Standard and Heavy Cross Section ties have passed the U.S. Military random vibration Test Method 214. Test Condition II, Letter J of MIL-STD-202. This test consists of applying parts to a bundle and then vibrating them with random vibration for 8 hours in each of two mutually perpendicular directions. The parts are then subjected to further temperature testing and finally have to pass the minimum loop tensile strength test.

Panduit® Pan-Steel® Extra Heavy, Super Heavy, MSW50 Strapping and MSW63 Strapping have passed the U.S. Military Shock and Vibration Testing per MIL-STD-167 and MIL-S-901D. The ties were subjected to vibrations in all three planes from 4 – 50 Hz and Shock testing in all three planes utilizing a hammer shock machine.

SALT SPRAY: Panduit® Pan-Steel® Stainless Steel Ties and Straps have been subjected to salt spray tests without signs of corrosion or reduction in performance.

OUTDOOR EXPOSURE: Panduit® Pan-Steel® Stainless Steel Ties and Straps have been exposed outdoors at New Lenox, Illinois USA since 1985. At the printing of this catalog, there has been no sign of corrosion or loss of performance.

FLUID IMMERSION: Panduit® Pan-Steel® Stainless Steel Ties were immersed in: 1-Hydraulic Fluid, 2-Turbine Fuel, 3-Lubricating Oil, and 4-Isopropyl Alcohol for four hours at temperatures of 122°F (50°C). Per SAE Standard AS23190, the parts were then subjected to and passed the minimum loop tensile test.

RADIATION: Installed cable ties of various materials have been exposed to different amounts of radiation to determine the maximum acceptable limit. These tests were conducted by Panduit to determine the acceptability for use in various areas of nuclear power plants (accumulated over 40 year life). Radiation resistance is 2x10⁸ rads.

Military Cross Reference (AS23190)

Military Standard Part Number	Panduit Part Number
AS23190/3-1	MLT2S-CP
AS23190/3-1	MLT2S-CP316
AS23190/3-2	MLT4S-CP
AS23190/3-2	MLT4S-CP316
AS23190/3-3	MLT6S-CP
AS23190/3-3	MLT6S-CP316
AS23190/3-4	MLT8S-CP
AS23190/3-4	MLT8S-CP316
AS23190/3-5	MLT2H-LP
AS23190/3-5	MLT2H-LP316
AS23190/3-6	MLT4H-LP
AS23190/3-6	MLT4H-LP316
AS23190/3-7	MLT6H-LP
AS23190/3-7	MLT6H-LP316
AS23190/3-8	MLT8H-LP
AS23190/3-8	MLT8H-LP316
AS23190/3-9	MLT10H-LP
AS23190/3-9	MLT10H-LP316