

## PAN-STEEL® Stainless Steel Retained Tension System

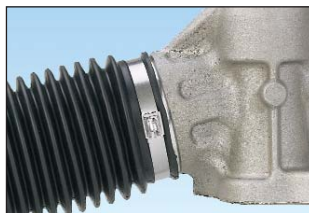
Mechanical applications demand robust solutions for tight fastening of rigid materials in high vibration and harsh environments. The PAN-STEEL® Stainless Steel Retained Tension System delivers optimum reliability, reducing the risks associated with performance, rework, and safety. Retained tension ties and tools are designed to reduce installation time and minimize operator fatigue, providing consistent high-quality installations with up to 2X the tension of competitive designs. Ideal for the fastening of critical components in transportation, OEM, and Industrial markets, the PANDUIT system helps improve end-product performance and reduce operational costs.



### Applications



Armored Cable



Steering Rack Boot



Heat Shields

### Key Features

### Benefits

#### PAN-STEEL® Stainless Steel Retained Tension Ties

<b>Patented locking head design</b>	Allows for tight bundling of armored cables, pipes, conduit and other rigid materials in harsh conditions for maximum reliability; up to twice the tension than alternative designs
<b>360° radial seal design option</b>	Delivers a completely sealed installation for greater performance and reliability by eliminating gaps under the head of the tie (MRS series)
<b>Self-locking cable tie design</b>	Locks into place at any length along the tie body, unlike fixed diameter band clamps
<b>Smooth surfaces and rounded edges</b>	Protects the installer and the cable bundle for improved job-site safety and reliability
<b>Available in standard, light-heavy, and heavy cross sections</b>	Provides design flexibility to match specific application requirements
<b>NEW!</b> <b>Double wrapped retained tension tie</b>	Allows cable tie body to pass through the head two times for additional strength (MRT series)

#### Retained Tension Manual Installation Tools

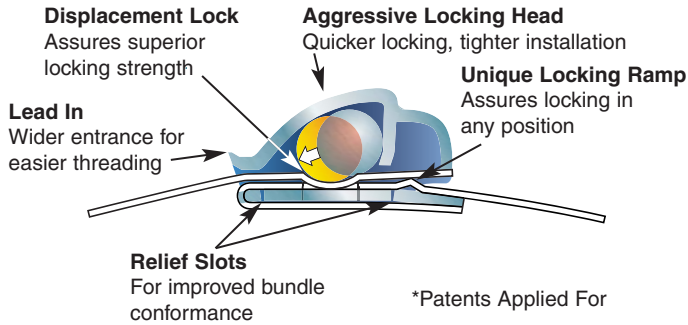
<b>Adjustable tension control</b>	Provides user pre-set controlled tension for repeatable installations and maximum reliability
<b>Tie tensioning mechanism</b>	Delivers improved durability compared to conventional gripper style tools
<b>Smooth cable tie cut-off</b>	Eliminates burrs or sharp edges after installation for added protection
<b>Ergonomic design</b>	Promotes operator comfort and safety with increased productivity

#### NEW! Retained Tension Power Installation Tool

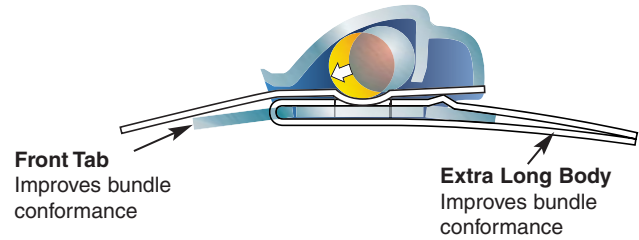
<b>Continuous tie feed</b>	Reduces installation time by up to 30%, increasing productivity; lowers vibration during tensioning, minimizing operator fatigue
<b>Metal gear train</b>	Robust design that provides long service life and reduced maintenance costs
<b>Electronic tension control with lockout</b>	Provides user pre-set controlled tension for repeatable installations and maximum reliability; tamper resistant lock out eliminates operator adjustment to provide consistent installation
<b>Tie tail ejection</b>	Quickly dispenses scrap material to maximize uptime

# PANDUIT Retained Tension Tie Technology

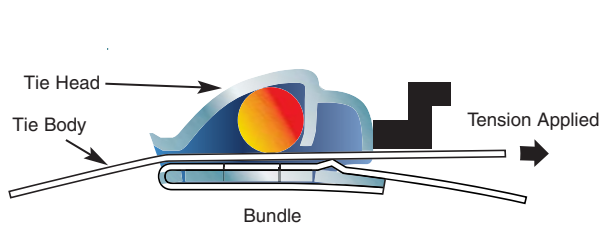
## Features of Retained Tension Ties (MRT and MRS Series)\*



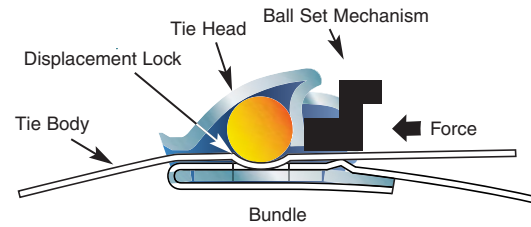
## Additional Features of 360° Radial Seal Retained Tension Ties (MRS Series Only)\*



## Tool and Tie Installation

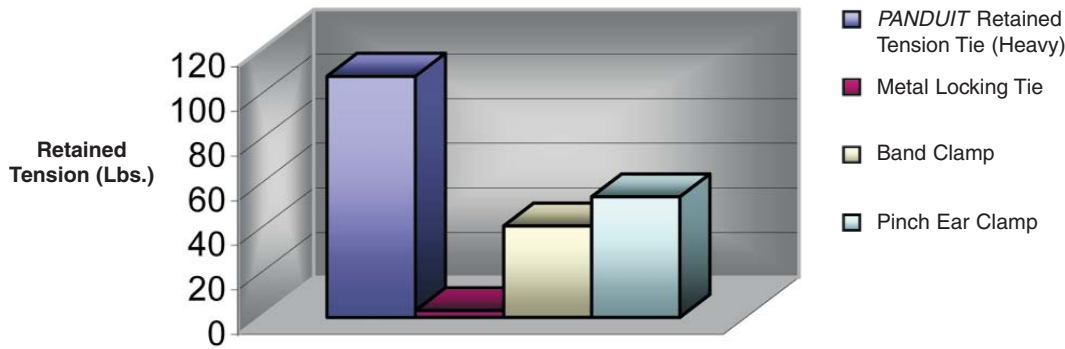


1. Tool tensions tie to the appropriate setting



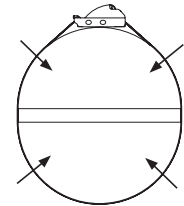
2. Tool sets ball of tie into locked position for superior retained tension; excess tie is then cut off flush to head

## Retained Tension Performance Comparison\*



\*Representative sample, actual results may vary.

**Split Mandrel**  
The split mandrel test fixture is used to measure loop tensile strength and retained tension of an installed cable tie



MRT and MRS Ties

## Technical Information – MRT and MRS Series

<b>Material:</b>	304 and 316 Stainless Steel	<b>RoHS:</b>	Compliant
<b>Maximum temperature rating:</b>	1000°F (538°C)	<b>Flammability:</b>	Non-Flammable
<b>Minimum temperature rating:</b>	-112°F (-80°C)	<b>Ultraviolet light resistance:</b>	Excellent

## PAN-STEEL® Stainless Steel Retained Tension Ties – MRT Series



- Provides 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
- Patents applied for

\*Also available in 316 AISI stainless steel for superior corrosion resistance.  
 ^Order number of pieces required, in multiples of Standard Package Quantity.

Part Number	Max. Bundle Diameter		Length		Min. Loop Tensile Strength		Min. Bundle Diameter		Width		Thickness		Tool	Std. Pkg. Qty. <sup>^</sup>	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\*

MRT1S-C4	1.0	25	8.1	205	180	800	.75	19.1	.18	4.4	.010	.25	MTRTLS or PTRT	100	500
MRT2S-C4	2.0	51	11.3	287											
MRT4S-C4	4.0	102	17.6	447											
MRT6S-C4	6.0	152	23.8	604											

### Light-Heavy Cross Section\*

MRT1.5LH-L4	1.5	38	9.7	246	225	1000	1.00	25.4	.25	6.4	.010	.25	MTRTLS or PTRT	50	250
MRT2LH-L4	2.0	51	11.3	287											
MRT4LH-L4	4.0	102	17.6	447											
MRT6LH-L4	6.0	152	23.8	604											

### Heavy Cross Section\*

MRT1.5H-L4	1.5	38	9.7	246	400	1780	1.00	25.4	.31	7.9	.010	.25	MTRTH or PTRT	50	250
MRT2H-L4	2.0	51	11.3	287											
MRT4H-L4	4.0	102	17.6	447											
MRT6H-L4	6.0	152	23.8	604											



### Double Wrapped – For Additional Strength Standard Cross Section

MRT1.5DS-C4	1.5	38	14.4	366	250	1112	.75	19.1	.18	4.4	.010	.25	MTRTLS or PTRT	50	250
MRT2.5DS-C4	2.5	63	20.7	526											

### Light-Heavy Cross Section

MRT2.5DLH-L4	2.5	63	20.7	526	350	1556	1.0	25.4	.25	6.4	.010	.25	MTRTLS or PTRT	50	250
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### Heavy Cross Section

MRT2DH-L4	2.0	51	18.5	470	550	2447	1.00	25.4	.31	7.9	.010	.25	MTRTH or PTRT	50	250
MRT4DH-L4	4.0	102	30.5	775											

## PAN-STEEL® Stainless 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
- Patents applied for

\*Also available in 316 AISI stainless steel for superior corrosion resistance.  
 ^Order number of pieces required, in multiples of Standard Package Quantity.

Part Number	Max. Bundle Diameter		Length		Min. Loop Tensile Strength		Min. Bundle Diameter		Width		Thickness		Tool	Std. Pkg. Qty. <sup>^</sup>	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\*

MRS1S-C4	1.0	25	8.1	205	180	800	.75	19.1	.18	4.4	.010	.25	MTRTLS or PTRT	100	500
MRS2S-C4	2.0	51	11.3	287											
MRS4S-C4	4.0	102	17.6	447											
MRS6S-C4	6.0	152	23.8	604											

### Light-Heavy Cross Section\*

MRS1.5LH-L4	1.5	38	9.7	246	225	1000	1.00	25.4	.25	6.4	.010	.25	MTRTLS or PTRT	50	250
MRS2LH-L4	2.0	51	11.3	287											
MRS4LH-L4	4.0	102	17.6	447											
MRS6LH-L4	6.0	152	23.8	604											

### Heavy Cross Section\*

MRS1.5H-L4	1.5	38	9.7	246	400	1780	1.00	25.4	.31	7.9	.010	.25	MTRTH or PTRT	50	250
MRS2H-L4	2.0	51	11.3	287											
MRS4H-L4	4.0	102	17.6	447											
MRS6H-L4	6.0	152	23.8	604											

## PAN-STEEL® Stainless Steel Retained Tension Installation Tools – MTRT Series

- 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
- Patents applied for



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

## PAN-STEEL® Stainless Steel Retained Tension Power Installation Tool – PTRT Series

- Continuous tie feed reduces installation time by up to 30%, increasing productivity; lowers vibration during tensioning, minimizing operator fatigue
- Metal gear train provides long service life for reduced maintenance costs
- Electronic tension control offers a tamper resistant lock out to eliminate operator adjustment providing consistent installations
- Quickly dispenses scrap material to maximize uptime
- Zero gravity balancer eliminates the tool weight, reducing operator fatigue
- Adjustable tool hanger, alters the tools pitch for easy tie insertion
- Smooth cable tie cut-off eliminates burrs or sharp edges to deliver increased job-site safety
- Patents applied for



Part Number	Part Description	Std. Pkg. Qty.
PTRT	Power installation tool for use with PAN-STEEL® standard, light-heavy, and heavy cross section MRT and MRS style ties, and MRT double wrapped style ties. Requires 90 – 100 psi dry air.	1
PTRT-CB	Control box.	1
PTRT-ZG	Zero gravity balancer.	1
PL283N1	Filter regulator.	1
PDH10-37	Air hose.	1
KPTRT-S	Kit for installation of standard cross section MRT and MRS style ties, and MRT double wrapped style ties in PTRT tool.	1
KPTRT-LH	Kit for installation of light-heavy cross section MRT and MRS style ties, and MRT double wrapped style ties in PTRT tool.	1
KPTRT-H	Kit for installation of heavy cross section MRT and MRS style ties, and MRT double wrapped style ties in PTRT tool.	1

Operation of PTRT tool requires control box, filter regulator, air hose and installation kit(s).

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