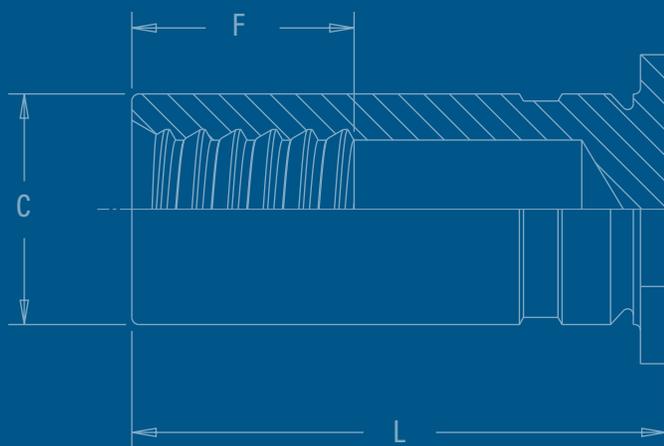




SO-RT™

PEM RT® FREE-RUNNING LOCKING STANDOFFS



NOW AVAILABLE - PEM RT®
Free-Running Locking Standoffs

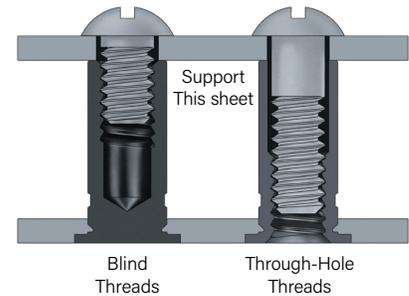
Thread profile with modified loaded flank angle that resists vibration loosening.

PEM® self clinching standoffs, which use the proven self-clinching design, provide ideal solutions for applications where mounting, spacing or stacking of panels, boards or components are required. Pressed into round holes, these fasteners mount permanently into metal sheets as thin as .025" / 0.63 mm.

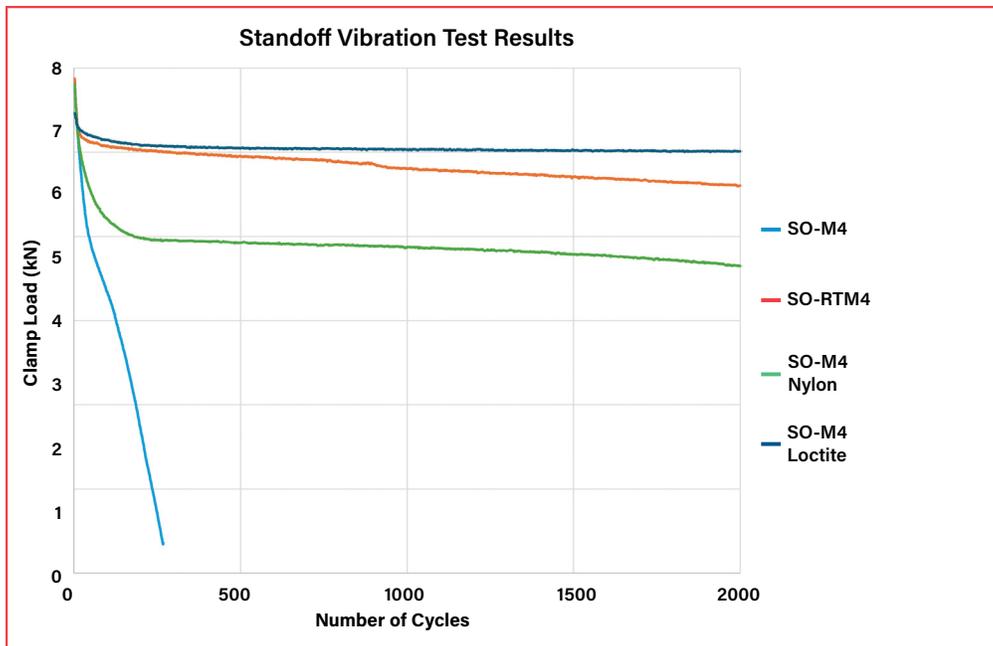
PEM® self clinching standoffs are **now available with PEM RT® free-running locking threads** that induce friction proportional to the clamp load induced by tightening of the bolted joint

The free-running locking feature allows the mating screw to turn freely until clamp load is applied. If the tightening force is removed, these standoffs no longer provide any torsional resistance to rotation until clamp load is reapplied.

- Improves load distribution among all threads, reducing stress on first engaged thread.
- Turns freely until clamp load is applied.
- Resistant to vibrational loosening.
- Locking feature reusability is not affected by number of on/off cycles.
- Uses same mounting hole and installation tooling as standard standoff.



The graph below represents the clamp load of the joint versus the number of cycles during transverse vibration testing for a PEM RT free-running standoff, a standoff with standard thread profile, a bolt with a nylon patch, and a bolt with Loctite Blue 242.



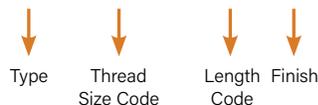
For details, see our tech sheet on the [PEM RT® Vibration Resistant Thread Technology](#).

Testing conditions:

- Transverse vibration testing on Junkers machine, per ISO 16130
- M4 thread size, representative curve of the average performance result
- Clamp load applied using metric Property Class 10.9 bolts
- Tested to 2000 cycles or loss of clamp load
- Applied clamp load of 5.9 kN to all samples

Part Number Designation

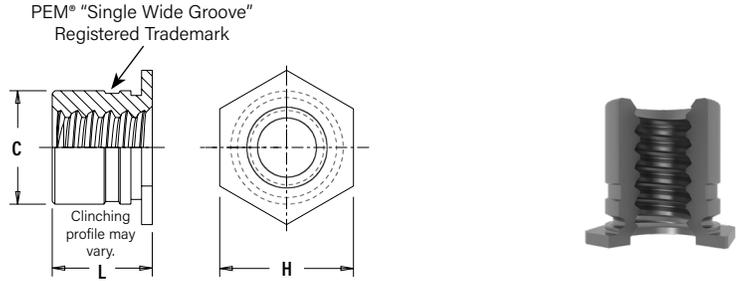
SO - RT632 - 8 ZI



PEM RT® free-running locking feature can be added to any PEM® internally threaded standoff.

Through-hole Threaded Standoffs

Additional thread sizes and lengths available on special order. Please [contact us](#) for availability.



All dimensions are in inches.

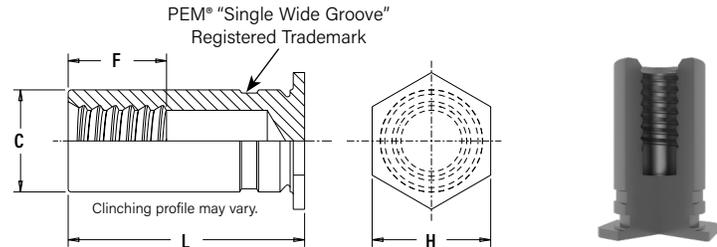
Unified	Part Number	Fastener Material	Min. Sheet Thickness	Hole Size in Sheet +.003 -.000	Length "L" +.002 -.005	C +.000 -.005	H Nom.	Min. Dist. Hole C/L to Edge ⁽¹⁾	Non-stocked Length Range
	SO-RT440-8ZI	Steel	.040	.166	.250	.165	.187	.23	.125 to .750
SOS-RT632-8	Stainless Steel	.040	.213	.250	.212	.250	.27	.125 to 1.062	

All dimensions are in millimeters.

Metric	Part Number	Fastener Material	Min. Sheet Thickness	Hole Size in Sheet +0.08	Length "L" +0.05 -0.13	C -0.13	H Nom.	Min. Dist. Hole C/L to Edge ⁽¹⁾	Non-stocked Length Range
	SO-RTM3-4ZI	Steel	1	4.22	4	4.2	4.8	6	3 to 18
SO-RT3.5M3-6ZI	Steel	1	5.41	6	5.39	6.4	6.8	3 to 18	
SO-RTM4-8ZI	Steel	1.27	7.14	8	7.12	7.9	8	3 to 25	

Blind Threaded Standoffs

Additional thread sizes and lengths available on special order. Please [contact us](#) for availability.



All dimensions are in millimeters.

Metric	Part Number	Fastener Material	Min. Sheet Thickness	Hole Size in Sheet +0.08	Length "L" +0.05 -0.13	C -0.13	F Min.	H Nom.	Min. Dist. Hole C/L to Edge ⁽¹⁾	Non-stocked Length Range
	BSO-RT3.5M3-10ZI	Steel	1	5.41	10	5.39	4	6.4	6.8	6 to 25
BSOS-RTM4-14	Stainless Steel	1.27	7.14	14	7.12	6.5	7.9	8	6 to 25	

(1) For more information on proximity to bends and distance to other clinch hardware, see [PEM® Tech Sheet C/L To Edge](#).

Material And Finish Specifications

Type	Threads ⁽¹⁾	Fastener Material		Standard Finishes		For Use in Sheet Hardness: ⁽³⁾	
	Internal, ASME B1.12B/ ASME B1.13M 6H	Hardened Carbon Steel	300 Series Stainless Steel	Zinc Plated per ASTM B633, SC1 (5µm), Type III Colorless ⁽²⁾	Passivated and/or Tested per ASTM A380	HRB 80 / HB 150 or Less	HRB 70 / HB 125 or Less
SO-RT	▪	▪		▪		▪	
SOS-RT	▪		▪		▪		▪
BSO-RT	▪	▪		▪		▪	
BSOS-RT	▪		▪		▪		▪
Part Number Code for Finishes				ZI	None		

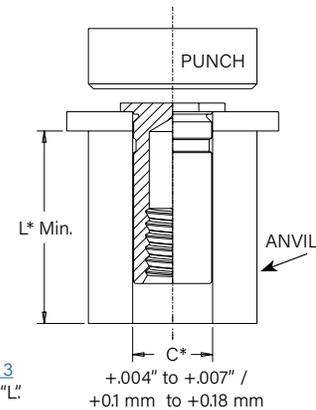
(1) Modified thread form on loaded flank. Will accept a maximum material 6g/2A screw.

(2) See PEM Technical Support section of our website for related plating standards and specifications.

(3) HRB - Hardness Rockwell "B" Scale. HB - Hardness Brinell.

Installation

1. Prepare properly sized mounting hole in sheet. Do not perform any secondary operation such as deburring.
2. Insert standoff through mounting hole (preferably the punch side) of sheet and into anvil as shown in drawing.
3. With installation punch and anvil surfaces parallel, apply only enough squeezing force to embed the standoff's head flush in the sheet. Drawing at right shows suggested tooling for applying these forces.



*See page 3 for "C" and "L."

Installation Tooling

Thread Code	Haeger® Part Number		PEMSERTER® Part Number	
	Anvil	Punch	Anvil	Punch
RT440 / RTM3	H-109-4/M3L	H-108-0020L	970200487300	975200048
RT632 / RT3.5M3 / RTM3.5	H-109-6/M3.5L	H-108-0020L	970200012300	975200048
RTM4	H-109-10/ M5L	H-108-0020L	970200013300	975200048

Performance Data⁽¹⁾

Part Number	Max. Rec. Tightening Torque for Mating Screw (in. lbs.)	Test Sheet Material							
		.060" 5052-H34 Aluminum				.060" Cold-rolled Steel			
		Installation (lbs.)	Pushout (lbs.)	Torque-out ⁽²⁾ (in. lbs.)	Pull-thru ⁽²⁾ (lbs.)	Installation (lbs.)	Pushout (lbs.)	Torque-out ⁽²⁾ (in. lbs.)	Pull-thru ⁽²⁾ (lbs.)
SO-RT440-8ZI	4.75	1100	160	11	280	2200	225	19	330
SOS-RT632-8	7	1100	160	11	224	2200	225	19	264

Part Number	Max. Rec. Tightening Torque for Mating Screw (N-m)	Test Sheet Material							
		1.5 mm 5052-H34 Aluminum				1.5 mm Cold-rolled Steel			
		Installation (kN)	Pushout (N)	Torque-out ⁽²⁾ (N-m)	Pull-thru ⁽²⁾ (N)	Installation (kN)	Pushout (N)	Torque-out ⁽²⁾ (N-m)	Pull-thru ⁽²⁾ (N)
SO-RTM3-4ZI	0.55	4.9	710	1.24	1245	9.8	1000	2.15	1465
SO-RT3.5M3-6ZI	0.55	76	1330	2.82	1375	14.7	1860	3.95	1690
SO-RTM4-8ZI	2	10.7	1780	5.08	2575	17.8	2490	8.47	3110
BSO-RT3.5M3-10ZI	0.55	76	1330	2.82	1375	14.7	1860	3.95	1690
BSOS-RTM4-14	1.6	10.7	1780	5.08	2060	17.8	2490	8.47	2488

(1) Published installation forces are for general reference. Actual set-up and confirmation of complete installation should be made by observing proper seating of fastener as described in the installation steps. Other performance values reported are averages when all proper installation parameters and procedures are followed. Variations in mounting hole size, sheet material, and installation procedure may affect performance. Performance testing this product in your application is recommended. We will be happy to provide technical assistance and/or samples for this purpose.

(2) Joint failure in torque-out and pull-thru will depend on the strength and type of screw being used. In some cases the failure will be in the screw and not in the self-clinching standoff. Please contact our Applications Engineering group with any questions

All PEM® products meet our stringent quality standards. If you require additional industry or other specific [quality certifications](#), special procedures and/or part numbers are required. Please contact your local sales office or representative for further information.

Regulatory [compliance information](#) is available in Technical Support section of our website. Specifications subject to change without notice. See our website for the most current version of this bulletin.



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