



TSZ

Thermoset Zerts

FEATURES

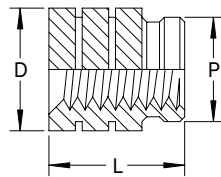
- Simple press-in installation.
- Sharp helical knurls broach into thermoset materials to provide high torque-out resistance.
- Self-aligning design.
- Available in a wide variety of thread sizes, stud lengths and options.



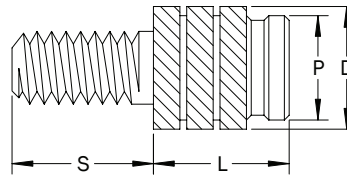
PART DESCRIPTION EXAMPLE

TSZS	—	632	—	247	X	375	—	SS
T		T		T		T		T
Series Code		Insert or Stud Thread Code		Insert Length Code		Stud Length Code ¹		Material Code ²

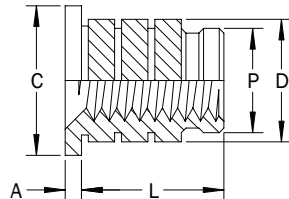
- (1) Omit stud length code for non-studded inserts.
- (2) SS material code designates stainless steel. Standard insert material is brass. Omit SS material code for brass inserts. Custom materials and finishes available by request.



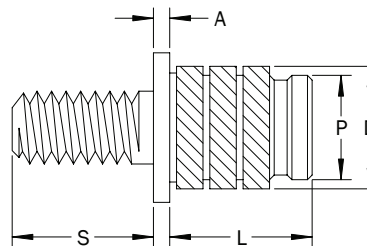
Insert
Series Code TSZ



Insert w/ Stud
Series Code TSZS



Headed Insert
Series Code TSZH



Headed Insert w/ Stud
Series Code TSZHS

TSZ Thermoset Zerts

GENERAL

	Insert Thread	Insert Thread Code	L Insert Length	Insert Length Code	Boss		A Head Thickness	C Head Diameter	D Insert Diameter	P Pilot Diameter
					B Hole Dia. +.004 -.000	W Wall Thickness Min.				
INCH	2-56	256	.162	162	.122	.063	.020	.187	.131	.117
	4-40	440	.208	208	.150	.079	.023	.217	.165	.146
	6-32	632	.247	247	.181	.098	.029	.250	.196	.178
	8-32	832	.292	292	.213	.098	.035	.281	.228	.209
	10-24	1024	.326	326	.244	.098	.042	.312	.259	.241
	10-32	1032	.326	326	.244	.098	.042	.312	.259	.241
	1/4-20	2520	.362	362	.307	.110	.052	.375	.332	.304
	1/4-28	2528	.362	362	.307	.110	.052	.375	.332	.304
	5/16-18	3118	.362	362	.366	.150	.052	.437	.383	.365
	5/16-24	3124	.362	362	.366	.150	.052	.437	.383	.365
	3/8-16	3716	.362	362	.484	.197	.062	.551	.499	.481
3/8-24	3724	.362	362	.484	.197	.062	.551	.499	.481	

(1) All dimensions are in inches and reference unless tolerated.

	Insert Thread	Insert Thread Code	L Insert Length	Insert Length Code	Boss		A Head Thickness	C Head Diameter	D Insert Diameter	P Pilot Diameter
					B Hole Dia. +0.10 -0.00	W Wall Thickness Min.				
METRIC	M2 x 0.4	M2	4.10	4.10	3.10	1.60	0.51	4.80	3.30	3.00
	M2.5 x 0.45	M2.5	5.30	5.30	3.80	2.00	0.58	5.50	4.20	3.70
	M3 x 0.5	M3	5.30	5.30	3.80	2.00	0.58	5.50	4.20	3.70
	M3.5 x 0.6	M3.5	6.30	6.30	4.60	2.50	0.74	6.40	5.00	4.50
	M4 x 0.7	M4	7.40	7.40	5.40	2.50	0.89	7.10	5.80	5.30
	M5 x 0.8	M5	8.30	8.30	6.20	2.50	1.07	7.90	6.60	6.10
	M6 x 1.0	M6	9.20	9.20	7.80	2.80	1.32	9.50	8.20	7.70
	M8 x 1.25	M8	9.20	9.20	9.30	3.80	1.32	11.10	9.70	9.30
	M10 x 1.5	M10	9.20	9.20	12.30	5.00	1.57	14.00	12.70	12.20

(1) All dimensions are in millimeters and reference unless tolerated.

STUD LENGTH

INCH	Stud Thread	Stud Thread Code	D Insert Diameter	S - Stud Length									
				.187	.250	.312	.375	.437	.500	.625	.750	.875	1.000
				Stud Length Code									
	2-56	256	.131	187	250	312	—	—	—	—	—	—	—
	4-40	440	.165	187	250	312	375	437	—	—	—	—	—
	6-32	632	.196	187	250	312	375	437	500	—	—	—	—
	8-32	832	.228	187	250	312	375	437	500	625	—	—	—
	10-24	1024	.259	187	250	312	375	437	500	625	750	—	—
	10-32	1032	.259	187	250	312	375	437	500	625	750	—	—
	1/4-20	2520	.332	—	250	312	375	437	500	625	750	875	1000
	1/4-28	2528	.332	—	250	312	375	437	500	625	750	875	1000
	5/16-18	3118	.383	—	—	312	375	437	500	625	750	875	1000
	5/16-24	3124	.383	—	—	312	375	437	500	625	750	875	1000
	3/8-16	3716	.499	—	—	—	375	437	500	625	750	875	1000
	3/8-24	3724	.499	—	—	—	375	437	500	625	750	875	1000

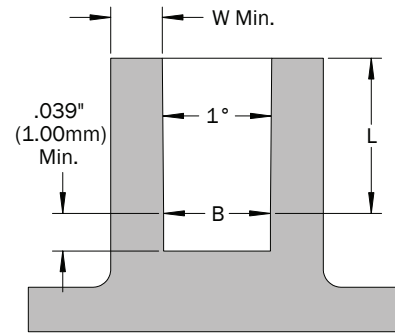
- (1) All dimensions are in inches and reference unless toleranced.
- (2) Custom stud lengths available by request.

METRIC	Stud Thread	Stud Thread Code	D Insert Diameter	S - Stud Length									
				5.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	25.00
				Stud Length Code									
	M2 x 0.4	M2	3.30	5.00	6.00	8.00	—	—	—	—	—	—	—
	M2.5 x 0.45	M2.5	4.20	5.00	6.00	8.00	10.00	—	—	—	—	—	—
	M3 x 0.5	M3	4.20	5.00	6.00	8.00	10.00	12.00	—	—	—	—	—
	M3.5 x 0.6	M3.5	5.00	5.00	6.00	8.00	10.00	12.00	14.00	—	—	—	—
	M4 x 0.7	M4	5.80	5.00	6.00	8.00	10.00	12.00	14.00	16.00	—	—	—
	M5 x 0.8	M5	6.60	5.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	—
	M6 x 1.0	M6	8.20	—	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	25.00
	M8 x 1.25	M8	9.70	—	—	8.00	10.00	12.00	14.00	16.00	18.00	20.00	25.00
	M10 x 1.5	M10	12.70	—	—	—	10.00	12.00	14.00	16.00	18.00	20.00	25.00

- (1) All dimensions are in millimeters and reference unless toleranced.
- (2) Custom stud lengths available by request.

BOSS DESIGN RECOMMENDATION

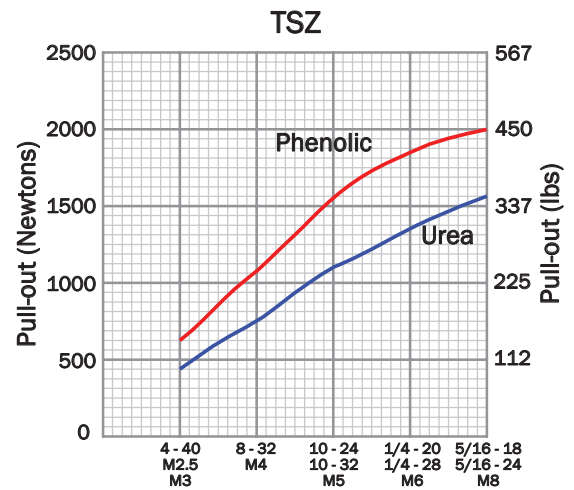
The TSZ Thermoset Zert is designed to be installed into a straight hole with a 1° inclusive taper. The top of the hole should not be countersunk or counterbored as this will decrease the insert's performance. The recommended hole size applies at the point reached by the bottom of the insert. Molded holes should be used wherever possible as drilled holes may result in diminished performance. Minimum boss wall thicknesses shown are for reference and may vary depending on the type of plastic.



INSTALLATION

Press the insert into the boss using a squeezing action— never a hammer blow. Allow the insert to rotate in the direction of the knurl during installation by using a punch with either a polished face or thrust bearing. Ensure that the insert maintains axial alignment during installation to prevent tilting which will induce side loads on the boss. Oversize boss holes weaken the insert's self-aligning characteristics causing side loads which may lead to possible boss cracking.

PERFORMANCE



(1) Performance data shown is for reference only. Variations in application, boss material type and size, and installation method will affect the loads. PENCOM strongly encourages testing in the application.