



TWZ

Twin Zerts

FEATURES

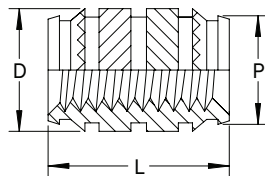
- Self-aligning installation using heat.
- Opposing helical knurls and knurled vanes provide superior pull-out and torque-out resistance.
- Double-ended to assist automatic feeding by eliminating the need for orientation during installation.
- Thin boss walls permit compact design.
- Available in a wide variety of thread sizes, stud lengths and options.



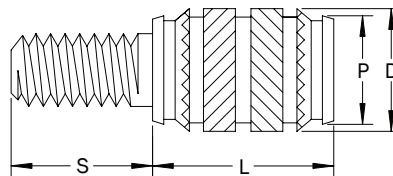
PART DESCRIPTION EXAMPLE

TWZS	—	632	—	279 X 375	—	SS
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 TWZ



Insert w/ Stud
Series Code TWZS

TWZ Twin Zerts

GENERAL

	Insert Thread	Insert Thread Code	Boss		D Insert Diameter	P Pilot Diameter
			B Hole Dia. +.004 -.000	W Wall Thickness Min.		
INCH	2-56	256	.125	.051	.137	.123
	4-40	440	.157	.063	.174	.154
	6-32	632	.189	.071	.205	.185
	8-32	832	.220	.083	.239	.218
	10-24	1024	.252	.102	.269	.249
	10-32	1032	.252	.102	.269	.249
	1/4-20	2520	.315	.130	.333	.312
	1/4-28	2528	.315	.130	.333	.312
	5/16-18	3118	.378	.177	.394	.374
	5/16-24	3124	.378	.177	.394	.374
	3/8-16	3716	.469	.236	.485	.465
	3/8-24	3724	.469	.236	.485	.465
	1/2-13	5013	.630	.315	.643	.622
	1/2-20	5020	.630	.315	.643	.622

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

	Insert Thread	Insert Thread Code	Boss		D Insert Diameter	P Pilot Diameter
			B Hole Dia. +0.10 -0.00	W Wall Thickness Min.		
METRIC	M2 x 0.4	M2	3.20	1.30	3.50	3.10
	M2.5 x 0.45	M2.5	4.00	1.60	4.40	3.90
	M3 x 0.5	M3	4.00	1.60	4.40	3.90
	M3.5 x 0.6	M3.5	4.80	1.80	5.20	4.70
	M4 x 0.7	M4	5.60	2.10	6.10	5.50
	M5 x 0.8	M5	6.40	2.60	6.80	6.30
	M6 x 1.0	M6	8.00	3.30	8.50	7.90
	M8 x 1.25	M8	9.60	4.50	10.00	9.50
	M10 x 1.5	M10	11.90	6.00	12.30	11.80
	M12 x 1.75	M12	16.00	8.00	16.30	15.80

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

INSERT LENGTH

INCH	Insert Thread	L Insert Length	Insert Length Code
	2-56	.118	118
		.155 ²	155
	4-40	.157	157
		.188	188
		.224 ²	224
	6-32	.197	197
		.279 ²	279
	8-32	.157	157
		.188	188
		.228	288
		.319 ²	319
	10-24	.228	228
	10-32	.373 ²	373
1/4-20 1/4-28	.269	269	
	.374	374	
	.498 ²	498	
5/16-18 5/16-24	.498 ²	498	
3/8-16 3/8-24	.498 ²	498	
1/2-13 1/2-20	.626 ²	626	

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

METRIC	Insert Thread	L Insert Length	Insert Length Code
	M2 x 0.4	3.00	3.00
		3.94 ²	3.94
	M2.5 x 0.45	4.00	4.00
		5.69 ²	5.69
	M3 x 0.5	4.00	4.00
		4.80	4.80
		5.69 ²	5.69
	M3.5 x 0.6	5.00	5.00
		7.09 ²	7.09
		4.00	4.00
	M4 x 0.7	4.80	4.80
		5.80	5.80
		8.10 ²	8.10
	M5 x 0.8	5.80	5.80
		9.47 ²	9.47
	M6 x 1.0	6.80	6.80
		9.50	9.50
		12.65 ²	12.65
M8 x 1.25	12.65 ²	12.65	
M10 x 1.5	12.65 ²	12.65	
M12 x 1.75	15.88 ²	15.88	

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

STUD LENGTH (CONTINUED)

	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									
INCH	2-56	256	.137	187	250	312	—	—	—	—	—	—	—
	4-40	440	.174	187	250	312	375	437	—	—	—	—	—
	6-32	632	.205	187	250	312	375	437	500	—	—	—	—
	8-32	832	.239	187	250	312	375	437	500	625	—	—	—
	10-24	1024	.269	187	250	312	375	437	500	625	750	—	—
	10-32	1032	.269	187	250	312	375	437	500	625	750	—	—
	1/4-20	2520	.333	—	250	312	375	437	500	625	750	875	1000
	1/4-28	2528	.333	—	250	312	375	437	500	625	750	875	1000
	5/16-18	3118	.394	—	—	312	375	437	500	625	750	875	1000
	5/16-24	3124	.394	—	—	312	375	437	500	625	750	875	1000
	3/8-16	3716	.485	—	—	—	375	437	500	625	750	875	1000
	3/8-24	3724	.485	—	—	—	375	437	500	625	750	875	1000
	1/2-13	5013	.643	—	—	—	—	—	500	625	750	875	1000
	1/2-20	5020	.643	—	—	—	—	—	500	625	750	875	1000

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

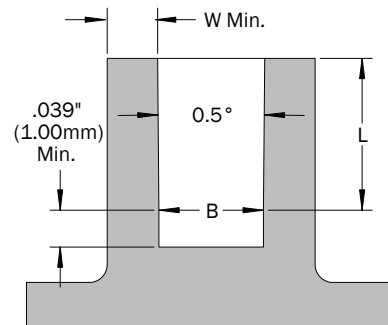
STUD LENGTH (CONTINUED)

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	3.50	5.00	6.00	8.00	—	—	—	—	—	—	—
	M2.5 x 0.45	M2.5	4.40	5.00	6.00	8.00	10.00	—	—	—	—	—	—
	M3 x 0.5	M3	4.40	5.00	6.00	8.00	10.00	12.00	—	—	—	—	—
	M3.5 x 0.6	M3.5	5.20	5.00	6.00	8.00	10.00	12.00	14.00	—	—	—	—
	M4 x 0.7	M4	6.10	5.00	6.00	8.00	10.00	12.00	14.00	16.00	—	—	—
	M5 x 0.8	M5	6.80	5.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	—
	M6 x 1.0	M6	8.50	—	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	25.00
	M8 x 1.25	M8	10.00	—	—	8.00	10.00	12.00	14.00	16.00	18.00	20.00	25.00
	M10 x 1.5	M10	12.30	—	—	—	10.00	12.00	14.00	16.00	18.00	20.00	25.00
	M12 x 1.75	M12	16.30	—	—	—	—	12.00	14.00	16.00	18.00	20.00	25.00

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

BOSS DESIGN RECOMMENDATION

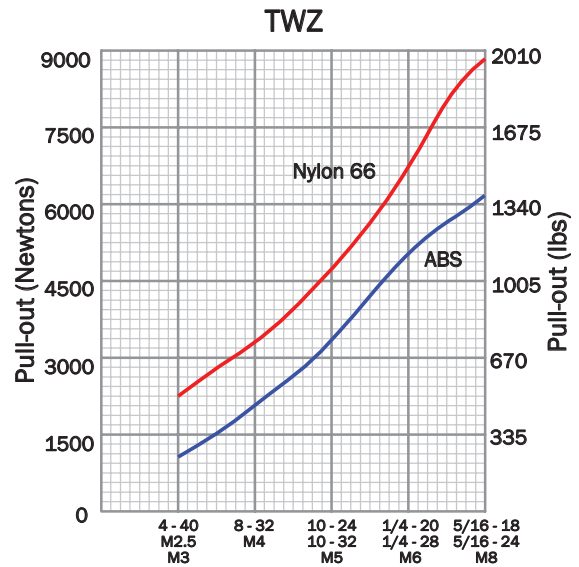
The TWZ Twin Zert is designed to be installed into a straight molded hole with a 0.5° inclusive taper. The top of the hole should not be countersunk or counterbored as this will decrease the insert's performance. The recommended hole size applies at the point reached by the bottom of the insert. Molded 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

Pre-heating is the recommended installation method. The insert should be hot enough to soften the plastic without melting it to avoid flash around the top. Avoid excessive pressure that would force an insert into a hole without allowing the plastic to properly soften and flow around the insert features.

PERFORMANCE



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