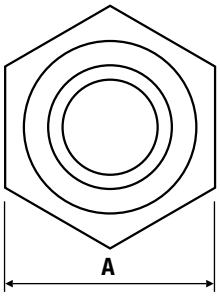
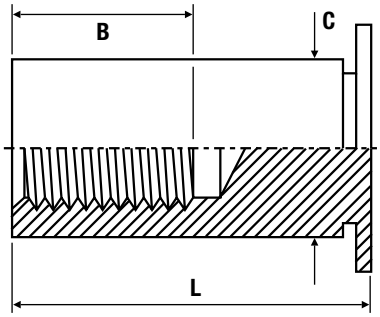
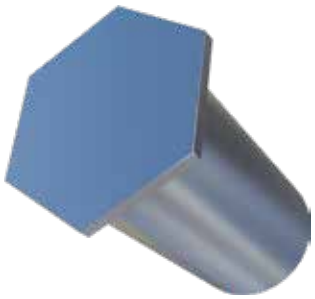
Blind Standoff TR-BSO/TR-BSOS/TR-BSOA/TR-BSO4







Metric Dimensions

Zinc Plated Steel: TR-BSO | Stainless Steel: TR-BSOS | Aluminium: TR-BSOA | 400 Series Stainless Steel: TR-BSO4

Thread	M2, M2.5, M3	M3alt	M4	M5
C -0.13	4.2	5.39	7.12	7.12
A nom.	4.8	6.4	7.9	7.9
Min. sheet thickness	1.0	1.0	1.27	1.27
Recommended hole size +0.08	4.22	5.41	7.14	7.14
Min. distance to edge of sheet	6.0	6.8	8.0	8.0

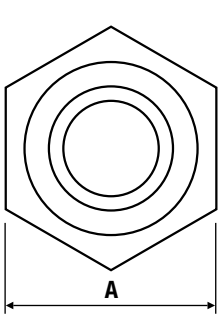
(L) Length +0.05/-0.13	5	6	7	8	9	10	12	14	15	16	18	20	22	25
(B) Thread depth - min.	2.8	3.2	3.6	4.0			5.0	6.5			9.5			

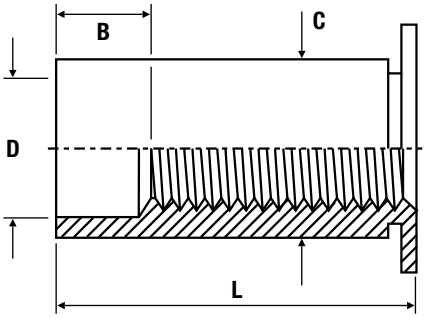
Metric Performance Data (TR-BSO/TR-BSOS)

Thread	M2, M2.5, M3	M3alt	M4	M5
Test sheet material	Steel			
Installation (kN)	9.9	14.8	17.9	17.9
Torque-out (Nm)	2.16	3.95	8.5	8.5
Push-out (N)	1050	1870	2500	2500

TR-BSO - Recommended for use in sheet hardness: HRB 80 or less
TR-BSOS - Recommended for use in sheet hardness: HRB 70 or less
TR-BSOA - Recommended for use in sheet hardness: HRB 50 or less
TR-BSO4 - Recommended for use in sheet hardness: HRB 88 or less

Through Standoff TR-SO/TR-SOS/TR-SOA/TR-SO4





Metric Dimensions

Zinc Plated Steel: TR-SO | Stainless Steel: TR-SOS | Aluminium: TR-SOA | 400 Series Stainless Steel: TR-SO4

Thread	M2, M2.5, M3	M3alt	M4	M5
C -0.13	4.2	5.39	7.12	7.12
D counter-bore diameter -0.13	3.2	3.2	4.8	5.35
A nom.	4.8	6.4	7.9	7.9
Min. sheet thickness	1.0	1.0	1.27	1.27
Recommended hole size +0.08	4.22	5.41	7.14	7.14
Min. distance to edge of sheet	6.0	6.8	8.0	8.0

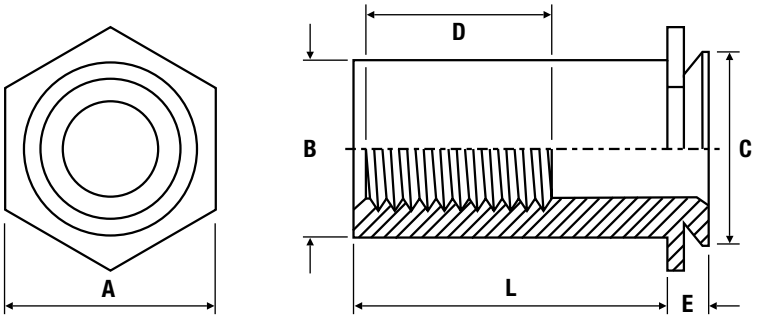
(L) Length +0.05/-0.13	3	4	5	6	7	8	9	10	12	14	15	16	18	20	22	25
(B) Thread depth - min.	N/A						4					8			11	

Metric Performance Data (TR-SO/TR-SOS)

Thread	M2, M2.5, M3	M3alt	M4	M5
Test sheet material	Steel			
Installation (kN)	9.9	14.8	17.9	17.9
Torque-out (Nm)	2.16	3.95	8.5	8.5
Push-out (N)	1050	1870	2500	2500

TR-SO - Recommended for use in sheet hardness: HRB 80 or less
TR-SOS - Recommended for use in sheet hardness: HRB 70 or less
TR-SOA - Recommended for use in sheet hardness: HRB 50 or less
TR-SO4 - Recommended for use in sheet hardness: HRB 88 or less

Concealed Head Standoff - 1.6mm Sheet TR-CSS



Metric Dimensions

Stainless Steel: TR-CSS

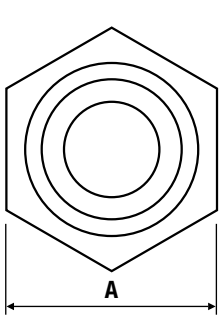
Thread	M3	M4	M5
A	6.35	8.73	9.53
B	4.2	6.23	7.37
C	5.39	7.9	8.72
D	5.0	6.5	9.6
Blind mounting hole ±0.8	5.41	7.92	8.74
Min. distance to edge of sheet	4.8	6.4	7.2
Hole depth	1.09	1.09	1.09
E min. depth of blind hole	1.04	1.04	1.04
Min. sheet thickness	1.6	1.6	1.6

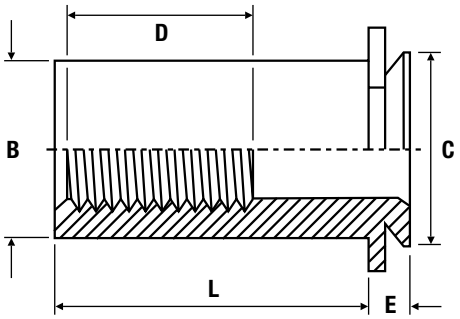
Metric Performance Data

Thread	M3	M4	M5
Test sheet material	Steel		
Installation (kN)	17.8	21.3	24.5
Push-out (N)	1330	1775	2000
Max. tightening torque (Nm)	0.55	2.0	3.6

TR-CSS - Recommended for use in sheet hardness: HRB 70 or less

Concealed Head Standoff - 2.4mm Sheet TR-CSOS





Metric Dimensions

Stainless Steel: TR-CSOS

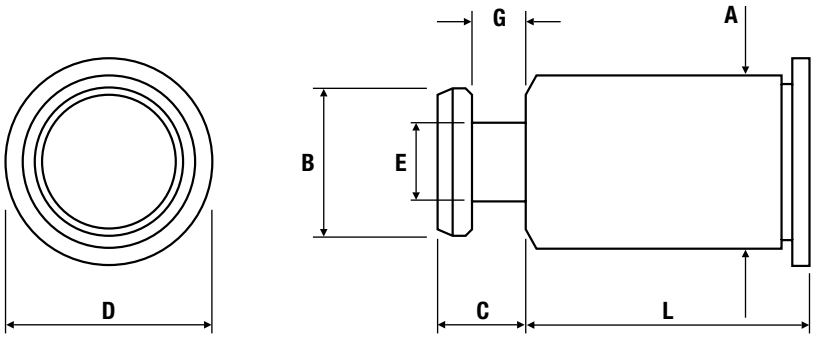
Thread	M3	M4	M5	M6
A	6.35	8.73	9.53	11.11
B	4.2	6.23	7.37	9.0
C	5.39	7.9	8.72	9.89
D	5.0	6.5	9.6	9.6
Blind mounting hole ±0.8	5.41	7.92	8.74	9.9
Min. distance to edge of sheet	4.8	6.4	7.2	9.5
Hole depth	1.91	1.91	1.91	1.91
E min. depth of blind hole	1.83	1.83	1.83	1.83
Min. sheet thickness	2.4	2.4	2.4	2.4

Metric Performance Data

Thread	M3	M4	M5	M6
Test sheet material	Steel			
Installation (kN)	19.2	23.6	26.7	28.9
Push-out (N)	1465	1955	2665	2860
Max. tightening torque (Nm)	0.55	2.00	3.60	7.20

TR-CSOS - Recommended for use in sheet hardness: HRB 70 or less

Hole Slide Standoff TR-SKC



Metric Dimensions

Stainless Steel: TR-SKC

Body size - Sheet code	61.5
A max.	5.39
B ±0.08	4.5
C max.	2.75
D nom.	6.35
E	2.51
G ± 0.08	1.73
Recommended hole size + 0.08	5.5

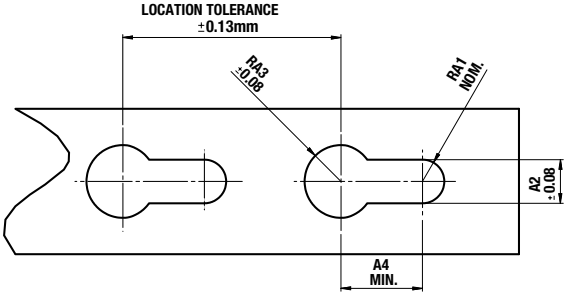
Length (L) ±0.13	2	4	6	8	10	12	14	16	18	20	22	25

Metric Performance Data

Body size - Sheet code	61.5
Test sheet material	Steel
Test sheet thickness	1.52
Installation (kN)	14.3
Push-out (N)	2650

Part number	Panel 1 - Metal HRB50					Panel 2 - PC board or metal					
	Bottom mounting hole +0.08	Max. hardness	Min. thickness	Min. distance to edge of sheet	Max. location tolerance	Top mounting hole +0.08				Thickness range	Min. distance to edge of sheet
						A1 nom.	A2 ±0.08	A3 ±0.08	A4 min.		
TR-SKC	5.4	HRB 70	1.0	6.6	±0.13	1.5	3.0	5.0	3.75	1.45 - 1.62	4.1

TR-SKC - Recommended for use in sheet hardness: HRB 70 or less



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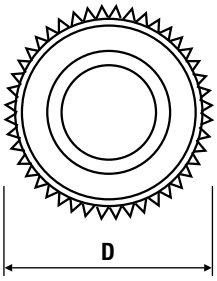
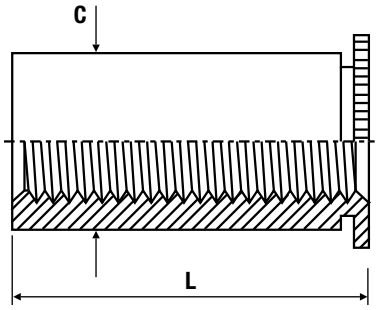
Close To Edge Standoff TR-DSO/TR-DSOS





Metric Dimensions

Zinc Plated Steel: TR-DSO | Stainless Steel: TR-DSOS

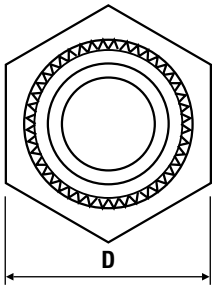
Thread	M3	
(L) Length +0.05 -0.13	6.35	7.0
C max.	4.2	
D nom.	4.92	
Sheet thickness	0.94 - 6.35	
Recommended hole size +0.08	4.2	
Min. distance to edge of sheet	3.2	

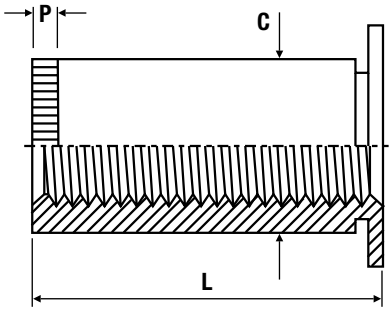
Metric Performance Data

Thread	M3
Test sheet material	Steel
Installation (kN)	5.85
Push-out (N)	334
Torque-out (Nm)	1.2

TR-DSO - Recommended for use in sheet hardness: HRB 80 or less
TR-DSOS - Recommended for use in sheet hardness: HRB 70 or less

Grounding Standoff TR-SOSG





Metric Dimensions

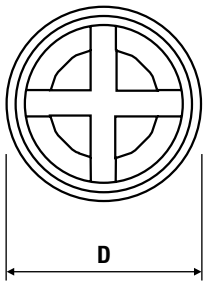
Stainless Steel: TR-SOSG

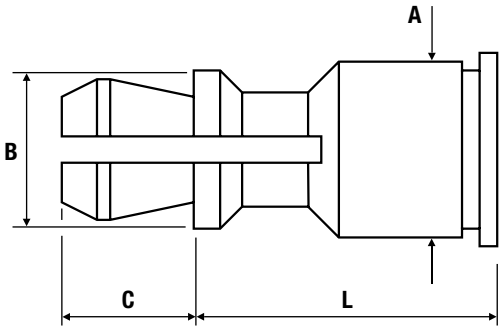
Thread	M3
C ± 0.13	5.39
D nom.	6.4
Min. sheet thickness	1.0
P knurling	0.76
Recommended hole size +0.08	5.4
Min. distance to edge of sheet	6.8

Length (L) ±0.13	3	4	6	8	10	12

TR-SOSG - Recommended for use in sheet hardness: HRB 70 or less

Clip-on Standoff TR-SSS/TR-SSC/TR-SSA





Metric Dimensions

Zinc Plated Steel: TR-SSS | Stainless Steel: TR-SSC | Aluminium: TR-SSA

Top panel mounting hole diameter	**4mm**
A max.	5.39
B ±0.13	4.78
C ±0.13	3.58
D ±0.13	6.35
Recommended hole size +0.08	5.4

Length (L) ±0.13	8	10	12	14	16	18	20	22	25

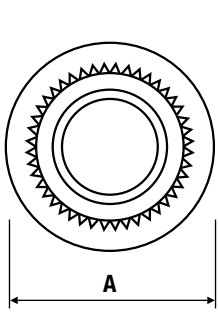
Part number	Panel 1 - Metal HRB50					Panel 2 - PCB or metal			
	Bottom mounting hole +0.08	Max. hardness	Min. thickness	Min. distance to edge of sheet	Max. location tolerance	Top mounting hole +0.08	Max. hardness	Thickness range	Min. distance to edge of sheet
TR-SSS	5.41	HRB 60	1.0	6.6	±0.13	4.0	No limit	1-1.8	2.54
TR-SSC		HRB 70							
TR-SSA		HRB 50							

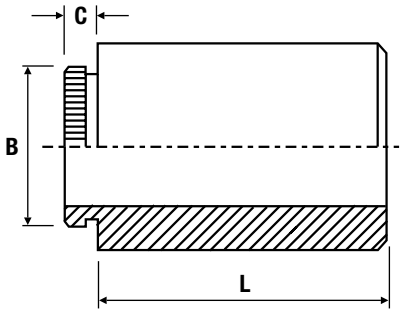
Metric Performance Data

Type	TR-SSS	TR-SSC	TR-SSA
Test sheet material	Steel	Steel	Aluminium
Installation (kN)	15.6	16.5	6.7
Push-out (N)	1785	1785	880

TR-SSS - Recommended for use in sheet hardness: HRB 60 or less
TR-SSC - Recommended for use in sheet hardness: HRB 70 or less
TR-SSA - Recommended for use in sheet hardness: HRB 50 or less

Broaching Through Hole Standoff TR-KFE/TR-KFSE





Metric Dimensions

Electro Tin Plated Steel: TR-KFE | Stainless Steel: TR-KFSE

Through hole size	3.6	4.2
A ±0.13	7.14	8.74
B ±0.08	5.87	6.86
C max.	1.53	1.53
Min. sheet thickness	1.53	1.53
Recommended hole size +0.08	5.41	6.4
Min. distance to edge of sheet	5.5	7.1

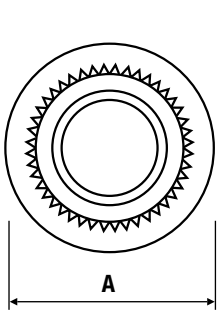
Length (L) ±0.13	3	4	5	6	8	10	12	14

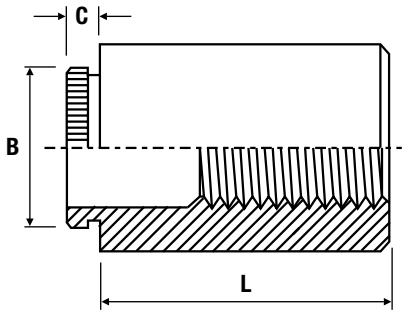
Metric Performance Data

Through hole size	3.6	4.2
Test sheet material	FR4 fibreglass	
Installation (kN)	2.2	2.2
Push-out (N)	330	420

TR-KFE - Recommended for use in sheet hardness: HRB 60 or less
TR-KFSE - Recommended for use in sheet hardness: HRB 70 or less

Broaching Threaded Standoff TR-KFE/TR-KFSE





Metric Dimensions

Electro Tin Plated Steel: TR-KFE | Stainless Steel: TR-KFSE

Thread	M3	M4
A ±0.13	5.56	8.74
B ±0.08	4.68	6.75
C max.	1.53	1.53
Min. sheet thickness	1.53	1.53
Recommended hole size +0.08	4.22	6.4
Min. distance to edge of sheet	4.4	6.4

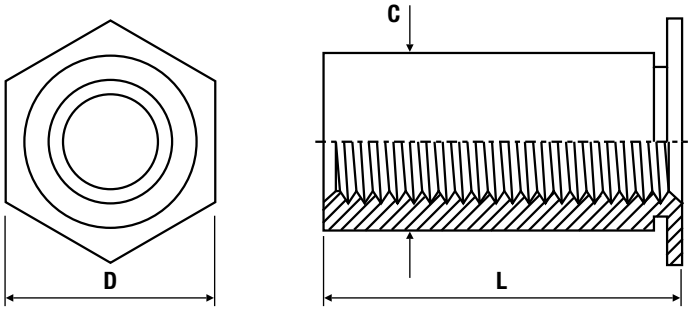
Length (L) ±0.13	3	4	5	6	8	10	12	14	16

Metric Performance Data

Thread	M3	M4
Test sheet material	FR4 fibreglass	
Installation (kN)	2.2	2.2
Torque-out (Nm)	1.4	3.0
Push-out (N)	290	400

TR-KFE - Recommended for use in sheet hardness: HRB 60 or less
TR-KFSE - Recommended for use in sheet hardness: HRB 70 or less

Thin Sheet Standoff TR-TSO/TR-TSOS



Metric Dimensions

Zinc Plated Steel: TR-TSO | Stainless Steel: TR-TSOS

Thread	M2.5	M2.5 Alt	M3	M3 Alt	M3.5
C -0.13	4.2	5.39	4.2	5.39	5.39
D ±0.25	4.8	6.4	4.8	6.4	6.4
Min. sheet thickness	0.63				
Recommended hole size +0.08	4.22 - 4.30	5.41 - 5.49	4.22 - 4.30	5.41 - 5.49	5.41 - 5.49
Min. distance to edge of sheet	5.8	7.1	5.8	7.1	7.1

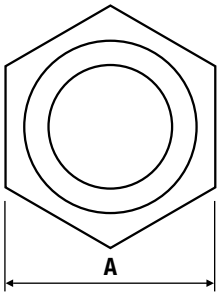
Length (L) ±0.13	2	3	4	6	8	10	12	14	16	18	19

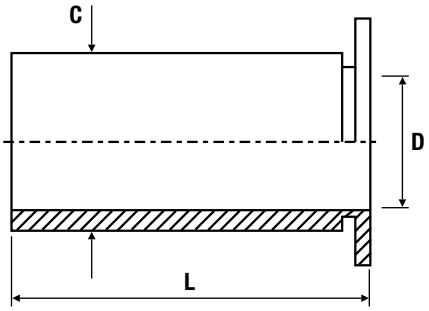
Metric Performance Data

Thread	M2.5	M2.5 Alt	M3	M3 Alt	M3.5
Test sheet material	Steel				
Installation (kN)	8.9	11.1	8.9	11.1	11.1
Torque-out (Nm)	1.0	1.7	1.0	1.7	1.7
Push-out (N)	445	667	445	667	667

TR-TSO - Recommended for use in sheet hardness: HRB 60 or less
TR-TSOS - Recommended for use in sheet hardness: HRB 70 or less

Clear Hole Standoff TR-SO





Metric Dimensions

Zinc Plated Steel: TR-SO

Diameter code	43.1	63.1	63.6	83.6	84.1	85.1
D counter-bore diameter -0.13	3.1	3.1	3.6	3.6	4.1	5.1
C -0.13	4.2	5.39	5.39	7.12	7.12	7.12
A nom.	4.8	6.4	6.4	7.9	7.9	7.9
Min. sheet thickness	1.0	1.0	1.0	1.27	1.27	1.27
Recommended hole size +0.08	4.22	5.41	5.41	7.14	7.14	7.14
Min. distance to edge of sheet	6.0	6.8	6.8	8.0	8.0	8.0

Length (L) +0.05/-0.13	3	4	5	6	8	10	12	14	16	18	20

TR-SO - Recommended for use in sheet hardness: HRB 80 or less