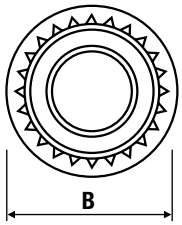
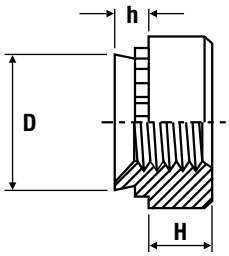
Nut TR-S/TR-CLS/TR-CLA/TR-SP4/TR-SP2





Metric Dimensions (TR-S/TR-CLS/TR-SP4/TR-SP2)

Zinc Plated Steel: TR-S | Stainless Steel: TR-CLS | Aluminium: TR-CLA
400 Series Stainless Steel: TR-SP4 | A286 Stainless Steel: TR-SP2

Thread	M2, M2.5, M3			M3alt			M3.5			M4			
Shank code	0	1	2	0	1	2	0	1	2	0	1	2	3
D max.	4.20			4.73			4.73			5.38			
B ±0.2	6.35			7.1			7.1			7.95			
H ±0.25	1.5			1.5			1.5			2.0			
h max.	0.77	0.97	1.38	0.77	0.97	1.38	0.77	0.97	1.38	0.77	0.97	1.38	2.21
Min. sheet thickness	0.8	1.0	1.4	0.8	1.0	1.4	0.8	1.0	1.4	0.8	1.0	1.4	2.3
Recommended hole size +0.08	4.22			4.75			4.75			5.41			
Min. distance to edge of sheet	4.8			5.6			5.6			6.9			

Thread	M5				M6					M8			M10		M12
Shank code	0	1	2	3	00	0	1	2	3	1	2	3	1	2	1
D max.	6.33				8.73					10.47			13.97		16.95
B ±0.2	8.75				11.10					12.65			17.35		20.55
H ±0.25	2.0				4.08					5.47			7.48		8.5
h max.	0.77	0.97	1.38	2.21	0.89	1.15	1.38	2.21	3.05	1.38	2.21	3.05	2.21	3.05	3.05
Min. sheet thickness	0.8	1.0	1.4	2.3	0.92	1.2	1.4	2.3	3.2	1.4	2.3	3.2	2.3	3.2	3.2
Recommended hole size +0.08	6.35				8.75					10.5			14.0		17.0
Min. distance to edge of sheet	7.1				8.6					9.7			13.5		16.0

Metric Dimensions (TR-CLA)

Thread	M2		M3		M3.5		M4		M5		M6	
Shank code	1	2	1	2	1	2	1	2	1	2	1	2
D max.	4.22		4.73		5.38		5.97		7.47		8.72	
B ±0.2	6.3		6.3		7.1		7.9		9.5		11.05	
H ±0.25	1.5		2.0		2.0		3.0		3.8		4.08	
h max.	0.98	1.38	0.98	1.38	0.98	1.38	0.98	1.38	0.98	1.38	1.38	2.21
Min. sheet thickness	1.0	1.4	1.0	1.4	1.0	1.4	1.0	1.4	1.0	1.4	1.4	2.3
Recommended hole size +0.08	4.25		4.75		5.4		6.0		7.5		8.75	
Min. distance to edge of sheet	4.8		5.6		6.9		7.1		7.9		8.6	

Nut TR-S/TR-CLS/TR-CLA/TR-SP4/TR-SP2

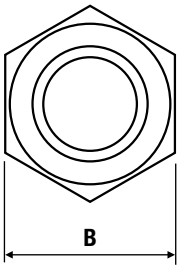
Metric Performance Data (TR-S/TR-CLS)

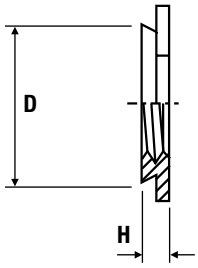
Thread	**M2, M2.5**			**M3**				**M3alt**			**M3.5**			**M4**			
Test material	Steel																
Shank code	0	1	2	0	1	2	3	0	1	2	0	1	2	0	1	2	3
Installation (kN)	11.2 - 15.6			11.2 - 15.6				13.4 - 26.7			13.4 - 26.7			18 - 27			
Torque-out (Nm)	1.5	1.75	2.0	1.5	1.75	2.0	2.1	1.8	2.4	2.4	1.8	2.4	2.4	3.0	4.0	5.0	4.2
Push-out (N)	480	560	1020	480	560	1020	1110	485	575	1200	485	575	1200	495	650	1255	1300

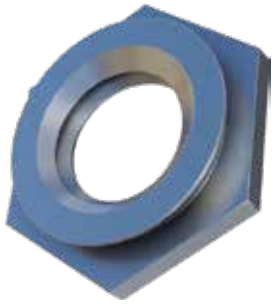
Thread	**M5**				**M6**			**M8**			**M10**		**M12**
Test material	Steel												
Shank code	0	1	2	3	1	2	3	1	2	3	1	2	1
Installation (kN)	18 - 38				27 - 36			27 - 36			32 - 50		33 - 49
Torque-out (Nm)	3.7	4.5	6.9	6.0	17.1	17.1	16.4	18.8	20.4	18.1	36.1	36.1	73.9
Push-out (N)	535	801	1115	1500	1765	1765	1755	1870	1870	1860	2021	2021	3065

TR-S - Recommended for use in sheet hardness: HRB 80 or less
TR-CLS - Recommended for use in sheet hardness: HRB 70 or less
TR-CLA - Recommended for use in sheet hardness: HRB 50 or less
TR-SP4/SP2 - Recommended for use in sheet hardness: HRB 90 or less

Flush Nut TR-F/TR-F4







Metric Dimensions

Stainless Steel: TR-F | 400 Series Stainless Steel TR-F4

Thread	M2, M2.5		M3		M3alt		M3.5		M4		M5		M6		
Shank code	1	2	1	2	1	2	1	2	1	2	1	2	3	4	5
D max.	4.35		4.35		5.35		5.35		7.35		7.90		8.72		
B nom.	4.8		4.8		6.4		6.4		7.9		8.7		9.5		
H max.	1.53	2.3	1.53	2.3	1.53	2.3	1.53	2.3	1.53	2.3	1.53	2.3	3.05	3.84	4.63
Sheet thickness	1.53 - 2.3	2.32 min.	1.53 - 2.3	2.32 min.	1.53 - 2.3	2.32 min.	1.53 - 2.3	2.32 min.	1.53 - 2.3	2.32 min.	1.53 - 2.3	2.32 min.	3.18 - 3.94	3.96 - 4.72	4.75 min.
Recommended hole size +0.08	4.37		4.37		5.4		5.4		7.37		7.92		8.74		
Min. distance to edge of sheet	6.0		6.0		6.5		6.5		7.2		8.0		8.8		

Metric Performance Data (TR-F)

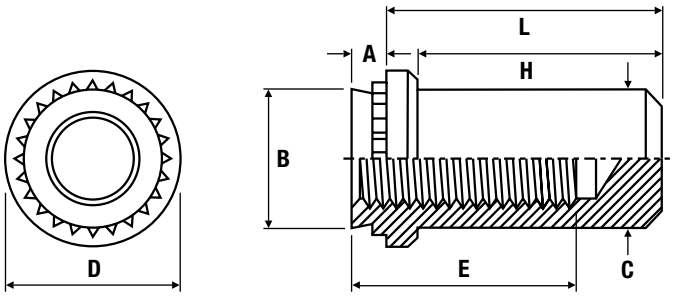
Thread	M2, M2.5		M3		M3alt		M3.5		M4		M5		M6		
Shank code	1	2	1	2	1	2	1	2	1	2	1	2	3	4	5
Test sheet material	Steel														
Test sheet thickness	1.5	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5	2.3	3.1	3.9	4.75
Installation (kN)	13.5		13.5		13.5		13.5		18.0		22.0		26.5		
Push-out (N)	900		900		1100		1100		1060		1060		3700		

Metric Performance Data (TR-F4)

Thread	M2, M2.5		M3		M4		M5		M6		
Shank code	1	2	1	2	1	2	1	2	3	4	5
Test sheet material	300 series stainless steel										
Test sheet thickness	1.5	2.3	1.5	2.3	1.5	2.3	1.5	2.3	3.1	3.9	4.75
Installation (kN)	32		32		40		40		65		
Push-out (N)	1200		1200		2000		2000		4500		

TR-F - Recommended for use in sheet hardness: HRB 70 or less
TR-F4 - Recommended for use in sheet hardness: HRB 80 or less

Blind Nut TR-B/TR-BS



Metric Dimensions

Zinc Plated Steel: TR-B | Stainless Steel: TR-BS

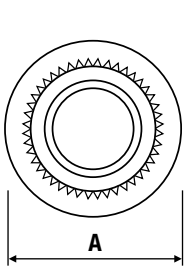
Thread	M3		M4		M5		M6	
Shank code	1	2	1	2	1	2	1	2
A max.	0.97	1.38	0.97	1.38	0.97	1.38	1.38	2.21
Min. sheet thickness	1.0	1.4	1.0	1.4	1.0	1.4	1.4	2.29
Recommended hole size +0.08	4.22		5.41		6.35		8.75	
B max.	4.20		5.38		6.33		8.73	
C max.	3.84		5.2		6.02		7.8	
D ±0.25	6.35		7.95		8.75		11.1	
E min.	5.3		7.1		7.1		7.8	
H ±0.25	9.6		11.2		11.2		14.3	
L max.	8.5		9.8		9.8		12.7	
Min. distance to edge of sheet	4.8		6.9		7.1		8.6	

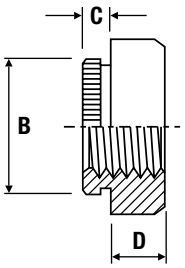
Metric Performance Data

Thread	M3		M4		M5		M6	
Shank code	1	2	1	2	1	2	1	2
Test sheet material	Steel							
Sheet thickness	1.0	1.4	1.0	1.4	1.0	1.4	1.4	2.3
Installation (kN)	11.5	14.0	16.0	21.0	18.0	25.0	26.0	26.0
Push-out (N)	572	1020	605	1256	630	1110	1782	1782
Torque-out (Nm)	1.7	2.15	3.5	5.1	4.1	6.9	11.9	11.9

TR-B - Recommended for use in sheet hardness: HRB 80 or less
TR-BS - Recommended for use in sheet hardness: HRB 70 or less

Broaching Nut TR-KF2/TR-KFS2





Metric Dimensions

Electro Tin Plated Steel: TR-KF2 | Stainless Steel: TR-KFS2

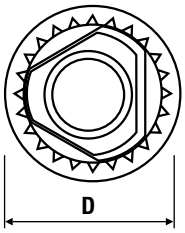
Thread	M2	M2.5	M3	M3.5	M4	M5
C max.	1.53	1.53	1.53	1.53	1.53	1.53
B ±0.08	4.19	4.68	4.68	5.88	6.86	7.37
A ±0.13	5.56	5.56	5.56	7.0	8.74	9.53
D ±0.13	1.5	1.5	1.5	1.6	2.0	3.0
Min. sheet thickness	1.53	1.53	1.53	1.53	1.53	1.53
Recommended hole size +0.08	3.73	4.22	4.22	5.5	6.40	6.90
Min. distance to edge of sheet	4.2	4.4	4.4	5.5	6.4	7.1

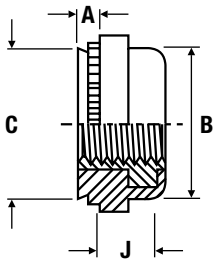
Metric Performance Data

Thread	M2	M2.5	M3	M3.5	M4	M5
Test sheet material	FR4 fibreglass					
Test sheet thickness	1.5					
Installation (kN)	2.2	2.2	2.2	2.2	2.2	2.9
Torque-out (Nm)	0.70	0.70	1.70	1.70	3.40	4.55
Push-out (N)	260	260	290	290	420	440

TR-KF2 - Recommended for use in sheet hardness: HRB 60 or less
TR-KFS2 - Recommended for use in sheet hardness: HRB 70 or less

Non-Locking Floating Nut TR-AS/TR-AC





Metric Dimensions

Zinc Plated Steel: TR-AS | Stainless Steel: TR-AC

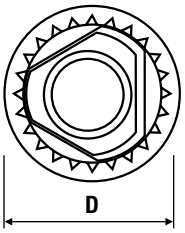
Thread	M3		M4		M5		M6
Shank code	1	2	1	2	1	2	2
A max.	0.97	1.38	0.97	1.38	0.97	1.38	1.38
Min. sheet thickness	0.97	1.38	0.97	1.38	0.97	1.38	1.38
Recommended hole size +0.08	7.37		9.35		10.31		13.08
B max.	7.35		9.33		10.29		13.06
C max.	7.37		9.28		10.29		12.96
D ±0.4	9.14		11.18		11.94		15.24
J max.	3.31		3.31		4.32		5.34
Min. distance to edge of sheet	7.62		8.64		9.14		10.67

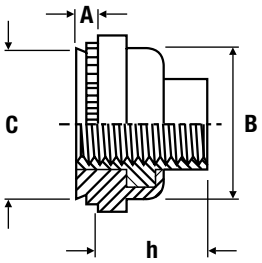
Metric Performance Data

Thread	M3		M4		M5		M6
Shank code	1	2	1	2	1	2	2
Test sheet material	Steel						
Installation (kN)	13.3	13.3	13.3	13.3	15.6	15.6	22.2
Push-out (N)	1340	1340	1340	1784	1789	2009	2226
Torque-out (Nm)	9.7	17.0	17.0	22.8	17.0	22.9	36.9

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

Locking Floating Nut TR-LAS/TR-LAC





Metric Dimensions

Zinc Plated Steel: TR-LAS | Stainless Steel: TR-LAC

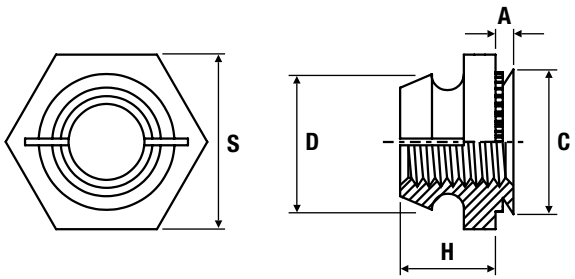
Thread	M3		M4		M5		M6
Shank code	1	2	1	2	1	2	2
A max.	0.97	1.38	0.97	1.38	0.97	1.38	1.38
Min. sheet thickness	0.97	1.38	0.97	1.38	0.97	1.38	1.38
Recommended hole size +0.08	7.37		9.35		10.31		13.08
B max.	7.35		9.33		10.29		13.06
C max.	7.37		9.28		10.29		12.96
D ±0.4	9.14		11.18		11.94		15.24
h max.	4.83		5.34		6.86		7.88
Min. distance to edge of sheet	7.62		8.64		9.14		10.67

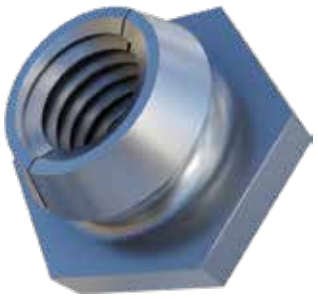
Metric Performance Data

Thread	M3		M4		M5		M6
Shank code	1	2	1	2	1	2	2
Test sheet material	Steel						
Installation (kN)	13.3	13.3	13.3	13.3	15.6	15.6	22.2
Push-out (N)	1340	1340	1340	1784	1789	2009	2226
Torque-out (Nm)	9.7	17.0	17.1	22.8	16.9	22.9	36.9

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

Locking Nut TR-LK/TR-LKS





Metric Dimensions

Zinc Plated Steel: TR-LK | Stainless Steel: TR-LKS

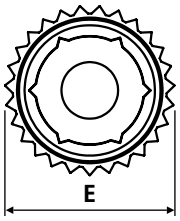
Thread	M2.5		M3		M4		M5	
Shank code	1	2	1	2	1	2	1	2
A shank max.	0.97	1.38	0.97	1.38	0.97	1.38	0.97	1.38
Min. sheet thickness	1.0	1.4	1.0	1.4	1.0	1.4	1.0	1.4
Recommended hole size +0.08	4.37		4.75		6.76		7.92	
C max.	4.35		4.73		6.73		7.90	
D max.	4.45		4.85		6.20		7.40	
S nom.	6.35		6.35		8.73		9.53	
H ±0.25	3.43		3.43		4.45		5.21	
Min. distance to edge of sheet	3.90		4.00		5.20		5.60	

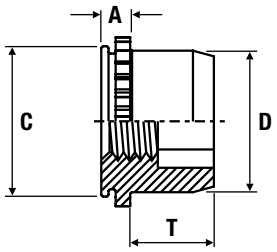
Metric Performance Data

Thread	M2.5		M3		M4		M5	
Shank code	1	2	1	2	1	2	1	2
Test sheet material	Steel							
Installation (kN)	13.3	13.3	13.3	13.3	17.8	19.1	17.8	19.1
Push-out (N)	667	711	667	1112	845	1334	1112	1334
Torque-out (Nm)	2.3	2.3	3.4	4.5	5.6	7.9	11.3	13.6

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

Nylon Lock Nut TR-PL/TR-PLC





Metric Dimensions

Zinc Plated Steel: TR-PL | Stainless Steel: TR-PLC

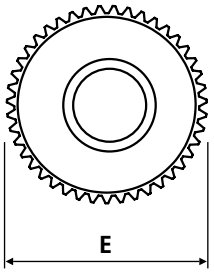
Thread	M3	M4	M5
A max.	1.53	1.53	1.53
Sheet thickness	1.0 - 1.78	1.0 - 1.78	1.0 - 1.78
Recommended hole size +0.08	6.0	7.5	8.0
C max.	5.98	7.48	7.98
D max.	5.52	7.01	7.52
E max.	7.01	8.54	9.0
T max.	3.56	4.2	4.45
Min. distance to edge of sheet	4.32	5.59	6.35
Max. hole in attached parts	3.5	4.5	5.5

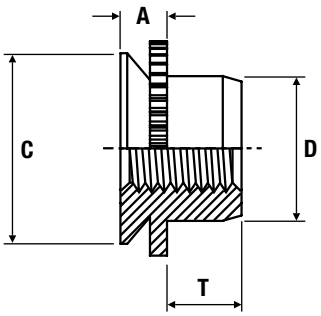
Metric Performance Data

Thread	M3	M4	M5
Test sheet material	Steel		
Installation (kN)	13.34	13.34	13.34
Push-out (N)	1156	1290	1557
Torque-out (Nm)	2.25	6.77	7.90

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

Non-Locking Mini Squeezed Nut TR-U/TR-FEX/TR-FEOX





Metric Dimensions (TR-U)

Stainless Steel: TR-U/TR-FEX/TR-FEOX

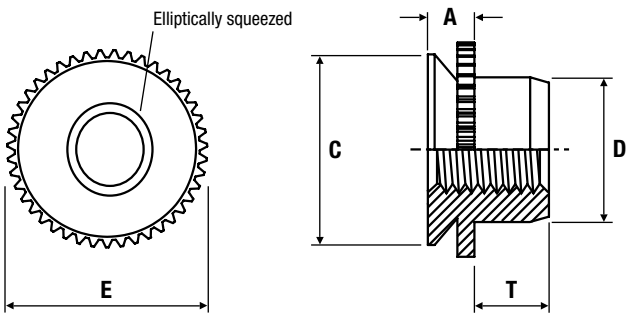
Thread	M2
E ±0.13	4.07
A (shank) max.	0.79
C -0.13	3.60
D max.	2.50
T +0.4	1.65
Sheet thickness	0.76 - 0.91
Recommended hole size +0.08	3.61
Min. distance to edge of sheet	2.80

Metric Dimensions (TR-FEX/TR-FEOX)

Thread		M3	M4	M5	M6
E ±0.13		4.88	8.17	8.17	9.74
A (shank) max.	FEX	1.53	1.53	1.53	1.53
	FEOX	1.02	1.02	1.02	1.02
C -0.13		4.37	7.37	7.37	8.72
D max.		3.96	5.23	6.48	7.72
T +0.4		1.9	2.55	3.05	3.3
Sheet thickness	FEX	1.5 - 1.78	1.5 - 1.78	1.5 - 1.78	1.5 - 1.78
	FEOX	0.99 - 1.14	0.99 - 1.14	0.99 - 1.14	0.99 - 1.14
Hole size in sheet +0.08		4.39	7.39	7.39	8.74
Min. distance to edge of sheet		3.6	5.2	5.2	7.1

TR-U - Recommended for use in sheet hardness: HRB 70 or less
TR-FEX - Recommended for use in sheet hardness: HRB 70 or less
TR-FEOX - Recommended for use in sheet hardness: HRB 70 or less

Self-Locking Mini Squeezed Nut TR-UL/TR-FE/TR-FEO



Metric Dimensions (TR-UL)

Stainless Steel: TR-UL/TR-FE/TR-FEO

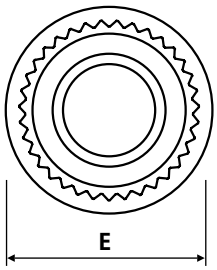
Thread	M2
E ±0.13	4.07
A (shank) max.	0.76
C -0.13	3.60
D max.	2.50
T +0.4	1.65
Sheet thickness	0.76 - 0.91
Recommended hole size +0.08	3.61
Min. distance to edge of sheet	2.80

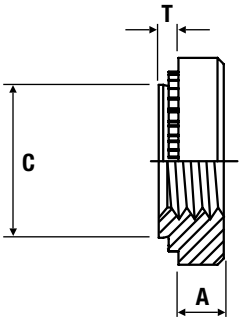
Metric Dimensions (TR-FE/TR-FEO)

Thread		M3	M4	M5	M6
E ±0.13		4.88	8.17	8.17	9.74
A (shank) max.	FE	1.53	1.53	1.53	1.53
	FEO	1.02	1.02	1.02	1.02
C -0.13		4.37	7.37	7.37	8.72
D max.		3.96	5.23	6.48	7.72
T +0.4		1.9	2.55	3.05	3.3
Sheet thickness	FE	1.5 - 1.78	1.5 - 1.78	1.5 - 1.78	1.5 - 1.78
	FEO	0.99 - 1.14	0.99 - 1.14	0.99 - 1.14	0.99 - 1.14
Hole size in sheet +0.08		4.39	7.39	7.39	8.74
Min. distance to edge of sheet		3.6	5.2	5.2	7.1

TR-U - Recommended for use in sheet hardness: HRB 70 or less
TR-FE - Recommended for use in sheet hardness: HRB 70 or less
TR-FEO - Recommended for use in sheet hardness: HRB 70 or less

Thin Sheet Nut TR-SMPS





Metric Dimensions

Zinc Plated Steel: TR-SMPS

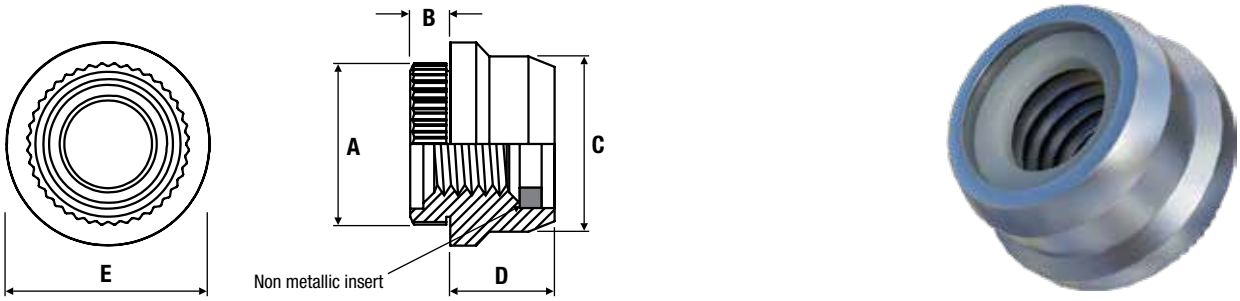
Thread	M2.5	M3	M3.5
A shank max.	0.61		
Min. sheet thickness	0.64		
Recommended hole size +0.08	3.8	4.24	4.75
C max.	3.79	4.22	4.73
E ±0.25	5.6	5.6	6.4
T ±0.25	1.4		
Min. distance to edge of sheet	3.7	4.3	5.1

Metric Performance Data

Thread	M2.5	M3	M3.5
Test sheet material	Steel		
Installation (kN)	6.7	8.0	8.8
Push-out (N)	156	267	289
Torque-out (Nm)	1.13	1.35	1.58

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

Nylon Insert Broaching Nut TR-CFN



Metric Dimensions

Stainless Steel: TR-CFN

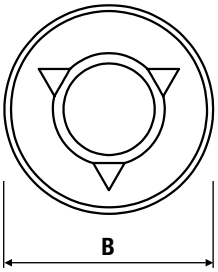
Thread	M3
A	4.11
B	1.02
C	4.45
D	2.65
E max.	5.19
Min. sheet thickness	1.1
Recommended hole size +0.08	3.8
Min. distance to edge of sheet	2.93

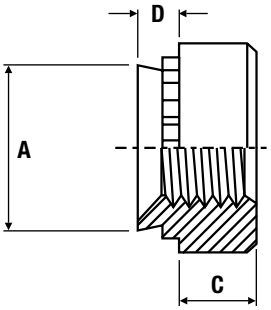
Metric Performance Data

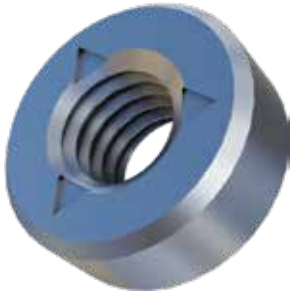
Thread	M3
Test sheet material	Steel
Installation (kN)	4.45
Push-out (N)	44.5
Torque-out (Nm)	0.45

TR-CFN - Recommended for use in sheet hardness: HRB 60 or less

Thread Lock Feature Nut TR-SL







Metric Dimensions

Zinc Plated Steel: TR-SL

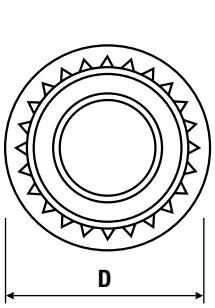
Thread	M3		M3.5		M4		M5		M6		M8	
Length code	1	2	1	2	1	2	1	2	1	2	1	2
A	4.2		4.73		5.38		6.33		8.73		10.47	
B	6.35		7.11		7.87		8.64		11.18		12.7	
C	1.5		1.5		2.0		2.0		4.08		5.47	
D	0.98	1.38	0.98	1.38	0.98	1.38	0.98	1.38	1.38	2.21	1.38	2.21
Min. sheet thickness	1.0	1.4	1.0	1.4	1.0	1.4	1.0	1.4	1.4	2.3	1.4	2.3
Recommended hole size +0.08	4.22		4.75		5.41		6.35		8.75		10.5	
Min. distance to edge of sheet	4.8		5.6		6.9		7.1		8.6		9.7	

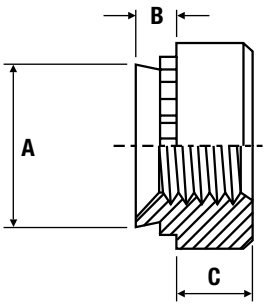
Metric Performance Data

Thread	M3		M3.5		M4		M5		M6		M8	
Length code	1	2	1	2	1	2	1	2	1	2	1	2
Test sheet material	Steel											
Installation (kN)	11.2 - 15.6		13.4 - 26.7		18.0 - 27.0		18.0 - 38.0		27.0 - 36.0		27.0 - 36.0	
Torque-out (Nm)	1.7	2.03	2.3	2.3	4.0	5.1	4.5	6.8	17.0	17.0	18.7	20.3
Push-out (N)	550	1010	570	1210	645	1250	800	1112	1760	1760	1870	1870

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

Non-Locking H Nut TR-H





Metric Dimensions

Stainless Steel: TR-H

Thread	M10
A	12.67
B	1.48
C	7.9
D	16.5
Min. sheet thickness	1.48
Recommended hole size +0.08	12.7 - 12.83
Min. distance to edge of sheet	12

Metric Performance Data

Thread	M10
Test sheet material	Steel
Installation (kN)	33
Push-out (N)	2020
Torque-out (Nm)	27.1

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