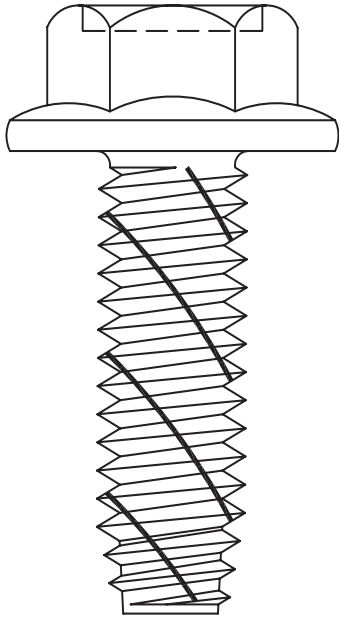


High Performance Thread Rolling Screw for Metal

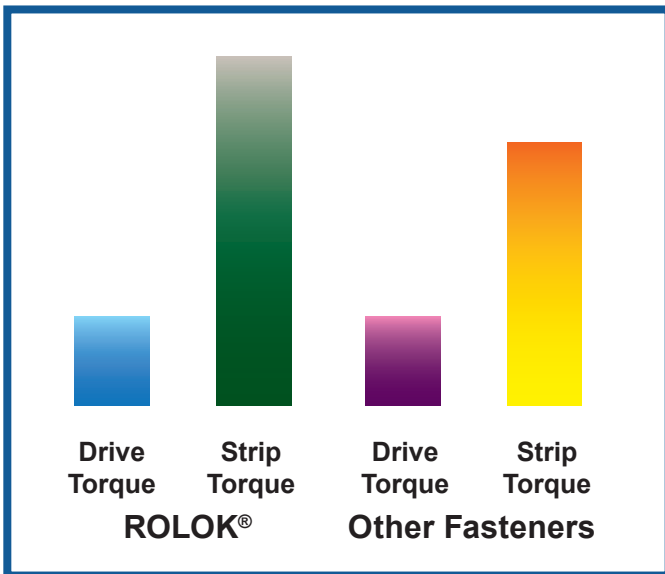


ROLOK® thread rolling fasteners for metals offer a unique spiral thread form to achieve excellent drive-to-strip performance in many challenging applications resulting in lower in-place fastening costs.



ROLOK® Benefits Include:

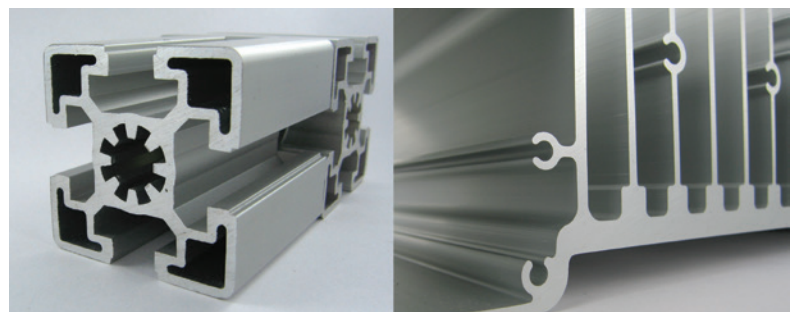
- *360 degree asymmetrical spiral profile that roll forms high quality mating threads*
- *Eliminates costs associated with tapping holes*
- *Excellent drive-to-strip ratio*
- *High resistance to vibration loosening (meets or exceeds IFI 124/524)*
- *Virtually eliminates chips and debris*
- *Increases assembly line productivity*
- *Use with a variety of nut materials*

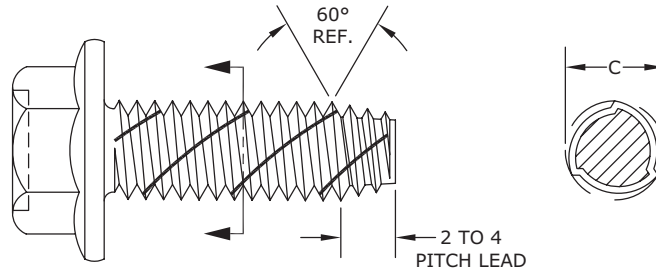


ROLOK® fasteners offer improved drive-to-strip ratios compared with other common thread rolling designs.

Performance in Unique Applications

ROLOK® fasteners have been proven to be especially useful in aluminum C-channels and other similar designs due to their spiral profile body which gives improved engagement and more repeatable performance. Additionally, improved bearing surface at shoulder/thread transition radius has proven beneficial when used as a compression limiting shoulder bolt.





Metric Sizes

Screw Size	C		Point Diameter Max	Minimum Torsional Strength (N-m)
	Max	Min		
M2.5-0.45	2.57	2.47	2.1	1.2
M3-0.5	3.07	2.97	2.6	2.2
M3.5-0.6	3.58	3.43	3.0	3.5
M4-0.7	4.09	3.93	3.4	5.2
M4.5-0.75	4.60	4.44	3.9	7.5
M5-0.8	5.09	4.94	4.3	10.5
M6-1.0	6.10	5.95	5.1	17.7
M7-1.0	7.13	6.97	6.1	31
M8-1.25	8.13	7.98	3.9	43
M10-1.5	10.15	9.98	8.7	87
M12-1.75	12.18	11.95	10.5	152

Inch Sizes

Screw Size	C		Point Diameter Max	Minimum Torsional Strength (In-Lb)
	Max	Min		
#3-48	.1010	.0970	.081	10
#4-40	.1145	.1105	.090	14
#5-40	.1275	.1235	.103	22
#6-32	.1410	.1350	.111	24
#8-32	.1670	.1610	.137	48
#10-24	.1940	.1880	.156	65
#10-32	.1930	.1870	.163	81
#12-24	.2200	.2140	.179	105
1/4-20	.2550	.2490	.206	160
5/16-18	.3180	.3120	.264	340
3/8-16	.3810	.3750	.320	620
7/16-14	.4450	.4370	.375	950
1/2-13	.5080	.4990	.433	1450

Length Tolerance - Metric

Nominal Screw Length	Tolerance on Length
to 20mm inclusive	+0.0/-0.8 mm
over 20 to 40mm inclusive	+0.0/-1.3 mm
over 40mm	+0.0/-1.5 mm

Length Tolerance - Inch

Nominal Screw Length	Tolerance on Length
to 3/4" inclusive	+0.000/-0.030"
over 3/4" to 1 1/2" inclusive	+0.000/-0.050"
over 1 1/2"	+0.000/-0.060"

Heat Treatment

- **Case hardening is considered the standard heat treatment for ROLOK® fasteners in general steel applications. (Core RC 28-38, Surface RC 45 Minimum)**
- **Through hardening may be used for applications in "soft white" metals such as aluminum or zinc alloys.**
- **Induction hardening should be used to address high strength or structural safety steel applications.**

Coatings and Platings

A wide variety of coating and plating options can be applied to ROLOK® fasteners to meet specific customer requirements for corrosion resistance and joint performance.

MATERIAL THICKNESS	METRIC (mm)	0.5-2.0		1.6-3.5		3.2-6.7		6.3-8.3		8.0-12.7	
Nominal Screw Size	Material	Drill Size	mm	Drill Size	mm	Drill Size	mm	Drill Size	mm	Drill Size	mm
M2.5-0.45	Steel	2.25mm	2.25	2.3mm	2.30	42	2.37				
	Aluminum	2.25mm	2.25	2.3mm	2.30	2.35mm	2.35				
M3-0.5	Steel	36	2.71	2.8mm	2.80	34	2.82				
	Aluminum	36	2.71	7/64	2.78	2.8mm	2.80				
M3.5-0.6	Steel	1/8	3.18	3.2mm	3.20	30	3.26	3.3mm	3.30		
	Aluminum	1/8	3.18	3.2mm	3.20	3.2mm	3.20	30	3.26		
M4-0.7	Steel	28	3.57	27	3.66	3.7mm	3.70	26	3.73		
	Aluminum	28	3.57	27	3.66	3.7mm	3.70	3.7mm	3.70		
M4.5-0.75	Steel			21	4.04	4.2mm	4.20	4.25mm	4.25		
	Aluminum			21	4.04	4.1mm	4.10	4.2mm	4.20		
M5-0.8	Steel			15	4.57	4.7mm	4.70	3/16	4.76		
	Aluminum			15	4.57	15	4.57	4.7mm	4.70		
M6-1.0	Steel			5.4mm	5.40	5.5mm	5.50	7/32	5.56	5.7mm	5.70
	Aluminum			5.4mm	5.40	3	5.41	5.5mm	5.50	7/32	5.56
M7-1.0	Steel			6.4mm	6.40	6.5mm	6.50	F	6.53	G	6.63
	Aluminum			6.4mm	6.40	6.4mm	6.40	6.5mm	6.50	F	6.53
M8-1.25	Steel			7.3mm	7.30	L	7.37	7.4mm	7.40	7.5mm	7.50
	Aluminum			7.3mm	7.30	L	7.37	7.4mm	7.40	7.4mm	7.40
M10-1.5	Steel					9.2mm	9.20	U	9.35	3/8	9.53
	Aluminum					23/64	9.13	9.2mm	9.20	U	9.35
M12-1.75	Steel							11.0mm	11.00	7/16	11.11
	Aluminum							11.0mm	11.00	11.0mm	11.00

MATERIAL THICKNESS	INCH	.020-.078		.063-.140		.125-.266		.250-.328		.313-.500	
Nominal Screw Size	Material	Drill Size	Inch	Drill Size	Inch	Drill Size	Inch	Drill Size	Inch	Drill Size	Inch
#3-48	Steel	44	.086	43	.089	2.35mm	.093				
	Aluminum	44	.086	43	.089	2.31mm	.091				
#4-40	Steel	40	.098	38	.102	37	.104				
	Aluminum	40	.098	39	.100	38	.102				
#5-40	Steel	34	.111	33	.113	32	.116				
	Aluminum	35	.110	34	.111	33	.113	33	.113		
#6-32	Steel	31	.120	31	.120	1/8	.125	30	.128		
	Aluminum	31	.120	31	.120	1/8	.125	1/8	.125		
#8-32	Steel	27	.144	26	.147	25	.150	23	.154		
	Aluminum	27	.144	26	.147	25	.150	24	.152		
#10-24	Steel			19	.166	11/64	.172	16	.177		
	Aluminum			19	.166	19	.166	18	.170		
#10-32	Steel			17	.173	16	.177	15	.180		
	Aluminum			17	.173	17	.173	16	.177		
#12-24	Steel			4.9mm	.193	8	.199	13/64	.203		
	Aluminum			11	.191	9	.196	8	.199	13/64	.203
1/4-20	Steel			7/32	.219	5.7mm	.224	1	.228	A	.234
	Aluminum			7/32	.219	2	.221	5.7mm	.224	I	.228
5/16-18	Steel			9/32	.281	9/32	.281	7.25mm	.285	L	.290
	Aluminum			9/32	.281	9/32	.281	7.25mm	.285	7.3mm	.287
3/8-16	Steel					11/32	.344	S	.348	9.0mm	.354
	Aluminum					R	.339	11/32	.344	S	.348
7/16-14	Steel							Y	.404	13/32	.406
	Aluminum							X	.397	10.2mm	.402
1/2-13	Steel							11.8mm	.465	15/32	.469
	Aluminum							11.8mm	.465	11.8mm	.465



Torque Values / Thread Engagement

Metric Torque Values (in Nm)

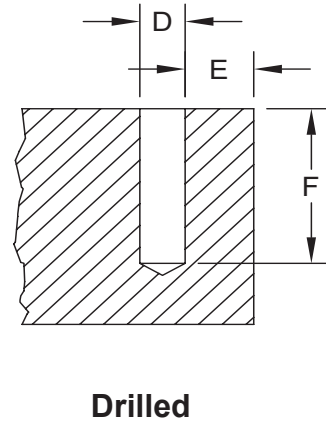
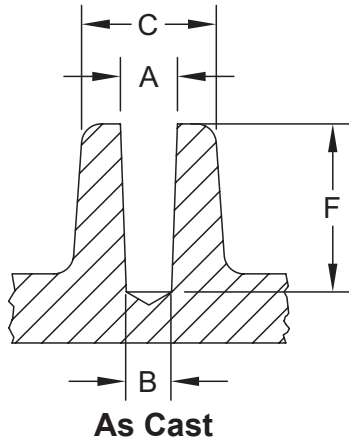
Nominal Screw Size	Hole Size	Metal Thickness	Driving Torque	Failing Torque	Tightening Torque	Loosening Torque
M3-0.5	2.79	3	.40-.75	2.3-3.7	1.6	0.8-1.4
M4-0.7	3.70	4	1.0-1.5	6.8-10.2	3.7	1.7-2.3
M5-0.8	4.66	5	1.9-3.1	10.2-14.7	7.6	4.0-5.1
M6-1.0	5.58	6	3.3-4.5	17.5-24.3	12.7	6.8-8.5
M8-1.25	7.47	8	5.6-10.7	54.2-65.5	31.7	17.5-21.5
M10-1.5	9.37	10	13.6-20.3	91.0-103.4	62.6	31.6-39.5
M12-1.75	11.26	12	27.1-36.2	172.9-202.2	110.9	55.4-63.3

Inch Torque Values (in In-Lbs)

Nominal Screw Size	Hole Size	Metal Thickness	Driving Torque	Failing Torque	Tightening Torque	Loosening Torque
#3-48	.090	1/8	3-6	15-19	7	5-7
#4-40	.102	1/8	3-5	20-25	10	7-10
#5-40	.115	1/8	5-8	24-31	16	8-11
#6-32	.125	1/8	7-10	26-33	20	10-13
#8-32	.150	3/16	8-11	75-85	36	18-22
#10-24	.173	3/16	15-18	100-120	51	25-32
#10-32	.177	3/16	14-18	105-120	59	30-37
#12-24	.200	1/4	24-30	155-175	81	40-52
1/4-20	.229	1/4	29-35	210-250	123	63-78
5/16-18	.290	5/16	110-130	450-600	253	150-185
3/8-16	.350	3/8	95-125	950-1150	450	230-320
7/16-14	.408	7/16	230-280	1500-1800	736	340-390
1/2-13	.469	1/2	270-360	1950-2250	1000	500-570

Metric	Percent of Thread Engagement for Given Hole Size													
	100	95	90	85	80	75	70	65	60	55	50	45	40	35
M2.5-0.45	2.208	2.222	2.238	2.250	2.266	2.281	2.296	2.309	2.324	2.339	2.355	2.367	2.383	2.398
M3-0.5	2.675	2.692	2.708	2.723	2.741	2.756	2.771	2.789	2.804	2.822	2.837	2.852	2.870	2.885
M3.5-0.6	3.110	3.129	3.147	3.167	3.188	3.208	3.226	3.246	3.266	3.284	3.305	3.325	3.343	3.363
M4-0.7	3.545	3.569	3.592	3.614	3.637	3.660	3.683	3.706	3.729	3.752	3.774	3.795	3.818	3.840
M4.5-0.75	4.013	4.039	4.061	4.087	4.110	4.135	4.161	4.183	4.209	4.232	4.257	4.282	4.305	4.331
M5-0.8	4.480	4.506	4.534	4.559	4.585	4.610	4.638	4.663	4.689	4.714	4.742	4.768	4.793	4.818
M6-1.0	5.350	5.382	5.415	5.446	5.479	5.512	5.545	5.578	5.608	5.641	5.674	5.707	5.740	5.771
M7-1.0	6.351	6.383	6.416	6.447	6.480	6.513	6.546	6.579	6.609	6.642	6.675	6.708	6.741	6.772
M8-1.25	7.180	7.229	7.269	7.310	7.351	7.391	7.432	7.473	7.513	7.554	7.595	7.635	7.676	7.717
M10-1.5	9.026	9.075	9.124	9.172	9.223	9.271	9.319	9.368	9.416	9.464	9.515	9.563	9.611	9.660
M12-1.75	10.863	10.919	10.978	11.034	11.090	11.148	11.204	11.260	11.318	11.374	11.433	11.488	11.544	11.603

Inch	Percent of Thread Engagement for Given Hole Size													
	100	95	90	85	80	75	70	65	60	55	50	45	40	35
#3-48	.0855	.0862	.0869	.0875	.0882	.0889	.0896	.0902	.0909	.0916	.0923	.0929	.0936	.0943
#4-40	.0958	.0966	.0974	.0982	.0990	.0998	.1006	.1015	.1023	.1032	.1039	.1047	.1055	.1064
#5-40	.1088	.1096	.1104	.1112	.1120	.1128	.1136	.1145	.1153	.1161	.1169	.1177	.1185	.1193
#6-32	.1177	.1187	.1197	.1208	.1218	.1228	.1238	.1248	.1258	.1268	.1279	.1289	.1299	.1309
#8-32	.1437	.1447	.1457	.1468	.1478	.1488	.1498	.1508	.1518	.1528	.1539	.1549	.1559	.1569
#10-24	.1629	.1643	.1656	.1670	.1684	.1697	.1711	.1724	.1738	.1751	.1765	.1778	.1792	.1805
#10-32	.1697	.1707	.1717	.1728	.1738	.1748	.1758	.1768	.1778	.1788	.1799	.1809	.1819	.1829
#12-24	.1889	.1903	.1916	.1930	.1944	.1957	.1970	.1984	.1998	.2011	.2025	.2038	.2052	.2065
1/4-20	.2175	.2192	.2208	.2224	.2240	.2256	.2273	.2289	.2305	.2325	.2338	.2354	.2370	.2387
5/16-18	.2764	.2782	.2800	.2818	.2836	.2854	.2872	.2891	.2909	.2927	.2945	.2963	.2981	.2999
3/8-16	.3344	.3364	.3385	.3405	.3425	.3446	.3466	.3486	.3506	.3527	.3547	.3567	.3588	.3608
7/16-14	.3911	.3934	.3957	.3981	.4004	.4027	.4050	.4073	.4097	.4120	.4143	.4166	.4189	.4213
1/2-13	.4500	.4525	.4550	.4575	.4600	.4625	.4650	.4675	.4700	.4725	.4750	.4775	.4800	.4825



Metric

Nominal Screw Size	Cast Hole Diameter		Minimum Boss Diameter	Drilled Hole Diameter	Minimum Edge Distance	Minimum Engagement Length
	A	B				
M2.5-0.45	2.39	2.28	4.15	2.28	1.17	5.81
M3-0.5	2.90	2.76	4.98	2.76	1.30	6.81
M3.5-0.6	3.31	3.21	5.81	3.21	1.56	7.81
M4-0.7	3.82	3.64	6.64	3.64	1.82	8.81
M4.5-0.75	4.31	4.11	7.47	4.11	1.95	9.81
M5-0.8	4.80	4.58	8.30	4.58	2.08	10.81
M6-1.0	5.74	5.48	9.96	5.48	2.60	12.81
M7-1.0	6.78	6.48	11.62	6.48	2.60	14.81
M8-1.25	7.69	7.35	13.28	7.35	3.25	16.81
M10-1.5	9.64	9.22	16.60	9.22	3.90	20.81
M12-1.75	11.59	11.09	19.92	11.09	4.55	24.81

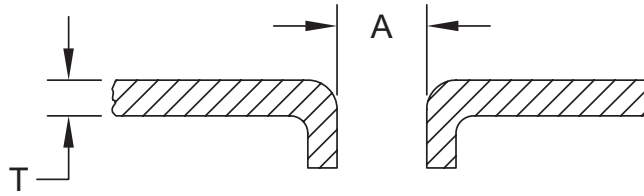
Hole diameters have +0.00/-0.08 mm tolerance. All dimensions are in mm.

Inch

Nominal Screw Size	Cast Hole Diameter		Minimum Boss Diameter	Drilled Hole Diameter	Minimum Edge Distance	Minimum Engagement Length
	A	B				
#3-48	.093	.088	.208	.088	.054	.230
#4-40	.105	.099	.220	.099	.065	.256
#5-40	.118	.112	.232	.112	.065	.282
#6-32	.128	.122	.242	.122	.081	.308
#8-32	.155	.148	.272	.148	.081	.360
#10-24	.177	.168	.315	.168	.108	.412
#10-32	.182	.174	.315	.174	.081	.412
#12-24	.203	.194	.359	.194	.108	.464
1/4-20	.235	.224	.415	.224	.130	.532
5/16-18	.297	.284	.519	.284	.144	.657
3/8-16	.359	.343	.623	.343	.162	.782
7/16-14	.419	.400	.726	.400	.186	.907
1/2-13	.481	.460	.830	.460	.200	1.032

Hole diameters have +.000/-0.003" tolerance.

Extrusion Hole Sizes / Specials



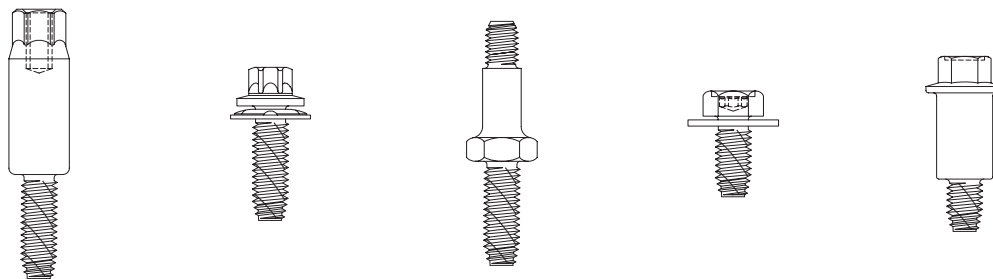
Metric

Nominal Screw Size	A - RECOMMENDED HOLE SIZE											
M2.5-0.45	2.23	2.24	2.27	2.29								
M3-0.5	2.70	2.73	2.76	2.79	2.82							
M3.5-0.6	3.13	3.16	3.19	3.22	3.27	3.30						
M4-0.7		3.57	3.60	3.63	3.66	3.71						
M4.5-0.75		4.04	4.07	4.10	4.13	4.18						
M5-0.8			4.51	4.54	4.57	4.60						
M6-1.0			5.39	5.45	5.45	5.48	5.53					
M7-1.0			6.39	6.44	6.49	6.54	6.59	6.67	6.75			
M8-1.25				7.23	7.27	7.29	7.34	7.39	7.47	7.55		
M10-1.5				9.08	9.14	9.18	9.22	9.31	9.39	9.47	9.55	
M12-1.75					10.92	10.97	11.02	11.07	11.15	11.23	11.31	11.39
T-Thickness	.48	.79	1.11	1.58	2.38	3.57	4.36	4.76	5.55	6.35	7.87	9.65

Inch

Nominal Screw Size	A - RECOMMENDED HOLE SIZE											
#3-48	.086	.087	.088									
#4-40	.096	.097	.098									
#5-40	.109	.110	.111	.112								
#6-32	.119	.120	.121	.122	.124							
#8-32	.145	.146	.147	.148	.149	.150						
#10-24	.164	.165	.166	.167	.168	.171						
#10-32	.171	.172	.173	.174	.175	.176						
#12-24	.190	.191	.192	.193	.194	.195	.198	.201				
1/4-20			.219	.220	.221	.223	.226	.229	.231	.233		
5/16-18				.278	.279	.280	.282	.283	.286	.288		
3/8-16						.336	.337	.339	.340	.344	.347	
7/16-14							.394	.396	.398	.400	.403	.407
1/2-13								.452	.454	.456	.458	.462
T-Thickness	.02	.03	.04	.06	.09	.13	.16	.19	.22	.25	.31	.38

Specials / Examples



NOTE: All data tables in this brochure are for guidance purposes only.

Engineering Services

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