

HARDNESS (ASTM A563M)

Nominal Diameter	Property Class														
	5				5 (overtapped)				9						
	Proof Load Stress, Mpa		Hardness		Proof Load Stress, Mpa		Hardness		Proof Load Stress, Mpa		Hardness				
			Rockwell	Vickers			Rockwell	Vickers			Rockwell	Vickers			
min	max	min	max	min	max	min	max	min	max	min	max				
M1.6 to M2.5	520	B70	C30	130	302	...	...	...	...	...	...	...	...	...
M3 to M4						900	B85	C30	170	302					
M5 and M6	580	B70	C30	130	302	465	B70	C30	130	302	915	B89	C30	188	302
M8 and M10	590	B70	C30	130	302	470	B70	C30	130	302	940	B89	C30	188	302
M12 and M16	610	B70	C30	130	302	490	B70	C30	130	302	950	B89	C30	188	302
M20 and M36	630	B78	C30	146	302	500	B78	C30	146	302	920	B89	C30	188	302
M42 to M100	630	B70	C30	128	302	500	B70	C30	128	302	920	B89	C30	188	302
Nominal Diameter	Property Class														
	10				12				12 (overtapped)						
	Proof Load Stress, Mpa		Hardness		Proof Load Stress, Mpa		Hardness		Proof Load Stress, Mpa		Hardness				
			Rockwell	Vickers			Rockwell	Vickers			Rockwell	Vickers			
min	max	min	max	min	max	min	max	min	max	min	max				
M1.6 to M2.5						...	...	...	...	...	...	...	...	...
M3 to M4	1040	C26	C36	272	353	1150	C26	C36	272	353					
M5 and M6											920	C26	C36	272	353
M8 and M10						1160	C26	C36	272	353	930	C26	C36	272	353
M12 and M16	1050	C26	C36	272	353	1190	C26	C36	272	353	950	C26	C36	272	353
M20 and M36	1060	C26	C36	272	353	1200	C26	C36	272	353	960	C26	C36	272	353
M42 to M100	...	...	...	...	...	1200	C26	C36	272	35	960	C26	C36	272	353
Nominal Diameter	Property Class														
	8S and 8S3				10S and 10S3				10 S (Overtapped)						
	Proof Load Stress, Mpa		Hardness		Proof Load Stress, Mpa		Hardness		Proof Load Stress, Mpa		Hardness				
			Rockwell	Vickers			Rockwell	Vickers			Rockwell	Vickers			
min	max	min	max	min	max	min	max	min	max	min	max				
M12 to M36	1075	B89	C38	188	372	1245	C26	C38	272	372	1165	C26	C38	272	372

PROOF LOAD (ASTM A563M)

NOTE 1 - Nuts of diameters and classes where no proof loads are given are non-standard.

Nominal Diameter and Thread Pitch	Thread Stress Area, mm ²	Property Class of Nut								
		5	5 (over-tapped)	9	10	12	12 (over-tapped)	8S and 8S3	10S and 10S3	10S (over-tapped)
M1.6 x 0.35	1.27	0.66	...	...	1.32	...	...	...	...	...
M2 x 0.4	2.07	1.08	...	...	2.15	...	...	...	...	...
M2.5 x 0.45	3.39	1.76	...	...	3.53	...	...	...	...	...
M3 x 0.5	5.03	2.62	...	4.53	5.23	...	...	...	...	...
M3.5 x 0.6	6.78	3.53	...	6.10	7.05	...	...	...	...	...
M4 x 0.7	8.78	4.57	...	7.90	9.13	...	...	...	...	...
M5 x 0.8	14.2	8.23	6.60	13.0	14.8	16.3	13.1	...	...	...
M6 x 1	20.1	11.7	9.35	18.4	20.9	23.1	18.5	...	...	...
M8 x 1.25	36.6	21.6	17.2	34.4	38.1	42.5	34.0	...	...	...
M10 x 1.5	58.0	34.2	27.3	54.5	60.3	67.3	53.9	...	...	...
M12 x 1.75	84.3	51.4	41.3	80.1	88.5	100	80.1	90.6	105	98.2
M14 x 2	115	70.2	56.4	109	121	137	109	124	143	134
M16 x 2	157	95.8	76.9	149	165	187	149	169	195	183
M20 x 2.5	245	154	123	225	260	294	235	263	305	285
M22 x 2.5	303	...	...	...	...	...	291	326	377	353
M24 x 3	353	222	177	325	374	424	339	379	439	411
M27 x 3	459	...	...	...	...	...	...	493	571	535
M30 x 3.5	561	353	281	516	595	673	539	603	698	654
M36 x 4	817	515	409	752	866	980	784	878	1020	952
M42 x 4.5	1120	706	560	1030	...	1340	1080	...	...	...
M48 x 5	1470	920	735	1350	...	1760	1410	...	...	...
M56 x 5.5	2030	1280	1020	1870	...	2440	1950	...	...	...
M64 x 6	2680	1690	1340	2470	...	3220	2570	...	...	...
M72 x 6	3460	2180	1730	3180	...	4150	3320	...	...	...
M80 x 6	4340	2730	2170	3990	...	5210	4170	...	...	...
M90 x 6	5590	3520	2800	5140	...	6710	5370	...	...	...
M100 x 6	6990	4400	3500	6430	...	8390	6710	...	...	...