



# PROPERTIES OF HIGH TEMP, HIGH PRESSURE FASTENERS (METRIC)

BOLT SIZE	PITCH	STRESS AREA MM2	BOLT/STUD/SCREW ASTM A193 B7						NUT ASTM A194 2H		
			PROOF STRESS N/MM2	PROOF LOAD KN	TENSILE STRESS N/MM2	TOUR-QUE* N-m	HARD-NESS HRC	ELONGA-TION# %	PROOF STRESS N/MM2	PROOF LOAD KN	HARD-NESS HRC
M6	1	20.1	720	14.5	860.0	11.7	-35	16.0	1205	24.2	24-35
M8	1.25	36.6	720	26.4	860.0	28.3	-35	16.0	1205	44.1	24-35
M10	1.5	58.8	720	42.3	860.0	3,679	-35	16.0	1205	70.9	24-35
M12	1.75	84.3	720	60.7	860.0	97.8	-35	16.0	1205	101.6	24-35
M14	2.0	115.0	720	82.8	860.0	155.6	-35	16.0	1205	138.6	24-35
M16	2.0	157.0	720	113.0	860.0	242.8	-35	16.0	1205	189.2	24-35
M18	2.5	192.0	720	138.2	860.0	334.1	-35	16.0	1205	231.4	24-35
M20	2.5	245.0	720	176.4	860.0	473.6	-35	16.0	1205	295.2	24-35
M22	2.5	303.0	720	218.2	860.0	644.3	-35	16.0	1205	365.1	24-35
M24	3.0	353.0	720	254.2	860.0	818.9	-35	16.0	1205	425.4	24-35
M27	3.0	459.0	720	330.5	860.0	1,197.9	-35	16.0	1205	553.1	24-35
M30	3.5	561.0	720	403.9	860.0	1,627	-35	16.0	1205	676.0	24-35
M33	3.5	694.0	720	499.7	860.0	2,214	-35	16.0	1205	836.3	24-35
M36	4.0	817.0	720	588.2	860.0	2,843	-35	16.0	1205	984.5	24-35
M39	4.0	976.0	720	702.7	860.0	3,679	-35	16.0	1205	1,176.1	-35
M42	4.5	1,120.0	720	806.4	860.0	4,547	-35	16.0	1205	1,349.6	-35
M45	4.5	1,310.0	720	943.2	860.0	5,698	-35	16.0	1205	1,578.6	-35
M48	5.0	1,470.0	720	1,058.4	860.0	6,820	-35	16.0	1205	1,771.4	-35
M52	5.0	1,760.0	720	1,267.2	860.0	8,846	-35	16.0	1205	2,120.8	-35
M56	5.5	2,030.0	720	1,461.6	860.0	10,988	-35	16.0	1205	2,446.2	-35
M60	5.5	2,360.0	720	1,699.2	860.0	13,687	-35	16.0	1205	2,843.8	-35
M64	6.0	2,680.0	720	1,929.6	860.0	16,579	-35	16.0	1205	3,229.4	-35
M68	6.0	3,060.0	655	2,004.3	795	18,297	-35	16.0	1205	3,687.3	-35
M72	6.0	3,460.0	655	2,266.3	795	21,906	-35	16.0	1205	4,169.3	-35
DIMENSIONS			HEAVY HEX						HEAVY HEX		
MARKINGS			'RS' 'B7'						'RS' '2H'		
TEMPERING oC			593						455		
Heating for 24 Hours for the Nut oC									540		
HARDNESS AFTER HEATING									<= M36 89 HRB >M36 79HRB		
CARBON			0.37-0.49						0.4-		
MANAGENESE			0.65-1.10						-1.0		
SULPHUR			-0.040						-0.050		
SILICON			0.15-0.35						-0.40		
CHROMIUM			0.75-1.20								
MOLYDENUM			0.15-0.25								
NICKLE											
VANADIUM											
BORON											
PHOSPHOROUS			-0.035						-0.4		
MATERIAL			Chromium-molybdenum Steel						Medium Carbon or Alloy Steel		

**NOTES:**

Left hand side of '-' is minimum value  
 Right hand side of '-' is maximum value  
 Eg. 0.5 - 0.7 min. is 0.5 and max is 0.7  
 Eg. -0.8 max is 0.8 no minimum value  
 Eg. 2.0- min. is 2.0 no maximum value

#Elongation in length of 4 times Diameter

\* Torque value based on 75% of proof load and finish as recieved steel