

ASTM F594R

MARTENSITIC STAINLESS STEEL

BOLTING MATERIAL FOR GENERAL PURPOSE USE

ASTM F594R Specification covers the requirements for stainless steel nuts 0.25"-1.50" inclusive in nominal diameter in a number of alloys in common use and intended for service application requiring general corrosion resistance. Seven group of stainless steel alloys are covered including 10 AUSTENITIC, 2 FERRITIC, 4 MARTENSITIC & 1 PRECIPITATION HERDENING. Suitable Bolts, hex cap screws & studs used with these nuts shall confirm to the requirements of specification F593 & shall be of the same alloy group.

Chemical Properties

Stainless Alloy Group	UNS No.	Composition, % maximum except as shown								
		Carbon	Magnese	Phosphorus	Sulfur	Silicon	Chromium	Nickel	Copper	Molybdenum
5										
410	S41000	0.15	1.00	0.040	0.030	1.00	11.5-13.5	-	-	-
416	S41600	0.15	1.25	0.060	0.15 min	1.00	12.0-14.0	-	-	0.60 max
416Se	S41623	0.15	1.25	0.060	0.060	1.00	12.0-14.0	-	-	-

Mechanical Properties

Alloy	Marking	Size	Proof Stress	Hardness
5	F594R	1/4" To 1 1/2"	160 Ksi Min	C34 TO 45

Heat Treatment

Hardened and tempered at 525°F (274°C) min.

Tensile Stress Areas and Threads Per Inch

Size	Coarse Thread (UNC)		Fine Thread (UNF)		8 Thread series (8 UN)	
	Threads	Stress Area	Threads	Stress Area	Threads	Stress Area
1/4"	20	0.0318	28	0.0364	--	--
5/16"	18	0.0524	24	0.0364	--	--
3/16"	16	0.0775	24	0.0878	--	--
7/16"	14	0.1063	20	0.1187	--	--
1/2"	13	0.1419	20	0.1599	--	--
9/16"	12	0.1820	18	0.2030	--	--
5/8"	11	0.2260	18	0.2560	--	--
3/4"	10	0.3340	16	0.3730	--	--
7/8"	9	0.4620	14	0.5090	--	--
1"	8	0.6060	12	0.6630	--	--
1 1/8"	7	0.7630	12	0.8560	8	0.790
1 1/4"	7	0.9690	12	1.0730	8	1.000
1 3/8"	6	1.1550	12	1.3150	8	1.233
1 1/2"	6	1.4050	12	1.5810	8	1.492

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