

ASTM F594A

AUSTENITIC STAINLESS STEEL

BOLTING MATERIAL FOR GENERAL PURPOSE USE

ASTM F594A 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 conform 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
1										
303	S30300	0.15	2.00	0.20	0.15 min	1.00	17.0-19.0	8.0-10.0		0.60 max
304	S30400	0.08	2.00	0.045	0.030	1.00	18.0-20.0	8.0-10.5	1.00	-
304L	S30403	0.03	2.00	0.045	0.030	1.00	18.0-20.0	8.0-12.0	1.00	-
305	S30500	0.12	2.00	0.045	0.030	1.00	17.0-19.0	10.5-13.0	1.00	-
384	S38400	0.08	2.00	0.045	0.030	1.00	15.0-17.0	17.0-19.0	-	-
XM1	S20300	0.08	5.0-6.5	0.04	0.18-0.35	1.00	16.0-18.0	5.0-6.5	1.75-2.25	0.50 max
18-9LW	S30430	0.10	2.00	0.045	0.030	1.00	17.0-19.0	8.0-10.0	3.0-4.0	-
302HQ	S30433	0.03	2.00	0.045	0.030	1.00	17.0-19.0	8.0-10.0	3.0-4.0	-
303Se	S30323	0.15	2.00	0.20	0.060	1.00	17.0-19.0	8.0-10.0	-	-

Mechanical Properties

Alloy	Marking	Size	Proof Stress	Hardness
1	F594A	1/4" TO 1 1/2"	70 Ksi Min	B85 Max

Heat Treatment

Annealed After all threading is completed

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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