

ASTM F594D

AUSTENITIC STAINLESS STEEL

BOLTING MATERIAL FOR GENERAL PURPOSE USE

ASTM F594D 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	F594D	3/4" TO 1 1/2"	85 Ksi Min	B80 To C 32,

Heat Treatment

Annealed and cold worked. Sizes 0.75 in and larger may be hot worked and solution annealed.

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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