



ASTM F594

Scope - This specification covers the chemical and mechanical requirements for stainless steel nuts in diameters ranging from ¼" to 1-½". These nuts are for general purpose usage, and are available in seven alloy groups.

Materials	Alloy Group	Alloy Designation*	Alloy Type
	1	303, 304, 304L, 305, 384, XM1, 18-9LW, 302HQ, 303Se	Austenitic
	2	316, 316L	Austenitic
	3	321, 347	Austenitic
	4	430, 430F	Ferritic
	5	410, 416, 416Se	Martensitic
	6	431	Martensitic
	7	630 (17-4)	Precipitation Hardening

*The selection of an alloy within each group is at the discretion of the manufacturer unless the purchaser requests a specific alloy.

Mechanical Properties	Alloy Group	Condition	Marking	Diameter Range	Proof Stress Hex Nuts, ksi	Proof Stress Heavy Hex Nuts, ksi	Rockwell Hardness
	1	AF	F594A	¼ to 1-½	70	76	B85 max
		A	F594B	¼ to 1-½	75	81	B65 to 95
		CW1	F594C	¼ to ⅝	100	108	B95 to C32
		CW2	F594D	¾ to 1-½	85	92	B80 to C32
	2	AF	F594E	¼ to 1-½	70	76	B85 max
		A	F594F	¼ to 1-½	75	81	B65 to 95
		CW1	F594G	¼ to ⅝	100	108	B95 to C32
CW2		F594H	¾ to 1-½	85	92	B80 to C32	

Chemical Requirements	Element	Alloy Group 1, Type 304	Alloy Group 2, Type 316
	Carbon, max	0.08	0.08
	Manganese, max	2.00	2.00
	Phosphorus, max	0.05	0.05
	Sulfur, max	0.03	0.03
	Silicon, max	1.00	1.00
	Chromium	18.0 to 20.0	16.0 to 18.0
	Nickel	8.0 to 10.5	10.0 to 14.0
	Copper, max	1.00	
Molybdenum		2.00 to 3.00	

Recommended Mating Materials	Screws	Washers
	F593	SS304 or SS316