

300 Series, 400 Series and Precipitation Hardened Stainless Steel Properties

Alloy	Similar Designation	Usual Condition	Castability	Machinability	Corrosion Resistance	Weldability	Hardenable	Density (g/cm ³)	As-Cast			Hardness	Comments	
									Tensile Str (psi)	Yield Str (psi)	Elongation (%)			
302 CF-20 (J92501)	AMS 5358 ASTM A743 MIL S 81591	Solution Annealed	1	4	2	4	no	8					Best combination castibility and corrosion resistance.	
303 CF-16F (J92511)	AMS 5341 ASTM A743 MIL S 81501	Solution Annealed	3	3	2	5	no	8					Free matching stainless, Not easily welded.	
304 CF-8 (J92600)	ASTM A743 MIL S 867 MIL S 8159	Solution Annealed	1	4	1	2	no	8					Better corrosion resistance than 302 or 303.	
304L CF-3 (J92700)	ASM 5370 ASTM A351 MIL S 22216	Solution Annealed	1	4	1	1	no	8					304 Low carbon cryogenic applications, good weldability.	
301 CK-20 (531000)	ASM 5366 ASTM A351 MIL S 22216	Solution Annealed	3	3	3	3	no	8					Oxidation resistance to 2000 degrees F (1000 degrees C), moderate high temperature strength, very good for thin sections, fine details, and smooth surface finish.	
316 CF-8 M (J92900)	ASM 5360 ASTM A 351 MIL S 867	Solution Annealed	1	4	1	3	no	8					Excellent corrosion resistance and oxidation to 1600 degrees F (870 degrees C) Often used for food and paper processing equipment and ship hardware.	
347 CF-8C (J92710)	ASM 5362 ASTM A 361 MIL S 867	Solution Annealed	2	3	1	1	no	8					Excellent for welding applications, excellent for corrosion resistance. Will work harden.	
CN-7M (J91150)	ASTM A351 ASTM A743	Solution Annealed	3	3	1	1	no	8					Sulfuric acid resistance.	
410 CA-15 (J91150)	AMS 5350 ASTM A217 MIL S 81591	Annealed, Quenched & Tempered	2	2	3	3	yes	7.75				HRC 25	Best combination of hardness and corrosion resistance.	
416 (541600)	ASM 5349	Annealed, Quenched & Tempered	4	2	3	5	yes	7.73				HRC 26	Less tough, but a more machinable grade of 410.	
420 CA-40 (J91153)	ASTM A743 MIL S 8159	Annealed, Quenched & Tempered	2	3	2	3	yes	7.75				HRC 27	Higher hardness, but less toughness than 401.	
431 CB-30 (J91631)	ASM 5353 ASTM A743 MIL S 8159	Annealed, Quenched & Tempered	3	3	2	3	yes	7.74				HRC 20	Most resistant to corrosion of any 400 series stainless. Used in products requiring high strength and maximum corrosion resistance.	
436 Greek Ascolloy (J91631)	AMS 5354	Annealed, Quenched & Tempered	2	3	1	2	yes	7.75					Heat resistance to 1000 degrees F (540 degrees C) but has excellent oxidation resistance to 1500 degrees F (825 degrees C). Often substituted for more costly high alloy steels.	
440A (544002)	MIL A 22216 MIL S 91591	Annealed, Quenched & Tempered	2	4	4	5	yes	7.68					Cutlery and molds, High hardness and ductility.	
440C (544004)	AMS 5352 MIL S 22216 MIL S 8591	Annealed, Quenched & Tempered	3	4	4	5	yes	7.65					Best cutlery grade.	
Precipitation Hardened Steels														
15-5 PH (J921100)	AMS 5357 ASTM A747	Homogenized, solution treated and aged	3	3	2	3	yes	7.8						Same as 17-4 except greater ductibility.
17-4 PH (J92180)	AMS 5355 ASTM A747 MIL S 89591	Homogenized, solution treated and aged	2	3	2	2	yes	7.8						Very good corrosion resistance and hardness. Easily machined. Very popular alloy.
25-5 PH (J933370)	ASTM A351 ASTM A743	solution treated and aged	3	3	2	2	yes	7.8						Best combination of strength and corrosion resistance.

Key

- 1 = Excellent
- 2 = Very Good
- 3 = Good
- 4 = Fair
- 5 = Poor

Hardness Scale

- HRB = Rockwell Hardness, B Scale
- HRE = Rockwell Hardness, E Scale
- HRC = Rockwell Hardness, C Scale
- BHN = Brinell Hardness, B Scale
- No data = Metal not usually used in this condition