



STAINLESS STEEL CHARACTERISTICS AND PROPERTIES



STANDARD STAINLESS STEEL TUBING General Characteristics

Stainless Steel Types	Chemical Composition Principal Elements %				Mechanical Properties Annealed Condition - Nominal				Typical Characteristics
	CR	NI	C	Other Elements	Tensile PSI	Yield PSI	Elong. % in 2	Hardness Rockwell	
304	18.00 - 20.00	8.00 - 11.00	0.08 max	-	85,000 - 105,000	35,000 - 75,000	55 / 20	B80 Ann B95 1/8Hd	General purpose "300" series grade for tubing applications.
304L	18.00 - 20.00	8.00 - 13.00	0.035 max	-	80,000	30,000	55	B75	Low carbon type 304 where greater resistance to carbide precipitation is desired.
304H	18.00 - 20.00	8.00 - 11.00	0.04 - 0.10	-	85,000	35,000	55	B80	Carbon modified for improved high temperature strength.
310	24.00 - 26.00	19.00 - 22.00	0.15 max	-	95,000	45,000	45	B85	High resistance to scaling and oxidation up to 2000°F.
316	16.00 - 18.00	11.00 - 14.00	0.08 max	Mo 2.00 - 3.00	85,000	35,000	50	B80	Better corrosion resistance than type 304 in reducing media. Good hi-temp strength.
316L	16.00 - 18.00	10.00 - 15.00	0.035 max	Mo 2.00 - 3.00	75,000	30,000	50	B75	Low carbon type 316 where greater resistance to carbide precipitation is desired.
316H	16.00 - 18.00	11.00 - 14.00	0.04 - 0.10	Mo 2.00 - 3.00	85,000	35,000	50	B80	Carbon modified for improved high temperature strength.
317	18.00 - 20.00	11.00 - 14.00	0.08 max	Mo 2.00 - 4.00	90,000	40,000	45	B85	Similar to type 316 but with better corrosion resistance and creep strength.
321	17.00 - 20.00	9.00 - 13.00	0.08 max	Ti 5XC - 0.60	90,000	35,000	55	B880	Titanium stabilized against carbide precipitation. Similar properties to type 304.
347	17.00 - 20.00	9.00 - 13.00	0.08 max	Cb + Ta OXC - 1.00	95,000	40,000	50	B85	Columbian and tantalum stabilized against carbide precipitation.

PHYSICAL PROPERTIES

TYPE	Density lbs./cu. in.	Specific Elect. Resist OHMS CM/CM2	Specific Heat BTU/lb. °F	Thermal Conduct BTU/HR. SQ.FT./ °F (212°)	Mean Coefficient of Expansions °F		Tension psi Modulus of Elasticity	Magnetic Permeability
					32 - 312	32-1200		
304 304L	0.29	72	0.12	9.4	9.6 X 10 ⁻⁶	10.4 X 10 ⁻⁶	28.0 X 10 ⁶	1.003
310	0.29	78	0.12	8.2	8.8 X 10 ⁻⁶	9.7 X 10 ⁻⁶	29.0 X 10 ⁶	1.003
316 316L	0.29	74	0.12	9.4	8.9 X 10 ⁻⁶	10.3 X 10 ⁻⁶	28.0 X 10 ⁶	1.003
317	0.29	74	0.12	9.4	8.9 X 10 ⁻⁶	10.3 X 10 ⁻⁶	28.0 X 10 ⁶	1.003
321	0.29	72	0.12	9.3	9.3 X 10 ⁻⁶	10.7 X 10 ⁻⁶	28.0 X 10 ⁶	1.003
347	0.29	73	0.12	9.3	9.3 X 10 ⁻⁶	10.6 X 10 ⁻⁶	28.0 X 10 ⁶	1.003
21-6-9	0.29	-	0.12	9.5	9.3 X 10 ⁻⁶	-	28.5 X 10 ⁶	1.002

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