

Stainless steel Alloys 304/304L (UNS S30400/S30403)

Application

Alloys 304 (S30400) and 304L (S30403) stainless steels are variations of the 18 percent chromium – 8 percent nickel austenitic alloy, the most familiar and most frequently used alloy in the stainless steel family. High strength, excellent corrosion resistance and minimized carbon content make Alloy 304 and 304L Stainless Steels useful for applications where welding is required. Uses include architectural mouldings and trim, welded components of chemical, textile, paper, pharmaceutical and chemical processing equipment.

Other advantages are its resistance to oxidation, excellent formability, ease of fabrication and cleaning, excellent strength to weight ratio and good toughness at cryogenic temperatures. For severely corrosive environments, the lower content of Type 304L is preferred because of its greater immunity to intergranular corrosion.

Available tube product forms

STRAIGHT || **COILED** || **SEAMLESS** || **WELDED**

Typical manufacturing specifications

ASTM A213, ASTM A269, ASTM A312, ASTM A632

Also individual customer specifications.

Industries predominantly using this grade

Moisture separator reheaters,

Heat Exchangers, Feedwater tubes etc.

Maximum Coil Length per Dimension (Unit : meter)

		Wall thickness (mm)					
		0.51	0.71	0.89	1.24	1.65	2.11
Outside diameter r (mm)	3.175	2954	2294	1974	-	-	-
	6.35	1348	1003	826	634	-	-
	9.53	873	641	522	391	309	256
	12.7	-	472	382	283	220	180
	19.05	-	-	248	182	140	112
	25.4	-	-	-	134	102	82

can provide longer length according to customer requirement

Technical Data

Chemical composition(% by weight)

Element	C	Mn	P	S	Si	Ni	Cr	-	-	-	-	-
Minimum	-	-	-	-	-	8.0	18.0	-	-	-	-	-
Maximum	0.035	2.00	0.045	0.030	1.00	11.0	20.0	-	-	-	-	-
Aiming	0.01	1.6	0.03	0.003	0.5	9.1	18.2	-	-	-	-	-

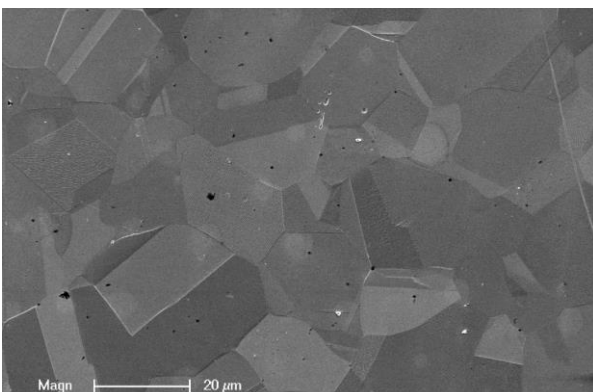
Mechanical Properties

	Specifications(Tubing, Annealed)		Actual data	
Tensile Rm	75	ksi (min.)	81~101	ksi
Tensile Rm	515	MPa (min.)	560~700	MPa
Yield (R.p. 0.2%)	30	ksi (min.)	36~50	ksi
Yield (R.p. 0.2%)	205	MPa (min.)	250~350	MPa
Elongation	35	% (min.)	45~55	%

Physical Properties(Room Temperature)

Specific Heat (0-100°C)	500	J.kg ⁻¹ .°K ⁻¹
Thermal Conductivity	16.2	W.m ⁻¹ .°K ⁻¹
Thermal Expansion	17.2	mm/m.°C
Modulus Elasticity	193	GPa
Electrical Resistivity	7.23	μohm.cm
Density	8.00	g/cm ³

Microstructure



Maximum allowable pressure (Unit : BAR)

		Wall thickness (mm)						
		0.89	1.24	1.65	2.11	2.77	3.96	4.78
Outside diameter r (mm)	6.35	387	562	770	995	-	-	-
	9.53	249	356	491	646	868	-	-
	12.7	183	261	356	468	636	-	-
	19.05	-	170	229	299	403	-	-
	25.4	-	126	169	219	294	436	540
	31.8	-	-	134	173	231	340	418
	38.1	-	-	111	143	190	279	342
	50.8	-	-	83	106	141	205	251

* We follow customer requested dimensions.

* Select tubes according to design pressure