

Stainless steel

Alloy 6Mo

(UNS S31254)

### Application

Alloy 254 SMO® (UNS S31254) is a high-end austenitic stainless steel with exceptional resistance to pitting, crevice corrosion, and chloride-induced stress corrosion cracking. With high levels of molybdenum, nitrogen, and chromium, it offers corrosion resistance close to that of titanium and nickel-base alloys.

254 SMO is ideal for seawater handling systems, desalination plants, pulp and paper bleaching equipment, and offshore oil and gas applications. It provides high strength, excellent formability, and welding characteristics, making it a reliable solution for highly corrosive environments.

### Available tube product forms

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

### Typical manufacturing specifications

**ASTM A213, ASTM A269, ASTM A312**

**Also individual customer specifications.**

### Industries predominantly using this grade

**Chemical processes, Seawater handling systems**

**Control and instrumentation, Oil and Gas 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 (mm)	3.175	1318	1023	881	-	-	-
	6.35	601	447	368	283	-	-
	9.53	389	286	233	174	138	114
	12.7	-	210	170	126	98	80
	19.05	-	-	111	81	62	50
	25.4	-	-	-	60	46	36

\* We can provide longer length according to customer requirement

### Technical Data

#### Chemical composition(% by weight)

Element	C	Mn	P	S	Si	Ni	Cr	Mo	N	Cu	-	-
Minimum	-	-	-	-	-	17.5	19.5	6.00	0.18	0.5	-	-
Maximum	0.020	1.00	0.030	0.010	0.80	18.5	20.5	6.50	0.22	1.00	-	-

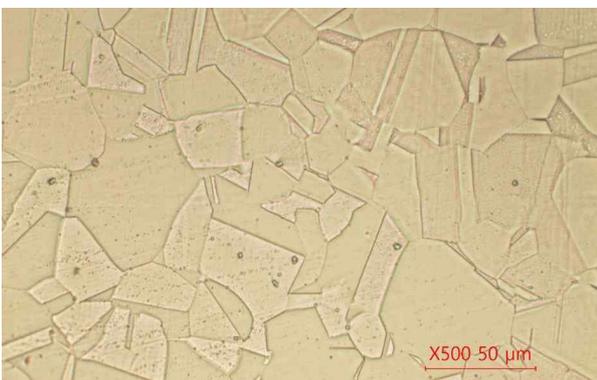
#### Mechanical Properties

	Specifications(Tubing, Annealed) WT ≤ 5mm		Specifications(Tubing, Annealed) WT > 5mm	
Tensile Rm	98	ksi (min.)	95	ksi (min.)
Tensile Rm	675	MPa (min.)	655	MPa (min.)
Yield (R.p. 0.2%)	45	ksi (min.)	45	ksi (min.)
Yield (R.p. 0.2%)	310	MPa (min.)	310	MPa (min.)
Elongation	35	% (min.)	35	% (min.)

#### Physical Properties(Room Temperature)

Specific Heat (0-100°C)	500	J.kg <sup>-1</sup> .°K <sup>-1</sup>
Thermal Conductivity	14	W.m <sup>-1</sup> .°K <sup>-1</sup>
Thermal Expansion	16.5	µm/m/°C
Modulus Elasticity	196	GPa
Electrical Resistivity	85	µohm·cm
Density	8.0	g/cm <sup>3</sup>

#### Microstructure



#### Maximum allowable pressure (Unit : BAR)

		Wall thickness (mm)						
		0.89	1.24	1.65	2.18	2.77	3.96	4.78
Outside diameter (mm)	6.35	520	757	1036	1382	-	-	-
	9.53	334	479	660	901	1168	-	-
	12.7	246	351	478	654	855	-	-
	19.05	-	228	308	416	542	-	-
	25.4	-	169	228	305	395	586	726
	31.8	-	-	180	241	310	457	563
	38.1	-	-	149	199	256	375	460
	50.8	-	-	111	148	189	276	337

\* Please let us know your design pressure, we can produce requested tube size

\* The table above is for your reference