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TECHNICAL DATA SHEET

Duplex Stainless Steel Duplex 2205 (UNS S32205, S31803)

Application

Standard duplex stainless like S32205 or S31803, is a mixed microstructure of austenite and ferrite (50/50) which has improved strength over ferritic and austenitic steel grades.

Due to its excellent corrosion properties, duplex stainless is a highly suitable material for service in environments containing chlorides and hydrogen sulphide. The material is suitable for use in production tubing and flowlines for the extraction of oil and gas from sour wells, in refineries and in process solutions contaminated with chlorides. duplex stainless is particularly suitable for heat exchangers where chloride-bearing water or brackish water is used
as a cooling medium. The steel is also suitable for use in dilute sulphuric acid solutions and for handling, organic acids, e.g. acetic acid and mixtures. The high strength of duplex stainless makes the material an attractive alternative
to the austenitic steels in structures subjected to heavy loads. The good mechanical and corrosion properties make duplex stainless an economical choice in many applications by reducing the life cycle cost of equipment.

Available tube product forms

STRAIGHT	COILED	SEAMLESS

Typical manufacturing specifications

ASTM A789, ASTM A790

Also individual customer specifications.

Industries predominantly using this grade

Process engineering, Control lines,

Heat Exchangers, Fuel rail 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	-	-	-	-	-	-
	6.35	-	-	336	258	211	-
	9.53		-	212	159	126	104
	12.7	-	-	-	115	90	73
	19.05	-	-	-	74	57	46
	25.4	-	-	-	-	42	33

an provide longer length according to customer requirement

Technical Data

Chemical composition(% by weight)

Element	C	Mn	P	S	Si	Ni	Cr	Mo	N	-	-	-
Minimun	-	-	-	-	-	4.5	22.0	3.0	0.14	-	-	-
Maximum	0.030	2.00	0.030	0.020	1.00	6.5	23.0	3.5	0.2	-	-	-
Aiming	0.013	0.8	0.03	0.002	0.4	5.4	22.5	3.1	0.17	-	-	-

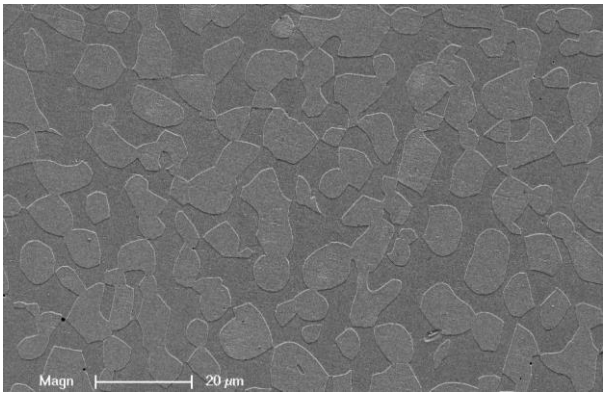
Mechanical Properties

	Specifications(Tubing, Annealed)		Actual data	
Tensile Rm	95	ksi (min.)	101~123	ksi
Tensile Rm	655	MPa (min.)	700~850	MPa
Yield (R.p. 0.2%)	70	ksi (min.)	79~98	ksi
Yield (R.p. 0.2%)	485	MPa (min.)	550~680	MPa
Elongation	25	% (min.)	30~38	%

Physical Properties(Room Temperature)

Specific Heat (0-100°C)	480	J.kg-1.°K-1
Thermal Conductivity	13.9	W.m -1.°K-1
Thermal Expansion	13	mm/m/°C
Modulus Elasticity	200	GPa
Electrical Resistivity	74	μohm·cm
Density	7.8	g/cm3

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 (mm)	6.35	580	844	1155	-	-	-	-
	9.53	373	535	736	969	-	-	-
	12.7	-	391	534	703	-	-	-
	19.05	-	254	344	448	605	-	-
	25.4	-	-	254	329	441	-	-
	31.8	-	-	201	259	346	509	-
	38.1	-	-	-	-	-	-	-
	50.8	-	-	-	-	-	-	-

* We follow customer requested dimensions.

* Select tubes according to design pressure