Duplex S31803 2205 pipe data sheet

S31803 Duplex Stainless Steel Pipe, Duplex Stainless Steel S31803 Pipes, S31803 Stainless Steel Pipe, SS S31803 Pipe, ASTM A790 UNS S31803 Pipe, ASME SA790 UNS S31803 Pipe, Duplex Steel DIN 1.4462 Pipe, ASTM A790 UNS S31803 Seamless Pipes, ASME SA790 UNS S31803 Welded Pipes, SS S31803 ERW Pipes, SS S31803 EFW Pipes, SS UNS S31803 Round Pipe, F51 SCH 10 Pipe, F51 SCH 40 Pipe, UNS S31803 Pipe Price, UNS S31803 Pipe Suppliers, UNS S31803 Pipe Manufacturers

S31803 stainless steel pipe is a duplex stainless steel consisting of two different crystal structures, austenite and ferrite. S31803 **duplex stainless steel pipe** has high content of chromium, nitrogen and molybdenum, among which Cr 21.0% - 23.0%; Mo 2.50% - 3.50%; N 0.08 - 0.20%. This duplex structure and high alloy content make SS S31803 pipe perform well in high temperature, high pressure and corrosive environments. Duplex stainless steel S31803 pipes also have high strength, good weldability and impact toughness, and the strength is about twice that of standard austenitic stainless steel.

S31803 duplex stainless steel pipe standard:

- ASTM A790 : Standard Specification for Seamless and Welded Ferritic/Austenitic Stainless Steel Pipe
- ASTM A789 : Standard Specification for Seamless and Welded Ferritic/Austenitic Stainless Steel Tubing for General Service
- ASME B36.19：Specication for stainless steel pipes

ASTM A790 UNS S31803 Pipe Specifications

Specifications	ASTM A 789 / ASME SA 789 ASTM A 790 / ASME SA 790
Types	Seamless / Welded / EFW / Fabricated
Pipe Range	1 / 2" NB - 8" NB
Outer Diameter	6.0 - 630mm
Wall Thickness	0.3mm – 50 mm
Schedules	SCH5, SCH20, SCH30, SCH40, STD, SCH60, SCH80, XS, SCH120, SCH140, SCH160, XXS
Length	Single Random, Double Random & Required Length
Form	Round Pipes, Square Pipes, Rectangular Pipe, “U” Shape, Hydraulic Pipes
End	Plain End, Beveled End, Treaded

Duplex steel DIN 1.4462 pipe performance characteristics

1. Stress corrosion resistance: Austenitic stainless steel pipes may undergo stress corrosion cracking in high-temperature chloride-containing environments. The duplex microstructure of ASTM A790 UNS S31803 pipe helps to improve the stress corrosion resistance of stainless steel, and Duplex steel DIN 1.4462 pipe outperforms 304L and 316L austenitic stainless steel. In the drilling environment of oil wells, the presence of hydrogen sulfide and chloride will increase the risk of stress corrosion cracking, which will not occur with SS UNS S31803 round pipe.

2. Intergranular corrosion resistance: Duplex structure and low carbon content make ASTM A790 UNS S31803 seamless pipes very good in intergranular corrosion resistance. Its composition ensures the reformation of the austenitic iron phase in the heat-affected zone after welding, greatly reducing the risk of carbide and nitride precipitation at grain boundaries.

3. Erosion and corrosion resistance: S31803 Duplex stainless steel pipe has high strength and good impact toughness, so ASME SA790 UNS S31803 welded pipes have excellent erosion and corrosion resistance. Beneficial in environments where particulate-laden fluids are abrasive to structures, such as pipeline systems entrained with sand and salt crystals. High mechanical strength and very good corrosion resistance give duplex steel DIN 1.4462 pipe a high corrosion fatigue strength.

4. Good weldability: SS S31803 EFW pipes have good weldability similar to other stainless steel types, low thermal expansion reduces residual stress after welding. When welding S31803 duplex stainless steel pipe, using a duplex electrode similar to the parent steel, the arc welding process is suitable, but oxyacetylene welding is not recommended.

S31803 Stainless Steel Pipe Equivalent Grades

STANDARD	WERKSTOFF NR.	UNS	EN
Duplex S31803	1.4462	S31803	X2CrNiMoN22-5-3

Chemical Composition of Duplex Stainless Steel S31803 Pipes

Grade	S31803
C	0.03max
Mn	2.00max
P	0.03max
S	0.02max
Si	1.00max
Ni	4.5 – 6.5
Cr	21.0 – 23.0
Mo	2.5 – 3.5
N	0.08 – 0.20
Cu	-

ASME SA790 UNS S31803 Pipe Mechanical Properties

Mechanical properties	S31803
Tensile, min, ksi[MPa]	90 [620]
Yield, min, ksi[MPa]	65 [450]

Elongation, %(min)	25
Hardness, HB（max）	290

S31803 Duplex Stainless Steel Pipe Physical Properties

Density (g/cm 3)		7.805
Elastic Modulus (GPa)		190
Mean Coefficient of Thermal Expansion (m/m/°C)	0-100°C	13.7
	0-315°C	14.2
	0-538°C	-
Thermal Conductivity (W/m.K)	at 100°C	19
	at 500°C	-
Specific Heat 0-100°C (J/kg.K)		418
Electrical Resistivity (n.m)		850

S31803 Duplex Stainless Steel Pipe Application Fields

- Pressure vessels, high-pressure storage tanks, high-pressure pipelines, heat exchangers.
- Oil and gas pipelines, heat exchanger fittings.
- Sewage treatment system.
- Pulp and paper industry classifiers, bleaching plants, storage and handling systems.
- Rotary shafts, press rolls, blades, impellers, etc. in high-strength and corrosion-resistant environments.
- Food processing equipment

ASTM A790 UNS S31803 Pipe Quality Assurance

HT PIPE is a professional UNS S31803 pipe suppliers, the company has passed ISO9001: 2000 quality management system certification and API quality certification system certification. High-quality products and first-class service are well received by foreign customers. The unique diversified production line can provide you with a package service, you can buy all complicated products from us at one time. What's more, our sufficient material inventory and regular product inventory can ensure that you receive satisfactory products in the shortest possible time. Please feel free to contact us for UNS S31803 pipe price and more information.

ASTM A790 UNS S31803 pipe ASTM G48 corrosion test

the following requirements of 22Cr DSS material shall be met
PREN is minimum 34
Nitrogen content is minimum 0.14% Corrosion pitting test in accordance of ASTM G48,
method A at 25 °C
Application of DSS is limited to -50 °C and 40 mm maximum thickness

ASTM A790 UNS S31803 Pipe video

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