

2205

2205 (UNS S31803/F51 or UNS S32205/F60) is a nitrogen-enhanced duplex stainless steel. The nitrogen serves to significantly improve the corrosion resistance of the alloy, especially in the welded condition. When heat-treated properly, the composition of 2205 stainless steel produces a microstructure that consists of a nearly equal mixture of austenite and ferrite phases. The microstructure and composition of provides corrosion resistance to many environments that is superior to stainless type 316L or 317L, and a minimum yield strength that is more than double that of conventional austenitic stainless steels. 2205 stainless steel has been approved for use under ASME Boiler and Pressure Vessel Code to a maximum service temperature of 315°C.

Chemical Composition, %

Grade	element	Cr	Ni	Fe	Мо	N	С	Mn	Si	Р	S
S31803	min.	21.00	4.50	bal.	2.50	0.08					
F51	max.	23.00	6.50		3.50	0.20	0.030	2.00	1.00	0.030	0.020
S32205	min.	22.00	4.50	bal.	3.00	0.14					
F60	max.	23.00	6.50		3.50	0.20	0.030	2.00	1.00	0.030	0.020

Chemical Composition according to ASTM. Some compositional limits of other specifications may vary slightly.

Designation and standards

National	Material	Chemical	E	Rod and	Plate and	Chrin	Seamless
Standards	designation	composition	composition		sheet	Strip	tube
ΔΟΤΜ		4050		A276			A789
	UNS S31803 / F51	SA959 SA959 MR0175	A182	SA276	A240	A240	SA789
ASIVIE	UNS S32205 / F60		SA182	A479	SA240	SA240	A790
NACE				SA479			SA790
DIN	1.4462	DIN 10088-1	DIN 10250-4	DIN 10088-3	DIN 10088-2	DIN 10088-2	
	X2CrNiMoN22-5-3				DIN 10028-7	DIN 10028-7	
GB/T	022Cr22Ni5Mo3N					GB/T 3280	
	S22253	GB/T 20878		GB/T 1220	CD/T 4007		
	022Cr23Ni5Mo3N			GB/T 31303	GB/1 4237		
	S22053						

Density 7.80g/cm³

Corrosion resistance

- better resistance to chloride stress corrosion cracking than the standard 300 series austenitic stainless steel
- chloride pitting and crevice corrosion resistance superior to 317L stainless
- acceptable resistance to sulfide stress cracking at Rockwell C25 maximum hardness per NACE MR0175.

Applications

Typical applications are:

- chemical process vessels, piping and heat exchangers
- FGD scrubber systems
- Pulp mill digesters, bleach washers, chip presteaming vessels
- food process equipments
- oil field piping, heat exchangers

You could send email to sales@huishih.com for more information.

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