

## 2506

2506 (UNS S31200/F50) is a kind of duplex stainless steel, which has excellent corrosion resistance to a wide variety of media, with outstanding resistance to pitting and crevice corrosion in seawater and other chloride containing environments due to its high chromium, molybdenum level. The duplex microstructure gives this grade high strength, a low coefficient of thermal expansion and higher heat conductivity than austenitic steels and it is suitable for service temperatures up to approx. 315°C.

It is listed in NACE MR 0175 for sour service and has gained ASME Approval for Pressure Vessel applications.

### Chemical Composition, %

element	Cr	Ni	Fe	Mo	N	C	Mn	Si	P	S
min.	24.00	5.50	bal.	1.20	0.14	0.030	2.00	1.00	0.045	0.030
max.	26.00	6.50		2.00	0.20					

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

### Designation and standards

National Standards	Material designation	Chemical composition	Forgings	Rod and bar	Plate and sheet	Strip	Seamless tube
ASTM ASME NACE	UNS S31200 F50	A959 SA959 MR0175	A182 SA182	A182 SA182	A240 SA240	A240 SA240	A790 SA790
DIN	1.4460 X3CrNiMoN27-5-2	DIN 10088-1	DIN 10250-4	DIN 10088-3	DIN 10088-2	DIN 10088-2	DIN 10297-2
GB/T	022Cr25Ni6Mo2N 00Cr25Ni6Mo2N S22553	GB/T 20878		GB/T 1220 GB/T 31303	GB/T 4237	GB/T 3280	

**Density** 7.80g/cm<sup>3</sup>

### Corrosion resistance

- extremely resistant to uniform corrosion by organic acids like formic and acetic acid
- excellent resistance to inorganic acids, especially those containing chlorides
- good resistance to hydrochloric acid
- highly resistant to carbide-related intergranular corrosion
- excellent resistance to chloride stress corrosion cracking, superior to 2205 stainless steel
- excellent resistance to pitting and crevice corrosion
- acceptable resistance to sulfide stress cracking as per NACE MR0175

### Applications

Typical applications are:

- oil and gas industry equipment
- offshore platforms, heat exchangers process and service water systems
- chemical process industries, heat exchangers, vessels and piping
- desalination plants, high pressure RO-plant and seawater piping
- power industry FGD systems, utility and industrial scrubber systems, absorber towers, ducting, piping

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