

Ferrallium 255

Ferrallium 255 (UNS S32550/F61) is a super duplex stainless steel designed to provide a superior combination of high strength and excellent corrosion resistance for a wide variety of applications. It possesses a microstructure which is a balanced mixture of austenite and ferrite. The combination of these phases develops the unique combination of strength and chloride stress-corrosion cracking resistance of this alloy.

Ferrallium 255 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	Cu	N	C	Mn	Si	P	S
min.	24.00	4.50	bal.	2.90	1.50	0.10	0.040	1.50	1.00	0.040	0.030
max.	27.00	6.50		3.90	2.50	0.25					

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 S32550 F61	A959 SA959 MR0175	A182 SA182 A473 SA473	A276 SA276 A479 SA479	A240 SA240	A240 SA240	A789 SA789 A790 SA790
DIN	1.4507 X2CrNiMoCuN25-6-3	DIN 10088-1	DIN 10250-4	DIN 10088-3 DIN 10272	DIN 10088-2 DIN 10028-7	DIN 10088-2 DIN 10028-7	
GB/T	03Cr25Ni6Mo3Cu2N 0Cr25Ni6Mo3Cu2N S25554	GB/T 20878		GB/T 31303	GB/T 4237	GB/T 3280	

Density 7.82g/cm³

Corrosion resistance

- excellent resistance to erosion, abrasion and cavitation-erosion
- better corrosion resistance than S32750 and S32760 in sulphuric acid
- outstanding resistance to commercial phosphoric acid containing impurities such as fluorides, chlorides and sulphuric acid
- highly resistant to acetic, formic and other organic acids
- 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:

- rotating items such as shafts in seawater and chemical environments
- pump shafts, valve bodies, bolting and fasteners in oil and gas industry equipment
- mixers, pumps, evaporators, heat exchangers, scrubbers in chemical process industries, such as sulphuric acid, phosphoric acid, ammonia, sodium hydroxide, nitric acid, FGD plant, and etc.

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