Nitronic 33

Nitronic 33 (UNS S24000 / XM-29) is a high-manganese, nitrogen-strengthened austenitic stainless steel that combines high yield strength with excellent toughness and ductility and with better corrosion resistance than Nitronic 32. It is non-magnetic in the annealed condition and remains non-magnetic after severe cold working and at very low temperature.

Nitronic 33 has gained ASME Approval for Pressure Vessel applications.

Chemical Composition, %

element	Cr	Ni	Fe	N	C	Mn	Si	P	S
min.	17.00	2.30	bal.	0.20		11.50			
max.	19.00	3.70		0.40	0.08	14.50	1.00	0.060	0.030

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	Wire
ASTM ASME	UNS S24100 XM-28	A959 SA959		A276 SA276 A479 SA479	A240 SA240	A580 SA580 A313 SA313

Density 7.76g/cm^3

Magnetic permeability

Nitronic 33 provides very low magnetic permeability even after severe cold working. The permeability remains well below 1.02 when cold reduced as much as 70%.

Magnetic permeability （24℃，ASTM A342，Method 4）								
Cold Reduction	0%	10%	20%	30%	40%	50%	60%	70%
H=500	1.0014	1.0013	1.0015	1.0010	1.0015	1.0011	1.0012	1.0009
H=1000	1.0013	1.0012	1.0011	1.0013	1.0013	1.0012	1.0012	1.0013

Corrosion resistance

- resistance to mild acids and pitting media similar to Type 304
- resistance to stress corrosion cracking at low stress levels exceeds Type 304
- particularly resistance to polythionic acids in both the annealed condition and after sensitizing at 675℃

Applications

Typical applications are:

- tanks, flanges, valves at cryogenic service coditions
- conduit shielding of electronic service, due to low magnetic permeability
- retaining rings in gas turbine engineering

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