Nitronic 32

Nitronic 32 (UNS S24100 / XM-28 / 1Cr18Mn12Ni2N) is a high-manganese, nitrogen-strengthened austenitic stainless steel that provides higher yield and tensile strength than Type 304 and has general corrosion resistance between that of Type 430 and 304. It is non-magnetic in the annealed condition and remains non-magnetic after cold working to high-strength levels.

Nitronic 32 is normally used for applications where high strength and non-magnetic are necessary.

It is suitable for service over a wide range of temperature from -184~538℃.

Chemical Composition, %

element	Cr	Ni	Fe	N	C	Mn	Si	P	S
min.	16.50	0.50	bal.	0.20		11.00			
max.	19.00	2.50		0.45	0.15	14.00	1.00	0.045	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	Wire
ASTM ASME	UNS S24100 XM-28	A959 SA959		A276 SA276	A580 SA580 A313 SA313

Density 7.78g/cm^3

Magnetic permeability

Nitronic 32 is useful in applications requiring low magnetic permeability because it remains non-magnetic even after severe cold working. The permeability is still less than 1.02 after approx. 70% cold reduction.

Field Strength Oersteds (A/m)	Magnetic permeability Gs/Oe	
	Annealed	Cold Drawn 70%
50 (3978)	1.009	1.018
100 (7957)	1.009	1.015
200 (15914)	1.008	1.011

Corrosion resistance

- corrosion resistance in weak acid solutions and pitting media approach that of Type 304
- unacceptable intergranular resistance and unavailable in seawater, due to higher carbon content

Applications

Typical applications are:

- worm screws, pump shaft, ring with high-strength and non-magnetic property

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