



253MA

### Description

Type 253MA is a nitrogen alloyed heat resistant Cr-Ni austenitic stainless steel. Optimal performance is achieved at 850-1100°C, and the scaling temperature is 1150°C. It has austenitic micro structure, high mechanical strength at elevated temperatures, low sensitivity to form sigma phase, high resistance to oxidation and high temperature corrosion and good ductility and weld ability.

### Typical Applications

- Heat Exchangers
- Furnace Rolls
- Exhaust System
- Furnaces for Drying
- Production of mineral wool
- Production of Aluminum Sulphate
- Hydrocarbon Gases, Painting
- Heat recovery, carbon black
- Pyrometer
- Recuperators
- Waste Combustion
- Waste Incineration

### Corrosion Resistance

Very good resistance to high temperature corrosion. Particularly for conditions involving erosion-corrosion in oxidizing and neutral environments. As well as Sulphur attacks.

### Heat Resistance

Excellent choice for high to very high temperatures (700-1100°C). The great mechanical strength at high temperatures allows higher loads or thinner wall thickness than common high temperature steels.

### Heat Treatment

Heat to 1020-1100°C followed by rapid cooling.

### Welding

Filler metal type 253MA or similar should be used. welding without filler metal not followed by post weld heat treatment, will reduce the corrosion resistance of the weld.

Chemical Analysis Max values		C	Mn	N	P	S	Si	Ce	Cr	Ni
	253	0.05-0.10	0.08	0.14-0.20	0.04	0.03	1.4-2.0	0.03-0.08	20.0-22.0	10.0-12.0

Typical Mechanical Properties- Annealed	Yield Strength	Tensile Strength	Elongation % in 2"	Hardness		Impact Charpy Ft. - lbs	Modulus of Elasticity in Tension - ksi
	ksi	ksi		R b	BHN		
	51	104	51	95	210	110	29000

Other Properties	Creep Strength 1% flow 10,000 hours at 1000°F -ksi	Magnetic Permeability at 200H- Annealed	Electrical Resistivity - Microhm -Cm At 68°F	Coefficient of Thermal expansion: (In/In/°F x 10 <sup>-6</sup> ) 32°- 212°F	Thermal Conductivity BTU/ft. <sup>2</sup> /Hr./°F/ft.	
					At 212°F	At 932°F
	19.5	1.01	505	9.6	15.0	22.5