

# 253 MA®

An austenitic chromium-nickel-silicon grade, 253 MA® offers outstanding strength and unrivalled heat resistance.

253 MA® was developed over 30 years ago, when the need for a heat resistant stainless steel with high strength and good oxidation resistance was required in the industry.

## PRODUCT FORMS

PRODUCT FORM	SIZE RANGE FROM	SIZE RANGE TO
253 MA® Pipe	0.5 in	4 in
253 MA® Round bar	12.7 mm	101.6 mm
253 MA® Sheet & plate	1.6 mm	50.8 mm
253 MA® Welding wire	1.6 mm	3.175 mm

Can't find the size you need? Please contact us at [onlinesales@neonickel.com](mailto:onlinesales@neonickel.com)

## CHEMICAL ANALYSIS

%	CR	NI	SI	C	MN	P	S	N	CE	FE
Min	20	10	1.40	0.05	-	-	-	0.14	0.03	Balance
Max	22	12	2	0.10	0.80	0.04	0.03	0.20	0.08	-

## APPLICATIONS

- Pyrolysis Vessels
- Boiler Nozzles
- Corrugated Boxes
- Cyclones
- Bar Baskets
- Radiant Tubes
- Combustion chambers

## ABOUT 253 MA®

Despite its lean nickel content, 253 MA® alloy offers an outstanding combination of creep strength and high resistance to oxidation, sulphidation and erosion/abrasion at extremely high temperatures. This makes the alloy more economical than most heat resistant alloys. The high heat resistant properties of 253 MA® are obtained by the tight control of micro alloy additions. Whilst the benefit of creep rupture strength is down to the combination of nitrogen, carbon and cerium, its superior oxidation resistance is a result of the combination of cerium and silicon. [Contact us](#) for more information on 253 MA® alloy!

**PROPERTIES**

<b>Density:</b>	8 g/cm <sup>3</sup>
<b>Melting Range:</b>	1371-1432 °C
<b>Poisson's Ratio:</b>	0.31

**MECHANICAL & PHYSICAL PROPERTIES**

MECHANICAL & PHYSICAL PROPERTIES	21°C	93°C	204°C	316°C	427°C	538°C	593°C	649°C	704°C	760°C	816°C	871°C	927°C	982°C	1038°C	1093°C
Minimum Creep 0.0001% per hr	-	-	-	-	-	-	124.1	80	53.1	34.5	23.1	15.9	10.3	6.14	3.38	-
Minimum Creep 0.00001% per hr	-	-	-	-	-	-	82.7	56.5	39.3	26.2	17.6	12.1	1	3.8	-	-
1000 hr Rupture Strength	-	-	-	-	-	-	220.6	158.6	110.3	63.4	45.5	30.3	19.3	12.8	9.3	7.1
10,000 hr Rupture Strength	-	-	-	-	-	-	151.7	96.5	58.6	35.9	25.9	17.2	11.4	7.9	5.9	4.7
100,000 hr Rupture Strength	-	-	-	-	-	-	103.4	60	31.7	20	14.5	10	6.7	4.8	-	-
Coefficient of Thermal Expansion /µm/m°C	-	9.06	9.34	9.59	9.81	9.97	-	10.14	-	10.3	-	10.5	-	10.8	-	-
Thermal Conductivity /kcal/(hr.m.°C)	12.5	-	15	-	17.4	-	-	19.3	-	20.8	-	-	-	24.7	-	-
Modulus of Elasticity/ 10 <sup>5</sup> MPa	2	-	1.85	-	1.68	-	-	1.5	-	1.39	-	1.29	-	1.21	-	-

**MECHANICAL PROPERTIES FOR 253 MA®**

MECHANICAL PROPERTIES	50°C	100°C	200°C	300°C	400°C	500°C	600°C	700°C	800°C	850°C	900°C
Ultimate Tensile Strength/ MPa	663.3	621.9	577.8	568.1	549.5	522	475.7	386.1	388.9	254.4	171
0.2% Yield Strength / MPa	304.8	271	222	202	200.6	173.1	166.9	158.6	148.2	100.7	80
Reduction of area / %	51	48	46	46	46	44	43	44	-	-	-
Elongation / %	68	65	65	64	60	62	63	58	76	88	92

**SPECIFICATIONS**

<b>UNS Number:</b>	S30815
<b>W.Nr.Number:</b>	1.4835
<b>Standards:</b>	ASTM A182, A240, A276, A312, A479