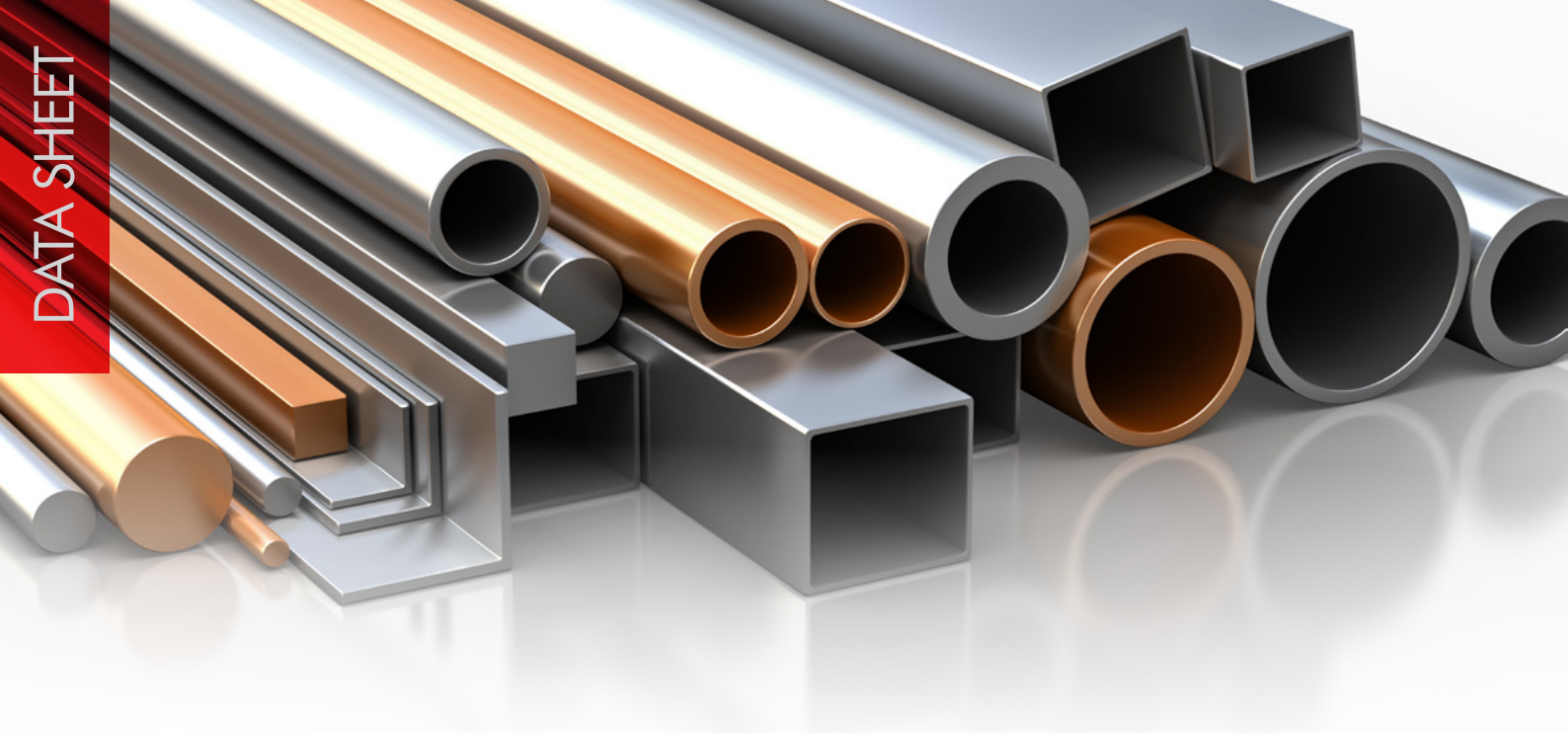
DATA SHEET



S. S. 253 MA

UNS No - S30815

Stainless Steel 253 MA is an incline austenitic heat resistant alloy with high strength and extraordinary oxidation resistance. 253 MA keeps up its heat resistant properties by advanced control of micro alloy additions. The utilization of uncommon earth metals joined with silicon, which provides better oxidation resistance up to 2000°F. Nitrogen, carbon and a dispersion of uncommon earth and alkali metal oxides join to give creep rupture strength similar to the nickel base alloys. A wide variety of parts requiring high strength at high temperatures for example heat exchangers, kilns, stack dampers as well as oven components are common applications for Stainless Steel 253 MA.

Applications

- Burners, Boiler Nozzles
- Petrochemical and refinery tube hangers
- Heat exchangers
- Expansion bellow
- Stack dampers

Characteristics

- Excellent oxidation resistance to 2000°F
- High creep-rupture strength

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S. S. 253 MA

Fabrication
Stainless steel 253 MA is promptly fabricated by a standard commercial process. In comparison to carbon steel, stainless steels are tougher and tend to work harden quickly. So, with the positive feeds and slow speeds combined with abundant cutting fluid S.S 253 MA alloys tendency to work harden may be minimized.

Machining
It is comparable in attributes to other austenitic heat resisting alloys. Positive feeds and slow speeds joined with huge cutting fluid can minimize this alloy, high tendency to work harden.

Forming
This alloy can be promptly sheared, formed and punched. Because of its high strength, however, expect to use higher forces to counteract its tendency to spring-back. No forming should be performed in the scope of 1200-1600 F (650-870 C) because of low ductility.

Welding
All ordinarily known welding techniques apply here, which involve SMAW, GMAW and SAW. Preheating and post weld annealing are not required. Filler metal should be of comparable composition for maximum weld integrity and properties.

Forging
Heat to 2000 F (1100 C) and complete at 1650 F (900 C). Try not to hold or soak at temperature because of issues connected with excessive grain growth.

Annealing
Stress relieve at 1560-1740 F (850-950 C), held for 10-15 minutes followed by air cooling. Full annealing is obtained by heating to 1920-2100 F (1050-1150 C), holding for 10-15 minutes followed by air cooling.

Hardening
This alloy will not harden by thermal treatment.

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Chemical Properties

C	N	Si	P	S	Cr	Mn	Ni	Ce
0.05- 0.10	0.14- 0.20	1.4- 2.0	0.04 max	0.03 max	20.0 - 22.0	0.8 max	10.0 - 12.0	0.03 - 0.08

Mechanical Properties

Tensile Strength (ksi)	0.2% Yield Strength (ksi)	Elongation% in 2 inches
87	45	40

Physical Properties

Properties	Units	Temperature in °C
Density	7.8 g/cm^3	Room
Specific Heat	0.12 Kcal/kg.C	20°
Melting Range	1371-1432 °C	-
Modulus of Elasticity	200 KN/mm^2	20°
Electrical Resistivity	84 µΩ.cm	Room
Coefficient of Expansion	16.5 µm/m °C	30-100°
Thermal Conductivity	14.3 W/m-°K	20°

ASTM Specifications

Plate	Bar	Pipe (SMLS)	Pipe Welded
A 240, A 480, A 167	A 276, A 479	A 213, A 312	A 312, A 358, A 409, A 813, A 814

Availability

MANUFACTURING
Refractory Anchors
Fasteners
Custom Machining
Custom Fabrication
Piping / Spools
B/W Fittings
S/W Fittings
Flanges

RAW MATERIALS
Pipes
Bars
Plates