

SINOXX^{...} 4404S

FREE MACHINING AUSTENITIC STAINLESS STEEL

SINOXX 4404S is a chromium-nickel-molybdenum austenitic stainless steel with addition of sulphur. It has good strength and creep resistance, as well as excellent mechanical properties and corrosion resistance. The added sulphur forms manganese sulphides, which offer higher machining speeds and improve cutting tool life. These non-metallic inclusions can also provide a source of solid lubricant to the tool/workpiece interface.

APPLICATIONS

- chemical equipment
- pressure vessels
- medical equipment
- heat exchangers
- marine applications

SPECIFICATIONS

Free machining austenitic stainless steel is designated as UNS S31603 and EN 1.4404, and conforms to the following standards:

- ASTM A 240/A240M - 14
- EN 10088-2:2014

CHEMICAL COMPOSITION [wt. %]

	C	Mn	P	S	Si	Cr	Ni	Mo	Al	N	Cu
Min.	-	1.60	-	0.020	-	16.70	10.20	min. 2.10	-	-	-
Max.	0.03	1.80	0.040	0.030	0.60	17.00	10.50	max. 2.30	0.015	0.09	0.50

PHYSICAL PROPERTIES

Density	Specific heat	Thermal conductivity	Electrical resistivity
8.0 g/cm ³	500 J/kgK*	15 W/mK*	0.75 Ωmm/m*

* values at 20 °C according to EN 10088-1

MECHANICAL PROPERTIES

Minimum guaranteed values of mechanical test requirements, for the specified thickness range.

Thickness [mm]	0.2 % Yield strength min. [MPa]	Tensile strength min. [MPa]	Elongation min. [%]	Hardness max. [HB]	Impact Charpy V, 20 °C [J] *
8–100	220	520	45	217	250–350

* typical value

CORROSION RESISTANCE

SINOXX 4404S has comparable corrosion resistance to SINOXX 4404. It has excellent corrosion resistance in natural atmospheres, like rural and urban atmospheres, and even in moderate concentrations of chlorides and acids. SINOXX 4404S effectively resists intergranular corrosion even after welding. The optimum corrosion resistance is achieved on a surface free from residual machining oils or foreign particles.

MACHINABILITY

SINOXX 4404S has enhanced machinability compared to SINOXX 4404 due to the presence of manganese sulphides. It provides lower cutting forces and higher resistance to chip breaking than SINOXX 4404. The best machining results are obtained by using high-power equipment, sharp tooling, and rigid set-up.

HOT FORMING

The hot forming temperature range is between 950 °C and 1200 °C (1742–2192 °F).

HEAT TREATMENT

Solution annealing at 1070 °C (1958 °F), followed by rapid cooling.

SURFACE FINISH

Plates are supplied in pickled condition – 1D/No. 1 Finish.

DIMENSIONS

SINOXX 4404S	Thickness [mm]	Width [mm]	Length [mm]	Max. weight [kg]
Quarto plates	8–130.0 (0.31–5.11 in.)	2000 (78.74 in.)	12000 (472.44 in.)	9600 (21164 lbs)
Quarto plates	10.0–130.0 (0.39–5.11 in.)	2500 (98.43 in.)	12000 (472.44 in.)	9600 (21164 lbs)

The information and data in this product data sheet are intended for informative purpose only and may be revised at any time without notice. Presented typical properties of the materials are described only to help readers make their own evaluations and decisions. They are not guaranteed.