

SINOXX[™] 4401, 4404

AUSTENITIC STAINLESS STEELS

SINOXX 4401 and **SINOXX 4404** are chromium-nickel-molybdenum austenitic stainless steels. Molybdenum ensures good strength, creep resistance, and excellent corrosion resistance and mechanical properties. Both grades have good formability and weldability. Austenitic steels SINOXX 4401 and SINOXX 4404 have excellent toughness even at cryogenic temperatures. SINOXX 4404 has a lower carbon content, which ensures resistance to carbide precipitation and eliminates the need for post-weld annealing. This grade is commonly dually certified as 1.4401 and 1.4404.

APPLICATIONS

- Heat exchangers
- Pressure vessels
- Medical
- Nuclear industry
- Marine

SPECIFICATIONS

SIJ	AISI	UNS	EN	Standards
SINOXX 4401	316	S31600	1.4401	ASTM A240/A240M, ASME SA240/SA240M, EN 10088-1, EN 10088-2, EN 10088-4, EN 10028-7
SINOXX 4404	316L	S31603	1.4404	

CHEMICAL COMPOSITION [wt. %]

	C	Mn	P	S	Si	Cr	Ni	Mo	N
SINOXX 4401	0.035	1.6	0.035	0.0010	0.35	16.5–16.8	10.5–10.8	2.0–2.3	0.1
SINOXX 4404	0.025	1.6	0.035	0.0010	0.35	16.5–16.8	10.0–10.3	2.0–2.3	0.1

PHYSICAL PROPERTIES

Density [g/cm ³]	Specific heat [J/kgK]*	Thermal conductivity [W/mK]*	Electrical resistivity [Ωmm ² /m]*	PREN**	Magnetisation
8.0	500	15	0.75	≥24	No

* values at 20 °C in accordance with EN 10088-1

** (Cr%) + 3.3 (Mo%) + 16 (N%)

MECHANICAL PROPERTIES

0.2 % Yield strength min. [MPa]	Tensile strength [MPa]	Elongation min. [%]	Hardness max. [HB]	Impact Charpy V, 20 °C min. [J]
220	520–670	45	217	100

CORROSION RESISTANCE

The higher molybdenum content of SINOXX 4401 and SINOXX 4404 assures superior pitting resistance to SINOXX 4301 and SINOXX 4307 in applications involving chloride solutions, particularly in oxidising environments. SINOXX 4401 and SINOXX 4404 have excellent resistance to intergranular corrosion in the as-welded condition. They also resist corrosion in polluted marine atmospheres. In environments that are sufficiently corrosive to cause intergranular corrosion of welds and heat-affected zones, SINOXX 4404 should be used because of its lower carbon content.

Grade	Tested per the following corrosion standards
SINOXX 4401	ASTM A262 Practice A, ASTM A262 Practice E, EN ISO 3651-2 Method A
SINOXX 4404	

HOT FORMING

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

HOT TREATMENT

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

SURFACE FINISH

Plates are supplied in pickled condition (bright surface) – 1D / No. 1 Finish.

DIMENSIONS

SINOXX 4401/4404	Thickness [mm]	Max. width [mm]	Max. length [mm]	Max. weight [kg]
Quarto plates	7.0–8.0 (0.28–0.31 in.)	2000 (78.74 in.)	12000 (472.44 in.)	9600 (21164 lbs)
Quarto plates	8.0–130.0 (0.31–5.11 in.)	2500 (98.42 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.