

First Choice for Construction Industry and Mechanical Engineering

Material datasheet for 1.4404 | S31603 | X2CrNiMo 17-12-2 | AISI 316L

1.4404 is a **stainless austenitic** steel and is numbered among the most common corrosion-resistant stainless steel types. Due to its molybdenum content, it exhibits **high resistance** to non-oxidizing acids and halogenated media. This material can also be used in temperatures up to 550 °C, and in continuous operation is resistant against intercrystalline corrosion up to 300 °C.

Due to its high resistance, 1.4404 is used in a variety of industries. Apart from the chemical industry and pharmaceutical industry, these also include the pulp and paper industry, as well as mechanical engineering and the automotive industry

WELDING

Highly weldable both with and without a welding filler. However, the interpass temperature should not exceed 200 °C. Subsequent heat treatment is not required. A positive aspect is that welding does not affect resistance to intercrystalline corrosion.



BAR STEEL

AVAILABLE DIMENSIONS

20, 22, 25, 26, 28, 30, 32, 34, 35, 36, 38, 40, 42, 45, 48, 50, 51.2, 52, 54, 55, 56.2, 60, 61.2, 65, 66.2, 70, 71.4, 75, 76.4, 80, 81.4, 85, 86.4, 90, 91.4, 95, 96.4, 100, 102, 105, 107, 110, 112, 115, 117, 120, 122, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 325, 330, 340, 350, 360, 370, 375, 380, 390, 400, 410, 420, 425, 430, 440, 450, 475, 500, 525, 550, 575, 600 and 625 mm



APPLICATIONS

- ↻ Construction industry
- ↻ Chemical and pharmaceutical industry
- ↻ Decorative purposes and kitchen fittings
- ↻ Mechanical engineering
- ↻ Food industry
- ↻ Petrochemical industry
- ↻ Automotive industry, aerospace
- ↻ Electronic equipment

MACHINING

Due to its strain hardening tendency and poor thermal conductivity, machining should be performed with tools made from high-grade high-speed steel (effective cooling required), or preferably using carbide tools.

MECHANICAL PROPERTIES UNDER HIGH TEMPERATURES

Tensile strength value	Delivery state	Temperature °C							
		100	150	200	250	300	350	400	450
Rp0.2	solution annealed	≥165	≥150	≥137	≥127	≥119	≥113	≥108	≥103
Rp1.0	solution annealed	≥200	≥180	≥165	≥153	≥145	≥139	≥135	≥130

MECHANICAL PROPERTIES AT ROOM TEMPERATURE

Stated values apply to bar steel up to 160 mm max.
(EN 10088-3)

Yield strength Rp0.2 (N/mm²): at least 200	Elongation at fracture A5 (%): longitudinal: min. 40
Yield strength Rp1.0 (N/mm²): at least 235	Notch-impact strength (ISO-V) J: longitudinal: min. 100
Tensile strength Rm (N/mm²): 500 - 700	

CHEMICAL ANALYSIS

Chem. element	1.4404	
	min.	max.
C	-	0.03
Si	-	1.0
Mn	-	2.0
P	-	0.045
S	-	0.03
Cr	16.5	18.5
Ni	10.0	13.0
Mo	2.0	2.5
N	-	0.1

HEAT TREATMENT

Solution annealing: 1020 - 1120 °C	Cooling: Air or water
Hot forming: 900 - 1200 °C	

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