Material Data Sheet
1.4404 (X2CrNiMo17-12-2)
Austenitic corrosion-resistant stainless steel

Short description

1.4404 is one of the most widely used corrosion-resistant stainless steels. Due to the 2–2.5% molybdenum addition, this material offers significantly improved corrosion resistance than 1.4301/1.4307. Due to its lower carbon content compared to 1.4401, 1.4404 also offers good processing properties.

Standards and Designations

EN	1.4404
DIN	X2CrNiMo17-12-2
AISI	316L
UNS	S31603

Chemical Composition

	C (Carbon)	**Mn** (Mangan)	**Si** (Silicium)	**P** (Phosphor)	**S** (Sulfur)	**Cr** (Chrome)	**Ni** (Nickel)	**Mo** (Molybdenum)	**N** (Nitrogen)
min.	-	-	-	-	-	16,5	10,0	2,0	-
max.	0,03	2,0	1,0	0,045	0,030	18,5	13,0	2,5	0,1

General Properties

corrosion resistance	very good
Mechanical properties	medium
forgeability	good
weldability	excellent
machinability	medium

Special Features

Polishable
Suitable for low temperatures
Usable up to 550°C
Resistant to intergranular corrosion in continuous operation up to 300°C

Corrosion resistance

IIn natural environmental media, in media with moderate chlorine and salt concentrations, and in the food industry, 1.4404 exhibits excellent corrosion resistance. 1.4404 is resistant to intergranular corrosion due to its low carbon content. 1.4404 is not seawater resistant. (PREN = 23.1 – 28.5)

Mechanical Properties at 20°C

Hardness HB	Yield strength $Rp_{0,2}$ N / mm²	Tensile strength R_m N / mm²	Stretching A5,65	Elastic modulus kN / mm²
≤ 215	≥ 200	500 - 700	≥ 40%	200

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OLDENBURGER VOLKSBANK
IBAN DE98 2806 1822 0065 3616 00
BIC GENODEF1EDE

LZO RASTEDE
IBAN DE07 2805 0100 0043 3308 93
BIC SLZODE22XXX

OLB RASTEDE
IBAN DE54 2802 0050 1443 1738 00
BIC OLBODEH2XXX

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Forgeability

During the forging process, the material is slowly heated to approximately 1150°C – 1180°C, allowing for forging within a temperature range of 1180°C – 900°C. Rapid air or water cooling then takes place. Corrosion resistance is reduced by scale or tarnish. These are removed using chloride-free chemical or mechanical processes.

Weldability

1.4404 is readily weldable with and without filler metal. Post-welding heat treatment is not required. Welding does not affect resistance to intergranular corrosion.

Machinability

Due to its lower carbon content, 1.4404 is easier to machine than 1.4401.

Application areas

Apparatus and container construction, automotive industry, construction industry, chemicals, petrochemicals, decorative purposes, food industry, aviation, mechanical engineering, pharmaceuticals

Physical Properties at 20°C

Density kg/dm3	Electrical resistance (ohm) mm2/m	Magnetizability	Thermal conductivity W/m K	Specific heat capacity J/kg K
8,0	0,75	low	15	500

Processing

cold forming	yes
cold heading	yes
polishability	yes
open-die and drop forging	yes
machining	yes

Thermal treatment

Solution annealing (+AT)	1020 - 1120°C (cooling: water or air)
Hot forming	1200 - 900°C (cooling: air)

Notice

The values and information listed above regarding the properties and/or usability of the material are for informational purposes only. This information is based on the manufacturer's experience.

All information is provided without guarantee. Subject to printing errors, mistakes, and changes.

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