

Werkstoffdatenblatt

1.4462 (X2CrNiMoN22-5-3) Duplex

Short description 1.4462 is an austenitic-ferritic duplex steel with excellent corrosion resistance. This duplex steel is also characterized by high strength and yield strength, which is approximately 150% higher than comparable pure austenitic steels. The low nickel content compared to austenitic stainless steels also makes it economically attractive. The material 1.4462 is seawater-resistant and is used in the offshore industry, among other applications.

Standards and Designations	EN	1.4462
	DIN	X2CrNiMoN22-5-3
	AISI	318LN
	UNS	S31803

Chemical Composition

	C (Carbon)	Mn (Mangan)	Si (Silicium)	P (Phosphor)	S (Sulfur)	Cr (Chrome)	Mo (Molybdenum)	Ni (Nickel)	N (Nitrogen)
min.	-	-	-	-	-	21,0	2,5	4,5	0,10
max.	0,03	2,0	1,0	0,035	0,015	23,0	3,5	6,5	0,22

General Properties

corrosion resistance	excellent
mechanical properties	excellent
forgeability	medium
weldability	good
machinability	poor

Special Features

Usable from -100°C to 250°C
 Ferromagnetic grade

Corrosion resistance

1.4462 is highly corrosion-resistant in acidic and chloride-containing media, such as phosphoric and organic acids. Furthermore, 1.4462 is resistant to stress corrosion cracking and intergranular corrosion, both in the as-delivered condition and after welding. (PREN = 30.9 – 38.0)

Mechanical Properties at 20°C

Hardness HB	Yield strength Rp0,2 N / mm ²	Tensile strength Rm N / mm ²	Stretching A5,65	Elastic modulus kN / mm ²
≤ 270	≥ 450	650 - 880	≥ 25%	200

Forgeability

During the forging process, the material is first slowly heated to approximately 1200°C, allowing for forging within a temperature range of 1200°C to 900°C. This is followed by rapid air or water cooling.

Weldability 1.4462 can be welded using all common welding processes (except gas welding) such as TIG, MAG, ARC, and laser welding. However, a slightly higher energy (1 - 3 kJ/mm) should be selected.

Machinability Due to the two-phase microstructure, machining of the material 1.4462 is difficult.

Application areas Apparatus and container construction, construction industry, chemicals, petrochemicals, food industry, mechanical engineering, offshore, shipbuilding

Physical Properties at 20°C

Density kg/dm ³	Electrical Resistance (ohm) mm ² /m	Magnetizability	Thermal conductivity W/m K	Specific heat capacity J/kg K
7,8	0,8	vorhanden	15	500

Processing

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

Thermal treatment

Solution annealing (+AT)	1020 - 1100°C (cooling: water or air)
Hot forming	1200 - 950°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.

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