



MATERIAL No.: ALLOY 625/ N06625/ 2.4856

DESCRIPTION

EN symbol (short)	NiCr22Mo9Nb	Density lb/in.³	0,303
Alloy	625	Hardness HB	<=240)
UNS	N 06625	Composition	Nickel Chrome Molybdenum alloy
AFNOR	NC 22DNb	Category	Heat resistant steels and alloys
Registered work's label	Inconel® 625	Structure	
		Corrosion	resistant to intergranular corrosion against crevice corrosion good resistance to tensile corrosion high resistance to corrosion in oxidizing and choric substances
		Additional characteristics	good mechanical properties from low to high temperature ranges excellent resistance against chloride acidic substances

Description excellent resistance against corrosion in various corrosive substances (phosphoric/nitric/sulfuric/hydrochloric acid)
also resistant to chloride induced tensile corrosion
resistant against alkalis and organic acids

CHEMICAL COMPOSITION

		C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Nb	Ti	Fe	Co	Al	Cb+Ta
2.4856	Min %						20,00	8,00	58,00		3,15					
	Max %	0,10	0,50	0,50	0,02	0,015	23,00	10,00		0,50	4,15	0,40	5,00	1,00	0,40	

(Key to Steel 2010)

alloy 625	Min %						20,00	8,00	58,00								3,15
N 06625	Max %	0,10	0,50	0,50	0,015	0,015	23,00	10,00				0,40	5,00		0,40	4,15	

PHYSICAL PROPERTIES

Property	Value
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Density: lb/in.³	0,303				
Hardness: HB	<=240)				
Permeability at 20°C/68°F	1,003				
magnetizabe	paramagnetic				
Temperature T °C/F (°C/F)	Specific heat J / kgK (Btu / lb °F)	Thermal conductivity W/mK (Btu-in / ft²·h·°F)	Electric resistance μΩ · cm (Ω circ mill / ft)	Modulus of elasticity kN/mm² (10³ ksi)	Expansion rate from 70°F bis T 10⁻⁶ / K (10⁻⁶ / °F)
20 / 68 (93 / 200)	415 (0,099) ((0,103)	9,8 (68) (77)	128 (770) (782)	209 (30,3) (29,4)	(7,0)
200 /392 (204 / 400)	460 (0,110)	12,8 (90)	132 (794)	195 (28,3)	13,1 (7,7)
400 / 752 (427 / 800)	505 (0,122)	16,3 (0,115)	135 (815)	185 (26,5)	13,7 (7,6)
600 /1112 (649 / 1200)	550 (0,134)	19,3 (139)	136 (820)	170 (24,1)	14,6 (8,3)
800 /1472 (871 / 1600)	600 (0,147)	22,6 (167)	136 (815)	153 (21,0)	15,8 (9,0)
1000 /1832	650	26,7	132	128	17,0

MECHANICAL PROPERTIES (20°C / 68°F)

Density (lb/in.³)	0,303
Yield strength Rp0,2 (ksi)	60-50
Tensile strength MPa bei RT	820 -1050
Elongation A5 (68°F) (%)	>=30
Impact energy ISO-V (J/cm²)	>= 125
average at room temperature (J/cm²)	
Remarks	

TEMPERATURE INFORMATION

Application area	
Operation temperature	°F to 1832 °F
Explanation report	max. in air
Soft annealing	
Working temperature	1742 °F to 1922 °F

Processing information	
Solution heat treatment	
Working temperature	2102 °F to 1652 °F
Explanation report	quick water or air cooling

STANDARDS / INFORMATION

Standards	Description
ASTM B 443	standard specification for nickel-Chromium-Molybdenum-Columbium Alloys (UNS N06625) Plate, Sheet, and Strip
ASTM B 444	standard specification for Nickel-Chromium-Molybdenum-Columbium Alloys (UNS 06625) Pipe and Tube
ASTM B 564-06	Standard Specification for Nickel Alloy Forging
ASTM B 704	Standard Specification for Welded Alloy Tubes
ASTM B 705	Standard Specification for Nickel-Alloy Welded Pipe
DIN 17744 (2002/09)	nickel-forgeable alloy with molybdenum and chrome
DIN 17750 (2002/09)	ribbons and sheet metal out of nickel with nickel-wrought alloy properties
DIN 17751 (2002/09)	tubes out of nickel with nickel-wrought alloy properties
DIN 17752 (2002/09)	rod made from nickel with nickel-wrought alloy properties
DIN 17753 (2002/09)	wire out of nickel with nickel-wrought alloy properties
DIN EN 10088-1 (09/2005)	Stainless steels Part 1: List of stainless steels
DIN EN 10095 (05/1999)	heat resistant steel and nickel alloy

PROCESS INFORMATION

Cold forming	material in annealed state, mind cold-work hardening modifications >10% require subsequent soft annealing
Chip removing process	preferably in annealed state, due to a tendency to cold-work hardening low cutting speed and sufficient rate of cut
Welding	
- Material classification acc. CEN ISO/TR 15608	43
- Type	well weldable WIG plasma welding manual arc welding MIG/MAG submerged arc welding

- Add. material	2.4621;2.4831
MAIN FIELDS OF APPLICATION	
Details of application	for high-temperature application (1000°C/1832°F) solution annealed/higher carbon, otherwise annealed/lower carbon.
Certifications	pressure containers according to TÜV -196 - +450°C/-320 - +843°F in NACE MR O175 included
Chemical Industry	
waste incineration plants	
Apparatus engineering	pressure tanks
Environmental technology	sewage works
offshore plants	Sea water desalination plant

RANGE OF PRODUCTS

Product type	Product
Processing / Construction	from bar steel (turning, milling)
Plates / Sheets	plates/sheets plate/sheet cuts
Rotating components	fittings from barsteel
Fittings	welded elbows welded reductions Welded T-pieces seamless elbows seamless reductions seamless T-pieces
Flanges / Collars / Flared tube ends	flared tube end various flanges (weld neck flange, blind flange etc.)
Pipes / Tubes	welded pipes/tubes welded square pipes/tubes seamless pipes/tubes
Bar steel	flat steel section steel round bar steel hexagon steel

[Pipe/Tube/Fitting/Flange/Valve/Plate](#)

Stainless Steel/Nickel Alloy/Duplex

