



MATERIAL No.: ALLOY 31/ N08031/ 1.4562

DESCRIPTION

EN symbol (short)	X1NiCrMoCu32-28-7	Density kg/dm³	8,0
Alloy	Alloy 31	Hardness HB	<220
UNS	N 08031	Composition	Nickel Chrome Iron alloy
Registered work's label	Nicrofer® 3127 hMo	Category	Corrosion resisting steels and alloys
		Structure	austenitic
		Corrosion	resistant to intergranular corrosion high corrosion resistance

CHEMICAL COMPOSITION

		C	Si	Mn	P	S	Cr	Cu	Mo	N	Ni	Fe
1.4562	Min %						26,00	1,00	6,00	0,15	30,00	
	Max %	0,015	0,30	2,00	0,02	0,10	28,00	1,40	7,00	0,25	32,00	
(Key to steel 2010)												
Alloy 31	Min %						26,0	1,0	6,0	0,15	30,0	balance
N 08031	Max %	0,015	0,3	2,00	0,,20	0,010	28,0	1,4	7,0	0,25	32,0	balance
ASTM B 626 (N08031)												

PHYSICAL PROPERTIES

Property		Value				
Density: kg/dm³		8,0				
Hardness: HB		<220				
Permeability in 68°F		1,001				
Temperature	Specific heat	Thermal conductivity	Electric resistance	Modulus of elasticity	Expansion rate from 70°F bis T	
T	J / kgK	W/mK	μΩ · cm	kN/mm²	10⁻⁶ / K	
°C/F	(Btu / lb °F)	(Btu·in / ft²·h·°F)	(Ω circ mill / ft)	(10³ ksi)	(10⁻⁶ / °F)	
20 / 68	452 (--)	11,7 (--)	103 (--)	198(--)		
100 / 212	463 (--)	13,2 (--)	106 (--)	189 (--)	14,3 (--)	

200 / 392	474 (--)	15,0 (--)	110 (--)	183 (--)	
300 / 572	483 (--)	16,8 (--)	113 (--)	176 (--)	15,1 (--)
500 / 932	500 (--)	20,2 (--)	118 (--)	163 (--)	15,7 (--)
600 / 1112	508 (--)	21,9 (--)	120 (--)	158 (--)	15,9 (--)
Temperature	1,0% Yield strength in high temperatures		Tensile strength in high temperatures		
°C / °F	Rp1,0		Rm		
	N/mm² / ksi		N/mm² / ksi		
100 / 212	240 / 34,8				
200 / 392	210 / 30,4				
300 / 572	195 / 28,3				
400 / 752	180 / 26,1				
500 / 932	165 / 23,9				
550 / 1022	155 / 22,4				
ksi value calculated					

MECHANICAL PROPERTIES (20°C / 68°F)

0,2% yield strength (Mpa) / ksi	≥276		
yield strength(0,2 offset) min.ksi / (Mpa)	40/276		N 080319 (ASTM B 625)
1,0% yield strength (Mpa) / ksi	≥ 390		
tensile strength Rm (Mpa)/ksi	650-850	lengthwise /transverse	
tensile strength Rm (min.) ksi / (Mpa)	94 / (650)		N 080319 (ASTM B 625)
elongation A50 %	≥40		
elongation min. %	40	in 2in.(50,8mm) or 4D	N 080319 (ASTM B 625)
impact ISO-V (to -320,3°F)	≥140J / cm ²		

TEMPERATURE INFORMATION

Application area		
Operation temperature	-321 °F to 1022 °F	minimum temperature only in strain situation III
Solution heat treatment		
Working temperature	2066 °F to 2156 °F	
Explanation report	cool down.water,air	
Solution heat treatment		
Working temperature	1922 °F to 2192 °F	
Explanation report	cool down:air	

STANDARDS / INFORMATION

Standards	Description
ASTM B 366	Standard Specification for Factory-Made Wrought nickel and nickel alloy fittings
ASTM B 622	Standard Specification for Seamless Nickel and Nickel-Cobalt Alloy Pipe and Tube
ASTM B 626	Standard Specification for Welded Nickel and Nickel-Cobalt Alloy Tube
SEW 400 (1997-02)	Rolled and forged stainless steels

PROCESS INFORMATION

Chip removing process	tendency to cold work hardening -low cutting rate -moderate feed speed -constant tool application
Welding	
- Material classification acc. CEN ISO/TR 15608	8.2
- Type	manual arc welding protective gas gas fusion welding resistance welding bar electrode
- Add. material	2.4607;1.4562;2.4609

MAIN FIELDS OF APPLICATION

Details of application	approved for pressure containers in operation temperatures from -320°F to 1022°F - not suited for use in high temperatures and high hydrochloric acid levels
Certifications	listed in BAM list of dangerous goods transportation NACE MR0175 ISO 15156
Chemical Industry	for the production of phosphoric acid in wet digestion process
Environmental technology	
cellulose/paper industry	different components
Flue gas desulphurization plants	various components

RANGE OF PRODUCTS

Product type	Product
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Processing / Construction	from sheets from pipes, fittings, flanges (welded)
Plates / Sheets	plates/sheets plate/sheet cuts
Fittings	welded elbows welded reductions Welded T-pieces Other Fittings a.o. Weldolets, Nipples
Flanges / Collars / Flared tube ends	various flanges (weld neck flange, blind flange etc.)
Bumped boiler ends / caps / round blanks	from sheets
Pipes / Tubes	welded pipes/tubes
Bar steel	flat steel round bar steel

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

Stainless Steel/Nickel Alloy/Duplex

