



**MATERIAL No.: 800H/ 1.4958 /N08810**

**DESCRIPTION**

<b>EN symbol (short)</b>	X5NiCrAlTi31-20	<b>Density kg/dm<sup>3</sup></b>	7,94
<b>Material No.</b>	1.4876 H	<b>Hardness</b>	
<b>Alloy</b>	800 H	<b>Composition</b>	chromium nickel steel
<b>UNS</b>	N 08810	<b>Category</b>	Heat resistant steels and alloys
<b>AFNOR</b>	NF EN 10088-1 (06/2005)	<b>Structure</b>	austenitic
<b>BS</b>	NA 15(H)		
<b>Registered work's label</b>	Nicrofer®3220H		

**CHEMICAL COMPOSITION**

		C	Si	Mn	P	S	Al	Co	Cr	Cu	N	Nb	Ni	Ti	Al+Ti	Fe
<b>1.4958</b>	<b>Min %</b>	0,03					0,20		19,00				30,00	0,20		
	<b>Max %</b>	0,08	0,70	1,50	0,015	0,010	0,50	0,50	22,00	0,50	0,030	0,10	32,50	0,50		
(Key to steel 2010) gem.DIN EN 10028-7+DIN EN 10216-5 (Ni+Co) 30,0-32,5%;(Al+Ti)<=0,70%																
<b>1.4876 H</b>	<b>Min %</b>	0,030							19,00				30,00			
	<b>Max %</b>	0,08	0,70	1,50	0,015	0,010			22,00	0,50		0,10	32,00		0,70	
DIN EN 10302																
<b>alloy 800 H</b>	<b>Min %</b>															
	<b>Max %</b>															
<b>N 08810</b>	<b>Min %</b>	0,05					0,15		19,0				30,0	0,15		39,5
	<b>Max %</b>	0,10	1,0	1,5		0,15	0,60		23,0	0,75			35,0	0,60		
ASTM B 407 (N08810 -Alloy 800H)																

**PHYSICAL PROPERTIES**

Property	Value
<b>Density: kg/dm<sup>3</sup></b>	7,94
<b>elasticity modulus (N/mm<sup>2</sup>) / ksi</b>	194 /28,1

Temperature T °C/F (°C/F)	Specific heat J / kgK (Btu / lb °F)	Thermal conductivity W/mK (Btu·in / ft <sup>2</sup> ·h·°F)	Electric resistance μΩ · cm (Ω circ mill / ft)	Modulus of elasticity kN/mm <sup>2</sup> (10 <sup>3</sup> ksi)	Expansion rate from 70°F bis T 10 <sup>-6</sup> / K (10 <sup>-6</sup> / °F)
20 / 68	472 (--)	11,5 (--)	101 (--)	194 (--)	
100 / 212	501 (--)	13,1 (--)	104 (--)	189 (--)	15,1 (--)
200 / 392	525 (--)	14,8 (--)	108 (--)	183 (--)	15,7 (--)
400 / 752	555 (--)	18,1 (--)	115 (--)	170 (--)	16,6 (--)
600 / 1112	604 (--)	21,2 (--)	120 (--)	156 (--)	17,4 (--)
700 / 1292	610 (--)	22,8 (--)	122 (--)	149 (--)	17,7 (--)
800 / 1472	609 (--)	24,3 (--)	124 (--)	141(--)	18,0 (--)
900 / 1652	615 (--)	25,7 (--)	126 (--)	134 (--)	18,3 (--)
1000 / 1832	641(--)	27,3 (--)	127 (--)	127 (--)	18,6 (--)

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#### MECHANICAL PROPERTIES (20°C / 68°F)

<b>Yield strength Rp 0,2 lengthwise</b>	>=155
<b>transverse</b>	>=170
<b>Tensile strength Rm (MPa)</b>	500-750
<b>Elongation (A50) %</b>	30
<b>Notched impact strength (ISO-V/Charpy-V) 20°C</b>	<=120J
<b>Values apply to solution annealed state and for defined measurements</b>	

#### TEMPERATURE INFORMATION

<b>Application area</b>	
<b>Operation temperature</b>	1292 °F to 1832 °F (when 1112°F below use in soft annealed state)
<b>Solution heat treatment</b>	
<b>Working temperature</b>	2102 °F to 2192 °F
<b>Explanation report</b>	pipes < 50mm
<b>Working temperature</b>	2012 °F to 2192 °F
<b>Processing information</b>	Cool down: Water/air
<b>Solution heat treatment</b>	

<b>Working temperature</b>	1382 °F to 2102 °F	soft-annealed
<b>finishing treatment (Annealing)</b>		
<b>Working temperature</b>	1652 °F to 1742 °F	
<b>Processing information</b>	air (<= 30min)	
<b>soft-annealed</b>		
<b>Working temperature</b>	°F to 2102 °F	

#### STANDARDS / INFORMATION

<b>Standards</b>	<b>Description</b>
<a href="#">ASTM A 240</a>	sheet metal and ribbons from stainless Cr and Ni pressure containers
<a href="#">ASTM B 163</a>	Standard Specifications for seamless nickel and nickel alloy condensers and heat-exchanger tubes
<a href="#">ASTM B 407</a>	Standard Specification for Nickel-Iron-Chromium Alloy Seamless Pipe and Tube
<a href="#">ASTM B 408</a>	Standard Specification for Nickel-Iron-Chromium Alloy Rod and Bar
<a href="#">ASTM B 409</a>	Standard Specification for Nickel-Iron-Chromium Alloy metal sheets
<a href="#">ASTM B 564-06</a>	Standard Specification for Nickel Alloy Forging
<a href="#">DIN EN 10028-7 (02/2008)</a>	flat products made from steel for pressure tanks Part 7: Stainless steel
<a href="#">DIN EN 10088-1 (09/2005)</a>	Stainless steels Part 1: List of stainless steels
<a href="#">DIN EN 10216-5 (11/2004+B1)</a>	Seamless steel tubes under compression load Stainless steel tubes
<a href="#">DIN EN 10302 (06/2008)</a>	heat-resisting steel nickel-cobalt alloy
SEW 310 (08/1992)	physical properties of steel

#### PROCESS INFORMATION

<b>Welding</b>	
<b>- Type</b>	covered electrode No translation! manual arc
<b>- Add. material</b>	2.4648;2.4627 2.4806

#### MAIN FIELDS OF APPLICATION

<b>Details of application</b>	metallurgic stability during uninterrupted service in high temperatures
<b>Certifications</b>	
<b>Steam boiler construction</b>	pressure tanks
<b>Chemical Industry</b>	pyrolysis tubes in ethene furnaces

	conduits
<b>Environmental technology</b>	waste-to-energy plants

**RANGE OF PRODUCTS**

<b>Product type</b>	<b>Product</b>
Plates / Sheets	plates/sheets plate/sheet cuts
Fittings	welded elbows welded reductions Welded T-pieces seamless elbows seamless reductions seamless 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 seamless pipes/tubes
Bar steel	flat steel section steel round bar steel

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

Stainless Steel/Nickel Alloy/Duplex

