



MATERIAL No.: 254SMo/ S31254/ 1.4547

DESCRIPTION

EN symbol (short)	X1CrNiMoCuN20-18-7	Density	8,0
UNS	S 31254	kg/dm³	
AFNOR	X1CrNiMoCuN20-18-7 / NF EN 10217-7 (02/2005) (FR)	Hardness HB	<= 360
BS	X1CrNiMoCuN20-18-7 / B.S.EN 10217-7 (02/2005) (GB)	Composition	chromium nickel molybdenum steels
Registered work's label	254 SMO®	Category	Stainless steels
		Structure	austenitic
		Corrosion	resistant to intergranular corrosion sati factionary against pitting corrosion high corrosion resistance

CHEMICAL COMPOSITION

		C	Si	Mn	S	N	Cr	Cu	Mo	Ni	P
1.4547	Min %					0,18	19,50	0,50	6,00	17,50	
	Max %	0,020	0,70	1,00	0,010	0,25	20,50	1,00	7,00	18,50	
(Key to steel 2010)											
S 31254	Min %					0,18	19,50	0,50	6,00	17,50	
	Max %	0,20	0,80	1,00	0,010	0,22	20,50	1,00	6,50	18,50	0,030
ASTM A 312 (S 31254)											

PHYSICAL PROPERTIES

Property	Value
Density: kg/dm³	8,0
Hardness: HB	<= 360
magnetizable	no
impact work (ISO-V) (J)	>100

Temperature T °C/F (°C/F)	Specific heat J / kgK (Btu / lb °F)	Thermal conductivity W/mK (Btu·in / ft ² ·h·°F)	Electric resistance μΩ · cm (Ω circ mill / ft)	Modulus of elasticity kN/mm ² (10 ³ ksi)	Expansion rate from 70°F bis T 10 ⁻⁶ / K (10 ⁻⁶ / °F)
20 / 68	500 (--)	13 (--)	0,85 (--)		
100 / 212	520 (--)	14 (--)	0,90 (--)		16,0 (--)
200 / 392	540 (--)	15 (--)	0,95 (--)		16,0 (--)
300 / 572	555 (--)	17 (--)	1,03 (--)		16,5 (--)
400 / 752	570 (--)	18 (--)	1,10 (--)		17,0 (--)

Temperature	1,0% Yield strength in high temperatures
°C / °F	Rp 1,0 N/mm ² / ksi
100 / 212	270 / 39,1
200 / 392	225 / 32,6
300 / 572	200 / 29,0
400 / 752	190 / 27,5
500 / 932	180 / 26,1

ksi value calculated

MECHANICAL PROPERTIES (20°C / 68°F)

1,0 % Yield strength (Mpa) / (ksi)	340 / 49,3
0,2 % Yield strength (Mpa) / (ksi)	300 / 43,5
Tensile strength Rm (Mpa) / (ksi)	650-850 / 94-123
Elongation A5 (%)	35
impact work ISO-V (J)	70

TEMPERATURE INFORMATION

Application area	
Operation temperature	°F to 752 °F operating temperature limit
Solution heat treatment	
Working temperature	2102 °F to 2192 °F
Explanation report	cool down: water
Solution heat treatment	

Working temperature	1832 °F to 2102 °F
Explanation report	cool down: air

STANDARDS / INFORMATION

Standards	Description
<u>ASTM A 213</u>	Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler,Superheater,and Heat-Exchanger Tubes
<u>ASTM A 312</u>	Standard Specification for Seamless and welded austenitic stainless steel pipes
<u>DIN EN 10088-1 (09/2005)</u>	Stainless steels Part 1: List of stainless steels
<u>DIN EN 10088-3 (09/2005)</u>	stainless steels.Technical delivery conditions for semi-finished products,bars,rods,wire selection and bright products of corrosion resisting steels for general and construction purposes
<u>DIN EN 10217-7</u>	Welded steel pipes under compression load Pipes made from stainless steel
<u>DIN EN 10297-2 (02/2006)</u>	Welded circular steel pipes for machine construction and general technical service stainless steel. Pipes made from stainless steel

PROCESS INFORMATION

Chip removing process	process in annealed state
Welding	
- Material classification acc. CEN ISO/TR 15608	8.2
- Type	well weldable
- Add. material	NiCr20Mo9Nb

MAIN FIELDS OF APPLICATION

Details of application	
Certifications	
Chemical Industry	
petrochemical industry	
Flue gas desulphurization plants	
cellulose/paper industry	
sea and lake water plants	

RANGE OF PRODUCTS

Product type	Product
Plates / Sheets	plates/sheets plate/sheet cuts
Fittings	welded elbows welded reductions Welded T-pieces seamless elbows seamless reductions seamless T-pieces
Flanges / Collars / Flared tube ends	weld neck flange/blind flange
Pipes / Tubes	welded pipes/tubes seamless pipes/tubes
Bar steel	section steel round bar steel

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

Stainless Steel/Nickel Alloy/Duplex

