

Sandvik Sanicro 31HT Seamless tube and pipe

Category : Metal , Ferrous Metal , Austenitic , Superalloy

Material Notes:

Sandvik Sanicro 31HT is an austenitic nickel-iron-chromium alloy characterized by: high creep strengthvery good resistance to oxidation good resistance to combustion gasesvery good resistance to carburizationgood resistance to nitrogen absorptiongood structural stability at high temperatures good weldabilitySandvik Sanicro 31HT can be used at temperatures up to about 1100Â°C (2010Â°F). In order to have the best ductility, it should be used above 700 Â°C (1290 Â°F). We can also supply a modified version of Sandvik Sanicro 31HT for use in the temperature range between about 550 and 700Â°C (1020-1290Â°F). The chemical composition and heat treatment of this version have been adapted for the highest possible creep ductility. Further information on properties is available on request.Sandvik Sanicro 31HT is not generally used under wet corrosive conditions. For this type of environment, we recommend Sandvik Sanicro 30, which is specially adapted for wet corrosive conditions up to about 550Â°C (1020Â°F). For further details, see the Sandvik Sanicro 30 datasheet on our website (www.smt.sandvik.com) or in printed form (S-1890-ENG).Information provided by SandvikUNS N08811, N08810; EN 1.4959

Order this product through the following link:

http://www.lookpolymers.com/polymer_Sandvik-Sanicro-31HT-Seamless-tube-and-pipe.php

Physical Properties	Metric	English	Comments
Density	7.90 g/cc	0.285 lb/inÂ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	<= 90	<= 90	
Tensile Strength, Ultimate	500 - 700 MPa	72500 - 102000 psi	
	>= 345 MPa	>= 50000 psi	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	
	>= 385 MPa	>= 55800 psi	
	@Temperature 200 Â°C	@Temperature 392 Â°F	
Tensile Strength, Yield	>= 172 MPa	>= 24900 psi	
	@Strain 0.200 %	@Strain 0.200 %	
	>= 200 MPa	>= 29000 psi	
	@Strain 1.00 %	@Strain 1.00 %	
	>= 95.0 MPa	>= 13800 psi	
	@Strain 0.200 %, Temperature 600 Â°C	@Strain 0.200 %, Temperature 1110 Â°F	
	>= 115 MPa	>= 16700 psi	
	@Strain 1.00 %, Temperature 600 Â°C	@Strain 1.00 %, Temperature 1110 Â°F	

Mechanical Properties	Metric	English	Comments
	≥ 130 MPa	≥ 22500 psi	
	@Strain 0.200 %, Temperature 200 Â°C	@Strain 0.200 %, Temperature 392 Â°F	
	≥ 155 MPa	≥ 22500 psi	
	@Strain 1.00 %, Temperature 200 Â°C	@Strain 1.00 %, Temperature 392 Â°F	
Elongation at Break	≥ 35 %	≥ 35 %	
	≥ 30 %	≥ 30 %	
	@Thickness 50.8 mm	@Thickness 2.00 in	
Rupture Strength	2.70 MPa	392 psi	
	@Temperature 1100 Â°C, Time 3.60e+8 sec	@Temperature 2010 Â°F, Time 100000 hour	
	13.0 MPa	1890 psi	
	@Temperature 900 Â°C, Time 3.60e+8 sec	@Temperature 1650 Â°F, Time 100000 hour	
	57.0 MPa	8270 psi	
	@Temperature 700 Â°C, Time 3.60e+8 sec	@Temperature 1290 Â°F, Time 100000 hour	
	127 MPa	18400 psi	
	@Temperature 600 Â°C, Time 3.60e+8 sec	@Temperature 1110 Â°F, Time 100000 hour	
Modulus of Elasticity	200 GPa	29000 ksi	
	130 GPa	18900 ksi	
	@Temperature 1000 Â°C	@Temperature 1830 Â°F	
	175 GPa	25400 ksi	
	@Temperature 400 Â°C	@Temperature 752 Â°F	

Thermal Properties	Metric	English	Comments
CTE, linear	15.0 Âµm/m-Â°C	8.33 Âµin/in-Â°F	
	@Temperature 30.0 - 100 Â°C	@Temperature 86.0 - 212 Â°F	
	16.0 Âµm/m-Â°C	8.89 Âµin/in-Â°F	

Thermal Properties	Metric @Temperature 30.0 - 200 Â°C	English @Temperature 86.0 - 392 Â°F	Comments
	17.0 Âµm/m-Â°C @Temperature 30.0 - 500 Â°C	9.44 Âµin/in-Â°F @Temperature 86.0 - 932 Â°F	
	18.5 Âµm/m-Â°C @Temperature 30.0 - 1000 Â°C	10.3 Âµin/in-Â°F @Temperature 86.0 - 1830 Â°F	
Specific Heat Capacity	0.470 J/g-Â°C @Temperature 20.0 Â°C	0.112 BTU/lb-Â°F @Temperature 68.0 Â°F	
	0.520 J/g-Â°C @Temperature 200 Â°C	0.124 BTU/lb-Â°F @Temperature 392 Â°F	
	0.585 J/g-Â°C @Temperature 400 Â°C	0.140 BTU/lb-Â°F @Temperature 752 Â°F	
	0.605 J/g-Â°C @Temperature 600 Â°C	0.145 BTU/lb-Â°F @Temperature 1110 Â°F	
	0.630 J/g-Â°C @Temperature 800 Â°C	0.151 BTU/lb-Â°F @Temperature 1470 Â°F	
	0.665 J/g-Â°C @Temperature 1100 Â°C	0.159 BTU/lb-Â°F @Temperature 2010 Â°F	
Thermal Conductivity	12.0 W/m-K @Temperature 20.0 Â°C	83.3 BTU-in/hr-ftÂ²- Â°F @Temperature 68.0 Â°F	
	16.0 W/m-K @Temperature 200 Â°C	111 BTU-in/hr-ftÂ²-Â°F @Temperature 392 Â°F	
	19.0 W/m-K @Temperature 400 Â°C	132 BTU-in/hr-ftÂ²-Â°F @Temperature 752 Â°F	
	22.0 W/m-K @Temperature 600 Â°C	153 BTU-in/hr-ftÂ²-Â°F @Temperature 1110 Â°F	
	29.0 W/m-K @Temperature 1100 Â°C	201 BTU-in/hr-ftÂ²-Â°F @Temperature 2010 Â°F	

Thermal Properties	Metric	English	Comments
Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.50 %	0.50 %	
Carbon, C	0.070 %	0.070 %	
Chromium, Cr	20.5 %	20.5 %	
Iron, Fe	46.7 %	46.7 %	Calculated as balance from specified elements
Manganese, Mn	0.60 %	0.60 %	
Nickel, Ni	30.5 %	30.5 %	
Phosphorous, P	<= 0.015 %	<= 0.015 %	
Silicon, Si	0.60 %	0.60 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	
Titanium, Ti	0.50 %	0.50 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000124 ohm-cm	0.0000124 ohm-cm	
	@Temperature 1000 Â°C	@Temperature 1830 Â°F	
	0.0000990 ohm-cm	0.0000990 ohm-cm	
	@Temperature 20.0 Â°C	@Temperature 68.0 Â°F	
	0.000118 ohm-cm	0.000118 ohm-cm	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	

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