

Haynes Hastelloy® N, 1.6 mm sheet, heat treated at 1175°C, rapid air cooled

Categories: [Metal](#); [Nonferrous Metal](#); [Nickel Alloy](#); [Superalloy](#)





Material Notes: Applications include containers for molten fluoride salts. Good oxidation resistance to hot fluoride salts at 705-870°C (1300-1600°F), good oxidation resistance in air.





Data provided by the manufacturer, Haynes International, Inc.

Key Words: UNS N10003, AMS 5607, AMS 5771

Vendors: [Click here to view all available suppliers for this material.](#)

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Physical Properties	Metric	English	Comments
Density	8.86 g/cc	0.320 lb/in ³	
Mechanical Properties			
Tensile Strength, Ultimate	794 MPa	115000 psi	
	234 MPa	33900 psi	
	@Temperature 927 °C	@Temperature 1700 °F	
	385 MPa	55800 psi	
	@Temperature 815 °C	@Temperature 1500 °F	
	480 MPa	69600 psi	
	@Temperature 704 °C	@Temperature 1300 °F	
	599 MPa	86900 psi	
	@Temperature 593 °C	@Temperature 1100 °F	
Tensile Strength, Yield	314 MPa	45500 psi	
	@Strain 0.200 %	@Strain 0.200 %	
	179 MPa	26000 psi	
	@Strain 0.200 %, Temperature 927 °C	@Strain 0.200 %, Temperature 1700 °F	
	203 MPa	29400 psi	
	@Strain 0.200 %, Temperature 815 °C	@Strain 0.200 %, Temperature 1500 °F	
	218 MPa	31600 psi	
	@Strain 0.200 %, Temperature 704 °C	@Strain 0.200 %, Temperature 1300 °F	
	227 MPa	32900 psi	
	@Strain 0.200 %, Temperature 593 °C	@Strain 0.200 %, Temperature 1100 °F	
Elongation at Break	50.7 %	50.7 %	in 50.8 mm
	24.3 %	24.3 %	in 50.8 mm
	@Temperature 815 °C	@Temperature 1500 °F	
	30 %	30 %	in 50.8 mm
	@Temperature 927 °C	@Temperature 1700 °F	
	30 %	30 %	in 50.8 mm
	@Temperature 704 °C	@Temperature 1300 °F	
	45.3 %	45.3 %	in 50.8 mm
	@Temperature 593 °C	@Temperature 1100 °F	
Modulus of Elasticity 	122 GPa	17700 ksi	
	@Temperature 1049 °C	@Temperature 1920 °F	
	136 GPa	19700 ksi	
	@Temperature 1000 °C	@Temperature 1830 °F	
	143 GPa	20700 ksi	
	@Temperature 954 °C	@Temperature 1750 °F	
	151 GPa	21900 ksi	
	@Temperature 904 °C	@Temperature 1660 °F	
	157 GPa	22800 ksi	
	@Temperature 854 °C	@Temperature 1570 °F	
	163 GPa	23600 ksi	
	@Temperature 800 °C	@Temperature 1470 °F	
	171 GPa	24800 ksi	
	@Temperature 700 °C	@Temperature 1290 °F	
	181 GPa	26300 ksi	
	@Temperature 577 °C	@Temperature 1070 °F	
	181 GPa	26300 ksi	
	@Temperature 632 °C	@Temperature 1170 °F	
	187 GPa	27100 ksi	
	@Temperature 500 °C	@Temperature 932 °F	
	192 GPa	27800 ksi	
	@Temperature 410 °C	@Temperature 770 °F	

	202 GPa @Temperature 221 °C	29300 ksi @Temperature 430 °F	
	219 GPa @Temperature 14.0 °C	31800 ksi @Temperature 57.2 °F	
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000120 ohm-cm	0.000120 ohm-cm	RT
	0.000124 ohm-cm @Temperature 815 °C	0.000124 ohm-cm @Temperature 1500 °F	
	0.000126 ohm-cm @Temperature 705 °C	0.000126 ohm-cm @Temperature 1300 °F	
Thermal Properties	Metric	English	Comments
CTE, linear 	12.3 µm/m-°C @Temperature 21.0 - 316 °C	6.83 µin/in-°F @Temperature 69.8 - 601 °F	
	12.7 µm/m-°C @Temperature 21.0 - 427 °C	7.06 µin/in-°F @Temperature 69.8 - 801 °F	
	13.4 µm/m-°C @Temperature 21.0 - 538 °C	7.44 µin/in-°F @Temperature 69.8 - 1000 °F	
	14.0 µm/m-°C @Temperature 21.0 - 649 °C	7.78 µin/in-°F @Temperature 69.8 - 1200 °F	
	14.7 µm/m-°C @Temperature 21.0 - 760 °C	8.17 µin/in-°F @Temperature 69.8 - 1400 °F	
	15.3 µm/m-°C @Temperature 21.0 - 871 °C	8.50 µin/in-°F @Temperature 69.8 - 1600 °F	
	15.8 µm/m-°C @Temperature 21.0 - 982 °C	8.78 µin/in-°F @Temperature 69.8 - 1800 °F	
Specific Heat Capacity 	0.419 J/g-°C @Temperature 100 °C	0.100 BTU/lb-°F @Temperature 212 °F	
	0.440 J/g-°C @Temperature 200 °C	0.105 BTU/lb-°F @Temperature 392 °F	
	0.456 J/g-°C @Temperature 300 °C	0.109 BTU/lb-°F @Temperature 572 °F	
	0.469 J/g-°C @Temperature 400 °C	0.112 BTU/lb-°F @Temperature 752 °F	
	0.477 J/g-°C @Temperature 480 °C	0.114 BTU/lb-°F @Temperature 896 °F	
	0.485 J/g-°C @Temperature 540 °C	0.116 BTU/lb-°F @Temperature 1000 °F	
	0.523 J/g-°C @Temperature 570 °C	0.125 BTU/lb-°F @Temperature 1060 °F	
	0.565 J/g-°C @Temperature 590 °C	0.135 BTU/lb-°F @Temperature 1090 °F	
	0.578 J/g-°C @Temperature 680 °C	0.138 BTU/lb-°F @Temperature 1260 °F	
	0.578 J/g-°C @Temperature 700 °C	0.138 BTU/lb-°F @Temperature 1290 °F	
	0.582 J/g-°C @Temperature 660 °C	0.139 BTU/lb-°F @Temperature 1220 °F	
	0.586 J/g-°C @Temperature 620 °C	0.140 BTU/lb-°F @Temperature 1150 °F	
Thermal Conductivity	11.5 W/m-K	79.8 BTU-in/hr-ft²-°F	RT
	13.1 W/m-K @Temperature 100 °C	90.9 BTU-in/hr-ft²-°F @Temperature 212 °F	
	13.1 W/m-K @Temperature 200 °C	90.9 BTU-in/hr-ft²-°F @Temperature 392 °F	
	14.4 W/m-K @Temperature 300 °C	99.9 BTU-in/hr-ft²-°F @Temperature 572 °F	
	16.5 W/m-K @Temperature 400 °C	115 BTU-in/hr-ft²-°F @Temperature 752 °F	
	18.0 W/m-K @Temperature 500 °C	125 BTU-in/hr-ft²-°F @Temperature 932 °F	
	20.3 W/m-K @Temperature 600 °C	141 BTU-in/hr-ft²-°F @Temperature 1110 °F	
	23.6 W/m-K @Temperature 700 °C	164 BTU-in/hr-ft²-°F @Temperature 1290 °F	
Melting Point	1300 - 1400 °C	2370 - 2550 °F	
Solidus	1300 °C	2370 °F	
Liquidus	1400 °C	2550 °F	
Component Elements Properties	Metric	English	Comments
Al + Ti	<= 0.50 %	<= 0.50 %	

Carbon, C	<= 0.080 %	<= 0.080 %
Chromium, Cr	7.0 %	7.0 %
Cobalt, Co	<= 0.20 %	<= 0.20 %
Copper, Cu	<= 0.35 %	<= 0.35 %
Iron, Fe	<= 5.0 %	<= 5.0 %
Manganese, Mn	<= 0.80 %	<= 0.80 %
Molybdenum, Mo	16 %	16 %
Nickel, Ni	71 %	71 %
Silicon, Si	<= 1.0 %	<= 1.0 %
Tungsten, W	<= 0.50 %	<= 0.50 %

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