Haynes HR-120Â® alloy, solution heat-treated plate

Category : Metal , Superalloy , Iron Base

Material Notes:

Excellent strength at elevated temperatures, combined with good resistance to carburizing and sulfidizing environments. Applications include bar frame heat treating baskets, wire mesh furnace belts and basket liners, muffles and retorts, heat treating fixtures, waste incinerators, radiant tubes, cast link belt pins, recuperators, and fluidized bed components.Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Haynes-HR-120-alloy-solution-heat-treated-plate.php

Physical Properties	Metric	English	Comments
Density	8.07 g/cc	0.292 lb/inÂ³	at RT.

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	735 MPa	107000 psi	
	34.0 MPa @Temperature 1205 Â°C	4930 psi @Temperature 2201 Â°F	
	105 MPa @Temperature 1095 Â°C	15200 psi @Temperature 2003 Â°F	
	190 MPa @Temperature 980 Â°C	27600 psi @Temperature 1800 Â°F	
	325 MPa @Temperature 870 Â°C	47100 psi @Temperature 1600 Â°F	
	440 MPa @Temperature 760 Â°C	63800 psi @Temperature 1400 Â°F	
	505 MPa @Temperature 650 Â°C	73200 psi @Temperature 1200 Â°F	
	555 MPa @Temperature 540 Â°C	80500 psi @Temperature 1000 Â°F	
	375 MPa	54400 psi	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Yield @Strain 0.200 %	@Strain 0.200 %	@Strain 0.200 %	
	27.0 MPa @Strain 0.200 %, Temperature 1205 Â°C	3920 psi @Strain 0.200 %, Temperature 2201 Â°F	
	63.0 MPa @Strain 0.200 %, Temperature 1095 Â°C	9140 psi @Strain 0.200 %, Temperature 2003 Â°F	
	135 MPa @Strain 0.200 %, Temperature 980 Â°C	19600 psi @Strain 0.200 %, Temperature 1800 Â°F	
	170 MPa @Strain 0.200 %, Temperature 650 Â°C	24700 psi @Strain 0.200 %, Temperature 1200 Â°F	
	175 MPa @Strain 0.200 %, Temperature 760 Â°C	25400 psi @Strain 0.200 %, Temperature 1400 Â°F	
	175 MPa @Strain 0.200 %, Temperature 540 Â°C	25400 psi @Strain 0.200 %, Temperature 1000 Â°F	
	185 MPa @Strain 0.200 %, Temperature 870 Â°C	26800 psi @Strain 0.200 %, Temperature 1600 Â°F	
Elongation at Break	50 %	50 %	in 50.8 mm
	50 % @Temperature 760 Â°C	50 % @Temperature 1400 Â°F	in 50.8 mm
	51 % @Temperature 870 Â°C	51 % @Temperature 1600 Â°F	in 50.8 mm
	60 % @Temperature 650 Â°C	60 % @Temperature 1200 Â°F	in 50.8 mm
	61 % @Temperature 540 Â°C	61 % @Temperature 1000 Â°F	in 50.8 mm
	81 %	81 % @Temperature 1800	in 50.8 mm

Mechanical Properties	Metric	English	Comments
	@Temperature 980 Â°C	Â°F	
	89 % @Temperature 1095 Â°C	89 % @Temperature 2003 Â°F	in 50.8 mm
	89 % @Temperature 1205 Â°C	89 % @Temperature 2201 Â°F	in 50.8 mm
Modulus of Elasticity	197 GPa	28600 ksi	RT
	128 GPa @Temperature 1000 Â°C	18600 ksi @Temperature 1830 Â°F	
	136 GPa @Temperature 900 Â°C	19700 ksi @Temperature 1650 Â°F	
	143 GPa @Temperature 800 Â°C	20700 ksi @Temperature 1470 Â°F	
	152 GPa @Temperature 700 Â°C	22000 ksi @Temperature 1290 Â°F	
	159 GPa @Temperature 600 Â°C	23100 ksi @Temperature 1110 Â°F	
	165 GPa @Temperature 500 Â°C	23900 ksi @Temperature 932 Â°F	
	174 GPa @Temperature 400 Â°C	25200 ksi @Temperature 752 Â°F	
	182 GPa @Temperature 300 Â°C	26400 ksi @Temperature 572 Â°F	
	188 GPa @Temperature 200 Â°C	27300 ksi @Temperature 392 Â°F	
	194 GPa @Temperature 100 Â°C	28100 ksi @Temperature 212 Â°F	

Thermal Properties	Metric	English	Comments

Thermal Properties	Metric	English	Comments
CTE, linear	14.3 Âµm/m-Â°C @Temperature 25.0 - 100 Â°C	7.94 Âµin/in-Â°F @Temperature 77.0 - 212 Â°F	
	14.9 Âµm/m-Â°C @Temperature 25.0 - 200 Â°C	8.28 Âµin/in-Â°F @Temperature 77.0 - 392 Â°F	
	15.3 Âµm/m-Â°C @Temperature 25.0 - 300 Â°C	8.50 Âµin/in-Â°F @Temperature 77.0 - 572 Â°F	
	15.8 Âµm/m-Â°C @Temperature 25.0 - 400 Â°C	8.78 Âµin/in-Â°F @Temperature 77.0 - 752 Â°F	
	16.1 Âµm/m-Â°C @Temperature 25.0 - 500 Â°C	8.94 Âµin/in-Â°F @Temperature 77.0 - 932 Â°F	
	16.4 Âµm/m-Â°C @Temperature 25.0 - 600 Â°C	9.11 Âµin/in-Â°F @Temperature 77.0 - 1110 Â°F	
	16.9 Âµm/m-Â°C @Temperature 25.0 - 700 Â°C	9.39 Âµin/in-Â°F @Temperature 77.0 - 1290 Â°F	
	17.3 Âµm/m-Â°C @Temperature 25.0 - 800 Â°C	9.61 Âµin/in-Â°F @Temperature 77.0 - 1470 Â°F	
	17.6 Âµm/m-Â°C @Temperature 25.0 - 900 Â°C	9.78 Âµin/in-Â°F @Temperature 77.0 - 1650 Â°F	
	17.8 Âµm/m-Â°C @Temperature 25.0 - 1000 Â°C	9.89 Âµin/in-Â°F @Temperature 77.0 - 1830 Â°F	
Specific Heat Capacity	0.467 J/g-Â°C	0.112 BTU/lb-Â°F	RT
	0.483 J/g-Â°C @Temperature 100 Â°C	0.115 BTU/lb-Â°F @Temperature 212 Â°F	
	0.500 J/g-Â°C @Temperature 200 Â°C	0.120 BTU/lb-Â°F @Temperature 392 Â°F	
	0.522 J/g-Â°C	0.125 BTU/lb-Â°F	

Thermal Properties	Metric	English	Comments
	@Temperature 300 Â°C	@Temperature 572 Â°F	
	0.531 J/g-Â°C	0.127 BTU/lb-Â°F	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
	0.558 J/g-Â°C	0.133 BTU/lb-Â°F	
	@Temperature 500 Â°C	@Temperature 932 Â°F	
	0.607 J/g-Â°C	0.145 BTU/lb-Â°F	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	
	0.647 J/g-Â°C	0.155 BTU/lb-Â°F	
	@Temperature 700 Â°C	@Temperature 1290 Â°F	
	0.655 J/g-Â°C	0.157 BTU/lb-Â°F	
	@Temperature 800 Â°C	@Temperature 1470 Â°F	
	0.660 J/g-Â°C	0.158 BTU/lb-Â°F	
	@Temperature 900 Â°C	@Temperature 1650 Â°F	
	0.663 J/g-Â°C	0.158 BTU/lb-Â°F	
	@Temperature 1000 Â°C	@Temperature 1830 Â°F	
	0.667 J/g-Â°C	0.159 BTU/lb-Â°F	
	@Temperature 1100 Â°C	@Temperature 2010 Â°F	
	0.671 J/g-Â°C	0.160 BTU/lb-Â°F	
	@Temperature 1200 Â°C	@Temperature 2190 Â°F	
Thermal Conductivity	11.4 W/m-K	79.1 BTU-in/hr-ftÂ²-Â°F	RT
	12.6 W/m-K	87.4 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 100 Â°C	@Temperature 212 Â°F	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0001052 ohm-cm	0.0001052 ohm-cm	RT
	0.0001231 ohm-cm	0.0001231 ohm-cm	
	@Temperature 700 Â°C	@Temperature 1290 Â°F	

Electrical Properties	Metric	English	Comments
	0.0001245 ohm-cm @Temperature 800 Â°C	0.0001245 ohm-cm @Temperature 1470 Â°F	
	0.0001257 ohm-cm @Temperature 900 Â°C	0.0001257 ohm-cm @Temperature 1650 Â°F	
	0.0001266 ohm-cm @Temperature 1000 Â°C	0.0001266 ohm-cm @Temperature 1830 Â°F	
	0.0001278 ohm-cm @Temperature 1100 Â°C	0.0001278 ohm-cm @Temperature 2010 Â°F	
	0.0001287 ohm-cm @Temperature 1200 Â°C	0.0001287 ohm-cm @Temperature 2190 Â°F	

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