Carpenter Custom 630 (17-Cr-4Ni) Precipitation Hardening Stainless Steel, Condition H 1150M (Heated 760°C/2hr/AC then 621°C/4hr/AC)

Category : Metal , Ferrous Metal , Stainless Steel , Precipitation Hardening Stainless , T S10000 Series Stainless Steel

Material Notes:

Data provided by Carpenter Technology Corporation.Custom 630 (17Cr-4Ni) is a martensitic precipitation/age-hardening stainless steel offering high strength and hardness along with excellent corrosion resistance. It has good fabricating characteristics and can be age hardened by a single-step, low temperature treatment. It has been used for a variety of applications including oil field valve parts, chemical process equipment, aircraft fittings, fasteners, pump shafts, nuclear reactor components, gears, paper mill equipment, missile fittings, and jet engine parts. Project 70® stainless Custom 630 is an improved machinability modification.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Carpenter-Custom-630-17-Cr-4Ni-Precipitation-Hardening-Stainless-Steel-Condition-H-1150M-Heated-760C2hrAC-then-621C4hrAC.php

Physical Properties	Metric	English	Comments
Density	7.82 g/cc	0.283 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	293	293	
Hardness, Knoop	308	308	Estimated from Rockwell C
Hardness, Rockwell C	29	29	
Hardness, Vickers	298	298	Estimated from Rockwell C
Tensile Strength, Ultimate	848 MPa	123000 psi	
Tensile Strength, Yield	600 MPa @Strain 0.200 %	87000 psi @Strain 0.200 %	
Elongation at Break	22 %	22 %	
Reduction of Area	66 %	66 %	
Modulus of Elasticity	197 GPa	28600 ksi	H900 Condition
Poissons Ratio	0.272	0.272	
Shear Modulus	77.4 GPa	11200 ksi	Calculated
Charpy Impact	136 J	100 ft-lb	V-notch

Thermal Properties	Metric	English	Comments
	11.9 µm/m-°C	6.61 µin/in-°F	

Thermal Properties	Metric	English	Comments
CTE, linear	@Temperature 21.0 - 93.0 °C	@Temperature 69.8 - 199 °F	
	12.8 µm/m-°C @Temperature 21.0 - 316 °C	7.11 µin/in-°F @Temperature 69.8 - 601 °F	
	13.0 µm/m-°C @Temperature 21.0 - 427 °C	7.22 µin/in-°F @Temperature 69.8 - 801 °F	
Specific Heat Capacity	0.419 J/g-°C @Temperature 0.000 - 100 °C	0.100 BTU/lb-°F @Temperature 32.0 - 212 °F	condition H 900
Thermal Conductivity	17.9 W/m-K @Temperature 149 °C	124 BTU-in/hr-ft²-°F @Temperature 300 °F	condition H 900
	22.6 W/m-K @Temperature 482 °C	157 BTU-in/hr-ft²-°F @Temperature 900 °F	condition H 900

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.070 %	<= 0.070 %	
Chromium, Cr	15 - 17.5 %	15 - 17.5 %	
Copper, Cu	3.0 - 5.0 %	3.0 - 5.0 %	
Iron, Fe	73 %	73 %	as remainder
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Nb + Ta	0.15 - 0.45 %	0.15 - 0.45 %	
Nickel, Ni	3.0 - 5.0 %	3.0 - 5.0 %	
Niobium, Nb (Columbium, Cb)	<= 0.45 %	<= 0.45 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	
Tantalum, Ta	<= 0.45 %	<= 0.45 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000770 ohm-cm	0.0000770 ohm-cm	for condition H 900

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