Carpenter Custom Age 625 PLUS® Nickel-Base Alloy, Aged 732°C (1350°F)/4hr/AC

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Data provided by Carpenter Technology Corporation.Custom Age 625 PLUS® alloy is a precipitation hardenable, nickel-base alloy which, in many environments, displays corrosion resistance similar to that of Alloy 625 and superior to that of Alloy 718. A yield strength (0.2% offset) above 120 ksi (827 MPa) can be obtained by aging without prior warm or cold working. The precipitation hardening capability is particularly important in applications where large-section size or intricate shape precludes warm working. In the age hardened (high strength) condition, Custom Age 625 PLUS alloy offers exceptional resistance to stress corrosion cracking as well as general, pitting and crevice corrosion.Custom Age 625 PLUS alloy could be considered for applications where severely corrosive environments are a concern, such as those encountered in deep sour gas wells as well as in a variety of refinery and chemical process industry applications. In addition, Custom Age 625 PLUS alloy could be considered a candidate for use in marine environments, where Alloy 625 has been used successfully. The higher strength capability of Custom Age 625 PLUS alloy may be particularly useful for fasteners and shafts.Custom Age 625 PLUS® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Carpenter-Custom-Age-625-PLUS-Nickel-Base-Alloy-Aged-732C-1350F4hrAC.php

Physical Properties	Metric	English	Comments
Density	8.40 g/cc	0.303 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	290	290	Estimated from Rockwell C for 3000 kg load, 10 mm ball Brinell measurement.
Hardness, Knoop	315	315	Estimated from Rockwell C
Hardness, Rockwell C	30	30	
Hardness, Vickers	304	304	Estimated from Rockwell C
Tensile Strength, Ultimate	1117 MPa	162000 psi	
Tensile Strength, Yield	710 MPa @Strain 0.200 %	103000 psi @Strain 0.200 %	
Elongation at Break	48 %	48 %	In 4D
Reduction of Area	65 %	65 %	
Modulus of Elasticity	207 GPa @Temperature 23.0 °C	30000 ksi @Temperature 73.4 °F	
	690 MPa	100000 psi	

Mechanical Properties	Metric	English	Comments
Fatigue Strength	@# of Cycles 5.00e+6	@# of Cycles 5.00e+6	smooth, axial

Thermal Properties	Metric	English	Comments
CTE, linear	12.6 µm/m-°C @Temperature 25.0 - 100 °C	7.00 µin/in-°F @Temperature 77.0 - 212 °F	
	13.4 µm/m-°C @Temperature 25.0 - 300 °C	7.44 µin/in-°F @Temperature 77.0 - 572 °F	
	14.0 µm/m-°C @Temperature 25.0 - 500 °C	7.78 µin/in-°F @Temperature 77.0 - 932 °F	
Specific Heat Capacity	0.418 J/g-°C	0.0999 BTU/lb-°F	
Melting Point	1257 - 1356 °C	2295 - 2473 °F	
Solidus	1257 °C	2295 °F	
Liquidus	1356 °C	2473 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	<= 0.35 %	<= 0.35 %	
Carbon, C	<= 0.030 %	<= 0.030 %	
Chromium, Cr	19 - 22 %	19 - 22 %	
Iron, Fe	5.0 %	5.0 %	as remainder
Manganese, Mn	<= 0.20 %	<= 0.20 %	
Molybdenum, Mo	7.0 - 9.5 %	7.0 - 9.5 %	
Nickel, Ni	59 - 63 %	59 - 63 %	
Niobium, Nb (Columbium, Cb)	2.75 - 4.0 %	2.75 - 4.0 %	
Phosphorous, P	<= 0.015 %	<= 0.015 %	
Silicon, Si	<= 0.20 %	<= 0.20 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	
Titanium, Ti	1.0 - 1.6 %	1.0 - 1.6 %	

Electrical Properties	Metric	English	Comments

Electrical Properties	Metric	English	Comments
	1.00E+299 ohm-cm	1.00E+299 ohm-cm	

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