

Crucible Compaction Metals P/M 625M Corrosion Resistant Alloy

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

P/M 625M (chemically, UNS N07626) is produced by the state-of-the-art Crucible P/M process: inert gas atomization, coupled with consolidation by hot isostatic pressing (HIP) and/or extrusion. The advanced Crucible powder consolidation operation guarantees a fully dense, fine grained product. Crucible custom crafted parts can be produced with shorter lead times and less user costs than comparable conventional alloys. Crucible P/M 625M is a patented composition designed to take advantage of the aging response associated with rapid solidification rate powder metallurgy technology. Those elements (Al, Cb, and Ti) which effect the precipitation reactions have been optimized to achieve yield strengths above 120 ksi. The rest of the composition has been balanced to maintain good corrosion resistance. P/M 625M offers both a high strength level, like that of alloy 718, and good corrosion resistance, like that of Crucible P/M 625, in one alloy. Engineers and designers no longer have to choose one or the other. Since Crucible produces this alloy by powder metal techniques, lower total costs are a reality. If material is purchased as a near net shape or a clad product, less weight has to be bought. This makes fabrication easier and significantly lowers over manufacturing cost. Advantages: Near new shapes Fastener material Excellent corrosion resistance Excellent strength Flexibility in design NACE MR-01-75 approved Information provided by Crucible Compaction Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Compaction-Metals-PM-625M-Corrosion-Resistant-Alloy.php

Physical Properties	Metric	English	Comments
Environmental Stress Crack Resistance	720 hour	720 hour	No Failure; HIP+HT; Rockwell Hardness C - 40; Test Type - C-Ring; Test Condition - 25% NaCl in H ₂ O + a gas mixture of 15% H ₂ S + 15% CO ₂ + 70% N ₂ + 1 g/l elemental
	@Temperature 24.0 °C	@Temperature 75.2 °F	
	920 hour	920 hour	No Failure; HIP+HT; Rockwell Hardness C - 40; Test Type - C-Ring; Test Condition - 25% NaCl in H ₂ O + a gas mixture of 15% H ₂ S, 15% CO ₂ and 70% N ₂ coupled to carbo
	@Temperature 24.0 °C	@Temperature 75.2 °F	
	4320 hour	4320 hour	No Failure; HIP+HT; Rockwell Hardness C - 40; Test Type - C-Ring; Test Condition - 25% NaCl in H ₂ O + a gas mixture of 15% H ₂ S, 15% CO ₂ and 70% N ₂ coupled to carbo
	@Temperature 24.0 °C	@Temperature 75.2 °F	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	850 MPa	123000 psi	As-Extruded
	900 MPa	131000 psi	As-HIP
	1300 MPa	189000 psi	Double Age

Mechanical Properties	400 MPa Metric	58000 psi English	Comments
	@Strain 0.200 %	@Strain 0.200 %	
	500 MPa	72500 psi	As-HIP
	@Strain 0.200 %	@Strain 0.200 %	
	950 MPa	138000 psi	Double Age
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	22 %	22 %	Double Age
	58 %	58 %	As-HIP
	63 %	63 %	As-Extruded; 0.2%
Reduction of Area	30 %	30 %	Double Age
	50 %	50 %	As-HIP
	60 %	60 %	As-Extruded
Charpy Impact	39.3 J	29.0 ft-lb	Material Condition - HIP+HT
	36.6 J	27.0 ft-lb	Material Condition - ST&A ₄
	@Temperature -17.7 °C	@Temperature 0.140 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.35 - 0.65 %	0.35 - 0.65 %	
Carbon, C	<= 0.030 %	<= 0.030 %	
Chromium, Cr	20 - 21 %	20 - 21 %	
Cobalt, Co	<= 1.0 %	<= 1.0 %	
Copper, Cu	<= 0.50 %	<= 0.50 %	
Iron, Fe	<= 5.0 %	<= 5.0 %	
Manganese, Mn	<= 0.50 %	<= 0.50 %	
Molybdenum, Mo	8.0 - 9.5 %	8.0 - 9.5 %	
Nickel, Ni	55.72 - 59.27 %	55.72 - 59.27 %	As Balance
Niobium, Nb (Columbium, Cb)	4.75 - 5.25 %	4.75 - 5.25 %	
Nitrogen, N	<= 0.015 %	<= 0.015 %	
Phosphorous, P	<= 0.020 %	<= 0.020 %	

<small>Silicon, Si</small> Component Elements Properties	<small><= 0.50 %</small> Metric	<small><= 0.50 %</small> English	Comments
Sulfur, S	<= 0.015 %	<= 0.015 %	
Titanium, Ti	0.050 - 0.30 %	0.050 - 0.30 %	

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