Kaiser 7068 T6, T6511 Rod & Bar

Category : Metal , Nonferrous Metal , Aluminum Alloy , 7000 Series Aluminum Alloy

Material Notes:

Alloy 7068 offers some of the highest strength mechanical properties available in an extruded product. Intended for aerospace, ordnance and light weight recreational applications where extremely high strength is required. Property levels are typically in the 100 ksi range for ultimate strengths.Ratings A through E are relative ratings in decreasing order of merit, based on exposures to sodium chloride solution by intermittent spraying or immersion. Alloys with A and B ratings can be used in industrial and seacoast atmospheres without protection. Alloys with C, D and E ratings generally should be protected at least on faying surfaces.Stress-corrosion cracking ratings are based on service experience and laboratory tests of specimens exposed to the 3.5% sodium chloride alternate immersion test.A= No known instance of failure in service or in laboratory tests.B= No known instance of failure in service; limited failures in laboratory tests of short transverse specimens.C= Service failures with sustained tension stress acting in short transverse direction relative to grain structure; limited failures in laboratory tests of long transverse specimens. D= Limited service failures with sustained longitudinal or long transverseRatings A through D for Workability (cold), A through E for Machinability and A through C for Anodize Response, are relative ratings in decreasing order of merit.Ratings A through D for Weldability and Brazeability are relative ratings defined as follows:A= Generally weldable by all commercial procedures and methods.B= Weldable with special techniques or for specific applications that justify preliminary trials or testing to develop welding procedure and weld performance.C= Limited weldability because of crack sensitivity or loss in resistance to corrosion and mechanical properties.D= No commonly used welding methods have been developed.AMS 4331

Order this product through the following link:
http://www.lookpolymers.com/polymer_Kaiser-7068-T6-T6511-Rod-Bar.php

Physical Properties	Metric	English	Comments
Density	2.85 g/cc	0.103 lb/inÂ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	190 @Load 500 kg, Thickness 10.0 mm	190 @Load 1100 lb, Thickness 0.394 in	
Tensile Strength, Ultimate	710 MPa @Diameter 12.7 mm	103000 psi @Diameter 0.500 in	
Tensile Strength, Yield	683 MPa @Diameter 12.7 mm	99100 psi @Diameter 0.500 in	
Elongation at Break	9.0 % @Diameter 12.7 mm	9.0 % @Diameter 0.500 in	4D
Fracture Toughness	16.482 MPa-mÂ½	15.000 ksi-inÂ½	T-L
	27.471 MPa-mÂ½	25.000 ksi-inÂ½	L-T
Shear Strength	365 MPa	52900 psi	Ultimate

Mechanical Properties	Metric	English	Comments

Thermal Properties	Metric	English	Comments
CTE, linear	23.4 Âµm/m-Â°C @Temperature 20.0 - 100 Â°C	13.0 Âµin/in-Â°F @Temperature 68.0 - 212 Â°F	
Specific Heat Capacity	1.05 J/g-Â°C @Temperature 100 Â°C	0.250 BTU/lb-Â°F @Temperature 212 Â°F	
Thermal Conductivity	190 W/m-K @Temperature 20.0 Â°C	1320 BTU-in/hr-ftÂ²-Â°F @Temperature 68.0 Â°F	
Melting Point	476 - 635 Â°C	889 - 1180 Â°F	
Solidus	476 Â°C	889 Â°F	
Liquidus	635 Â°C	1180 Â°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	85.48 - 88.85 %	85.48 - 88.85 %	As Balance
Chromium, Cr	<= 0.050 %	<= 0.050 %	
Copper, Cu	1.6 - 2.4 %	1.6 - 2.4 %	
Iron, Fe	<= 0.15 %	<= 0.15 %	
Magnesium, Mg	2.2 - 3.0 %	2.2 - 3.0 %	
Manganese, Mn	<= 0.10 %	<= 0.10 %	
Other, each	<= 0.050 %	<= 0.050 %	
Other, total	<= 0.15 %	<= 0.15 %	
Silicon, Si	<= 0.12 %	<= 0.12 %	
Titanium, Ti	<= 0.10 %	<= 0.10 %	
Zinc, Zn	7.3 - 8.3 %	7.3 - 8.3 %	
Zirconium, Zr	0.050 - 0.15 %	0.050 - 0.15 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000494 ohm-cm @Temperature 20.0 Â°C	0.00000494 ohm-cm @Temperature 68.0 Â°F	

Descriptive Properties	Value	Comments
Anodize Response3	B	
Arc Weldability4	D	
Brazeability4	D	
Cold Workability3	D	
Gas Weldability4	D	
General Corrosion Resistance1	C	
Machinability3	C	
Spot Weldability4	B	
Stress Corrosion Resistance2	C	
Volumetric CTE mÂ³/mÂ³-K	0.000068	68Â°F/20Â°C

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