

Superior Die Set FORTAL® HR Aluminum Alloy

Category : Metal , Nonferrous Metal , Aluminum Alloy

Material Notes:

Description: FORTAL is a high strength, lightweight, easy to machine alloy, originally developed to be used in the aerospace industry. It can be found whenever a structure is highly solicited and doesn't require a very high ratio of resistance/mass. FORTAL offers machinability, high resistance to corrosion, and leads to increased productivity. FORTAL's modulus of elasticity is one third that of steel, and can absorb three times as much shock and vibration in its elastic phase. FORTAL is solution heat-treated, stabilized, artificially aged and stress relieved by stretching. Application: FORTAL is an ideal material for all types of products and tooling since it is stronger than 1020 steels. Information provided by Superior Die Set.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Superior-Die-Set-FORTAL-HR-Aluminum-Alloy.php

Physical Properties	Metric	English	Comments
Density	2.77 g/cc	0.100 lb/in ³	
Thickness	14000 - 92000 microns	551 - 3620 mil	intermediate sizes also available

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	145	145	
	150	150	
Tensile Strength, Ultimate	540.0 MPa	78320 psi	
Tensile Strength, Yield	480 MPa	69600 psi	
Elongation at Break	10 %	10 %	
Modulus of Elasticity	71.98 GPa	10440 ksi	
Fatigue Strength	80.0 MPa	11600 psi	test bar (22mm diam.) notched (Kt = 3)
	@# of Cycles 1.00e+8	@# of Cycles 1.00e+8	
Fatigue Strength	160 MPa	23200 psi	test bar (22mm diam.) unnotched (Kt = 1)
	@# of Cycles 1.00e+8	@# of Cycles 1.00e+8	
Shear Strength	331 MPa	48000 psi	

Thermal Properties	Metric	English	Comments
CTE, linear	23.49 $\mu\text{m/m-}^\circ\text{C}$	13.05 $\mu\text{in/in-}^\circ\text{F}$	
	@Temperature 20.0 - 100 $^\circ\text{C}$	@Temperature 68.0 - 212 $^\circ\text{F}$	
Specific Heat Capacity	0.958 J/g- $^\circ\text{C}$	0.229 BTU/lb- $^\circ\text{F}$	

Thermal Properties	Metric	English	Comments
Thermal Conductivity	130 W/m-K	500 BTU-in/hr-ft ² -Å°F	
Maximum Service Temperature, Air	60.0 Å°C	140 Å°F	Recommended

Component Elements Properties	Metric	English	Comments
Aluminum, Al	90.07 %	90.07 %	
Chromium, Cr	0.23 %	0.23 %	
Copper, Cu	1.6 %	1.6 %	
Magnesium, Mg	2.5 %	2.5 %	
Zinc, Zn	5.6 %	5.6 %	

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