

Materion ToughMet® T3 AT90 (OD)

Category : Metal , Nonferrous Metal , Copper Alloy

Material Notes:

ToughMet® is Brush Wellman's solution for severe service material problems. By applying their EquaCast® process, tailored alloying additions and spinodal hardening technology, they have engineered ToughMet® to provide attributes beyond those typically found in a high-strength copper alloy. Exceptional resistance to corrosion and cavitation Outstanding lubricity and durability in demanding applications Highly uniform composition in all product forms Uniform microstructure in a variety of wrought shapes and sizes ToughMet® 3 in the wrought and spinodally hardened (AT) condition exhibits tensile strength up to 140 ksi and hardness up to HRc 34 in a Copper-15% Nickel-8% Tin alloy with excellent machinability. Information supplied by Brush Wellman Engineered Materials. Brush Engineered Materials Inc. changed its name to Materion Corporation in March 2011.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Materion-ToughMet-T3-AT90-OD.php

Physical Properties	Metric	English	Comments
Density	8.94 g/cc	0.323 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	>= 260	>= 260	3000 kg, 10 mm ball
Tensile Strength, Ultimate	>= 758 MPa	>= 110000 psi	
Tensile Strength, Yield	>= 621 MPa @Strain 0.200 %	>= 90000 psi @Strain 0.200 %	
Elongation at Break	>= 15 %	>= 15 %	
Modulus of Elasticity	128 GPa	18500 ksi	
Poissons Ratio	0.33	0.33	
Fatigue Strength	414 MPa @# of Cycles 1.00e+6	60000 psi @# of Cycles 1.00e+6	R = -1, 105 ksi YS
Shear Modulus	47.9 GPa	6950 ksi	calculated

Thermal Properties	Metric	English	Comments
CTE, linear	16.0 µm/m-°C @Temperature 21.1 - 102 °C	8.90 µin/in-°F @Temperature 70.0 - 215 °F	
Thermal Conductivity	38.0 W/m-K	264 BTU-in/hr-ft ² -°F	

Component Elements Properties	Metric	English	Comments
Copper, Cu	77 %	77 %	As remainder
Nickel, Ni	15 %	15 %	
Tin, Sn	8.0 %	8.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000192 ohm-cm	0.0000192 ohm-cm	Conductivity is 9% IACS
Magnetic Permeability	<= 1.001	<= 1.001	

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