TOUGHMET 3 CX105 ASTM B 505 C96900

CONTINUOUS CAST ROD HOLLOW & PLATE

James Coppell Lee

MATERION

High Strength, Anti-Galling Properties, Low Magnetic Susceptibility, Excellent Machinability
Corrosion Resistance, Superior Bearing Properties. Strength and Lubricity

Toughmet is an alloy for tough environments and will provide more up-time, greater reliability and better design flexibility compared to other copper alloys or steel.
Toughmet outlasts both Steel and Aluminium Bronze in almost all applications.
Toughmet operates in a variety of conditions:

- **Under high loads at low or high speed.**
- **Lubricated, intermitted lubrication or lubrication starved**
- **At temperatures ranging from 205 C to 260 C**
- **Mated with a variety of material**

CHEMICAL COMPOSITION		
Copper	**Nickel**	**Tin**
REM	15%	8%

MINIMUM MECHANICAL PROPERTIES			
ULTIMATE TENSILE STRENGTH	**Under 4”**	**110 ksi**	**758 MPa**
	Over 4”	**99 ksi**	**683 MPa**
YIELD STRENGTH (0.2% OFF SET)	**Under 4”**	**105 ksi**	**724 MPa**
	Over 4”	**94.5 ksi**	**652 MPa**
ELONGATION	**Under 4”**	**4%**	
	Over 4”	**4%**	
HARDNESS		**28 RC**	
ELASTIC MODULUS		**18.5 x 10_3 ksi**	**128 x 10_3 MPa**

TYPICAL MECHANICAL PROPERTIES - COMPARISON												
Material	UNS Number	Chemical Composition %	Yield Strength		Tensile Strength		Elongation (%)	Hardness	Modulus of Elasticity		Fatigue Strength (10 Cycles)	
			(ksi)	(MPa)	(ksi)	(MPa)			(10^3 ksi)	(10^3 MPa)	(ksi)	(MPa)
ToughMet® 3	C96900	15 Ni, 8 Sn, Balance Cu	100-120	690-830	105-130	724-900	15-2	HRC 26-34	18.5	128	40	275
Manganese Bronze	C86300	22-28 Zn, 2-4 Fe, 5-8 Al, 2.5-5 Mn, 1 Ni, 60-66 Cu	60	415	110	760	12	HRB 90	14.2	98	25	170
Aluminium Bronze	C95400	3-5 Fe, 10-11.5 Al, 1.5 Ni, .5 Mn, 83 Min Cu	30	205	75	515	12	BHN 150	15.5	105	28	195
Leaded Tin Bronze	C93200	6.3-7.5 Sn, 6-8 Pb, 1-4 Zn, 81-85 Cu	14	95	30	205	10	BHN 65	14.5	100	10	70