

## ToughMet® 2 Alloy

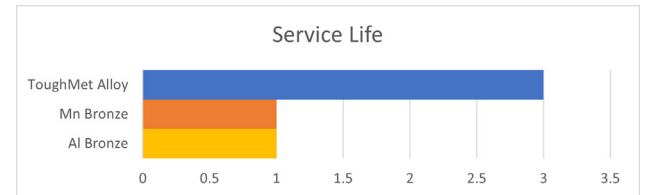
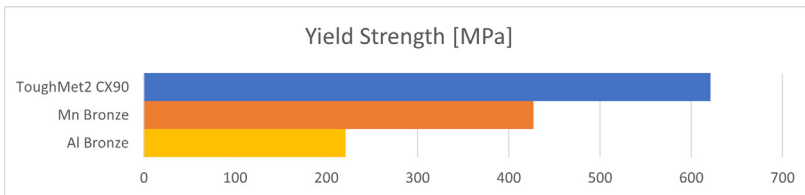
### For Heavy Equipment Bushings & Bearings

ToughMet alloys have been used in mining, forestry, construction and manufacturing equipment for over 20 years. The ToughMet 2 material is a high performance, cost effective copper-nickel-tin alloy solution engineered to hold up to heavy-duty use. Compared to conventional materials like bronzes and steels, bearings made from ToughMet 2 help your equipment run longer between maintenance cycles - even in the most demanding environments.



### Outperforms Traditional Materials

The charts below show the performance between common bearing alloys and our ToughMet 2 alloy.



### ToughMet 2 Alloy Cast Size Range

- Plate: Thicknesses from ¾" to 5.25" (19 to 133.35 mm), width up to 20" (508 mm), lengths up to 60" (1.52 m).
- Rod: Diameter from 2" to 12" (51 to 305 mm), lengths up to 12 ft. (3.66 m).
- Tube: Outside diameter from 2" to 15" (51 to 381 mm), minimum wall thickness approximately 10% to 12% of the outside diameter.
- For additional sizes and more shape options, please contact Materion's sales team.

### The ToughMet Advantage

- **Increased productivity** for more tons per hour, more load capacity and a decreased need for lubrication.
- **Enhanced availability** enables more hours of uptime per year and longer pin and bushing life.
- **Improved reliability** means fewer surprises, a more predictable life and maintenance schedule, and better durability.
- **Exceptional resistance** to corrosion, galling and cavitation.
- **Highly uniform composition** in all product forms.
- **Available** in a wide range of continuous cast shapes and sizes.

### Key Properties:

- Low friction
- Non-galling
- Wear resistance
- High strength
- Temperature stability
- Corrosion resistance
- Thermal conductivity
- Good machinability



### Specifications

ASTM B505  
UNS C96970

# Product Brief continued

## Design Recommendations

Component	Surface Finish Dependant on Operating Speed		Hardness (Minimum)	Hardness (Recommended)
	V < 1 m/s	V > 1 m/s	[HRC]	[HRC]
Shaft	Ra ≤ 0.40	Ra ≤ 0.25	40	60
Bushing	Ra ≤ 1.60	Ra ≤ 0.40	/	/

Lubrication: Any lubricant compatible with copper alloys.

## Machining Recommendations

Operation	Cutting Speed (m/min)	Feed Rate (mm/rev)	Depth of Cut (mm)	Tool Material
Turning	90 - 900	0.15 - 0.50	2.50	C-2
Drilling	99 - 900	0.15 - 0.50	/	C-2
Tapping	4.50	0.15 - 0.50	/	C-2

## More Information

Read more about the properties of our ToughMet 2 material in our online library:



[Data Sheet: ToughMet 2 CX  
Tempers Rod, Tube & Rectangles](#)



[Case Study: Hitachi Construction  
Machinery Service Life](#)



[Case Study: Bucyrus International  
Mining Shovels Service Life](#)



[Case Study: H.C. Starck  
Extrusion Press Service Life](#)

## Compliance



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