



**ECO BRONZE™**  
HIGH PERFORMANCE LEAD-FREE BRONZE



# TESTED TO BE TOUGH STUFF

YOUR LEAD-FREE/COST COMPETITIVE SOLUTION

## SLIDING BLOCK ON RING WEAR LOSS AND DYNAMIC COEFFICIENT OF FRICTION

ECO BRONZE™ has been independently tested and proven to be a superb alternative to the standard C93200 leaded tin bronze alloy. Best of all, it's an environmentally-friendly, lead-free and RoHS compliant bearing bronze. The Sliding Block on Ring test is designed to determine wear loss on a steel surface. ECO BRONZE and other alloys were tested by an independent laboratory for wear loss performance.

Alloy	Cu (%)	Pb (%)	Sn (%)	Zn (%)	Fe (%)	Si (%)	Bi (%)	Al (%)	P (%)	UTS (ksi)	YS (ksi)	E (%)	Brinell 500kg Load	P Max	V Max	PV Max
C87850*	76			21		3			0.1	65	25	8	103	4,400	450	100,000
C93200*	83	7	7	3						35	20	10	65	4,000	750	75,000
C95400*	85				4			11		85	32	12	150	6,000	250	125,000
C89835	87		6.5	3			2.5			30	14	6	65	4,000	500	75,000

\* ASTM B505 nominal chemistry, minimum mechanical properties

### SLIDING BLOCK ON RING WEAR LOSS TESTING

This test is designed to determine the wear loss against a hard counter face.

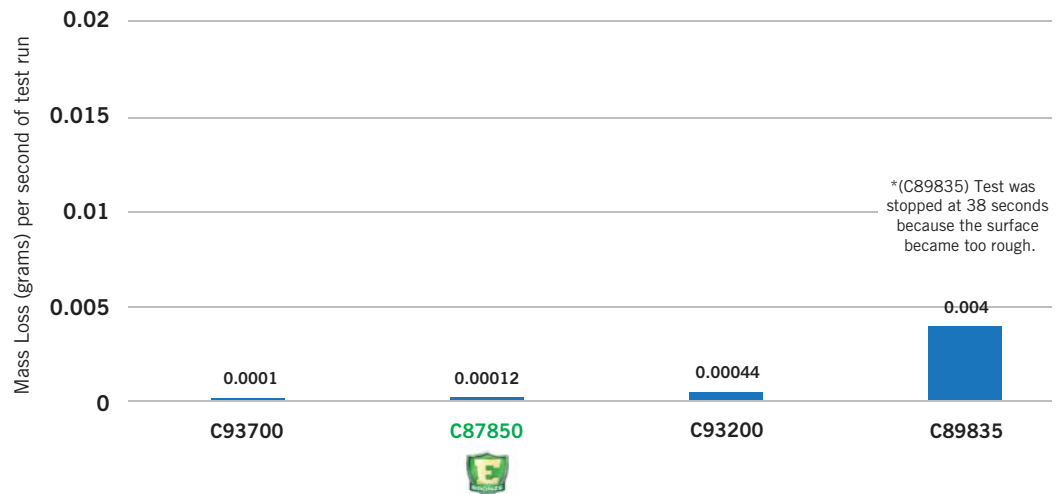
**TEST:** ECO BRONZE and other alloys were tested by an independent laboratory to the ASTM G77 methodology, against a 4140 steel with a hardness of HRC 28. The bronze ring rotated at 72 rpm with the applied load starting at zero and increasing at a rate of 629 pounds/minute to a maximum of 524 pounds, reaching the maximum in 50 seconds. The maximum load was held constant for 2 minutes.

**RESULTS:** The graph shows the amount of material lost to the steel block. ECO BRONZE proved to be an effective bearing material.

### Sliding Block on Ring Wear Loss Per Second

(Contact surface = 4140 Steel @ HRC 28; 524 lb force)

Test Duration = 120 seconds\*



## DYNAMIC COEFFICIENT OF FRICTION

ECO BRONZE was put through a variety of performance tests by independent laboratories to prove its suitability as a quality bearing material, including dynamic coefficient of friction.

TEST

**TEST:** Tests were performed on ECO BRONZE and other bearing alloys in a simulated lubricated environment using a disc-style tribometer model TTMO1 utilizing SAE 50 oil. The counter face material was 4140 steel with a hardness HRC 50, and ground to Ra 12µin. surface finish.

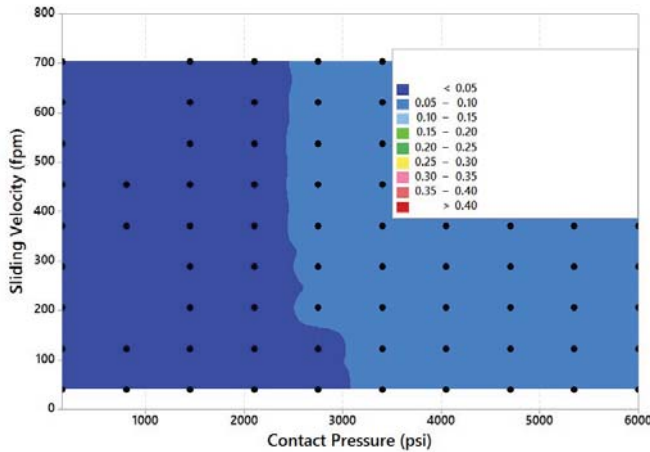
RESULTS

**RESULTS:** The tests show that C87850 ECO BRONZE dynamic coefficient of friction with SAE-50 oil outperformed the traditional lead-free bronze bearing materials in this study. Other tests and alloys were involved; please call your Bunting Bearings or Chase Brass Representative for more information.

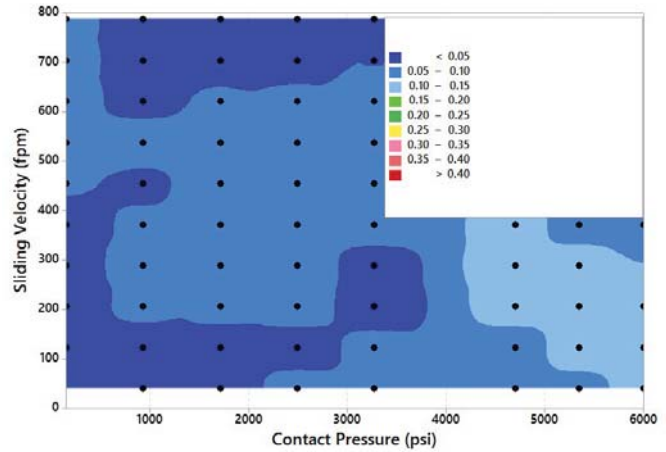
- Optimal low friction
- Good low friction
- Moderately low friction
- Acceptable friction
- Less acceptable friction
- Moderately high friction
- High friction
- Excessive friction



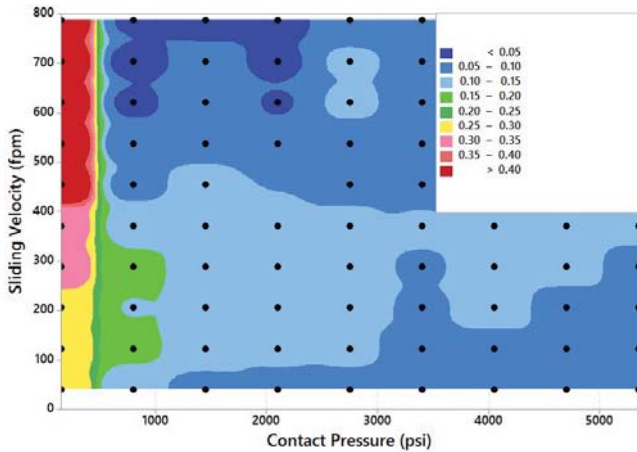
**C87850**



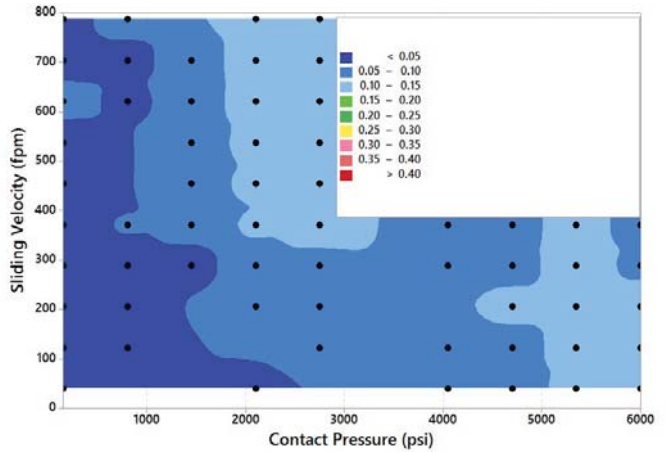
**C93200**



**C95400**



**C89835**



MADE IN THE USA



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