

MAGNOLIA

METAL CORPORATION



CONTINUOUS CAST BRONZE

SERVICE FROM STOCK • CONSISTENT QUALITY • OVER 300 SIZES AVAILABLE

www.magnoliabronze.com

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MAGNOLIA CONTINUOUS CAST BRONZE: BETTER TWO WAYS

A BETTER ALLOY - CDA-936

(Also known as Modified SAE 64)

The Magnolia Story

Prior to World War II, the standard-bearing bronze alloy was CDA 937 (SAE 64). Designed initially for railroad and heavy equipment use it was recognized as the finest bearing metal for high speed and heavy pressure applications. Japanese control of tin mines during the war tightened tin supplies, and a lower tin-content alloy, CDA 932, was temporarily adopted by the government as "War Emergency Alloy 2-X," until the crisis was over. The new alloy was so difficult to machine that a booklet was published instructing machinists to initially cut under the outer zinc crust before attempting to finish machining. Magnolia Metal, due to customer demands, developed a different alloy, our CDA 936 (first known as Modified SAE 64), designed to have the same physical properties as CDA 937. The alloys compare as follows:

CHEMICAL COMPOSITION

	COPPER	TIN	LEAD	ZINC
CDA 937 (SAE 64)	78-82%	9.0-11%	9.0-11%	≤1%
CDA 936 (MOD 64)	79-83%	6.0-8.0%	11-13%	≤1%
CDA 932 (SAE 660)	81-85%	6.3-7.5%	6.0-8.0%	2-4%

CDA 936 SUPERIOR TO CDA 932 BECAUSE:

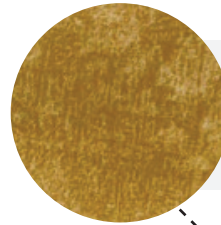
- Higher lead content gives better lubricating properties and provides better co-efficient of friction. Bearings run cooler, last longer.
- Acid resisting to sulfite fluids due to lower zinc. CDA 936 can be used in some areas where CDA 932 would corrode.
- 13% more freely machining.

LABORATORY TESTS PROVE IT!

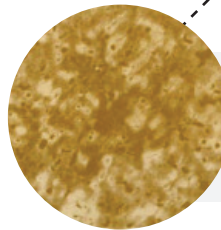
Tests conducted by a national laboratory verify that Magnolia CDA 936 consistently outperforms CDA 932 (SAE 660) under the most difficult conditions in test after test.

A BETTER PROCESS - CDA-936

Bronze is really a "mixture," not an alloy; the faster it cools, the more homogenous the mix. The continuous cast process permits the metal to chill quickly, producing an even or isotropic crystal structure. Blowholes and inclusions are eliminated; the customer is assured of uniformity and reliability unobtainable in sand casting.



Magnolia Continuous-Cast Bronze. Uniform crystal structure. Absence of segregated lead. A perfect bearing metal photo at 500 diameters (unretouched).



Conventional Sand-Cast Bronze (same alloy) Conglomerate sponge structure showing segregated lead and Cu-Sn crystals. Photo at 500 diameters (unretouched).

COMPARE THESE TWO UNRETOUCHED PHOTOGRAPHS

COMPARE: Typical Physical Characteristics

	TENSILE STRENGTH	YIELD POINT	BRINELL	ELONGATION IN 2"
CDA 936 Continuously Cast	35,000 psi	21,000 psi	65	15%
CDA 932 Sand Cast	35,000 psi	18,000 psi	65	15%

- Bearings were run with inadequate lubrication until temperatures exceeded 400° F. Under these severe conditions, in some instances the CDA 932 wore out three times faster than CDA 936. In no test did CDA 932 outperform CDA 936.
- Additional tests by a major university show a "significantly lower" kinetic coefficient of friction for CDA 936 - "on the order of 20%" lower.
- And more new tests also prove that Magnolia's CDA 936 alloy has a significantly higher failure resistance than CDA 932. Despite extreme circumstances operating without lubrication, CDA 936 ran an average of 78% longer than CDA 932, and with none of the incidents of severe shaft scoring found among the CDA 932 tests.

SAVE WITH MAGNOLIA CONTINUOUS CAST BRONZE!

1. **SAVE ON MACHINING!**

Magnolia Continuous Cast Bronze can be finish machined at high speeds and feeds. A skin cut will finish machine Magnolia Continuous-Cast Bronze to nominal size. It is never necessary to finish machine a second time since Magnolia CDA 936 (Modified SAE 64) holds the finished dimensions to which it is machined. With its lower zinc content, CDA 936 machines 13% more freely than CDA 932 (SAE 660). This means longer tool life and less machine time in your shops.

2. **SAVE WITH LESS WEIGHT**

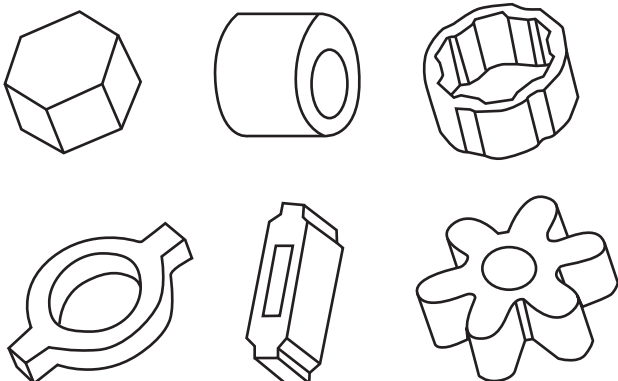
Magnolia Continuous Cast Bronze finish machines to the size you order. It is never necessary to purchase "oversize" castings if you buy Magnolia Continuous Cast Bronze. Purchase the exact diameters and lengths to which you want to finish machine. Let Magnolia cut your blanks, eliminating wasteful scrap ends.

3. **SAVE BY RECYCLING**

Magnolia will buy back scrap if kept separate and dry. Reduce your total cost by returning solids and clean turnings directly to the mill.

4. **SAVE WITH SPECIAL SHAPES**

Let a Magnolia sales engineer or distributor help you design a continuous cast part to more closely resemble your finished parts.



MAGNOLIA CAN: FINISH MACHINE TO YOUR SPECIFICATIONS SERVE ALL YOUR FINISHED PART NEEDS



COMPUTER NUMERICALLY CONTROLLED LATHES

- 10 to 1,000 pieces, up to 10" O.D.
- Capable of intricate detailing and exacting tolerances.

FINISHED PARTS OR BLANKS UP TO 34" O.D.



FULL DETAILING

- Graphiting
- Milling
- Grooving
- Drilling
- Chamfering
- Split & Sweats
- Lugs
- Precision Guaranteed
- QC Certification



SERVICE FROM STOCK!
OVER 300 SIZES AVAILABLE!

MAGNOLIA GUARANTEE NO REJECTS

Magnolia Bronzes are guaranteed to be free from all defects. In Magnolia Bronze, there are no blow holes, no sand spots, no segregated elements, no flaws . . . no under-surface faults of any kind to cause rejection.

In accordance with industry practices, this guarantee is limited to free replacement of material returned. Magnolia's quality control procedure has resulted in returns of less than ½ of 1% of all bronze shipped over the last 10 years. This standard of excellence, combined with our special alloy and our unique casting process, assures you of the best possible value in bearing bronze.

TOLERANCES

METAL ALLOWANCES:

UP to 4"	+1/32" OD	-1/32" ID
4" thru 5"	+1/16" OD	-1/16" ID
OVER 5" to 8"	+3/32" OD	-3/32" ID
8" and up	+1/8" OD	-1/8" ID
+ to - .010 on special order		

BAR LENGTHS

Solid and tubular Magnolia Continuous Cast Bronze is stocked in standard 105" lengths for immediate shipment. Sizes are available through 12½" O.D. Lengths available up to 144".

STRAIGHTNESS

3/8" are-depth in 5'.

MAGNOLIA ALSO MAKES:

- Large bearings up to 34" O.D.
- Completely finished bronze parts from 1" to 34" O.D.
- Lead and tin-base babbitts

SPECIAL ALLOYS:

Magnolia also casts and carries CDA 937 (Cert 64), #120 High Lead Bronze (20% lead) similar to an SAE 67 Alloy, AA Hard or CDA 903, SAE 63 and CDA 932. In addition to these standard alloys, Magnolia is capable of casting most tin bronzes and leaded tin bronzes on a special order basis. We will gladly quote promptly.

MANUFACTURED BY
MAGNOLIA METAL CORPORATION
SINCE 1886

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www.magnoliabronze.com

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