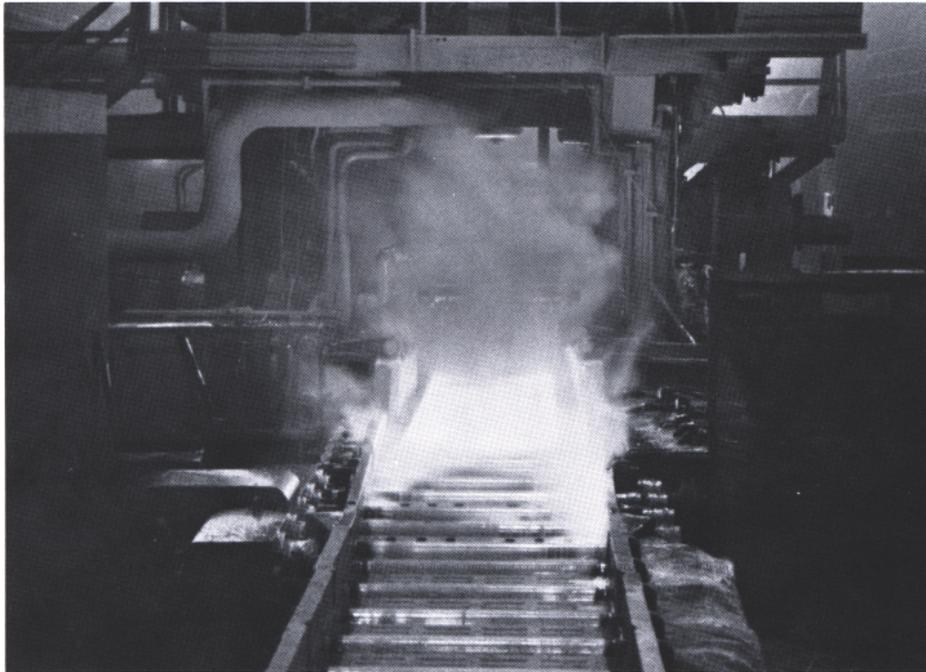


# ZA-12 ZINC BEARINGS OUTPERFORM BRONZE IN STEEL MILL



*ZA-12 zinc runout table bushings replaced bronze in a steel hot mill environment. Table rollers are seated in ZA-12 bearings and support fast moving hot steel from breakdown mill similar to above. Zinc bearings provided service life double that of bronze.*



*Typical split flanged ZA-12 steel mill table bearings now used by Crucible Inc., Midland, Pa. Zinc bearings provided longer service life and superior emergency running (no lubrication) characteristics at lower cost than bronze.*

A tough steel plant environment for a bearing is at Crucible Inc., Stainless & Alloy Division, Midland, Pennsylvania, in their hot rolling merchant mill, where problems have persisted with SAE 64 bronze bearings in their runout tables. A year-and-a-half ago, Crucible tried zinc bearings and the service life was found to be double that of bronze. As a result, Crucible is replacing the bronze bearings with zinc bearings.

The zinc alloy which is now being used is Eastern Alloys' new high-strength ZA-12 (zinc-aluminum) foundry alloy. The bronze bushings were high maintenance items having a life of from one week to three years, depending upon location and lubrication frequency. These simple lubricated split flanged bushings see service when hot steel from Crucible's 10-12-14-inch rod breakdown mill passes over rollers, which are seated in the bushings. The steel crashes into the rollers at speeds up to 600 ft./minute and the 2-15/16 and 3-inch ID bushings must carry intermittent impact loads in excess of 520 lbs.

Controlled bearing tests revealed that when greased once a week for four months, ZA-12 showed no measurable wear and SAE 64 bronze wore 0.030 inches. The same four-month test using an automatic oil lubrication system showed no measurable wear with ZA-12 and 0.005 inch wear for bronze. Under dry (no lubrication) conditions bronze tended to rapidly heat up and wear out.

ZA-12 zinc under these emergency conditions, where excessive heat from the steel was not a problem, performed well. The zinc alloy held lubrication longer and developed a smooth glaze which wore less. The result was longer service life with ZA-12 bearings and a reduction in maintenance costs.

But that's not all! The zinc bushings are priced 20% lower than the identical bronze parts.

Albco Foundry and Machine, Inc., Lisbon, Ohio, are specialists in steel mill bearings and supply Crucible with their ZA-12 sand-cast bearings. Gary Staffeld, Vice President of Operations, states, "We are getting similar feedback from other customers on the good performance of zinc. However, zinc should not be considered as an across-the-board substitute for bronze bearings. But, as we found with Crucible, there are many areas where zinc does work well and at lower cost than bronze."

"We like zinc foundry alloys" advised Albco's Mr. Staffeld. "They give us a competitive edge because zinc alloys are much less expensive than bronze alloys. In addition, zinc takes less than half the energy to

melt compared to bronze and provides nearly pollution-free handling in our foundry."

Albco worked with Crucible for eight months on a test program before Crucible switched to zinc. The only area where ZA-12 zinc could not be used was where hot steel was moving too slowly, which allowed heat to build up and soften the zinc bearings. (Zinc's melting point is about one-half that of bronze.) In Crucible's case, the hot application accounts for about 50% of the usage. The remaining 50% of the table bushings have been changed to zinc.

Want to learn more about zinc alloys for bearings or other engineered applications? Come to the technical experts on zinc foundry alloys. Find out how high-strength ZA zinc casting alloys (ZA-12, ZA-27 and ZA-8) are being applied as sand castings, permanent mold castings, graphite permanent mold castings and die castings. We'll work with your engineers and designers to develop cost-saving ZA alternatives. **Just call or write Derek Cocks. (Complete technical literature and case histories on bearings and other applications available upon request.)**



**eastern alloys, inc.**

Box Q, Maybrook, N.Y. 12543 (845) 427-2151