

ToughMet Alloy

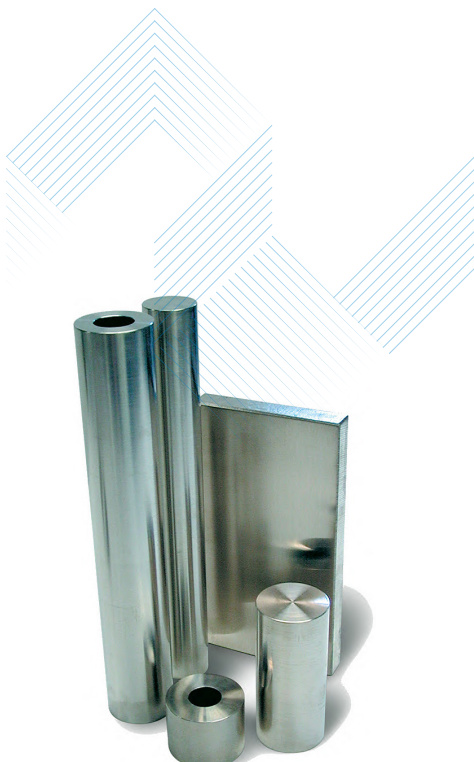
Reducing wear and downtime with ToughMet® copper nickel tin alloy.

Materion helps meet the unique needs of the heavy equipment market with high performance alloys that provide low friction and minimal wear while improving heavy equipment reliability. Materion alloy solutions provide greater uptime and wear resistance for use in bushings, bearings, wear plates and other sliding bearing applications on large presses or other large manufacturing machinery.



PROFILE: MATERION ELMORE, OHIO

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CHALLENGE

The die slide wear plate on the Extrusion Press slides back and forth during processing. Made from common bronze or brass, the plate was the short lifetime wear item on the press. Excessive wear on the plate caused the press to be out of alignment and the extruded product not to come out straight, resulting in lower yields, diminished quality and substantial rework time. Downtime to repair or replace the plate could take up to three days. Replacement downtime was scheduled every 6 months, and sometimes needed to be moved forward, which caused unplanned lost production time and revenue on this critical piece of equipment.

SOLUTION

The maintenance team at the Elmore production facility ultimately replaced the bottom die slide plate with one made of ToughMet 3 copper, nickel, tin alloy (made on-site in Elmore) because of its resistance to wear. Using ToughMet significantly reduced the wear, prolonged the life of the machine and decreased the frequency of required maintenance. With ToughMet, the unplanned downtime was virtually eliminated. Uptime increased by six days a year, which over the course of a three-year period (now the regularly scheduled maintenance timeline) adds up to an increase of 18 working days, 3+ weeks more production time or a capacity increase of ~3% yearly.

In addition, due to its proven successes, ToughMet is also utilized in Container Shoes Wear Pads of the Extrusion Press, the Extrusion Material Puller System and the belt take-up counterweights inside the Bucket Elevators of the Whiting Arc Furnace. All of these processes at the Elmore site have been positively impacted with respect to downtime and maintenance with the addition of ToughMet.