

FORTY CAST IRON PARTS SWITCHED TO ZA ALLOYS FOR MACHINING BENEFITS

During the last three years, High Speed Hammer Co., Inc. Rochester, NY, has switched about forty iron castings to ZA-12 and ZA-27. This represents approximately one-third of their entire casting production. The reasons for the changes were partly due to economics but mainly because of manufacturing benefits. ZA sand castings were similar in cost to iron but offered faster, easier and more accurate machining, lower scrap rates and better availability from foundries.

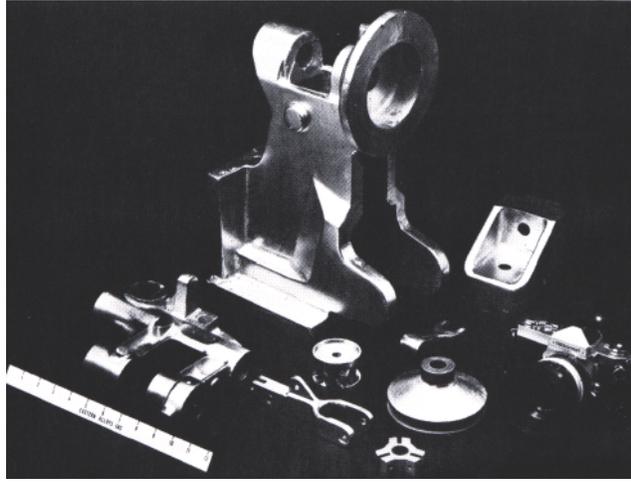
High Speed Hammer specializes in industrial riveting machines, spinning riveters and precision drill presses. The machines, which are often custom designed for high speed, automated assembly, are employed in plants across North America which manufacture everything from toys and staplers to heavy duty chain assemblies. A testimonial to the durability of High Speed Hammer's machines is that original designs developed 50 years ago are still operating faithfully.

Rick Marcellus, Plant Mgr., explains how High Speed Hammer first learned of ZA casting alloys. "One of our non-ferrous foundries mentioned that new ZA (zinc aluminum) alloys from Eastern Alloys were replacing cast iron. We were buying a lot of cast iron parts and had quality and machining problems, so we tried ZA-12 on one part. It was ironic because we immediately ran into a machining problem with the new alloy." But, the problem was short lived. "Our machine shop didn't believe that they could machine ZA alloys faster with higher feed rates. We followed Eastern's machining recommendations and the problem disappeared," stated Marcellus.

That was 40 different castings ago. The more they tried ZA alloy castings, the more they liked them. Machining times were reduced by 50% from iron, and they could use their existing fixtures and tooling with ZA. Machining accuracy improved and scrap rates were drastically reduced. In a few instances, ZA replaced bronze parts because of ZA's bearing properties. In addition, rigorous in-house testing showed that ZA could take the shock and vibration from cyclic pounding of their riveters. In fact, other parts broke but ZA parts never did.

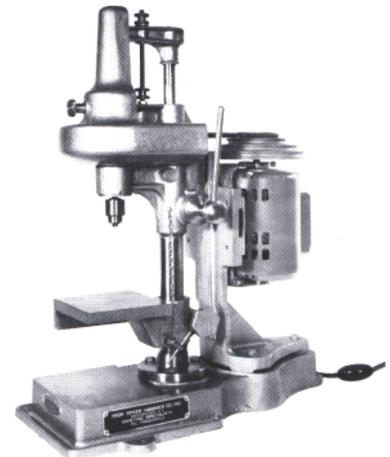
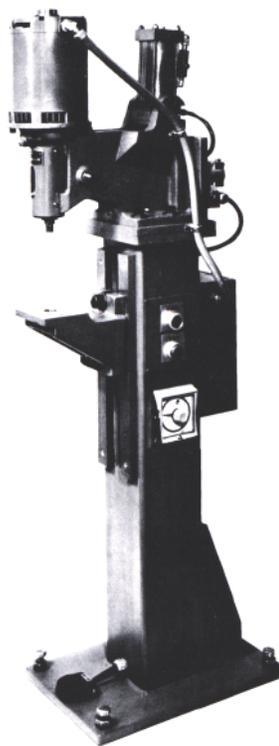
Marcellus sums up the company's current feeling this way, "Wherever possible, we are replacing our cast iron (and bronze) with ZA-12 or ZA-27 mainly due to machining benefits. Obtaining quality iron has been a headache. In fact, our main iron supplier has just gone out of business and there is no doubt that more parts will be converted to ZA as a result."

A beneficiary of this recent development is likely to be Dave Thompson, president of Thompson Foundry, Inc. of Union Hill, NY, who introduced High Speed Hammer to ZA and supplies most of their ZA castings. Thompson is high on ZA alloys because it means new business for him. "We're a typical small bronze and aluminum sand foundry and see the ZA alloys as a marketing opportunity," states Thompson. "ZA allows us to compete with cast iron where aluminum can't do the job and bronze is too expensive." In High Speed Hammer's case, Thompson was able to use existing iron sand cast patterns for direct substitution by ZA. He realized substantial energy savings with ZA and extended crucible life compared to his other alloys. He is also going after



Left: Examples of ZA-12 and ZA-27 machine parts weighing up to 100 lbs. switched from cast iron. ZA alloys provided faster, trouble-free, more accurate machining and reduced scrap rates for lower overall costs.

Below: Examples of High Speed Hammer Co.3 spinning riveter and precision drill press machines which now use ZA castings instead of iron.



process was virtually painless. ZA solved a supply problem, a quality problem (iron hard spots and inclusions which damaged tools) and reduced machining time and reject costs. Finish was also improved. Cast iron is certainly cheaper than ZA alloys, but as High Speed Hammer found, final ZA costs are often less. In every instance, ZA castings were competitive or provided a cost savings.

This story is one of many where Eastern Alloys' new ZA alloys have replaced cast iron, bronze, aluminum and fabrications. If you want to learn more about the capabilities of ZA, give us a call. Eastern Alloys' specialists can help review potential ZA product applications, provide design and assist foundries and die casters on the proper melting and handling procedures. When you want more ZA information, come to the source which pioneered the introduction of these new alloys. Eastern Alloys, Inc.

new bearing business with ZA-12 and ZA-27 by switching customers away from high-cost bronze.

The High Speed Hammer castings switched to ZA range in size from a few ounces to a hundred pounds and in quantities of just a few to a few hundred a year—quite typical of castings consumed by many machine builders. Although there was a learning curve on machining ZA, the conversion



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