# BORE WELDING SHOT SLEEVES

**The shot sleeve's bore surface can be repaired with a higher temperature resistance and hot yield strength material. The repaired surface will have higher hardness and temperature resistance nitride.**

## PURPOSE

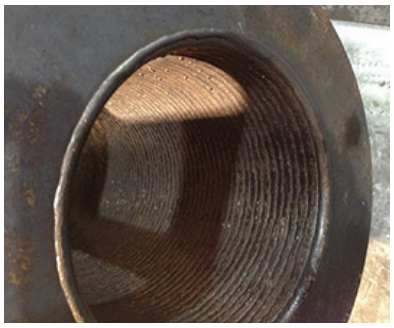
- **Repair worn sleeves**
- **To extend the life of sleeve**
- **To reduce cost per shots for sleeves**

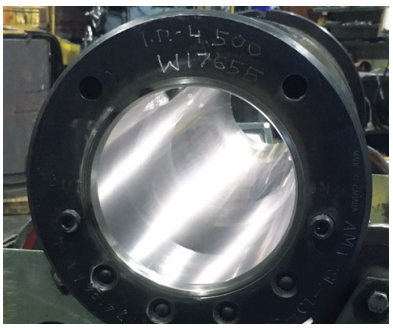
## FUNCTION

- **The shot sleeve can be restored to obtain its original life again, and in many cases the life might even exceed the new sleeve**
- **A used sleeve can be repaired to have a superior thermal and wear properties bore surface**
- **Reduce what you buy**
- **Reuse what you have**
- **Recycle everything else**

Most of the time a shot sleeve fails prematurely due to worn surface under the pour hole area, even when the mechanical integrity of the sleeve is still sound. Castool has developed a bore welding technique to repair sleeves with W. Nr. 1.2367 material. The material is welded to the inner bore of the sleeve. The 1.2367 has better high thermal resistance and hot yield strength, therefore better heat checking resistance than W. Nr. 1.2344. The 1.2367 also enables a special nitriding to generate higher hardness and temperature resistance nitrides. The damaged layer of the inner surface of the used sleeve (W.Nr. 1.2344, H13 or similar tool steel) is bored out, and then a layer of 1.2367 material is welded to repair the bore surface.

- When a used shot sleeve is returned, Castool will do an inspection to determine if the returned shot sleeve is a good candidate for bore welding based on the worn condition.
- The whole inner surface of the used sleeve is first bored approx. 1.5 mm per side to remove worn surface, micro-cracks and nitrides.
- The whole length of sleeve is welded approximately 3 mm per side with a continuous layer of W. Nr. 1.2367 from the die end edge to pour end edge.
- The edge corner of the die end has been given special attention to ensure proper coverage and finishing.
- The shot sleeve is then finish bored to leave a weld layer of approx. 1.5 mm per side.
- The welded layer is then honed to the required dimension.
- The bore surface is finely polished to a 3 RMS finish or better before nitriding.
- A special nitriding is applied to the sleeve to produce harder nitride with higher temperature resistance.
- The welded surface has high hot yield strength and wear properties compared to the original sleeve.





## **BENEFITS** of Bore Welding the Shot Sleeve

- **Reduces cost per casting**
- **Reuse old sleeves**
- **Extends life of shot sleeve**

**Castool Bore Welding Technology extends useful life of the shot sleeve. Most sleeves could be reused. Castool again sets a new standard of excellence in the die cast industry.**

Results may vary depending on individual press characteristics and setup.

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# REDUCE WHAT YOU BUY
# REUSE WHAT YOU HAVE
# RECYCLE EVERYTHING ELSE

Cleaner production practices have become the norm in today's environmentally conscious society. Gone are the days when the volume of excess scrap did not weigh in on the minds of the foundry. By reusing what you have, you are immediately improving the efficiency of the die casting operations as well as the improvement of the company's environmental performance. This in the end results in environmentally sustainable and economically successful business practices.

Numerous foundries have closed over the last few years as they could not comply with the law, or their environmental standards got too high to compete in the global market. In the meantime other companies further developed their processes to minimize their energy consumption and comply with strict emission standards as they are still operating, staying competitive in the global market. As good practices and energy savings became top of mind, better working conditions changed the dirty image of this sector. Today many foundries consider cleaner production practices as vital for their sustainable development.

Recycling has become "a must" however what is even more vital to become environmentally sustainable is to reuse before recycling. Companies, particularly foundries must think beyond recycling in order to become environmentally sustainable. It is important for these companies to recycle, however before taking that approach it is vital to **only recycle as the last resort.**

Castool is the first supplier to the die cast and extrusion industry that wants you to reduce what you buy! This is today's global standard of excellence. There are several factors that take this environmentally conscious thinking to the next level. This is just that – **Reduce what you buy.** We want our products to last as long as possible, and are working diligently to make them better.

Another important factor in this equation is to **Repair what you can**. We have always promoted repairing existing products whether they be shot sleeves, containers, dummy blocks etc. most of our products have replaceable wear components that are easily changed at your factory.

And the final step towards this environmentally conscious way of thinking is to **Reuse what you have**. We have been retrofitting containers and even die ovens whenever possible. If the steel is still good, use it again. Best practices like this are not only environmental friendly but also contribute to the financial savings of a company.

Only as a last resort we should be **Recycling everything else.** Recycling is an indicator that you have tried to use the product for other purposes before discarding it. Although recycling results in the reuse of a product once it is broken down to its' original form, it is more environmentally friendly to try to reuse what you have. The process of breaking down a product to its' original state alone requires the use of energy in one form or another.

Ultimately – Reimagine a sustainable world.

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