

Recycle as a last resort

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 on the minds of foundries. According to Castool Tooling Systems, there are opportunities to improve the efficiency of diecasting operations, as well improving their environmental performance, resulting in environmentally sustainable and economically successful business practices.

Numerous foundries have closed in recent years because they could not comply with the law or their environmental standards became too high to compete in global markets. In the meantime, other companies further developed their processes to minimise energy consumption and comply with strict emission standards and they are still operating. As good practices and energy savings became top of mind, better working conditions changed the dirty image of this sector. Today, many foundries consider clean production practices 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 but before taking this approach, it is vital only to recycle as a last resort.

Castool is the first supplier to the extrusion industry that wants its customers to reduce what they buy! This is today's global standard of excellence, although there are several factors that take this environmentally conscious thinking to the next level. The company wants its products to last as long as possible and is working diligently to make them better.

Another important factor in this equation is to repair products whenever possible. Castool has always promoted repairing existing products whether they be shot sleeves, plunger tips or rods. Most of the company's products have replaceable wear components that are easily changed at the customer's factory. Castool also has some innovative welding technology to repair most of its tools.

The final step towards this environmentally conscious way of thinking is for diecasters to reuse what they have. Castool has been modifying existing tools to be used in other applications. 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.

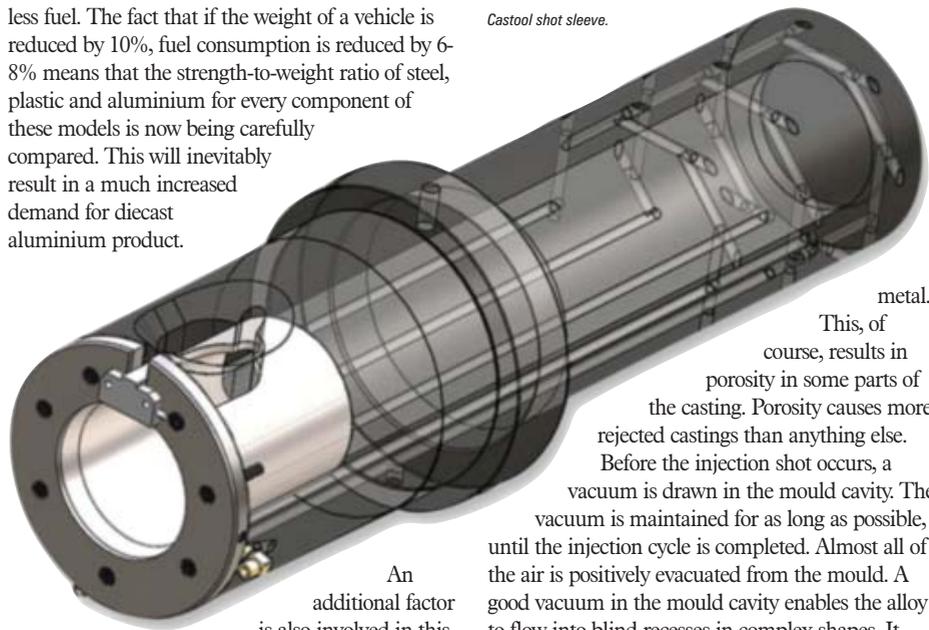
Only as a last resort should everything else be recycled. Recycling is an indicator that a company has tried to use the product for other purposes before discarding it. Although recycling results in the reuse of a product once, it is broken down to its original form; it is more environmentally friendly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

Reimagine a sustainable world

Following the global economic meltdown, the aluminium diecasting industry is entering a period of unprecedented and virtually unlimited opportunity. Car producers throughout the world are urgently redesigning and retooling to produce smaller, lighter vehicles that will cost less and use

less fuel. The fact that if the weight of a vehicle is reduced by 10%, fuel consumption is reduced by 6-8% means that the strength-to-weight ratio of steel, plastic and aluminium for every component of these models is now being carefully compared. This will inevitably result in a much increased demand for diecast aluminium product.

Castool shot sleeve.



An additional factor is also involved in this equation. A critical but as yet seldom articulated factor in the future use of aluminium products is the influence of 'Generation Jones'. This is a term used to describe the generation of people born between 1954 and 1965, immediately after the post-Second World War 'baby boomers'. Now, Generation Jones (aged 45-55) has a commanding presence in both industry and politics. More than a quarter of all adults in North America and Western Europe are 'Jonesers'. To date, they have been a largely anonymous generation but with some consistent or clearly defined characteristics.

For the diecast industry, the most important of these is a strong sense of responsibility for the protection of the global environment. With regard to the use of aluminium in the automotive sector, for example, to a Joneser the fact that a lighter car using less fuel produces less greenhouse gas emission is almost as important as its reduced cost of operation. He will also be attracted by the recyclable potential of aluminium product. All of this influences the Joneser's support of anything that will increase the profitable use of aluminium. Now is the best time ever for diecasters to improve their productivity and profits. The opportunity is immediate.

Reduce scrap

The use of vacuum is not new to diecasters, having been introduced a number of years ago. To date, the results have been rather inconsistent. Every diecaster knows the theory and advantages of vacuum-assisted casting. Because of the turbulence of the alloy as it is forced at high pressure into the die cavity and the complex shape of many casting moulds, air and other gases are often trapped in the

metal. This, of course, results in porosity in some parts of the casting. Porosity causes more rejected castings than anything else. Before the injection shot occurs, a vacuum is drawn in the mould cavity. The vacuum is maintained for as long as possible, until the injection cycle is completed. Almost all of the air is positively evacuated from the mould. A good vacuum in the mould cavity enables the alloy to flow into blind recesses in complex shapes. It also allows the fronts of the molten metal to merge freely without forming shuts. Whatever vacuum method is employed, if it works well, improved quality and reduced scrap can be guaranteed.



Castool plunger tip.

Only if it works...

There's the rub. Vacuum-assisted diecasting is essential to any diecaster who wants to eliminate porosity... who wants to make larger, thinner, more complicated parts and with less pressure - but only if it works well?

When any product or technology innovation comes to market, it is often difficult immediately to use it effectively, especially if it is assumed that the system with which it works will support its use. This is precisely what occurred when vacuum was introduced in diecasting several years ago.

The diecaster needed an extreme application to justify its use because at that time, the vacuum valve required so much maintenance. The problem was compounded when the shot sleeve and plunger tip often did not work together well enough to create a secure seal. This, of course, resulted in air

being pulled into the die cavity. This unfortunate situation was further worsened when the diecaster introduced a heavy lubricant or grease in an ill-advised attempt to seal the gap. This was constantly being pulled into the valve and was often a reason for its failure. Understandably, the amount of downtime was uncommonly high.

Just a few years ago, if the average diecaster invested in a vacuum system, his downtime often offset his profit and unless the requirements of his product were so stringent that they could not be satisfied without vacuum, he could not afford it.

Today, nearly any product can be made profitably with a vacuum-assisted diecasting system. Castool now has a valve that is stronger, has fewer moving parts and requires minimal maintenance. This much improved valve is now working very profitably, while supported by a thermally-controlled shot sleeve and plunger tip combination that create a secure seal, using a minimal amount of a special benign lubricant.

Resetting the diecasting industry

The economy has now been reset, a fact that cannot be changed. Accept it and manage to operate within the parameters of this reset business environment for an indefinite period. How can the diecasting industry best and most profitably reset itself? The short answer has to be by better diecasting.

A huge and unexpected opportunity in a single market sector has developed almost overnight and at the same time, almost all other sectors are in sharp decline. Competition has suddenly become intense. Some diecasting plants are already closed.

Vacuum-assisted diecasting was introduced



The best vacuum valves are now infinitely more reliable than those of only a few years ago.

primarily to enable diecasters to meet the demands of automakers and their tier one suppliers. Some diecasters used it well and became very successful. Others did not. The reason most often was that they failed to realise that the technology of the vacuum assist is so unforgiving. A diecast shot end system using vacuum either works very well or it is worse than useless.

Now, the temperatures of the plunger tip and shot sleeve are controlled better than ever before. Their interaction is improved and the integrity of the seal is assured. Also, the best vacuum valves are now infinitely more reliable than those of only a few years ago. Previously, the choice was cheaper or better but there is no longer a choice. Today, the

product must be cheaper and better. It is fair to assume that in today's business climate, most diecasters who do not embrace vacuum assist will possibly fail.

The market is there. The improved technology is available. The time is now.

ISO 9000 is no longer enough

Over the years, Castool has received a number of awards that reflect the continued effectiveness of its operating system. The designation ISO 9000 for quality of operation was first certified for Castool on behalf of the International Standardization Organization in 1999. Castool has been successfully audited and recertified on a regular basis since that time, including an upgrade to ISO 9001.

After a lengthy stringent and extensive audit, Castool is now one of the companies to be certified as being in compliance with a recently integrated group of three ISO programmes.

The two additional programmes are ISO 14001 for environmental management and OHSAS18001 for occupational health and safety. Castool has long been known as an efficient knowledge-based company. This certification confirms the company's ongoing ability to effectively and consistently satisfy its customer requirements, minimise its impact on the environment outside the building, maintain a safe and healthy environment inside the building and remain a world class tooling supplier.

Care

Castool's vision for the future is filled with care. That is care for the employees who manufacture it, care for its impact on the environment and care for its customers who use it.