



PRESS RELEASE

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Good prospects for the future of die-casting

The situation is looking good for Germany's die-casting foundries. For years there has been a steady increase in the required volumes of die-cast components. The comparatively weak Euro further benefits Germany, which continues to be a very effective manufacturing location. Even so, almost all medium-sized and larger foundries have long had manufacturing capacity in place outside Germany to offset high HR and power costs. It also remains important to be close to the production facilities of customers in the automobile industry.

Positive developments in production

The majority of Germany's die-casting foundries enjoyed growth in revenue and production in 2016 and 2017, and are confident that they can continue this trend in 2018. In the first three quarters of 2017, growth rates were disproportionately high:

- Die-cast aluminium +1.2% (to 494,000 t)
- Die-cast magnesium + 4.5% (to 13,800 t)
- Die-cast zinc +11.6% (to 47,700 t)

That means die-cast products account for 60% of all German cast aluminium and more than half of all non-iron casting made in Germany. This is a trend that has been evident for a number of years.

Vehicle manufacture is acquiring more and more of a dominant position in the die-casting market, accounting for more than 80% now. The remaining 20% of die-casting production is spread over a range of different customer industries.

Capacities and investments

Based on the positive growth trends in the industry, investments in both maintenance and capacity expansion in recent years have accounted for between 4% and 6% of die-casting foundry revenue, as determined by the industry associations 24 months ago. Linked to this survey, the institute "ifo" has also analysed changes in investment for the industry as a whole. In addition to continuous replacement investments, according to the ifo analysis, investments to expand capacity play a defining role, which also implies changes in product

structures. Thus, for example, major OEM die-casting foundries have been entirely designed or converted for structural part manufacture (Daimler, BMW, VW, Audi).

This situation creates the possibility that parts previously cast in these locations now account for part of the production of other die-casting foundries. This trend is confirmed overall in the above ifo analysis in the area of vehicle manufacture: changes in component structure are the dominant reason for capacity expansions.

It must be emphasised that the stated increase of 1.2% in die-cast aluminium production, for example, contrasts with a negative development in domestic passenger vehicle production (-3%). In addition to competition for raw materials, this also reflects the market position of customer die-casting foundries that are independent of OEMs, and supply all relevant European automakers. This is confirmed by an increase of just over 2% in passenger vehicle registrations in Germany in just the first nine months of 2017, and a 9% increase for foreign makes.

New drive technologies and die-casting

Of course, there are also concerns within the industry. The election results in the US and Brexit in Europe have caused a measure of uncertainty. Developments in Turkey, an emerging economy, and those more recently in Spain/Catalonia, have led to uncertainties in the industry. A flourishing industry needs stable political conditions and free markets. Discussions about the future of the internal combustion engine are also a particular source of turmoil. The diesel scandal has caused entire production plants to be changed. It is quite clear that fewer diesel-powered vehicles are being purchased, and so the number of petrol-driven vehicles is much higher. The additional call for the introduction of electric vehicles is not practical in either environmental or technical terms, but is all the more attractive at a political level. It is important now to have reliable political decisions for the future that will not pose a lasting threat to Germany as a location for production.

Based on discussions about the future of the internal combustion engine in general and of diesel in particular, many die-casting foundries have to prepare for far-reaching structural changes in demand. Satisfactory answers have not yet been found to all of the questions arising in this context. At the same time, strategic decisions have to be taken that will have a long-term impact on policy-makers, OEMs, consumers and also suppliers – such as the die-casting foundries. This is where reliable and sound, long-term guiding principles on the part of the political players are called for – but nothing more than guiding principles!

Although e-mobility is far from being fully mature, the initial results of this development are there to be seen: the electric postal delivery vehicle, a StreetScooter; and Bosch's e-axle, with an in-wheel drive unit. The proportion of light die-cast parts on the market is likely to increase along with the market penetration of electric cars. Die-casting offers the perfect opportunities here. Its benefits can be drawn on everywhere, in optimised components for controlling traditional engines, or in structural parts and components for electric drive units.

However: a car with an internal combustion engine contains more than 200 die-cast components, compared to only about 20 in an electric motor. Converting to electric vehicles would pose major challenges for all foundry operators who deal with engine components. On the other hand, electric cars and self-driving vehicles need more casings for electronics, sensors, etc. That means many new components to be cast, which creates substantial demands on the foundry operators. The growing number of die-cast parts used in car bodywork, too – the structural components – expands the range of products to be sourced from casting foundries. Entirely new production lines often have to be created for them. The quite large casings needed for electric motors are also made using die-casting, and create new challenges of their own. All in all, therefore, there will still be a need for die-cast parts, even with a change in drive technology.

Other customer sectors in addition to the automobile industry

There is no doubt that there will be major changes in the automobile industry. Of course, these changes pose demands on the industry, and many foundry operators are looking for attractive alternatives to the automobile industry. Although this market is very limited, currently accounting for less than 20% of all die-casting requirements, there are still interesting projects to be found.

One example is the construction and furniture industry, which requires large series of cast components. This includes both highly decorative die-cast zinc components and high-volume parts such as hinges. Process technology worked out down to the last detail, with a highly complex quality system, still often puts German foundries ahead, even in competition with low-income countries. The customers in this sector also expect the rate of defective parts to be virtually nil, to ensure there are no problems during further processing in fully automated production lines.

Other customers include medical technology companies. These have gone global in recent years and are in tough competition. While often leaders at a technological level, the parts must also be appropriately priced to succeed on these markets. Standardisation, of casings and peripherals, for example, results in batch sizes that will be attractive to foundry operators. The demands on these parts are no less stringent than in the automobile industry – and indeed may often be greater. For comparatively small series, medical standards or safety requirements must be met that often do not leave scope for sufficient development. Such projects can be manufactured cost-effectively only through the use of state-of-the-art simulation programs, CAD tools and networked tool construction. Foundries that supply these customers are generally set up differently to those supplying the automobile industry for that reason.

Die-casting and the latest technical megatrends

The trend toward 3D printing, on the other hand, is of less concern to foundry operators. The break-even point for parts made using die-casting or 3D printing still lies at an overall demand level of well below 100 units; this is a volume that is of no interest whatsoever to the die-casting industry. Whereas manufacture using 3D printing caters for the customised market, die-casting foundries focus on standardised products. In any case, they make use of 3D printing to produce die-casting tools and prototypes.

The industrial megatrends such as self-driving, electric mobility, 3D printing, Industrie 4.0, shortages of skilled labour, and globalisation, all affect the die-casting industry. The industry itself is in a good position, thanks to a combination of good training, optimised process chains, the use of digital process chains and a globalised structure. At EUROGUSS, foundry operators from Germany and throughout Europe will present products that are already successfully in use on the market. The Verband Deutscher Druckgiessereien (Association of German Die-Casting Foundries, VDD) will also provide a fascinating accompanying programme of presentations throughout the day to show developments that will continue to make die-casting attractive in the future, in consideration of the stringent demands of the market. Everyone can be sure that EUROGUSS will once again be a successful and visionary event for the industry this year.

Solving problems in die-casting

A close network between the key suppliers of production plant, the universities and research institutes, and customer-oriented businesses has led to some quite surprising innovations in the industry. VDD, part of the Bundesverband der Giesserei-Industrie (Federation of the German Foundry Industry, BDG), is the key entity around which this network revolves. Foundry operators, their suppliers and research institutes meet several times a year in its various committees and events. The work it does is unique in Europe, and possibly anywhere in the world. The German die-casting foundries will give an impressive presentation of the results of this work at their stands during EUROGUSS.

The innovative solutions created by cast components never cease to amaze. Many will be on display at the forthcoming EUROGUSS. All die-casting foundries in Europe have been able to participate in the competitions for die-cast aluminium and zinc; this will be the first time that a die-cast magnesium competition has been added to the agenda. The winning components will be recognised at the Die Casting Day, which will take place during the trade fair. The components themselves will be on display at the fair. Reporting in the specialist media will follow. The presentations at the 18th International German Die Casting Day, which will take place in parallel with the trade fair activities at EUROGUSS, will also deal with this competition series. The high product quality of the exhibits on show will provide the perfect accompaniment to the event.

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