

HPDC Coffee Talk: “Where is the journey going?” on current topics with the decision-makers in the industry

The global development of the aluminium die casting industry is currently in a turbulent environment and is at a historic milestone. At no time in the last 50 years have so many challenges and significant events occurred simultaneously as is currently the case.

In a series of three Coffee Talks, Johannes Messer Consulting discusses economic, technological and international topics in the context of the current challenges with four decision-makers from the HPDC industry.

The topic of the first talk:

“Where is the economic journey heading for the European aluminium die casting industry?”

Messer: With the exception of the crises of 94-95 and 08-09, the global aluminium foundry industry has grown continuously over the last 30 years (1990 approx. 3 million tonnes of aluminium castings→ 2020 approx. 18 million tonnes of aluminium castings). This success story was largely driven by the substitution of many parts of the powertrain with die-cast parts. What were the drivers of this success?



Johannes Messer, Johannes Messer Consulting



Dr. Armin Wiedenegger, Managing Director voestalpine Additive Manufacturing Center GmbH

Wiedenegger: First and foremost, there are certainly the goals and requirements of the automotive industry. Lightweight automotive construction has become increasingly important. The proportion of aluminium per vehicle has risen steadily. Aluminium die casting has benefited the most from this.

Heinrich: In addition to the requirements of the market, mainly the automotive industry, it was the technological leaps in development that made it possible to replace steel and iron casting with aluminium die casting.



Siegfried Heinrich, CEO SF Tooling group GmbH



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Eric Müller, CTO HPDC Casting Divisions
Gnutti Carlo Group

Müller: Part of this success story is the continuous development of the aluminium materials used and the design of the die-casting tools for the production of highly complex cast aluminium components. The development in passenger car applications is also reflected in the development of medium duty and heavy-duty vehicles, which also have a very high proportion of cast aluminium, e.g. in the powertrain area. I look forward to continuing to participate in this positive trend in the future.

Mendler: As Mr. Heinrich has already mentioned, technological developments were of course also necessary. As an example, I would like to mention the development of clamping forces. For many years, the 4,000-tonne machine was the largest die casting machine in most manufacturers' portfolios; in the last 5 years, the clamping forces of the machines have literally exploded.



Cornel Mendler, Managing Director Die
Casting Bühler AG

Messer: You cited lightweight automotive construction as a key guarantee of success. To what extent was the foundry industry involved in the transformation and development of the products?

Heinrich: When new product groups (gearbox housings, engine blocks, ...) were manufactured using aluminium die casting for the first time, the foundry industry was heavily involved and, among other reasons, successful. Europe was at the forefront of many of these developments. The broad process and technological expertise in Europe along the value chain was the main reason.

Müller: The foundry industry as a whole was and is a key success factor in this automotive transformation. In particular, the conversion of cast iron components into non-ferrous metals has made a significant contribution to this transformation. Following the change in vehicle design, e.g. in areas such as the powertrain and the subsequent design changes, aluminium-based casting alloys, in combination with the expertise of the foundry industry, were increasingly able to exploit their advantages and contribute to sustainable lightweight construction.

Wiedenegger: Aluminium die casting is a technically demanding process but also very economical. Comprehensive process and technology expertise must be available in order to manufacture components in accordance with the requirements of die casting.



Messer: The development of aluminium die casting is a real success story. Why have many companies in the aluminium casting value chain failed to fully convert this positive development into long-term success?

Mendler: From a global perspective, aluminium die casting is a success story. Unfortunately, some companies have been taken by surprise by internationalisation, which has increased significantly in speed over the last 20 years. New market players have emerged, which has increased competitive pressure. The new market participants have caught up very quickly in terms of technology and productivity. In addition, Europeans are often at a disadvantage when it comes to key cost items such as energy, wages and taxes. Price quality has suffered significantly as a result, particularly in Europe.

Messer: I agree with you, Mr Mendler. In my opinion, however, the industry must also recognise its own failings. I often have the feeling that many companies would rather talk about CIP than do it, for example.

Mendler: You are certainly not wrong, but the statement should not be generalised. I also think there were and are clear differences in terms of the agility and dynamism of individual companies in how they reacted to changes in the market. Many foundries are also under massive pressure due to their dependence on the automotive industry. Here I also see it as our duty as a solution provider to develop innovative solutions together with our customers.

Müller: I agree with that. Yes, we have productivity potential in the foundry industry. If we look at OEE values, which we are "satisfied" with in some cases, we certainly have to start there too. If we manage to win over everyone involved in the process, including customers, in favour of the change, I see great potential and, as a result, improved results for everyone involved. These positive results, which must be reflected in the company's earnings, increase the chance that the foundry will remain a key driver of lightweight automotive construction in the future.



Wiedenegger: Total cost of ownership must be the target figure. If everyone involved, including the customer, is committed to this, success is likely. There are plenty of examples of this. Unfortunately, however, this joint approach is anything but standard in day-to-day business.



Messer: Discussing company results is traditionally difficult. But unfortunately it is necessary. We are currently seeing more companies with financial difficulties. The "crisis" is simply too long. How do you see this?



Wiedenegger: Yes, of course the multiple crises are too long. Since the end of 2018, we have seen declining volumes or volumes at a low level, and these have fluctuated greatly. At the same time, important cost items have developed negatively. As a result, the financial burden has become ever greater. Many companies now lack the cash to initiate all the necessary changes in the context of the transformation (ICE → BEV).

Heinrich: We also see this in the area of GIGA casting, for example. We see a certain reluctance to invest in GIGA casting, especially among European foundries. In the case of Volvo, as with Tesla, the OEM is investing.

Müller: I would also like to translate the crisis into maximum planning uncertainty, the transformation is definitely progressing at a slower pace than initially assumed. Nobody knows how quickly this development will continue, so it is not easy to make the right decision in such an investment-intensive business area as foundries. Nevertheless, you have to make this decision, which ultimately has a massive impact on the company's results.

Messer: This brings us to the crucial question. "Where is the aluminium die casting industry heading economically?"

Mendler: The experts' forecasts for Europe are also positive. Even if car production figures in Europe will not return to pre-crisis levels, experts believe that aluminium die casting production in Europe will rise above pre-crisis levels. The reason for this is the aforementioned ongoing trend towards lightweight automotive construction. Growth in the area of structural components will more than compensate for the reduction from ICEs to BEVs.

Wiedenegger: I agree with that. The question is how quickly we will reach this level.

Müller: We will certainly not influence the OEMs' sales figures. We can certainly influence the key figure of aluminium die casting per vehicle. You have already said it, Dr Wiedenegger. If the entire value chain, including customers in Europe, works together, this is the guarantee of success.

Heinrich: I agree with you, let's work on the issues that we can influence. Our industry has proven often enough that there is the necessary expertise in Europe.



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