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HPDC Coffee Talk 3: “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 fifty 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 third talk:
"Where is the aluminum die casting industry going in the main regions of the world?"

Messer: I am looking forward to our third exchange. Today we have agreed on the topic of “Where is the aluminium die casting industry heading in the main regions of the world?” has been arranged. Let me start with a provocative question. Have Mexico, India and China left the “old” die casting regions of the USA, Japan and Europe behind?

Johannes Messer, Johannes Messer Consulting

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

Wiedenegger: I think you first need to define what you mean by “left behind”. If I remember our last Coffee Talk on the subject of new technologies, I don't remember these three regions having a lasting impact on the development of new technologies. Economically, it may look different.

Müller: Each of these regions has different challenges, be it customer base, expertise, competition and/or geopolitical conditions, so it is almost impossible to answer this question.

Eric Müller, CTO HPDC Casting Divisions Gnutti Carlo Group

Messer: Agreed. Let's take a look at Japan. One question I have been asking myself for a long time is why are European aluminium foundries not present in Japan?

Cornel Mendler, Managing Director Die Casting Bühler AG

Mendler: To answer this question, I need to expand a little. My experience in Japan is that if the technology is available locally, Japanese companies prefer to work with Japanese companies. Only when a technology is not available locally or foreign technology offers clear advantages is a foreign partner considered. The Japanese are also known for the fact that validated processes are very rarely adapted.

In my opinion, this explains why the big three Japanese customer foundries Ahresty, Hiroshima and Ryobi together with the in-house foundries of the OEMs and Tier 1 cover the market very well both technologically and economically.

However, new technologies, such as megacasting or rheocasting, are opening up new co-operation and opportunities with Japanese companies in Japan and outside Japan.

Heinrich: We see it the same way. On the one hand in Japan, but even more so with Japanese foundries in other regions of the world. Ahresty and Ryobi can be found in almost all major HPDC regions worldwide. I have always been interested in the technology of Japanese foundries. Japanese foundries have always been very innovative when it comes to the thermal management of die casting moulds. We are pursuing the same goal. It's about making the processes reproducible through internal mould cooling and thus optimising quality, eliminating quality fluctuations, reducing cycle times and extending mould service life.

Siegfried Heinrich, CEO SF Tooling group GmbH

Müller: I believe that the low presence of European and other international foundries on the Japanese market will not change in the short term. The growth currently expected in Japan will be shared among the established market players.

Messer: It seems easier for European foundries to establish themselves in the USA. I just don't have any really positive projects to recommend this step to European foundries. How do you see the USA?

Wiedenegger: The USA is definitely an interesting market. Experts are also forecasting attractive growth there for the coming years. The market is certainly not easy. I see a particular challenge when it comes to personnel. Attracting and binding qualified personnel in the long term is an even greater challenge in the USA than in Europe, for example.

Heinrich: I can confirm that from experience. Your statement, Mr Messer, that you lack successful examples is something I would not like to accept, at least not for our collaboration with Fischer Tool & Die.

Messer: I also explicitly meant the foundrymen.

Müller: If we focus on North America, we are quite satisfied with our location in Canada. The potential for growth is enormous, but to realise it, more resources are needed than in Europe.

Mendler: In fact, European foundries are finding it difficult to establish themselves in the USA with local production. However, it should not be forgotten that there are various very successful local foundries in North America (Mexico, USA and Canada). In my opinion, the main challenge in the USA is the personnel on the shop floor and their high fluctuation, which is much greater than in Europe. I think one option would be co-operation between European and North American companies.

Messer: Is it better to go to Mexico to come to the USA?

Wiedenegger: You are certainly referring to the topic of nearshoring and the free trade agreement between Mexico, the USA and Canada (USMCA). This is certainly an argument in favour of Mexico, but by no means the only one. Mexico is increasingly developing into one of the leading HPDC nations in the world. We see Mexico as an interesting future market. We seem to be in good company with our assessment.

Mendler: Mexico is definitely very interesting and has become much more attractive as a future market, and not just for European companies. The two large and important foundries Nemak andBocar are the two lighthouse companies. But there are many other local and international companies with global significance. As for the USA, I also see that technological alliances would strengthen the local HPDC industry in Mexico. The emerging expansions of the product portfolio (from large structural parts to megacastings) could also benefit from such technology alliances. With regard to supplying the American market, the logistics costs to the OEMs must be taken into account for large structural components.

Heinrich: There are aluminium foundries (local and international) for current requirements in Mexico. The "rest" of the process chain is not so well represented. There is a need for action at this point.

Messer: I share your positive view of Mexico. How do you see India compared to Mexico?

Mendler: India's foundry landscape is similar to that of Japan. The large local foundries Endurance, Jaya-Hind, Craftsman, Rico, Rockmann Industries, Sandhar Technoligies, Sundaram Clayton and Tata Motors Foundry share the Indian market. The product portfolio currently required by the market is very well covered locally. However, India will continue to grow over the next few years, also in terms of the product portfolio. Structural parts, e-mobility parts and megacasting will gain in importance, just like in Mexico. We are also seeing a tendency for Indian foundries to expand more and more towards Europe and North America.

Müller: We are also observing that Indian foundries are seeking market access in Europe. In part through the acquisition of European foundries or the establishment of development centres close to customers. The drivers are, on the one hand, access to technology and, on the other, proximity to European customers (OEMs and Tier 1 customers).

Heinrich: I would like to come back to your question, "How do you see India compared to Mexico?" I also see a lot of parallels. As in Mexico, I see opportunities for European and Indian companies to work together.

Messer: And what role does China play?

Wiedenegger: An outstanding one. The figures alone are impressive. Aluminium casting production in China has grown from 0.8 million tonnes in 2000 to 7.5 million tonnes in 2022. In 2022, this production volume corresponded to around 40% of total aluminium casting production worldwide.



Mendler: We also see this in the investments in new die casting machines. The necessary capacities in the HPDC area have been massively expanded in recent years.

Heinrich: This also applies to mould making.

Messer: And what role does GIGA casting play in it?

Mendler: Megacasting still plays a subordinate role in the production figures for 2022 mentioned by Dr. Wiedenegger. However, megacasting is a good example of China and the Chinese way, especially the "China speed". Tesla has triggered something, the Chinese OEMs, especially the NEV OEMs, immediately picked up the ball and pushed ahead with developments. It is also astonishing that the local supplier industry immediately jumped on board. In China, in contrast to the USA, Europe and Japan, it was primarily the Tier 1s and not the OEMs that invested in megacasting cells.

Müller: Yes, that's how we got to know China too. The speed in China is impressive. Capacities are built up even when customer demand is lower. Decision-making processes and initiative are extremely fast.

Messer: I would like to briefly address the issue of capacity building. Is the same thing happening in aluminium die casting as in the automotive industry? Experts claim that China currently has the capacity to produce around 50 million cars. However, only 30 million cars are needed in China.

Heinrich: Overcapacity is an issue. However, no one is currently in a position to provide exact figures. This also applies to mould making. Chinese companies have also recognised this problem. Further growth in China is currently difficult to achieve. The initial reaction is that Chinese companies are currently investing more outside of China.

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