

Semi-solid die casting – rheocasting

Comptech and Bühler to cooperate in applying rheocasting for high-pressure die casting

Uzwil (Switzerland), August 15, 2023 – Swiss technology group Bühler AG and Comptech Rheocasting AB of Sweden have agreed on a strategic minority investment of Bühler in Comptech, a supplier of rheocasting equipment to the automotive, truck, and telecom industries. With this investment, Bühler will support the further promotion of rheocasting process technology in high-pressure die casting. Rheocasting enables customers to create additional opportunities for die-casting applications and to provide more sustainable solutions. Comptech Rheocasting AB will continue to operate as an independent company, focusing on developing the rheocasting process and serving customers around the globe.

Through the cooperation, Comptech and Bühler will combine their respective strengths to further industrialize rheocasting technology. Rheocasting is considered an enabling process technology for casting of large-format, thin-walled and high-strength parts.

For nearly 100 years, Bühler has been providing solutions for the die-casting industry: from the die-casting machine to entire cell solutions, automation systems, and service around the globe. Bühler will install a complete rheocasting demo and test cell at its Die Casting Application Center in Uzwil, Switzerland, facilitating easy access to trial work with partners and customers.

“The foundry and automotive industries are engaging intensively in megacasting. To meet the required yield and quality targets the die-casting ecosystem needs to further develop hardware, cell automation, and process technology. We consider rheocasting an essential enabling technology – for this we are happy to partner with Comptech,” said Markus Hofer, Head of Business Development Bühler Advanced Materials.

Rheocasting technology has been developed by Comptech Rheocasting AB of Sweden for over 15 years and has the potential to substantially enhance the high-pressure die-casting (HPDC) process and open new markets for foundries.

Per Jansson, CEO of Comptech Rheocasting AB, said: “It is with great satisfaction that we see the interest from the market growing and we regard the partnership with Bühler as strategically important to meet the markets’ expectations now and in the future for the global production of sustainable castings.”

Why rheocasting?

Rheocasting is a melt preparation for the HPDC process. By mass-controlled cooling of the molten alloy, a high solid fraction is created in the aluminum alloy slurry. The melt becomes shear thinning, and a partially laminar flow filling of the mold makes it possible to process a variety of alloys and produce components with long flow-length and thin walls.

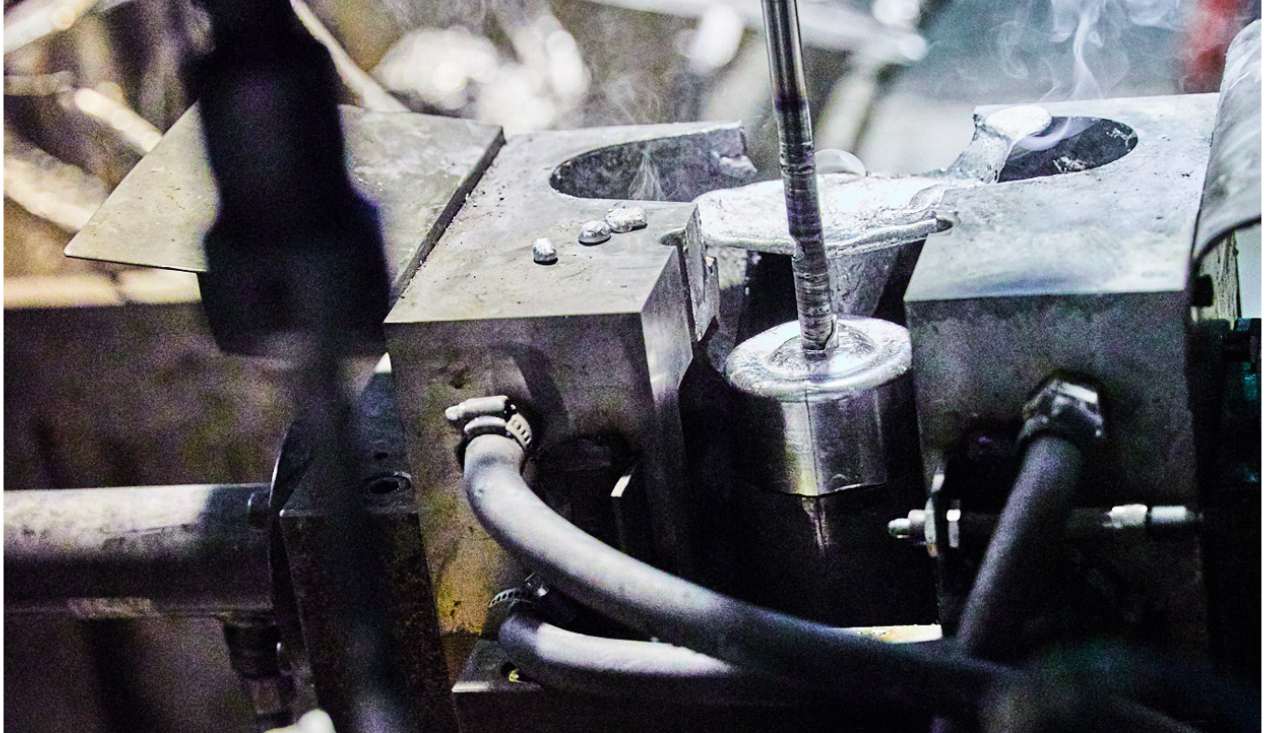
The produced parts show a low level of defects, which is beneficial for part quality and further process steps, for example thermal treatment and welding. Significant benefits are achieved by applying this process and additional opportunities are created for foundries that currently use other production processes.

Rheocasting is considered an enabling process technology for casting of large-format and thin-walled parts on an industrial scale, such as megacasting. This is a prominent topic in the die-casting and automotive industry when talking about advanced vehicle structures.

Sustainability and experience matter

Sustainability is a key consideration when integrating more aluminum in the car body structure. Die-cast aluminum offers key benefits such as easier recycling enabling a circular economy, a simpler manufacturing process, and weight reduction of the final part leading to reduced fuel consumption in the end-consumer use phase of the life cycle.

With rheocasting, the sustainability impact of die-cast designs can be even further enhanced by using primary and secondary alloys with a lower CO₂e (carbon dioxide equivalent) footprint due to the lower silicon content than traditional HPDC alloys.



Casting of the melting consumable slug for rheocasting.



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About Comptech Rheocasting AB

Comptech Rheocasting supplies the foundry industry with equipment for rheocasting and provides support in component and process development. Comptech supports foundries, designers and OEM in their pursuit to fulfil design requirements and thereby respond to the demands for new components and platforms. The equipment of Comptech enables die-casting manufacturers to produce sustainable castings for the future.

www.comptech.se

About Bühler

Bühler is driven by its purpose of creating innovations for a better world, balancing the needs of economy, humanity, and nature. As a relevant solution partner for the food and mobility industries, Bühler has developed a pathway to achieve a 60% reduction of greenhouse gas emissions in its operations by 2030, meaning Greenhouse Gas Protocol Scopes 1 & 2, against a 2019 baseline. It has committed to having solutions ready to multiply by 2025 that reduce energy, waste, and water by 50% in the value chains of its customers. Billions of people come into contact with Bühler technologies as they cover their basic needs for food and mobility every day. Two billion people each day enjoy foods produced on Bühler equipment; and one billion people travel in

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vehicles manufactured using parts produced with Bühler technology. Countless people wear eyeglasses, use smart phones, and read newspapers and magazines – all of which depend on Bühler process technologies and solutions. Having this global relevance, Bühler is in a unique position to turn today's global challenges into sustainable business. Bühler contributes to safely feeding the world and is doing its part to protect the climate, producing solutions that make cars, buildings, and machinery more energy efficient.

Bühler spends up to 5% of turnover on research and development annually. In 2022, some 12,700 employees generated a turnover of CHF 3.0 billion. As a Swiss family-owned company, Bühler is active in 140 countries around the world and operates a global network of 105 service stations, 30 manufacturing sites, and Application & Training Centers in 23 countries.

About Bühler Die Casting

Bühler Die Casting is a global technology partner for all die casting needs and supports its customers in all phases of their investment. The Swiss company provides optimized die-casting cell solutions, fully integrated process controls, plant design expertise, and worldwide customer service. Bühler supports its customers with a strong global service network, modern application centers, machine overhauls, and technology sites in Europe, Asia, and North America. Three production sites manufacture die-casting machines with locking forces ranging from 3,500 to 92,000 kN.

www.buhlergroup.com/die-casting