

PRESS RELEASE

Rheocasting in series production: SAG Group is a pioneer in the industrial production of semi-solid components

(Lend, 13.11.2025). With the successful industrialization of the rheocasting process, SAG has established itself as a pioneer and technology leader in semi-solid aluminum casting. At its site in Austria, the company produces rheocasting components for the automotive industry in large series in a fully automated manner. This gives SAG a unique selling point that takes lightweight construction in the automotive and commercial vehicle industry to a new level – efficient, resource-saving and 100% made in Europe.

With high-quality rheocasting aluminum castings, SAG opens up new perspectives for structural lightweight construction in the automotive and commercial vehicle industry. Rheocasting combines outstanding mechanical properties with very good weldability, tightness and recyclability – and thus makes an important contribution to the decarbonization of mobility. As a result, SAG has manufacturing expertise that is unique in the world, based on decades of experience in aluminium processing and intensive metallurgical development work.

In rheocasting, the aluminum melt is not processed completely liquid, but in a semi-solid state. Controlled cooling and targeted stirring motion create a fine-grained, globulitic microstructure that ensures excellent flow and solidification properties. The SAG rheocasting process achieves a solid-phase share of over 50%. Typical casting defects such as pores, cavities and oxide inclusions are significantly reduced. Processing is carried out on modified cold-chamber die-casting machines using proven AlSiMg alloys – a decisive advantage in terms of cost-effectiveness, process stability and series production.

Mechanical top values with high efficiency and a small carbon footprint

Due to the homogeneous microstructure and the minimal pore content, the SAG rheocasting components from T6 are heat-treatable and achieve mechanical characteristics comparable to cast iron or forged parts. At the same time, the process enables a weight reduction of up to 50%. This leads to significant savings in energy consumption and CO₂ emissions in vehicle construction. The high dimensional accuracy and surface quality minimise the post-processing effort and increase cost-effectiveness.

Application potential in many areas

The areas of application are manifold. Rheocasting offers several features that can be used for different applications. For example, rheocasting parts can be welded helium-tight, which is crucial for pressure vessels or components of a car's air suspension system. Even without welding, the low porosity of rheocasting parts proves to be advantageous for components such as CO2 distributors in cooling systems. In addition, the superior casting quality of rheocasting improves mechanical properties to the point where forgings can be replaced. This allows for mass reduction and a near-net shape design.

The SAG rheocasting systems are designed for large-scale production. As soon as a CAD design is available, our R&D team brings a product to series production readiness in a short time.

"Rheocasting is a technology with immense potential and is a game-changer for many applications. The unique advantages of the process as well as the favorable cost components due to lower energy consumption, the elimination of post-processing processes and the lower wear of the casting molds further increase the economic attractiveness," conclude SAG rheocasting experts Fabian Hofstätter, Stefan Griesebner and Aaron Meierschitz.

Meet the experts at EUROGUSS Nuremberg, 13-16 January 2026, Hall 5, Stand 5-162e.-

SAG Group: Global player with a local footprint in 6 countries and 9 locations

The company goes back to Salzburger Aluminium AG, founded in 1898, and today employs around 1100 people at a total of nine locations in Austria, the Netherlands, Slovakia, Spain, Mexico and the USA. As a leading manufacturer of aluminium tanks for trucks, SAG is a global supplier to many well-known OEMs. Other products include lightweight components for chassis, air accumulators, compressed air tanks and special components for the passenger car, commercial vehicle, rail and special vehicle industries. The company is a technology leader in the field of cryogenic tank systems for LNG & LH2 (Liquefied Natural Gas & Liquid Hydrogen) and is the first company to bring rheocasting (special casting processes for aluminum components) to series production. In 2024, the turnover of the entire group amounted to around 190 million euros.

As part of the GreenTech Award ceremony, the SAG Group was awarded a special prize as "Leading Innovator" for the third time in 2024. The reason for this is the company's numerous patents for innovations that make a significant contribution to climate protection.

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