New die casting machine opens up joint research perspectives for NMF and LGT

A modern horizontal cold chamber die casting machine from the Institute of Casting Technology (LGT) has arrived at Neue Materialien Fürth. The heart of the system developed by Druckguss Service Deutschland GmbH (DSD) is a servo-electric clamping unit. Thanks to precise force and path control, it ensures high energy efficiency and repeatable casting cycles. The casting unit, core pulls and secondary axes are supplied hydraulically via speed-controlled internal gear pumps, while demand-dependent power management reduces specific energy consumption by up to 30% and also reduces noise and cooling power. The casting system is controlled by a PC-based platform with EtherCAT fieldbus, OPC UA interface and integrated production data acquisition. This means that all process variables are available in real time. In the future, AI-supported algorithms will enable adaptive control interventions.

Image 1: horizontal cold chamber die casting machine; Location: Neue Materialien Fürth GmbH.

The casting machine complements the existing portfolio of the NMF/LGT and forms the core of future projects on semi-liquid metal dosing and the development of new Al and Mg alloys. Future research will focus on semi-liquid metal dosing, material and process development (e.g. recycling-friendly alloys) and data-driven process control.

For the final start of production in the second half of 2025, a fully automated spraying system and an energy-efficient melting/hot holding furnace will be procured and integrated into the casting machine. The system will then be available to research partners and companies for feasibility studies, prototype series and industrial pilot projects. We look forward to exploring opportunities for cooperation!