

# FOUNDRY TECHNOLOGIES

By casting, highly complex parts can be produced, whose biggest users is the automotive industry. Such moulded parts include cylinder heads, engine blocks, chassis parts and turbochargers. The different casting technologies (gravity casting, low pressure casting, die casting, precision casting) differ greatly in terms of production costs, size and weight of castable products, surface quality and minimum castable wall thickness. In Hungary, only the University of Miskolc has the conditions for accredited in-service training and only the University of Miskolc has a foundry competence centre that includes all foundry sectors. The competencies of the foundry technology laboratory include all foundry technologies that occur in Hungary. Our service covers everything from technology design to implementation to full-scale testing and development.

## COMPETENCIES

- Foundry simulation
- Mould and seed making
- Iron and steel casting
- Die casting
- Gravity casting of light metals
- Sample preparation
- Gravity die casting
- Sand casting
- Melting and melt classification
- Material testing and defect analysis of castings
- Sand tests



## SERVICES

- Assessment of the properties of moulding and core sand mixtures
- Assessment of the properties of binders used in seed production
- Review of complete smelting technology, consulting
- Examination of scrap cases that can be traced back to melt and its metal quality
- Testing the development of alloys
- Preparation of form loading and solidification simulations
- Pressure casting consulting
- Examination of castings, exploration of causes of errors



## TOOLS

- Foundry Technology Laboratory
- Fully equipped sand lab
- Idra 160 t die casting machine
- NovaFlow & Solid and WinCast simulation software
- Induction furnace park
- SIMTEC/WinCast finite element simulation software, NovaFlow & Solid Control Volume simulation software, Flow3D CFD simulation software
- Induction melting furnaces with a melting capacity of 0.01-10 l useful volume. Resistance-heated melting furnaces for melting aluminium and copper alloys weighing 3 to 100 kg
- Density index testing equipment
- IDRA 160t sealing horizontal cold chamber die casting machine
- Complete sand testing laboratory



## REFERENCES

- Sicta Kft. : Determining the recyclability of scrap castings and adjusting the alloy content
- Sicta Kft. : Determining the recyclability of scrap castings and adjusting their alloy content
- NEMAK Győr Kft. : Analysis of the effect of casting technology parameters on porosity
- Others: Csaba Metál Zrt.; Fémalk Zrt.; CSABAcast Kft.; Prec-Cast Kft.; Busch-Hungária Kft.; Certa Kft.