



DEVELOPMENT OF METALLURGICAL PROCESSES AND SECONDARY RAW MATERIAL RECYCLING

Ideas for the project:

- Industrial experiments and processes' evaluation based on precisely defined and realized industrial trials
- State-of-the-art simulation software and physical modeling methods to predict the production process of ferrous and non-ferrous alloys
- Sampling planning, sampling and preparation of metal samples and material analysis
- Non-contact 3D measurement of dimensional and shape deviations directly in operating conditions and CMM measuring supported for evaluation of dimension and shape of engineering parts

Infrastructure offered:

- More than 200 m² of relevant laboratories
- Analytical systems for industrial experiments → zinc alloys, aluminum alloys and cast iron
- Infrastructure for materials analysis, equipment for CMM and non-contact 3D measurement
- Infrastructure for numerical and physical simulations

Recent projects solved, related to the issue:

- FW03010323 → Research and development of shaped moulds from hardenable steels for casting zinc alloys in the application of modern technologies of additive production, heat treatment, surface treatment and numerical simulations
- FW03010609 → Research and development of shape molds made of H-13 and HEATVAR for die casting of aluminum alloys in the application of modern technologies of additive production, heat treatment, surface treatment and numerical simulations
- FV40346 → Research and Development of Advanced Technological Processes for the Production of Cast Iron Castings with the Implementation of 3D scanning into the Quality Management Process
- FV40036 → Research and development of complex technology of castings production from high-quality ductile irons castings
- TH04020055 → Research and Development of Zinc Scrap Recycling Technology for the Production of High-Quality Zinc Alloy Castings
- TH04010449 → Research and development of refining technologies for increasing of quality of aluminium alloys for high-performance quality castings

Active participation in relevant associations:

Cluster WASTen, Czech Foundrymen Society, Czech Metallurgical Society, The Czech Society for New Materials and Technologies, Automotive Industry Association, Czech Society for Mechanics

Partners in previous research projects:

Technical University of Liberec, University of West Bohemia, Silesian University of Technology

Contacts with industrial partners:

GD Druckguss s.r.o., COREZINC s.r.o., MULTICORE s.r.o., ITB Engineering & Production s.r.o., TŘINECKÉ ŽELEZÁRNY, a. s., MOTOR JIKOV Stojírenská (Machining) a.s. → Machining Division, MOTOR JIKOV Slévárna (Foundry) a.s. → Iron Foundry Division / Die-Casting Division, MOTOR JIKOV Fostron (Tools) a.s. → Tool Shop Division, KOVOSVIT MAS Foundry a.s.

Topic:

HORIZON-CL4-2022-RESILIENCE-01-07: Innovative solutions for efficient use and enhanced recovery of mineral and metal by-products from processing of raw materials (IA) Specific conditions

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