

Review innovation day NMF 2024

Around 80 guests and company representatives from various sectors took the opportunity to find out about new technologies at seven stations on the NMF innovation day. In addition to demonstrations on the units, demonstrators, posters and videos were used to show the potential of innovative approaches to the production and processing of metals and polymers.

Temconex®

The continuous powder extrusion (Temconex®) was presented for the production of rods, wires and profiles from powders, granules and chips. The potential of direct recycling of chips from a wide variety of materials as well as old powders from additive manufacturing was also demonstrated.

Casting technology

The casting technology group demonstrated the energy and process-related advantages of magnesium injection moulding and how the process has already been optimised as part of research projects at NMF. Visitors were also able to find out about the possibilities of alloy development and mold design using simulation at NMF. We were delighted to welcome both existing customers and new interested customers.

Electron beam powder bed fusion

Electron beam powder bed fusion is appropriate for processing metallic high-temperature materials. In addition to the well-known process-specific advantages such as superior process temperatures, high build-up rates and minimal oxygen uptake due to the inherent vacuum conditions, the great potential of electron-optical imaging was demonstrated.



Thermoplastic Fibre Composites

Innovative lightweight construction with thermoplastic fibre composites was presented on modern interval hot presses. Local pressure adaptation in the mould with visualisation of the control system through digital machine linking was demonstrated for the first time on our 50-inch system. In addition, a shrinkage-optimised PP glass fibre laminate was produced on our 25-inch interval hot press using a combination of melt-direct and film-stacking processes.

Material characterisation

The determination of mechanical parameters as input data for the numerical analysis of forming processes with high strain rates and for crash simulations was demonstrated on our servo-hydraulic high-speed testing machine. Tensile tests were carried out at a test speed of up to 20 m/s using a high-speed strain measuring system.

Forming

A charring demonstrator was produced in an incremental forming and joining process using a hydraulic press with an integrated function for orbital forming. In addition, the produced parts were automatically recorded and tested directly on site using a 3D scanner for quality control.

Granulate based 3D-Printing of metals and ceramics

There was great interest in the presentation of the entire process chain for the development and production of innovative, binder-based metal and ceramic feedstocks, from powder to sintered components. The demonstration of the shear-roll compounder for the production of a customised metal feedstock and the demonstration of cross-process data linking in the live process were the highlights of the demonstration of granulate-based 3D printing.

