

Optimal Solutions to Tool- and Patternmaking, Prototyping, Pre-Series, Production, Assembly

Grunewald is a family owned business group and forms with its sites *Grunewald (headquarter)*, *Grunewald Werkzeuge & Formen* and *Grunewald Guss* in Bocholt (D), *Grunewald Tooling* in Irlxleben (D), *Grunewald BSB Engineering* (D) and *Grunewald New Technologies GNT* (USA) a strategic alliance of tool- and pattern making as well as the development, design and production of metal, plastic and composite components from design to prototyping and pre-series up to the series production processes.

Starting with our comprehensive CAD capabilities, we offer a wide range of modern techniques for the production of equipment and products. The efficient use of our multifaceted possibilities with almost 100% vertical integration features significant benefits concerning time and cost reduction combined with high quality standards. The outcome of this is highest-possible customer satisfaction.

CAD/CAE, Engineering

- 3D product development and design
- 3D tool and jig design
- CAE simulation of mold filling, solidification, stresses and distortion
- FEM modelling

Toolmaking Automotive and Vehicle Industry

- forming, laminating, punching tools
- foaming tools
- wrapping tools
- high pressure die casting tools
- injection molding tools
- jigs, gauges and equipment

Toolmaking Aerospace Industry

- Lay-up tools for the production of composite components
- Curing and cutting tools
- jigs and equipment

Casting Products

- pattern devices
- laser sintering techniques
- QMC-Rapid Prototyping castings in aluminium and iron
- sand casting and low pressure sand casting in aluminium and iron

Plastic and Composite Products

- pre-series vacuum casting of plastic components
- pre-series plastic injection moulding
- pre-series RTM

CNC finished Part Processing

- Water-Jet Cutting
- CNC-finished part processing. castings, composites, plastic components, tools, jigs and patterns
- CNC-finished part processing incl. HSC up to 14 m