



Permanent magnets
for demanding applications

www.pzk.cz



A ferrofluid is a liquid which becomes strongly magnetized in the presence of a magnetic field. Ferrofluids are colloidal liquids made of nanoscale ferromagnetic, or ferrimagnetic, particles suspended in a carrier fluid (usually an organic solvent or water).

Established in **1991**

45 employees

Annual turnover 11 milion EUR

Branches in Slovak Republic and China

ISO 9001:2015

ISO/IEC 17025:2005



Company overview - our activities



Gebauer & Griller
Wires & Alloys



Wholesale

Supplying of materials for rail transport, automotive, automation and other electrotechnical industries.

Manufacturing

Manufacturing and assembly of products for electrotechnical and engineering industries.

Material testing

Testing of magnetic, mechanical and corrosion behavior.

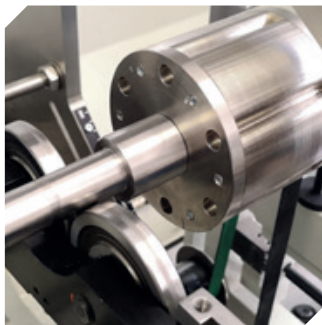
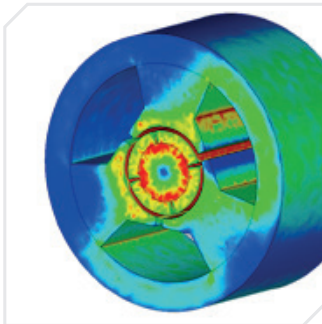
Permanent magnets - how we cooperate

Czech Republic

Testing and assembly

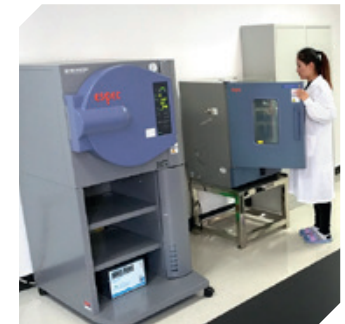


Technical support



China

Testing and production supervision



Magnetic materials



Sintered NdFeB

- HAST below 2 mg/cm²
- Low temperature loss
- Radial orientation option
- Up-to-date coatings
- $(BH)_{\max} = 260 - 430 \text{ kJ/m}^3$



Sintered SmCo

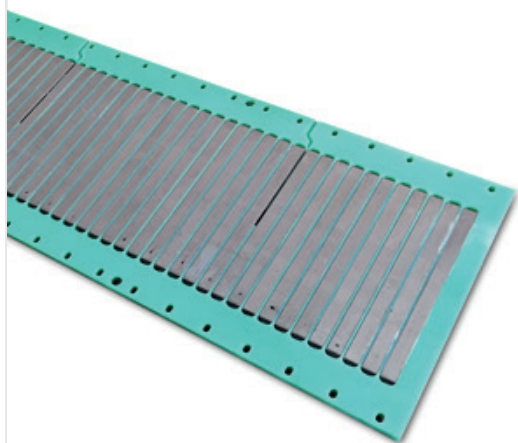
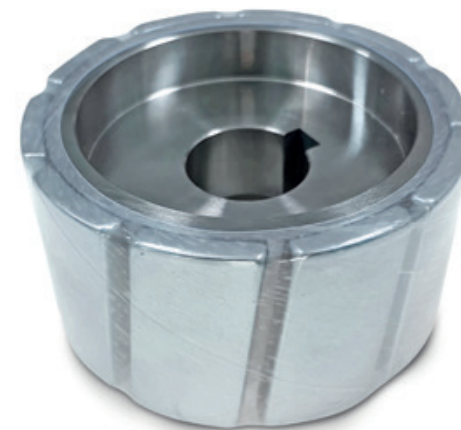
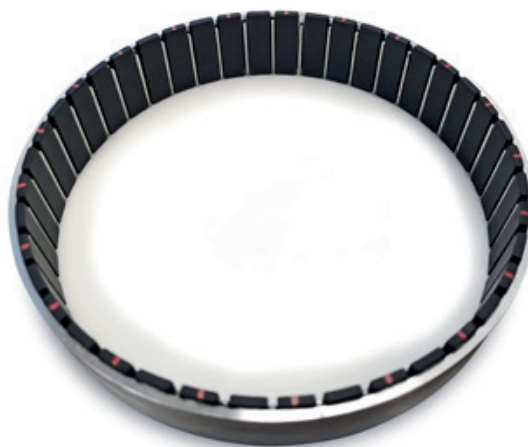
- Temperature stability up to 300 °C
- High corrosion resistance
- $(BH)_{\max} = 150 - 250 \text{ kJ/m}^3$



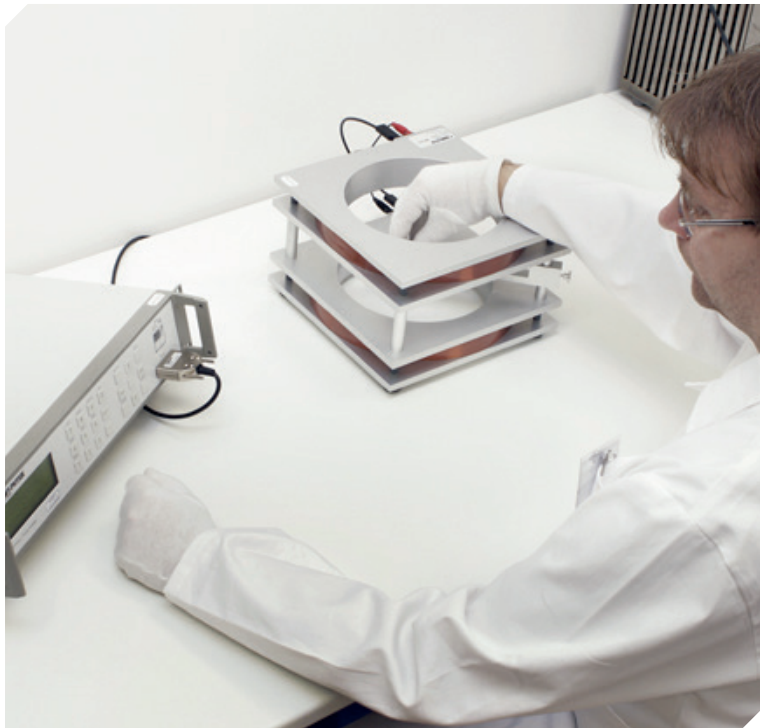
Plastic bonded

- Multipole magnetization
- Complex shape feasibility
- $(BH)_{\max} = 20 - 100 \text{ kJ/m}^3$

Magnetic assemblies



Accredited laboratory



EN 60404-14

Measurement of magnetic dipole moment in Helmholtz coils.



EN 60404-5

Measurement of magnetic properties (B_r , H_cB , H_cJ , BH_{max}) of permanent magnets in closed magnetic circuit of hysteresis graph.



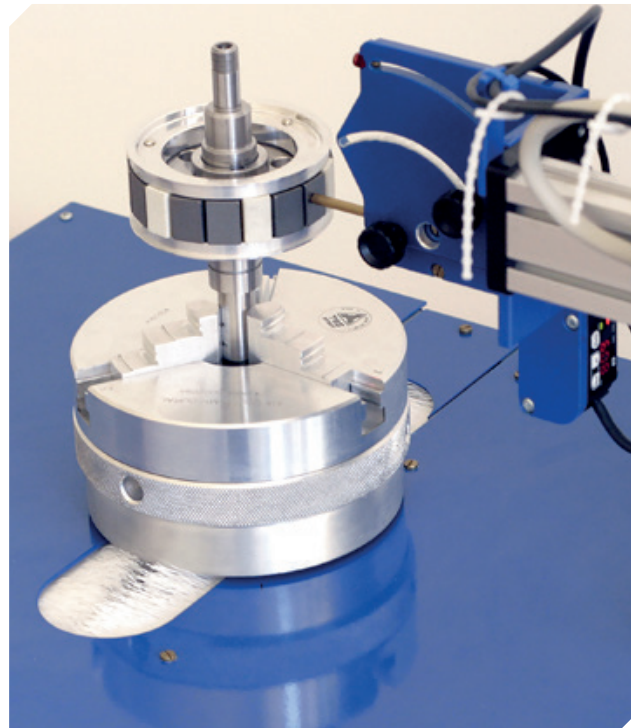
Certification

- Since 2014
- ISO EN 17025
- Unique in Europe



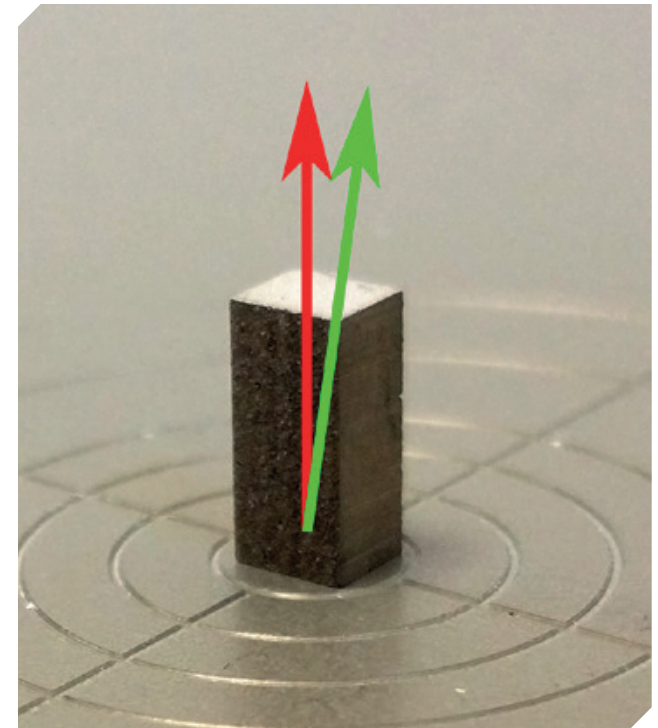
Pulsed field magnetometry

- Testing of magnetic properties under - 40 °C up to + 220 °C
- Testing of radius-shaped samples
- Field up to 5 000 kA/m



Flux density scanning

- Multipole rings testing
- Rotors and couplings inspection
- Local defects analysis



Angle deviation testing

- Angle error testing between geometrical and magnetization axis
- Typically used for sensor application

Other testing



Corrosion testing

- Salt spray according to EN ISO 9227:2012
- HAST / PCT
- Long-term experiments



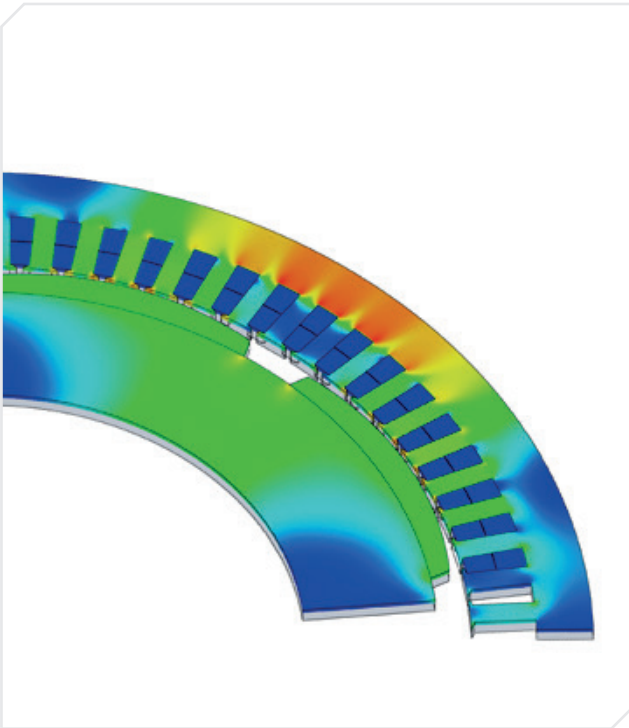
Temperature stability testing

- Temperature stability testing (-40 °C to +300 °C)
- Long-term experiments



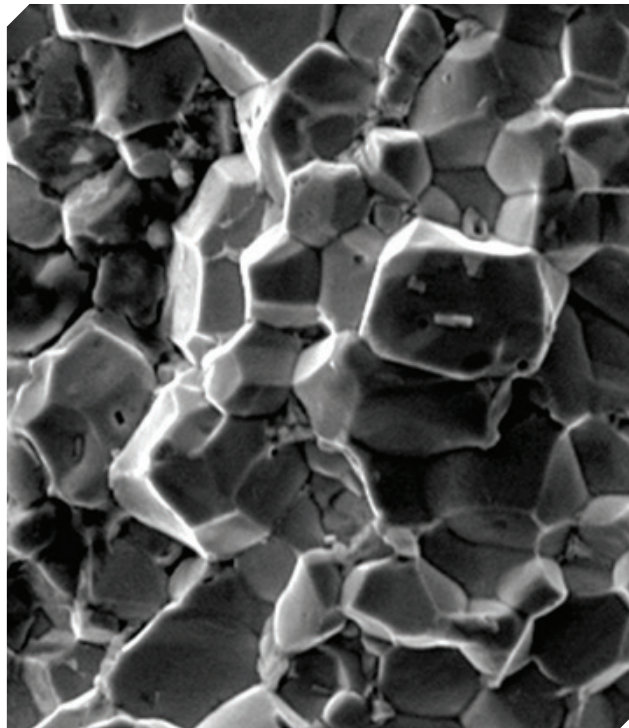
Mechanical testing

- Up to 50 kN in range -70 °C to 300 °C
- 3-point bend, tensile strength
- Glue bonding strength
- Coating adhesion testing



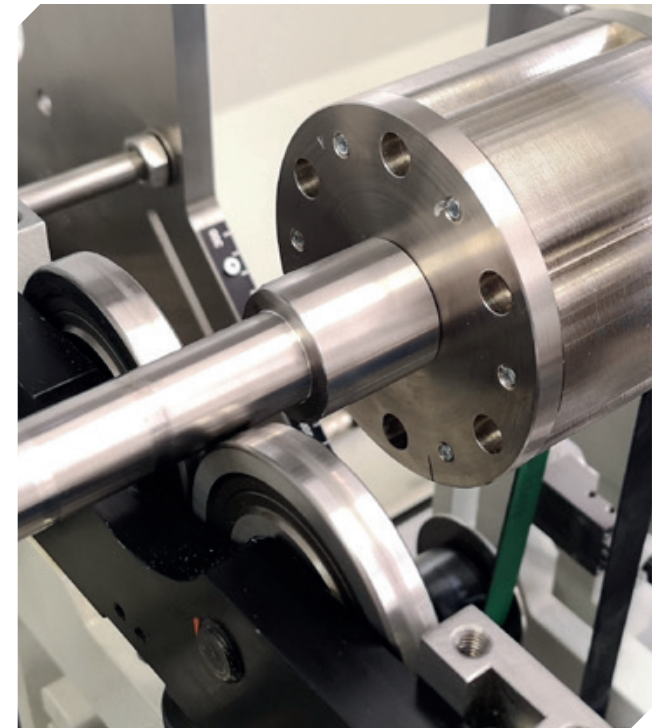
Calculations

- Synchronous machines
- Torque and traction force
- Flux density analysis



Material analysis

- Microstructure analysis
- Chemical composition analysis
- Coating thickness measurement



Rotary part balancing

- Part weight up to 50 kg
- Max. diameter up to 600 mm
- Max. length up to 970 mm

Other products

Besides parts with permanent magnets we manufacture other products used in different industries.

LPTC sensors

PT100 / PT 1000 sensors

Stator winding

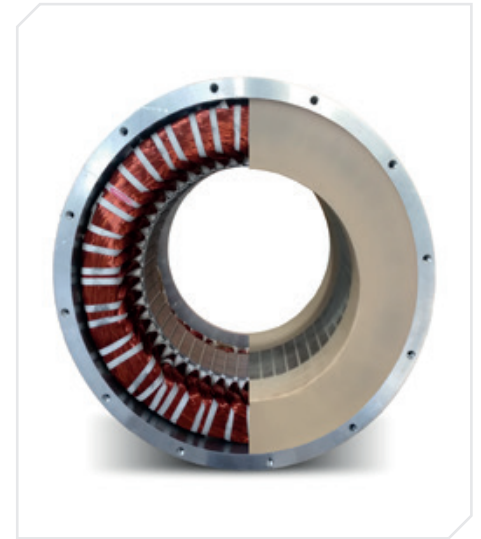
Epoxy potting

Machining

Casting

Pressing

Welding



The background features a stylized representation of Earth's magnetic field. On the left, a bright orange and red aurora-like pattern flows upwards. In the center, a series of concentric, glowing blue and teal lines represent the magnetic field lines, which are being compressed and deflected by a stream of particles (solar wind) coming from the left. The entire scene is set against a dark blue space background with numerous small white stars.

MAGNETS

ATTRACT US

Earth's magnetic field, also known as the geomagnetic field, is the magnetic field that extends from the Earth's interior to where it meets the solar wind, a stream of charged particles emanating from the Sun. Its magnitude at the Earth's surface ranges from 25 to 65 microtesla (0.25 to 0.65 gauss).

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YEARS
OF EXPERIENCE