

BOMATEC

**Quality assurance
by our own laboratory**

Laboratory

test equipment

You expect quality. So do we.

The requirements placed on materials are increasing continually. And we always need to be certain that the quality of all the magnetic materials we supply meets the criteria set. That's why we test and analyze them directly in our in-house laboratory. It's not only where standard equipment such as mechanical testing and measurement apparatus renders its services – but also magnetic and climatic test equipment, such as gaussmeters, fluxmeters, Helmholtz coils, hystergaphs, scanners, a climatic chamber, a salt-spray chamber and autoclaves.

What do these names all mean? That's what we'll be explaining to you in this brochure. And in turn why the materials supplied to you by Bomatec will also meet your precise quality requirements and expectations to the letter.

■ Gaussmeter and fluxmeter



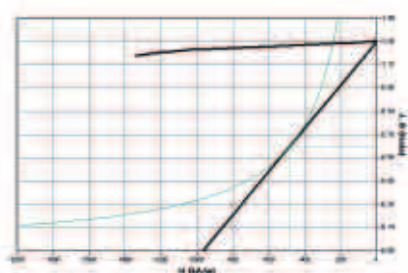
Two devices used for the quick and simple measurement of magnetic flux and surface magnetic field strength.

■ Hystergaph

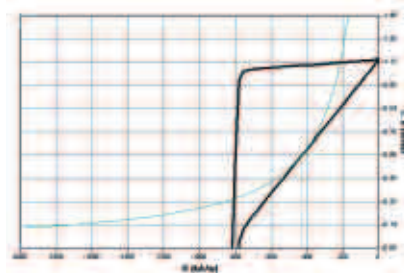


We use the hystergaph to characterize hard magnetic materials in detail and measure these to IEC 404-5 standards. The computer-controlled systems permit measurements to be made at temperatures ranging from room temperature to +200 °C.

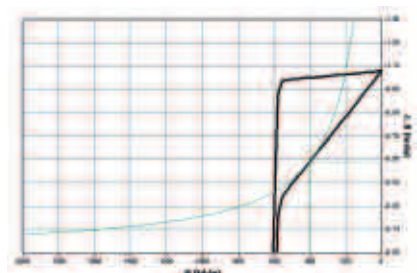
■ Typical measurement curves



20 °C



120 °C

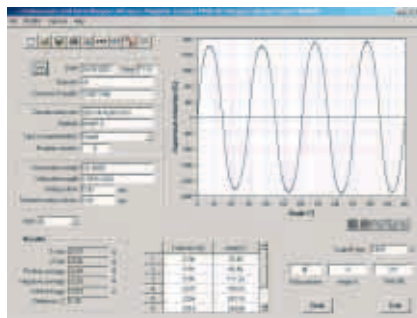


150 °C



■ Magnetic scanner

The magnetic scanner automatically measures magnetic induction on rotors and stators using axial and radial multipolar magnetization. Its software allows the visualization of angle-induction diagrams, peak analysis, the angular shift of individual poles, harmonic distortion and much more.



■ Magnetizer

We – and that ultimately also means you – have the full use of a magnetizer in the Bomatec laboratory. That's because the system is used both for internal laboratory purposes and contract work.

Working voltage	3 000 V
Adjustable voltage range	50–3 000 V
Maximum current	20 000 A
Magnetization field	Coil D58 mm – max. 5.2 T Coil D80 mm – max. 4.6 T
Magnetization cycle time	3 seconds



■ WEISS climatic chamber

This computer-controlled climatic chamber enables us to generate temperature profiles from $-40\text{ }^{\circ}\text{C}$ to $+180\text{ }^{\circ}\text{C}$ and climate profiles up to $+85\text{ }^{\circ}\text{C}/94\%$ relative humidity. An indispensable tool for testing coatings and the thermal losses of magnets.



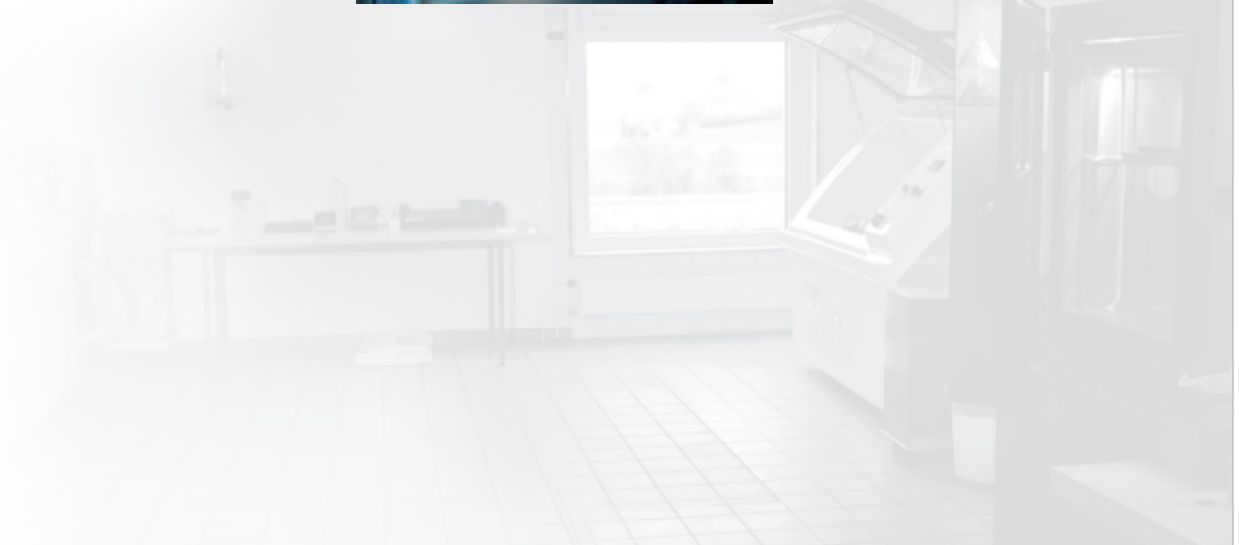
■ Autoclave

Our Systec autoclave is used to carry out highly-accelerated stress tests (HASTs). In these tests, coated and uncoated magnets are subjected to saturated steam and corresponding pressures at over 100 °C for a specified time of at least 24 hours. It allows corrosion resistance and ageing behavior as well as the quality of coatings to be tested.



■ Corrosion test apparatus

The latest addition to our battery of laboratory equipment: the Corrocompact 612/450. We use this to carry out salt spray tests in compliance with DIN 50021. A liquid crystal display allows us to enter and read off all of the relevant parameters for the test chamber.



Laboratory

test equipment

Equipment used for incoming inspections

Naturally, we specify clearly-defined tests for our products in their manufacturing plants. However we also carry out our own exhaustive, in-house incoming inspections. To do this we employ measurement tools like a 3D CNC measurement apparatus, Contracer, video measurement microscope, micrometers, slide gages, Diatest gages and more.

■ 3D Coordinates measurement instrument

We've reprinted some system data here from our modular system for the CNC measurement of 3D coordinates. Convincing values? We agree. That's why we'll also be pleased to accept your order for the measurement of your workpiece coordinates – even if you didn't source the workpieces from us.

Workpiece maximum dimensions	
Height	545 mm
Weight	180 kg
Measurement range	X axis 505 mm
	Y axis 705 mm
	Z axis 405 mm
Measurement deviation	
16–26 °C	(1.9+0.4L/100) µm
18–22 °C	(1.9+0.3L/100) µm
Linear system resolution	0.1 µm



■ Contracer contour measurement instrument

Our stationary, high performance Contracer CV-3000 system carries out automatic series measurements of various contours.

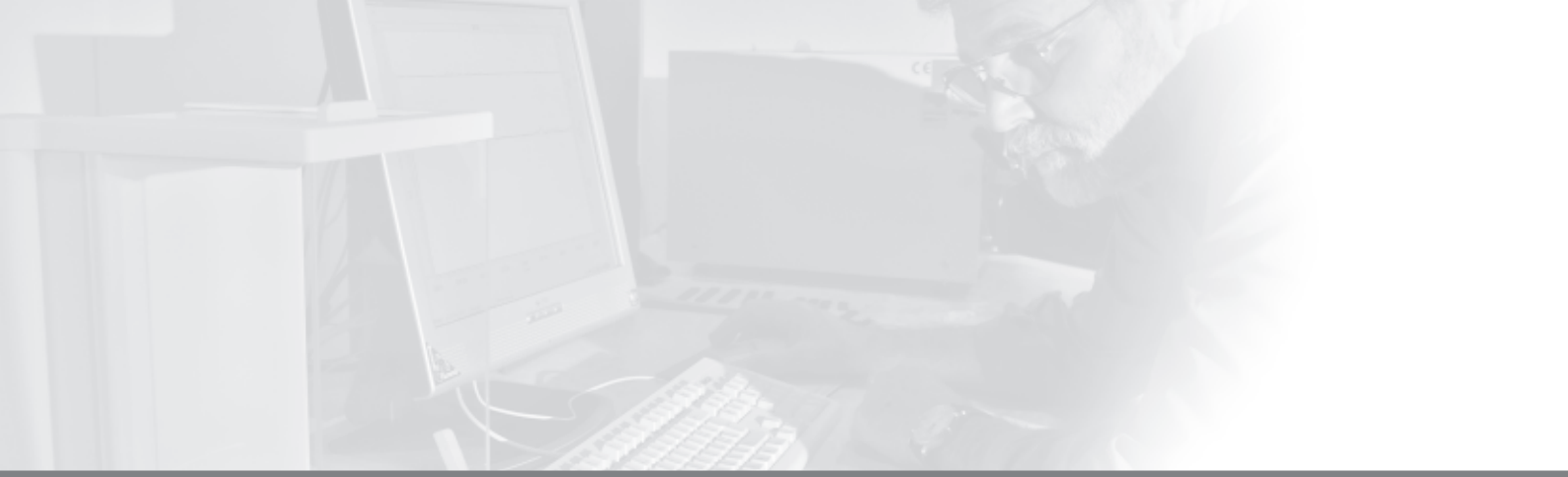
Measurement range	horizontal 100 mm
	vertical 50 mm
Resolution	X axis 0.05 µm
	Y axis 0.2 µm



■ CZW 1 Video measurement microscope

Suitable for most applications, the CZW 1 video measurement microscope magnifies up to 40-fold. A graphics card is used to transfer the camera image to a computer monitor. The measurement software is coupled to the camera.





Put us to the test

We test all of these properties in our laboratory to ensure flawless quality for all of our products. But you too are allowed to put us to the test. Because we will gladly also accept orders for the testing of third-party products. We look forward to receiving your enquiry.

■ Product summary

Magnet technology

- AlNiCo, Ferrite, SmCo and NdFeB magnets
- Plastic-bonded Ferrite, SmCo and NdFeB magnets
- Assorted magnetic materials
- Magnet assemblies
- Fully-equipped laboratory with test equipment to determine material characteristic values, corrosion and temperature behavior, surface and coating characteristics, geometrical magnitudes, physical properties etc.
- Leading-edge, computer-assisted quality assurance procedures

Sensor technology

- Resolvers (SinglSyn®, SmartSyn®)
- R/D converters
- Incremental position encoders
- Single- & multiturn absolute encoders
- Magnetic encoders
- Electrical encoders
- Linear position measuring systems
- Trackballs
- Angular acceleration measuring systems
- Rotary systems etc.

Drive technology

- AC servomotors
- DC servomotors
- DC motors
- 2/5 phase stepping motors
- High torque stepping motors
- Stepping motor output stages



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