BROCKHAUS
MEASUREMENTS

- Determination of the magnetic properties of electrical steel and other soft magnetic materials
- Freely configurable with specific measuring coil systems
- Parallel connection of up to 12 measuring coil systems
- Fully digitized data documentation
- Measuring coil systems and evaluation according to IEC 60404 ff. and ISO ASTM for measurement with Epstein frame and sheet measuring coil
- Versatile
- Easy to operate
- Automatic coil changeover for convenient operation
- Module for measurement of rings, ring strip cores, stacked punched parts, etc.
- MPG Expert software for measurement, display and integration into QM systems

Measuring categories

Specific hysteresis loss
Maximum polarization
Effective polarization
Maximum field strength
Effective field strength
Remanence
Coercive field strength
Permeability
Specific apparent power
Hysteresis display
Form factor
J(H) values for graphic display

Measuring Technology for Soft Magnetic Materials

Measuring Unit MPG 100 D

Measuring Unit MPG 100 D

Operating principle

In a measuring coil a material sample is exposed to a defined magnetic field and magnetic flux is created in the steel sheet. The electric current required is supplied by a power amplifier. The current is measured by means of a temperature-stable, induction-free precision resistor (shunt) or via field coils.

Determination of the polarization by measurement of the induced voltage, and then conversion and integration by means of a 16-bit processor. Parallel recording of the H and J values with separate recording systems guarantees absolutely simultaneous measurement. Faults in measurement caused by phase displacement are thereby ruled out. From the differentiated and integrated parameters the processor system can calculate all the above-mentioned values. There are no sources of faults such as analogue multipliers and integrators.

Measurement is by means of sinusoidal polarization. By using a control algorithm the secondary voltage can be checked and controlled sinusoidally. The nominal voltage is supplied by a highly stable, quartz-controlled digital sinus generator. Amplitude and frequency are set by the processor unit according to the sample data entered (weight, density, desired frequency, nominal polarization etc.).

Measuring coil systems

- Epstein frame for frequencies of 50 Hz / 60 Hz according to IEC 60404-2
- Epstein frame for frequencies up to 400 Hz according to IEC 60404-2
- C 510 measuring coil for punched parts, cuts and strips
- Single-strip measuring sensor for Epstein strips, comparable to IEC 60404-3
- Single-sheet tester according to IEC 60404-3 (500 x 500 mm)
- Module for rings, transformer cores and stators
- Custom-made Epstein frames, single-sheet and single-strip measuring coils

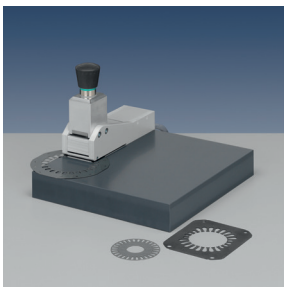
Operation, Measurements and Evaluation

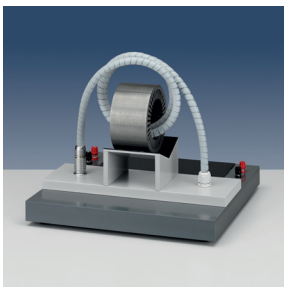
MPG Expert software for simple operation of the instruments enables completely free parametering and structuring of the measuring processes under Windows.

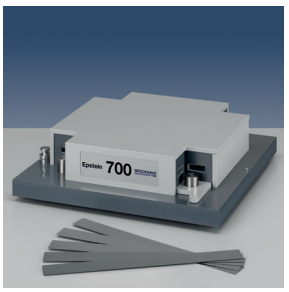
Technical Data

Repeatability	0.2 %
Comparability of the measured results	according to IEC 60404 ff.
Setting accuracy of the nominal value	according to IEC 60404 ff.
Maximum current	± 40 A
Maximum voltage	± 110 V
Coil connectors	3 – 12
Operating mode	PC / software
Model	table or cabinet version
Measuring frequency	3 Hz to 10 kHz, DC with adjustable rise time for primary signals and flux alteration control dΦ/dt
Power supply	3 x 220 – 440 V AC, 50 / 60 Hz

Strip measuring sensor


Punched part sensor


Ring core sensor



Epstein frame

Single-sheet tester

Other measuring systems
Electrical Steel: C 510
Inline: EBA
Surface Resistance: Franklin Tester

Product divisions
Measuring Technology for Hard Magnetic Materials
Magnetizing Technology
Services

BROCKHAUS MEASUREMENTS

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