HARD MAGNETIC MATERIALS

TRUE PULSE

Measuring system of permanent magnets based on the principles of the Pulsed Field Magnetometry (PFM).

TRUE PULSE GEN-1

DESCRIPTION

The magnetic characteristics of the sample are measured during the short time of the magnetization pulse given by the magnetizing coil. During the pulse, the dedicated measuring coil simultaneously detects the magnetizing field H and the magnetic polarization J.

The sample is placed in a holder and the holder is precisely positioned inside the measuring area by an electric axis, which brings the sample in for the measure and out after the measure. During the movement, a fluxmeter permits the additional measure of the flux related with the magnetic polarization of the working point.

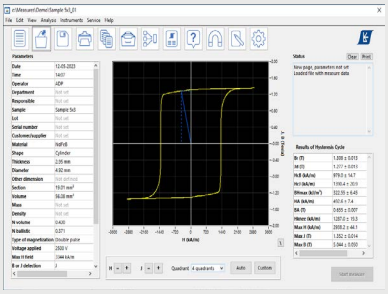
MAIN CHARACTERISTICS

- Full hysteresis cycle in a fraction of second for every high-coercivity materials
- Very fast measure with innovative coil design: one measure every 10 seconds
- Continuous measurement cycles during cooling of a sample from high T permits the thermal behavior of any PM
- The measure is possible with any shape
- From 0.5 mm to 10 mm dimensions
- Automatic polarity change
- Magnetizing field higher than 5 T

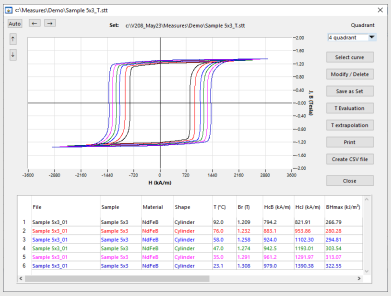
STANDARD CONFIGURATION

- Magnetizer
- Magnetizing coil
- Measuring coil
- Bench with automatic positioning system and safety optical barriers
- Fluxmeter
- Acquisition system (board)
- Fiber optic temperature sensor and dedicated signal conditioner
- Industrial PC + Monitor
- Electrical cabinet with power supply and service electronics
- Chiller

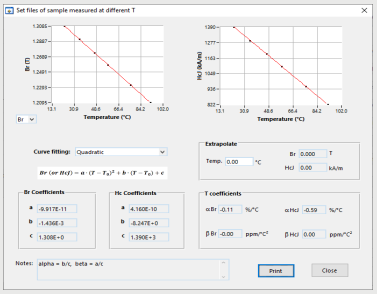
TRUE PULSE SOFTWARE



Parameters set, results and graph



Multiple-curves visualization, for temperature set or comparison



Set of curves at different temperature and thermal coefficient evaluation

The software is designed to automatically take care of all aspects of the measure: insertion of the sample, polarity setting, magnetization, acquisition and measure, extraction, elaboration, and post-processing. The operator just needs to insert a very limited and simple set of parameters and press the start button. Other useful options, such as the automatic report, printing, database, etc. complete the wide range of possibilities covered by this equipment.

FEATURES

TYPE OF MEASUREMENT	▪ Full hysteresis cycle in a fraction of second for every high-coercivity materials
SETTING OF MEASURING PARAMETERS	▪ Very fast measure with innovative coil design: one measure every 10 seconds
RESULTS	▪ Continuous measurement cycles during cooling of a sample from high T permits the thermal behavior of any PM ▪ From 0.5 mm to 10 mm dimensions ▪ Automatic polarity change ▪ Magnetizing field higher than 5 T

TECHNICAL SPECIFICATIONS

GENERAL

TYPE OF MATERIAL	Any PM material
SHAPE OF THE SAMPLE	Any shape
MAX SIZE	10 mm diameter, 6 mm height (with bigger coil)
MINIMUN SIZE	0.3 mm^2 (with X-small coil)
MINIMUN MAGNETIC MOMENT	$2.8 \cdot 10^{-4}$ $A \cdot m^2$ (with X-small coil)
MAX APPLIED FIELD	5.2 T
MINIMUM CYCLE TIME	10 s
CYCLE TYPE	Single pulse or double pulse
MEASURABLE QUANTITIES	Br, HcB, HcJ, Jsat, Jd, BHmax, BA, HA, Hknee, HDx
TYPICAL ACCURACIES	Br: ± 2%, HcB: ± 2%, HcJ: ± 2%, BHmax: ± 3%, Jd: ± 1% (lower accuracy with X-small coil, depending on the magnet size)

CABINET

DIMENSIONS	L 1070 X W 920 X H 1895 mm
WEIGHT	400 kg
ELECTRICAL	220 Vac 50/60 Hz, 25 A
CHILLER	External, automatic with software
AVAILABLE PORTS	2 USB, 1 LAN, 1 HDMI

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