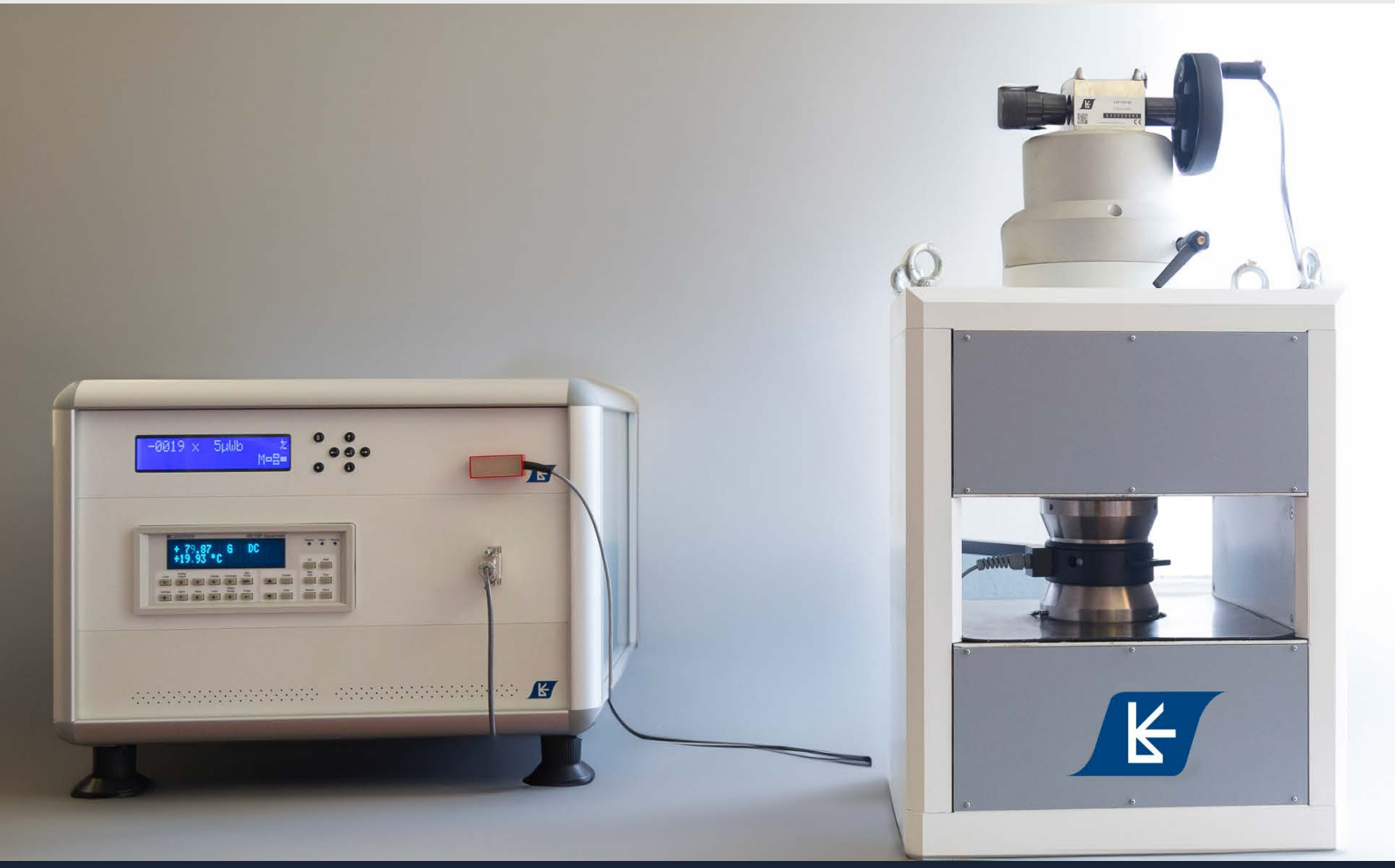


CEMENTED CARBIDES

AMH-5800

AMH-5800 is the latest technology for measuring the magnetic properties of cemented carbides (WC in Co matrix) and semi-hard magnetic materials.

AMH-5800
HARD METAL MAGNETOMETER

DESCRIPTION

The AMH-5800 provides accurate magnetic parameters to evaluate correlated metallurgical properties, such as: hardness, the presence of undesired phases, grain size. This revolutionary measuring equipment utilizes a technique that provides the fastest, repeatable and accurate measurements available on the market today.

The AMH-5800 meets the International Standards ASTM B886 e B887

Magnetic Properties of Cemented Carbides

Cemented Carbides are composite materials made with tungsten carbide (WC) mixed in a binder metal, mainly cobalt. The addition of Co allows the final alloy to have both an excellent hardness and a good toughness. The weight percentage of Co in the alloy is usually between 3 to 30%. The measurement of magnetic properties of Cemented Carbides gives useful information on the metallurgical process: the magnetic moment provides direct information for the quantity of Co not alloyed in non-magnetic phase. With the 5800 it is now possible to evaluate the queality of the metallurgical bond and the eventual presence of undesired phases. The coercivity Hcj data provides an indication of the grain size: the higher Hcj reading, the finer the grain size.

KEY BENEFITS

- Coercivity Hcj
- Magnetic moment Msat
- %Co or any other magnetic material in the alloy
- Weight-specific saturation magnetization σsat
- Magnetic polarization Jsat

STANDARD CONFIGURATION

- Main cabinet equipped with fluxmeter, gaussmeter, DC power supply and polarity control
- Electromagnet
- Hall probe
- Inductive Sensor Assembly with sample holder
- Digital scale
- Latest PC processor class and LCD screen

AMH-5800 ACCESSORIES

MC MEASURING COIL

The measuring coil has an embedded sensor and a slot to insert a Hall probe. The samples are placed in the sample holder and then inserted into the measuring coil. The sample holder has the following dimensions:

MODEL	DIAMETER	HEIGHT
MC-1	37 mm	19 mm
MC-2	27 mm	13.6 mm

LP POLES

Two types of poles are available for AMH-5800: LP-100 (100 mm diameter) and LP-120 (120 mm).

STANDARD SAMPLE

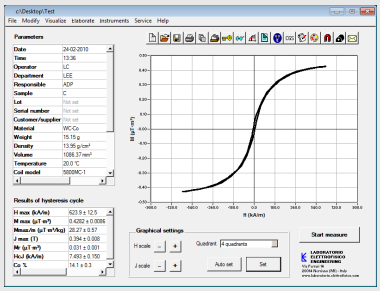
For the best perfomance a reference standard is available for periodic control and calibration.

MODEL	MATERIAL
HYS-Ni	Nickel

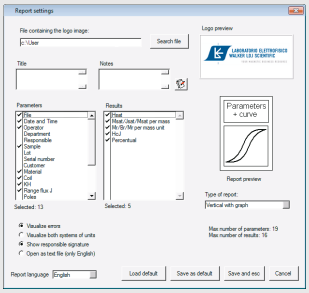
AMH-5800
SOFTWARE HELIUM 1/2

Our proprietary Helium software automatically manages measurements for the AMH-5800, including comparision of different curves and statistical analysis. The sofware ensures the measuring process is accurate and guide the operator to properly set the samples's parameters.

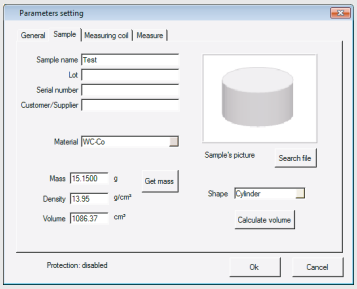
The Automatic Assistant notifies the operator and makes suggestion for the appropriate procedures or settings. The software also provides automatic generation of printing reports, database search feature and curve comparision.



Main Page with parameters set, results and graph



Customizable reports



Parameters Settings

KEY BENEFITS

TYPE OF MEASUREMENT

- All results in a single measure
- Complete cycle and fast cycle options

SETTING OF MEASURING PARAMETERS

- Manual or automatic operation
- Automatically weights the sample with an electronic scale connected to the AMH-5800
- The final list parameters are shown on the main page
- Automatic fluxmeter drift control

RESULTS

- Measure of hysteresis cycle
- Coercivity HcJ
- Weight specific saturation moment σsat
- % of magnetic material in the alloy
- Magnetic units in SI and CGS

AMH-5800
SOFTWARE HELIUM 2/2

KEY BENEFITS

DATA ELABORATION	▪ Curve comparison ▪ Curve's interpolation ▪ Automatic control of the Fluxmeter ▪ Merging and comparison of different curves
PRINTING A REPORT	▪ Customization of reports and formats ▪ Different languages are available for printing ▪ Prints graphical report ▪ Measured data can be opened and saved in Microsof Word™ or other Word processing programs
DATA BASE AND FILE SEARCHING	▪ A complete Data Base of measurements is stored with custom search capabilities ▪ Compatible with Microsoft Excel™
PROTECTION	▪ Password protection for restricting access according to selected parameters.
SET OF MEASURES	▪ Curve comparison provides the grouping of more curves in sets

TECHNICAL SPECIFICATIONS 1/2

GENERAL

MEASURABLE MATERIALS	Semi hard materials and Cemented Carbides
MEASURABLE QUANTITIES	Msat, Hc, Jsat, weight specific saturation moment σsat, %Co

MAIN CABINET

ACCURACY	Gaussmeter: 0.25% reading + 0.1 % range Probe: 0.5% linearity
RESOLUTION	0.1 Oe (300 Oe range), 1 Oe (3000 Oe range)

HC MEASUREMENT

ACCURACY	± 2% for Hc > 500 A/m

MS MEASUREMENT

ACCURACY	± 2% on reading
RESOLUTION	10^{-4} μWbm (10^{-10} Tm^3, 10^{-1} emu)

SAMPLE SIZE

WITH COIL 5800 MC-1	Ø 37 mm x h 19 mm (1.45" dia x 0.75" H)
WITH COIL 5800 MC-2	Ø 27 mm x h 13.6 mm (1"dia x 0.6" H)

POLES DIAMETER

ACCURACY	100 or 120 mm (4" or 4.7")

MAX H FIELD

WITH LP-100 mm POLE	9700 Oe (776 kA/m)
WITH LP-120 mm POLE	7750 Oe (620 kA/m)

TEST TIME

1 minute (typical)

TECHNICAL SPECIFICATIONS 2/2

OPERATING TEMPERATURE RANGE	10° C to 35° C
COMMUNICATION PORT	RS-232/USB2

MAIN ELECTRICAL CABINET	
POWER SUPPLY	220V, 50/50 Hz
DIMENSIONS	535 x 655 x 550 mm (21 x 26 x 22”)
WEIGHT	58.5 kg (129.3 lb)

FLUXMETER	
RANGES	(1,2,5,10,20, 50, 100) x 2000 µWb
RESOLUTION	from 1 µWb (range 1) to 100 µWb (range 100)
ACCURACY	±0.5%
DRIFT	10 kΩ x range
COMMUNICATION	RS232/USB

MAGNETIC YOKE	LEP/100-4S
MAX POLE DIAMETER	120 mm (4.7”)
MOVEMENT OPERATING	Manual
POLES SETTING	Micrometric
DIMENSIONS	330 x 410 x 491 mm (12.9 x 16.1 x 19.3”)
WEIGHT	350 kg (approx.) 780 lb

PC AND SOFTWARE	
OPERATIVE SYSTEM	Windows O.S.
SOFTWARE	Helium

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