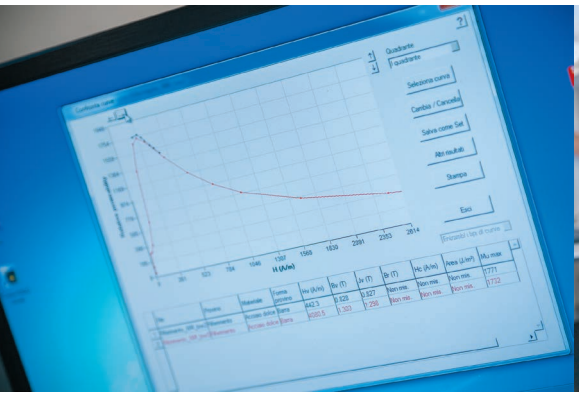
LABORATORIO ELETTROFISICO

AMH-DC-T-S | SOFT MAGNETIC MATERIALS (RINGS)



AMH-DC-T-S Permeameter

AMH-DC-T-S Permeameter is an automatic DC measuring system to characterize toroid shaped soft magnetic materials. Rings are the best shapes for such magnetic characterization: due to the naturally closed magnetic circuit, the demagnetizing field inside the material is zero.

The AMH-DC-T-S meets the International Standards IEC 60404-4, ASTM A341 and ASTM A596.

KEY BENEFITS

- Automatic measurement of complete hysteresis loop, normal magnetization curve and permeability curve
- Initial permeability
- Remanence Br, coercivity Hc, saturation values Hsat, Bsat, Jsat, cycle area, relative permeability, etc.
- Differential permeability

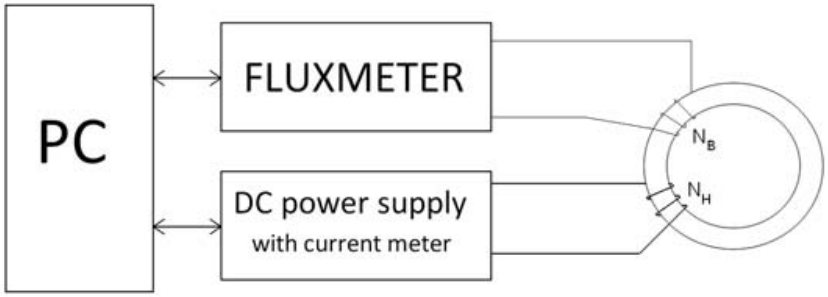
STANDARD CONFIGURATION

Cabinet containing:

- Fluxmeter
- 2 DC Power Supplies (including precision current meters)
- Polarity switch
- Dedicated software Soft2015-P
- PC and printer
- Connection tool for ring samples
- Reference ring for day-to-day control

HOW IT WORKS

The sample must be wound with a primary set of N_H turns for excitation. A secondary set of N_B turns must also be wound around the sample to record the magnetic flux. The H field is determined measuring the current i in the primary winding: $H = N_H \cdot i / l$, where l is the length of the magnetic path (i.e. the averaged ring circumference, when the ring O.D and I.D. are not too different similar). The B field is determined measuring the magnetic flux Φ from the secondary winding: $B = \Phi/(N_B A)$, where A is the cross section of the specimen toroid.



The measuring cycle is fully automatic and is controlled by Laboratorio Elettrofisico exclusive software (Soft2015-P), resulting in complete characterization of the material under test.

Rings samples can be prepared in 3 different basic ways:

• As a monolithic piece of material, obtained by mechanical works or by casting, sintering

• Stacking several toroids with the same inside and outside diameter, that can be obtained by punching, or laser cutting

• A single thin strip wound as a clock-spring

One single piece Stacked rings Wound thin strip

TECHNICAL SPECS

GENERAL

Measurable materials	Measurable materials
Measurable quantities	Bsat, Jsat, Hsat, Br, Hc, cycle area, μrel
Measurable shapes	Ring
Sample size Ring	No physical limitation (size affects the max H field)
Typical data accuracy	Hsat, Hc: ±1%; Bsat, Br: ±1%; μ_r: ± 2%
Test time	60-120 seconds (typical)
Operating temperature range	15 - 40 °C
Frequency	DC

MAIN CABINET

Power Supply	220 Vac, 50/60 Hz, 16 A max absorption
Dimensions	L 543 x W 710 x H 628 mm - L 21.3” x W 28 x H 24.7”
Weight	60 kg - 132 lb

POWER SUPPLY LPS

Power output	200 W: 8V/ 20 A or 20 V/10 A
Resolution	1 mV/1 mA
Current accuracy (reading)	0.15% + 5 mA

POWER SUPPLY HPS

Power output	1500 W (60 V/25 A)
Resolution	8 mV/5 mA
Current accuracy (reading)	0.1% ± 15 mA

FLUXMETER

Model	Digital Flux
Ranges	2000 x (1, 2, 5, 10, 20, 50, 100) μWb
Resolution	1/2000 of range
Accuracy	± 0,5 % of reading, ± 1 digit

PC AND SOFTWARE

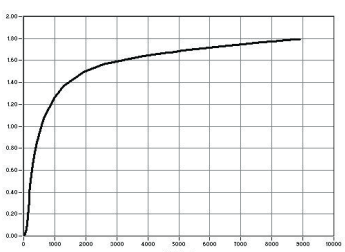
PC	PC, monitor, printer and all connection cables
Operating system	Windows
Software	Soft2015-P (English or Italian)
Connection	LAN

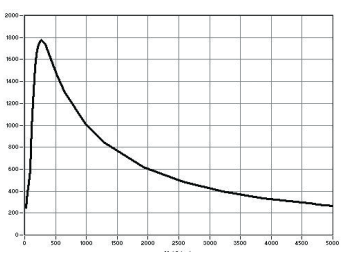
MANUALS AND DOCUMENTATION

Instruction manual (English or Italian)
Calibration certificate
CE mark

AMH-SERIES SOFTWARE

Soft2015-P software automatically controls the measurements of the AMH-DC-T-S and AMH-DC-TB-S permeameters.





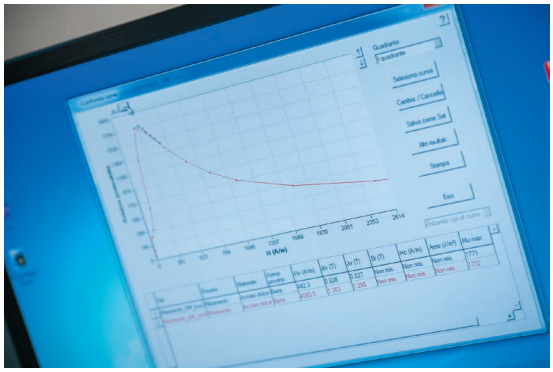
FEATURES

Type of measurement
- Hysteresis loop, normal magnetization curve and relative permeability
- Demagnetization of the sample

Setting of measuring parameters
- Manual or automatic settings of magnetizing and demagnetizing field, speed, resolutions and many other parameters

Results
- Hsat, Bsat, Jsat, Br, Hc, loop area, relative permeability
- Magnetic units in SI and CGS, measures in mm and inches, temperature in °C and °F

Data elaboration
- Curve comparison
- Curve's interpolation, automatic or using a mathematical function from a list
- Automatic control of the Fluxmeters
- Merging of different curves



Printing a report
- 3 pre-set reports with different sizes and contents
- Customized report option for changing the information and the language beween English and Italian
- The report can be opened and saved with other word processor programs, like Microsoft Word™

Data base and file searching
- Data base of measuring files with fast search options, ordering, selection, etc.
- Full compatibility with other spreadsheet programs, such as Microsoft Excel™

Protection
Password protection for restricting access according to selected parameters

Set of measures
Ability to group together different measurements in the same graph. The software recognizes the group type and provides additional results such as statistical data for example the average, standard deviation, etc.