



Laboratorio Elettrofisico  
**LE GROUP**



## SOFT MAGNETIC MATERIALS

# AMH-DC-TB-S

AMH-DC-TB-S Permeameter is a variation of the model AMH-DC-T-S Permeameter and provides additional features to measure, bar and strip shaped soft magnetic material in addition to toroids and rings.

# AMH-DC-TB-S PERMEAMETER

## DESCRIPTION

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The measurement of bars and strips are made in a closed circuit condition using the model LEP-SB electromagnet (Sanford-Bennett type), made of highly permeability material. The bar samples must be linear with a uniform cross section area. Pole shoes are used to complete the closed circuit configuration for the measurement.

The H field is measured with a Hall probe, placed in proximity of the sample under test. The magnetic flux density B inside the material is determined measuring the flux  $\Phi$  from a pick-up coil. When measuring bar samples, manual windings are not necessary: the sample is simply inserted into a pick-up inductive coil with the proper diameter, which contains the Hall probe. The measuring cycle is fully automatic, and is controlled by Laboratorio Elettrofisico exclusive software (Argon), resulting in complete characterization of the material under test.

**The model AMH-DC-TB-S meets the International Standards IEC 60404-4, ASTM A341 and ASTM A341M-16.**

## KEY BENEFITS

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- Automatic measurement of complete hysteresis loop, normal magnetization curve, permeability curve
- Initial permeability
- Remanence  $B_r$ , coercivity  $H_c$ , saturation values  $H_{sat}$ ,  $B_{sat}$ ,  $J_{sat}$ , cycle area, relative permeability, etc.
- Differential permeability

## STANDARD CONFIGURATION

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- Fluxmeter
- 2 DC Power Supplies (incorporated precision current meter)
- Gaussmeter and transverse Hall probe
- Polarity switch
- LEP-SB Electromagnet
- Pick-up inductive coil
- Reference bar for day-to-day control
- Connection tool for toroids and ring samples
- Reference ring for day-to-day control
- Dedicated software Argon
- PC and printer

# AMH-DC-TB-S ACCESSORIES

## LEP/SB-1 - SANFORD-BENNETT YOKE



Sanford-Bennett yoke, made with high-permeability materials, is designed to have the best magnetic circuit closure on bars terminals.

Max field: up to 300 kA/m (3750 Oe)

Max diameter or height of the bar: 25 mm

Max width of the bar: 30 mm

Length of the sample bar: 150 mm-300 mm

## PK - PICK-UP COILS



Pick-up coils are used for the measurement of bars and strips without addition windings around their cross section. The coil provides the capability to position the Hall probe closest to the sample's surface.

Different diameters are available for different bar sizes:

8, 10, 15, 20, 25 mm diameter, and for 3 x 30 mm strips and bars with rectangular cross sections. Custom pick-up coils designs are available.

## POLE ADAPTORS



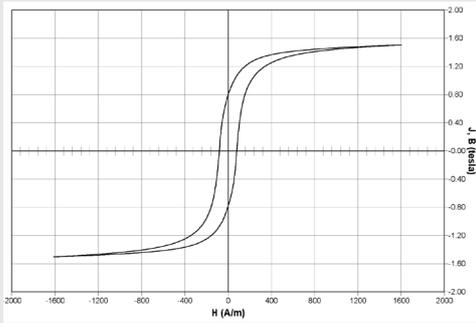
The pole adaptors are made of pure soft iron, and permit the matching the sample's cross section to the poles of the LEP/SB-1.

Different diameters are available for bar sizes: 8, 10, 15, 20, 25 mm diameter, and for 3 x 30 mm for strips and bars with rectangular cross section. Custom pole adaptors diameters are available.

### NOTES:

1. The AMH-DC-T-S can be purchased with the optional 16U enclosure to provide the capability to upgrade to the AMH-DC-TB-S that includes a gaussmeter and the LEP/SB-1 yoke.
2. For measurement of Hard Ferrite and Alnico materials the AMH-DC-TB-S can be enhanced with the use of special poles and measuring coils.

# AMH-DC-TB-S SOFTWARE ARGON



Argon 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

- Customized report or single and multiple measures output in PDF, graphical files, text file

### DATA BASE AND FILE SEARCHING

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

# AMH-DC-TB-S SOFTWARE ARGON

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## PROTECTION

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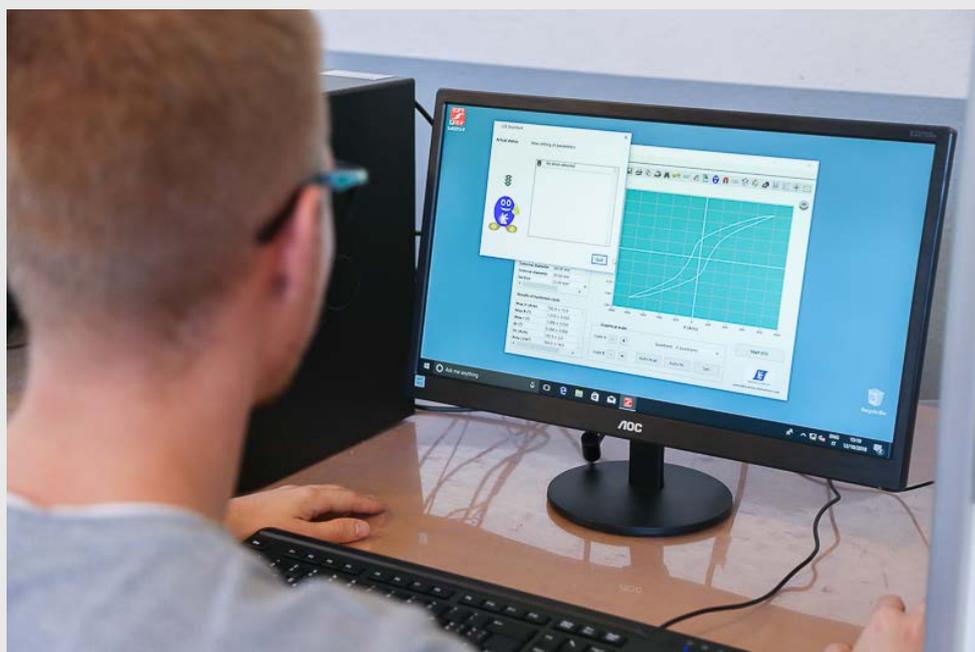
- Password protection for restricting access according to selected parameters

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## SET OF MEASURES

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- Ability to group together different measurements in the same graph. The software recognizes the group type and provides additional results such as statistical data, i.e. the average, standard deviation, etc.
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# TECHNICAL SPECIFICATIONS 1/2

## GENERAL

MEASURABLE MATERIALS

Soft Magnetic Materials (Hard Ferrite, Alnico with special poles)

MEASURABLE QUANTITIES

Bsat, Jsat, Hsat, Br, Hr, cycle area,  $\mu_{rel}$

MEASURABLE SHAPES

Rings, bars, strips

SAMPLE SIZE RING

No physical limits (size affects max H field achievable)

TYPICAL ACCURACY RING

Hsat, Bsat: 1%; Hc:  $\pm 2\%$ , Br:  $\pm 2\%$ ;  $\mu$ :  $\pm 3\%$

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

UNITS

16 U

DIMENSIONS

535 x 855 x 806 mm

WEIGHT

90 kg (200 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

1,2 mV/1,25 mA

CURRENT ACCURACY (READING)

0,3%  $\pm$  75 mA

# TECHNICAL SPECIFICATIONS 2/2

## GAUSSMETER

RANGES

3,5 G, 35 G, 350G, 3,5 kG, 35 kG

RESOLUTION

from 0,3 mG

ACCURACY (READING)

± 0.05% on reading, ± 0.005% on range

COMMUNICATION PORT

RS232

## HALL PROBE

TYPE

Transverse

STEM MATERIAL

Aluminium

DIMENSIONS

200 x 4.6 x 1.5 mm (8" x 0.18" x 0.06")

LINEARITY

0.20% to 30 kG

CABLE LENGHT

1.5 m (5 ft)

## YOKE LEP/SB-1

MAX FIELD

300 kA/m

MAX CURRENT

12 A

DIMENSIONS

280 x 225 x 410 mm (11.0" x 8.86" x 16.14")

## PC AND SOFTWARE

PC

PC, monitor, printer and connection cables

OPERATIVE SYSTEM

Windows O.S.

SOFTWARE

Argon (English or Italian)

CONNECTION

LAN



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**CONTACT US**

[www.laboratorio.elettrofisico.com](http://www.laboratorio.elettrofisico.com)

**EUROPE  
HEADQUARTERS**

- 📍 Italy, Nerviano (Milan)
- ☎ +39 0331 589 785
- ✉ [italy@elettrofisico.com](mailto:italy@elettrofisico.com)

**USA**

- 📍 Michigan, Lake Orion
- ☎ +1 248 340 7040
- ✉ [usa@elettrofisico.com](mailto:usa@elettrofisico.com)

**CHINA**

- 📍 Shanghai, Chang Shou Lu
- ☎ +86 135 2439 6693
- ✉ [china@elettrofisico.com](mailto:china@elettrofisico.com)

**VIETNAM**

- 📍 Hanoi, Anh Minh Building
- ☎ +84 964 174 291
- ✉ [vietnam@elettrofisico.com](mailto:vietnam@elettrofisico.com)