



Laboratorio Elettrofisico  
**LE GROUP**



## FEEBLY MAGNETIC MATERIALS

# PFMM

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Precision measurement of feebly magnetic materials. The model PFMM (Permeameter for Feebly Magnetic Materials) is an instrument to verify that a non-magnetic material as austenitic stainless steel.

# PFMM PERMEAMETER

## DESCRIPTION

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The permeameter PFMM quantifies the magnetic “weakness” of the material by measuring its magnetization curve, relative permeability  $\mu_r$  and susceptibility  $\chi$ .

When a non-magnetic material is used in an application where interaction with magnetic fields must be very low (for example turbo generators, NMR instrumentation, precision weights, etc.), the control of its magnetization and permeability is fundamental. The Permeameter for feebly magnetic materials (model PFMM) verifies that a material that should be non-magnetic, such as austenitic stainless steel, is actually non-magnetic.

The permeameter PFMM measures the relative permeability in the range between 1.001 and 4, with a typical accuracy less than  $\pm 2\%$ . When low values of permeability and susceptibility are required, the Laboratorio Elettrofisico PFMM is a necessary tool.

**Measurements are taken in compliance with ASTM 342 and IEC 60404-15 standards.**

## KEY BENEFITS

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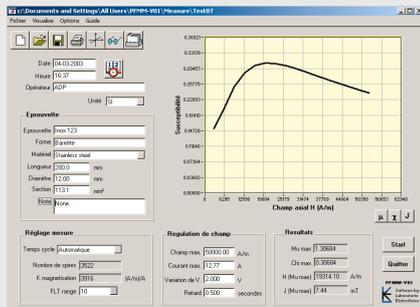
- The sensitivity of the coil must be very high: for example, the PFMM can accurately measure the susceptibility of good stainless up to  $10^8$  times lower than the susceptibility of a typical Fe-Ni, that can be measured with a permeameter for ferromagnetic materials

## STANDARD CONFIGURATION

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- Cabinet with fluxmeter and DC power supply
- Solenoid with positioning tool for samples
- Compensated measuring coil
- Dedicated software Radon
- PC and printer
- Instruction manual

# PFMM PERMEAMETER SOFTWARE RADON



The main features of this software are shown below.

## FEATURES

### TYPE OF MEASUREMENT

- J vs H, permeability  $\mu_r$ , susceptibility  $\chi$

### SETTING OF MEASURING PARAMETERS

- Manual or automatic settings of parameters
- Setting of acceptance limit for direct quality control

### RESULTS

- Magnetic polarization, relative permeability, susceptibility

### DATA ELABORATION

- Limit setting for good/rejected results
- Statistical evaluation of the results

### PRINTING A REPORT

- Customized print options for information and language
- Direct printing of a graphs and data on printer or file
- The report can be opened and saved with other Word processor programs such as Microsoft Word™

### DATA BASE AND FILE SEARCHING

- Data base of measuring file with fast search capability, ordering and selection
- Full compatibility with other spread sheet programs, such as Microsoft Excel™

The software Radon is an integrated element of the permeameter PFMM and manages the system and created a user friendly interface between machine and user. It allows the setting of the measurement parameters and the view of the results at the end of the measurement.

The exclusive Laboratorio Elettrofisico Radon software automatically controls the measurement process. Once the operator inputs the parameter settings, accurate measurements are made in less than 30 seconds: the PFMM displays the J vs H curve and the permeability. The other available options are: integrated database, customizable print options and data management.

# TECHNICAL SPECIFICATIONS 1/2

## GENERAL

MEASURABLE MATERIALS

Feebly Magnetic Materials

MEASURABLE QUANTITIES

J vs H curve, permeability  $\mu_r$ , susceptibility  $\chi$

MEASURABLE SHAPES

Straight bars, with regular cross section

$\mu_r$  RANGE

1.001 ÷ 4

$\chi$  RANGE

0.001 ÷ 3

TEST TIME

30 seconds (typical)

FREQUENCY

DC

OPERATING TEMPERATURE RANGE

15 ÷ 40 °C

## ACCURACY

$\mu_r$ ,  $\chi$

Better than  $\pm 2\%$

J

$\pm 1\%$

H

$\pm 1\%$

## SAMPLE SIZE

LENGTH

100 ÷ 200 mm

CROSS SECTION

490 mm<sup>2</sup> (25 mm diameter)

RATIO LENGTH/DIAMETER

Bigger than 10 for  $\mu_r < 1.5$

Bigger than 15 for  $1.5 < \mu_r < 2.0$

Bigger than 30 for  $2.0 < \mu_r < 4.0$

## MAIN ELECTRICAL CABINET

POWER SUPPLY

220 Vac, 50–60 Hz, 16 A max absorption

DIMENSIONS

543 x 655 x 332 mm

WEIGHT

50 kg (110 lb)

# TECHNICAL SPECIFICATIONS 2/2

## FLUXMETER

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MODEL

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Digital Flux

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## SOLENOID

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MAX FIELD

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1050 Oe (84 kA/m)

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MAX USEFUL DIAMETER FOR SAMPLE

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25 mm

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1% UNIFORMITY LENGTH

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200 mm

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EXTERNAL DIMENSIONS

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284 mm x 622 mm x 348 mm

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WEIGHT

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100 kg

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## PC AND SOFTWARE

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PC

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PC, monitor, printer and all connection cables

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OPERATIVE SYSTEM

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Windows

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SOFTWARE

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Radon (English, French or Italian)

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CONNECTION

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USB

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## MANUALS & DOCS

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Calibration certificate, CE mark

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**CONTACT US**

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