

Magnet permeability meter

FerroPro FP-5

Mains-operated laboratory device with probe for determining the **relative magnetic permeability μ_r between 1 and 5**.

The magnetic permeability or magnetic conductivity makes a statement about how strongly a material can be magnetized.



With the **List-Magnetik FerroPro FP-5**, the relative magnetic permeability μ_r of materials and construction parts can be determined in the range between 1.000 and 5.000.

The laboratory device FerroPro FP-5 can statistically evaluate measured values and has an interface via USB to the Windows PC.

Areas of application are the quality control of stainless steels, the non-destructive material testing of structural parts, material selection for apparatus in the field of electron / ion physics and for nuclear resonance devices or the detection of material changes in highly stressed parts.

FerroPro FP-5 can be used to perform permeability measurements in accordance with ASTM A342 Test Method 4 and EN 60404-15 Procedure 6.

The probe contains a permanent magnet that magnetizes the sample near the probe tip. Two sensitive magnetic field sensors in differential circuit measure the field distortions caused by the magnetization of the sample. The device is calibrated to precisely calibrated reference standards of the Physikalisch-Technische Bundesanstalt PTB (German National Metrology Institute, Braunschweig). A recalibration is easily possible. A calibration standard is included with every device.



The magnetic permeability of a material generally depends heavily on the strength and frequency of the magnetizing field. The probe head of the FerroPro FP-5 contains a permanent magnet that generates a constant magnetic field of around 35 kA/m at the probe tip.

By choosing different correction factors for the excitation field strength in the probe, measurements according to ASTM A342 Test Method 1 can also be represented.

The measured value of the permeability depends on the dimensions of small samples. The sensitivity of the device increases with the thickness of the sample.

From a sample thickness of approx. 5 mm and a lateral dimension of approx. 2 cm, the measurement is independent of the size.

Technical Data

Standards:	Standard-compliant permeability measurement according to ASTM A342 and EN 60404-15
Unit of measurement:	permeability μ_r
Measuring range:	$\mu_r = 1.000$ to 5.000
Resolution:	0.001
Accuracy at 20 °C:	$(\mu_r - 1) \times 5\%$, based on PTB and NPL calibration standards, readjustable
Field strength at the probe tip:	~ 35 kA/m
Temperature range:	0 to 50 °C
Length of the probe cable:	1.5 m
Display:	graphic PLC control terminal with menu navigation and display of the measured values
Multilingual menu navigation:	German / English
Data logger:	200 measurements
Statistics:	count / maximum / minimum / mean / standard deviation
Interface:	USB 2.0 for communication with PC
Protection class:	IP20
Power supply:	110-230V, 50/60 Hz with external power pack, suitable for continuous operation
Dimensions:	160 x 135 x 210 mm
Weight:	1600 g with probe

