MFK1-FA / MFK1-FB

THREE FREQUENCY
MULTIFUNCTION KAPPABRIDGES



Three operating frequencies
Anisotropy of magnetic susceptibility
Field variations of magnetic susceptibility
In cooperation with CS4 / CS-L devices high- and low-temperature variation of susceptibility measurements

General Description

These are the world's most sensitive commercially available laboratory instruments for measuring anisotropy of magnetic susceptibility (AMS) and bulk magnetic susceptibility in weak variable magnetic fields (field range from 2 A/m to 700 A/m, peak values). Besides the in-phase magnetic susceptibility, relative changes of the phase angle can be measured. The MFK1-FA and MFK1-FB models are capable to measure, besides at the basic frequency of 976 Hz, also at two additional frequencies of 3904 Hz and 15616 Hz.

Spinning specimen method uses 3D rotator or classic rotator for easy, rapid and precise AMS measurements. Automatic routines for investigation **field variations** of AMS as well as bulk susceptibility are incorporated for better user comfort. Optional attachment **CS4** and **CS-L** enables measurements of temperature variation of bulk susceptibility from -192°C up to 700°C.

Data acquisition software **SAFYR** controls all particular functions of the Kappabridges, calculate results of individual measurements as well as advanced statistics on measured data. Standard visualisation of the results is also incorporated. For more in-depth analysis of AMS AGICO provides **ANISOFT** - advanced software for processing of AMS datasets.

Main Features

High sensitivity 2 x 10⁻⁸ (SI)

Fully automatic zeroing system

Three operating frequencies

Field variations of magnetic susceptibility

Rapid AMS measuring (MFK1-FA)

Autoranging

Built-in circuitry for controlling optional CS4 Furnace

and CS-L Cryostat

Advanced diagnostics

Sophisticated software support

Optionally 3D rotator (MFK1-FA)





Technical specifications

Operating frequencies 976 Hz 3 904 Hz 15 616 Hz

Field intensity ranges

 Frequency 976 Hz
 2 - 700 A/m (peak)

 Frequency 3 904 Hz
 2 - 350 A/m (peak)

 Frequency 15 616 Hz
 2 - 200 A/m (peak)

Sensitivity

976 Hz, 400 A/m peak 2 x 10⁻⁸ (SI) 3904 Hz, 200 A/m peak 6 x 10⁻⁸ (SI) 15616 Hz, 200 A/m peak 12 x 10⁻⁸ (SI) Field homogeneity at 976 Hz 0.5 % up to 0.5 SI unit at 976 Hz Measuring range Accuracy within one range Accuracy of abs. calibration ±3% Pick-up coil inner diameter 43 mm 100, 120, 230, 240 V Power requirements 50/60 Hz, 40 VA

Specimens to be measured

For spinning method

Cylinder (regularly shaped specimens)

Diameter 25.4 mm
Length 22.0 mm
Cube 20 x 20 x 20 mm

For static method as for spinning method

plus

Cube $23 \times 23 \times 23 \text{ mm}$ ODP type $26 \times 25 \times 19.5 \text{ mm}$ Fragments up to 40 cm 3 for bulk susceptibility

MFK1-FA

Three frequency kappabridge fully equipped with special Up/Down mechanism and rotator for spinning specimen method of AMS measurements. Automatic measurements of field variations of bulk susceptibility. Full support of CS4 and CS-L apparatuses is provided as well.

Applications

Magnetic Fabric

Measurements of **Anisotropy of Magnetic Anisotropy** of rocks is widely used method for investigation of preffered orientation of magnetic minerals such as magnetite.

Environmental Magnetism

The presence of SP particles can be indicated by the **frequency-dependent magnetic susceptibility**, which is in environmental science and palaeoclimatology traditionally interpreted as resulting from interplay between SP and stable single domain (SSD) or even multidomain (MD) magnetic particles.

Magnetic Mineralogy

Magnetic susceptibility very sensitively reflects any slight variations in types and concentration of magnetic minerals further exceeding the capability of most conventional analytical methods. Its analytical power can be further extended when it is measured as a **function of temperature**, **amplitude** of the applied field, or at **various operating frequencies**.

MFK1-FB

Basic version of three frequency kappabridge for manual measurements of AMS, bulk susceptibility, field and frequency variations of magnetic susceptibility. Without Up/Down mechanism, rotator and CS4 or CS-L support. Can be upgraded to MFK1-FA version.

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