

# MFK2-FA / MFK2-FB

THREE FREQUENCY

MULTIFUNCTION KAPPABRIDGES

# AGICO

ADVANCED GEOSCIENCE INSTRUMENTS COMPANY

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

**MFK2** series of Kappabridges are the updated versions of the advanced Multifunction Kappabridges **MFK1**.

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 **MFK2-FA** and **MFK2-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.

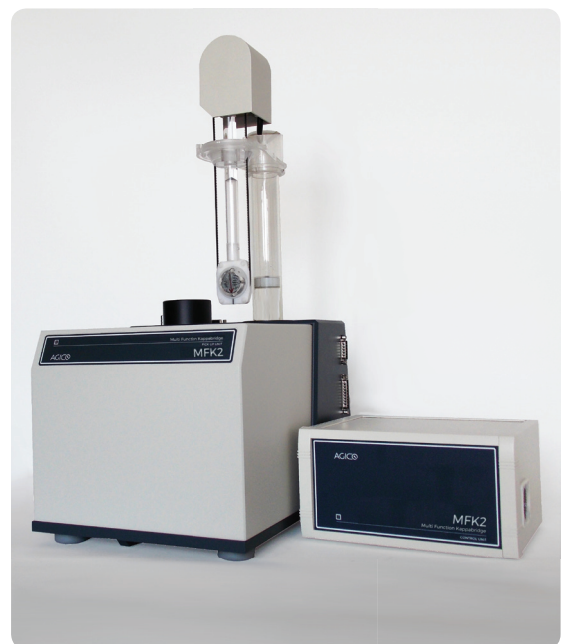
**Spinning specimen method** uses 3D rotator or classic rotator for easy, rapid and precise AMS measurements. Automatic routines for investigation **field variations** of AMS as well as bulk susceptibility are incorporated for better user comfort. Optional attachment **CS4** and **CS-L** enables measurements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

Updated electronic circuits, redesigned measuring coils and enhanced firmware and software bring better reproducibility of the results, improved measurements of the field and frequency variations of magnetic susceptibility and refinement of the relative changes of the out-of-phase component of magnetic susceptibility measurements.

## Main Features

- High sensitivity  $2 \times 10^{-8}$  (SI)
- Fully automatic zeroing system
- Three operating frequencies
- Field variations of magnetic susceptibility
- Rapid AMS measuring (MFK2-FA)
- Autoranging
- Built-in circuitry for controlling optional CS4 Furnace and CS-L Cryostat
- Advanced diagnostics
- Sophisticated software support
- Optionally 3D rotator (MFK2-FA)



LABORATORY INSTRUMENTS FOR MEASUREMENT OF MAGNETIC PROPERTIES OF ROCKS

## 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	$2 \times 10^{-8}$ (SI)
3904 Hz, 200 A/m peak	$6 \times 10^{-8}$ (SI)
15616 Hz, 200 A/m peak	$12 \times 10^{-8}$ (SI)
Field homogeneity at 976 Hz	0.5 %
Measuring range	up to 0.5 SI unit at 976 Hz
Accuracy within one range	$\pm 0.1$ %
Accuracy of abs. calibration	$\pm 3$ %
Pick-up coil inner diameter	43 mm
Power requirements	100 - 240 V, 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 x 23 x 23 mm
ODP type	26 x 25 x 19.5 mm
Fragments	up to 40 cm <sup>3</sup> for bulk susceptibility

## Applications

### Magnetic Fabric

Measurements of **Anisotropy of Magnetic Anisotropy** of rocks is widely used method for investigation of preferred 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**.

## MFK2-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.

## MFK2-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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