

MULTI-FUNCTION KAPPBRIDGES

magnetic susceptibility - anisotropy systems



The world's most sensitive commercially available laboratory instruments

- Anisotropy of magnetic susceptibility (AMS)
- In-phase and out-of-phase susceptibility in variable magnetic fields at 3 different frequencies
- In cooperation with CS4 / CS-L devices high- and low-temperature variation of susceptibility measurements

MFK1-FA Spinner, 3 operating frequencies
MFK1-FB Static, 3 operating frequencies
MFK1-A Spinner, single operating frequency
MFK1-B Static, single operating frequency

General Description

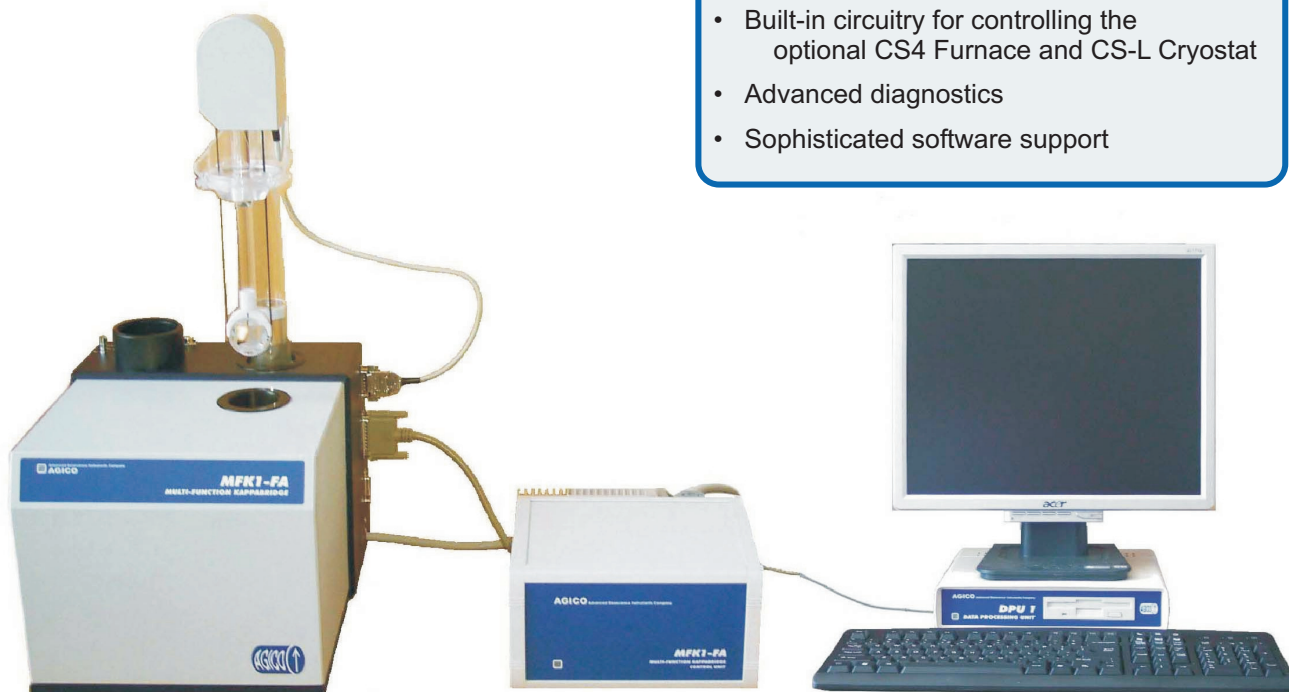
MFK1 Kappabridges consist of the pick-up unit and control unit connected with the DPU1 data processing unit.

In principle the instruments represent a super-precise fully automatic inductivity bridges. They are equipped with automatic zeroing system (in both real and imaginary components) and automatic compensation of the thermal drift of the bridge unbalance as well as automatic switching appropriate measuring range.

The measuring coil is designed as a compensated solenoid with an outstanding field homogeneity.

Main Features

- High sensitivity 2×10^{-8} (SI)
- Fully automatic zeroing system
- Measurement of in-phase and out-of-phase susceptibility
- Variable measuring fields
- Three operating frequencies
- Rapid AMS measuring (MFK1-FA, A)
- Autoranging
- Built-in circuitry for controlling the optional CS4 Furnace and CS-L Cryostat
- Advanced diagnostics
- Sophisticated software support



MFK1-FA and MFK1-A Kappabridges

Spinner/Static combination

Both models measure the AMS of a slowly spinning specimen. One has to adjust the specimen only in three perpendicular positions. The measurement is rapid (about 2 minutes per specimen) and precise, profiting from many susceptibility determinations in each plane perpendicular to the axis of specimen rotation. The bridge is zeroed prior to the anisotropy measurement after inserting the specimen into the measuring coil, thus the most sensitive range can be used. Special software combines the measurements in three perpendicular planes plus one bulk value to create complete susceptibility tensor. The errors in determination of this tensor are estimated using special method based on multivariate statistics principle. The instruments can also do fully automated measurement of the field variation of both the in-phase bulk/mass susceptibility and relative changes of phase angle. Basically, the measurements are made in 20, 15 and 10 distinct fields, respectively. Besides, short run of this measurement is possible in reduced number of distinct fields. In addition, user configuration of measuring fields is also available.



MFK1-FB and MFK1-B Kappabridges

Static only versions

Laboratories under budgetary constraints may prefer the lower priced static only models. For the AMS determination, the specimen susceptibility is measured in 15 different positions following rotatable design. The positions are changed manually and, by using special software, the susceptibility tensor is calculated including the statistical errors of its determination.

The restricted capability of the static models can be upgraded later to incorporate the more comfortable spinner technique.

Specimens to be measured

For spinning method:

Cylinder: (regularly shaped specimens)
Diameter: 25.4 mm
Length: 22 mm

Cube: 20x20x20 mm

For static method:

Cylinder: Diameter: 25.4 ± 1 mm
Length: 22 ± 1mm

Cube: 20x20x20 mm
23x23x23 mm

ODP type: 26x25x19.5 mm

Fragments: up to 40 cm³ for bulk susceptibility

SPECIFICATIONS

Operating frequency:

MFK1-FA,FB: 976 Hz, 3904 Hz, 15616 Hz
MFK1-A,B: 976 Hz

Specimen spinning frequency: 0.4 Hz

Field intensity ranges (peak values):

2 A/m - 700 A/m at 976 Hz
2 A/m - 350 A/m at 3904 Hz
2 A/m - 200 A/m at 15616 Hz

Field homogeneity at 976 Hz: 0.5 %

Measuring range : up to 0.5 (SI) at 976 Hz

Sensitivity:

at 976 Hz, 400 A/m peak 2×10^{-8} (SI)
at 3904 Hz, 200 A/m peak 6×10^{-8} (SI)
at 15616 Hz, 200 A/m peak ... 12×10^{-8} (SI)

Accuracy within one range: ±0.1 %

Accuracy of absolute calibration: ±3 %

Pick-up coil inner diameter: 43 mm

Power: 100; 120; 230; 240 V, 50/60 Hz, 40 VA

Operating temperature range: +15 to +35°C

Relative humidity: up to 80%

Dimensions, mass:

measuring unit: 23x21x12 cm / 4 kg
pick-up unit: 27x35x32 cm / 11 kg

AGICO, Inc.

Advanced Geoscience Instruments Company
Ječná 29a * CZ - 621 00 Brno
Czech Republic

Tel: + 420 511 116 303 * Fax: + 420 541 634 328
E-mail: agico@agico.cz * <http://www.agico.com>