

KLY5 SERIES 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
- Precise phase calibration → precise out-of-phase susceptibility meas.
- Combination with optional CS4 / CS-L enables measurement of susceptibility variation over high / low-temperature ranges

KLY5-A Spinner version

KLY5-B Static version

General Description

KLY5 Kappabridge system consists of the pick-up unit, control unit and a PC computer.

In principle the instrument is a super-precise fully automated inductivity bridge. Measurements of the susceptibility are quick, easy and very precise thanks to sophisticated autoranging function and other automated functions such as automatic zeroing (in both real and imaginary components), thermal drift compensation in the bridge unbalance.

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



Main Features

- High sensitivity 2×10^{-8} (SI)
- High sensitivity of phase determination 0.1°
- Fully automatic zeroing system
- Measurement of in-phase and out-of-phase susceptibility
- Automated measurement in variable fields
- Quick AMS autorange
- Enhanced resistance to power lines noise
- Galvanically isolated USB connection
- Sophisticated software support
- Built-in circuitry for controlling optional CS4 Furnace and CS-L Cryostat
- Optionally 3D rotator (KLY5-A)

Software Safyr 6

Safyr 6 is a highly sophisticated user friendly software provided to control the data acquisition and the data processing. It brings full control over the instrument and the optional equipment including 3D rotator.

Measured data are displayed and available for additional processing in real time.



KLY5 new features

A new feature is precise measurement of out-of-phase susceptibility (in terms of phase angle) performed simultaneously and automatically with standard (in-phase) susceptibility measurement. In loess/soil sequences and environmental materials, in which it is usually due to viscous relaxation, the out-of-phase susceptibility is able to substitute the more laborious frequency-dependent susceptibility routinely used in magnetic granulometry.

Another new feature is measurement of the anisotropy of out-of-phase magnetic susceptibility (opAMS), which is also performed simultaneously and automatically with standard AMS measurement. The opAMS enables the direct determination of the magnetic sub-fabrics of the minerals that show non-zero out-of-phase susceptibility either due to viscous relaxation (ultrafine grains of magnetite or maghemite in loess/soil sequences and environmental materials), or due to weak-field hysteresis (titanomagnetite, hematite, pyrrhotite), or due to eddy currents (in electrically conductive minerals).

KLY5 brings precise and calibrated measurement of the phase angle and out-of-phase susceptibility.

KLY5-A - Spinner / Static version

Classic Rotator

Specimen is measured in three perpendicular planes (three insertions per measurement)

3D Rotator (optional accessory)

Thanks to its unique design the measurement is completed with one insertion only. This enables fully automated field dependence AMS measurement.

KLY5-B - Static only version

Laboratories under budgetary constraints may prefer the lower priced static only model. 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 anytime later to incorporate the more comfortable spinner technique.



Specimens to be measured

For spinning method:

Cylinder: (regularly shaped specimens)	
Diameter:	25.4 mm
Length:	22.0 mm
Cube:	20x20x20 mm

For static method:

Cylinder:	Diameter:	25.4 ± 1 mm
	Length:	22.0 ± 1 mm
Cube:		20x20x20 mm
		23x23x23 mm
ODP type:		26x25x19.5 mm
Fragments:		up to 40 cm ³ for bulk susceptibility

SPECIFICATIONS

Operating frequency:	1220 Hz
Specimen spinning frequency:	0.4 Hz
Field intensity ranges:	5 - 750 A/m (peak)
Field homogeneity:	0.2 %
Measuring range:	up to 0.5 (SI) at 750 A/m up to 1 (SI) at 400 A/m

Sensitivity: (400 A/m peak):	2×10^{-8} (SI)
Std. dev. of phase calibration:	0.1°

Accuracy within one range:	±0.1 %
Accuracy of absolute calibration:	±3 %
Pick-up coil inner diameter:	43 mm
Power:	100 - 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

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