

3-AXES HELMHOLTZ COIL



The simple, economical solution that never goes out of style

The Helmholtz coil refers to the arrangement of two identical conductor loops spaced one radius apart and wound, so that the current flows through both coils in the same direction. This winding generates an almost homogeneous magnetic field in the center of the structure with the primary component parallel to the axes of the two coils. Measurement of magnetic moment with a Helmholtz coil is a convenient way to test permanent magnet materials.

The Helmholtz coils can be single-axis (one coil pair) or 3-axes (three coil pairs at 90 degrees from each others). The triple-axes version lets you fully characterize the magnitude and the direction of the magnetization with respect to the axes, regardless of how you place the magnet. The complete measurement system consists of a 3-Axes Helmholtz coil set, a cabinet containing three fluxmeters and a PC. Detailed specs are listed in the following.

KEY BENEFITS

- Meets international standard IEC 60404-14
- Control of PM quality (Br)
- Feedback control for calibration and magnetization system

- Easy to use
- Precise and accurate
- Non-destructive method of testing

HOW IT WORKS

- Simply insert the magnet in the coil
- Dedicated software will manage the flux values and calculate the magnetic moment and angular deviation

• Software provides also to visualize a data base and a perform statistic analysis of the measurements

	Date/Time	Moment (µ/w/brm)	J(T)	Angle [1	Recuit	-
1	12-10-2010: 17:49	0.75	0.22	0.84	Reject	
2	12-10-2010; 17:50	0.74	0.22	16.24	Reject	
3	12-10-2010; 17:50	0.74	0.22	25.95	Reject	
4	12-10-2010; 17:50	0.74	0.22	14.26	Reject	
5	12-10-2010; 17:50	0.75	0.22	21.56	Reject	
6	12-10-2010; 17:51	0.75	0.22	33.41	Reject	
7	12-10-2010; 17:51	0.74	0.22	36,95	Reject	
8	12-10-2010; 17:51	0.74	0.22	12.57	Reject	
9	12-10-2010; 17:51	0.74	0.22	24.09	Reject	
10	12-10-2010: 17:51	0.74	0.22	6.35	Reject	
11	12-10-2010; 17:52	0.74	0.22	24.97	Reject	
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3-AXES HELMHOLTZ COIL SET

- Service cabinet with 3 digital fluxmeters
- Helmholtz coil
- PC with software



TECHNICAL SPECS

Fluxmeter's accuracy Measuring ranges Power supply +/- 0.5% 1, 2, 5, 10, 20, 50, 100 x 2000 μWb 220 VAC ±10; 50/60 Hz, 16 A Resolution Communication port Cabinet dimension from 1 μWb Ethernet 545 x 520 x 360 mm

The measure can be done to every kind of hard magnetic materials having any different magnetization direction. This system was developed to be used with 3-axes Helmholtz coils, but it can also be used with any single-axis Helmholtz coil.

MODELS AVAILABLE

Two standard models of coil available, but any custom solutions can be evaluated.

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Minimum coil's diameter K_H(typical) Min measurable volume Max measurable volume

HM3X/D100
100 mm
5•10⁻⁵ m
5 mm³
10 cm³





HM3X/D230 230 mm 1·10⁻³ m 500 mm³ 125 cm³







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