5452 Electromagnet

Features

- Light Weight (6kg)
- Air Cooled

Applications

- Magnetic Material Measurements
- Magnetic Sensor Device Development and Testing
- Magnetic Sensor Calibration
- Electronic Circuit Sensitivity to Magnetic Fields
- Biologic Effects of Magnetic Fields

OVERVIEW

The **Model 5452** Helmholtz Coil Electromagnet is a single axis coil pair arranged in Helmholtz geometry to give a relatively large volume of high uniformity magnetic field. The Hellmholtz Coil Electromagnet has an aperture diameter of 160 mm (6.3 inch) with an operating range to 3mTrms (30Grms) at frequencies from dc to over 3kHz. To prevent eddy currents during operation the coil support frame is machined from Delrin plastic. High frequency field operation is limited by the coil inductance of about 8mH and the peak operating voltage of 250V.

The 5452 can be mounted in any orientation and the low mass of 6kg facilitates integration into experimental or test equipment. Since the Helmholtz Coil configuration is not magnetically shielded, magnetic and electrical conducting materials should be kept at least 300mm from the Electromagnet center to avoid excess distortion of the magnetic field within the working volume.

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Model 5452 General Specifications

Mechanical

Dimensions	
Inside	Diameter 160mm
Overall	122mm L x 270mm W x 276mm H
Weight	6kg
Magnet Field Uniformity (DB/B)	Less than ±3000ppm over a 30mm sphere
Magnet Field (X, Y, Z = 0)	3mT (30Gauss) at Maximum Power
Magnet Current Calibration Factor	Nominal 1mT/A

Coils

Resistance (20°C)	1.7Ω
Max Resistance (60°C)	2.0Ω
Low Current Inductance	8mH
Max Continuous Power (air)	3.5A, 250V (25W)

Safety

Overcurrent Interlock	3A Slow Blow Fuse
Diameter Sphere Containing 5G-surface ("fringe field")	400mm

General Assembly