DESCRIPTION

The SENIS Model HH-HIGH Helmholtz Coils is a single axis coil pair arranged in Helmholtz geometry to give a large volume of high uniformity magnetic field. The HH-HIGH-50-0.01 Helmholtz Coils is an air-cooled system with an aperture of inner diameter 105.5 mm (clear diameter 89.3mm), with a high operating range of up to 50 mT rms. The Helmholtz Coils can be mounted in any orientation and with a mass of 19.1 kg the HH-HIGH can be integrated into experimental or test equipment.

Since the Helmholtz Coil configuration is not magnetically shielded, magnetic and electrical conducting materials should be kept at least 1m from the Electromagnet center to avoid an excess distortion of the magnetic field within the working volume. All components of HH-HIGH are made of non-ferromagnetic material. The coils are supplied via the terminal block, where the polarity is indicated. The magnetic field direction for the polarity of the magnetic field is indicated on the coils housing. Grounding of the coil's housings can be performed via the marked contact ⏚ on the terminal block of the HH-HIGH.

The maximum supply voltage of Helmholtz coils is 60V. Maximum supply voltage should corresponds to the maximum permissible touch voltage, so the device is safe to use.

KEY FEATURES

- **Magnetic field up to 50mT**
- **High magnetic field uniformity: better than $1x10^{-3}$ over a 20mm sphere**
- **Compact, with the weight of 19.1kg**
- **Dimensions: 250 x 250 x 240 mm**
- **Inner diameter 105.5mm**
- **High Magnetic field up to 50mT (short time 100mT)**

TYPICAL APPLICATIONS

- **Materials measurement**
- **Sensor testing and calibration**
- **Electronic sensitivity**
- **Biological effects**

Figure 1: **HH-HIGH Helmholtz Coils**

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MECHANICAL SPECIFICATIONS

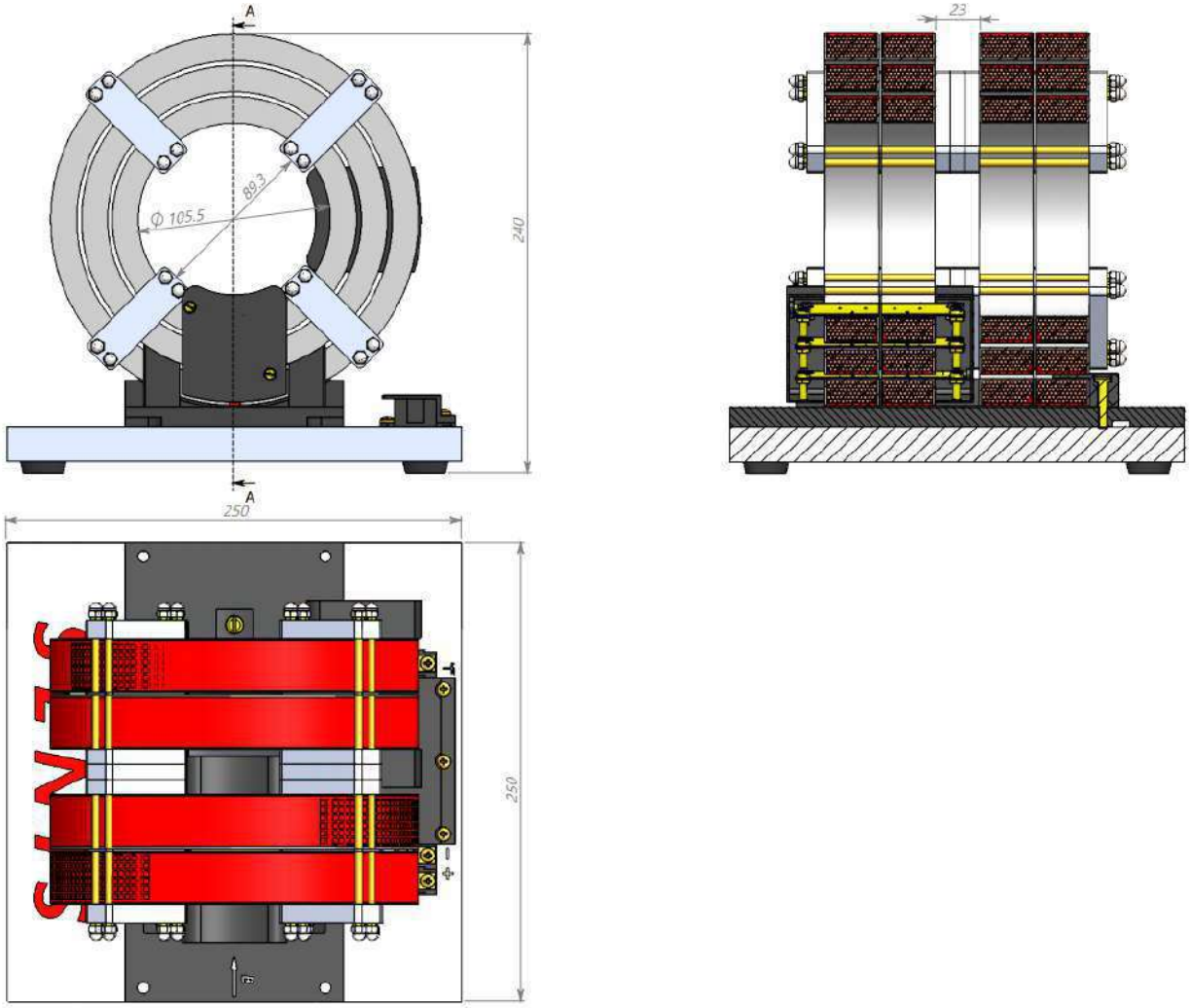

Figure 2: **Mechanical dimensions of HH-HIGH-50-0.01**

Mechanical	Value
Inside diameter: Overall (LxWxH):	105.5 mm (89.3 mm without any obstacles, i.e. clean aperture diameter)
Coil Spacing	23 mm
Weight	19.1 kg
Cooling system	Air cooled

MAGNETIC AND ELECTRICAL SPECIFICATION

Unless otherwise noted, the specifications summarized in the table are done at the room temperature (23°C).

Magnetic	Value
Magnetic field range	Up to 50mT (steady state); Short time 100mT
Maximal current (for 50mT)	11 A
Helmholtz Coil constant k = B/I [mT/ A]	4.65 mT/A
Non-linearity error in the applicable range (After 30 minutes of operation)	better than $1 \cdot 10^{-3}$
ΔH/H in 20 mm sphere	$<1 \cdot 10^{-3}$
Electrical	**Value**
Resistance (series connected coils)	3.2 Ω
Number of turns	2 x 426
Wire diameter	Ø2mm
Max power	370W

WIRING DIAGRAM