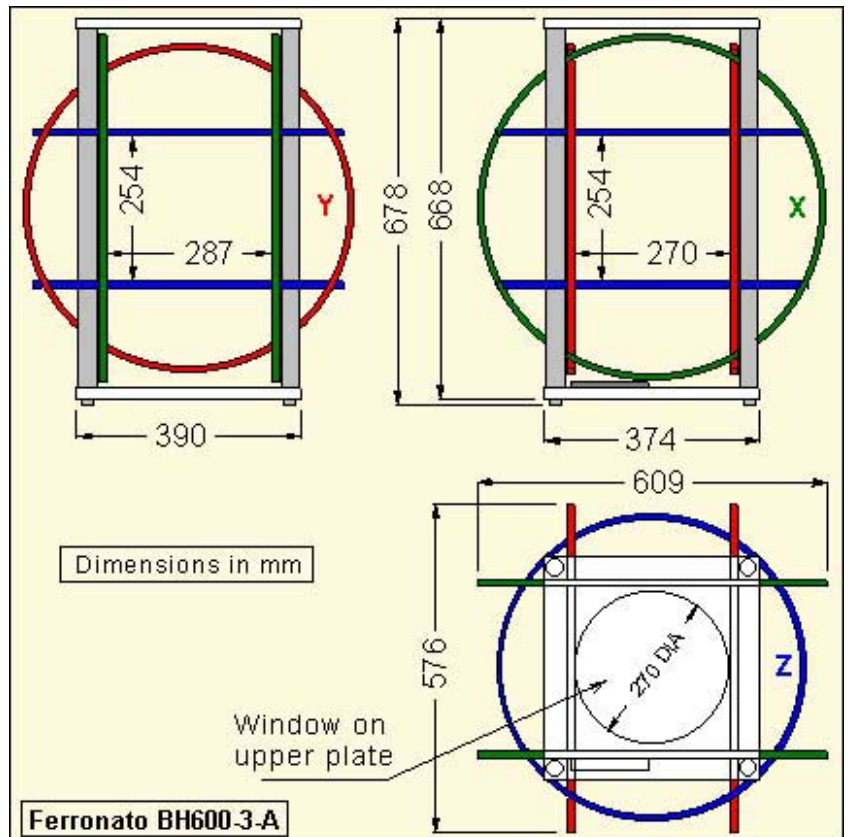
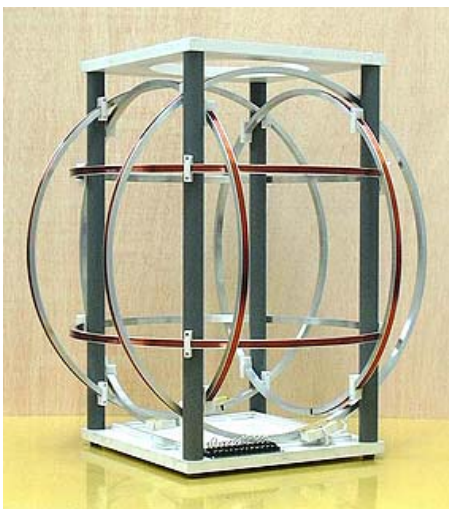


# 600 mm Helmholtz Coils

## Ferronato® - BH600-3-A

- Desktop set of three pairs of Helmholtz coils, for laboratory and general purposes.
- Suited for many magnetic measurements and experiments, in DC and AC.

- Equal generating field rate for the three pairs: **216  $\mu\text{T/A}$**
- Accurately made, with error smaller than  $\pm 1\%$  in the generated field.
- Thanks to its simple support and its joins by screws the coil arrangement can be modified with relative facility.
- Coils on aluminium alloy forms.
- Each aluminium form provides a usable extra turn, with connection in the terminal block. An application example is the generation of a small magnetic field (DC or AC) to modulate the main one. Also it can be wired to generate small gradients.
- The aluminium forms also act like electrostatic screens.
- The coils can undergo heatings of until at least  $100\text{ }^\circ\text{C}$  without damage.
- Robust construction but with a reasonable weight.
- Totally constructed with non-ferromagnetic materials.
- Excellent quality/price ratio.
- There are versions of one and two axis available, with similar characteristics:
  - **BH600-2-A** Set of two pairs (two axes), X and Y.
  - **BH600-1-A** Set of one pair (one axis), X.



## SPECIFICATIONS OF THE SET (BH600-3-A)

<b>Field/Current ratio:</b>	<b>216 <math>\mu</math>T/A</b> (2,16 Gauss/A). <b>For each pair, X, Y or Z.</b> Maximum error: $\pm 1\%$ .
<b>Maximum field:</b>	864 $\mu$ T (8.64 Gauss) in permanent mode / 2.2 mT (22 Gauss) during 2 minutes. Each pair.
<b>Maximum current:</b>	4.0 A in permanent mode / 10 A during 2 minutes (start temperature: 20 °C). Each pair.
<b>Isolation voltage:</b>	250 V DC minimum, between windings and their forms and between pairs. Tested to 500 V DC.
<b>Magnetic field homogeneity:</b>	Differences smaller than $\pm 1\%$ with respect to the centre, in a spherical volume of 150 mm of diameter centred in the coils. Differences smaller than $\pm 5\%$ in a spherical volume of 220 mm of diameter. Volumes to 1% and 5% greater in some directions.
<b>Connection:</b>	Connection block with $\varnothing 4$ mm screws (M4).
<b>Maximum working temperature:</b>	80 °C for the set / 100 °C for the coils.
<b>Coil cross section:</b>	Winding: 8.5 x 10 mm, maximum. Total (form): 10 x 13 mm
<b>Materials:</b>	Copper winding. Coil forms of aluminium alloy, with connection blocks of resin/glass fibre (FR4) with PVC covers. Stand support of PVC (rigid PVC in pillars, foamed PVC in plates superior and inferior), with brackets of Acetal. Screws of nickel-plated brass and Nylon.
<b>Maximum dimensions:</b>	Height 678 mm x Wide 609 mm x Depth 576 mm.
<b>Weight:</b>	10.8 kg for the BH600-3-A set (smaller for BH600-1-A/2-A).
<b>Accessories:</b>	Delivered with Instructions of Use in Spanish and English.
<b>Warranty:</b>	Two years.

## SPECIFICATIONS FOR EACH COIL PAIR

	<b>X pair</b> (large)	<b>Y pair</b> (medium) <sup>(2)</sup>	<b>Z pair</b> (small) <sup>(3)</sup>
<b>Effective diameter:</b>	600 $\pm 1$ mm	567 $\pm 1$ mm	533 $\pm 1$ mm
<b>Turns number:</b>	72	68	64
<b>DC Resistance, at 20 °C:</b> <sup>(1)</sup>	5.9 $\Omega \pm 3\%$	5.3 $\Omega \pm 3\%$	4.7 $\Omega \pm 3\%$
<b>Self-inductance:</b>	18.2 mH $\pm 5\%$	15.2 mH $\pm 5\%$	12.6 mH $\pm 5\%$
<b>Self-resonance Frequency:</b> (With one form end connected to one coil end)	~ 16 kHz	~ 17 kHz	~ 19 kHz
<b>Secondary field generated by the forms when used as coils (Xs, Ys, Zs):</b> <sup>(4)</sup>	2.99 $\mu$ T/A $\pm 1\%$	3.17 $\mu$ T/A $\pm 1\%$	3.37 $\mu$ T/A $\pm 1\%$

(1) - Resistance measured at the general connection block.

(2) - Pair not included in the BH600-1-A set version.

(3) - Pair not included in the BH600-1-A and BH600-2-A set versions.

(4) - We call this constructive idea "In-Circuit Coils Forms".

- These specifications are subject to change without prior notice -

- The set is supplied mounted and ready to use, in a wooden box.

### For any enquiry, please, do not hesitate in contact us:

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