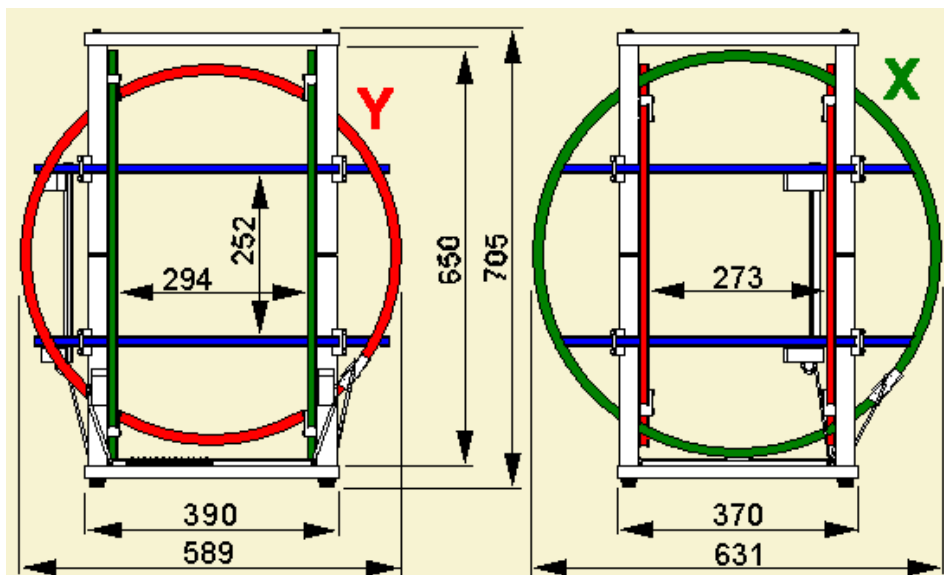
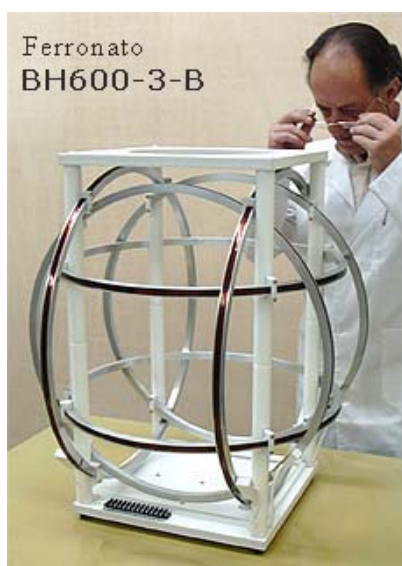


600 mm Helmholtz coils

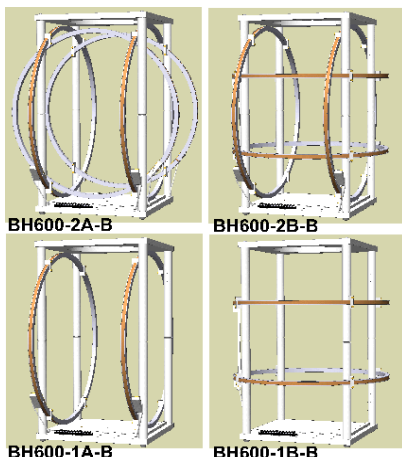
Ferronato® - BH600-3-B

- 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 ratio for the three pairs, with a round value easy to handle: $300 \mu\text{T/A}$.
- Accurately made, with a resultant 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.
- It is an improved version of our previous BH600-3-A coil-set.
- There are versions of one and two axes available, with similar characteristics:
 - **BH600-1A-B**, on one axis, horizontal. It only has the X pair.
 - **BH600-1B-B**, on one axis, vertical. It only has the Z pair.
 - **BH600-2A-B**, on two axis, horizontal/horizontal. It has the X and Y pairs.
 - **BH600-2B-B**, on two axis, horizontal/vertical. It has the X and Z pairs.
 There is a page available in "PDF" format with images of these versions.



[Dimensions in mm]



Ferronato **BH600-3-B**
Helmholtz coil-set
main dimensions

SPECIFICATIONS OF THE BH600-3-B COIL-SET

Field/Current ratio:	300 μT/A (3.0 Gauss/A). For each pair, X, Y or Z. Maximum error: $\pm 1\%$.
Maximum field:	1.20 mT (12.0 Gauss) in steady mode / 2.4 mT (24 Gauss) during 2 minutes. Each pair.
Maximum current:	4.0 A in steady mode / 8 A during 2 minutes (initial coil temperature: 20 °C). Each pair.
Isolation voltage:	250 V DC minimum, between windings and their forms and between pairs. Tested to 500 V DC.
Magnetic field homogeneity:	Differences smaller than $\pm 1\%$, in respective to the centre, in a spherical volume of 150 mm in diameter centred in the coils. Differences smaller than $\pm 5\%$ in a spherical volume of 220 mm in diameter. Larger volumes to 1% and 5% along some directions.
Orthogonality error:	$< 0.2^\circ$ in between any pair of axes.
Connection:	Barrier strip terminal block, with BA4 screws (\varnothing 3.6 mm).
Wiring capacity:	A maximum current of 10 A for any circuit.
Maximum working temperature:	80 °C for the whole set / 100 °C for the coils, as measured on the coils surface.
Coil cross section:	Winding: 11 x 12 mm, maximum. Total (form): 15 x 15 mm.
Materials:	Windings in enamelled copper wire, filled with epoxy resin. Coils forms of aluminium alloy, with internal isolating epoxy layer, with terminal plate of epoxy/fibreglass (FR4) with PVC covers. Pillars and brackets of the stand support of Acetyl ("Delrin"). Upper an lower plates of foamed PVC. Screws of brass and Nylon.
Maximum dimensions:	Height 705 mm x Wide 589 mm x Depth 631 mm.
Weight:	15.8 kg for the <i>BH600-3-B</i> coil-set. See in below a table for the weights of all the versions.
Accessories:	Delivered with Instruction Manual in Spanish and English.
Warranty:	Two years.

SPECIFICATIONS OF EACH COIL PAIR

	X Pair (larger)	Y Pair (medium)	Z Pair (smaller)
Effective diameter:	617.4 ± 1 mm	575.5 ± 1 mm	533.5 ± 1 mm
Number of turns:	103	96	89
DC Resistance, at 20 °C: (1)	8.6 $\Omega \pm 3\%$	7.5 $\Omega \pm 3\%$	6.4 $\Omega \pm 3\%$
Self-resonance frequency: (2)	8.7 kHz $\pm 5\%$	9.1 kHz $\pm 5\%$	11.2 kHz $\pm 5\%$
Self-inductance:	38 mH $\pm 5\%$	30 mH $\pm 5\%$	24 mH $\pm 5\%$
Secondary field generated by the forms when used as coils (Xs, Ys, Zs): (3)	2.91 μ T/A $\pm 1\%$	3.12 μ T/A $\pm 1\%$	3.37 μ T/A $\pm 1\%$

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

(2) - Self-resonance measured with one end of the forms wired to one end of its respective coil pairs (for example: -Xs wired to -X). If the forms are not connected (floating forms) the frequency is about twice.

(3) - We call this constructive idea "*In-Circuit Coil Forms*".

MAIN DIFFERENCES AMONG VERSIONS

Version:	BH600-3-B	BH600-2A-B	BH600-2B-B	BH600-1A-B	BH600-1B-B
Included coil pairs:	X, Y, Z	X, Y	X, Z	X	Z
Weight, in kg:	15.8	13.4	13.0	10.3	9.5

- These specifications are subject to change without prior notice -

- There is available a page in PDF format with views of all the BH600-x-B versions, for 1, 2 and 3 axes.

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