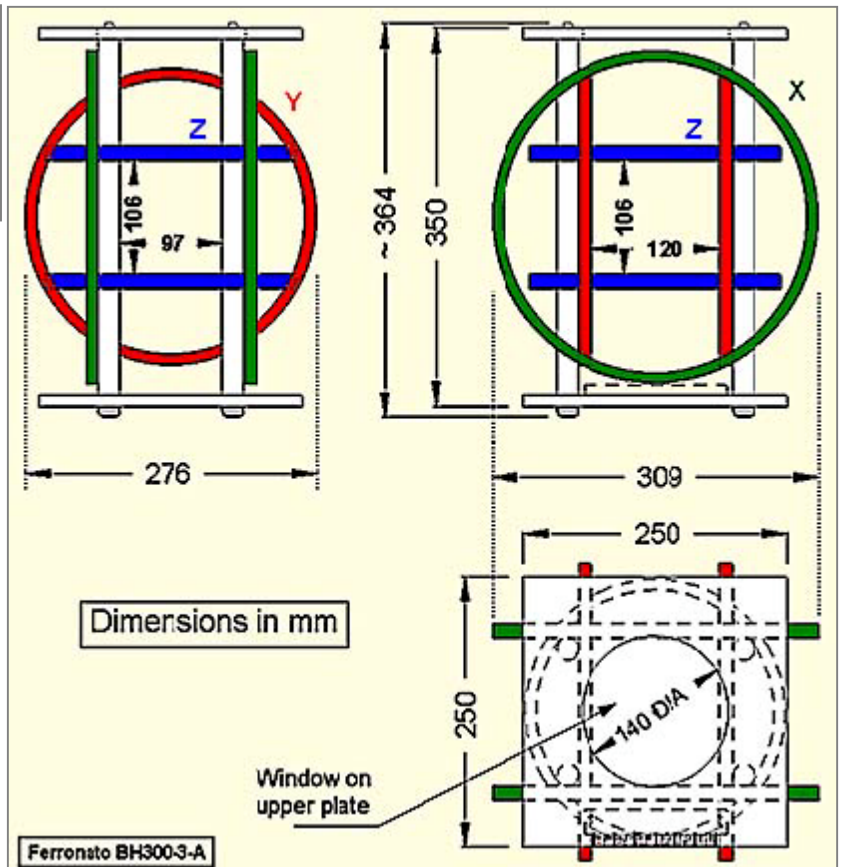
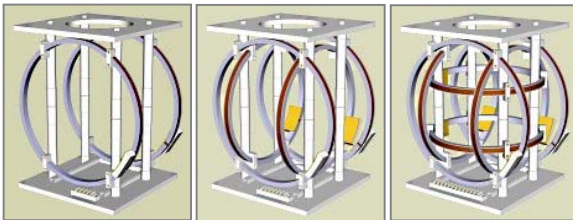


300 mm Helmholtz Coils

Ferronato[®] - BH300-3-A

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

- Same generating field ratio along each of the three axes, with a round value easy to handle: **500 $\mu\text{T/A}$**
- Accurately made, with an error smaller than $\pm 1\%$ in the generated field.
- The coil arrangement can be modified with relative facility thanks to its simple support and its joints by screws.
- Coils on non-magnetic aluminium alloy forms.
- Each aluminium form provides a usable extra turn, with connections at 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 heating by currents to at least 100 °C without damage.
- Robust construction but with a reasonable weight.
- Totally constructed with non-ferromagnetic materials.
- Excellent quality/price ratio.
- There are available versions of one and two axes, with similar characteristics:
 - **BH300-1A-A**, on one axis, horizontal, with only the X pair.
 - **BH300-1B-A**, on one axis, vertical, with only the Z pair.
 - **BH300-2A-A**, on two axes, horizontal/horizontal, with the X and Y pairs.
 - **BH300-2B-A**, on two axes, horizontal/vertical, with the X and Z pairs.



SET SPECIFICATIONS (BH300-3-A, BH300-2A/B-A and BH300-1A/B-A)

Field/Current ratio	500 μ T/A (5.0 Gauss/A). For each pair, X, Y or Z. Maximum error: $\pm 1\%$. In DC and AC.
Maximum field	2.0 mT (20 Gauss) in a steady way / 3.0 mT (30 Gauss) during 2 minutes. Each pair.
Maximum current	4.0 A in a steady mode / 6.0 A during 2 minutes (start 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 $\pm 1\%$ with respect to the centre, in a spherical volume of 70 mm of diameter, centred in the coils. Differences smaller than $\pm 5\%$ in a spherical volume of 100 mm of diameter. These volumes are larger on some directions.
Orthogonality error	< 0.2°.
Connection	Single row, twelve positions, barrier strip terminal block, with M4 brass screws (\varnothing 4.0 mm).
Max. working temp.	80 °C for the set / 100 °C for the coils, as measured on its surface.
Coil cross section	Winding: 8.5 x 10 mm, maximum. Total (form): 10 x 13 mm
Materials	Enamelled copper wire windings, filled with epoxy resin. Coil forms of aluminium alloy, with internal epoxy insulation layer and connecting plates of resin/glass fibre (FR4) with PVC covers. Stand support pillars and coil brackets in Acetyl ("Delrin"), with upper and lower boards in foamed PVC. Screws in brass and Nylon.
Maximum dimensions	Height 364 mm x Wide 309 mm x Depth 276 mm.
Weight	4.5 kg for the BH300-3-A set (lower for BH300-1A/B-A and BH300-2A/B-A).
Accessories	Delivered with Instructions Manual in Spanish and English.
Warranty	Two years.

SINGLE COIL PAIR SPECIFICATIONS

	X pair (larger)	Y pair (medium)	Z pair (smaller)
Effective diameter	300 ± 1 mm	266 ± 1 mm	237 ± 1 mm
Turns number (per coil)	83	74	66
DC Resistance, at 20 °C ⁽¹⁾	4.21 Ω $\pm 3\%$	3.35 Ω $\pm 3\%$	2.66 Ω $\pm 3\%$
Self-inductance	10.4 mH $\pm 5\%$	7.1 mH $\pm 5\%$	4.9 mH $\pm 5\%$
Self-resonance Frequency (With one form end connected to one coil end)	~ 25 kHz	~ 34 kHz	~ 42 kHz
Secondary field generated by the forms when used as coils (Xs, Ys, Zs) ⁽²⁾	6.0 μ T/A $\pm 3\%$	7.1 μ T/A $\pm 3\%$	7.7 μ T/A $\pm 3\%$

⁽¹⁾ - Resistance measured at the general connecting block. Includes wiring.

⁽²⁾ - We call this constructive feature "In-Circuit Coil Forms".

Version:	BH300-3-A	BH300-2A-A	BH300-2B-A	BH300-1A-A	BH300-1B-A
Included coil pairs:	X, Y, Z	X, Y	X, Z	X	Z

- These specifications are subject to change without prior notice -

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Updated: 16 Feb 2011