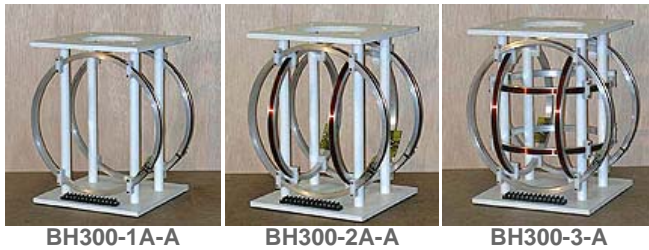


300 mm Helmholtz Coils

Ferronato® - BH300-3-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.

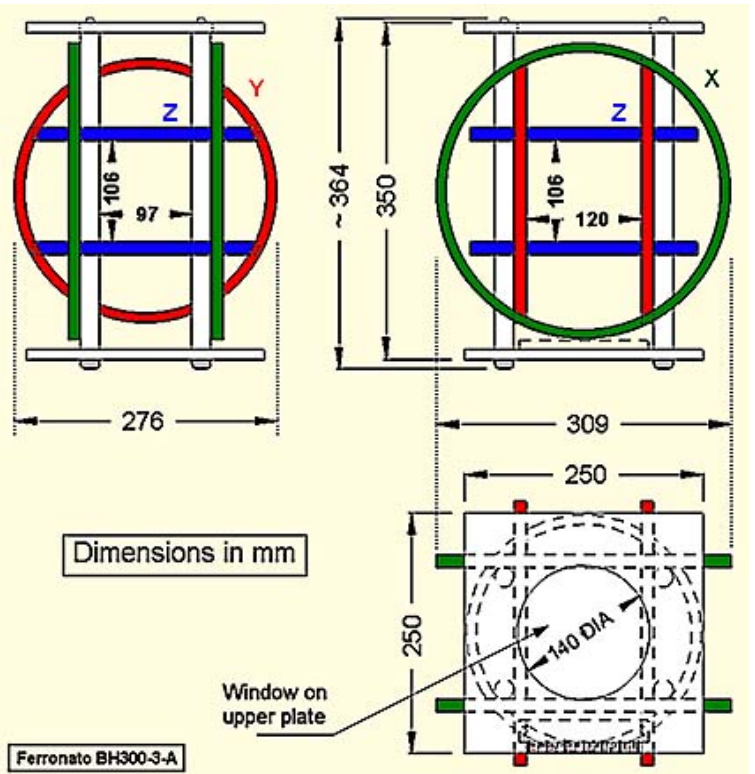
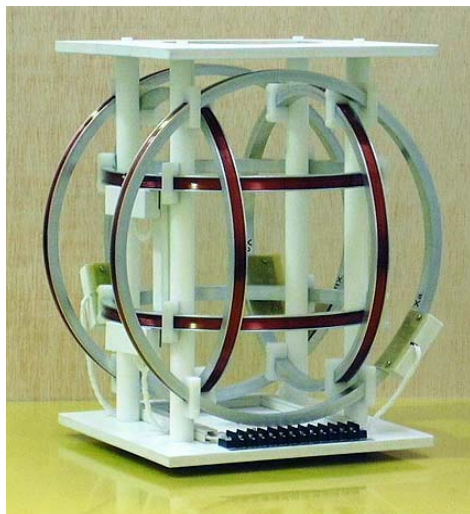
- Same generating field ratio for each of the three pairs, with a round value easy to handle: **500 $\mu\text{T/A}$**
- Accurately made, with an error smaller than $\pm 1\%$ in the generated field.
- The coil arrangement can be modified with relative facility thanks to its simple support and its joints by screws.
- Coils on non-magnetic aluminium alloy forms.
- Each aluminium form provides an 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. These can be wired to generate small gradients also.
- The aluminium forms also act like electrostatic screens.
- The coils can undergo heatings 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.



BH300-1A-A

BH300-2A-A

BH300-3-A



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

Field/Current ratio:	500 μT/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 mode / 3.0 mT (30 Gauss) during 2 minutes. Each pair.
Maximum current:	4.0 A in a steady mode / 6 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 in diameter, centred in the coils. Differences smaller than \pm 5% in a spherical volume of 100 mm in diameter. Larger volumes to 1% and 5% on some directions.
Connection:	Barrier strip terminal block, with BA4 screws (\varnothing 3.6 mm).
Maximum working temperature:	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 (fire retarded). Coil forms of aluminium alloy, with internal isolating epoxy 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 of nickel-plated 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 three axes set (lower for BH300-1A/B-A and BH300-2A/B-A).
Accessories:	Delivered with Instructions of Use in Spanish and English.
Warranty:	Two years.

SPECIFICATIONS FOR EACH COIL PAIR

	X pair (large)	Y pair (medium)	Z pair (small)
Effective diameter:	298 \pm 1 mm	266 \pm 1 mm	237 \pm 1 mm
Number of turns, per coil:	83	74	66
DC Resistance, at 20 °C: (1)	4.21 Ω \pm 3%	3.35 Ω \pm 3%	2.65 Ω \pm 3%
Self-inductance:	10,3 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)	~ 27 kHz	~ 34 kHz	~ 53 kHz
Secondary field generated by the forms when used as coils (Xs, Ys, Zs): (2)	6,02 μ T/A \pm 1%	6,76 μ T/A \pm 1%	7,58 μ T/A \pm 1%

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

(2) - We call this constructive idea "*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* -

- These units are supplied mounted and ready for use, in a cardboard box.

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