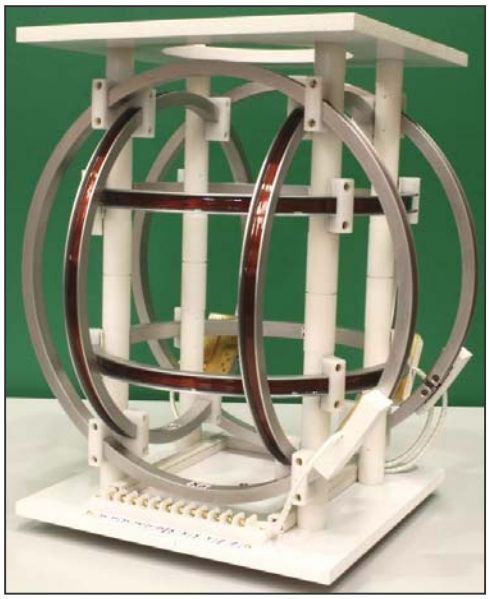

Serviciencia S.L.U.

Ferronato®
BH300HF-3-B

- **Helmholtz coils to generate homogeneous magnetic fields at high frequencies, to about 300 kHz.**
- **Its is same as our standard BH300-3-A set, excepting for the number of wire turns -which is much reduced in here- and the turn-related specifications.**
- **Also available in versions of 2 and 1 axes:**
  - **BH300HF-2A-B, with X/Y axes**
  - **BH300HF-2B-B, with X/Z axes**
  - **BH300HF-1A-B, with X axis**
  - **BH300HF-1B-B, with Z axis**

Coil-set specifications

Field/Current ratio	53.7 µT/A ±2 %, for each axis. See in below for a more precise value per axis.
Maximum field	430 µT at DC or low frequencies, steady way, each axis, for a moderate heating. About 162 μT_{peak} (114 μT_{rms} for sine wave) at 150 kHz, steady way, each axis. ([4])
Maximum current	8 A DC or low frequencies. steady way, each axis, for a moderate coil heating. 3 A_{peak} (or 2.1 A_{rms} for sine wave) at 150 kHz, steady way, each axis. ([4])
Maximum HF voltage	500 V_{peak}, at high frequencies (HF), or pulsed / 352 V_{rms} for sine wave.
Isolation voltage	500 V DC minimum, or 500 V_{peak} AC or pulsed, in between windings and forms and in between coil pairs. Tested to 1000 V DC.
Field homogeneity	Differences smaller than ±1 %, in respective to the centre, in a spherical volume of 70 mm in diameter, coil centred. Differences smaller than ±5 % in a spherical volume of 100 mm in diameter. Volumes to 1% and 5% are larger on some directions. These homogeneity degrees are practically same at DC than at 150 kHz.
Orthogonality error	<0.2 º. Optionally <0.1 º.
Connections	A single row barrier strip terminal block with twelve 4 mm (M4) brass screws.
Max. working temperature	50 ºC for the whole coil-set. 100 ºC for the windings, measured at coils surface.
Coils section	Windings: 1 x 10 mm, maximum. Total (forms): 10 x 13 mm.
Materials	Windings in enamelled copper wire, filled with epoxy resin. Coil forms in aluminium alloy. Coil terminal boards in epoxy resin/glass fibre (FR4) with covers in ASA. Lower and upper support plates in foamed PVC. Supporting pillars and brackets in Acetyl. Screws in brass and Nylon.
Maximum dimensions	Height 365 mm x Width 309 mm x Depth 276 mm.
Weight	About 2.75 kg.
Included accessories	Instruction Manual (in English).
Warranty	Two years.

Specifications for each coil pair

	X Pair (larger)	Y Pair (medium)	Z Pair (smaller)
Field/Current ratio, in µT/A, ±1 %	54.1	54.2	53.1
Effective diameter, in mm, ±1 mm	299.0	265.6	236.4
Number of turns (per coil)	9	8	7
DC resistance, at 20 ºC, in Ohm, ±3 % ([1])	0.50	0.41	0.32
Resistance at 150 kHz, at 20 ºC, in Ohm, ±5 % ([1])	3.3	2.3	1.5
Self-inductance, in µH, at 150 kHz, ±5 % ([2])	133	93	64
Self-resonance frequency [1], in MHz, ±10 %. With external 50 pF in parallel. With one end of the forms wired to one end of the windings. Example: Xs- to X-.	0.94	1.28	1.73
Self-resonance frequency [2], in MHz, ±10 %. With external 50 pF in parallel. Without connection to the forms. "Floating" winding.	1.46	1.83	2.36
Field as generated only by the forms when used as coils. /Xs, Ys, Zs), in DC, in µT/A, ±3 %.	6.0	6.9	7.6

([1]) – *Resistance values as measured at CON1 terminal block. Resistance increases with frequency.*
([2]) - *Inductance decreases a little with the frequency. At 100 Hz it is about 8 % higher than at 150 kHz.*
([3]) – *We call this concept "In-Circuit Coil Forms".*
([4]) - *The isolation voltage mostly limits the current at high frequencies, due to the natural high impedance of the coils. At DC and low frequencies the current is limited by the wiring capability.*

- These specifications are subject to minor changes without prior notice -

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