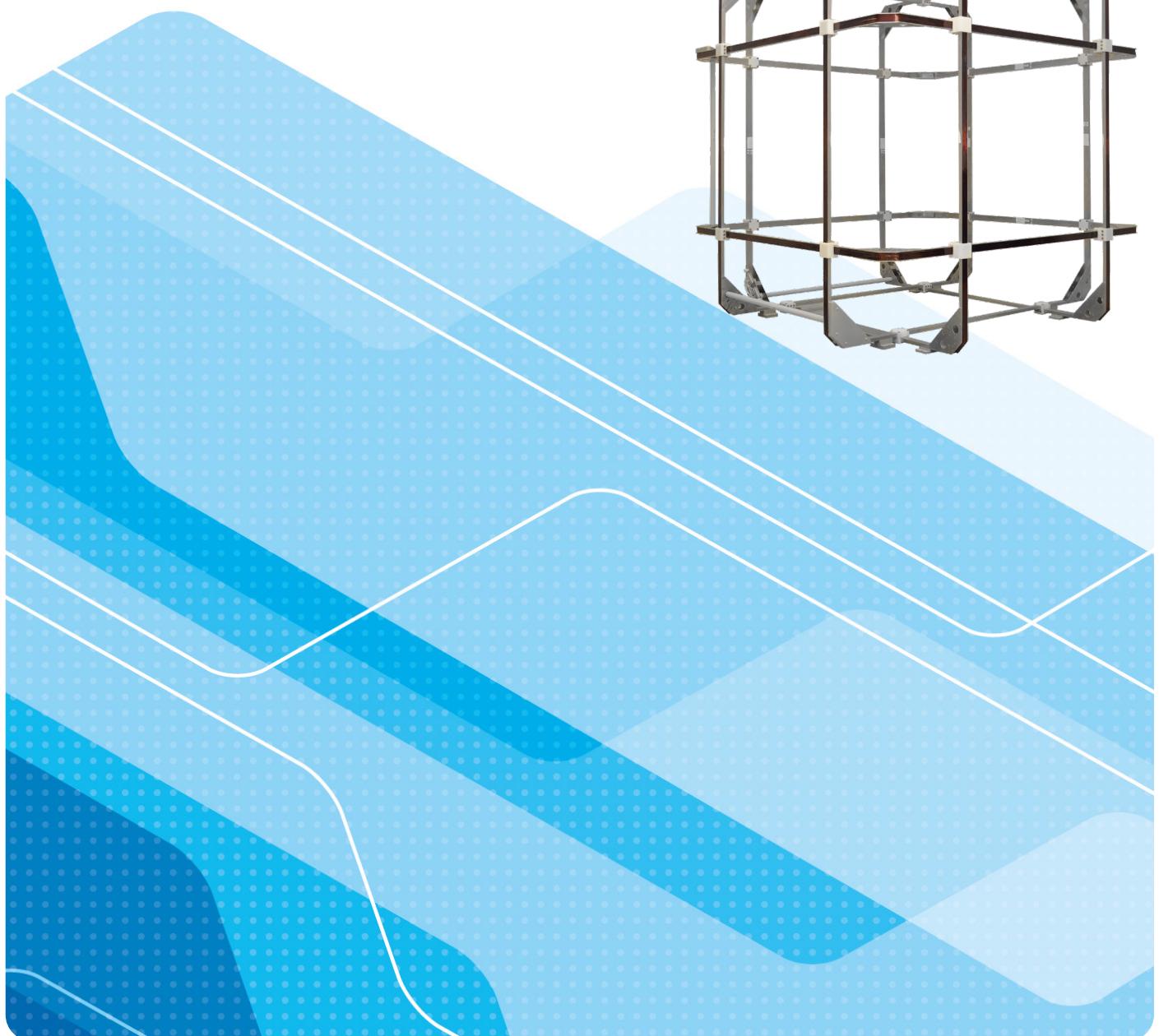
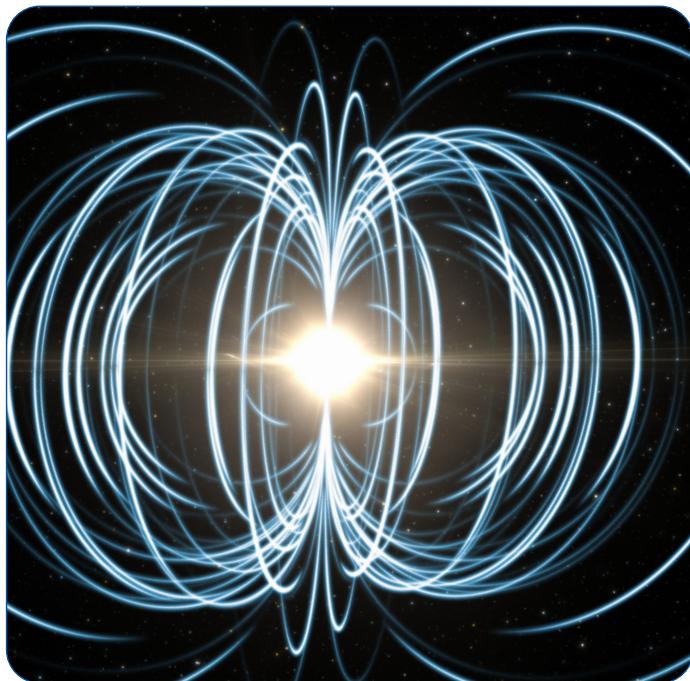


BHC2000

Ferronato® Helmholtz Coils



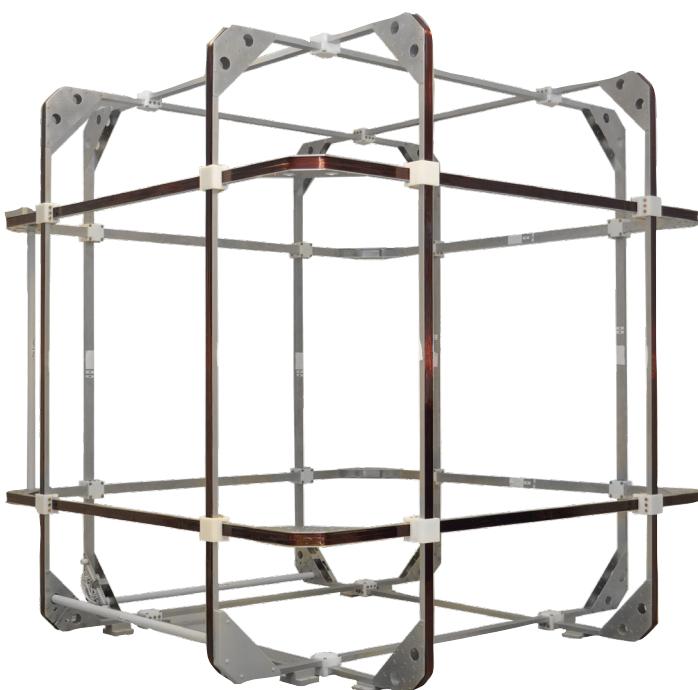
 Bartington®
Instruments



BHC2000 Ferronato® Helmholtz Coils

These 2m three-axis Helmholtz Coils are used in the calibration of magnetic field sensors, and for conducting tests or experiments that require a known magnetic environment.

The coils are available in two models, with heavier and lighter windings. Both models use bifilar windings to achieve two identical circuits in each coil, and include independent connecting terminals to facilitate different winding configurations.



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Features

- Option of 1, 2 or 3 axes
- DUT (Device Under Test) mounting setup available

Typical Applications

- Calibration of three-axis magnetic field sensors, including satellites and sub assemblies
- Creation of a known magnetic environment



Product Identification

Product name	Variant	Axes	Description
BHC2000-A	1A-A	Y	1 axis with scaling of 25µT/A field/current ratio
	2A-A	X, Y	2-axis with scaling of 25µT/A field/current ratio
	2B-A	Y, Z	2-axis with scaling of 25µT/A field/current ratio
	3-A	X, Y, Z	3-axis with scaling of 25µT/A field/current ratio
BHC2000-B	1A-B	Y	1 axis with scaling of 14.7µT/A field/current ratio
	2A-B	X, Y	2 axis with scaling of 14.7µT/A field/current ratio
	2B-B	Y, Z	2 axis with scaling of 14.7µT/A field/current ratio
	3-B	X, Y, Z	3 axis with scaling of 14.7µT/A field/current ratio



BHC2000-A

Each pair of coils generates a homogeneous magnetic field X, Y or Z axis. You may specify the number of axes required. One-axis, two-axis, or three-axis versions are available in any combination (1A, 2A, 2B, or 3) and are provided in flat-pack assembly to facilitate easier freight carriage and installation.



Specifications

Performance	X axis	Y axis	Z axis
Field/current ratio	25.0 μ T/A. For bifilar winding in parallel, as delivered from factory, or 25.0+25.0 μ T/A for independent split windings.		
Maximum field	1.0 mT DC for each axis		
Maximum current	40A, each axis, with bifilar windings in parallel. For maximum heating to around 70°C measured on coil surface. 20A, each axis, for each independent bifilar circuit (20 + 20A).		
Coil homogeneous volume ($\pm 1\%$ error)	Cubic 48cm side		
Coil homogeneous volume ($\pm 5\%$ error)	Cubic 92.5cm side		
Nominal diameter in ± 4 mm	2046mm	2000mm	1954mm
Secondary field generated by the coil formers when used as coils (Xs, Ys, Zs) $\pm 3\%$	0.82 μ T/A (max. 16.4 μ T) (20A max)		

Mechanical	
Winding	Bifilar wire in parallel
Dimensions	2086 x 2086 x 2040mm
Weight	Single coil about 35kg. Total about 220kg.

Electrical	X axis	Y axis	Z axis
Field/current ratio $\pm 1\%$, circuits in parallel	24.8 μ T/A	25.3 μ T/A	25.1 μ T/A
Field/current ratio $\pm 1\%$, circuits in series	49.5 μ T/A	50.6 μ T/A	50.1 μ T/A
DC resistance at 20°C $\pm 5\%$ measured at the general terminal block with factory wiring configuration	0.62Ω	0.61Ω	0.57Ω
Resistance for each separated circuit at 20°C $\pm 5\%$	1.24Ω	1.21Ω	1.15Ω
Self-inductance at 120Hz $\pm 5\%$	14.7mH	14.3mH	13.1mH

BHC2000-B

Each pair of coils generates a homogeneous magnetic field X, Y or Z axis. You may specify the number of axes required. One-axis, two-axis, or three-axis versions are available in any combination (1A, 2A, 2B, or 3) and are provided in flat-pack assembly to facilitate easier freight carriage and installation.



Specifications

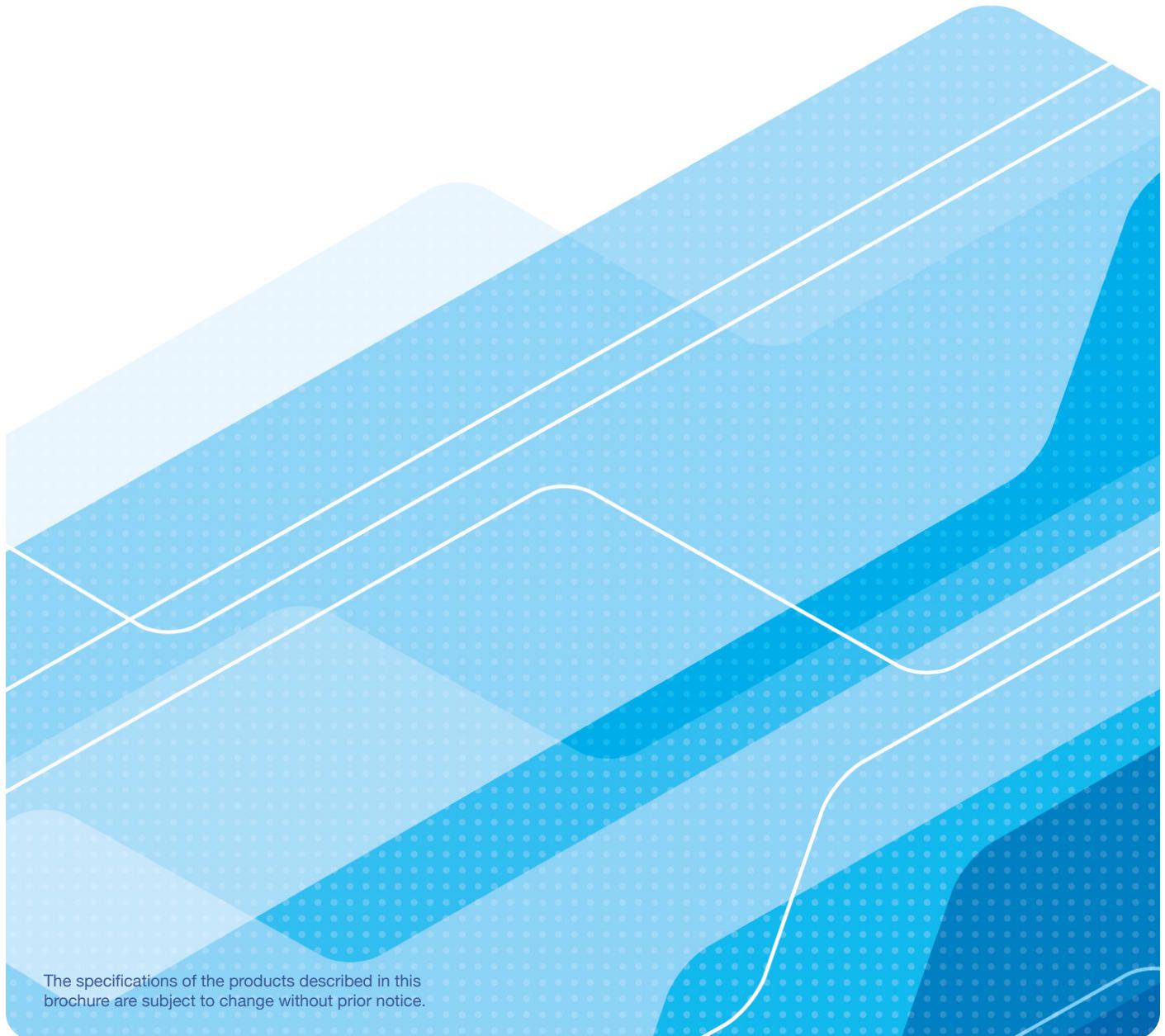
Performance	X axis	Y axis	Z axis
Field/current ratio	14.7µT/A. For bifilar winding in parallel, as delivered from factory, or 14.7+14.7µT/A for independent split windings.		
Maximum field	240µT DC for each axis		
Maximum current	16A, each axis, with bifilar windings in parallel. 8A, each axis, for each independent bifilar circuit (5 + 5A).		
Coil homogeneous volume ($\pm 1\%$ error)	Cubic 48cm side		
Coil homogeneous volume ($\pm 5\%$ error)	Cubic 92.5cm side		
Nominal diameter in $\pm 4\text{mm}$	2046mm	2000mm	1954mm
Secondary field generated by the coil formers when used as coils (Xs, Ys, Zs) $\pm 3\%$	0.82µT/A (max. 16.4µT) (20A max)		



Mechanical	
Winding	Bifilar wire in parallel
Dimensions	2086 x 2086 x 2040mm
Weight	Single coil about 35kg. Total about 220kg

Electrical	X axis	Y axis	Z axis
Field/current ratio $\pm 1\%$, circuits in parallel	14.4 μ T/A	14.7 μ T/A	15.1 μ T/A
Field/current ratio $\pm 1\%$, circuits in series	28.7 μ T/A	29.4 μ T/A	30.1 μ T/A
DC resistance at 20°C $\pm 5\%$ measured at the general terminal block with factory wiring configuration	1.8 Ω	1.7 Ω	1.6 Ω
Resistance for each separated circuit at 20°C $\pm 5\%$	3.6 Ω	3.4 Ω	3.2 Ω
Self-inductance at 120Hz $\pm 5\%$	4.9mH	4.8mH	4.7mH





The specifications of the products described in this brochure are subject to change without prior notice.

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