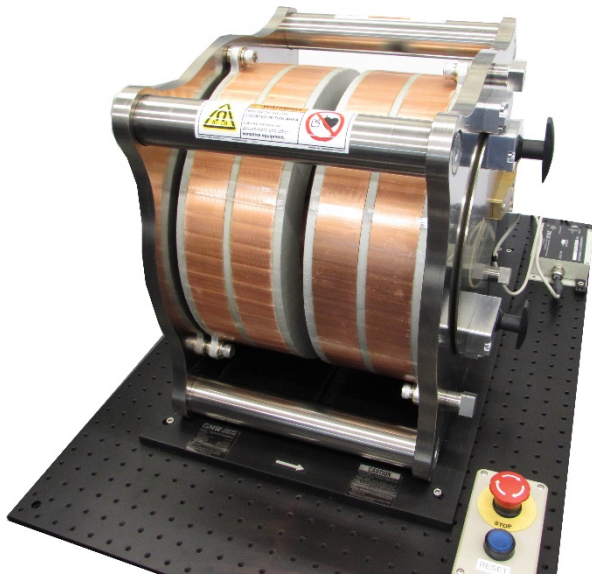


5453 Electromagnet



OVERVIEW

The **Model 5453** Helmholtz Coil Electromagnet is a single axis coil pair arranged in Helmholtz geometry to give a relatively large volume of high uniformity magnetic field. The shielded enclosure allows increased maximum field and limits fringe fields to very low compared to traditional “open” Helmholtz coil.

Features

- >125mT Adjustable Field
- Large Open Volume
- Compact
- Shielded
- Very High Uniformity

Applications

- Low Field NMR & EPR Spectrometry
- Materials Measurement
- Sensor Testing, Development and Calibration
- Electronic Sensitivity
- Biologic Effects

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Model 5453 General Specifications

Mechanical

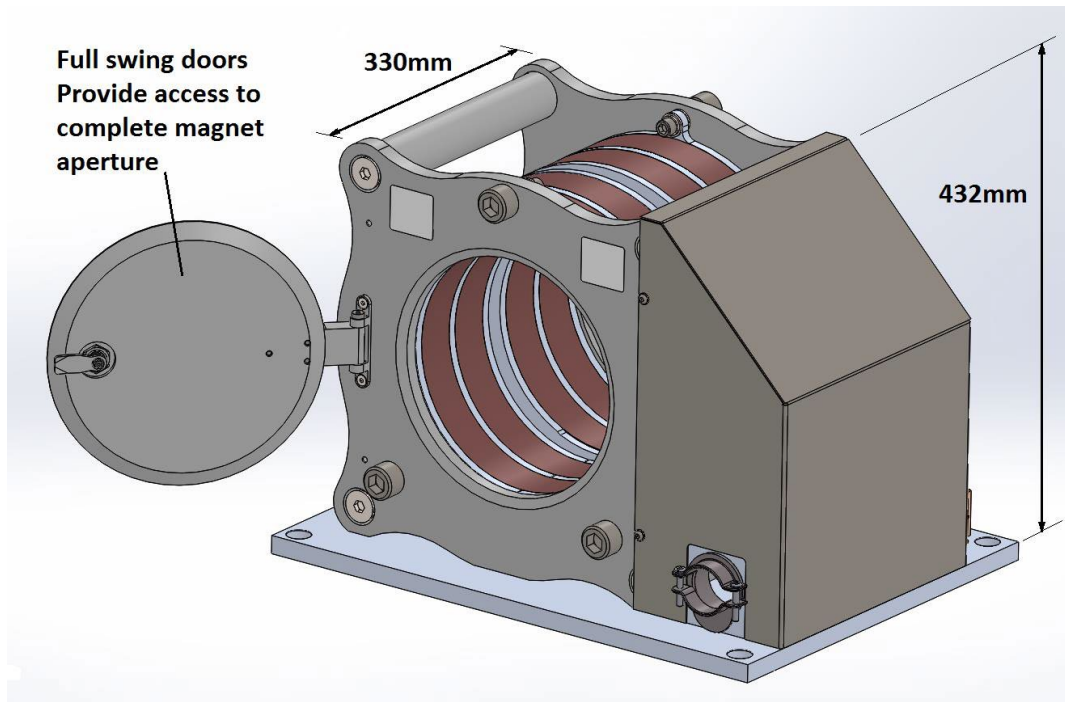
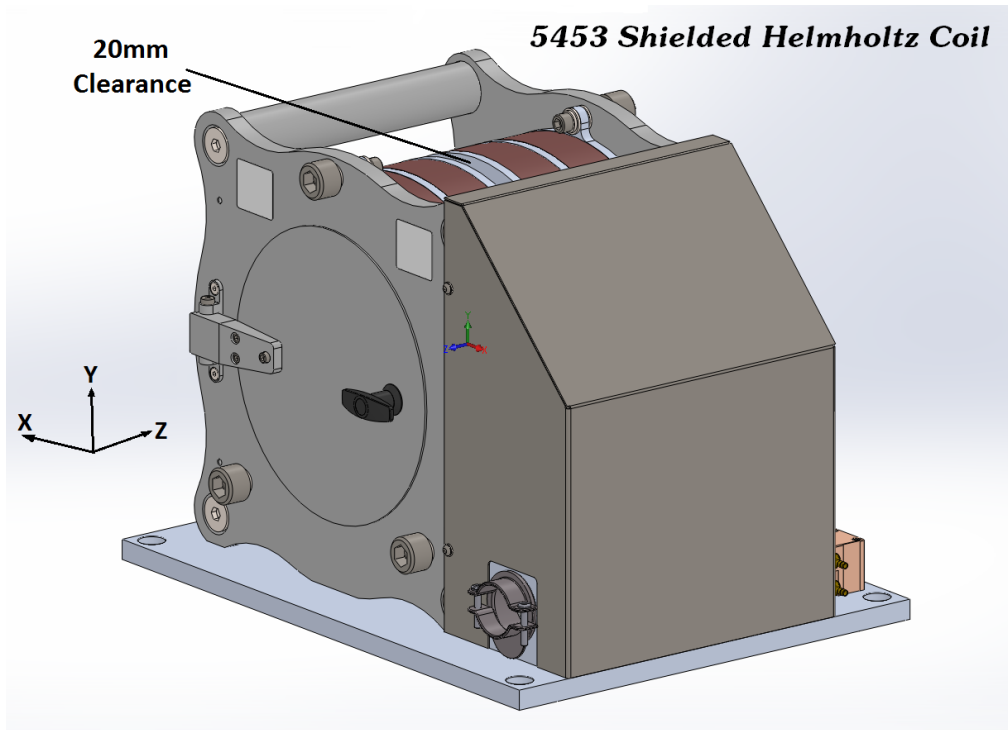
Clear Aperture Diameter	260mm
Clear Internal Length (doors closed)	320mm
Coil Spacing	20mm
External Dimensions	330x425x425mm
Weight (excluding hoses and water)	200kg
Field Uniformity:	
30mm DSV	<100ppm
65mm DSV	<1000ppm
180mm DSV	+/-2%
Central Field Continuous	150mT
Central Field Pulse	250mT

Coils

Resistance (20°C)	454 mΩ
Max Resistance (60°C)	498 mΩ
Low Current Inductance	0.051H
High Current Inductance	0.052H
Max Continuous Power (air)	20A, 5V, 1kW
Max Continuous Power (water)	80A, 40V, 3.2kW
Max. Peak Power (water cooled)	160A, 80V, 12.8kW 1min max on, 3min off
Cooling (water, 10bar)	4liters/min, 1.0bar (1US GPM, 15psid)

Safety

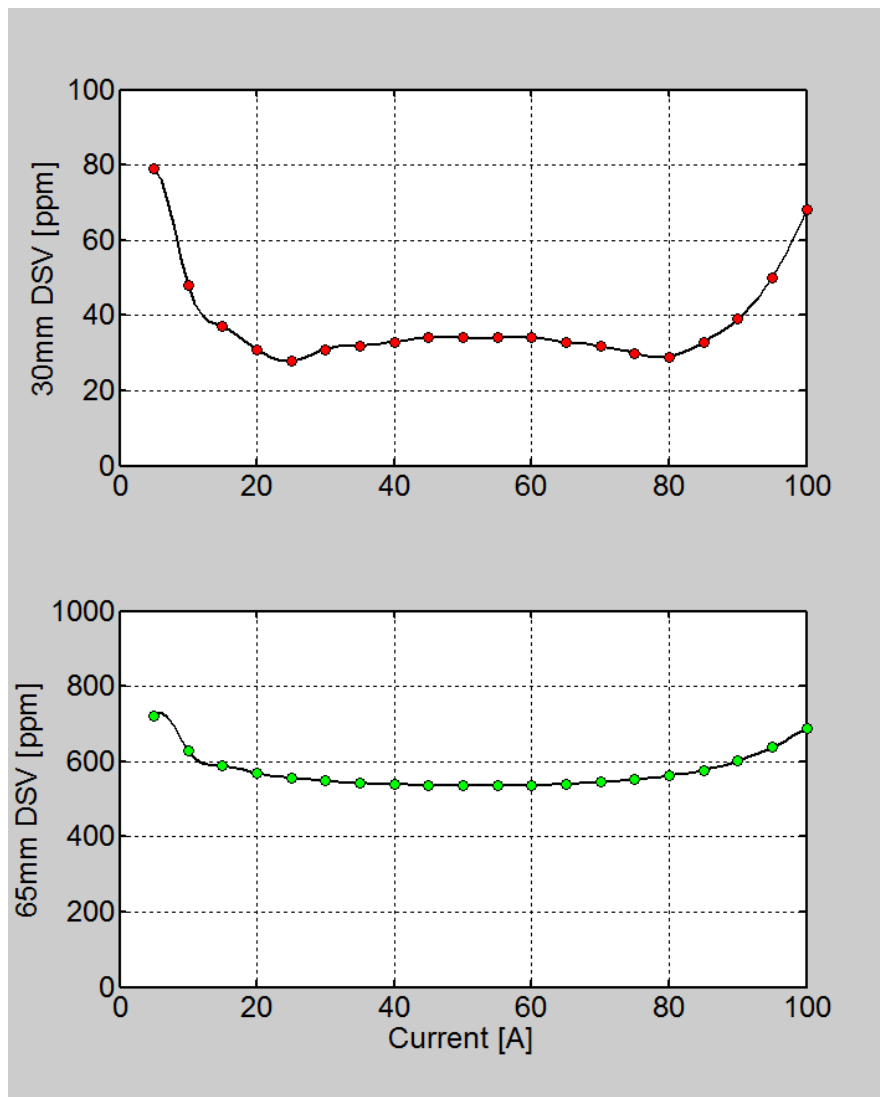
Overtemperature Interlock	Closed below 65 °C
Diameter Sphere Containing 5G-surface ("fringe field")	560mm



5453 Performance, DC Fields up to 160A

Proposed Power Supplies	DC OUTPUT RANGE		Power (kW)	Polarity
	Voltage (V _{DC})	Current (A _{DC})		
Sorenson SGA	50	100	5	Unipolar
Sorenson SGA	80	188	15	Unipolar

*Dual polarity may be achieved using the GMW 5971-160 Current Reversal switch.



Uniformity achieved over a spherical volume of the specified diameter. High field uniformity may require coil alignment and/or a Degauss cycle.