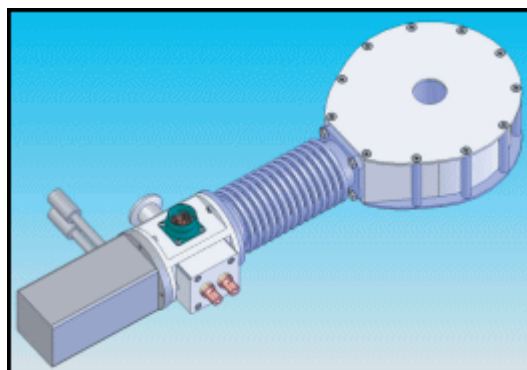


By utilizing a coil wound from High Temperature Superconductor (HTS) wire the GMW Model 5751 Short Solenoid is a compact assembly for the generation of an axial magnetic field that may be continuously varied between  $\pm 1$ T. The field uniformity is better than 1% over a central cylinder of 10mm diameter by 8mm length in a room-temperature bore of 35mm inside diameter, 190mm outside diameter and 72mm axial length.

A compact, integral Cryocooler cools the HTS Coil by conduction. The overall radial length of the Solenoid and Cryocooler is 595mm with a weight of 10kg. Flexible leads to the Cryocooler Compressor enable the Solenoid to be mechanically mounted in any direction.



The basic 5751 System includes the Solenoid, Cryocooler and Compressor, Bipolar Power Supply, Interlocks and all interconnecting Cables.

### Applications:

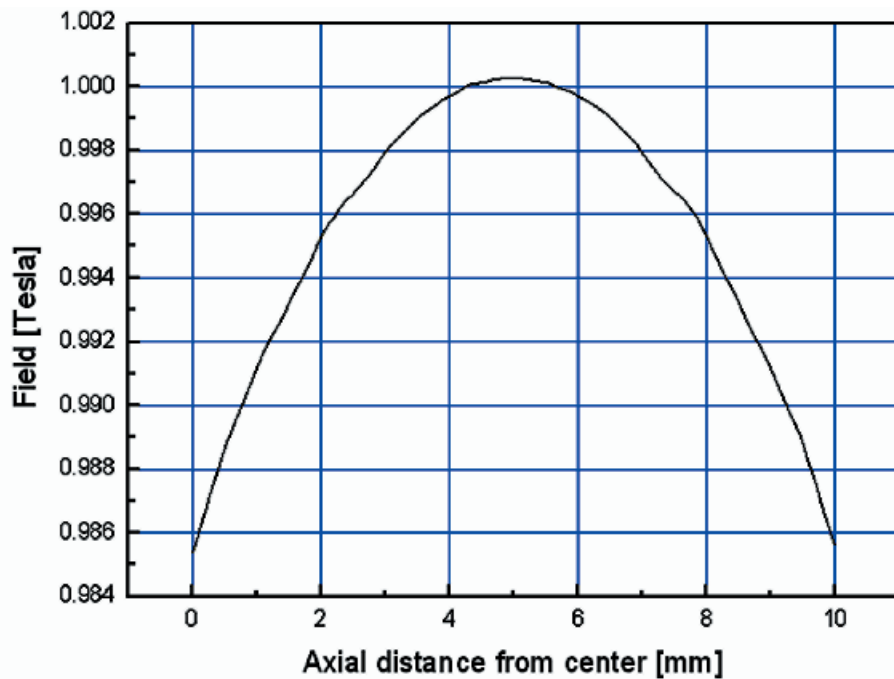
- A half length approximately equal to the bore diameter provides an open geometry for development and production measurements of magnetic properties using radiation beams including MOKE (Magneto-Optic Kerr Effect) and SMOKE (Surface MOKE).
- Sample scanning techniques like SEMPA (Scanning Electron Microscopy with Polarization Analysis), STM (Scanning Tunneling Microscopy) or AFM (Atomic Force Microscopy) may also be made easier with the open geometry.
- Chemical and biological separations requiring controllable, axial fields with access for optical and electrical probes.
- Electron and ion beam focusing using controlled solenoidal fields with short axial length.

### Preliminary Specifications (subject to change):

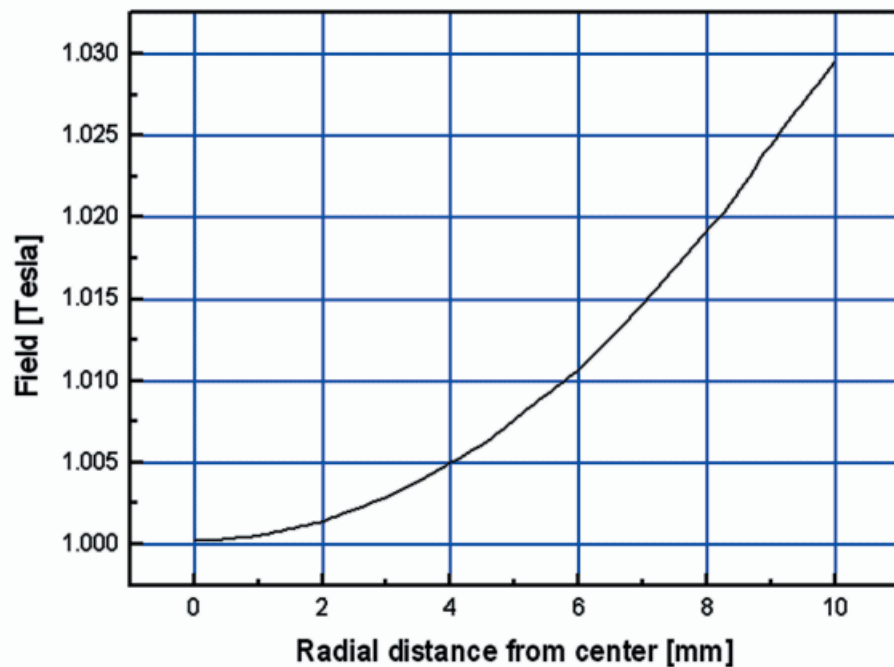
Field Operating Range (Bz)	$\pm 1$ T
Uniform Field Volume (2r x z)	10mm x 8mm cylinder with $\Delta Bz/Bz < 1\%$
Bore Dimensions (2r x z)	35mm x 72mm (room temperature)
External Dimensions	190mm solenoid outer diameter. 595mm overall radial length
Weight	
Solenoid & Cryocooler Assembly	10kg
Cryocooler Flexible He Lines, 3m	3kg
Field Ramp	0 to $\pm 1$ T in $< 3$ sec
Maximum Current	$\pm 100$ A
Cooling	Conduction cooling by integral He Cryocooler
Nominal Coil Operating Temperature	50degK
Vibration Isolation	Isolation bellows
Interlocks	Coil temperature sensors
Cryocooler and Compressor	Cryomech AL25, 1.25kW, 2l/min water cooling
Power Supply	100A, 5V with polarity reversal. Coil overtemp interlock. Cable to Solenoid, 5m.

Revision Date: 17 March, 2005 - GMW-DS\_5751\_HTS\_Short\_Solenoid\_A.indd

### Preliminary Specifications (cont.):



Axial Field Profile



Radial Field Profile

The Model 5751 HTS Short Solenoid is designed and manufactured exclusively for GMW Associates by HTS-110 Limited, New Zealand. [www.hts-110.com](http://www.hts-110.com)

### **Price List:**

Model 5751 HTS Short Solenoid	\$49,000
Includes Solenoid, Cryocooler, Compressor, Power Supply and all interconnecting Cables.	
ZM12-2-2T Magnetic Field Transducer, Z-axis, 1%, 2m Cable, 2T	\$1,930
Includes S12-5 Power Supply, 17901870 Probe Holder, CO50 Output Cable	
Computer and computer control of Solenoid and Magnetic Field Transducer	\$6,150
Includes Rackmount Computer System, DAQ Interface, Windows XP, LabView for Widows (base package), LabView Magnet Control Application Software and all interconnecting Cables	
Installation & Training, 2 days at the Customer's Site	\$4,540

### **Terms and Conditions:**

Prices are for domestic delivery within the USA and Canada.  
Prices to other Countries approximately 1.1x USA List Prices.  
Prices are expressed in U.S. Dollars, FOB San Carlos, California.  
Prices are subject to change without notice.  
OEM discounts are available.

### **Payment:**

Visa, MasterCard, Amex, Prepayment, or Net 30 days (subject to credit acceptance).

### **Delivery:**

150 days after receipt of firm, written Purchase Order.