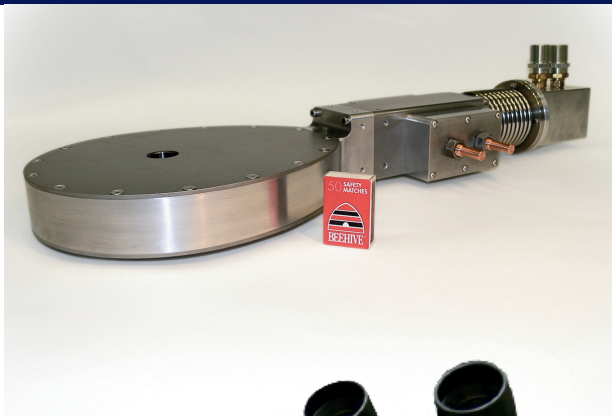


LM OPTICAL HTS SHORT SOLENOID MAGNETS



±55° OPTICAL ACCESS AND SUB-60-SECOND RAMP TIMES IN A COMPACT, CRYOGEN-FREE HTS SOLENOID.



The HTS-110 LM series delivers high-field magnetic performance in a compact, cryogen-free package optimised for optical research. Featuring a low-profile design for superior geometric access, these solenoids provide wide viewing angles up to ±55° and rapid ramp times of under 60 seconds. This combination of speed, accessibility, and stable, quench-free operation makes the LM series the gold standard for high-throughput materials characterization and advanced microscopy.

- **Exceptional Optical Access:** Wide viewing angles (up to ±55°) and 80 mm bores for seamless microscopy integration.
- **Rapid Throughput:** Industry-leading ramp times (< 60 seconds) and fast 8-hour cooldowns to accelerate research.
- **Cryogen-Free Operation:** Uses a closed-cycle cryocooler to eliminate the costs and safety risks of liquid cryogens.
- **Precision Engineering & Stability:** Integrated nickel-coated yokes for field suppression and active monitoring for quench-free safety.
- **Versatile Lab Integration:** Compact footprint with 360° orientation and remote siting for power and compressors.



The LM series bridges the gap between high-field magnetism and precision optics, providing a stable, high-performance platform for:

- **Magneto-Optics:** Optimized for MOKE and MCD/MLD studies.
- **Microscopy:** Stable environments for electron microscopy and high-resolution SPM.
- **Characterisation:** Rapid Hall Effect, scattering, and high-speed hysteresis plotting.
- **Surface Science:** Optional low-vibration cooling, and can accept third-party variable temperature sample probes.
- **Custom Setups:** Large 80 mm bores to accommodate third-party probes and instrumentation.

TRUE 360°
OPERATE AT ANY ANGLE

0.05 - 0.4% RMS
UNIFORMITY 5MM DSV

1 T, 2 T, 3 T
FULL RANGE AVAILABLE

< 60 SECONDS
FULL FIELD RAMP TIME



HTS-110's global client base includes tier-one data storage companies; manufacturers; universities; and national research institutes including ALBA, ANL, ANSTO, BNL, CAS, FZJ, HZB, ILL, IMRE, JAXA, LNLS, MSL (NZ), NIST, NUS (SSLS), PAL, RAL, RTRI, TATA, TPS, and TUM (FRMII).

info@hts-110.com
+64 4 570 8880
HTS-110.com

LM OPTICAL HTS SHORT SOLENOID MAGNETS

360° ORIENTATION AND A LARGE 80 MM BORE FOR VERSATILE, MAINTENANCE-FREE LAB INTEGRATION.

MODEL SPECIFICATIONS	LM-40-1T	LM-40-2T	LM-40-3T	LM-53-1T	LM-53-2T	LM-53-3T	LM-80-1T	LM-80-2T	LM-80-3T
Bore size (mm)	40	40	40	53	53	53	80	80	80
Peak field (T)	1.4	2	3	1.1	2	3	1	2	3
Height (mm)	45	55	100	45	65	120	55	100	160
Cryostat OD (mm)	254	254	254	254	254	254	254	254	254
Uniformity 5 mm DSV (rms) (%)	0.4	0.3	0.2	0.3	0.2	0.15	0.2	0.15	0.05

SYSTEM COMPONENTS

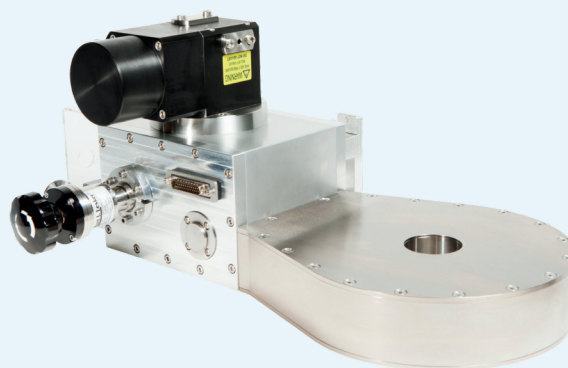
- **Magnet Sub-System.** A HTS solenoid within an integrated, low-profile cryostat and a partial iron return yoke to reduce fringe fields.
- **Cryocooler System.** Gifford-McMahon Cryocooler with remote water-cooled compressor (Sumitomo F-20 or equivalent).
- **Power Supply.** KEPCO BOP 6-125MG (or equivalent) 4-quadrant bipolar supply for smooth zero-field crossing.
- **Magnet Monitor.** A dedicated unit that monitors all critical operating temperatures and voltages, with safety interlocks for automated shutdown and quench protection.
- **Warranty & Support.** 1-year standard warranty on all magnet sub-systems

POTENTIAL ADD-ONS

- Pulse-tube cold head options for vibration-sensitive SPM or MOKE applications.
- User-changeable external poles and adjustable pole gaps for specialist field profiles.
- Closed-loop field control for enhanced stability.
- Unipolar supplies or ultra-high stability configurations.
- Extended service agreements.

SITE AND OPERATING REQUIREMENTS

- **Cryogenics:** Fully cryogen-free. System cooldown approx. 8 hours.
- **Vacuum:** High vacuum ($<10^{-6}$ mbar) required. Re-pumping recommended monthly.
- **Magnet Power Supply:** 1 Ph, 176-264V, 47/63Hz (9.5A max).
- **Cryocooler Power:** 1 Ph, 200-240V, 50/60Hz (2.2-2.6 kW).
- **Cooling Water:** 1.9-3.8 L/min (0.5-1.0 gal/min) at 4-27°C.
- **Maintenance:** 13,000 / 30,000 hours for coldhead / compressor.



ENQUIRY AND DELIVERY PROCESS

Initial Consultation or Feasibility Study

Discuss your needs to confirm if a turnkey, customised or bespoke magnet is suitable.

Application and Options Assessment

Verify specifications, supply a quote with lead time, and reserve stock or capacity.

Production and Testing

We build, test, and QC the system to rigorous standards.

Delivery and Integration

On-site installation and operational training, plus lifetime support.



HTS-110.COM
+64 4 570 8880
info@hts-110.com