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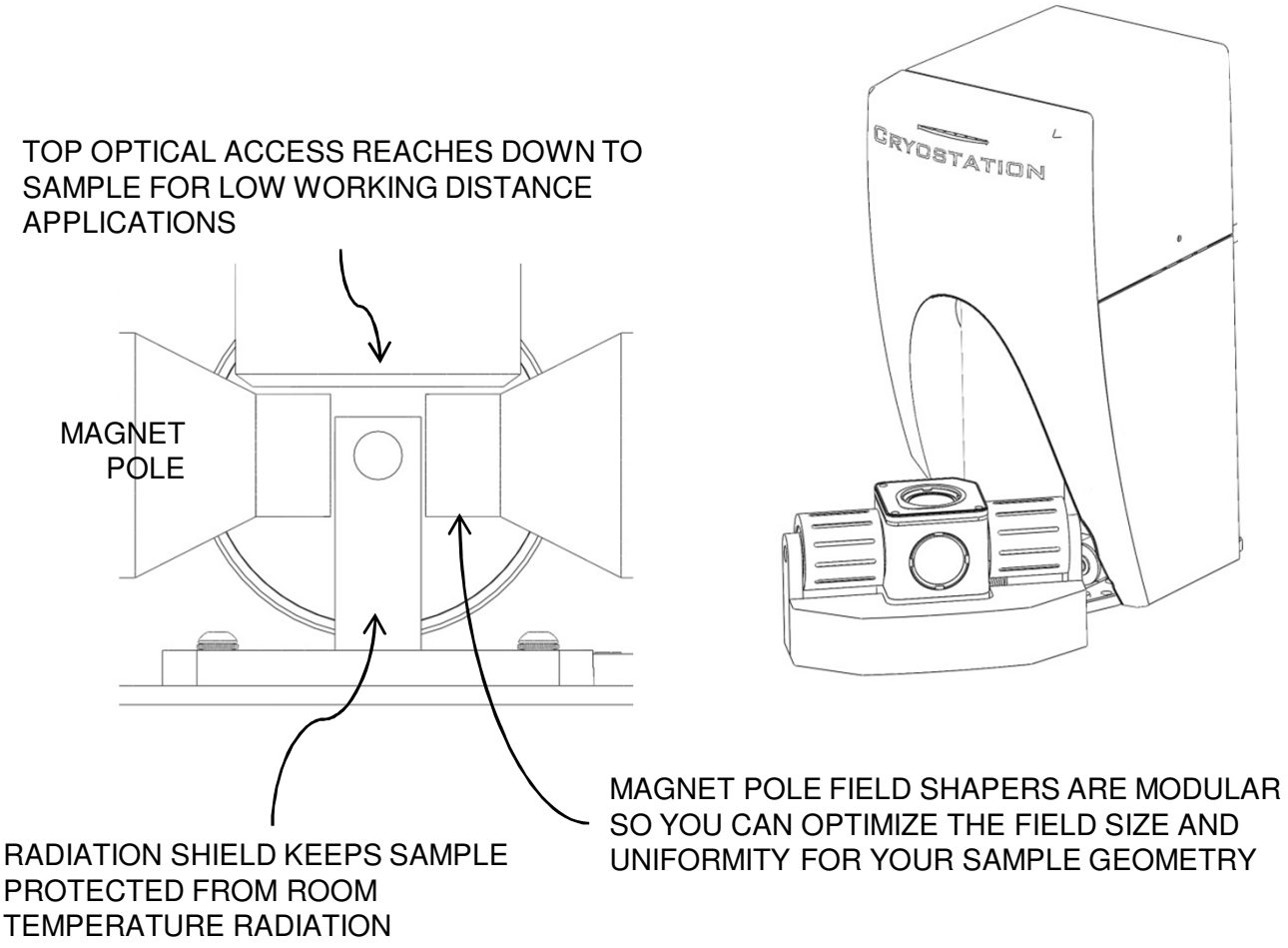
MONTANA INSTRUMENTS

Magneto – Optical Option	Doc-105

The Cryostation is compatible with magnetic systems and is available with a magnetic option. This option inserts magnetic pole pieces into two opposing ports to get close proximity to the sample, and provides a user controllable field to the sample. The pole pieces may be moved to allow flexibility in the experiment setup. In this configuration, the user may use the top or other side windows for optical access. Alternatively, the pole pieces may be provided with central axial holes, so the user may have optical access from those ports as well. The magnetic poles preserve the functionality of the radiation shield, which is necessary to obtain the lowest temperatures at the sample.

The figures below show how the magnet poles interface to the Cryostation.



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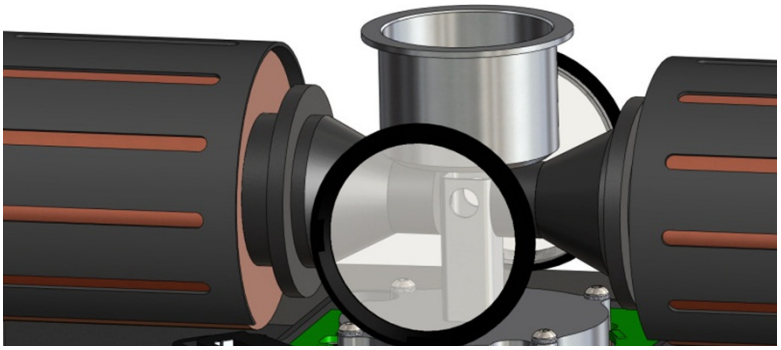
The image below shows a view with the housing removed, but the optical ports are placed properly to show their relationship to the sample area. Here the inner radiation shield is a tall central square post seen through the front window. The top optical port has a large recessed window that brings the actual window very close to the top of the sample. This is designed so an objective will reach down below the lid of the sample chamber, yet remains outside at room temperature. This allows low working distance from the top port. Note also that the side ports have excellent optical access to the sample.



EXCELLENT OPTICAL ACCESS FROM ALL THREE AXES INCLUDING LOW WORKING DISTANCE TOP WINDOW AND LARGE 50mm SIDE ACCESS WINDOWS

VIEW OF SAMPLE SPACE WITH PORTS SHOWN, BUT HOUSING NOT SHOWN

The field strength was analyzed with and without the central hole in the magnetic poles. The next two pages show the results based on a 0.5T field.

Montana Instruments is interested in working with customers on alternate designs, including 4 poles or different field strengths. Contact our engineers to discuss your application requirements.

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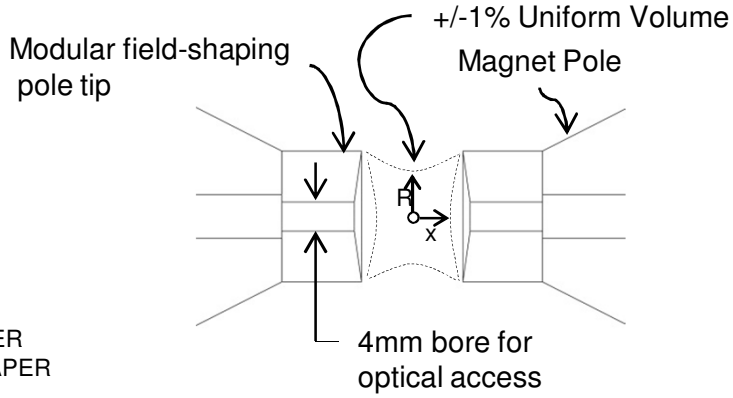
MONTANA INSTRUMENTS

Magneto – Optical Option	Doc-105

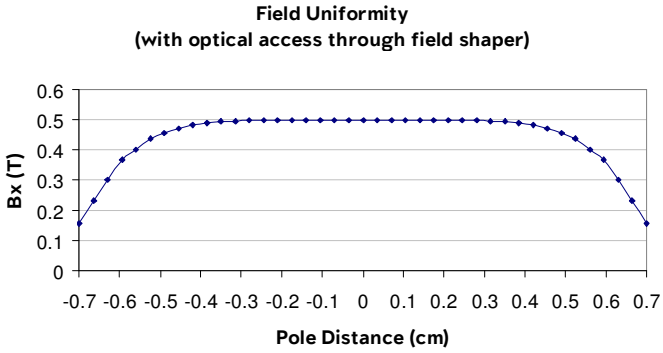
Results for Magnetic Poles with internal Optical Access

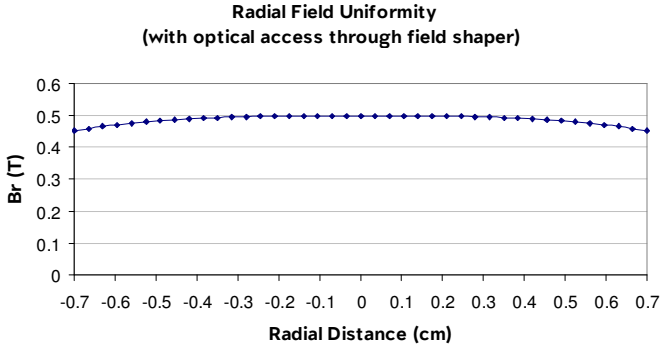


FIELD

• FIELD AT ~4A	0.5T
• POLE SPACING*	14mm
• FIELD UNIFORMITY	
•Bx (+/-1%)	7.7mm
•Br (+/-1%)	9mm

*POLE SPACING MAY BE CHANGED FOR HIGHER FIELDS BY EXCHANGING MODULAR FIELD SHAPER





POWER SUPPLY

- KEPCO BOP 50-4M 200 Watt Linear High-Speed Amplifier
- MAX CURRENT OF 4A
- 16-bit REMOTE DIGITAL CONTROL
- SLEWING RATE MINIMUM OF 0.25A/µsec
- LABVIEW® DRIVERS AVAILABLE

ADDITIONAL FEATURES

- OPTICAL ACCESS THROUGH MAGNET POLE CENTER
- REMOVABLE FIELD SHAPER TIPS FOR SPECIFIC FIELD REQUIREMENTS
- HIGH VIEW ANGLE OPTICAL ACCESS FROM SIDES
- LOW WORKING DISTANCE OPTICAL ACCESS FROM ABOVE
- MAINTAINS ALL FUNCTIONALITY AND CONTROL OF CRYOSTATION®

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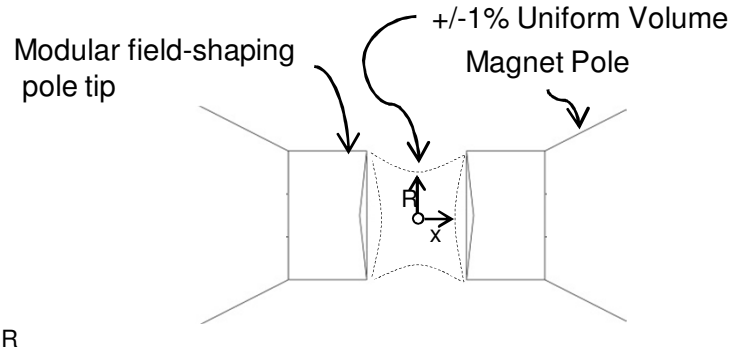
MONTANA INSTRUMENTS

Magneto – Optical Option	Doc-105

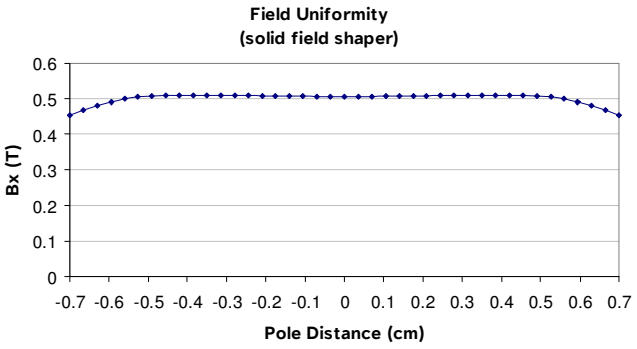
Results for Magnetic Poles without internal Optical Access

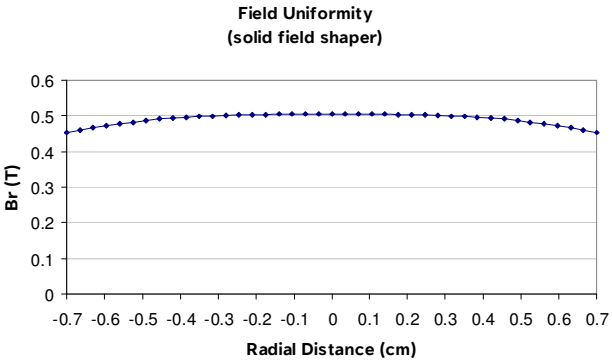


FIELD

• FIELD AT ~4A	0.5T
• POLE SPACING	14mm
• FIELD UNIFORMITY	
•Bx (+/-1%)	11.2mm
•Br (+/-1%)	8.4mm

*POLE SPACING MAY BE CHANGED FOR HIGHER FIELDS BY EXCHANGING MODULAR FIELD SHAPER





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