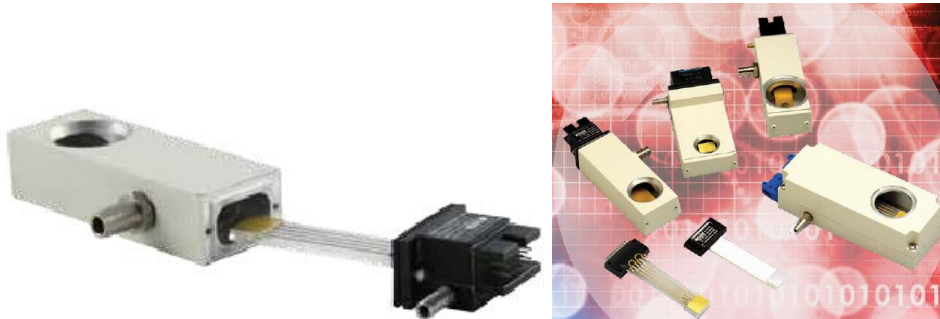
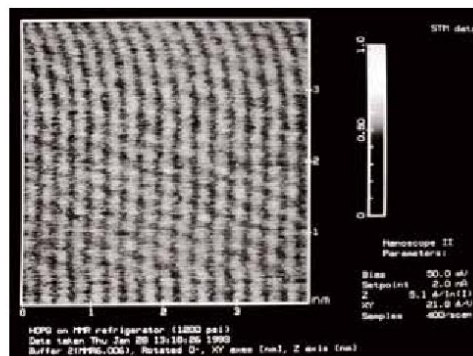
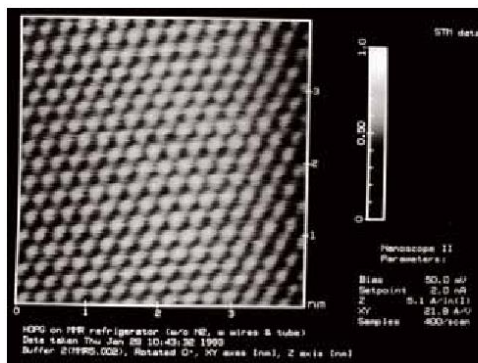


无液氮变温光学恒温器

无液氮变温光学恒温器被广泛的用于低温光学实验。例如，反射、折射、透射、拉曼等实验。



该设备采用焦耳-汤姆逊微型制冷器进行温度调节，无需液体制冷剂，变温范围可达到70K-730K。温度稳定性可达到±0.1K。该平台可接受样品的大小为 14mm×10mm，并且无机械振动、电子噪声，是任何振动敏感低温应用的理想选择。



在光学实验中，通常有几个关键的因素，例如，窗口的材料、窗口与样品表面的距离等。为了满足不同实验的需求，我们可以提供不同的窗口材料和尺寸以及适合的腔体和不同的工作距离。真空腔采用套筒状或开合设计，使用者可以很方便的接触样品，并且很容易完成样品切换。此外这种设计占用的空间非常小，是安装到显微镜平台上的理想产品。

INSTRUMENT TYPE	WORKING DISTANCE	REFLECTION EXPERIMENTS	REFRACTION EXPERIMENTS	TRANSMISSION EXPERIMENTS	RAMAN EXPERIMENTS
SYSTEM I	6 mm or 12 mm	yes	yes	no	no
SYSTEM IT	(with inter leaf - 25 mm or 31 mm)	yes	yes	yes	no
SYSTEM IIB	12 mm	yes	yes	no	no
SYSTEM IIB RAMAN		yes	yes	possible*	yes
SYSTEM IIT	3 or 6 mm	yes	yes	yes	possible**

* A modification on the standard Raman chamber can give a chamber with four windows instead of three.

** A special System IIT chamber can be made with two removable windows on the top and the bottom, and two fixed-side windows.

◆ 产品特点

- 高温度稳定性
- 低机械振动

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- > 模块化设计
- > 小巧紧凑
- > 低功耗
- > 可选择不同材料的窗口材料
- > 使用焦耳汤姆逊平台，无液体冷冻剂

◆主要应用

可集成到一个光学系统中，例如：拉曼光谱、荧光成像、红外探测、传输和吸收研究等生物样品、材料研究、纳米技术、环境控制箱研究等。

◆主要应用

Specifications for the Variable Temperature Optical Systems

The following are specifications for all models of the optical systems:

Operating Temperature Range:	Available between 70K and 730K (Joule-Thomson Thermal Stage)*
Sample Mounting Surface Size:	10 mm x 12 mm
Maximum Sample Weight Allowed:	No more than 5 grams
Optical Window Material:	Fused Silica - other materials are possible as a special order
Electrical Connections:	Extra connection points on the thermal stage on the inside of the vacuum chamber can be used to wire bond connections within the vacuum chamber, and be accessed externally through the circuit breakout box via BNC Connectors.
Temperature Controller Requirements:	MMR's Programmable Temperature Controller
Temperature Accuracy:	< 0.5K at 80K; +/- 0.5K between 80K and 400K; < 1.5K from 400K to 730K
Temperature Stability:	+/- 0.05K
Temperature Resolution:	0.01 K
Filter/Dryer Requirements:	Either the standard filter dryer or the reversible filter dryer system if operation below room temperature is required.
Vacuum Requirement:	For operation outside of room temperature, 8 milliTorr of vacuum pressure is a minimum requirement.

System I

Type of Vacuum Chamber:	Clamshell
Dimensions of Vacuum Chamber:	1.75 in wide x 4.5 in long x 1.0 in high 4.45 cm x 11.43 cm x 2.54 cm
Weight of Vacuum Chamber with Thermal Stage:	312 grams
Working Distance:	6 mm or 12 mm*** - select one at purchase. or with optional inter leaf can have 25 mm or 31 mm
Number of Windows:	One - fused silica
Window Dimensions:	1.0 inch in diameter, 0.04 inches thick 25.4 mm in diameter, 1 mm thick
Types of Experiments:	Reflection, Refraction

System IT

Type of Vacuum Chamber:	Clamshell
Dimensions of Vacuum Chamber:	1.75 in wide x 4.5 in long x 1.0 in high 4.45 cm x 11.43 cm x 2.54 cm

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Weight of Vacuum Chamber with Thermal Stage:	312 grams
Working Distance:	6 mm or 12 mm*** - select one at purchase. or with optional inter leaf can have 25 mm or 31 mm
Number of Windows:	Two - fused silica
Window Dimensions:	1.0 inch in diameter, 0.04 inches thick 254. mm in diameter, 1 mm thick
Types of Experiments:	Reflection, Refraction, Transmission

System IIB

Type of Vacuum Chamber:	Sleeve
Dimensions of Vacuum Chamber:	1.6 in wide x 4.5 in long x 1.0 in high 4.1 cm x 11.4 cm x 2.5 cm
Weight of Vacuum Chamber with Thermal Stage:	170 grams
Working Distance:	12 mm
Number of Windows:	One - fused silica
Window Dimensions:	1.0 inch in diameter, 0.04 inches thick 254. mm in diameter, 1 mm thick
Types of Experiments:	Reflection, Refraction

System IIB Raman

Type of Vacuum Chamber:	Sleeve
Dimensions of Vacuum Chamber:	1.6 in wide x 4.5 in long x 1.0 in high 4.1 cm x 11.4 cm x 2.5 cm
Weight of Vacuum Chamber with Thermal Stage:	170 grams
Working Distance:	12 mm
Number of Windows:	Three - fused silica
Window Dimensions:	1.0 inch in diameter, 0.04 inches thick - Top Window 254. mm in diameter, 1 mm thick - Top Window 0.75 inch in diameter, 0.04 inches thick - Side Windows 254. mm in diameter, 1 mm thick - Side Windows
Types of Experiments:	Reflection, Refraction, Raman

System IIT

Type of Vacuum Chamber:	Sleeve
Dimensions of Vacuum Chamber:	1.2 in wide x 3.5 in long x 0.75 in high 3.0 cm x 8.9 cm x 1.9 cm
Weight of Vacuum Chamber with Thermal Stage:	114 grams
Working Distance:	3 mm or 6 mm - depending on how the thermal stage is installed
Number of Windows:	Two - fused silica
Window Dimensions:	1.0 inch in diameter, 0.04 inches thick 254. mm in diameter, 1 mm thick
Optional 4 window chamber:	All windows 1.0 inch in diameter, 0.04 inches thick 254. mm in diameter, 1 mm thick
Types of Experiments:	Reflection, Refraction, Transmission

* For more information, please refer to the product data sheets for the Joule-Thomson thermal stages.

**For more detailed information on the Leakage Current, please contact sales@mmr-tech.com.

*** The default working distance shipped with the System I and IT chambers is 6 mm.

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