CIA CRYO Industries of America, Inc.

XE102
Flow Cryostat

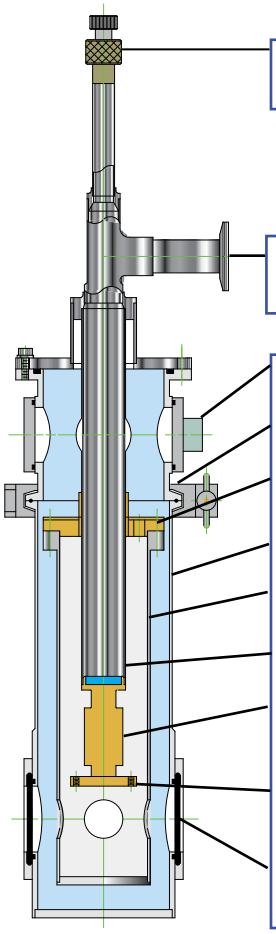
Innovation

XE102 incorporates new insulating techniques

The Results:

Flow Cryostats with breakthrough efficiency

0.35 l/hr at 4.5 K



Transfer line inlet
- quick connect o-ring seal

Vent and vapor pumping port
- NW25 (ISO-KF25) interface flange

10-pin electrical feedthrough - (3) additional blanked-off ports

Quick disconnect for sample access - high vacuum o-ring seal

Gold plated copper radiation shield interface - cooled by exiting vapor

3.0" [76.2 mm] O.D. outer vacuum shroud

2.0" [50.8 mm] I.D. aluminum radiation shield - large working space
- lightweight for fast cooldown

1.0" [25.4] O.D. sample mount support tube - large diameter for sample rigidity

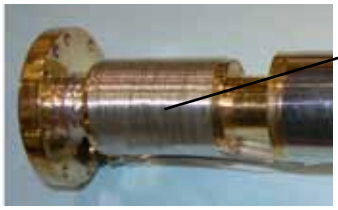
Heater for variable temperature operation
- virtually indestructible - free replacement if it ever burns out - high power

1.5" [38.1 mm] copper sample mount - gold plated to prevent copper oxidation
- gold plated bolt-on 'T' style holder included

1.63" [41.2 mm] dia. clear view suprasil windows - at 0, 90, 180 and 270 degrees
- f1 Optics

High Vacuum o-ring seal quick disconnect.

No low vacuum gaskets or 'milk' flanges!



No more burnt heaters! Perpetual heater - tested for 10 years without failure during normal operation even at 1000 K.

Gold plated copper throughout - not just sample holder.

All exposed copper is gold plated including sample mount, cold finger and radiation shield interface.

Eliminates high emissivity oxidized copper that can degrade operational performance and increase LHe consumption.

XE102 breaks through the efficiency barrier!

The LHe consumption of the **XE102** compares favorably with many bath cryostats and without the operational complexities. The **XE102** offers substantial liquid helium savings at a time when there are concerns about diminishing LHe supplies.
Easy to use, convenient, portable, fast cooldown flow cryostats that are now thermally efficient!

Easy to use:
Insert the leg into a storage dewar, open the flow valve and cooling begins. A small pressure in the storage dewar transfers liquid helium (or nitrogen) from the storage dewar into the transfer line and directly to the sample mount.

The **XE102** can transfer liquid helium by pushing or pulling. LHe can be 'pulled' with a diaphragm or vacuum pump or 'Pushed', by a small pressure in storage dewar (typically ~ 1 psig [70 millibar]).

The typical setup consists of the **XE102**, a liquid helium (or nitrogen) storage (transport) dewar, helium gas cylinder with pressure regulator and a vacuum pump. The transfer line is supplied with the system.

Pressure inside the storage dewar is adjusted using the cylinder of helium gas. The flow control valve regulates the flow; fine control can be made by turning the valve control knob. An activated charcoal cryopump is built into the transfer leg to help maintain vacuum for extended periods of operation.

The transfer line storage dewar leg seals to the standard 0.5 inch quick connect on the top of most storage dewars. The 50 inch insert leg length fits storage dewars up through 100 liters (longer leg lengths are available). The other end of the transfer line inserts into the top of the cryostat.

Electrical connections to the sample are made through the (4) O-ring sealed ports located on the instrumentation housing with each port large enough to accept standard 61-pin connectors.

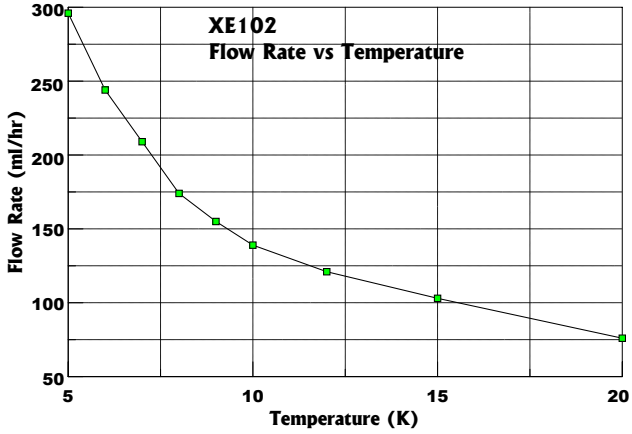
The vacuum shroud disconnects via a single clamp. Vacuum seal is a high vacuum o-ring, no low vacuum type seals, such as 'milk' flange gaskets.

The **XE102** systems features a large 1.50 diameter copper mount with an indestructible heater, temperature sensor and (8) #4-40 tapped holes for attaching samples. If the heater ever 'burns out', a free replacement is supplied. More than 10 years of testing says that the heater will never burn out in normal service!

Stable higher temperatures can be attained by using a temperature controller to supply power to the heater. Operation below 4.2 K is achieved by reducing the pressure by pumping on the helium vent port.

All exposed copper surfaces are gold plated to prevent copper oxidation from degrading the high performance of the **XE102**!

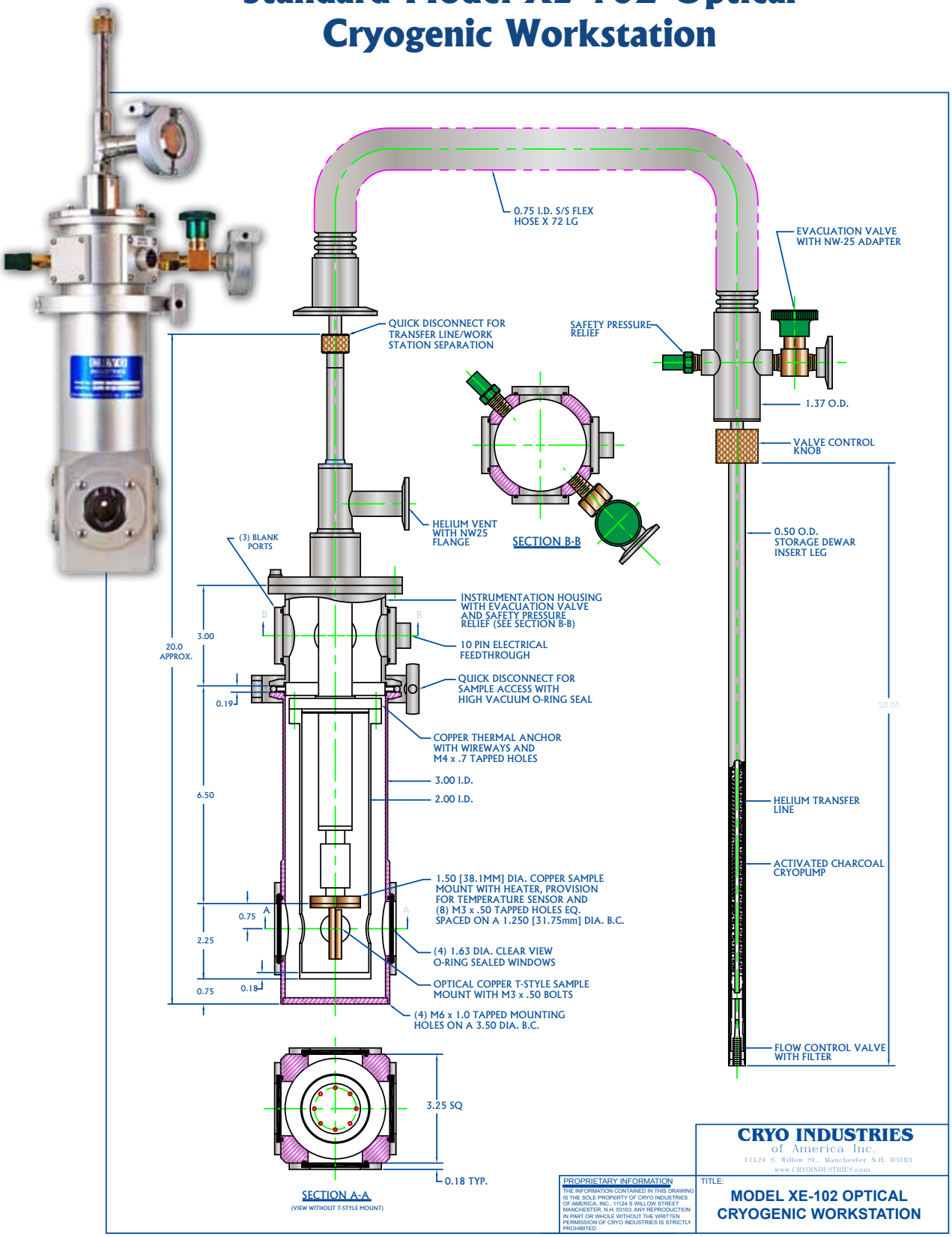
XE102 - features and efficiency not matched by any other commercially available system!



Specifications	XE102 - sample in vacuum
Temperature Range	< 2 - 325 K (1000 K optional)
Initial Cooldown time	15 minutes
Temperature Stability with controller	50 mK or less
Orientation	operates in any position
System weight (without transfer line)	4.6 kg (10 lbs)
LHe Consumption on Cooldown	~ 0.3 liters
Liquid helium consumption rate (standard XE102)	0.30 l/hr at 5 K, 0.35 l/hr at 4.5 K (windows closed) 0.45 l/hr at 5 K - all 4 windows open

NOTES: Above specification measured with XE102 orientated vertically (cold finger pointing towards floor)

Standard Model XE-102 Optical Cryogenic Workstation



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TITLE:
MODEL XE-102 OPTICAL CRYOGENIC WORKSTATION

Extra Compact Model XE-102
Optical Cryogenic Workstation

Model Number: XEX-2363-102

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