

Variable Temperature Storage Dewar Mount Inserts

All inserts are available for either Liquid Helium or Liquid Nitrogen Dewars!

DStat - External cryostat with insert leg

DStatMag - Super Conducting Magnet

VTC - Variable Temperature Computerized Insert

Exchange Gas - 1-wall or 2-wall option

SM - Storage Mount Inserts

SVT - SuperVariTemp for use in large dewars or with a superconducting magnet

HE3- Uses Helium 3 for ultra low cooling

'DStat' Directly Cooled Cryostat System

The 'Dstat' is a versatile storage dewar insert (leg is in the dewar and cryostat sits outside on top of the storage dewar) with top loading variable temperature sample in helium vapor (except for the 'DStat' Magnet model, which is sample in static exchange gas).

One of the unique features of the Cryo Industries 'DSTAT' is that this style of insert allows for large sample tube sizes, since the sample zone is outside on top of the dewar and therefore size is not restricted by the dewar neck I.D..

The standard DSTAT SM-2243-DC has a 2.00" sample tube and is very efficient. Cool down losses will depend on the added masses, but should be approximately 0.75 liters of liquid helium for initial cooldown without any added masses. The temperature stability is very good at +/- 0.001K from 6K to 300K. The sample tube may be filled with LHe to also provide exact LHe temperature.

All DStat designs offer an exchange gas insert option that fits inside the DStats' sample tube to give ultimate temperature stability. The sample would then sit inside the removable static exchange gas tube. The DStat with the exchange gas sample tube has approximately 0.25" smaller diameter than DStats' flowing vapor sample tube.

The vibrational levels of LHe cryostats are always very low. In general vibration is not an issue with LHe cryostat systems. In a LHe sample in vapor flow cryostat (like a DStat) any vibration present in the cryostat would come from the dynamic flow as it flows over the sample and the amount of vibration is controlled by how the sample holder hangs and is held concentric in the sample tube.

This Versatile Design Fits Any Storage Dewar!

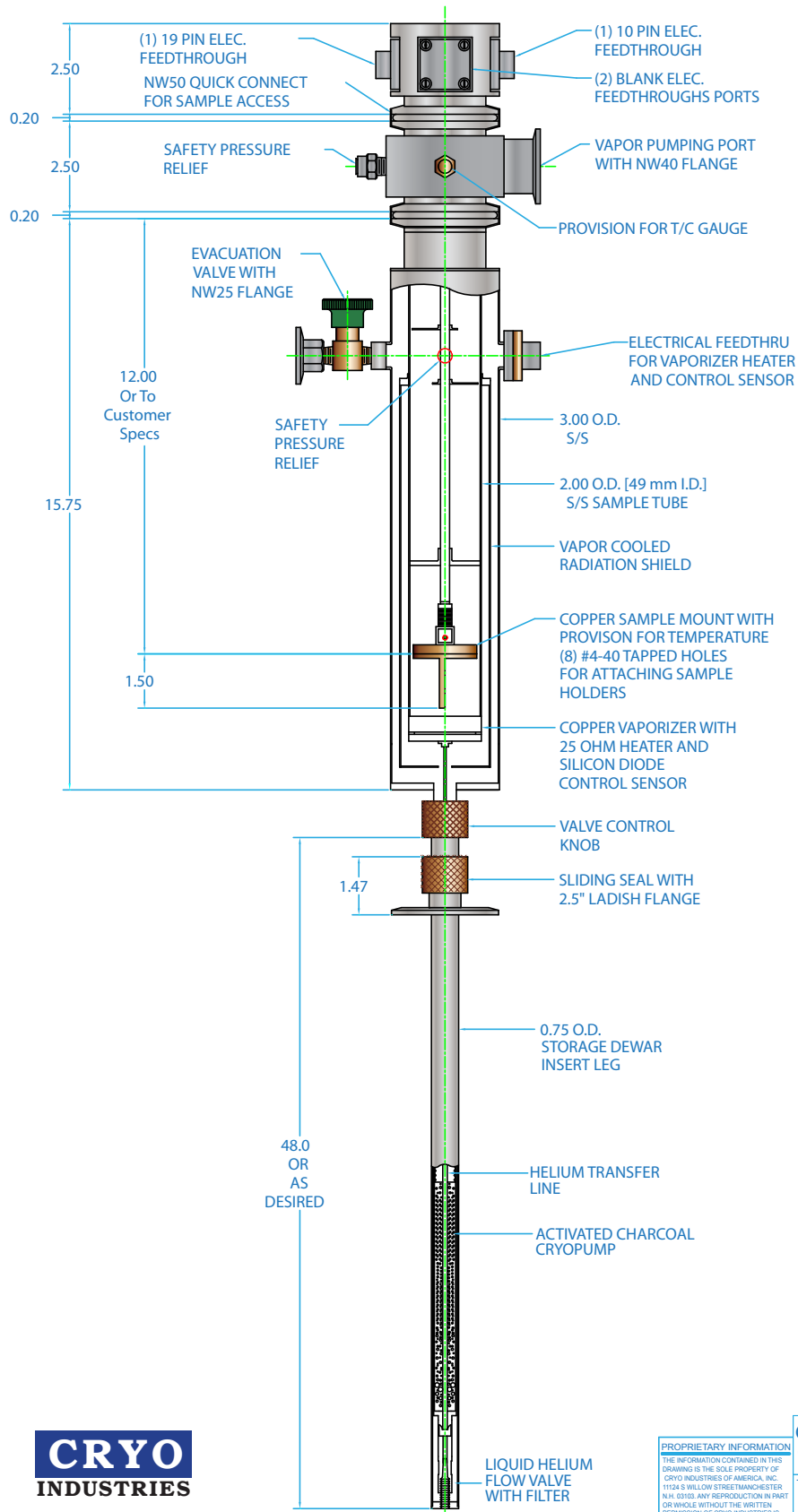
The DStat is available with a superconducting magnet integrated into the design!

Dstat Insert in LHe Tank

DStat Specifications

Efficiency:	• 0.02 l/hr static LHe loss rate ~0.10 l/hr LHe operational
'One Button' Operation:	Change temperature using the heater only or Computerized Flow Control (Optional)
Versatility:	• Fits any storage dewar (0.5 inch or 12 mm insert leg) • Top Loading easy sample change • Exchange samples in seconds
Operating Temperature Range:	Standard 'DStat': <1.4 K to 325 K (500 K optional) Magnet 'DStat': 4.2 K to 325 K (500 K optional)
Temperature Stable:	+/- 0.001 K - 4.2 K to 325 K +/- 0.010 K - 1.4 to 4.2 K

Directly Cooled 'DStat' Drawing

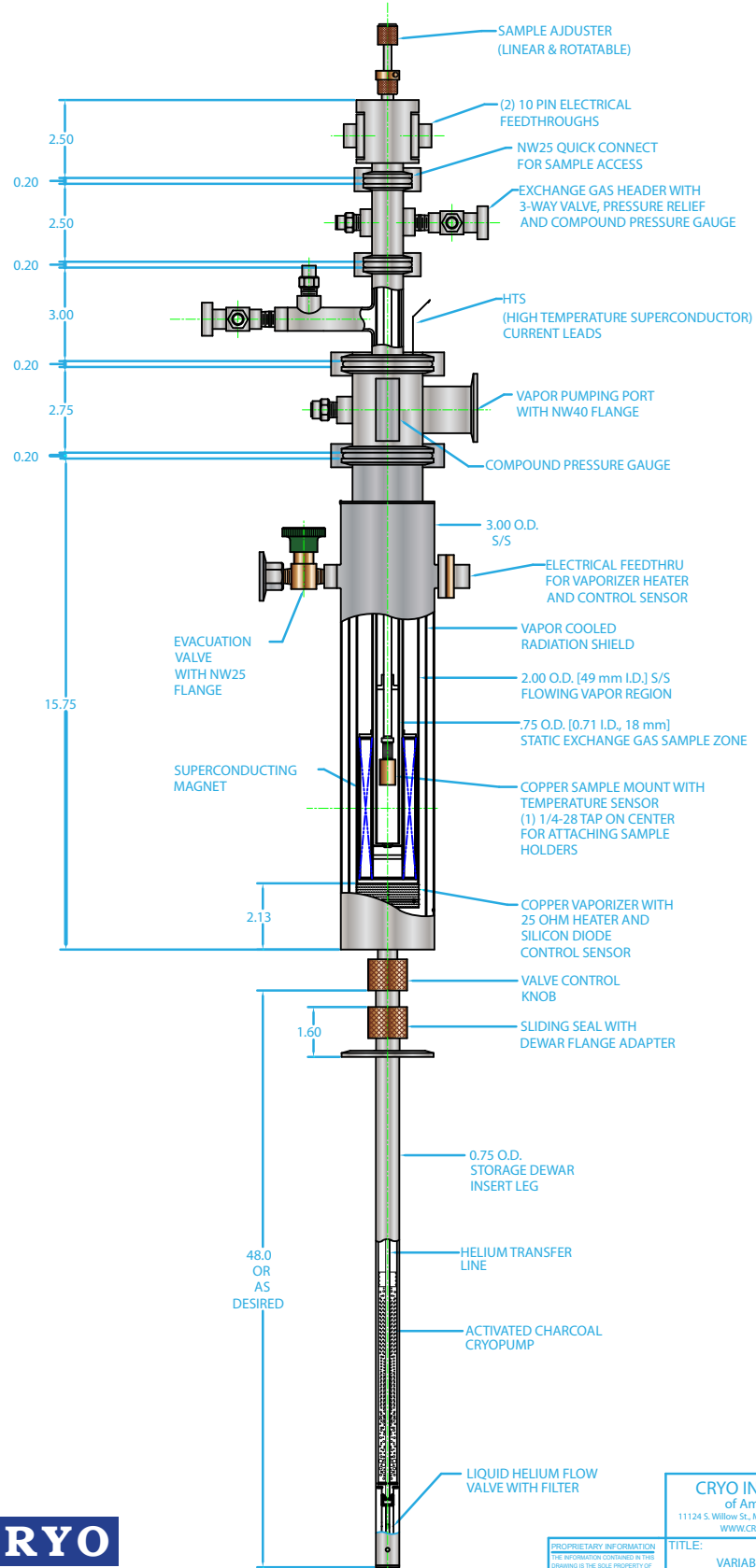


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 TITLE: VARIABLE TEMPERATURE STORAGE DEWAR INSERT

Directly Cooled 'DStat' Magnet Insert Drawing



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TITLE:
VARIABLE TEMPERATURE
STORAGE DEWAR INSERT
WITH SUPERCONDUCTING MAGNET

Variable Temperature Computerized Insert (VTC)



The Variable Temperature Computerized Insert is a top loading sample in vapor variable temperature cryostat. It fits standard 1.4 inch neck diameter (1.5" O.D.) storage dewars, 30, 60 or 100 liters.

How do we do it?

- a. Universal slide seal adjusts height for proper fit.
- b. Electronic flow valve allows fitting into smaller access.
- c. Impedance flow line allows pumping the sample zone to <2K.

Typical dimensions:

- Sample Tube Diameter = 0.75" O.D. (0.71" I.D. [18mm]).
- Maximum O.D. = 1.38".
- Operating Range = <2 to 300K.
- Insert length = 32" to 40" (adjustable).

Available in a more compact version with O.D. of 1.13" and 0.5" O.D. (0.46 I.D.) sample tube.

Available with superconducting coil installed!

Sample in Exchange Gas Insert (SXG)



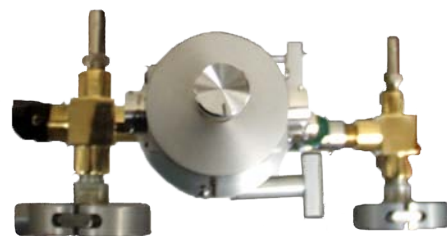
The Sample in Exchange Gas Insert is a useful tool for experiments where flowing vapor may be undesirable, such as Mossbauer or infrared detectors.

Samples are top loading and cooled by thermal interface to the reservoir using static exchange gas. The temperature of the sample can be varied by adjusting the exchange gas pressure and the power dissipated in the sample mount heater. Temperature range is <5 K to 300 K.

The Sample in Exchange Gas Insert is available in a single tube (wall) insert

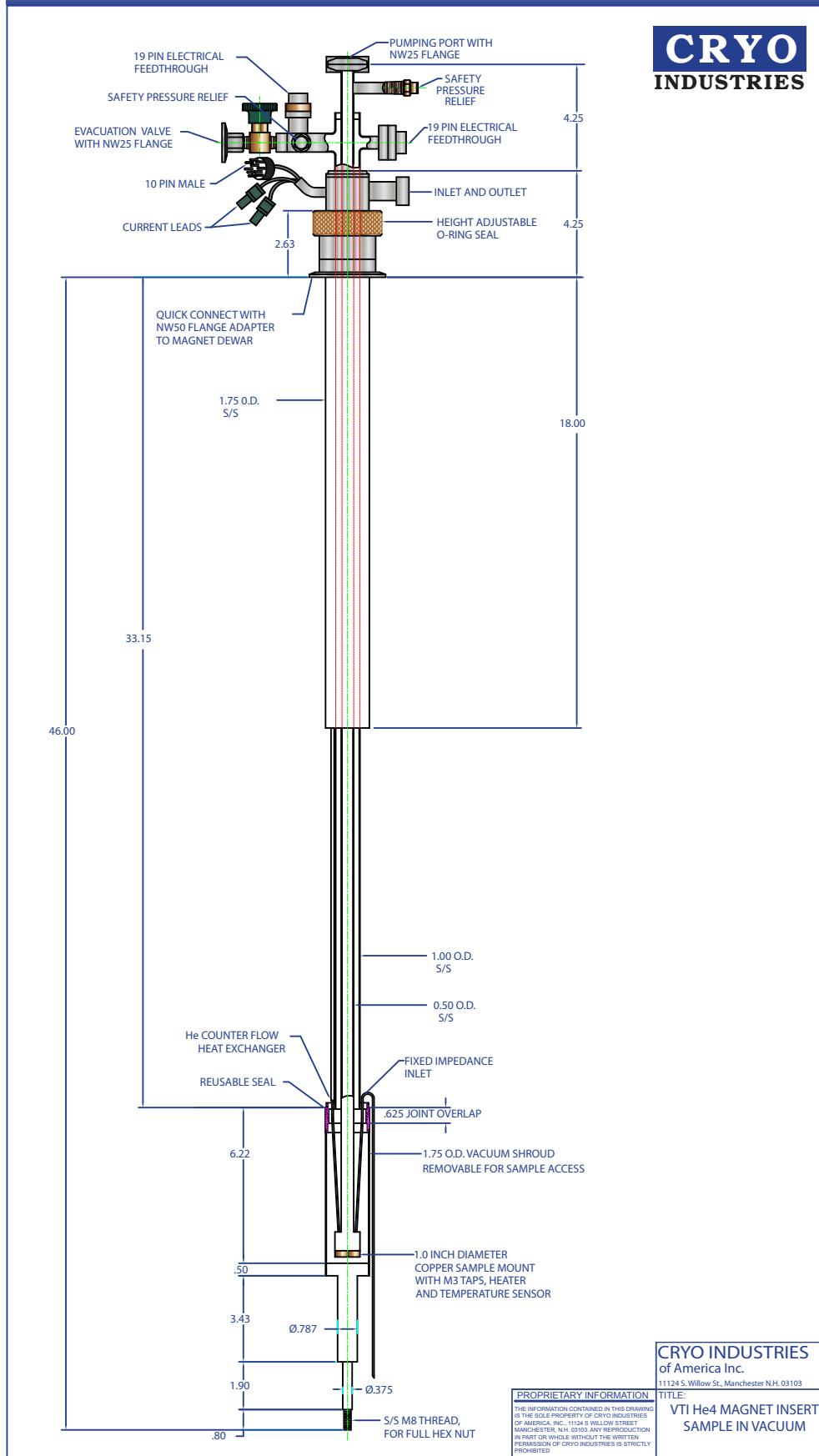
or with dual tubes- two wall insert where cooling and thermal resistance are controlled by dual exchange gas regions.

This insert can be used in conjunction with a superconducting magnet.

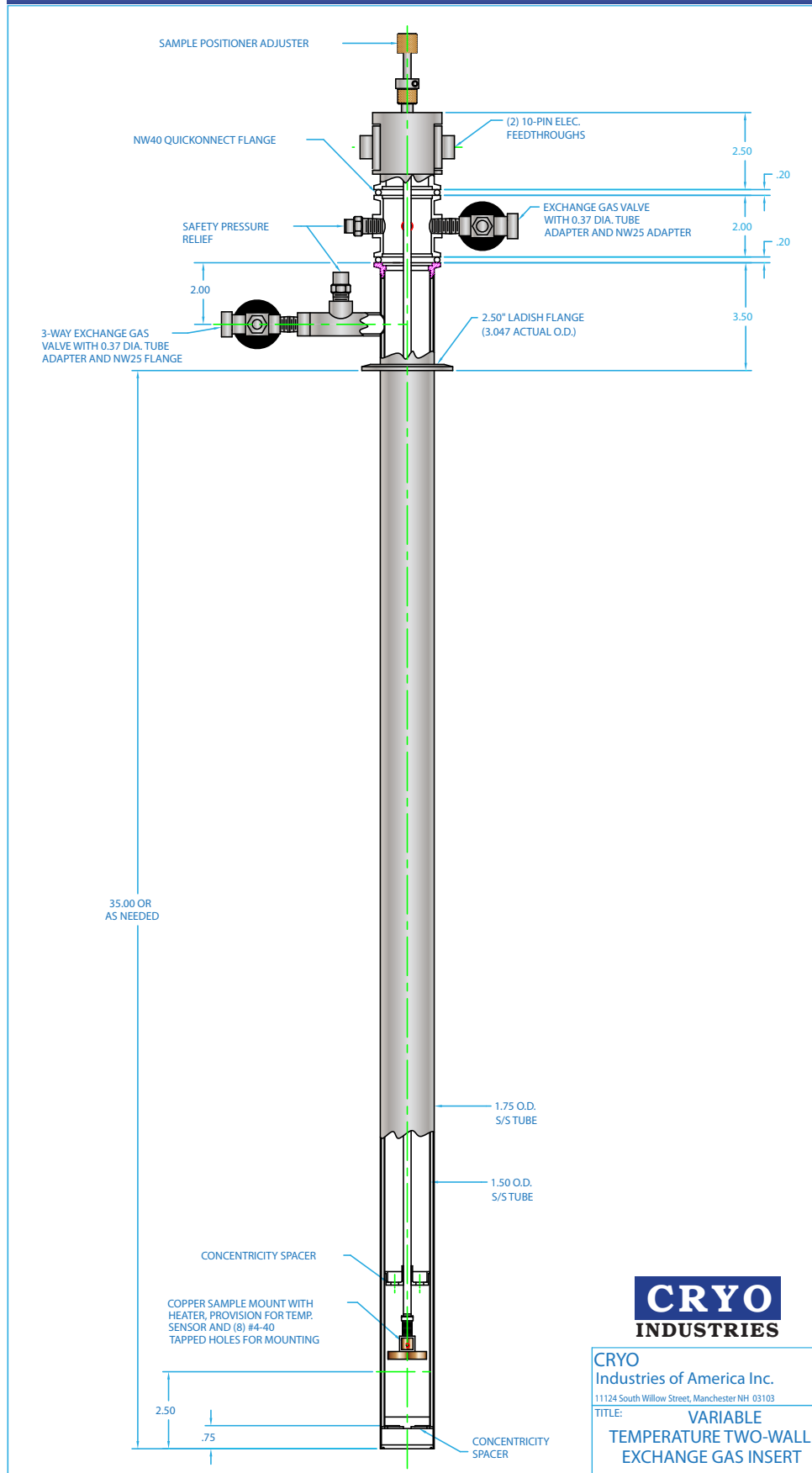


Variable Temperature Computerized 'VTC' Drawing

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Sample in Exchange Gas Insert Drawing

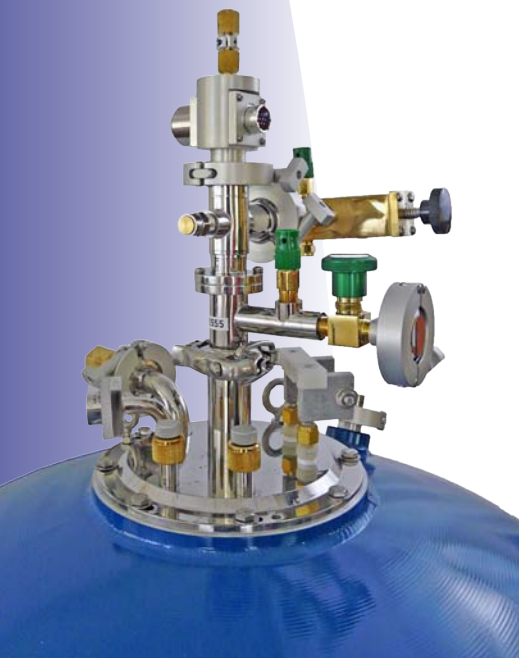


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TITLE: VARIABLE
TEMPERATURE TWO-WALL
EXCHANGE GAS INSERT

Storage Mount (SM) Insert



The sample in vapor variable temperature Storage Mount Insert fits into standard storage dewars with 2 inch diameter necks and provide variable temperatures from <math><1.5\text{ K}</math> to 300 K. Samples are cooled by insertion into flowing helium gas exiting from the vaporizer (also known as the diffuser or heat exchanger).

A small amount of liquid helium is drawn from the storage dewar reservoir into the vaporizer located at the bottom of the sample tube. The helium is

vaporized and heated to your pre-selected temperature. The gas enters the sample zone flowing past the sample. The sample is cooled to the temperature of the gas.

Standard sample tube size is 0.75 inches (19.1 mm) O.D. The I.D. is .71 inches (18.0 mm). Optional 1.0 inch (25.4 mm) O.D. is available.

Custom fit as required - choice of Super VariTemp Length and style of quick connect adapter for storage dewar attachment.



SuperVariTemp (SVT) Magnet Insert



The SuperVariTemp Magnet (SVT) cryostat is available as an insert, built-in or as magnet support combo. This cryostat offers ultra stable temperature and high refrigeration capacity.

It is available with standard solenoids to 9 Tesla at 4.2 K or 11 Tesla at 2.2K, high field magnets to 17 Tesla.

This versatile cryostat offers an optional vapor shield for extended high temperature operation. Inserts can be custom fitted to your existing system!

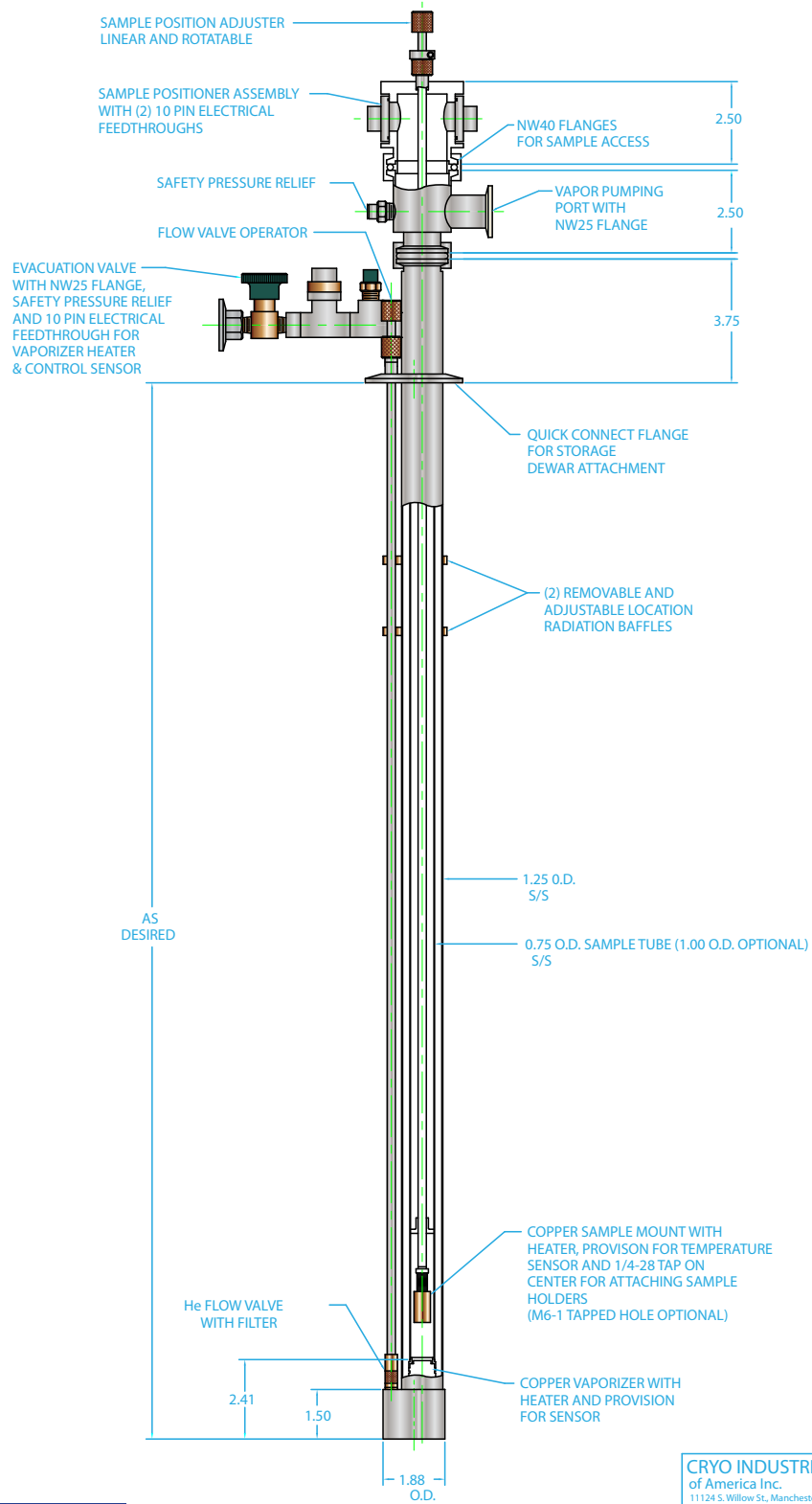
Left photo shows magnet support with separate insert, right photo shows the insert.

He3 Insert

He3 Inserts provide operating temperatures from less than 0.3 to 300 K. The He-3 Insert is available as either sample in vacuum or top loading into vapor/liquid. **Ask for complete HE3 System Brochure.**



Storage Mount (SM) Insert Drawing

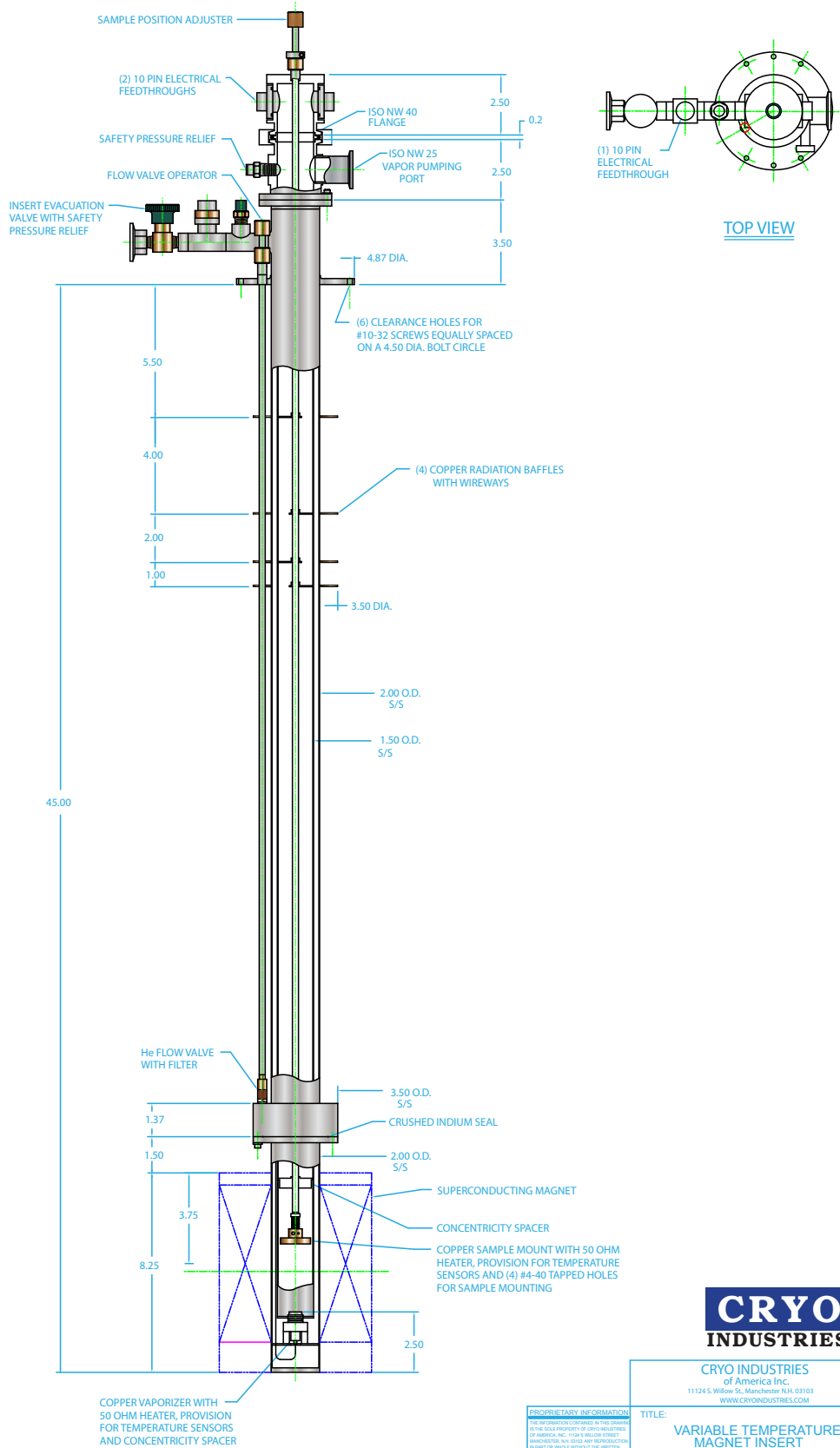


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TITLE: VARIABLE TEMPERATURE
 STORAGE DEWAR INSERT

Super Vari Temp (SVT) Magnet Insert Drawing



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TITLE:
VARIABLE TEMPERATURE
MAGNET INSERT