CIA
CRYO Industries of America, Inc.

# HELIUM-3 FOR Variable Temperature Inserts (VTI)

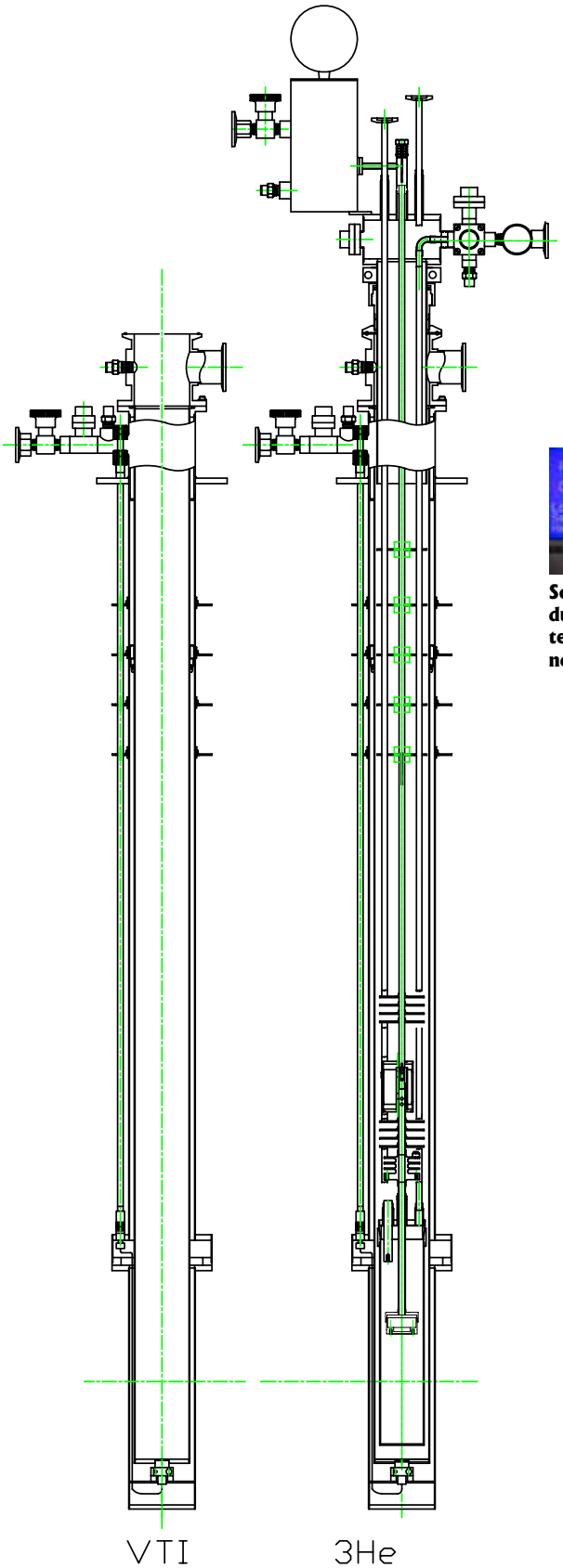
The model 'He3-VTI' fits into standard dynamic flow Variable Temperature Inserts (VTI). The 3He refrigerator Top Loads into the sample tube of the VTI. Top Loads just like the standard sample stick.

The 3He insert is cooled by the LHe4 flow in the sample tube. Pumping on the sample tube provides the low temperature needed to condense the helium 3.

After doing its 'job' condensing the 3He, the VTI flow cools the charcoal cryopump providing high pumping speeds and temperatures below 300 mK.

The standard 'grease seal' provides fast sample access. He-3 gas storage is built-in - no gas handling needed.

| Helium-3 'For VTI' | Sample in Vacuum |
|---|---|
| Base Temperature | 280 mK |
| Hold Time at Base Temperature | 24 Hours |
| Temperature Range | Base Temperature to 80 K |
| Thermometers | Cernox - charcoal & condenser<br>RuO2 (1K) - sample<br>Si diode or platinum RTD<br>- to monitor sample cooldown |
| Helium-3 Regeneration Time | 30 min typ. |
| Sample Mount Diameter | 1.25 inch<br>31.7 mm |
| Sample Environment | Vacuum (std) with<br>Liquid/vapor Top Load Port 0.21 in dia. clear [5.3 mm]<br>(Port epoxy sealed with NPT fitting) |
| Experimental Access Vacuum Seal | Quick connect IVC with tapered grease seal |
| POT digital level monitor | No |
| Wire Anchors | Kapton flex circuits<br>+ 4K extendable copper post |
| Charcoal Cooling Method | Both dynamic and static exchange gas |
| Experimental Wiring | 5 twisted pairs (10) wires for Customer use (manganin) |
| Materials of Construction | Non magnetic<br>[Insert and all main temperature sensors compatible with use in high magnetic fields] |





**Screenshot taken during actual test of cryostat no. 4308**