

Sample Environment Fact Sheet

Liquid Helium Cryostat

CRYO-01

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Neutron Sample Environment Group

Managed by UT-Battelle
for the Department of Energy

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OAK
RIDGE
National Laboratory

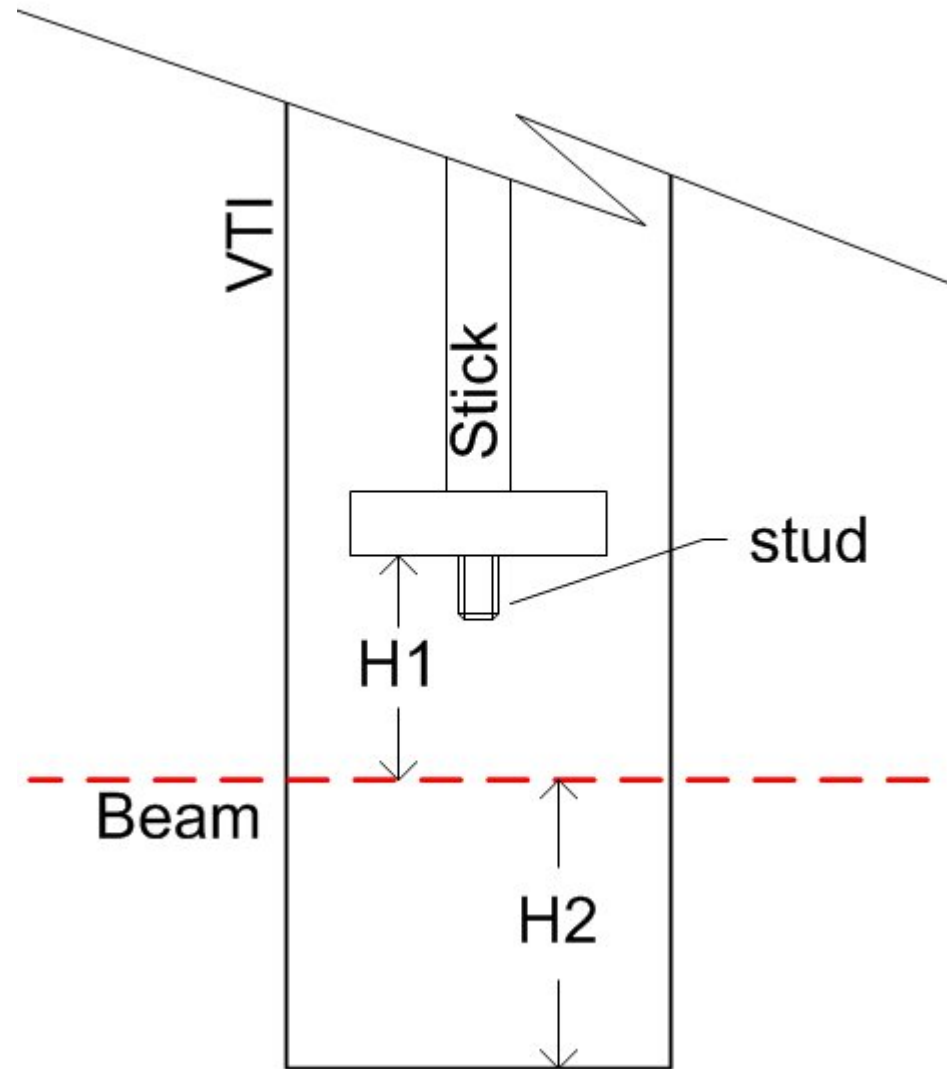
CRYO-01 Description

- Liquid helium cryofurnace
- Temperature range 2 K to 600 K
- Top loading 60mm sample access



Sample Mounting

- **Sample can screws onto 5/16-18 stud**
 - ~ 0.5 inch long
 - stud easily replaced/modified
- **H1 is adjustable**
- **H2 = 2 inches**
- **Inner diameter of sample tube / VTI = 2.4 inches**

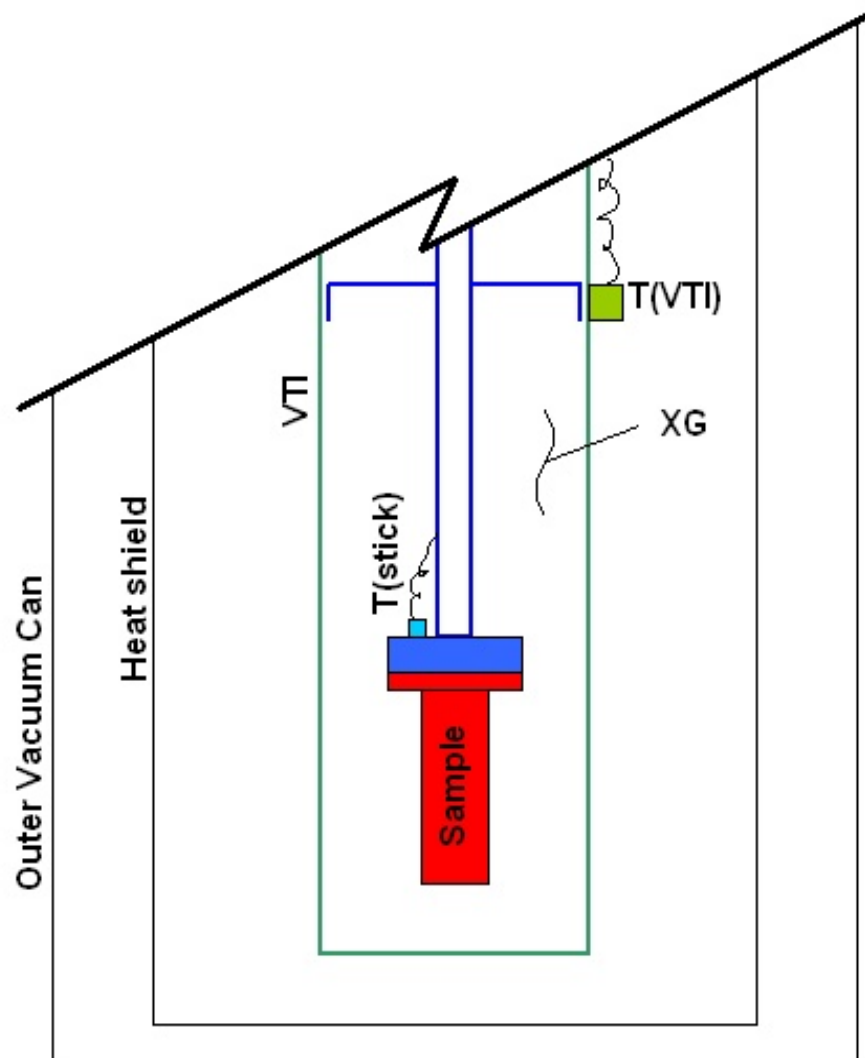


Aluminum sample cans available at SNS



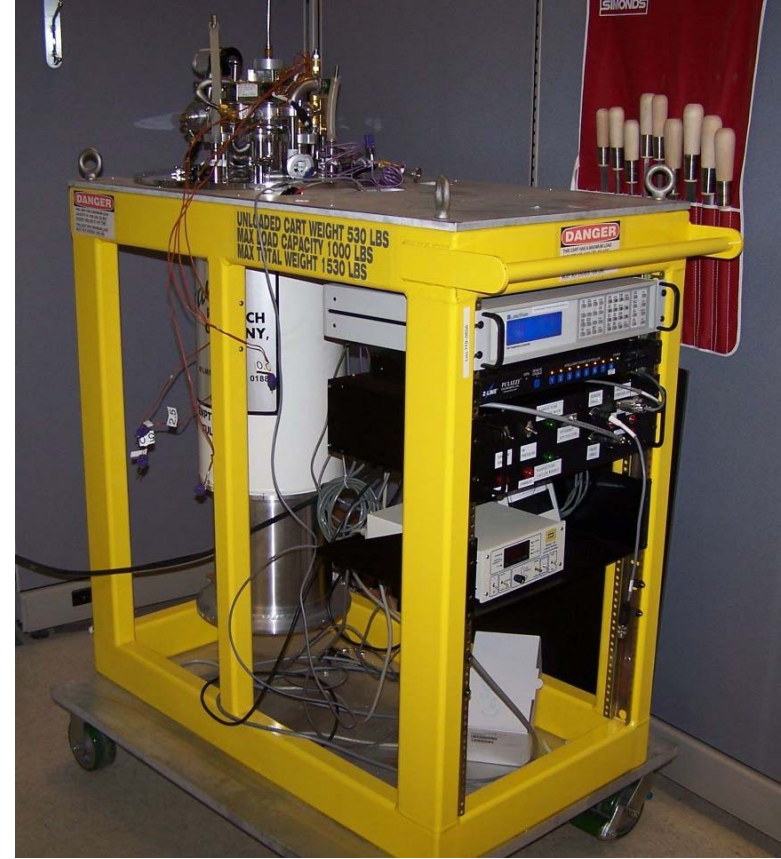
Schematic

- Temperature regulation heaters (~50 Ohm) on stick and VTI (variable temperature insert/ sample tube)
 - Two control modes: control-on-stick or VTI
- VTI charged with static “exchange gas” (XG) or evacuated



Automation Upgrades

- **Motorized “Cold Valve”**
(regulates helium flow *i.e.* cooling)
 - Feedback control based upon pressure at pumping port
- **Remote switching between control-on-stick and control-on-VTI**
 - Auto exchange gas pump/charge
 - Auto heater select



Controls engineering by John Wenzel

High Temperature Sample Stick

Neutron beam center is 35.5 inches (90.2 cm) below flange on top of stick (3" Ladish)

- Adjust sliding seal as needed

