

Sample Environment Inventory

Liquid Helium Cryostats

Closed Cycle Refrigerators

Magnets

Ultra low temperature

[Oak Ridge National Laboratory, Neutron Sciences Directorate](#)

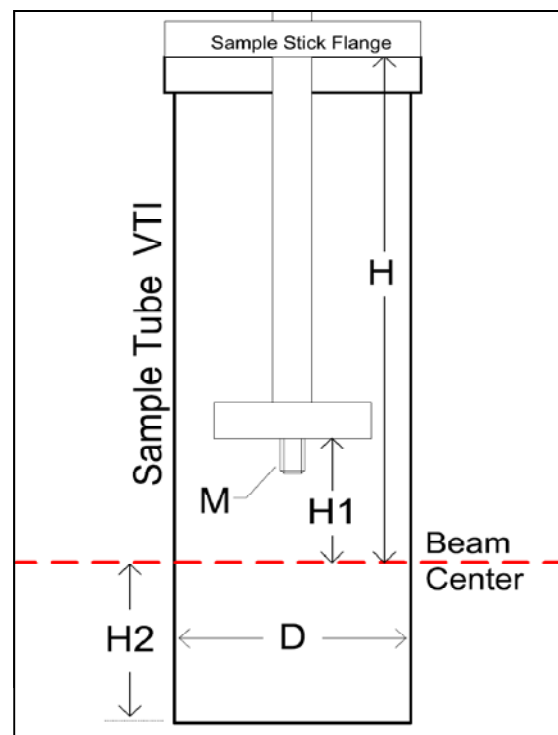
Pressure cells

Furnaces

Other Special Environments

Sample Mounting Key (refer to figure)	
M	Mounting stud 5/16-18 UNC (unless otherwise noted) Sample Cell has center-tapped 5/16-18 hole
H	Distance from sample stick mounting flange to beam center
H1	Height of mounting surface above beam Adjustable unless otherwise stated
H2	Height below beam
D	Diameter limit of sample

Devices are top loading (sample on stick) unless otherwise stated



Liquid Helium Cryostats

Device ID	Description	T[K]	Sample Space (see figure)	Options	Availability
CRYO-1	JANIS Cryo/Furnace	1.6 to 600	D = 58mm H = 902mm H2 = 50 mm	3He insert 300mK	Shared (all BL)
CRYO-2	Continuous flow JANIS "SuperTran"	4 to 300	D = 50 mm H2 = 50 mm		Shared
CRYO-3	"Orange Cryostat" 70mm	1.5 to 300	D = 70 mm H = 943mm H2 = 50 mm		Shared

CRYO-4	Orange Cryostat 50mm	1.5 to 300	D = 50 mm H = 936mm		Commissioning
CRYO-5	Orange Cryostat 100 mm	1.5 to 300	D = 100 mm H = 1162mm		Commissioning

Closed Cycle Refrigerators

Device ID	Description	T[K]	Sample Space (see figure)	Options	Availability
CCR-03	FERNS auto changer	7 to 300	custom: 4, 6, or 8 mm V cans	Holds 24 samples	POWGEN-3 dedicated
CCR-04	Sumitomo Bottom Loader	4 to 450	D = 55 mm * H2 = 100 mm	* alternate shield for larger samples	Shared
CCR-05	ARS "Split Head" top loader	10 to 300	D = 47 mm H = 972mm H2 = 45 mm		Shared
CCR-06	SNS top load interface with DE-210 cold head	8 to 475	D = 60 mm H = 986mm H2 = 75 mm	rotating sample stick	Shared
CCR-07	ARCS Cryo-Goniometer	20 to 300	large bottom load space	Sample tilt and rotation	ARCS dedicated
CCR-08	Displex with Joule-Thomson 3rd stage	1.7 to 300	bottom load D = 55 mm H1 + H2 = 100 mm H1: 13 to 88 mm	Thimble rig with vertical height adjustment	Shared
CCR-09	ICEoxford 1K-pot system	2 to 300	D = 34 mm H = 1410 mm	dil-fridge compatible	Commissioning
CCR-10	ARS DE-204 bottom load configuration	4 to 300	large bottom load space		CNCS
CCR-11	ARS DE-204 on horizontal rotation axis	5 to 300	custom sample holder - consult beamline	1.5 Tesla electromagnet	Magnetism Reflectometer
CCR-12	ARCS thimble rig	4 to 300	large bottom load space		ARCS dedicated under dev.

CCR-13	SEQUOIA rotating cold head	4 to 300	large bottom load space		SEQUOIA
CCR-14	P-E cell chiller	< 50 K	Anvil pressure cell	Used to cool Paris-Edinburg Cell	SNAP
CCR-15	SNS Sapphire Top Loader	7 to 500	D = 60 mm H = 972mm H2 = 75 mm	hot/cold sample in exchange gas	Shared
CCR-16	JANIS 100mm ARCS	4 to 800			On order
CCR-17	JANIS 100mm Shared	4 to 800			On order
CCR-18	JANIS 50mm Top Loader	4 to 800	D = 50 mm w/out heatshield, 35 mm w/ heatshield H = 1146mm		BASIS

Device ID	Description	T[K]	Sample Space (see figure)	Options	Availability
HOT-01	ILL Niobium foil vacuum furnace	ambient to 1873	D = 40 mm H = 804 mm	gas flow insert (HOT-03)	under repair
HOT-02	Controlled Atmosphere Furnace	ambient to 1073	special sample holders - consult SE team	controlled gas atmosphere	Shared SNS & HFIR
HOT-03	Gas flow insert	ambient to 1073	special sample holders - consult SE team	controlled gas atmosphere	Under development
HOT-04	"Sapphire" Vertical Tube Furnace	ambient to 1073	D=90 H = 953 mm H2 = 110	atmosphere furnace	BASIS
HOT-05	Cal-Tech low background furnace	ambient to 950	special sample holder - consult ARCS team		ARCS
HOT-06	ILL Vanadium foil vacuum furnace	ambient to 1473	D = 40 mm H = 410mm		VULCAN

Magnet Systems					
Device ID	Field Strength [Tesla] and Orientation	T[K]	Sample Space (see figure)	Options	Availability
MAG-01	5T Vertical Field actively shielded "Slim SAM"	1.5 to 300	M = 1/4-28 stud D = 34 mm H = 1555 mm H1 = 51 mm H2 = 81 mm	dil-fridge insert (on order)	Shared
MAG-02	16 T Vertical Field Swiss Collaboration shielded magnet	1.5 to 300	D = 34 mm	dil-fridge insert	Spring 2010
MAG-03	2T vertical field Bruker electromagnet	5 to 300 w/CCR-11	custom sample holder - consult beamline		Magnetism Reflectometer
MAG-04	7 T vertical field IPNS Magnet				POWGEN modification underway
MAG-05	10 T vertical field				Procurement underway

Ultra Low Temperature Devices					
Device ID	Description	Base T[mK]	Sample Space (see figure)	Options	Availability
ULT 01	JANIS helium-3 insert for CRYO-01	300	M = 1-inch B.C. 4 X 4-40 tapped D = 35 mm H1 = 19 mm * H2 = 47 mm	* spacer available to increase H1	Shared
ULT 02	IceOxford Dil Insert	25	D = 28 mm		Commissioning
ULT 03	ILL dil insert for MAG-02	25			on order

ULT 04	Bottom Load Large Capacity Dry Dil Fridge	25			Testing
ULT 05	Bottom Load Large Capacity Dry 3HeFridge	400			Testing

High Pressure Cells					
Device ID	Description	P [kBar]	Cell Size	Options	Availability
GPCELL 01	Titanium-Zirconium null scattering alloy gas pressure cell	1	0.25 inch ID 6 inch long		Shared
GPCELL 02	EM Sapphire gas/liquid cell	0.1 @ 500C	5.0 mm ID 119 mm length	Use in HOT-04	BASIS
GPCELL 03	TZM alloy cell	1.5 @ 500C, 2.5 @ RT	0.197 inch ID, approx 4.3 inch length		Shared
GPCELL 04-05	Harwood Aluminum Cells	3	0.376 inch ID, approx 6 inch length		Shared
ANVIL	The SNAP beamline has 12 small gem anvil pressure cells, and 3 large volume Paris-Edinburg cells. Seek assistance from SNAP and/or SE team.				

Other Special Environments	
Description	Availability
Langmuir trough for studying thin layers of surfactants or other materials on the surfaces of liquids, such as cell-membrane analogs.	Liquids Reflectometer
Controlled humidity cell	Liquids Reflectometer