

# SNS Sample Environment Inventory

Liquid Helium Cryostats

Closed Cycle Refrigerators

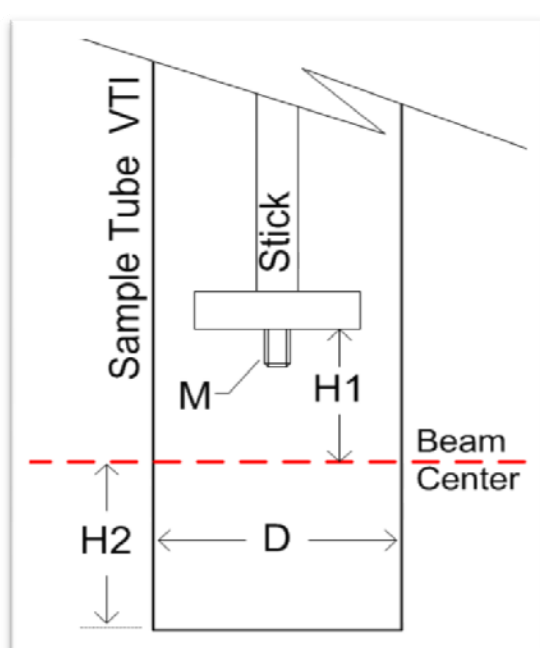
Magnets

Ultra low temperature

Pressure cells

Furnaces

Other Special Environments



## Sample Interface Key (refer to figure \*)

M	Mounting stud 5/16-18 UNC (unless otherwise noted) Sample Cell has center-tapped 5/16-18 hole
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 for bottom loaders, the inner heat shield determines size restriction	

## 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 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 H2 = 50 mm		Shared
CRYO-4	Orange Cryostat 50mm	1.5 to 300	D = 50 mm		On order
CRYO-5	Orange Cryostat 100 mm	1.5 to 300	D = 100 mm		On order

## 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 H2 = 45 mm		Shared
CCR-06	SNS top load interface with DE-210 cold head	8 to 475	D = 60 mm 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	dil-fridge compatible	On order
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 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 for BASIS	4 to 800			On order

## Furnaces

Device ID	Description	T[K]	Sample Space (see figure)	Options	Availability
HOT-01	ILL niobium foil vacuum furnace	ambient to 1600	D = 40 mm	gas flow insert (HOT-03)	Shared
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 H2 = 110	gas/liquid pressure cells	BASIS
HOT-05	Cal-Tech low background furnace	ambient to 950	special sample holder - consult ARCS team		ARCS
HOT-06	ILL niobium foil vacuum furnace	ambient to 1600			on order

## 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 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	Summer 2009
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				solicitation under development

## 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		on order
ULT 03	ILL dil insert for MAG-02	25			on order

## High Pressure Cells and Equipment

Device ID	Description	P [kBar]	Cell Size	Options	Availability
GASCELL 01	Titanium-Zirconium null scattering alloy gas pressure cell	1	0.25 inch ID 4 inch long		Shared
GASCELL 02	Sapphire gas/liquid cell	proof tests pending	5.0 mm ID 80 mm length		BASIS
GASCELL 03	TZM cell (TiZrMo alloy)	proof tests pending			BASIS
GASCELL 03 to 07	Aluminum Cells Carnegie Inst. Design Harwood fab			coming soon	Shared
ANVIL	The SNAP beamline has 12 small gem anvil pressure cells, and 8 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