

X-ray compatible Cryostats

ESRF has developed a set of cryostats well adapted to various X-ray measurement techniques. Three different design are described here.

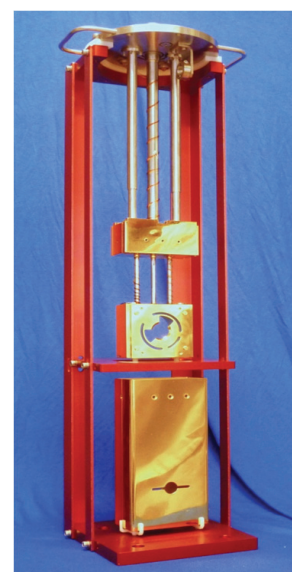
- ◆ Possibility to work in at least horizontal and vertical positions.
- ◆ Window size and position can be adapted to its use.
- ◆ Fast cooling– Low helium consumption.



Miniature continuous flow cryostat



Top loading continuous flow cryostat



High-pressure cell cryostat

Characteristics

Description	T. range	Stability at any temperature	Timing	He consumption
Miniature continuous flow	$2\text{ K} < T \leq 325\text{ K}$	$\Delta T/T \leq 10^{-3}$	295K to 4K in 6mn	7.3 l/day at 10K
Top loading continuous flow	$4\text{ K} < T \leq 325\text{ K}$	$\Delta T/T \leq 5 \times 10^{-3}$	295K to 4K in 10mn	12 l/day at 4K
High pressure cells	$4.5\text{ K} < T \leq 325\text{ K}$	$\Delta T/T \leq 10^{-3}$	295K to 4K in 50mn	8.6 l/day at 10K

Miniature continuous flow cryostat

Reaching temperatures from 2K to 325K, this vibration-free instrument can easily be adapted to beamline geometry and works in any orientation.

Its mechanical modularity, high cooling rate and excellent temperature stability allows for a wide spectrum of experiments such as GID, SAXS, XPCS, EXAFS or XRMF.

Characteristics

<i>Power</i>	<i>Cold plate</i>	<i>Overall length</i>	<i>Weight</i>
30 mW at 2K	Ø22 mm	425 mm	650 g

Top loading continuous flow cryostat

The mechanical modularity of the top loading continuous flow cryostat, its high cooling rate and excellent temperature stability allows a wide range of experiments.

Some optional equipment can be connected to it: airlock chamber including valves and absolute manometer, rotary sample holder including holder chamber and sample mounting support.

Characteristics

<i>Sample chamber diameter</i>	<i>Sample diameter</i>	<i>Vacuum chamber external diameter</i>
24 mm, length 450 mm	10 mm	62 mm, length 490 mm

High-pressure cell cryostat

The ESRF high-pressure cell cryostat is specially designed for the cooling of Letoullec type (membrane-driven) high-pressure cells.

This device can work either in a horizontal or in a vertical position with a mechanical stability of 2 μ m.

Characteristics

<i>Vacuum chamber external diameter</i>	<i>Overall length</i>	<i>Weight</i>
120 mm	460 mm	8.2 kg (without cell).