

Model HE-3-BLSUHV-Sub-K-ARPES

Wet Helium-3 Cryostat

Overview

The FormFactor model HE-3-BLSUHV-sub-K-ARPES is a bottom loading He-3 system developed for high-resolution Angle-Resolved Photo Emission Spectroscopy below 1K (Sub-K ARPES) to study the electronic structure of the surface of solids. Slots with dimensions of approximately 2.5 mm wide and 8.0 mm long are opened for photo electron emission. Five (5) axis sample probe (X-, Y-, Z-, Theta, phi) is installed in the cryostat. The sample can be loaded from the cryostat bottom into the ultra high vacuum (UHV) space. A high circulation booster pumping station is included to generate high cooling power to cope with the milliwatt heat load from the slots. This system is operated with a gas handling system (GHS). It reaches a base temperature between 640 mK or 890 mK, depending on the slot dimensions as well as the sample degree of freedom. This is a highly customized He-3 cryostat with multiple functions. It can also be used for transport and optical measurements. A cryogen-free version (Model HE-3-BLSUHV-PT-ARPES) is available.

This He-3 cryostat includes the following components:

- Highly efficient helium belly dewar
- Multiple radiation shields
- UHV compatible He-3 insert
 - 1 K pot with thermometer
 - He-3 pot with heater and thermometer
- High circulation pumping station
- Gas Handling System (GHS)
- UHV compatible sample probe
- Operation test



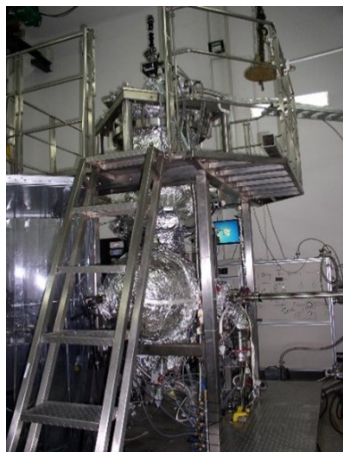
Cryogen-free version (Model HE-3-BLSUHV-PT-ARPES)

Features / Benefits

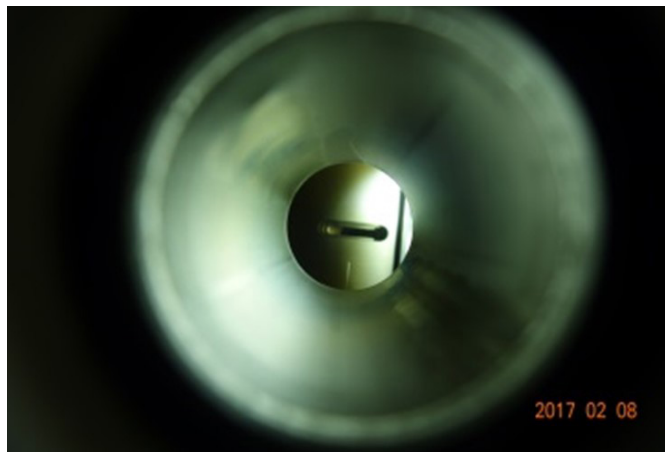
Flexible sample space	<ul style="list-style-type: none">• Customized sample space to fit the user's application
Sample space	<ul style="list-style-type: none">• Ultra high vacuum (UHV)
Unlimited holding time	<ul style="list-style-type: none">• Continuous flow type
Low noise	<ul style="list-style-type: none">• Acoustic noise reducer installed inside the 1K pot
Multiple function	<ul style="list-style-type: none">• Transport, optical
Wiring (option)	<ul style="list-style-type: none">• Customized wiring, coaxial cables, fiber optics

Design Specifications

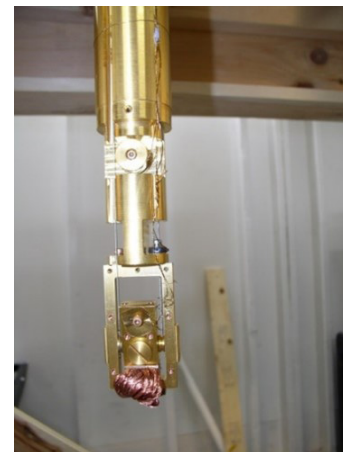
Base Temperature	640 mK without tilting axis 890 mK with tilting axis
Continuous flow type	With high circulation pumping station
Sample Space	As required
Sample probe	X-, Y-: +/- 1.0 inch Z-: +/- 2.0 inch Azimuthal rotation range: 195 degrees Tilting angle range: +/- 30 degrees
Baking temperature	90°C



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Alignment of cold horizontal slots



Five (5) axis sample holder

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