

# Model HE-3-SSV

## Wet Helium-3 Cryostat

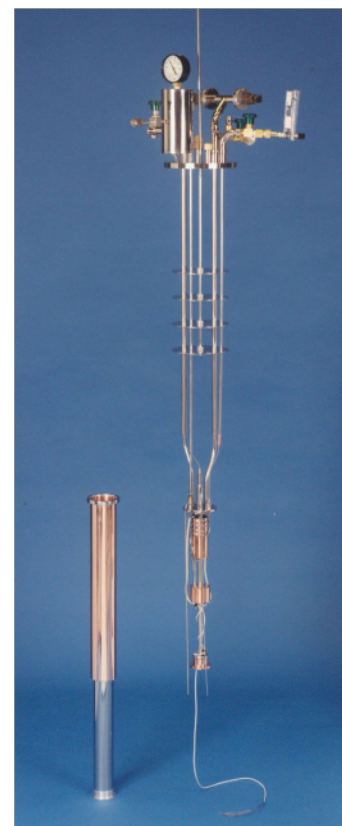
### Overview

The Model HE-3-SSV insert is designed for standard sample loading with the sample in vacuum. The sample is typically attached at the bottom of the He-3 pot inside the inner vacuum chamber (IVC) for cooling. The system design minimizes the intrinsic heat leak to the He-3 pot and optimizes the performance, resulting in a cost effective He-3 cryostat that is extremely reliable and easy to operate. The Model HE-3-SSV is designed to be compatible with all kinds of superconducting magnets, such as solenoid, vector magnets, and more.

The He-3 insert can be operated with the 1 K pot pump turned off after it reaches the base temperature. In this case, the system will be extremely quiet, which is highly desirable for many applications. This unique feature also reduces the liquid helium consumption and makes the operation more cost effective.

This He-3 insert includes the following components:

- Charcoal sorption pump with heater and thermometer
- 1 K pot with thermometer
- He-3 pot with heater and thermometer
- Permanently stored He-3 gas
- IVC can
- Operation test



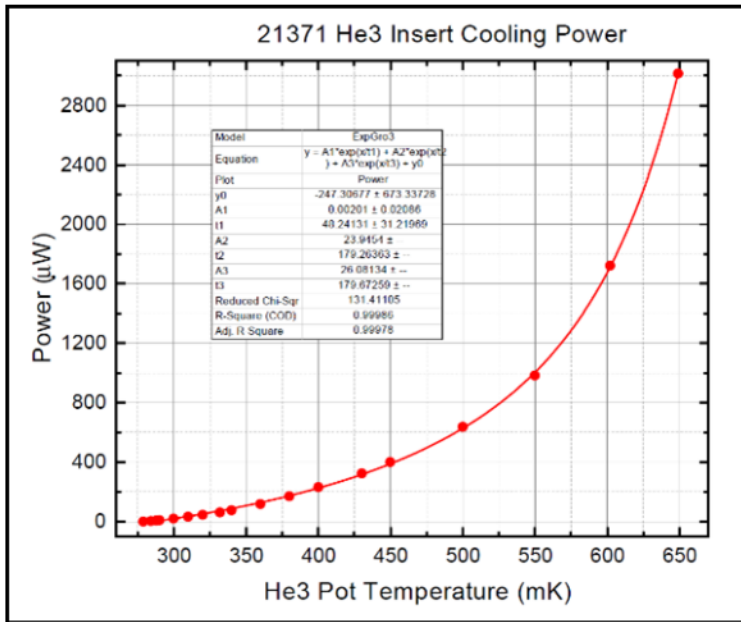
Model HE-3-SSV Helium-3 Cryostat

### Features / Benefits

<b>Flexible sample space</b>	<ul style="list-style-type: none"><li>• Customized sample space to fit the user's application</li></ul>
<b>Long holding time</b>	<ul style="list-style-type: none"><li>• 100 hours for six (6) STP liter He-3 gas</li></ul>
<b>Stable He-3 pot temperature</b>	<ul style="list-style-type: none"><li>• Separate sippers for 1K pot and the charcoal sorb cooling line; +/- 0.5 mK at base temperature</li></ul>
<b>Low noise</b>	<ul style="list-style-type: none"><li>• 1K pot noise reducer installed</li></ul>
<b>Multiple operation modes</b>	<ul style="list-style-type: none"><li>• This He-3 cryostat can be operated without pumping the 1K pot (referred to as 4K operation mode)</li><li>• With 6 STP liter He- gas the 4K operation mode maintains base temperatures near 320 mK for approximately 50 hours with zero noise</li></ul>
<b>Magnetic field (option)</b>	<ul style="list-style-type: none"><li>• Solenoid or vector magnet</li></ul>
<b>Rotating sample holder (option)</b>	<ul style="list-style-type: none"><li>• Rotating range: 0 ~ 90 degrees</li></ul>
<b>Wiring (option)</b>	<ul style="list-style-type: none"><li>• Customized wiring, coaxial cables, fiber optics</li></ul>
<b>Windows (option)</b>	<ul style="list-style-type: none"><li>• Hermetic cold windows</li></ul>

## Design Specifications

Base Temperature	285 mK (pumping the 1 K pot) 320 mK (stop pumping the 1 K pot after base temperature is reached)
Hold Time at Base Temperature with 6 STP liter He-3 gas	100 hours (pumping the 1 K pot) 50 hours (stop pumping the 1 K pot after base temperature is reached)
Operating Temperature Range	0.3 K - 80 K (300 K optional)
Sample Space	As required



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