

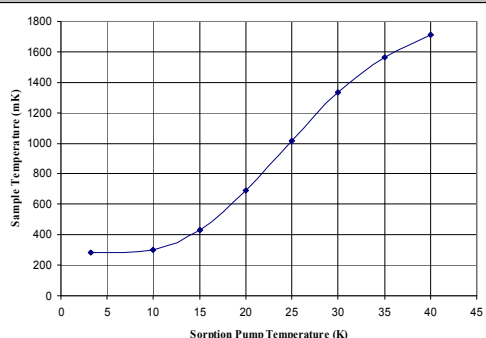
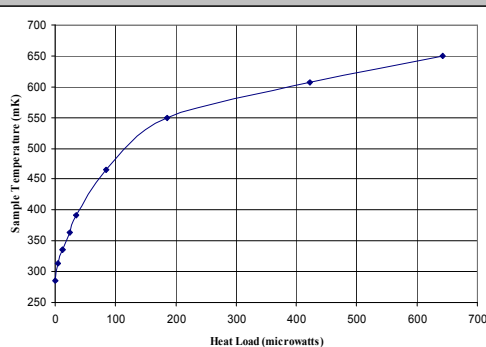
# HE-3 INSERTS FOR USE IN CRYOGEN-FREE VTI



... for temperatures down to 0.3K.

The Cryogenic range of Helium-Three inserts is designed as an alternative to the standard sample probe. The inserts extend the range of experimental temperatures accessible in a Cryogen-Free variable temperature sample space beyond the standard 1.6K-300K. Using only the cooling power of the VTI and two internal temperature-controlled sorption pumps, the sample platform of the Helium-Three Insert can be maintained at any temperature from below 300mK to above 300K.

Sample Temperature as a Function of Heat load to Sample and Sorption Pump Temperature.



## Operating Parameters for 28mm Helium-Three Insert

### <sup>3</sup>He capacity:

Total He-3 gas volume 2 STP litres  
Working volume in normal use  
approx 1.3 STP litres

### Initial Cooldown time:

3.5 hours from room temperature  
sample change to He-3 condensation  
temperature under standard cryogen-  
free VTI operating conditions.

### Recondensation time:

25 minutes to condense 90% of He-3  
charge and cool pot to below 2K

### Performance tests:

>24 hours at 285mK with zero load  
17 hours at 340mK with 25µW load  
3 hours at 550mK with 185µW load



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