

Cold Finger Dewar Accessory

K-158

The Cold Finger Dewar accessory is used to refrigerate samples to liquid nitrogen temperatures, or with the use of organic solvent slushes, to a temperature up to room temperature.

Components

Figure 1 shows the components of the Cold Finger Dewar. In order to use this accessory the sample compartment lid needs to be modified.

- A. Dewar holder for the sample turret
- B. Quartz cold finger dewar (accepts 5 mm tubes)
- C. NMR or EPR tubes (not provided)
- D. Foam lid for the dewar
- E. Extension collar for the sample compartment lid

Description

The dewar has a suprasil quartz cold finger which passes light down to about 200 nm. 5 mm outside diameter NMR (visible) and 5 mm outside diameter EPR tubes (UV) are suitable containers for most samples. Liquid nitrogen placed in the dewar will typically last several hours.

Installation

1. Insert the dewar holder (A) into cuvette holder in the sample compartment.
2. Very gently place the dewar (B) into the holder (A). The cold finger extends into sample turret. Fill the dewar with liquid nitrogen.
3. Insert the sample tube (C) into the dewar. Place the foam lid (D) into the dewar to reduce loss of liquid nitrogen.
4. The special lid of the sample compartment will allow for the lid to be closed while the dewar assembly is in place.
5. Measure the sample.

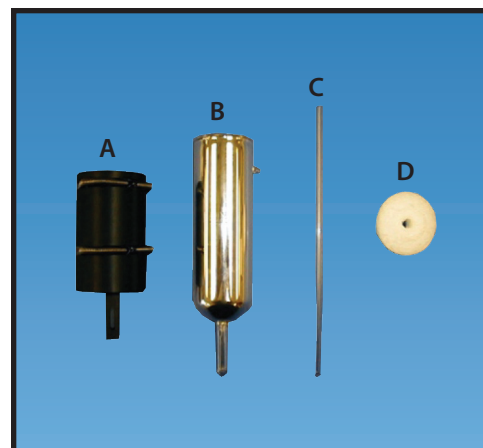


Figure 1: Components of Cold Finger Dewar.



Figure 2: Cold Finger Dewar.

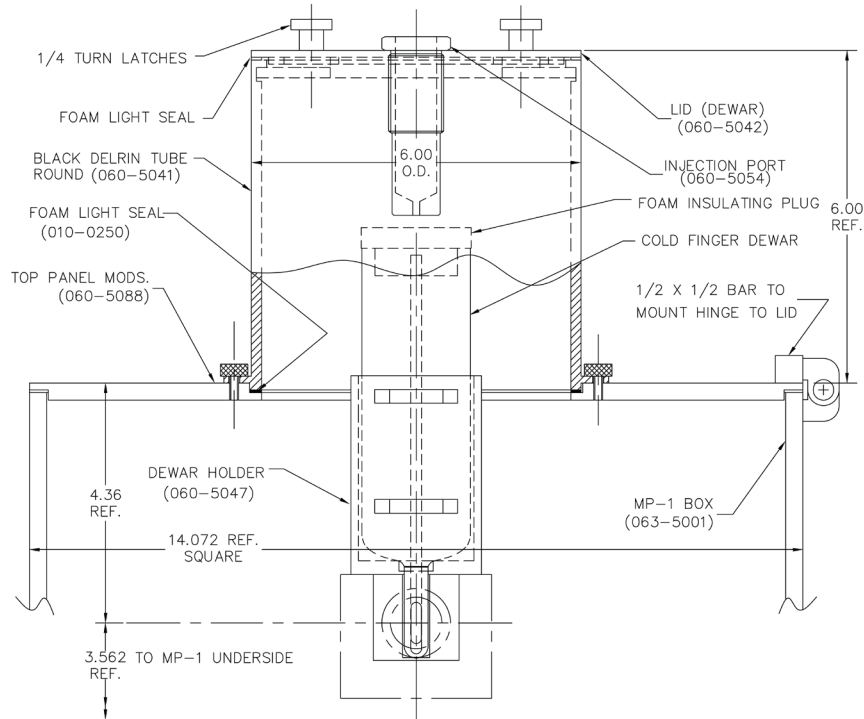


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Specifications

Full length:	Approximately 180 mm
Internal diameter of the cold finger:	6 mm
Length of cold finger:	Approximately 40 mm
External diameter of the nitrogen container:	Approximately 48 mm
Maximum volume of liquid N ₂ :	Approximately 133 ml



Precautions

1. If a sample tube breaks while in the cold finger, do not attempt to remove it while cold. Instead, remove the liquid nitrogen and let the dewar warm up; then remove the spilled sample. Attempting to remove a broken tube while frozen may break the cold finger.
2. It is generally better to freeze the sample first before placing it into the cold finger dewar.
3. Room air may condense into a sample tube and form a plug if it is open while frozen. The tube may then burst or spray sample solution when the tube is allowed to warm up. It is recommended that a cap be placed over the tube before freezing to reduce this risk. Always use caution when handling frozen tubes.
4. Do not drop the sample tube into the dewar. A drop of even 1 inch may break the inner cold finger. Place the sample tube into the dewar and very gently lower it all of the way to the bottom of the cold finger. Hint: a little ball of glass wool placed at the bottom of the cold finger will help prevent breakage. However, if the ball is too large, the sample may be moved above the excitation beam position. Do not try to force the glass wool ball into the dewar or breakage may occur. Note: Damage to dewars caused by breakage is not covered by the warranty.

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