

Can Assemblies for POWGEN Sample Environments

Purpose and Scope: The purpose of this document is to specify the types of sample cans, lids and other accessories appropriate for each sample environment used at BL-11A (POWGEN).

Discussion: Beamline 11a employs multiple sample environments, covering temperatures ranging from 2K with a cryostat to 1473K with a vacuum furnace. Care must be taken to select can types appropriate to the temperature range of the equipment. Materials incompatible with the full temperature range of the sample environment should be avoided, if possible, even if the intended range of operation is less.

Sample Environment (SE): POWGEN Auto-Changer PAC (AC-005)

Temp Range: 10 – 300 K
Can Style: PAC
Can Body: vanadium with 3-, 6-, 8- or 10-mm nominal diameter
Inner Diameter: 2.7, 6.0, 7.6 or 9.2 mm
Maximum Sample Height: 50 mm
Sample Volume: 0.29, 1.4, 2.3 or 3.3 cm³
Can Collar: titanium with barcode and threads
Can Gasket: copper disk
Can Lid: aluminum with threads to match collar
Stick Adapter: none

Sample Environment (SE): 50mm Orange Cryostat with V tail (CRYO-004)

Temp Range: 2 – 300 K
Can Style: PAC
Can Body: vanadium with 3-, 6-, 8- or 10-mm nominal diameter
Inner Diameter: 2.7, 6.0, 7.6 or 9.2 mm
Maximum Sample Height: 50 mm
Sample Volume: 0.29, 1.4, 2.3 or 3.3 cm³
Can Collar: titanium with barcode and threads
Can Gasket: copper disk
Can Lid: aluminum with threads to match collar
Stick Adapter: none

Sample Environment (SE): MICAS (HOT-016) Vacuum Furnace

Temp Range: 300 – 1473 K
Can Style: PAC
Can Body: vanadium with 3-, 6-, 8- or 10-mm nominal diameter
Inner Diameter: 2.7, 6.0, 7.6 or 9.2 mm
Maximum Sample Height: 50 mm
Sample Volume: 0.29, 1.4, 2.3 or 3.3 cm³
Can Collar: titanium with barcode and threads
Can Gasket: none
Can Lid: ZSBN ceramic with threads to match collar and M8-1.25 post
Stick Adapter: none

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Sample Environment (SE): AGES Gas Flow Insert (OSE-009) with HOT-016

Temp Range: 300 – 1123 K

Can Style: baskets

Can Body: quartz with frit bottom

Inner Diameter: approximately 10.7 mm

Maximum Sample Height: 50 mm

Sample Volume: 4.5 cm³

Can Collar: none

Can Gasket: none

Can Lid: quartz wool

Stick Adapter: Macor glass-ceramic sleeve and pins

Sample Environment (SE): Janis Cryofurnace (CCR-17) – Low or High Temp Stick

Temp Range: 5 – 750 K

Can Style: PAC

Can Body: vanadium with 3-, 6-, 8- or 10-mm nominal diameter

Can Collar: titanium with barcode and threads

Inner Diameter: 2.7, 6.0, 7.6 or 9.2 mm

Maximum Sample Height: 50 mm

Sample Volume: 0.29, 1.4, 2.3 or 3.3 cm³

Can Gasket: none

Can Lid: titanium with threads to match collar and 5/16"-18 post

Stick Adapter: none

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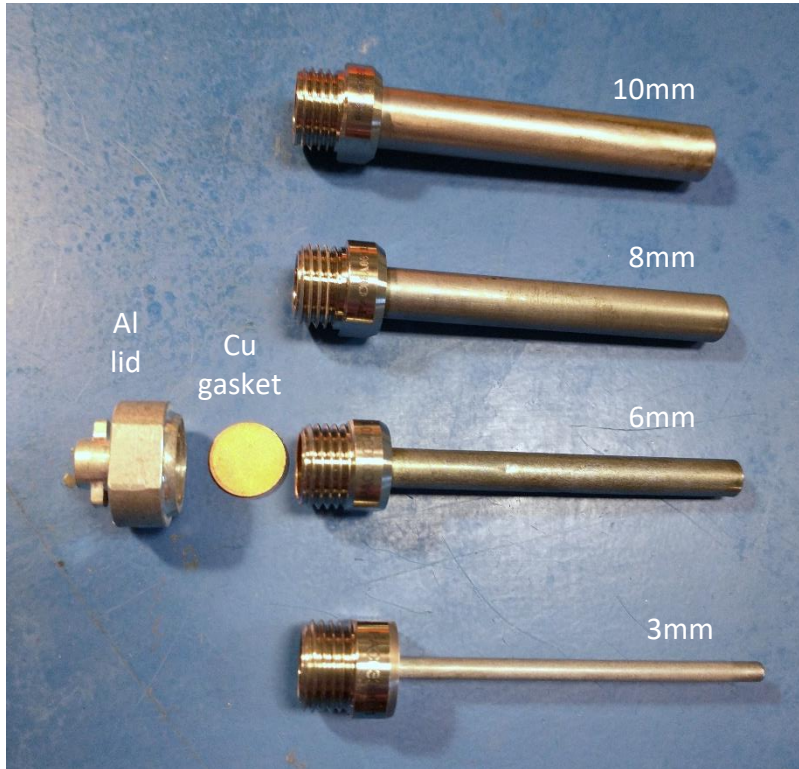


Figure 1. PAC can assembly for Powgen AutoChanger (PAC) and Orange Cryostat.



Figure 2. Can assembly for MICAS Vacuum Furnace.

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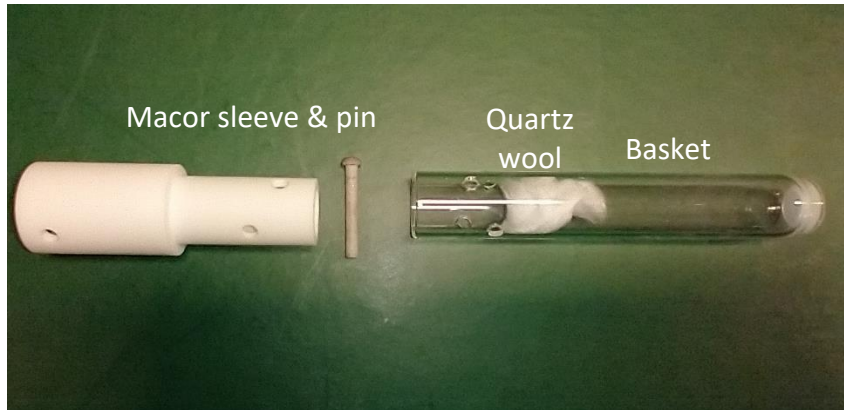


Figure 3. Quartz basket and Macor sleeve & pin for AGES with ILL or MICAS vacuum furnace.

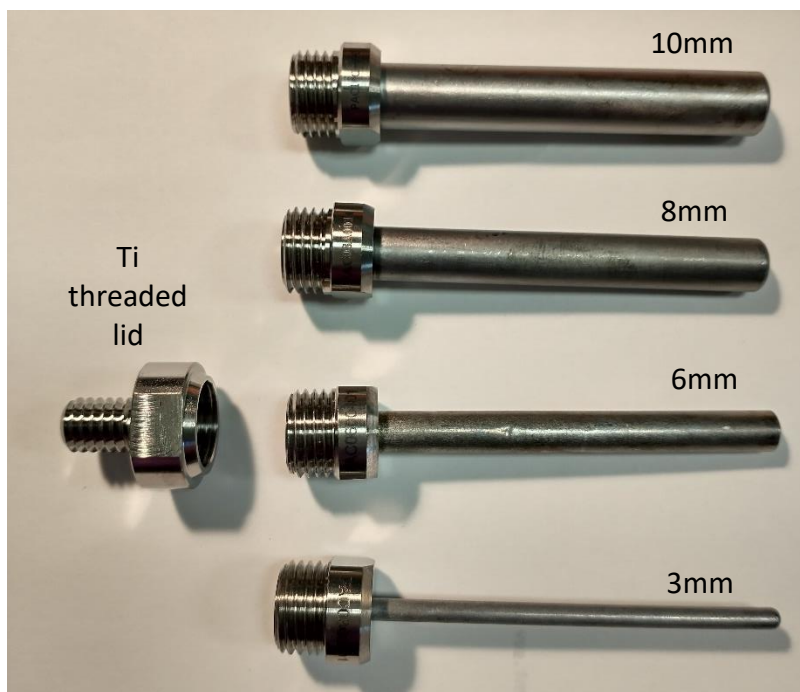


Figure 4. Can assembly for Janis Cryofurnace.