
McAllister Technical Services

Manufacturers of surface analytical instruments and devices

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THANK YOU for your purchase of MTS' EVAP-B Evaporator. It is the finest of its kind available. We appreciate the confidence you have placed in our company. Under normal conditions it will provide years of trouble-free service.

EVAP-B, is a crucible-style metal evaporator with a thermocouple attached directly to the filament for extra-sensitive temperature control. An integral shutter allows the evaporation source to be fully closed, fully open, or for a pinhole aperture to minimize over spray and reduce deposition rate.

The material to be evaporated is placed in the alumina crucible. The crucible is heated by passing a current through the non-inductively wound heater element surrounding the crucible. Temperature is monitored via the thermocouple attached to the base of the crucible.

Leak Check Certificate

Model

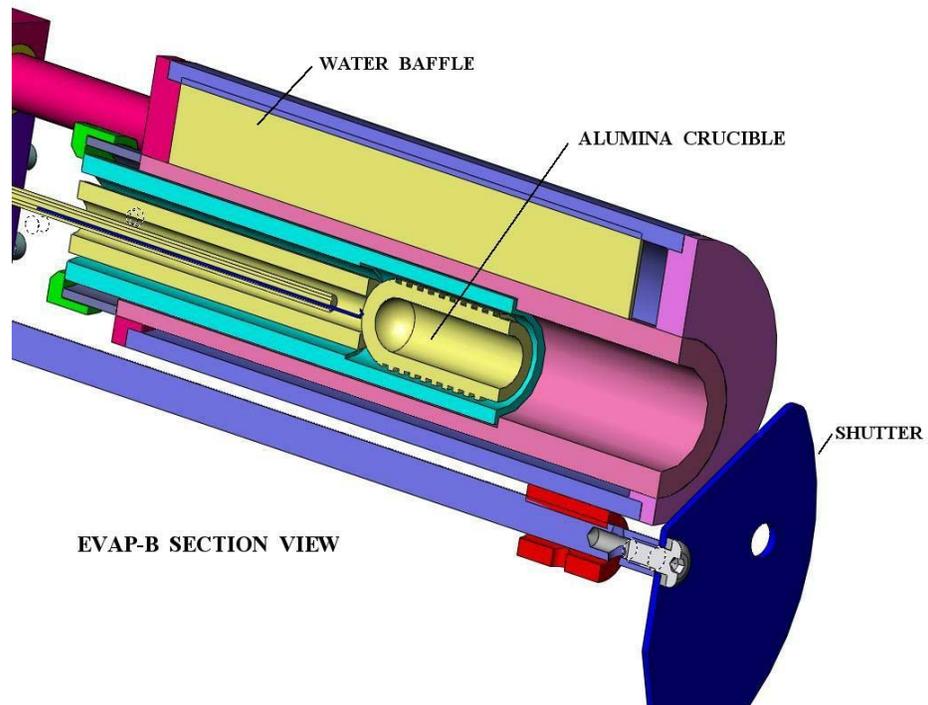
Date

Job #

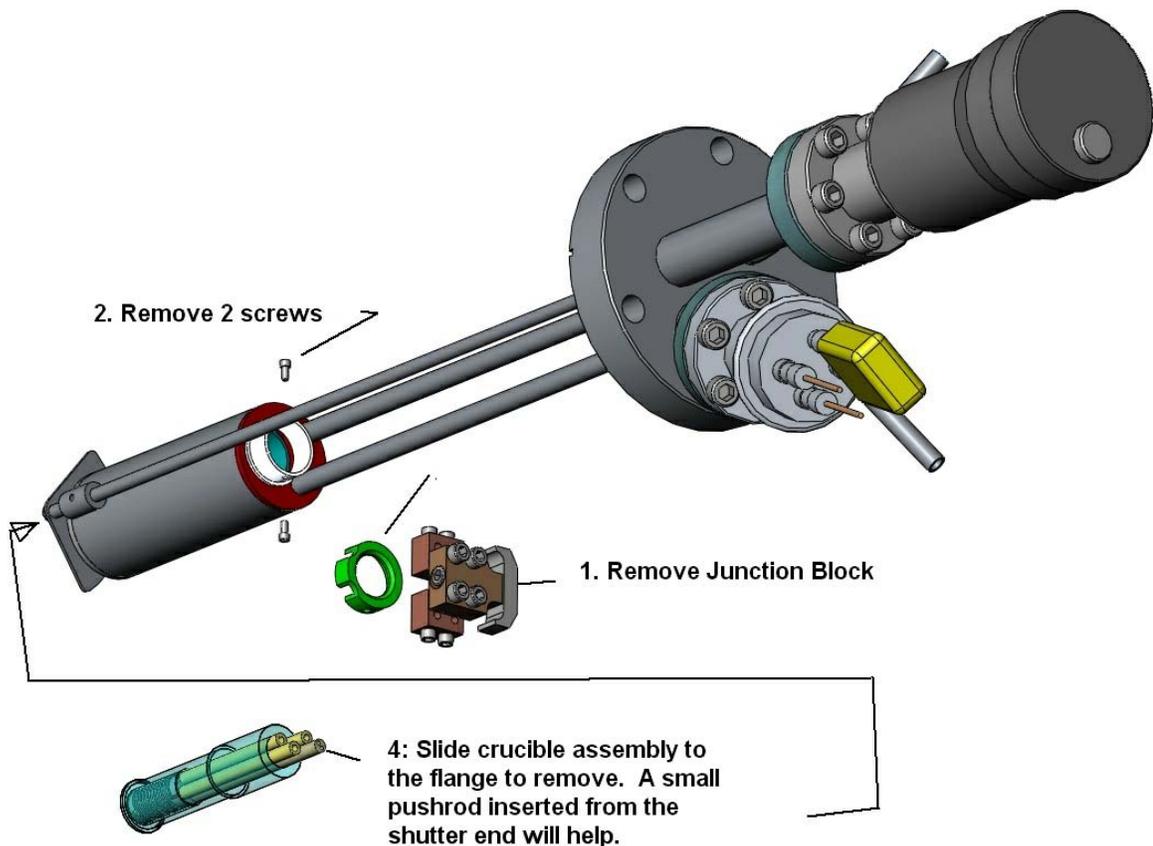
Checked by

EVAP-B _____

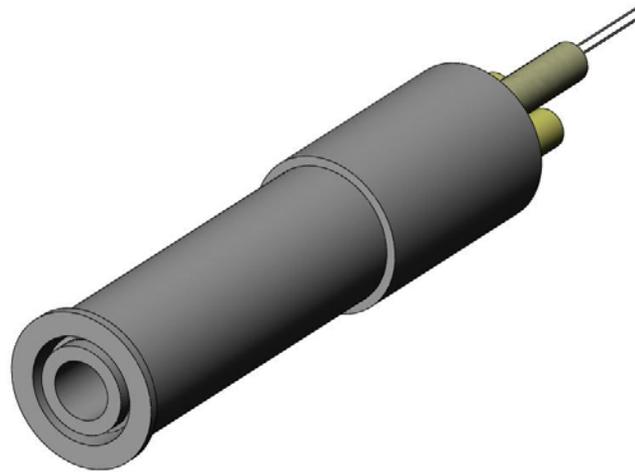
This is to certify that the above-referenced product has been checked on a Helium Mass Spectrometer leak detector having a sensitivity of _____ X 10-_____ std. cc/sec and has been found to have no measurable leak.



To remove the crucible assembly, disconnect the power and TC wires from the Junction block and remove the block.. Remove the 2 0-80 screws and slide the crucible assembly towards the flange as shown in the next graphic, below.



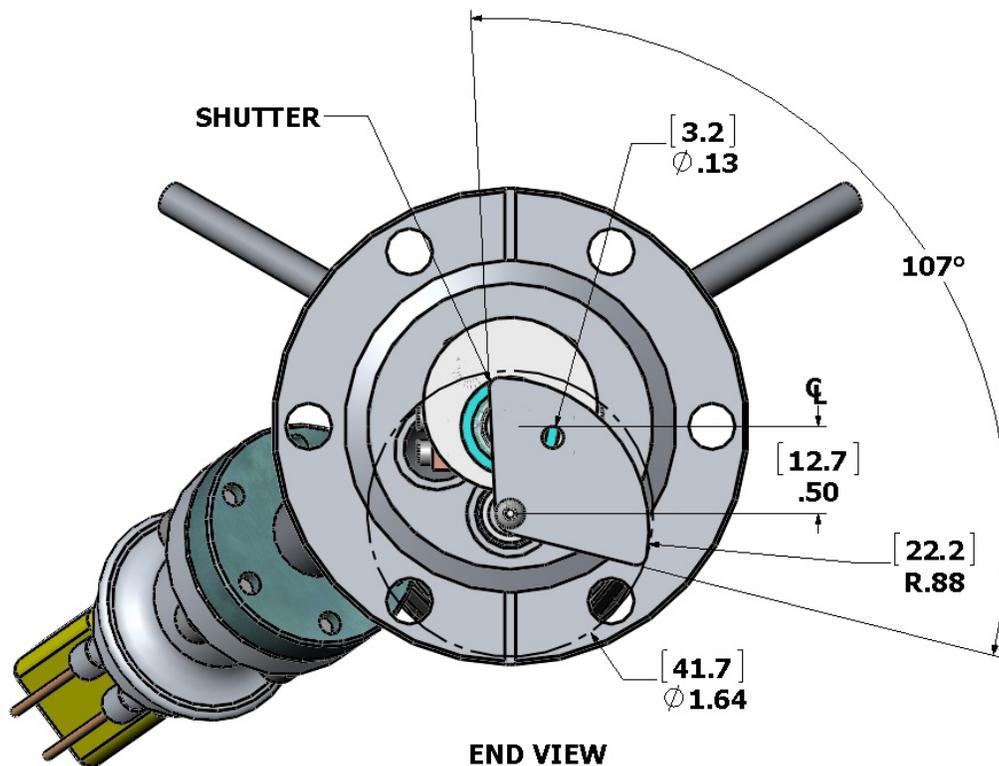
The crucible assembly, shown below and above, may now be changed.



As with any piece of ultra-high vacuum equipment, clean tools and gloves should be used when handling this device. Do not bake out the evaporator to above 150 degrees C without removing the water lines, electrical connectors and blowing out the water jacket.

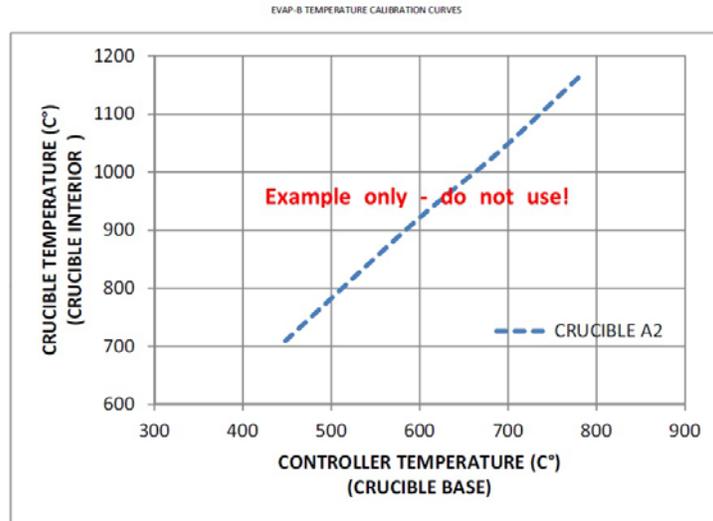
Shutter Layout:

The shutter is a simple piece of sheet metal allowing the evaporator source to be closed, opened or opened to a 1/8" aperture. The standard shutter can easily be removed via a single screw and reworked or replaced as needed.



Temperature Considerations:

Because the thermocouple placement is at the outside of the crucible, and because alumina is a poor thermal conductor, there is necessarily a difference between the measured temperature at the rear of the crucible and the actual temperature inside the crucible. This difference is measured at time of manufacture, and a reference curve is supplied with each crucible. An example is shown below.



Power:

Due to minor variations in the thermocouple mounting, we find the temperature vs. power curves to vary a bit but the range is 4.5-5.0 As @ ~9 VAC actually produces ~900C inside the crucible. As mentioned above, the measured temperature is somewhat less per the included chart.

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