Sample Oven for Bomem Models DA3 and DA8

Instructions
DO NOT use silicon type vacuum grease anywhere on the apparatus. Use only a hydrocarbon vacuum grease such as Apiezon type M.

1. SAMPLE MOUNTING

Construct an anvil from a short piece of metal measuring ~1/4” wide and clamp it in a vise as shown in Fig. 1. Select an aperture slightly small than the sample and remove all screws from it threaded holes. Use double sided tape applied to one side of the anvil to hold the selected aperture in place also as shown in the figure so that 4 backplate mounting screws can pass through the holes unobstructed. Next select a backplate with a hole slightly larger than that of the aperture.

FIG. 1
Place the sample over the aperture as shown in Fig. 2.

Next, as shown in Fig. 3, screw down the backplate using 2 or more 2-56 cap screws.
Remove the assembly from the anvil and clean away any tape residue. Insert two 2-56 set screws into the aperture for the sample lateral adjustment. Finally, using two 2-56 socket cap screws, fasten the sample assembly to the probe stick.
2. REMOVING THE SAMPLE STICK

Follow the steps shown below:

FIG. 5

FIG. 6
3. SAMPLE AND OVEN TRANSLATION ADJUSTMENT

After placing the unit on the Bomem, use paper to find BOMEM optical beam and raise or lower furnace using thumbscrew Height adjustment so that beam enters hole in furnace. If necessary loosen the flange crews and rotate the entire system then retighten flange screws.

For transmissive samples, raise or lower sample using micrometer so that the light beam is transmitted through the sample. Slide the entire rig from side to side and rotate if necessary to center the sample within the beam.

For reflective samples, the entire unit is rotated 90 degrees to face the Bomem reflection mirrors.

4. OVEN HEATING

Evacuate and purge the Bomem spectrometer several time with an inert gas to remove water vapor and oxygen which will substantially shorten oven life. Raise voltage slowly. The actual voltages will vary from oven to oven but typical voltage ranges are 0 -10 Volts. Temperatures: above 800C shorten oven life.
5. CHANGING OVENS

1) Unplug the oven power supply leads.
2) Turn the oven height adjustment knob to lower the oven and disengage the screw.

![FIG. 11](image1)

3) Lower the oven carefully and remove.

![FIG. 12](image2)

4) To replace simply reverse the procedure.
6. THERMOCOUPLE REPLACEMENT

1) Carefully remove old thermocouple keeping the insulating ceramic and plastic tubing for reuse. Note that even broken ceramic tubes are generally reusable.

2) Cut 12" pieces of 0.01" diameter chromel and alumel thermocouple wire and weld the junction. (Note: 2 extra welded thermocouple junctions are included with the unit. The chromel wire is 1/4" longer for identification and must be trimmed prior to use.)

3) Insert the wires into the ceramic insulating tubes of the sample holder as shown in Fig. 13 until thermocouple junction is near the sample position as shown in Fig. 14.
4) Slide the ceramic tubes onto the thermocouple wire, making certain that they travel all the way to the end inside the probe stick.

5) The ceramic tubes should extend ~4 mm beyond the probe stick. Place the plastic insulating tubing over ~4 mm of the ceramics tubes.
6) Noting the chromel wire by its longer length, trim the thermocouple wires to equal length. Finally attach the thermocouple plug. Be careful to observe the polarity: The chromel wire is also brighter in color than the alumel wire.