

Rotator sample mounting and Rotator operation

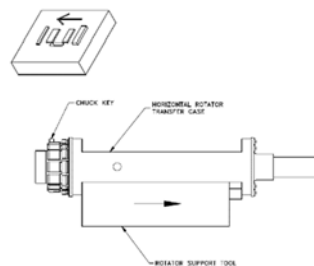
Quick Start Guide (full manual [1384-100](#))

Sample Mounting: The wiring here is a bit confusing since you will be putting the “Rotator/MFP experiment cable” (see below) in between the ETO sample and the DynaCool sample chamber. This reroutes wires so that your sample connections come out to ETO or Resistivity option at the socket numbers shown in yellow in the diagrams below, instead of the ones printed on the board. Basically, channel 2 on the green rotator board gets routed to channel 1, and ch.3 goes to ch.2.

If you want to use the “in-plane board” (right-most board shown below) in the wire bonder, we have developed an adapter board for use at the bonder, and a modified in-plane board that this adapter presses onto. Please inquire with Neil if you want to try it.

Installing the rotator hardware:

- Plug in the Rotator/MFP experiment cable (3084-010-02) to the PPMS. Then plug your option cable into it (options include ETO, Resistivity, or the grey Lemo breakout box if you’re using external electronics).
- Put the rotator support tool (see pic at right) on the workbench
- Take the *rotator probe* out and place the bottom section in the support tool as shown.
- Plug your sample (mounted on the green rotator board) into the rotator probe, **CAREFUL:** be sure to match pin 3, the square solder pad on the green board, with the square outlined socket in probe. Push the board in fully to get best electrical and thermal contact.
- Put the *rotator motor* on the sample chamber
 - Bring chamber to 300 K and Vent/Seal the chamber.
 - Remove baffle set and o-ring and remove any puck that is in the chamber.
 - The rotator motor is stored on a plastic post on the right side of DynaCool. Inspect underside to see that the large o-ring is in place and clean.
 - Put rotator motor on the chamber by releasing the side clips, seating the motor over the KF flange and engaging the clips so that it is tight.
 - Flip the centering clip down on the back side of the motor so that it grabs onto chamber top plate and keeps the rotator motor itself from rotating.
 - The motor cable should always remain plugged into the BRT module, check that it is.
- Insert the rotator probe into the chamber
 - Check that the o-ring around the outside of the top plate of rotator is clean.
 - Pick up probe and insert it into chamber through the opening in the rotator motor.
 - When the key on the chuck of the bottom of probe engages in the bottom of the chamber, the probe should be inserted far enough that the o-ring on the probe is fully seated inside the collar on the motor.
- **IMPORTANT!!** Purge/Seal the chamber once the probe is inserted. Ice in the gears at low temperatures is a big problem.



Operating the rotator:

- With all cables engaged, activate the Rotator option in MultiVu (Utilities > Activate...) and you will select serial number ROT719 in pulldown list, Hi-Res motor, and Enable User Temp (see dialog below). You will see a WARNING about Hi-Res mode, click OK.
- with the motor disengaged from the top of the rotator, click "Go to index" which moves the motor until it hits the index pin which is near -10 degrees.
- Redefine Current Position as -10 degrees
- Move to: 0.0 degrees
- Engage the motor with the probe at this point, it should be near 0 degrees, as seen on the scale on top of the rotator.
- If it's off a bit, you can Redefine Position again, move to a new angle and check it again.
- Keep in mind backlash in the gears will be a few degrees so I recommend collecting data while scanning angle in one direction only.

Shutting down Rotator: return to 300 K, zero field. Deactivate Rotator option and any other options. Vent/Seal the chamber. Disengage the motor from probe, lift the probe carefully out, remove the motor by releasing the two clamps (takes some strength!) and placing on plastic post on side of DynaCool, put the baffle set back in, and Purge/Seal the chamber.

