

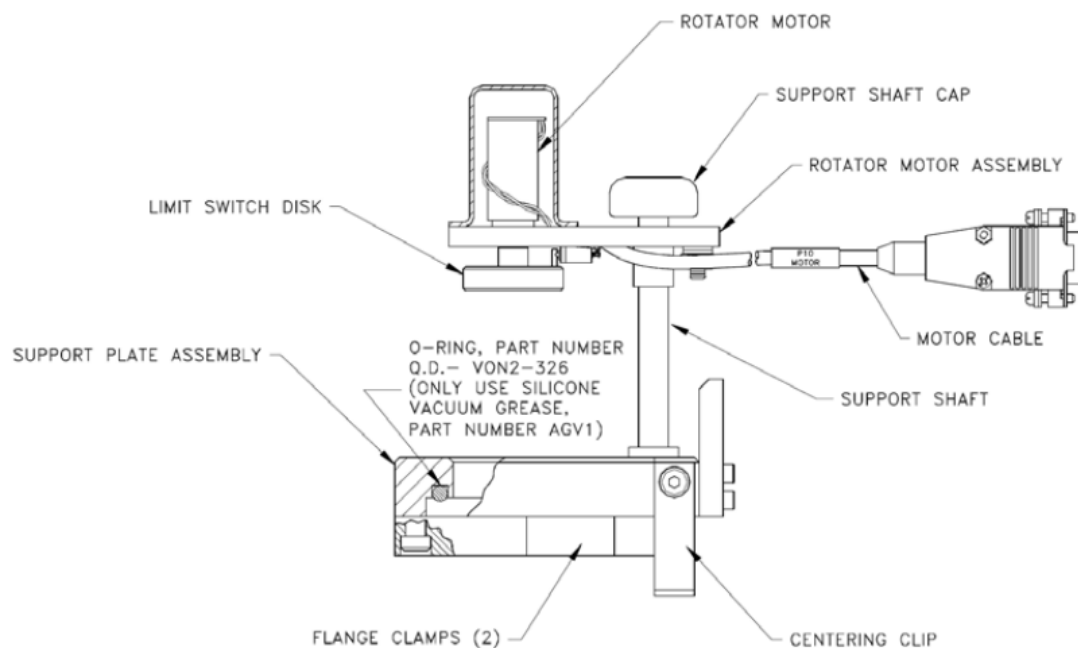
## Procedure for Operating the Rotator

### Mounting the Sample Holder on the Rotator

1. Lift the rotator probe and slowly tune the angle of the rotator to 90° by hand.
2. Lay down the rotator probe on the flat surface. Hold the rotator platform circuit board with the special rotator support tool.
3. Carefully attach sample holder board into the rotator platform circuit board. Pay attention to the direction of the holder, match the right pins to the holes.
4. Lift the rotator probe and slowly tune the angle back to 0° by hand.

### Installing the rotator hardware

1. Check the system status. Make sure that the temperature is 300 K and the field is 0. Remove any other puck in the system. Deactivate all options.
2. Place the rotator support plate with motor (black, shown in the picture) over the PPMS probe head (lift the support shaft cap). Make sure the centering clip can fit well. Lock the clamp from the both sides. Put down the centering clip.
3. Slowly and carefully lower the rotator probe into the sample chamber through the support plate until it touches the bottom of the chamber. Gently rotate the probe until find the key to push in, as the usual way to install the resistivity puck.
4. Place the rotator motor on the Vernier dial of the probe. Weak click can be felt when push the motor on the dial.
5. Purge and seal.
6. Connect the cable of the rotator option, then connect the resistivity cable onto the box of the rotator cable.



### **Activate and Calibrate**

1. Utilities → Activate option → Activate resistivity option → Activate rotator option. **The order of the activation is important because only if the rotator is activated after resistivity option the thermometer on the rotator can be activated and replace the system thermometer.** Then the temperature displayed on the status bar will become **blue**.
2. When activating the Rotator option, the Rotator Setup window will appear. Set the motor resolution Hi-Res for our system.
3. After the Rotator Motion Control Dialog Box appears, first do the angle calibration. Set "Move to" an even angle (the even number is easy to read on the dial), then read the value on the dial. If the value on the dial is not what you set "move to", set the "Redefine Current Position" as the value you read on the dial. Then repeat the calibration procedure 2-3 times until the angle on the dial exactly correspond the angle entered.

### **Remove the Rotator option**

1. Set the field to 0 and the temperature to 300K, wait for about 20 min to warm up the rotator probe.
2. Press the "Go To Index" button on the Motion Control Dialog Box and wait for the angle on the dial set to be about 0.
3. **Deactivate rotator option, then deactivate resistivity option.**
4. Vent the sample chamber continuously.
5. Disengage the rotator motor from the probe.
6. Gently pull the rotator probe out. Remove the sample as how you attaching the sample.
7. Gently hang the probe on the rack. Notice that the side brass surface should be outward.
8. Flip the centering clip on the support plate upwards and release the two flange clamps on the support plate by swinging them out, thus lift the support shaft cap to remove the support plate. Place the support plate safely and gently.
9. Close the sample chamber, purge and seal.
10. Remove the resistivity cable, then remove the rotator cable.