



MPMS Service Note 1090-302

Installing and Using the RSO Airlock

These instructions describe how to install and use the RSO Airlock assembly.

- The RSO Airlock assembly is not required when using the RSO option of the MPMS. Because the airlock chamber is fiberglass and may be subject to out-gassing, this option is not recommended for use with water-sensitive samples.
- This assembly must be used with MPMS software version 2.28.5 or higher.
- The airlock chamber uses a magnetic ring to control the sample rod. Keep this ring from magnetic-sensitive samples and other magnetic media such as computer diskettes.

Tools

To perform this installation, you will need a 3/32 ball driver.

Installing the Airlock fixture

1. Make sure the MPMS software version is Revision 2.28.5 or higher. Opening the **MPMS Utilities (F6)** menu and selecting Software Version can check the software version.
2. Install the RSO Sample Transport from the **Utilities/Install Transport (F6)** menu. For complete instructions please refer to your *RSO User's Manual*.
3. Open the **Register Sample (F3)** menu and perform the **Load/Unload Sample** sequence to ensure that the sample holder fixture is positioned at the top of the sample transport.
4. Make sure you don't have a sample rod installed in the system.
5. Press the **Esc** key to exit the **Load/Unload Sample** menu without purging the sample space.
6. Close the airlock valve.
7. Remove the black cap from the top of the Transport.
8. Using the 3/32 ball driver, unscrew the two socket-head screws from the stainless steel flange on top of the transport.
9. Install the acrylic flange in place of the stainless steel flange and secure it using the 3/32 ball driver and the two screws provided.

10. It may be necessary to adapt your standard sample holder rod for use with the airlock. Attaching the small aluminum socket (provided with the installation kit) does this to the blue end of the sample rod. If your sample holder rod already contains a threaded fitting at the top, this step will not be necessary. To do this, use the small socket head screw and the hex key provided.
11. **Note:** The slot on the bottom of the small aluminum socket should be aligned with the two vent holes on the blue end of the sample rod. This will ensure proper purging and venting operations.
12. Open the **Utilities/Install Transport (F6)** menu.
13. Select the menu item **RSO Airlock Installed** and press **Enter**, then select **YES**.

Using the RSO Airlock

Loading the Sample Rod

1. Lay the acrylic tube on a workbench and slide the magnet ring to the bottom of the tube until part of the nylon thread is exposed.
2. Attach the sample rod to the nylon thread by screwing it in for a few turns; do not tighten it.
3. Slide the magnet ring to its top position, pulling the sample rod into the acrylic tube.
4. Insert the acrylic tube into the opening at the top of the RSO Transport assembly.
5. Make sure that the sample holder fixture is at the top position inside the transport assembly. The top of the sample holder fixture should be visible through the acrylic flange on top of the transport. If it is not in the upper position, select **Utilities/Load/Unload Sample** menu.
6. Press the purge button and wait for the green light to come on.
7. Open the airlock valve and slowly slide the magnetic ring down so that the blue cap of the sample rod visibly engages into the transport rack. The fork-like tool can be used to reach positions of the magnetic ring that cannot be reached by hand. If you have trouble engaging the cap, unload the sample rod (see below) and use some Apiezon M-grease to lubricate the o-ring located on the blue cap.
8. Disengage the nylon screw from the sample rod by turning the magnet ring counterclockwise and raise the magnet ring away from the top of the transport.
9. Open the **Register Sample** menu and execute the **Initialize Transport** command.

Unloading the Sample Rod

1. Open the **Register Sample** menu and execute the **Load/Unload Sample** command. This will move the sample rod to the upper position.
2. Slide the magnet ring down (using the fork-like tool) and engage the nylon screw into the top of the sample rod by turning it a few turns clockwise; do not tighten it.

3. Carefully disengage the sample rod from the transport rack by moving the magnet ring up.
4. Slide the magnet ring slowly to the top position, while carefully monitoring that the baffles of the sample rod do not catch inside the transport.
5. With the sample rod at the top of the airlock assembly, close the airlock valve. The airlock will be automatically vented.
6. Carefully pull the acrylic tube out of the flange and move it to your workbench.
7. **Note:** Keep the bottom of the acrylic tube slightly greased with Apiezon M-grease to allow it to easily slide in and out of the flange of the acrylic flange of the transport.