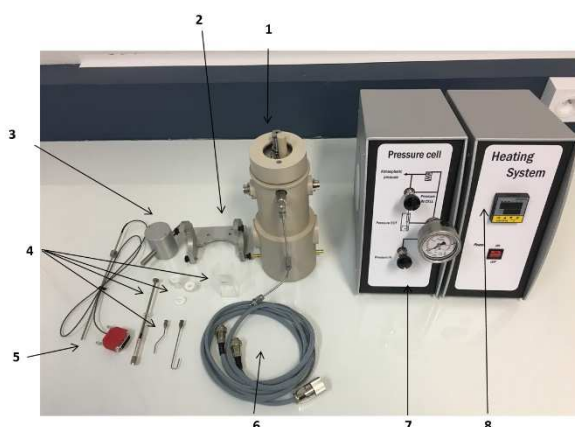


Instructions for Tracker Pressure Cell

Introduction

The Pressure cell allows to carry out experiments under many conditions. This note's goal is to help you to properly install it.

COMPONENTS



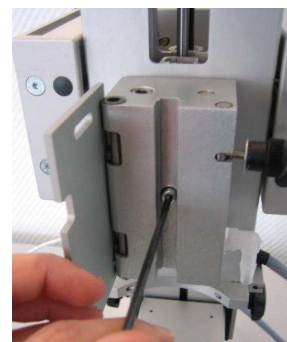
1. Pressure cell
2. Adapters ("ears") used to mount the cell on the Tracker
3. Wrench used to dismantle pressure cell windows
4. Items inside pressure cell during measurement
 - a. Syringe with extended piston shaft
 - b. Teflon adapter collar for syringe
 - c. Teflon washer to protect syringe barrel
 - d. Offset needle for pendant drop measurements
 - e. Curved needle for rising drop measurements
 - f. Cuvette (above syringe piston)
5. PT100 temperature probe

6. Cable to supply power to cartridge heaters in pressure cell
7. Gas Box
8. Electronics Cabinet with temperature controller

CELL INSTALLATION

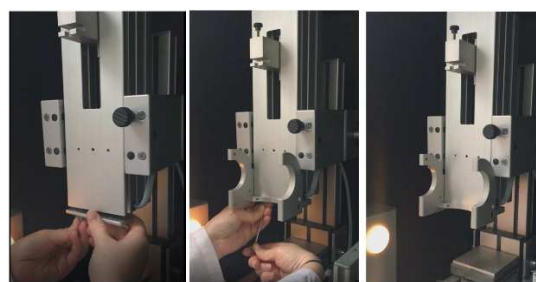
1- Disassemble the standard syringe support on the Tracker

Use a metric Allen wrench (hexagonal wrench) to unscrew the syringe support.



2- Position the two adapters "ears" to support the pressure cell

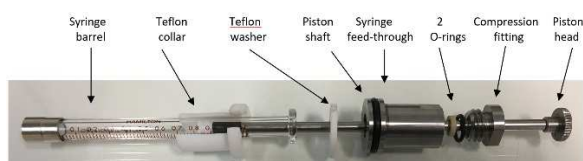
Use the Allen wrench to remove the metallic plate under the mast. Then, screw the adaptor, ("ears") at the same place.



3- Syringe assembly

Carefully guide the syringe piston through the outer syringe feed-through and the small O-ring inside it. Take care not to cut the O-ring with threads of the piston shaft. Screw the compression fitting into the syringe feed-

through and turn until it is finger tight. It may be necessary to tighten this with a wrench if it leaks under pressure. The small inner O-ring seals against the piston shaft when pressure from the compression fitting squeezes the O-ring against the piston shaft. Attach the piston head to the piston shaft.



Guide the syringe into place in the basket.



4- Assembling the syringe and cell in the pressure cell basket

Put the glass cuvette in the bottom of the basket and bring down the metal collar that holds it in place. Make sure the "25 mL" marking on the cuvette is not oriented so the camera will see it!



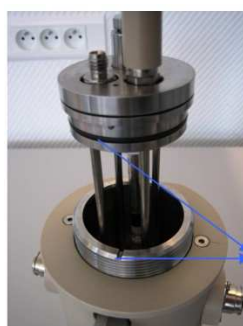
Basket



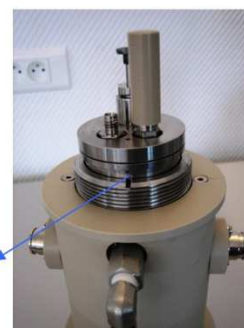
Locator pin and pin hole



As shown above, put the pressure plate in place using the locator pin as a guide. Next, lower the basket into the cell.



Locator pin and notch



Screw the pressure cell cover down until it is finger tight. Be careful not to cross the threads!

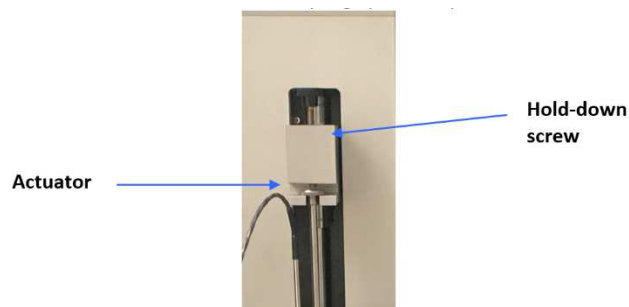


Install the temperature probe and use a wrench to tighten it.

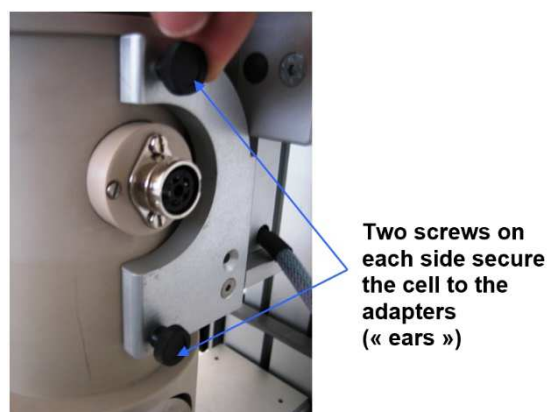


5- Place the assembled cell on the Tracker

Place the cell on the adapters ("ears") that are now on the Tracker. Use the manual command button on the electronics cabinet to raise or lower the actuator block in the Tracker until it has reached a position where you can slide the syringe piston head into the slot. Tighten the hold-down screw to fix the syringe piston in place.



Use the four screws with black plastic caps to secure the pressure cell on the adapter.



Insert the two connectors, one on each side of the pressure cell. Note that each connector is unique; one has four pins inside, the other has three, so it is not possible to connect them the wrong way.



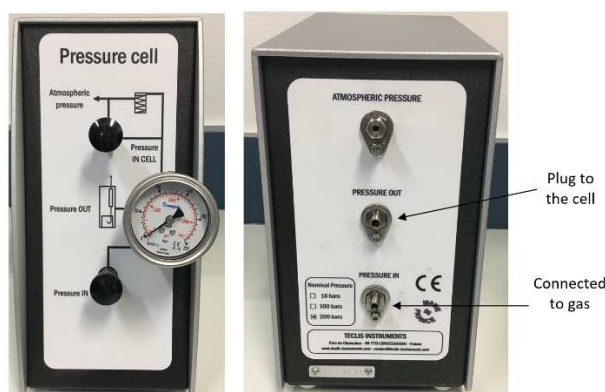
Disconnect the standard PT100 sensor from the Tracker and insert the temperature probe connector of the pressure cell in its place.



Connect the gas line on the pressure cell to the Gas Box fitting labelled PRESSURE OUTLET. The cell is now ready to pressurize.



The « GAS BOX »



To raise and control the pressure, slowly counter clockwise turn the "Pressure IN" valve. Once it is open the cell and gas supply cylinder are connected and will quickly reach the pressure set on the regulator attached to the gas supply. You can see the pressure inside the cell in the mano. To release pressure from the cell, slowly turn the "atmospheric pressure" valve counter clockwise until you hear the sound of gas rushing out the vent port on the back of the

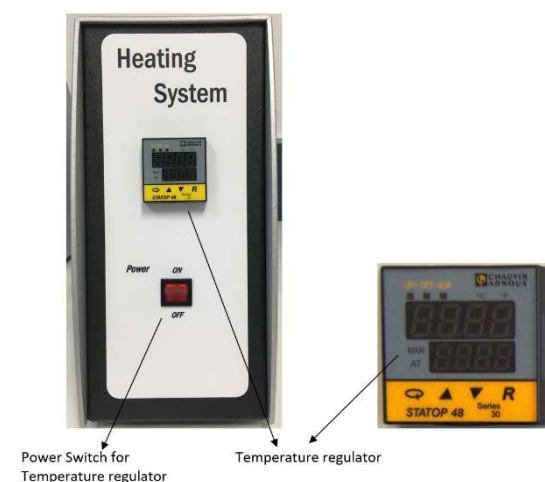
Gas Box. Wait until the sound stops and the pressure cell should be at atmospheric pressure. **CAUTION: Make sure temperature of the pressure cell contents are below 95 °C before releasing pressure. Otherwise, an aqueous phase in the cell will immediately turn to steam when pressure is released.**

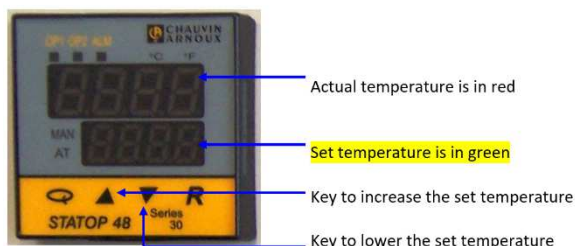


Atmospheric pressure (on the back of the Gas Box)

A pressure relief valve is mounted on each Gas Box. It is set to open if pressure inside rises above the rated maximum for the pressure cell. Maximum pressure for your cell is engraved into the insulating plastic on the bottom of each cell.

Electric cabinet with the temperature regulator





If the actual temperature (in red) shows **SbEr**, electrical connections to the cell or to the electric cabinet are not well attached. Turn off power to the temperature regulation unit, check to make sure all electrical connections are tight, and then turn the power back on to see if you succeeded.

Remark: Automatic operation is set to the normal mode of use of the controller. The user just press the ▲ or ▼ key directly (the green display unit indicates the temperature) for adjust the temperature.

Dismantling the portholes

Use the window wrench to dismantle or tighten the cell windows. Position the two pins of the wrench in the holes of the window and turn to tighten or unscrew the window.

