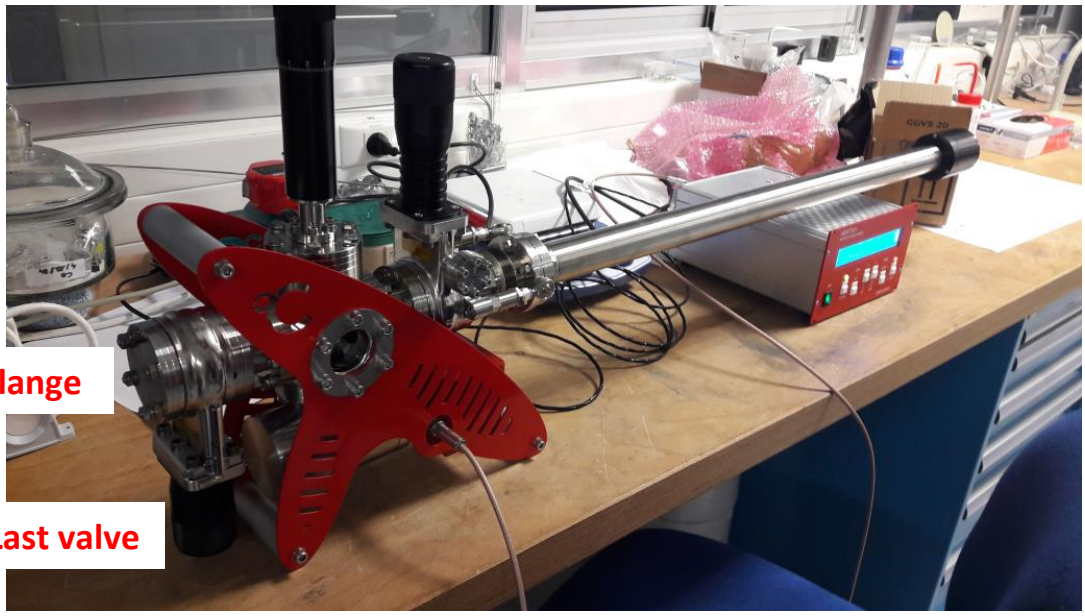
UHV Suitcase Manual

1) Suitcase quick description

A) Dimensions and connection to your UHV chamber

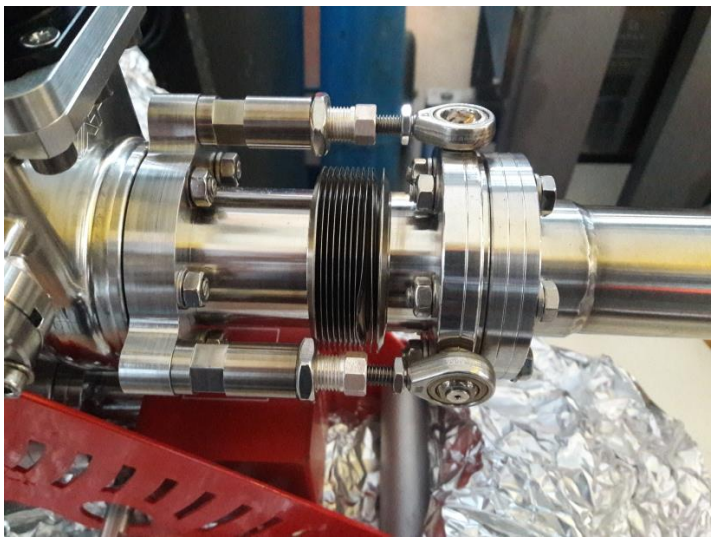


The suitcase full length with the transfer rod is < 1100 mm. Its weight is below 15 kg.

The connection to your UHV chamber is made via a CF40 flange just after the last valve.

The transfer rod has a 400 mm traveling range after the CF 40 transfer flange.

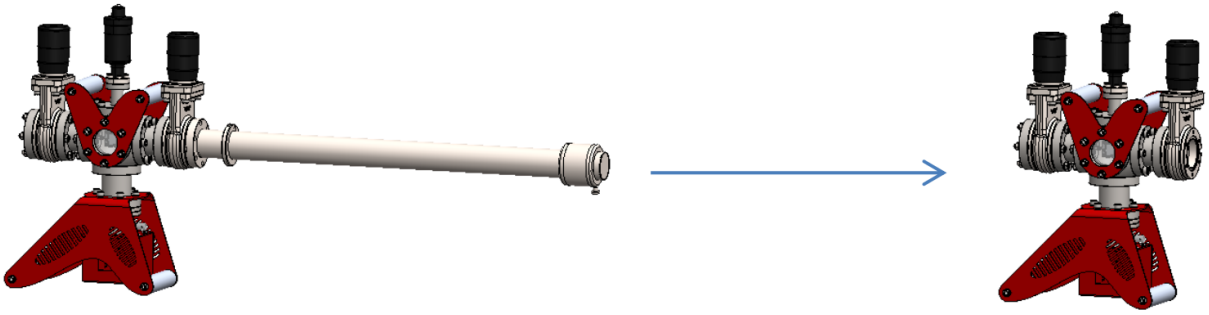
A port-aligner is available to align the transfer rod to your sample stage**. The alignment step is tricky: Beware not to get stuck in open valves after moving the port-aligner too much. It happens all the time.**



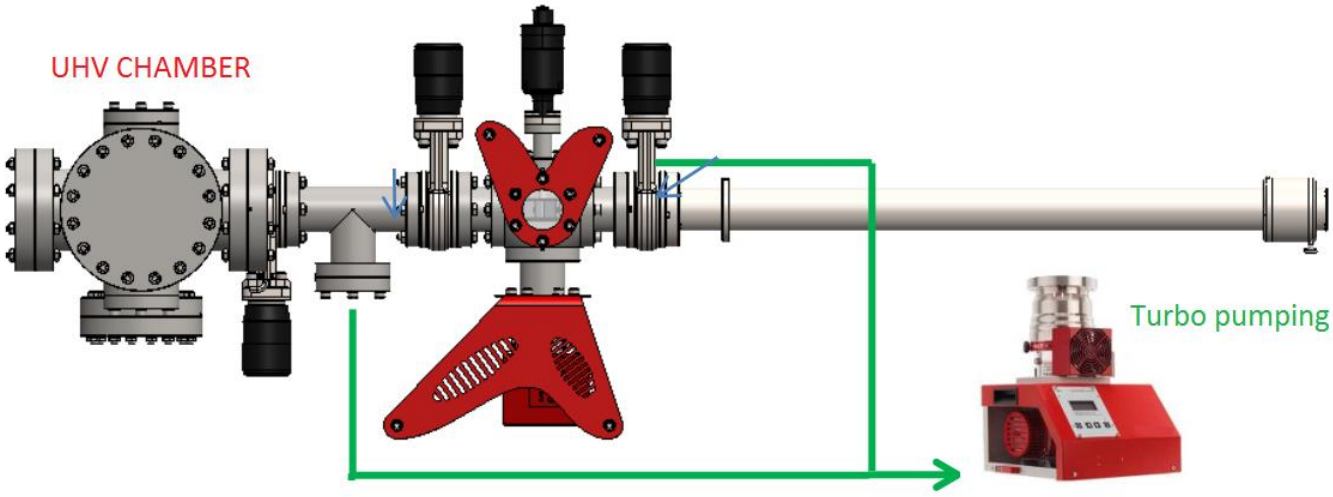
The suitcase fits in a specially-designed flight case (dimensions 1400x560x280 mm, estimated full weight is 51 kg with the UHV suitcase and the power supply).

B) Special configuration without transfer rod

The transfer rod can be isolated from the suitcase main chamber via the second valve. Then, it can be removed and transported separately.

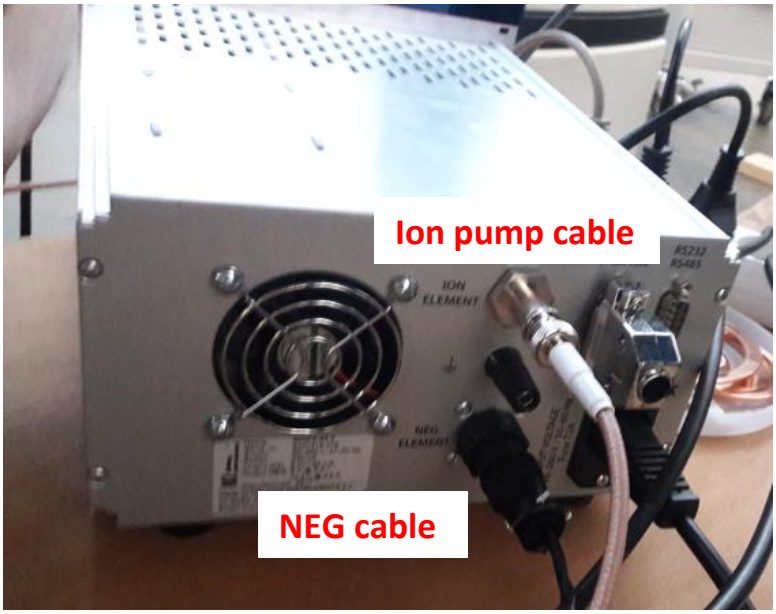


The suitcase is lighter and smaller (i. e. has better vacuum) but you'll have to pump (and bake-out) through the second valve via a CF 16 flange before opening to the suitcase main chamber.



2) **Ion pump guide**

The SAES getter NEXTORR HV 200 (200 l/s capability) ensures UHV without any power. An additional ion pump is used to slightly improve pumping (better for Argon and CH_4) but mostly to measure the pressure (down to 1.10^{-10} mbar).



The main power supply controls both the ion pump (left side of the panel, upper line of the screen) and the NEG activation/conditioning process (right part of the panel, lower line of the screen)

You don't have to connect the power supply to the NEG part (black cable) since you should not have to condition or activate the NEG at any time.

You can connect the ion pump (brown cable) to the power supply and the suitcase:

Then, turn the power on.

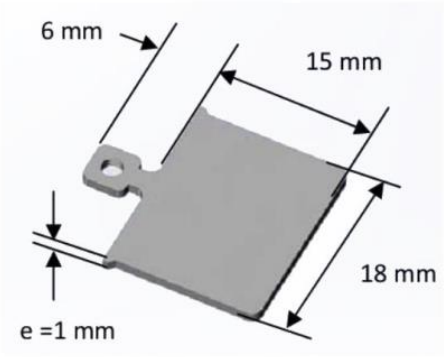
The "I" line deals with the ion pump and shows "Ready". You can press on the left "ON/OFF" button and wait for the ion pump to start. You can monitor current/voltage/power using the A/V/W button. You can transform current in "pressure" using the "Torr/Pa/mbar" button.

Sometimes, the ion pump is "stuck" at 0 nA (or < 10^{-10} mbar). You can first wait 5 minutes and then wiggle the transfer rod to make it start properly.

Don't worry about the "OPEN" line. It just says the NEG cable is disconnected.

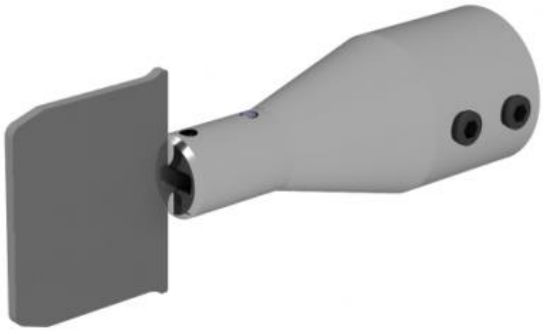
3) Grabbing tool and sample plates

The suitcase hosts “omicron-like” plates:



Cassiopee beamline uses plates with an overall 4.5 mm thickness. This is compatible with the suitcase.

To grab plates, the suitcase is equipped with this kind of tool:



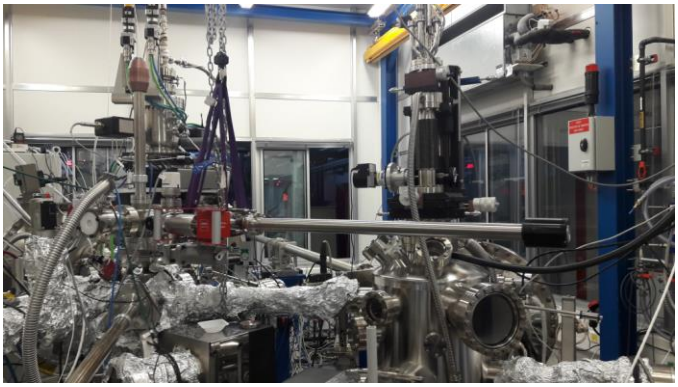
You have to align the tool slit with the plate and slowly move forward to grab the plate. Once in, you should rotate the transfer rod 90° clockwise to “lock” the plate and then be able to move it around. To unlock, simply rotate 90° counter clockwise and you should be able to release the plate by moving the rod backward slowly.

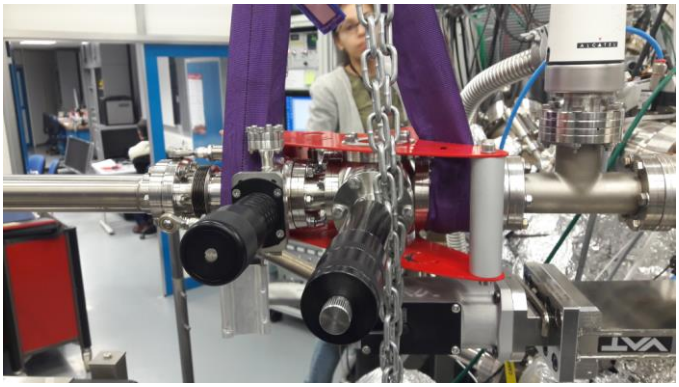
Beware: this particular tool can be rotated 360 degrees even with if it has a locked plate inside. The good point is you cannot break the plate by rotating more than 90 degrees as in usual tools. The bad point is you can easily loose the sample if you don’t pay attention to the position of the slit. The position of the tool slit is also marked on the tool itself by a flat surface.

4) How to use the storage unit

5) Annexe : guide étuvage et NEG
6) Some installations pictures

C2N Orsay





Cassiopée Beamline