

The NXQ mask aligner is a sophisticated tool that allows features to be printed down to the sub 1um regime. We have tooling to print 4,5,6,7 inch masks on substrate sizes from pieces to 6 inch wafers. Not all combinations of masks and wafer size are available.

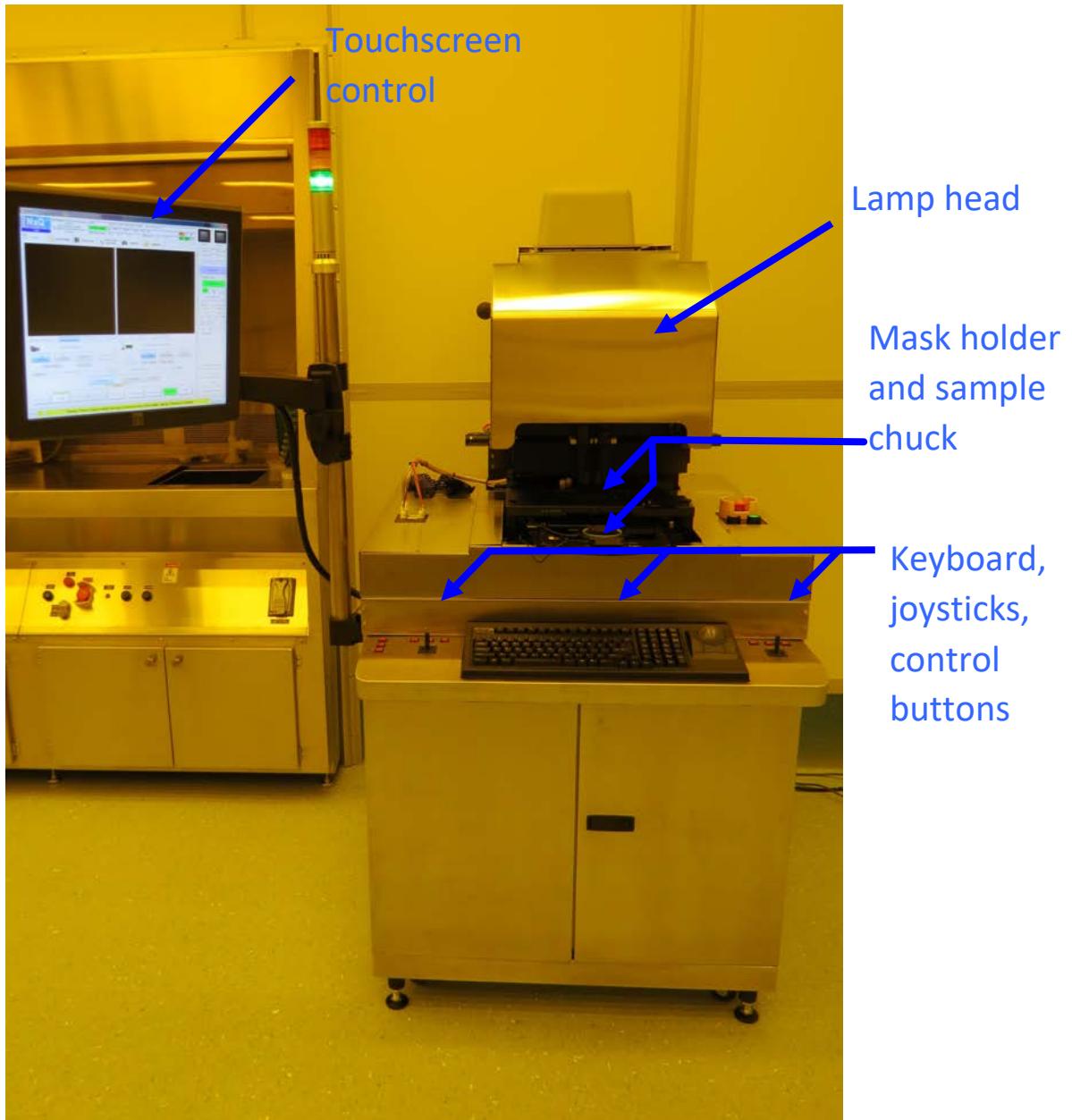
The tool can work in a variety of standard modes; vacuum, pressure and proximity contact being the most common.

The tool is for the most part software driven and stores almost all printing parameters in recipes. Users will find that recipes have been supplied to them that correspond to our standard photoresist processes. These processes have been tested and are maintained by staff and should always be the default choice for any photolithography process within the UDNF facility.

Alignment on the tool has semi-automated capability which means that the tool can help you align feature. To use this feature the tool needs a marker that it can understand.

Before you can use the tool you must have completed the tool training. After that you will be given the rights reserve and logon the tool in FOM.

Tool Features – a quick tour



Tool Use

Prior to using the tool you must log onto the FOM system.

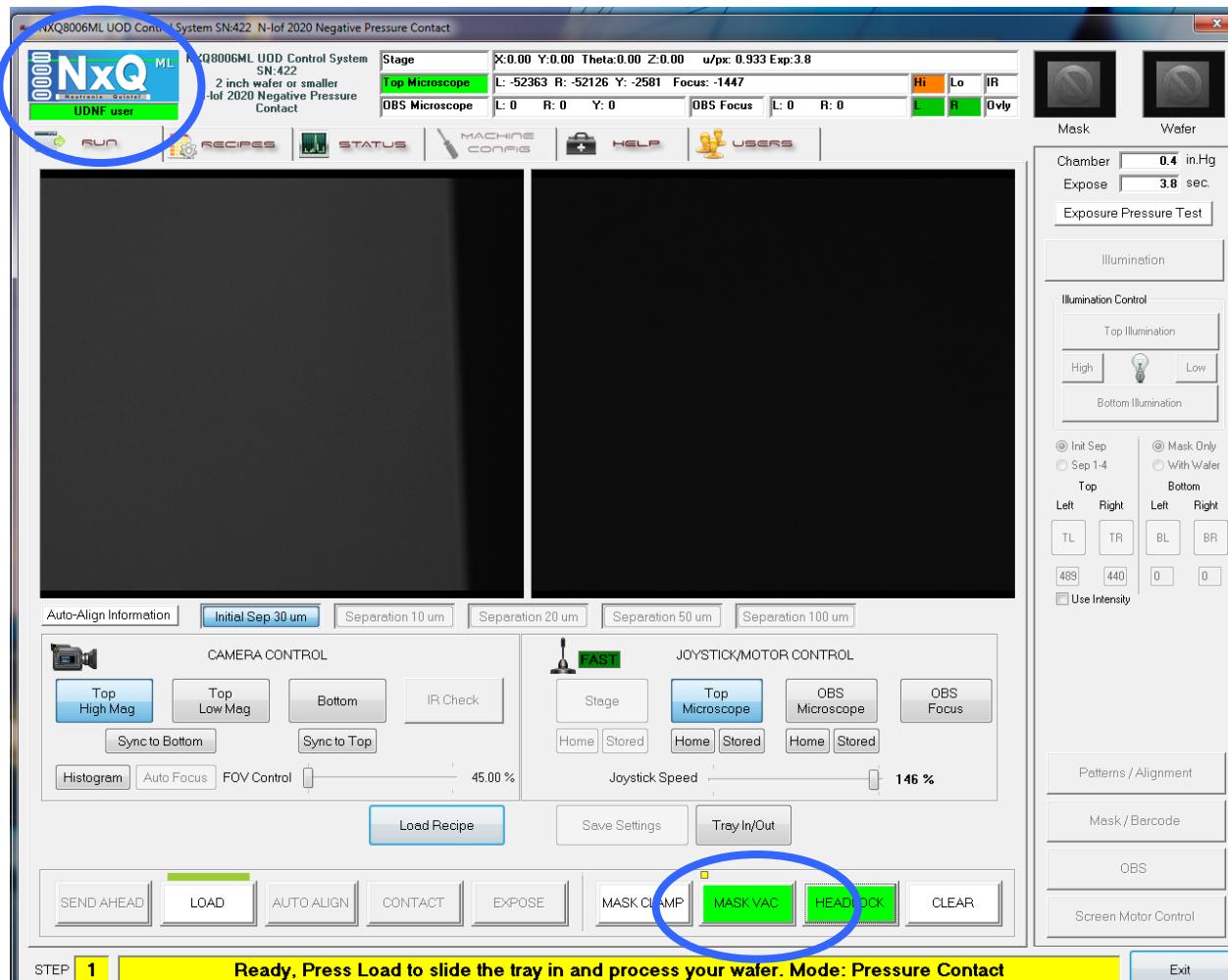
The lamp in the tool must be switched on and allowed to warm up and stabilize before it can be used.



To switch power supply on press POWER ON. NOTE this does not turn the lamp on. To start the lamp warm up procedure press and hold the START button for 1 second, then release.

Once in front of the tool you should confirm you are logged on to the software as UDNF user. This can be done as follows:

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On the touch screen locate the NXQ logo in the top left corner. Just below the logo you can see the user. If this does not say **UDNF user** select the users tab and select **UDNF user** from the dropdown. The password is **udnf**.

to run the tool the normal procedure would typically follow this sequence:

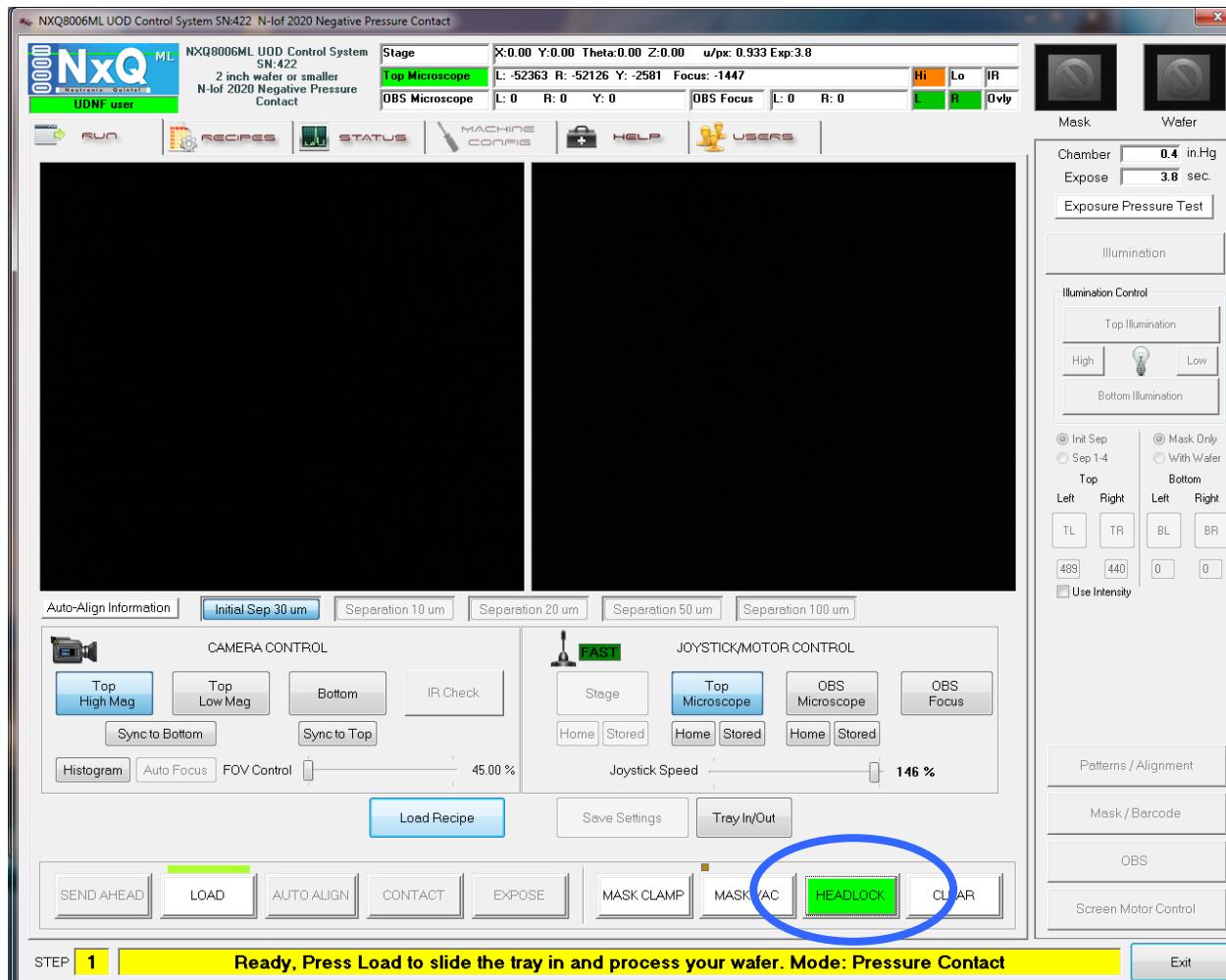
- 1) unlock the lamp head, rotate out of the way
- 2) load your mask
- 3) rotate the lamp head back into position and lock the head
- 4) load your sample on the chuck
- 5) select the recipe based on your resist and sample size

these steps are discussed in more detail below.

Loading a Mask

The mask is loaded on the large flat bed just below the lamp head. To load the mask:

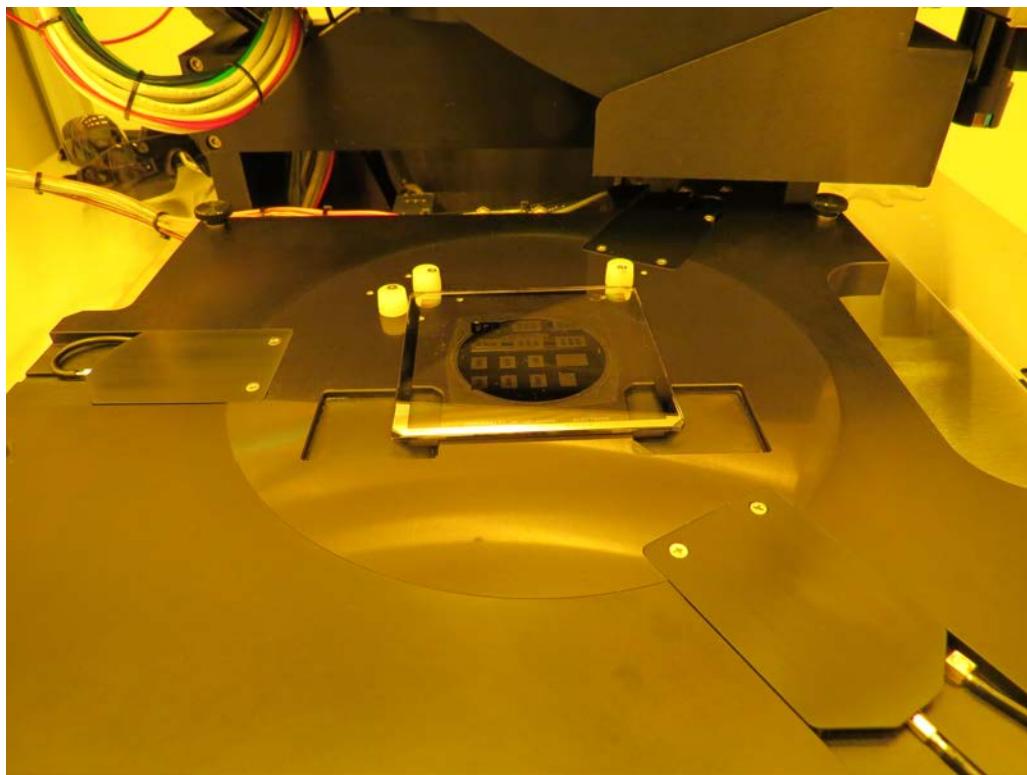
- 1) press the headlock button to unlock the lamp head. (HEADLOCK turns grey)



- 2) Once unlocked grab the lamp head by the handle and rotate to the right



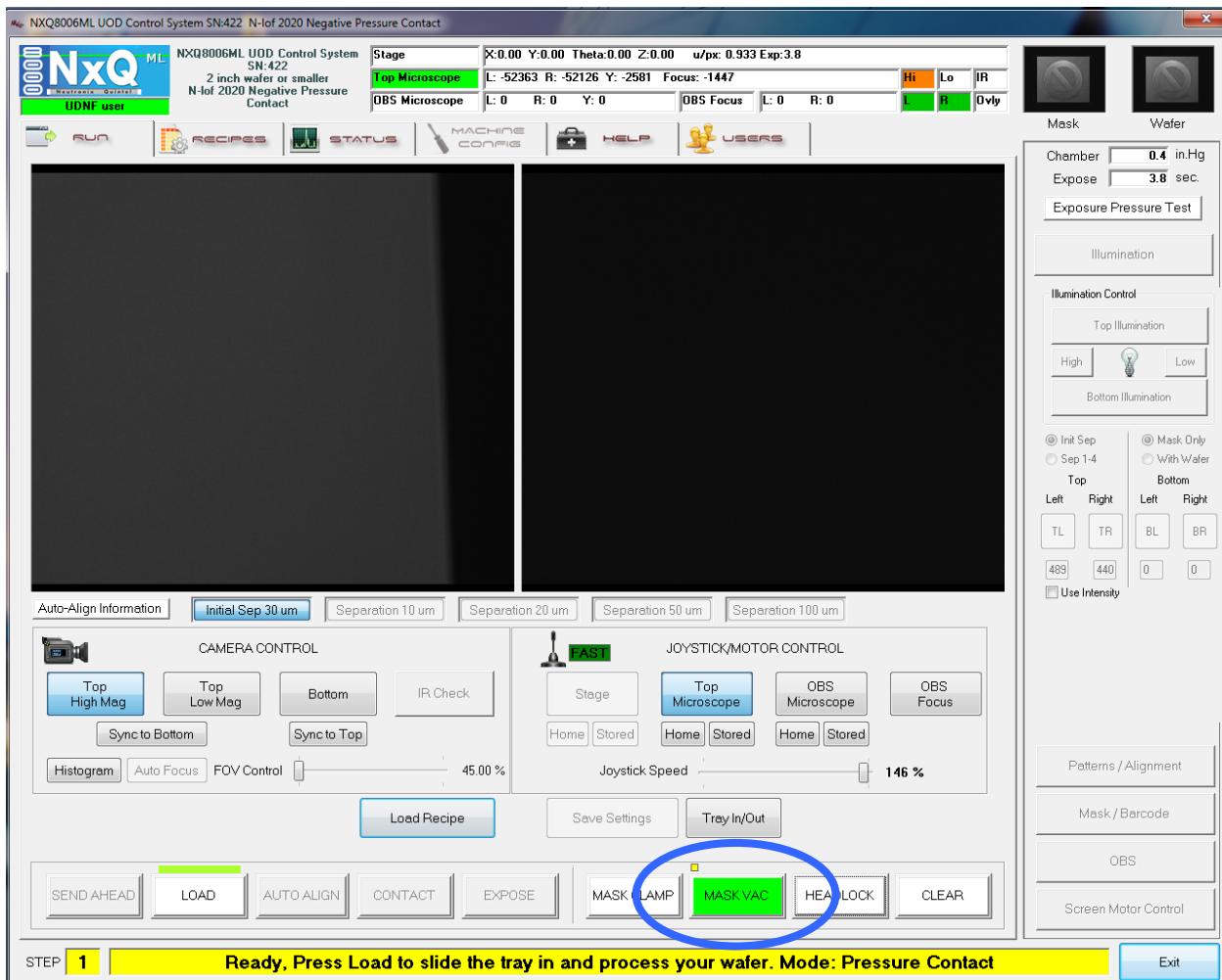
3) Place the mask on the mask holder **brown side down side**. Use the plastic pins to help align the mask to the center. If you need to offset your mask to access a particular part of the pattern the pins



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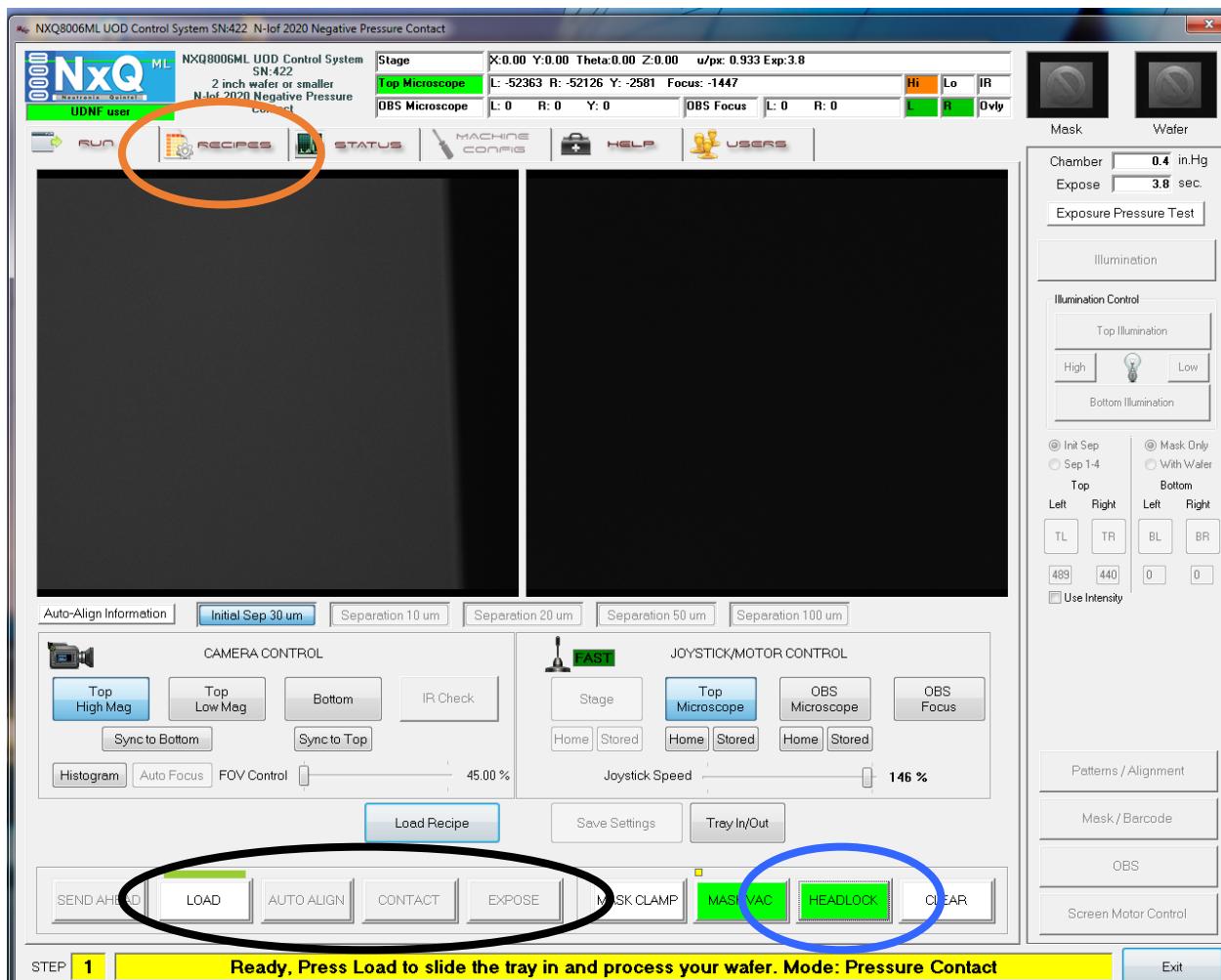
can be removed

Once you're happy with the mask position press MASK VAC. check to see if your mask is pulling a vacuum by gently trying to move it.



Move the Lamp Head back to the print position and press HEADLOCK.

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Check that both MASK VAC and HEADLOCK are green.

4) Place your substrate on the substrate chuck. The substrate must cover the entire vacuum area. The substrate vacuum is not activated while the substrate chuck is in the load position.

5) Select the recipe you require using the recipe tab (orange oval above). There are “directories” for i-line filter in and out, be sure to chose the correct one. Inside the directories there are tabs for the different tooling sets (2inch, 4inch, 6inch).

6) Once the recipe has been set it can be executed either on the touchscreen or on the tool.

1 press LOAD (black oval above). The substrate will load onto the piston and perform its leveling routine.

2- You will then see the tool indicates that it is in SEPARATION mode (not shown above). This means the substrate has leveled and pulled away from the mask by the assigned separation distance (default is 30um). This gives you the opportunity to move the substrate relative to the mask using the joysticks for alignment purposes

3 When ready you can select CONTACT. This brings the substrate and the mask into contact (or proximity if that's the mode you're using) ready for exposure.

4 EXPOSE - this will perform an exposure routine based on the settings in the recipe selected.

Once the recipe has finished the substrate chuck will retract to its lower position but it will not unload. Press LOAD to unload the sample.

Once you've finished exposing your samples turn off the lamp by pressing the POWER OFF button on the lamp power supply, then log off the FOM system.