

University of Minnesota Nano Fabrication Center

Standard Operating Procedure

Equipment Name:Laser Writer Heidelberg

Badger Name: P4 Laser Writer Heidelberg DWL200



Model: DWL200

Location: PAN Bay 4 PAN

Revision Number: 1.4

Revisionist: Mark Fisher

Date: 04/24/2019

- 1 Log into Badger Pan>Bay 4> P4 Laser Writer Heidelberg DWL200, Equipment Actions>Enable
- 2 Check the temperature on the Julabo, the temperature should be 20.0 C +/- 0.2 C.
- 3 Turn on the all Monitors.
- 4 Turn Laser ON using the Laser Control panel click **Turn Laser On** button. The Laser Control Panel can be found on the Job Operations window under the pull down menu Tools>Laser Control. After turning the laser on it will do a 10 minute warm up, then a 2 minute charm. You will not be able to run until charm is complete.
- 5 Open flow box window by moving the switch to the up position.
- 6 Install stage plate 1 on stage.
- 7 Autofocus mode set to optical autofocus. If the mode is pneumatic, this can be change by using the autofocus pull down menu on the Job Operations window. Autofocus>optical
- 8 Load your mask plate, turn vacuum on by rotating knob 90 degrees CW. Make sure that the mask is against all three pins. (Blank masks and mask holders can be purchased from MNC office for ~\$25.)
- 9 Close the flow box window by moving the switch to the down position.
- 10 In the Control Panel click **To Center button**, in the Control Panel window x and y should be the following numbers **x=107617 y=-106541**.
- 11 **Very important!!!!** Check to see that the mask is under the write head and the above numbers are correct.
- 12 In the control panel click **Focus** button. (FOC value should be between 125-140)
- 13 In the Jobs Operations window click **find plate center** button. 
- 14 Enter mask plate size and job parameters on the spreadsheet **Photomask logB.ods**
- 15 Click **OK** for the mask plate size.
- 16 Open Exposure Map.
- 17 Click Jobs tab on the Exposure map window. If the Exposure Map is not open, click this icon 
- 18 In the Exposure Map window use the pull down menu to select File>Open>Job>5mm_jobs1.dwl
- 19 Load your job (design) by left click on the job (design), then right click, use the pull down menu in the new window to select your job (design).
- 20 Check to see that there is a -1 in the Do column on the map tab. Use the left mouse button to select and the right mouse button to unselect in the Exposure Map window.
- 21 Check focus and intens in the Exposure Map window. Laser Power can be adjust in increments of 5.
- 22 In the Exposure Map window check to see that **Auto unload** and **Laser Shutdown** are checked.
- 23 Click the **Focus** button, this will refocus the write head, it should be 125-140. If the focus is below 110 or above 150 **do not run**, contact MNC staff.
- 24 In the control panel window check to see that x=0 and y=0, or close to 0.
- 25 In the Exposure Map window click **Expose** .
- 26 You will be asked a question. Do you want to perform a charm? Click **No**
- 27 After job has completed. Click **OK**
- 28 Open flow box window by moving the switch to the up position.
- 29 Unload your mask plate by turning vacuum on by rotating knob 90 degrees CCW and then pulling the vent valve out.
- 30 Close the flow box window by moving the switch to the down position.
- 31 Turn off all monitors.
- 32 Logout of badger.