VPG200
Carrier Exposure Wizard

Introduction
VPG200 graphical user interface save automatically the user workspace. Workspace can be reduced to more user friendly by using wizards which guide the user for specific simple application.

The Carrier Exposure Wizard specifications are as follow:
- Safely loads and unloads substrates from a carrier.
- Single or multiple (batch) substrate mode.
- Sharing with other user (nightjobs).
- Writehead detection according to write mode selected during the conversion.
- Assisted change of writehead (requires operator intervention).
- Reduced set of options for mask fabrication and first exposure on wafers

Required: Convert your design with the Conversion Job Manager on the Linux box (see separate guide)
Login/Startup

on “zone pc”: Login to vpg200

on the “user‐pc” (right station)
• If not started: start the application with the “Hi” button (Heidelberg Instruments) (if not running).

• If the application was already running and in logout mode proceed with “equipment login”. Default user ID / PW = Student /

• If the application was already running, but with non default user ID, then change user (login popup follows):
The application will start
• windows: “C#-Menu ..”
• “LiveWindow” in background (do not close)
• At GUI restart acknowledge laser shutter open
• If not available open the “Carrier Exposure Wizard” from the “Wizardry” tab to be guided in setup and start processing
Step 1 – Carrier station selection

**MaskStation / WaferStation** (Default in bold)

Available size Cr-Blank size are 4, 5, 6, 7 " Wafer size 100, 150mm

**Take care of detection switches!**

- Slide your Cr-blank into slot (do not take carrier outside) or Take wafer cassette outside to load wafers. Take care of flat alignment at cassette bottom
- Slot#1 at bottom is preferred. Verify that Cr-blank or wafer are sitting horizontally in one slot
- Never move a Cr-blank or wafers which do not belongs to you! Confusions may occurs with possible billing conflicts
- Close the cassette bay window.
Step 2 – Carrier Slots

Automatic detection of size, carrier slots are numbered from **bottom to top**.
A batch is processed in ascending order

Select one slot (e.g. slot#16 turns blue)

Multiple selections are allowed
(but same design will be filled in)

Select “**Next Step**” (all options) or “**Design**"
Step 3 is skipped

You can skip this step

Mapping for die by die stepper like exposure can be setup here

(no design mixing, this option needs more processing time)

Select “Next Step” (all options) or “Design"
Step 5 – Design selection

To view recently converted design
Open “General” by clicking on “+”

Click on “update” button to synchronize user-pc with conversion-pc

Properties are displayed (numberOfStripes, Size, WriteHead)

Select “Parameters” or “Next Step”
Step 6 - Parameters

**WriteMode:**
Selection is automatic with 1000 pixel stripe width. Advanced option with 700 pixel stripe width is available for 10mm and 4mm head. ! Take care to fit with the option selected during the conversion!

**FocusMode** Always pneumatic

**Focus** [in %] (Cr-blank best value loaded)

**Intensity** [in %] (Cr-blankbest value loaded)

**Automatic centering**
- **Cr-plate** -> Platecenter
- **wafers** -> Wafercenter/Wafercenter+Flat

**Contact Edge Detection** (replace Automatic centering)
To be used only for 5inch Cr-blank! Risk of scratch and detector damage for other sizes

Finish with “**Set Job for slot XX**”. Wizard returns to Step 2 “Carrier slots” to set a different job or start exposure.
Step 2 (loop return) – start job or set up next design

Make sure there is no forgotten wafer or mask sitting on the stage!

This is the last moment to load the plates into the carrier slots before proceeding. Close the door of the loading dock.

“Carrier slots” is selected again with following options

- Start processing or
- Select next carrier slot to setup (loop until all design are setup)

Check the "Logout when finished" check box to quit application (= file/change user)

“Start Processing” launch the batch for fully automatic processing. Billing stops automatically at end pf the batch
Tool is now in automatic mode processing

List of registered jobs in the batch

Handling starts automatically. Status line is shown here

System will check the write head and claim for switching the device if necessary

wait, don’t acknowledge yet!

Proceed to change write head manually according to staff instructions (next slide)
7- Progress – Change write head (only if required)

Release writehead (pull lever fully front)
Then remove current write head
1. Slide 2 cm out and
2. finish with two hands symmetrically (knobs top to stepper motor)

Insert requested write head
1. Find entry position
2. Push to end of slot with index finger (top of stepper motor to preserve correct leveling)

Clamp writehead (push lever fully back) without holding the writehead
Close exposure bay window

Exposure starts after auto-calibration. Be patient.
7- Progress - Running follow up (2)

Exposure currently running or centering and handling status will be shown here.

You can follow exposure progress (after intensity calibration) in this area.

Color code:
- Orange = exposure of die
- Blue = exposure done

- Stop after current slot finish the current job before stopping the batch
- Stop exposure aborts the exposure immediately and unload the plate
Finish

“Logout when finished” will cause auto-logout at end of job
- Without “Logout when finished” a report page is display for your records. Save it before leaving.
- **Switch user** or logon again to start a new batch
- Unload your mask from carrier
- Release equipment & logout form CMi -user access PC / Zone PC

Do not close the application
Closing the application will ask for the main shutter status to be changed. Do not close by entering “No”
GUI main window

C#-Menu is a configurable for specific user application. Default user “Student” have access to system information and basic tools for mask fabrication and first exposure on wafers (direct laser writing without overlay alignment)

During process additional information are displayed in the wizard “progress screen”

- Camera window: Light will be deactivated during exposure
- Information: Position of the stage
- Write Head and focusing information
- Alert box: Red color is used when processing is inhibited
- Status: Idle or Processing-executing