

MLA150 MASK FABRICATION

Booking Policy

Convert design interface

- Simple interface (single write head 10mm focal length)
- Inverting
- Mirroring

Manual loading 4 to 7 inch

Process \equiv Standard Mask Fabrication

- Cr-plate from Nanofilm. Do not use reticules ! (inadequate, poor CD > 1.0 μ m)
- **Laser 405nm; Dose = 45mJ/cm²; DF= 0**
- Lower write speed 20-30 min/5" Cr-mask with High Quality mode

Results

BOOKING POLICY

Mask fabrication with MLA150 is a backup procedure in case VPG200 is down.

Priority to direct writing on chips or wafer is the rule. You are authorized to book the MLA150 for mask fabrication with the following restrictions

9:00 – 16:00 Priority for chip exposure

- Exposure on chip(s) with or without alignment
- Small area exposure on wafer

7:00 – 9:00 and 16:00 to 21:30

- Exposure on Cr-plate, wafer and chips with mandatory booking

21:30 - overnight

- Last user before 22:00 book for maximum 3 slots and can leave BM+1.
- Any user with 24/7 access can unload Cr-plate after job is finished. Tool will be used with the current login (Last user before 22:00). Note job_name and design_name in the logbook for fair billing (will be done by CMiStaff)
- Leave a storage box with your name on the table

CONVERT DESIGN INTERFACE

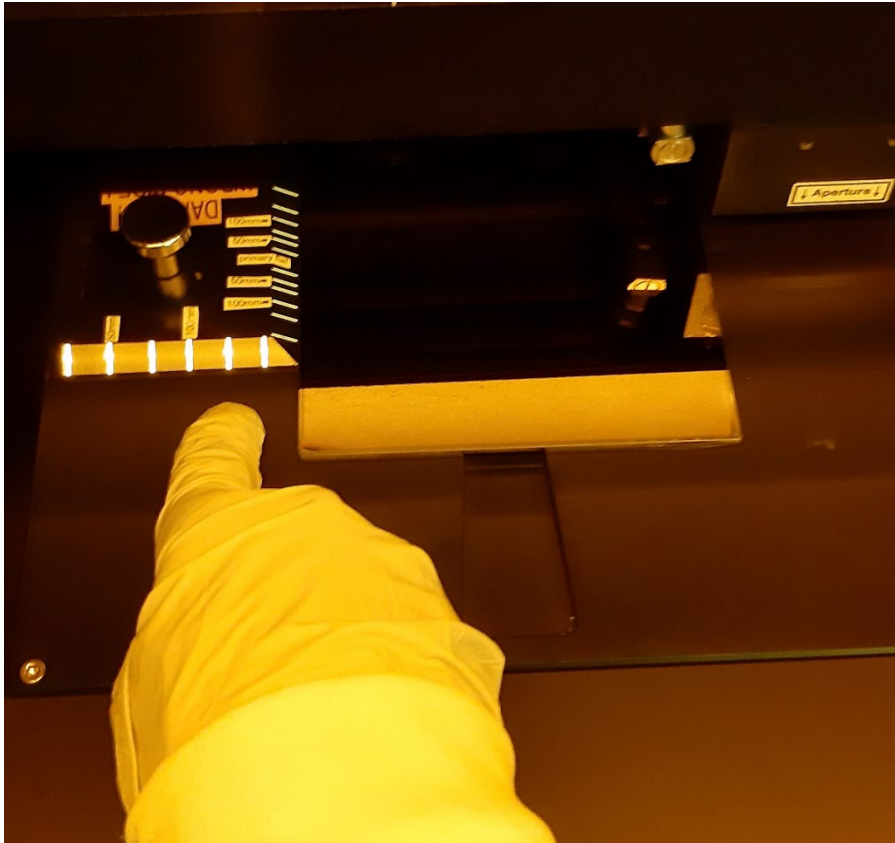
- Download from the cmiserver
(//sti1files/cmi-transfert/...) in the local folder (gdsii, cif or dxf).
- In X-convert, **y-mirroring is set with scaling x=-1** at the layer/cells selection step.
- Take care to specifications (High Quality mode)
 - Critical Dimension > 1.0 μm
 - 10 % Uniformity at CD = 1.0 μm
 - Writing time 27min / 115x115mm²
- Invert mode only:
Frame option is not available. Edit “expose window” **manually**.

The screenshot displays the X-convert software interface. The 'Expose Mode' section has 'high quality' selected. The 'Standard Options' section has 'Invert' checked, which is highlighted with a blue circle. The 'Design Management' section shows 'User:' and 'Label:' fields. The 'Expose Window' section shows 'x: 96000000 [nm]' and 'y: 106000000 [nm]' with a 'Reset' button. The 'Design Width' is 95777812 and 'Design Height' is 102184576. The 'Left Border [mm]' is -54, 'Upper Border [mm]' is 49 +/- 0, 'Right Border [mm]' is 42, and 'Lower Border [mm]' is -57 +/- 0. The 'Left Border' and 'Upper Border' values are highlighted with blue circles.

Section	Parameter	Value
Expose Mode	high quality	<input checked="" type="radio"/>
	fast	<input type="radio"/>
Standard Options	XOR Mode	<input type="checkbox"/>
	Invert	<input checked="" type="checkbox"/>
Design Management	User:	
	Label:	
Expose Window	x:	96000000 [nm]
	y:	106000000 [nm]
Design Dimensions	Design Width:	95777812 [nm]
	Design Height:	102184576 [nm]
Borders [mm]	Left Border	-54 +/- 0
	Upper Border	49 +/- 0
	Right Border	42 +/- 0
	Lower Border	-57 +/- 0

MANUAL LOADING 4, 5 OR 7 INCH

Use the alignment tool ! (5inch plate use 125mm notch)



Load Substrate

Find Plate Center:

Finding the center of the Substrate...

Edge 1: Searching ... found!
Edge 2: Searching ... found!
Edge 3: Searching ... found!
Edge 4: Searching ... found!
Edge 5: Searching ... found!
Edge 6: Searching ... found!
Edge 7: Searching ... found!
Edge 8: Searching ... found!
Edge 9: Searching ... found!
Edge 10: Searching ...

Possible High Edge Found! Moving WriteHead up and restarting.

Edge 1: Searching ... found!

Use a plastic ruler to align and center a 7inch plate. Do not forgot to remove the ruler before closing the window. Leveling may be restarting auto for a second cycle

RESULTS

Nanofilm Cr-plate calibration:

Laser 405nm; Dose = 45mJ/cm²; DF= 0

Write speed 20min/5" Cr-mask with High Quality mode (1.7 times slower as VPG)

Laser writer	Speed (mm ² /min)	Expo time Test 12x122mm (s)	5 inch 115x115mm (min)	7 inch 165x165 (min)
MLA150	500	150	27	55
VPG 10mm WH	865	102	15.5	32

RESULTS

The reference for CD use following test structure. The test is valid when, after development, horizontal and vertical lines are resolved simultaneously

