

Leica EBPG 5000+ Electron Beam Lithography System

User Policy

Revised by Ivan Divliansky, April 5th, 2006

Manager and System Engineer: *Dr. Ivan Divliansky*
Day: 3-6827 (office)

Safety

No specific hazards. No buddy system restriction.

In case of emergency

If the system alarm is ON press the blinking red button ONE time to silence the alarm (the button is located on the System Diagram screen). Immediately call the **System manager** or the **Leica system engineer** if the former is not available. Do not use the machine until the problem is resolved.

General requirements

All the jobs have to be submitted through the system manager or the person substituting using the Electron-Beam-System (EBS) Request Form.
Exception is done for authorized users trained by Leica or the system manager.

Specific requirements

If authorized to load and unload samples:

Be very careful not to put a holder backwards. This can cause a severe problem which can be resolved only by Leica and will lead to a shut down time of at least 2 weeks. Make TWO safety checks that all the holders are loaded right:

- 1) Check that right after putting the holder(s) in the cassette you don't see THE LOCKING SCREWS
- 2) After rotating the cassette check that you DON'T SEE ANY COPPER HOLDERS ON THE LEFT SIDE OF THE CASSETTE

Job Submission Requirements

1. EBS Request Forms **must** be submitted in order for a job to be considered.
2. A GDSII or a GPF file(s) of the pattern(s) to be written must accompany all job submissions. This file(s) is to be received via email, on a CD, or via the “ebeam” folder on the server.
3. A written description of the GDSII pattern file must accompany the file. This description should include:
 - a. overall pattern size
 - b. critical dimensions
 - c. designed and desired dimensions (accounting for proximity effect)
 - d. desired field size
 - e. desired resolution (the numerical limit of the system is 1.25nm)
 - f. appropriate marks for layer alignment, if required: 10 to 20 micron squares, without other pattern features within approximately 20 microns
4. All jobs will be inspected and approval notification will be received via email within 2 business days of a complete submission. (incomplete submissions will not be accepted)
5. Upon approval, a tentative write time will be scheduled.
6. Upon denial, modifications to the GDSII pattern file or substrate will be recommended.
7. Completion notification will also be delivered via email.

Substrate Requirements

1. Holders are available for 3” and 4” wafers, 5” masks and piece parts.
2. Electron resist-coated substrates must be ready at least one hour before the scheduled write time. All pre-processing of the wafer will be done **before** the scheduled write time.
3. Substrate thickness must be less than 650 micrometers for wafers and 0.09” for masks.
4. Non-standard electron resists may be refused.
5. Piece parts must be larger than 1cm square. Further restrictions may be required.
6. Three additional pieces of the same substrate must accompany all piece parts.
7. Piece parts may only be mounted using dried silver paint; adhesives must *not* outgas and must be conductive. Therefore, vacuum grease, carbon tape, and resist **are not allowed**.
8. A separate substrate or a portion of the main substrate may be required for dose determination. Prepare two substrates upon request.
9. All post-processing of the wafer will be done by the user or via another job order.

Prohibitions

Do not vent the system when a job is running.

Do not leave the airlock vented.

Do not delete other users’ files.

Do not load samples with unbaked resist or anything that may de-gas.