

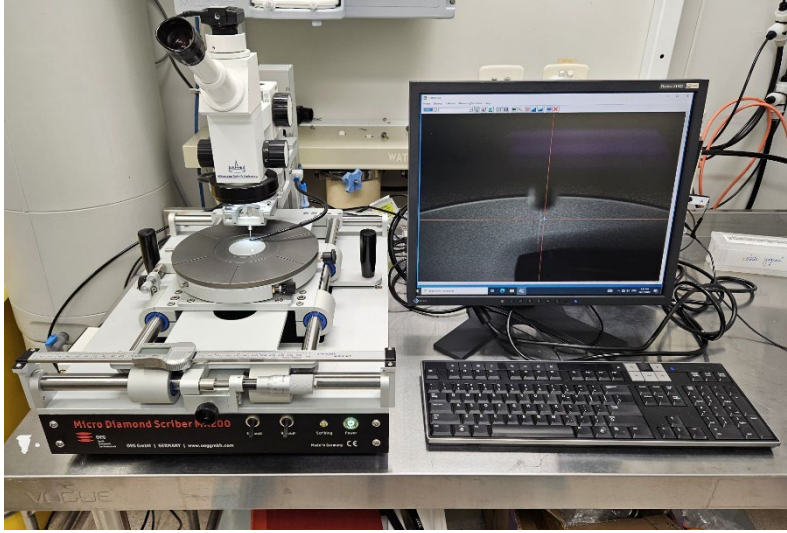
Title <i>(Of equipment, plant, experiment, activity, etc.)</i>	Operating Procedure of the Micro Diamond Scriber (OEG MR200)		Date	02.07.2024
			Version	1.0
Activity Details <i>(of equipment, plant, experiment, activity, etc.)</i>	Description	Step wise procedure to scribe specimens using the micro diamond scriber and cleave specimens		
	Location	#56_L4_H4.30		
	After-Hours Work	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	
Photo/s <i>(of equipment, plant, experiment, activity, etc. used as part of this procedure)</i>				
Operational requirements	Equipment / Process / Plant / etc.		Instruction Manual (IM)	
	Cleanroom Laboratory Dress Code		Lab coat, hair net, shoe cover, gloves, safety goggles	
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Describe, in detail and in sequence, the steps involved in this activity

PRE-OPERATIONAL CHECK

Materials allowed:

- III-V wafers, Si, SiC, sapphire, glass with thicknesses less than 1 mm
- Check with the ANFF staff before working with materials not listed above

OPERATION – LIST STEPS TO COMPLETE THE ACTIVITY FROM START TO FINISH

Startup

1. Turn on the vacuum pump using the corresponding switch on the power board (Fig. 1).
2. Switch on LED by pressing 'Power on/off button' of the controller (Fig. 2).
3. Wake up the PC (password - user) and open the software 'Comef44'.
4. Turn on the scriber system by pressing the 'Power' button shown in Fig. 3.

Note: Do Not step on the footswitch before adjusting the level of the diamond tip (Fig. 4).



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Sample loading and alignment

1. Move the chuck to the position closest to the user (Fig. 5). Unscrew X/Y-axis fixing knob (labelled as 1 and 5 in Fig. 5) if necessary.
2. Use an Allen key on the backside of the chuck to activate/deactivate different zones if necessary depending on sample sizes.
3. Place samples in the centre of the chuck above the vacuum recess.
4. Roughly adjust sample's orientation by rotating the chuck or sample itself and immobilise it by switching on the 'Vacuum' button (see Fig. 3).
5. Move the chuck to the place under the LED light and precisely adjust the angle and position of the sample using micrometre screws (see 2, 4, 10 in Fig. 5) with the help of 'Comef44' software.

Tips:

- a. The knobs 8 and 9 in Fig. 5 are used to adjust magnification and focus, respectively.
- b. When the 'Vacuum' button is activated, the chuck can be rotated by 90° after pulling the big spring knob labelled as 6 in Fig. 5.
- c. The contrast can be adjusted by increasing/decreasing LED illumination intensity (Fig. 2).

OPERATION – LIST STEPS TO COMPLETE THE ACTIVITY FROM START TO FINISH

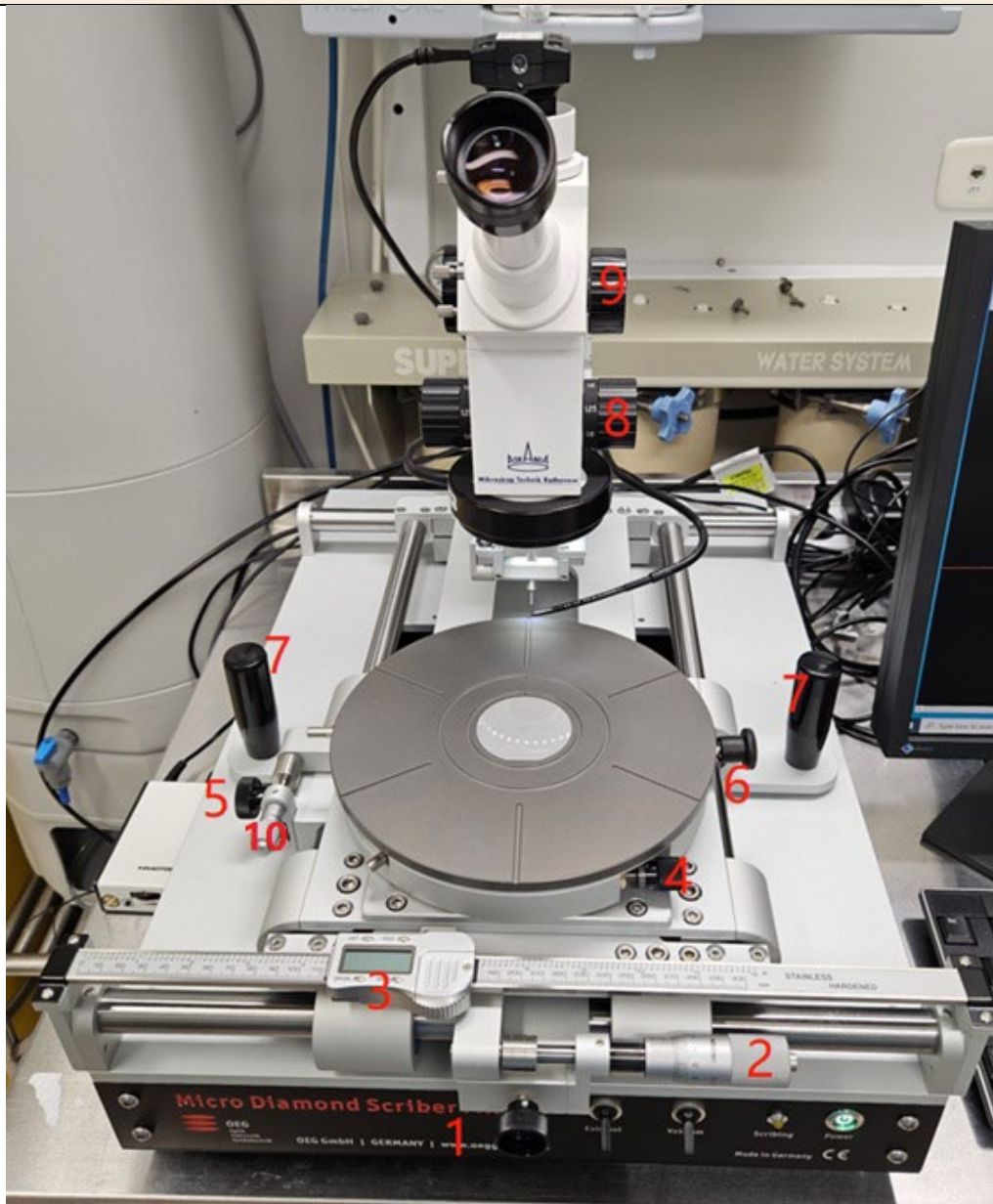


Fig. 5

Scribe and cleave samples

1. Move the chuck to the position closest to the user, and then activate the footswitch (Fig. 4) which lowers the diamond tip, making sure that the tip is above the chuck (Fig. 6). If not, adjust the micrometre screws 1 and/or 2 in Fig. 6 to raise up the tip.
2. Move the chuck to the centre and make sure that the sample is not directly below the tip.
3. Activate the footswitch and adjust the tip height using screws 1 and/or 2 in Fig. 6 if necessary, making sure that the tip is between the chunk and top surface of the sample.
4. Switch on 'Exhaust' button (Fig. 3), activate the footswitch and scribe the sample after the 'Scribing' indicator (Fig. 3) is on. Note that always scribe the sample by pulling the stage towards the user by simultaneously holding the two handles labelled as 7 in Fig. 5. Also, adjust tip height and scribe multiple times if necessary.
5. Turn off 'Exhaust' and 'Vacuum' and then remove the sample.

OPERATION – LIST STEPS TO COMPLETE THE ACTIVITY FROM START TO FINISH

6. Cleave the sample along the scribing line using the provided pliers or an alternative method that aligns with your best practice, ensuring adherence to all safety guidelines, especially wearing safety goggles and gloves.



Fig. 6

Finish up

1. Power off the scriber.
2. Close the software.
3. Switch off LED by pressing the 'Power on/off' button of the controller for a few seconds.
4. Turn off the pump using the switch on the power board.

TRANSPORT METHOD for hazardous substances, biological, animal, or radioactive materials or plant equipment

NA

WASTE DISPOSAL

1. Dispose of the unwanted sharp materials (wafers, glasses, etc.) into the sharps waste yellow bin.
2. Dispose of any waste (non-sharps) in the waste bins available in the lab or gowning area.

COMPLETION OF WORK – List steps to make area safe (include clean up, any waste disposal & service/maintenance requirements)

Clean up after use

1. Dispose of waste according to the instruction listed in the section of WASTE DISPOSAL.
2. Keep the lab tidy.

Workers must read and completely understand the relevant equipment risk assessment and this instruction manual before they are allowed to work on the activity without direct supervision.