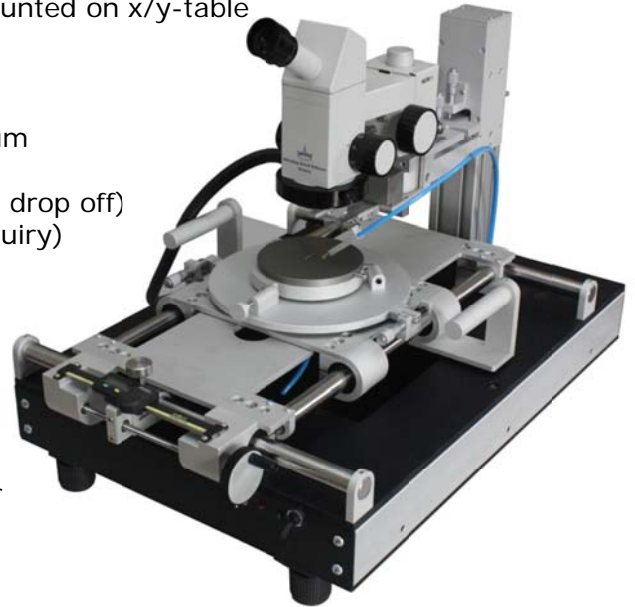


MR 200

Precision diamond scriber for silicon wafers and other materials

Features of standard equipment

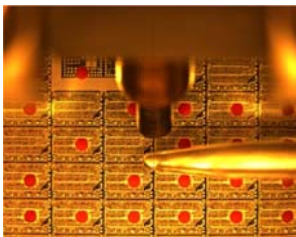
- stroke of x/y-table for rough-positioning (200 x 200) mm, manual movement
- stroke of x/y-table for fine positioning by micrometer screw: x=25mm*, y=10mm*
- 100 mm Vacuum-Waferchuck with teflon coating, mounted on x/y-table
- optional 200mm vacuum chuck
- angle fine adjustment for wafer chuck by micrometer screw (10µm resolution = 0,006°)
- defined 90° rotation of wafer chuck with active vacuum
- minimum size of specimen (10 x 10) mm
- operation of scribing diamond by foot switch (lift up / drop off)
- adjustable scribing power (35g....120g, others on inquiry)
- width of scribing groove 5mm...10µm (depending on power and material)
- electromagnetic scribing power generation
- adjustable work angle of scribing diamond
- adjustable lowering speed of scribing diamond
- adjustable height of scribing diamond (for different specimen thicknesses)
- wafer thickness: all standard thicknesses for Si-wafer
- Materials: all mono crystalline materials
- appr.size 400 x 800 x 600 mm (W x D x H)
- appr. weight 20kg



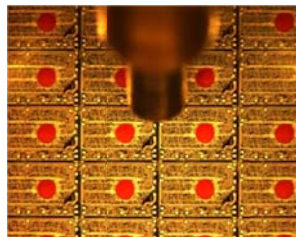
*y=scribing direction, x=perpendicular to scribing direction

Optics

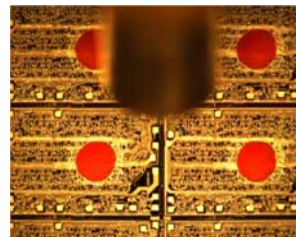
- high quality step less zoom microscope with eye piece crosshair
- microscope magnification 8x ... 40x
- resolution of optics better 10µm at magnification 40x



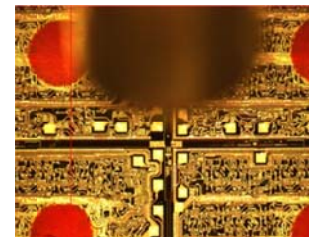
8x



16x



32x



40x

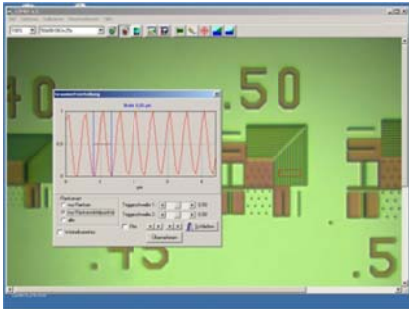
Optional additional features

1. Video attachment

- TV-adapter
- USB camera
- all in one PC with
- basic image processing software with
- live video presentation
- hair cross and grid insertion on monitor
- measuring functions: distance angle, radius, area



2. Image processing software



An extended video system is available with high accurate line width measuring functions by subpixeling. The accuracy of this function is <10 micron for magnification 40x. For this option the video attachment is necessary.

3. Digital gauge 100mm for x-direction

The 25mm micrometer screw can be replaced by a 100mm digital gauge with 10 micron readout. This option allows accurate scribing of parallel lines or grids (in connection with the exact 90° rotation). In this case, the rough-/fine-positioning is still available. The fine positioning is extended to 100mm by an accurate spindle and the table position is exactly measured by the digital gauge. The rough position is not measured.



4. Digital gauge 200mm for x-direction

This option allows the digital measurement of the movement in x-direction for the rough and the fine positioning. The fine positioning is extended to 200mm by an accurate spindle and the table position is exactly measured by the digital gauge. The construction is a little different from the standard. So the width of the equipment extends to 500mm. The readout is 10 micron. Rough- and fine-positioning are still available. The 10 micron readout is applicable for the full stroke of 200mm.

5. Pneumatic power generation

The system for the generation of the scribing power can be changed from electromagnetic to a pneumatic version. This allows higher scribing force than the electromagnetic system, which is special designed to low scribing forces. This option is subject to discussion about the customer needs.

6. MR 200 basic system

Cold light source and ring light (66mm inside diameter) are necessary for the function and belong to the standard scope of supply. On customer request OEG supplies a basic system without microscope and light source. It can be used any at customer site available microscope (working distance around 70mm) and light source with ring light. In this case the end user is responsible for the correct adaption of these parts.

OEG can provide also the adaptors for a camera, the customer can provide any available camera with with PC or monitor.

Scribing process

After positioning the substrate on the chuck, the microscope is focused on the wafer surface. By manual driving of the table into x- and y-direction, the scribing line can be adjusted to reference marks or structures on the specimen. The hair cross of the eye piece defines the set off point of the scribing diamond.

During the scribing procedure takes place, the scribing diamond is controlled by means of a foot switch (lift up / drop off), so that the scribing movement with both hands can be performed.