Karl Suss HR100 Manual Scriber Operating Instructions

The Karl Suss scriber is used for precise cleaving of semiconductor substrates.

The scriber can handle scribing a wafer up to 4" in diameter. The units on the scriber are set to microns. Do not ask us to change the units; we won't do it. The scriber can measure in 1-micron increments.

There are a few basic rules to remember when using the scriber:

- Do not try to scribe a sample while it is in a gel-pak. Use either wafer-bond or the blue mylar film.
- Clean up your work area after use. Do not expect us to throw away your trash for you.
- If you aren't sure how to use the system, find someone who knows how. We would rather answer many questions than try to repair the system.
- Be careful not to impact the diamond tip. Should the diamond tip need to be replaced, please contact Edward, Huaping XU.

I. Mount samples on blue sticky film or wafer-bond.
   1) If your sample is large enough to cover the vacuum holes on the chuck, you don't have to use the blue mylar film.
   2) Press lightly on back to make sure sample adheres to film.
   3) Make sure that the film is cut so it will cover the vacuum holes on chuck.
   4) Do not use a gel-pak.

II. Turn on scribing unit.
   1) Turn on microscope light (light bulb incandescent at AC 10V).
   2) Turn on vacuum pump.

III. Load wafer and Dicing
   1) Place the wafer to be scribed on the stage and flip the vacuum switch on the scriber towards you. If a less than 3 inch diameter wafer is being used, cover the exposed holes in the stage with plastic tape.
   2) Viewing the wafer through the microscope and using the theta, x and y adjustment knobs, align the wafer to the vertical line seen in the lens of the microscope.
   3) While viewing the wafer under the microscope, use the x and y axis micrometer to move the wafer until the vertical line is over the desired scribe location.
   4) Before scribing, place the stainless steel rod, with its associated weights, vertically through the support hole allowing it to rest on the scriber arm. This will allow sufficient force to be exerted during scribing to ensure a proper scribe.
   5) A test scribe before should be done to ensure the vertical line in the microscope eyepiece corresponds with the actual scribe. (If these lines do not correspond, please find the procedure as in reference.)

6) In order to scribe push the stage arm away from you until the scribing tool is lowered. This occurs when the scribing tool is at the near edge of the stage.
7) To actually scribe, pull the stage lever towards you. The scribe is complete and the tool will lift when the tool reaches the far edge of the stage. It has been found from experience that three passes are required to ensure clean breaks when breaking the wafer into dies. Therefore, for each scribe location steps 6) and 7) should be done three times.
8) Repeat steps 6) and 7) until all scribing in one direction is complete.
9) The stage can be rotated 90 degrees clockwise using the black lever facing the operator. This eliminates the need to repeat angle aligning of the wafer when scribing perpendicular to just completed scribes.
10) When finished scribing, ensure the scribing tool is in the up position (arm closest to the operator. Switch off the vacuum to the stage. Turn off the microscope light. Remove your wafer.

Reference:
Make a scribe on the waste portion of your wafer. Look through the microscope and by moving the knob to the right of the eyepiece align the top-bottom line that you see with the actual scribe. Now, the top-bottom line will accurately indicate where the scribe will occur next time.

Last updated
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