

# DISCO DAD3221 Dicing saw User Manual

Version of 2025-12-08.

## 1. Introduction

This manual explains how to operate the DISCO DAD3221 equipment to dice a sample.

The DISCO DAD3221 system capabilities are:

- Substrate size up to 150mm diameter
- Non-contact setup
- Blade breakage detector
- Circle cut for edge trimming or downsizing
- CO2 injector to prevent particle adhesion and electrostatic discharge damage
- Pattern recognition system
- Automatic micro-alignment

## 2. Sample protection

## 3. Login on CAE

Login with your “CMi” username and password on the Zone 22 CAE accounting computer.

Select the “Disco DAD3221 – Automatic Dicing Saw”.



## 4. Tool start-up

- Switch the main power switch by turning the key to “Start”.
- Press on “System Initial”:



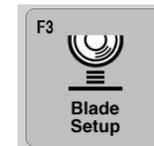
- If the needed blade is already installed, skip to step 6

## 5. Changing the blade

- Press on “Blade Maintenance”:



- Press on “Blade setup”:



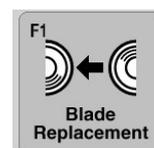
- Before removing the blade, the diameter of the blade needs to be measured. This allows to load the measurement when the blade is used again. To do that, press on “Start”:



- After the measurement is done, press on “Exit”:



- Press on “Blade replacement”:



- Press on “Data Save” to save the measured diameter of the blade:



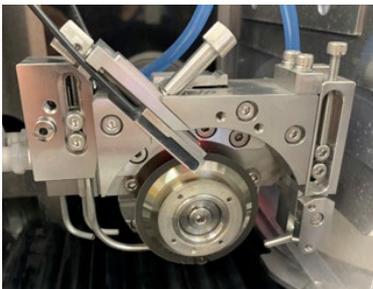
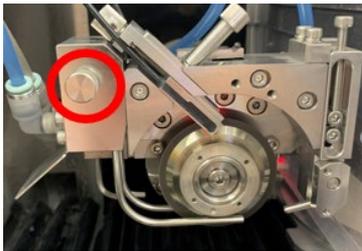
- Fill the “Used blade ID” field with the date (DDMM, e.g. 0207)
- Open the splash cover by sliding it to the right:



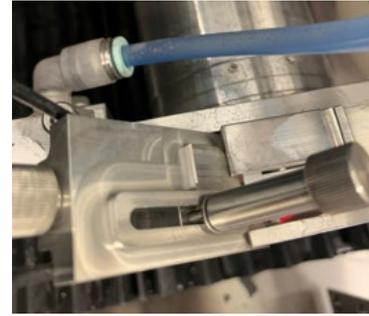
- Press on “Used blade list”:



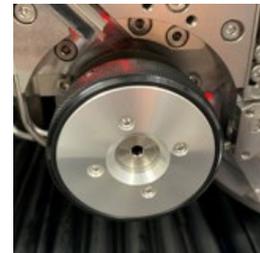
- Select the blade to be installed and press “ENTER” 2 times.
- Remove the water outlet by unscrewing the screw circled below:



- Slightly slide the blade breakage detector by pressing on the lever. Do not slide it entirely out, but just enough to make clearance for removing the blade :



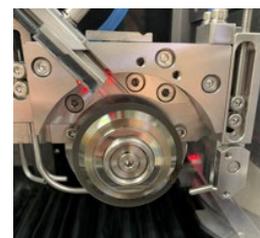
- Use the dedicated tool to remove the first part of the blade holder. Press on the center of the tool to open the clamps, align the 4 pins with the 4 holes and release to close the clamps:



- Rotate the tool anti-clockwise until it blocks, then insert the jig (=tool with red handle) in the central hole. Make sure the jig is fully inserted. Rotate the jig anti-clockwise.



- Remove the jig. Finish unscrewing the tool by hand and take it out:



- Use the black plastic tool to remove the next part of the blade holder. To insert the tool, slightly press on the outer part to open the clamps:



- Remove the blade (do not bend the blade !) and place it in the corresponding box:



- Place the blade that is needed:



- Place back the metal part with the black plastic tool. Do not force it ! Toelrances are very tight and alignment is very important:



- Place back the next section of the blade holder with the tool. Screw by hand until it blocks. Insert the jig fully and rotate clockwise **until a “click” is heard**. Remove the jig.





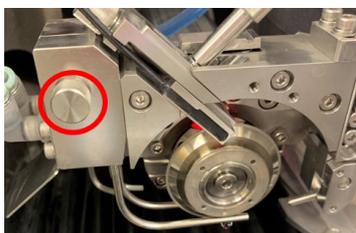
- Remove the tool used to insert the last holder section by pressing on it to open the clamps:



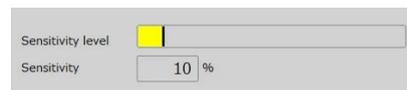
- Slide in the blade breakage detector:



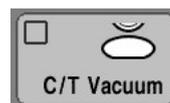
- Place the water outlet back by screwing the circled screw:



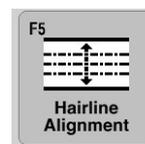
- Press "Enter" to confirm that the blade exchange is done. Press "Next" to reach the next step. Press "Next" again to confirm the jig has been removed.
- Adjust the position of the blade breakage detector by rotating the circled knob until the sensitivity level is at 10%. Make sure not to crash the blade breakage detector on the blade !



- Close the splash cover and press "Next". The system will initialize again and the "Non-contact setup" page will display.
- Press "Start" to measure the blade diameter.
- Press "Exit".
- Place the test wafer on the chuck and press "C/T Vacuum" to enable the chuck table vacuum:



- Press on "Hairline alignment". This step allows to compensate the alignment offset between the previous blade and the new blade:



- Keep the "Focus" button pressed for a few seconds to autofocus on the wafer:



- If needed, adjust lighting intensity (direct and oblique lighting are available):



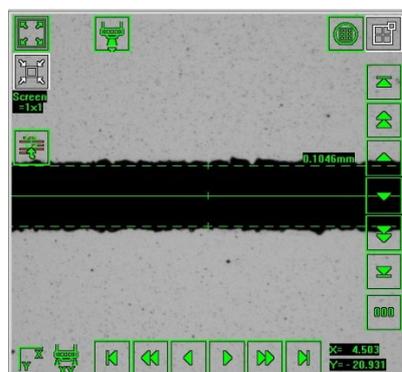
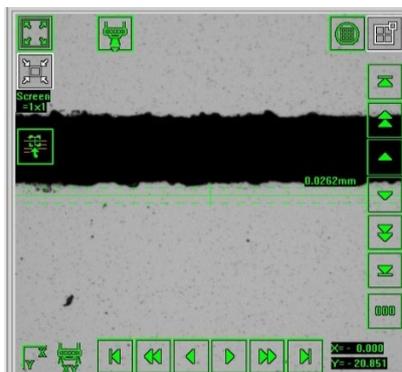
- Move to an area without cuts. This can be done by clicking on the wafer surface image or by using the arrows. Hi-speed mode is available:



- Check the parameters according to the blade and the material (Shown here for silicon):

Work shape	ROUND	▼
Work size	100.000	mm
Spindle rev.	30000	/min
Work thickness	0.525	mm
Tape thickness	0.140	mm
Blade height	0.110	mm
Feed speed	10.000	mm/s
Z down speed	0.000	mm/s

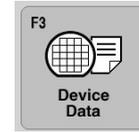
- Press on “Start”.
- Center the hairline, using the “Narrow Hair” and “Widen hair” buttons if needed to adjust the distance between the 2 external hairlines:



- Press “Enter”. If the correction is >0.05 mm, confirm with “Enter”.
- Press on “C/T Vacuum” and remove test wafer.
- Press “Exit” to reach the main menu.

## 6. Dicing the sample

- Place the wafer/sample to be diced on the chuck and press on “C/T Vacuum”.
- Press on “Device data” and select the recipe to be used:



- Press on “Manual operation”. Press on “Alignment”:



- When alignment is done, press on “Cutting-Auto” and press “Start” to dice the sample:

