Fully Automatic Die Separator DDS2310

Die separator for small-die wafers

Achieves stable separation for small die after stealth dicing

DDS2310 achieves high-quality die separation for wafers with a modified layer formed through stealth dicing. This equipment is effective for small die after stealth dicing.

Maintains a sufficient and constant kerf width

By installing FIR* heaters and a heater expansion table developed for small-die separation, a sufficient kerf width for small die can be maintained.

*FIR (Far Infrared)

Improves productivity through the installation of four FIR heaters as a standard feature

The installation of four FIR heaters improves the tape shrink performance and UPH for separation of small die.

Cool expansion increases DAF separation quality

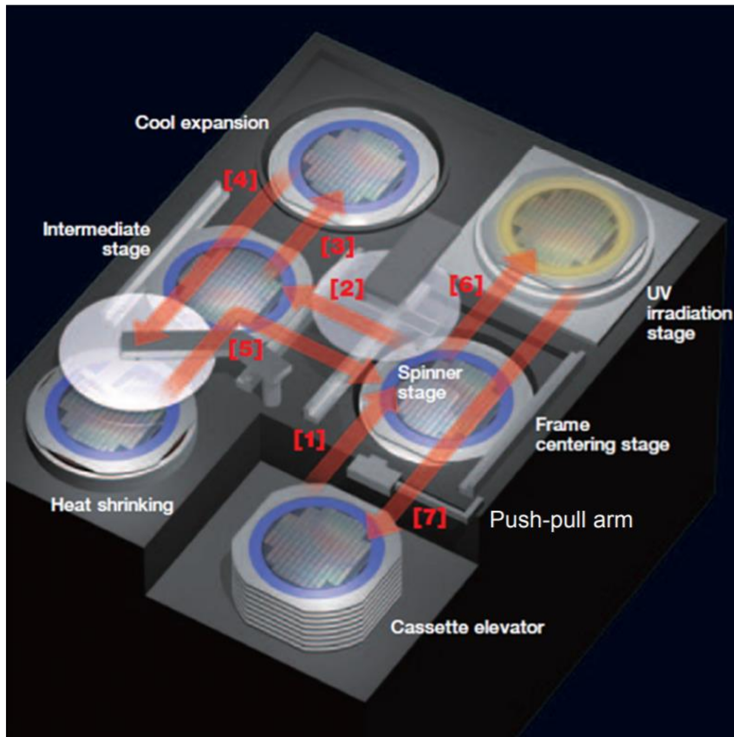
The cool expansion method is used to achieve stable DAF separation. This method can be used for small-die, as well as DAF separation applications.

Tape frame transfer moves the workpiece smoothly to the next process

Sagging that occurs around the periphery of the dicing tape after expansion can be eliminated through heat shrinking. This enables the workpiece to be transferred to the subsequent die bonding process while it is still mounted on tape and frame and eliminates the need to replace the tape.

Application examples

- Die separation after stealth dicing
- DAF separation after DBG/SDBG
- DAF separation after blade dicing



Operation flow

[1] The push-pull arm retrieves the workpiece from the cassette and transfers it to the frame centering stage. →
[2] The workpiece is aligned on the frame centering stage, then transferred to the intermediate stage. →
[3] The workpiece is transferred to the cooler expansion stage, and **cool expansion** is performed. →
[4] The workpiece is transferred to the heater expansion stage, and **re-expansion and heat shrinking** are performed. →
[5] The workpiece is transferred to the spinner stage, where it is cleaned and dried. →
[6] The workpiece is transferred to the UV irradiation stage and UV irradiation is performed. →
[7] The push-pull arm returns the workpiece to the cassette.

Specifications

Specification		Unit		
Workpiece size		mm	ø300	
Cooler expansion stage	Temperature setting range	°C	0	-5
			Fixed	Setting when shipped from the plant
	Max. push-up amount	mm	30	
	Push-up amount setting	mm	0 – 30 (step: 0.001)	
	Max. push-up speed	mm/s	400	
	Push-up speed setting	mm/s	0.001 – 400 (step: 0.001)	
Heat shrink stage	Hot air temperature	°C	200 or 220 or 250	
	Max. push-up amount	mm	20	
	Push-up amount setting	mm	0 – 20 (step: 0.001)	
	Max. push-up speed	mm/s	50	
	Push-up speed setting	mm/s	0.001 – 50 (step: 0.001)	
Machine dimensions (W x D x H)		mm	1,200 x 1,550 x 1,800	
Machine weight		kg	Approx. 900	

■Environmental conditions

- Use clean, oil-free air at a dew point of -15°C or less. (Residual oil: 0.1 ppm. Filtration rating: 0.01 μm / 99.5 % or more).
- Keep room temperature within 1°C of the specified value. (Specified value should be between 20 – 25°C.)
- Keep cleaning water 4°C above room temperature.
- Machines should be used in an environment free from external vibration. Do not install machines near a ventilation opening, heat generating equipment, or oil mist generating parts.
- This machine uses water. Due to the risk of water leakage, please install the machine on a floor with sufficient waterproofing and drainage measures.

*All the pressures are described using gauge pressure.
*The above specifications may change due to technical modifications. Please confirm when placing your order.
*For further information please contact your local sales representatives.