



Fully Automatic Die Separator DDS2300

A new solution for high precision DAF separation

Improves the cut quality of thin wafers with DAF

In separation process for thin wafers with DAF (Die Attach Film), there are issues such as DAF burring forming on the cut surface when full-cut dicing is performed and pickup errors during die bonding. Using the DDS2300 in the dicing process improves DAF cut quality and provides solutions for these issues.

A new proposal for DAF cutting after the DBG process

When using DAF together with the DBG (Dicing Before Grinding) process, which is suited for thin die manufacturing, it is necessary to attach a DAF to the backside of the separated dies and dice the DAF only. Previously, this was performed by laser full cutting, but the method sometimes required the use of consumables such as surface protective films. By using the DDS2300, it is possible to reduce the amount of DAF cut by laser, which reduces cutting debris and contributes to reduced consumable costs.

Realizes stable die separation after stealth dicing

The DDS2300 produces stable die separation of wafers which contain a modified layer formed through stealth dicing. This process is particularly effective after stealth dicing has been applied to thin wafers with DAF.



Cool expansion increases DAF separation quality

The cool expansion method is used to achieve stable DAF cleaving. Using the characteristics of DAF where it becomes brittle at low temperatures, expansion is performed in a low temperature environment to realize high precision DAF separation.

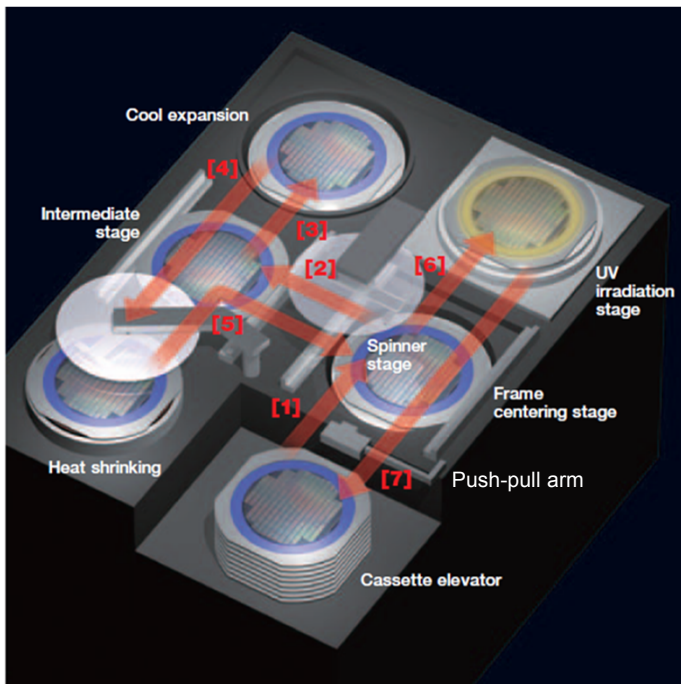
Tape frame transport moves the workpiece smoothly to the next process.

The sagging that occurs around the periphery of the dicing tape after expansion can be eliminated through heat shrinking. This enables the workpiece to be transported to the following die bonding process, while it is still mounted on a tape frame and eliminates the need to replace the tape.

Application examples

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

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DDS2300 operation flow

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

Specification

| Specification | | Unit | |
|---------------------------|---------------------------|--------|--|
| Workpiece size | | mm | φ 300 |
| Cooler stage | Temperature setting range | °C | 0 or -5 (fixed) (setting when shipped from the Plant) |
| | Max. upthrust amount | mm | 30 |
| | Upthrust amount setting | mm | 0 - 30(step 0.001) |
| | Max. upthrust speed | mm/sec | 400 |
| | Upthrust speed setting | mm/sec | 0.001 - 400(step 0.001) |
| Heat shrink stage | Hot air temperature | °C | 200 or 220 or 250 |
| | Max. upthrust amount | mm | 20 |
| | Upthrust amount setting | mm | 0 - 20(step 0.001) |
| | Max. up thrust speed | mm/sec | 50 |
| | Upthrust speed setting | mm/sec | 0.001 - 50(step 0.001) |
| Machine dimensions(W×D×H) | | mm | 1200 × 1,550 × 1,800 |
| Machine weight | | kg | Approx.900 |

Environmental conditions

- Use clean, oil-free air at a dew point of -15 ° C or less. (Use a residual oil: 0.1ppm. Filtration rating: 0.01 μm/99.5 % or more).
- Keep room temperature fluctuations within ±1 ° C of the set value. (Set value should be between 20 - 25 ° C).
- Keep the cleaning water within ±4 ° C of room temperature.
- The machines should be used in an environment, free from external vibration. Do not install machine near a ventilation opening, heat generation equipment or oil mist generating parts.
- This machine uses water.
In case of water leakage, please install the machine on the floor with sufficient waterproofing and drainage treatments.
- * All the pressures are described using gauge pressures.
- * The above specifications may change due to technical modifications. Please confirm when placing your order.
- * For further information please contact your local sales representatives