Die separation - Dicing

1. General Description
One of the last wafer level processes is chip dicing where the completely processed wafers are diced into single chips. Special diamond coated dicing blades allow smallest cuttings and minimal edge deformation that is important for the following packaging steps.

For die separation (dicing) the group Packaging Technologies is equipped with two machines. These are the semi-automatic dicing machine DAD-2HTM and the fully automatic dicing saw DFD6340 made by DISCO. Both machines provide powerful single or double spindle systems. Therefore the machines can be used for dicing of materials like silicon, glass, ceramic and metals using 2” or 3” dicing blades with thicknesses from 15 µm up to 500 µm. The maximum processible substrate thickness is about 4 mm. Both machines could be used for dicing of stacked or bonded materials like sensor or actuator structures consisting of several levels of glass and silicon. The double spindle system is equipped with an integrated cleaning station, UV exposure and CO2 bubbler. The adjustment accuracy is about 1 µm to 2 µm.

2. Specifications
- Processible Materials:
  - Silicon, glasses, and compound materials (Si-glass, glass-glass, Si-Si)
  - Metals, ceramics, and special materials
- Processing:
  - Bonding on dicing foils (dicing tape, UV foils, thermal foils),
  - Top surface protection if necessary
  - Vacuum fixation & adjustment
  - Programming of the dicing rules
  - Automatic dicing process
- Parameters:
  - Dicing blades: 2”... 3”
  - Substrate thicknesses: up to 4 mm
  - Adjustment accuracy: 1 µm … 2 µm
  - Cutting width: 15 µm ... 500 µm
- Equipment:
  - Disco DAD-2H6TM (single spindle system powered with 1500 W)
  - Disco DFD6340 (double spindle system powered with 2 x 1800 W)

Every dicing process could be offered for customer specific applications individually.

3. Contact
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