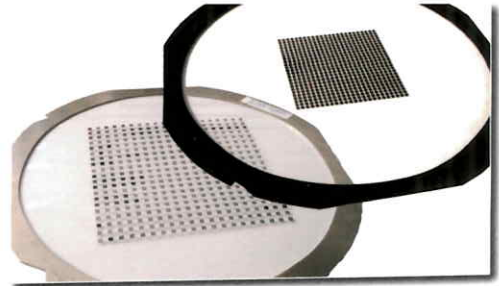


DS VARIATION ecoLINE

NEW

Flexible and cost efficient handling system



ECO in all aspects

- New cost efficient design and software
- Low investment cost → one indexer
- Highly flexibility sorting applications:
 - Tape and Reel
 - Waffle Pack
 - Jedec Tray
 - Wafer to Wafer
- Both sorting modes are available: flip and non-flip
- New software interface with Windows CE
- Up to 12 inch (300 mm) reconstructed wafer
- Fast conversion time between different products



Carrier Tape



Waffle Pack/
Gel Pack



Reconstructed wafer



Jedec tray



UPH



FEATURES & ADVANTAGES

Wafer mapping

- Wafer mapping software incl. barcode scanner
- Mühlbauer MAP-host PC for data conversion into SCES/GEM format

Die handling

- Flip chip or direct pick and place
- Single bond head

Quality inspection features

- Die centering and surface inspection
 - chipped corners
 - scratches e.g. > 12 µm for 1 x 1 mm die
 - foreign particles
 - ink dots
- 2D bump/pad inspection
 - missing bump
 - misplaced bump
 - bump size check ± 15 %
 - bump out of shape ± 15 %
 - bump short circuit
- Optionally 3D extended bump inspection
- Coplanarity check

Quality inspection features in pocket

- Die front and backside inspection
- Pre/post place inspection (empty pocket, titled die, tombstone)
- Chipping inspection of backside
 - chipouts > 20 µm (also in non-flip mode possible)
- Lasermark, pin 1, 2D barcode
- Automatic replacement function in case of a defect die at place position (not applicable for sticky foil)

SIDEWALL inspection

- All 6 chip sides can be inspected
- Sidewall defect detection down to 10 µm

Available options

- Tape and Reel
- Waffle Pack
- Jedec Tray
- Wafer to Wafer

Special feature

- 8/12/16 mm carrier tape cassettes
- Input tray adapter

Applications

- Wafer to one output application
 - Tape & reel
 - Waffle pack
 - Jedec Tray
 - Reconstructed wafer 12"

Die sizes

- Minimum: 0.5 x 0.5 mm
- Maximum: Flip & Non-Flip 15.0 x 15.0 mm
 - Optional 0.25 - 4.0 mm

Placement accuracy

- ± 30 µm
- ± 20 µm with high accuracy mode and 0.3°

Wafer sizes

- Up to 12 inch

Facilities

- Power: 400 V, 16 A, 50/60 Hz
- Compressed air: 6 bar, oil-/waterfree
- Vacuum (absolute): 0.2 bar

Environmental conditions

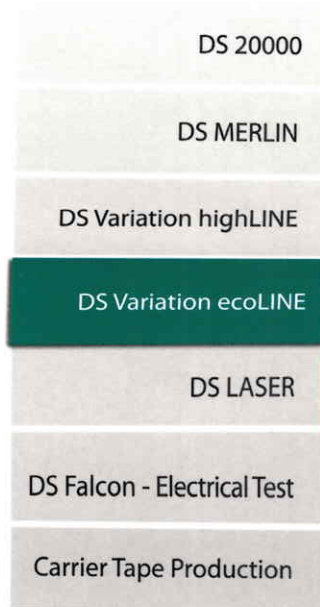
- Room temperature: 23 °C ± 3 °C
- Humidity: 50 % ± 10 %
- Clean room class: ISO 7

Dimensions

- Height: 2000 mm (without signal light)
- Length: 2550 mm
- Depth: 1950 mm
- Weight: 2300 kg
 - depending on configuration

Throughput

- Up to 9,000 dies/hour with flip
 - depending on configuration



DS VARIATION ecoLINE Mühlbauer's overall goal with the new ecoLINE was to significantly lower the initial investment cost while, at the same time, keeping quality and functionality at a high level. Accordingly, the newly developed DS Variation ecoLINE excels especially through its cost efficient design for both hardware and software components. With the integrated high accuracy

mode for the chip placement, a value of 20µm can be reached. All standard inspection features and especially the SIDEWALL inspection with its six-sided chip control are available helping to reach an even higher output yield. The DS Variation ecoLINE can process a whole range of niche applications as well as up to 12 inch reconstructed wafers.