LONGHILL INDUSTRIES LIMITED.

Longhill Roller-LESS
AUTOMATIC 300mm Wafer Mounter

Model LH8600

- Advanced roller-LESS mounting, eliminates possible damages caused by uneven or localized roller pressure.
- Vacuum mounting, wafer and tape brought together inside vacuum chamber.
- Best mounting method for bumped wafers. Wafer support only needed around wafer's edge.
- Uniform & optimum adhesion across entire wafer. No lost die during dicing.
- Air bubble free mounting.
- Programmable tape tension.
- Quick changeover between 200mm/300mm wafers using the same 300mm wafer film frame.
- Robot wafer handling.
- Non contact laser guided wafer centering and flat or notch locator.

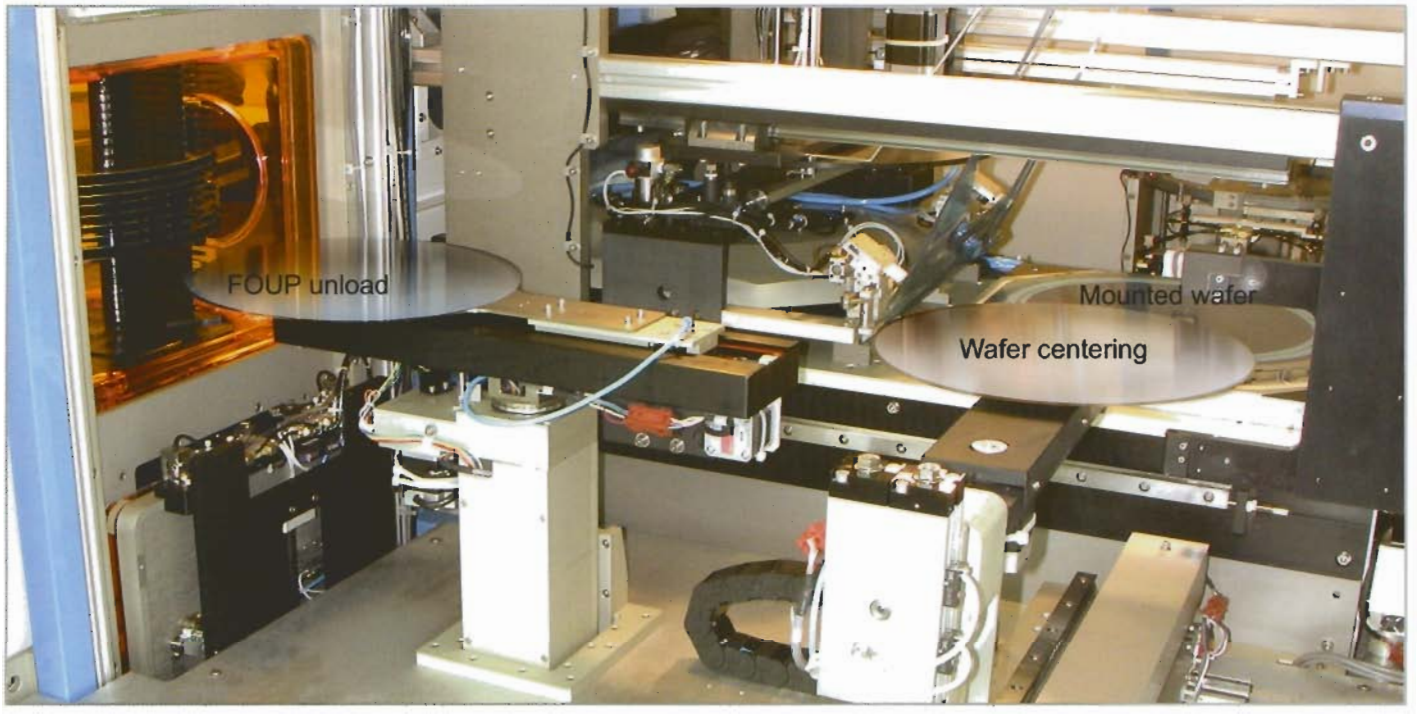
Model LH8600-XT

- LH8600-XT is optimized for very thin wafers:
  75 µm thin 200mm wafers with back grind tape in place.
  Thinner wafers may be possible but require sample testing.
  100 µm to 120 µm thin 200mm wafers without back grind tape.
  100 µm thin 300mm wafers with back grind tape in place.
  120 µm thin 300mm wafers without back grind tape.
- Other wafer sizes and thicknesses maybe accommodated with sample testing.
- Bernoulli Effect robot wafer handling.
- High tolerance for warped wafers.

Options:

- Wafer code reader/bar code printer applicator.
- Integrated back grind tape remover.
- Integrated UV exposure for back grind tape release.
- Input - cassette, FOUP or coin stack wafer box.
- Output - Film Frame cassette.

Model LH8600



System interior wafer handling; in the background is a completed wafer waiting to be unloaded from mounting chamber, right foreground is a wafer staged and ready to load.

Longhill's unique vacuum mounting principle is a true contact-less process. There is nothing touching the wafer except the tape and the SEMI specified non-active wafer edge. No potential wafer damage due to uneven or localized roller pressure.

No more alignment needed for roller / wafer parallelism. No pressure variation on the wafer due to warped surface or different thickness.

Mounting force is controlled by precise differential vacuum control. It guarantees good and uniform mounting across the entire wafer surface. No die fly-off during dicing process. Optimum adhesion is achieved with very low mounting pressure. Very good adhesion can usually be achieved without post curing process.

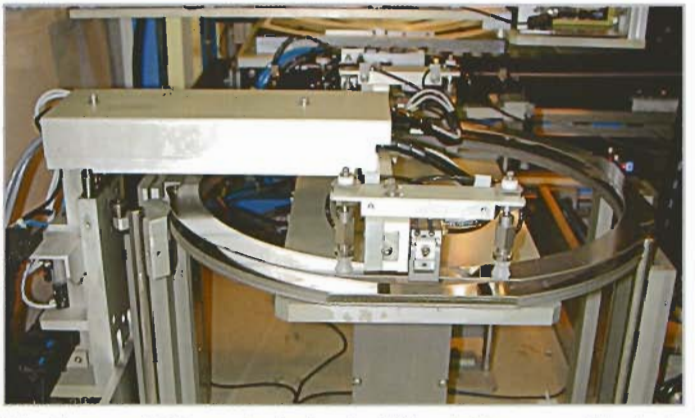
Longhill vacuum mounting absolutely guarantees air bubble free results.

Tape tension is controlled and programmable. Uniform tape tension prevents die chipping during dicing.

Wafer position at input is detected by laser, empty slots are skipped, cross slotted wafers detected.

Wafer centering and flat or notch finding uses non-contact laser technique.

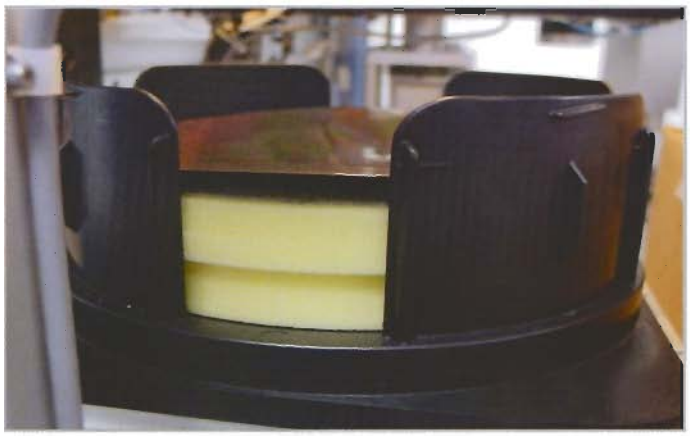
Wafer handling is done by precision 3-axes robotic arm with closed-loop control. Alignment accuracy to $\pm$ 0.003" X/Y & $\pm 0.12^{\circ}$ in Θ.



Film Frame pick from stack of up to 150 metal frames or 70 plastic frames.

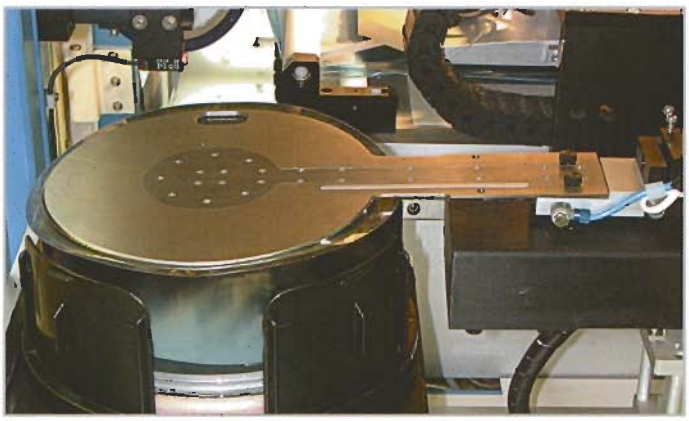
Single film frame cassette output.

Model LH8600-XT



Thin warped wafers as presented at LH8600-XT input.

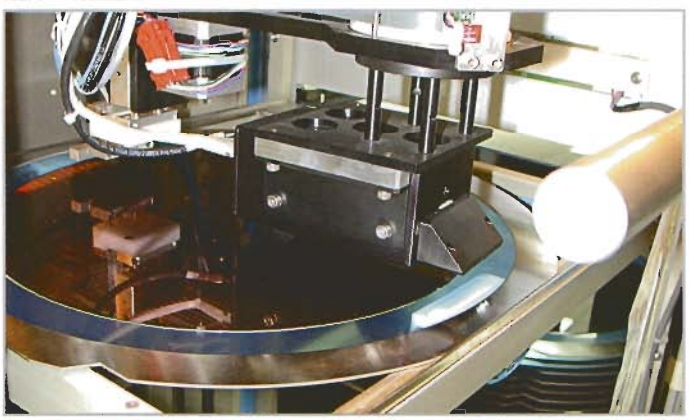
Example of thin and warped input wafers normally encountered and successfully processed.



Non-contact Bernoulli Effect robot arm loads thin warped wafers.

Foam or paper separators are automatically discarded. Separator materials are reliably detected by a reflectivity sensor avoiding possible wafer damage.

Options: Available for LH8600 or LH8600-XT

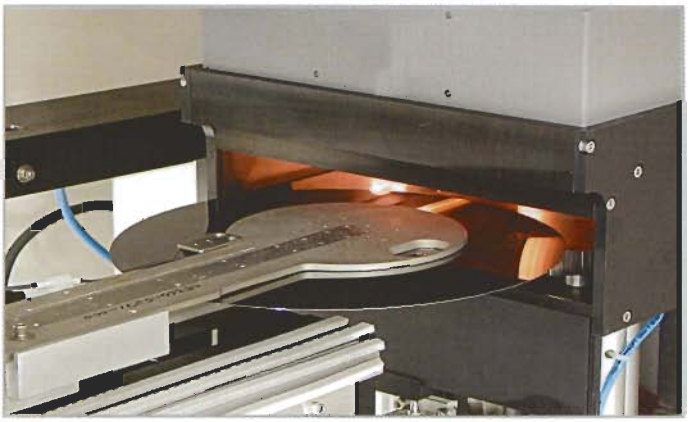


Wafer code reader/bar code printer/label applicator.

Integrated wafer code reader/bar code label printer/label applicator. The OCR is capable of reading alphanumeric characters and bar codes.

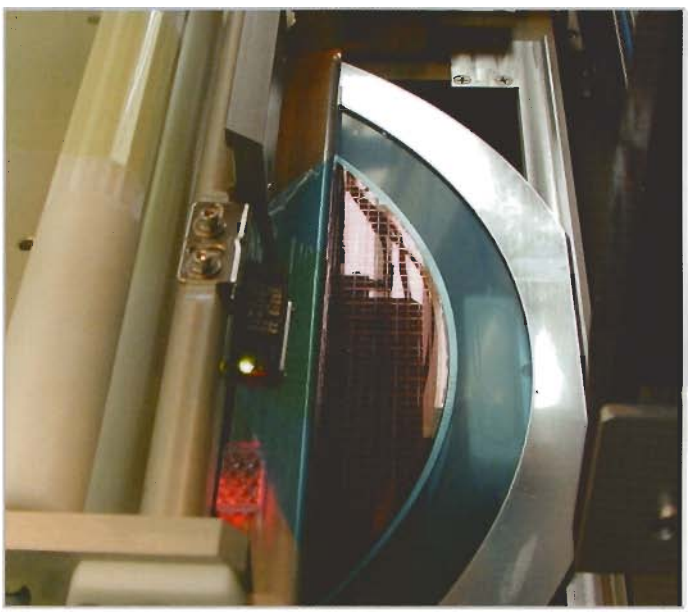
Content of printed label is verified prior to being applied.

Programmable OCR camera and label placement position can accommodate various wafer code and label locations.



Integrated UV exposure for back grind tape release.

Programmable integrated self-contained UV curing system for UV curable B.G. tape release. Ozone free high intensity Metal Halide lamp with maximum power at 365nm.



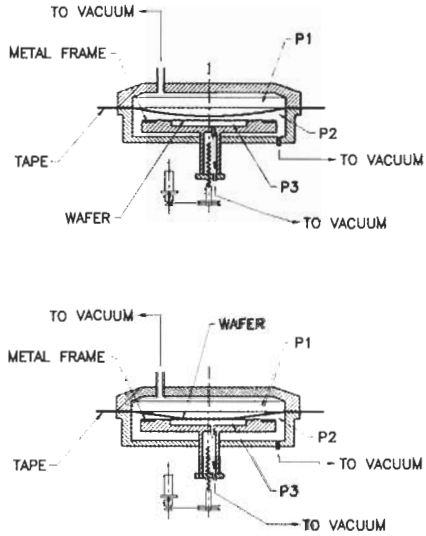
Integrated Back Grind Detaper.

Integrated post mounting Back Grind tape removal. Sticky tape is applied onto the B.G. tape using a floating roller. Longhill's uniquely designed peeling mechanism is reliably suited to thin wafer detaping.

Common features:

- Quick change wafer and frame sizes.
- Input/output stations and wafer handling are universal to 200mm and 300m wafers/frames.
- 200mm and 300mm frame input stack and frame handlers are convertible without tools.
- Wafer size conversion within seconds.
- Frame size conversion within 15 minutes.
- Machine controller is industrial grade PC.
- Recipe programming by user friendly pull down menus.

MOUNTING PROCESS:



Mounting chamber closes bringing tape along with it. Vacuum mounting process begins.

Tape is stretched and ballooned down to touch wafer back surface by differential vacuum, starting from the center of the wafer.

Wafer chuck moves up until tape covers entire wafer and frame surfaces, while maintaining optimum differential vacuum.

Chamber releases vacuum and opens. Film frame is automatically excised from tape supply.

SPECIFICATIONS

Wafer sizes:	8" & 12" (200mm and 300mm)
Mounting tape type:	UV or non-UV and combined Dicing / DA film
Mounting tape width/length:	310mm wide tape (8" wafer frame) 430mm wide tape (12" wafer frame) 100m or 200m in length
Wafer input carrier:	Single wafer cassette, FOUP, optional wafer box
Output:	Single film frame cassette
UPH:	LH8600: 65 UPH (8" frame) / 50 UPH (12" frame) LH8600-XT: 35 to 45 UPH
Wafer alignment reference:	Flat (single or double) or notch
Accuracy in positioning wafer:	± 0.010" in XY position, ±0.5° in Θ rotation
Options: • Film frame size change kit. • Wafer code reader/bar code printer/applicator. • Wafer cassette I.D. reader. • Frame cassette I.D. reader. • De-Taper (Back grind tape peeling). • UV irradiator. • Communications.	 Carrier ID (E99) Carrier ID (E99) SECS-II (E5), GEM (E30), HSMS (E37.1), PMS (E40), CMS (E87), STS (E90), CJMS (E94)
EHS: • Safety. • Ergonomics. • Certifications.	 Per SEMI S2-2000 / CE standard Per SEMI S8-95 Optional
MHS:	• Wafer cassette load port (E15.1) • Frame cassette load port (SEMI Doc.#3043) • FIMS (E62) and BOLTS (E63) • Kinematic coupling (E57) • PGV docking zone (E64)
Control unit:	Industrial PC
Power:	220VAc, 50/60 Hz, 20A
Air:	60psi dry clean air, 2.6 CFM
Vacuum:	25 inch Hg, 1.6 CFM
Dimensions:	2210mm (W) x 1710mm (D) x 1730mm (H)
Net weight/shipping weight:	1600Kg/2000Kg

Specifications subject to change without notice

LONGHILL INDUSTRIES LTD.

22/F Lever Centre,
69 - 71 King Yip Street,
Kwun Tong, Kowloon, Hong Kong
Tel : (852) 2763 0671, 2357 5298
Fax: (852) 2357 4039
E-mail : longhill@longhill-ind.com

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