



EI-300 Integrated Wafer Edge Inspection System

One station: pre-alignment + top/bottom edge inspection + warpage measurement

BASIC

Model	EI-300
Positioning	Integrated wafer pre-alignment, top/bottom edge defect inspection, and warpage measurement system
Wafer	300 mm silicon, thickness $\geq 550 \mu\text{m}$; edge grip, no backside contact
Dimensions	Main unit $\sim 400(\text{W}) \times 360(\text{D}) \times 520(\text{H}) \text{ mm}$; electrical cabinet $\sim 450 \times 400 \times 420 \text{ mm}$
Weight	$\sim 40 \text{ kg}$ (main unit)

INSPECTION CAPABILITY

Chipping detection	$\geq 100 \mu\text{m}$ (verified with reference samples)
Crack detection	$\geq 100 \mu\text{m}$ (length)
Inspected surfaces	Top and bottom edge surfaces (incl. bevel regions)
Coverage	$\sim 3 \text{ mm}$ inward from edge (recipe-adjustable), full 360°
Method	Dark-field scattering imaging; no blind zones

ALIGNMENT ACCURACY

Notch align-to-stop	$\pm 0.2^\circ$ (system level)
Notch angle measurement	$\pm 0.05^\circ$ (reference wafer)
Notch repeatability	$\leq \pm 0.1^\circ$ (3σ , with re-placement)
Center offset measurement	$\pm 100 \mu\text{m}$

OPTICAL SYSTEM

Cameras	5 MP global shutter ×2 (top & bottom)
Object-space resolution	20 μm per pixel
Field of view	~50–60 mm (along edge); DOF ≥4 mm
Illumination	630 nm red, low-angle dark-field, adjustable
Acquisition	Synchronized top/bottom acquisition

WARPAGE MEASUREMENT

Target	Top-surface height topography / warpage (full wafer)
Method	Non-contact optical measurement
Output indicators	Bow, Warp, local PV, warpage map, local height anomalies
Applicable	Macro warpage of bare Si & low-pattern-density wafers

CONTROL & INTERFACE

Controller	IPC, Windows 64-bit (separate cabinet)
Communication	Ethernet TCP/IP; SECS/GEM (optional)
UI language	Traditional Chinese / English; export via USB/LAN

SOFTWARE FUNCTIONS

Layered defect map (top/bottom) | Warpage indicators & warpage map | OK/NG verdict | Review UI (click defect → source image / ROI / dimensions) | Recipe management & multi-recipe switching | Tiered result & image archiving | CSV/report export | Alarm log

OPTIONS

- OCR / BCR
- Thickness measurement
- Defect classification (chipping/crack/unknown)
- SECS/GEM

Future extensions: 200 mm wafers, thin glass substrates, rectangular panels.