product highlight

sorter+ option for brightlight inspection

NADAtech

shown: T4A+blis (300mm 4 port wafer sorter with bright light inspection station)

- option for NADAtech Sorter+ systems
- front and backside infinite spin edge only
- standard UVP green light or custom lighting
- add inspection to any recipe with pass/fail
- programatic recipe or joystick modes
- front and backside limited spin “gyro”
- frontside with infinite spin “gimbal”

50 -150mm with multi-light gimbal

with vacuum particle remover

200mm black box configuration

300mm gyro with UVP

12.5 mp camera

UVP lamp information

- utilizes three mercury lines
- 543nm, 574nm, 576nm
- high contrast surface inspect
- particles down to 10um visible
- wavelengths are well above photo resist sensitivities

custom lighting configuration

customer driven lighting configs can be supported. hardware switch panels or selectable from UI options are available. Halogen, fluorescent, black light, ultra high intensity LED, multi-colored LED, SWIR, or any customer specific setups can be accommodated.

system information

- IDMs use the gimbal or front/backside gyro. Multiple wafer sizes can be supported. Wafer makers use the edge version
- backside gyro vacuum finger block only 3% of wafer backside.
- edge gyro supports a single wafer size. 150, 200, and 300mm version

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product highlight

bow / warp / thickness option

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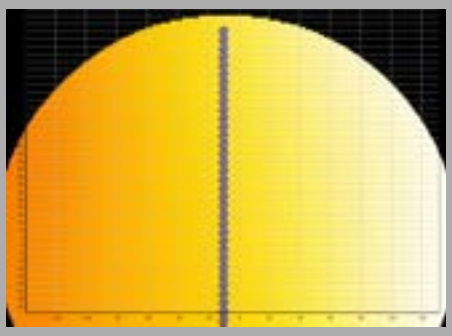
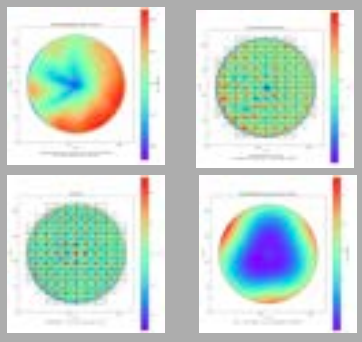
- sorter+ option for 150 / 200 / 300mm tools
- non-contact bow / warp / thickness
- fractional pricing of current solution
- HIGH speed - standard 49 point scan (150 wph)
- scanning sensor - no wafer movement
- design any imaginable scan patterns
- thickness, least squares, grid LTV, grid SFQR
- +/- 1μm with 0.36% Gage RnR repeatability

typical 49 point scan in 3 seconds



for high speed production monitoring

characterization / visualization software



2D and 3D tools for wafer review

inline tool option 2 / 3 / 4

150mm / 200mm / 300mm

sensor information

- utilizes Precitec's FSS 310 optical coherence tomography sensor
- +/- 25μm XY sensor positioning
- GUI software for developing any scan shape required
- performs both high speed production bow/warp AND full wafer characterization

bow / warp / thickness solution

- available with either SEMI 3 pin stage or ring stage
- internal isolated Sorter+ module so no fab pedestal required
- fully integrated software suite for BWT measurements and reviewing
- proven correlation to existing 49 point BW measurements

system information

- 2 / 3 / 4 port inline tool versions
- HIGHEST reliability OEM robotics
- GEM300 standards
- edge grip or vacuum backside
- OHT handoff or stocker imbedded
- available with other sorter+ options

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product highlight

sorter+ option for wafer bevel inspection - “chip checker”

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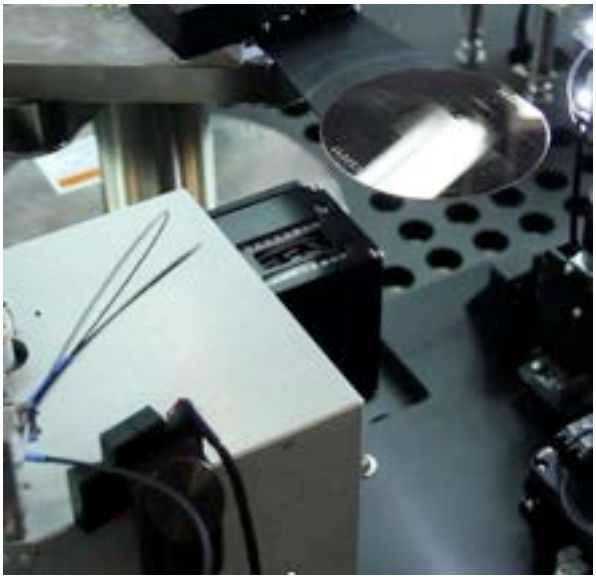
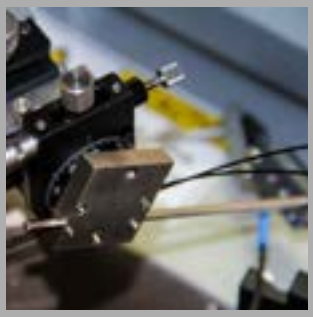


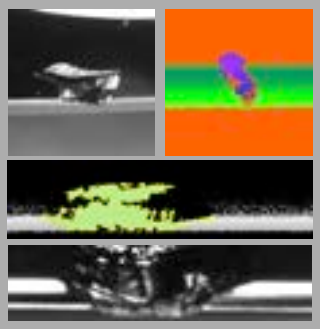
- sorter+ option for 100mm thru 300mm
- edge inspection for wafer rounds / flats (+CC)
- v1 or v2 - 250μm min defect size
- v3 using profilometer - 30μm min defect size
- align then OCR then run edge inspection
- v1 or v2 adds ~5 secs per wafer per bevel
- v3 adds ~10 to 72 secs per wafer
- standard reporting output formats

version 1 and 2 are sensor based



defect size and position captured

version 3 - klarf images/heat maps



darkfield for scratches / particles

available on all OCR platforms

100mm thru 300mm

v1 / v2 device information

- auto tune edge sensor
- one sensor per bevel
- v1 - defect location + size
- v2 - klarf + defect image
- FTP or shared file copy for defect review system input

v3 profilometer information

- 4μm wide by 3mm long beam
- one profilometer per bevel
- min defect size determined by scan speed - low / med / high
- 2D scans turned into 3D profile. processing based on data altitude. not intensity.

system information

- chip check function is integrated in to aligner
- chip check can be added to ANY sorter recipe that uses the aligner
- v1 / v2 typically used by IDM’s looking for process tool edge damage
- v3 for wafer makers edge quality

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product highlight

sorter+ option for macro inspection

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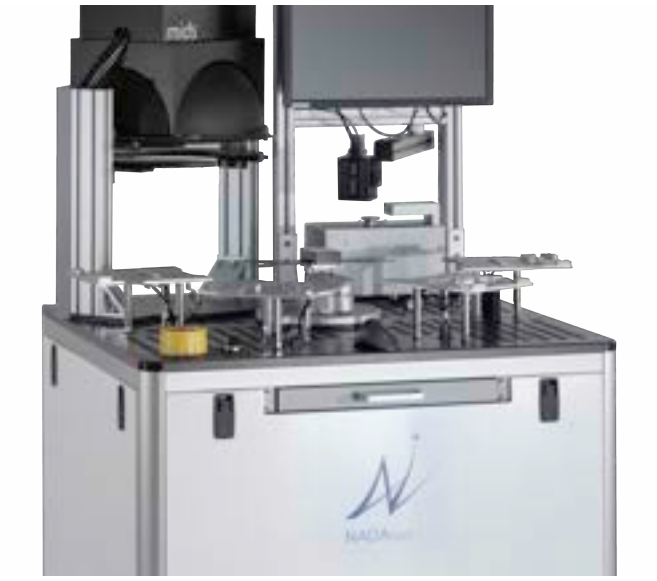
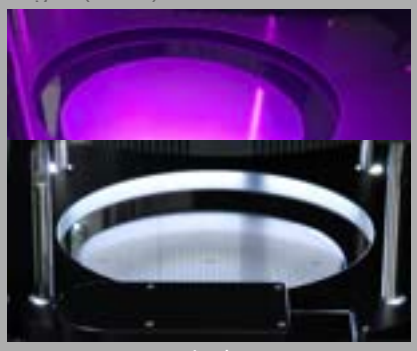


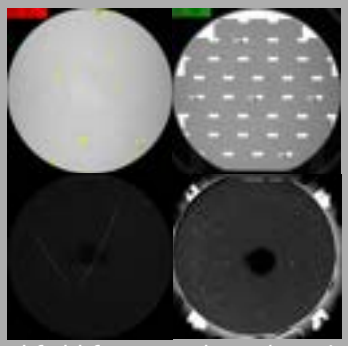
- sorter+ option for 100mm thru 300mm
- macro inspection during sort (+MIDS)
- dual brightfield and darkfield inspection
- separate station or module for 300mm
- adds ~5 secs per wafer+initial tune time
- standard reporting output formats

bright (color) and dark field



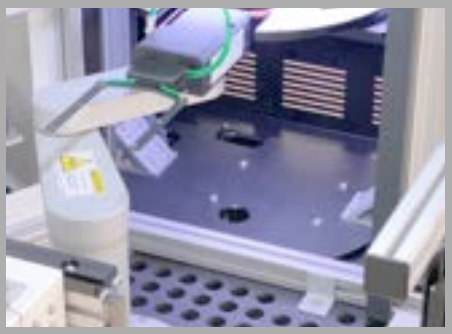
non contact optical measurements

bare / patterned wafer algorithms



darkfield for scratches / particles

available on most platforms



100mm thru 300mm

imaging information

- 12Mp with 9Mp on wafer
- 50um to 70um per pixel
- mono yields best resolution
- images in lossless PNG format
- local / remote reviewing tool

recipe configurable inspections

MIDS recipes are dynamically setup in utility. lighting scenarios are assigned to processing algorithms. merging bright and dark into single inspection is typical. any MIDS recipe can be assigned to any sort recipe. results available in wafer map, simple ascii report, KLARF report and SECS/GEM

system information

- typical application is to catch gross mis-processing soon after it happens.
- brightfield - photo drips, streaks, smudges, etc.
- darkfield - scratches, particles - any defect found above wafer plane.
- frontside. optional flip for backside

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product highlight

sorter+ option for wafer thickness

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- option for NADAtech Sorter+ systems
- non contact thickness measurement
- differential optical interferometric sensors
- mounts next to wafer pre-aligner
- center point thickness, average, and TTV
- ~1 second per point.
- gage R&R much less than 10%

interferometric differential sensor

non contact optical measurements

measurements made on paddle

single point or series of points

available on most any platform

100mm thru 300mm

sensor information

- thickness - 100um to 2500um
- up to 70K data points/second
- linearity - 3.3 x 10^{-4}
- resolution - 3 x 10^{-6}
- overall gage R&R is well below 10%. typically ~2%

recipe configurable scans

center point measurement is most typical. TTV and AVG thickness can be provided via measure grid files that position the wafer where there is no robot paddle. Results available in wafer map, ascii report and SECS/GEM wafer events.

system information

- typical application is binning by wafer thicknesses.
- the more ports the more bins.
- 100mm-200mm up to 6 ports available.
- for 300mm up to 8 port available.

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product highlight

WaferSlip Inspection for 100mm through 300mm

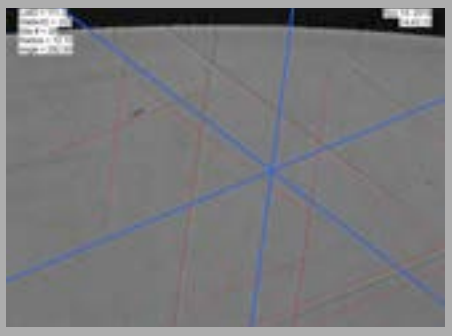
NADAtech

- optical detection of wafer crystalline slip defects
- control for epitaxial processes, RTP, RTA, and SOI wafer manufacturing
- three platforms - 100 to 200mm Open / 200mm SMIF / 300mm
- “makyoh” style bright field optics for fine slip line illumination
- fully automated slip detection software and reporting
- HIGHEST reliability robotics and wafer staging
- full implementation of GEM200 or GEM300 standards
- GEM300 version includes OHT/AGV handoff and automatic RFID
- inspection times depend on wafer size and area inspected
- throughput can range from 10 to 100wph

3 platforms cover ALL wafer sizes

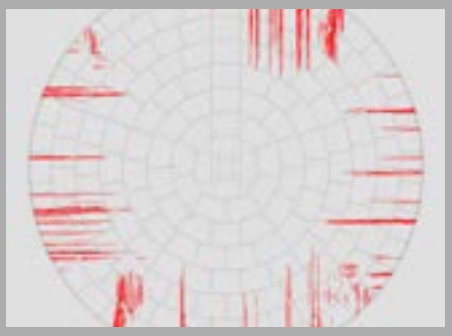
300mm dual port for OHT shown

all crystal slip types are detectable



detailed 15mm x 11mm FOV

fully integrated solutions



wafermap stitched from each site

wafer size & carrier options

- 2 or 4 port open carrier platforms
- 100mm / 150mm / 200mm
- 2 port - 200mm SMIF
- 2 / 3 / 4 port - 300mm FOUP
- mixed ports and sizes available
- best in class robotics
- precision radial / theta staging
- optional top / bottom / both OCR
- additional wafer sort capabilities

fully automated slip inspection

- full or partial wafer scans
- sub-micron slip depth detection
- adjustable scan patterns
- adjustable slip detection
- adjustable optics sensitiivty
- adjustable wafer edge exclusion
- configurable accept/reject criteria
- auto / semi / engineering modes
- currently shipping on Win10 LTSC

slip detection features

- report - slip location / count / length
- results - lot file report / image archive
- live display of slip inspection
- graphic display of slip detections
- inspection “shape” fully configurable
- slip lines stitched into single defect
- finish wafer after it has failed feature
- additional HD for image archiving

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