

nSpec™ PS

Fully Automated Optical Inspection System
with nTelligence™



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Fully Automated Optical Inspection System with nTelligence™

The nSpec™ PS includes Nanotronics' proprietary Artificial Intelligence Software, nTelligence™. The platform is highly flexible in its ability to detect defects on a variety of wafers, substrates, and materials. Any defects observed using the system's various imaging modalities can be labeled and used to train customer-specific automatic classification models.

Nanotronics' sophisticated AI adds the ability to not only detect defects but also classify them, helping to assign causality and provide fast feedback to correct the manufacturing process. Tuned for speed and high-quality inference from limited data, the software utilizes customized enhancements for deep learning and convolutional networks. In addition to nTelligence™, the nSpec™ PS also includes a suite of computer vision analyzers.

nSpec™ PS is the ideal system for a production setting for scanning any variety of samples up to 200 mm. It runs multiple scans sequentially. User-friendly software makes configuring recipes next to effortless and as needs evolve, recipes are easily saved and modifiable.

Fully automated inspection for:

- Substrate, epi, and patterned wafers
- Transparent and opaque wafers
- Si, SiC, GaN, InP, Glass, Graphene, and more
- Diced wafers on film tape, trays, gel-pak or waffle packs
- Photomasks
- Sample fragments

Features:

- Automatic wafer loader
- Consistent resolution settings, ranging from 0.3 μm and greater
- Rapid scanning
- Computer vision analyzers
- nTelligence™ defect classification
- Customizable defect reports
- Customizable export formats
- Settings for single image capture and scans
- Variety of sample chucks to meet specific needs
- Robust analysis for defect or feature of interest detection and classification

SYSTEM

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Weight	363 kg
Dimensions (W x D x H)	236 cm x 157 cm x 194 cm
Min. Vacuum Requirement	-21 in. Hg (-70 kPa)
Power Supply (UPS included)	208-230VAC, 15A, 50-60Hz

OPTICS

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Illumination Modes	Brightfield, Darkfield, Automated DIC (Nomarski)
Light Source	Green LED (other options available)
Objectives	5x included, 1.25, 2, 2.5, 10, 20, 50x, user selectable (5-position turret)

STAGE

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Travel, typical	200 mm X and Y direction
Positioning	Linear servo motors with closed loop encoders (50 nm resolution)
Repeatability	+/- 2 μm
Travel Flatness	30 μm
Centered Load Capacity	2.27 kg

WAFER LOADER

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Cassette	25 wafers / cassette, single Standard H-Bar
Standard Wafer Sizes	50, 75, 100, 125, 150, and 200 mm
Wafer Alignment	Automatic by notch or flat

OPTIONS

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SECS/GEM
Transmitted Light with Automated Polarizer
12-Position Filter Wheel
OCR (Frontside and/or Backside)
CleanCube (Modular Clean Environment)
Sample Specific Fixtures
Offline Workstations