BROOKS AUTOMATION

AUTOMATION SYSTEMS GROUP

Particle Detection System for Zaris™

TOOL AUTOMATION

Features

- Fully integrated inside the ZARIS system
- < 70 second inspection time
- Compatible with all 6" reticle and pellicle types
- Detects 10 micron or larger particles
- Inspects glass and pellicle surface
- Graphical User Interface displays particle size, location and image of particle plus comparison to previous scans.
- Programmable binning criteria
- No increase in Zaris footprint
- Compatible with iReticles™
- Class 1 compatible
- Standards:
  - SEMI S2 & S8
  - CE
  - Fed Std 209-E

Benefits

- Increased inspection quality by eliminating operator guesswork
- Eliminates operator handling improving reticle safety
- Automated reticle cleaning using the ZARIS CDA or Nitrogen needle
- Binning criteria provides valuable data to assist in reticle cleaning decisions
- Particle maps and data files assist in trending cleanliness issues
- Provides particle data to the fab-wide reticle management system to improve process efficiency
- Saves valuable footprint by eliminating manual inspection tables

The Brooks Automation Particle Detection System (PDS) adds fully automated reticle inspection capability to the ZARIS™ system. Large particles on the glass or pellicle surface can be catastrophic in today's advanced semiconductor manufacturing process. With detection capability down to 10 microns, the PDS can identify these problemmatic particles, and with the ZARIS™ nitrogen blow-off needle, they can be eliminated! Different pellicle frames are not a problem for the PDS. Pellicle frame heights are dynamically detected, allowing the vision system to quickly and accurately focus on both the glass and pellicle surfaces.

Fast Inspection Time

Reticle inventories are rapidly expanding in today's fabs, and inspection time can often become a bottleneck to reticle availability. The PDS's average inspection time is less than 70 seconds for both sides of the reticle! The PDS is significantly faster than high end reticle inspection systems or using manual inspection bright light techniques. The PDS takes operator "guesswork" out of the inspection process.

Fully Integrated Solution

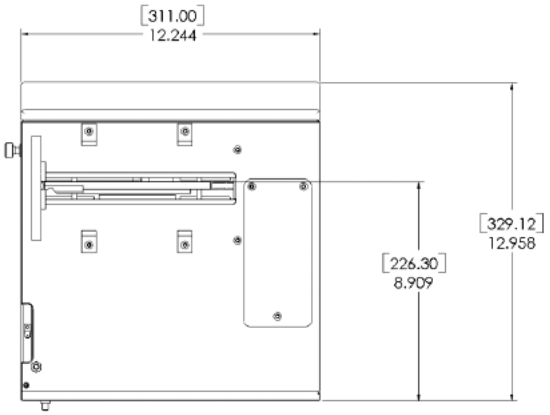
Equiping a Zaris™ tool with a PDS provides "hands-free" reticle transfer, inspection and cleaning capabilities. Since no operator handling is required, it is the safest method available to inspect reticles. Flexible load port configurations provide a user with the capability to inspect and clean reticles from a variety of shipping containers and stepper carriers. All PDS functions are driven from a user friendly GUI or from the Fab MES over GEM/SECS communication protocol. Fab specific binning criteria can be established and programmed by the Lithography Engineer. Particle data for each reticle can be uploaded to Brooks Automation's iReticles™ product (Reticle Lifecycle Management and Reticle Movement Management modules).

In-situ Particle Detection System

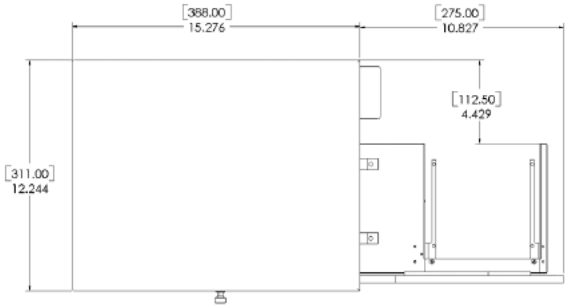
Particle Detection System for ZARIS®

Inspection Time	< 70 seconds
Inspection Media	6″ reticle with pellicle
Focus	Autofocus on pellicle side for frame heights of 2-8mm
Repeatablility	>90% of particle count for particles 10-20 microns >98% of particle count for particles over 20 microns
Material	ESD safe reticle contact
Width	352 mm (13.9″)
Length	663 mm (26.1″)
Height	330 mm (13.0″)
Weight	Approx. 25 kg (67 lbs)
Power Required	1/N/PE, 100…240VAC 50/60 Hz, 3A (Internal Connection)
Communications	Ethernet interface
Standards	CE, SEMI S2 & S8, Fed Std 209-E

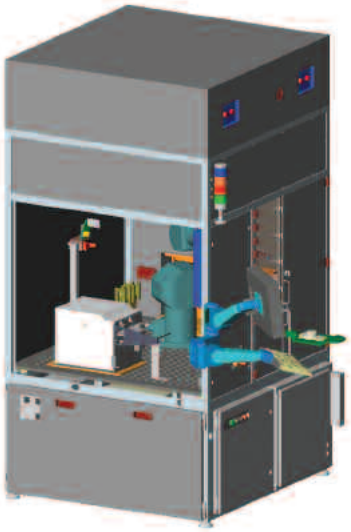
Front View of PDS



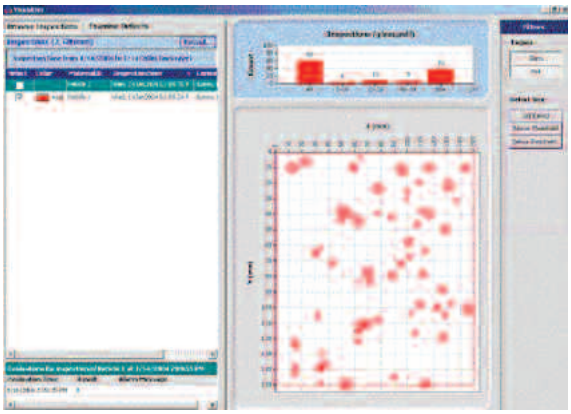
Top View of PDS



PDS Integrated in ZARIS Tool



PDS Visualizer Software



For more information, please contact your local Brooks Automation sales representative or visit www.brooks.com.

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