



AUTOMATION SYSTEMS
GROUP

Particle Detection System for Guardian® Bare Reticle Stocker

TOOL AUTOMATION

Features

- Fully integrated to the Guardian® BRS 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
- Minimal increase in Guardian® 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
- Binning criteria prevents accidental use of contaminated reticles
- 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 Guardian® Bare Reticle Stocker (BRS) system. Large particles on the glass or pellicle surface can affect pattern exposure on the wafer. The PDS has the capability to detect particle sizes down to 10 microns on the glass side as well as the pellicle side, making it ideally suited for detecting troublesome particles on today's advanced process reticles. Different pellicle frames are not problem for the PDS, since it can dynamically detect pellicle height and frame geometry differences and adjust the detection circuitry to compensate.

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 bright light inspection techniques. The PDS takes operator "guesswork" out of the inspection process.

Fully Integrated Solution

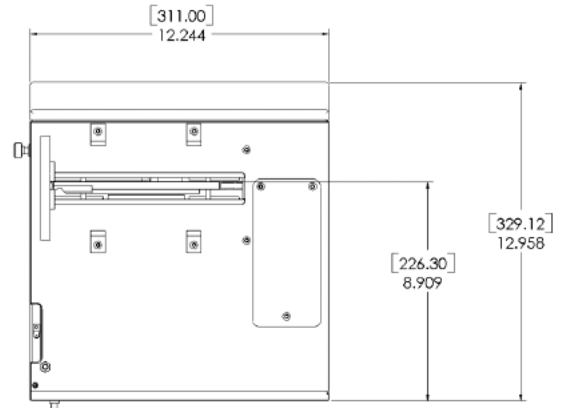
The PDS is fully integrated into the Guardian® BRS supplying "hands-free" reticle storage, retrieval and inspection capability. Since no operator handling is required, it is the safest method available to inspect reticles. Brooks Automation's proven Transnet™ Stocker software allows the user to inspect reticles during the storage or retrieval process or while the reticles are being safely stored in the Guardian® BRS. All PDS functions are driven from a user friendly GUI or from the Fab MES over GEM/SECS communication protocol. Large/small binning criteria can be programmed by the Lithography Engineer. Particle data for each reticle can be uploaded to Brooks Automation's iReticle product (Reticle Lifecycle Management System).



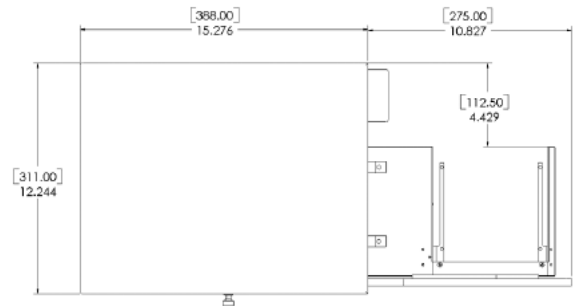
In-situ Particle Detection System

Inspection Time	< 70 seconds
Inspection Media	6" reticle with pellicle
Focus	Autofocus on pellicle side for frame heights of 2-8mm
Repeatability	>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

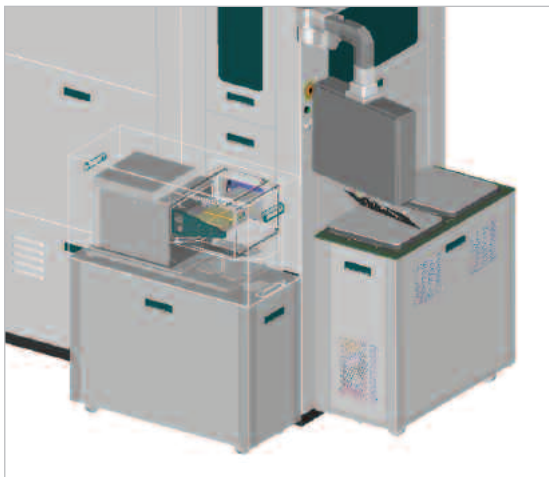
Front View of PDS



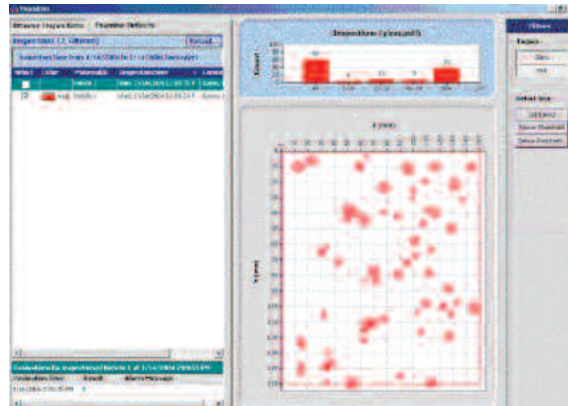
Top View of PDS



Guardian BRS with integrated PDS



PDS Visualizer Software



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

