

fastmicro

Wafer Particle Defect Inspection System



Direct Surface Particle Inspection

The Fastmicro Particle Defect Inspection System (PDS) provides high-throughput surface particle contamination inspection for wafer manufacturing processes, next-generation compound semiconductors and advanced packaging applications.

With $> 0.2 \mu\text{m}$ particle size sensitivity, the PDS range offers an efficient and supported option to replace legacy particle inspection systems with a state-of-the-art, robust solution.

For next-generation semiconductor production applications the Fastmicro PDS offers unique system qualities, including optional simultaneous front and back-side scanning, and a static 4- to 12-inch FOV scanning area without moving the wafer during measurements.

Consistent measurements in process

- 1 **Fast:** surface measurements in seconds on 4-inch to 12-inch substrates
- 2 **Versatile:** compatible with silicon, glass and compound wafers
- 3 **Easy to operate:** operator independent, automated and clean handling
- 4 **Accurate:** high-resolution measurement (quantity, position, size)
- 5 **Consistent:** objective measurements, time after time
- 6 **No moving stage:** dual side inspection without moving or spinning the wafer



Multi-application Modular Platform

The versatile Fastmicro PDS can be customized to suit each production qualification process or to integrate into a production line. This can include manual and automated wafer handling, package openers for inspection and cleaning, filling stations, robot arms, an inspection spot and a port for cleaning.

The system can be customized and scaled depending on the surface that needs to be measured.

The measurement module is also available as a white-label solution for system integrators and OEMs.

About Us - At Fastmicro we help our customers to overcome today's cleanliness challenges in microtechnology. We believe you can accomplish breakthroughs in cleanliness control with fast, accurate and quantitative surface particle measurements. We enable process quality engineers to make reliable decisions on where and how to improve their cleanliness processes and deliver consistent quality products, ultimately achieving high equipment performance for their end users.

specifications

Wafer Particle Defect Inspection System

Fast	<ul style="list-style-type: none">• Capable up to 250 Wafers-Per-Hour (WPH)• Imaging in seconds on 4-, 6-, 8- and 12-inch wafer substrates			
Easy to operate	<ul style="list-style-type: none">• Fit for use by operators in manufacturing and R&D environments• Automated wafer loader: 2 cassette stations or 2 integrated SMIFs (8-inch)• Automated wafer loader: 2 FOUP loaders (12-inch)• 4-axis dual arm robot handling with specific substrate gripper (8-inch)• 5-axis dual arm robot handling with specific substrate grippers (12-inch)• Easy selection of recipe, multi recipes possible• Optional: SECS/GEM factory automation and GEM300 integration			
Field of View	<ul style="list-style-type: none">• Ø 94 mm on 4-inch wafer / Ø 144 mm on 6-inch wafer / Ø 194 mm on 8-inch wafer / Ø 294 mm on 12-inch wafer			
Lower Detection Limit	<ul style="list-style-type: none">• 0.2 µm PSL equivalent particles (NIST certified)			
Reproducibility	<ul style="list-style-type: none">• Relative count variation smaller than 10%			
Sizing accuracy	<ul style="list-style-type: none">• Within 20% for PSL equivalent particles (NIST certified)			
Location accuracy	<ul style="list-style-type: none">• 100 µm			
Remeasurability	<ul style="list-style-type: none">• Non-destructive measurement• No added contamination caused by measurement			
Data output and visualization	<ul style="list-style-type: none">• Analysis: quantity, position and size of particles• Annotated image with particle detection overlay• Output: export function including KLARF and .csv files• Data exchange via USB or via an ethernet connection• Remote access feature• Optional: Qualification report in UI and PDF, according to ISO 14644-9			
Direct measurement	<ul style="list-style-type: none">• Possible i.a. by using SEMI-standard silicon wafers			
Front/Backside inspection	<ul style="list-style-type: none">• Optional: upgrade to dual inspection in single measurement (no flipping)			
Operating conditions	<ul style="list-style-type: none">• Use in clean environments, i.e. cleanrooms with ISO 7 (ISO 14644-1), class 10 000 (FED STD 209E) or cleaner			
Models	Manual	Automated Cassette	Automated SMIF	Automated FOUP
	PDS-WMA08 ^{1) 2) 3)}	PDS-WAC08 ^{2) 4)}	PDS-WAS08 ^{2) 4)}	
	PDS-WMA12 ^{1) 5)}			PDS-WAF12 ⁶⁾
	<p>All models have an integrated scanning module: Frontside or Backside (optional: Front&Backside)</p> <p>¹⁾ also available as multi-purpose whitelabel module for OEM (PDS-WWMA08 and PDS-WWMA12)</p> <p>²⁾ standard included: an integrated 4-inch, 6-inch or 8-inch interface</p> <p>³⁾ footprint (LxWxH): 660 x 1200 x 2047 mm / 26 x 47.2 x 80.6 inch</p> <p>⁴⁾ footprint (LxWxH): 1200 x 1200 x 2047 mm / 47.2 x 47.2 x 80.6 inch</p> <p>⁵⁾ footprint (LxWxH): 1602 x 755 x 2099 mm / 63 x 29.7 x 82.7 inch</p> <p>⁶⁾ footprint (LxWxH): 1602 x 1510 x 2099 mm / 63 x 59.4 x 82.7 inch</p>			

