

**Surfscan® SP1^{TBI}
Unpatterned Surface Inspection System**

SPECIFICATIONS

Substrate

Supported Sizes: 300, 200, 150 mm (vacuum handling)
 300 mm only or 200 mm only for Edge Handling and BSIM Configurations
 SEMI standard wafer geometry
 Material: Any opaque, polished surface that scatters $\leq 10\%$ of incident light

Defect Sensitivity (frontside, polished bare Si substrates @ $\geq 95\%$ capture rate)

$\geq 0.083 \mu\text{m}$ diameter PSL sphere equivalent with normal illumination
 $\geq 0.060 \mu\text{m}$ diameter PSL sphere equivalent with oblique illumination

Repeatability

Count: $CV^* \leq 1\%$, for mean count > 5000
 Sizing: $CV^* \leq 1\%$, for calibrated sphere sizes $< 0.3 \mu\text{m}$
 $CV^* \leq 5\%$, for calibrated sphere sizes $\geq 0.3 \mu\text{m}$
 *CV = coefficient of variance, σ/μ

Edge Exclusion

$\geq 3 \text{ mm}$ for all wafer sizes and illumination modes

XY Coordinates (optional)

95th percentile $\leq 15 \mu\text{m}$ radius, normal or oblique illumination, High Sensitivity
 95th percentile $\leq 50 \mu\text{m}$ radius, normal or oblique illumination, High Throughput

Throughput

Vacuum Handling Configurations

200 mm (Open handler configurations)

	<i>Frontside</i>
@0.08 μm (HT)	125 wph
@0.06 μm (HS)	40 wph

300 mm (Open handler configurations)

	<i>Frontside</i>
@0.08 μm (HT)	90 wph
@0.06 μm (HS)	22 wph

Edge Handling/BSIM Configurations

200 mm

	<i>Frontside</i>	<i>Backside</i>
HT	85 wph	60 wph
HS	25 wph	23 wph

300 mm

	<i>Frontside</i>	<i>Backside</i>
HT	40 wph	35 wph
HS	12 wph	10 wph

Contamination

≤0.001 particles (≥0.09 μm)/cm²/pass frontside for all systems
≤0.001 particles (≥0.12 μm)/cm²/pass backside for edge handling/BSIM only

Cassette Handling

Vacuum Handling

Standard: 1 x 300, 1 x 200 mm open cassette

Optional:

200mm

2 x 200

4 x 200

SMIF (single or triple)

300mm

3 x 300

Dual FIMS (Ballroom and Bulkhead)

Edge Handling

200mm

4 x 200

300mm

3x300

DFIMS (Ballroom and Bulkhead)

BSIM

200mm

2 x 200

2xSMIF

300mm

3x300

DFIMS (Ballroom or Bulkhead)

Operator Interface

Keypad, trackball and keyboard standard

Operating System

Windows NT 4.0

Dimensions (Standard Handler)

Height: 183 cm (72")

Width: 117 cm (46")

Depth: 122 cm (48")

Weight

Instrument: ~ 360 kg (800 lb)

Handler (Standard): ~ 136 kg (300 lbs)

Shipping: ~ 409 kg instrument + 191 kg handler (900 lb instrument + 420 lb handler)

Facilities Requirements

House vacuum, compressed air or N₂ (required for FIMS, SMIF, Edge Handling, and BSIM Configurations),
1 Phase AC Power

Please consult SP1^{TBI} Pre-Installation Guide for specific requirements.