

BROOKS AUTOMATION



MicroTool Product Line
January 2012



Brooks Automation Alignment Services Division (MicroTool Product Line) increases silicon yield and equipment uptime by improving critical wafer handling operations. We have spent years developing equipment to measure and analyze robot, load port, and other fab automation. These systems turn the 'art-of-alignment' into a repeatable and measurable science.

PRODUCT CATEGORIES

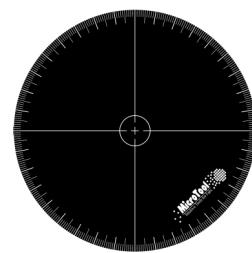
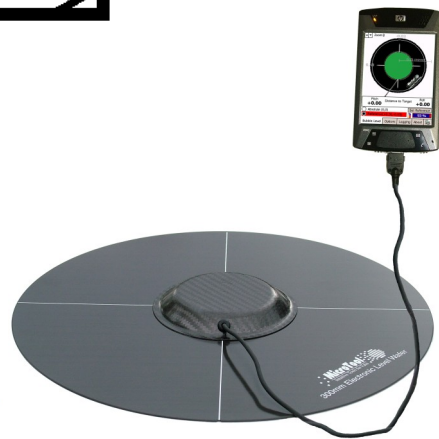


824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com





LP-3004

300mm Load Port Checker With AMHS Compatibility

Hardware

Introducing the next generation of aligning and checking your load ports! Used as an inspection tool, the LP-3004 can quickly determine if your load ports are in specification. Used as an alignment tool, the LP-3004 will reduce your setup times and improve your accuracy by providing non-subjective and precise indications of optimal load port alignment.

The LP-3004 inspects 16 parameters for load port alignment. The “real-time” display screens allow for fast, accurate load port setups, while on-screen instructions guide the technician through adjustments. “Report Card” screens provide for quick and easy inspections, minimizing operator errors.

Features

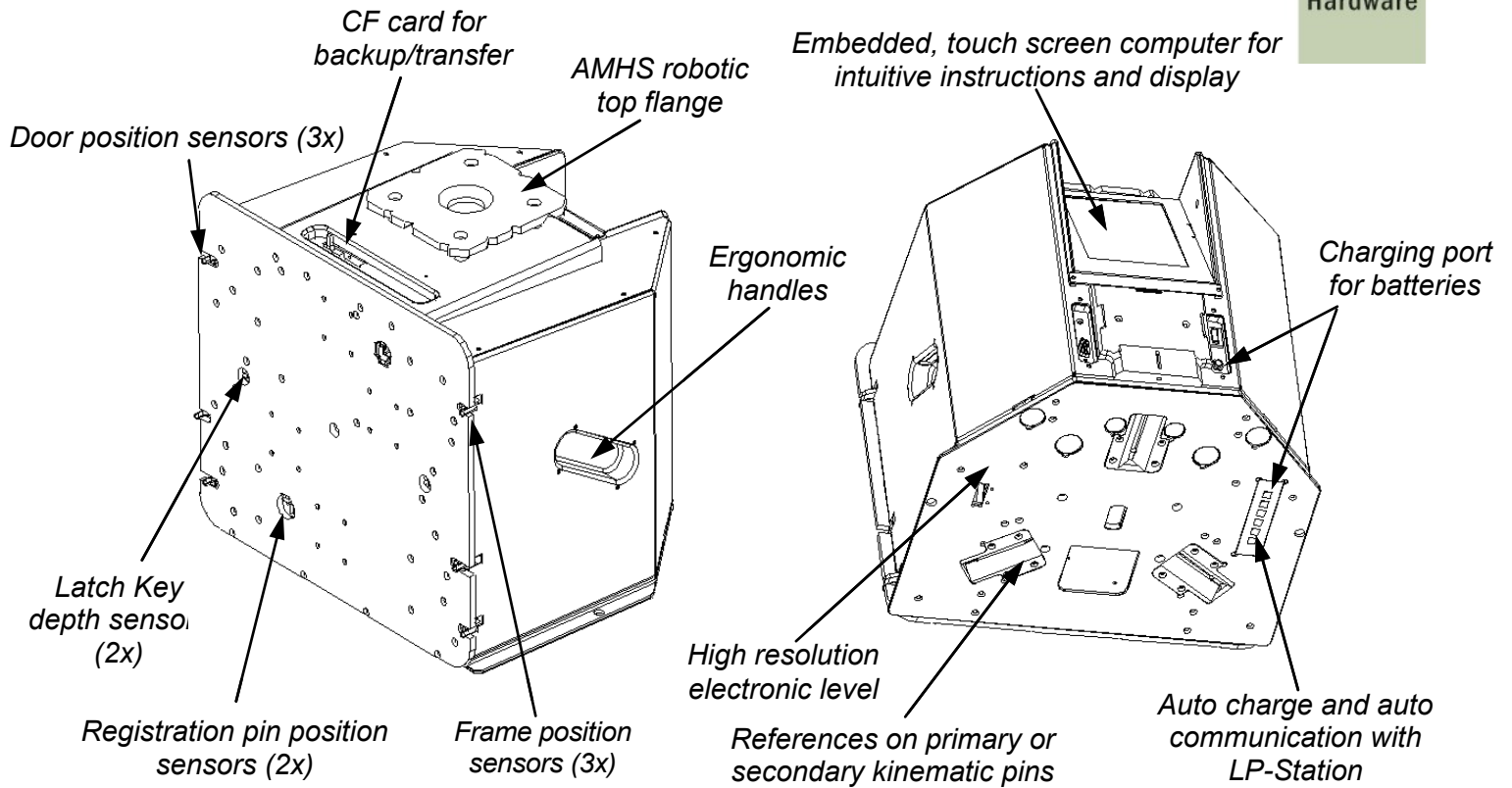
- > “Report Card” screens provide quick and easy inspection.
- > “Real Time” Display screens provide fast and accurate robot setup and adjustments.
- > Numerical displays for statistical tracking to specifications.
- > On-screen instructions provide intuitive operation.
- > Inspects 16 parameters for load port alignment.
- > Embedded computer data logging

Benefits

- > Reduce load port MTTR.
- > Increase load port MTBF.
- > Easy to use.
- > Reduce automation “finger-pointing” issues.
- > Identify and solve root cause problems.
- > Improve fab throughput.
- > Keep load ports up and running.



> LP-3004



Specifications

DESIGN

- Embedded computer provides intuitive real-time display of door position at each corner, frame position at each corner, registration pin position, latch key depth and platform level
- Self-contained, rechargeable electronics package provides hours of use
- Highly sensitive, electronic level provides 0.01 degree resolution
- Precision digital indicators measure door, frame, registration pin and latch key locations to 0.01 mm
- Fully SEMI compliant for load port interface, stocker storage, and AMHS transport

OTHER

- Part size:** 36cm x 46cm x 33cm
(14" x 18" x 13")
- Part weight:** 10 kg (23 lbs)
- Power requirements:** 100/220v charger (included)
- Shipping size:** 55cm x 55cm x 55cm
(22" x 22" x 22")
- Shipping weight:** 15 kg (33 lb)

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FG-3000

Loadport Force Gage

Hardware

It's a fact: 300mm automation is complicated and interoperability issues are expensive! Brooks Automation offers a number of inspection and setup tools to identify and address issues and optimize 300mm automation. The FG-3000 force gage allows you to measure loadport docking force and door closure force to ensure loadport and FOUP interoperability. This is particularly critical with older loadports designed under less demanding SEMI loadport force requirements. Simply place the unit on the kinematic pins, dock and/or close, and take your reading to insure compliance with current manufacturer recommendations.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, loadport alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



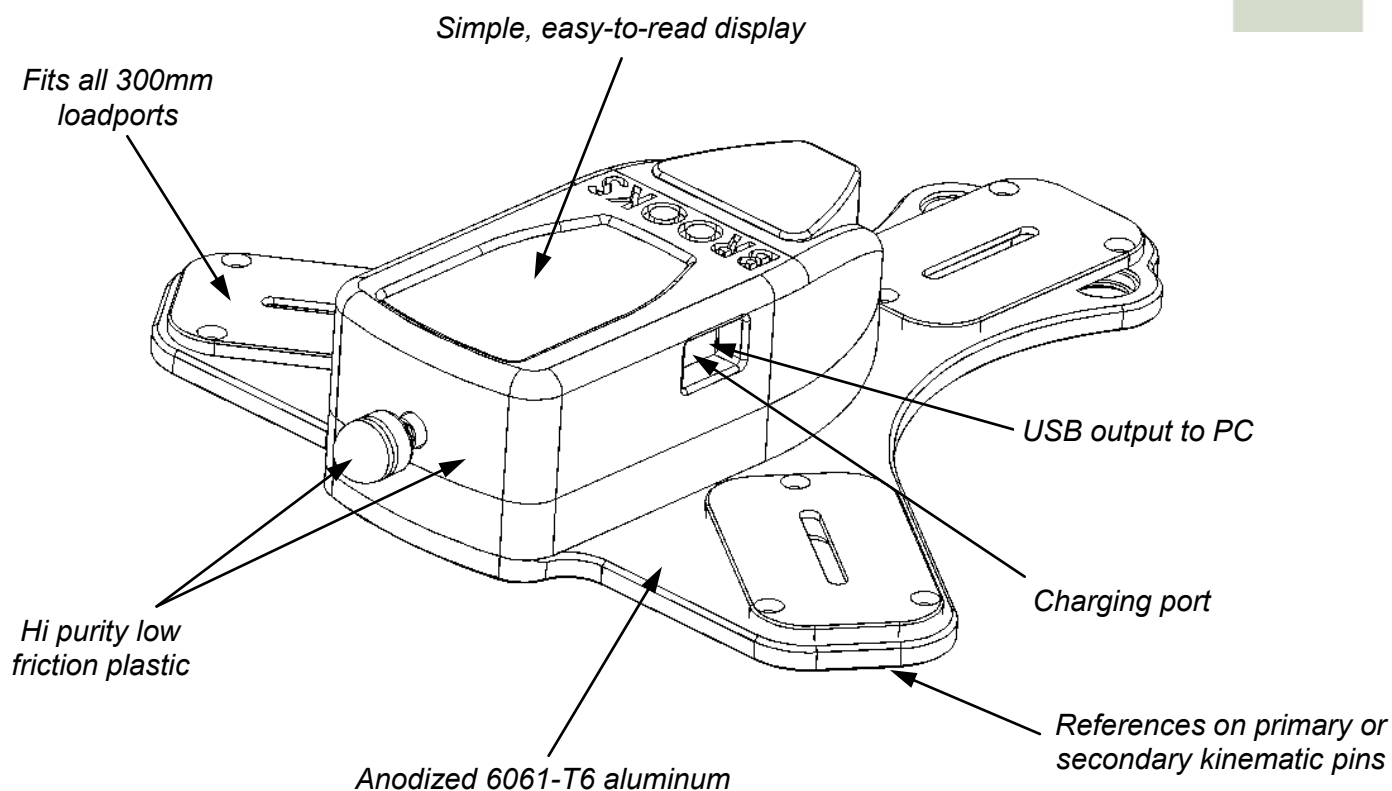
> FG-3000

Features:

- > Quickly and easily measure loadport door closure force and docking force.
- > Compatible with loadports from all manufacturers.
- > Large, easy-to-read, backlit integrated display.
- > USB output to PC software.
- > Rechargeable battery powered.
- > Manufactured from anodized aluminum and high purity low friction plastic.
- > References on primary or secondary kinematic pins.
- > Can return to operation by simply removing the force gauge.

Benefits:

- > Insure loadport and FOUP interoperability.
- > Easily measure loadport force.
- > Save money by properly setting up your loadport.
- > Intuitive operation – minimal training necessary.



Specifications

DESIGN

- Manufactured from anodized aluminum

COMPATIBILITY

- Compatible with loadports from all manufacturers
- Compatible with all SEMI standard kinematic pin configurations

OTHER

Part size: 250mm x 250mm x 101mm
(10" x 10" x 4")

Part weight: 1 kg (2 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
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EL-Series

Next Generation Electronic Level Wafer

Hardware

Soon to be the most used item in your toolkit! Keep all of your equipment "on-the-level" with Brooks' electronic level wafer.

Matching the weight of a silicon wafer, this versatile tool's design allows use on end effectors and wafer handling blades as well as in wafer cassettes and quartz boats. The simple-to-use display allows you to level to earth or to your own user-defined reference plane. Intuitive graphics and touch screen simplify operation, while the remote real-time display is convenient for remote adjustments.



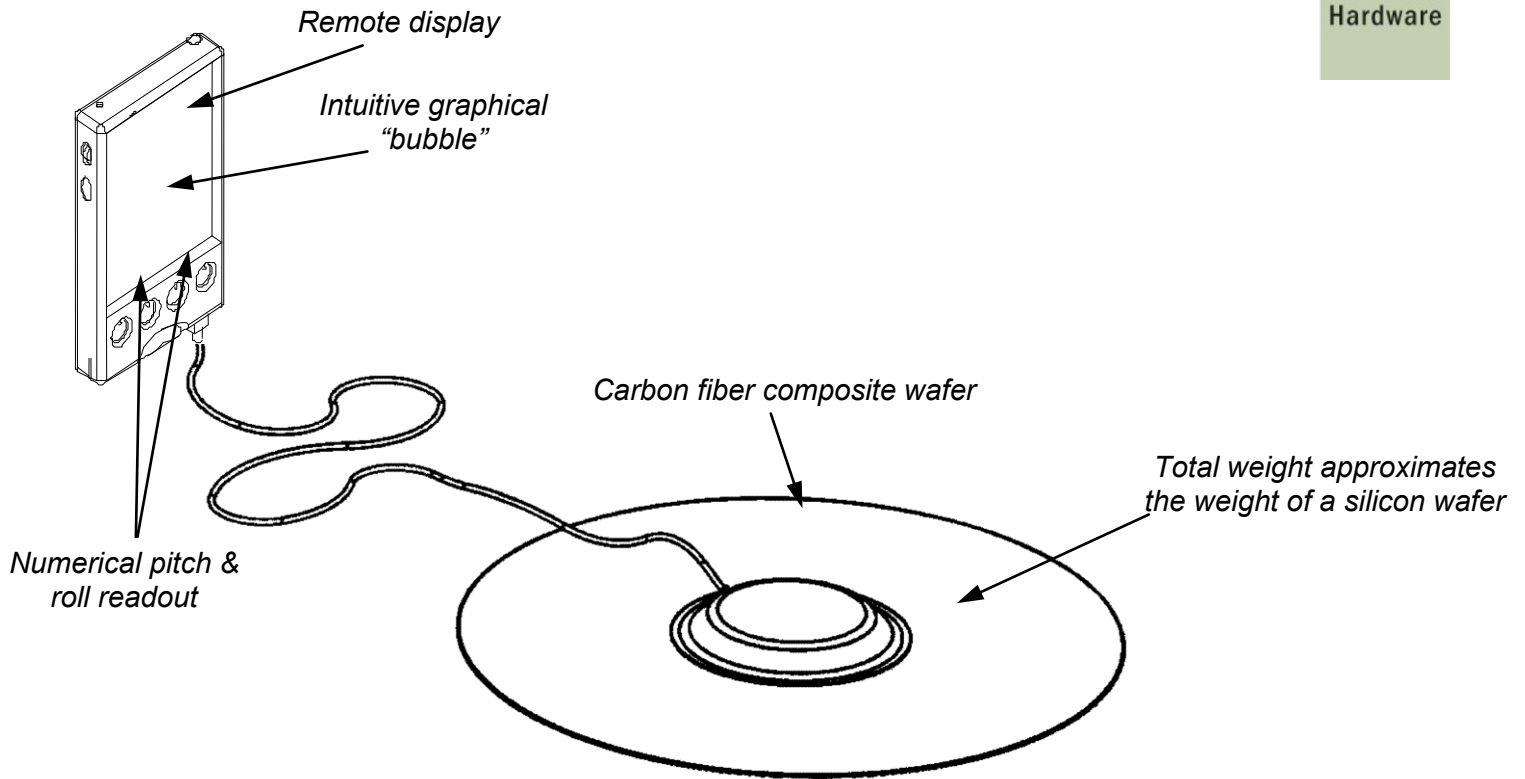
- > EL-3003 wafer shown with handheld computer

Features:

- > 2-Axis electronic level for leveling to ground or to a learned reference
- > Numerical readout for both pitch and roll allows for statistical analysis and calibration to specification
- > Intuitive graphics screens and touch screen LCD simplify operation
- > Adjustments can be made conveniently using the remote real-time display
- > Carbon fiber wafer mimics the geometry and weight of a silicon wafer
- > New high resolution, high accuracy electronic level
- > New low profile – fits through more slit valves
- > Fast settling time
- > Improved software with user setup capabilities
- > Settable tolerances w/ graphical pass/fail indication
- > Data logging allows dynamic studies and facilitates monitoring equipment over time

Benefits:

- > Save time aligning equipment
- > Increase yield and throughput
- > Solve root-cause handling issues
- > Eliminate wafer scratches
- > Increase MTBF



Specifications

DESIGN

- Highly sensitive electronic level
- Numerical readout of pitch and roll
- Remote display can be seen from point of adjustment
- User can define a reference plane
- Part weight approximates weight of silicon wafer

<i>Form Factor</i>	<i>Product Number</i>
150mm	EL-1503
200mm	EL-2003
300mm	EL-3003
450mm	EL-4503
1" X 3" X 3" Block	EL-5003
Reticle	EL-5003-Reticle

OTHER

- Accuracy:** ± 0.02 degrees near zero
- Repeatability:** ± 0.02 degrees
- Resolution:** 0.001 degrees
- Total range:** ± 8 degrees
- Shipping weight:** 3 kg (6 lb)

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EL-5003

Next Generation Electronic Spot Level

Hardware

Soon to be the most used item in your toolkit. Keep all of your equipment “on-the-level” with Brooks’ electronic spot level. Designed as a versatile electronic level, this “spot” level can easily check level at 0 degrees, 90 degrees, and 180 degrees. A mounting-hole pattern can be used to attach the EL-5003 to your reference surface or substrate. The simple-to-use display allows you to level to earth or to your own user-defined reference plane. Intuitive graphics and touch screens simplify operation, while the remote real-time display is convenient for making equipment adjustments.

Brooks’ Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



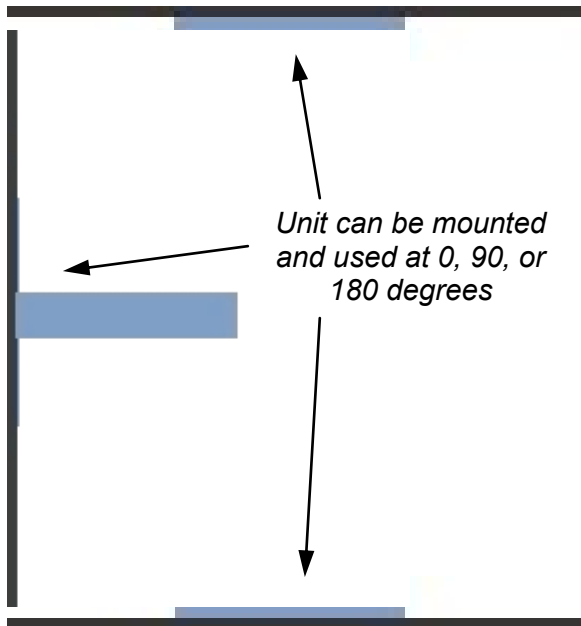
- > EL-5003 shown with handheld computer

Features:

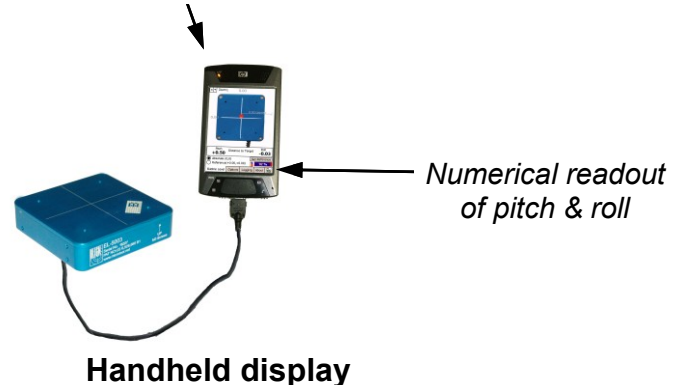
- > New high resolution, high accuracy electronic level.
- > Remote adjustments can be made conveniently using the remote real-time display.
- > Precision-machined aluminum housing provides level reference on four surfaces.
- > Fast settling time
- > Improved software with user setup capabilities.
- > 2-Axis electronic level for leveling to ground or to a learned reference.
- > Numerical readout for both pitch and roll allows for statistical analysis and calibration to specification.
- > Intuitive graphics screens and touch screen LCD simplify operation.

Benefits:

- > Save time aligning equipment.
- > Increase yield and throughput.
- > Solve root-cause handling issues.
- > Eliminate wafer scratches.
- > Increase MTBF.

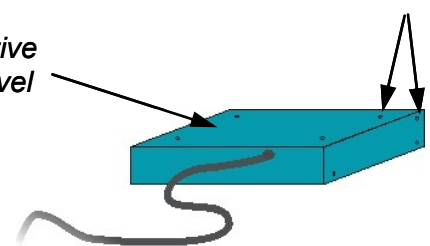


Intuitive graphical "bubble"



Highly sensitive electronic level

Mounting holes allow attachment to five faces



Sensor

Specifications

DESIGN

- Can be attached to a variety of substrates using threaded holes
- Four reference surfaces allow the unit to be used in almost any orientation
- Highly sensitive electronic level
- Numerical readout of pitch and roll
- Remote display can be seen from point of adjustment
- User can define a reference plane
- Lightweight machined anodized aluminum
- M3 screw mounting hole pattern enables user to mount the EL 5003 to your reference surface or substrate

OTHER

- Accuracy:** ± 0.02 degrees near zero
- Repeatability:** ± 0.02 degrees
- Resolution:** 0.001 degrees
- Total range:** ± 8 degrees
- Size:** 3" x 3" x 0.75"
- Shipping weight:** 3 kg (6 lb)

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EL-5003-Reticle

Next Generation Electronic Reticle Level

Hardware

Soon to be the most used item in your toolkit. Keep all of your equipment “on-the-level” with Brooks’ electronic reticle level. Designed to match a 150 mm reticle, this “reticle” level can easily measure robots and reticle positions for level or coplanarity. The simple-to-use display allows you to level to earth or to your own user-defined reference plane. Intuitive graphics and touch screens simplify operation, while the remote real-time display is convenient for making equipment adjustments.

Brooks’ Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



- > EL-5003-Reticle shown with handheld computer

Features:

- > New high resolution, high accuracy electronic level.
- > Remote adjustments can be made conveniently using the remote real-time display.
- > Precision-machined aluminum housing provides level reference on top or bottom surfaces.
- > Fast settling time
- > Improved software with user setup capabilities.
- > 2-Axis electronic level for leveling to ground or to a learned reference.
- > Numerical readout for both pitch and roll allows for statistical analysis and calibration to specification.
- > Intuitive graphics screens and touch screen LCD simplify operation.

Benefits:

- > Save time aligning equipment.
- > Increase yield and throughput.
- > Solve root-cause handling issues.
- > Eliminate wafer scratches.
- > Increase MTBF.



Specifications

DESIGN

- Matches a 150mm reticle substrate
- Highly sensitive electronic level
- Numerical readout of pitch and roll
- Remote display can be seen from point of adjustment
- User can define a reference plane
- Lightweight machined anodized aluminum approximates the weight of a reticle

OTHER

Accuracy: ± 0.02 degrees near zero

Repeatability: ± 0.02 degrees

Resolution: 0.001 degrees

Total range: ± 8 degrees

Size: 6" x 6"

Shipping weight: 3 kg (6 lb)

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20050708



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
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EL-5003-KP

Electronic Kinematic Level

Hardware

Keep your equipment “on-the-level” with Brooks’ kinematic pin electronic level. Designed to rest on SEMI standard kinematic pins, this specialized level can accurately measure your load port’s level or co-planarity (or that of many other interfaces). A remote touch-screen display with real-time graphic and numeric data provides simplicity, accuracy, and flexibility. The intuitive interface allows you to level to earth or to your own user-defined reference plane, easily making two interfaces co-planar without leveling to earth. Equipment adjustments are completed quickly and accurately with the help of the remote real-time display. While the unique design offers unprecedented accuracy in leveling kinematic pins, the bottom surface can also be used in a variety of other leveling applications.

Brooks’ Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



- > EL-5003-KP shown with handheld computer

Features:

- > High resolution, high accuracy electronic level.
- > 2-Axis electronic level for leveling to ground or to a learned reference.
- > Remote adjustments can be made conveniently using the remote real-time display.
- > Fast settling time provides real-time response.
- > Precision-machined kinematic plate is uniquely capable of accurately aligning kinematic pins.
- > Numerical readout for both pitch and roll allows for statistical analysis and calibration to specification.
- > Intuitive graphics screens and touch screen LCD simplify operation.
- > Flexible software with user setup capabilities such relative reference planes, tolerance warnings, and data logging.

Benefits:

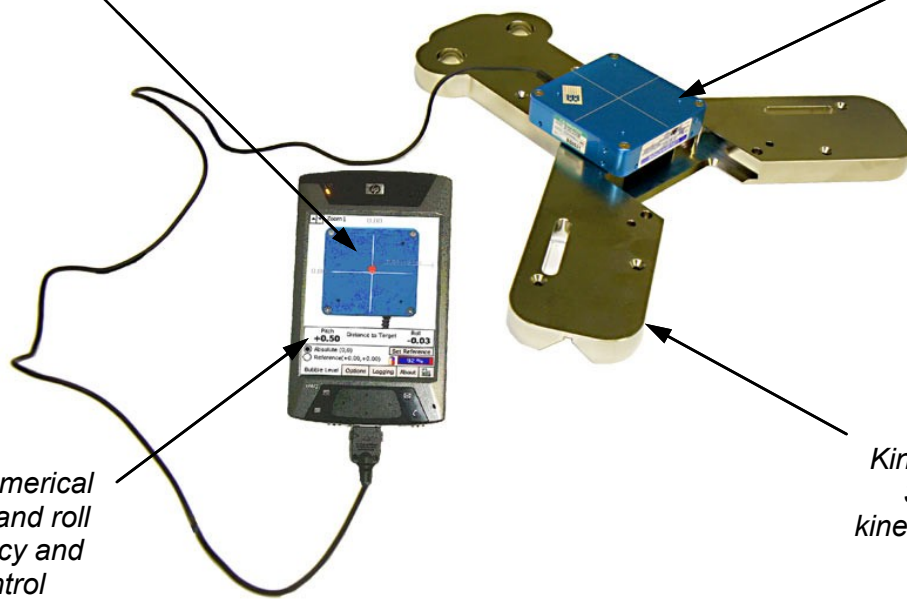
- > Save time aligning equipment.
- > Increase yield and throughput through accurate alignment.
- > Solve root-cause handling issues.
- > Eliminate wafer scratches.
- > Increase MTBF.

Hand held computer offers intuitive display with familiar "bubble" style level

Highly sensitive 2-axis electronic level

Simultaneous numerical readout of pitch and roll provides accuracy and statistical control

Kinematic plate with SEMI standard kinematic pin interface



Specifications

DESIGN

- Kinematic plate design provides precise SEMI standard kinematic pin interface.
- Highly sensitive 2-axis electronic level.
- Numerical readout of pitch and roll.
- Remote display can be seen from point of adjustment.
- User can define any reference plane.
- Solid machined aluminum construction with anodized and nickel plated finish ensures precision and clean-room compatibility.

OTHER

Accuracy: ± 0.02 degrees near zero

Repeatability: ± 0.02 degrees

Resolution: 0.001 degrees

Total range: ± 8 degrees

Size: 12" x 12"

Shipping weight: 3 kg (6 lb)

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BL-Series

Precision Bubble Levels

Hardware

This simple tool will be the most used item in your toolkit. Keep all of your equipment “on-the-level” with Brooks’ precision bubble level. Designed to match the weight of a wafer, this level can be used on wafer end effectors and blades, as well as cassette platforms and stages. Used as a pair, they can ensure that your wafer and cassette are coplanar.

Brooks’ Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

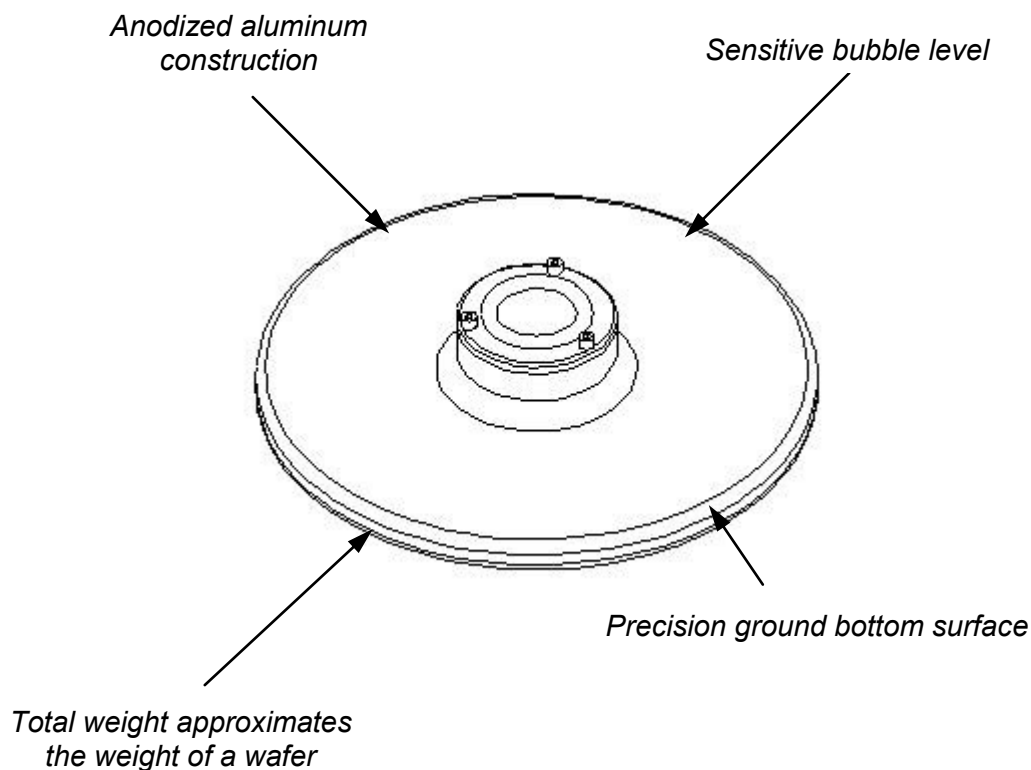
- > Level is sensitive and provides 30-minute resolution.
- > Manufactured from anodized aluminum.
- > Precision ground bottom surface.
- > Total weight approximates the weight of a silicon wafer.
- > Flat base works on vacuum end effectors.
- > Can be used on blades, cassette platforms and stages.
- > Designed to mimic the weight of a wafer when testing tools.

Benefits:

- > Improve MTTR.
- > Increase MTBF.
- > Save maintenance time.



> BL-Series Precision Bubble Levels



Specifications

DESIGN

- Sensitive level provides 30-minute resolution per 0.1" (2.5mm) of bubble travel
- Part weight approximates weight of silicon wafer
- Flat base works on vacuum end effectors
- Use BL-150 for 100mm and 125mm equipment

OTHER

Shipping weight: 0.5 kg (1 lb)

Part #	Diameter	Height	Weight
BL-150	2.125"	0.486"	28 grams
BL-200	2.500"	0.565"	54 grams
BL-300	3.500"	0.635"	128 grams

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RC-3003

300mm Robot Alignment Tool

Hardware

Stop “eyeball” alignments! Brooks’ ALIGN™ series of alignment tools provide a fast, repeatable and highly accurate method of aligning your wafer handling equipment — from wafer sorters and inspection tools to cluster tools and equipment front ends. Increase your yield and throughput through more accurate alignments while saving up to 75% of the time required by “eyeball” alignments.

The RC-3003 Robotic Alignment Tool uses optical non-contact measurement sensors to analyze robotic motion. The motion of the wafer is characterized in slots 1-5 and 21-25 in five axes: X, Y, Z, RX, and RY. Using on-screen instructions and “real time” graphical displays, the technician can make accurate adjustments to the machine setup. Numerical readouts provide statistical analysis, while Pass/Warn/Fail labels allow for fast, simple inspection of robots.

- > RC-3003 shown with handheld computer

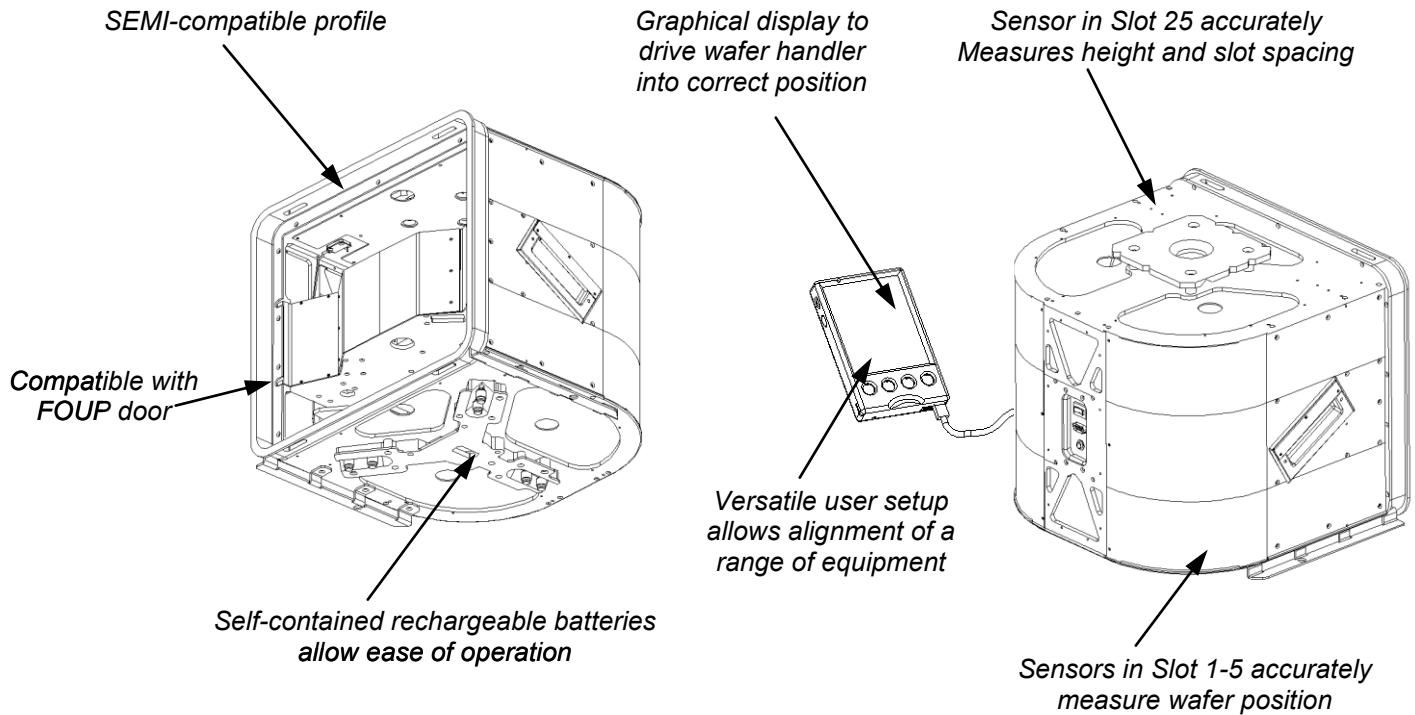


Features:

- > On-screen instructions provide intuitive operation.
- > “Real Time” Display screens provide fast and accurate robot setup and adjustments.
- > Optical non-contact measurement sensors analyze robotic motion.
- > Wafer motion is characterized in 5 degrees of freedom: X, Y, Z, RX, & RY.
- > Compatible with 5-finger end effectors.
- > Measures a wafer in slots 1-5 and 21-25
- > Bubble screen provides intuitive display of platform or wafer pitch and roll.

Benefits:

- > Improve wafer handling.
- > Save maintenance time.
- > Reduce MTTR.
- > Increase MTBF.
- > Reduce particulation and increase yield.
- > Eliminate wafer scratching.



Specifications

DESIGN

- Non-subjective and highly repeatable sensors replace the traditional "eyeball" alignment
- Full 5-axis alignment in slot 1-5 and 21-25.
- Intuitive display guides operator to correct robot position for X, Y, Z, rX, and rY (height, rotation, extension, pitch, and roll)
- Easy to read real-time display allows platform leveling
- Can be used to check or teach alignment
- Self-contained unit is battery operated
- Windows® CE-based controller provides power and flexibility
- On-board data logging capability

COMPATIBILITY

- SEMI-compatible profile assures interface with nearly all wafer handling equipment.
- Drop-in replacement for FOUN in most equipment.

OTHER

Power required: 110/220-volt charger (included)

Part size: 355mm x 455mm x 355mm (14" x 18" x 14")

Part weight: 10 kg (22 lb)

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RC-2005

200mm Robot Alignment Tool

Hardware

Stop “eyeball” alignments! Brooks’ ALIGN™ series of alignment tools provide a fast, repeatable, and highly accurate method of aligning your wafer handling equipment. Versatile software in the RC-2005 aligns a range of wafer handlers. Save your wafers and save your time!

The RC-2005 Robotic Alignment Tool uses optical non-contact measurement sensors to analyze robotic motion. The motion of the wafer is characterized by five different degrees of freedom: X, Y, Z, RX, and RY. Using on-screen instructions and “real time” graphical displays, the technician can make accurate adjustments to the machine setup. Numerical readouts provide statistical analysis, while Pass/Warn/Fail labels allow for fast, simple inspection of robots.

Features:

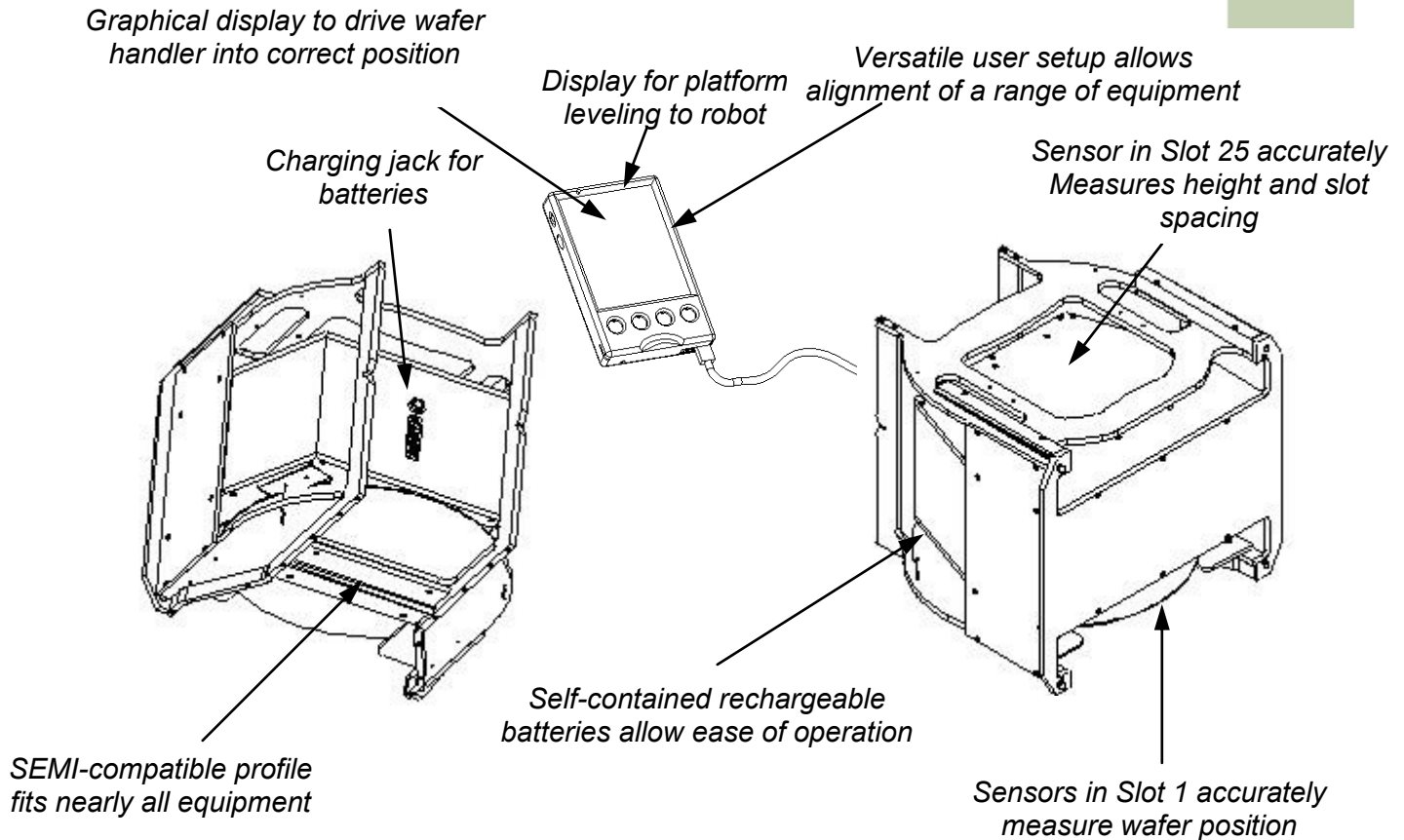
- > On-screen instructions provide intuitive operation.
- > “Real Time” Display screens provide fast and accurate robot setup and adjustments.
- > Optical non-contact measurement sensors analyze robotic motion.
- > Wafer motion is characterized in 5 degrees of freedom: X, Y, Z, RX, & RY.
- > Bubble screen provides intuitive display of platform or wafer pitch and roll.

Benefits:

- > Improve wafer handling.
- > Save maintenance time.
- > Reduce MTTR.
- > Increase MTBF.
- > Reduce particulation and increase yield.
- > Eliminate wafer scratching.



- > RC-2005 shown with handheld computer



Specifications

DESIGN

- Non-subjective and highly repeatable sensors replace the traditional "eyeball" alignment
- Intuitive display guides operator to correct robot position for X, Y, Z, rX, and rY (height, rotation, extension, pitch, and roll)
- Easy to read real-time display allows platform leveling
- Can be used to check or teach alignment
- Self-contained unit is battery operated
- Windows® CE-based controller provides power and flexibility

COMPATIBILITY

- SEMI-compatible profile assures interface with nearly all wafer handling equipment.
- Drop-in replacement for cassette in most equipment.

OTHER

Power required: 110/220-volt charger included

Part size: 225mm x 225mm x 200mm
(9" x 9" x 8")

Part weight: 3.6kg (8.0 lb)

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RC-2004

200mm Robot Alignment Tool

Hardware

Stop “eyeball” alignments! Brooks’ ALIGN series of alignment tools provide a fast, repeatable, and highly accurate method of aligning your wafer handling equipment. Optimized for cluster tools, the RC-2004 will increase your yield and throughput with more accurate alignments while saving up to 75% of the time required by “eyeball” alignments.

Brooks’ Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



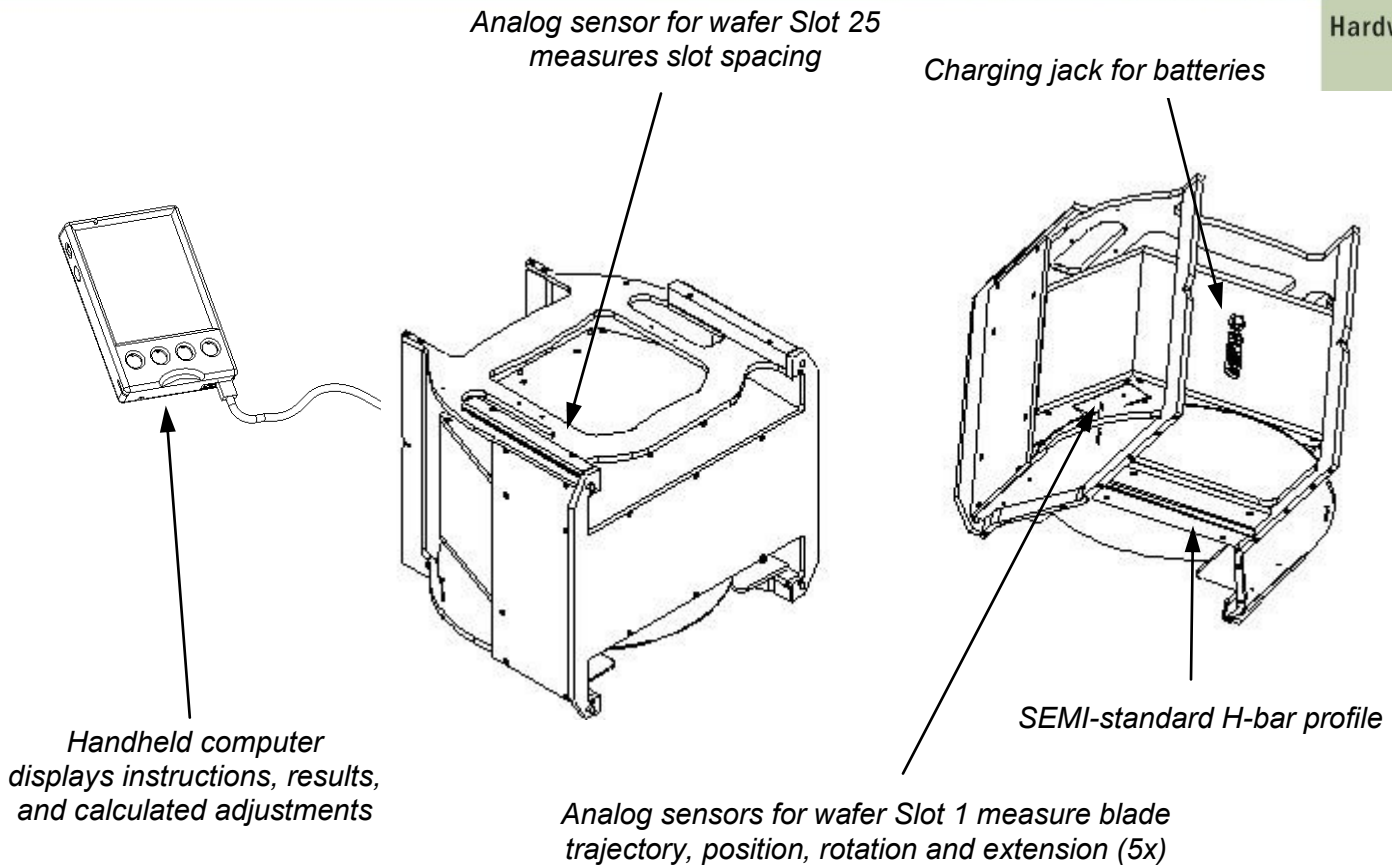
> RC-2004 Robotic Alignment Tool

Features:

- > On-screen instructions provide intuitive operation.
- > “Real Time” Display screens provide fast and accurate robot setup and adjustments.
- > Optical non-contact measurement sensors analyze robotic motion.
- > Wafer motion is characterized in 5 degrees of freedom: X, Y, Z, RX, & RY.
- > Bubble screen provides intuitive display of platform or wafer pitch and roll.

Benefits:

- > Improve wafer handling.
- > Save maintenance time.
- > Reduce MTTR.
- > Increase MTBF.
- > Reduce particulation and increase yield.
- > Eliminate wafer scratching.



Specifications

DESIGN

- Non-subjective and highly repeatable sensors replace the traditional "eyeball" alignment
- Intuitive display guides operator step-by-step through the measurement process
- Operator quickly gets current calibration status
- Operator is guided thorough adjustment steps
- Blade trajectory is measured with analog sensor array
- Optimized platform level is indicated
- Self-contained unit is battery operated
- Windows® CE-based controller provides power and flexibility

COMPATIBILITY

- SEMI-compatible profile assures interface with nearly all wafer handling equipment.
- Drop-in replacement for cassette in most equipment.

OTHER

Power required: 110/220-volt charger included

Part size: 225mm x 225mm x 200mm
(9" x 9" x 8")

Part weight: 3.6kg (8.0 lb)

824 South Tejon Street
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Fax: (719) 471-9977
Web: www.microtool.net

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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



RC-1504

150mm Robot Alignment Tool

Hardware

Stop “eyeball” alignments! Brooks’ ALIGN series of alignment tools provide a fast, repeatable, and highly accurate method of aligning your wafer handling equipment. Optimized for cluster tools, the RC-1504 will increase your yield and throughput with more accurate alignments while saving up to 75% of the time required by “eyeball” alignments. Stop finger pointing with a fast inspection which identifies problem areas in minutes, and replace subjective “eyeball” alignments with a fast and accurate scientific solution.

Brooks’ Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



- > RC-1504 Robotic Alignment Tool

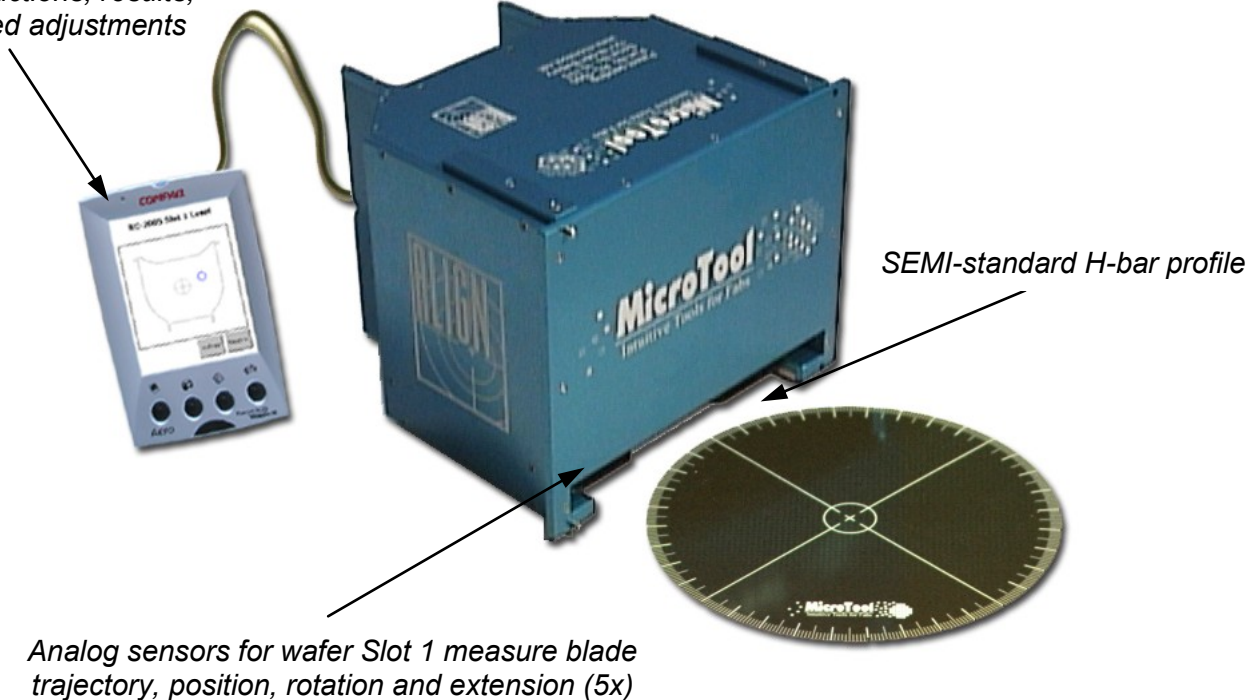
Features:

- > On-screen instructions provide intuitive operation.
- > “Real Time” Display screens provide fast and accurate robot setup and adjustments.
- > Optical non-contact measurement sensors analyze robotic motion.
- > Wafer motion is characterized in 5 degrees of freedom: X, Y, Z, RX, & RY.
- > Report card quickly identifies problem areas.
- > Real-time graphics and calculators painlessly guide you to an optimal teach.

Benefits:

- > Improve wafer handling.
- > Save maintenance time.
- > Reduce MTTR.
- > Increase MTBF.
- > Reduce particulation and increase yield.
- > Eliminate wafer scratching.

Handheld computer displays instructions, results, and calculated adjustments



Analog sensors for wafer Slot 1 measure blade trajectory, position, rotation and extension (5x)

Specifications

DESIGN

- Non-subjective and highly repeatable sensors replace the traditional "eyeball" alignment
- Intuitive display guides operator step-by-step through the measurement process
- Operator quickly gets current calibration status
- Operator is guided thorough adjustment steps
- Blade trajectory is measured with analog sensor array
- Optimized platform level is indicated
- Self-contained unit is battery operated
- Windows® CE-based controller provides power and flexibility

COMPATIBILITY

- SEMI-compatible profile assures interface with nearly all wafer handling equipment.
- Drop-in replacement for cassette in most equipment.

OTHER

Power required: 110/220-volt charger included

Part size: 178mm x 178mm x 146mm
(7" x 7" x 5.75")

Part weight: 2.26kg (5.0 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net

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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



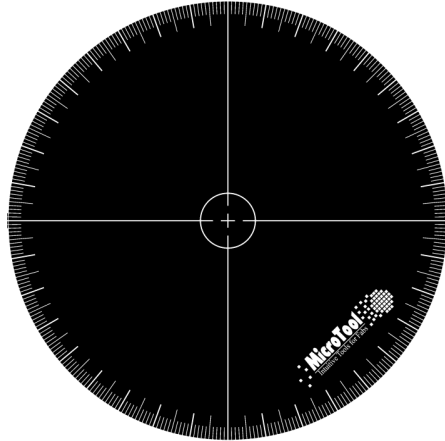
CF-Series

Carbon Fiber Dummy Wafers

Hardware

Set up and cycle test your equipment without breaking silicon wafers. This high-tech carbon fiber composite wafer is virtually indestructible and is manufactured to SEMI-standard diameter, flatness and notch specifications. Carbon fiber dummy wafers are also designed to mimic the weight and structural characteristics of silicon wafers. Do you have a special application? We can design the wafer to meet your custom specifications! Some of the possible options are: custom artwork, holes, oversized and undersized wafer diameter.

Brooks' MicroTool product line increases yield and equipment uptime by improving critical handling operations. Products include robot alignment systems, load port alignment tools, electronic levels, carbon fiber and glass dummy wafers, cassette inspection tools, and bridge adapters to allow equipment to handle multiple wafer sizes. Services include tool and fab-wide calibration services applying these enabling tools and our automation expertise.



- > The CF-300 carbon fiber wafer— virtually indestructible!



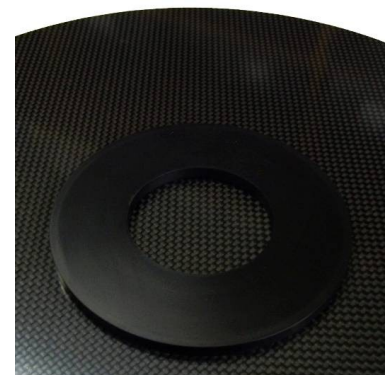
- > Custom wafer examples

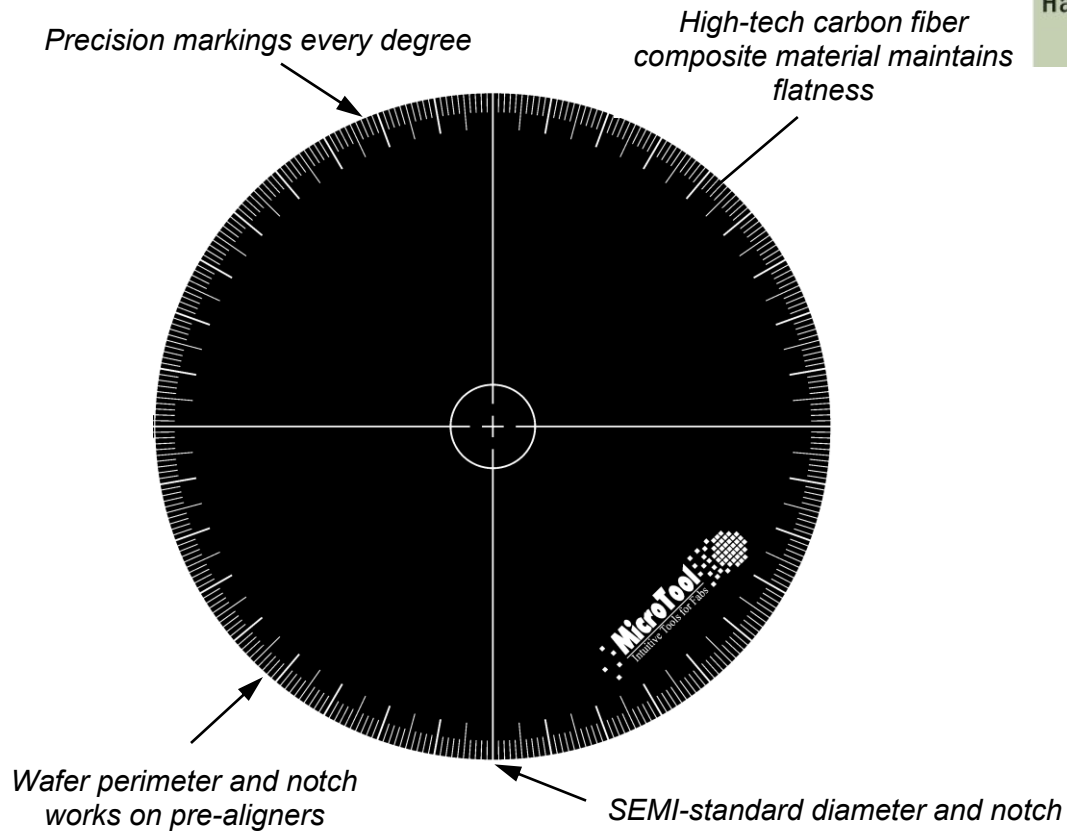
Features:

- > Available in 125,150, 200, 300 and 450mm SEMI-compatible diameters.
- > Customization of printed patterns and machined geometries is also available.
- > Carbon Fiber material approximates the weight of a silicon wafer.
- > Wafer perimeter and notch compatible with pre-aligners.
- > Carbon Fiber Material is virtually indestructible.
- > Compatible with vacuum and edge-grip end-effectors.

Benefits:

- > Lasts longer than silicon or other dummy wafers.
- > Burn-in and set up equipment without the risk of breaking silicon.
- > Save time and money.
- > Various "puck" applications for physically aligning end-effectors, chucks, etc.





Specifications

DESIGN

- Available in 125mm through 450mm SEMI-compatible diameters
- Part weight and stiffness approximates that of silicon wafers
- High-tech carbon fiber composite material maintains flatness
- Vacuum end-effector compatible
- Semi notch allows the edge to be sensed in prealigners and orienters
- Material is virtually indestructible
- Lower cost than 300mm silicon wafers
- Patent pending

CF-SERIES

Part #	Diameter	Thickness
CF-125	125.00 +/- 0.15mm	1.2mm
CF-150	150.00 +/- 0.15mm	1.2mm
CF-200	200.00 +/- 0.15mm	1.2mm
CF-300	300.00 +/- 0.15mm	1.2mm
CF-450	450.00 +/- 0.15mm	1.2mm

SHIPPING INFORMATION

Shipping weight: 0.5 kg (1 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.brooks.com/microtool



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



TW-Series

100mm-300mm Target Wafers

Hardware

Tired of paying for the downtime it takes to align your wafer handling equipment only to discover defects caused by misalignment? Looking for a simple way to improve the accuracy and reduce the time it takes to align equipment? Brooks' target wafers are the answer!

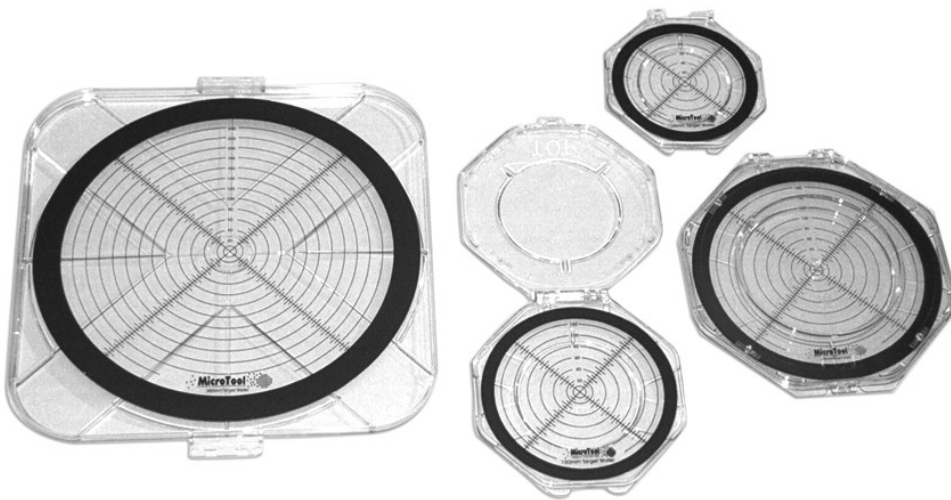
Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

- > Available in 125, 150, 200, 300 and 450 mm sizes.
- > Manufactured from clear, precision ground glass.
- > Precision markings placed on the wafer at every 2.5mm.
- > Opaque perimeter allows the edge to be detected by wafer handling equipment.
- > "Virtual" notch allows for compatibility with tools that require a notch.

Benefits:

- > Saves time and improves accuracy by limiting misalignment.
- > Simple to use, minimizing operator errors.
- > Improve MTTR.
- > Increase MTBF.



- > Various wafers in the TW-Series line

Precision markings every 2.5mm

Opaque perimeter is detected by pre-aligners

Crystal clear, precision ground, "microscope slide" quality glass

"Virtual" notch (200mm and 300mm)

DESIGN

- Available in 100mm, 125mm, 150mm, 200mm, 300mm, and 450mm SEMI-compatible diameters
- Crystal clear, precision ground Aluminosilicate quality glass
- "Virtual" notch allows compatibility with equipment that requires the presence of a notch
- Each target wafer ships in a sturdy and convenient storage box
- Patent pending

Part #	Diameter	Thickness
TW-100	100.00 +/- 0.15mm	750 +/- 75µm
TW-125	125.00 +/- 0.15mm	750 +/- 75µm
TW-150	150.00 +/- 0.15mm	750 +/- 75µm
TW-200	200.00 +/- 0.15mm	750 +/- 75µm
TW-300	300.00 +/- 0.15mm	1100 +/- 100µm
TW-450	400.00 +/- 0.15mm	1100 +/- 100µm

OTHER

Part size (with case): Wafer diameter + 25mm

Part weight: 0.25 kg (.5 lb)

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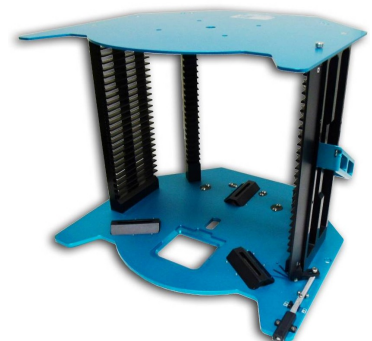
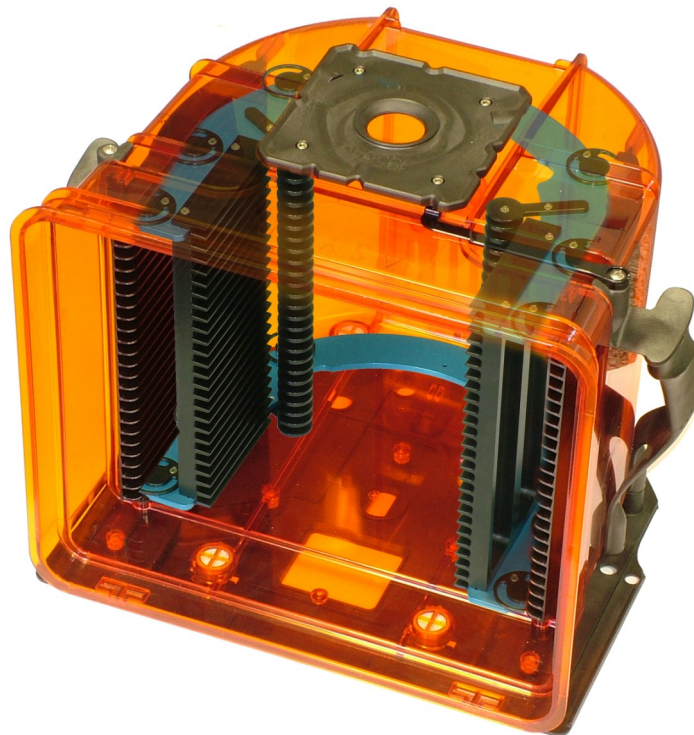
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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com

INTER face





AM-3010

Universal Wafer Adapter for 300mm Loadports

Hardware

Handling multiple sizes of wafers is difficult and expensive! Brooks' AM-3010 wafer adapter allows 300mm, 200mm, 150mm, and 100mm cassettes to be processed inside a 300mm FOUP style microenvironment, all with standard 300mm equipment. Using the same system for all wafer sizes expands the capability of 300mm equipment and saves time and money. Simply place the unit on your loadport to handle the various wafer sizes and cassettes. 300mm can also be handled inside the adapter in an open cassette, or remove the adapter at any time to return to 300mm FOUP's. If you are using a Brooks Jet EFEM or Vision loadport, the system will also automatically detect wafer size for seamless handling.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for conversion between 450mm, 300mm, 200mm, 150mm and 100mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



Features:

- > Constructed from anodized aluminum and high purity thermoplastics.
- > Kinematic interface features seat the adapter firmly, yet allow for easy removal.
- > Compatible with most loadports.
- > Allows 300mm, 200mm, 150mm, and 100mm cassettes to be processed within a 300mm FOUP style container.
- > References on primary or secondary kinematic pins.
- > Optical / mechanical in place sensor pads.
- > Maintains SEMI standard wafer planes.
- > Compatible with static and dynamic retention methods.

Benefits:

- > Easily switch from 300mm to 200mm, 100mm and 125mm.
- > Save money using multiple size cassettes on a single loadport.
- > Develop 200mm, 150mm and 100mm tools and processes using available 300mm resources.
- > Enjoy latest generation 300mm tools and still process 200mm, 150mm and 100mm wafers.
- > Test process changes on lower cost wafers.
- > Accelerate the development and implementation timeline.

Clear high purity ESD plastic windows for viewing

Easy access rear door for cassette placement

Ergonomic Handles

Door and frame seal zones (accommodates FOUP door)

Anodized aluminum

Registration features for various cassette sizes

Placement sensors trigger presence / placement and identify cassette size

Specifications

DESIGN

- Constructed from anodized aluminum and high-temperature high purity thermoplastics.
- Kinematic interface features seat the adapter firmly, yet allow for easy removal.
- Allows 200mm, 150mm, and 100mm cassettes to be processed within a 300mm FOUP style container.
- Maintains SEMI standard wafer planes
- Wafer contact only with your cassette

COMPATIBILITY

- Compatible with most loadports.
- Compatible with static and dynamic retention methods.

OTHER

Size: 300mm x 300mm x 250mm
(12" x 12" x 10")

Weight: 6.4 kg (14 lb)

Alignment Service Division
824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net

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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

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Fax: (978) 262-2500
Web: www.brooks.com



AM-4500

300mm Wafer Adapter for 450mm FOUPs

Hardware

It's a fact: handling 450mm wafers is expensive! Brooks' AM-4500 wafer adapter allows 300mm wafers to be handled inside a 450mm FOUP, saving you time and money! Simply slide the unit into a FOUP and start reducing your wafer costs. Remove the adapter at any time to return to 450mm capability.

Brooks' MicroTool product line increases yield and equipment uptime by improving critical handling operations. Products include robot alignment systems, load port alignment tools, electronic levels, carbon fiber and glass dummy wafers, cassette inspection tools, and bridge adapters to allow equipment to handle multiple wafer sizes. Services include tool and fab-wide calibration services applying these enabling tools and our automation expertise.



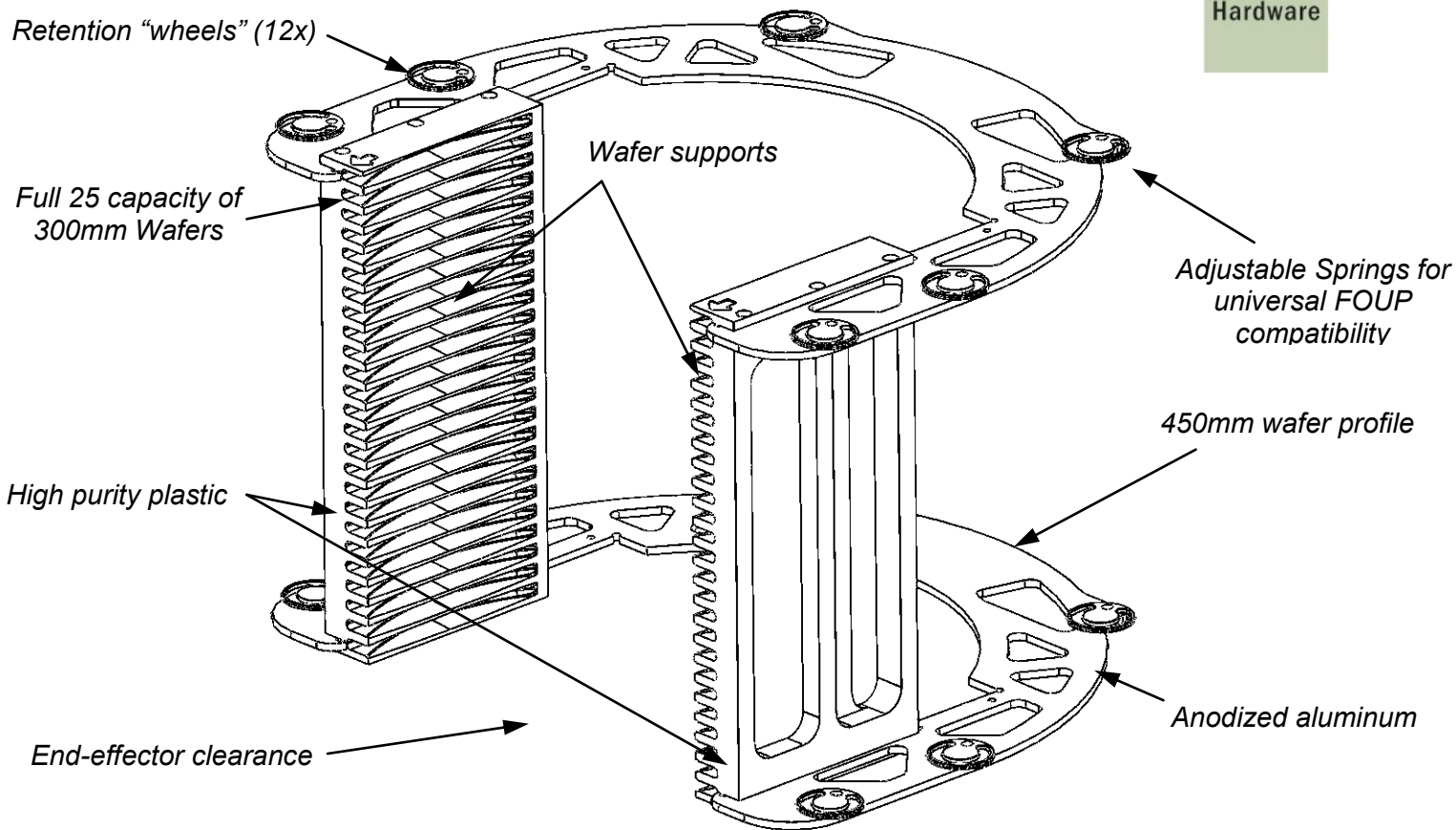
> AM-4500

Features:

- > Constructed from anodized aluminum and high-temperature high purity thermoplastics.
- > Retention features secure the adapter firmly, yet allow for easy installation and removal.
- > Compatible with FOUP's from all manufacturers.
- > Allows 300mm wafers to be handled within a 450mm FOUP.
- > 25 300mm wafer capacity.
- > Able to adjust wafers to forward or center position.
- > Mapper compatible in forward position.
- > Maintains 450mm wafer plane.

Benefits:

- > Easily switch from 300mm to 450mm.
- > Save money using 300mm reference wafers.
- > Develop 450mm tools and processes using available 300mm resources.
- > Enjoy latest generation 450mm tools and still process 300mm wafers.
- > Test process changes on lower cost 300mm wafers.
- > Accelerate the development and implementation timeline.



Specifications

DESIGN

- Adjustable for wafer-forward or wafer-center placement.
- Retention features firmly secure the adapter, yet allow easy removal.
- Manufactured from anodized aluminum and high-temperature high purity thermoplastics.
- Maintains 450mm wafer plane.
- Wafer contact only with high purity thermoplastic risers.

COMPATIBILITY

- Compatible with FOUP's from all manufacturers.
- Consistent with SEMI-standard 8mm lift clearance and 12mm pitch.

OTHER

Size: 450mm x 450mm x 350mm
(16" x 16" x 14")

Weight: 5 kg (11 lb)

Alignment Service Division
824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net



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Brooks Automation, Inc.
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AM-3005 REV B

200mm Wafer Adapter for 300mm FOUPs

Hardware

It's a fact: handling 300mm wafers is expensive! Brooks' AM-3005 wafer adapter allows 200mm wafers to be processed inside a 300mm FOUP — saving you time and money! Simply slide the unit in and start reducing your wafer costs. Remove the adapter at any time to return to 300mm capability.

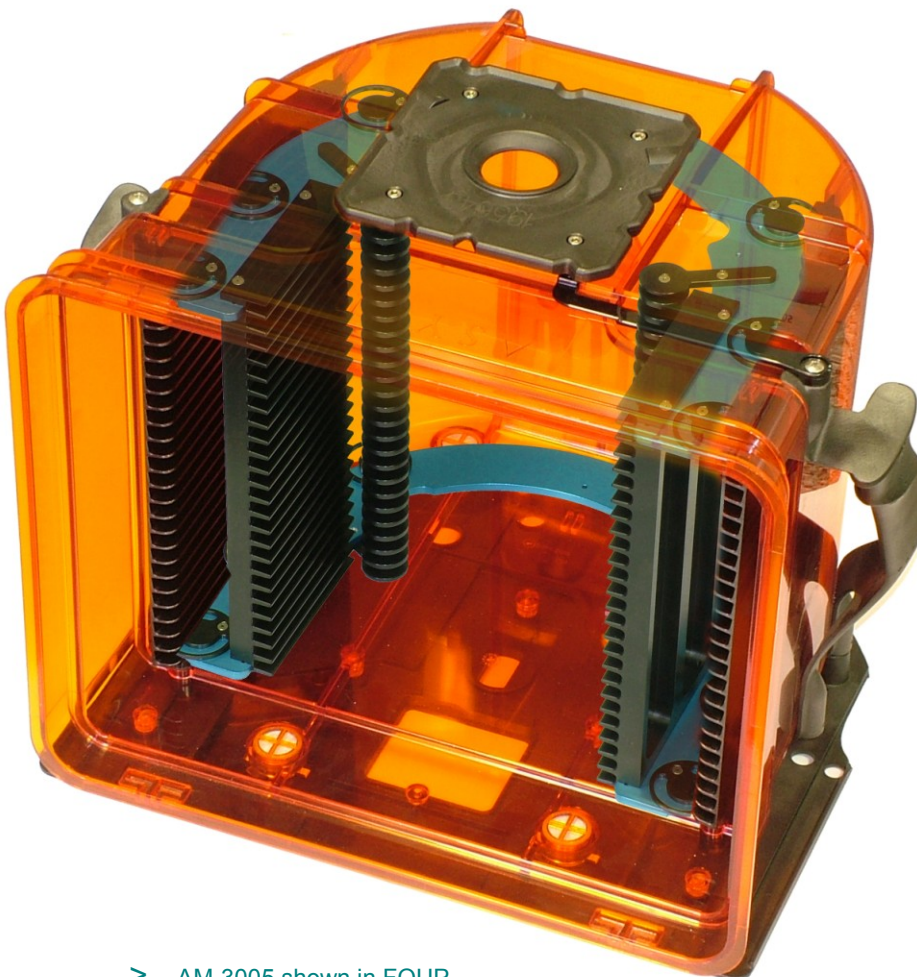
Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

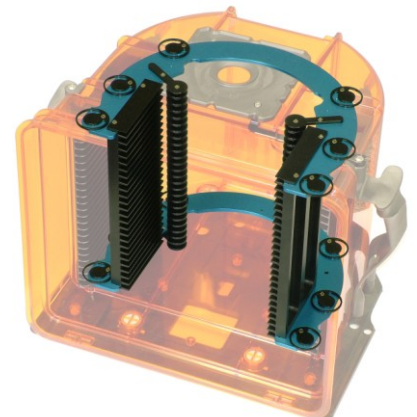
- > Constructed from anodized aluminum and high-temperature thermoplastics.
- > Retention features secure the adapter firmly, yet allow for easy removal.
- > Compatible with FOUPs from all manufacturers.
- > Allows 200mm wafers to be processed within a 300mm FOUP.
- > 25 200mm wafer capacity
- > Able to adjust wafers to forward or center position.
- > Maintains 300mm wafer plane.

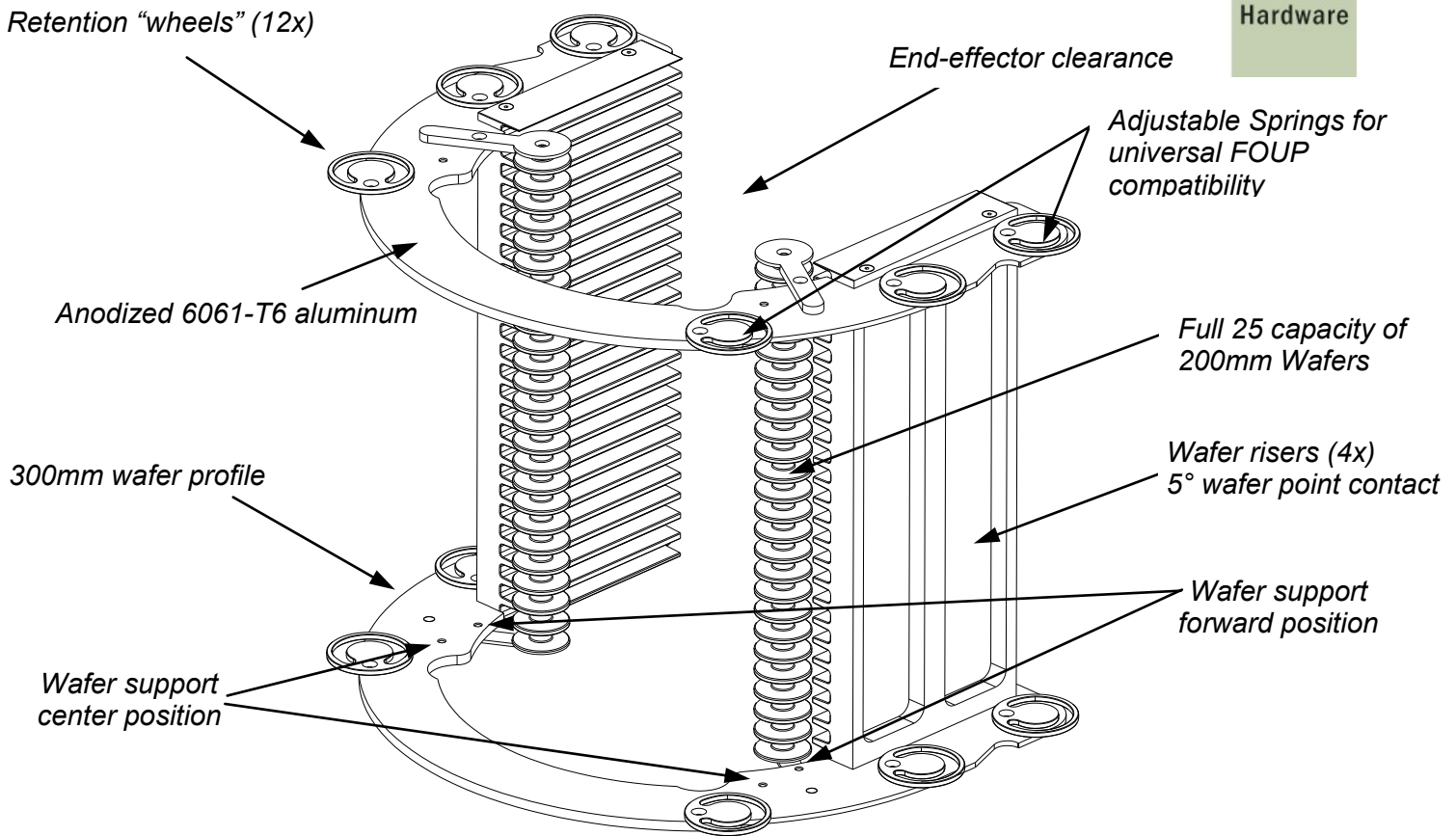
Benefits:

- > Save time.
- > Easily switch from 200mm to 300mm.
- > Save money using 200mm reference wafers.
- > Enjoy latest generation 300mm tools and still process 200mm wafers.
- > Test process changes on lower cost 200mm wafers.



> AM-3005 shown in FOUP





Specifications

DESIGN

- Adjustable for wafer-forward or wafer-center placement
- Retention features firmly secure the adapter — yet allow easy removal
- Manufactured from anodized aluminum and high-temperature thermoplastics
- Maintains 300mm wafer plane
- Wafer contact only with thermoplastic risers

COMPATIBILITY

- Compatible with FOUPs from all manufacturers
- Consistent with SEMI-standard 6mm lift clearance and 10mm pitch

OTHER

Size: 300mm x 300mm x 250mm
(12" x 12" x 10")

Weight: 2 kg (4 lb)

Alignment Service Division
824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net



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15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
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AM-3005-150

150mm Wafer Adapter for 300mm FOUPs

Hardware

Brooks' AM-3005-150 wafer adapter allows 150mm wafers to be processed inside a 300mm FOUP — saving you time and money! Simply slide the unit in and make your 300mm tool compatible with smaller wafer diameters. Remove the adapter at any time to return to 300mm capability.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm and 150mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

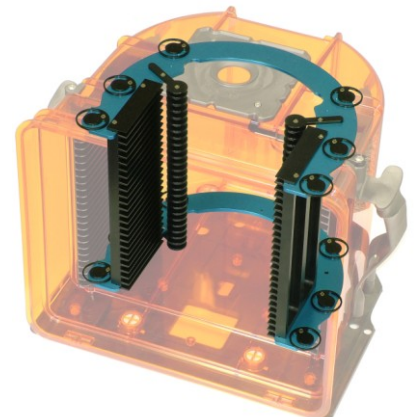
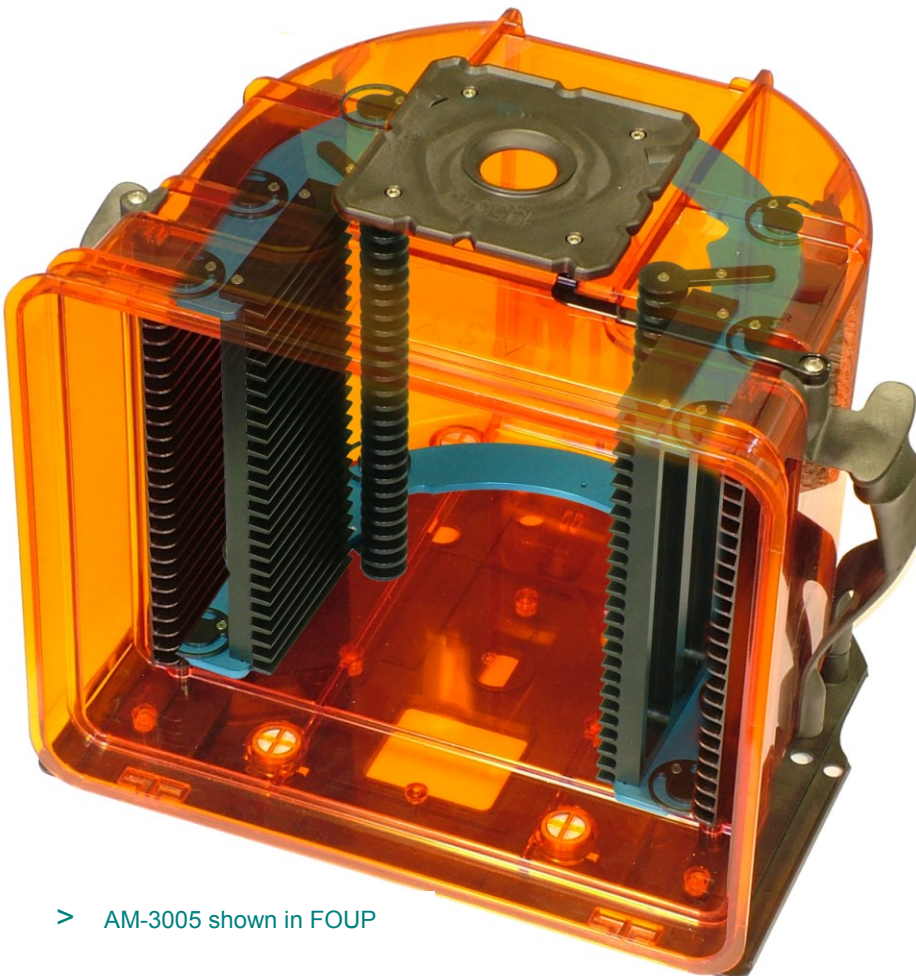
Features:

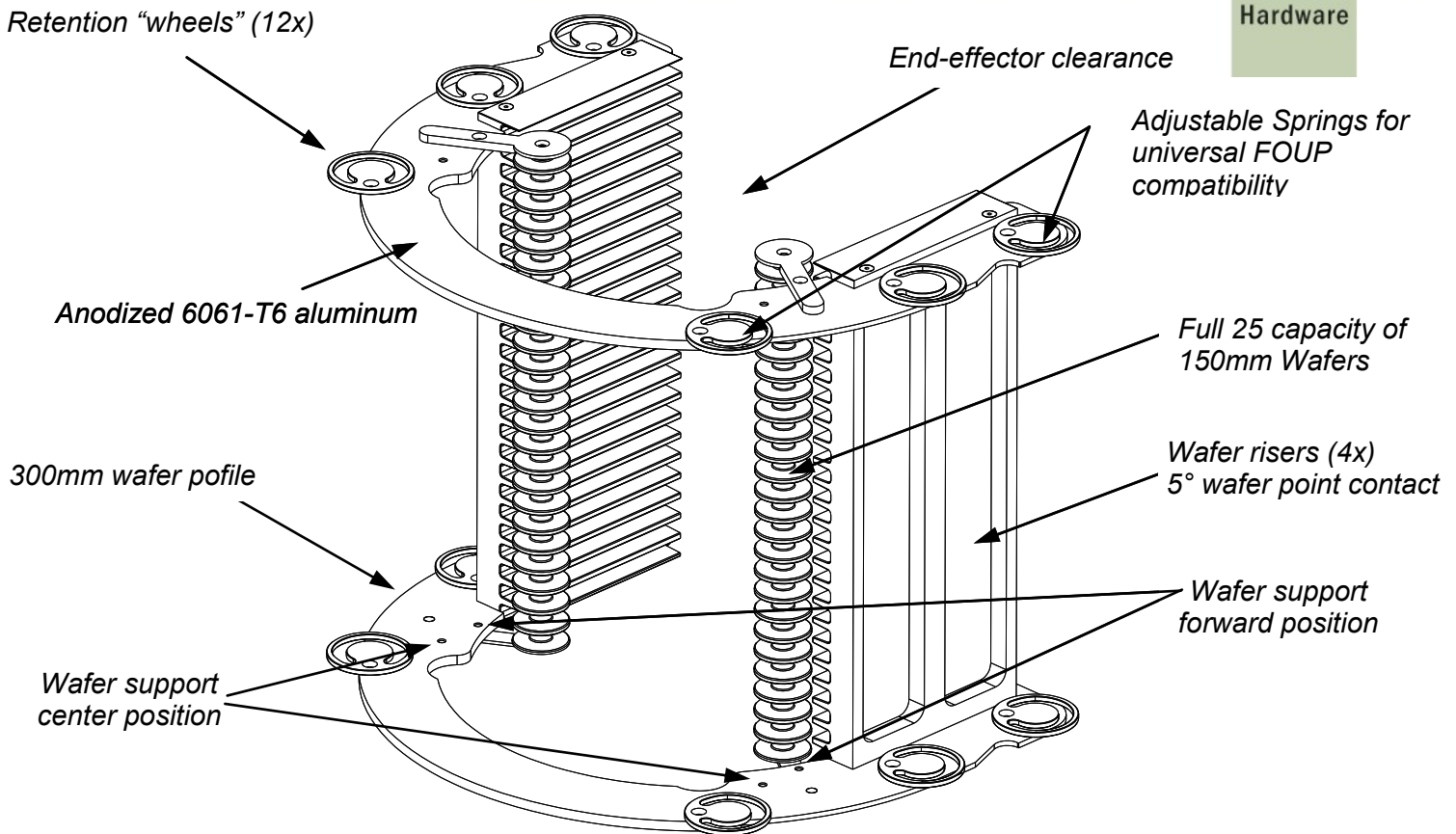
- > Constructed from anodized aluminum and high-temperature thermoplastics.
- > Retention features secure the adapter firmly, yet allow for easy removal.
- > Compatible with FOUPs from all manufacturers.
- > Allows 150mm wafers to be processed within a 300mm FOUP.
- > 25 150mm wafer capacity
- > Able to adjust wafers to forward or center position.
- > Maintains 300mm wafer plane.

Benefits:

- > Save time.
- > Easily switch from 150mm to 300mm.
- > Save money using 150mm reference wafers.
- > Enjoy latest generation 300mm tools and still process 150mm wafers.
- > Test process changes on lower cost 150mm wafers.

> AM-3005 shown in FOUP





Specifications

DESIGN

- Adjustable for wafer-forward or wafer-center placement
- Retention features firmly secure the adapter — yet allow easy removal
- Manufactured from anodized aluminum and high-temperature thermoplastics
- Maintains 300mm wafer plane
- Wafer contact only with thermoplastic risers

COMPATIBILITY

- Compatible with FOUP's from all manufacturers
- Consistent with SEMI-standard 6mm lift clearance and 10mm pitch

OTHER

Size: 300mm x 300mm x 250mm
(12" x 12" x 10")

Weight: 2 kg (4 lb)

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Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
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AM-3005-100

100mm Wafer Adapter for 300mm FOUPs

Hardware

Brooks' AM-3005-100 wafer adapter allows 100mm wafers to be processed inside a 300mm FOUP — saving you time and money! Simply slide the unit in and make your 300mm tool compatible with smaller wafer diameters. Remove the adapter at any time to return to 300mm capability.

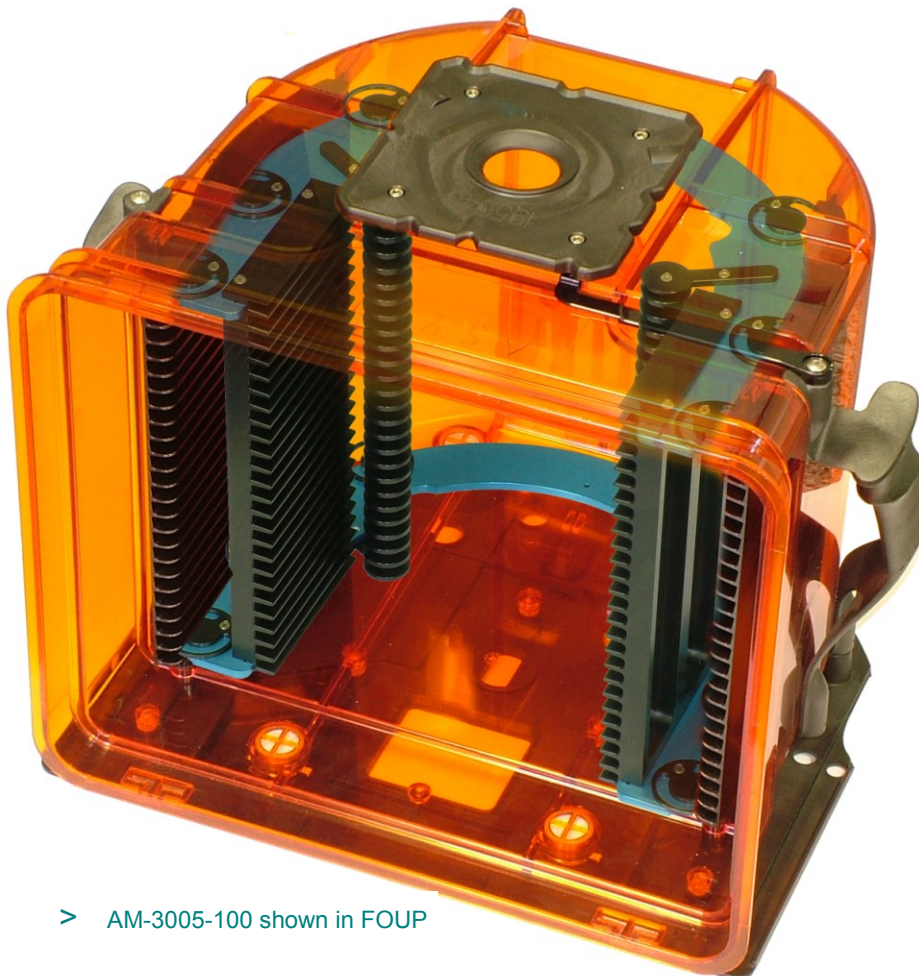
Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm and 150mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

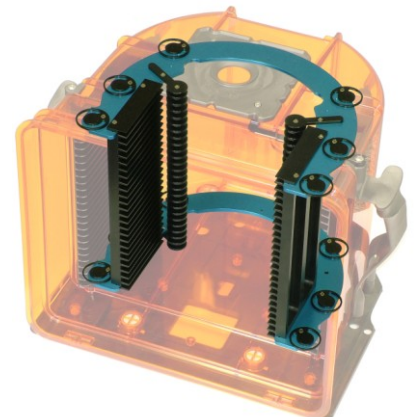
- > Constructed from anodized aluminum and high-temperature thermoplastics.
- > Retention features secure the adapter firmly, yet allow for easy removal.
- > Compatible with FOUPs from all manufacturers.
- > Allows 100mm wafers to be processed within a 300mm FOUP.
- > 25 100mm wafer capacity
- > Able to adjust wafers to forward or center position.
- > Maintains 300mm wafer plane.

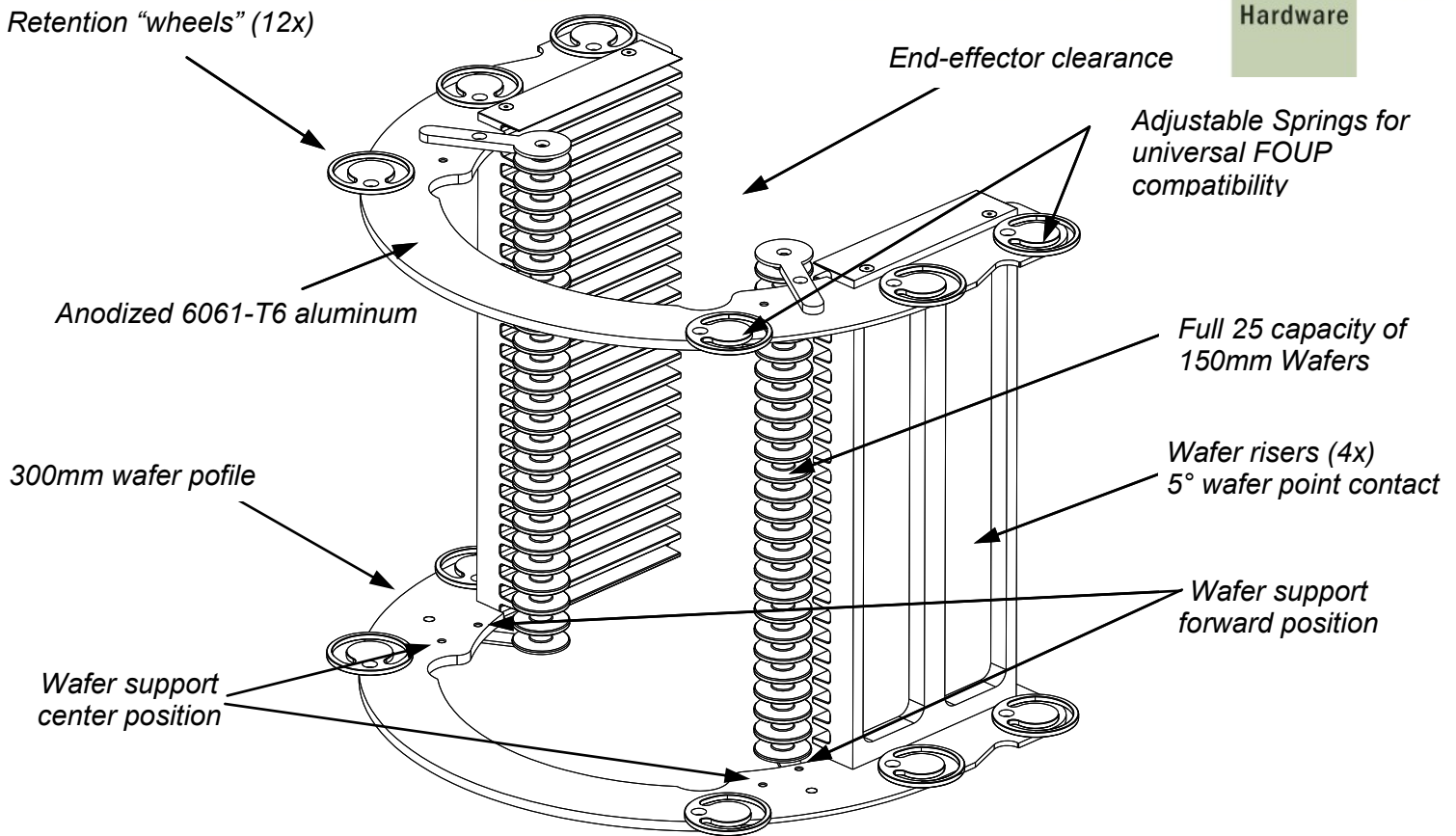
Benefits:

- > Save time.
- > Easily switch from 100mm to 300mm.
- > Save money using 100mm reference wafers.
- > Enjoy latest generation 300mm tools and still process 100mm wafers.
- > Test process changes on lower cost 100mm wafers.



> AM-3005-100 shown in FOUP





Specifications

DESIGN

- Adjustable for wafer-forward or wafer-center placement
- Retention features firmly secure the adapter — yet allow easy removal
- Manufactured from anodized aluminum and high-temperature thermoplastics
- Maintains 300mm wafer plane
- Wafer contact only with thermoplastic risers

COMPATIBILITY

- Compatible with FOUP's from all manufacturers
- Consistent with SEMI-standard 6mm lift clearance and 10mm pitch

OTHER

Size: 300mm x 300mm x 250mm
(12" x 12" x 10")

Weight: 2 kg (4 lb)

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Colorado Springs, CO 80903 U.S.A.
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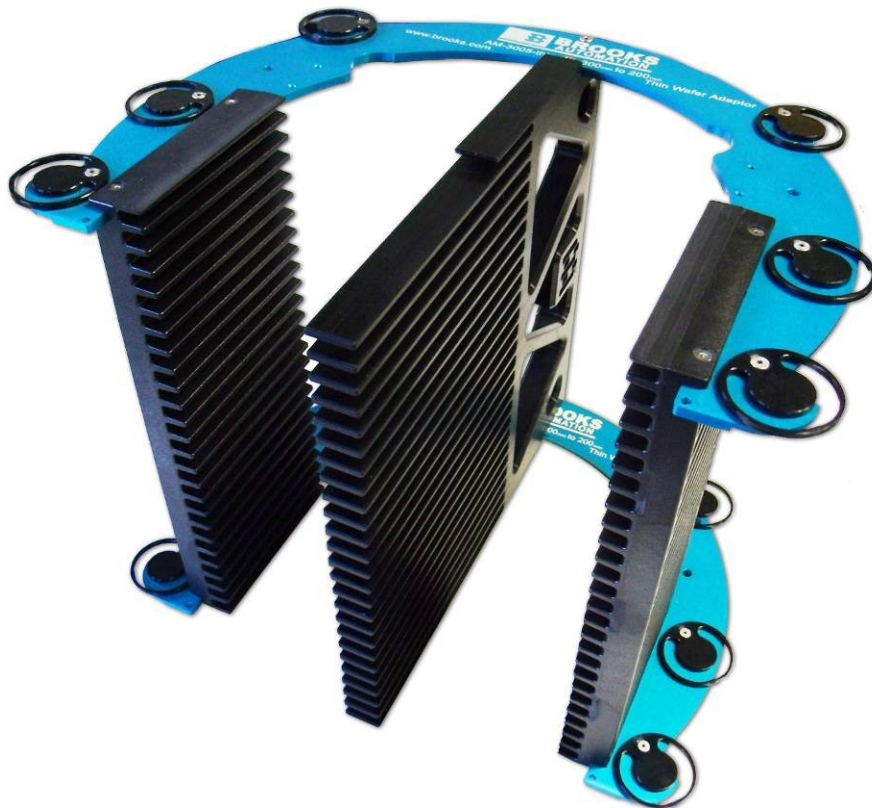
AM-3005-THIN

200mm Thin Wafer Adapter for 300mm FOUPs

Hardware

It's a fact: thin wafers warp, flex, and are difficult to handle with standard automation. Brooks' AM-3005-Thin thin wafer adapter allows 200mm thin wafers to be processed inside a 300mm FOUP. At the same time, it reduces wafer sag by up to 90%, dramatically simplifying and reducing the risks of automated handling of thin wafers. Simply slide the unit in any FOUP, and start handling 200mm thin wafers with your 300mm automation. Remove the adapter at any time to return to 300mm capability.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



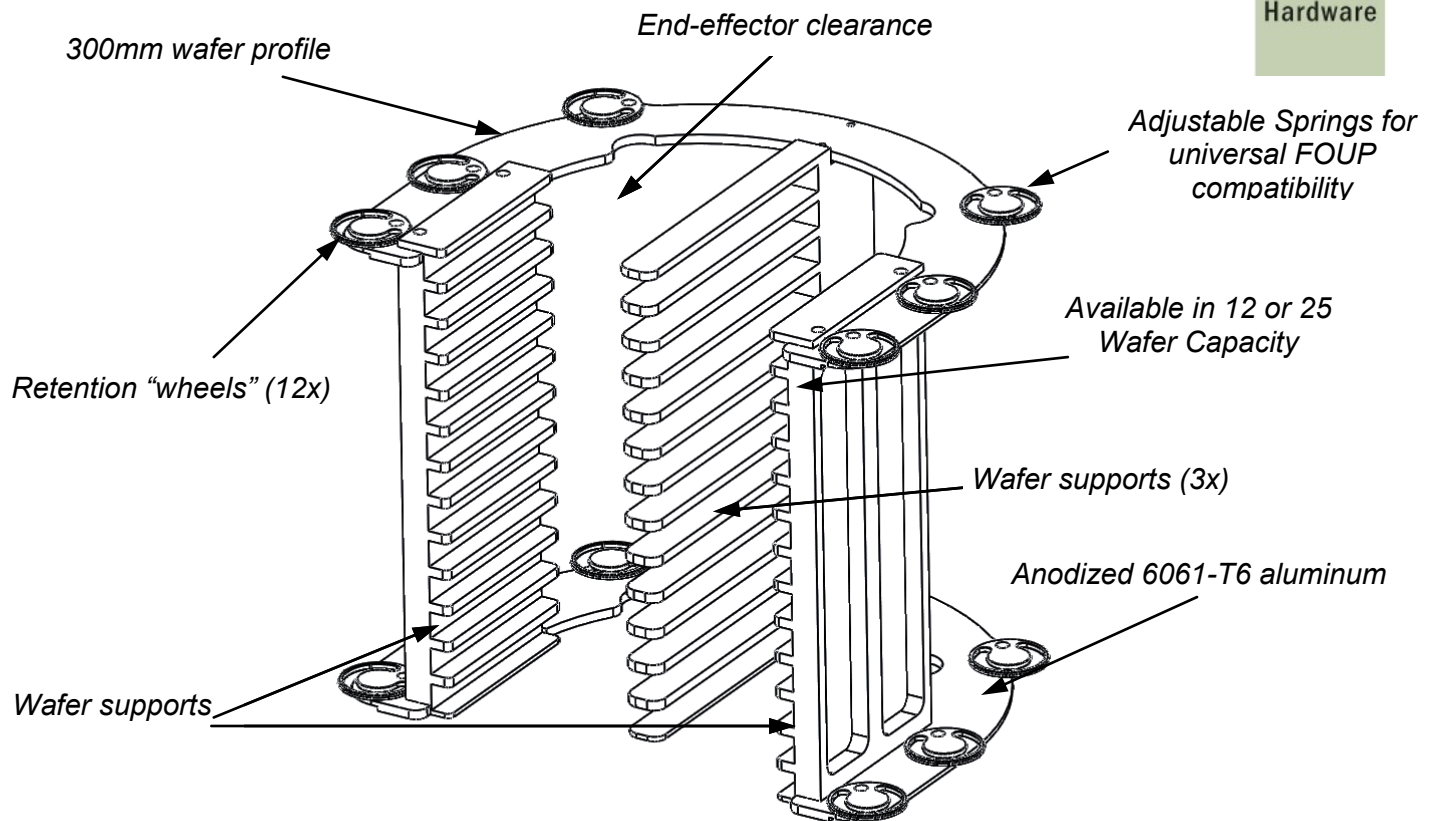
> AM-3005-THIN

Features:

- > Constructed from anodized aluminum and high-temperature thermoplastics.
- > Retention features secure the adapter firmly, yet allow for easy removal.
- > Compatible with FOUPs from all manufacturers.
- > Allows 200mm wafers to be processed within a 300mm FOUP.
- > Available in 12 or 25 wafer capacity.
- > Able to adjust wafers to forward or center position.
- > Maintains 300mm wafer plane.

Benefits:

- > Reduces wafer sag by 90%, simplifying automated handling of thin wafers.
- > Easily switch from 200mm to 300mm.
- > Easily handle wafers of various thicknesses.
- > Save money using 200mm reference wafers.
- > Enjoy latest generation 300mm tools and still process 200mm wafers.
- > Test process changes on lower cost 200mm wafers.



Specifications

DESIGN

- Adjustable for wafer-forward or wafer-center placement
- Retention features firmly secure the adapter — yet allow easy removal
- Manufactured from anodized aluminum and high-temperature thermoplastics
- Maintains 300mm wafer plane
- Limited wafer contact with risers

COMPATIBILITY

- Compatible with FOUPs from all manufacturers
- Consistent with SEMI-standard 6mm lift clearance and 10mm pitch

OTHER

Size: 300mm x 300mm x 250mm
(12" x 12" x 10")

Weight: 3 kg (7 lb)

Alignment Service Division
824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net



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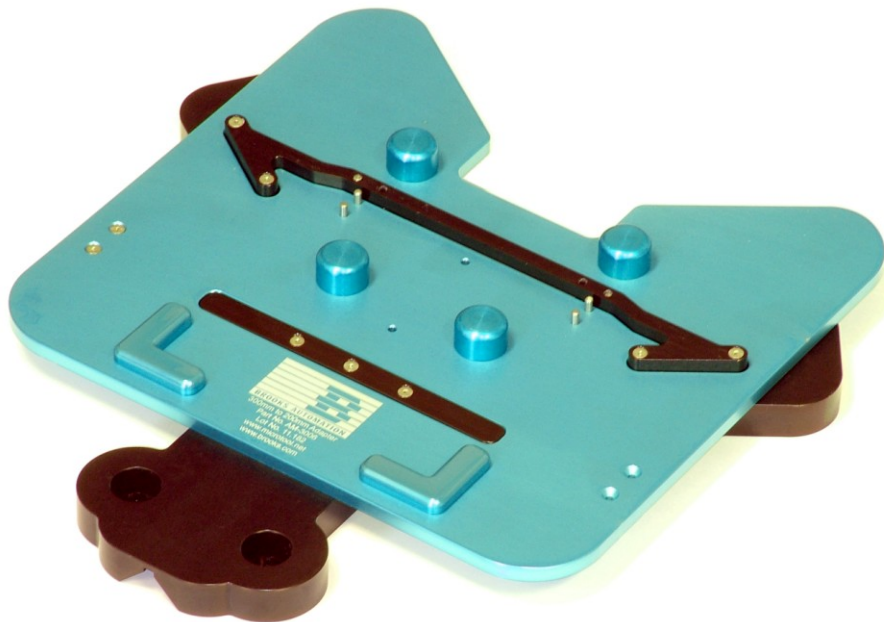
AM-3006

300mm to 200mm Cassette Adapter

Hardware

It's a fact: handling 300mm wafers is expensive! Brooks' AM-3006 wafer adapter allows 200mm wafers to be handled on a 300mm load port — saving you money! Simply place the unit on the kinematic pins and place a 200mm open cassette on the adapter. Remove the adapter at any time to return to 300mm capability.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



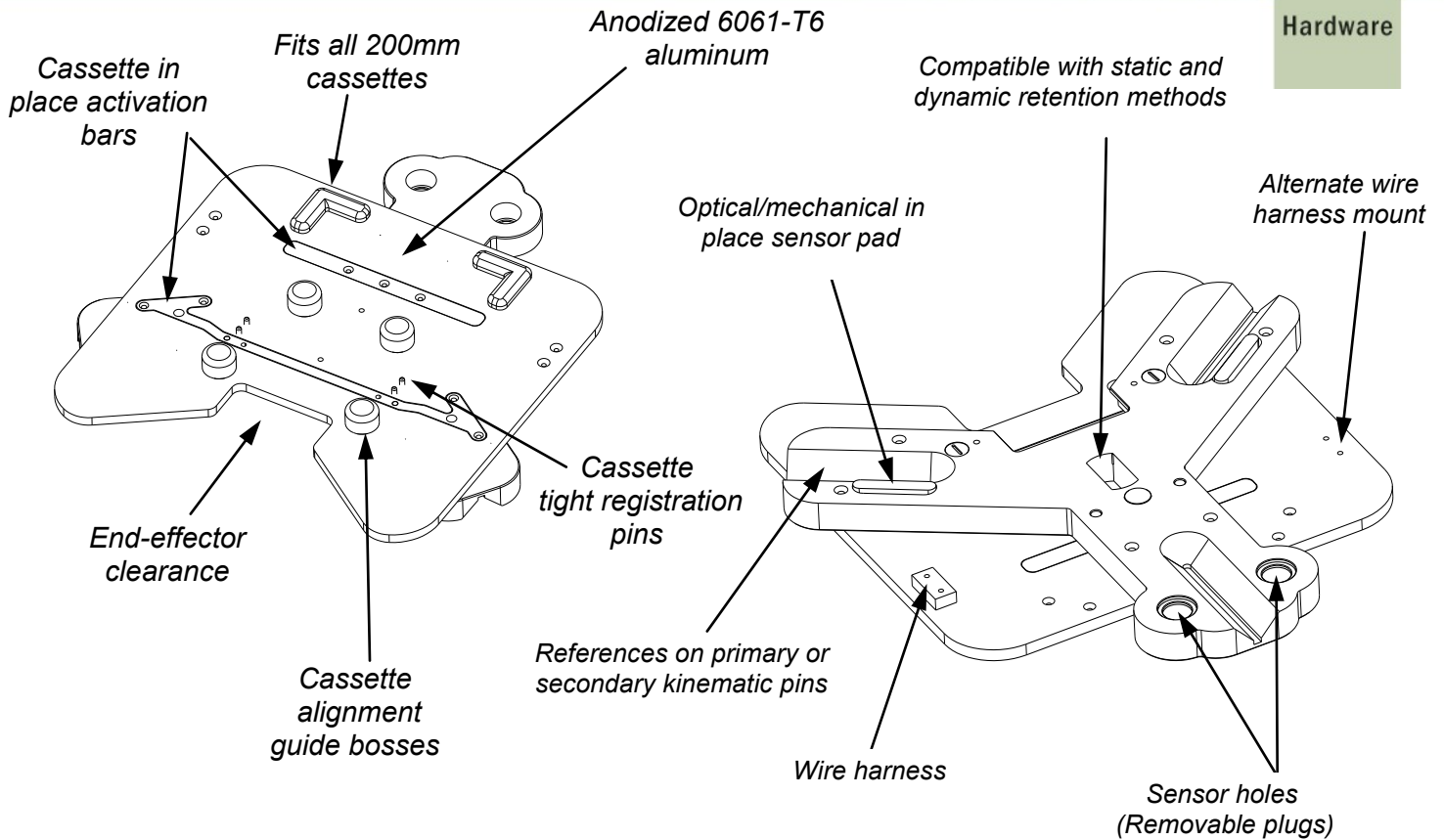
> [AM-3006](#)

Features:

- > Allows 200mm wafers to be handled on a 300mm load port.
- > Manufactured from anodized aluminum.
- > Allows clearance for end-effectors.
- > References on primary or secondary kinematic pins.
- > Can return to 300mm capability by simply removing the adapter.
- > Works on most load ports.
- > Compatible with static and dynamic retention methods.
- > Fits all 200mm cassettes.
- > Easily handle 200mm wafers on 300mm equipment.

Benefits:

- > Save time.
- > Easily switch from 200mm to 300mm.
- > Save money using 200mm reference wafers.
- > Enjoy latest generation 300mm tools and still process 200mm wafers.
- > Test process changes on lower cost 200mm wafers.



Specifications

DESIGN

- Manufactured from anodized aluminum

COMPATIBILITY

- Compatible with load ports from all manufacturers
- Compatible with all popular 200mm cassettes
- Available in 300mm to 150mm configurations

OTHER

Part size: 250mm x 250mm x 25mm
(10" x 10" x 1")

Part weight: 1 kg (2 lb)



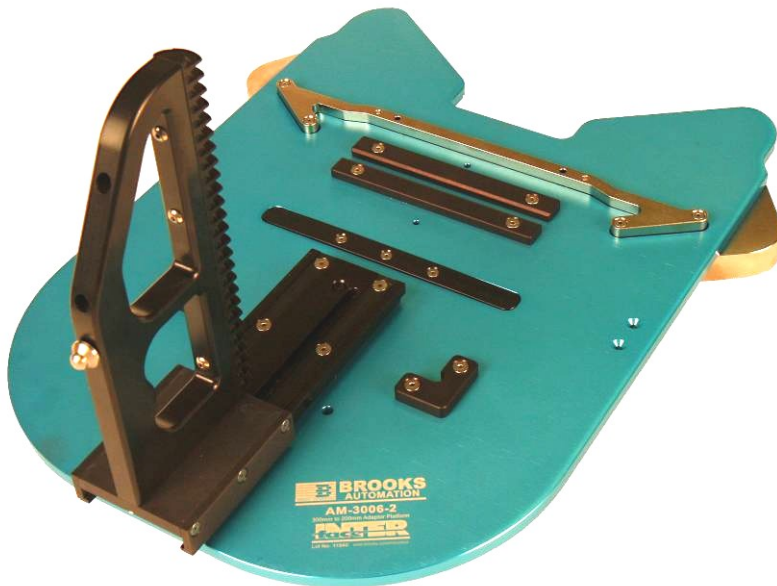
AM-3006-2

300mm to 200mm Cassette Adapter

Hardware

It's a fact: handling 300mm wafers is expensive! Brooks' AM-3006-2 wafer adapter allows 200mm wafers to be handled on a 300mm load port — saving you money! Simply place the unit on the kinematic pins and place a 200mm open cassette on the adapter. Remove the adapter at any time to return to 300mm capability.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.



> AM-3006-2

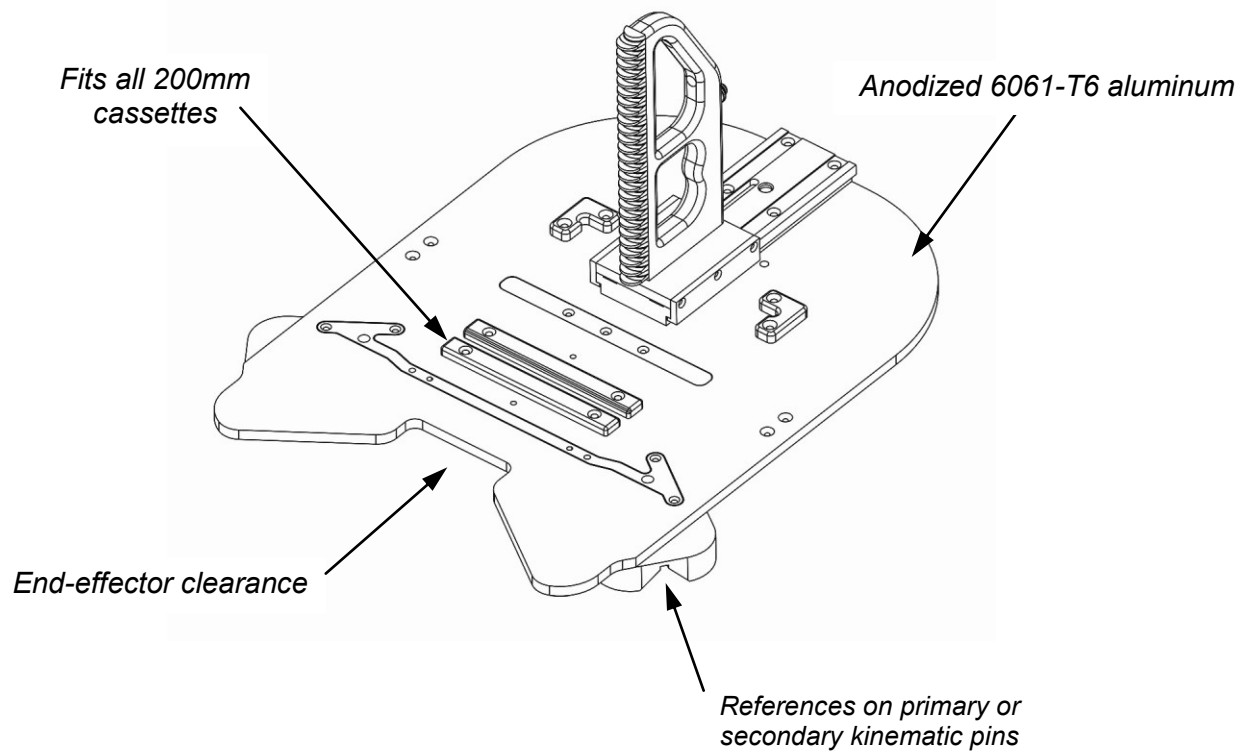
Features:

- > Allows 200mm wafers to be handled on a 300mm load port.
- > Manufactured from anodized aluminum.
- > Allows clearance for end-effectors.
- > References on primary or secondary kinematic pins.
- > Can return to 300mm capability by simply removing the adapter.
- > Works on most load ports.
- > Compatible with static and dynamic retention methods.
- > Fits all 200mm cassettes.
- > Easily handle 200mm wafers on 300mm equipment.

Benefits:

- > Save time.
- > Easily switch from 200mm to 300mm.
- > Save money using 200mm reference wafers.
- > Enjoy latest generation 300mm tools and still process 200mm wafers.
- > Test process changes on lower cost 200mm wafers.





Specifications

DESIGN

- Manufactured from anodized aluminum

COMPATIBILITY

- Compatible with load ports from all manufacturers
- Compatible with all popular 200mm cassettes
- Available in 300mm to 150mm configurations

OTHER

Part size: 250mm x 250mm x 25mm
(10" x 10" x 1")

Part weight: 1 kg (2 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net
120310



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



AM-3004-2

300mm-200mm Cassette Adapter

Hardware

Handling 300mm wafers is expensive! Brooks' cassette adapter allows a cassette with 200mm wafers to be handled inside a 300mm FOUP. Simply slide the unit in and start reducing your wafer costs. Remove the adapter at any time to return to 300mm capability.

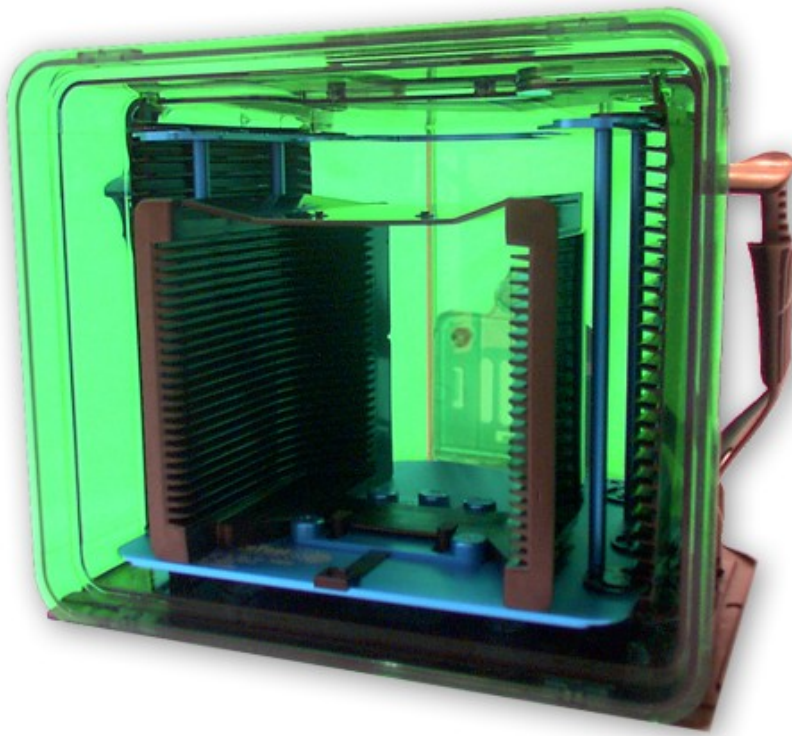
Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

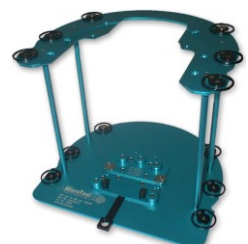
- > Allows 200mm wafers to be handled inside a 300mm FOUP.
- > Has a slider mechanism to capture the H-bar.
- > Retention feature secures the adapter firmly, yet allows for easy removal.
- > Manufactured from anodized aluminum with polycarbonate retention springs.
- > Registers the cassette H-bar.
- > Compatible with most cassettes and FOUPs.
- > Can place wafers in center position within the FOUP or 25mm forward.
- > Works on most load ports.
- > Easily handle 200mm wafers on 300mm equipment.

Benefits:

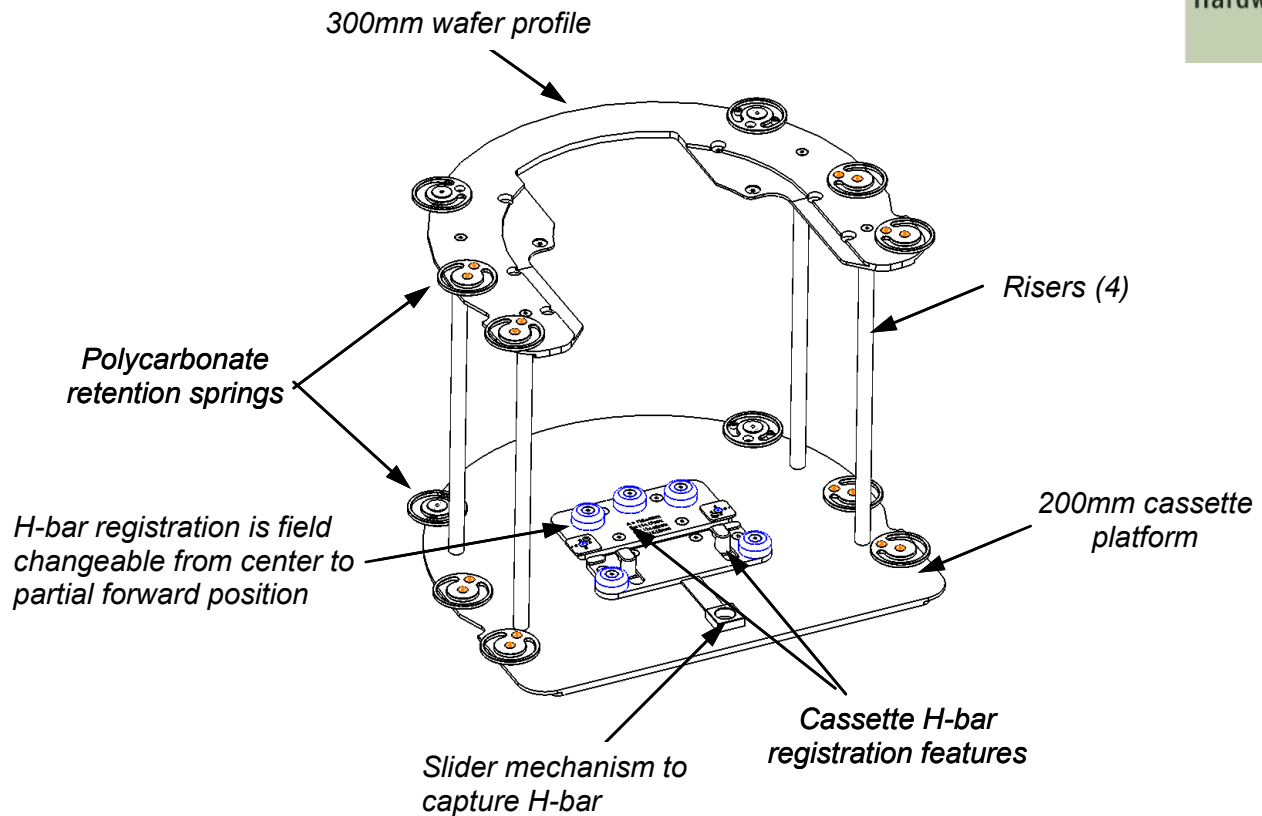
- > Saves time.
- > Easily switch from 200mm to 300mm.
- > Save money using 200mm reference wafers.
- > Enjoy latest generation 300mm tools and still process 200mm wafers.
- > Test process changes on lower cost 200mm wafers.



> AM-3004-2 shown in FOUP



> AM-3004-2



Specifications

DESIGN

- Incorporates Brooks-PRI's standard 200mm cassette platform
- Tested compatible with most popular cassettes and FOUPs
- Retention features firmly secure the adapter — yet allow easy removal
- Slider captures cassette H-bar
- Places wafers in center position within FOUP or 25 mm forward position

OTHER

Materials: Anodized aluminum with polycarbonate retention springs

Dimensions: 300mm x 300mm x 250mm
(12" x 12" x 10")

Weight (without cassette): 1.45 kg (3.2 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



AM-3004-3

300mm-200mm Cassette Adapter

Hardware

Handling 300mm wafers is expensive! Brooks' cassette adapter allows a cassette with 200mm wafers to be handled inside a 300mm FOUP. Simply slide the unit in and start reducing your wafer costs. Remove the adapter at any time to return to 300mm capability.

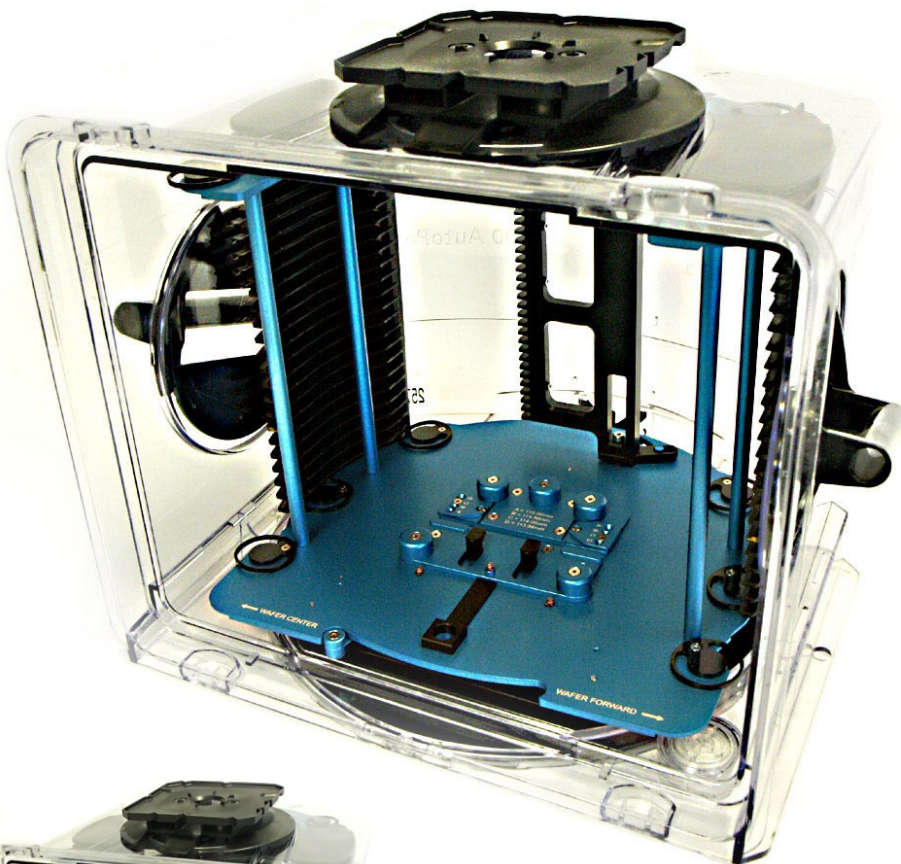
Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

- > Allows 200mm wafers to be handled inside a 300mm FOUP.
- > Has a slider mechanism to capture the H-bar.
- > Retention feature secures the adapter firmly, yet allows for easy removal.
- > Manufactured from anodized aluminum with polycarbonate retention springs.
- > Registers the cassette H-bar.
- > Compatible with most cassettes and FOUPs.
- > Can place wafers in center position within the FOUP or 50mm forward.
- > Works on most load ports.
- > Easily handle 200mm wafers on 300mm equipment.

Benefits:

- > Saves time.
- > Easily switch from 200mm to 300mm.
- > Save money using 200mm reference wafers.
- > Enjoy latest generation 300mm tools and still process 200mm wafers.
- > Test process changes on lower cost 200mm wafers.



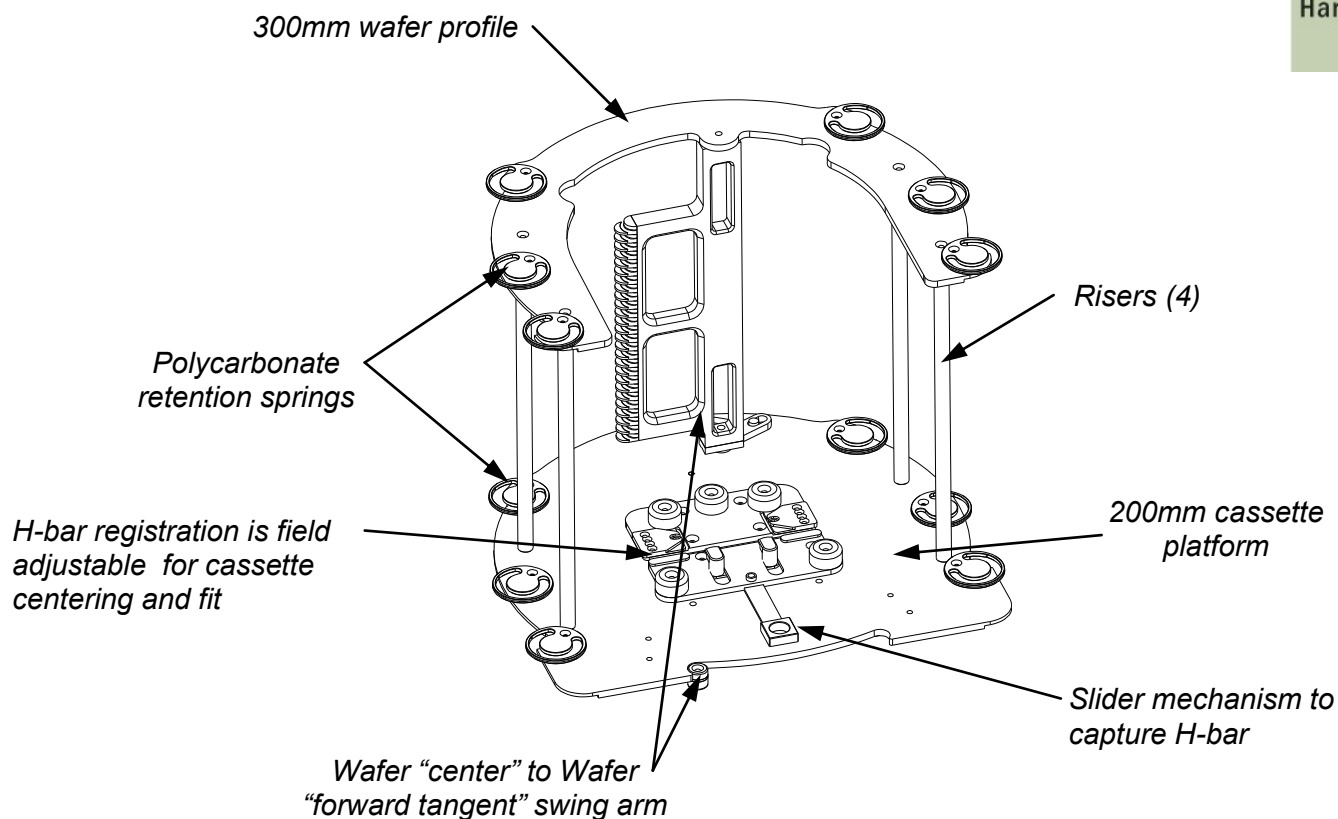
> AM-3004-3 shown above in FOUP



> AM-3004-3 shown with Cassette in FOUP



> AM-3004-3



Specifications

DESIGN

- Incorporates Brooks-PRI's standard 200mm cassette platform
- Tested compatible with most popular cassettes and FOUPs
- Retention features firmly secure the adapter — yet allow easy removal
- Slider captures cassette H-bar
- Places wafers in center position within FOUP or 50 mm forward position

OTHER

Materials: Anodized aluminum with polycarbonate retention springs

Dimensions: 300mm x 300mm x 250mm
(12" x 12" x 10")

Weight (without cassette): 1.45 kg (3.2 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
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AM-3003-2

11mm Lift Adapter for 300mm Tools

Hardware

This simple adapter allows you to quickly change from 300mm FOUPs to a 300mm process or shipping cassette without re-teaching your equipment. Simply place the adapter between the cassette and kinematic pins and run wafers. Then remove the adapter to immediately return to using a FOUP.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

- > Raises 300mm open cassette to match wafer positions of FOUP.
- > Constructed from anodized aluminum.
- > Secondary kinematic pins hold open cassette.
- > References on primary kinematic pins of load port.
- > Works on all load ports.
- > Compatible with optical "in place" sensor loadports.
- > Compatible with both static, and dynamic retention methods.
- > Fits between cassette and load ports.
- > Can adjust from 300mm FOUP to 300mm process or shipping cassette very quickly, without having to retrain equipment.

Benefits:

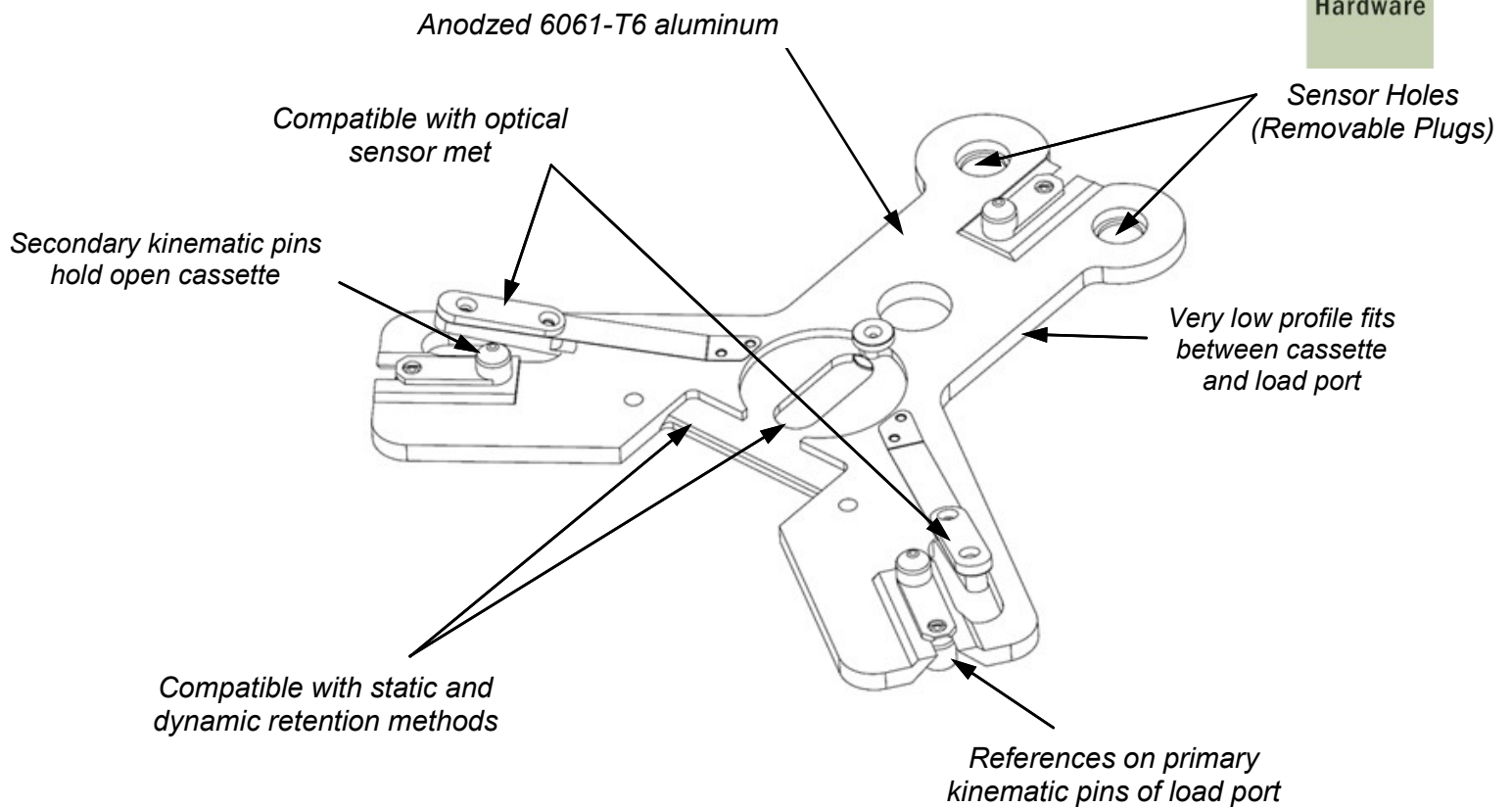
- > Save time handling 300mm wafers.
- > Easily switch from FOUP to 300 mm open cassette.



> AM-3003 Front View



> AM-3003 Back View



Specifications

DESIGN

- Raises 300mm open cassette to match wafer positions of FOUP
- Manufactured from anodized aluminum

COMPATIBILITY

- Compatible with FOUPs and 300mm open cassettes from all manufacturers

OTHER

Part size: 250mm x 250mm x 25mm
(10" x 10" x 1")

Part weight: 1 kg (2 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net

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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



CA-2004

Reticle Cassette Carrier

Hardware

The CA-Series reticle cassettes are designed to allow handling of reticles in a wafer cassette form factor compatible with pods and general cassette platforms. The CA-2004 is one such cassette which accommodates 152mm reticles in a 200mm cassette form factor. This allows reticle handling to be done with standard semiconductor automation components including 200mm SMIF robots. It is compatible with all 200mm SMIF pods as well as open cassette platforms.

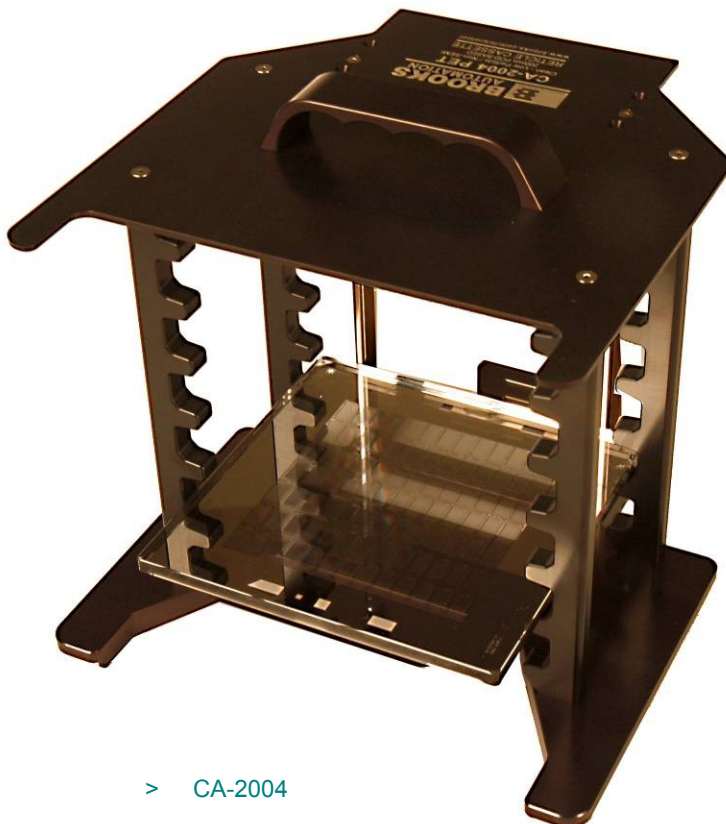
Brooks' MicroTool product line increases yield and equipment uptime by improving critical handling operations. Products include robot alignment systems, load port alignment tools, electronic levels, carbon fiber and glass dummy wafers, cassette inspection tools, and bridge adapters to allow equipment to handle multiple wafer sizes. Services include tool and fab-wide calibration services applying these enabling tools and our automation expertise.

Features:

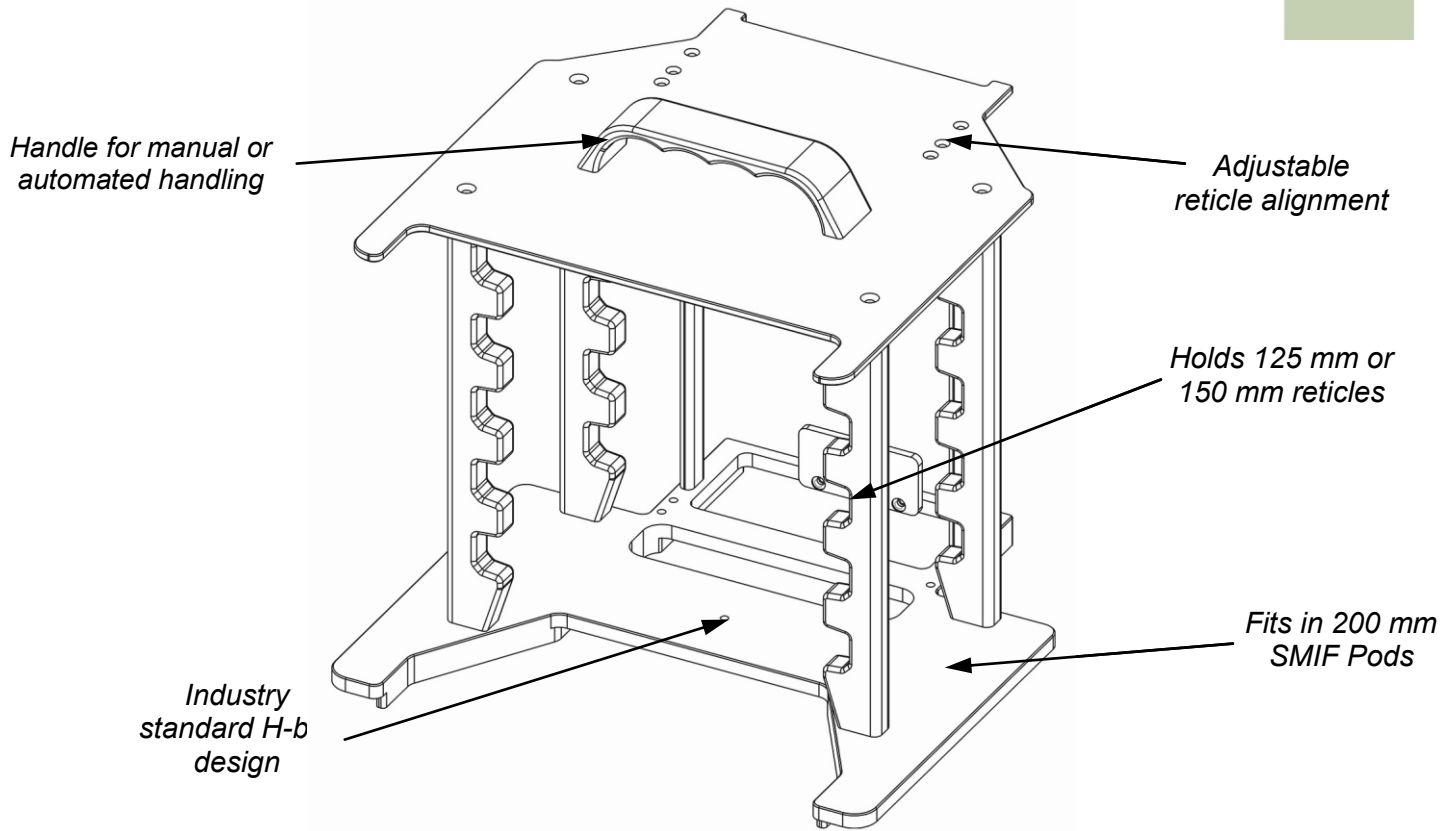
- > Carrier for 152mm (6") reticles.
- > Fits in 200 mm SMIF Pods.
- > Compatible with 200mm cassette platforms.
- > Industry standard H-bar design.
- > Handle for manual or automated handling.

Benefits:

- > Handle reticles with standard 200mm automation.
- > Store reticles in SMIF Pod to prevent contamination.
- > Transport reticles in SMIF Pod using automated handling.



> CA-2004



Specifications

DESIGN

- Cleanroom compatible materials
- Holds 152 mm (6") reticles
- Compatible with 200 mm SMIF Pods
- Compatible with 200 mm cassette platforms
- Custom configurations available upon request

OTHER

Part size: 200 mm x 200 mm x 200 mm
(8" x 8" x 8")

Part weight: 1 kg (2 lbs)

Material: High purity polymers and anodized aluminum

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
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CA-3000

300mm Metal Cassette

Hardware

The CA-3000 is a 300mm metal cassette designed to support manual and automated handling and withstand high temperature applications. The exceedingly open design facilitates convective flow in thermal applications, yet the form factor is designed in accordance with SEMI FOUP specifications. This allows the cassette to support the full array of manual and automated handling without requiring changes to equipment settings. The automated wafer retainer, another unique feature of the CA-3000, offers additional convenience and security.

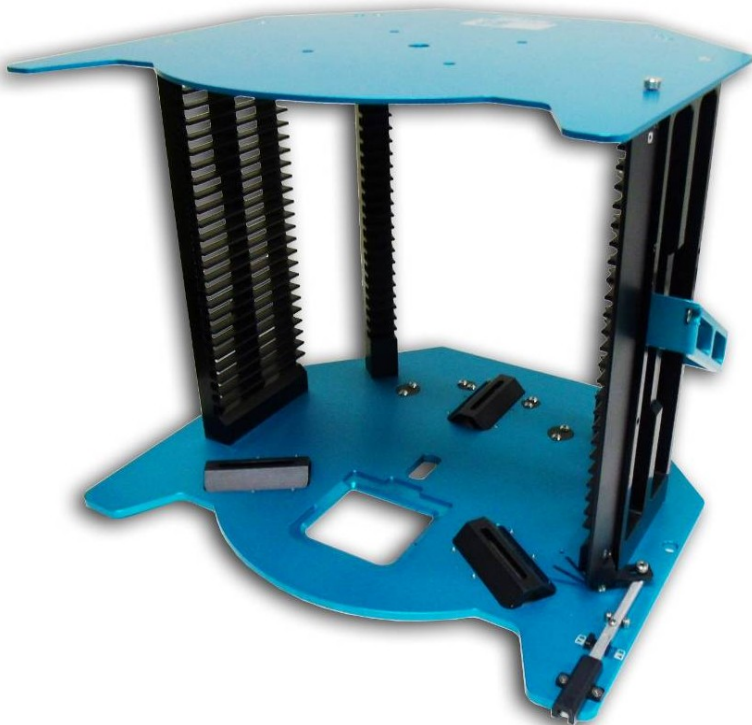
Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300 mm to 200 mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features

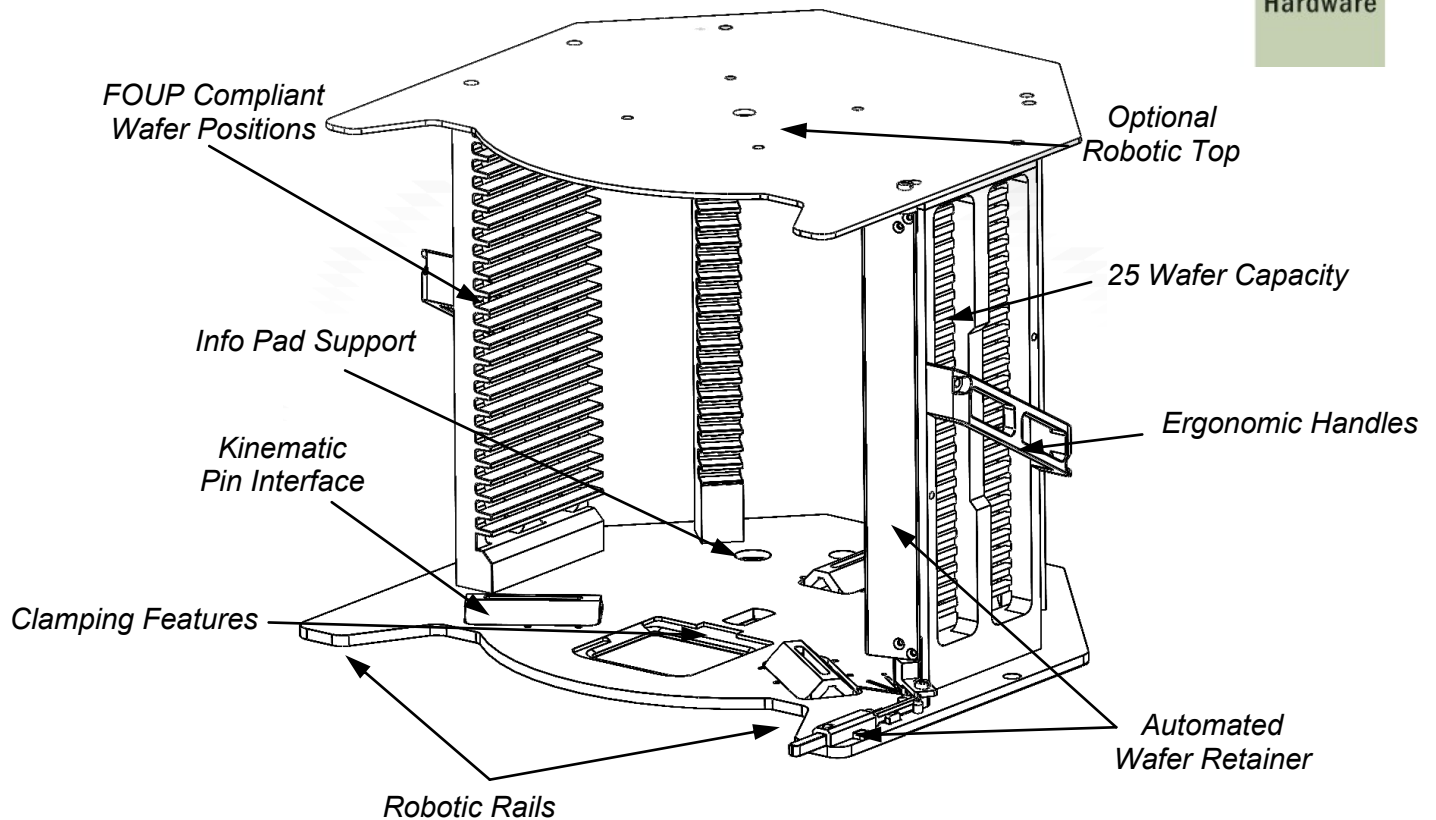
- > High temperature capability up to 900°F
- > Open design improves convective flow
- > Ergonomic handles for manual handling
- > Robotic rails and optional robotic top for PGV, AGV, and AMHS compatibility
- > Supports clamping, info pads, and other FOUP design features
- > 44mm slot 1 height and 10mm pitch replicates FOUP wafer positions to further simplify automated handling
- > Unique automated wafer retainer improves convenience and security

Benefits

- > High temperature applications without sacrificing manual and automated handling
- > Design around FOUP specifications simplifies equipment interface



> [CA-3000](#)



Specifications

DESIGN

- Cleanroom compatible materials
- High temperature capable up to 900°F
- Holds 25 300mm wafers
- 44mm slot 1 height and 10mm slot pitch
- Compatible with 300 mm FOUP specifications
- Automated or manual handling
- Automated wafer retainer

OTHER

Part size: 305 mm x 330 mm x 355 mm
(12" x 13" x 14")

Part weight: 5 kg (11 lbs)

Material: Anodized Aluminum

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net

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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



KP-3000

300mm Kinematic Pins

Hardware

Concentrate on your business — let Brooks take care of the interface! The KP-3000 Kinematic Coupling Pins, one of Brooks' INTERFACE series of products, have been designed to reduce your interface problems. Manufactured to strict SEMI standards, our kinematic coupling pins provide you peace of mind. Neatly packaged sets of three matched pins are available in either press-fit or threaded configurations.

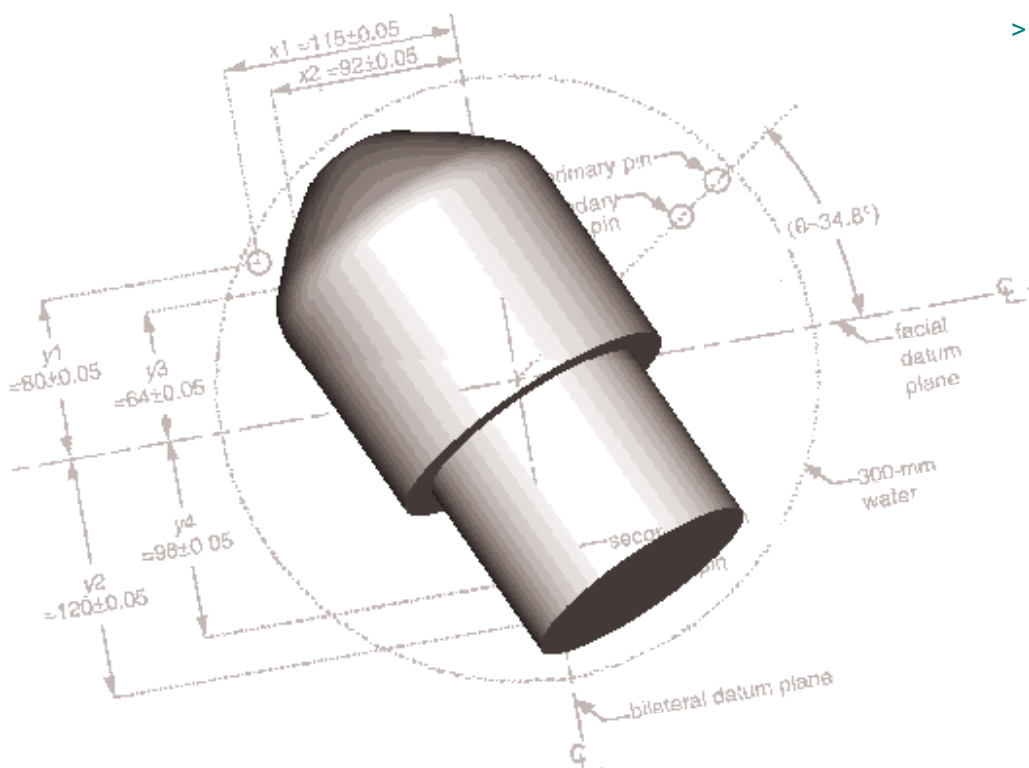
Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

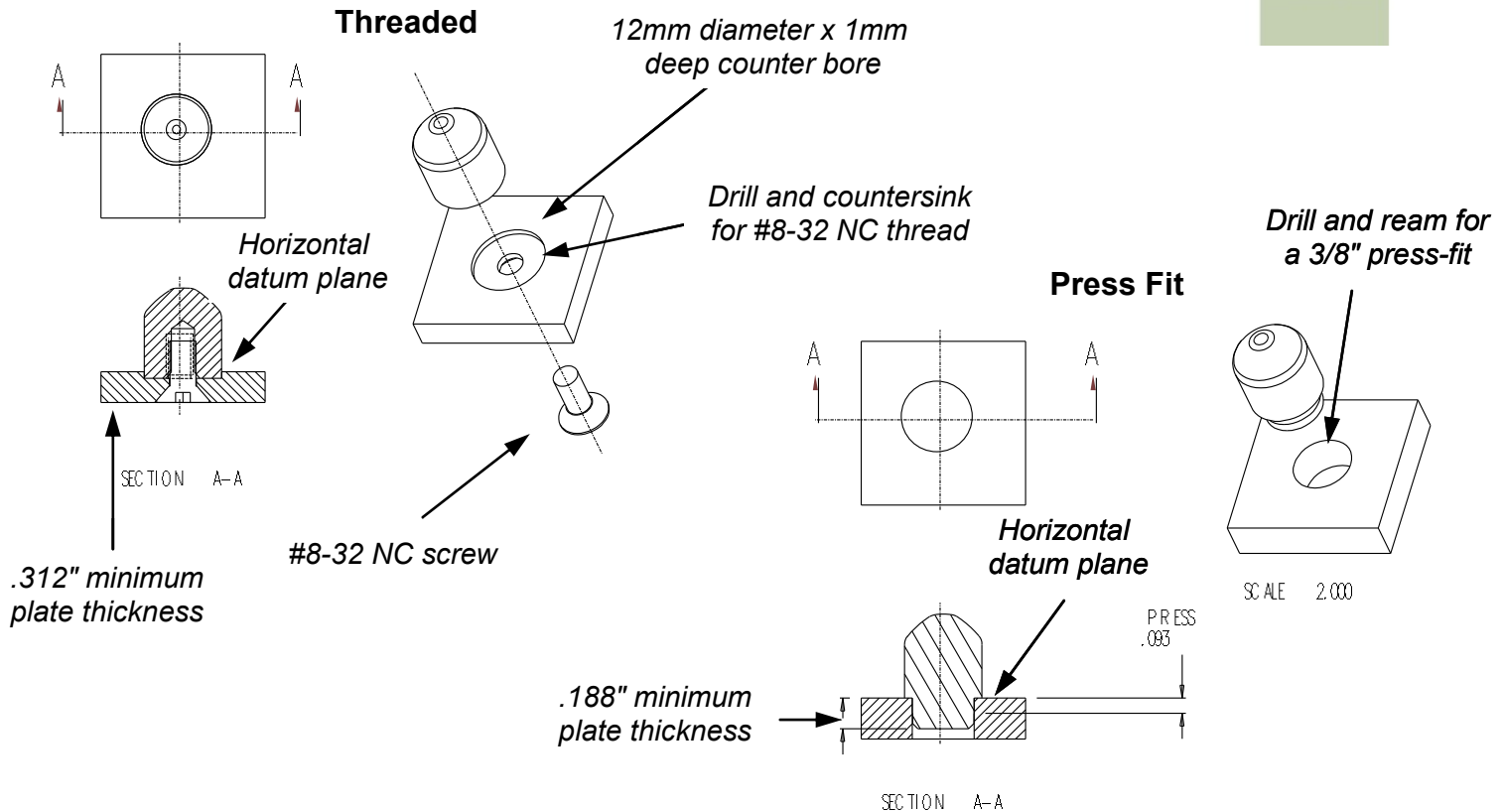
- > Available in threaded or press-fit style to meet your design requirements.
- > Sold in sets of three.
- > Complies with SEMI E 57 Specifications.

Benefits:

- > Save money.
- > Simplify your 300mm equipment design with this drop-in solution.
- > Save engineering time.



KP-3000



Specifications

DESIGN

- Available in threaded or press-fit style to meet your design requirements
- Threaded style requires a 12mm diameter x 1mm deep counter bore with a through hole with clearance for a #8 threaded screw
- Press-fit style requires a drilled and reamed hole .375" diameter
- Complete installation instructions are included with each shipment

COMPATIBILITY

- Complies with SEMI E57 Specification

OTHER

Part size: 12mm diameter x 13mm

Part weight: 0.05 kg (1 oz)

Part Numbers:

- KP-3000 — Threaded (set of 3)
- KP-3001 — Press-fit (set of 3)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net

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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



KP-4500

450mm Kinematic Pins – Fixed or Adjustable Height

Hardware

Concentrate on your business — let Brooks take care of the interface!

The KP-4500 Kinematic Coupling Pins, one of Brooks' INTERFACE series of products, have been designed to reduce your interface problems. Manufactured to strict SEMI standards, our kinematic coupling pins provide tight tolerances and peace of mind. The 450mm kinematic pins are available in two designs – a fixed 25mm height and an adjustable height version with a unique mounting and locking mechanism. Both versions are offered in neatly packaged sets of three matched pins.

Brooks' MicroTool product line increases yield and equipment uptime by improving critical handling operations. Products include robot alignment systems, load port alignment tools, electronic levels, carbon fiber and glass dummy wafers, cassette inspection tools, and bridge adapters to allow equipment to handle multiple wafer sizes. Services include tool and fab-wide calibration services applying these enabling tools and our automation expertise.



> KP-4500-ADJ

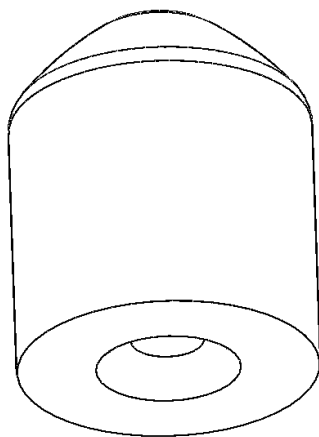
Features:

- > Available in fixed 25mm height or adjustable height versions.
- > Both versions are threaded for standard screw mounting.
- > Adjustable version offers simple height adjustment with a range of 24.5mm - 32mm and a unique locking feature.
- > Sold in sets of three.
- > Complies with SEMI E158 Specifications.

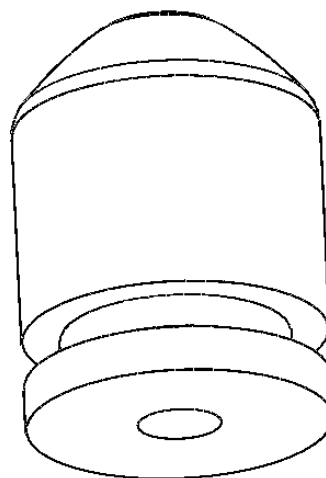
Benefits:

- > Save time and money.
- > Simplify your 450mm equipment design with this drop-in solution.
- > Save engineering and manufacturing resources.





KP-4500-25



KP-4500-ADJ

Specifications

DESIGN

- Available in fixed and adjustable height versions.
 - KP-4500-25 Fixed 25mm height
 - KP-4500-Adj Adjustable height
- Fixed version comes with SS FHSCS ¼ - 28 x 3/4". Adjustable comes with SS FHSCS 10-32 x 1" and a SS FHSCS 10-32 x 1 ¼"
- Adjustable version offers a simple single screw mounting and locking mechanism, and a height range of 24.5mm – 32mm.
- Complete installation instructions are included with each shipment.

COMPATIBILITY

- Complies with SEMI E158 Specifications.

OTHER

Part size: 20mm diameter x 25mm x 3

Part weight: 0.2 kg (6 oz)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



FFS-Series

300mm Film Frame Shipper

Hardware

Looking for a way to get your inventory to back-end facilities after thinning operations have been completed? The 300 mm Film Frame Shipper uses engineering plastics to transport 25 frames in an ergonomic container. The SEMI standard carrier follows the E1.9 and E47 specifications by using kinematic coupling registration to repeatably align your process carrier. These rugged assemblies can be easily taped closed for tamper proof verifications. The Brooks' FFS-Series provide cost effective secure packaging for your 25 batch shipments to back-end facilities.

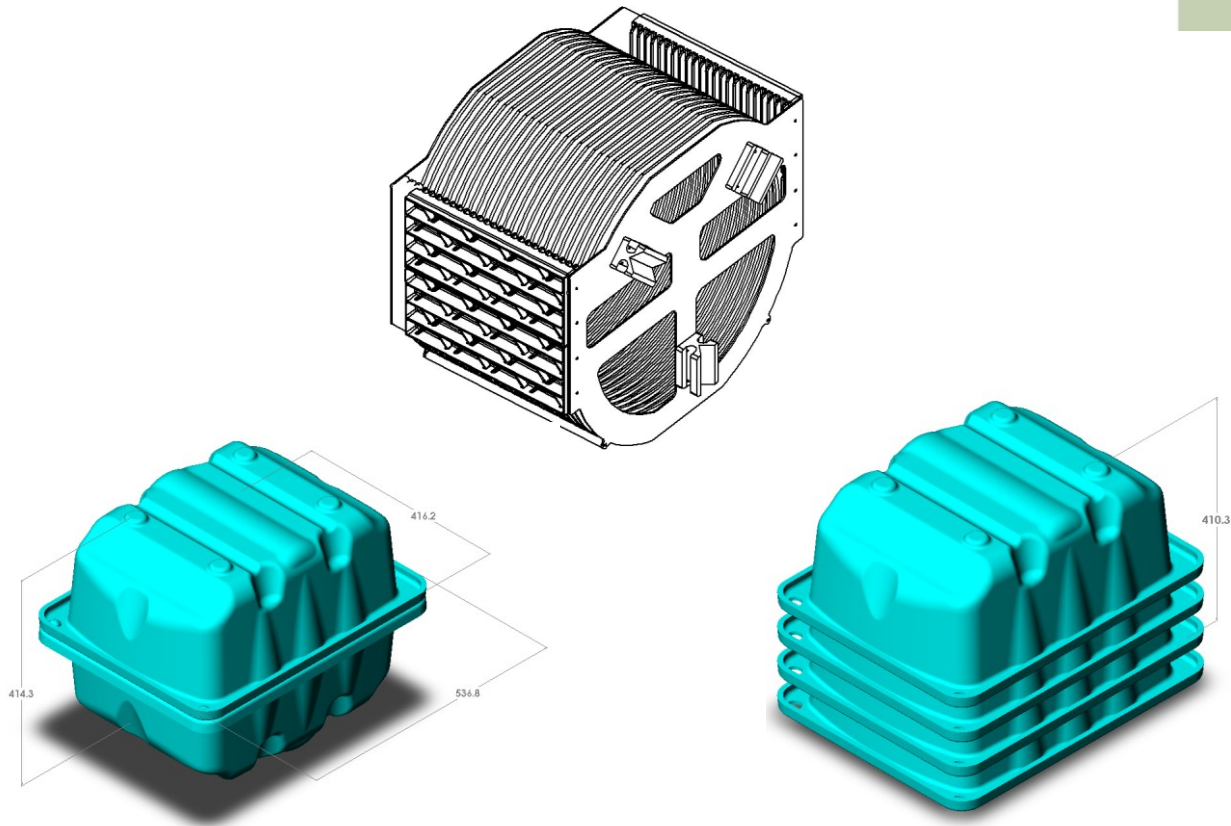
Features:

- > Manufactured from ABS material.
- > Cassette static grounding through nickel coated aluminum kinematic coupling.
- > Designed to carry 25 film frames in one cassette.
- > Return ratio of 2/1 that is stackable for easy return.
- > Transports 25 frames in one ergonomic, re-usable container.
- > Can be easily sealed for tamper proof verifications.

Benefits:

- > Allows AUTOMATED HANDLING of thinned product wafers.
- > Safely ship your valuable 300mm wafers.
- > Save time over 'coin stack' handling.
- > Best handling method for thin wafers.





Specifications

DESIGN

- Holds one cassette with 25 film frames.
- Engineered plastics
- Cassette static grounding through nickel coated aluminum kinematic coupling
- Return ratio of 2/1 that is stackable for easy return
- Assembly weight with 25 thinned-down wafers: 10KG
- Patent pending

Description

Dimensions

Assembly	536mm x 416mm x 414mm
Return Ratio	2:1
Material	ABS (acrylonitrile butadiene styrene)
Cassette Material	PBT supports Aluminum structure and engineering plastics
Closer	Tape Close or Snaps

Other

Designed for the standard 300mm Film frames made of plastic or metal materials. These containers are re-usable.

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net

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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com





MPO-3002

300mm FOUP Opener

Hardware

The MPO-3002 is an ergonomically designed manual 300 mm door opener for 25- and 13-capacity FOUPs and FOSBs. A short turn of the handle simultaneously opens both FOUP door locks. Positive stops hold the MPO-3002 in its fully open or fully closed position.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

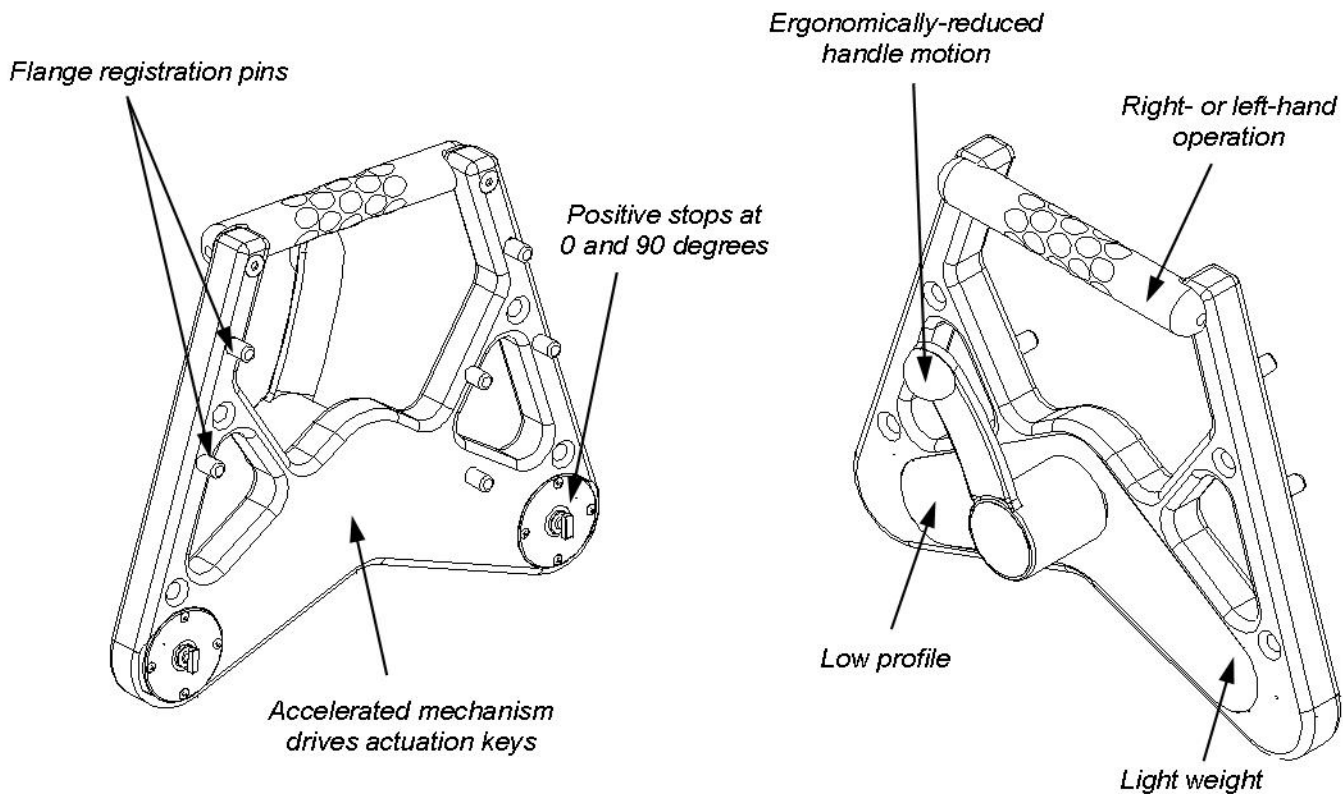
Features:

- > Lead-in features guide the opener into position
- > Constructed from cleanroom compatible engineering plastics
- > Intuitive operation

Benefits:

- > Ergonomic operation
- > Save time opening FOUPs
- > Simple to use
- > Save money opening and closing FOUPs safely.





Specifications

DESIGN

- Ergonomic accelerated mechanism requires minimal rotation to open latches
- Low opening / closing force
- Positive detents at fully open and fully closed positions
- Lubrication free bearings ensure easy operation, minimal particle generation, and long product life.
- Door is securely retained to opener when removed from FOUP.

COMPATIBILITY

- Compatible with 25- and 13-capacity 300mm FOUPs.
- Compatible FOSBs with key latch mechanisms.

OTHER

Part size: 280 mm x 330mm x 100mm
(11" x 13" x 4")

Part weight: 1.5 kg (3 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net

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Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



MPO-2000

200mm SMIF Pod Opener

Hardware

The MPO-2000 provides precision manual opening and closing of 200 mm SMIF pods. Place it on, or mount to, work benches, WIP racks, or carts. Ergonomic in design and use, the MPO-2000 is a perfect addition to your fab.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

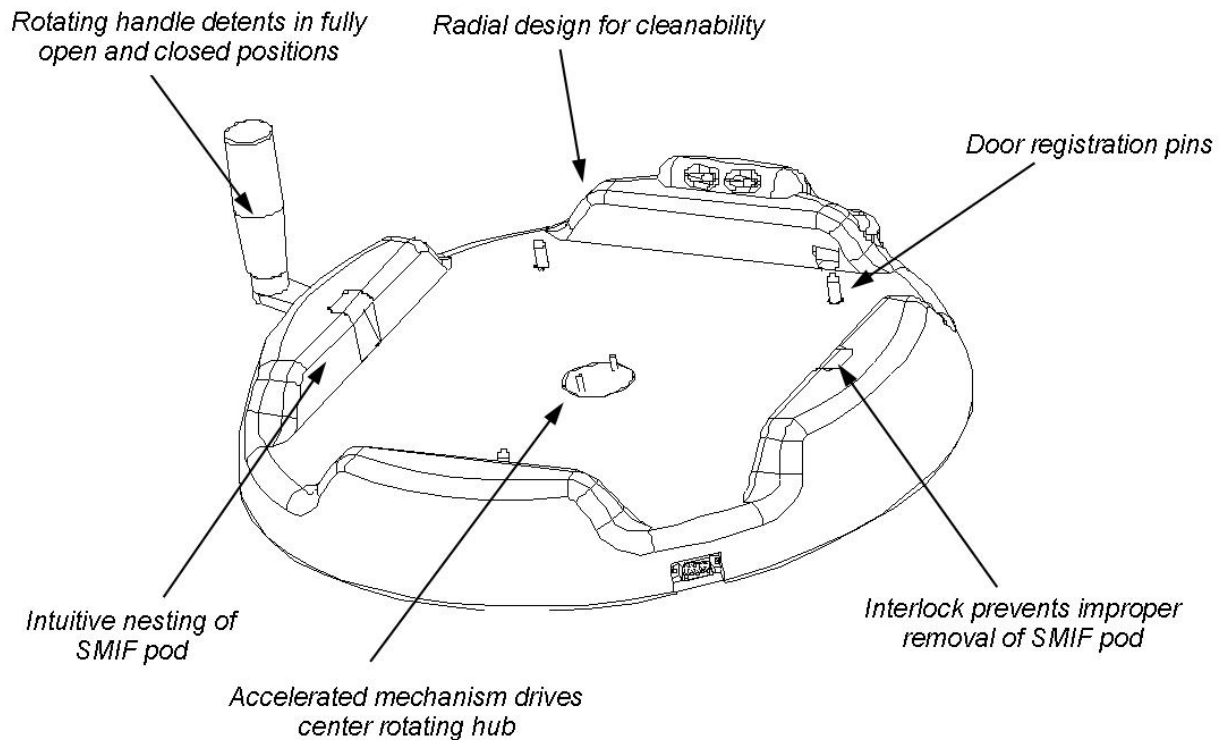
Features:

- > Lead-in features guide pod into position
- > Constructed from cleanroom compatible engineering plastics
- > Intuitive operation

Benefits:

- > Ergonomic operation
- > Save time opening pods
- > Simple to use
- > Save money opening and closing pods safely.





Specifications

DESIGN

- Accelerated mechanism requires only 24° of motion to achieve 86° of action
- Low opening / closing force
- Pod is guided easily and intuitively into nest
- Positive detents at fully open and fully closed positions
- Lubrication free bearings ensure easy operation, minimal particle generation, and long product life.
- Can be easily secured to wire racks, tables, workbenches, carts, or WIP racks.
- Path to ground available.

COMPATIBILITY

- Compatible with 200 mm SMIF pods from major manufacturers

OTHER

Part size: 380 mm diameter x 100mm
(15" x 4")

Part weight: 8 kg (18 lb)

824 South Tejon Street
Colorado Springs, CO 80903 U.S.A.
Tel: (719) 471-9888
Fax: (719) 471-9977
Web: www.microtool.net

20040312



Corporate Headquarters
Brooks Automation, Inc.
15 Elizabeth Drive
Chelmsford, MA 01824 U.S.A.

Tel: (978) 262-2400
Fax: (978) 262-2500
Web: www.brooks.com



MPO-1501

150mm SMIF / Reticle Pod Opener

Hardware

The MPO-1501 provides precision manual opening and closing of 150 mm wafer and reticle SMIF pods. Place it on, or mount to, work benches, WIP racks, or carts. Ergonomic in design and use, the MPO-1501 is a perfect addition to your fab.

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

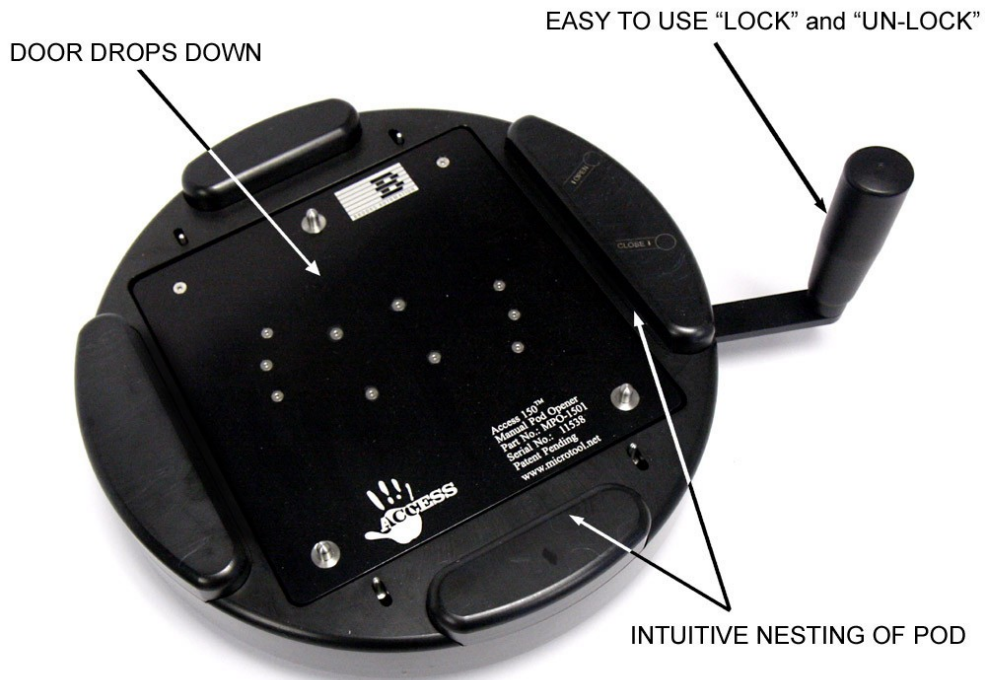
Features:

- > Lead-in features guide pod into position
- > Constructed from cleanroom compatible engineering plastics
- > Intuitive operation

Benefits:

- > Ergonomic operation
- > Save time opening pods
- > Simple to use
- > Save money opening and closing pods safely.





Specifications

DESIGN

- Low opening / closing force
- Pod is guided easily and intuitively into nest
- Positive detents at fully open and fully closed positions
- Lubrication free bearings ensure easy operation, minimal particle generation, and long product life.
- Can be easily secured to wire racks, tables, workbenches, carts, or WIP racks.

COMPATIBILITY

- Compatible with 150 mm SMIF pods from major manufacturers

OTHER

Part size: 250 mm diameter x 100mm
(10" x 4")

Part weight: 4 kg (9 lb)

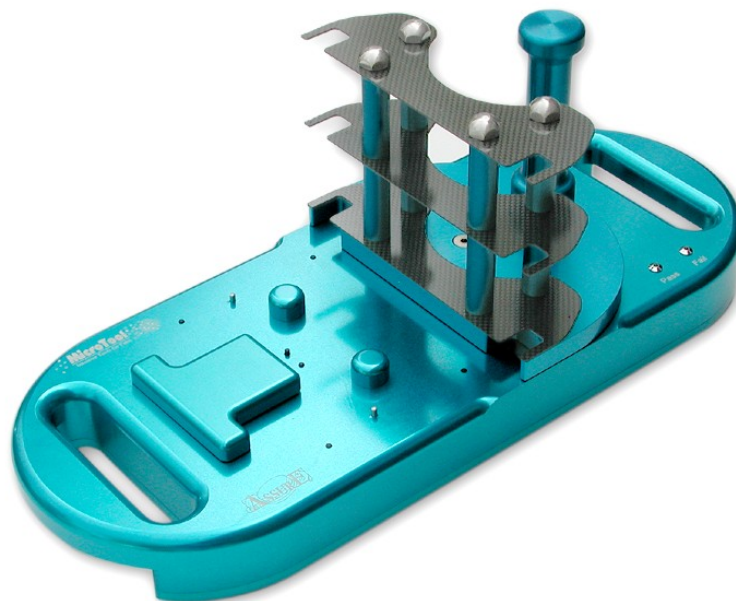
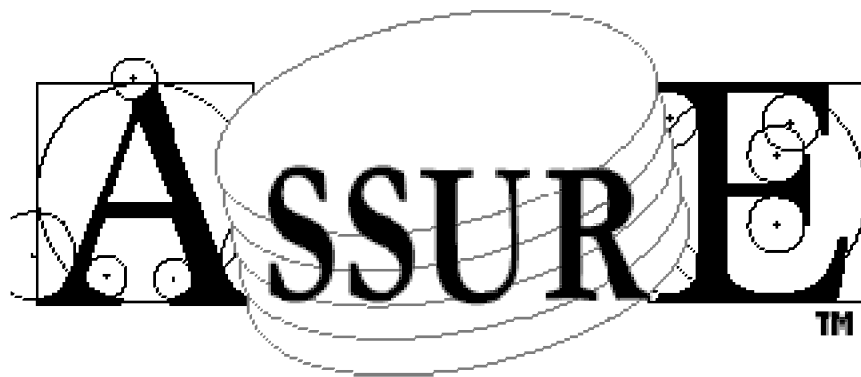
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MC 2000

200mm Cassette Checker

Hardware

Brooks' Assure Series Cassette Checkers save you time and money by providing a fast and simple method for checking cassettes. Designed with daily fab use in mind, the MC-2000 offers a quick answer to the question, "Is it the tool or the cassette?" Quit throwing good cassettes away. Quit finding bad cassettes by wasting good production wafers. Start checking your cassettes the sensible way — with the MC-2000!

Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

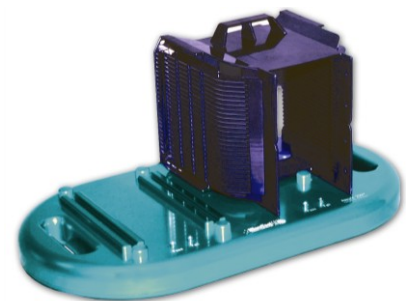
- > Easy red/green indication
- > Instant measurement
- > Simple to use
- > Accurate repeatable measurements

Benefits:

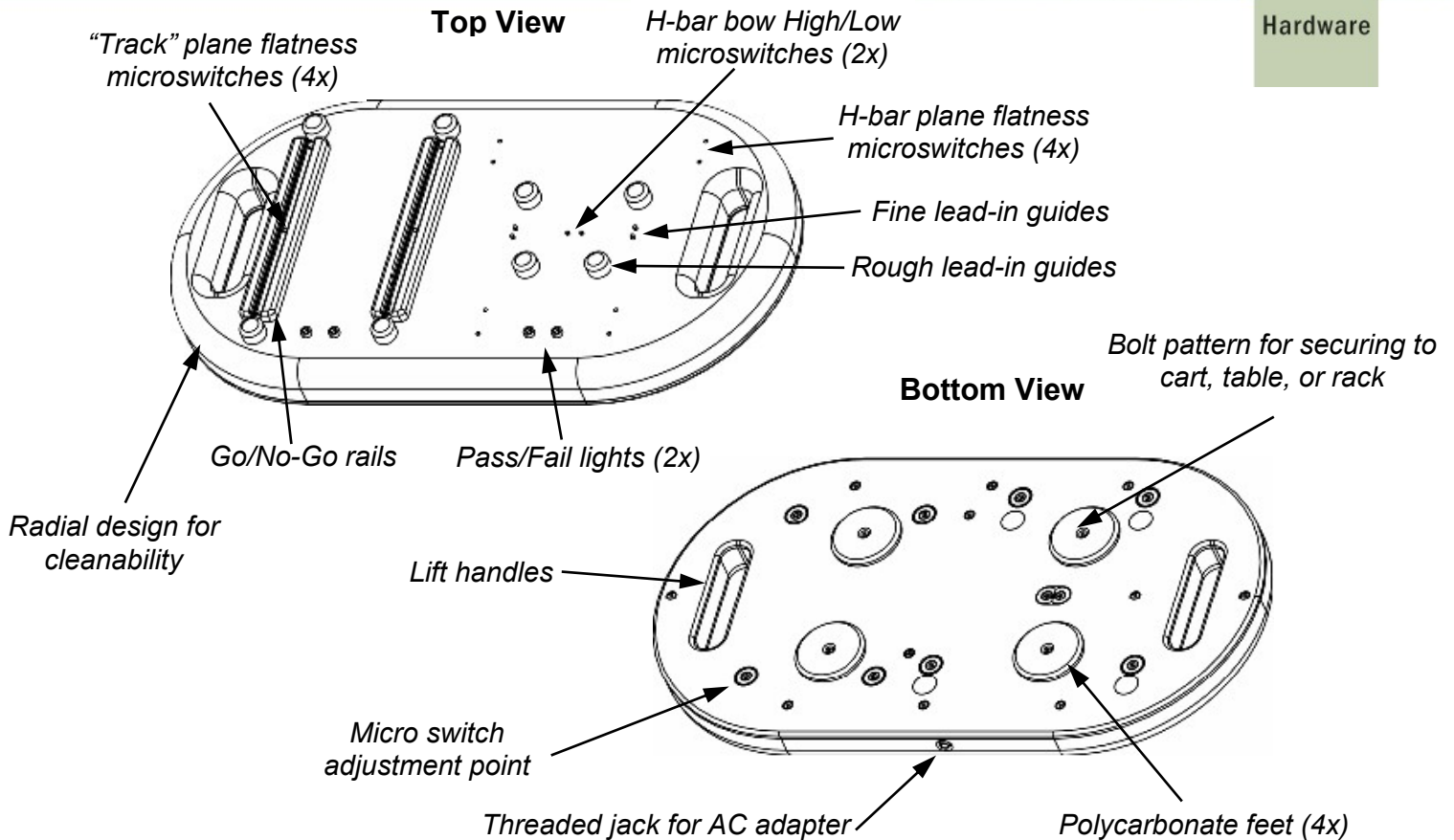
- > Save prime wafers
- > Eliminate problem cassettes
- > Eliminate wafer scratches
- > Save equipment maintenance time chasing cassette problems



> MC 2000



> MC 2000 with cassette



Specifications

CASSETTE MEASUREMENTS

- H-bar bow (D3a)
- Flatness of H-bar plane (Datum A)
- Bottom inside width (D6a)
- Bottom outside width (D6g)
- Flatness of cassette track (Datum B)

ACCURACY

Each microswitch is adjustable in increments of 28µm (0.0011") and is repeatable to within 10µm (0.0004")

COMPATIBILITY

Can be configured for virtually any 200mm cassette

CALIBRATION

Each MC-2000 is factory calibrated to NIST traceable standards and includes a Certificate of Calibration. Re-calibration can be performed at the factory or customer's site

ADJUSTABILITY

Easily adjusted in the field, the MC-2000 can be set to SEMI standards, a cassette manufacturer specification, or your "Fab Functional" specification

OTHER

Power required: 6 volts DC, 500 mA (AC adapter included)
Part size: 560 mm x 300 mm x 50 mm (22" x 12" x 2")
Part weight: 13 kg (28 lbs)



MC-1512

150mm Cassette Checker

Hardware

Brooks' Assure Series Cassette Checkers save you time and money by providing a fast and simple method for checking cassettes. Designed with daily fab use in mind, the MC-1512 offers a quick answer to the question, "Is it the tool or the cassette?" Quit throwing good cassettes away. Quit finding bad cassettes by wasting good production wafers. Start checking your cassettes the sensible way — with the MC-1512!

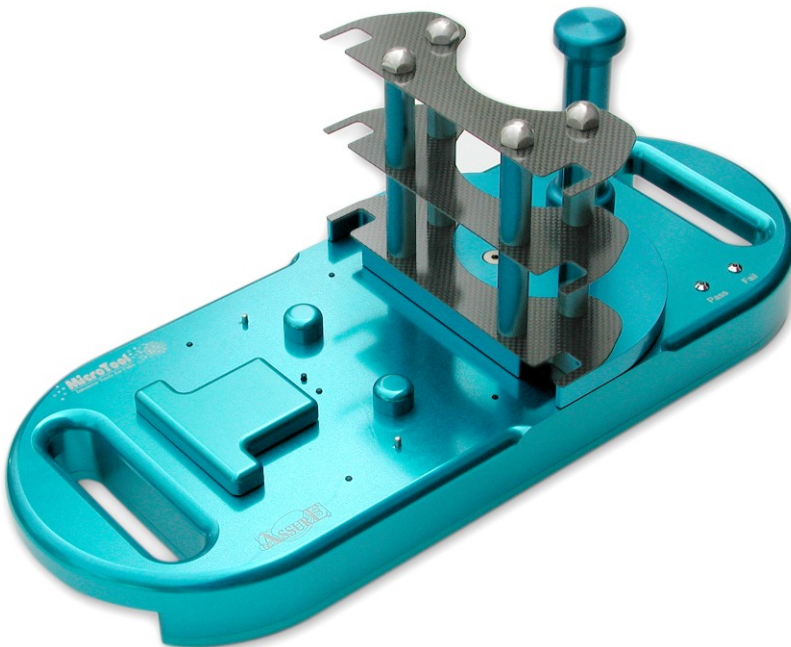
Brooks' Alignment Services Division increases silicon yield and equipment uptime by improving critical wafer handling operations. Products include robotic alignment systems, bridge adapters for 300mm to 200mm, load port alignment systems, electronic levels, carbon fiber and glass dummy wafers, and cassette inspection tools. Services include tool and fab-wide calibration services.

Features:

- > Easy red/green indication
- > Instant measurement
- > Simple to use
- > Accurate repeatable measurements

Benefits:

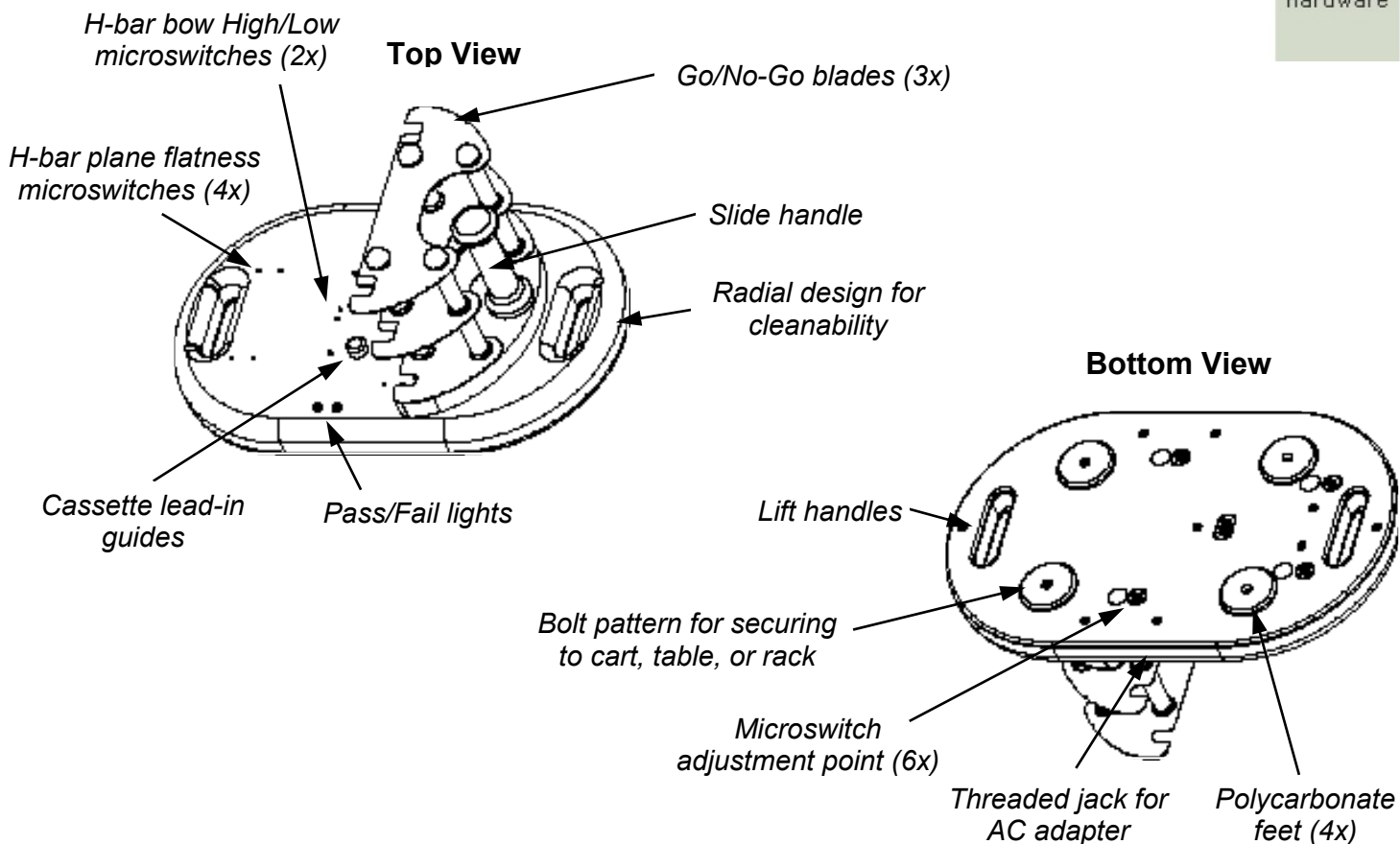
- > Save prime wafers
- > Eliminate problem cassettes
- > Eliminate wafer scratches
- > Save equipment maintenance time chasing cassette problems



> MC-1512



> MC-1512 with cassette



Specifications

DESIGN

- Manufactured from anodized aluminum

COMPATIBILITY

- Can be configured for virtually any 150mm cassette

OTHER

- Power required:** 6 volts DC, 500 mA (AC adapter included)
- Part size:** 560mm x 300mm x 40mm (22" x 12" x 11")
- Part weight:** 10 kg (22 lbs)