



AUTOMATION SYSTEMS  
GROUP

# Jet™

## Atmospheric Transport Systems

TOOL AUTOMATION



### Features

- Integrated, leveled, and tested Atmospheric Wafer Transport Systems shipped as a single unit
- Fusion™ Controls integrated with loadports, aligner and robot in a Class 1 enclosure
- Fifth-generation direct drive robotics
- End-of-line configurable common modules
- Customization options to enhance performance or meet fab-specific requirements
- Kinematic mounting system with one-time height and level adjustment

### Benefits

- Fast, rapid set-up—Crate-to-Operate™ in less than one hour
- Fast, clean, and repeatable performance
- Ease of configuration, customization, and tool integration
- Maximum interoperability with fab equipment and processes
- Maximum tool uptime
- Minimal automation risk
- Lowest total cost of ownership

Brooks Automation's Jet™ family provides the industry's only fully integrated semiconductor Atmospheric Wafer Transport Systems offering a flexible, modular design that can be easily adapted to meet changing tool requirements.

### *A Revolutionary Approach to Wafer Handling*

Brooks Automation's Jet family of atmospheric wafer transport systems takes a revolutionary approach to wafer handling. Connecting all tool components with a seamlessly integrated automation control solution, Jet systems deliver maximum flexibility, rapid time to first wafer transfer, and the lowest possible cost of ownership. Jet was specifically designed to facilitate integration—through a flexible, configurable controls architecture, a modular component set, and standard interfaces—to provide a high-performance automation engine for any semiconductor tool.

Thanks to Jet's modular, standards-based design, the installation teams can get the system up and running remarkably quickly—Crate-to-Operate™ in less than an hour—to begin transferring production wafers within the fab. What's more, Jet's customizable options and Fusion™ Controls application layer make it easy to meet application-specific needs and keep pace with rapidly changing tool requirements.

Jet systems are optimized to meet the cleanliness standards of advanced semiconductor manufacturing. Patented direct drive technology—including Time Optimal Trajectory™ and Time Optimal Path™ move planning capabilities—delivers superior reliability and smooth motion control for the lowest possible vibration and particle contamination. In fact, Brooks Automation's motion control expertise enables Jet systems to transfer wafers using edge contact—not grip—with maximum cleanliness and minimal damage, while maintaining the highest levels of throughput and repeatability.

### *Product Description*

Because the Jet family of atmospheric wafer transport systems are integrated, leveled, and tested, they can be set up 90% faster than other EFEMs and 95% faster than individual modules. What's more, Jet systems are designed to support flexible tool configuration and customization for meeting diverse application requirements—from the simple to the highly complex.



3 bay Jet ATS

Representing a revolutionary approach to EFEM design, Jet is the first EFEM designed at the system level to enable plug-and-play integration of best-in-class components. As a result, it Jet requires a smaller, uniform set of spares that can be used across multiple tools for fast, easy part swapping without need for mechanical adjustments. Jet's modular design supports a flexible spares strategy that streamlines inventory management, speeds repair, and reduces overall service costs, while providing and provides higher reliability across the product family.

All Jet systems include Fusion Controls Standard, Brooks Automation's complete automation control solution. Fusion Controls enables use of a single controller to manage a tool's complete automation needs, providing the ability to configure, customize, and optimize motion control behavior to enhance performance and meet application-specific needs. Fusion Controls' visualization and emulation capabilities enable diagnostics and troubleshooting—even remotely. These Fusion Controls features—and more—combine to deliver optimal efficiency across through all phases of tool development, operations, and service for the lowest possible cost of ownership at all phases of the tool lifecycle.

### Product Specifications\*

		Jet™ ATS	
Enclosure	Base Frame	Welded steel construction of structural base frame with Brooks' standard baked powder coated epoxy paint and BOLTS compatible load ports.	
	Fan Filter Unit	Ultraclean ISO Class 1 environment with full airflow coverage and vibration isolation.	
	Fan Filter Type	PTFE ULPA filter with greater than 99.99995% efficiency at 0.1 microns tested at 100 FPM.	
Automation	Razor™ Robot	Configurable 4 and 5 axis 2 link SCARA direct drive robots with absolute encoders, 448mm z-drive, continuous theta and wrist rotation. 2 and 3 FOUF trackless reach options available standard.	
	End Effector	Passive Edge Contact (PEC), Active Edge Grip (AEG), and Vacuum Grip (VAC) end effector technologies to meet a broad range of throughput and cleanliness requirements.	
	Razor™ Aligner	Edge Contact wafer aligner with buffer station.	
	Wafer Mapper	Thru beam LED	
Physical Properties		<b>Standard</b>	<b>Tall</b>
	Size: Length	2-bay: 1259 mm • 3-bay: 1764 mm • 4-bay: 2269 mm	
	Depth	765mm	
	Height	1865mm	2433mm
	Weight	2 bay: 600kg • 3 bay: 750kg • 4 bay: 880kg	2 bay: TBD • 3 bay: 810kg • 4 bay: 950kg
Facilities	Control Interface	Ethernet	
	Input Voltage	200-240 VAC	
	Input Current	30 amps	
	Vacuum Requirement	> 510mm Hg (20 in.) at 50 cc/sec	
	Pneumatic Connections	8mm	
	Operating Temperature	10°C to 40°C	
	Storage Temperature	5°C to 50°C (70°C w/o end effector)	

\* See Razor and Vision data sheets for additional information

*For more information, please contact your local Brooks Automation sales representative  
or visit [www.brooks.com](http://www.brooks.com).*

