

# PROCESS PLATFORM: AXIOM™ X-1020-C CLEANROOM SERIES

## AXIOM™ X-1020-C CLEANROOM SERIES

Asymtek's Axiom™ X-1020-C cleanroom dispensing series is specifically designed for Class 100 cleanrooms and for applications that are extremely sensitive to contamination by submicron sized particles, such as wafer-level packaging.

The Axiom system comes equipped with a stainless steel enclosure and is configured to minimize particle generation within the dispense area. All pneumatic valves are exhausted to a six-inch duct for optimal system ventilation and connection to house vacuum eliminates the need for a venturi vacuum generator. The system's cable track design reduces particle generation and the keyboard and mouse are enclosed in a tray mounted on a swing arm to protect the keyboard during system maintenance. Self-lubricating linear guides eliminate particle generation from the motion system. An optional HEPA filter can be added for downward air flow to eliminate the introduction of particles into the machine.

When configured with Asymtek's DJ-9000 DispenseJet® valve for non-contact jetting, the Axiom cleanroom system is ideal for wafer-level packaging or other applications requiring a Class 100 environment. Asymtek's patented jet dispensing uses a non-contact method to deliver the fluid and includes process control to ensure that repeatable amounts of material are precisely deposited without touching the wafer or substrate.

The Axiom X-1020-C cleanroom series is configured with Asymtek's Fluidmove® for Windows® XP (FmXP) software. The FmXP software is easy to use and provides precise control of the dispensing pattern and various subsystems, including heat management, fluid management and part handling.

The Axiom X-1020-C cleanroom series features technologically advanced process control, including Asymtek's patented Mass Flow Control module (MFC) and Calibrated Process Jetting (CPJ™). MFC and CPJ ensure automatic fluid weight measurement and flow rate adjustment. If required, contact or impingement heating ensures a reliable thermal environment with pre-dispense, dispense-, and post-dispense heat stations.

The Axiom cleanroom system is configurable for single or dual-valve dispensing to accommodate a wide variety of fluids, processes, and applications. For example, it can be integrated with wafer film-frame or bare wafer handling equipment for ultimate process flexibility in a Class 100 environment.

The Axiom system interfaces with other equipment upstream and downstream using SMEMA-standard hardware and software protocols.



### FEATURES:

- Third-party certified for Class 100 compliance
- The stainless steel enclosure, enclosed keyboard, self-lubricating linear guides and cable harness design reduce particle generation
- Non-contact jet dispensing onto wafers or substrates ensures cleanliness and reliability
- Superior closed-loop process control — fluid weight, flow rate, and substrate heat — for optimized throughput and yield
- Film-frame or bare wafer handling can be added for minimal operator interface



*Axiom system with bare wafer handling*

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# X-1020-C SYSTEM SPECIFICATIONS

## MOTION SYSTEM:

X-Y Placement Accuracy:  $\pm 0.076$  mm (0.003 in.), 3 Sigma (fast mode)  
 $\pm 0.050$  mm (0.002 in.), 3 Sigma (high precision)  
 $\pm 0.025$  mm (0.001 in.), 3 Sigma  
 Z Accuracy:  
 High Precision Z Accuracy:  $\pm 0.012$  mm (0.0005 in.), 3 Sigma  
 X-Y Repeatability:  $\pm 0.025$  mm (0.001 in.)  
 Encoder Resolution: 5 micrometer  
 X-Y Acceleration: 1.0 g peak with S-curve jerk control  
 X-Y Velocity: 1 m/s (40 in/s) peak  
 X-Y Travel: 501.4 x 541.5 mm (19.7 x 21.3 in.)  
 Z Travel: 89.0 mm (3.5 in.)  
 X-Y Type: Brushless DC servomotor driven, low-inertia, closed-loop, high-resolution cable drive with linear-encoder feedback  
 Z Type: Brushless DC servomotor, rack and pinion Z-drive with precision encoder feedback

## DISPENSE AREA (X-Y):

DJ-9000, DV-8K, DV-7K: 438.5 x 419.0 mm (17.3 x 16.5 in.)  
 DP Pump: 422.9 x 381.0 mm (16.7 x 15.0 in.)

## Dual Action (Valve 1/Valve 2):

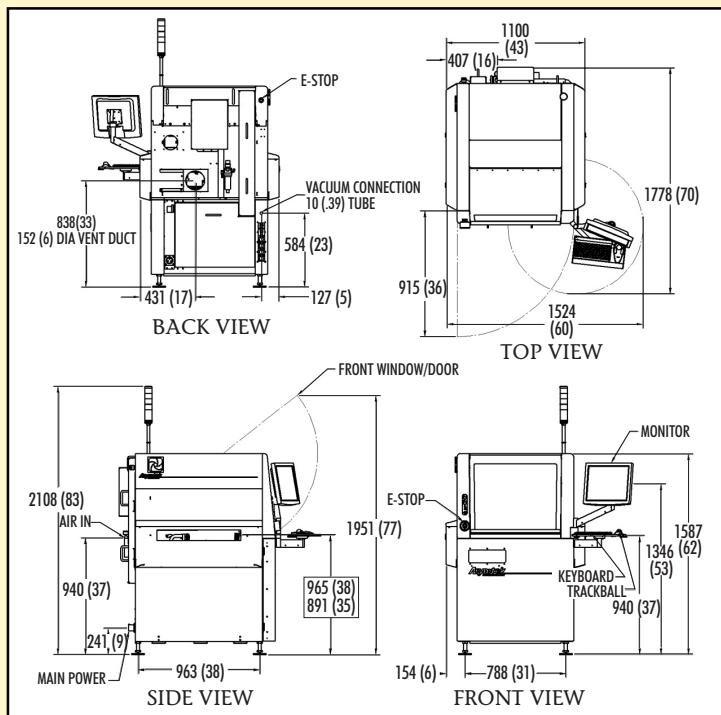
DV or DJ/DV or DJ: 339.0 x 393.7 mm (13.3 x 15.5 in.)  
 DV or DJ/DP: 334.0 x 355.6 mm (13.1 x 14.0 in.)  
 DP/DP: 290.8 x 355.6 mm (11.5 x 14.0 in.)

## VISION AND LIGHTING:

Vision: Automatic pattern recognition system allows for optical registration of the work piece to reliably locate dispensing sites (compensates for up to  $\pm 7^\circ$  rotational part misalignment)  
 Lighting: On-axis red/blue LED with 255 independent light levels for each color  
 Field of View: 7.0 x 5.0 mm (0.28 x 0.20 in.)

## CONVEYOR:

Three-station O-Ring  
 SMEMA-compatible: Height adjustable between 891.0 to 965.0 mm (35.1 to 38.0 in.)  
 Width-Adjustment: Motorized, variable 19.0 to 459.7 mm (0.75 to 18.1 in.)



All dimensions taken with board transfer height of 965 mm (38 in.) Dimensions in millimeters (inches).

Axiom™, DispenseJet®, Fluidmove®, CPJ™ and Asymtek® are registered trademarks of Asymtek. Windows® XP is a registered trademark of Microsoft, Inc.

All specifications are believed to be a true and accurate representation of system capabilities and are subject to change without notice. Contact Asymtek for your specific application requirements.

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## COMPUTER:

Computer: Windows® XP PC  
 User Interface: Color flat-panel display; ASCII keyboard/mouse; 10-100 MBS Ethernet port; DVD  $\pm$  RW; USB port

## SOFTWARE:

User Software: Fluidmove® for Windows® XP  
 Operating System: Windows® XP

## FLUID DELIVERY METHOD:

Supports all Asymtek jets, encoded auger pumps, positive displacement, spool and pressure/time valves

## FACILITIES REQUIREMENTS:

System Footprint: See illustration  
 Air Supply: 621 kPa (6.2 Bar, 90 psi), 1 SCFM [28 liters/min.] (up to 7 SCFM for some configurations)  
 Power (Mains): Adaptive power supply that accommodates supply voltages between 200-240 VAC, single phase, 30A, 50/60 Hz  
 Ventilation Air: 0.188m<sup>3</sup>/s (400 SCFM @ 1.0 in. water column); 152.4 mm (6.0 in.) duct  
 Vacuum Supply: 24 in hg (600 Torr) Ga, 15 SCFM  
 System Weight: 435 to 544 kg (960 to 1200 lbs.) depending on configuration  
 Crate Dimensions: 1930 x 1321 x 1981 mm (76 x 52 x 78 in.)  
 Crated Weight: 735 kg (1620 lbs.)

## Standards Compliance:

SEMI-S2; SEMI-S8; SMEMA; CE;  
 FED STD 209E, Class 100; ISO 14644-1, Class 5 (contact the factory for supporting test results.)

## OTHER STANDARD FEATURES:

Calibration Module: patented Mass Flow Control module with scale, needle sensor and vacuum purge  
 Light Beacon with audible alarm  
 Low Pressure Sensor  
 Tactile Height Sensor  
 Three-station Lift Tables with Heat Control

## OPTIONAL FEATURES:

Dual Lane Configuration  
 Contact, Three-station Substrate Heating  
 Dual-action Dispense Head for selective dispensing of two different materials  
 HEPA Filter  
 Exterior 600 cc (20 oz.) reservoir for offline bulk fluid feed  
 High Precision Z Axis  
 Laser Height Sensor  
 Low Fluid Sensor  
 Material Handling: Freestanding Loaders/Unloaders, Film Frame Wafer; Bare Wafer  
 Process Development Hot Plate  
 RTD Needle Heater  
 SECS/GEM Interface

Please contact these locations for the name of your local representative:

## HEADQUARTERS

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