

# PROCESS PLATFORM: AXIOM™ X-1022 SERIES

## AXIOM™ X-1022 SERIES

The Axiom™ X-1022 is a high-volume dual-lane dispensing system for advanced electronics packaging and semiconductor assembly. It is ideal for multi-pass flip chip and CSP underfill applications or for processes that include long preheat cycles. Throughput increases of 60 to 85 percent are achievable with the Axiom's multitasking capabilities.

When multiple dispense passes are required to complete the underfill process, a single lane dispenser can lose valuable production time waiting for flow-out to occur. The Axiom X-1022 dual-lane system allows parallel processing on two lanes for continuous dispensing, eliminating lost time in non-dispensing activities such as material flow-out and substrate loading/unloading. It lowers cost-of-ownership, minimizing manufacturing cost per square foot.

The Axiom dual-lane system is ideal for applications with high heat requirements or long preheat cycles. Dispensing can be done in one lane, while substrates reach temperature set point in the second lane. The X-1022 system is configured with up to six stations of contact or impingement heating, three stations per lane. The six heat stations ensure precise and consistent substrate heating at specified ramp rates for efficient and highly reliable dispensing. Each lane can also accommodate an enhanced pre-heater for quick temperature ramp.

For ultimate process flexibility, the dual-lane conveyors are independently controlled, allowing different sized substrates and dispense patterns to be processed in each lane. The programmable flat belt conveyors allow for a variety of process carriers, including lead frames, Auer® boats, and custom carriers. The conveyor can be configured for SMEMA compliance, 3 mm belt widths for PCB applications with minimal edge clearance, or other custom solutions such as chains and o-rings as required.

Operating in the Windows® XP environment, the Axiom's Fluidmove® for Windows® XP software offers advancements in throughput, fluid management, and process control. Asymtek's patented Mass Flow Control ensures automatic fluid weight measurement and flow rate adjustment, while Calibrated Process Control maintains volumetric repeatability during long production runs to improve process capability (CpK).



### FEATURES:

- **Multitasking capability can provide a 60- to 85- percent increase in throughput over single lane systems**
- **Independent, software controlled conveyors allow processing of different substrates in each lane**
- **Up to six heat stations ensure precise substrate heating at specified ramp rates**
- **Two additional over-the-board heaters reduce time to reach temperature set point for increased UPH**
- **Superior closed-loop control of process variables – fluid weight, flow rate, and substrate heat – for optimized throughput and yield**

Packaging - Processing

**Bid on Equipment**

1-847-683-7720

[www.bid-on-equipment.com](http://www.bid-on-equipment.com)

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# X-1022 SYSTEM SPECIFICATIONS

## MOTION SYSTEM:

X-Y Placement Accuracy:  $\pm 0.050$  mm (0.002 in.), 3 Sigma  
 $\pm 0.076$  mm (0.003 in.), 3 Sigma (fast mode)  
 Z Accuracy:  $\pm 0.025$  mm (0.001 in.), 3 Sigma  
 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: 1.0 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.) maximum  
 X-Y Type: Brushless DC servomotor driven, low-inertia, closed-loop, high-resolution cable drive with multi-encoder feedback  
 Z Type: Brushless DC servomotor, rack and pinion Z-drive with precision encoder feedback

## DISPENSE AREA (X-Y):

**Single Valve:** **Maximum Dispense Area**  
 DJ-9000, DV-8K, DV-7K: Lane 1: 322.6 x 183.0 mm (12.7 x 7.2 in.)  
 Lane 2: 322.6 x 204.9 mm (12.7 x 8.1 in.)

**Dual Valves:**  
 DV or DJ/DV or DJ: Lane 1: 307.7 x 183.0 mm (12.1 x 7.2 in.)  
 Lane 2: 307.7 x 178.5 mm (12.1 x 7.0 in.)

**Carrier Dimensions:**  
 Length (min/max)\*: Lane 1: 50.0/322.6 mm (1.97/12.7 in.)  
 Lane 2: same  
 Width (min/max): Lane 1: 25.0/183.0 mm (0.98/7.2 in.)  
 Lane 2: 25.0/274.0 mm (0.98/10.8 in.)

\*Contact the factory if larger carriers (lengthwise, X-dimension) are required.

## VISION AND LIGHTING:

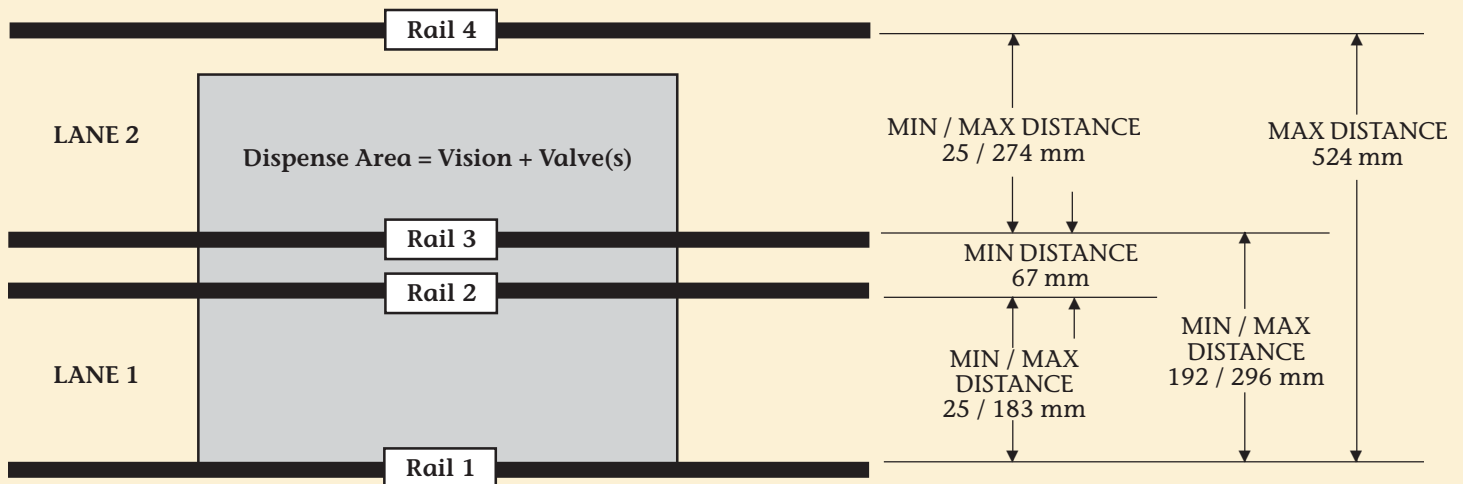
**Vision:** Automatic pattern recognition system allows for optical registration of the work piece to reliably locate dispensing sites (can compensate for up to  $\pm 7^\circ$  rotational part misalignment)

**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.)

## DISPENSE AREA

VALVE CONFIGURATION		MAX DISPENSE AREA: LANE 1 (rails 1-2)		MAX DISPENSE AREA: LANE 2 (rails 3-4)	
Single	Dual	X: mm (in.)	Y: mm (in.)	X: mm (in.)	Y: mm (in.)
X		322.6 (12.7)	183.0 (7.2)	322.6 (12.7)	204.9 (8.1)
	X	307.7 (12.1)	183.0 (7.2)	307.7 (12.1)	178.5 (7.0)



## NOTES:

- Dispense area dimensions are given in X-Y format: X = direction of conveyor motion, Y = direction from front to back of the machine.
- The maximum dispense area is based on a rail 1-3 distance of 250 mm (9.8 in.). Y dimensions will change in proportion to width changes between rails 1-3. Contact the factory regarding larger X-dispense area requirements.
- Rail 2-3 distance can be as small as 50 mm upon request.

Continued on next page.

# X-1022 SYSTEM SPECIFICATIONS

## CONVEYOR:

Adjustable Rail Configuration:	Flat belt dual-lane conveyor with three stations per lane. Rail 1 fixed; rails 2,3 and 4 adjustable. Lanes 1 and 2 are independently adjustable.
Carrier Types:	Auer boats, lead frames, printed circuit boards, custom carriers
Transport Height:	SMEMA: 891.0 to 965.0 mm (35.1 to 38.0 in.)
Standard Edge Clearance:	5.0 mm (0.19 in.) 3.0 mm (0.12 in.) – optional
Carrier Thickness (min/max):	0.13/9.0 mm (0.005/0.35 in.)
Maximum Load Capacity*:	1.36 kg (3.0 lbs.) at 178 mm/s (7.0 in/s)
Width Adjustment:	Motorized, programmable
Maximum Component Height:	30.0 mm (1.18 in.)
Maximum Underboard Clearance:	45 mm @ 5 mm from edge without tooling (1.8 in. @ 0.2 in.)
Operation Modes:	Automatic (SMEMA), manual, pass-through

\*Total weight of all parts on conveyor at any one time. Contact the factory regarding greater load capacity requirements.

## COMPUTER:

Computer:	Windows® XP PC
User Interface:	LCD flat-panel display; ASCII keyboard/mouse; 10-100 MBS Ethernet port; DVD ± RW

## SOFTWARE:

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

## FLUID DELIVERY METHOD:

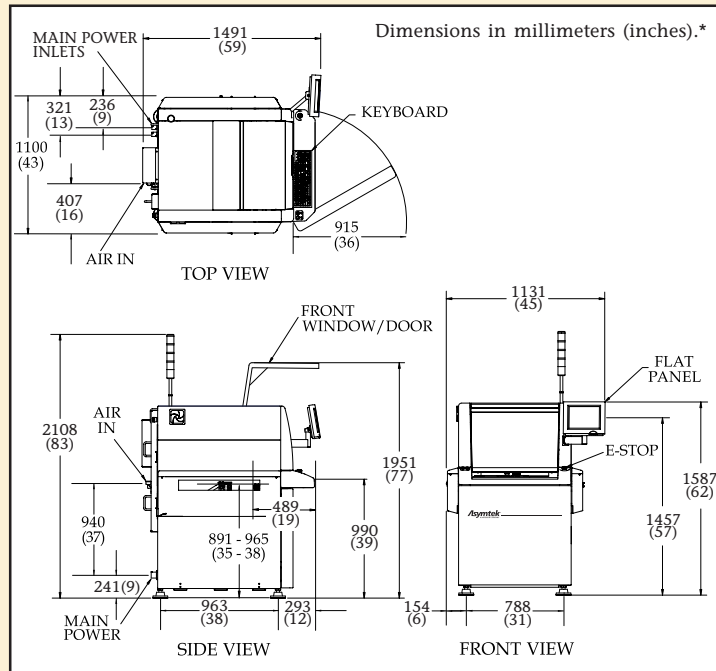
Supports all Asymtek jets, encoded auger pumps, positive displacement, spool and pressure/time valves

## FACILITIES REQUIREMENTS:

System Footprint:	See illustration
Two Air Supply:	621 kPa (6.2 Bar, 90 psi) 28 liters/min. = 1 SCFM standard. One with 15 SCFM for impingement air; a second one with 1 SCFM for the rest of the system.
Two Power (Mains):	200-240 VAC, single phase, 50-60 Hz. 20 A for conveyor 2; 30 A for rest of the system.
System Weight:	435.0 to 490.0 kg (959.0 to 1080 lbs.) depending on configuration
Crate Dimensions:	1930.0 x 1321.0 x 1981.0 mm (76.0 x 52.0 x 78.0 in.)
Crated Weight:	680 kg (1500 lbs.)

## STANDARDS COMPLIANCE:

SEMI-S2; SEMI-S8; SMEMA; CE



\*All dimensions taken with board transfer height of 965 mm (38 in.)

## 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
- Needle Heater/Cooler Control
- Tactile Height Sensor
- Three-station Lift Tables with Heat Control

## OPTIONAL FEATURES:

- Cleanroom Compatible
- Contact or Impingement Tooling
- Dual-action Dispense Head for selective dispensing of two different materials
- Enhanced Pre-heat Conveyor (over-the-board heat)
- Exterior 600 cc (20 oz.) reservoir for offline bulk fluid feed
- High Precision Z Axis (requires Laser Height Sensor)
- Laser Height Sensor
- Low Fluid Sensor
- RTD Needle Heater
- SECS/GEM Interface

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

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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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