

# PROCESS PLATFORM: AXIOM™ X-1032 SERIES

## AXIOM™ X-1032 SERIES

The Axiom™ X-1032 high-volume dual-lane dispensing system provides exceptional accuracy and reliability for selectively jetting traditional flux and no-clean solder fluxes, and for other precise coating applications. Throughput increases of 60- to 85-percent are achievable with the Axiom system's dual lane, multitasking capabilities.

Flux is used during the reflow process to remove oxides from metal surfaces to be soldered, enhance wetting, and protect against re-oxidation. In flip chip assembly, flux is also used to mechanically hold the die to the substrate during the assembly process prior to reflow.

Today's large FCIPs (flip chip in package) with lower bump heights make jetting preferable to stencil printing and dipping, which are difficult to control with high viscosity materials and thinner coating requirements (< .075 mm). Selective flux jetting from Asymtek provides a high-speed, highly adaptable process for jetting virtually any pattern while maintaining good edge definition (0.5 to 1.5 mm), minimizing the overspray associated with other spraying techniques.

Configured with Asymtek's DJ-2200 DispenseJet® valve with coaxial air technology, the Axiom X-1032 is the ideal system for jetting ultra-thin film builds. Jetted flux followed by a pulse of air ensures 100-percent coverage with consistent wet film builds as low as 5 µm, depending on the material. The Axiom system is also configured with Asymtek's Fluidmove® for Windows® XP (FmXP) software. FmXP software is easy to use and provides precise control of the dispensing pattern.

The Axiom's dual lane configuration allows parallel processing on two lanes for continuous dispensing, eliminating lost time in non-dispensing activities such as substrate loading/unloading. 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 chain belt conveyors allow for a variety of process carriers, including lead frames, Auer® boats, and custom carriers.

The fully enclosed, vented system includes safety interlocks and an emergency stop. The Axiom system interfaces with other equipment upstream and downstream using SMEMA-standard hardware and software protocols.



### FEATURES:

- Asymtek's dual lane capability provides a 60- to 85-percent increase in throughput over single lane systems
- Asymtek's DJ-2200 DispenseJet® valve with coaxial air technology enables thin flux wet film builds as low as 5µm
- Selective flux jetting provides excellent edge definition (0.5 to 1 mm), minimizes flux residue, and reduces or eliminates cleaning
- FmXP software controls the amount of flux jetted to accommodate different pitch flip chips



Packaging - Processing

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# X-1032 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 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

## 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:

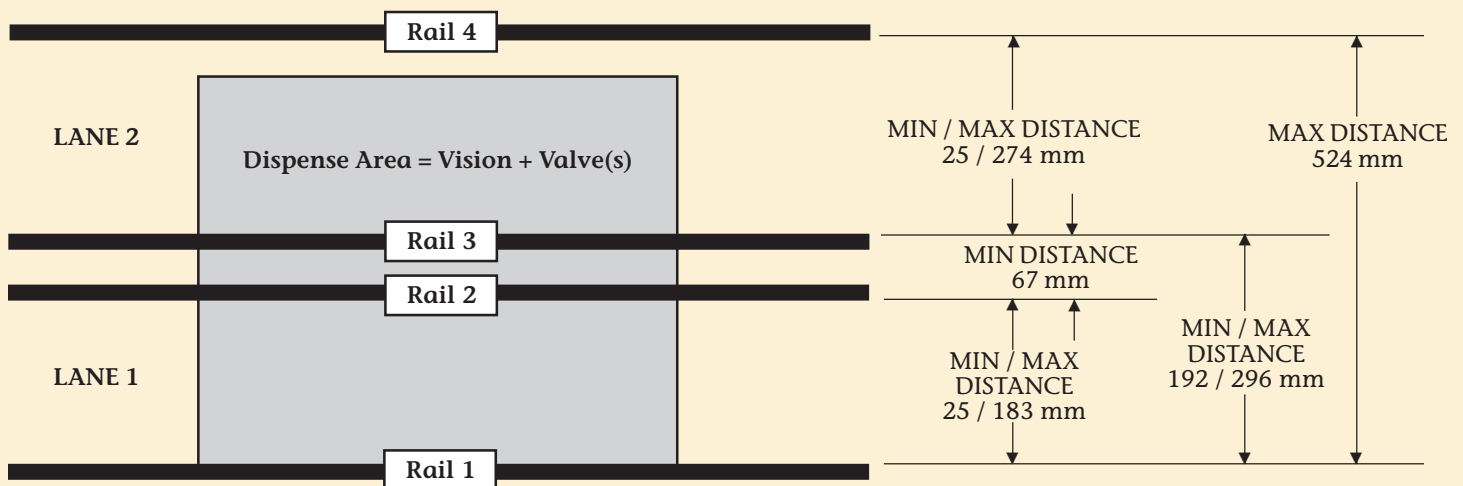
Vision: Automatic pattern recognition system allows for optical registration of the work piece to reliably locate dispensing sites (can compensate for up to  $\pm 7^\circ$  rotational part misalignment)

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 (X-Y)

MAX DISPENSE AREA: LANE 1 (rails 1-2)		MAX DISPENSE AREA: LANE 2 (rails 3-4)	
X: mm (in.)	Y: mm (in.)	X: mm (in.)	Y: mm (in.)
322.6 (12.7)	183.0 (7.2)	322.6 (12.7)	205.8 (8.1)



## 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-1032 SYSTEM SPECIFICATIONS

## CONVEYOR:

- Adjustable Rail Configuration: Dual-lane chain conveyor with two 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.)
- Carrier Thickness (min/max): 0.13/9.0 mm (0.005/0.35 in.)
- Maximum Load Capacity\*: 5.0 kg (11.0 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; USB port

## SOFTWARE:

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

## FLUID DELIVERY METHOD:

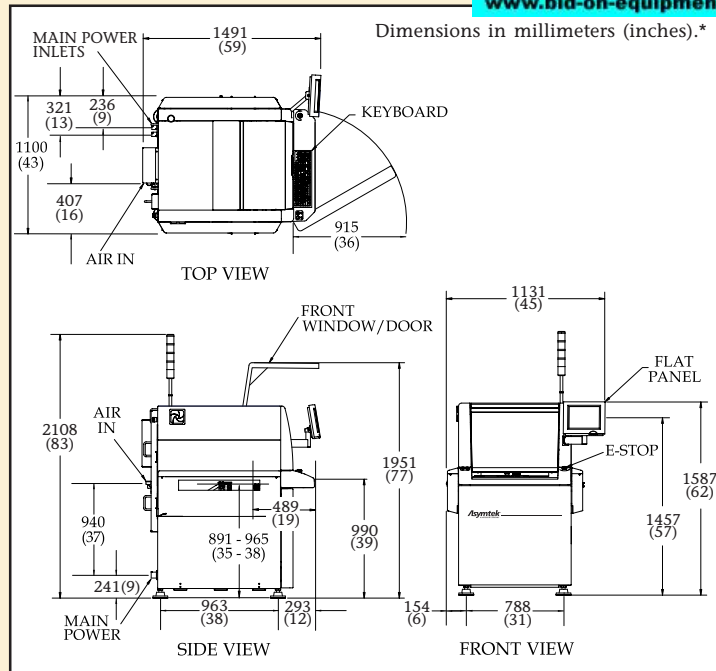
- DJ-2200 DispenseJet® with syringe and exterior 600 cc (20 oz.) reservoir for offline bulk feed
- Application Rate: 15 ips/sec @ dispense width of 5-7 mm

## FACILITIES REQUIREMENTS:

- System Footprint: See illustration
- Air Supply: 621 kPa (6.2 Bar, 90 psi), 3 SCFM [28 liters/min.]
- Power (Mains): Adaptive power supply that accommodates supply voltages between 200-240 VAC, single phase, 30 A, 50/60 Hz
- Ventilation Air: 0.188m³/s (400 SCFM @ 1.0 in. water column)
- Nitrogen Source: 80 psi (2-3 SCFM)
- 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: vacuum purge station and needle sensor
- Drain Pan
- Light Beacon with audible alarm
- Low Pressure Sensor
- Precision Fluid Regulator
- Precision Air Assist Regulator
- Tactile Height Sensor
- Two-station Lift Tables
- Ventilation with interlock (ensures ventilation is flowing while system is powered on)

## OPTIONAL FEATURES:

- Lift Pins (with or without vacuum) for underboard support
- Low Fluid Sensor
- SECS/GEM Interface

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

### HEADQUARTERS

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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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