

# AD3400

## DEVELOPMENT TO PILOT PRODUCTION SYSTEM

### FEATURES AND BENEFITS

#### Flexibility

- Incorporate multi dispensing technologies
- Aspirate and dispense capability
- Bulk dispense capability

#### Accuracy

- High resolution X-Y-Z positioning

#### Upgradeable

- Suitable to add components for batch production mode
- Ability to add contact and non-contact dispensing options
- Ability to add vision capabilities

### PERFORMANCE

#### Accuracy of Dispense Volume

- $\pm 5\%$  of Target

#### Precision of Dispense Volume

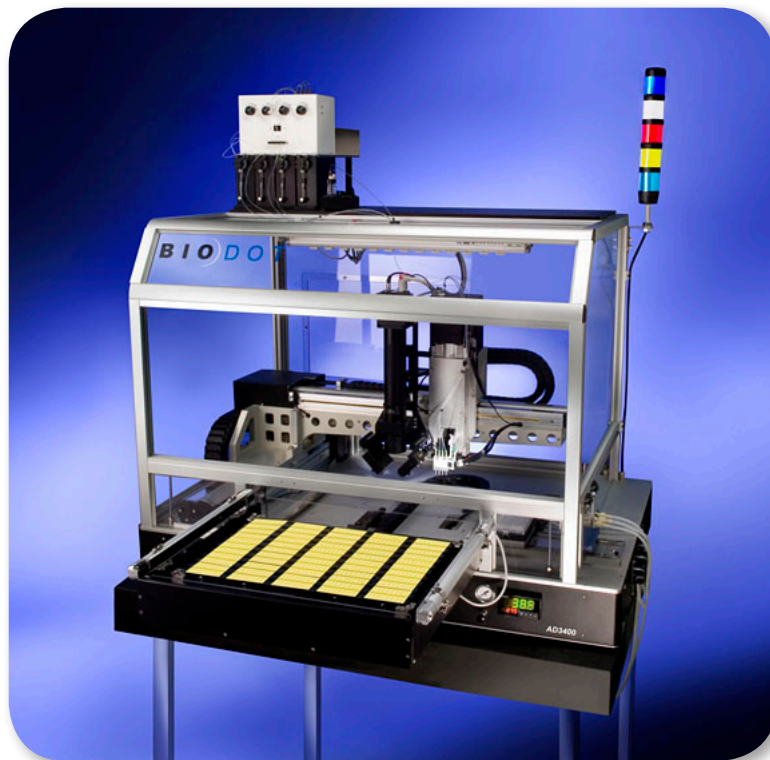
- $\leq 10\%$  CV at 20 nL

#### Total System Positional Accuracy

- $\pm 150 \mu\text{m}$  (typically  $\pm 75 \mu\text{m}$ )
- SD  $50 \mu\text{m}$  (typically  $\leq 25 \mu\text{m}$ )

#### Humidity

- $60 \pm 5\%$  RH

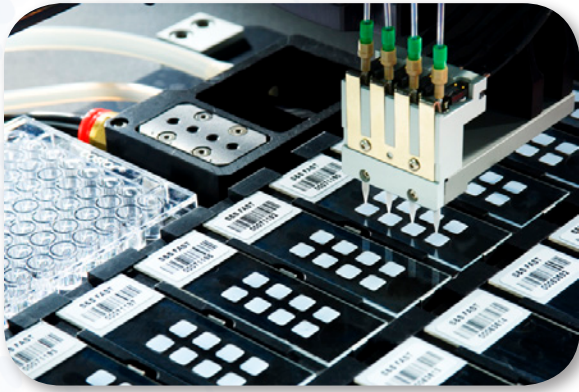


The AD3400 is a workstation that is suitable for R&D through to production levels. With its superior positional accuracy and speed, it is foreseeable to begin biochip projects on this system and then increase throughput using the same system. A choice of 3 nests and mechanical shuttle allows users the ability to interchange substrates and process biochips in a semi-automated process.

The proprietary BioJet Plus technology was developed for high speed dispensing. The technology involves (1) the coupling of a high speed micro solenoid valve with a high resolution syringe pump and (2) synchronization of the dispense system with the movements of the stage. The result is an extremely fast dispensing system, which can deliver volumes non-contact from 20 nL to 4  $\mu\text{L}$  in a single dispensed drop.

BioJet Plus allows for flexible biochip development by dispensing to a glass slide, microtiter plate or membrane material.

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AD3400 System configured with four BioJet Plus Dispensers.

## OPTIONS

- Up to 16 BioJet Plus Pumps
- AirJet Dispensing
- Syringe Dispensing
- FrontLine Dispensing
- Pin Dispensing
- Humidity Control
- Substrate Nest
  - Glass Slide, Microtiter Plate, or Membrane
- Vacuum Pump
- In Line Degasser
- Ultrasonic Wash Station
- Barcode Reader
- Vision System

## SPECIFICATIONS

### Dimensions (L x W x H)

- 1291 mm x 762 mm x 1000 mm  
(48 in x 30 in x 39.5 in)

### Weight

- 500 lb (227 kg)

### Power Requirement

- 110/220 VAC; 50/60 Hz

### Vacuum Requirement

- Vacuum Wash Station: 2.1 CFM (~60 CL)

## MECHANICAL SPECIFICATIONS

### System Precision

- X, Y and Z-axis are  $\pm 25 \mu\text{m}$  (although typically  $< 10 \mu\text{m}$ )
- Manual Nest:  $\pm 250 \mu\text{m}$
- Shuttle Nest:  $\pm 25 \mu\text{m}$

### Z-Axis Height

- Top Plate:  $\pm 127 \mu\text{m}$
- MTP:  $\pm 127 \mu\text{m}$
- Slide:  $\pm 127 \mu\text{m}$

### XY Axis Squareness

- $90.000 \text{ deg} \pm 0.050 \text{ deg}$

### Nest to Axis Parallelism

- X-Axis:  $\pm 127 \mu\text{m}$
- Y-Axis:  $\pm 127 \mu\text{m}$

### Motion Speed

- X-Axis:  $10.0 \pm 0.5 \text{ mm/sec}$
- Y-Axis:  $10.0 \pm 0.5 \text{ mm/sec}$
- Z-Axis:  $10.0 \pm 0.5 \text{ mm/sec}$