Camalot

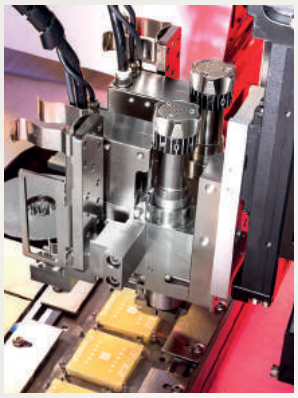
Electronic Assembly Equipment

ITW EAE

Prodigy™ Dispensing System

Innovation, performance and flexibility driven specifically toward the needs of the Automotive, Smartphone and Semiconductor markets.

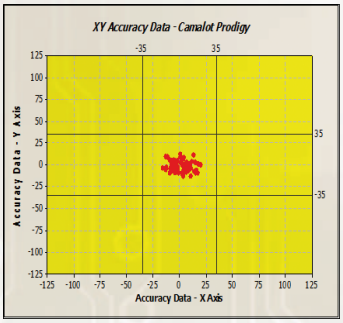
Smarter, Faster and Highly Versatile



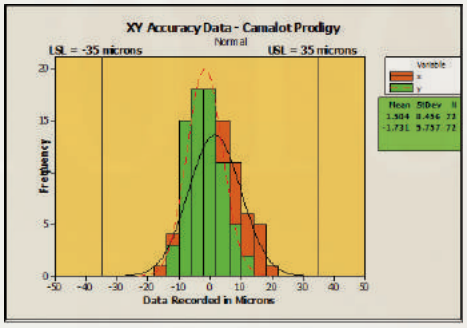
Camalot Prodigy

Advanced Performance

Prodigy is designed and built to deliver high-speed, extremely accurate dispensing. To enable 1.5g's of acceleration, Camalot engineers resourced more than two decades of experience with linear motors and motion control systems. A state-of-the-art XY gantry system is the heart of this next generation dispenser. A new, innovative and rigid frame design combined with advanced linear drive architecture enables fast point to point moves, high accuracy and long term repeatable performance.



XY dot placement accuracy
+/-35 microns @ 3 sigma
at full system speed
1.5g of peak acceleration



Advanced Pump Technology

Superior pump technology is the key to accurate and repeatable precision dispensing, Camalot owns and designs all of the pumps offered on our systems. These proprietary pump technologies are fully integrated within the motion control system and driven by innovative software controls to create a robust dispense process. Closed-loop control provided by a weight scale and vision inspection techniques facilitates a "hands off" setup and allows a continuous means to monitor and maintain the tightest of process requirements.

Pump Options and Features

NuJet™
Compact, Fast and Flexible

- Designed and developed by Camalot
- Speeds up to 300 Hz
- Auto-tune for closed-loop calibration
- Dot sizes < 300 microns
- Underfill, encapsulation, epoxy type applications
- Dual pump pitching down to 28 mm

NanoShot™

- Suited for underfill and UV coating
- High speed - Up to 600 Hz
- Auto-tune feature for closed-loop calibration
- Fine resolution - dot sizes < 300 microns
- Capable of 50,000 DPH

635 SD

- Suited for dot type applications
- Footed or un-footed needles
- Precise material delivery
- Controllable dispense speed
- Fine pitch auger for MicroDot applications

SmartStream®

- Non-contact dispense pump for underfill applications
- Patented design created a stream of material
- Auto-tune feature for closed-loop calibration
- High material flow rates

680 SD

- Suited for line type applications
- Positive shutoff/no drip design
- Carbide parts minimize wear from abrasive materials
- High material flow rates

Camalot Prodigy

Dual Dynamic Head™ (DDH)
Patented, Unrivaled Technology

The proprietary design of Dynamic Dual Head (DDH) provides the only fast and fully accurate solution for dual head simultaneous dispensing. The DDH option uses a unique and patented mini XY drive system on a second Z-axis to correct "real-time" and allow synchronous dispensing of both heads regardless of part to part rotation. This technique guarantees increased productivity whilst maintaining yields through unsurpassed accuracy.

- Independent, real-time adjustment for both dispense pumps
- Incorporates a patented mini XY drive system attached to the second z-axis
- Only solution that can synchronously dispense with two pumps regardless of part to part rotation
- Dispense productivity increased up to 100%
- No yield loss due to second head inaccuracy

Gantry System

Rigid frame design utilizes a powerful and highly accurate drive architecture that's proven to deliver 35 micron dispense accuracy at full system speed.

Digital Auto Vision

Powerful optics and processing algorithms allow for sub-pixel definition maximizing the capability for locating fiducials, and components/pad edges.

Conveyor System

Transport system allows for up to 3 regular or heated zones, dual lane and invert/return options to be configured. A board staging upgrade increases X dispense area to 740 mm.

Dual Mode Weight Scale

Patented closed-loop weighing process allows measurement of dispense patterns for maximum accuracy.

CAMALOT PRODIGY SPECIFICATIONS

SMT Applications	SMA, solder paste conductive adhesives
Semiconductor Packaging	Underfill, encapsulant, thermal grease, lid seal, die attach, spacer bead expoxies

XY AXIS

XY Placement Accuracy*	±35 microns (0.0014) @ 3 sigma
Repeatability*	±10 microns @ 3 sigma
Speed	1000 mm/sec (39.4"/sec)
Acceleration	1.5g peak
Encoder Resolution	0.5 microns
Gantry Drive System	Linear motors/encoders

Z AXIS

Z-Axis Accuracy*	±25 microns (0.001") @ 3 sigma
Repeatability*	±10 microns @ 3 sigma
Speed	187.5 mm/sec (7.4"/sec)
Encoder Resolution	0.6 microns
Z-Axis Type	Closed-loop DC servo, ballscrew drive
Z-Sense Type	CCD laser

DOT PLACEMENT PERFORMANCE

3.00 mm pitch**	
Needle	40,000 DPH
SST/NanoShot/NuJet	50,000 DPH

TRAVEL

Max Dispense Area (XY)***	440 mm x 558 mm (17" x 22")

BOARD HANDLING

Conveyor Type	Flat belt with auto width adjust
Min Conveyor Width	25.4 mm (1.0")
Above Board Clearance	25.4 mm (1.0")
Underboard Clearance	30.5 mm (1.2")
Transport Height	895 mm to 965 mm (35.2" to 38")
Conveyor Options SMT	SMT edge clamps w/vacuum support , 3 or 5 mm rail inserts
Conveyor Lift Chucks	13" x 10" or 10" x 10" area - Contact with vacuum or non-contact convection heating
Chuck Temperature Range	Ambient to 130°C
Dual Lane	Consult Factory

STANDARD FEATURES

Auto-Width Conveyor	XYZ calibration station
Pre-dispense Station	Purge Station
Flip Chip Calculator	Auto-vision alignment
Material low level sensor	Digital Camera System

ADDITIONAL OPTIONS

Dual Mode Weight Scale	Die edge detection algorithms
Needle Cleaner/Detector	2nd Dispenser head upgrade
Laser height sensor	Bulk material feed options
Vision System	Dual on axis lightning with CCD camera
Computer & Operating System	Desktop PC with Microsoft Windows 7
Program Storage	Local hard drive, DVD-RW, Ethernet and USB ports
Program Method	Teach Camera, off-line programming or text file download

FACILITIES

Power Requirement	200 to 250 VAC, 50/60 Hz, 20A
Air Supply Requirement	10 CFM (4.71/s) at >80 PSI (5.5 bar) filtered @ 5 microns
Machine Footprint (excluding light tower) (W x D x H)	848 mm x 1735.17 mm x 1531.04 mm (33.4" x 68.3" x 60.28")
Machine Weight	1000 kg to 1200 kg (2205 lbs to 2645 lbs)
Crated Dimensions (W x D x H)	1420 mm x 2200 mm x 1910 mm (56" x 87" x 75")
Crated Weight	1250 kg to 1450 kg (2756 lbs to 3197 lbs)
Industry Standards	SMEMA, CE, SEMI S2 and S8

* At full speed
** 0.5 mm dot diameter 2.5 mm needle lift
*** Consult factory for specifics.
Electronic data sheet available on request.
Specifications are subject to change without notice.

ITW EAE is a division of Illinois Tool Works, Inc. It is a consolidation of all of its Electronic Assembly Equipment and Thermal Processing Technology. The group includes world-class products from MPM, Camalot, Electrovert (Speedline), Vitronics Soltec and Despatch.

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Electronic Assembly Dispensers ITW EAE