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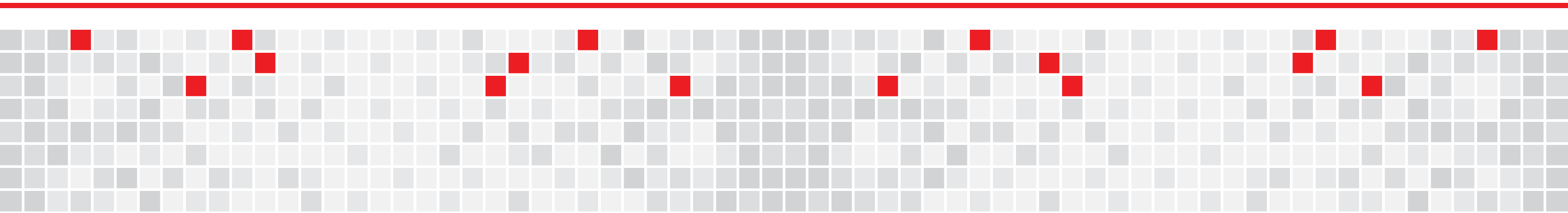
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MC-6531 07/17

advantis<sup>TM</sup>



Value. Scalability. Performance.



# New Benchmark

*Value-driven solutions for cost-sensitive markets*

## *Redefining midrange platform capabilities*

In a fast-paced market, electronics manufacturers are being pressed to optimize efficiency and productivity to meet aggressive market demands. For Tier II/Tier III OEMs/EMSs in a highly competitive landscape, this requires versatile, high-performance production solutions that can changeover quickly and seamlessly and deliver high-quality products while preserving razor-thin margins.

Universal Instruments' AdvantisV™ is a powerful, cost-effective tool that gives the most aspiring manufacturers everything needed to stand above the rest. AdvantisV is a next-generation midrange platform that combines the best in technology and performance with a low entry price and unmatched scalability. AdvantisV gives you all the functionality you need today, with a growth path for tomorrow's challenges. AdvantisV delivers affordable performance without compromise.



advantisV

*Value. Scalability. Performance.*

## *Versatility for any production environment*

As an electronics manufacturer, you need a solution that is tailored to your production requirements with the ability to adapt within them. The AdvantisV portfolio enables you to configure your lines to excel with the products you run and the way you run them – all at the lowest possible cost, regardless of product mix.



## *Unmatched value*

- Low cost of ownership
- Premium technologies
- Investment protection

## *Flexible, scalable foundation*

- Simplified base configurations, easily integrated options
- Flexibility for a wide range of applications



## *Class-leading performance*

- Exceptional and predictable output
- Highest accuracy and yield
- Advanced tools for streamlined NPI and changeovers

# Sustained Profitability

## Unmatched value

### Low cost of ownership

- Low CAPEX/entry cost; buy only what you need
- Intelligent design with minimal maintenance requirements



### Premium technologies

- Same technologies found on Universal's flagship Fuzion Platform
- VRM linear motor: thermally stable, 1µm resolution, dual-drive with fast motion response and settling times
- Exclusive head technologies with high capacity and significant overlapping component ranges
- Intelligent feeders with closed-loop validation
- High-resolution digital line-scan cameras for superior component range, speed and FPY

### Investment protection

- Easily adapts to future requirements
- Robust technologies for long usable life



## Flexible, scalable foundation

### Simplified base configurations, easily integrated options

- Minimal base configurations to grow with your requirements
- Large catalog of available licensed premium options

### Flexibility for a wide range of applications

- Largest board size capability up to 1.3 meters long
- Component range from 01005-150mm square and up to 25mm tall
- No head changes or machine reconfigurations for new products
- Supports all feeder input types (strip, tape, tube, tray, bulk, odd-form)
- Multiple changeover schemes (bank exchange, family setups, feeder anywhere)

# Maximum Productivity

## Class-leading performance

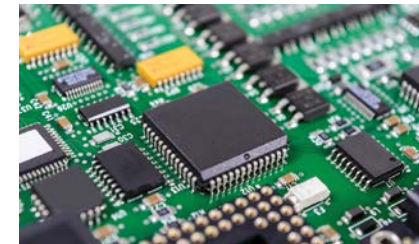
### Exceptional and predictable output

- Single and dual-beam variants with throughputs up to 66,500 cph per module
- Up to 7X the number of multifunction spindles for higher throughput, no bottlenecks
- Consistent output from prototyping to cost-effective volume production



### Highest accuracy and yield

- 1µm positioning, 27µm system-level accuracy
- Single optimized pick-up point for highest yield
- Closed-loop controls (nozzle contamination check, dynamic height adjust, self-diagnostics)

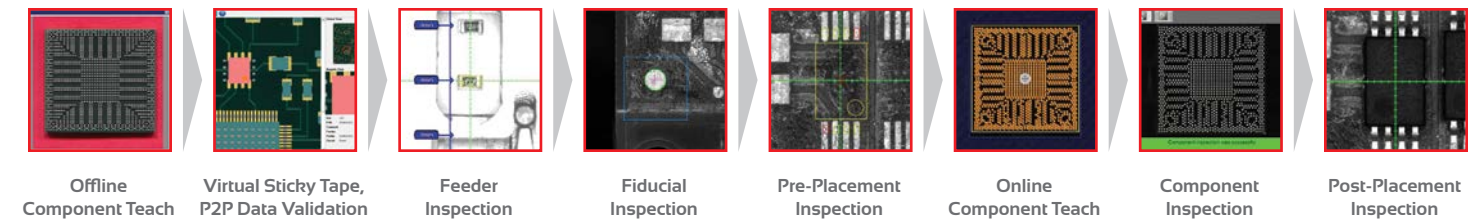
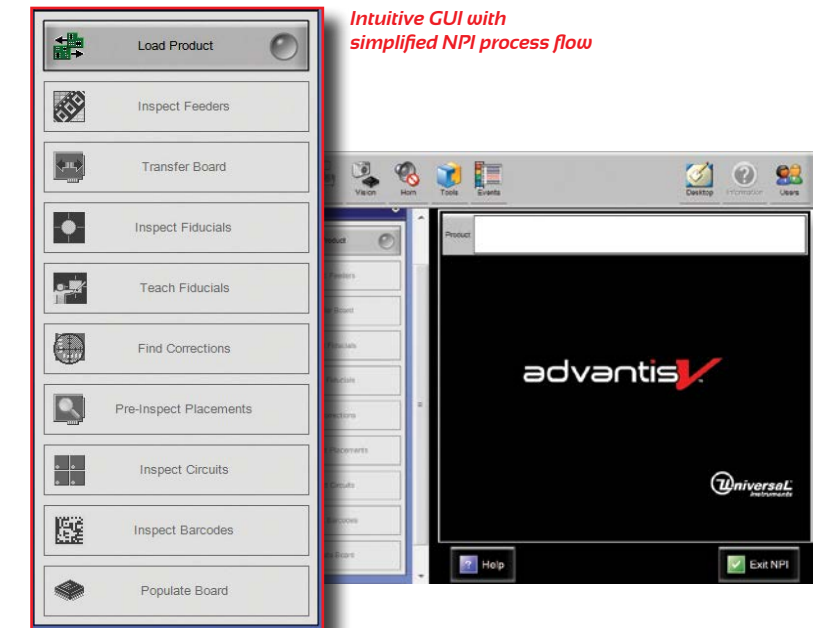


### Advanced tools for streamlined NPI and changeovers

- Direct CAD/Gerber import with BOM merge
- Offline board verification and component teach
- Comprehensive online editing and validation tool set

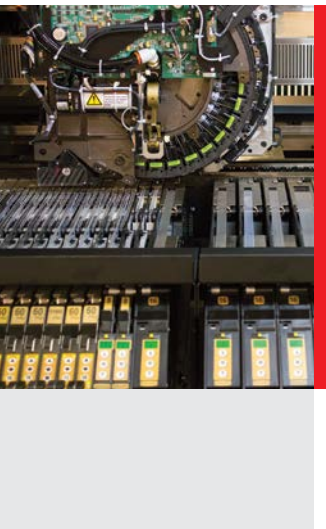
### Fastest time to market, highest yields

- Sequential process for complete board build
- Quickly generate and optimize fiducial, feeder, placement, and component information
- Full editing capability for all aspects of programming in pre-production NPI mode, and dynamic on-the-fly editing in full production mode eliminate need for machine stoppages and reduce scrap and repair costs
- Semi-automated solder paste and post-placement inspection



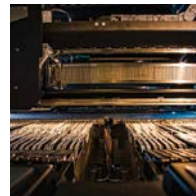
# Technologies for Performance, Flexibility & Yield

## FZ Placement Heads



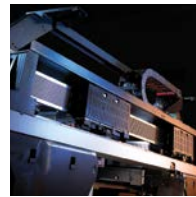
### Base Frame

- Robust and stable foundation for accurate and repeatable performance
- Single welded structure precision machined to within 1µm from corner to corner for extreme accuracy



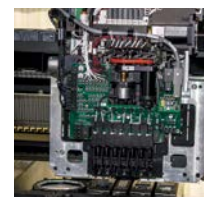
### VRM Linear Motor Positioning System

- High-accuracy (1µm resolution), closed-loop positioning control supports current, converging and emerging technologies
- High acceleration – up to 2.5G
- Dual-drive control is self correcting and reduces settle times
- Thermally stable, non-magnetic
- Fewer moving parts for minimal maintenance and no adjustments
- 20-year lineage – thousands of proven VRM platforms in the field today
- Direct drive technology stands the test of time to maintain its accuracy indefinitely; backed by a five-year warranty



### Magellan Digital Upward-Looking Camera

- Exceptional flexibility for NPI through high-volume, high-throughput applications
- High resolution of 1024 x 1024 pixels to facilitate small part feature recognition
- Large 55mm field-of-view improves throughput for applications that typically require multiple FOVs
- Complete feature-based recognition: full-lead/all-bump, missing-ball, orientation check, odd-form features
- Front, side, and on-axis lighting that can be used individually or in combination
- Lighting intensity is consistent across viewable area for faster, more accurate alignment and inspection



### FZ™ Placement Heads

- Extensive component ranges that significantly overlap between heads, delivering superior line balancing and the ability to simply change the program, and not the line or heads, when changing products
- Robust design, low maintenance, industry-leading accuracy and performance



### FZ30™ Placement Head

The FZ30 is the industry's fastest, most accurate and most flexible high-speed placement head.

#### Maximized Performance

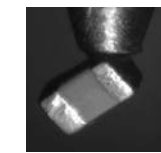
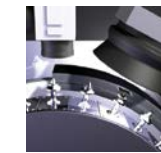
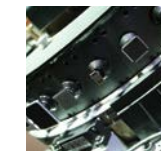
- Industry's fastest tact time (55ms), 35,000 cph per head
- Industry's most accurate high-speed placement head (34µm)
- Little derate, not reliant on gang picking, predictable throughputs on any mix

#### Uncompromising Flexibility

- Largest component range for a high-speed head (01005–30mm square): lead-less, leaded, bumped, odd-form with little need to skip spindles
- Full-lead/all-bump inspection, missing-ball inspection/orientation check

#### Highest Quality and Yields

- Vertical Part Sensor (VPS) validates part presence, orientation, and thickness; inspects nozzles and enables on-the-fly exchange of suspect nozzles
- Auto Pocket Teach and touchdown sense at both pick and place improves pick ppm, guarantees ideal placement force, and reduces nozzle wear
- Single pick point eliminates gang picking (multiple pick point) concerns
- Auto nozzle centering/contamination check/bypass assure sustained yields

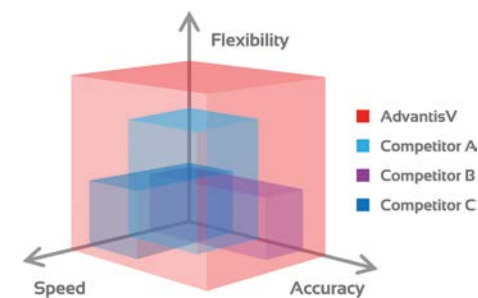


### FZ7™ Placement Head

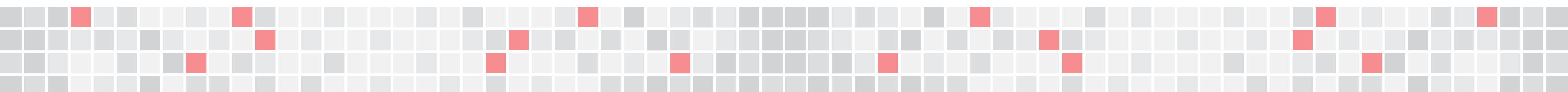
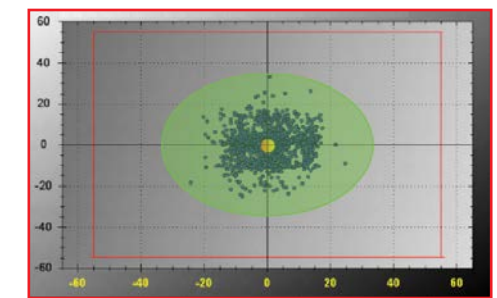
The FZ7 head quickly and accurately places components as small as 0201 up to 55mm square with single field-of-view inspection and up to 25mm tall.

- Precision accuracy (27µm @ Cpk>1)
- Advanced odd-form capability and insertion forces up to 5kg for press-fit or pin-in-paste applications
- Components up to 150mm with multiple fields of view

FZ30 - Unmatched flexibility and performance



FZ30 - Best-in-class accuracy of 34µm



# Solutions for Any Market

# AdvantisV Portfolio

## NPI / All-in-One

Single-machine solution from prototyping to LVHM



- NPI-low-volume OEM/EMS, higher-complexity markets
- Lowest entry price for single scalable machine solution
- Full component range: 0201-150mm, micro BGA
- Advanced NPI tool suite, auto component teach and edit on-the-fly for immediate first article
- Direct CAD/Gerber import with BOM merge

## Low-Volume, High-Mix

Affordable, highly flexible full-line solution (quote any job)



- Medium-Volume EMS or OEM, White Goods, Military, Medical
- 20-35K line cph real throughput
- Rapid changeover with full feeder bank exchange, family setups, offline setup and validation
- (260) 8mm inputs, tray, track feeder support
- Large PCB size range: up to 508 x 813mm (20" x 32")
- Large component range: 01005-150mm, connectors, odd-form

## Medium-Volume, Medium-Mix

Volume efficiency for more complex and changing environments



- Medium Mix EMS or OEM, Industrial, Set-top box, Telecom
- 35k-50k line cph real throughput
- (400) 8mm inputs, 40 random access tray inputs, track feeder support
- Large PCB size range: up to 508 x 813mm (20" x 32")
- Extensive component range overlap across all modules for easy balancing

## Unique Higher-Volume

Single or multi-machine solution for specialized applications



- Higher-Volume LED Lighting, Memory modules (RAM, USB)
- 30-40K line cph real throughput
- Large PCB size range: up to 508 x 1300mm (20" x 52")
- Extensive component range of single head for chips-TSOPs and BGAs
- Single pick-up point for highest real speeds and yields

## Single-Beam Models

### AdvantisV1-07



- Versatile IC placement platform, perfect for special processes such as Pin-in-Paste and OFA
- Single-beam, dual-drive overhead gantry system
- One 7-spindle FZ7 high-speed multifunction placement head
- Upward-looking vision system

### AdvantisV1-30



- Superb for high-mix NPI environments and large board applications. Also a high-volume line booster.
- Single-beam, dual-drive overhead gantry system
- One 30-spindle rotary FZ30 high-speed turret placement head with single pick point
- On-the-head optics

## Dual-Beam Models

### AdvantisV2-60



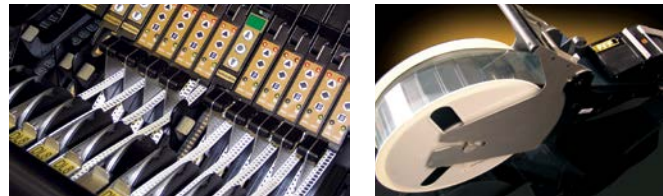
- Flexible, high-speed productivity for medium-volume environments. A powerful line booster or high-performance small part placer.
- Dual-beam, dual-drive overhead gantry system
- Two 30-spindle rotary FZ30 high-speed turret placement heads with single pick point
- On-the-head optics

| Model         | Throughput (cph)        | Accuracy ( $\mu\text{m}@>1.00 \text{ Cpk}$ ) | Max Board Size                | Max Feeder Inputs (8mm) | Component Range (mm)          |
|---------------|-------------------------|--|-------------------------------|-------------------------|-------------------------------|
| AdvantisV1-07 | 16,500 (Max)            | $\pm 38$ (Chips)                             | 508 x 813mm / 20 x 32" (Std)  | 128 (1 ULC)             | (0201) .25 x .5 x .15 (Min)   |
|               | 11,400 (1-Bd IPC Chips) | $\pm 27$ (ICs)                               | 508 x 1300mm / 20 x 52" (Opt) |                         | 150 square and up to 40 tall  |
| AdvantisV1-30 | 35,000 (Max)            | $\pm 34$ (Chips)                             | 508 x 1016mm / 20 x 40" (Std) | 136                     | (01005) .18 x .38 x .10 (Min) |
|               | 22,600 (1-Bd IPC Chips) | $\pm 34$ (ICs)                               | 508 x 1300mm / 20 x 52" (Opt) |                         | 30 x 30 x 6 (Max)             |
| AdvantisV2-60 | 66,500 (Max)            | $\pm 34$ (Chips)                             | 508 x 1016mm / 20 x 40" (Std) | 136                     | (01005) .18 x .38 x .10 (Min) |
|               | 40,500 (1-Bd IPC Chips) | $\pm 34$ (ICs)                               | 508 x 1300mm / 20 x 52" (Opt) |                         | 30 x 30 x 6 (Max)             |

# Versatile Feeding Solutions

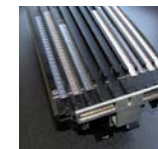
AdvantisV Platforms support the widest variety of input types in the industry; from strip tape NPI and tube feeders to high-volume continuous-splice tape feeders, random access matrix tray feeding, and odd-form feeders to support any automated assembly challenge.

## High-Performance Tape Feeders



### Gold Plus Feeders

- 8–88mm tape widths, multi-pitch
- Dual-lane and single-lane options
- Dual-lane 8mm doubles capacity, up to 144 inputs per machine
- Common 8mm feeder for paper or embossed media packaging
- Single feeder supports a variety of pitches
- Load times of less than 30 seconds
- Integrated reel holders
- Continuous-splice and hot swap replenishment capability
- O2O1 qualified – no need for dedicated O2O1 feeders
- Precision locating features (8/12mm) for improved chip performance
- Intelligent/smart feeder technology
- Unique feeder ID and reel detection sensor, compatible with PSV
- Standard high-torque mode for all 16–88mm
- Available 7" or 13" inch reel holder options
- Highly reliable design with low maintenance requirements
- Two-year warranty



### NPI Strip Tape Feeders

- Single-lane/single-slot strip tape feeders
- Multi-lane, multi-slot, matrix tray-style
- Delivers components from short strips of 8mm or 12mm tape
- Ideal for NPI or low-volume

## Random-Access Tray Feeders



### Direct Tray Feeder (DTF)

- Components picked directly from tray (supports odd-form)
- JEDEC or non-standard vacuum formed matrix trays
- Operates in 3 modes: Exchange (no downtime for replenishment), Concurrent (combined for maximum capacity), and Job Changeover (zero setup time)



### Platform Tray Feeder (PTF)

- No base machine feeder capacity consumed
- Up to 58 different part numbers
- Parts are pre-oriented allowing for gang pick
- Stackable functionality accommodates higher-volume parts
- Automatic empty tray removal



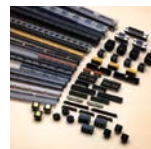
### Stationary Matrix Tray Feeder

- Single tray, single part number tray feeder
- Adjustable tray height

### SMA Stackable Matrix Tray Feeder

- Stackable alternative for higher volumes of one part number

## Specialty Feeders

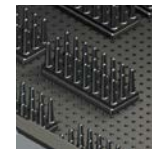
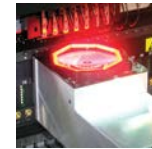


### Tube Feeders

- Adjustable track, multi-input track, single-input multi-tube

### Odd-Form / Automation Feeders

- Bowl, GPAX, label and other feeding solutions



# Configured for Your Needs

S = STANDARD  
O = OPTIONAL  
N/A = NOT AVAILABLE

## AdvantisV Options Matrix

|   | AdvantisV1-07  | AdvantisV1-30      | AdvantisV2-60 |
|---|--|--------------------|---------------|
| HEADS/NOZZLES   | 30-Spindle Turret High-Speed Head                          | N/A                | S             |
|   | 7 In-Line Spindle Multifunction Head                       | S                  | N/A           |
|   | Gripper Nozzle   | O                  | N/A           |
|   | Custom Nozzles   | O                  | O             |
|   | Automatic Pick Update                                      | S                  | S             |
|   | 93-Count HS ANC Station                                    | N/A                | S             |
|   | 70-Count / 48 Count (Large-Bore) Multifunction ANC Station | O                  | N/A           |
| CAMERAS   | Turret Head Vertical Parts Sensor                          | O                  | O             |
|   | Turret Head Wide FOV camera 2.8mpp                         | N/A                | O             |
|   | Turret Head High-Resolution FOV 0.94mpp                    | N/A                | O             |
|   | Nozzle Contamination Check                                 | O                  | N/A           |
|   | Magellan Upward-Looking Camera, Circular: 2.3 mpp          | S                  | N/A           |
|   | Magellan Upward-Looking Camera, Circular: 0.94 mpp         | O                  | N/A           |
|   | Bank Feeder Exchange System                                | O                  | O             |
| FEEDERS   | Rear Feeder Banks  | O                  | O             |
|   | Fixed Feeder Bank Assembly                                 | S                  | S             |
|   | Feeder Bank, Removable                                     | O                  | O             |
|   | Tape Feeder: Gold+ Precision Pro Class                     | O                  | O             |
|   | Deep-Pocket Tape Feeders                                   | O                  | O             |
|   | Adjustable / Single / Multi-Track Tube Feeder              | O                  | N/A           |
|   | Component Strip Feeder: Single-Lane / Multiple-Lane        | O                  | O             |
|   | Stationary Matrix Tray Feeder                              | O                  | O             |
|   | Wide Stationary Matrix Tray                                | O                  | O             |
|   | Stackable Matrix Tray Feeder                               | O                  | O             |
|   | Direct Tray Feeder   | O                  | O             |
|   | Platform Tray Feeder                                       | O                  | N/A           |
|   | Single Feeder Index Station, Machine Mount                 | O                  | O             |
|   | Universal Splicing Tool                                    | O                  | O             |
|   | Component Reject Conveyor (QFPs)                           | O                  | O             |
|   | Odd-Form Feeders   | O                  | N/A           |
|   | OTHER  | Scrap Box Assembly | O             |
| Kit, I2O VAC for External Items                               |  | O                  | O             |
| Reject Bucket   |  | S                  | S             |
| Right-to-Left Transfer  |  | O                  | O             |
| 3mm Board Edge Clearance                                      |  | S                  | S             |
| 5mm Board Edge Clearance (Big, Heavy Boards)                  |  | O                  | O             |
| Automatic Width Adjust  |  | S                  | S             |
| Board Support (up to W457 x L406mm)                           |  | S                  | S             |
| Large PCB Capability (up to W508 x L508mm)                    |  | O                  | O             |
| Extra Large PCB Capability (up to W508 x L635mm)              |  | O                  | O             |
| Extra Long PCB Capability (up to W508 x L1300mm)              |  | O                  | O             |
| Standard Pin PCB Support                                      |  | S                  | S             |
| Foam Finger Compliant PCB Support                             |  | O                  | O             |
| Third-Party Board Support                                     |  | O                  | O             |
| CE Standard (for EU Region)                                   |  | O                  | O             |
| Rear Side CRT Monitor   |  | O                  | O             |
| Universal Legacy Feeder Support (24v Transformer)             |  | O                  | N/A           |
| Tape Cutter (Floor-Mounted)                                   | O  | O                  |               |
| SECSII/GEM, CAMX Software Interface License                   | O  | O                  |               |
| New Product Introduction Software                             | S  | S                  |               |
| Enhanced New Product Introduction Software                    | O  | O                  |               |
| LED Special Handling Software Parameters                      | N/A  | S                  |               |
| Traceability Software   | O  | O                  |               |
| Online Setup Validation Software (PSV)                        | O  | O                  |               |
| Line/Machine Performance Tracking Software (Linechart/UChart) | O  | O                  |               |
| Local Language Interface                                      | O  | O                  |               |
| Windows7 OS and Machine Control Software                      | S  | S                  |               |
| Offline Component Teach Station                               | O  | O                  |               |
| Offline "Virtual Sticky Tape" Software                        | O  | O                  |               |
| Programming and Optimization with CircuitCam Express          | O  | O                  |               |
| Production Planning and Scheduling                            | O  | O                  |               |