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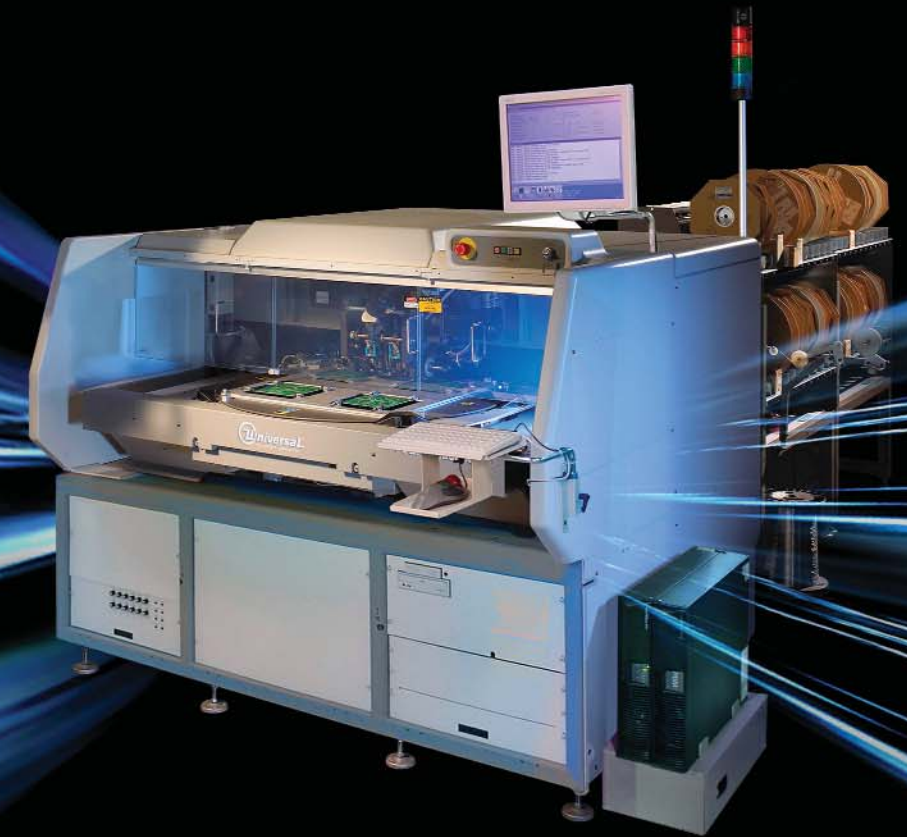
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MC-5572A 09/09



GENERATION 8



the enduring standard
for through-hole automation

Generation 8

the enduring standard for

Through-Hole Automation

Through-hole technology remains a significant element in electronic manufacturing, both in mature products as well as new products incorporating mixed technologies. Universal Instruments' through-hole equipment portfolio was designed with higher speeds, improved reliability, and enhanced capabilities in mind. Refined through decades of experience, Universal's through-hole lineup has been evolving to stay one step ahead by leveraging continual improvements and enhancements to conquer the growing demands of the industry.

Universal's latest family of equipment, the Generation 8 lineup, stands as the pinnacle of through-hole productivity, delivering the industry's highest level of performance, throughput, and quality. Complemented by an extensive global support infrastructure, Generation 8 offers the most complete solution for any through-hole production environment.



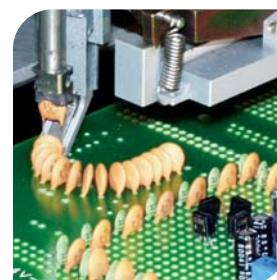
The green machine

Universal's Through-hole machines are the most economical and environmentally friendly gear available today. They feature the lowest electrical and air consumption, and are the leaders in LED lighting – the greenest lighting type with the exception of solar. LED sources consume significantly less power, last roughly three times longer, and emit no harmful gases into the environment upon depletion of their life cycle. The Jumper Wire 8HS is the worlds only 'zero-scrap' high-speed jumper wire machine, reducing energy costs and eliminating scrap.

Value-driven evolution

Through-hole component packages and assembly techniques have evolved extensively over the past 40 years. That's how long Universal has been setting the pace in insertion machine development; putting true performance first and foremost.

By targeting state of the art machine technologies – motion control, board handling options, user interface – today's Generation 8 family delivers real speed, reliability and cost advantages to the shop floor.



A heritage of reliability

Reliability is vital to true productivity. Robust equipment solutions that run with maximum performance and minimal down-time are critical in getting the most from your manufacturing resources. The Generation 8 family takes advantage of proven technologies that have been improved and refined over years of development to provide the highest level of performance with minimal maintenance requirements. Today, Generation 8 stands as the most reliable through-hole machine set in the industry.



Easy to use

Generation 8 machines are easy to use, with a full-color, graphical operator interface that has been simplified to feature just five key-function buttons to control essential shop floor actions. Interact with a Generation 8 machine as easily as a desktop PC to access advanced settings and functions. CD-ROM and floppy drives, and built-in Ethernet make it easy to download, extract and manipulate programming, diagnostic or management data.

Simple setup and operation with intuitive functionality minimizes operator training. The optional multilingual "Product Trainer" CD further streamlines training by delivering rich multimedia tutorials offline. Video demonstrations and interactive simulated user interface screens enhance the learning experience.



Flexible performance

The Generation 8 family offers unmatched flexibility to excel in a wide range of production environments. Each machine can be individually configured to meet specific application requirements. From low-cost manual load with optional CE-compliance, to modular automatic board handling options.

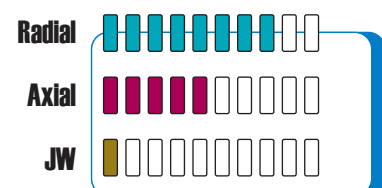
Further optimize productivity with expandable component sequencers with up to 220 stations for axial insertion platforms, or 100 stations for radial insertion platforms. This allows you to load the next job or unload the last while the machine continues working to maximize utilization.



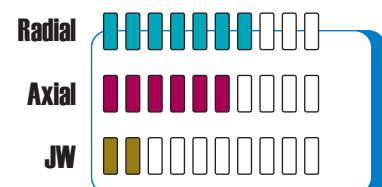
“A 40-year history as the leading through-hole provider, coupled with outstanding customer support, made Universal the obvious choice for our production requirements.”

the ideal solution for any market

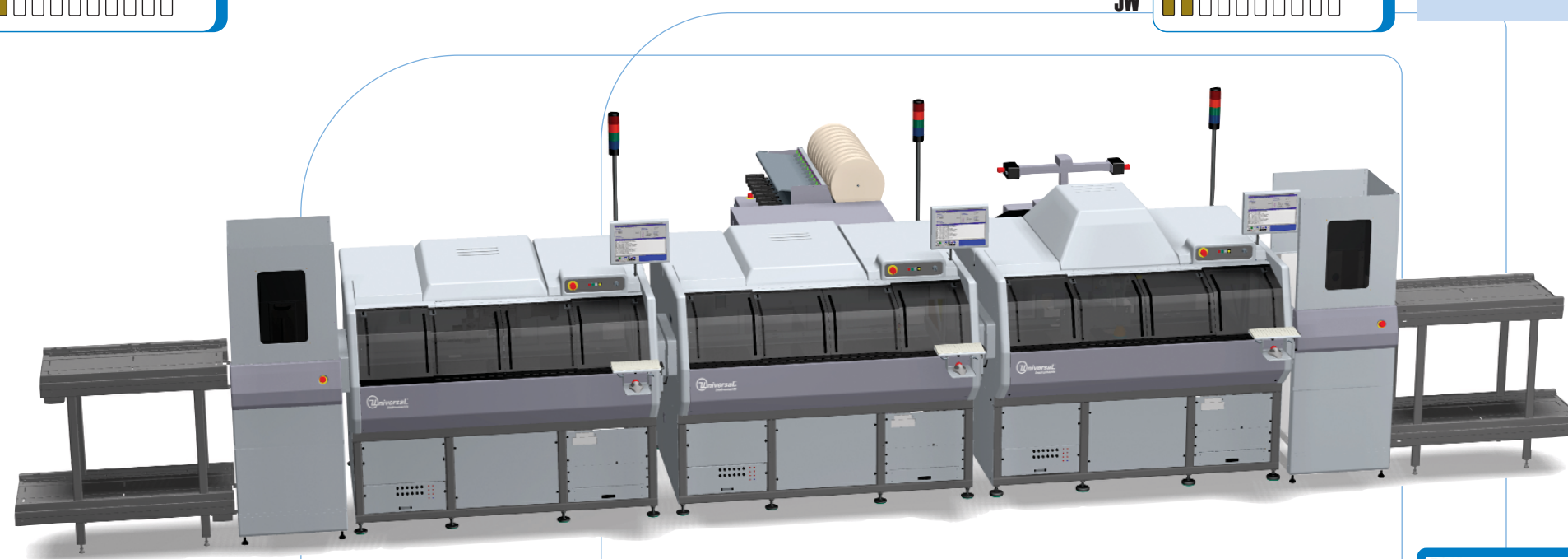
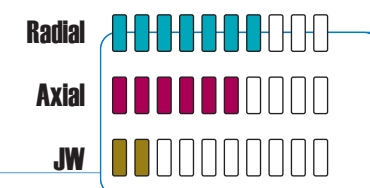
- LED**
- 19k–20k cph actual throughput
 - 360-degree radial component placement
 - N-style and T-style clinching (for special component layouts)
 - Dedicated 2.5mm radial insertion head/clinch (high-density tooling)
 - Low number of feeders required – smaller footprint machine configuration
 - Large board and thick board options
 - Component replenishment on-the-fly
 - Optional manual or board handling configurations



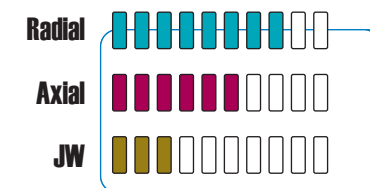
- Lighting**
- 18k–20k cph actual throughput
 - Dense component placement
 - 360-degree radial component placement
 - N-style and T-style clinching (for special component layouts)
 - Dedicated 2.5mm radial clinch
 - High-speed triple-span radial (2.5mm/5.0mm/7.5mm) or (5.0mm/7.5mm/10.0mm)
 - Component replenishment on-the-fly
 - Optional manual or board handling configurations



- Appliance**
- 18k–20k cph actual throughput
 - Large component range
 - No derate on large components
 - Zero-scrap jumper wire option
 - Rapid product changeover
 - High-speed triple-span radial (2.5mm/5.0mm/7.5mm) or (5.0mm/7.5mm/10.0mm)
 - Component replenishment on-the-fly
 - Optional manual or board handling configurations



- TV/Audio Visual**
- 18k–20k cph actual throughput
 - Dense component placement
 - High-speed triple-span radial (2.5mm/5.0mm/7.5mm) or (5.0mm/7.5mm/10.0mm)
 - Zero-scrap jumper wire option
 - Large board or thick board options
 - Component replenishment on-the-fly
 - Optional manual or board handling configurations



Radial 8XT

Flexible Radial sequencer / inserter for high productivity

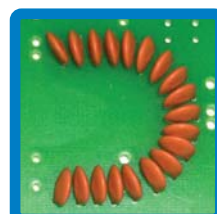
- 21,000 CPH
- Highest "real" throughput Radial inserter
- Highest reliability in the industry (300 ppm)
- Expandable from 20 inputs up to 100 inputs
- Inserts components with lead spans up to 10mm
- Manual Load or Automatic PCB Load/Unload
- Configurable sequencer styles (In-Line or Straight-Back)
- Multiple Clinch options (N, T, 90 Long, 90 Short)
- Expandable Range Verifier
- Simple-to-use operator environment:
 - Operation
 - Diagnostic support
 - Management data
 - Graphical product generation/editor



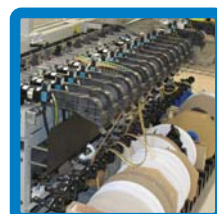
Radial Head Tooling Options
Available 2.5mm (single-span), 2.5mm/5.0mm (dual-span), or 2.5mm/5.0mm/7.5mm (triple-span), 5.0mm/7.5mm/10.0mm (triple-span) head tooling to accommodate a variety of applications, and can be changed in the field.



10mm Lead Span Capability
Virtually eliminates tedious manual assembly requirements to improve throughput, product quality, and output per floor space, while reducing associated labor costs and time requirements to provide greater returns.



360° Insertion Angle
Insertion heads are servo-driven for precise and rapid component insertion. The insertion tooling may be rotated from 0° to 360° in 1° increments. Mechanical limits prevent the head from rotating between 101° and 159°.



Sequencer Configuration Options
Available in-line or straight-back sequencer configurations to accommodate a variety of factory layouts.



Radial Clinch Tooling
Optional N-style or T-style cutter heads (clinches) available.



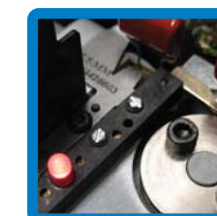
Expandable Sequencer
Expandable from 20 stations up to 100 stations in 20-station increments.



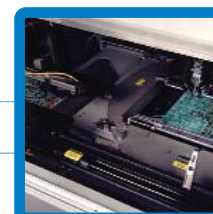
Expanded Range Verifier (ERV)
The ERV allows for the on-line verification of value and polarity of the components to be inserted, reducing the risk of inserting defective, out-of-sequence, or incorrectly oriented components.



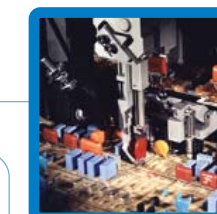
Component Feeding Options
Sequencer feeds components to machine from reels or ammo packs.



Re-fire Component Sense
The re-fire circuit in the dispensing head senses a missing component from the input tape and re-fires the dispensing head index mechanism to bring a component into position.



Board Handling Options
Machines are available with either manual-load or automatic PCB handling configurations, including full magazine-to-magazine loader/unloader.



Servo-Driven Axis
The Radial 8XT utilizes servo-driven axis to improve speed, accuracy and reliability, while reducing maintenance and setup requirements.

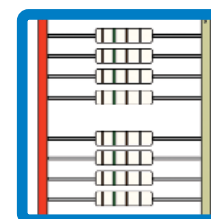
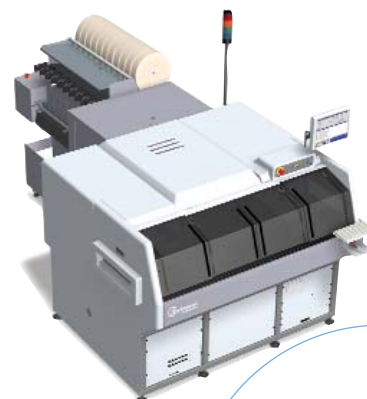
RADIAL 8XT SPECIFICATIONS

Cycle Rate	Max	21,000 cph (0.17 sec. per insertion)
Lead Spans	Dual Span	2.5/5.0mm
	Triple Span	2.5/5.0/7.5mm or 5.0/7.5/10.0mm
	Dual Span	300 ppm or better
Reliability	Triple Span	400 ppm or better
	Dual Span	95% Intrinsic Availability
Intrinsic Availability		360° in 1° increments
Insertion Capability		
	Component Types	Standard and Odd Form
Component Specs	Maximum Size (LxDxH)	13.0 x 13.0 x 23.0mm (0.512 x 0.512 x .906")
	Tape Pitch	12.7mm (0.5") and 15.0mm (0.6")
	Component Replenishment	Without stopping production
Options	Board Handling	Manual or Automatic PCB load/unload
	Sequencer Size	Up to 100 inputs (in 20 station increments)
	Sequencer Configuration	In-line or Straight-back
	Clinch Types	N or T style
	Component Verification	Expanded Range Verifier (ERV) ensures operator accuracy of component loading
Networking		Ethernet, TCP/IP
	PCB Specifications	
Automated Bd Handling	Length x Width (minimum)	102 x 80mm (4 x 3.1")
	Length x Width (maximum)	483 x 406mm (19 x 16")
	Insertable Area	483 x 406mm (19 x 16")
	PCB Transfer Time	2.5 seconds
Manual Bd Handling	Length x Width (minimum)	51 x 51mm (2.0 x 2.0")
	Length x Width (maximum)	559 x 470mm (22 x 18.5")
	Insertable Area	508 x 470mm (20 x 18.5")
	Board Error Correction (BEC)	BEC feature compensates for PCB pattern errors

VCD/Sequencer 8

High Performance Axial sequencer / inserter for demanding production

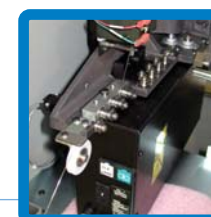
- 25,000 CPH
- Highest "real" throughput Axial sequencer/inserter
- Highest reliability in the industry (200 ppm)
- Expandable from 20 inputs up to 220 inputs
- Manual Load or Automatic PCB Load/Unload
- Expandable Range Verifier
- Simple-to-use operator environment:
 - Operation
 - Diagnostic support
 - Management data
 - Graphical product generation/editor



Optical Re-fire Component Sense
The optical re-fire circuit in the dispensing head senses a missing component from the input tape and re-fires the dispensing head index mechanism to bring a component into position.



Servo-Driven Axis
The VCD/Sequencer utilizes servo-driven axis to improve speed, accuracy and reliability, while reducing maintenance and setup requirements.



Jumper Wire Station
The VCD/Sequencer allows for up to two jumper wire stations that utilize a continuous wire input spool. Dispensing jumper wire in this manner reduces the amount of scrap wire, and is lower in cost than pre-packaged jumper wire reels.

VCD/SEQUENCER 8 SPECIFICATIONS

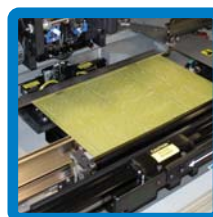
Cycle Rate	Max	25,000 cph (0.14 sec. per insertion)
Reliability		200 ppm or better
Intrinsic Availability		95% Intrinsic Availability
Component Types		Capacitors, resistors, diodes, jumper wire, etc.
Component Specs		
Component Class I	Distance Between Tapes	52.4mm +/- 1.5mm (2.063" +/- 0.059")
	Pitch	5.08mm (0.200") or 10.16mm (0.400")
	Component Replenishment	Without stopping production
Component Class II*	Distance Between Tapes	63.54mm +/- 1.5mm (2.50" +/- 0.059")
	Pitch	10.16mm (0.400") pitch not recommended for Class II input
	Component Replenishment	Without stopping production
Standard Tooling	Hole Span	7.62mm (0.300") min – 24.13mm (0.950") max
	Component Body Diameter	Wire lead diameter (min) – 10.69mm (0.420") minus 2 times board thickness (max)
5mm Tooling	Lead Wire Diameter	0.38mm (0.015") min – 0.81mm (0.032") max
	Hole Span	5.00mm (0.197") min – 21.59mm (0.850") max
	Component Body Diameter	Wire lead diameter (min) – 11.68mm (0.460") minus 2 times board thickness (max) (At 5mm span, max component body diameter is 2.29mm (0.090"))
	Lead Wire Diameter	0.38mm (0.015") min – 0.81mm (0.032") max
Options	Board Handling	Manual or Automatic PCB load/unload
	Sequencer Size	Up to 220 inputs (in 20 station increments)
	Insertion Tooling	Standard or 5mm
	Jumper Wire	Bulk Jumper Wire Dispenser System – processes jumper wires from a continuous spool of wire
	Component Verification	Expanded Range Verifier (ERV) ensures operator accuracy of component loading
	Networking	Ethernet, TCP/IP
PCB Specifications		
Automated Bd Handling	Length x Width (minimum)	102 x 80mm (4 x 3.1")
	Length x Width (maximum)	483 x 406mm (19 x 16")
	Insertable Area	483 x 406mm (19 x 16")
	PCB Transfer Time	2.5 seconds
Manual Bd Handling	Length x Width (minimum)	51 x 51mm (2.0 x 2.0")
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	Board Error Correction (BEC)	BEC feature compensates for PCB pattern errors



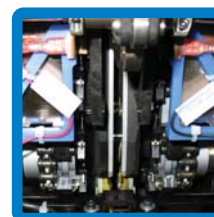
Expandable Sequencer
Expandable from 20 stations up to 220 stations in 20-station increments.



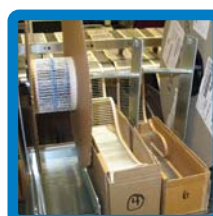
Axial Head Tooling Options
Available 5mm, standard, and large-lead head tooling to accommodate a variety of applications, and can be changed in the field.



Board Handling Options
Machines are available with either manual-load or automatic PCB handling configurations, including full magazine-to-magazine loader/unloader.



Expanded Range Verifier (ERV)
The ERV allows for the on-line verification of value and polarity of the components to be inserted, reducing the risk of inserting defective, out-of-sequence, or incorrectly oriented components.



Component Feeding Options
Sequencer feeds components to machine from reels, ammo packs or jumper wire spools.

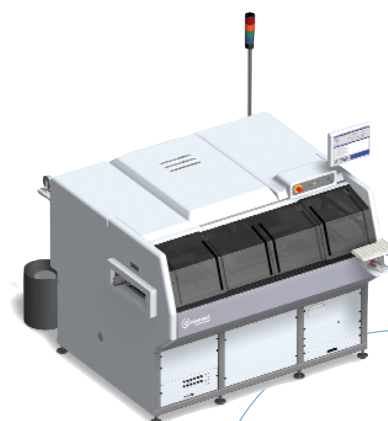


Low-Maintenance Lead Screw on Head and Clinch
The Teflon-coated insertion head and clinch lead screws are virtually maintenance free, requiring very little attention over the machine life cycle.

Single Head Jumper Wire 8HS

High-Reliability Jumper Wire inserter with zero waste

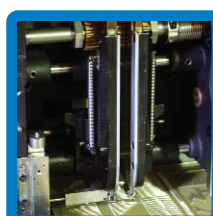
- 32,500 CPH
- Zero Scrap – zero scrap leads
- Highest reliability in the industry (75 ppm)
- Programmable clinch angles from 25° to 75° off of board
- Manual Load or Automatic PCB Load/Unload
- Simple-to-use operator environment:
 - Operation
 - Diagnostic support
 - Management data
 - Graphical product generation/editor



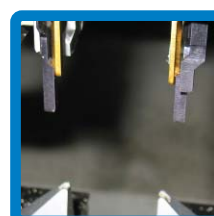
Low-Maintenance Lead Screw on Head and Clinch
The Teflon-coated insertion head and clinch lead screws are virtually maintenance free, requiring very little attention over the machine life cycle.



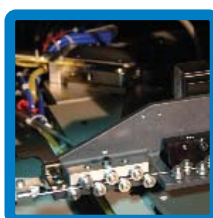
Zero Scrap
The SH JW 8HS utilizes a precise, servo-driven wire feed mechanism to feed the exact length of wire required for insertion and clinching in the board without any scrap leads.



High-Performance Insertion Head
The insertion head utilizes servo-driven motors for fast, precise jumper wire insertion.



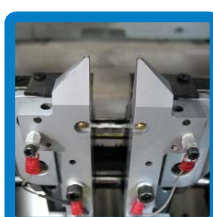
Long Tool Life
Robust tooling endures an extensive life span of approximately 10M - 15M insertion cycles, depending on the material composition of the wire being utilized.



Servo-Driven Wire Feeding
The servo-driven wire feed delivers precise feed lengths into the insertion head to eliminate scrap.



Servo-Driven Axis
The SH JW 8HS utilizes servo-driven axis to improve speed, accuracy and reliability, while reducing maintenance and setup requirements.



Wipe Clinch
The wipe-only, servo-controlled clinch offers programmable clinch angles from 25° to 75° off the board.



Board Handling Options
Machines are available with either manual-load or automatic PCB handling configurations, including full magazine-to-magazine loader/unloader.

JUMPER WIRE 8HS SPECIFICATIONS

Cycle Rate	Max	32,500cph (0.11 sec. per insertion)
Reliability		75 ppm or better
Intrinsic Availability		Zero-scrap Jumper Wire leads
Component Specs		95% Intrinsic Availability
	Input Wire Diameter	0.51mm (0.020") to 0.81mm (0.032") tin-coated copper wire [0.6mm (0.024") is recommended]
	Input Wire Packaging	Preferred package is a drum that measures up to 405mm (16") high by 350mm (13.8") diameter, which may be placed on the floor next to the machine
	Hole Span	5.00mm (0.197") to 33.00mm (1.300")
Options	Board Handling	Manual or Automatic PCB load/unload
	Networking	Ethernet, TCP/IP
PCB Specifications		
	Automated Bd Handling	
	Length x Width (minimum)	102 x 80mm (4 x 3.1")
	Length x Width (maximum)	483 x 406mm (19 x 16")
	Insertable Area	483 x 406mm (19 x 16")
	PCB Transfer Time	Single Head - 2.5 seconds
	Manual Bd Handling	
	Length x Width (minimum)	51 x 51mm (2.0 x 2.0")
	Length x Width (maximum)	559 x 470mm (22 x 18.5")
	Insertable Area	508 x 470mm (20 x 18.5")
	Board Error Correction (BEC)	BEC feature compensates for PCB pattern errors