

# PIN INSERTION AND PRESS-FIT MACHINES

A WIDE RANGE OF PRODUCTION EQUIPMENT  
FOR COMPLIANT PIN TECHNOLOGY

# LINE OF PIN INSERTION MACHINES

## Application Tooling and Equipment Portfolio

- Applicators
- Crimp Machines and Equipment
- Electrical Test Equipment
- FFC-FPC Equipment
- Hand Tools
- IDC Machines
- Lead Makers
- Magnet Wire Equipment
- MOST\* Equipment
- Pin Insertion and Press-Fit Machines
- SOLARLOK Equipment
- Tooling for Raychem Heat Shrink Products
- Wire Preparation Equipment
- Installation, Inspection and Service as well as Training and Short Term Rental Crimp Applicators within EMEA region

\*MOST is a trademark of SMSC Europe GmbH

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TE Connectivity (TE) insertion machine platforms combined with performance enhancing accessories provide the flexibility to meet a wide range of customer requirements in the manufacturing of printed circuit boards.

Our goal is to provide the optimal solution for the production needs of our customers. Our application tooling representatives can help you to select the optimal machine configuration. The benefit to you is a low cost investment in order to meet your requirements of output and quality. Finally, TE Connectivity field service is available to service and support the machines to help maximize uptime.

Our line of four insertion machines have been designed to deliver very high performance and quality within their range of applications.

#### **Applied Cost Savings**

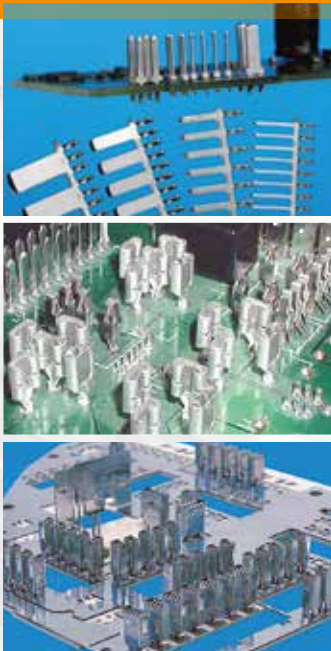
The competitive nature of today's markets requires continual improvement and cost savings in any production process. All of our insertion machines can be supplied with a rotary insertion finger that can apply products at different angles without decreasing the insertion rate. This eliminates costly lost production time associated with rotating the PCB. Product specific tooling is provided in tooling packs that can easily be changed from one product to another. This can greatly reduce initial capital expenditure while reducing the time associated with product change out.

#### **Quality Assurance**

Today's most demanding production operations require equipment that meets design specifications and assures end product quality. TE Connectivity insertion machines are able to use electrical continuity or discrete pin penetration sensing. This gives the machines the ability to assure that each product was correctly inserted in the PCB and remained there in real time. There is no additional quality check step required and all quality control (QC) data can be stored via the system control for future traceability. The upper level machines can be equipped with insertion force monitoring to provide an even higher degree of quality assurance as requested specially in automotive applications.

#### **Production Flexibility**

The insertion machines are also designed to provide a great deal of flexibility to meet your production needs of today and tomorrow. Products from TE Connectivity and other manufacturers can be applied to meet your full range of production requirements. Each product is applied by a specific "quick change" product tool pack that minimizes initial cost while maximizing platform capabilities. Finally, most of the machines can be supplied with more than one insertion head to increase the number of products that can be applied in a single machine.



# PIN INSERTION MACHINES COMPARISON CHART



Base Machine	P50	P100	M200	M300T
For more information	See page 7	See page 8/9	See page 10/11	See page 11
Board Capacity	350 x 300 mm (13.75 x 11.8 in)	305 x 450 mm (12.0 x 18.0 in)	460 x 360 mm (18.0 x 14.0 in)	300 x 260 mm (12.0 x 10.0 in)
Loading	Manual	Manual	Auto	Auto
Insertion Rate (cycles per min)	.9 sec minimum for 1 pc (operator dependant)	120	222 – 150	222 – 92
Tool Changer	No	No	Yes	Yes
Anvil Changer	No	No	Yes	Yes
Anvil Drive	Pneumatic	Pneumatic	Pneumatic	Pneumatic
In-Line / Interface	No	No	Yes	Yes
Force Monitoring / Documentation	Yes	Yes	No	Yes (0)
Force Distance Curve Determination	No	No	No	No
Thickness Measuring	No	No	No	No
Vision System	No	No	No	No
Pin Presence Check	Yes	Yes	Yes	Yes
Pin Protrusion Length Measuring	No	No	No	No
Bar-Code Scanner	Yes	No	No	Yes (0)
ESD Proofed Guards	No	Yes	Yes	Yes
Modem for Remote Diagnostics	No	No	No	Yes (0)
<b>Insertion Tools</b>				
Number of Tools	1	2	Max. 4	Max. 3
Insertion Tool Power	Pneumatic	Air / Servo Motor	Air	Air
Insertion Angles per Tool	6	6	N/A	N/A
Insertion Angles free programmable	No	No	N/A	N/A
Double Insertion	Yes	Yes	No	No
Splice Detection	Yes	Yes	No	Yes
Conversion Kits	Yes	Yes	Yes (max 4 hrs req)	Yes (max 2 hrs req)



Base Machine	M2000T	P300	P350	M2000M*
For more information	See page 11	See page 11/12	See page 13/14	See page 11
Board Capacity	330 x 260 mm (13.0 x 10.0 in)	400 x 600 mm (15.5 x 23.5 in)	450 x 450 mm (17.5 x 17.5 in)	250 x 150 mm (10.0 x 10.0 in)
Loading	Auto	Manual, In-Line	In-Line	Manual
Insertion Rate (cycles per min)	260 – 120 (operator dependant)	180	300	109
Tool Changer	Yes	Yes	Yes	No
Anvil Changer	Yes	Yes	Yes	No
Anvil Drive	Servo	Pneumatic / Servo Motor	Servo Motor	None
In-Line / Interface	Yes / SMEMA** compliant	Yes / SMEMA** compliant	Yes	No
Force Monitoring / Documentation	Yes (0)	Yes	Yes	Yes (0)
Force Distance Curve Determination	No	Yes	Yes	N/A
Thickness Measuring	No	Yes	Yes	No
Vision System	No	Yes	Yes	No
Pin Presence Check	Yes	Yes	Yes	No
Pin Protrusion Length Measuring	No	Yes	Yes	N/A
Bar-Code Scanner	Yes (0)	Yes	Yes	Yes (0)
ESD Proofed Guards	Yes	Yes	Yes	Yes
Modem for Remote Diagnostics	Yes (0)	Yes	Yes	Yes (0)
<b>Insertion Tools</b>				
Number of Tools	Max. 3	Max. 4	Max. 4	Max. 6
Insertion Tool Power	Servo Motor	Servo Motor	Servo Motor	Air
Insertion Angles per Tool	N/A	programmable	7	N/A
Insertion Angles free programmable	N/A	Yes	Yes	N/A (on servo driven tool)
Double Insertion	No	Yes	Yes	No
Splice Detection	Yes	Yes	Yes	Yes
Conversion Kits	Yes	Yes	Yes	No

\* Fuse and Relay Inserters

\*\* Surface Mount Equipment Manufacturers Association

# LINE OF PIN INSERTION MACHINES

## P10 Single Pin Repair Station

### Machine

The P10 single pin repair station base unit consists of an arbor press with ratchet mechanism and insertion force monitoring.

The arbor press contains a retainer for the product specific insertion fingers also used on the tooling of TE Connectivity P300 and P350 insertion machines.

The insertion force monitoring provides real-time force monitoring of the press cycle. The result is a higher level of quality assurance for the pressing operation.

The insertion force monitoring is supplied with a touch screen monitor for easy programming and operation. The system monitors the press cycle for consistency of force to assure it is within requirements. If a press cycle falls out of these tolerances (such as excessive force, a low force, a missing force, etc.), a visual alert informs the operator that the cycle should be stopped. This will help to prevent a faulty application as well as damage to the components being applied.

When operating, a single pin is manually loaded into the insertion finger. The PCB is positioned on the support block and the pin is manually pressed into the board. The ratchet mechanism ensures a correct insertion depth while the insertion force monitoring ensures that the insertion force was sufficient.

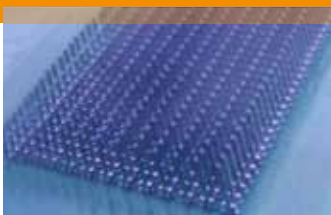


### Product Features

- Convenient and easy operation due to a touch screen monitor
- Single pins can be interchanged on a complete equipped PCB
- High insertion quality due to press cycle monitoring with PQM

### Products which can be processed

- ACTION PIN contacts
- AMPMODU contacts
- Cross contacts
- EON board to board
- EON board to housing
- FEC pins
- GDS contacts
- Junior Timer
- Junior Power Timer
- MQS pins
- PCB contacts
- PCB coupler
- Solder tabs
- Spring contacts
- Tabs
- Please contact your local TE Connectivity representative for your special requirement



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## P50 Manual Bench Insertion Machine

### Machine

The successful product line of single pin insertion machines has been expanded with the addition of a manual operated bench machine for low volume production, repair work and sample production.

The P50 manual bench insertion machine uses a trader slide to position the PCB under the pneumatic insertion head. A regular PCB is used as master to position the indexing pin above the insertion hole. When activating the two hand start, the indexing pin extracts. If a hole is detected, the support tool moves under the PCB. The support tool is equipped with an indexing pin to identify an insertion hole. If both conditions are fulfilled, the terminal is inserted into the board in production.

To fulfil automotive requirements, the P50 insertion machine can be equipped with an insertion force monitoring system. In cooperation with an optional barcode scanner, the insertion forces can be stored for traceability purposes.

The newly designed pneumatic insertion head uses the well known conversion kits from the upper machine range P300/P350 and can also be used on other machines of the product line. These conversion kits can easily be changed to run different terminal types and provide all features to feed, cut and insert the terminal.

The rotary insertion finger is a standard feature of the pneumatic insertion head to allow the terminal insertion at different angles without the need to re-load the PCB in different orientations. A simple mechanical pin is used to switch from one insertion angle to the other.



### Product Features

- Manually loaded bench top machine
- PCB size: 350 x 300 mm max.
- PCB thickness: 1.0 - 3.5 mm
- Uses pneumatic base insertion head with P100/P300/P350 compatible conversion kits
- Pneumatic lower support tool
- Pin presence detection
- Force monitoring optional
- CE approved

### Products which can be processed

- Applies reeled products, press-fit terminals, solder terminals and others



# LINE OF PIN INSERTION MACHINES

## P100 Pin Insertion Machine

### Machine

The P100 pin insertion machine is designed and manufactured with a focus on mid-volume level production and provides a broad range of features at a very competitive price. With the ability to apply products from TE Connectivity and other manufacturers, the P100 machine does not limit your production to “TE Connectivity only” applications and provides flexibility to address both current and future tooling needs.

### Easy Operation

The P100 machine can be equipped with a pneumatic power unit together with product specific “quick change” tooling packs or with a servo driven base insertion head with P50/P300/P350 compatible product specific conversion kits. The insertion heads can be equipped with a rotary insertion finger that can apply products at different angles without decreasing the insertion rate. The conversion kits can be exchanged within 10 minutes to meet your full range of application requirements.

The lower support tool is equipped with an electrical continuity or pin penetration check to assure that each product was correctly inserted into the PCB and remained there in real time. There is no additional quality check required and all QC data can be stored via the system PC for future traceability.

The P100 machine can be equipped with 2 insertion heads to double the number of products that can be applied in a single machine. The operator interface is an easy to use touch-screen which allows simple programming and automatic setup.



### Operation Sequence

#### Step 1: Program Selection

The P100 machine utilizes a Windows based touch screen interface for simple system operation. Programming can be accomplished by entering hole location or offline programming.

#### Step 2: Board Load

A flexible PCB holder is provided for board support. Dedicated fixtures are available upon request. Safety is provided via light curtain offering quick loading, and unloading.

#### Step 3: Product Run

A wide range of compliant pin or thru-hole products can be run from almost any manufacturer. The PCB is located by a stepper driven XY table under the pneumatic insertion head. An active lower anvil provides PCB support and electrical continuity check pin insertion sensing for quality assurance.



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## Product Features

- Board capacity 305 x 450 mm (12 x 18 in)
- Drive
  - X/Y: Stepper motors
  - Z: AC induction or pneumatic
- Tooling
  - Insertion tool type:
    - Modular, AC induction or pneumatic drive
  - Support tool:
    - Modular pneumatic drive with optional clinch feature
  - PCB fixture:
    - Adjustable (optional dedicated fixtures available)
- Control and Interface
  - Controller: PC
  - Operating system: Windows 7
  - Interface: Touch screen
- Database driven software for simple programming and automatic setup
- “Quick change” tooling packs for pneumatic power unit and conversion kits for servo driven base insertion heads allow easy and fast setup
- Wide range of tooling packs and conversion kits for TE and non TE products available
- Modular tooling kits can be changed within 30 minutes
- Adjustable PCB support to provide production flexibility
- Options include clinch lower tooling, power terminal de-reeler, terminal run out detection and carrier cutting
- Engineered and manufactured using processes independently certified to internationally recognized quality standards ISO-9001: 2000 and Telecommunications Industry Standard TL 9000

## Technical Features

- Power supply: 110/230 V, 50/60 Hz
- Compressed air supply: 600 kPa
- Noise pressure level: < 75 dB(A)
- Repeatability:  $\pm 0.02$  mm
- Insertion rate: up to 120 pins per minute
- PC based control with touch-screen as operator interface
- Dimensions (D x W x H):
  - 1.054 x 1.450 x 1.775 mm (41.5 x 57 x 70 in)
- Weight: Approx. 522 kg (1151 lbs)

## Products which can be processed

- ACTION PIN contacts
- AMPMODU I sockets
- AMPMODU II sockets
- Junior Timer with ACTION PIN contacts
- Flat solder tabs
- FFC contacts
- EON contacts
- Other contacts on request
- Non TE terminals upon request

The machine is able to apply

- reeled products from almost any manufacturer
- thru-hole solder and compliant pin products



# LINE OF PIN INSERTION MACHINES

## Mulserter Series of Insertion Machines

### Machine

The machines from TE Connectivity provide the flexibility and the cost savings to meet a wide range of customer requirements in the through hole technology. Our full range of systems can help with the application of insertion from reeled components, loose components to odd shaped components.

**Note:** CE approval for the M series machines is in process. Call for current status.



### Product Features

- Monitoring Function  
Displays the production information, trouble message, and other valuable operating information on the monitor
- Program Generating Function  
System makes the program by itself, and also the operator can easily output, input, edit and save the data with PC
- Diagnostic Function  
When the M/C has trouble, an error message appears on the monitor automatically
- Outer Communication Function  
It is very convenient for the operator handle RS-232C
- Easy Operating Function  
It is very convenient for the operator to handle M/C by operating software on panel and dualism with keyboard being established

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### **M3000T Automatic Multi-Insertion Machine**

The machine is designed to insert lugs, taps, fuse holders, terminals and odd-shaped components into PCBs in accordance with insertion program made by the machine itself and not to be affected by the shape, direction and size of components.



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### **M2000M Automatic Mini-Fuse Insertion Machine**

The machine automatically inserts mini fuses into a junction box. It equips the junction box on the table jig for manual insertion and then uses a pallet and processes loading/unloading automatically with a conveyor.



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### **M2000T Automatic Terminal Insertion Machine**

The machine is designed to insert terminals and odd-shaped components into PCBs in accordance with insertion programs made by the machine itself. The user can manage the usage of head tools selectively with the combination of three different kinds of insertion heads according to the production schedule.



# LINE OF PIN INSERTION MACHINES

## P300 Pin Insertion Machine

### Machine

The P300 pin insertion machine is a fully automatic machine for processing reeled press-fit and thru-hole components into PCBs. Available in either a stand alone unit or integrated into a SMEMA compatible production line, the P300 machine can increase throughput by lowering cycle times and the scrap associated with human application errors.

### Easy Operation

Boards up to 400 x 600 mm (15.5 x 23.5 in) resp. 370 x 480 mm (14.5 x 19 in) when in-line can be processed and are positioned on the X/Y-table by servo motors. Each contact is seated in the PCB via product specific insertion tooling. Each tooling set is comprised of an insertion head (upper tooling), an anvil (lower tooling), and a product specific conversion kit.

Rotary insertion tooling allows the application of components at different angles without a reduction in throughput. Quick change mounting fixtures are available for up to 4 insertion heads to minimize changeover time. A corresponding anvil changer is also available. A multi-tasking control unit controls and monitors the entire system throughout the production cycle. An optional insertion force monitoring system, also available as force-distance monitoring, allows the verification of every component applied for quality assurance.

A wide range of optional equipment is available for further performance enhancement and versatility to meet a wide range of application requirements.

### Product Features

- Board capacity up to 400 x 600 mm (15.5 x 23.5 in) 370 x 480 mm (14.5 x 19 in) when in-line
- Repeatability:  $\pm 0.01$  mm
- Insertion rate up to 3 cycles per second at 5.08 mm (0.2 in) pitch
- Noise pressure level:  $< 75$  dB(A)
- Optional automatic tool changer can apply up to 4 different products



- Apply products in free programmable angles
- Active anvil for PCB support, insertion verification and optional force monitoring
- Optional force-distance curve determination
- Optional automatic anvil changer can support up to 4 different products
- Optional vision system allows automatic board error correction
- Optional PCB thickness measuring together with the servo driven anvil ensures an accurate pin tip to PCB surface tolerance
- CNC based multitasking control system
- Quick change tooling mounting fixture for reduced changeover time
- Quick change product specific conversion kits allow production flexibility
- Able to process any manufacturer's reeled through-hole or press-fit products
- Capable of applying a wide range of reeled components with product specific insertion tools
- Range of options available to meet specific application requirements
- SMEMA compliant interface



### Machine Description

Automatic pin insertion machine for the application of reeled pins, tabs, receptacle and similar products into PCBs.

### Physical Dimensions

Width: 1.500 mm (60 in)

Depth: 1.700 mm (67 in)

Height: 2.200 mm (87 in)

Weight: Approx. 1.600 kg (3520 lb)

### Component Capability

Reeled components. Can be press-fit or through-hole solder components such as pins, tabs and receptacles. Can apply products from TE Connectivity or other manufacturers. Processing of loose piece components and continuous wire is available upon request.

### Performance

- Maximum insertion rate: 3 (single pin mode) / 6 (double pin mode) cycles per second at a pitch of 5.08 mm (0.2 in)
- Optional Insertion Force Monitoring of every component applied
- Insertion head change: 2 sec.
- Optional in-line capability
- Board load: approx. 2 sec.
- Board unload: approx. 2 sec.
- Noise pressure level: < 75 dB(A)

### Vision

Optional downward looking vision system for automatic insertion location correction.

### Board Capacity

- Max. board size: 400 x 600 mm (15.5 x 23.5 in) for manual loading, 370 x 480 mm (14.5 x 19 in) when in-line
- Standard left to right feed

### Insertion Heads

- Capable of up to 4 insertion heads on an optional automatic changer system
- Automatic changer positions one active insertion head to central servo drive
- Rotary insertion finger on each insertion head allows the application of products in different angles without rotating PCB

### Tooling

- Tooling is custom made to specific component specifications
- Tooling conversion kits allow quick changeover of different products
- Tooling for continuous wire and loose piece components is available

### Required Services

- Power supply: 110/230 V, 50/60 Hz
- Compressed air supply: 600 kPa dried air

### Operator Interface

Windows based touch screen interface.

### Traceability

Optional software packages allow the compilation of PCB barcode, insertion forces and product reel information.



# LINE OF PIN INSERTION MACHINES

## P350 Pin Insertion Machine

### Machine

The P350 pin insertion machine is a fully automatic machine capable of applying reeled products from TE Connectivity or other manufacturers. With inline operation, an automatic tool changer and insertion rates up to 5 per second, it is focused at fully automatic high speed operation to maximize throughput while minimizing costly scrap.

### Easy Operation

Boards up to 450 x 450 mm (17.5 x 17.5 in) can be processed. A servo powered XY table positions the PCB under a central drive station at high speed. The automatic tool changer can hold up to 4 insertion heads – each capable of applying a different product. A unique rotary insertion finger allows the application of products at any angle without rotating the PCB. This allows the P350 machine to apply product at different angles without a reduction in insertion rate or the potential positioning error associated with PCB rotation. An active lower anvil provides support to the PCB during insertion, can provide special actions such as clinching (when applicable) and allows for real-time force monitoring and even force-distance curve detection for quality assurance on press-fit applications. Icon driven software with touch screen provides a simple to use, intuitive operator interface. The P350 machine provides a wide range of solutions for pin insertion applications.

### Product Features

- Board capacity up to 450 x 450 mm (17.5 x 17.5 in),
- Repeatability:  $\pm 0.01$  mm
- Insertion rate up to 5 cycles per second at 5.08 mm (0.2 in) pitch
- Noise pressure level: < 75 dB(A)
- Rotary insertion finger can apply products at any angle without rotating PCB
- Automatic tool changer to apply up to 4 different products on one machine
- Optional automatic anvil changer can support up to 4 different products
- Quick change tooling mounting fixture for reduced changeover time



- Quick change product specific conversion kits allow production flexibility
- Real time insertion force monitoring or force-distance monitoring for quality assurance on press-fit applications
- Active anvil for PCB support, insertion verification and force monitoring
- Windows based touch screen





### Machine Description

Automatic pin insertion machine for the application of reeled pins, tabs, receptacle and similar products into PCBs.

### Physical Dimensions

Width: 2.600 mm (102 in)

Depth: 3.000 mm (118 in)

Height: 2.200 mm (87 in)

Weight: Approx. 2.000 kg (4410 lb)

### Component Capability

Reeled components. Can be press-fit or through-hole solder components such as pins, tabs and receptacles. Can apply products from TE Connectivity or other manufacturers. Processing of loose piece components and continuous wire is available upon request.



### Performance

- Maximum insertion rate: 5 cycles per second at 5.08 mm (0.2 in) pitch
- Press force monitoring or force-distance curve detection of every component applied
- Insertion head change: 2 sec.
- Board load: approx. 2 sec.
- Board unload: approx. 2 sec.
- Fully SMEMA compatible

### Vision

Optional downward looking vision system for automatic insertion location correction.

### Board Capacity

- Max. board size: 450 mm x 450 mm (17.5 x 17.5 in)
- Max. insertion area: 350 mm x 350 mm (13.5 x 13.5 in)
- Standard left to right feed

### Insertion Heads

- Capable of up to 4 insertion heads on an optional automatic changer system
- Automatic changer positions one active insertion head to central servo drive
- Rotary insertion finger on each insertion head allows the application of products in angles without rotating PCB

### Tooling

- Tooling is custom made to specific component specifications
- Tooling conversion kits allow quick changeover of different products
- Tooling for continuous wire and loose piece components is available

### Required Services

- Power supply: 110/230 V, 50/60 Hz
- Compressed air supply: 600 kPa dried air

### Operator Interface

- Touch screen monitor and keyboard.
- Network ready

### Traceability

Optional software packages allow the compilation of PCB barcode, insertion forces and product reel information.

# LINE OF PIN INSERTION MACHINES

## Insertion Heads – Conversion Kits

The P50/P100/P300/P350 machines can be supplied with modular insertion tools that allow the tooling to be changed on the insertion head. Changeover normally takes app. 10 minutes depending on product being applied and operator skills.

The modular insertion head consists of a base tool plus product specific conversion kits. The conversion kit includes a cutting unit and the feeding mechanism.

The product specific insertion finger, also part of the kit, is mounted onto the base head. The base tool

provides the power for all movements of the conversion kit through a number of cams mounted on a central shaft powered by a servo motor.

A simple coding system allows for the automatic identification by the machine control and assures a correct set-up for the selected insertion program.

A wide range of conversion kits for various TE Connectivity and non TE Connectivity products is available.

Please contact your local TE Connectivity representative for details on tooling for a specific product.

Product PN	Product Description	Conversion Kit
63986	6.3 x 0.8 FASTON Tab	7-539904-3
216842	6.3 x 0.8 ACTION PIN Tab	4-539904-3
279285	Motorcontact Top	3-539904-9
279286	Motorcontact Bottom	3-539904-6
292504	6.3 x 0.8 Tab	8-539904-1
338429	2.8 x 0.8 ACTION PIN Tab	4-539904-2
352604	2.8 x 0.8 ACTION PIN Tab	5-539904-6
928776	MQS ACTION PIN	539904-4
928776	MQS ACTION PIN	1-539904-5
928776	MQS ACTION PIN	4-539904-0
928776	MQS ACTION PIN	7-539904-7
929277	2.8 Tab	539904-5
929277	2.8 x 0.8 Tab	4-539904-8
929278	MQS ACTION PIN	4-539904-6
929278	MQS ACTION PIN	5-539904-2
929450	1.5 x 0.6 Tab	4-539904-7
929451	4.8 Tab	1-539904-7
929451	4.8 x 0.8 Tab	4-539904-9
929451	4.8 x 0.8 Tab	9-539904-3
929958	MQS ACTION PIN	1-539904-5
963964	MQS ACTION PIN	1-539904-5
963964	MQS ACTION PIN	4-539904-5
963964	MQS ACTION PIN	7-539904-7
964126	2.8x0.8x90° ACTION PIN Tab	7-539904-5
964126	2.8x0.8x90° ACTION PIN Tab	7-539904-6
969174	2.4 x 0.8 mm ACTION PIN Tab	9-539904-0
1345034	4.8 x 0.8 Tab	6-539904-5
1394353	1.5 x 0.6 Tab	6-539904-6
1452568	2.8 x 0.63 ACTION PIN Tab	5-539904-7
1452688	2.8 Tab	539904-5
1452688	2.8 x 0.8 Tab	4-539904-8

Product PN	Product Description	Conversion Kit
1452692	1.5 x 0.8 ACTION PIN Tab	4-539904-1
1452692	1.5 x 0.8 ACTION PIN Tab	7-539904-1
1452719	4.8 x 0.8 Tab	6-539904-7
1456048	2.8 Tab	2-539904-6
1587090	Contact Fork	2-539904-4
1587098	1.5 Tab	2-539904-7
1670123	2.8 x 0.8 ACTION PIN Tab	7-539904-2
1670123	2.8 x 0.8 ACTION PIN Tab	9-539904-2
1670386	1.5 x 0.8 ACTION PIN Tab	7-539904-1
1670386	1.5 x 0.8 ACTION PIN Tab	9-539904-1
1670482	1.5 mm Solder Tab	7-539904-8
1670483	5.2 mm Solder Tab	7-539904-9
1740723	6.3 x 0.8 Tab	7-539904-0
1743447	1.2 x 0.6 Tab	5-539904-0
1743447	1.2 x 0.6 Tab	6-539904-4
1801059	1.7 Tab Multispring	5-539904-5
3014079462	4.8 x 0.8 mm Tab	8-539904-4
3014079463	2.8 x 0.8 mm Tab	8-539904-5
3014079464	1.5 x 0.63 mm Tab	8-539904-2
1-1468888-3	1.5 Tab	1-539904-8
1-377181-2	2.8 Tab	539904-2
1-438313-2	2.8 Tab	539904-2
1456047-3	6.3 Tab	2-539904-5
216842-4	6.3 Tab	539904-3
338429-3	2.8 Tab	539904-2
368405-2	1.0 Tab	2-539904-3
368405-2	1.0 Tab	539904-1
368405-2	1.0 Tab ACTION PIN	5-539904-3
9004693 C3	1.5 x 0.6 mm Solder Tab	8-539904-0
<b>This is not a complete list. Contact your TE Connectivity representative for more Conversion Kit options.</b>		



# REQUEST FOR QUOTE

## Questionnaire for Insertion Machines

To get a budgetary quote for an insertion machine P200/P300/P350, please answer the following questions and fax the questionnaire to **TE Connectivity Europe +49(0)7964-201-6001**

You can also request a quote on-line at [www.tooling.te.com/pinrfq/pi\\_rfq.asp](http://www.tooling.te.com/pinrfq/pi_rfq.asp)

<b>Company Name</b>			
<b>Customer Contact</b>		<b>Title</b>	
<b>Address</b>			
<b>City</b>	<b>State</b>	<b>ZIP Code</b>	<b>Country</b>
<b>Phone Number</b>		<b>Fax Number</b>	
<b>TE Customer Acct Number</b>		<b>E-Mail Address</b>	
<b>TE Representative</b>			

Product to apply: \_\_\_\_\_ P/N: \_\_\_\_\_

Product to apply: \_\_\_\_\_ P/N: \_\_\_\_\_

Product to apply: \_\_\_\_\_ P/N: \_\_\_\_\_

Size of PCB(s): Please attach drawings and samples if available.

Length [mm]:					
Width [mm]:					

Height of components already on PCB: Application side: \_\_\_\_\_ [mm] Solder side: \_\_\_\_\_ [mm]

Number of products per PCB: \_\_\_\_\_ Number of PCBs per year: \_\_\_\_\_

Direction of pin/tab shoulder (please circle):  

Rotation required? Yes / No \_\_\_\_\_ Angles: 0°, 90°, 180°, -90°, -180°, any other: \_\_\_\_\_

- Options Required
- Second insertion frame
  - Tool changer for 3 insertion heads
  - X/Y-table with servo motors
  - Lower tooling with servo motor
  - PCB thickness measuring
  - Force monitoring
  - Vision system
  - PCB transfer belts

**Comments or Special Requests:**

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If you need to contact your TE Connectivity representative immediately please call for:  
**USA** 888.777-5917 Fax: 717-810-2861 **Europe** +49(0)7964-201-6001 Fax: +49(0)7964-201-6019  
**Asia** +86-21-24071575 Fax: +86-21-24071599 or e-mail: [toolsales@te.com](mailto:toolsales@te.com)

# LINE OF PRESS-FIT MACHINES

TE Connectivity offers a wide range of servo presses that mass terminate compliant pin connectors. So there's one that is perfectly suited for your product needs. And each model leverages the simple, field-proven, solder-free manufacturing offered by the entire product line.

## Simple Programming and Automatic Setup

Each press is programmed and run via a PC with Windows\* XP Professional, with all product, tool and process information stored in a database. Does your current job match an old one? There's no need to enter the setup information again; simply pull the old job's setup data from the database and you're good to go.

And during operation, all of the necessary adjustments to the press stroke – starting clearances, min. and max. force requirements, height requirements, speed, press cycle logic – are completed automatically without operator intervention, imagine how much scrap and re-work from common operator errors this will prevent.

## Force Monitoring for Quality Assurance

One key advantage of compliant pin technology is the ability to monitor and control the press cycle in real time. This allows for quality monitoring of every product applied without the need for an additional process or destructive testing. All presses in the line automatically monitor and control the force, distance, and speed of every press cycle. The result? Quality is maximized, yield is improved, and costs are cut.



\*Windows is a trademark

# PRESS-FIT MACHINES COMPARISON CHART



Base Machine	CBP-5T	CMP-6T	CMP-12T	CAP-6T
For more information	See page 20	See page 22	See page 22	See page 23
System Type	Semi-automatic press, benchtop	Semi-automatic press, standalone	Semi-automatic press, standalone	Automatic press, standalone
Footprint (W x L X H)	785 x 610 x 840 mm (3 x 24 x 33 in)	965 x 915 x 1.780 mm (38 x 36 x 60 in)	1.095 x 1.095 x 1.855 mm (43 x 43 x 73 in)	1.525 x 1.910 x 1.830 mm (60 x 75 x 72 in)
Estimated Cycle Speed	3 – 5 sec/connector	3 – 5 sec/connector	3 – 5 sec/connector	3 – 5 sec/connector
PCB Size	460 x 610 mm (18 x 24 in)	610 x 915 mm (24 x 36 in)	760 x 915 mm (30 x 36 in)	760 x 915 mm (30 x 36 in)
Force Capability	44 kN (5 tons)	53 kN (6 tons)	107 kN (12 tons)	53 kN (6 tons)
Electrical Requirements	120 V AC, 1 ph 15 amps, 50/60 Hz	208/220 V AC, 3 ph 15 amps, 50/60 Hz	208/220 V AC, 3 ph 15 amps, 50/60 Hz	208/230 V AC, 1 ph 25 amps, 50/60 Hz
Air Requirements	0.6 Mpa (80 – 120 psi) dry air	0.6 Mpa (80 – 120 psi) dry air	0.6 Mpa (80 – 120 psi) dry air	0.6 Mpa (80 – 120 psi) dry air



Base Machine	CAPI-6T	CSM-5T	CSP-3T
For more information	See page 23	See page 29	See page 26
System Type	Automatic press, standalone	Semi-automatic, standalone, press ram and tooling position	Semi-automatic press, standalone with shuttle
Footprint (W x L X H)	1.525 x 2.184 x 1.830 mm (60 x 86 x 72 in)	770 x 1.100 x 2.140 mm (30 x 43 x 84 in)	785 x 965 x 1.625 mm (31 x 38 x 64 in)
Estimated Cycle Speed	3 – 5 sec/connector	6 – 8 sec/stroke including ram and tool positioning	6 – 8 sec/stroke including shuttle of product
Housing Size	711 x 863 mm (28 x 34 in)	Application dependant	Application dependant
Force Capability	53 kN (6 tons)	44 kN (up to 5 tons)	27 kN (up to 3 tons)
Electrical Requirements	208/230 V AC, 1 ph, 25 amps, 50/60 Hz	230 V AC, 50/60 Hz	120 V AC, 1 ph, 20 amps, 50/60 Hz
Air Requirements	0.6 Mpa (80 – 120 psi) dry air	80 – 120 psi dry air	0.6 Mpa (80 psi) dry air

# LINE OF PRESS-FIT MACHINES

## CBP-5T Electric Bench-Top Press

### Machine

The CBP-5T of servo electric press provides the ability to process most compliant pin connector applications in a compact benchtop system. Board size capacity and press force range allows the system to handle a wide range of applications for low to medium production volume operations.

### Servo Drive Precision

Each system is supplied with a servo electric drive with force feedback control. The CBP is available in 44 kN (5 ton) force capacity to handle compliant pin connectors on the market. With PC control, the servo driven CBP provides an easily programmed press system with automatic set up from press cycle to press cycle. The system reaches levels of precision and accuracy not available in a pneumatic or hydraulic press.

### Monitor and Control for Quality

Force, distance and speed are the core parameters of any press cycle. With feed back and PC control, the CBP system can monitor and control each characteristic of every press stroke run on the press in real-time. If any aspect of that press cycle is outside of specified limits, the CBP can stop the press, mid-stroke, to prevent damage to the PCB and reduce or eliminate rework and/or scrap. Common problems such as PCB holes out of tolerance, missing connectors, improper connectors used and, in some cases, bent pins can be detected and reported to eliminate quality problems.

### Eliminate Operator Error

By pre-programming the parameters of connector applied, the CBP will automatically adjust set-up parameters from one press cycle to the next. There is no need for (therefore no chance of operator error associated with) adjusting stroke, stops or force adjustments from one cycle to the next. Even simple errors of using the wrong connector or tool can be eliminated to assure proper application of every connector and avoid costly scrap.



### Product Features

- Servo electric press
- PCB capacity of 460 x 610 mm (18 x 24 in)
- Press force capacity of 44 kN (5 tons)
- Ability to monitor and control force, distance and speed for every press cycle
- Full SPC data of every component pressed for quality assurance and traceability
- Database driven software for simple programming and automatic setup
- Small foot-print for low to medium volume product levels

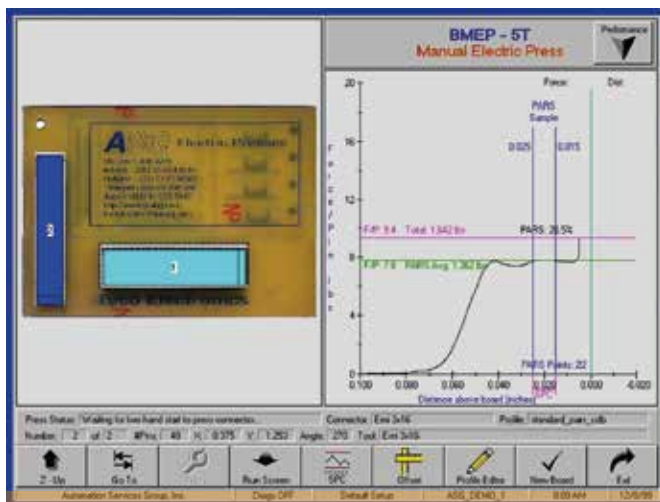


### Simple Operation

PC control of CBP systems allows for simple and flexible programming. All data for connectors and tools are entered and stored in databases. These specifications allow the CBP to automatically set up and control each press cycle to reduce operator intervention and human error. Every press cycle completed can be serialized and stored for full quality traceability.

### Run Time Press Monitoring

The run time screen provides complete operator interface and feedback. Each press cycle is monitored for Force vs Distance and data is clearly displayed. Press stroke status is shown to acknowledge proper application or error information. A picture of the end product can also be used to guide the operator through the pressing sequence to reduce operator error.



### Options

#### Light Curtain

The CBP system is supplied with standard 2 hand tie-down activation. An optional light curtain can be supplied that will not allow the start of the press cycle and will stop the system if at any time if the light curtain is broken.

#### Tool In Place Sensor

This sensor system assures the insertion tool being used is centered under the press ram to avoid damage to the connector or PCB. This system uses a light source in the press ram to interact with reflective tape (not provided) on the insertion tool. If the tool is not properly centered and the light reflection is not detected, the press will not begin a press cycle.

#### Air Table with Footswitch

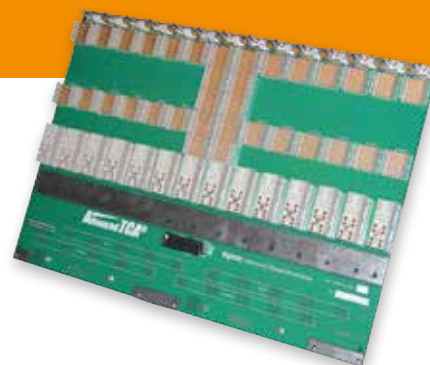
This option provides pneumatic plumbing in the press tabletop and an activation footswitch to allow for an “air bearing” surface between the support fixture and the tabletop. This greatly reduces the effort to slide the PCB, fixture, connector and tool stack-up under and back out of the press during each cycle.

#### Touch Screen Monitor

Provides a touch screen monitor in place of the standard non-touch screen. Allows for simple input for programming and operation of the press system.

#### Barcode Scanner

Provides bar code scanner system to allow for serialization of PCBs.



# LINE OF PRESS-FIT MACHINES

## CMP Manual Electric Servo Presses

### CMP Machines

The CMP manual electric servo presses are designed with a rigid “H” frame to minimize deflection.

The CMP-6T press provides 53 kN (6 tons) of force and the CMP-12T press provides 107 kN (12 tons) of force. The operator is able to manually adjust the press head and/or the PCB between connector press cycles.

An air bearing system provides effortless press head positioning. The PCB capacity of the CMP-6T press is 610 x 915 mm (24 x 36 in) and the PCB capacity of the CMP-12T press is 760 x 900 mm (30 x 36 in).

The SPC feature within the CMP’s included software provides a press log and in addition, allows press force plotting for every connector.

The product setup for these machines is accomplished without any required hardware adjustments.

The use of tool and connector databases, and a press sequence program, provides a fully data driven press cycle.

There is a wide range of insertion heads available for these machines for both TE and non TE products.

Options for these machines include a bar code scanner, which provides fast PCB serial number entry, an air table option that assists the operator when positioning product under the press head, and a touch screen monitor for enhanced machine operation.



### Product Features

- 53 kN force (6 tons) CMP-6T
- 107 kN force (12 tons) CMP-12T
- Board capacity of 610 x 915 mm (24 x 36 in) CMP-6T
- Board capacity 760 x 900 mm (30 x 36 in) CMP-12T
- Computer controller
- Automatic setup - no adjustments
- Speed, height & force control
- SPC on pressing force
- Wide range of insertion heads for TE Connectivity and non TE Connectivity products available
- Versatile interface for the incorporation of other tools
- Easy-to-use operator interface
- Insertion force monitoring optional

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## CAP-6T Automatic Electric Press CAPI-6T Inline Version

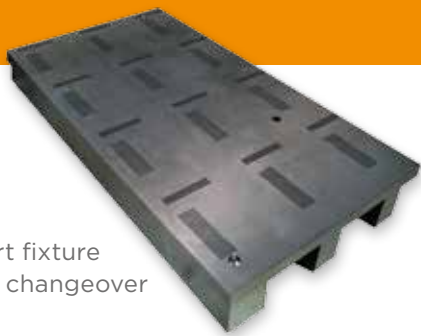
### Machine

The CAP-6T/CAPI-6T automatic electric press is the latest addition to the successful TE Connectivity servo press line. It provides the proven force control capabilities and quality assurance of the line in an automatic press. The automatic pressing capabilities of the CAP-6T/CAPI-6T press provide the end user with greater control and simplified processing to help improve quality, lower rework and prevent rejects. This provides users with lower true applied cost and higher end profits.

### Capable

The CAP-6T/CAPI-6T press was designed to apply compliant pin connectors to a wide range of PCBs. It is fully capable of handling demanding applications today from daughter cards to mid-planes to back-planes. With board capacity up to 760 x 910 mm (30 x 36 in) and a press force up to 53 kN (6 tons), the CAP-6T/CAPI-6T press is focused at all but very large board applications.

The CAP-6T/CAPI-6T press can also hold up to 12 insertion tools and uses a lower support fixture.



Dedicated support fixture  
for quick product changeover

### Product Features

- Electric press automatically selects proper insertion tool and press program information for each connector pressed
- Board capacity of 760 x 910 mm (30 x 36 in)
- Press force capacity of 53 kN (6 tons)
- Ability to monitor and control force, distance and speed for every press cycle
- Full SPC data of every component pressed for quality assurance and traceability
- Database driven software for simple programming and automatic setup
- Tool holder with ID verification feature for up to 12 insertion tools
- Manual loading drawer for simple loading and unloading of PCBs
- X/Y gantry locates press head to automatically press connector

# LINE OF PRESS-FIT MACHINES

## CAP-6T Automatic Electric Press CAPI-6T Inline Version

### Quality

Compliant pin technology has distinct advantages versus through hole solder products. A key advantage is the ability to monitor and control the press cycle in real-time to provide high quality assurance.

The CAP-6T/CAPI-6T press gives your operation the ability to maximize this advantage with higher quality, higher yield and lower applied cost production line.

The key is the CAP-6T/CAPI-6T's ability to precisely and accurately apply each connector to the pre-programmed force, height and speed requirements.

Each parameter can be individually programmed for each connector. Connectors can be pressed to height or force based upon their individual specifications.

If an error is encountered during the press stroke, the cycle is stopped immediately to help prevent damage to the PCB and allow for the minimum amount of re-work. This allows the CAP-6T/CAPI-6T to detect problems and avoid damage to the PCB due to common errors such as PCB holes out of tolerance (too big or too small), missing connectors, improper connectors used and, in some cases, bent pins.

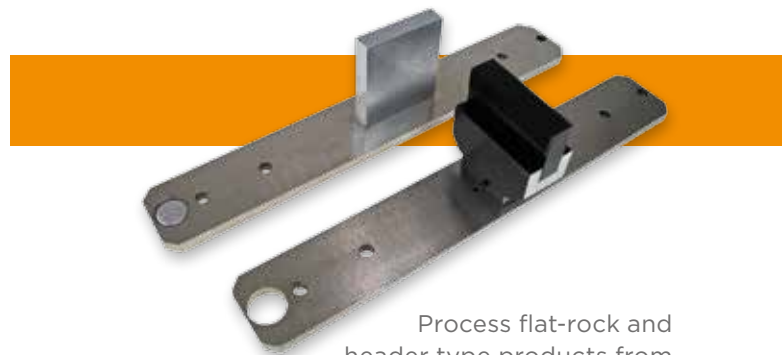
Quality is provided not only through the monitoring and control of the press cycle, but also through the avoidance of operator error. By automatically pressing the pre-loaded connectors, the CAP-6T/CAPI-6T eliminates operator intervention and damage to the PCB through common handling of the board. Also, with automatic set-up, the CAP-6T/CAPI-6T does not require input from the operator such as adjusting the force or distance travel on the press stroke. This is done automatically by the software to eliminate the potential error of an incorrect operator adjustment. Finally, a tool ID system assures that the correct tool is used for every stroke to eliminate damaging a very expensive connector with the wrong tool.

### Simple

All of the features of the CAP-6T/CAPI-6T can not be fully utilized unless the overall process and interface are simple and easy to use. The design of the system focuses on providing a simple interaction and common sense programming approach to allow the user to take full advantage of the CAP-6T/CAPI-6T features.

The interface starts with a PC control system running Windows XP Professional. All programming is done through a touch screen interface (a keyboard and touch-pad mouse are also provided) with logical icon driven programming. All information is entered into and stored in a database. This allows for the specific connector and tool data to be entered once into the computer. If a future board uses the same tool and/or connector, the data is simply pulled up from the specific database and is not required to be re-entered.

During operation, all of the necessary adjustments to the press stroke are automatically adjusted without operator intervention. Tool selection, starting clearances, min and max force requirements, height requirements, speed and press cycle logic are automatically adjusted eliminating the scrap and re-work from common operator error.



Process flat-rock and header type products from TE Connectivity and other suppliers



### Easy as 1-2-3

Once all of the programming for the connectors, tools, and PCB application is complete, applying the connectors is as easy as 1-2-3.

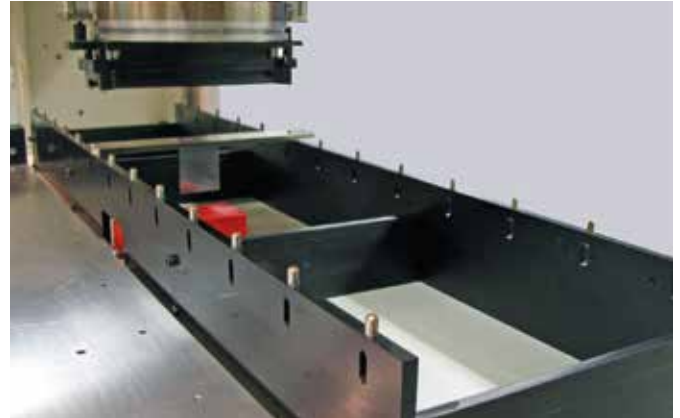
1. The operator loads the required tooling on the insertion tool rack, and mounts the required lower support fixture to the PCB drawer.
2. The operator selects the proper press program on the touch screen interface.
3. The operator opens the PCB drawer and places a populated PCB onto the lower fixture, closes the drawer and hits start ... and the CAP-6T/CAPI-6T does the rest.

### In-Line Press Option

The CAP-6T/CAPI-6T can also be upgraded with an automatic transport system used to increase throughput capabilities.

Once a press sequence has completed, the machine will unload the PCB, load the next one into pressing area, and gently descend the PCB onto the press fixture.

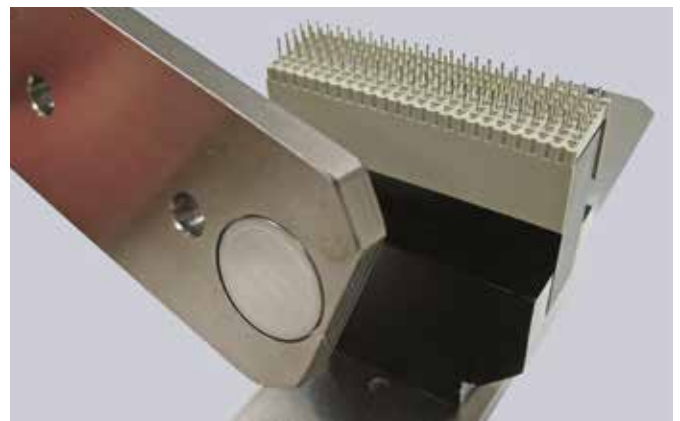
The in-line CAP-6T/CAPI-6T can also be configured in shuttle model using an additional bi-directional buffer. In that case, the operator place the PCB to be pressed on the outside buffer, press the start button, which will start the press process. The machine will then load the PCB onto the fixture, execute the press sequence, and upon completion will return the PCB on the outside buffer allowing a more comfortable handling of large PCB.



Hold up to 12 upper insertion tools



Linear XY drives for fast and accurate movement



Tool ID feature to assure proper tool is used

# LINE OF PRESS-FIT MACHINES

## CSP-3T Shuttle Electric Press

### Machine

The CSP-3T servo electric press incorporates an automatic shuttle system to the proven TE press line for fast and simple product presentation. Focused at the application of PCB's onto compliant pin housings, this system is provided with full control and monitoring of force, distance and speed for quality assurance of every product applied.

### Servo Drive Precision

Each system is supplied with a servo electric drive with force feedback control. Force capacity is available up to 27 kN (3 tons) to handle a range of compliant pin housings and connectors on the market today. Compared to pneumatic or hydraulic systems, the CSP press is quiet, efficient, and does not suffer from oil leaks that can damage PCBs. With PC control, the servo driven CSP press provides an easily programmed press system with automatic set up from press cycle to press cycle.

### Monitor and Control For Quality

Force, distance and speed are the core parameters of any press cycle. With feed back and PC control, CSP systems can monitor and control each characteristic of every press stroke run on the press in real-time. If any aspect of that press cycle is outside of specified limits, the system can stop the press, mid-stroke, to prevent damage to the product and reduce or eliminate scrap. This gives CSP systems a distinct advantage over pneumatic or hydraulic systems which can not offer the same level of control. Optional pin penetration sensing (PPS) tools also allow the CSP to assure that every pin has properly penetrated the PCB a predetermined minimum distance. Any missing, bent or improperly seated pins will be detected and illustrated to the operator.



### Faster Processing

The CSP is supplied with an automatic product shuttle that locates the product stack up under the ram and upper insertion tool. The operator loads the PCB and housing/connector into a lower support fixture that is mounted on the shuttle and hits the start switch. The system assures part presence and then shuttles the product under the ram mounted upper tool to complete the press cycle. This allows the system to automatically press the product while the operators hands are free to perform other tasks such as preparing the next product to be applied. The end result is increased quality by assuring proper product location and decreased processing time.

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## Eliminate Operator Error

Quality is provided not only through the monitoring and control of the press cycle, but also through the avoidance of operator error. By pre-programming the parameters of the product applied, the CSP will automatically adjust set-up parameters from one press cycle to the next. There is no need for (and therefore no chance of operator error associated with) adjusting stroke stops or force adjustments from one cycle to the next. Even simple errors of using the wrong product can be eliminated to assure proper application and avoid costly scrap.

## Product Features

- Shuttle system for product location under press ram
- Housing capacity of 75 x 150 mm (3 x 6 in)  
Other sizes are possible. Please contact your local TE representative for assistance
- Press force capacity up to 27 kN (3 tons)
- Ability to monitor and control force, distance and speed for every press cycle
- Option pin penetration sensing (PPS) tooling assure proper pin penetration
- Full SPC data of every component pressed for quality assurance and traceability
- Database driven software for simple programming and automatic setup
- Small foot-print, self contained system can be easily located on operation floor

## General Specifications

### Description

Shuttle servo electric press for the application of compliant pin products. Typical applications include the application of PCBs to compliant pin housings and connectors. System is capable of monitoring and controlling the force, distance and speed of a press cycle and maintaining quality records of every press cycle in real-time. Optional pin penetration sensing tooling can assure the proper location and penetration of every pin applied through the PCB.

### Performance

Drive Z: Electric servo drive, ball-screw

Housing size: 150 x 75 mm (6 x 3 in)

Force capacity: Up to 27 kN (3 tons)

Speed: Application dependent. Typical time for shuttle in, press and shuttle out is 6 - 10 seconds.

### Tooling

Insertion tool type: Fixed (to ram)

Support tool: Shuttle mounted fixture

Standard (non-sensing) and PPS (pin penetration sensing) tools are available.

### Control and Interface

Parameters: Force, distance, speed, pin penetration (optional)

Controller: PC

Operating system: Windows XP Professional

Interface: Mouse and keyboard (touch screen monitor is optional).

### Services

Power: 120 V AC, 1 ph, 20 A, 50/60 Hz

Air: Shop air of 5 CFM at 80 psi

### Dimensions (W x L x H)

760 x 965 x 1.625 mm (30 x 38 x 64 in)

Weight: 272 kg (600 lbs)



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## CSM-5T Servo Electric Press

### Machine

The CSM-5T servo electric press incorporates an automatic shuttle system for fast and simple product presentation. Focused at the application of connectors onto PCB panels or PCBs onto compliant pin housings, this system is provided with full control and monitoring of force, distance and speed for quality assurance of every product applied.

### Servo Drive Precision

Each system is supplied with a servo electric drive with force feedback control. Force capacity is available up to 4 kN (5 tons) to handle a range of compliant pin housings and connectors. Compared to pneumatic or hydraulic systems, the CSM-5T press system is quiet, efficient, and does not suffer from oil leaks that can damage PCBs. With PC control, the servo driven CSM-5T provides an easily programmed press system with automatic set up from press cycle to press cycle.

### Monitor and Control For Quality

Force, distance and speed are the core parameters of any press cycle. With feedback and PC control, CSM-5T systems can monitor and control characteristics of every press stroke in real-time. If any aspect of that press cycle is outside of specified limits, the system can stop the press, mid-stroke, to prevent damage to the product and reduce or eliminate scrap. This gives CSM-5T systems an advantage over other pneumatic or hydraulic systems without the same level of control. Optional pin penetration sensing (PPS) tools assure that every pin has properly penetrated the PCB a predetermined minimum distance. Any missing, bent or improperly seated pins will be detected and illustrated to the operator.



### Faster Processing and Higher Flexibility

The CSM-5T press system features an automatic product shuttle that locates the product stack up under the ram and upper insertion tool. To allow the application of a number of connectors onto a PCB panel, the press ram can be equipped with a pneumatic cylinder or a servo axes to allow the free programmable positioning. The operator loads the PCB and housing/connector into a lower support fixture that is mounted on the shuttle and hits the start switch. The system assures part presence, then shuttles the product under the ram mounted upper tool to complete the press cycle. This allows the system to automatically press the product while the operators hands are free to perform other tasks such as preparing the next product to be applied. The end result is increased quality by assuring proper product location and decreased processing time.

# LINE OF PRESS-FIT MACHINES

## CSM-5T Servo Electric Press

### Eliminate Operator Error

Quality is provided not only through the monitoring and control of the press cycle, but also through the avoidance of operator error. By pre-programming the parameters of the product applied, the CSM-5T press system will automatically adjust set-up parameters from one press cycle to the next. There is no need for (and therefore no chance of operator error associated with) adjusting stroke stops or force adjustments from one cycle to the next. Even simple errors of using the wrong product can be eliminated to assure proper application and avoid costly scrap.

### Product Features

- Semi-automatic connector seating system
- Servo electric press for the application of compliant pin connectors
- PC control with force feed-back to control force, speed and distance
- Full traceability of every connector pressed
- System locates and loads right angle connectors into PCB before pressing
- Product specific tooling and fixture
- Ability to apply right angle connectors
- PCB capacity up to 205 x 280 mm (8 x 11 in)
- Pressing capacity up to 44 kN (5 tons)

### General Specifications

#### Description

Shuttle servo electric press for the application of compliant pin products. Typical applications include the application of PCBs to compliant pin housings and connectors. The system is capable of monitoring and controlling the force, distance and speed of a press cycle and maintaining quality records of every press cycle in real-time. Optional pin penetration sensing tooling can assure the proper location and penetration of every pin applied through the PCB.

#### Performance

Drive Z: Electric servo drive, ball-screw  
Housing size: 150 x 75 mm (6 x 3 in)  
Force capacity: Up to 44 kN (5 tons)  
Speed: Application dependent. Typical time for shuttle in, press and shuttle out is 6 - 10 seconds.

#### Tooling

Insertion tool type: Fixed (to ram)  
Support tool: Shuttle mounted fixture  
Standard (non-sensing) and PPS (pin penetration sensing) tools are available.

#### Control and Interface

Parameters: Force, distance, speed, pin penetration (optional)  
Controller: PC  
Operating system: Windows XP Professional  
Interface: Mouse and keyboard (touch screen monitor is optional).

#### Services

Power: 230 V AC, 20 A, 50/60 Hz  
Air: Shop air of 5 CFM at 80 psi

#### Dimensions (W x L x H)

770 x 1.100 x 2.140 mm (30 x 43 x 84 in)

#### Weight

600 kg (1322 lbs)

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## Features

### Automatic Product Shuttle

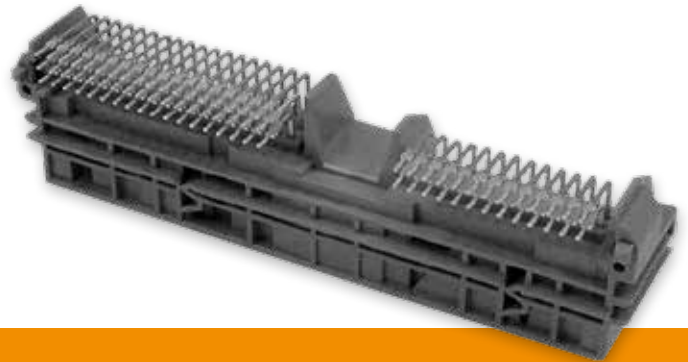
A key feature of the CSM-5T press system is an automatic shuttle that positions the PCB and housing/connector stack up underneath the upper insertion tool. To allow the application of a number of connectors onto a PCB panel, the press ram can be equipped with a pneumatic cylinder or a servo axes to allow the free programmable positioning. This allows the operator to perform other tasks, such as preparing the next assembly or even bar code the next product, while the press cycle is completed automatically. This helps reduce scrap associated with improperly positioned products as well as increasing overall process throughput.

### Optional Pin Penetration Sensing Tooling (PPS)

Option pin penetration sensing (PPS) tooling provides an additional quality check for products applied on a CSM-5T press system. PPS tools are specifically designed for the product applied to verify that every pin properly penetrates the PCB by a predetermined distance. Coupled with force monitoring, PPS tools give assurance of the proper location, penetration and application of every compliant pin on every product applied. The PPS check is performed in real-time without the need for an additional or destructive quality test.

### Run Time Press Monitoring

The run time screen provides complete operator interface and feedback. Each press cycle is monitored for Force vs Distance and data is clearly displayed. Press stroke status is shown to acknowledge proper application or error information. A picture of the end product can also be used to guide the operator through the pressing sequence to reduce operator error.



### Field Service

TE Application Tooling has a broad network of field service engineers who cover almost all the countries worldwide. The engineers have all the knowledge to help you on a professional level with your equipment and may be able to improve the manufacturing efficiency. In addition to installation and repair service, we can assist with equipment selection, training, troubleshooting, service contracts and spare parts.

[www.te.com/en/products/application-tooling/global-field-services.html](http://www.te.com/en/products/application-tooling/global-field-services.html)

### Technical Questions or Problems?

Call the USA Field Service Hotline at 1-800-722-1111

E-mail to: [fieldservicesnorthamerica@te.com](mailto:fieldservicesnorthamerica@te.com)

Call the EMEA Field Service Hotline at +49-6151-607-1518

E-mail to: [FieldServiceEMEA@te.com](mailto:FieldServiceEMEA@te.com)

EMEA Opening Hours

Monday - Thursday 08:00 - 16:00

Friday 08 - 14:00

Please note that the service hotline staff speaks English or German.

### Tyco Electronics AMP GmbH, a TE Connectivity Ltd. company

AMPèrestrasse 12-14

D-64625 Bensheim

Germany

Phone: +49 (0)6251 133-0

Fax: +49 (0)6251 133-1600



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2-1773452-6 | Revised 03-2015