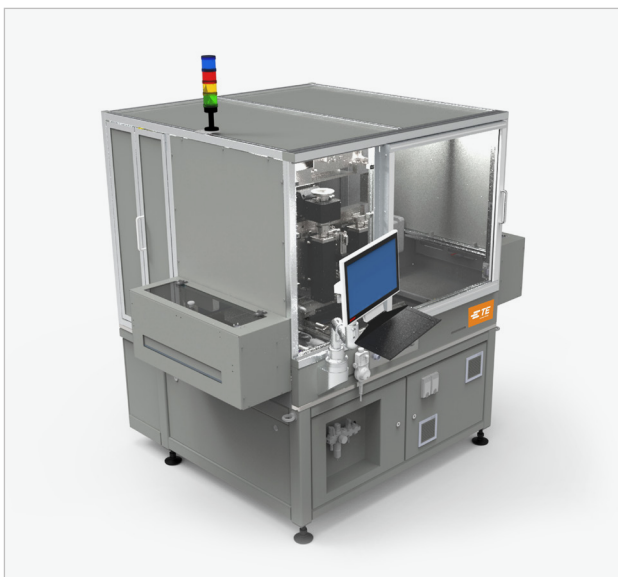


# PIN INSERTION MACHINES

A WIDE RANGE OF PRODUCTION EQUIPMENT  
FOR COMPLIANT PIN TECHNOLOGY



# LINE OF PIN INSERTION MACHINES

## Table of Contents

- Line of Pin Insertion Machines
  - P360 Modular High Speed Pin Insertion Machine
  - P550 Flexible High Speed Pin Insertion Machine
- Spare and Wear Parts
- Maintenance & Service
- Request for Quote including Questionnaire for Insertion Machines

## Quality Management

- Fitting into Industry 4.0 trend of automation
- Customized for individual Manufacturing Execution Systems (MES) solutions
- Tool management to support optimum quality management
- Quality monitoring functions, like
  - Pin penetration sensing
  - Pin presence detection
  - Electrical continuity sensing
  - Force vs. distance monitoring
  - Vision system for accuracy
- Quality control data stored in the system for future traceability
- No loss in time, since going parallel to pin insertion

## Flexibility for Production

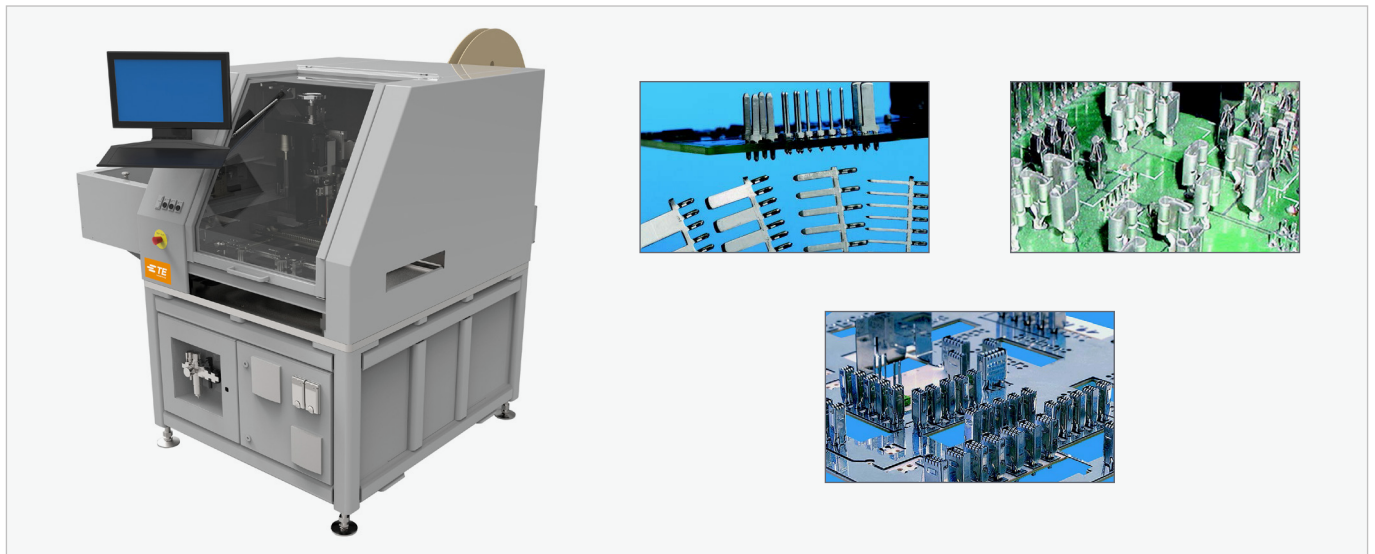
- Modular machine concept
- Modular tool concept
- Extremely wide range of conversion kits available
- Application of up to 6 different contacts on one machine
- Easy and quick change product tool pack

## TE Connectivity (TE) insertion machines

- Flexible configuration of machines
- Full range of machine portfolio from manual repair and low volume systems up to highly configurable systems with all grades of automation and max performance of up to 15 pins per second
- Accessories enhancing flexibility and productivity
- Highest performance and quality
- World wide field service available to maximize uptime

## Applied Cost Savings

- Rotary insertion finger applies products at different angles without decreasing insertion rate
- Product specific tooling
- Easy change from one product to another



# LINE OF PIN INSERTION MACHINES

## P360 Pin Insertion Machine

### Machine

- Modular high speed insertion machine
- Available as stand alone unit or integrated into production line
- Fully automatic and flexible
- For high volume level production (up to 25 million insertions/shift and year)
- Ideal for broad variety of line configurations
- Single insertion head
- (up to 2 different contacts with twin feed)
- Double and triple pin insertion

### Standard Features

- Servo driven base insertion head
- Conversion kits compatible with P100/P300/P550
- Freely programmable insertion angle (Rotation has no influence on insertion range)
- Easy changeover of the conversion kits within < 10 minutes
- Adjustable PCB support to provide production flexibility
- Lower support tool equipped with pin presence check
- Clinching in lower tooling possible
- Easy-to-use touch screen allowing simple programming

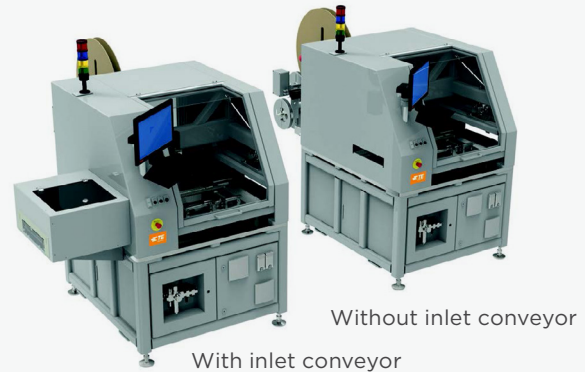


### Options for P360

- 5 insertion cycles per second at a distance of 30mm from position to position (.2 in) pitch
- Fixed base tool
- Max number of base tools: 1
- Motor driven feed
- Twin feed tool
- Triple pin mode
- PCB transfer/in-line
- Servo anvil
- Servo anvil with rotation
- Vision system
- PCB thickness measurement
- Insertion force monitoring
- Force vs distance monitoring

## Line Configurations

### Stand alone

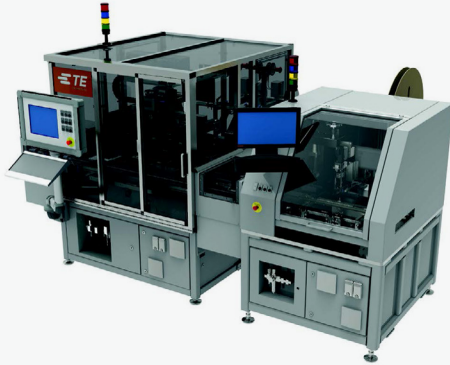


### Modular line



## Line Configurations

### Extension of 3 Head Machine

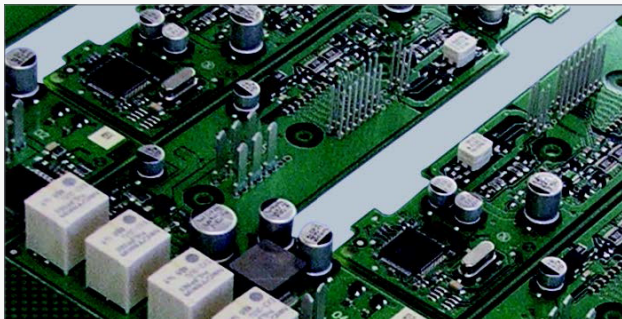


### Extension of 4 head Machine



## Quality Management

- Fulfilling Industry 4.0 requirements
- Customized MES solutions
- Force monitoring and Force vs distance monitoring
- Pin presence detection
- Vision system for accuracy
- Tool management
- Machine capability study



## Machine Performance of P360

- Insertion force max 900 N
- PCB size max: 420 x 360 mm (16.5 x 14.2 in)
- PCB size min: 80 x 80 mm (3.15 x 3.15 in)
- PCB size max with flip unit: 200 x 200 mm (7.85 x 7.85 in)
- Insertion area (P300 without flip unit): 410 x 340 mm (16.15 x 13.4 in)
- Camera inspection area with tool changer: 410 x 340 mm (16.15 x 13.4 in)
- Camera inspection area without tool changer: 330 mm x 340 mm (13 x 13.4 in)
- PCB thickness: 1 – 4 mm (.04 – .157 in)
- Max height of components/top side: 30 mm (1.2 in)
- Max height of components/bottom side: 25 mm (.985 in)
- Insertion cycles per second in a pitch of max 5.08 mm (.2 in): 4.5
- Insertion speed of pin:  
0 – max 450 mm/sec (0 – 17.7 in/sec)
- Reel/outer diameter: < 800 mm (31.5 in)

## Machine Data of P360

- Supply voltage: 400 V
- System frequency 50/60 Hz
- 3 Phases
- Power consumption during production: 2.8 kW
- Power consumption during standby: 700 W
- Air pressure: 500 – 800 kPa
- Air consumption: 100 liters/min
- Operating temperature: 10 – 35 °C
- Storage temperature: 10 – 50 °C
- Humidity: 10 – 60 % (non-condensing)
- Footprint: W x D x H: 240 x 190 x 220 mm (9.5 x 7.5 x 8.7 in)
- Sound pressure level (machines with light curtain):  
< 75 dB (A)
- Painted surfaces: RAL 7035

## Products processed by P360

- Press-fit contacts
- Solder contacts
- Pins and tabs
- Sockets
- Spring contacts
- Continuous wire
- F-post



# LINE OF PIN INSERTION MACHINES

## P550 Pin Insertion Machine

### Machine

- Flexible and fully automatic high speed operation machine for application of reeled components
- For integration into production line
- For high volume level production
  - Up to 4 insertion heads
  - Up to 6 different contacts with Twin Feed
- Double and triple pin insertion

### Standard Features

- Servo driven base insertion head
- Conversion kits compatible with P100/P300/P360
- Freely programmable insertion angle (Rotation has no influence on insertion range)
- Easy changeover of the conversion kits within < 10 minutes
- Adjustable PCB support to provide production flexibility
- Lower support tool equipped with pin presence check
- Clinching in lower tooling possible
- Easy-to-use touch screen allowing simple programming

### Quality Management

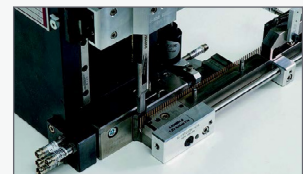
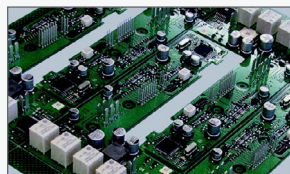
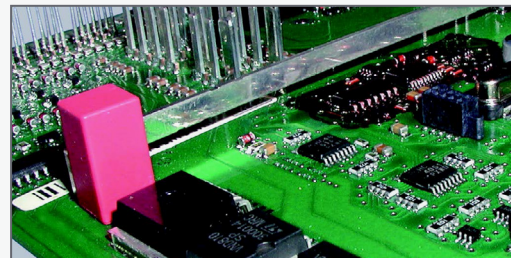
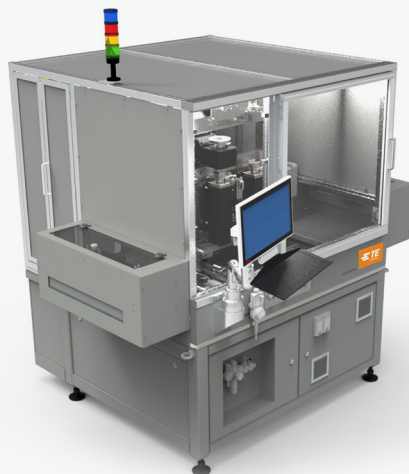
- Fulfilling Industry 4.0 requirements
- Customized MES solutions
- Force monitoring and Force vs distance monitoring
- Pin presence detection
- Vision system for accuracy
- Tool management
- Machine capability study

### 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.

### Physical Dimensions

- Width: 2.400 mm (102 in)
- Depth: 3.000 mm (118 in)
- Height: 2.200 mm (87 in)
- Weight: Approx. 2.200 kg (4410 lb)



## Options for P550

- 4.5 insertion cycles per second at 5.08 mm pitch
- Tool changer
- Fixed base tool
- Max number of base tools: 4
- Motor driven feed
- Twin feed tool
- Triple pin mode
- PCB flip unit
- Simultaneous PCB transfer/in-line
- Servo anvil
- Servo anvil with rotation
- Anvil changer
- Vision system
- PCB thickness measurement
- Insertion force monitoring
- Force vs distance monitoring

## Machine Performance of P550

- Insertion force max 900 N
- PCB size max: 420 x 360 mm (16.5 x 14.2 in)
- PCB size min: 80 x 80 mm (3.15 x 3.15 in)
- Insertion area (P300 without flip unit): 410 x 340 mm (16.15 x 13.4 in)
- Camera inspection area with tool changer: 410 x 340 mm (16.15 x 13.4 in)
- Camera inspection area without tool changer: 330 mm x 340 mm (13 x 13.4 in)
- PCB thickness: 1 – 4 mm (.04 – .157 in)
- Max height of components/top side: 30 mm (1.2 in)
- Max height of components/bottom side: 25 mm (.985 in)
- 5 insertion cycles per second at a distance of 30mm from position to position (.2 in) pitch
- Insertion speed of pin: 0 – max 500 mm/sec (0 – 17.7 in/sec)
- Reel/outer diameter: < 800 mm (31.5 in)

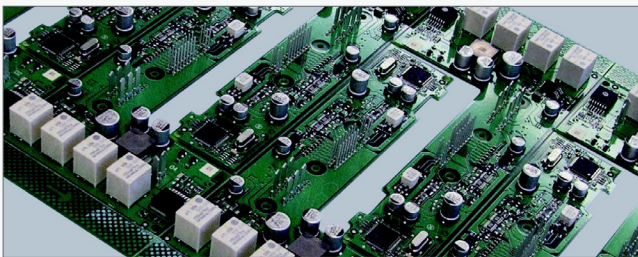
## Machine Data of P550

- Supply voltage: 400 V
- System frequency 50/60 Hz
- 3 Phases
- Power consumption during production: 2.8 kW
- Power consumption during standby: 700 W
- Air pressure: 500 – 800 kPa
- Air consumption: 100 liters/min
- Operating temperature: 10 – 35 °C
- Storage temperature: 10 – 50 °C
- Humidity: 10 – 60 % (non-condensing)
- Footprint: W x D x H: 240 x 190 x 220 mm (9.5 x 7.5 x 8.7 in)
- Sound pressure level (machines with light curtain): < 75 dB (A)
- Painted surfaces: RAL 7035

## Products processed by P550

- Press-fit contacts
- Solder contacts
- Pins and tabs
- Sockets
- Spring contacts
- Continuous wire
- F-post

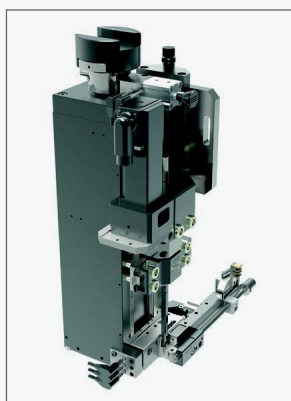
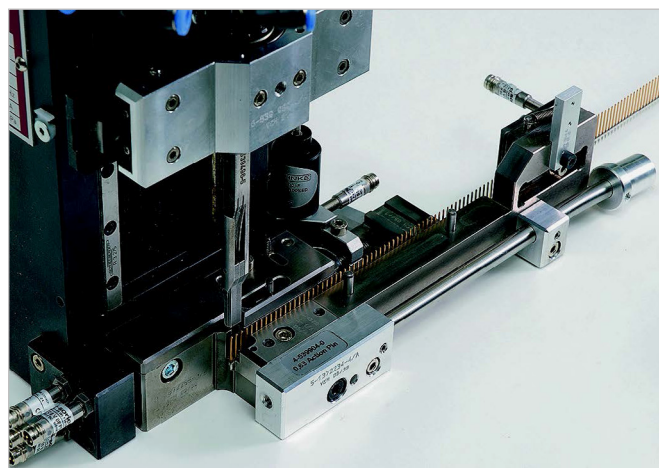
**Tools designed for wide range of reeled components (TE and non-TE contacts.) Processing of loose piece components and continuous wire is also possible and available upon request.**



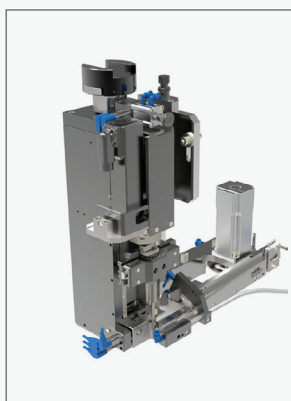
# LINE OF PIN INSERTION MACHINES

## Insertion Heads – Conversion Kits

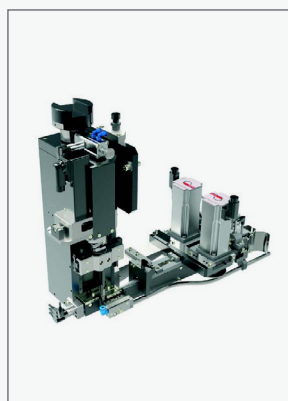
- Modular insertion tools for P100/P300/P350/P550
- Quick tooling change on the insertion head possible by concept of product specific conversion kits
- Conversion kit consisting of cutting unit and feeding mechanism
- Product specific insertion finger mounted onto base head
- Base tool provides the power for all movements of the conversion kit
- Simple coding system for automatic identification by the machine control
- Wide range of conversion kits for various TE Connectivity and non TE Connectivity products



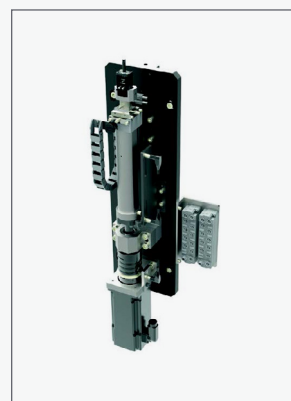
**Conversion Kit  
Mechanical Feed**



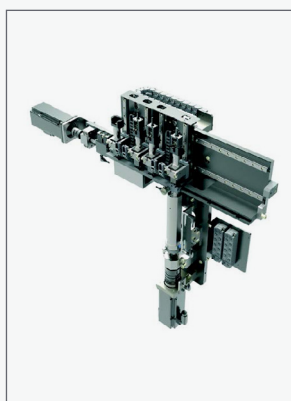
**Conversion Kit Motor  
Feed**



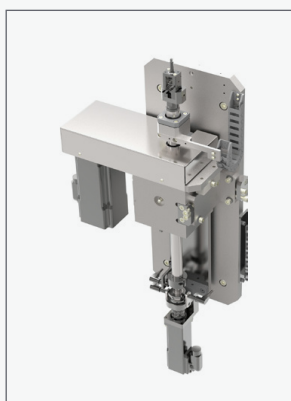
**Conversion Kit Twin Feed  
for 2 Contacts**



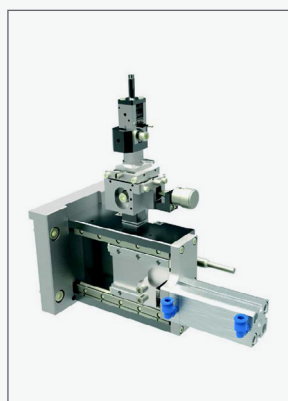
**Servo Anvil**



**Servo Anvil with Anvil  
Changer**



**Servo Anvil with Rotation**



**Pneumatic Anvil**

# REQUEST FOR QUOTE

## Details of requested Insertion Machines

| Machine Specification                                             | Requested (x) | Comments |
|-------------------------------------------------------------------|---------------|----------|
| Servo driven anvil with freely programmable rotation              |               |          |
| Anvil changer for 3(4) anvils                                     |               |          |
| Insertion force monitoring                                        |               |          |
| Force vs distance monitoring                                      |               |          |
| PCB thickness measuring (inlet)                                   |               |          |
| PCB thickness measuring (XY)                                      |               |          |
| Vision system                                                     |               |          |
| PCB transfer belts                                                |               |          |
| PCB flip unit                                                     |               |          |
| Cata collect                                                      |               |          |
| PCB bar-code scan                                                 |               |          |
| Reel scan                                                         |               |          |
| Connection to MES system                                          |               |          |
| Production Data Acquisition                                       |               |          |
| i-Button for conversion kits                                      |               |          |
| Tool setup check                                                  |               |          |
| Off-line programming tool                                         |               |          |
| Transformer (if 3 x 400 V supply not available at final location) |               |          |
| Translation into other Language                                   |               |          |
| Warranty extension to 24 month                                    |               |          |
| Packaging                                                         |               |          |
| Transport                                                         |               |          |
| Training in Feuchtwangen                                          |               |          |
| Training on site in final location                                |               |          |
| Installation on site                                              |               |          |
| Same side in-out PCB pallet handling (P360 & P550 only)           |               |          |
| Automatic first cut                                               |               |          |
| Reel changeover without process interruption (P360 only)          |               |          |
| Contact bending (90°)                                             |               |          |



# REQUEST FOR QUOTE

## Questionnaire for Insertion Machines

To get a budgetary quote for an insertion machine P100/P300/P350/P360, please answer the following questions and fax the questionnaire to **TE Connectivity Europe +49(0)7964-201-6002 or - 6004** or email a copy to our **Tooling Assistance Center**, email address: **tac-emea@te.com**.

|                                                                                                                                                                                                                                                                                             |       |                                                                                        |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------|-------------------|
| Company Name                                                                                                                                                                                                                                                                                |       |                                                                                        |                   |
| Customer Contact                                                                                                                                                                                                                                                                            |       | Title                                                                                  |                   |
| Address                                                                                                                                                                                                                                                                                     |       |                                                                                        |                   |
| City                                                                                                                                                                                                                                                                                        | State | ZIP Code                                                                               | Country           |
| Phone Number                                                                                                                                                                                                                                                                                |       | Fax Number                                                                             |                   |
| TE Customer Acct Number                                                                                                                                                                                                                                                                     |       | E-Mail Address                                                                         |                   |
| TE Representative                                                                                                                                                                                                                                                                           |       |                                                                                        |                   |
| Product to apply:                                                                                                                                                                                                                                                                           |       | P/N:                                                                                   |                   |
| Product to apply:                                                                                                                                                                                                                                                                           |       | P/N:                                                                                   |                   |
| Product to apply:                                                                                                                                                                                                                                                                           |       | P/N:                                                                                   |                   |
| Size of PCB(s):                                                                                                                                                                                                                                                                             |       | Please attach drawings , CAD models (stp files) of printed circuit boards and contacts |                   |
| Number of printed circuit boards per year or expected cycle time:                                                                                                                                                                                                                           |       |                                                                                        |                   |
| Position of the PCB in the panel, positions of the contacts to be placed (x,y,rotation, height), clamping hole positions, position of PCB bar-code, position of thickness measuring, already existing components with their dimensions (might interfere with tools), flow direction of PCB. |       |                                                                                        |                   |
| Height of components already on PCB: Application side:                                                                                                                                                                                                                                      |       | [mm]                                                                                   | Solder side: [mm] |
| Number of products per PCB:                                                                                                                                                                                                                                                                 |       | Number of PCBs per year:                                                               |                   |

## Maintenance and Service

### Customer Service

- Error/Malfunction Diagnosis and Repair
- On site support
- Software upgrades and updates

### Maintenance

- Contracts for regular maintenance on yearly basis
- Base insertion head maintenance and reconditioning
- Analysis and documentation of machine condition
- Frame contracts about maintenance on request

### Training Service

- Training for operators
- Training for process and production engineering
- Training for maintenance personnel

### Calibratio

- Calibration check of force meters by comparative measurement
- ESD Audit
- Machine capability studies based on standardized procedures

### Upgrading Service

- Upgrade of operation system up to complete change of computer system
- Upgrade of waste disposal system
- Upgrade double pin feeder system
- Upgrade to simultaneous transport

### Spare Parts Service

## 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.

### Field Service Main Categories

- Standard Service
- Express Service
- Installations
- Operating, Maintenance and Training
- Repair
- Contract Service
- Standard Training Courses

### Technical questions or problems?

Contact the EMEA Field Service Hotline.

Opening Hours

Monday – Thursday 08:00 – 16:00

Friday 08 – 14:00

Phone: +49-6151-607-1518

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

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

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## Let's Connect

To learn more about the right TE tooling for your needs, call us at 717-810-2082 or email [ToolingSales@te.com](mailto:ToolingSales@te.com)

## TE Technical Support Center

|                  |                   |              |                  |
|------------------|-------------------|--------------|------------------|
| USA:             | 1.800.522.6752    | UK:          | +44.0800.267666  |
| Canada:          | 1.800.522.6752    | France:      | +33.1.34.20.8686 |
| Mexico:          | +52.55.11.06.0800 | Netherlands: | +31.73.624.6999  |
| Latin/S. America | +55.11.3404.6261  | China:       | +86.400.820.6015 |
| Germany:         | +49.6151.607.1999 |              |                  |

## Connect With Us

We make it easy to connect with our experts and are ready to provide all the support you need.  
Visit [te.com/support](https://te.com/support) to chat with a Product Information Specialist.

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## te.com

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