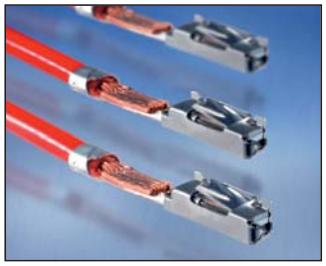
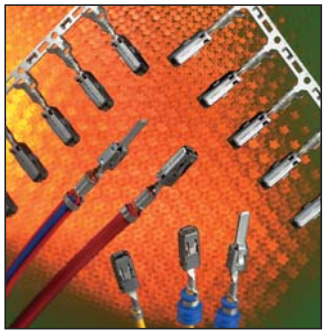




Tyco Electronics' Global Application Tooling Division (GATD) is dedicated to providing high quality equipment options to meet all levels of your connector product specifications. We are also able to provide a broad range of equipment for other manufacturer's products.

Our equipment range is vast and unmatched by others operating in the same industry segments, as is our global presence and support network in the form of field service engineers and product managers. You will see from browsing this catalog; we supply everything from simple hand tools to the most complex automated systems – you name it, we supply it!

Equipment is segregated into two categories:

Generic Equipment

Where we can supply you with sufficient information referenced by Part Number such that you can identify and order what you need yourself.

Specialized Equipment

Where you will need help from our specialist product managers to identify what's just right for your application.

Finding Equipment Online

Powerful search functions are available to identify appropriate tooling:

- Applicators — www.tooling.tycoelectronics.com/europe/applicator.asp
- Hand Tools — www.tooling.tycoelectronics.com/europe/handtools.asp

Insertion Machines for Single Contacts

Pin Insertion Machine

Tyco Electronics 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 representatives can help you select the optimal machine configuration.
The benefit to you is a low cost investment that more than your requirements of output and quality.
Tyco Electronics Field Service is available to service and support the machines to help maximize uptime.

Our full line of Insertion Machines have been designed to deliver highest quality and maximum performance within their range of applications.

AccuSerter 2 Pin Insertion Machine

AccuSerter 2 is a semi-automatic machine and the newest addition to the line of Tyco Electronics pin insertion systems. Designed and manufactured with a focus on mid-volume level production, the AccuSerter 2 machine provides a broad range of features at a very competitive price. With the ability to apply both Tyco Electronics' and other manufacturer's products, the AccuSerter 2 machine does not limit your production to "Tyco Electronics only" applications and provides flexibility to address both current and future tooling needs.

The AccuSerter 2 machine uses a pneumatic power unit together with product specific "quick change" tooling packs.

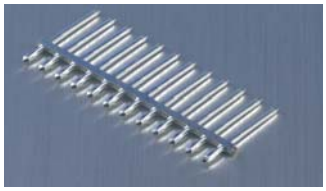
The insertion heads can be supplied with a rotary insertion finger that can apply products at different angles without decreasing the insertion rate. The tooling packs can be exchanged within 30 minutes

to meet your full range of application requirements. The operator interface is an easy to use touch-screen which allows simple programming and automatic setup.

For more detailed information please visit our websites:
www.tooling.tycoelectronics.com • www.tooling.tycoelectronics.com/europe • www.tooling.tycoelectronics.com/china

Insertion Machines for Single Contacts

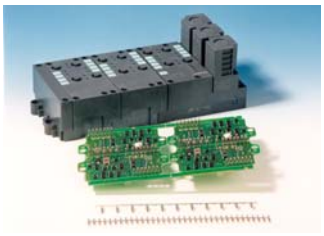
P 200 Semi-Automatic Bench Machine for PCB Processing



The P 200 semi-automatic bench machine positions manual loaded PCBs under an installed tool. The tool may be a solder head, a camera for automatic inspection, or an insertion head for the application of Tyco Electronics products. Insertion tools for Tyco Electronics products are composed of an insertion head (upper tooling), an anvil (lower tooling) and a product feeding mechanism.

These tools are product specific and the PCB holder interface is designed according to the customer application.
A rotary insertion finger allows the insertion of pins at different angles. Because of simple mechanical and electrical interface, other tools can easily be integrated into the machine. The excellent performance of a multi-tasking control system allows easy programming and operation of the machine.

P 300 Fully-Automatic Machine for PCB Processing



For the automatic assembly of printed circuit boards, the basic P 300 fully-automatic machine is equipped with a product specific insertion head. A speciality is the rotary insertion finger which allows the products to be inserted in different angles of rotation.
A stepper-motor driven XY table positions the printed circuit boards under the insertion head. The control and monitoring of the insertion process is carried out by a multi-tasking control unit.
There are three possibilities for programming the machines: off-line on a connected PC, by entering coordinates on the control panel of the machine or by converting CAD data.
A series of options also allows the P 300 fully-automatic machine to be adapted to the most varied manufacturing tasks.

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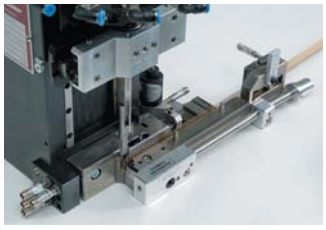
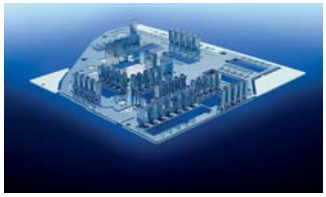
Insertion Machines for Single Contacts

P 350 Fully-Automatic Insertion Machine for High Volumes



The P 350 is a fully-automatic insertion machine with the ability to handle a large variety of Tyco Electronics terminals as well as customer specific terminals. A standard P 350 machine comes with 3 base insertion tools mounted onto an automatic tool changer. The tool changer can take up to 4 insertion tools/support tools. These base tools can easily be equipped with existing or customer specific conversion kits for a large range of terminals.
All heads are equipped with rotary insertion fingers to allow the insertion of terminals at different angles without the need to rotate the board.
The PCB transfer belts enable the machine to be incorporated into an automatic production line.
A standard Insertion Force Monitoring system allows for real-time force monitoring for 100% quality assurance for each press-fit terminal. Its operator interface has been designed for easy use and provides the insertion force and a variety of production data to be collected at an open interface. With a maximum insertion rate of 4.5 cycles per second we provide a production capacity which is difficult to match in the market place. The programmable insertion of two 0.63 mm pins per cycle doubles the output.

Single Pin Repair Station



The repair station consists of an arbor press with Press Quality Monitor (PQM).
A loose-piece pin or tab is placed in the product specific insertion finger, the PCB is placed on the support anvil and the pin or tab is manually pressed into the board.
The PQM provides real time force/distance monitoring.
The result is a repair process with a high level of quality assurance.

Also available is the P 50 Manual Handpress and Insertion System. More details available upon request.

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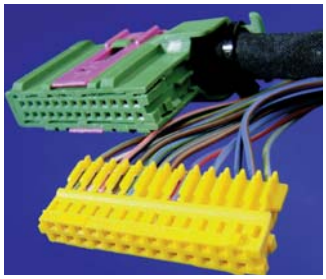
www.tooling.tycoelectronics.com • www.tooling.tycoelectronics.com/europe • www.tooling.tycoelectronics.com/china

IDC Machines

IWS 188 IDC Workstation

The IDC workstation produces electrical connections for harness assemblies specifically intended for the use within dashboard applications in the automotive industry. The proven insulation displacement technology ensures a high level of reliability.
The software allows the production of different harness configurations featuring up to 11 connectors. The work-station is compatible with IDC connectors with a 2.54 mm and a 3.5 mm pitch. It is intended for medium to large volume production.

MT-E2 F Semi-Automatic Machine



The development of this termination machine was necessary to be able to process high cavity-count female connectors in IDC technology. The new multi-cavity motor-control interface connectors are used in damp areas in cars and must be completely water-proof, hence the use of a family seal over the insulation displacement contacts.
The pitch of the cavities in the family seal corresponds to that of the connectors with their insulation displacement contacts.
The cavities in the family seal are closed by a membrane. An integrated program controlled unit pierces the membrane, prior to the IDC termination.

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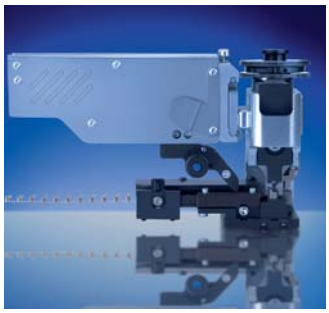
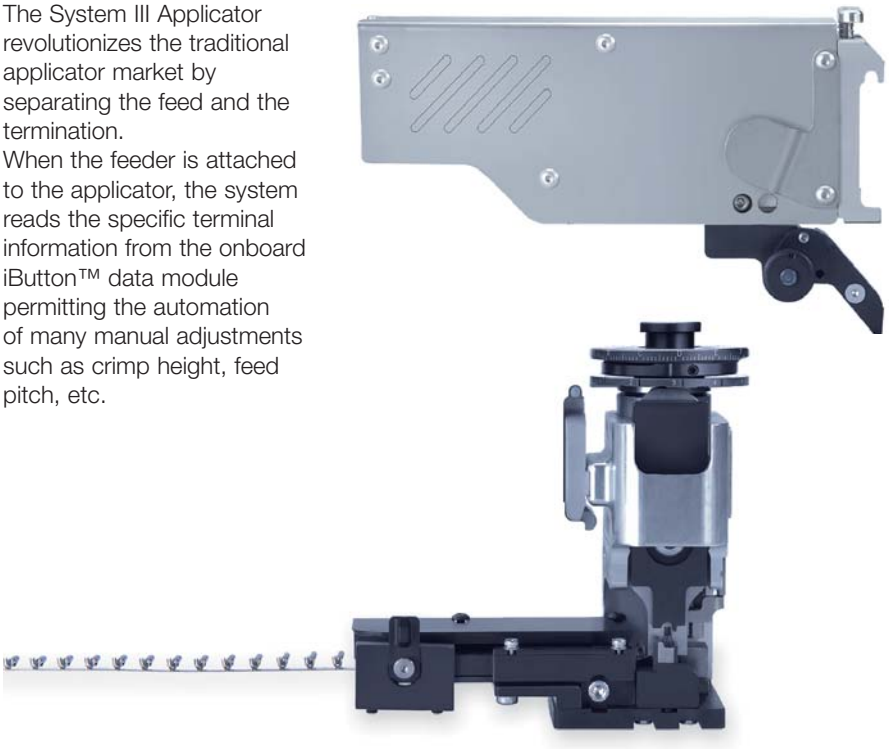
Lead Makers

System III Applicator



The System III Applicator revolutionizes the traditional applicator market by separating the feed and the termination.
When the feeder is attached to the applicator, the system reads the specific terminal information from the onboard iButton™ data module permitting the automation of many manual adjustments such as crimp height, feed pitch, etc.



Precision Controller

The new Precision Controller provides an upgrade path for already installed equipment. By installing the Precision Controller onto a bench terminator or a Komax Gamma 333 PC lead maker, the System III-FA Applicator can be used. An integrated LCD screen allows the user to view the information contained on the iButton™ data module and the controller also allows the operator to accurately position the terminal feed and make fine adjustments.

iButton is a trademark of
Maxim Integrated Products, Inc.

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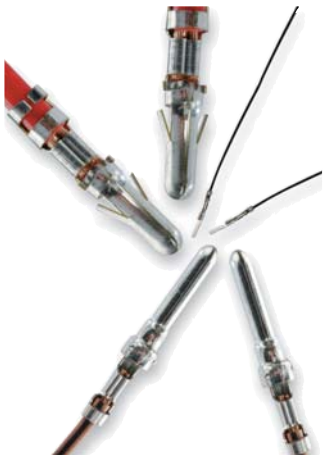
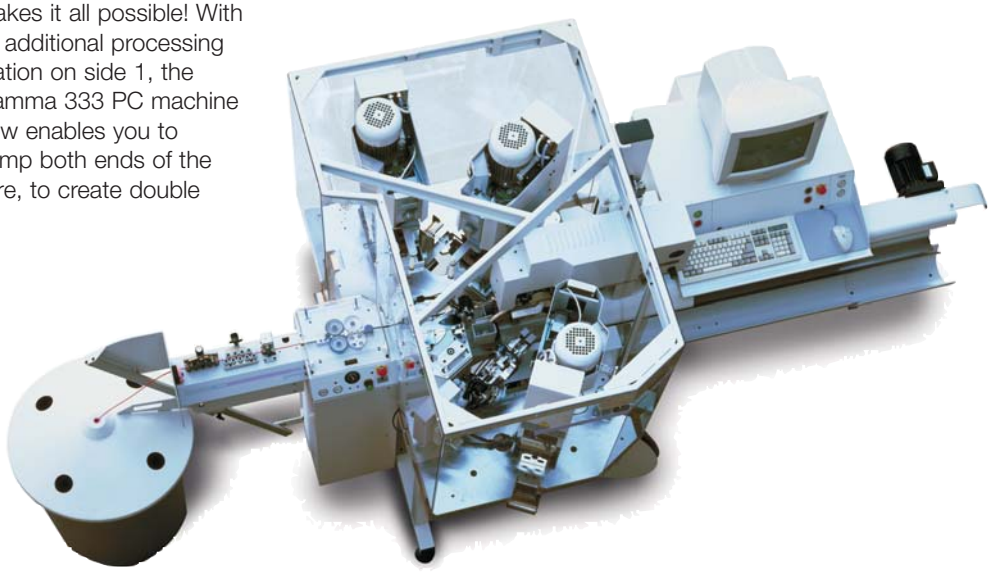
Gamma 255 Lead Maker Processing of Small Wire Sizes

The Gamma 255 Lead Maker is a flexible fully-automatic crimping machine for efficient wire processing. It processes cross sections in a range from 0.013 mm^2 to 2.5 mm^2 in excellent quality. The entire cross section is processed using programmable, highly dynamic servo-drives and V stripping blades. As part of its standard equipment, the machine has a pre-feeder, splice, wire-end and knot detection, as well as two wire straightening units.



Gamma 333 PC Lead Maker Flexible Wire Processing

Ultra short conversion times, additional applications and a user-friendly interface with multiple-language capability. The Gamma 333 PC machine makes it all possible! With its additional processing station on side 1, the Gamma 333 PC machine now enables you to crimp both ends of the wire, to create double crimp connections with three different contacts, to carry out one-ended seal application, tinning or ink-jet marking. In addition, process monitoring is integrated to ensure that the wire is cut to length and stripped perfectly to specifi-ca-tion and that quality control is optimized.



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Alpha 355 / 355 S Lead Makers

The Alpha 355 and 355 S are four Station Lead Makers. The dual channel cutting head allows for a large range of wire sizes without blade changes. The drive unit for the cutting head is positioned beneath the wire line to give the machine an uncluttered and ergonomic design.

All processing stations are readily accessible through the vertically opening safety covers. Applicators, terminal reels and other parts for specific applications can be changed without tools. Controls are positioned locally, allowing the corresponding machine functions to be triggered during set-up. All setting and adjustment procedures can be controlled from the TopWin™ user software in over 20 different languages.

Alpha 356 Multi-Functional Fully-Automatic Crimping Machine

The Alpha 356 fully-automatic crimping machine has room for up to seven processing stations. A wide variety of configurations are possible, in fact, almost any combination of crimping, seal loading, fluxing/tinning, twisting, fitting with insulating sleeves and end sleeves for strands as well as bulk turned contacts and customer-specific processes.
The Alpha 356 is designed for using the broadest selection of different processing modules, including special customer-specific modules.

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Lead Makers

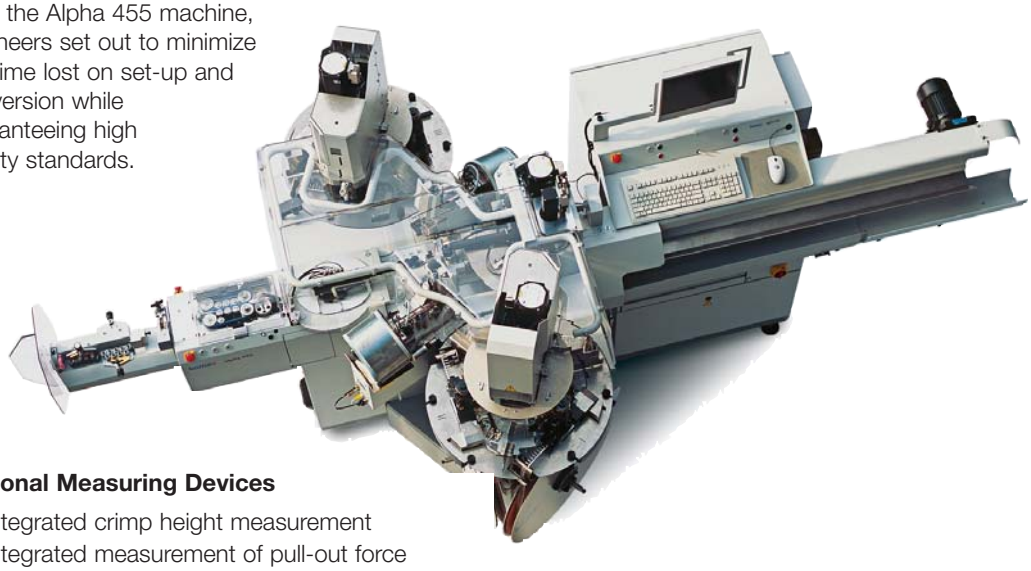
Alpha 358 Fully-Automatic Crimping Machine

The Alpha 358 fully-automatic crimping machine is designed for two-sided crimping and seal loading and sets new standards in the processing of long cables. Cables up to 35 meters (27.34 yards) in length can now be processed at high speed on a machine just four meters (4.37 yards) long. Coiling and binding cables directly in the fully-automatic crimping machine frees up substantial space and offers considerable quality advantages.

Alpha 455 Fully-Automatic Crimping Machine

The Alpha 455 crimping machine is designed especially for just-in-time production. Downtimes become crucial for companies that produce relatively small production batches requiring frequent conversions of the machine. With the Alpha 455 machine, engineers set out to minimize the time lost on set-up and conversion while guaranteeing high quality standards.

The mci 722R is the product that guarantees the efficient set-up of the fully-automatic Alpha 455 crimping machine. This innovative new rotary press table was specially developed for the Alpha 455 machine and allows the latter to be converted while production is still going on. The tools and terminals for the next two jobs are set-up while the current batch is still being produced.



Optional Measuring Devices

- Integrated crimp height measurement
- Integrated measurement of pull-out force
- Integrated referencing of wire lengths

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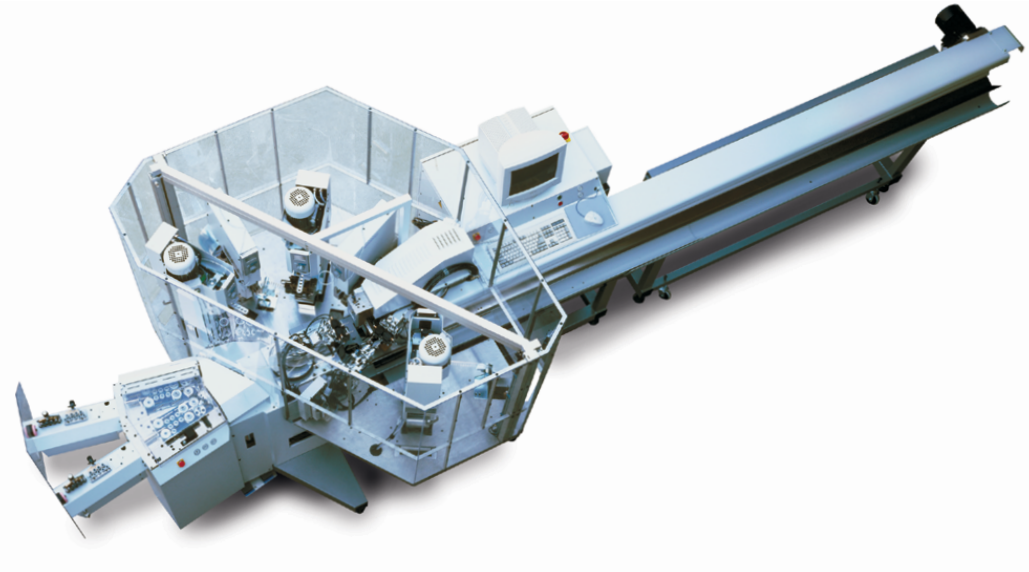
Lead Makers

Alpha 477 Lead Maker Double Crimp Connections with two different wires

The Alpha 477 machine allows the processing of a wide variety of wire combinations from a double crimp up to three different contacts, two different seals and two different wire sections.

The arrangement of six processing stations plus a double gripper unit make for highly diverse processing possibilities. As a result, the Alpha 477 machine can grow and expand to meet your future needs. Individual wires with cross section of 0.22 mm^2 to 4 mm^2 can be processed. The maximum total cross sections of a double crimp can be as large as 6 mm^2.



Alpha 488 Lead Maker Processing of Twisted Pairs

The Alpha 488 machine was designed for the economical processing of twisted pairs, consistently combining as it does state of the art technology with proven system elements like TopWin™ user-interface, the mci 712 or mci 722 crimp module.

The Alpha 488 machine creates fully processed twisted pairs from endless wire. This automatic twisting machine can accommodate wires with cross sections of 2 x 0.22 mm^2 to 2 x 2.5 mm^2. Four stations on side 1 and two on side 2 make for flexible processing possibilities such as double-ended seal application and crimping.

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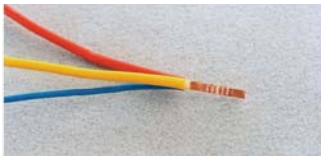
Zeta 633/633 L Fully-Automatic Crimping Machine

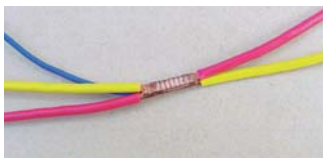
The Zeta 633 and 633 L are highly flexible fully-automatic crimping machines for just-in time production. The flexible machine concept creates an almost unlimited number of possibilities for handling small jobs or wire sequences. The operator is able to reduce the required material changeovers and interruptions in production to a minimum.

The Zeta 633 crimping machine is ready to accommodate five crimping presses and the 633L-Version can handle up to eight, for even more flexibility. Both Zetas can be used as stand alone machines with a bundler, as a basic machine for the block loader Zeta 651, Zeta 655 and Zeta 656 as well as for machines with an extension.

Zeta 633 SP Fully-Automatic Splicing Machine

The Zeta 633 SP is the first machine for an automatic production of ultrasonic welded wire sets. It is distinguished by a cost-effective production with steady high welding quality. The machine is based on the technology of the Zeta 633 and therefore also offers all functions for seal and terminal processing.





Application

- Head-to-head and butt splices
- Splice welding in ultrasonic process
- Insulation of splices with tape (option)
- Single wire processing, sequence process
- A very broad range of jobs can be processed without any conversion

For more detailed information please visit our websites:
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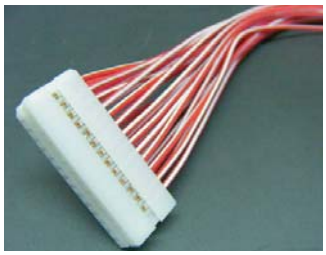
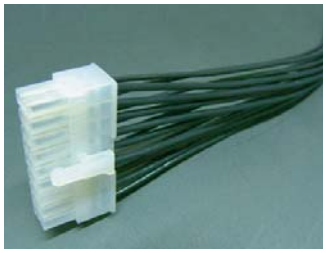
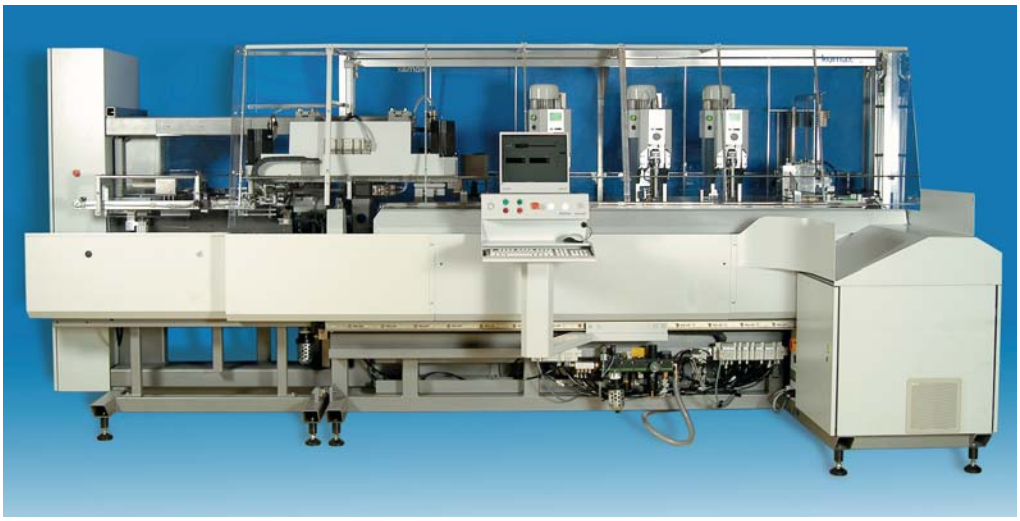
Zeta 651 Single End Block Loader

The Zeta 651 is the economical solution for the production of harnesses with single sided insertion in housings with one or two rows. This machine is especially characterized by a high degree of automation and the reliable insertion process.

The machine is used in combination with the flexible Zeta 633 base machine.
By pre-centering the contacts, a reliable and precise insertion is guaranteed. By means of centering grippers, the contact can be centered and optionally rotated. The housings are feeded automatically and can be refilled without any process interruption. An integrated force sensor performs force monitoring throughout the entire insertion process and enables a high insertion quality. Operation of the Zeta 651 is via the slide console of the Zeta 633 with the user software TopWin™.







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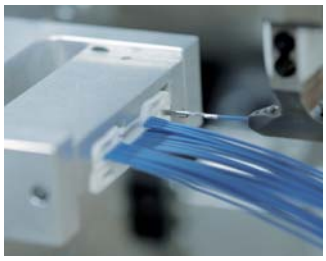
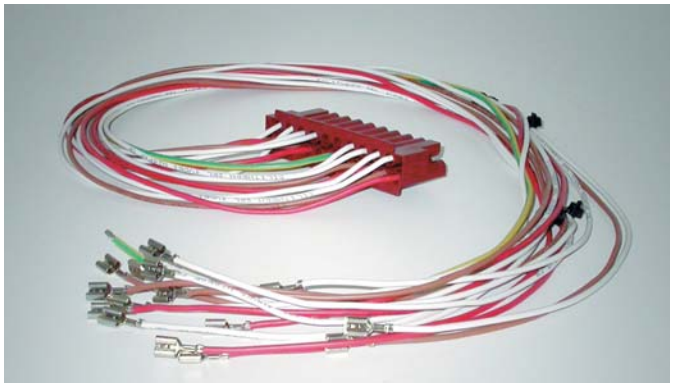
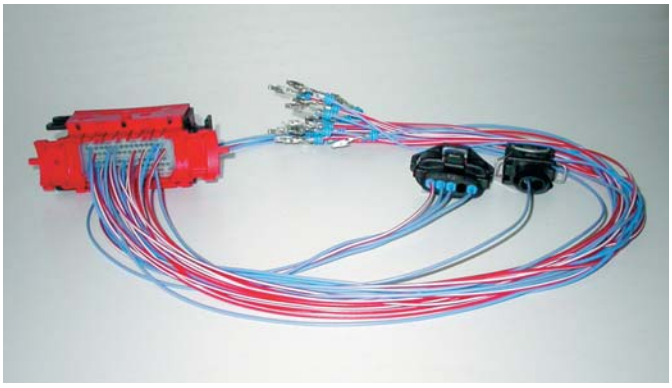
Zeta 655 / 656 Lead Maker Double End Block Loader

The Zeta 655/656 Lead Maker is the flexible solution for single and double-sided housing insertion. This machine is characterized by a high degree of automation and a reliable insertion process. The precise force sensor monitors the entire insertion process to guarantee seamless, integrated process monitoring as regards collisions, loading force and contact locking. The innovative quick change pallet system can replace the harness specific insertion application and convert to another harness. The Zeta 655/Zeta 656 operates via the slide console of the Zeta 633 using TopWin™ software. The software automatically calculates the order of loading within a wire harness to make the set-up of new harnesses as simple as possible.
The fully-automatic Zeta 656 manufactures harnesses featuring conductor cross sections of 0.13 mm^2 and miniaturized housings with a pitch of 1.25 mm, doing so reliably and at high speeds.







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HD-I and HD-M Applicators with/without Fine Adjustment

A full range of applicator types is offered by Tyco Electronics. The HD-M Applicator is the standard Tyco Electronics applicator, accommodating most requirements for crimping Tyco Electronics and non-Tyco Electronics terminals.
HD-I Applicators, designed for use in both imperial (1⅛" and 1⅝") and metric (30 mm and 40 mm) stroke machines, are covering most of the terminals sold on the market worldwide. With these platforms, we offer a flexible and excellently supported tool concept for crimping of terminals to wires. You just have to inform us about the terminal you want to crimp – and we can offer you a tool. If a tool is not yet defined for a terminal (Tyco Electronics terminal or terminals from other suppliers) we are able to quickly design a new HD-I or HD-M Applicator to suit your requirements.

HD-I Heavy Duty Industrial Applicator

HD-M Heavy-Duty Miniature Applicator

HD-E Asian-Style Applicators

Based on traditional Tyco Electronics quality, this applicator, all metric settings, is designed to run on Asian-style terminators.

Fine crimp height adjustment for easy setup. 0.01 mm steps compared to 0.05 mm. The lightweight 4.4 kg applicator is lighter than the competition while maintaining the historic Tyco Electronics robust design.

HD-E Heavy Duty Applicator

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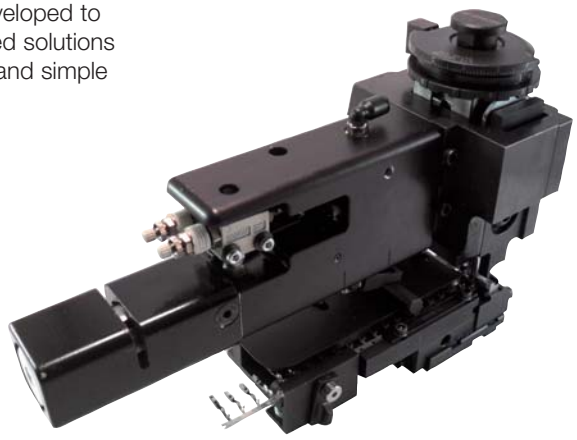
HD-I Air-Feed Applicator

The HDI-Air-Feed Applicator was developed to modernize and update current air-feed solutions with a focus on application flexibility and simple adjustments.



- Unique compact design easily mounts and dismounts to a keyed applicator frame
- Adjusts incrementally with steps of 0.08 mm
- Self-actuating, single air-line attachment – no terminator air valve is required
- Seals in the pneumatic cylinder can be replaced for quick and simple rebuilds
- No realignment or additional setup is required. Slide into place and reattach with two fasteners
- Side-Feed and End-Feed configurations are available
- Optional Tool or Tool-less feed adjustment

Applicator Wear Parts Stocking Program

To ensure the support of our installed Applicator base, we have established a stocking program for wear parts. Subsequently, all crimpers and anvils for your applicator are normally available ex stock, ensuring the shortest possible lead times.

Wear Tooling to Apply Stainless Steel Contacts

The application of nickel plated stainless steel terminals has always been a problem with regard to the uptime of the crimp tooling. We have developed crimpers and anvils, using special base materials and surface treatments in the crimp area. These have enabled us to significantly increased the tool life and thus reduce the applied cost of these products.

If you are experiencing specific wear problems in your production, please contact your Tyco Electronics Service representative.

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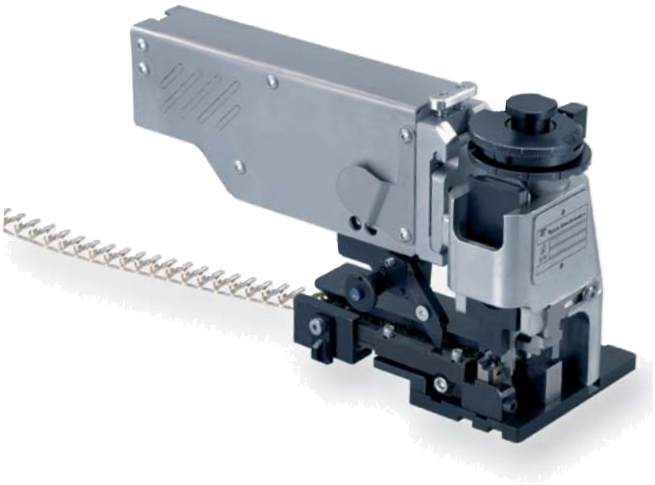
System III Applicator with Feeder

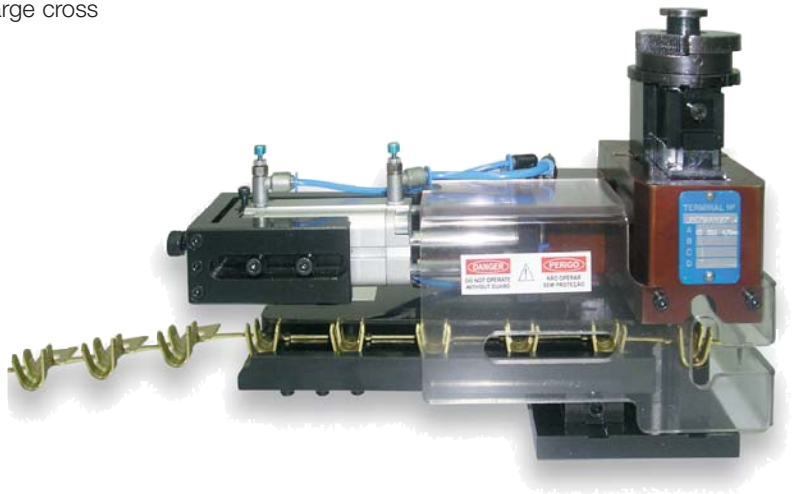
Flexible and efficient termination of single and double wire applications, self-adjustment of the feeder and optimum quality of wire termination are the main features of our new applicator – the System III Applicator.
All crimp-related data, which are specific for the applicator and the terminal to be crimped, are contained in an iButton™, being part of the applicator.
The main feature of the System III concept is a separate electrical feeder – which is communicating with the applicator iButton on one hand and the terminator and leadmaker on the other hand – and an automatical interaction between applicator and terminator.
Once the applicator is mounted onto the press and as soon as the electrical feeder (being permanently connected to the terminator) is locked onto the applicator, the applicator iButton data are read out and transmitted to the terminator via the feeder.
Then the terminator automatically adjusts its crimp height and the feeder its feeding parameters – according to the terminal wire combination to be crimped.



iButton is a trademark of Maxim Integrated Products, Inc.

Applicator for Large Wire Sizes

For processing of large contacts, eg. for battery terminals, we offer heavy and solidly built tools, which are extremely precise in repetitive work for end-feed and side-feed contacts with large cross sections.
A pneumatically driven feed which is efficient and precisely adjustable, as well as a specially robust crimping unit, produce reliable connections which are extremely stable over the long term.



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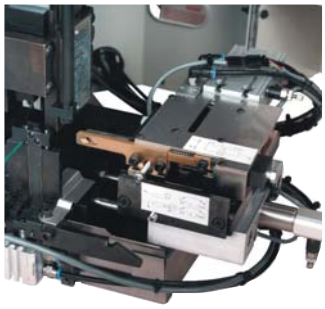
AMP 3K/40 and AMP 5K/40 Terminators

Based on the field proven Model "G" Terminator, the AMP 3K/40 and AMP 5K/40 Terminators are the latest in a series of machines for wire termination using reeled terminals.
The AMP 3K/40 Terminator provides 13 kN (3,000 lb) crimp force and is capable of crimping approx. 2.5 mm^2 (14 AWG) wire size.
The AMP 5K/40 Terminator provides 22 kN (5,000 lb) crimp force and is capable of crimping approx. 6.0 mm^2 (10 AWG) wire size.
As value oriented Terminators, the AMP 3K/40 and AMP 5K/40 are designed for customers that require the increased output and quality of a semi-automatic machine at a competitive price. A wide range of optional equipment is available to meet your specific application requirements.

Stripping Module



The stripping module is compatible with AMP 3K/40 and 5K/40 terminators.
A quick and flexible working process is supported by good accessibility to module adjustment and wire positioning. The stripping module was designed to produce good quality even used in the most harsh circumstances.

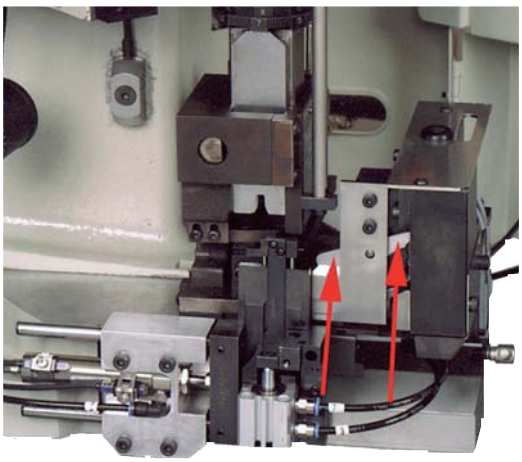
Following features characterize the stripping module:

- Pre-selection Crimp only / Strip only / Strip and Crimp
- Jog Mode
- Pneumatic removal of insulation scraps

Defective Crimp Cutter (DCC) and Carrier Scrap Chopper (CSC)

When the CQM detects a bad crimp, the DCC unit will cut off the defective terminal. The wire will be cut close to the terminal.

- All DCC units are equipped with a Carrier Scrap Chopper (CSC).
- The DCC and/or CSC units can be easily hinged out of the way to allow easy access to change applicators.
- DCC provides more consistent wire placement accuracy capability due to the use of the grip jaws, compared to hand placing the wire in a terminator.
- DCC provides a scrap collection bin. It works with AWG 32-12 side-feed and end-feed HDM Style Applicators.



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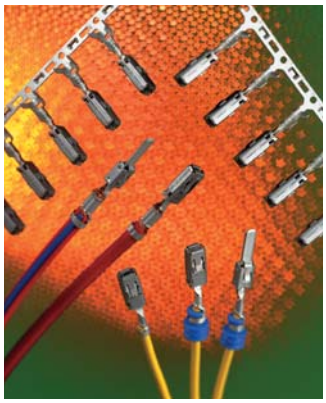
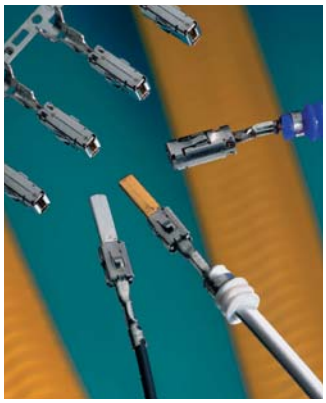
SC15 Stripper Crimper





The pneumatically and electrically driven SC15 crimping machine is a particularly efficient and operator friendly crimping machine with outstanding repetitive precision, which satisfies the highest requirements. It can be adjusted to the specific requirements of any given contact/cable connection.

If you

- want to strip a cable composed of many wires down to only 13 mm,
- would like to then insulate these single wires at 2 mm to 6 mm and thereby
- cover a wire size area of from 0.09 mm^2 to 4 mm^2 then with the Stripper Crimper SC15 machine you have made the right decision.

Further features are:

- Automatic bare wire recognition
- Crimp force monitoring
- Remote diagnoses via serial interfacespecific requirements of any given contact/cable connection.

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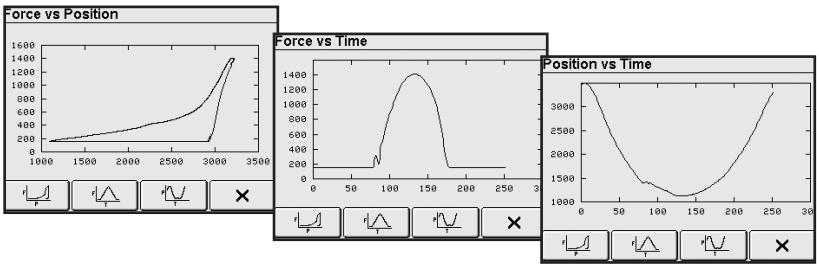
Crimp Quality Monitor (CQM)

Crimp height is the accepted method for the most accurate and precise, non-destructive testing of crimp quality. The new Crimp Quality Monitor is a convenient, automatic, easy-to-use tool for measuring crimp height as part of a comprehensive quality management program.
On-screen programmability allows flexible determination of crimp parameters and quality ranges. These monitors are compatible with several machines, including the AMP-O-LECTRIC Model G Terminating Machine, 3K/40 and 5K/40 terminators, AMP-O-MATIC Stripper-Crimper, or APT III machines.
The Tyco Electronics CQM unit boasts a multi-language user interface including English, Spanish, German, Italian, French and Chinese.

It also permits the user to access many of the most common statistical tools such as yield, PPM, mean, standard deviation, Cp, and Cpk.
The Tyco Electronics CQM units utilizes a technology which is constantly measuring both ram position and force throughout the crimp cycle. As many as 3,000 data points are gathered at a 5 kHz sampling rate and analyzed on every crimp in real time.
The CQM then compares the measured force/displacement curve to the base line to ensure that the forces and distances are within specification, thereby indicating a good crimp. Other systems make a force vs. time measurement.
Calibration is performed for each part by measuring a crimp and then doing a visual inspection and acceptance of several learned crimps. Acceptable tolerances, size of calibration sample, run and batch size, and product identification are all entered on screen, for auditable controls of production.
Once the CQM is calibrated, it can display the measured crimp height with an accuracy of ± 0.013 mm [± 0.0005 in] for base plate mount.



Detailed display of real time crimp data is readily available to the operator.

Setup is simple and fast. Only a few parameters need to be set to get the system up and running. All functions are controlled through the touch screen, with an easy-to use graphical interface. When numeric or alphanumeric input is required, a keypad or full keyboard appears on the screen.

During a run, detailed data can be observed on screen, including curves of force vs. position, force vs. time, and position vs. time.

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BT 752 Stripping, Sealing and Crimping Machine

The BT 752 crimping machine delivers three processes in a single device: stripping, seal loading and crimping. Reliability and top production performance coupled with the user friendly TopTouch interface are the features that make this semi-automatic device such a compelling product. The BT 752 crimping machine is an economical alternative to fully-automatic machines.

BT 711 Crimp Module

The BT 711 machine is a crimp module for the most demanding applications.

The module produces 20 kN, enough force to crimp wires up to 6 mm^2 in size, and is dimensioned to be compatible with all standard commercial crimping tools.

Options

- SC-11 Stripper
- Bad Terminal Cutter

Accessory

- CFA Calibration Unit

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BT 722 Bench Top Press

The BT 722 Bench Top Press is used for the manual crimping of contacts. The BT 722 Press is operated from a touch screen.
The new TopTouch user interface allows jobs to be set-up quickly and easily. Even during production set-up, the machine operator is prompted to conduct quality measurements. Following the input of the calculated values in the user interface, the crimp height is automatically corrected.
This prevents errors arising from the manual setting of the crimp height.
Only one crimp is needed for referencing the integrated crimp force monitoring.
This reduces waste material consumption and minimizes set-up time. The quality values measured during production are saved and can therefore always be called up later.
This ensures traceable quality at all times.
The programmable DigiStripper (option) is an ideal accessory to the BT 722 Bench Top Press. This can be set-up without any mechanical adjustment. Thanks to the functions zero cut and pull back, as well as the pre-programmable cutting depth, the perfect stripping is ensured.

Gauge for Presses

In order to help you to ensure that our applicators are placed correctly in the presses we recommend this press gauge. It is possible to have a misalignment between the center of the applicator and the terminator due to the way they mount in the terminator. If this happens, a side load is applied to the applicator which can lead to pre-mature wear and/or quality problems with the crimped terminals.
The use of the gauge is simple: You install the press gauge into the press like an applicator. Then you unlock the gauge head, on which is mounted a gauge ring.
A spring in the gauge is now pressing the gauge head upwards. The gauge ring should now fit easily into the press head. If this is not the case the applicator ram would not be in a centred position and the mounting plate of the press has to be adjusted.
The special design of the press gauge base plate allows free access to the press mounting plate fixing screws.

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CRIMPMATIC 970 and 971 Crimp Presses for Reeled or Loose Piece Terminals

Both machine versions permit the cost effective manufacturing of crimp connections with a high production efficiency. The CRIMPMATIC 970 machines are cabable of processing wires of up to approx. 16 mm^2 (AWG 5), depending on the terminal stock thickness.

- Compact, space-saving design
- Compatible with MQC Applicators
- Step mode during set-up

The CRIMPMATIC 971 machine is capable of processing wires of up to approx. 50 mm^2 (AWG 0), depending on the terminal stock thickness. The machines can be equipped with a quick change device for power crimp tools. MQC Applicators with a lower dead center of 135.78 mm can be mounted by means of an adapter plate. These machines can be utilized as manual work stations and can be integrated into fully-automatic processing lines.

The terminator as shown is a manual work station CRIMPMATIC 971. The unit can be supplied with or without crimp process monitoring, or it maybe retrofitted later.

Options are available upon request

- Crimp force monitoring
- Paper spooler
- Adapter plate for MQC Applicator

Applicators

- Especially designed for larger wire sizes
- Pneumatic feed
- Can be used with both crimp presses CRIMPMATIC 970 and CRIMPMATIC 971

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Crimping Presses and Accessories

SSC-2FP Pneumatic Safety Crimping Press

This highly flexible crimping press, based on the widely used FMP-20 concept, features the utmost in user friendliness and process safety. The unique safety and terminal locating mechanism makes it possible to use this press without cumbersome and expensive guarding.

Additionally, a safety double foot switch provides for ease of operation because both hands can be used to position the terminal and wire in the crimping die.

This can be especially useful when processing small and open barrel terminals.

UP / 55 Universal Pneumatic Crimping Press

This press will outperform most hydraulic presses with the same capacity in terms of handling and speed. Processing a 120 mm^2 copper tube lug, for example, will require about one third of the time.

We offer optional die adaptors for standard industrial U-Dies that make this machine extremely flexible across a wide range of applications. A resettable piece counter keeps track of the production run and the crimping speed can also be adjusted. The UP / 55 can also be equipped with a cutting device to cut flat material up to 32 mm wide and cables with a max. outer diameter of 28 mm.

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UP/66
Hydraulic Crimp Press

Designed to meet the increasing needs for flexibility in production the UP/66 Hydraulic machine is capable of crimping wire sizes up to 400 mm^2. The programmable crimp cycle and availability of various adaptor kits makes the UP/66 very adaptive to a very large application range.

The crimping process is completely programmable and controllable. Programmable features such as settable crimp height and press head return distance bring accuracy and effeciency into play.

The ability to reduce the machines travel to a minimum for each cycle increases through put.

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StripCrimp PP3 Stripping and Crimping Machine

Extremely fast stripping and crimping of wires down to a wire cross section of 0.012 mm2, minimum strip lengths and a most compact overall design are the special features of StripCrimp PP3 machine, which is controlled and powered pneumatically.
To ensure the required precision, the PP3 machine incorporates a toggle press, allows adjustable wire zero-cutting and can be equipped with an optional crimp force monitoring system in order that optimum crimp quality is assured.
User-friendly design, fine adjust of stripping and crimping parameters and easy-to-handle wear part change are key features of the PP3 machine as well as a small footprint and compact size allowing it to be used in many working areas.
We offer a PP3 solution for end-feed and side-feed terminals, de-reeling from right to left or from left to right.
Efficient after sales support includes a ready availability of wear parts.

CoaxStrip 5300 Programmable Coaxial Cable Stripping Machine

The CoaxStrip 5300 machine is a semi-automatic, programmable multi-step stripping unit for coaxial, triaxial, multi-conductor cable and single conductor wire.

This benchtop unit can easily process coaxial and triaxial cables up to 7 mm (0.276") outer diameter and strips lengths up to 30 mm (1.18").

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AVG 0160 Cable Strip and Twist Machine

The AVG 0160 is a stripping and twisting machine for wires with insulation such as PVC, Teflon™, Silicon, Fiberglass, Rubber etc. The machine can cover a wire size range from 0.03 mm^2 up to 6 mm^2 with an adjustable stripping length from 0.5 mm up to 29 mm. The machine utilizes rotary stripping blades for a smooth, 360° cutting of the insulation.

The blades are made out of a special tool steel for longevity. Optionally available is a spring kit for tighter twisting of the strands suitable for additional tinning operation.

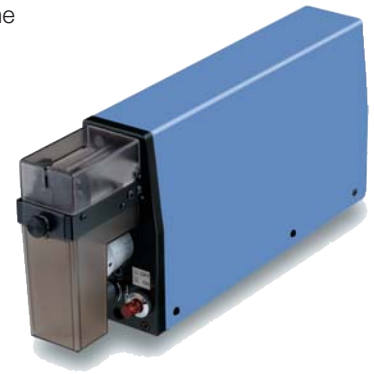
Teflon is a trademark of E.I. DuPont de Nemours and Co.

JacketStrip 8400 Jacket Stripping Machine

The JacketStrip 8400 stripping machine enables automatic jacket stripping of round cables up to 26 mm in diameter and a stripping length of 200 mm. After the cable jacket has been cut, the piece of insulation is removed using a strong electric motor (full/partial or window strip can be selected). Pneumatically operated clamping jaws guarantee optimal cable retention during the stripping process. Waste insulation material is automatically ejected.
All functions of the machine are electronically monitored and diagnosed by means of a LCD display.

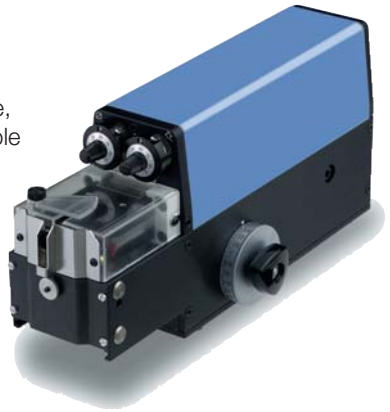
UniStrip 2015/2100 Stripping Machines

The pneumatically operated stripping machine UniStrip 2015 excels with a compact design, fast cycle times and infinite settings for conductor diameters, stripping and pull-off lengths. The UniStrip 2015 stripping machine primarily processes stranded wires and single wires. Due to the minimal distance between the acrylic safety cover and the stripping blades, this machine can perform stripping on extreme short cables.
The UniStrip 2100 is an electrically driven stripping machine. Ease of operation, fast cycle times, a powerful yet silent motor drive as well as a vast cable processing range are the main features of this machine.



UniStrip 2500 Stripping Machine

This pneumatically driven stripping machine comes standard with V-blades, the optimum solution for any ordinary stripping of stranded wire with no blade changeover necessary. Through the use of special blades, the range of applications can be expanded to include flat ribbon cable, double-stranded wire, thin multistranded wire or demanding (though, delicate, thin) isolations. The adjustable way-back prevents the conductor from being damaged during the stripping process.



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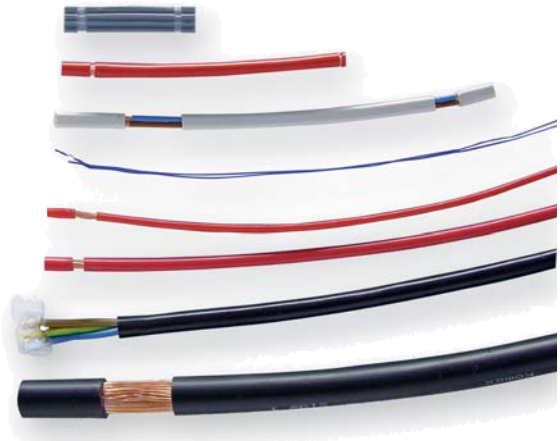
Kappa Cut and Strip Family

The Kappa family strippers are ideal for cutting individual and special wires to length and stripping them. They can strip in sections, allowing them to strip even extremely long length in perfect quality. The machines cover an extraordinarily broad range of cross sections.

Kappa 310, 320, 321, 330 and 350 strippers support a variety of processing options such as wire marking with hot-stamp or ink jet markers. Hot stamp marking can even be done on the Kappa 310 stripper, the entry-level model.

New Kappa Generation:

- Dynamic, flexible cutting and stripping unit
- New intelligent sensors
- New electronic and software
- Optional TopWin™ connection



TopWin is a trademark of Komax AG

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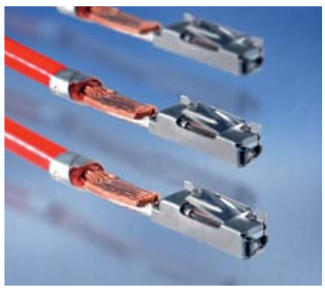
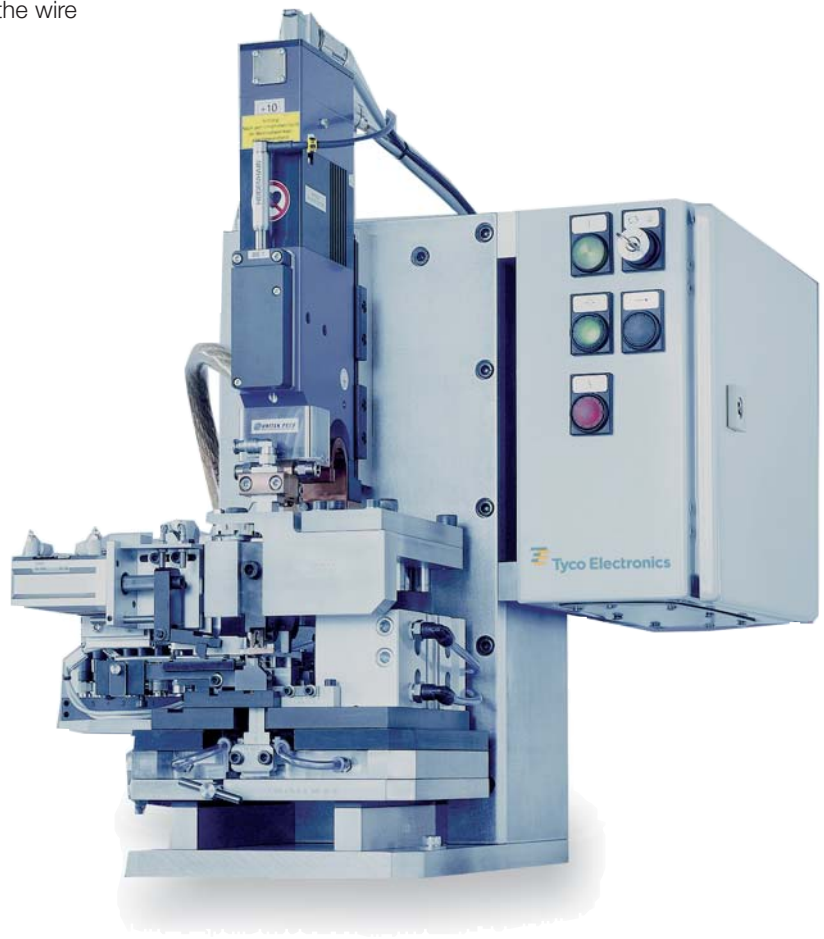
Resistance Welding Module

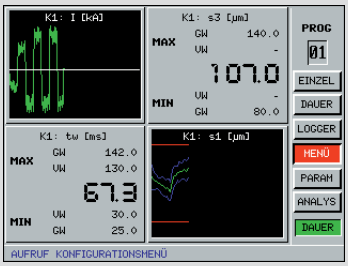


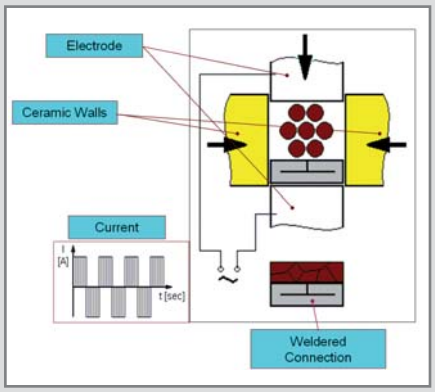
Tyco Electronics offers semi- and fully-automatic modules for resistance compact welding of terminals. This resistance welding process allows us to achieve minimum transitional resistance between conductor and contact, higher current capacity and long-term stability of the wire termination.

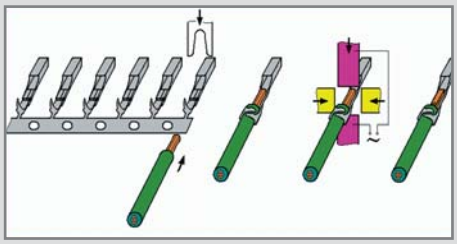
In this process, the bundle of strands in the conductor is condensed into a block by side-mounted ceramic plates. After this the strand bundle is welded to the contact by the introduction of a powerful current via an electrode.

Typical features of the resistance welding unit offered by Tyco Electronics are a very short cycle time, a long electrode life time, a fully-automatical parameter setting process and the recording of all process relevant data.









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MOST™ Equipment

Lambda 9100 POF Fully-Automatic Processing of MOST™ Leads

For processing large quantities of plastic optical fibers (POF) with low human recourses, Tyco Electronics offers the fully-automatic machine Lambda 9100 POF. All processing steps – from feeding and preparation to testing and deposition – are fully-automatic. Functions like length measurement, integrated marker software and monitored laser welding are available and guarantee consistently high quality.

To ensure gentle handling, the fiber ends are held fixed throughout the process so that no uncontrollable bending radius occurs. The Lead Maker is equipped with a Dual Laser Module.

MOST™ Sets

The MOST™ Sets are simple and inexpensive solutions for repair work in the workshop. To meet your requirements we offer several different versions of Sets. The basic version is equipped with two hand tools. One for stripping and cutting of POF, another one for crimping of POF and an additional spare cutting unit. A further version contains such items as a 20 meters POF, some male and female contacts and one position inline couplings. Other accessories are available in different equipment versions.

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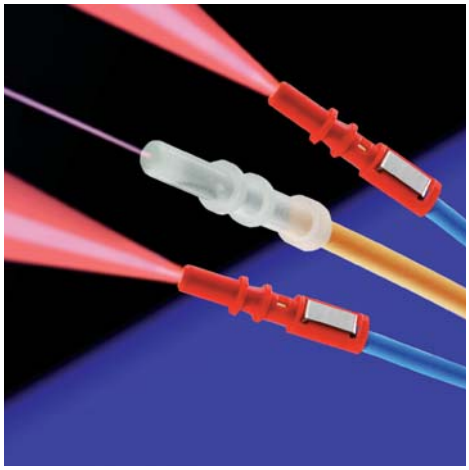
MOST™ Measuring Devices

These devices measure the position of the prepared end of the optical fibers relative to the reference point of the insert extremely accurately. The result is displayed clearly by means of the digital read out. The digital display can be zeroed by means of the setting gauge. A special Digital Crimp Height Micrometer verifies the crimp height of metal inserts. Two opposed probe tips measure the crimp height of the inserts across the diameter.

Tooling and Equipment for Glass Fiber Optics (GOF/PCS) for Automotive

In the future Glass Fiber will be used in the automobile industry. To keep pace with this trend Tyco Electronics is developing process equipment for the manufacture of GOF and PCS leads. Developments are based on experience gained in processing plastic and glass fiber for NETCONNECT communication technology products. With both GOF and PCS the primary obstacle in the process is to achieve a high quality fiber end surface. The goal of our develop-ment is to process the PCS fiber end with a Laser Module. Further process involve joining a connector to the fiber end with a Laser welding Module. The manufacture of the GOF fiber end faces involves additional process of heat forming and polishing. A Laser Module is used finally to accomplish optical connector assembly.



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SDE Standard Die Envelope

SDE die system is a flexible approach to crimp tooling that allows the use of the same dies with tooling across a range of application platforms. A large selection of die options are already available for crimping a broad range of terminals and wire sizes.

Many die sets have multiple cavities for crimping more than one wire or terminal size and we can provide custom designs where volumes permit.

SDE Crimp Tools

SDE dies are interchangeable in tools from portable hand tools (manually or battery-powered) to pneumatic hand tools and electric bench terminators.

It's a family of tools that you can take from bench to production or into the field, without the need for different dies to fit each kind of tool. You can rely on SDE dies to provide for your long term needs because of our commitment to continued development of dies and the tool range.

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IDC Hand Tools

IDC or Insulation Displacement Crimping is based on an entirely different concept to conventional crimping and requires these special types of tool.

We provide a large range of tools for connector families like:

- MQS Connectors,
- AMP DUOPLUG,
- AMP MONO-SHAPE and
- AMP multifitting

and usually based on the well proven Pistol Grip tools, featuring connector holding fixtures that crimp and index one pitch at a time.

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Hand Tool Kits

Tyco Electronics provides standard kits that contain the necessary equipment to carry out specific tasks to the highest professional standards. We can also provide custom kits for volume requirements containing only tools, or a combination of tools and terminals tailored to your specific requirements.

Please visit our tooling website to view our online hand tool catalog for standard kits, or find your local contact to discuss custom kits.

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Hand Tool Kits

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Insertion and Extraction Tools

Insertion/Extraction Tools are used for inserting discrete terminals into connector housings or removing them, without causing damage to either the terminals or housings.

Our new standard design features a comfortable handle and snap-in/out protective cover that allows users to stow the business end of the tool to help protect from inadvertent personal injury when the tools are not in use.

Many different design types currently exist for our vast terminal product range, which we continue to convert. If you would like the tool you use converted to the new design, want a custom kit or tools in this design for other manufacturers products – contact us, and where volumes permit we will be pleased to provide you with a quotation for your requirement.

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FFC-FPC Equipment

FFC Hand Tool

The very easy-to-handle 10 position hand tool allows variable settings for both the foil stop and foil guide. A correct and repeatable crimp process is achieved by an integrated ratchet mechanism. A FFC hand tool case can be built up around your particular application requirements.

The tool allows crimp connections to be made between foil and 1 to 10 position MQS terminals. The crimp height is set for 70 mm thick foil.

FFC Termination Machine for Flexible Sensor Foil

The Termination Machine is an electrical driven semi-automatic assembly machine that uses different applicators to terminate reel-feed FFC contacts to manually supplied FFC cables. The machine terminates a predefined number of contacts to the supplied cable end. Tyco Electronics products FFC MQS, FFC AMPMODU .100, Junior Timer, AMPMODU .50 and soldered contacts are compatible.

- Quick-change of applicator
- Alignment of the cable is realized in the machine
- Interchangeable applicators available for different products
- Number of pins can be programmed (max. 38 mm with pitch 2.54 mm)
- Pitch 1.27 mm up to 5.08 mm can be programmed
- Individual wire positions can be skipped
- Operator friendly interface via touch screen
- Integrated crimp force monitoring by CQM (optional)

FFC Applicator

The FFC Applicator is designed for FFC and FPC terminations. It is normally delivered with a special Tyco Electronics crimp machine, but is also compatible with standard presses (press stroke 40 mm), if a wire feed is supplied.
The adjustment of the crimp hight is similar to other Tyco Electronics crimp applicators. All wear parts are easy to change.

The FFC Applicator is available for different Tyco Electronics contacts, such as:
- FFC MQS,
- FFC Junior Timer,
- FFC AMPMODU .100,
- FFC AMPMODU .050,
- FFC Card Edge,
- FFC ACTION PIN and
- FFC Soldering Pin.

For more detailed information please visit our websites:
www.tooling.tycoelectronics.com • www.tooling.tycoelectronics.com/europe • www.tooling.tycoelectronics.com/china

Assembly Machine to Connect FFC and PCB

This machine has been specially designed to connect a Flexible Printed Sensor with a PCB by using an ACTION PIN FFC Contact. The Flexible Printed Sensor and the PCB are manually loaded into the machine. After the cycle has been started, the insertion head is positioned above the first insertion position.

The pre-formed contact is cut off the carrier strip and gets simultaneously inserted into the PCB and crimped to the Flexible Printed Sensor. Several contacts form the complete connection between the sensor and the PCB. The force, required to insert the ACTION PIN contact with the PCB, is monitored by a force sensor.

To accommodate two types of PCBs, the PCB holder is positioned by pneumatic cylinders. The desired position is selected via the operator interface.

FFC/FPC Machine

The FFC/FPC bench machine creates electrical connections between Tyco Electronics FFC terminals and flexible flat cables. Thanks to its adaptable circuit fixture the machine is simple and easy to load. Prior to initializing a crimp cycle, the vision system establishes the precise location of the first conductor track. A positional correction is effected as appropriate.

The equipment combines the functions of terminal feed, cutting the product off the carrier strip, crimping and chopping of the carrier strip. An integrated crimp force monitor ensures high quality crimp connections. An optional faulty crimp cut off device prevents the further use of defect circuits.

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MAG-MATE and SIAMEZE Inserter Mark II with PLC

Tyco Electronics' magnet wire terminations are a perfect connecting alternative to all soldering techniques used in a lead-free environment. Special knowledge is required to design a mass manufacturing line for insulation displacement crimps on thin lacquerd insulated wires with high yield. Design aspects of the terminal, the cavity and the machine all need to be harmonized.

With the Inserter Mark II Tyco Electronics can offer an economic solution especially for the application of MAG-MATE and SIAMEZE terminals.

MAG-MATE Inserter Mark II with PLC and Insertion Force Control

This advanced insertion machine provides the features of the MAG-MATE Inserter Mark II with an additional force distance control system. The machine is designed to apply multiple different contacts and will be customized according to the customer or product specific requirement.

The contacts can be used as single contacts or in strip form (bridge function adjusted "on-the-fly"). A gauge is available to check the adjusted insertion force and to recalibrate the insertion force control sensor.

Pneumatic Insertion Tool for MAG-MATE Terminals

The pneumatic tool for MAG-MATE terminals features a rotary insertion finger to facilitate different insertion angles. This tool is designed for use in Tyco Electronics standard insertion machines such as P 200 and P 300 but can also be integrated into customized production lines or assembly cells.

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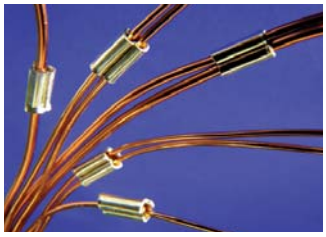
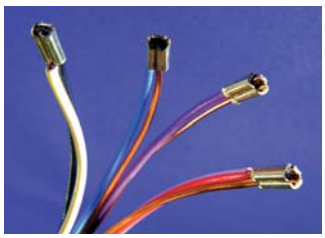
Magnet Wire Equipment

AMPLIVAR Terminator for Parallel and End Connections



The machine was especially developed for processing magnet wire connections. Different versions for end-feed and side-feed contacts are available. The design takes into account that the motor windings and coils can be supplied directly to the connectors. The exposed crimp position permits precise handling. In case of end connections the projecting magnet wires are cut off. AMPLIVAR Splices and Terminals are specifically designed to terminate magnet wires or in combination with standard solid or stranded wire. In a one-step operation the magnet wire is automatically multiple ring stripped of its insulation as it is forced into the serrations during the precisely controlled crimping operation.
As many as three magnet wires can be terminated, simultaneously in one splice. Nearly the entire AMPLIVAR splice program can be applied with this machine in combination with suitable applicators. The comprehensive range of manufacturing possibilities demands a specific machine and applicator combination.

APT IIIA and APT IIE AMPLIVAR Product Terminators



APT semi-automatic bench machines are available in two versions: the APT IIIA machine with automatic precision adjustment controlled by the Crimp Quality Monitor (CQM) and the APT IIE machine with manual precision adustment. To apply a splice or contact, simply place the wires in the target area and depress the foot switch. The machine automatically shears the splice or contact from the strip, crimps it, shears off excess wire, and advances the next splice or contact into position. With CQM, the APT IIIA machine assists in achieving 6-sigma processing capability.

For operations with multiple wire sizes, the APT IIIA machine provides programmable sequencing of different crimp-height settings, and it can store up to 2000 different programs of 7 different settings each.

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Press-Fit Systems

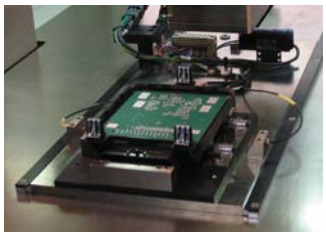
Tyco Electronics offers a complete line of manual and automatic servo-electric driven presses for the application of press-fit connectors.
Each unit is PC controlled and incorporates force feedback through load cells. The servo-electric drive can precisely control applied force, speed and travel without the “spring” effect common in pneumatic and hydraulic presses. Finally, force and SPC data for every connector pressed is stored and can be retrieved for 100% traceability of all boards produced.

This system minimizes costly scrap by assuring that the minimum force is reached, maximum force is not exceeded and the connector is gently seated to the required height.

SEP 3T Servo-Electric Press

The SEP 3T is a servo-electric press to apply PCBs onto compliant pin connectors and housings. The system provides control and monitoring of the press cycle force, distance and speed to meet the quality and traceability essential in the safety and control applications where these components are typically used. Optional Pin Penetration Sensing (PPS) tooling can verify the correct penetration of every pin through the PCB.

PCBs are manually loaded onto the connector/housing and placed in specific support fixtures. When the press cycle is initiated by the operator, the product is shuttled into the SEP 3T and pressed to the required force and/or height.



A key feature of the SEP press system is an automatic shuttle that positions the PCB and housing\connector stack up underneath the upper insertion tool.

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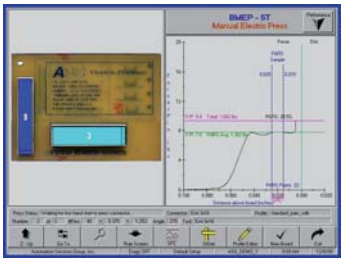
Board Processing Equipment

BMEP-3T/5T Bench Manual Electric Press

The benchtop press with midrange board handling and pressing capacities utilizes PC control and servo-electric drive system. Pressing capacities of 27 kN [3 tons] and 44 kN [5 tons] allow for a wide range of applications on boards up to 460 mm x 610 mm [18" x 24"]. These features and a compact footprint make this a powerful, versatile and portable press for PCB construction.

The run time screen provides complete operator interface and feedback.



MEP 6T/MEP 12T Manual Electric Press

A self-contained press on wheels that can easily be relocated almost anywhere on the production floor. The same PC controlled servo-electric drive system as the BMEP units is used to provide a precise and repeatable pressing system to lower overall applied cost. With up to 107 kN [12 tons] of pressing capacity and board handling up to 910 mm x 1220 mm [36" x 48"] on the MEP-12T machine, the MEP press line is perfectly positioned to handle almost any press-fit application with midrange volumes.

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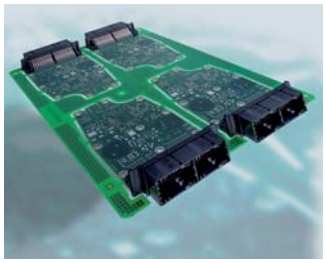
CSM 100 Connector Seating Machine

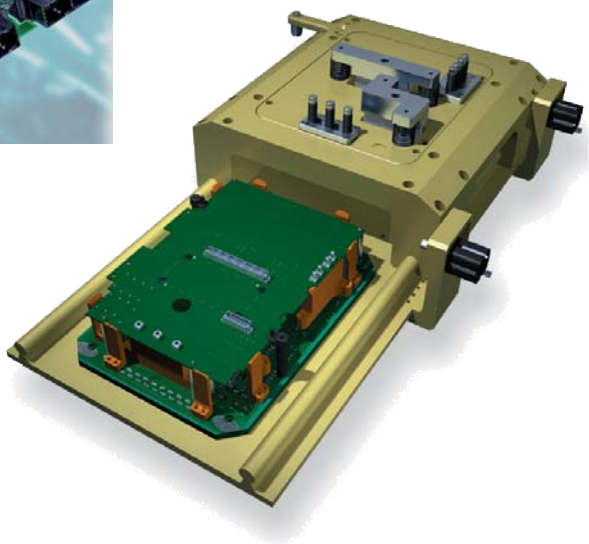
The CSM 100 seating machine has been specially designed to press a PCB onto a press-fit connector. The connector gets manually loaded into a connector specific fixture and the PCB is placed on spring loaded support pins.
When the press cycle is started, the unit slides under the press ram and gets pressed. An optional pin presence check in the upper tool guarantees that all pins have been pressed through the board. The press is a Tyco Electronics BMEP-5T. The press has a PC controlled, servo-electric drive, to allow for the monitoring and control of force, speed and distance over the entire press cycle.

CSM 200 Connector Seating Machine

PCB and connectors are loaded manually into fixtures. When started, the machine checks the correct loading of the connectors before placing the connectors onto the PCB. The tool then moves under the press ram where the connectors get pressed one after the other onto the PCB.

The BMEP 5-T servo-electric press is used to seat the PCB which provides a force-distance check to guarantee quality production.
A special tooling plate allows the sequential pressing of a number of different pre-loaded connectors. An intermediate plate, positioned between the PCB with its pre-positioned connectors and the flat rock press ram contains the connector specific press tools. For each connector a force distance curve is available after completion.





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PCB Depanelling Systems

Tyco Electronics knows the total applied cost of your product is almost at its highest when the PCB is separated from the panel.
Protect the time and investment that has been applied to your product by using a gentle, safe and effective depanelling equipment solutions offered by Tyco Electronics.
Tyco Electronics offers equipment solutions including the 2016AT Singulation Press, SmartRouter Singulation Machine, SAR-1000-B/D, SAR-1400-L Laser Depanelling and ILR-2000 Automatic In-Line Routing Machines.
All of our equipment solutions offer effective and safe depanelling for your products. Depanelling induced stress is simply unacceptable in today's competitive market.

GAS SAR-1000-B and SAR-1000-D Depanelling Machines

The GAS SAR-1000-B and SAR-1000-D depanelling systems for printed circuit boards and bare boards offers a largely automated process for depanelling by milling and/or sawing.

The GAS depanelling systems SAR-1000-B and SAR-1000-D offer the following outstanding features:

- Very fast and precise linear motor axes for all three directions of movements (X, Y and Z).
- Fast shuttle system with short changing time <4 seconds
- Large milling area
- Flexible milling brush holder – no additional down-holding device required
- Technics tool kit including
- Broken tool control
- Automatic and continuous bit control for different levels
- Tool diameter monitoring
- Production data processing system
- Depanelling speed with disc up to 20 m/min.

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Equipment for Electrical Testing

Electrical Test Equipment for the Automotive Industry

Specialized wire harness testing for the automotive subcontracting industry is based on high volume requirements and incorporates the automatic inspection of non-electrical parameters.
To this aim well thought out adaptation systems are the key factor providing a fast, reliable and user-friendly test environment.
Test benches and adaptation systems from TSK Prüf-systeme GmbH benefit from 25 years of experience in this market. Tyco Electronics is the worldwide distribution partner of TSK and can provide a large variety of harness and functional test systems to it's customers.

TSK Cable Test and Function Test

Small stand alone cable testers like the CT30 at an attractive price level already offer the full range of electrical standard testing for up to 512 internal test points.
In combination with the powerful CS WIN software even more complex test programs can be created by using programmable I/O's and applied statistical functions.

Larger harnesses will use one of the many different test system types which basically provide a standard grid to implement TSK's adaptation modules.

The function test systems are designed for more complex end-of-line tests on complete subassemblies, like cockpits, automotive doors, relay boxes and control units.

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GATD Global Field Service Organization

Tyco Electronics provides Global Field Service support on our application tooling. Field Specialists are located across every continent to provide timely response to customer needs.

In addition to installation, warranty and repair service, Tyco Electronics Field Specialists can help you with equipment choices, training of maintenance and operation personnel, troubleshooting assistance and spare parts. Service contracts to cover all your application equipment needs are also available.

We have implemented a service management tool that provides standardization of reporting that gives us the ability to continuously improve our global service organization. Throughout the year we educate our field service engineers on the latest industry technologies and equipment.

See for yourselves the advantages of our professional consultation and individual services. Our qualified service teams are ready to assist you.

Service Offerings:

Standard Service
Includes troubleshooting problems, making repairs, and/or installing parts.

Equipment Installations
Providing installation, set-up and training of application equipment at the time of delivery.

Training
Providing Customers with practical training programs addressing machine operation, set-up, maintenance, inspection, and connector application. Training programs can be scheduled at the Customer's site or at a Tyco Electronics training center. A training certificate will be issued upon the completion of each formal training course.

We are proud to be able to offer a comprehensive range of customer training programs.
The following are some of the standard training programs we offer:

- The Fundamentals of Crimp Technology, 4901
- The Proper Handling of Crimping Applicators, 4902
- Crimping Training Program, 4903 (combination of 4901 and 4902)
- The Proper Handling of Crimping Hand Tools, 4904
- FFC Crimp Technology, 4906
- Fundamentals of Crimping Technology for Machine Operators, 4907
- Magnet Wire Connection Technology, 4910
- Advanced Seminar on Crimping Quality, 4911
- Advanced Seminar on Crimp Force Monitoring, 4912
- Advanced Cross Sectioning – Photos, 4913
- MAG-MATE Module, Pneumatic, 4914
- Insulation Displacement Technology, 4930

Service Contracts
Preventive Maintenance and/or Inspection Calibration

Provides service for periodic visits to perform Preventive Maintenance and/or Inspection Calibration Service on Hand Tools, Applicators, Bench and Automatic Equipment.

Comprehensive Service
Provides for a specified number of Field Specialist visits. A visit can be used for services such as standard service, installation, set-up and training for all application equipment, preventive maintenance and/or inspection calibration, spare parts management, equipment process evaluation and technical assistance on application tooling and/or product related problems or concerns.

"A customized service / training contract ensures equipment optimization"

Short Term Rental of Crimping Applicators
Applicators are being increasingly required at short notice for a limited period. This may include pre-production runs, prototype series, and the subsequent production of single part requirement or simply small series production. It is often uneconomical to purchase a crimp tool or to rent it on a long-term basis, when it is only required for a few weeks in the year. Our short-term rental service has applicators readily available for you, which you can return when complete with your rental period.

Your local Tyco Electronics representative will gladly inform you about the availability of an appropriate applicator for your specific need.

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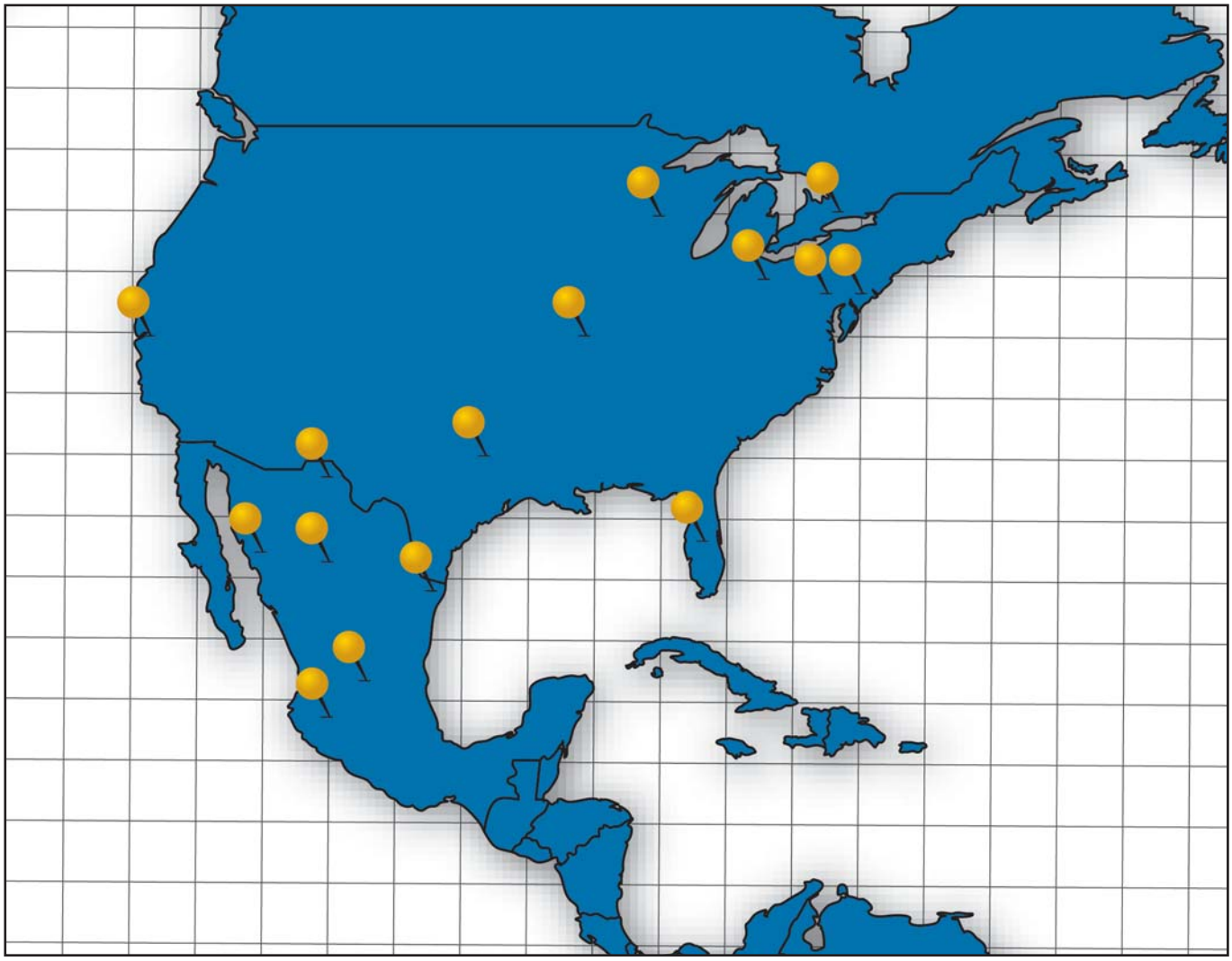
GATD Americas Field Service Locations



GATD Americas Field Service Locations

Canada
Toronto
United States
California
Florida
Minnesota
Missouri
Ohio
Pennsylvania
Texas
Mexico
Chihuahua
Guadalajara
Hermosillo
Juarez
Reynosa

AMERICAS FIELD SERVICE
1-800-722-1111
fieldservicesnorthamerica@tycoelectronics.com

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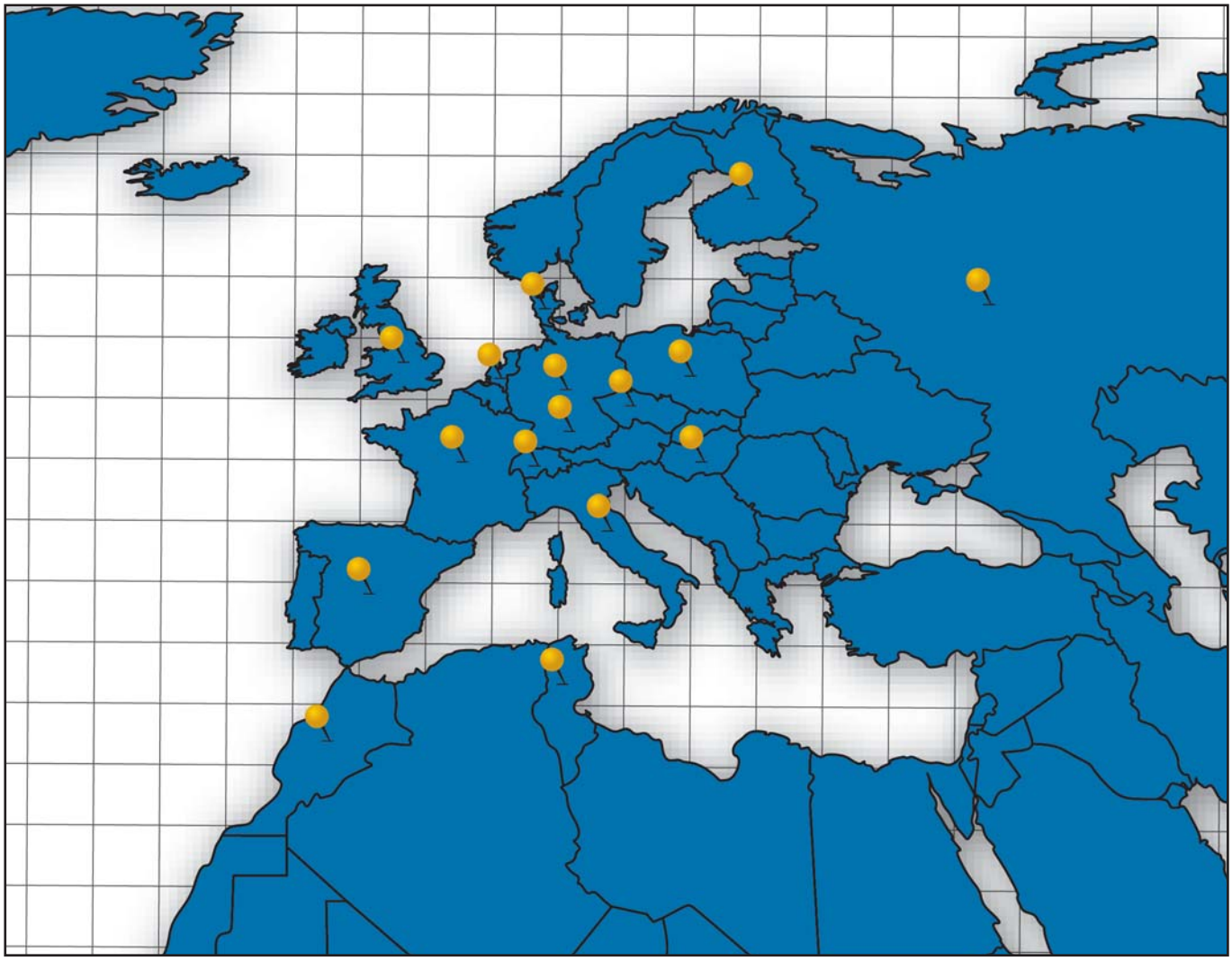
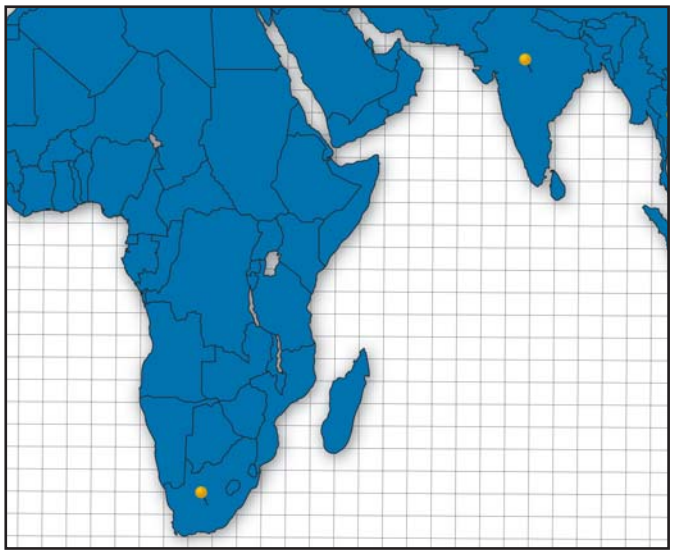
GATD EMEA Field Service Locations





GATD EMEA Field Service Locations

Austria
Czech Republic
Denmark
Finland
France
Germany
Great Britain
India
Italy
Morocco
Netherlands
Poland
Russia
South Africa
Spain
Switzerland
Tunisia

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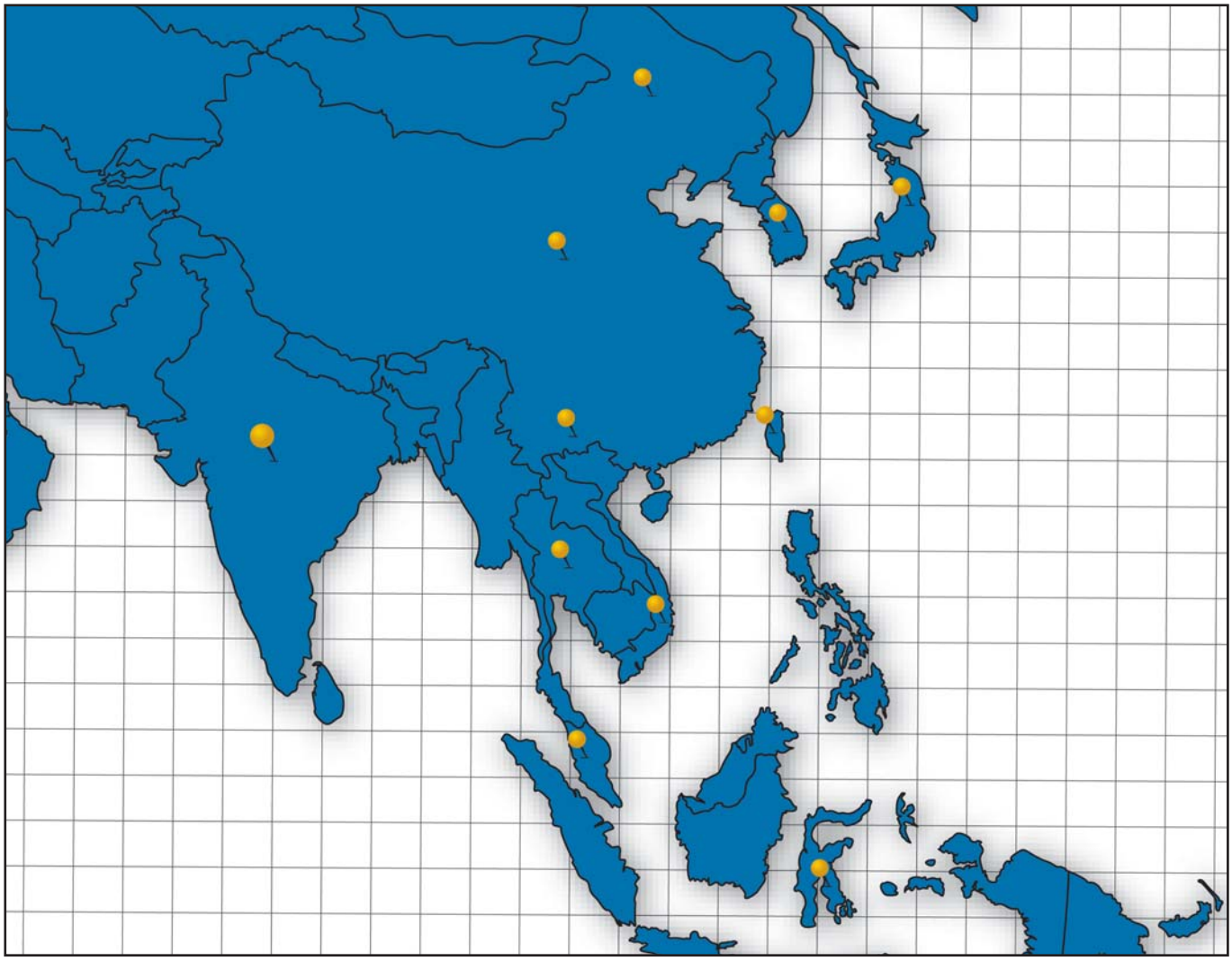
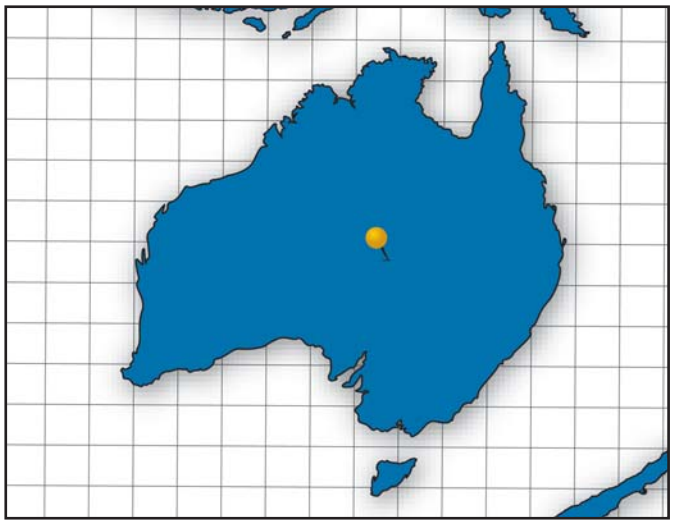
GATD Asia Pacific Field Service Locations





GATD Asia Pacific Field Service Locations

Australia
China
Japan
Korea
Singapore
Taiwan
Thailand
Vietnam

ASIA PACIFIC FIELD SERVICE

Please contact your local Sales or Service Engineer

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