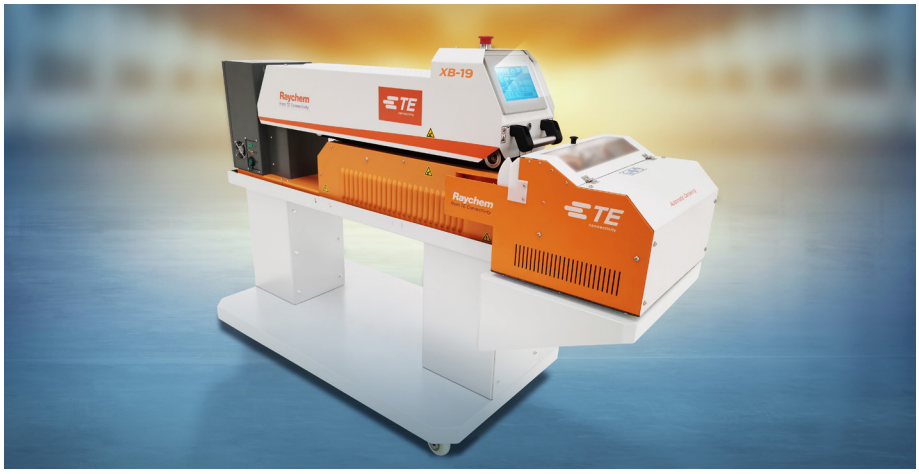
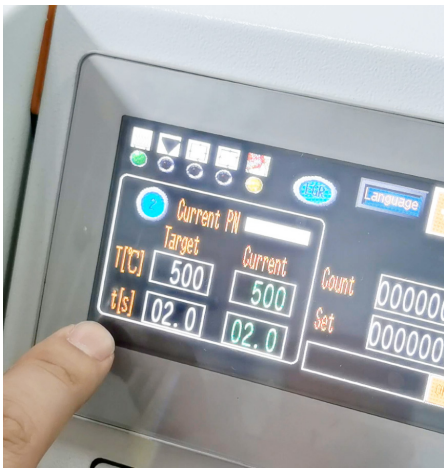
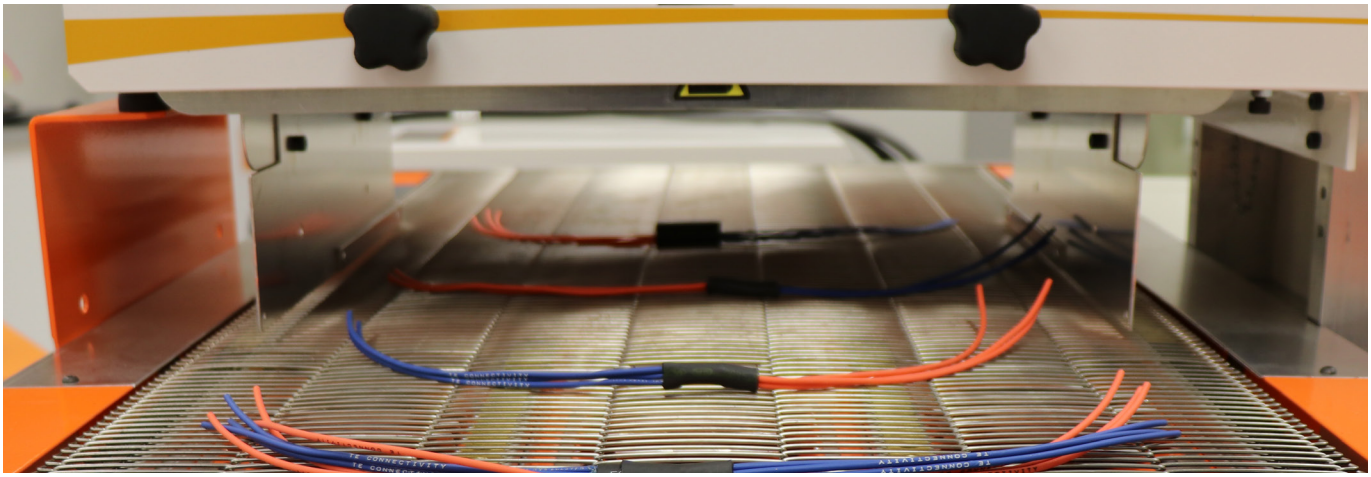






HEAT SHRINK MACHINES

FOR RAYCHEM HEAT SHRINK PRODUCTS FROM TE CONNECTIVITY

RBK X1 PROCESSOR

Technical Data

- Electrical supply: 220 – 240V, 50/60 Hz
- Power consumption: 3A (max.)
- Maximum temperature setting: 500° C (possible to reach 600º C)
- Machine cycle time: 1 to 99 secs. (usual working time is 6 to 20 sec.)
- Total system noise: <80 dB
- Dimensions: 419 x 500 x 218 mm
- Weight: 24 kg

Product Range/Sizes

- Tubing diameter: Up to 19 mm (max)
- Tubing length: Up to 65 mm (max)

Product Features

The RBK X1 processor is a semi-automatic unit designed specifically for sealing wire bundles, splice terminals and ring terminals. The RBK X1 features long life heating elements, operator key lock/password protection levels and individual selections for Installation times, temperature and product size information.

THE RBK X1 CAN OPERATE IN SEVERAL MODES:

- **Stand-alone – operator sets time and temperature**
- **Sequenced – preset times and temperatures can be sequenced automatically (and can also be randomly selected from sequence stored)**
- **Communication with upstream ultrasonic welder can allow time and temperature to be automatically set without operator intervention**

RBK X1 Operation:

The operator is able to efficiently load both machines and minimize dead time. Installing splice sealing products immediately after welding gives reduced installation time and early possible mechanical protection for the welded joint.

The operator positions the splice sealing product centrally over the splice joint and then locates the assembly into the gripper mechanism. Pushing the two start buttons initiates the machine cycle, bringing the heating chamber into place over the joint area. The heating chamber remains in place for the set period and then returns to the rest position. The wire assembly is automatically ejected, with the splice sealing product installed and the joint area sealed, insulated and strain relieved.

MACHINE ORDERING INFORMATION

Description	PN
RBK X1	2234800-1
RBK X1 CE	2234800-2

ACCESSORIES ORDERING INFORMATION

Description	PN
Handheld Barcode Scanner	2234781-1
110V-220V AC transformer with US AC cord	2234986-1
Handheld Barcode Scanner (wireless)	9-2375314-9
Communication Cable	2234787-1

MES (custom only)

FIXTURE SOLUTIONS

Description	PN
Stub Splice Fixture	981721-000†
Air Cool Connection Box (applied with stub splice fixture 981721-000)	1-529533-7

† Custom tooling will be quoted separately

CALIBRATION SOLUTIONS ORDERING INFORMATION

Description	PN
Calibration Kit (includes probe & cable)	A12192-000
Standard UHI Temperature Calibration Probe	288869-000
Connection Cable (applied with probe)	952687-000

MULTI-PURPOSE FIXTURE SOLUTIONS

Description	PN
Cable Clamping Fixture (without AC)	2234786-1
Cable Clamping Fixture (with AC)	2234786-2

Both multi-purpose fixtures accept customized tooling

RBK X1C PROCESSOR

Technical Data

- Electrical supply: 220 – 240V, 50/60 Hz
- Power consumption: 3A (max.)
- Maximum temperature setting: 500° C (possible to reach 600º C)
- Machine cycle time: 1 to 99 secs. (usual working time is 6 to 20 sec.)
- Total system noise: <80 dB
- Dimensions: 555 x 500 x 232 mm
- Weight: 32 Kg

Product Range/Sizes

- Tubing diameter: Up to 19 mm (max)
- Tubing length: Up to 60 mm (max)

MACHINE ORDERING INFORMATION

Description	PN
Centering Device Unit Only (for upgrades)	2369600-1
RBK X1C	2376800-1
RBK X1C CE	2376800-2

COMMUNICATION CABLES

Description	PN
Communication cable (with interface)	2234787-2
Communication cable (with interface, CE)	2234787-3

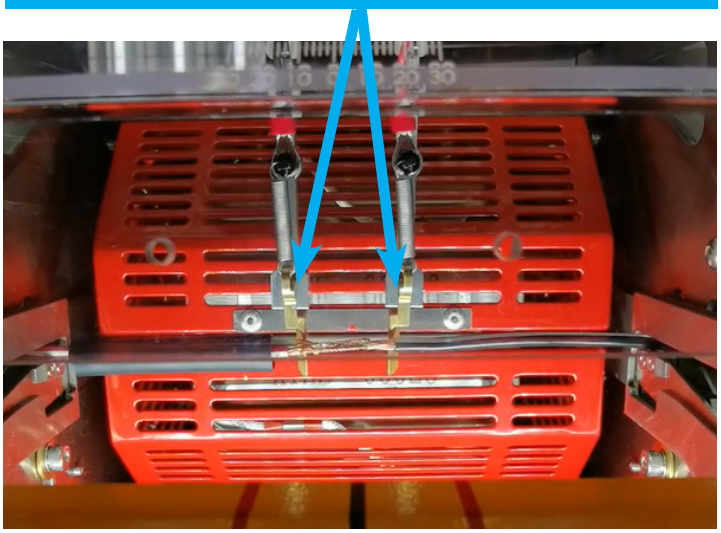
Product Features

Based on the RBK X1 platform, the RBK X1C machine includes an automatic centering device that help to maintain accurate wire and tubing placement.

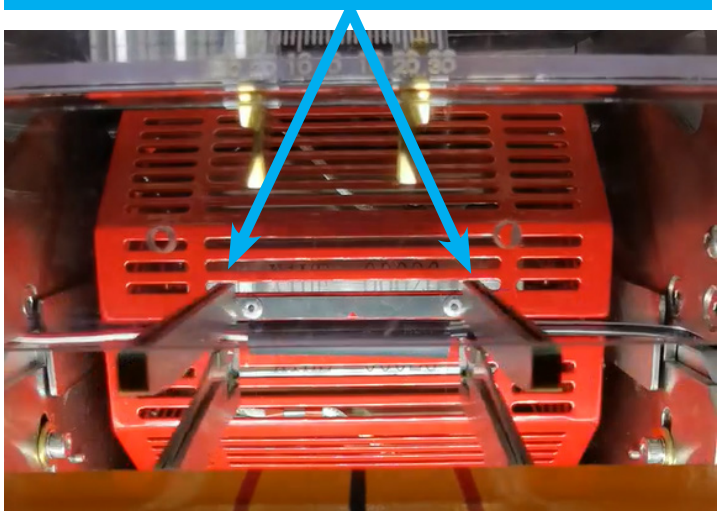
Programmable splice sensors electronically verify that wires are accurately positioned to begin the centering process. Upon validation of wire placement, the system will activate automated guide arms to properly position the tubing product into place for the heat shrink cycle to begin.

A CLOSER LOOK AT HOW THE CENTERING DEVICE WORKS

PROGRAMMABLE SENSORS LOCATE SPLICE LOCATION FOR PROPER WIRE ALIGNMENT



AUTOMATED GUIDE ARMS POSITION TUBING INTO PLACE FOR THE HEAT CYCLE TO BEGIN



XB 17 BELT HEATER

Technical Data

- Electrical supply: [**PN 2375310-2**] 110 VAC, 1Ø; [**PN 2375310-1**] 220 VAC, 1Ø
- Heating elements: 2 ea. 1000 W stamped foil infrared with quartz face
- Maximum temperature setting: 600° C
- Air flow (cooling): 2 – 100 CFM fans in the upper heater housing
- Conveyor belt system: Double sided timing belts; two on each side of the processor – pitch 9.5 mm [0.375 in]
- Belt speed: 2.5 - 35 mm/s
- Processor dimensions in mm (LxWxH): 1210 x 258 x 510
- Shipping dimensions in mm (LxWxH): 1570 x 540 x 770
- Processor weight: 88 Kg [194 lbs]

Product Range

- Tubing diameter (max): 19 mm [0.75 in]
- Tubing length (max): Up to 90 mm [3.5 in]

Product Features

- Closed-loop time and temperature control
- Continuous controlled process
- Adaptable for different applications
- Emergency stop-switch
- Slim-profile benchtop design

Easy Operation

The XB 17 belt heater is a more reliable, safer and faster alternative to heat guns for heat shrink wire processing applications. This compact, conveyor-style machine provides a controlled process for a wide variety of heat-shrinkable tubing products. Double-sided timing belts on the top and bottom of the processing chamber draw the assemblies through a thermally controlled infrared heat zone and through a fan-cooled zone before depositing them safely into an unloading bin.

Labor costs are reduced significantly because once an assembly is loaded, the operator can begin preparing another assembly. The throughput rate is usually limited by the rate at which the operator can load assemblies into the processor.

Controlled Heating Zone

The XB 17 processor has two stamped foil heating elements that are manufactured to a strict wattage specification. Consistent temperatures (maximum working temperature setting is 600° C) are controlled by a thermocouple embedded into the upper heating element connected to a closed-loop temperature controller. Plus, conveyor belts reverse direction to prevent product from entering the heating chamber if the system is outside the desired temperature settings.

Advanced Connectivity

An integrated multi-language touchscreen interface with programmable logic system can adjust belt speed, temperature settings, and offers users the ability to create hundreds of unique profiles.

Connection ports on the XB 17 support several options such as a barcode scanner, automatic temperature calibration, and remote access to an upstream welder.

Versatile Design

The processor is designed to process a broad range of heat-shrinkable products up to 19 mm [0.75 in] in diameter and 90 mm [3.5 in] in length. The infrared energy source is well-suited to efficient processing of either single-wall or adhesive-lined tubing. Heat output can be controlled to accommodate a wide variety of products and substrates.

XB 19 BELT HEATER

Technical Data

- Electrical supply: **[PN 2375320-X]** 220 VAC, 1Ø;
- Heating elements: 2 ea; standard length (100mm) **[PN 2375320-1]**; wide length (160mm) **[PN 2375320-2]**
- Maximum temperature setting: 600° C
- Belt speed: 2.5 - 35 mm/s
- Processor dimensions in mm (LxWxH): 1340 x 260 x 550
- Weight: 92 kg [203 lbs]

Product Range

- Tubing diameter (max): 25 mm
- Tubing length 100 mm **[PN 2375320-1]**; 160 mm **[PN 2375320-2]**

Product Features

- Adjustable belt distance to accommodate larger tubing lengths
- Closed-loop time and temperature control
- Continuous controlled process
- Adaptable for different applications
- Emergency stop-switch
- Slim-profile bench-top design

Extra Capacity

The XB 19 machine is a continuous-running process belt heater suitable for handling a wide range of workpieces and substrates including RAYCHEM tubing products for ring and FASTON terminals.

An adjustable belt distance feature allows operators to extend the processing range of tubing products from 100 mm up to 160 mm.

Excellent Process Control

The system provides superior heat shrink management with both the motor speed and heating elements having closed-loop control.

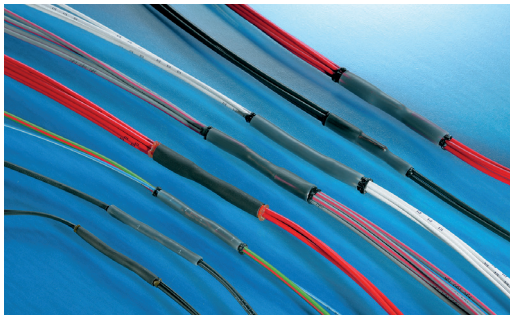
Two pairs of timing belts grip the individual workpieces and carry them through an infrared heating zone. The workpieces then pass through a cooling zone before finally being deposited into a collection bin.

For added safety, conveyor belts reverse direction to prevent product from entering the heating chamber if the system is outside the desired temperature settings.

Advanced Connectivity

An integrated multi-language touchscreen interface with programmable logic system can adjust belt speed, temperature settings, and offers users the ability to create hundreds of unique profiles.

Connection ports on the XB 19 support several options such as a bar-code scanner, automatic temperature calibration, and remote access to an upstream welder.



Versatile Design

The processor is designed to process a broad range of heat-shrinkable products up to 25 mm in diameter and 160 mm in length. It's infrared energy source is well-suited to efficient processing of either single-wall or adhesive-lined tubing. Heat output can be controlled to accommodate a wide variety of products and substrates.

XB BELT HEATER OPTIONS & ACCESSORIES

Extra Accessories for the XB 17 & 19 Line

XB 17 and 19 belt heaters include a host of options to increase accuracy, performance and flexibility. Both models can be sold with field-installed, or factory-mounted automatic centering devices. Additional options include custom Manufacturing Execution Systems (MES), wheeled carts, and custom product holders for ring terminal and stub splice applications.

PLUG-AND-PLAY CENTERING DEVICE

XB 17 & 19 Automatic Centering Device

For improved accuracy, XB 17 & 19 model belt heaters can be equipped with an easy-to-install automatic centering device.

ORDERING INFORMATION

Description	PN
XB 17 & 19 Automatic Centering Device	2375330-1
XB 17 / XB 19 Machine Stand	2375329-1
XB 17 Upper Heating Element (220V)	2375317-3
XB 17 Lower Heating Element (220V)	2375317-4
XB 17 Upper Heating Element (110V)	2375317-5
XB 17 Lower Heating Element (110V)	2375317-6
XB 19 Upper Heating Element (100 mm width)	2375327-3
XB 19 Lower Heating Element (100 mm width)	2375327-4
XB 19 Upper Heating Element (160 mm width)	2375327-5
XB 19 Lower Heating Element (160 mm width)	2375327-6

PRODUCT HOLDERS

Please consult TE sales for the correct part numbers for your application.

MODEL 105 TUNNEL OVEN

Technical Data

- Electrical supply: 210 – 240 VAC, 20 A, 50/60 Hz
- Heating elements: (2) 1500 W infrared stamped foil with black quartz face
- Drive system: DC gear motor with closed loop motor controller, 3-digit thumb-wheel
- Air flow (cooling): 4 – 100 CFM fans, 2 – for upper heater housing, 2 – for product cooling
- Maximum temperature setting: 600° C
- Conveyor belt system: Wire mesh 70% open
- Belt speed: 6.1 – 152 cm [0.2 – 5.0 ft] per minute
- Processor dimensions (L x W x H): 99 x 68.5 x 41.7 mm
- Control box dimensions (L x W x H): 51.5 x 21.0 x 17.8 cm
- Control box weight: 7.7 kg (17 lbs)
- Shipping dimensions (L x W x H): 134.6 x 116.8 x 63.5 cm
- Shipping weight: 146 kg [320 lbs]
- Tubing diameter (max): 98 mm [3.86 in]
- Tubing length (max): 356 mm [14 in] perpendicular to belt travel, unlimited length parallel to belt travel

Product Features

- Closed-loop speed and temperature control
- Continuous controlled process
- Adaptable for different applications
- Heater operation and over-temperature alarm lights
- CE approved

Ordering Information

- Model 105 Tunnel Oven CLTEQ-M105-TUNNEL-OVEN, [**PN: 955018-000**] (Custom variations available upon request)

Applications

The Model 105 tunnel oven is a reliable and versatile process heater which provides a controlled process for a wide variety of heat shrinkable products.

It is designed as an integrated modular unit. Assemblies are placed on the entry section of a mesh conveyor belt, transported through the heating chamber, across a bank of cooling fans then discharged from the rear of the conveyor.

The upper chamber is cantilevered to permit processing of assemblies that require only a portion of the assembly to pass through the heat zone, and is equipped with adjustable heat shields to maximize the oven heating efficiency for various applications.

Controlled Heating Zone

Two stamped foil heating elements provide consistent temperatures (ambient to 600° C) and are controlled by a thermocouple embedded into the upper heating element connected to a closed-loop temperature controller. An alarm light illuminates whenever the actual heating element temperature varies from the set point temperature.

Conveyor Speed Control

The conveyor speed is precisely set by a 3-digit drive controller. The DC drive motor provides constant conveyor speed at any potentiometer setting from 100 to 999 mm [0.2 to 5.0 ft] per minute, for precise heating of assemblies.

Minimal Skill Requirements

The open loading area of the entry section requires that the operator simply place an assembly on the mesh conveyor belt within the effective width of the heat zone and collect it at the opposite end.

Versatility

The processor is designed to process a broad range of heat shrinkable products up to 76.2 mm in diameter and infinite length. The infrared energy source is for efficient processing of either single-wall or adhesive-lined tubing. Heat output and drive speed can be controlled to accommodate a wide variety of products and substrates such as HFT 5000, AP-2000, QSZH 125 and other RAYCHEM tubing products.

IR-1891 SHUTTLE MACHINE

Twin workstation heater for multiple installation of short length tubing products

Technical Data

- Electrical supply: 230 V single phase
- Power consumption: 1600 W
- Maximum temperature setting: 500° C
- Process rate: 1200/hour maximum depending on application and operator
- Heating times: 3 to 20 sec. depending on application
- System noise: < 70 dB
- Dimensions – (L x H x D): 1100 x 650 x 500 mm
- Product range: Wide range of RAYCHEM tubing products such as all dual wall tubings, single wall tubings and ES-Caps (maximum diameter 20 mm [0.8 in] and maximum length 60 mm [2.0 in])

Product Features

- Automatic cycle start once heater is manually positioned over product, which gives improved process control (recommended for adhesive lined heat shrinkable tubing e.g. sealing applications)
- Automatic heating head retraction at end of cycle helps prevent damage to components
- Multiple product fixture assemblies give increased process rates
- Cooling fan above each fixture assembly maintains holding fixture at an acceptable temperature
- CE approved

Applications

The IR-1891 is suitable for the installation of a range of RAYCHEM, heat shrinkable tubing products onto a variety of small components, e.g. ring terminals, FASTON terminals and small connectors. The machine is provided with two workstations and a movable heating head.

Each workstation is provided with supports for tooling fixtures, which can be specified and ordered separately. These support the workpieces and locate the tubing products. The operator loads the workpieces into the fixtures at one of the workstations, confirms that the tubing product is correctly positioned and then slides the heat head into position before initiating the heating cycle. The operator then continues with loading/unloading the other workstation while the heating cycle is taking place.

The IR-1891 shuttle is provided with closed loop temperature control and the heat head is “locked” into position by use of an electromagnet during the heating cycle.

Once the other workstation has been loaded and the first installation is complete, the heat head is moved into position over the product and the next heating cycle initiated. Heating times vary typically from 3 to 30 seconds depending on the size and type of tubing product. Process rates up to 1200 pieces/hour can be achieved depending on the heating time and the time taken by the operator to load/unload the workpieces. The installation temperature/power can be varied according to product type/size and required cycle times.

The heating elements, which are continuously energized, are infrared medium wave length and consist of a coiled resistance wire contained in quartz glass tubes. The closed loop temperature control uses similar elements but has integral thermocouple sensors.

ORDERING INFORMATION

Description	PN
IR-1891-230V-Shuttle-Return	1-528018-1
IR-1891-230V Air Cooled	1-528018-2
IR-1891-Shuttle-Return Double Heat Element	1-528018-3

The IR-1891 shuttle machine is also available with fixation. Ordering information is available upon request.

AD-3050 SEAL TEST EQUIPMENT

Ordering Information

- AD-3050-SEAL-TEST-EQ-NC **PN: C82893-000**
- Version with integrated timer:
  AD-3050-SEAL-TEST-EQ-NC-TIMER **PN: 528024-1**
  (Timer retrofit kit available)

Product Features

- Fast determination of sealing integrity
- Multiple test fixtures
- Easy load and release of test samples
- Connector seal test port
- Timer adjustable from 8 – 120 seconds (only with integrated AD-3050 Seal Test Equipment timer version)

Technical Data

- Pneumatic supply:
  600 kPa / 6 bar maximum, filtered supply
  200 kPa / 2 bar test pressure maximum
  (Test pressure typically 50 kPa / 0.5 bar)
- Machine cycle times for seal testing: Typically 1 min.
- Total system noise: Negligible noise from air test
- Dimensions: 550 x 350 x 215 mm (21.7 x 13.8 x 8.5 in) (excludes packing case)
- Weight: 4 Kg (excludes packing case)

The AD-3050 is a manually operated pneumatic device, intended for use as a convenient “in process” sampling technique for checking sealed splices.

Different combinations of in-line, end-/stub-splices and various ring terminal applications can be pressure tested in any of the combination of fixtures (8 in total).

There is also a facility to allow leak testing of various connectors. The tool is also intended for use as a quick and easy sampling technique for the preliminary selection of installation conditions where RAYCHEM splice protection products are used.

TE has seen good correlation between results obtained with the AD-3050 seal test and those obtained through water immersion testing. However testing in accordance with the Original Equipment Manufacturer (OEM) specification is the only way of confirming that the OEM specification is being met.

The splice products are located in clamps which deliver the test pressure. The product is immersed in water and pressure is delivered through the wire(s) to the sealed area.

The test result is determined visually by looking for bubbles in the area of the sealing product. Connectors can also be pressure tested by adapting the separate supply fixture to any connector type. Use of this equipment is described in TE’s customer manual. This equipment can also check for instances where individual wire strands poke through the installed heat shrinkable sleeve.

FIELD SERVICE SUPPORT

SERVICES

Standard Service

- Includes troubleshooting and making repairs

Equipment Installation

- Providing installation, set-up and training at time of equipment delivery

Training

- Basic crimp theory
- Hand tool, applicator and equipment set-up, operation and maintenance

Preventive Maintenance and/or Inspection Certification

- Provides service for periodic visits to perform preventive maintenance and/or inspection certification service on hand tools, applicators and bench equipment. Inspection of the finished product is made to confirm it meets TE application specifications. Documentation is available upon request for traceability to support your facilities' quality system requirements.

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