

The TF 1800

BGA/SMD Rework
System



Solutions and systems for soldering, rework and repair of electronics

PAGE[®]
paceworldwide.com

A family-owned company since 1958

Introducing the TF1800 BGA/SMD Rework System.



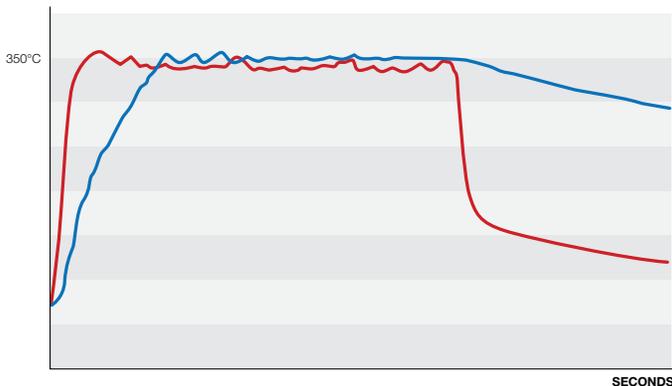
Inductive-Convection Heating Technology

- Ultimate Process Control
- Advanced Thermal Performance
- Unsurpassed Productivity
- Outstanding Energy Efficiency

Conventional resistance coil heating technology has been successfully used in convective rework stations for decades to install and remove a variety of BGA and SMD components. However, today's extremely high thermal mass boards, ultra-fine pitch components and challenging production rework environments demand greater process control, thermal performance and faster throughput than ever before.

Enter PACE's TF 1800 BGA/SMD Rework System...With its groundbreaking, patent-pending Inductive-Convection Heating Technology, the TF 1800's top-side heater reaches the target temperature in just seconds for safe, rapid solder joint reflow in virtually any component installation or removal application.

Top-Side Heater: Fast Heat Up—Rapid Cool Down

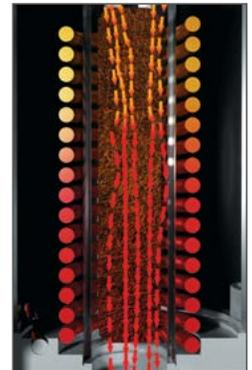


— TF1800 — Conventional Forced Air Convection Heater

PACE's Inductive-Convection Heater easily outperforms competitive heaters which utilize standard forced air convection technology, achieving target temperature instantaneously, about 4x faster than competitive heaters. Unlike conventional heaters, the TF 1800 immediately drops to temperatures well below solder melt when the heater is de-energized.



Inductive-Convection Heater pre-heats the air in a cyclonic fashion around the induction coil before it enters the inner chamber.



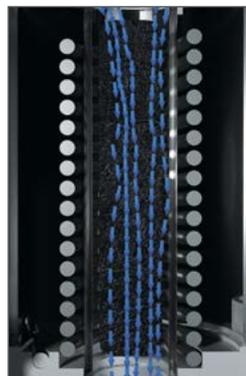
Cross Section of Heater: After entering the inner chamber, the pre-heated air is instantly heated to target temperature.

How It Works

The TF 1800's Inductive-Convection Heating Technology provides ultimate thermal performance by its ability to instantly heat up and cool down the temperature of the air it delivers to the work. The air is first pre-heated in the outer chamber as it moves in a cyclonic fashion around the induction coil before it enters the inner chamber. It's then heated to target temperature through a highly efficient heat transfer process in an energized induction field. During active cooling, the induction coil is de-energized. The heater's unique low thermal mass design further enhances the system's ability to heat up and cool down quickly and gives the operator an unsurpassed level of process control in developing thermal profiles for the particular rework task at hand.

Active Cooling Yields High Quality Solder Joints

After solder joint reflow is complete, the TF 1800 delivers fast, controlled, active cooling of the component and PCB directly through the nozzle, eliminating the risk of excessive intermetallic growth and yielding the highest quality solder joints.



Cross Section of Heater: Low thermal mass Inductive-Convection Heater allows air to instantly cool down below solder melt temperatures.

Powerful, Energy Efficient Performance

The TF 1800's Inductive-Convection Heating Technology delivers all the power you need to tackle the most challenging high thermal mass PCBs available today. Yet, its highly-efficient design does it with just a fraction of the power required by yesterday's conventional heating technology.



Revolutionary Inductive-Convection Heater

Patent-Pending low thermal mass heater provides quick response heat-up and cooldown, resulting in faster throughput, requiring far less power to operate.

Ultra-Precise Placement Capability

Motorized reflow head is driven by an advanced stepper motor system which provides smooth, high precision, repeatable movement with no drift, allowing for soft landing of components and 28µm (.0011") placement accuracy.

Single Axis Operation

All operations, including component pick-up, alignment, placement, reflow & active cooling are completed in a single axis, eliminating the risk of component movement after placement and reflow.

Advanced, User-Friendly Software

4th generation software guides operators through an intuitive interface that virtually automates the process—so advanced that creating profiles has never been easier!

TF 1800

Active Cooling provides Rapid Solder Cooldown

Inductive-Convection heater offers swift yet controlled component/PCB cooling, directly through the nozzle, yielding the highest quality joints.



High-Definition Vision Overlay System with Quad-Field Imaging

The automatically controlled, retractable optical alignment system features a 1080p Hi-Def camera, simultaneous viewing of PCB pads/component balls (via beam-splitting dichroic prism), shadow-free LED lighting, up to 240x zoom capability and Quad-Field Image technology (comes standard) for finest pitch or very large components.

4 Thermocouple Inputs

Ensures accurate/precise profile development and provides real-time PCB monitoring.

Bottom-Side Preheater Adjustable Height

Medium/long wave quartz IR heating elements respond faster with 1000 W of power. The preheater height is adjustable from standard position up to 38mm (1.5") closer to the PCB for the most challenging high thermal mass boards.

Precision Board Holder

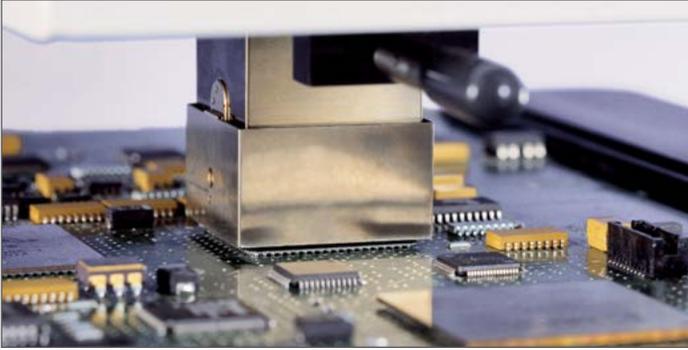
PCB Holder features fine micrometer adjustments for the most delicate X and Y alignment (theta control on reflow head). Extruded Board Holder Arms with T-Slots and movable clamps offer support for even the most irregularly shaped boards with unusual edges.

Board Support Wand

Adjusts easily and prevents warping of PCB during reflow.

Advanced Features

Ultra-High Precision Placement



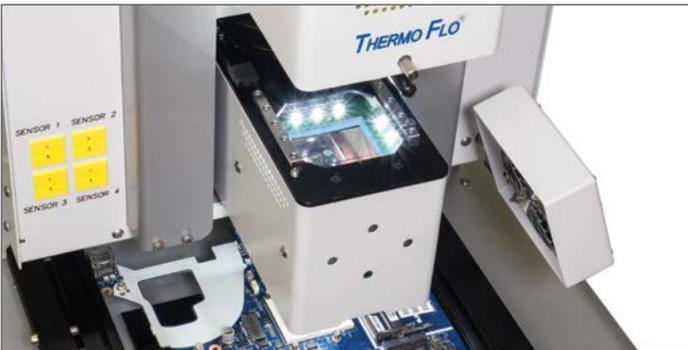
Newly designed reflow head provides smooth, precise movement with no drift, allowing for repeatable and accurate placement.

PACE Exclusive Height Adjustable Preheater



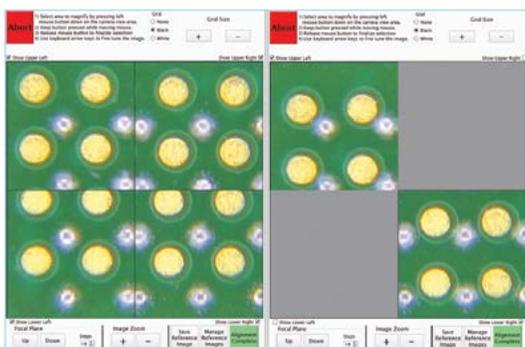
High powered quartz IR Preheater allows for fast, efficient bottom-side heating and is *height adjustable* to provide more aggressive thermal transfer on higher mass PCBs.

High-Definition Optical Alignment System



An automated Vision Overlay System uses a dichroic beam-splitting prism, high intensity LEDs, and new high definition 1080p camera to easily align any component.

Quad-Field Imaging for Large/Fine Pitch BGAs



Quad-Field Imaging allows up to *four corners* of a large component (and its pads) to be viewed under high magnification, providing perfect alignment of oversized BGAs or fine-pitch QFPs.

High Sensitivity Vacuum Pick Assembly



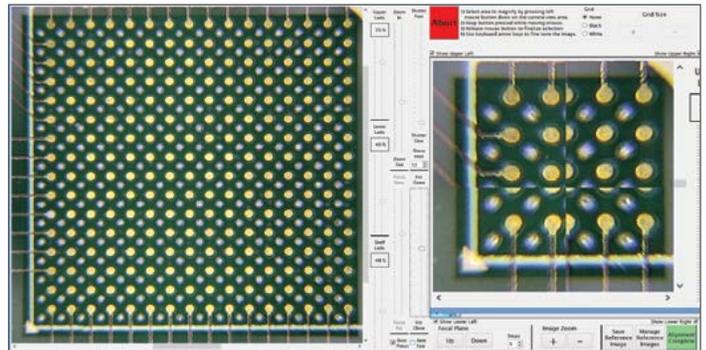
New Vacuum Pick design is more robust, utilizes an optical sensor, is counterweight balanced, and uses precision high temperature linear ball bearings for the highest sensitivity in placement and pick-up.

Integrated Board Support Wand



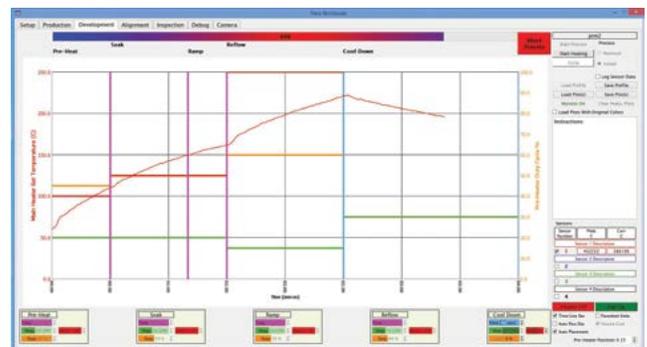
An innovative Board Support Wand adjusts easily, prevents warping during reflow, and is easily removed when not in use.

Crisp & Clear Images for Component Alignment



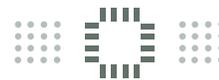
A high definition Vision Overlay System uses bright white LEDs with independent intensity control to provide precise distinction of pads and solder ball or leads.

Fourth Generation Software Suite



Newly designed Windows-based software provides a simple graphical interface with intuitive set-up and profiling, on-the-fly profile adjustment, unlimited profile storage and much more.

TF1800 Specifications



Part Numbers	8007-0574 (120 VAC Unit)	8007-0575 (230 VAC Unit)
Power Requirements	120 VAC, 50/60 Hz (1600 Watts maximum). Requires dedicated 20 A supply.	230 VAC, 50 Hz (1600 Watts maximum). Requires dedicated 10 A supply.
Dimensions	737mm (29") H x 686mm (27") W x 737mm (29") D	
Weight (Without Computer)	45kg (100lbs)	
Top-side Heater	Inductive-Convection Heater, 300 Watts	
Bottom-side Preheater with Adjustable Working Height	Medium/Long wave IR, 1000 Watts; 220mm (8.6") x 155mm (6.1"); Adjustable working height from lowest position up to 38mm (1.5") closer to the PCB	
Active Cooling Capability	Standard, offers swift, yet controlled component/PCB cooling, directly through the nozzle	
High Sensitivity Vacuum Pick	Pick is counterweight balanced, and utilizes an optical sensor and precision high temperature linear ball bearings, ensuring delicate placement and pick up of parts from PCB. Includes seven (7) Vacuum Picks	
Precision Placement Capability	Advanced professional placement system utilizing a stepper motor and position encoding provides smooth, precise movement, with no drift, allowing for repeatable and accurate placement.	
Placement Accuracy	Stepper motor with precision positioning of to 28µm (.0011") accuracy	
Integrated Board Support Wand	Standard, prevents PCBs from sagging or warping during rework and is extremely adjustable to clear parts on bottom of PCB.	
Temperature Setting Range	Top Heater: 100° to 400° C (212° - 750° F); Bottom Heater: 100° to 221° C (212° - 430° F)	
Precision PCB Holder	Advanced table features micrometer X & Y adjustment, extruded board holder arms, spring loaded, with T-slots and movable clamps for both large and irregularly shaped boards with non-uniform edges	
Maximum/Minimum PCB Size	Maximum: 305mm x 305mm (12" x 12"); Minimum: N/A arms close down completely.	
Maximum/Minimum Component Size	Maximum: 65mm (2.5") x 65mm (2.5"); Minimum: 1mm Sq.	
Thermocouple Inputs	Four (4) thermocouple inputs insure accurate profile development and real-time monitoring (includes 2 K-type thermocouples)	
High Definition Optical Alignment System	Vision Overlay System (VOS) with High Definition (1080p) color camera, integrated frame grabber, dichroic beam-splitting prism, independently controlled LED illumination for component and PCB. Up to 240x zoom capability, with Stable Zoom and image stabilization. VOS does not require routine calibration. (Optical Alignment Kit included)	
Motorized Optics Housing	Automatically controlled, retractable optics housing protects Vision Overlay System from dirt and contamination	
Quad-Field Imaging	For oversized component alignment, allows up to four opposite corners of a large component (and its pads) to be viewed under higher magnification	
Single Axis Operation	All operations, including component pick-up, alignment, placement, reflow & active cooling are completed in a single axis, eliminating risk of component movement after placement and reflow.	
Auxiliary Cooling Fan	Standard	
Software	Intuitive, user-friendly, Windows-compatible software guides operators through profile development and execution; No cost upgrades on TF 1800 software	
Computer System	Windows 8.1 PC, with wireless mouse and keyboard	
Video Monitor	607mm (24") wide screen flat panel monitor (includes Monitor Arm Mounting Kit)	
Video Inputs	USB 3.0	
Maximum Airflow	Self contained pump, PC controlled, adjustable up to 30 SLPM	
Nitrogen Capability	Nitrogen soldering and cooling ready	
Component Nests	Two (2) removable and adjustable Component Nests provided for perfect centering of components, in preparation for vacuum pick-up/placement. Unique component holding system for parts under 5mm Sq.	
Heat Focusing, Vented Nozzles	Optional; over 90 nozzles available	
Flux Application Plate	Included; allows for automated flux dipping	
Stencils/Solder Paste Application	Over 145 stencil kits are optionally available (requires Universal Bracket Kit) and are integrated into the installation process	
PV-65 Pik-Vac Vacuum Wand	Included; provides a manual vacuum pick-up capability for handling SMDs, incorporates new 15 minute auto-off feature	
Warranty	One Year Limited Warranty	

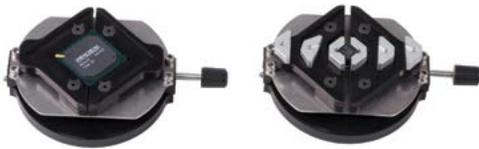
Accessories Included

Vacuum Picks



TF 1800 includes seven (7) Vacuum Picks to accommodate a wide variety of large and small SMDs. Comes with 8 O-rings for irregularly surfaced components. An optional 20 gauge Micro Vacuum Pick is also available.

Adjustable Component Centering Nests



Two (2) removable and adjustable Component Nests are provided for perfect centering of components, in preparation for vacuum pick-up/placement. In addition, a Small Parts Nest (not shown) is provided for components less than 5mm sq.

Flux Tray Assembly



Allows for automated flux dipping, gel or paste flux application to the balls of a BGA. There are 2 different depths in the plate for small and large solder spheres.

Additional Accessories



The TF 1800 comes complete with many additional accessories including: PV-65 PicVac Component Handling Vacuum Wand, Optical Alignment Kit, 2 K-Type Thermocouples, Hot Nozzle/Chip Handling Tool, Nozzle Change Pad, Hex Key Set, 24" Monitor Mounting Arm Kit and more!

Optionally Available

Heat Focusing Nozzles



Over 90 standard nozzles are available for BGA, CSP, QFP, SO, QFN and other components. Custom designs can be created to meet specific rework requirements.

Stencils & Stencil Bracket Kit



Over 145 standard stencils are available. Both the Universal Stencil Bracket Kit, shown top right with squeegee (stencil shown with bracket not included), and a stencil are required to apply solder paste to the component.

XR 3700 Real-Time X-Ray Inspection System



The XR 3700 is compatible with the TF 1800 and ideal for inspecting BGAs, CSPs, QFNs and other electronic components after rework or installation is performed. The XR 3700 provides immediate feedback on your installation process using real time X-Ray images. Images can be viewed through PACE's proprietary TF 1800 PC software, or through an optional, flat screen monitor when used as a stand-alone unit.

MBT 350 Multi-Channel Rework System



PACE's MBT 350 is a self contained, 3 channel station that offers high capacity, low temperature SMT/Thru-Hole soldering, desoldering and repair. The unit is excellent for extracting excess solder on BGA/SMD pads after component removal, and comes with SX-100 Sodr-X-Tractor Handpiece, TD-100 Tip-Heater-Cartridge Iron and MT-100 MiniTweez Thermal Tweezer.

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