



# SMD Rework Technology

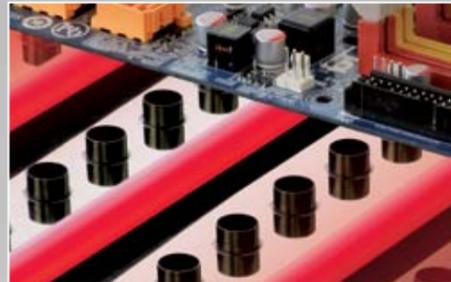
## Complete Solutions

# Reliable Rework

All MARTIN rework systems utilize advanced convection and infrared heating technologies, delivering extremely repeatable and efficient heating. HD vision provides high contrast-crystal clear and crisp images. Component alignment and placement is effortless and accurate, performed automatically via AVP package recognition. New APP Shuttle supports flux dipping, solder paste printing solutions along with the presentation of the smallest  $\mu$ SMD.

# For Extensive Tasks: EXPERT 10.6

The EXPERT 10.6 rework platform delivers reliable and precise rework of surface mount devices, sockets and connectors. Innovative technologies such as Advanced Vision Placement (AVP) provide repeatable component alignment and soldering automatically, minimizing operator reliance. Ultra-flexible product support features simplify top-justified PCB positioning. All 10.6 systems are configured for residual solder removal and dispensing of flux or solder paste.



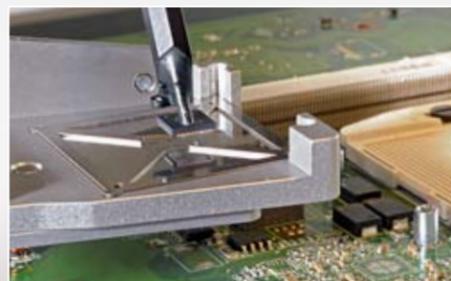
## Hybrid from Below

Utilizing the advantages of both convection and infrared technologies, energy is transferred efficiently with uniform heat distribution across the PCB. Controlled heating and cooling of small and large mass assemblies, minimize temperature induced stresses and preheat products for optimized soldering.



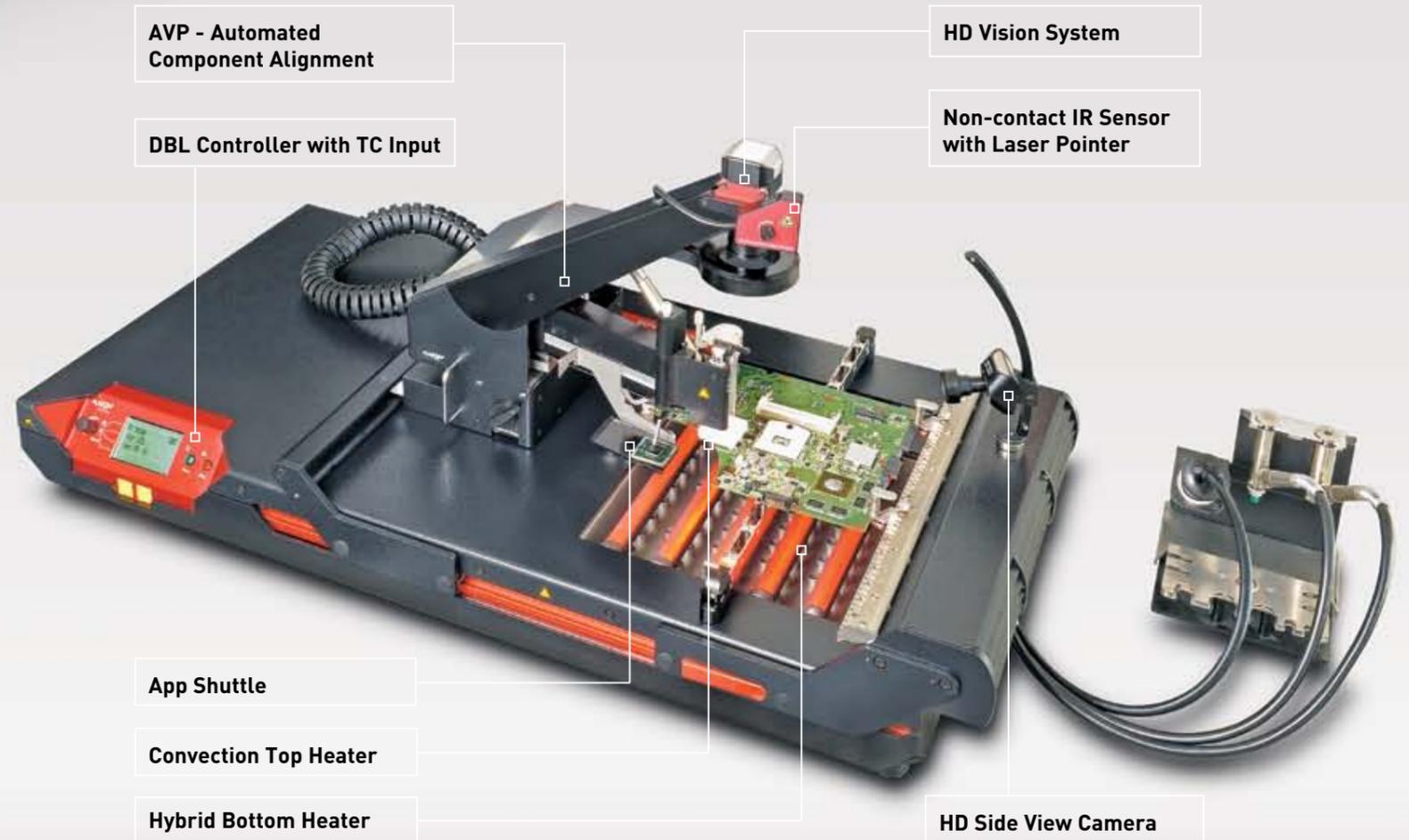
## Clear Vision

The EXPERT 10.6 vision system displays HD quality images that are crisp and clear. Various lenses are available for specific applications. The Auto-Lens-Detect function eliminates all vision calibration.



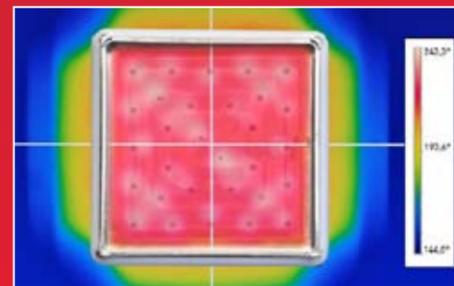
## New APP Tools

DIPPING, PRINTING, HANDLING are supported by the new APP TOOL feature. Whether flux dipping BGA solder spheres, printing QFNs or presenting  $\mu$ SMDs for placement - all can be accomplished quickly, precisely and without programming.



## Soldering Tools

Advanced technologies such as thermal imaging provide optimal nozzle designs to ensure maximum thermal uniformity and heat transfer for all MARTIN rework systems. Specific nozzle designs provide maximum thermal isolation of adjacent components.



Optimal Temperature distribution of a BGA soldering tool



AVP - Positioning Arm with BGA

## AVP - Automated Component Alignment

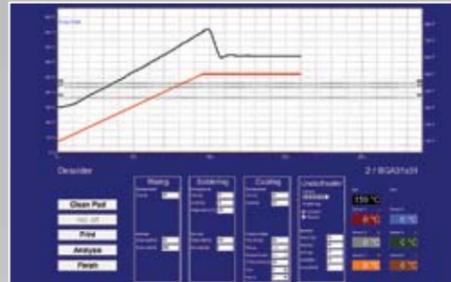
With just a few mouse clicks an operator verifies the rework site and component position, then using package recognition AVP performs final component alignment and precisely places the component automatically for subsequent soldering. All critical alignment guess work is removed.

# Easy-Solder Rework Software

“Easy-Solder” rework software is the command center of the entire rework process. All the steps and sequences are logical and intuitive. Operator work instructions can be “paperless” using digital text and images. Access can be managed securely, along with report generation. Auto-profiler enables quick and easy recipe generation and time-temperature graphical analysis. All necessary elements for proper process traceability and quality control.

# For Smaller Jobs: EXPERT 04.6

Rework equipment from the EXPERT 04.6 family is the optimal next step up from manual soldering. The compact design and ergonomic arrangement offers all the functions required for rework: desoldering, removal of residual solder, placement, soldering and dispensing. Reliable alignment and placement of components combined with the proven MARTIN heating technology guarantees superb soldering results.



## Soldering and Desoldering

Several recipe generating tools are included along with profile analysis features to ensure optimized process development. Easy-Solder is intuitive and saves valuable time.



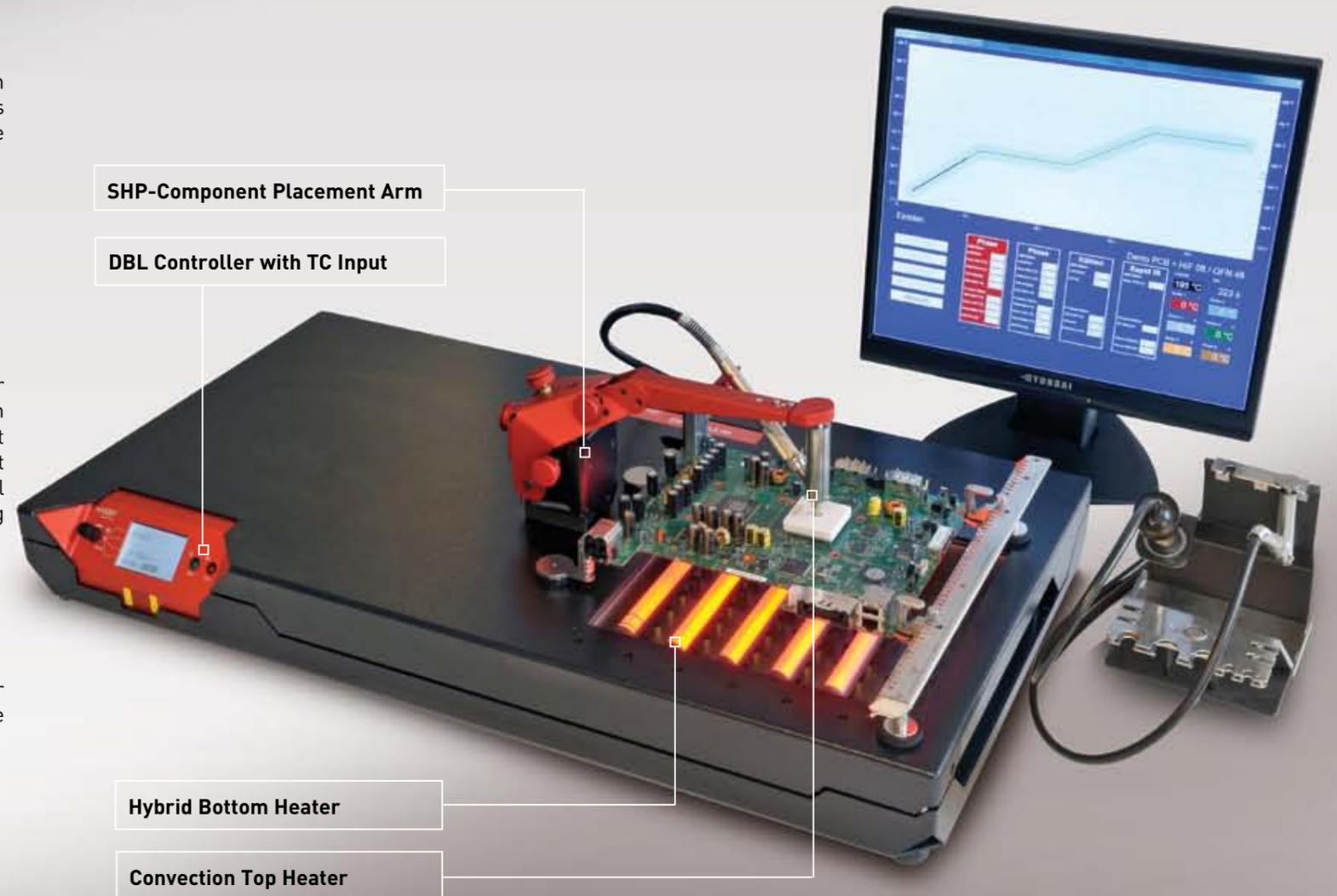
## Residual Solder Removal

Hot gas and filtered vacuum suction enable residual solder removal without PCB damage. Solder is evacuated with ease and without fear of lifting pads. Integrated with Expert rework systems, this feature takes advantage of latent heat energy applied to the PCB during the component removal process and minimizes thermal cycling while contributing to long term product reliability.



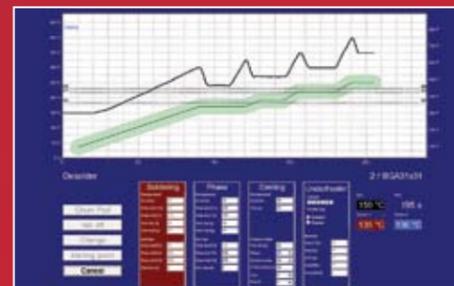
## Dispensing

With Easy-Solder the application of solder paste, flux or underfill is a simple task. Viscosity and dispensing volume of each dot can be accurately set.

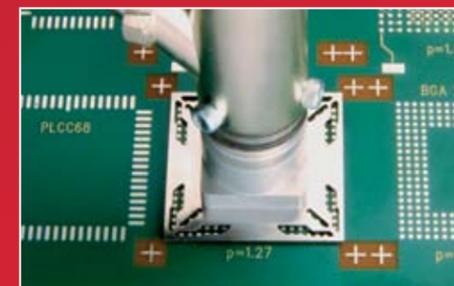


## Auto-Profiler

Auto-profiler generates recipes and performs profile analysis. Optimal machine parameters are developed based on direct temperature feedback along with industry criteria contained within default component recipes used as foundations for providing ideal recipes and profiles.



Profile Graph: Component specific parameters can be illustrated



Star-Tool for the precise alignment of a BGA

## SHP – Rapid Placement

Component alignment is made simple by using the innovative “Star-Tool” mechanical tooling of the EXPERT 04.6. Alignment of the tool to the pads is quick and easy. Mechanical positioning is automatically stored by the SHP component alignment, placement and soldering arm. Simply ingenious!

# Reballing and Prebumping are Made Easy

The MINIOVEN 04 delivers effortless reflow of applied solder spheres or solder paste to small or large area array devices such as BGAs, QFNs, CSPs or FlipChip. An easy to use reflow system combined with innovative tooling provide all necessary features including inert atmosphere capability to ensure optimal soldering.

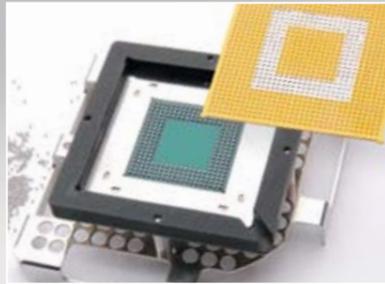
# Precision and Quality as Standard

The MINIOVEN 04 robust design offers integrated features such as convection circulation, infrared heat source, process gas distribution and a user friendly operator interface. This configuration yields an optimal Reballing and Prebumping system, heating is extremely uniform across the device. The use of nitrogen process gas ensures a soldering atmosphere where oxidation is minimized and promotes optimal wetting of solder joints, increased alloy surface tension and increased component life expectancy.

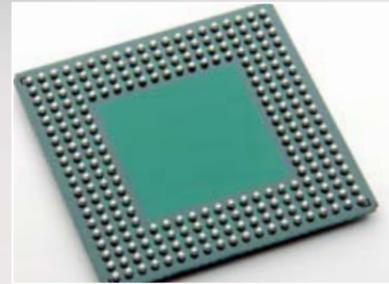
## Reballing



Easy distribution of solder spheres (solder balls) on a universal mask. Excess spheres are simply poured back into container.



Reballing fixture housing reballing BGA.



Reballing BGA ready for use.

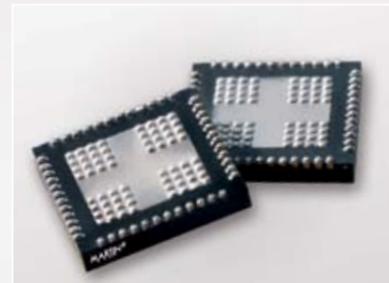
## Prebumping



QFN prebumping mask / frame and solder paste printer.



Squeegee applied solder paste.



QFN interconnects prebumped with solder paste.



Efficient Infrared Underheater

Optimized Heat Distribution from Convection

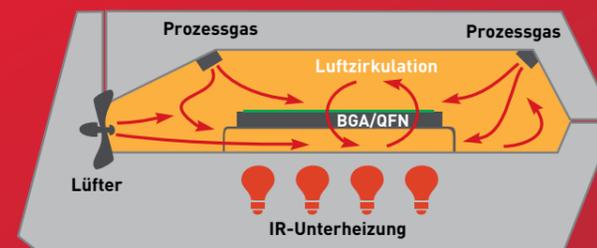
Easy to Use Operator Controls

Process Gas Support Displaces Oxygen, Providing an Ideal Soldering Environment.

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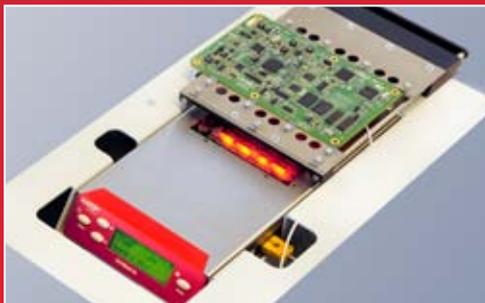
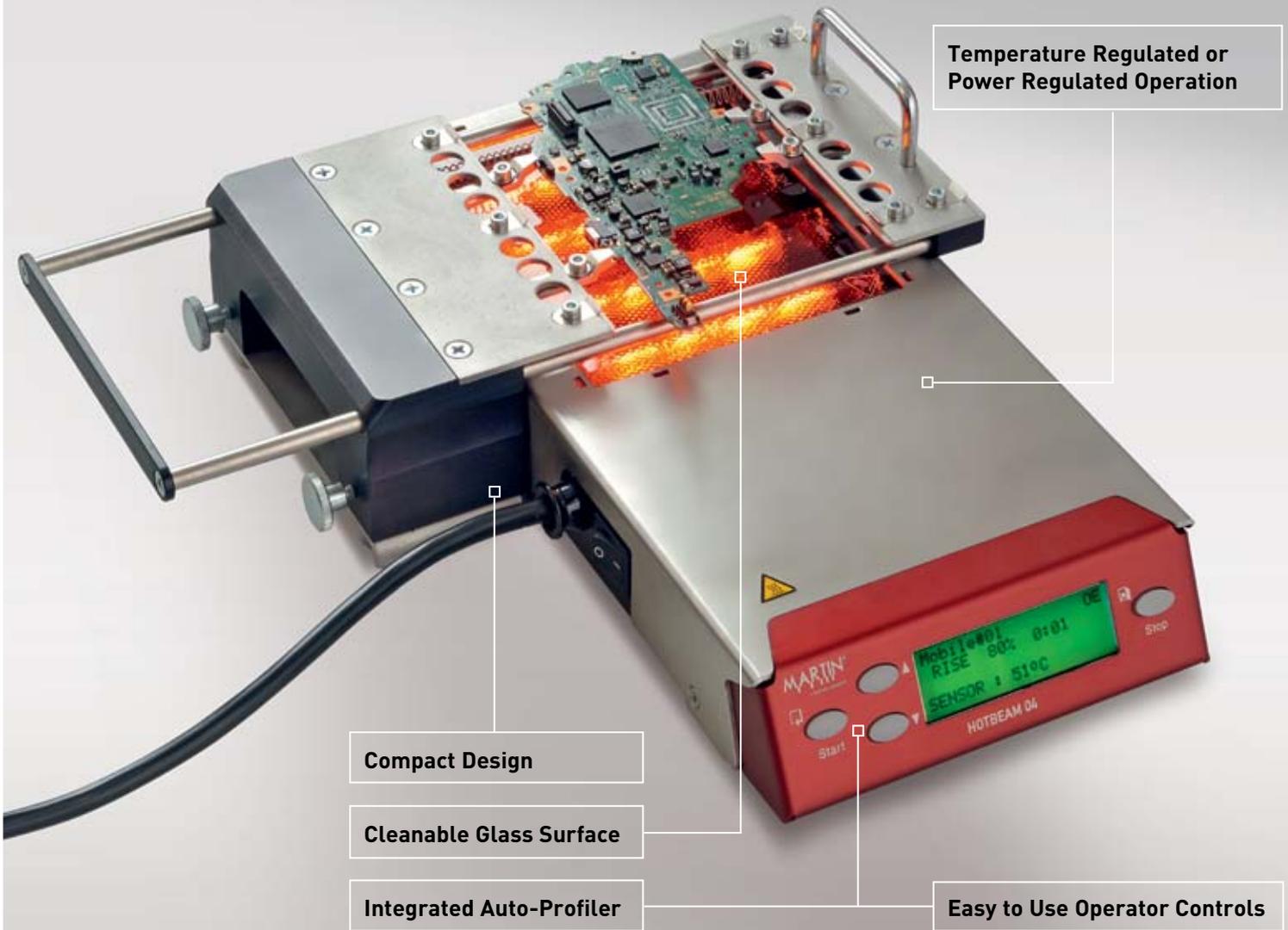
## Uniform Heating

The MINIOVEN employs a combination of Convection and Infrared heating for maximum thermal uniformity. Reballing and prebumping benefit from the use of nitrogen process gas to displace oxygen and minimize oxidation while promoting an ideal soldering environment.



# For Preheating

Applications for Underheaters range from supporting manual soldering, preheating in preparation for subsequent rework processes, to curing or cracking of Underfill. MARTIN Underheaters vary in the size of heated areas, the heat output and the heating technology.



Flush-mount housing for optimized work bench ergonomics.

## Simply Achieve More

The new HOTBEAM Underheaters supply necessary energy for preheating high mass PCB and assemblies requiring manual rework, especially for Lead-Free soldering. HOTBEAMs provide increased through-put and reduced processing times. Various sizes are available and are well suited for multiple applications.