PDR IR-E6 Evolution XL  Ultimate Performance, BGA Rework System for Very Large PCBs
- Medium - large sized PCBs - SMDs, BGAs, uBGAs  • Software controlled, Focused IR process  • Highly specified, ultra-accurate system

PDR IR-E3 Evolution  Ultimate Performance, BGA Rework Station
- Small - medium sized PCBs - SMDs, BGAs, uBGAs  • Software controlled, Focused IR process  • Highly specified, ultra-accurate system

PDR IR-D3 Discovery  Lower Cost, BGA Rework Station
- Small - medium sized PCBs - SMDs, BGAs, uBGAs  • Software controlled, Focused IR process  • Lower cost, good mechanics

PDR IR-C3 Chipmate  Entry-Level SMT/BGA Rework Station
- Mobile phone, PDAs, laptop repair - SMDs, BGAs, CSPs  • Digital controlled, Focused IR process  • Lower cost, simple mechanics
### PDR System Features

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<th>IR-D3</th>
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<tr>
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<td>F150 - Ø 6-18mm - Lens Attachment</td>
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<tr>
<td>750W, single zone (120mm x 120mm heating area)</td>
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<tr>
<td>2000W, single zone (240mm x 240mm heating area)</td>
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<tr>
<td>2000W, two zone (240mm x 240mm heating area)</td>
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<tr>
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<tr>
<td>3200W, two zone (500mm x 270mm heating area)</td>
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<tr>
<td><strong>Component Pick and Placement</strong></td>
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<tr>
<td>Handheld vacuum placement system</td>
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<tr>
<td>Standard vacuum placement system (Z-axis and Rotation)</td>
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<tr>
<td>Professional vacuum placement system (Z-axis, Rotation and Soft Landing)</td>
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<tr>
<td><strong>Component Nest/Flux Application Facility</strong></td>
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<tr>
<td>Handheld flux dip tray or component print frame</td>
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<tr>
<td>Jaw mounted nest with flux dip tray or component print frame</td>
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<tr>
<td>Integrated nest with flux dip tray or component print frame</td>
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<tr>
<td><strong>PCB Handling (PCB Capacity)</strong></td>
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<tr>
<td>Portable Benchtop Mounted PCB Workholder (12” x 10”/300mm x 250mm)</td>
<td>●</td>
<td></td>
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</tr>
<tr>
<td>Professional PCB table with micro X/Y (12” x 12”/300mm x 300mm)</td>
<td>●</td>
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</tr>
<tr>
<td>Advanced Professional PCB table with macro-micro X/Y (18” x 12”/450mm x 300mm)</td>
<td>○</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XL Advanced Professional PCB table with macro-micro X/Y (24” x 18”/620mm x 460mm)</td>
<td>●</td>
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</tr>
<tr>
<td><strong>Component Temperature Sensing</strong></td>
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<tr>
<td>Standard non-contact IR temperature sensor (Pyrometer) - Ø7mm+ Spot</td>
<td>●</td>
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<tr>
<td><strong>PCB Temperature Sensing</strong></td>
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<tr>
<td>K-type wire thermocouple</td>
<td>●</td>
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<td>○</td>
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<tr>
<td>Standard non-contact IR temperature sensor (Pyrometer) - Ø7mm+ Spot</td>
<td>○</td>
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</tr>
<tr>
<td><strong>Advanced Thermal Process Control</strong></td>
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<tr>
<td>Digital controller based thermal control</td>
<td>●</td>
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<tr>
<td>Software based auto profile thermal control</td>
<td>●</td>
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<tr>
<td><strong>Camera Based Vision Systems</strong></td>
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<tr>
<td>Camera/Prism Based BGA/CSP/QFN Alignment System</td>
<td>●</td>
<td>●</td>
<td></td>
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<tr>
<td>Auxiliary Process Observation Camera</td>
<td>○</td>
<td>●</td>
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<tr>
<td><strong>Forced Air PCB Cooling</strong></td>
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<tr>
<td>Simple USB/free standing cooling fan</td>
<td>○</td>
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<tr>
<td>Highly effective, integral PCB cooling with air knife system</td>
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</tr>
</tbody>
</table>

= Standard Feature  ○ = Optional Feature
PDR's Focused IR SMT/BGA Rework Station
For Large PCB, BGA Rework

PDR IR-E6 Evolution XL BGA Rework Station
Advanced features:

- **Advanced Focused IR component heating**
  150W, lens based Focused IR heating with adjustable image system

- **Quartz IR PCB preheating**
  3200W, two zone (500mm x 270mm heating area)

- **Precision Component Pick and Placement**
  Advanced Professional vacuum placement system

- **Component Nest/Flux Application Facility**
  Integrated nest with flux dip tray or component print frame

- **Precision PCB Handling**
  Table de déplacement Macro-Micrométrique X/Y avec doigt support anti-flambage

- **Component Temperature Sensing**
  Standard non-contact IR temperature sensor

- **PCB Temperature Sensing**
  Standard non-contact IR temperature sensor

- **Advanced Thermal Process Control**
  Software based auto profile thermal control

- **Camera/Prism Based BGA/CSP/QFN Alignment System**
  Split beam prism system for simultaneous PCB/component viewing

- **Auxiliary Process Camera (Optional)**
  Auxiliary process observation camera

- **Forced Air PCB Cooling (Optional)**
  Highly effective, integral PCB cooling with air knife system
BGA rework without the complications

The PDR IR-E6 SMT/BGA rework station, using PDR’s patented Focused IR technology, has been specifically designed to cope with the challenges of repairing today’s Large PCB assemblies.

The station is tool free, gas free, instantly/precisely controlllable, clean, modular, upgradeable and produces 100% yield BGA rework without any complications. It provides the extremely high levels of profiling and process control necessary for the effective rework of even the most advanced packages, including SMDs, BGAs, CSPs, QFNs, Flipchips and is ready for 0201 and lead-free applications. The IR-E6 is well specified yet can be easily configured to your exact requirements, with a good range of advanced features to choose from, allowing the operator to quickly and safely rework all types of components without overheating the component, adjacents or the PCB. It uses all the proven attributes of PDR’s Focused IR technology, first introduced in 1987 and now used worldwide by over 4000 customers.

Simple BGA rework procedure

BGA rework poses the problem of accessing hidden interconnects in a high density environment. Consequently, it requires a station that is able to access the hidden joints without affecting neighbouring components. A station that is safe, gentle, adaptable and, above all, simple to operate. The IR-E6 is such a station. It is so easy to operate that without affecting the component, adjacents or the PCB. It uses all the proven attributes of PDR’s Focused IR technology, first introduced in 1987 and now used worldwide by over 4000 customers.

Paste - Place - Reflow

With the aid of excellent mechanics, optics and control, operators can simply pick up the fluxed BGA from the nest, align it, place it onto the PCB’s pads and then reflow with the station’s accurate PC based, closedloop component and PCB temperature control.

Details and specifications of advanced features available

- **Advanced Focused IR component heating**
  150W, lens based Focused IR heating with adjustable image system
  PDR lens attachments with IR image from 4 to 70mm diameter
  Reworks all SMDs/off BGAs/QFNs/CSPs including 0201s + lead free applications

- **Quartz IR PCB preheating**
  High power, medium wave quartz IR
  Large area IR PCB preheater system
  3200W, two zone, 2 x 1600W, (500mm x 270mm heating area)

- **PDR lens attachments**
  F150 (Ø4 – 18mm spot size) optional
  F200 (Ø10 – 28mm spot size) optional
  F400 (Ø12 – 35mm spot size) optional
  F700 (Ø25 – 70mm spot size) standard

- **Advanced Professional Vacuum Placement System**
  With precise ‘pick and place’ action, Y/Z axis movement and rotation
  Soft component landing, Z-axis stop, LED guidance for paste placement
  Interchangeable pick-up heads for different applications

- **Component Nest for Precision Pick-up and Flux Application**
  With integrated nest with ‘component print frame’, dip tray or mini stencil paste-head facility for flux and solder paste application.

- **Advanced Professional Macro-Micro X/Y PCB Table**
  Precision micrometer (micron) X/Y and micro rotation control
  +/- 10 microns (0.004") movement in X/Y directions
  Macro movement in X/Y directions
  Up to 18" x 24" (460mm x 620mm) PCB capacity with lockable X/Y axis
  X/Y Table has 1” x 1” micro- movement plus macro adjustment
  System has a gantry feature. Topside of machine moves in X and Y direction

- **Component Temperature Sensing – Non-contact, IR Sensor**
  Manually adjustable, K-type non-contact IR sensor, Ø7-10mm spotsize
  Real time monitoring of component temperature throughout process

- **PCB Temperature Sensing – Non-contact, IR Sensor**
  Manually adjustable, K-type non-contact IR sensor, Ø7-10mm spotsize
  Real time monitoring of component temperature throughout process

- **Auto Profile Process Control Software**
  PDR ThermoActive software suite
  Digital controller with multi-functional features
  Advanced, Windows 7+ ThermoActive software suite
  Two channel, real time, closed loop component and PCB temperature control
  Auto-profile temperature profiling, data logging and reporting
  Multi-K type thermocouple (X4) capacity for temp/time testing

- **Camera/Prism Based BGA/CSP/QFN Alignment System**
  Split beam prism system for simultaneous PCB/component viewing
  Integral LED lighting system with illumination level control
  Full colour compact camera and flat screen colour monitor
  High quality zoom lens with up to x50 magnification
  Precise X/Y axis mounting system

- **Auxiliary Process Camera (Optional)**
  Auxiliary process observation camera
  Integral LED lighting system with illumination level control
  Full colour compact camera with rotation movement
  High quality zoom lens with up to x50 magnification

- **Forced Air PCB Cooling (Optional)**
  Highly effective, integral PCB cooling with air knife system
  Switched compressed air flow, directed under the PCB

Bench Top Requirements

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Top heat power</td>
<td>150W IR</td>
</tr>
<tr>
<td>Back heater power</td>
<td>3200W, 2 Zone, 2 x 16/700W</td>
</tr>
<tr>
<td>Voltage/frequency</td>
<td>208-240 volts 50/60Hz, up to 3KW</td>
</tr>
<tr>
<td>Typical components</td>
<td>CSPs, BGAs, uBGAs, QFNs, QFPs, PLCCs, SMDs, small SMDs</td>
</tr>
<tr>
<td>Bench area</td>
<td>2000mm (w) x 1000mm (d)</td>
</tr>
<tr>
<td>Weight</td>
<td>100 Kg</td>
</tr>
</tbody>
</table>

The above features are mostly optional and also, PDR reserves the right to improve or change specifications without giving notice.
PDR's Focused IR SMT/BGA Rework Station for Ultimate Performance in BGA Rework

PDR IR-E3 Evolution BGA Rework Station
Advanced features:

- **Advanced Focused IR component heating**
  150W, lens based Focused IR heating with adjustable image system

- **Quartz IR PCB preheating**
  2000W, two zone (240mm x 240mm heating area)
  Optional 2800W, 3 zone (240mm x 360mm heating area)

- **Precision Component Pick and Placement**
  Advanced Professional vacuum placement system

- **Component Nest/Flux Application Facility**
  Integrated nest with flux dip tray or component print frame

- **Precision PCB Handling**
  Advanced Professional PCB table with macro-micro X/Y

- **Component Temperature Sensing**
  Standard non-contact IR temperature sensor

- **PCB Temperature Sensing**
  K-type wire thermocouple
  Optional non-contact IR temperature sensor

- **Advanced Thermal Process Control**
  Software based auto profile thermal control

- **Camera/Prism Based BGA/CSP/QFN Alignment System**
  Split beam prism system for simultaneous PCB/component viewing

- **Auxiliary Process Camera (Optional)**
  Auxiliary process observation camera

- **Forced Air PCB Cooling (Optional)**
  Highly effective, integral PCB cooling with air knife system
BGA rework without the complications

The PDR IR-E3 SMT/BGA rework station, using PDR's patented Focused IR technology, has been specifically designed to cope with the challenges of repairing today’s PCB assemblies.

The station is tool free, gas free, instantly/precisely controllable, clean, modular, upgradeable and produces 100% yield BGA rework without any complications. It provides the extremely high levels of profiling and process control necessary for the effective rework of even the most advanced packages, including SMDs, BGAs, CSPs, QFNs, Flipchips and is ready for 0201 and lead-free applications.

The IR-E3 can be easily configured to your requirements, with a good range of advanced features to choose from, allowing the operator to quickly and safely rework all types of components without overheating the component, adjacent or the PCB. It uses all the proven attributes of PDR’s Focused IR technology, first introduced in 1987 and now used worldwide by over 4000 customers.

Simple BGA rework procedure

BGA rework poses the problem of accessing hidden interconnects in a high density environment. Consequently, it requires a station that is able to access the hidden joints without affecting neighbouring components. A station that is safe, gentle, adaptable and, above all, simple to operate. The IR-E3 is such a station. It is so easy to operate that technicians are able to instantly achieve excellent process control for BGA/SMT rework without the complexities and frustrations normally associated with ‘high-end’ rework stations.

Paste - Place - Reflow

With the aid of excellent mechanics, optics and control, operators can simply pick up the fluxed BGA from the nest, align it, place it onto the PCB’s pads and then reflow with the station’s accurate PC based, closed loop component and PCB temperature control.

Bench Top Requirements

<table>
<thead>
<tr>
<th>Top heat power</th>
<th>150W IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back heater power</td>
<td>750W, 1600W, 2000W or 2800W IR</td>
</tr>
<tr>
<td>Voltage/frequency</td>
<td>208-240 volts 50/60Hz, up to 3KW</td>
</tr>
<tr>
<td>Typical components</td>
<td>CSPs, BGAs, uBGAs, QFNs, QFPs, PCCs, SOICs, small SMDs</td>
</tr>
<tr>
<td>Bench area</td>
<td>3400mm (w) x 600mm (d)</td>
</tr>
<tr>
<td>Weight</td>
<td>65 Kg</td>
</tr>
</tbody>
</table>

The above features are mostly optional and also, PDR reserves the right to improve or change specifications without giving notice.

Details and specifications of advanced features available

- **Advanced Focused IR component heating**
  150W, lens based Focused IR heating with adjustable image system
  PDR lens attachments with IR image from 4 to 70mm diameter
  Reworks all SMDs/ BGAs/ QFNs/ CSPs including 0201s + lead-free applications

- **PDR Lens Attachments**
  F150 (Ø18 - 18mm spot size) optional
  F200 (Ø10 - 28mm spot size) optional
  F400 (Ø12 - 35mm spot size) optional
  F700 (Ø25 - 70mm spot size) standard

- **Quartz IR PCB preheating**
  High power, medium wave quartz IR
  Large area IR PCB preheater system
  Standard 2000W, 2 x 1000W zones (240mm x 240mm heating area)
  Optional 750W, single zone (120mm x 120mm heating area)
  Optional 2800W, 3 zones, 1000W + 1000W + 800W
  (240mm x 360mm heating area)

- **Advanced Professional Vacuum Placement System**
  With precise ‘pick and place’ action, Y/Z axis movement and rotation
  Soft component landing, Z-axis stop, LED guidance for paste placement
  Interchangeable pick-up heads for different applications

- **Component Nest for Precision Pick-up and Flux Application**
  With integrated nest with ‘component print frame’, dip tray or mini stencil paste-head facility for flux and solder paste application

- **Advanced Professional Macro-Micro X/Y PCB Table**
  Precision micrometer (micro X/Y) and micro rotation control
  +/- 10 microns (0.0004") movement in X/Y directions
  Macro movement in X/Y directions
  Up to 12” x 18” (300mm x 450mm) PCB capacity with lockable X/Y axis

- **Component Temperature Sensing - Non-contact, IR Sensor (Optional)**
  Manually adjustable, K-type non-contact IR sensor, Ø7-10mm spot size
  Real time monitoring of component temperature throughout process

- **Auto Profile Process Control Software**
  PDR ThermoActive software suite
  Digital controller with multi-functional features
  Advanced, Windows 7+ ThermoActive software suite
  Two channel, real time, closed loop component and PCB temperature control
  ‘Auto-profile’ temperature profiling, data logging and reporting
  Multi K-type thermocouple (4x) capacity for temp/time testing

- **Camera/Prism Based BGA/CSP/QFN Alignment System**
  Split beam prism system for simultaneous PCB/component viewing
  Integral LED lighting system with illumination level control
  Full colour compact camera and flat screen colour monitor
  High quality zoom lens with up to x50 magnification
  Precise X/Y axis mounting system

- **Auxiliary Process Camera (Optional)**
  Auxiliary process observation camera
  Integral LED lighting system with illumination level control
  Full colour compact camera with rotation movement
  High quality zoom lens with up to x50 magnification

- **Forced Air PCB Cooling (Optional)**
  Highly effective, integral PCB cooling with air knife system
  Switched compressed air flow, directed under the PCB
PDR’s Focused IR SMT/BGA Rework Station for Professional Performance in BGA Rework

PDR IR-D3 Discovery BGA Rework Station
Advanced features:

- **Advanced Focused IR component heating**
  150W, lens based Focused IR heating with adjustable image system

- **Quartz IR PCB preheating**
  2000W, two zone (240mm x 240mm heating area)

- **Precision Component Pick and Placement**
  Professional vacuum placement system

- **Component Nest/Flux Application Facility**
  Optional Jaw mounted nest with flux dip tray or component print frame

- **Precision PCB Handling**
  Professional PCB table with micro X/Y

- **Component Temperature Sensing**
  Standard non-contact IR temperature sensor

- **PCB Temperature Sensing**
  K-type wire thermocouple
  Optional non-contact IR temperature sensor

- **Advanced Thermal Process Control**
  Software based auto profile thermal control

- **Camera/Prism Based BGA/CSP/QFN Alignment System (Optional)**
  Auxiliary process observation camera

- **Auxiliary Process Camera (Optional)**
  Auxiliary process observation camera
BGA rework without the complications

The PDR IR-D3 Discovery rework station, using PDR’s patented Focused IR technology, has been specifically designed to cope with the challenges of repairing today’s PCB assemblies.

The station is tool free, gas free, instantly/precisely controllable, clean, modular, upgradeable and produces 100% yield BGA rework without any complications. It provides the extremely high levels of profiling and process control necessary for the effective rework of even the most advanced packages, including SMDs, BGAs, CSPs, QFNs, Flipchips and is ready for 0201 and lead-free applications.

The IR-D3 Discovery is keenly priced and can be easily configured to your requirements, with a good range of advanced features to choose from, allowing the operator to quickly and safely rework all types of components without overheating the component, adjacents or the PCB. It uses all the proven attributes of PDR’s Focused IR technology, first introduced in 1987 and now used worldwide by over 3500 customers.

Simple BGA rework procedure

BGA rework poses the problem of accessing hidden interconnects in a high density environment. Consequently, it requires a station that is able to access the hidden joints without affecting neighbouring components, a station that is safe, gentle, adaptable and, above all, simple to operate. The IR-D3 Discovery is such a station. It is so easy to operate that technicians are able to instantly achieve excellent process control for BGA/SMT rework without the complexities and frustrations normally associated with ‘high-end’ rework stations.

Align - Place - Reflow

With the aid of excellent mechanics, optics and control, operators can simply pick up the fluxed BGA from the nest plate, align it, place it onto the PCB’s pads and then reflow with the station’s accurate PC based, closed loop component and PCB temperature control.

Bench Top Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top heat power</td>
<td>150W IR</td>
</tr>
<tr>
<td>Back heater power</td>
<td>1600W or 2000W IR</td>
</tr>
<tr>
<td>Voltage/frequency</td>
<td>208-240 volts 50/60Hz, up to 3KW</td>
</tr>
<tr>
<td>Typical components</td>
<td>CSPs, BGAs, uBGAs, QFNs, QFPs, PLCCs, SOICs, small SMDs</td>
</tr>
<tr>
<td>Bench area</td>
<td>1400mm (w) x 600mm (d)</td>
</tr>
<tr>
<td>Weight</td>
<td>65 Kg</td>
</tr>
</tbody>
</table>

The above features are mostly optional and also, PDR reserves the right to improve or change specifications without giving notice.
PDR’s Entry-Level SMT/BGA Rework Station

PDR IR-C3 Chipmate BGA Rework Station
Advanced features:

- **Advanced Focused IR component heating**
  150W, lens based Focused IR heating with adjustable image system

- **Quartz IR PCB preheating**
  2000W, single zone (240mm x 240mm heating area)

- **Precision Component Pick and Placement**
  Handheld vacuum placement system

- **Precision PCB Handling**
  Portable Benchtop PCB workholder

- **Component Temperature Sensing**
  Standard non-contact IR temperature sensor

- **PCB Temperature Sensing**
  K-type wire thermocouple

- **Advanced Thermal Process Control**
  Digital controller based thermal control
Low Cost, Upgradeable BGA Rework Station

Today there is a need for lower cost and upgradeable equipment without a loss in soldering quality. The PDR IR-C3 Chipmate SMT/BGA rework station, using PDR's patented Focused IR technology, has been specifically designed to meet this challenge.

The IR-C3 Chipmate comes with a good range of standard features allowing the operator to quickly, safely rework all types of components.

The station is tool free, gas free, instantly/precisely controllable, clean, modular and produces 100% yield BGA rework without any complications. The IR-C3 uses all the proven attributes of PDR’s Focused IR technology, first introduced in 1987 and now used worldwide by over 4000 customers.

Simple BGA rework procedure

BGA rework poses the problem of accessing hidden interconnects in a high density environment. Consequently, it requires a station that is able to access the hidden joints without affecting neighbouring components. A station that is safe, gentle, adaptable and, above all, simple to operate.

The IR-C3 Chipmate is such a station. It is so easy to operate that technicians are able to instantly achieve excellent process control for BGA/SMT rework without the complexities and frustrations normally associated with ‘high end’ rework stations.

The IR-C3’s standard features, with the use of simple aids, operators can simply pick up the BGA, align it, place it into fluxed pads and reflow with the station’s accurate closed-loop component temperature control.

Details and specifications of advanced features available

- **Advanced Focused IR component heating**
  - 150W, lens based Focused IR heating with adjustable image system
  - PDR lens attachments with IR image from 4 to 70mm diameter
  - Reworks SMDs/ BGAs/QFNs/CSPs + lead free applications

- **PDR lens attachments**
  - F150 (Ø4 – 18mm spot size) optional
  - F200 (Ø10 – 28mm spot size) optional
  - F400 (Ø12 – 35mm spot size) optional
  - F700 (Ø25 – 70mm spot size) standard

- **Quartz IR PCB preheating**
  - High power, medium wave quartz IR
  - Large area IR PCB preheater system
  - 2000W, single zone (240mm x 240mm heating area)
  - Optional 750W, single zone (120mm x 120mm heating area)

- **Handheld Vacuum Placement System**
  - Vacuum operated pick up tool, hand held with silicon cups

- **Standard Vacuum Placement System (Optional)**
  - With precise placement action, 2 axis movement and rotation
  - Interchangeable pick-up heads for different application

- **Handheld Component Nest and Flux Application Tool (Optional)**
  - Handheld nest plate with ‘component print frame’ or dip tray
  - for flux and solder paste application

- **Portable Benchtop PCB Workholder**
  - 650mm, up to 12” x 10” (300mm x 250mm) PCB capacity

- **Component Temperature Sensing - Non-contact, IR Sensor**
  - Manually adjustable, K-type non-contact IR sensor, Ø7–10mm spotsize
  - Real time monitoring of component temperature throughout process

- **PCB Temperature Sensing**
  - Manually attached K-type wire thermocouple
  - Optional non-contact IR sensor with real time temperature sensing

Bench Top Requirements

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top heat power</td>
<td>150W IR</td>
</tr>
<tr>
<td>Back heater power</td>
<td>2000W IR</td>
</tr>
<tr>
<td>Voltage/frequency</td>
<td>110-240 volts 50/60Hz</td>
</tr>
<tr>
<td>Typical components</td>
<td>CSPs, BGAs, uBGAs, QFNs, QFPs, PLCCs, SOICs, small SMDs</td>
</tr>
<tr>
<td>Bench area</td>
<td>1200mm (w) x 600mm (d)</td>
</tr>
<tr>
<td>Weight</td>
<td>45 Kg</td>
</tr>
</tbody>
</table>

The above features are mostly optional and also, PDR reserves the right to improve or change specifications without giving notice.
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