INSTRUCTION MANUAL

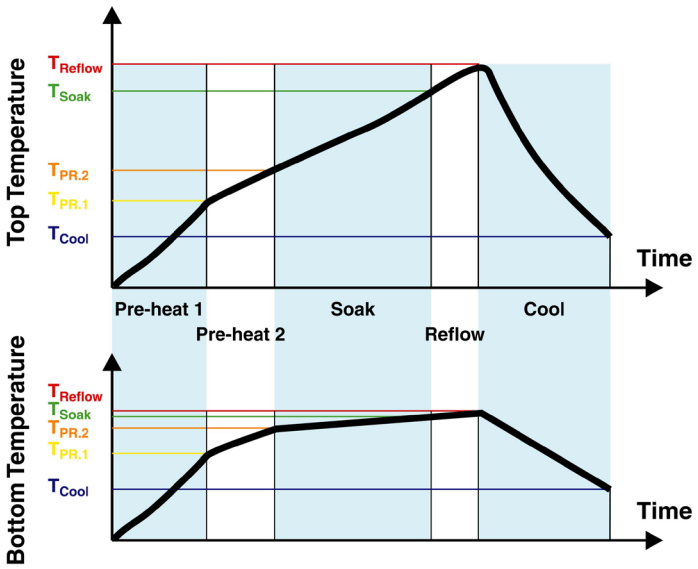
FOCUS "X" SERIES

Programmable SMT Rework/Repair Units / X-FineRework Controllers

The Units offer the economical solution for sophisticated Rework.

Mature PCB Assembly and Rework industry of the new millennium requires reliable, accurate and not over priced tools for precision service and rework, which fulfill all the requirements of Process Control.

FOCUS "X", the newest system in the industry, offers total process control and best performance among convection Rework/Repair Tools. As the only system in the industry today in its class can pre-program both top and bottom heating. It is simple and easy to use. It has five time/temperature zones to accommodate lead-free solder profiling requirements (four heating and one cooling zone) and when used in conjunction with X-1000 Series or SMT-ServiCE units offers 5-zone and 10 top-bottom temperature control of the rework process.



Rework of any component using FOCUS "X" is not a burden but an easy, routine repair/service task without worries that not careful or new on the job operator will damage the board during the Rework operation.

User programmable offset and pre-programmed bottom heating enable temperature accuracy and repeatability not found in any tools offered by other brands.

Patented in US, Japan and in Europe

US Patent #: 6,761,304 Issued July 13, 2004
Japanese Patent #: P2002-118358A
Issued in 2002
European Patent #: W111548 and W111661
Issued in 2004

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FOCUS"X" Programmable SMT Rework/Repair Unit / Rework Systems Controller

Patented in USA, Japan and in Europe.

TABLE OF CONTENTS

I. INTRODUCTION

FIG. 1 VIEW OF THE SYSTEM

Thank you for purchasing FOCUS”X” Programmable SMT Rework/Repair Unit / Rework System Controller

BOKAR International retains the right to make changes to specifications contained herein at any time, without notice. Please contact your local authorized Distributor or Bokar International to obtain the latest specifications.

This manual will provide you with the information necessary to properly set up, operate and maintain the FOCUS”X” unit. Please read this manual carefully before using the system.
The Unit was designed to offer a low cost solution for sophisticated Rework. Mature PCB Assembly and Rework industry of the new millennium requires reliable, accurate and not over priced tools for precision service and rework, which fulfill all the requirements of Process Control. FOCUS ”X„ the newest system in the industry worldwide offers total process control and best performance among convection Rework/Repair Tools. FOCUS ”X” Digital SMT Convection Rework System has been designed to perform safe and efficient rework of SMD and BGA components. Microprocessor Profile Controller allows the operator to select or pre-program the appropriate removal or replacement profile and start the rework sequence. Removal and replacement profiles can be stored, recalled and edited with the touch of a button, or to guarantee process control. The profiles can be locked to eliminate operator adjustment. Programming is user friendly and can be learned in a matter of minutes. It is simple and easy to use. It has five time-temperature zones (four heating and one cooling zone) and when used in conjunction with SMT-ServiCE or X-1000 Series preheating units offers 6-zone control or the rework process.

II. SAFETY

The purpose of this "SAFETY" section is to inform the users of the heading guidelines used in this manual to indicate special Notes, Cautions, Warnings or Dangers. Also included are precautions, which must be observed when operating or servicing this product.
These "NOTES", "CAUTIONS", "WARNINGS" and "DANGERS" are inserted in this manual whenever deemed necessary. They appear in a blocked off form with outline and a shaded background to highlight the information as shown below.

NOTE
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NOTE
Used to indicate a statement of company recommendation or policy. The message may relate directly or indirectly to the safety of personnel or protection of property. NOTE is not associated directly with a hazard or hazardous situation and is not used in place of "CAUTION", "WARNING" or "DANGER".
CAUTION
Used to indicate a hazardous situation, which may result in minor or moderate injury. May also be used to alert personnel to conditions, procedures and practices which, if not observed, could result in damage to or destruction of the product or other equipment.
WARNING
Used to define additional information, that if not closely followed may result in serious damage to equipment and represent a potential for serious personnel injury.
DANGER
Defines additional information, that if not closely followed may result in severe personnel injury or death. Danger is not used for property damage unless personal injury risk is present.

PRECAUTIONS

The following are general safety precautions, which personnel must understand and follow when using or servicing this product. These precautions may or may not be included elsewhere in this manual.
CAUTIONS

1. The FOCUS“X” hand-piece’s heater assembly housing and any installed nozzles/tips are hot when the system is “ON” and for a period of time thereafter. DO NOT touch neither the heater assembly housing, nozzles/tips or direct heated air stream. Severe burns may result!
2. Utilize all standard electrical safety precautions when using this or any other electrical equipment.
3. Always use this system in a well-ventilated area. A fume extraction system (such as those available from XTRACTOR) is highly recommended to protect personnel from solder flux fumes.
4. Exercise proper precautions when using chemicals (e.g., solder paste). Refer to the Material Safety Data Sheet (MSDS) supplied with each chemical and adhere to all safety precautions recommended by the manufacturer.

DANGER
POTENTIAL SHOCK HAZARD –Only qualified service personnel should perform all repairs made on this product. Line voltage parts will be exposed when equipment is disassembled. Service personnel must avoid contact with these parts when troubleshooting.

NOTES
To insure continued peak performance, use genuine X-KAR replacement parts.

III. PACKAGING

The box contains as follows:

1. FOCUS ”X” Base Unit
2. XHT-15 Hot Air Tool
3. XTH-2 Tool Holder for XHT Series
4. XQF Quick Connect for connection of nozzles
5. XVCS-5 Vacuum Pad Set (5 vacuum pads, 3 sizes)
6. XT-1 Vacuum Pad placement/removal tool
7. XNR-2 Hot Nozzle Handling Cup
8. XFS-1 Foot Switch
9. XK-TC 26/39” “K” Type Thermocouple
10. Manual
11. Guarantee card

IV. UNPACKING

Prior to use of the system, please check if the system is complete. Should you notice that any items are missing, please notify us, giving the details of model number, voltage, date of purchase, where purchased and what is missing. Missing items must be reported within 7 days from the date of purchase.

WARNING
When unpacking, please be careful and read the manual prior to turning the system “ON”. Please check that the voltage of the System corresponds with the voltage of your available supply. Connection to incorrect voltage supply may cause damage to the System!

V. GENERAL INFORMATION

FRONT PANEL

1. **POWER Switch** - Turns the system ON and OFF. Green light indicates that the system is ON.
2. **Air Flow Control** –Turn right to increase airflow or left to reduce airflow.
3. **Air Flow Meter** – Shows air flow in l/min
4. **Digital Control Panel** – Please see below.
5. **Air / Vacuum Front Connections** – Supply of air and vacuum to the hand piece.
6. **Electrical Front Connections** – Connect switches and sensors in the hand piece with the base unit.
7. **Electrical Front Connections** – Connect heater and the ground in the hand piece with the base unit.
8. **Thermocouple indicator** – Illuminates red when measurement is activated and the thermocouple is connected to the units or blinks when the measurement is activated and the thermocouple is not connected or is open.
9. **Thermocouple connector** – Socket to connect external “K” thermocouple.
10. **Thermocouple switch** – Turns “ON” and “OFF” temperature measurement using external thermocouple.

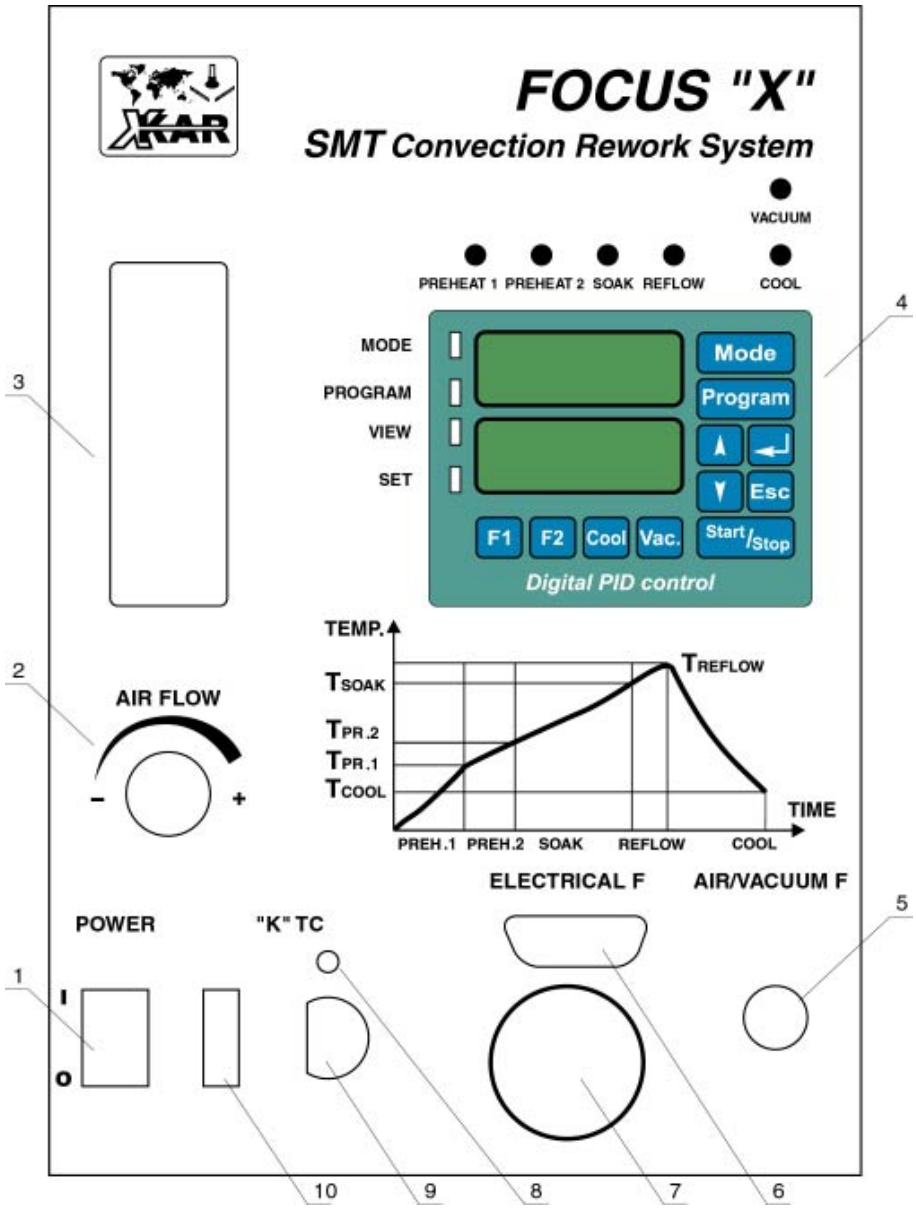


FIG. 2 VIEW OF THE CONTROL PANEL

BACK PANEL

1. **AC power receptacle** - Provides AC power to the system through a power cord.
2. **Fuse holder** – Contains a fuse for overload protection. 20 mm type fuse (value depends on AC supply 8A for 115V and 5A for 230V supply)
3. **XK-AL connector** – Allows for connection of FOCUS“X” with XK-AL Series Hot Air Tool Holders with Auto Lift. This way FOCUS”X” automatically raises the Hot Air Tool upon reflow of solder in Lift Mode of operation.
4. **X-DataStore** – Factory calibration port
5. **Electrical Connections** – Connect switches and sensors in the hand piece with the base unit.
6. **Electrical Connections** – Connect heater and the ground in the hand piece with the base unit
7. **Air / Vacuum Connections** – Supply of air and vacuum to the hand piece.
8. **XIL-2 Illumination Connections** – Allow for connection of FOCUS“X” with XL-2 Illumination System. Provide AC power to XIL-2 through XIL-SC cable.
9. **Pre-heater connector** – Allows for connection of FOCUS ”X” to X-1001 Series pre-heaters and other bases. This way FOCUS”X” can control bottom preheat.
10. **Foot switch connector** – Foot switch connected to the unit turns the hot gas ON and OFF and allows for cycle advance in Place and Lift modes.

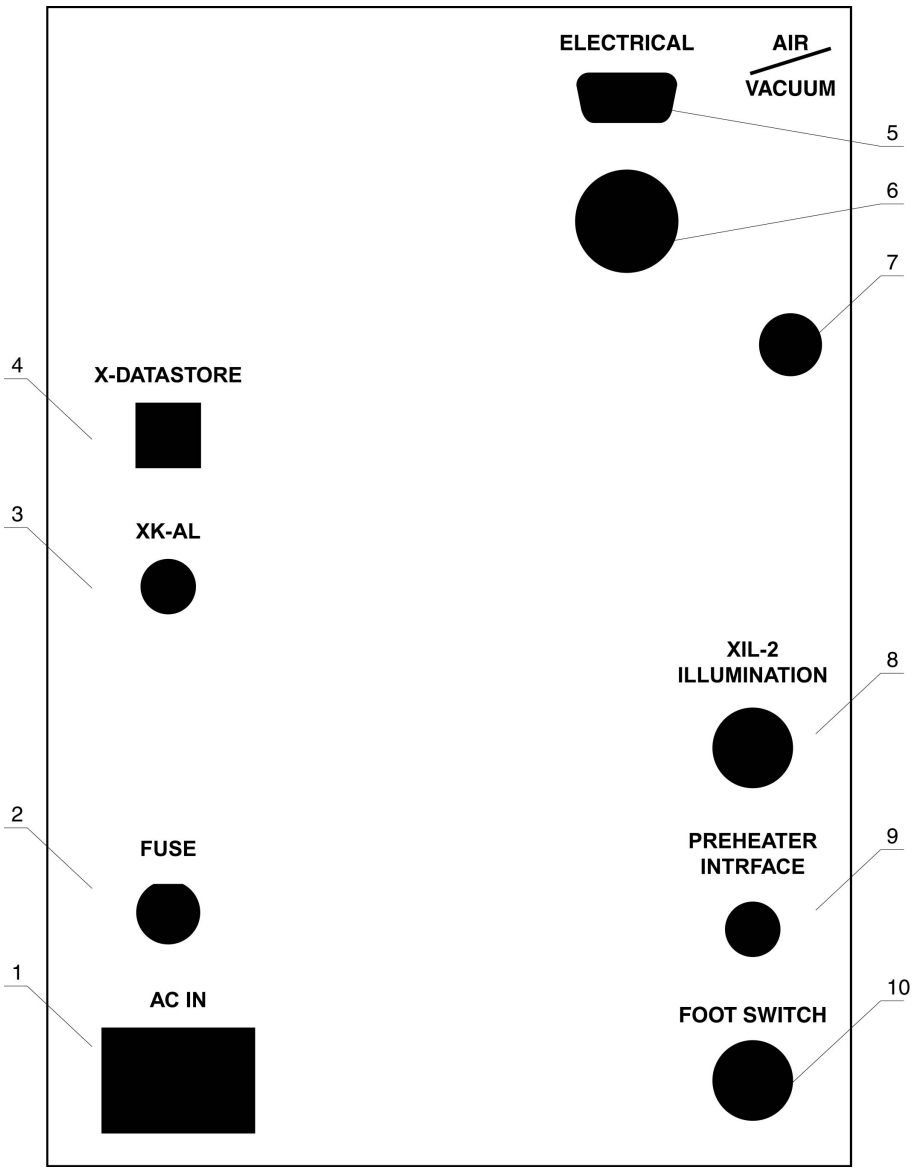


FIG. 3 VIEW OF THE BACK PANEL

DIGITAL CONTROL PANEL

1. **Set indicator** - Illuminates Green when the system is in **Set** mode of operation.
2. **View indicator** - Illuminates Green when the system is in **View** mode of operation.
3. **Program indicator** - Illuminates Green when the system is in Program **change** mode of operation.
4. **Mode indicator** - Illuminates Green when the system is in **Mode** change of operation.
5. **Preheat 1 indicator** - Illuminates Red when the system is in the first preheat zone.
6. **Preheat 2 indicator** - Illuminates Red when the system is in the second preheat zone.
7. **Soak indicator** - Illuminates Red when the system is in the soak zone.
8. **Reflow indicator** - Illuminates Red when the system is in the reflow zone.
9. **Cool indicator** - Illuminates Red when the system is in the cooling mode.
10. **Vacuum indicator** - Illuminates Red when vacuum is ON.

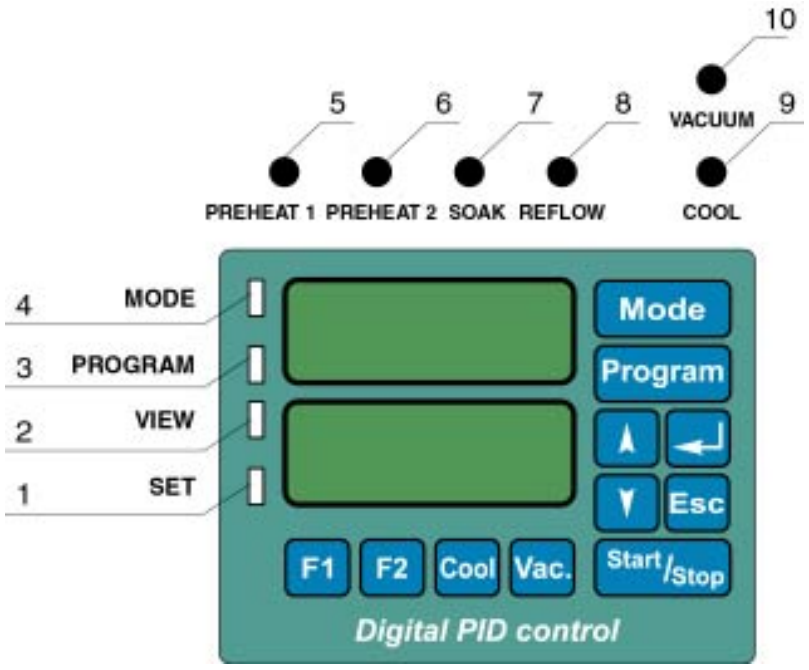


FIG. 4 VIEW OF THE DIGITAL CONTROL PANEL

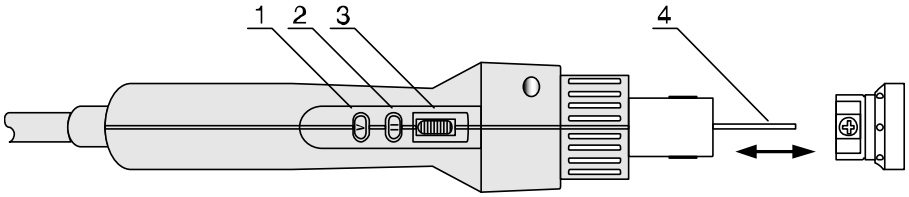


FIG. 4 VIEW OF THE HAND PIECE

HAND PIECE

1. **Heater switch** – Turns power to the heater ON and OFF or pauses the cycle. Customer choice. Function of this switch is programmable from the front keyboard.
2. **Vacuum switch** – Turns vacuum ON and OFF.
3. **Vacuum tube adjuster** - Provides a vacuum tube positioning at operator fingertips. Turn up to lift the tube up or down to lower the tube.
4. **Vacuum tube** – When equipped with a vacuum cup (XVCW Series) provides the means to lift a component after de-soldering it from the board. Can be used to hold a component to be placed on the board (method not recommended for fine pitch but often used with great success).

VI. SET-UP AND INSTALLATION

ELECTRICAL REQUIREMENTS

The FOCUS “X” unit consumes 750 Watts of power. If your power outlet cannot provide suitable power, arrange for a qualified, licensed electrician to install one for you.

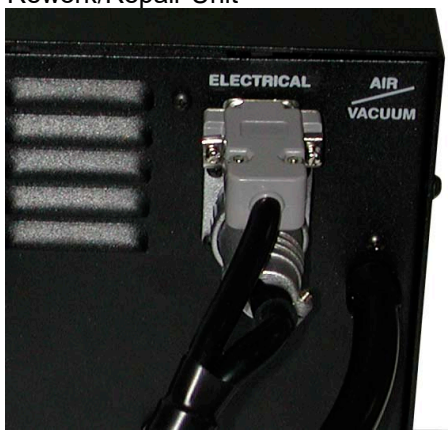
SET-UP

1. The system should be located on a stable work surface.
2. Mount the Hand piece holder on the right or left side of the FOCUS ”X” base unit.
3. Connect XHT-15 hand piece to FOCUS ”X” base unit. Tools required: Flat screwdriver, tweezers or long nose pliers

XHT-15 hand piece can be connected on the front (FOCUS “X”), on the back of the unit (FOCUS “X1” or either on the front or on the back (FOCUS “X2”).

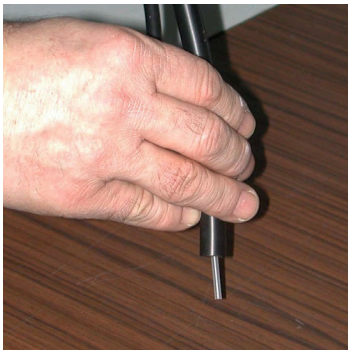
Connect only one XHT-15 hand piece. FOCUS“X2” will not work if two hand pieces are connected to the base.

XHT-15 hand piece connected on front panel

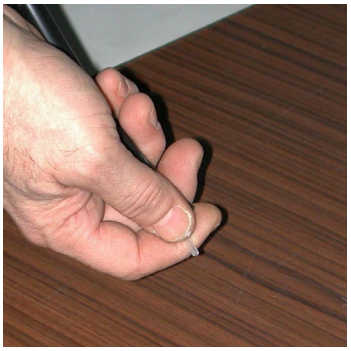


XHT-15 hand piece connected on back panel

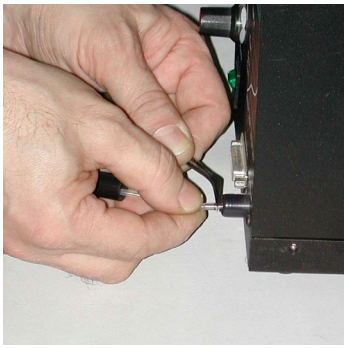
Connecting process is the same. Please see below.



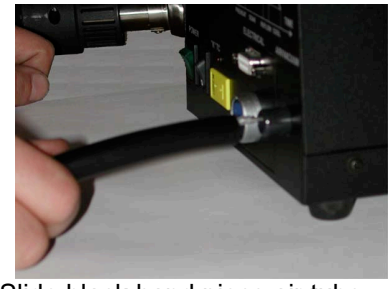
Hold the hand piece vertically with air/vacuum tubes downwards from the air tube



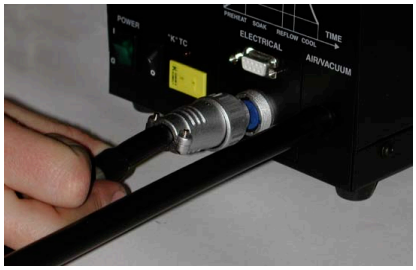
Hold the vacuum tube with your thumb and pointing finger



Hold vacuum tube protruding (about ½” / 10mm) from the air electrical connector on the system base (right/bottom corner of the front panel of the base) with one hand (using tweezers or log nose pliers). Insert flexible vacuum tube of the hand piece over the tube in the unit. The overlap should be about 1/4” (~6.5mm).

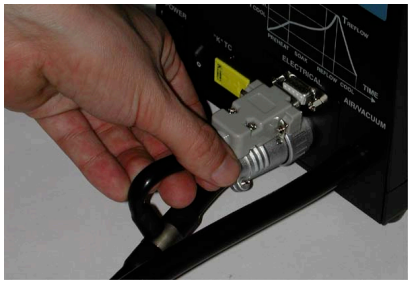


Slide black hand piece air tube over air connector

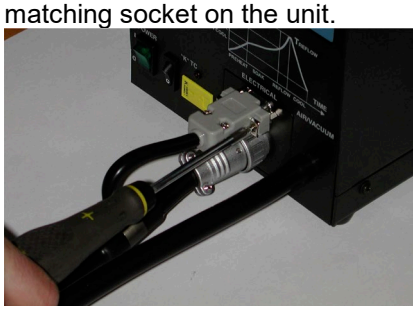


Connect round power plug to a matching socket on the unit.

Tighten the ring to secure the connector



Connect multi-wire plug to a matching socket on the unit.



Tighten 2 screws (one on each side of a connector) using flat screwdriver to secure the connector in place

4. Place XHT-15 hand piece into XTH-2 Tool Holder or XK-Series holder.
5. Connect XFS-1 foot switch to the connector on the back panel of the FOCUS”X” base unit.
   It activates cycle advance feature, which is very useful during component placement and removal.
6. Select proper nozzle to match the component you need to rework.
7. Install the nozzle onto the XHT-15 tool.
8. Connect AC power to a suitable AC power outlet.

VII. SYSTEM DESCRIPTION AND APPLICATION

FOCUS”X” Digital SMT Convection Rework System has been designed to perform safe and efficient rework of SMD and BGA components. Microprocessor Profile Controller allows the operator to select or pre-program the appropriate removal or placement profile and start the rework sequence. Removal and placement profiles can be stored, recalled and edited with the touch of a button to guarantee process control. The profiles can be locked to eliminate operator adjustment. Programming is user friendly and can be learned in a matter of minutes.

FOCUS”X” offers 3 modes of operations: Lift Mode with 1 pre-programmed removal profile and 30 user programmable profiles, Placement Mode with 1 pre-programmed profile and 30 user programmable profiles and Hand Mode with pre-programmed maximum temperature and 30 user programmable pre-set maximum temperatures.
Lift and Place Modes offer **five (5)** time/temperature zone control + pre-programming of temperature settings of the the bottom preheater in each of the 5 zones.
The system has several unique features, which make rework more accurate, safer and consuming less of valuable time.

Features:

- Simple and cost effective nozzle design allows for duplication of the original assembly reflow profile.
- Quick Connect (twist and lock method) to attach and detach the nozzles.
- Ergonomically designed, ESD Safe and detachable for maintenance or replacement hand piece with the following advantages:
  - Heater and vacuum ON-OFF Switches. Heater switch either stops or pauses the cycle. Can be pre-programmed either way from a front panel keyboard.
  - Vacuum tube positioning at operator fingertips.
  - Angled top to reduce cable pull during hand held operations.
- Vacuum pick-up tube and pads to lift-off the component at the end of reflow cycle.
- Allowance for storage of thirty-one - (1 factory set and 30 user programmable) profiles in each mode.
- Operator controlled (Hand) Mode with programmable maximum temperature.
- 3 modes of operations: Lift Mode, Placement Mode and Hand Mode. Each mode has one pre-programmed profile and 30 user-programmable profiles.
- 5 time/temperature zones for each profile PREHEAT 1, PREHEAT 2, SOAK, REFLOW and COOL DOWN + possibility to pre-program bottom pre-heat temperature in each zone.
- Foot Switch-activated Cycle Advance, to override pre-programmed zone timing.
- Operator choice of temperature scale (Celsius or Fahrenheit).
- Locking Function to protect against unauthorized parameters change.
- User accessible offset adjustment for a particular nozzle to obtain extremely accurate display of hot air temperature at the end of selected nozzle.
- The Unit was designed to offer the best price/performance ratio in the industry for the system capable to handle sophisticated Rework.
- “K” TC input for temperature measurements with external thermocouple to allow the user to perform temperature verification at any time during the rework process.
- Auto Lift trigger connector to activate XK-AL Series tool holders with Auto Lift Mechanism, which lifts the component automatically at the end of reflow cycle.

FOCUS”X” is the only system in the industry today giving pre-programming of the bottom pre-heat in each zone. Such powerful functions may be found only in systems with price tag far exceeding 20.000.00 USD.

Description of Front Panel Key Pad Functions and Programming

Mode	MODE key allows selecting the MODE or changing the MODE.
Program	PROGRAM key allows selecting the PROGRAM or changing the program to the next one.
∧ and ∨	UP and DOWN keys change viewed parameter during parameters preview, increase or decrease the value of parameter during its modification.
Esc	ESCAPE key allows for cancellation of the action in progress (e.g. modification of a parameter). Also it allows leaving the VIEWING or MODIFICATION mode. Also, instantly ends the profile cycle.
↵	ENTER key allows for confirmation of new parameter value, selected MODE or PROGRAM number. Also, when the system is pre-programmed and ready for operation (Top display shows Mode and Program number and bottom display shows “Go”) pressing ENTER key will access directly Nozzle Offset entry mode.
Start/Stop	START/STOP key allows starting and pausing the process. The process can also be started or paused by pressing “Heat” Switch on the Hand piece (if this switch was pre-programmed this way). To end the process after pausing it, the “ESC” key on the keyboard needs to be pressed.
F1	F1 key allows viewing the values of parameters of the MODE and PROGRAM currently selected at the time of pressing F1 key.
F2	F2 key allows entering modification mode of currently viewed parameter.
F1 + Mode	Keys F1 and MODE, when pressed together for more than 0,5 sec. allow to enter the user menu which allows to set system parameters.
Cool	COOL Key, when pressed, turns on the air pump at any time. During the execution of thermal profile, pressing the COOL Key advances the profile immediately to a cooling zone.
Vac.	VAC. Key turns ON and OFF vacuum pump. Vacuum Pump can also be turned ON and OFF by pressing the “Vacuum” Switch on the hand piece.

System Operation

When the system is turned "ON" the display shows On for about 1 second. After 1 second the display will show MODE and PROGRAM, which was used last, before the system was "turned off".
The Modes to choose from are as follows:

Hd88 Go **Hand Mode** in which the operator controls process time. The process time can be controlled by the XFS-1 foot switch, from the Hand Piece (H button) or from the front panel keyboard by pressing Start/Stop key. In case of control by the foot switch, pressing it once starts the process and pressing it the second time stops the process. In case of control from the front panel keyboard, pressing Start/Stop key starts the process and pressing it again pauses the process. To stop the process one has to press “ESC” key. Maximum temperature of the process can be selected from the program menu (up to 31 pre-programmed values). One pre-programmed value is fixed (Program 1) and 30 other temperatures are user programmable (programs from 2 to 31).

PL88 Go **Automatic Place Mode** in which the duration of each zone and temperature of both top heating and bottom heating in each zone (if FOCUS”X” works with X-KAR Pre-heater Base) are pre-programmed and controlled automatically by microprocessor. Precisely pre-programmed cycle (profile) can be repeated every time the operator presses the Foot Switch, Heat Switch on the Hand-piece or Start/Stop key. There is one (1) pre-programmed sample profile and 30 user programmable profiles to be used by the operator as needed.
During an automatic cycle (the duration of a profile) an operator has four additional options:

a) he/she can stop and pause the process by pressing Start/Stop key on the control panel keyboard and re-start it again from the point where he/she stopped it by pressing the Start/Stop key again.
b) he/she can advance to the next zone (skip time left to the end of the zone) by pressing the Foot Switch.
c) He/she can either: c1) stop and pause the cycle, or c2) end the profile by pressing the heater (“H”) pushbutton on the hand piece. C1 or C2 functions can be pre-programmed by the operator using front panel keyboard.
d) he/she can press Esc key to end the process (profile) at any time during the duration of a profile.

Lt88 Go **Automatic Lift (Remove) Mode** in which duration of each zone and temperature of both top heating and bottom heating in each zone (if FOCUS”X” works with X-KAR Pre-heater Base) are pre-programmed and controlled automatically by microprocessor. Precisely pre-programmed cycle (profile) can be repeated every time the operator presses

the Foot Switch, Heat Switch or Start/Stop key. There is one (1) pre-programmed sample profile and 30 empty profiles to be programmed by the user as needed. In LIFT MODE, the vacuum Pump is activated automatically at the start of a cycle. If needed, pressing the vacuum switch either on the keypad or on the hand-piece can turn vacuum OFF.
During the automatic cycle (the duration of a profile) an operator has three additional options:

a) he/she can stop the process by pressing Start/Stop key on the control panel keyboard and re-start it again from the point where he/she stopped it by pressing the Start/Stop key again.
b) he/she can advance to the next zone (skip time left to the end of the zone) by pressing the Foot Switch.
c) He/she can either: c1) stop and pause the cycle, or c2) end the profile by pressing the heater (“H”) pushbutton on the hand piece. C1 or C2 functions can be pre-programmed by the operator using front panel keyboard.
d) he/she can press Esc key to end the process (profile) at any time during the duration of a profile.

MODE or PROGRAM cannot be changed when the profile cycle is in progress.
Pressing either MODE or PROGRAM key during the profile cycle in progress (or during parameter change) will display actual Mode and Program for 2 sec.
It is possible to change the parameters of the PROGRAM, which is actually run by pressing F1 key to view pre-set value and F2 key to access parameter change. At this point, parameter can be changed by using ∧ Up and ∨ Down arrows to set required value and confirming the change by pressing ↵
One can decide not to change the parameter value during the process of changing. At this point one can press Esc key to return to the original parameter value.

PROGRAMMING OF THE UNIT

CHANGING OR VIEWING SYSTEM SETTINGS

1. Press F1 and Mode key simultaneously for about 2.5 seconds. The displays will show USEr SEt. After few seconds, the displays show first system setting.
2. Settings can be viewed by using Pre-heater SET (UP or DOWN) keys.

LOC	Changes of pre-programmed parameters are possible only when a 4-digit code is entered. LOC feature can be On or OFF. To change the locking function from ON to OFF and vice versa, the 4 digits CODE MUST be entered. Factory set: OFF. See below for more information.
Snd	Enables/disables the sound. Sound can be On or OFF. Factory set: ON.
HPb1	Enables pre-programming in which way the “H” heater Switch on the Hand piece should work. The switch can be set to work as an ON/OFF switch (when SEnd is selected), or as a PAUSE switch when StEP is selected. Factory set SEnd
HPb2	Enables pre-programming in which way the “V” vacuum switch on the Hand piece should work. The switch can be set to work as an ON/OFF vacuum switch (when VAC is selected), or as an ON/OFF cool switch when COOL is selected. Factory set VAC
PrHt	Allows for control of the bottom pre-heater. Can be OFF, which means that bottom pre-heater is not controlled by FOCUS ”X”, OnOF, which means that FOCUS ”X” can be programmed turn "ON" or "OFF" pre-heater on each zone, or AutO, which means that FOCUS “X” always controls pre-heater. Factory set: AutO.
cnt	Shows time left in each zone to finish pre-programmed value (count Down) or elapsed time in each zone (count Up). This feature can be set-up as dn or UP. Factory Set: Down.
C-F	Temperature scale in degrees Celsius or Fahrenheit. Can be °C or °F. Factory set: °C.
tc.3d	Changes, which display will show the temperature measured by the external thermocouple. This temperature can be displayed by UP (Upper) or dn (Lower) display. Factory set: Lower.
tc.3 CALL	Will allow re-calibrating the external thermocouple (lower set point) if one will think that the TC-3 reading is not correct. See below for more information.
tc.3 CALH	Will allow re-calibrating the external thermocouple (high set point) if one will think that the TC-3 reading is not correct. See below for more information.
CodE CHG	Code change. See below for more information.

Protection against unauthorized change of pre-programmed parameters

When system is unlocked system feature LOC is set to OFF. All parameters and system features can be altered without restrictions. When system feature LOC is set to On, the system will ask for a code number when someone will try to change pre-programmed values.
The Display will show: CodE 0000 (First digit blinking). To unlock the system, previously selected code number must be entered. If incorrect value of the code number is entered, the display will show Err and sound will be heard for about one second. The system will re-set to the state it was in before an attempt to change the parameter. Properly entered code will unlock the system and allow for parameters change until the system is locked again or until the system is turned-off by ON/OFF switch (or by unplugging the unit from the wall outlet). It is sufficient to enter an appropriate code once during the time when the system is powered.

Changing the CODE:

CodE CHG has to be selected in system parameters menu (F1 + MODE). Then, key F2 must be pressed. The display will than show acod ---- (old code). Previously used code number must be entered and ↵ key pressed. The display will show ncod ---- (new code) and a new code number chosen by the user has to be entered. Display then will show REPt ---- and a new code has to be keyed in one more time. This new code will now be remembered by the system.

Special CODE numbers used by the system:
1234- factory set code on delivery of the system to a customer.
XXXX- „emergency code”; (call or e-mail Bokar International to obtain it. Proof of purchase will be required to release this code). This code will allow changing the code when entered in place of the old code.
YYYY- „master code”; this is manufacturers code which can be used in parallel or instead off the user code. Use of the “master code” does not interfere with currently used code number.

External thermocouple calibration:

NOTE
Please do not perform this calibration if it is not necessary. The unit has been calibrated in the factory and should not need re-calibration.

a. When you are in user settings menu and arrive at the window tc.3 CALL press ENTER.
b. The display will show: CodE. Enter 4-digit code to access low calibration point.

NOTE
If the external TC is not connected to the unit the display will show Er. 17 and the beeper will sound to prompt you to connect the thermocouple.

c. When the code is entered correctly and the external TC is connected to the unit the display will show blinking temperature read by the external TC. Place the TC in known low temperature environment (e.g. ice bath), which you can measure with an independent and calibrated temperature meter. Read this temperature using the independent meter and enter correct value it into FOCUS “X” unit. Press ENTER to confirm.
d. The display will now show tc.3 CALH
e. Press ENTER and the display will show CodE.
f. Enter the 4-digit code to access high calibration point.
g. You may use a container with boiling water as a reference for high calibration point.
h. Place the TC into the high temperature environment. Read this temperature using the independent meter and enter correct value it into FOCUS “X” unit. Press ENTER to confirm.
i. The external TC is now calibrated.

Mode change; (Led.1 is „ON”)

Mode	Pressing “Mode” key will recall actually used MODE. Pressing “Mode” again will advance mode sequentially in a close loop.	
	LIFt	Automatic Lift Mode
	PLCE	Automatic Place Mode
	HdFt	Hand Mode
↵	Pressing “ENTER” key ends MODE change	
Esc	Pressing “Esc” key also ends MODE change	
F1	Pressing “F1” key ends MODE change and enables viewing of pre-set parameters	
F2	Pressing “F2” key ends MODE change and enables change of the first parameter in a given MODE and a given PROGRAM	
Start/Stop	Pressing “START” key ends MODE change and starts the process	

Program change; (Led.2 is „ON”)

Program	Pressing “Program” key will recall actually used PROGRAM. Pressing “Program” key again will advance the PROGRAM sequentially in a close loop. One pre-programmed value is fixed (Program 1) and 30 other PROGRAMS are user programmable (programs 2, 3 ……31)
↵	Pressing “ENTER” key ends PROGRAM change.
Esc	Pressing “Esc” key once returns to the PROGRAM number before initiated change. Pressing “Esc” key the second time also ends the PROGRAM change.
F1	Pressing “F1” ends PROGRAM change and enables viewing of pre-set parameters
F2	Pressing “F2” ends PROGRAM change and enables change of the first parameter in a given PROGRAM
Start/Stop	Pressing “START” key ends PROGRAM change and starts the process

Viewing pre-programmed values and functions (Led.3 is “ON”)

F1	Pressing “F1” key will allow viewing first parameter. Pressing “F1” key or ∧ key will advance viewed parameter sequentially in a close loop. Pressing ∨ will scroll the parameters in reverse.
F2	Pressing “F2” stops viewing and enables a change of the viewed parameter
Esc	Pressing “Esc” key ends parameters viewing mode
Program Mode	Pressing “MODE” or “PROGRAM” enables viewing of current MODE or PROGRAM
Start/Stop	Pressing “START” key ends parameters viewing mode and starts the process

Parameter value change (**Led.4 is „ON”)**

∧	Pressing „arrow up” key will advance value sequentially in a close loop (value + 1)
∨	Pressing „arrow down” key will cause the system to go back to a lower value sequentially in a close loop (value - 1)
↵	Pressing “ENTER” key confirms new parameter value and will cause the system to go back to a parameters viewing mode
Esc	Pressing „Esc” key once returns to the parameter value before change. Pressing „Esc” key second time cause the system to go back to a parameters viewing mode
Program Mode	Pressing “MODE” or “PROGRAM” enables viewing of current MODE or PROGRAM
Start/Stop	Pressing “START” key ends parameters value change and starts the process
F2	Pressing “F2” allows to switch from temperature to time in the same zone

Viewing System Parameters (***Led.3 is “ON”)***

NOTE: To access System Set-up Menu two keys must be pressed at the same time: F1 and Mode for longer than 1/2 of a second.

F1	Pressing „F1” key scrolls up through system parameters sequentially in a close loop
F2	Pressing “F2” key allows entry into a viewed system parameter change
Esc	Pressing “Esc” key ends system parameters viewing mode
Program Mode	Pressing “MODE” and “PROGRAM” enables viewing of current MODE or PROGRAM
Start/Stop	Pressing “START” key ends system parameters viewing and starts the process

System parameters modification after key F2 is pressed (Led.4 is „ON”)

▲	Pressing „arrow up” key will advance system parameters sequentially in a close loop
▼	Pressing „arrow down” key will cause the system to go back to a previous system parameter sequentially in a close loop
↵	Pressing “ENTER” key confirms new system parameter and will cause the system to go back to a system parameters viewing mode
Esc	Pressing “Esc” key ends system parameters viewing mode
Program Mode	Pressing “MODE” and “PROGRAM” enables viewing of current MODE or PROGRAM
Start/Stop	Pressing “START” key cancels current parameter modification and starts the process

Nozzle Offset Entry:

When the system Mode and Program was selected and a nozzle was chosen, and the system lower display shows “Go” the nozzle offset can be entered.

- Press ↵
- The top display will show: EtP and the bottom display will show: OFSS. The displays will change in one second.
- After that the top display: OFSS and the bottom display: 888 indicating pre-programmed offset in degrees Celsius or Fahrenheit (See above: Parameters, which may be pre-programmed).
- Enter required value (measured by you or taken from the table included in this manual) using up ▲ and down ▼ arrows.
- Press enter ↵ to finalize offset number entry. The system will now adjust temperature settings to compensate for the temperature drop between the nozzle entering point and the point of air (or nitrogen) exit from the nozzle to solder or de-solder the component.

NOTE
Each program stores nozzle offset independently so that you can set different value for each program (in other words you can use different program for different nozzles).

Because each nozzle has different temperature drop, this offset compensation makes possible to achieve very accurate temperature control at the point of soldering.

System information

LED Indicator

- Led 1 – MODE change
- Led.2 – PROGRAM change
- Led.3 – Parameters viewing mode in a given Program
- Led.4 – Values or System parameter change

Red LED Indicators Showing Zone during the Process or viewing pre-programmed parameters:

- PREHEAT - Preheat Zones. This LED indicates both preheat zones. It blinks slowly in PREHEAT1 and stays all the time “on” in PREHEAT2
- SOAK - Soak Zone (to equalize the temperature across the component)
- REFLOW - Reflow Zone in which the solder melts.
- COOL - Cooling Zone (To cool the component after reflow for more reliable connections)

USING EXTERNAL THERMOCOUPLE

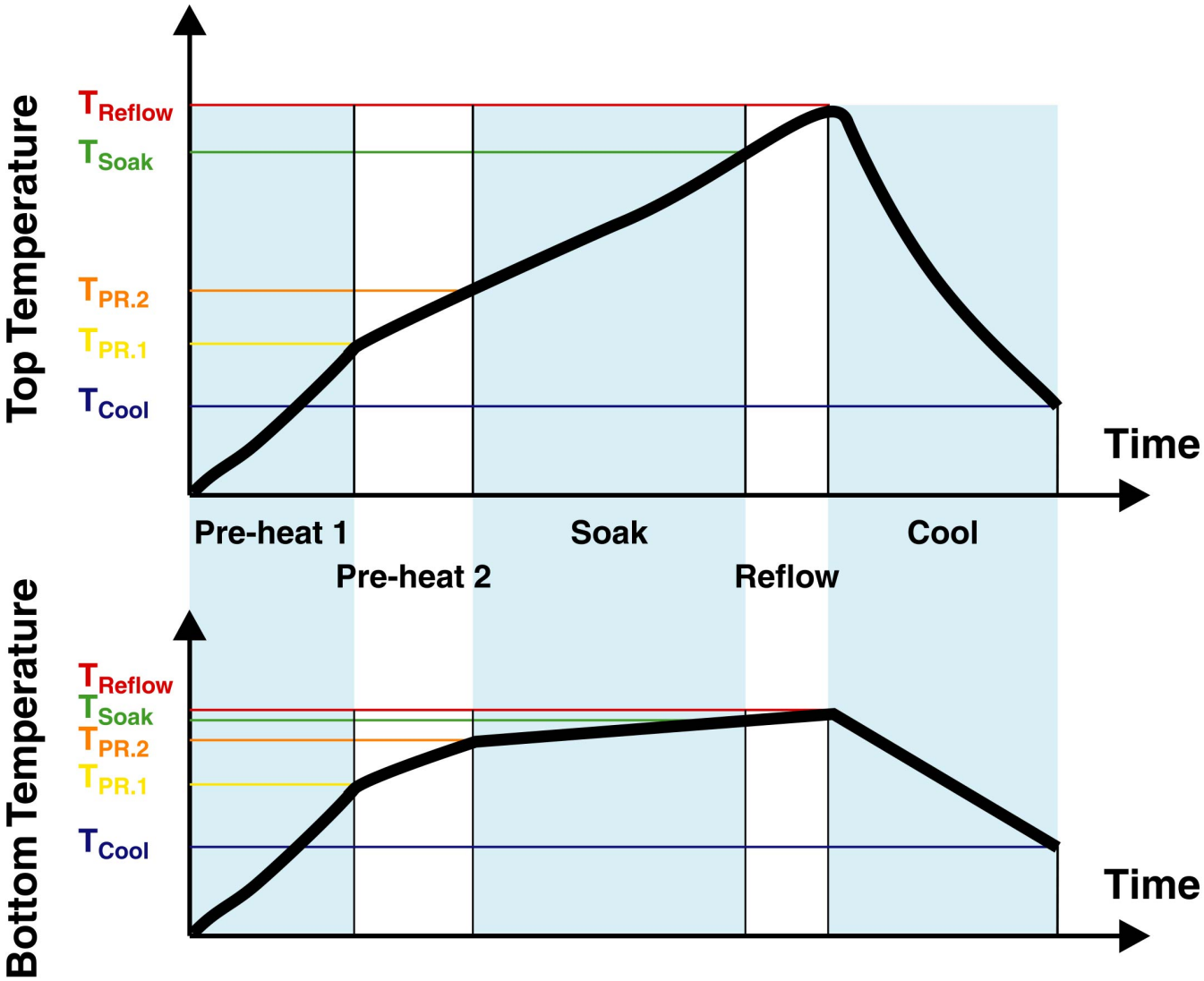
1. To activate the temperature measurement by external thermocouple:
   a. Connect thermocouple to the thermocouple connector.
   b. Set the unit POWER Switch to “ON” position.
   c. Set the Thermocouple Switch to “ON” position. Thermocouple indicator illuminates red when the thermocouple is connected. The red indicator blinks when the thermocouple is not connected or is broken.
   d. Upper or Lower display shows temperature measured by the external thermocouple. It depends on user setting.

NOTE
When thermocouple is not connected, thermocouple indicator is blinking.

2. Turning the measurement by external thermocouple “OFF”:
   a. Set the thermocouple switch to “OFF” position.

3. Thermocouple calibration:
   a. Connect thermocouple to the thermocouple connector.
   b. Set the unit POWER Switch to “ON” position.
   c. Set the Thermocouple Switch to “ON” position. Thermocouple indicator illuminates red when the thermocouple is connected. The red indicator blinks when the thermocouple is not connected or is broken.
   d. Press together keys F1 and MODE, for more than 0,5 sec. – you are in system parameters menu.
   e. Select   or   to change low temperature or high temperature reference value for your thermocouple.

VIII HOW TO PRE-PROGRAM A PROFILE



For each zone you can set the following values:

1. top.t – Top temperature. Temperature of hot gas at the end of the nozzle installed on XHT-15 (FOCUS ”X” Handpiece). Value can be set between 70-450 °C.
2. bot.t – Bottom temperature. Temperature of the preheat of the PCB by hot gas from the pre-hater base (SMT-ServiCE or X-1001 Series). Value can be set between 70-150 °C.
3. Prht – Pre-heater control – Can be OFF, which means that bottom pre-heater is not controlled by FOCUS ”X” or ON, which means that FOCUS ”X” controls the pre-heater. This option is available only when pre-heater control in USER SET menu is set to “ON”.
4. Time duration of each zone can be pre-set from 0 sec. To 999 sec.

NOTE
If in system setting pre-heater control is set to “OFF ” or “Auto”,, bottom temperature can not be pre-programmed.

The example below will show step by step how to pre-program the LIFT or PLACE profile.

1. Connect the unit to appropriate power outlet.
2. Turn "ON" the power switch. Power switch will illuminate.
3. The TOP display will show "On" for a fraction of a second and than the Mode and the profile number, which was used before the system shut down. E.g. PL.03 means Place Mode, Program #3. The BOTTOM display will show "Go".
4. To pre-program the next profile we have to find first the empty space.
   Press Program. The TOP display will show "PLCE" and BOTTOM display will show next program number.
5. Press ↵ and displays will show: PL.04 and Go.
6. Press F1. The displays will show: TOP display -either the **two or three digit number** or **0°** and the BOTTOM display **toP.t** and **Pht.1** alternating. If there is **zero temperature** on the TOP display it means that the profile space is empty. One can pre-program his/her profile as profile number 04. If not, please keep changing the profiles until you find the empty space (or override the existing profile).
7. For this example we will pre-program profile number PL.04
   a. Our TOP display shows **0°**, view (green, rectangular) indicator is “on”, **PREHEAT1** (red LED) is “on” and the BOTTOM display shows **toP.t** and **Pht.1** alternating.
   b. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
   c. Using UP and DOWN arrow keys set desired **PREHEAT1 temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
   d. Press F1 key. TOP display shows **0°**, view (green, rectangular) indicator is “on”, **PREHEAT1** (red LED) is “on” and the BOTTOM display shows **boot.t** and **Pht.1** alternating.
   e. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
   f. Using UP and DOWN arrow keys set desired **PREHEAT1 temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
   g. Press F1 key. TOP display will show **SEC** and **Pht.1** alternating, view (green, rectangular) indicator is “on”, **PREHEAT1** (red LED) is “on” and the BOTTOM display shows **0**.
   h. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
   i. Using UP and DOWN arrow keys set desired **time duration for PREHEAT1** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
   j. Press F1 key. TOP display shows **0°,** view (green, rectangular) indicator is “on”, **PREHEAT2** (red LED) is “on” and the BOTTOM display shows **toP.t** and **Pht.2** alternating.
   k. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
   l. Using UP and DOWN arrow keys set desired **PREHEAT2 temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
   m. Press F1 key. TOP display shows **0°**, view (green, rectangular) indicator is “on”, **PREHEAT1** (red LED) is “on” and the BOTTOM display shows **boot.t** and **Pht.2** alternating.
   n. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
   o. Using UP and DOWN arrow keys set desired **PREHEAT2 temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
   p. Press F1 key. TOP display will show **SEC** and **Pht.2** alternating, view (green, rectangular) indicator is “on”, **PREHEAT2** (red LED) is “on” and the BOTTOM display shows **0**.
   q. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
   r. Using UP and DOWN arrow keys set desired **time duration for PREHEAT2** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
   s. Press F1 key. TOP display shows **0°,** view (green, rectangular) indicator is “on”, **SOAK** (red LED) is “on” and the BOTTOM display shows **toP.t** and **HEAT** alternating.
   t. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
   u. Using UP and DOWN arrow keys set desired **SOAK temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
   v. Press F1 key. TOP display shows **0°**, view (green, rectangular) indicator is “on”, **PREHEAT1** (red LED) is “on” and the BOTTOM display shows **boot.t** and **HEAT** alternating.
   w. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
   x. Using UP and DOWN arrow keys set desired **SOAK temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.

y. Press F1 key. TOP display will show **SEC** and **HEAT** alternating, view (green, rectangular) indicator is “on”, **SOAK** (red LED) is “on” and the BOTTOM display shows **0**.
z. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
aa. Using UP and DOWN arrow keys set desired **time duration for SOAK** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
bb. Press F1 key. TOP display shows **0°,** view (green, rectangular) indicator is “on”, **REFLOW** (red LED) is “on” and the BOTTOM display shows **toP.t** and **rEFL** alternating.
cc. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
dd. Using UP and DOWN arrow keys set desired **REFLOW temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
ee. Press F1 key. TOP display shows **0°**, view (green, rectangular) indicator is “on”, **PREHEAT1** (red LED) is “on” and the BOTTOM display shows **boot.t** and **rEFL** alternating.
ff. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
gg. Using UP and DOWN arrow keys set desired **REFLOW temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
hh. Press F1 key. TOP display will show **SEC** and **rEFL** alternating, view (green, rectangular) indicator is “on”, **REFLOW** (red LED) is “on” and the BOTTOM display shows **0**.
ii. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
jj. Using UP and DOWN arrow keys set desired **time duration for REFLOW** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
kk. Press F1 key. TOP display shows **0°,** view (green, rectangular) indicator is “on”, **COOL** (red LED) is “on” and the BOTTOM display shows **toP.t** and **COOL** alternating.
ll. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
mm. Using UP and DOWN arrow keys set desired **COOL temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
nn. Press F1 key. TOP display shows **0°**, view (green, rectangular) indicator is “on”, **PREHEAT1** (red LED) is “on” and the BOTTOM display shows **boot.t** and **COOL** alternating.
oo. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
pp. Using UP and DOWN arrow keys set desired **COOL temperature** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
qq. Press F1 key. TOP display will show **SEC** and **COOL** alternating, view (green, rectangular) indicator is “on”, **COOL** (red LED) is “on” and the BOTTOM display shows **0**.
rr. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
ss. Using UP and DOWN arrow keys set desired **time duration for COOL** zone. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.
tt. Press F1 twice key. Our TOP display shows **OFFS,** view (green, rectangular) indicator is “on”, and the BOTTOM display shows **0°**.
uu. Press F2 key to activate SET function. SET (green, rectangular) indicator illuminates.
vv. Using UP and DOWN arrow keys set desired **Offset temperature**. Press ↵ to write it into memory. The displays and indicators will go back VIEW function.

Program process is finished.

Pressing Esc key ends parameters viewing mode

Pressing F1 key or UP key will advance viewed parameter sequentially in a close loop. Pressing DOWN key will scroll the parameters in reverse.

Press Start/Stop key, the heater switch (H button) on Hand Piece or XFS-1 foot switch to activate heating cycle and start the rework process.

IX TECHNICAL SPECIFICATIONS

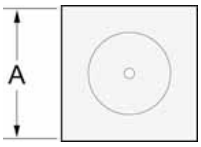
Input Voltages	110-120 or 220-240V AC
Power Consumption	750W
Fuse	8A for 110-120V or 5A for 220-240V Slow-Blow 5mm x 20mm
Heater	Resistive, 710W line voltage
Heater Control	PID, Closed-Loop Thermocouple sensor feedback
Air Source	High efficiency diaphragm pump
Air Flow	Variable, 3 – 25 l/min, air flow controlled by the valve located on the front panel
Temperature	70 ºC – 450 ºC (158 ºF – 842 ºF)
Weight	3.5kg (7.7 lbs)
System dimensions	150mm x 220mm x 220mm (5.9” x 8.7” x 8.7”)
Packaged weight	4,4kg (9.7 lbs)

FOCUS”X” pre-programmed Profiles

TOP SIDE HEATING

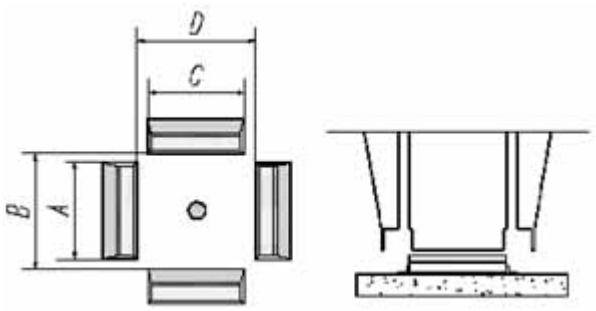
		Temperature		Time (s)
		^{0}C	°F	
HAND MODE Program	Max. Temperature	350	662	----------
LIFT Program	Preheat 1	120	248	30
	Preheat 2	120	248	30
	Soak	150	302	30
	Peak	260	500	40
	Cool	100	212	120
PLACE Program	Preheat 1	100	212	30
	Preheat 2	100	212	30
	Soak	160	320	60
	Peak	240	464	60
	Cool	100	212	120

IX STANDARD NOZZLES (Custom nozzles available upon request)



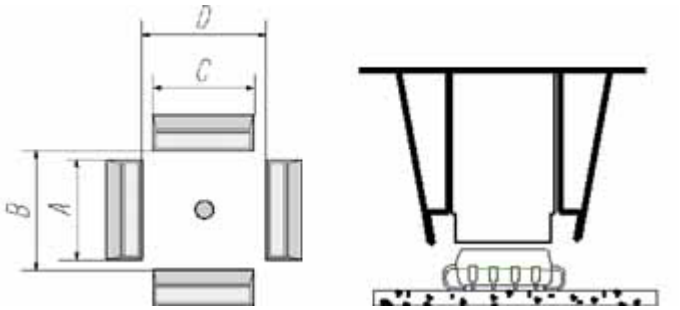
BGA/CSP FOCUS SERIES CONVECTION NOZZLES

Part Number	Nozzle Number	A (inside diameter)		Suggested Package
		Inch	mm	
XNB-100A	**XNB 7X7**	0.315	8	BGA16, BGA25
XNB-100	**XNB 8X8**	0.393	10	BGA16, BGA25
XNB-100B	**XNB 10,5X10,5**	0.413	10,5	BGA16, BGA25
XNB-100C	**XNB 7,5X9**	0.295x0.354	7,5x9	BGA16, BGA25
XNB-101A	**XNB 12,4X12,4**	0.488	12,4	BGA49, BGA 64
XNB-101	**XNB 12X12**	0.551	14	BGA49, BGA 64
XNB-102A	**XNB 13,6X13,6**	0.512	13	BGA49, BGA 64
XNB-102	**XNB 13X13**	0.590	15	BGA49, BGA 64
XNB-103	**XNB 15X15**	0.669	17	BGA81, BGA100
XNB-104	**XNB 17X17**	0.748	19	BGA121
XNB-105	**XNB 19X19**	0.787	21	BGA141, BGA121
XNB-106	**XNB 23X23**	0.984	25	BGA169
XNB-107	**XNB 27X27**	1.142	29	BGA324, BGA225, BGA289
XNB-108	**XNB 35X35**	1.457	37	BGA529, BGA484
XNB-109	**XNB 38X38**	1.575	40	BGA576, BGA625
XNB-110	**XNB 40X40**	1.654	42	BGA625, BGA676
XNB-111	**XNB 5,5X13,5**	0.216x0.531	5,5x13,5	BGA49, BGA64
XNB-112	**XNB 11.3X12,4**	0.445x0.488	11,3x12,4	BGA49, BGA64
XNB-113	**XNB 7X7**	0.315	8	BGA16, BGA25
XNB-114	**XNB 8,8X8**	0.346x0.315	8,8x8	
XNB-115	**XNB 5.5X15,9**	0.216x0.626	5,5x15,9	
XNB-116	**XNB 6,8x7,4**	0.268x0.291	6,8x7,4	
XNB-117	**XNB 7x11**	0.276x0.433	7x11	
XNB-118	**XNB 11x33**	0.433x1.299	11x33	
XNB-119	**XNB 7,6x7,6**	0.299x0.299	7,6x7,6	
XNB-120	**XNB 12x14**	0.472x0.551	12x14	
XNB-121	**XNB 6x6**	0.236x0.236	6x6	
XNB-122	**XNB 15x28**	0.590x1.102	15x28	
XNB-123	**XNB 32x32**	1.260x1.260	32x32	



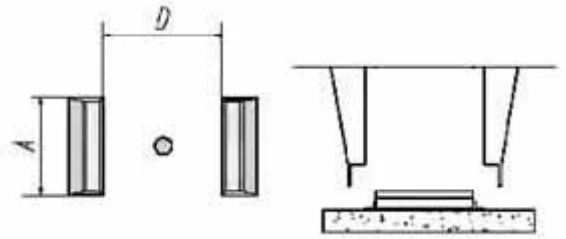
QFP/BQFP FOCUS SERIES CONVECTION NOZZLES

Part Number	Nozzle Number	A		B		C		D		Suggested Package
		inch	mm	inch	mm	inch	mm	inch	mm	
XNQ-200	**XNQ 12x12**	0.472	12	0.551	14	0.472	12	0.551	14	QFP64, QFP48, QFP80, BQFP28
XNQ-201	**XNQ 14x14**	0.591	15	0.677	17,2	0.591	15	0.677	17,2	SQFP100, TQF100
XNQ-202	**XNQ 14x20**	0.591	15	0.665	16,9	0.827	21	0.906	23	QFP128, QFP80, QFP100
XNQ-203	**XNQ 16x16**	0.629	16	0.826	21	0.629	16	0.826	21	BQFP100T25, QFPT63
XNQ-204	**XNQ 17.5x17.5**	0.590	15	0.728	18,5	0.590	15	0.728	18,5	BQFP84
XNQ-205	**XNQ 24x24**	0.827	21	0.953	24,2	0.827	21	0.953	24,2	BQFP132, FQFP176
XNQ-206	**XNQ 28x28**	1.142	29	1.220	31	1.142	29	1.220	31	QFP128, SQFP208
XNQ-207	**XNQ 32x32**	1.220	31	1.315	33,4	1.220	31	1.315	33,4	QFP184T, FQFP408
XNQ-208	**XNQ 37x37**	1.220	31	1.457	37	1.220	31	1.457	37	BQFP196
XNQ-209	**XNQ 40x40**	1.535	39	1.654	42	1.535	39	1.654	42	BQFP244



PLCC FOCUS SERIES CONVECTION NOZZLES

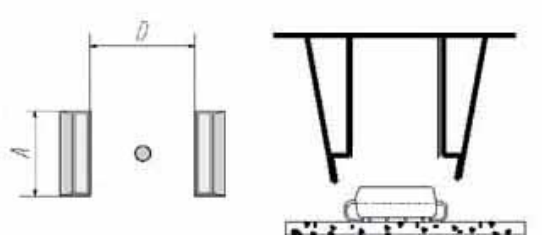
Part Number	Nozzle Number	A		B		C		D		Suggested Package
		inch	mm	inch	mm	inch	mm	inch	mm	
XNP-300	**XNP 7,3x12,5**	0.272	6,9	0.354	9	0.272	6,9	0.551	14	PLCC 7,3X12,5
XNP-301	**XNP 11,5x11,5**	0.394	10	0.512	13	0.394	10	0.512	13	PLCC28
XNP-302	**XNP 11,5x14**	0.591	15	0.591	15	0.394	10	0.512	13	PLCC 11,5X14
XNP-303	**XNP 17,5x17,5**	0.591	15	0.728	18,5	0.591	15	0.728	18,5	PLCC44
XNP-304	**XNP 20x20**	0.748	19	0.827	21	0.748	19	0.827	21	PLCC52
XNP-305	**XNP 25x25**	0.945	24	1.024	26	0.945	24	1.024	26	PLCC68
XNP-306	**XNP 30X30**	1.142	29	1.220	31	1.142	29	1.220	31	PLCC84
XNP-307	**XNP 11,5x25**	0.945	24	1.354	34,4	0.394	10	0.480	12,2	PLCC 11.5x25
XNP-308	**XNP 9x9**	0.272	6,9	0,299	7,6	0.272	6,9	0,299	7,6	LQFP 48



SO/SOL FOCUS SERIES CONVECTION NOZZLES

Part Number	Nozzle Number	A		D		Suggested Package
		inch	mm	inch	mm	
XNS-400	**XNS 4.4x10**	0.394	10	0.189	4,8	SO16
XNS-402	**XNS 5.6x13**	0.591	15	0.224	5,7	SSOP8T
XNS-403	**XNS 7.6x15**	0.630	16	0.283	8,2	SOL20/26, TSOP20/24
XNS-404	**XNS 7.6x18**	0.748	19	0.283	8,2	TSOP24
XNS-405	**XNS 7.6x12.7**	0.472	12	0.323	8,2	SOL20, TSOP28
XNS-406	**XNS 19x8**	0.315	8	0.748	19	TSOP32
XNS-407	**XNS 8.6x18**	0.748	19	0.343	8,7	TSOP28/32
XNS-408	**XNS 18.5x12**	0.748	15	0.728	19,5	TSOP40/48
XNS-409	**XNS 13x28**	1.142	29	0.531	13,5	PSOP44
XNS-410	**XNS 21X11.3**	0.827	21	0.445	11,3	SOP32

XNS-411	**XNS 11,5X27,5**	0.439	11,5	1.083	27,5	SOP32
XNS-412	**XNS 4,4x5**	0.173	4,4	0.199	5	

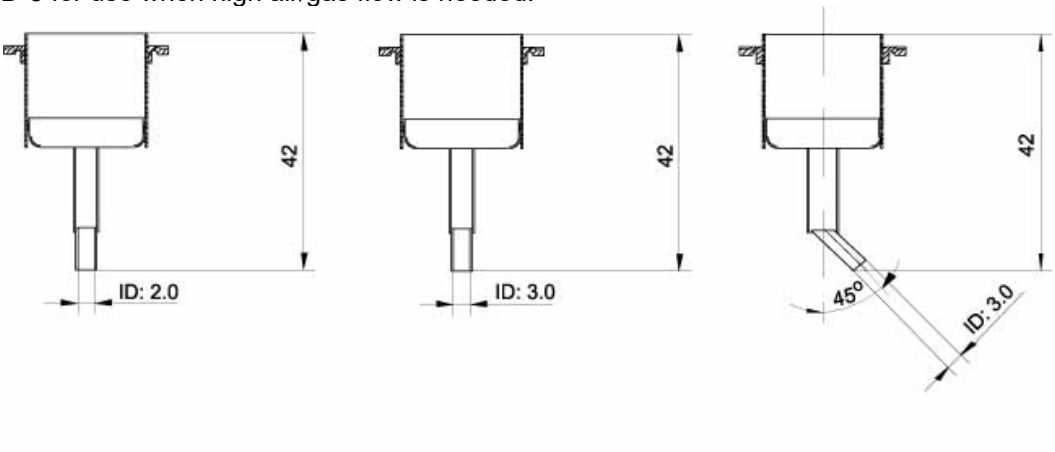


SOJ FOCUS SERIES CONVECTION NOZZLES

Part Number	Nozzle Number	A		D		Suggested Package
		inch	mm	inch	mm	
XNS-401	**XNS 15x8.2**	0.591	15	0.323	8,2	SOJ20
XNS-413	**XNS 4,9x19**	0.193	4,9	0.748	19	

DISCRETE NOZZLES

XND-4 and XND-5 for use when high air/gas flow is needed.



XND-1 **XND-2** **XND-3**

XND-4 **XND-5**

VIII. NOZZLE OFFSET TABLE

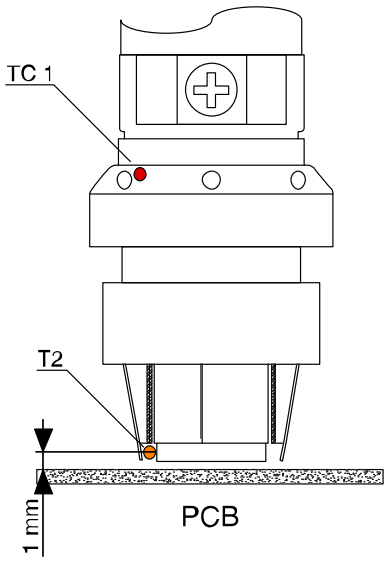
Calculated for 15l/min. Please confirm the offset for your air settings.

Note: For the most accurate readings, nozzle offset must be entered every time one changes the nozzle. Nozzle offset Table

Nozzle Description	Nozzle Number	Measured at 15l/min Nozzle offset °C	°F
XNB 8x8	100	0	32
XNB 12x12	101	15	59
XNB 13x13	102	20	68
XNB 15x15	103	20	68
XNB 17x17	104	20	68
XNB 19x19	105	25	77
XNB 23x23	106	30	86
XNB 27x27	107	25	77
XNB 35x35	108	30	86
XNB 38x38	109	30	86
XNB 40x40	110	30	86
XNQ 12x12	200	45	113
XNQ 14x14	201	55	131
XNQ 14x20	202	65	149
XNQ 16x16	203	60	140
XNQ 17.5x17.5	204	55	131
XNQ 24x24	205	70	158
XNQ 28x28	206	75	167
XNQ 32x32	207	65	149
XNQ 37x37	208	110	230
XNQ 40x40	209	110	230
XNP 7.3x12.5	300	55	131
XNP 11.5x11.5	301	50	122
XNP 11.5x14	202	65	149
XNP 17.5x17.5	303	55	131
XNP 20x20	304	75	167
XNP 25x25	305	70	158
XNP 30x30	306	75	167
XNS 4.4x10	400	40	104
XNS 15x8.2	401	40	104
XNS 5.6x13	402	60	140
XNS 7.6x15	403	60	140
XNS 7.6x18	404	50	122
XNS 7.6x12.7	405	10	50
XNS 19x8	406	30	86
XNS 8.6x18	407	60	140
XNS 18.5x12	408	60	158
XNS 13x28	409	70	158
XND-1	XND-1	60	140
XND-2	XND-2	60	140
XND-3	XND-3	70	158
XND-4	XND-4	10	50
XND-5	XND-5	0	32

TC 1 = Sensor Temperature

T2 = Air Temperature



The Nozzle offset is the temperature difference between sensor temperature TC 1 and the actual temperature of the air at the nozzle end (measured 1 mm above the PCB and in the center of the air stream.

Nozzle offset = TC 1 – T2

Note: The offset measurement will vary depending on temperature sensor position, which measures T2.
The system has built-in function, which allows the user to verify the measurements and create his own offset table depending on his measurement method and his own offset definition.

XI SPARE PARTS LIST

PN	Description
30187S	Keyboard Pad
30181S	Triac BTA 26/700V
30202S	Triac BTA 12/600V
30214S	Diode BYT 12 P 800 (220V)
30871S	Fuse 20mm 8A (115V)
30872S	Fuse 20mm 5A (220V)
10240S	Air Flow Meter 3-20 l/min
10157S	Air Volume Control needle valve assembly
10151S	Air Pump Assembly
20288S	Vacuum Pump Assembly
30297S	Air Valve Knob
20100S	Power switch (green)
20574S	Power Cord 115V
30877S	Power Cord 230V
30230S	Temperature control PCB
30869S	Heater Assembly
30870S	Heater tube assembly
10310S	Hand piece housing Assembly
20357S	Power Transformer
10138S	Vacuum Solenoid J2
XFS-1	Foot Switch
XT-1	Vacuum Cup Insertion/Removal Tool
XNR-2	Nozzle Handling Cup
XVCS-10	Vacuum Cup Set
XHT-15 -115	Hand piece Assembly 115V
XHT-15 -230	Hand piece Assembly 230V
XHT-2	Tool Holder Assembly
XQF	Quick Connect

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FOCUS SERIES ACCESSORIES and recommended ADDITIONAL PRODUCTS to make rework easier and safer.

1. Range of Nozzles (see above)

2. **XFS-1** Foot Switch
   Necessary to use cycle advance feature which helps a lot when re-working a new board. (Included with FOCUS”X” system)

3. **XVCS Series** (Vacuum Pick-Up Pad Set)
   Made of high temperature ESD silicone and have molded inside stopper to prevent vacuum tube from protruding though the cup.
   XVCW-10 Diameter: 10 mm (~.4 inch)
   XVCW-8 Diameter: 8 mm (~.315 inch)
   XVCW-6 Diameter: 6 mm (~.25 inch)

XVCW-10 XVCW-8 XVCW-6

XVCS-5 Set includes: XVCW-10 1 pcs, XVCW-8 2 pcs, XVCW-6 2 pcs
XVCS-10 Set includes: XVCW-10 2 pcs, XVCW-8 4 pcs, XVCW-6 4 pcs

4. **X-T1** Vacuum Pad Insertion/Removal Tool
   Super practical to insert vacuum cup on hot vacuum tube.
   (Included with the system)

5. **XNR-1** Nozzle Insertion Removal Tool
   Tool to handle the nozzles when they are hot, if someone does not like the Nozzle handling Cup (shown below).

6. **XNR-2** Hot Nozzle Handling Cup.
   Handy, simple tool to handle the nozzles when they are hot
   (Included with the system).

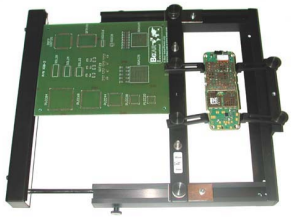
7. **XFQ** - Quick Connect.
   This nozzle adapter makes the nozzle change is fast and easy

8. **XNH-1** Nozzle holder.
   Practical means to store hot nozzles during rework

9. **XNH-2** Nozzle holder (For large nozzles)

10. **XU-5** Open Frame Board Holder
    Precise, with X-Y micrometer positioning for PCB fine adjustment.
    Extends to accommodate large boards.

11. **XU-1S or XU-1** Retractable Board Holder
(Maximum board size 12” (305mm) x open end).
Probably the most versatile and practical board holder for rework.



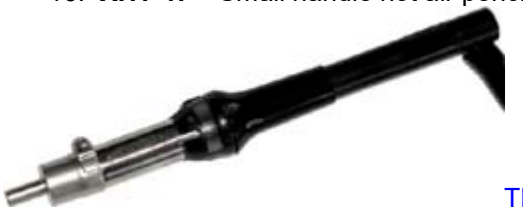
12. **XU-Mini** Irregular Shape PCB Holder (e.g. Cellular Phone).
Universal, can stretch to accommodate 10” wide boards.

13. **XCBH-1** Board Holder for Cellular Phone Boards
Includes small arms equipped with mounting pins to support phone PCB’s.

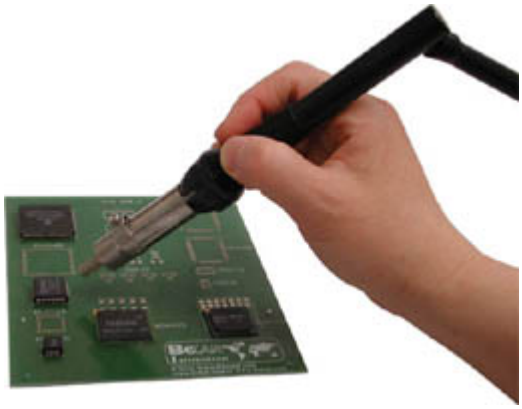
14. **XK-Series or XK-AL Series** - Adjustable Tool Holders for precision movement of the tool up and down. XK-3 tool holder includes the rotation stage allowing for theta adjustment (rotation) of the tool.
One of a kind, precise, durable. Prepared for XIL-2 Long Life Illumination System. XK-AL models include Auto-Lift to lift the component at the end of the reflow zone.

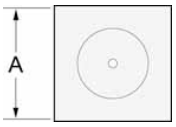
15. **X-1001** Series Under Board Convection Pre-Heaters For SMT Rework/Repair
Intelligent, with variable air volume and air temperature control.

16. **XHT-1P** - Small handle hot air pencil (300W) for FOCUS"X"



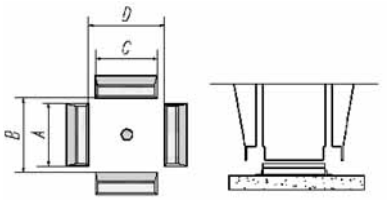
This is the only in existence small, hot air pencil ideal for women operators with the heating power of 250W.





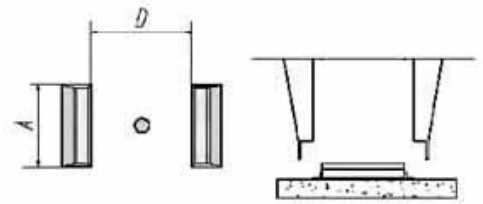
BGA/CSP Mini Convection Nozzles

Part Number	A (inside diameter)	
	Inch	mm
XMB-100	0.291	7,4
XMB-100A	0.315	8
XMB-101A	0.488	12,4
XMB-102A	0.512	13
XMB-111	0.275	7



QFP/BQFP Mini Convection Nozzle

Part Number	A		B		C		D	
	inch	mm	inch	mm	inch	mm	inch	mm
XMQ 200	0.275	7	0.315	8	0.275	7	0.315	8



SO/SOL Mini Convection Nozzle

Nozzle Number	A		D	
	inch	mm	inch	mm
XMS 400	0.260	6,6	0.205	5,2

Mini Discrete Nozzles