



MODEL **XPR-600 PREHEATER**

OPERATION MANUAL



WARNING

Before using the XPR-600 Preheater, read the Owner's Operation Manual. Failure to follow the safety precautions and instructions in this manual could result in serious injury and property damage.

Thank you for buying the **goot® XPR-600 Preheater**.

Your new preheater has been engineered and manufactured to **goot's®** high standards for dependability, ease of operation, and operator safety. If you follow the instructions and safety precautions in this manual and use the preheater properly and only for what it is intended, you will enjoy years of safe, reliable service. Thank you again for buying a **goot® XPR-600 Preheater**.

KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE

TAIYO ELECTRIC IND.CO.,LTD.

ABOUT WARNINGS AND CAUTIONS:

Warnings, Cautions and illustrations contained in this manual are to assure the safe and proper use of the preheater and to protect the operator and operator's property against damage. Read all the instructions and understand them completely before reading this manual.



WARNING

Failure to obey a safety warning could result in serious injury or death to you or to others. Always follow the safety precautions to reduce the risk of electric shock, fire, burns or personal injury.



CAUTION

Failure to obey a safety caution may result in a minor or moderate injury to you or to others. Always follow the safety precautions to reduce the risk of electric shock, fire, burns or personal injury.

NOTE: Advises you of information or instructions important to the operation or maintenance of the preheater.

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2. SAFETY INFORMATION

READ ALL INSTRUCTIONS

To assure safe operation, always follow the rules listed below. Be sure to read, understand and follow all the safety precautions in this manual.



WARNING

Do not attempt to operate the XPR-600 Preheater until you have read thoroughly and understand completely all instructions, safety rules, etc. contained in this manual. Failure to comply may result in accidents involving fire, burns, electric shock, or serious personal injury.



WARNING

This is an anti-static model. Be sure to properly ground the preheater using a grounded receptacle to prevent electric shocks and anti-static. If it is not properly grounded, electric shocks will occur. As the preheater uses conductive materials, please be careful not to touch any electrical power source or a serious injury will result.



WARNING

Never place flammable substances on or near the hot air output opening or a fire may result.

1. KNOW YOUR XPR-600 PREHEATER.

Read the owner's operation manual carefully. Safe operation of the **XPR-600 Preheater** requires that you read and understand this operation manual and all labels affixed to the preheater. Learn its applications and limitations as well as the specific potential hazards related to this preheater.

2. DO NOT USE IN DANGEROUS ENVIRONMENTS.

Do not use the **XPR-600 Preheater** in damp, humid or wet locations and never expose it to rain. Never use it in an explosive atmosphere. Keep the work area well lit.

3. KEEP CHILDREN AND BYSTANDERS AWAY FROM THE XPR-600 PREHEATER.

Do not let bystanders touch the **XPR-600 Preheater**. All bystanders should be kept a safe distance from the work area.

4. USE FOR THE RIGHT JOB.

Your **XPR-600 Preheater** is an electric tool used for preheating PCBs. Do not use it for any purpose not intended. For example: never use it to warm up water or other liquids.

5. WEAR PROPER APPAREL AND SAFETY GLASSES.

Do not wear loose clothing such as a necktie. Tie up long hair. Clothing or hair can burn by contacting the hot air output opening

6. CONNECT TO THE SPECIFIED POWER SUPPLY.

The power voltage for this **XPR-600 Preheater** is indicated on the Preheater Label on the rear side of the main unit. Never plug the **XPR-600** into any other voltage.

7. DO NOT ABUSE THE POWER CORD AND INSPECT IT PERIODICALLY.

Never yank the power cord to disconnect it from the receptacle. Keep the power cord away from heat, oil and sharp edges. If it is damaged, contact the nearest distributor for a new one.

8. TURN THE TEMPERATURE CONTROL KNOB WITH CARE.

Do not turn the temperature control knob past the scale range 100°C (Min.) and 300°C (Max.) or the knob and the volume may be damaged.

9. HOT AIR OUTPUT OPENING

Never place the PCB directly on the hot air output opening. Doing so will damage the PCB and components. Use a **goot® XU-1** or **XU-2** board holder to position the board properly.

3. INTRODUCTION

3.1. OUTLINE

This is a hot air type preheater designed for use as a basic rework unit. By preheating, many types of PCB rework operations become possible while maintaining a high degree of quality and efficiency. Various components (from discrete components to QFP/BGA/CSP etc) can be reworked, by incorporating the use of a soldering iron, board holder, tool holder, hot air pencil, hot air SMT rework tools, etc., with this preheater. For more information about system expansion, please refer to section 6.3 of this manual.

3.2. SPECIFICATIONS

Input Voltage	110-130, 220-240 VAC
Power Consumption	530-630 W
Hot Air Temperature	100 - 300 °C
Hot Air Output Opening	58 X 58mm
Insulation Resistance	Over 10 MΩ
Ground Resistance	Less than 0.1 Ω
Dimensions	413 (L) X 266 (W) X 90 (H)mm
Weight	5.5 kg

4. CONTENTS OF PACKAGE

Unpacking

- If any parts are damaged or missing, contact a **goot®** authorized service center to obtain replacement parts before attempting to operate the preheater.

Packing List

- Preheater 1
- Power Cord 1
- Operation Manual 1
- Board Holder Fixing Bracket 1



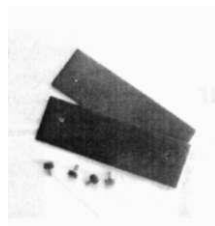
PREHEATER



POWER CORD



OPERATION MANUAL

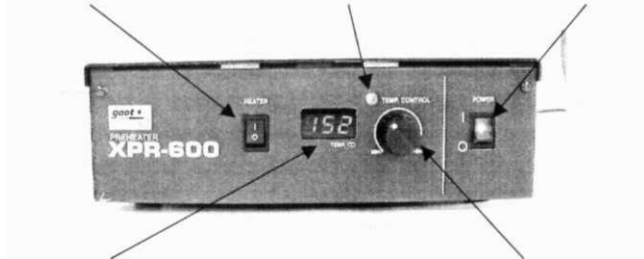


BOARD HOLDER FIXING BRACKET

5. NAME OF PARTS

HEATER SWITCH HEAT MONITOR LAMP POWER SWITCH

Front



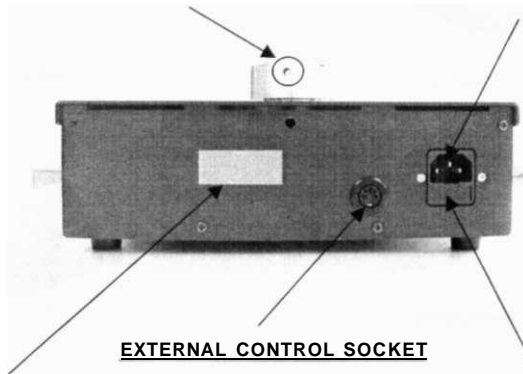
TEMPERATURE DISPLAY

TEMPERATURE CONTROL KNOB

OPTIONAL SUPPORT HOLDER SETSCREW

POWER CORD SOCKET

Rear



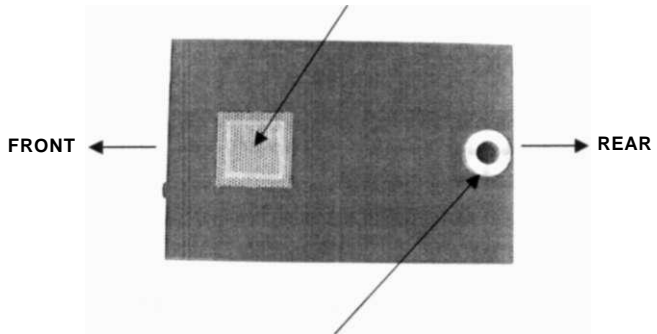
EXTERNAL CONTROL SOCKET

PREHEATER LABEL

FUSE HOLDER

VIEW FROM ABOVE

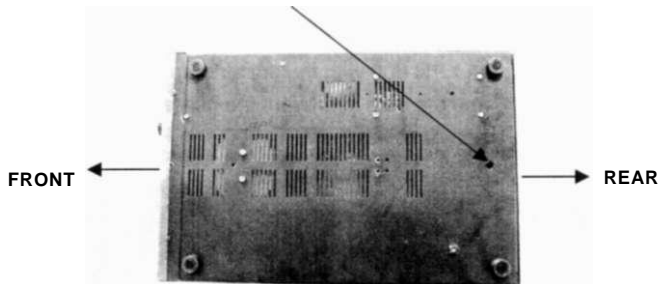
HOT AIR OUTPUT OPENING



OPTIONAL SUPPORT HOLDER

VIEW FROM BELOW

SCREW HOLE TO FIX OPTIONAL SUPPORT HOLDER



6. OPERATION INSTRUCTIONS

6.1 HOW TO OPERATE



WARNING

To prevent fire, keep the XPR-600 Preheater away from flammable substances and materials in the work area. Failure to do so could result in a serious accident.



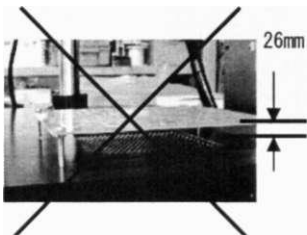
CAUTION

The preheater hot air temperature management graph (page 17) gives the temperature measured at a point 26mm above the center of the hot air output opening. Placing the PCB too close to the hot air output opening or coming in direct contact with it may cause damage to the parts or the surrounding area. Adjusting the temperature to over 250°C may also cause damage to the PCB and the components.

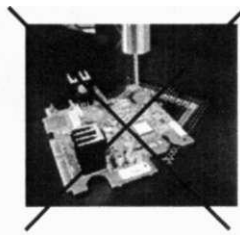


CAUTION

Place the PCB more than 26mm above the center of the hot air output opening. If using the XPR-600 with the hot air output opening blocked, the hot air cannot be output, and the fuse to prevent the heater from overheating can blow. Please take care when handling the XPR-600 and PCBs.

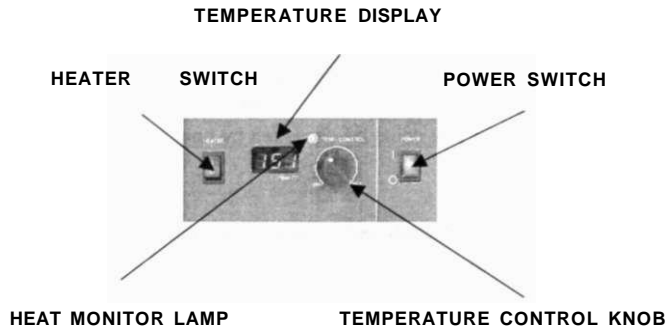


The clearance between the hot air output opening and the PCB is less than 26mm.



The hot air output opening is blocked by parts such as a PCB.

- 1. Place the preheater on a flat working surface in a well ventilated area.**
Keep anything that easily burns away from the hot air output opening. In addition, keep any other items that could be damaged by heat away from the hot air output opening.
- 2. Check that the Power Switch and the Heater Switch are in the OFF (O) position before plugging it in.**
- 3. Plug the enclosed power cord securely into the power cord socket at the rear of the unit.**
- 4. The power cord plug is a ground pin type. Plug it into a ground pin type receptacle.**
Never remove the ground pin.
- 5. Set the PCB on the *goot*® XU-1 or XU-2 board holder.**
- 6. Turn the Power Switch to the ON (I) position.**
The Power Switch Lamp will light and the built-in fan unit will start outputting air from the hot air output opening.
- 7. Set the Temperature Control Knob to the required temperature.**
(The Temperature Control Knob indicates the temperature of the air outputted from the hot air output opening. For the approximate temperature for the PCB, refer to the hot air temperature management graph on page 17.)
- 8. To set the temperature of the hot air output please refer to the Hot Air Temperature Management Graph (on p.17).**
- 9. Set the Heater Switch to the ON (I) position.**
The Heater Monitor Lamp will light and the heater will start to heat up. Hot air will be outputted from the hot air output opening. When the heater reaches the set temperature, the Heater Monitor Lamp will begin to flicker and work can begin.



NOTE: When the Heater Switch is turned ON, or the position of the Temperature Control Knob is changed during operation, about 3 minutes is required for the heat to stabilize at the new temperature. To assure more precise temperature control, it is recommended that work begins 3 minutes after setting the required temperature.



WARNING

Unplug the XPR-600 Preheater power cord immediately if there is a burnt smell, unusual heating occurs or any plastic parts are deformed. Do not use the XPR-600 Preheater, but return it to the dealer or distributor you purchased it from. Continued use of XPR-600 Preheater in this condition could result in a fire, burns and possible serious injury or damage.



WARNING

Never touch the hot air output opening because it becomes very hot and can cause serious burns.



CAUTION

Using the XPR-600 Preheater at temperatures higher than 300°C will damage the unit.

6.2 MOUNTING & REMOVING COMPONENTS

It is recommended that the soldering station **RX-760AS** or the hot air pencil **XHP-110** be used with this unit for the mounting and removal of discrete components (resistors, capacitors etc.). For mounting and removal of SMT ICs such as QFP, SOP etc., it is recommended that a **goot®** hot air rework tool **XFC-300** or **XFC-100/200** be used with the unit.

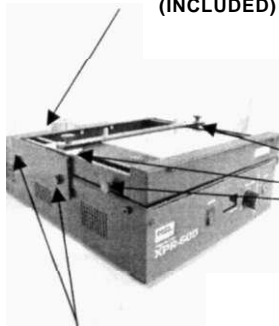
1. When removing or mounting a component, a **goot®** board holder **XU-1** or **XU-2** is required to hold the PCB. Position the board holder so that the board is over the center of the hot air output opening.

**AN EXAMPLE OF HOW A PCB CAN
BE PRECISELY FIXED IN THE CENTER
POSITION ON A XU-1 BOARD HOLDER.**



**BOARD HOLDER FIXING BRACKET
(INCLUDED)**

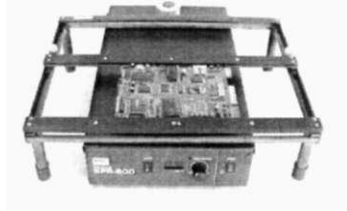
**BOARD HOLDER XU-1
(SOLD SEPERATELY)**



BOARD SETSCREWS (X4)

BOARD HOLDER SCREWS

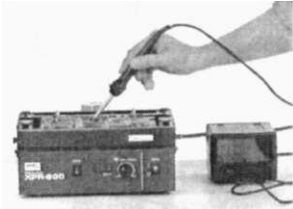
To attach the **goot®XU-1** Board Holder (sold separately) remove the screws from the side of the unit, put the **XU-1** in place and fix with the Board Holder Screws.



**AN EXAMPLE OF A PCB FIXED
TO A goof® XU-2 BOARD HOLDER:
THE MOUNTING OF A LARGE SIZE PCB IS POSSIBLE**

2. While preheating the PCB with the **XPR-600**, add heat to the soldered part (with a hot air pencil for example). Once the solder has melted, mount or remove the component using a pair of insulated tweezers.
3. When mounting the component, first preheat the PCB with the **XPR-600**, and place the component on the PCB using a pair of insulated tweezers. Then proceed with the soldering.

WHEN USING A SOLDERING STATION:



**WORK USING A goof® RX760AS
SOLDERING STATION**

WHEN USING A HOT AIR PENCIL XHP-110:



**WORK USING A goof® HOT
AIR PENCIL XHP-110**

WHEN USING TOGETHER WITH A HOT AIR REWORK TOOL XFC-300 OR XFC-100/200:



WORK USING THE XFC-300 SYSTEM

NOTE 1: When quick cooling is required after the soldering work is finished, supply air by setting the Heater Switch to OFF (O side).

NOTE 2: To set the temperature please refer to the Hot Air Temperature Management Data Graph (on page 17).

6.3 OPTIONAL COMPONENTS / SYSTEM UPGRADE EXAMPLES

It is possible to use a *goot*® Board Holder XU-1 or a Holder for a *goot*® XFC-300 together with this unit.

6.3.1 SYSTEM FOR MOUNTING & REMOVING DISCREET COMPONENTS SUCH AS RESISTORS OR CAPACITORS

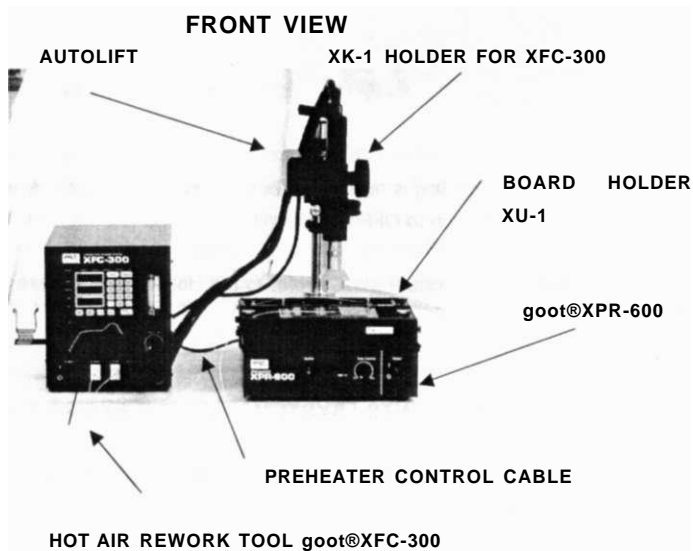
BOARD HOLDER XU-1

HOT AIR PENCIL XHP110



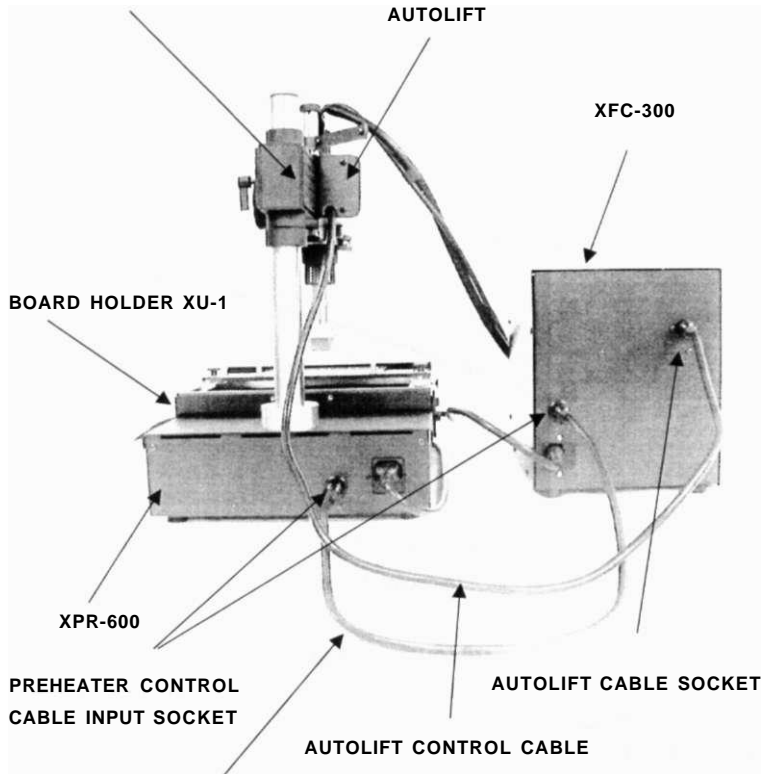
6.3.2 SYSTEM FOR MOUNTING & REMOVING BGA / CSP / QFP / SOP

By plugging the Preheater Control Cable into the External Control Socket located at the back of this unit, the XPR-600 will turn on **only when the goot® XFC-300 is in use.**



REAR VIEW (CABLE CONNECTION DIAGRAM)

XK-1 HAND PIECE HOLDER FOR XFC-300



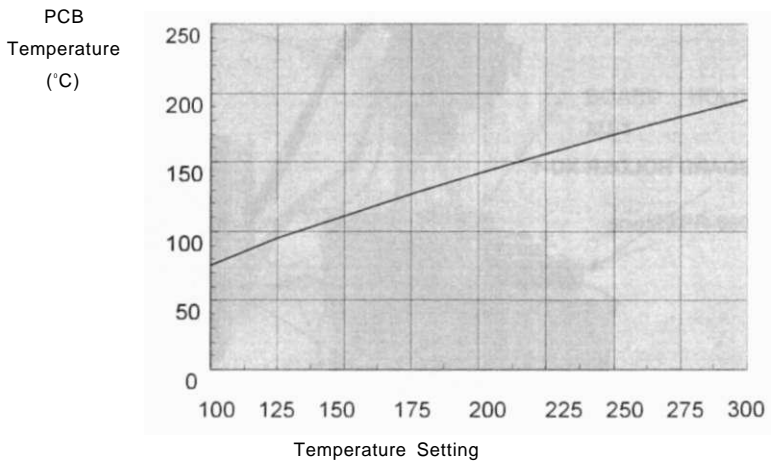
PREHEATER CONTROL CABLE

NOTE 1: When the XPR-600 is connected to the goof® XFC-300 with the Preheater control cable, it is not possible to turn the XPR-600 ON or OFF independently. To use the XPR-600 independently, please disconnect the Preheater Control Cable.

6.4. HOT AIR TEMPERATURE MANAGEMENT DATA

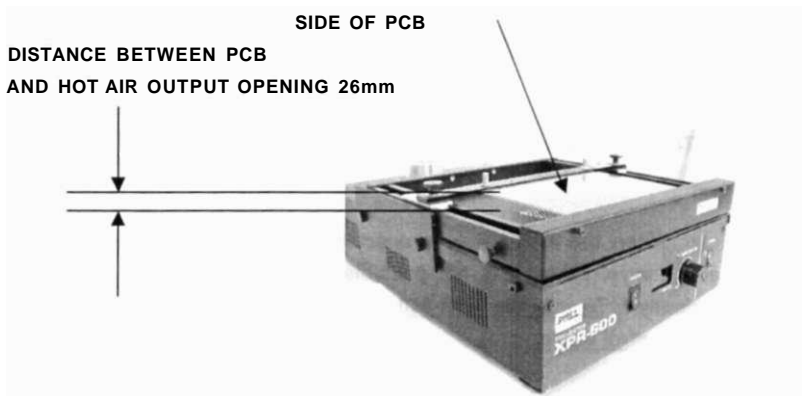
This graph shows the temperature on the back of an epoxy-laminated PCB (size: 115mm X 150mm, 1.6mm thickness, weighing 60g) fixed 26mm above the Hot Air Output Opening with a **goot® XU-1**. (The picture below shows a PCB in the mounted position.) Please use this for reference. However, the size, thickness and copper pattern of the printed PCB and the arrangement of the parts etc. differs so we recommend that you check these each time you start a new job.

HOT AIR TEMPERATURE MANAGEMENT GRAPH



MEASURING THE TEMPERATURE OF REVERSE SIDE OF PCB

DISTANCE BETWEEN PCB
AND HOT AIR OUTPUT OPENING 26mm



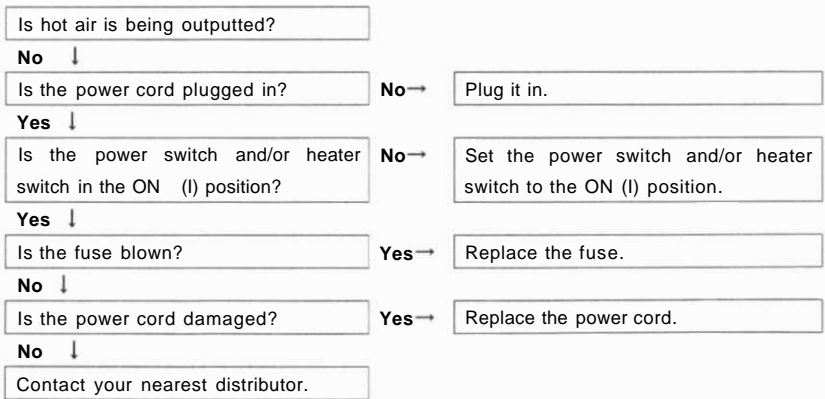
7. MAINTENANCE

Do not allow any dust or foreign objects to collect on the hot air output opening. Never clean it using gasoline or oil based products as the parts may be damaged and/or a fire may result

8. TROUBLESHOOTING

PROCEED AS FOLLOWS WHEN TROUBLE OCCURS:

1. Check that there is voltage in the outlet and that the circuit breaker is not tripped.
2. Check that the power cord is not damaged. If it is damaged, do not use your preheater and contact your nearest distributor for service.
3. If 1. and 2. above are OK, follow the flow chart below to find the cause of the trouble.
4. If a burning smell is noticed, unusual heating occurs, unplug the **XPR-600 Preheater** immediately and contact your nearest distributor.
5. If your preheater was dropped, please refer to this page carefully. If there is still a problem, please contact your nearest distributor.



18,MAY, 2006



SOLDERING IRONS, EQUIPMENT & ACCESSORIES

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