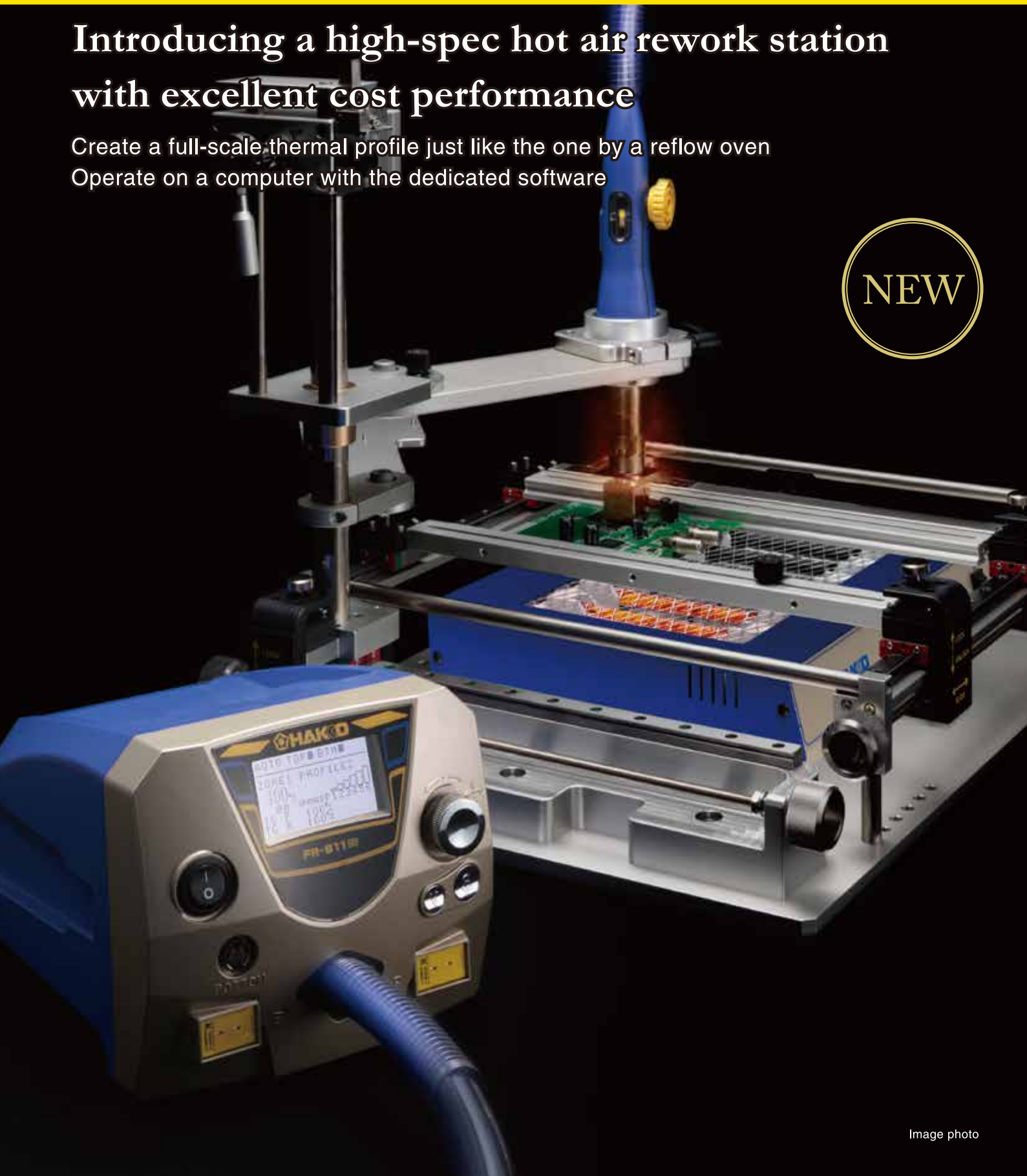


**HAKKO FR-811** ESD SAFE  
SMD REWORK STATION

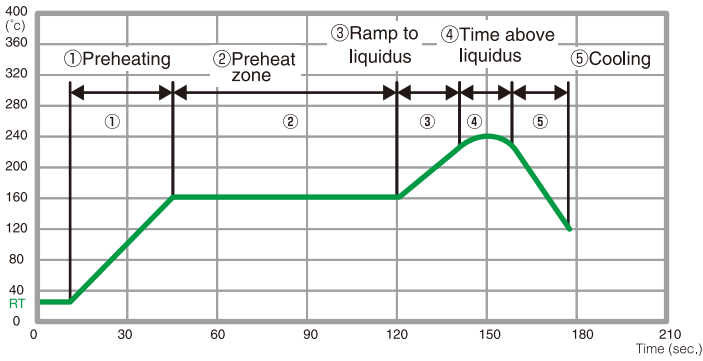
## Introducing a high-spec hot air rework station with excellent cost performance

Create a full-scale thermal profile just like the one by a reflow oven  
Operate on a computer with the dedicated software

 NEW

# The functions needed for SMD rework are in a compact body

A low cost SMD rework can be assembled with FR-811, dedicated software and options.



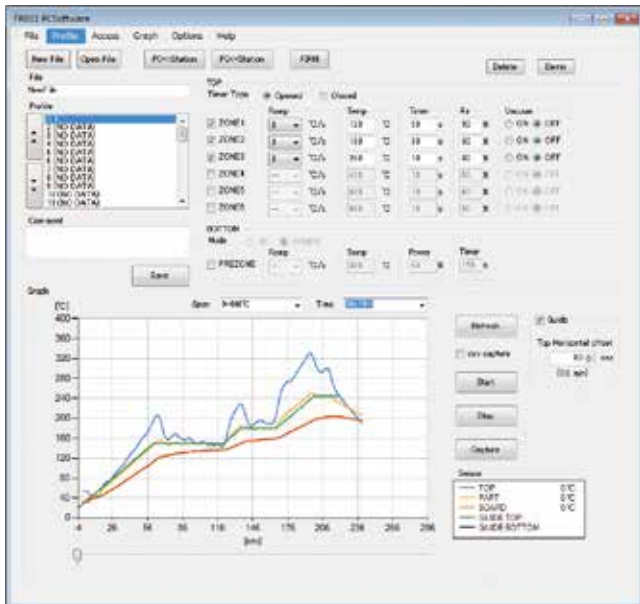
## Possible to make full-scale thermal profiles with 6-zone hot air and a bottom heater.

A basic thermal profile is composed of the 5 parts shown above. FR-811 can provide 6 zones in which temperature, time, and air flow are controlled. Therefore FR-811 can make a full-scale thermal profile which is close to reflow profiles made by a reflow oven.



## Record thermal data

By connecting a thermocouple included with the FR-811, the temperature of the component or circuit board can be measured and recorded. In addition, if "TC LINK" is set, the heater output can be automatically controlled so that the temperature of the thermocouple attached to the component or circuit board follows the set profile.



## Operation on a PC for various settings

By connecting FR-811 and a computer with a USB cable and using the dedicated software which comes as standard, a set thermal profile and actual temperature change can be shown in a graph in real time. Also, change of thermal profile and fine adjustment in a profile can be made on a computer operation. (After making changes, it is necessary to resend the data to FR-811.) In addition, the set values and graph can be saved in csv format.



## Linked operation with bottom heater

FR-811 can control on/off timing and output of the bottom heater, which is available optionally.

## Part names



# High power and large volume hot air for quick removal of components

A tool that can provide powerful hot airflow for repairing high heat capacity circuit boards that require high blow volume and high output, and sufficient hot airflow for appropriate blow volume and high output for high-density mounting substrates.



**Hottest and most powerful in our hot air series**

Temperature range: **50 to 600** °C



**Turbo fan for large volume air flow**

Air flow **5** times **5** L/min. to **115** L/min.

\* 1 Varies depending on nozzle shape.



**Interface designed for intuitive operation. Possible to link to a PC.**



## Easy-to-read LCD

Equipped with a high-visibility LCD to make it easy to check the various product settings or operation status. Indications are displayed using graphics as well as letters and numbers so information can be checked intuitively.



## Easy-to-operate multi-direction control knob

The multi-direction control knob makes it easy to make and change settings shown in the LCD. There are several ways of knob movements, dialing, pressing, and tilting up and down and left to right for quick operation.



## Link to a PC (A USB I/F terminal available)

A USB I/F terminal is available to link to a computer. The dedicated software, which can display and record various settings or temperature data on a computer screen in real time, is included.



## A USB device terminal for easy data transfer

Data can be transferred through a USB memory even without a computer.



## New user friendly functions for SMD rework

### Pickup indicator

By pre-setting pickup function, a component can be picked up automatically when solder is melted. At the same time, the indication comes up and the moment of picking up will be visible. Even a component and solder joints can not be seen as covered by a nozzle, easy and safe picking up is possible.



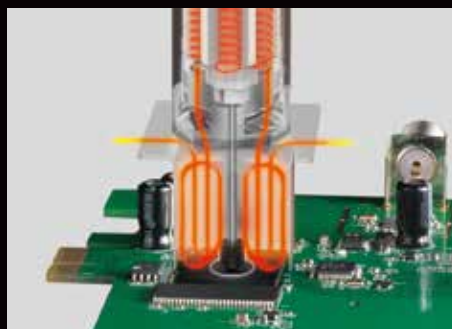
### Vacuum pickup function

The vacuum pickup function is to pick up a component with a suction pad and vacuum. It will pick a component only after the hot air melts solder joints. This can avoid an error to peel off the land by removing a component with excessive force.



### New type of nozzles for improving temperature characteristics

The new nozzles improve work efficiency with uniform heating by hot air convection inside the nozzle which is created due to vents on the nozzle top. (Only with BGA nozzles)



### One-touch nozzle replacement

Nozzles can be quickly changed for many different types of components. In addition, conventional nozzles are compatible. Heaters can also be easily and securely replaced.



# Assembly of a low-cost SMD rework system

A low cost rework system can be assembled with a bottom heater, a grip fixture, and a board holder.

Set-up example



## Options



### Grip Fixture L

A board holder can be easily attached to the large baseplate.



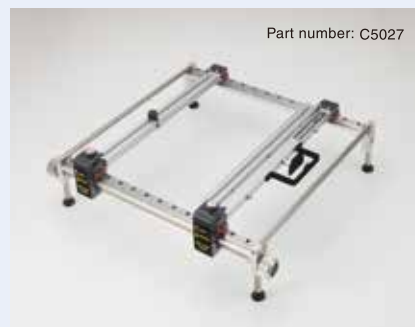
### Grip Fixture M

Recommended if a bottom heater is not required or in case of use of a bottom heater other than the dedicated model for FR-811.



### A dedicated bottom heater for FR-811

Equipped with carbon heaters. Heating area is divided into 2 sections.



### Board Holder

Makes it easy to set and remove a PWB and to make fine adjustments after setting.



Part number: B5098

### Board Clip

Accepts even irregular-shaped PWB.



Part number: B5136

### Board Support Unit

Supports PWB from underneath to minimize its warping.

## Optional Nozzles

Single	N51-01	N51-02	N51-03	N51-04	N51-05
BGA	N51-10 for 4 x 4	N51-11 for 6 x 6	N51-12 for 8 x 8	N51-13 for 10 x 10	N51-14 for 12 x 12
BGA	N51-15 for 14 x 14	N51-16 for 15 x 15	N51-17 for 17 x 17	N51-18 for 18 x 18	N51-19 for 20 x 20
BGA	N51-20 for 22 x 22	N51-21 for 24 x 24	N51-22 for 27 x 27	N51-23 for 29 x 29	N51-24 for 35 x 35
BGA	N51-25 for 38 x 38	N51-26 for 40 x 40	<b>Part No. N51-50</b>  <b>Nozzle Value Set</b> The standard nozzle (Part No. N51-02) is not included in the set.		

## FR-811

### Packing List



Station with handpiece, Grip stand assembly, Vacuum pipe control knob L (with screw), Pads (qty 2 each of  $\varnothing 3$  mm,  $\varnothing 5$  mm,  $\varnothing 7.6$  mm), USB cable, Software (CD-ROM), Thermocouple, Heat resistant pad, Power cord, Temperature distribution chart, Instruction manual

### Specifications

Power consumption	700 W (100 V), 840 W (110 V), 820 W (120 V), 1100 W (220 V), 1200 W (230 V), 1300 W (240 V)
Temperature range	50 to 600 °C
<b>Station</b>	
Power consumption	30 W
Air flow	001-100% (5 to 115 L/min.)
Dimensions	160 (W) × 145 (H) × 220 (D) mm
Weight	1.5 kg
<b>Handpiece</b>	
Power consumption	670 W (100 V), 810 W (110 V), 790 W (120 V), 1070 W (220 V), 1170 W (230 V), 1270 W (240 V)
Total length	250 mm
Weight	180 g

\* Total length and weight exclude cord.

\* Airflow values shown above are only as reference. Airflow range may vary depending on nozzles.

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