



Quality Tools For The Electronics Industry

 **GOOD DESIGN
AWARD 2013**



HAKKO Gio



HAKKO brand is much loved in more than 50 countries worldwide.

HAKKO has grown into a global brand. Our soldering irons and related equipment are hard at work in more than 50 countries. We have local branches and sales representatives around the world, and continue to expand our global network.



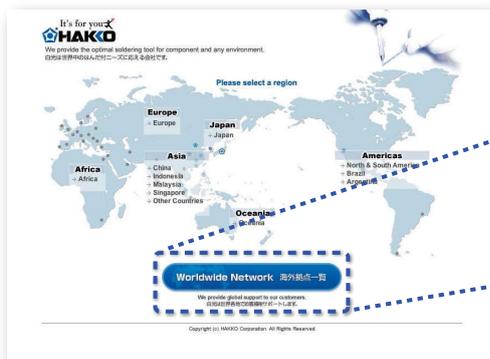
<http://www.hakko.com>

Global Network



As of Feb. 2015

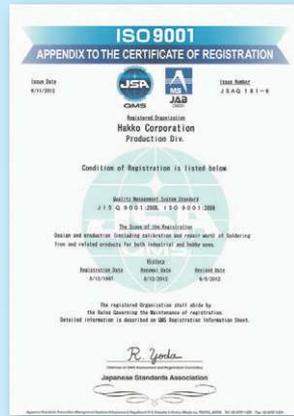
《《《 WORLDWIDE NETWORK 《《《



For more details on HAKKO affiliates and distributors, visit the official HAKKO website at www.hakko.com



Quality Tools for the



HAKKO is certified under ISO 9001 (JIS Q 9001),
the international standard for quality management systems.
We are also certified under ISO 14001 (JIS Q 14001)
and are actively involved in preserving the global environment.

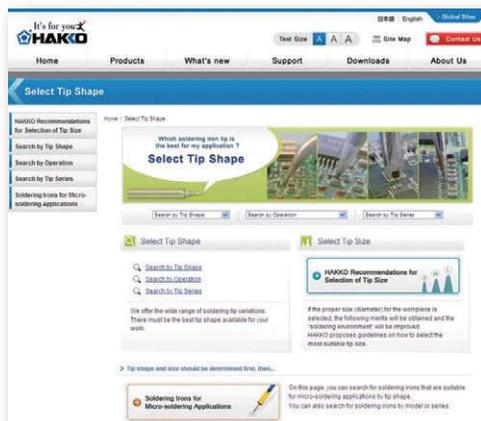
See the official HAKKO website for all necessary information regarding HAKKO products and services.

• HAKKO WEBSITE



• SELECT TIP SHAPE

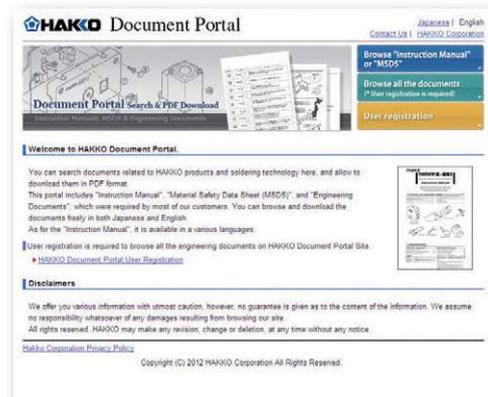
Search for the appropriate tip for your work by following the guidelines.



http://www.hakko.com/english/tip_selection/

• DOCUMENT PORTAL

Download instruction manuals, MSDSs, and technical documents from the HAKKO Document Portal.



<https://doc.hakko.com/?l=en>

Electronics Industry



HAKOFX-100 SOLDERING STATION **ESD SAFE**

IH Soldering Station

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HAKOFR-810 SMD REWORK STATION **ESD SAFE**

Hot-Air SMD Rework Station

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HAKOFM-2032 SOLDERING IRON **ESD SAFE**

Micro Soldering Iron

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HAKOFX-781 N₂ GENERATOR

N₂ Gas Generator

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HAKODASH SOLDERING IRON

Ceramic Heater Soldering Iron

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HAKOFR-300 DESOLDERING TOOL

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IH Soldering Station

FX-100

IH



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High Performance Soldering Station

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70W



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FX-950

70W



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Soldering iron (70W)



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Micro soldering iron



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FX-8802

65W



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FM-2026

70W



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140W



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150W



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Soldering Pot

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High performance type



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High performance type



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Self feeder



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Tip Cleaner / Polisher

FT-710

Tip cleaner



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FT-700/FS-100

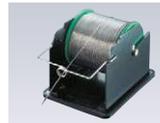
Tip polisher



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Desoldering / Rework

Desoldering Tool

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SMD Rework Station & Accessories

FR-810



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BGA-SMD rework station



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Thermometer

FG-100



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Soldering Tester

FG-101



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Wrist Strap Tester

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HAKKO **FX-100** **ESD SAFE**
SOLDERING STATION

New

IH Soldering Station **Digital**

Tip not included



Soldering



- Provides the heat to the tip effectively by an 'Induction heater'
Unique "Power assist" feature that assists the thermal recovery performance of the soldering iron tip
- No calibration is required
- Wide variety of tips available
- Meets or exceeds IPC J-STD-001 and ANSI ESD S20.20.



**GOOD DESIGN
AWARD 2013**

Good Design Award has been a sole comprehensive design evaluation and commendation system in Japan since 1957. "G Mark", the symbol of the award has been recognized widely as a mark representing good design.

Packing List

FX-100	Station, Handpiece (FX-1001), Heat resistant pad, Power cord, Sleeve (green), Sleeve (gray), Cleaning wire, Iron holder, Instruction manual
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Specifications

Model No.	FX-100
Power consumption	28 W (85 W)
Temperature range	T31-01 Series: 450°C, T31-02 Series: 400°C T31-03 Series: 350°C
Temperature stability	±1.1°C

Station

Output power	50 W
Output frequency	13.56 MHz
Dimensions	127 (W) × 150 (H) × 167 (D) mm
Weight	3 kg

Soldering Iron

Heating element	IH (Induction heating)
Cord length	1.3 m
Total length*	190 mm with 2.4D tip for 400°C and 350°C 193 mm with 2.4D tip for 450°C
Weight*	31 g (with 2.4D tip for 400°C)

* Without cord

Features

IH technology delivers the ultimate soldering iron
Excellent heat supply. Ideal for the most challenging soldering jobs.

The HAKKO FX-100 features IH (induction heater) that continuously powers the soldering iron and maintains the set temperature by automatically detecting even minute drops in temperature, plus HAKKO's proprietary "Power Assist" function. The FX-100 achieves powerful thermal recovery even with fine-shaped tips. It provides excellent thermal responsiveness that conventional IH and sensor feedback systems cannot offer.



Boost function

To increase tip temperature by 5 to 10°C (depends on tip shape) for better working efficiency.

Interactive method by LCD display with 3 buttons

PROFILE

```
PROFILE 1
S: HAKKO-1
U: ID-123
S: 0.6 LEAD FREE
```

Station ID, user name and solder type can be registered.

TIP LOAD

```
TIP LOADS
APPROX.
000025 Points
<RESET> <OK>
```

The soldering count is displayed.

TIP TIME

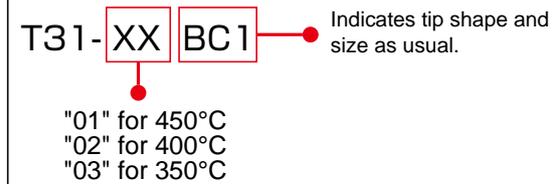
```
TIP TIME
0023 hours
<RESET> <OK>
```

The cumulative running time on the iron tip is displayed.

TIP TYPE and NORMAL MODE/BOOST MODE

```
<01>
N
*****
```

Visible tip type (01/02) and normal mode (N)/boost mode (B) on display.



Optional Tips for the FX-1001

Unit: mm

<p>T31-01BC1 Shape-1BC T31-02BC1 T31-03BC1</p>	<p>T31-01BC28 Shape-2.8BC T31-02BC28 T31-03BC28</p>	<p>T31-01BL Shape-BL T31-02BL T31-03BL</p>
<p>T31-01D08 Shape-0.8D T31-02D08 T31-03D08</p>	<p>T31-01D16 Shape-1.6D T31-02D16 T31-03D16</p>	<p>T31-01D24 Shape-2.4D T31-02D24 T31-03D24</p>
<p>T31-01D52 Shape-5.2D T31-02D52 T31-03D52</p>	<p>T31-01I Shape-I T31-02I T31-03I</p>	<p>T31-01IL Shape-IL T31-02IL T31-03IL</p>
<p>T31-01J02 Shape-0.2RSSB T31-02J02 T31-03J02</p>	<p>T31-01JL02 Shape-0.2RLB T31-02JL02 T31-03JL02</p>	<p>T31-01JS02 Shape-0.2RSSB T31-02JS02 T31-03JS02</p>
<p>T31-01KU Shape-KU T31-02KU T31-03KU</p>	<p>T31-01SBL Shape-SBL T31-02SBL T31-03SBL</p>	<p>T31-01WD08 Shape-0.8WD T31-02WD08 T31-03WD08</p>

All-Round Soldering Station

HAJKO FX-888D SOLDERING STATION ESD SAFE

All-Round Soldering Station Digital

Tip included



- Features Adjustment mode, Preset mode, and Password function
- Separable tip/heater design provides superior cost performance.

Packing List

FX-888D	Station, Handpiece (FX-8801), Iron holder, Instruction manual
----------------	---

Specifications

Model No.	FX-888D
Power consumption	70 W
Temperature range	50 to 480°C
Temperature stability	±1°C at idle temperature

Station

Output voltage	AC 26 V
Dimensions	100 (W) × 120 (H) × 120 (D) mm
Weight	1.2 kg

Soldering Iron

Power consumption	65 W (26 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Ceramic heater
Standard tip	Shape-B (No.T18-B)
Cord length	1.2 m
Total length*	217 mm (with B tip)
Weight*	46 g (with B tip)

* Without cord

Features

Strict temperature management

● Digital display

The FX-888D's digital display makes it easy to check the set temperature at a glance.

● Password function

Settings can be locked using a password to prevent them from being changed unexpectedly.

● Preset mode

Simply select the desired temperature from a selection of preset temperatures registered in advance. (Up to 5 preset temperatures can be registered.)



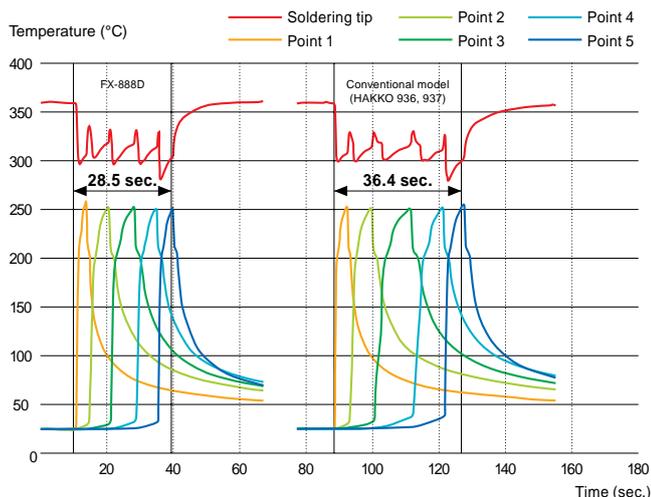
● Adjustment mode

With adjustment mode, what used to be a troublesome procedure is now as simple as entering the measured tip temperature in the FX-888D.



Measuring the tip temperature with a tip thermometer (HAKKO FG-100)

Graph of a comparison of the performance of the HAKKO FX-888D and a conventional station



Test criteria

Measurement method	Thermocouples are mounted on the tip and the soldered portion on the board, and the time until the soldered portion reaches 250°C is measured for 5 points.
Board	Paper phenol copper board
Component used	Connector
Tip shape	Shape-1.2D
Temperature setting	360°C
Solder	Lead-free solder (Sn/Ag/Cu), diameter: 0.5 mm

HAKKO FX-8802 SOLDERING IRON ESD SAFE

N₂ Soldering Iron

Tip included



HAKKO FX-8803 SOLDERING GUN ESD SAFE

Soldering Gun

Tip included



HAKKO FX-8804 SMD HOT TWEEZER ESD SAFE

SMD Hot Tweezers

Tip included



Packing List

FX-8802	Handpiece, Shield plate, Instruction manual
FX-8803	Handpiece, Instruction manual
FX-8804	Handpiece, Caution label, Heat resistant pad, Instruction manual

NOTE: The soldering iron cannot be used as a standalone device.

Specifications

Model No.	FX-8802
Power consumption	65 W (26 V)
Temperature range	50 to 480°C
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Ceramic heater
Standard tip	Shape-B (No.T18-B)
Cord length	1.2 m
Total length*	190 mm (with B tip)
Weight*	59 g (with B tip and nozzle assembly A)

* Without cord and tube

Model No.	FX-8803
Power consumption	65 W (26 V)
Temperature range	50 to 480°C
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Ceramic heater
Standard tip	Shape-3C pre-tinned surface 45° (No.T18-CF3)
Standard guide nozzle	ø1.0 mm
Usable solder diameter	0.6, 0.8, 1.0, 1.2, 1.6 mm
Cord length	1.1 m
Dimensions	170 (W) × 180 (H) × 23 (D) mm
Weight*	177 g

* Without cord

Model No.	FX-8804
Power consumption	65 W (26 V)
Temperature range	200 to 400°C
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Ceramic heater
Standard tip	Shape-2L (No. A1378) 2 pcs/set
Cord length	1.2 m
Total length*	186 mm
Weight*	93 g

* Without cord

* The recommended (process) temperature is from 200°C to 400°C while setting temperature range of FX-888D is from 50°C to 480°C.

Option

FX-8803

Part No.	Name	Specifications
C1437	Iron holder (with cleaning sponge)	-

FX-8804

Part No.	Name	Specifications
FH800-04BY	Iron holder (with cleaning sponge)	Blue & yellow

Replacement Tips for the FX-8801 and FX-8803

Unit: mm

<p>Applicable for FX-8803</p> <p>T18-B Shape-B</p>	<p>Applicable for FX-8803</p> <p>T18-SB Shape-SB</p>	<p>T18-BR02 Shape-0.2BR</p>	<p>T18-BL Shape-BL</p>	<p>T18-C05 Shape-0.5C</p>
<p>Applicable for FX-8803</p> <p>T18-C08 Shape-0.8C</p>	<p>Applicable for FX-8803</p> <p>T18-C1 Shape-1C T18-CF1*</p>	<p>T18-CF15* Shape-1.5C</p>	<p>Applicable for FX-8803</p> <p>T18-C2 Shape-2C T18-CF2*</p>	<p>Applicable for FX-8803</p> <p>T18-CSF25* Shape-2.5CS</p>
<p>Applicable for FX-8803</p> <p>T18-C3 Shape-3C T18-CF3*</p>	<p>Applicable for FX-8803</p> <p>T18-C4 Shape-4C T18-CF4*</p>	<p>T18-C5 Shape-5C</p>	<p>Applicable for FX-8803</p> <p>T18-K Shape-K</p>	<p>T18-D08 Shape-0.8D</p>
<p>T18-D12 Shape-1.2D</p>	<p>Applicable for FX-8803</p> <p>T18-D16 Shape-1.6D</p>	<p>Applicable for FX-8803</p> <p>T18-D24 Shape-2.4D</p>	<p>Applicable for FX-8803</p> <p>T18-D32 Shape-3.2D</p>	<p>T18-DL12 Shape-1.2DL</p>
<p>T18-DL2 Shape-2DL</p>	<p>T18-DL32 Shape-3.2DL</p>	<p>T18-S3 Shape-S3</p>	<p>Applicable for FX-8803</p> <p>T18-S4 Shape-S4</p>	<p>T18-S6 Shape-S6</p>
<p>T18-S9 Shape-S9</p>	<p>T18-I Shape-I</p>	<p>* These tips are tinned on the soldering surface only.</p>		

Replacement Tips and Nozzles for the FX-8802

Please see the replacement tips on P.29

Replacement Tips for the FX-8804

For Chip Component

Part No.	Name	Size of A (B)	Tip Shape
A1577	Tip/CHIP 0.5L	0.5 mm	
A1379	Tip/CHIP 1L	1 mm	
A1378	Tip/CHIP 2L	2 mm	
A1388	Tip/CHIP 0.5C	1.5 (0.5) mm	
A1389	Tip/CHIP 0.5I	R0.25 mm	
A1576	Tip/CHIP 2.6C	2.6 mm	

For SOP Component

Part No.	Name	Size of A	Tip Shape
A1390	Tip/SOP 4L	4 mm	
A1391	Tip/SOP 6L	6 mm	
A1380	Tip/SOP 8L	8 mm	
A1381	Tip/SOP 10L	10 mm	
A1382	Tip/SOP 13L	13 mm	
A1392	Tip/SOP 15L	15 mm	
A1383	Tip/SOP 18L	18 mm	
A1384	Tip/SOP 20L	20 mm	
A1385	Tip/SOP 25L	25 mm	

High Performance Soldering Station

HAJKO FX-951 SOLDERING STATION ESD SAFE

High Performance Soldering Station **Digital**

Tip not included



- Compact high-power thermally-controlled soldering iron
- Informs you of errors by a warning buzzer or display

HAJKO FM-2032 SOLDERING IRON ESD SAFE



Micro soldering Iron is available optionally.

For further details, see the micro soldering iron (P.19).

HAJKO FX-950 SOLDERING STATION ESD SAFE

High Performance Soldering Station **Analog**

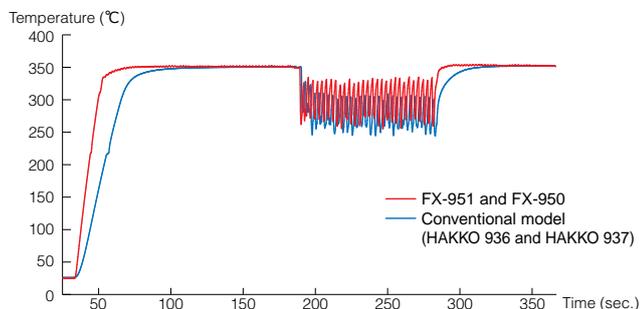
Tip not included



- Analog type high-power soldering iron
- “Lock key” can lock the temperature setting.
- Informs you of various errors by a lamp

Features

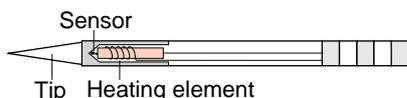
Thermal recovery graph (Comparison of HAKKO products)



Test criteria

Measurement method	A thermocouple is mounted on the tip and the tip temperature is measured when soldering $\varnothing 1.6$ mm x 5 mm solder to paper phenol copper board once every 3 seconds.
Board	Paper phenol copper board.
Temperature setting	350°C
Solder	Lead-free solder (Sn/Ag/Cu), diameter: 1.6 mm x 5 mm

Composite tip



The composite tip with an integrated heating element and sensor offers superior thermal responsivity and thermal recovery.

Variety of tips



Connectable with N₂ soldering iron

To improve solder wettability and spreadability



For further details, see the N₂ soldering system (P.26 & P.27).

Packing List

FX-951	Station, Handpiece (FM-2028), Control card, Power cord, Connecting cable, Heat resistant pad, Iron holder, Instruction manual
FX-950	Station, Handpiece (FM-2028), Lock key, Heat resistant pad, Iron holder, Instruction manual

Specifications

Model No.	FX-951	FX-950
Power consumption	75 W	
Temperature range	200 to 450°C	
Temperature stability	±5°C at idle temperature	

Station

Output voltage	AC 24 V
Dimensions	FX-951: 80 (W) x 130 (H) x 131 (D) mm FX-950: 80 (W) x 118 (H) x 138 (D) mm
Weight	1.2 kg

Soldering Iron

Power consumption	70 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	188 mm (with 2.4D tip)
Weight*	30 g (with 2.4D tip)

* Without cord

Option

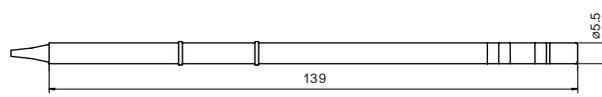
Part No.	Name	Specifications
FH200-01	Iron holder	With power-save function and cleaning wire
FH200-02	Iron holder	With power-save function and cleaning sponge

* In order to use the power-save function with the FX-950, the FH200-01 or FH200-02 iron holder is required.

High Performance Soldering Station

Optional Tips for the FM-2028

Unit: mm



B	T15-B Shape-B 	T15-B2 Shape-0.5B 	T15-B3 Shape-0.7B 	T15-B4 Shape-0.4B 	T15-BLL Shape-BL Long
BC	T15-BC1 Shape-1BC T15-BCF1* 	T15-BC2 Shape-2BC T15-BCF2* 	T15-BC3 Shape-3BC T15-BCF3* 	T15-BC12 Shape-1.2BC 	T15-BC15 Shape-1.5BC
	T15-BC28 Shape-2.8BC 	T15-BCM2 Shape-2BC Bevel with indent 	T15-BCM3 Shape-3BC Bevel with indent 	T15-SBC04 Shape-0.4SBC 	
C	T15-C1 Shape-1C 	T15-CF2* Shape-2C 	T15-CF3* Shape-3C 	T15-C4 Shape-4C T15-CF4* 	
D	T15-D08 Shape-0.8D 	T15-D12 Shape-1.2D 	T15-D16 Shape-1.6D 	T15-D2 Shape-2D 	T15-D24 Shape-2.4D
	T15-D32 Shape-3.2D 	T15-D4 Shape-4D 	T15-D52 Shape-5.2D 	T15-DL32 Shape-3.2D Long 	T15-DL4 Shape-4D Long
	T15-DL52 Shape-5.2D Long 	T15-XD15 Shape-1.5XD 			
I	T15-I Shape-I 	T15-IL Shape-IL 	T15-ILS Shape-ILS 		
J	T15-J02 Shape-0.2J 	T15-JD14 Shape-1.4JD 	T15-JD16 Shape-1.6JD 	T15-JL02 Shape-0.2JL 	T15-JS02 Shape-0.2JS
K	T15-K Shape-K 	T15-KF Shape-KF 	T15-KL Shape-KL 	T15-KU Shape-KU 	

* These tips are tinned on the soldering surface only.

R	T15-R20 Shape-2.0R 	T15-R23 Shape-2.3R 	T15-R27 Shape-2.7R 	T15-R34 Shape-3.4R 	T15-R48 Shape-4.8R
	T15-SB02 Shape-0.2SB 	T15-SB03 Shape-0.3SB 	T15-SB05 Shape-0.5SB 	T15-SB08 Shape-0.8SB 	T15-SBS04 Shape-0.4BS
TUNNEL	T15-1001** Tunnel 5.1 x 4.6 	T15-1002** Tunnel 5.1 x 10.4 	T15-1003** Tunnel 9.5 x 18.3 	T15-1004** Tunnel 9.5 x 15.8 	T15-1005** Tunnel 9.5 x 13.2
	T15-1006** Tunnel 6.9 x 11.4 	T15-1007** Tunnel 7.9 x 18.8 	T15-1008** Tunnel 19.5 x 10.2 	T15-1009** Tunnel 13.4 x 20.5 	T15-1010** Tunnel 19.5 x 12
QUAD	T15-1201** Quad 13.6 x 8.5 	T15-1202** Quad 10.3 x 10.3 	T15-1203** Quad 12.8 x 12.8 	T15-1204** Quad 17.9 x 17.9 	T15-1205** Quad 23.4 x 17.3
	T15-1206** Quad 22.5 x 16.5 	T15-1207** Quad 15.5 x 15.5 	T15-1208** Quad 15.8 x 15.8 	T15-1209** Quad 8.4 x 8.4 	T15-1210** Quad 15.4 x 12.8
SPATULA	T15-1401** Spatula 10.4 	T15-1402** Spatula 15.7 	T15-1403** Spatula 21.2 	T15-1406** Spatula 40 	
SPECIAL APPLICATIONS TYPE	T15-1603** Shape-Long reach chisel 	T15-1605** Shape-Long reach chisel 			

* These tips are tinned on the soldering surface only.

** The iron tips marked with double asterisk (**) have a temperature accuracy of 25°C. Others have a temperature accuracy of 15°C.

Heavy Duty Soldering Iron

HAKO FX-838 SOLDERING STATION ESD SAFE

Heavy Duty Soldering Iron **Digital**

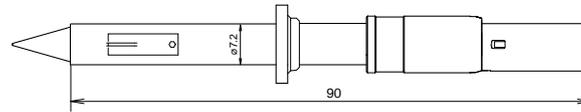
Tip not included



- High powered 150 W soldering iron
- Best suited for soldering of power-supply boards, heat sinks, and shield cases
- Applicable also to the soldering of multilayer boards with micro components

Optional Tips for the FX-8301

Unit: mm

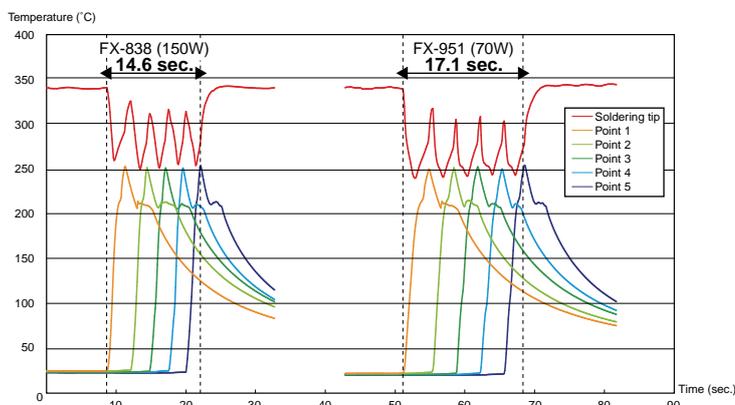


T20-B2 Shape-0.5B 	T20-BC2 Shape-2BC T20-BCF2* 	T20-BC3 Shape-3BC T20-BCF3* 	T20-BC4 Shape-4BC T20-BCF4* 	T20-BCM2 Shape-2BC Bevel with indent
T20-BCM3 Shape-3BC Bevel with indent 	T20-BL Shape-BL 	T20-BL2 Shape-2BL 	T20-BL3 Shape-3BL 	T20-C5 Shape-5C
T20-C6 Shape-6C 	T20-D16 Shape-1.6D 	T20-D24 Shape-2.4D 	T20-D32 Shape-3.2D 	T20-D6 Shape-6D
T20-J02 Shape-0.2J (0.2RSB) 	T20-K Shape-K 	T20-KU Shape-KU 	T20-1610 	T20-1611

* These tips are tinned on the soldering surface only.

Features

Graph of a comparison of the performance of the HAKKO FX-838 and a conventional station

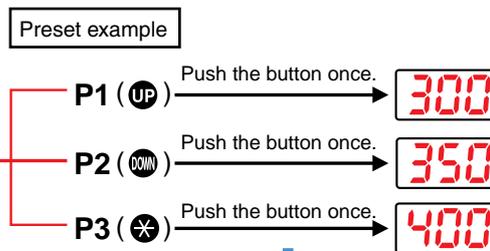


Test criteria

Measurement method	Thermocouples are mounted on the tip and the soldered portion on the board, and the time until the soldered portion reaches 250°C is measured for 5 points.
Board	Bakelite board
Component used	Terminal
Tip shape	Shape-1.6D
Temperature setting	340°C
Solder	Lead-free solder (Sn/Ag/Cu), diameter: 0.5 mm

Temperature preset mode

The temperature preset mode allows you to input three frequently-used temperatures in advance and recall them with one push of a button.



One push of a button can quickly recall each setting.

Connectable with N₂ soldering iron

To improve solder wettability and spreadability

HAKKO FX-8302 ESD SAFE

N₂ Soldering Iron

Tip not included



For further details, see the N₂ soldering system (P.26 & P.27).

Packing List

FX-838	Station, Handpiece (FX-8301), Control card, Power cord, Heat resistant pad, Connecting cable, Iron holder, Instruction manual
FX-8302	Handpiece, Instruction manual

Specifications

Model No.	FX-838
Power consumption	158 W
Temperature range	200 to 500°C
Temperature stability	±5°C at idle temperature

Station

Output voltage	AC 27 V
Dimensions	110 (W) × 110 (H) × 205 (D) mm
Weight	3.2 kg

Soldering Iron

Power consumption	150 W (27 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Ceramic heater
Cord length	1.2 m
Total length*	175 mm (with 2.4D tip)
Weight*	31 g (with 2.4D tip)

* Without cord

Model No.	FX-8302
Power consumption	150 W (27 V)
Temperature range	200 to 500°C
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Ceramic heater
Cord length	1.2 m
Total length*	195 mm (with 2.4D tip)
Weight*	41 g (with 2.4D tip and nozzle assembly D)

* Without cord and tube

High Performance Rework Station & Accessories

HAJKO FM-203 SOLDERING STATION ESD SAFE

2-Port High Performance Rework Station

Digital

Tip not included



- 2 handpieces can be connected at the same time.

HAJKO FM-206 REWORK SYSTEM ESD SAFE

3-Port High Performance Rework Station

Digital

Tip not included

Nozzle not included



- 3-port rework station that enables soldering, desoldering, and SMD rework all with a single unit
- Graphic LCD enables easy viewing and operation.

Handpiece Combination Examples

FM-203



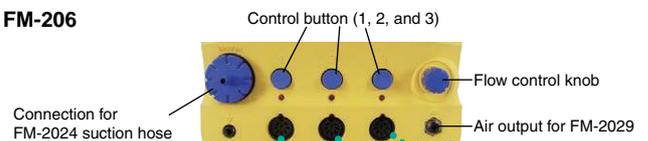
Handpiece	Channel D connector	Channel S connector
FM-2027	○	○
FM-2022 *1	○	×
FM-2023 *1	○	×
FM-2024 *2	○	○
FM-2026 *3	○	○
FM-2032	○	○

*1 When the FM-2022 or FM-2023 is connected to the channel D connector, both channel connectors can't be used at the same time.

*2 When two FM-2024s are connected to the channel connectors, each FM-2024 must be connected to the desolder control box.

*3 For the FM-2026, each handpiece needs an N₂ generator (HAKKO FX-780), flow meter (HAKKO FX-791), compressor, regulator, etc. For further details, see the N₂ soldering system (P.26).

FM-206



Handpiece	Receptacle 1	Receptacle 2	Receptacle 3
FM-2027	○	○	○
FM-2024	○ *1	○	○ *1
FM-2029	×	×	○
FM-2022	×	○	×
FM-2023	×	○	×
FM-2026	○	○	○
FM-2030	×	○	○
FM-2031	×	○ *2	○ *2
FM-2032	○	○	○

*1 The FM-2024 can be connected to receptacle 2 and 3. However, only one FM-2024 can be used with the station.

*2 For the FM-2031 and FM-2026, each handpiece needs an N₂ generator (HAKKO FX-780), flow meter (HAKKO FX-791), compressor, regulator, etc. For further details, see the N₂ soldering system (P.26).

NOTE: The FM-2024 and FM-2029 can't be used at the same time.

Accessories

HAKKO FM-2027 SOLDERING IRON ESD SAFE

Soldering Iron

Tip not included



HAKKO FM-2026 SOLDERING IRON ESD SAFE

70 W N₂ Soldering Iron

Tip not included



HAKKO FM-2029 HOT AIR HANDPIECE ESD SAFE

Hot-Air Pencil

Nozzle not included



HAKKO FM-2030 SOLDERING IRON ESD SAFE

Heavy Duty Soldering Iron

Tip not included



HAKKO FM-2031 SOLDERING IRON ESD SAFE

140 W N₂ Soldering Iron

Tip not included



HAKKO FM-2032 SOLDERING IRON ESD SAFE **New**

Micro Soldering Iron

Tip not included



HAKKO MODEL FM-2022 PARALLEL REMOVER ESD SAFE

SMD Hot Tweezers

Tip not included



HAKKO MODEL FM-2023 MINI PARALLEL REMOVER ESD SAFE

Mini SMD Hot Tweezers

Tip included



HAKKO MODEL FM-2024 DESOLDERING TOOL ESD SAFE

Desoldering Tool

Nozzle not included



High Performance Rework Station & Accessories

Specifications

Model No.	FM-203
Power consumption	140 W
Temperature range	FM-2026/2027: 200 to 450°C FM-2022/2023: 200 to 400°C FM-2032: 200 to 450°C FM-2024: 350 to 450°C
Temperature stability	±5°C at idle temperature

Station

Output voltage	AC 24 V
Dimensions	120 (W) × 120 (H) × 190 (D) mm
Weight	2.7 kg

Soldering Iron (FM-2027)

Power consumption	70 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	188 mm (with 2.4D tip)
Weight*	30 g (with 2.4D tip)

* Without cord

Model No.	FM-206
Power consumption	410 W (max.)
Temperature range	FM-2026/2027: 200 to 450°C FM-2022/2023: 200 to 400°C FM-2024: 350 to 450°C FM-2029: 100 to 550°C FM-2030: 200 to 500°C FM-2031: 200 to 500°C FM-2032: 200 to 450°C
Temperature stability	±5°C at idle temperature

Station

Output voltage	AC 24 V
Vacuum generator	Cylinder type vacuum pump
Vacuum pressure	80 kPa (600 mmHg, max.)
Suction flow	14 L/min.
Air flow	6 L/min. (max.)
Dimensions	162 (W) × 136 (H) × 245 (D) mm
Weight*	6.2 kg

Soldering Iron (FM-2027)

Power consumption	70 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	188 mm (with 2.4D tip)
Weight*	30 g (with 2.4D tip)

Desoldering Tool (FM-2024)

Power consumption	70 W (24 V)
Nozzle to ground resistance	<2 Ω
Nozzle to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	180 mm (with ø1.0 mm nozzle)
Weight**	65 g (with ø1.0 mm nozzle)

Hot Air Handpiece (FM-2029)

Power consumption	140 W (24 V)
Nozzle to ground resistance	<2 Ω
Nozzle to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length**	232 mm (with ø4.0 mm nozzle)
Weight***	50 g (with ø4.0 mm nozzle)

* Without cord ** Without cord and hose *** Without cord and tube

Model No.	FM-2022
Power consumption	140 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	148 mm (with SOP 25L tip)
Weight*	64 g (with SOP 25L tip)

* Without cord

Model No.	FM-2023
Power consumption	140 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Standard tip	Shape-I: 2 pcs/set (No.T9-I)
Cord length	1.2 m
Total length*	117 mm (with I tip)
Weight*	37 g (with I tip)

* Without cord

Model No.	FM-2024
• Desoldering Tool	
Power consumption	70 W (24 V)
Nozzle to ground resistance	<2 Ω
Nozzle to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	180 mm (with ø1.0 mm nozzle)
Weight*	65 g (with ø1.0 mm nozzle)

• Desolder Control Box

Power consumption	12 W (24 V)
Vacuum generator	Ejector type
Vacuum pressure	Max. 93 kPa (700 mmHg)
Suction flow	28 L/min.
Nozzle to ground potential	<2 mV
Applied air pressure	490 kPa (5.0 kgf/cm ²) While trigger or button is pressed
Compressed air consumption	46 L/min.
Outer dimensions	119 (W) × 45 (H) × 172 (D) mm
Weight*	1.2 kg

* Without cord

Model No.	FM-2026
Power consumption	70 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	205 mm (with 2.4D tip)
Weight*	45 g (with 2.4D tip and nozzle assembly C)

* Without cord and tube

Model No.	FM-2027
Power consumption	70 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	188 mm (with 2.4D tip)
Weight*	30 g (with 2.4D tip)

* Without cord

Specifications

Model No.	FM-2030
Power consumption	140 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.3 m
Total length*	224 mm (with 2.4D tip)
Weight*	41 g (with 2.4D tip)

* Without cord

Model No.	FM-2032
Power consumption	48 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.3 m
Total length*	170 mm (with 1D tip)
Weight*	14 g (with 1D tip)

* Without cord

Model No.	FM-2031
Power consumption	140 W (24 V)
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length*	231 mm (with 2.4D tip)
Weight*	47 g (with 2.4D tip and nozzle assembly E)

* Without cord and tube

Packing List

FM-203	Station, Handpiece (FM-2027), Sleeve assembly, Connecting cable, Power cord, Control card, Iron holder, Tip tray, Heat resistant pad, Instruction manual
FM-206	Station, Power cord, Tip tray, Desoldering tool (FM-2024), Handle (for gun configuration for FM-2024), Iron holder (for FM-2024), Ceramic paper filter (10 pcs; for FM-2024), Nozzle remover (for FM-2024), Cleaning drill for heating element (for FM-2024), Connecting cable (for FM-2024), Handpiece (FM-2027), Iron holder (for FM-2027), Heat resistant pad (for FM-2027), Connecting cable (for FM-2027), Hot air handpiece (FM-2029), Iron holder (for FM-2029), Heat resistant pad (for FM-2029), Connecting cable (for FM-2029), Instruction manual
FM-2022 (Conversion kit)	Parallel remover, Heat resistant pad, Iron holder, Connecting cable, Instruction manual
FM-2023 (Conversion kit)	Mini parallel remover, Soldering tip (T9-I), Heat resistant pad, Iron holder, Component bed, Connecting cable, Instruction manual

FM-2024 (Conversion kit, with DCB)	Desoldering tool, Handle (for gun configuration), Desoldering control box, Filter pipe assembly, Iron holder, Cleaning drill for heating element, Nozzle remover, Ceramic paper filter (10 pcs), Connecting cable, Instruction manual
FM-2026 (Conversion kit)	Handpiece, Sleeve cover, Sleeve assembly (yellow), Heat resistant pad, Iron holder, Connecting cable, Instruction manual
FM-2027 (Conversion kit)	Handpiece, Sleeve assembly (yellow), Heat resistant pad, Iron holder, Connecting cable
FM-2029 (Conversion kit)	Handpiece (hot air), Handpiece holder, Heat resistant pad, Connecting cable, Instruction manual
FM-2030 (Conversion kit)	Handpiece (soldering), Heat resistant pad, Iron holder, Connecting cable, Instruction manual
FM-2031 (Conversion kit)	Handpiece (soldering), Heat resistance pad, Iron holder, Connecting cable, Instruction manual
FM-2032 (Conversion kit)	Handpiece, Heat resistant pad, Iron holder, Connecting cable, Instruction manual

FM-2024 Features

Please see the features on P.46.

FM-2029 Features

Securely and easily remove 10 x 10 (mm) chips.

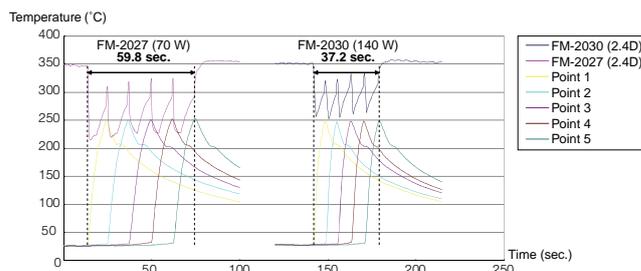


FM-2032 Size



FM-2030 Features

Graph of a comparison of the performance of FM-2027 (70 W) and FM-2030 (140 W)



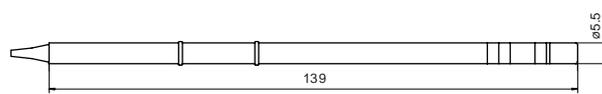
Test criteria

Test method	Solder at 5 points and measure the time until the temperature of the workpiece reaches 250°C.
Board	Bakelite board
Component used	Screw
Tip shape	Shape-2.4D
Temperature setting	350°C
Solder	Lead-free solder (Sn/Ag/Cu), diameter: 1.0 mm

High Performance Rework Station & Accessories

Optional Tips for the FM-207

Unit: mm



B	T15-B Shape-B 	T15-B2 Shape-0.5B 	T15-B3 Shape-0.7B 	T15-B4 Shape-0.4B 	T15-BLL Shape-BL Long
	T15-BC1 Shape-1BC T15-BCF1* 	T15-BC2 Shape-2BC T15-BCF2* 	T15-BC3 Shape-3BC T15-BCF3* 	T15-BC12 Shape-1.2BC 	T15-BC15 Shape-1.5BC
BC	T15-BC28 Shape-2.8BC 	T15-BCM2 Shape-2BC Bevel with indent 	T15-BCM3 Shape-3BC Bevel with indent 	T15-SBC04 Shape-0.4SBC 	
	T15-C1 Shape-1C 	T15-CF2* Shape-2C 	T15-CF3* Shape-3C 	T15-C4 Shape-4C T15-CF4* 	
C	T15-D08 Shape-0.8D 	T15-D12 Shape-1.2D 	T15-D16 Shape-1.6D 	T15-D2 Shape-2D 	T15-D24 Shape-2.4D
	T15-D32 Shape-3.2D 	T15-D4 Shape-4D 	T15-D52 Shape-5.2D 	T15-DL32 Shape-3.2D Long 	T15-DL4 Shape-4D Long
	T15-DL52 Shape-5.2D Long 	T15-XD15 Shape-1.5XD Long 			
I	T15-I Shape-I 	T15-IL Shape-IL 	T15-ILS Shape-ILS 		
	T15-J02 Shape-0.2J 	T15-JD14 Shape-1.4JD 	T15-JD16 Shape-1.6JD 	T15-JL02 Shape-0.2JL 	T15-JS02 Shape-0.2JS
J					

* These tips are tinned on the soldering surface only.

K	T15-K Shape-K 	T15-KF Shape-KF 	T15-KL Shape-KL 	T15-KU Shape-KU 		
	T15-R20 Shape-2.0R 	T15-R23 Shape-2.3R 	T15-R27 Shape-2.7R 	T15-R34 Shape-3.4R 	T15-R48 Shape-4.8R 	
SB	T15-SB02 Shape-0.2SB 	T15-SB03 Shape-0.3SB 	T15-SB05 Shape-0.5SB 	T15-SB08 Shape-0.8SB 	T15-SBS04 Shape-0.4BS 	
	T15-SBS07 Shape-0.7BS 					
TUNNEL	T15-1001** Tunnel 5.1 x 4.6 	T15-1002** Tunnel 5.1 x 10.4 	T15-1003** Tunnel 9.5 x 18.3 	T15-1004** Tunnel 9.5 x 15.8 	T15-1005** Tunnel 9.5 x 13.2 	
	T15-1006** Tunnel 6.9 x 11.4 	T15-1007** Tunnel 7.9 x 18.8 	T15-1008** Tunnel 19.5 x 10.2 	T15-1009** Tunnel 13.4 x 20.5 	T15-1010** Tunnel 19.5 x 12 	
	T15-1201** Quad 13.6 x 8.5 	T15-1202** Quad 10.3 x 10.3 	T15-1203** Quad 12.8 x 12.8 	T15-1204** Quad 17.9 x 17.9 	T15-1205** Quad 23.4 x 17.3 	
	T15-1206** Quad 22.5 x 16.5 	T15-1207** Quad 15.5 x 15.5 	T15-1208** Quad 15.8 x 15.8 	T15-1209** Quad 8.4 x 8.4 	T15-1210** Quad 15.4 x 12.8 	
	SPATULA	T15-1401** Spatula 10.4 	T15-1402** Spatula 15.7 	T15-1403** Spatula 21.2 	T15-1406** Spatula 40 	
SPECIAL APPLICATIONS TYPE		T15-1603** Shape-Long reach chisel 	T15-1605** Shape-Long reach chisel 			

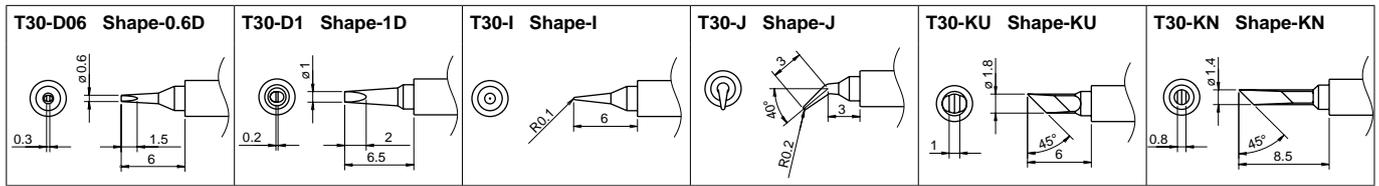
* These tips are tinned on the soldering surface only.

** The iron tips marked with double asterisk (**) have a temperature accuracy of 25°C. Others have a temperature accuracy of 15°C.

High Performance Rework Station & Accessories

Optional Tips for the FM-2032

Unit: mm

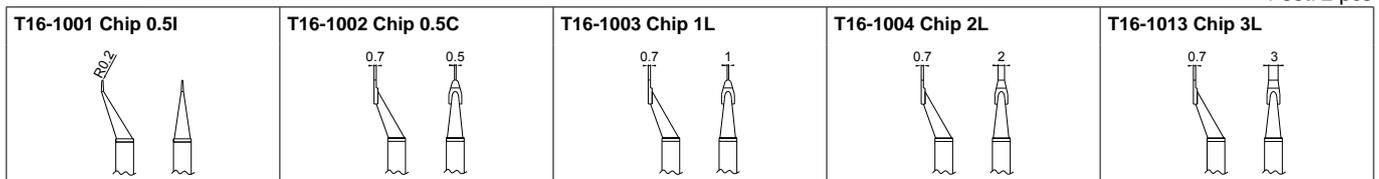


Optional Tips for the FM-2022

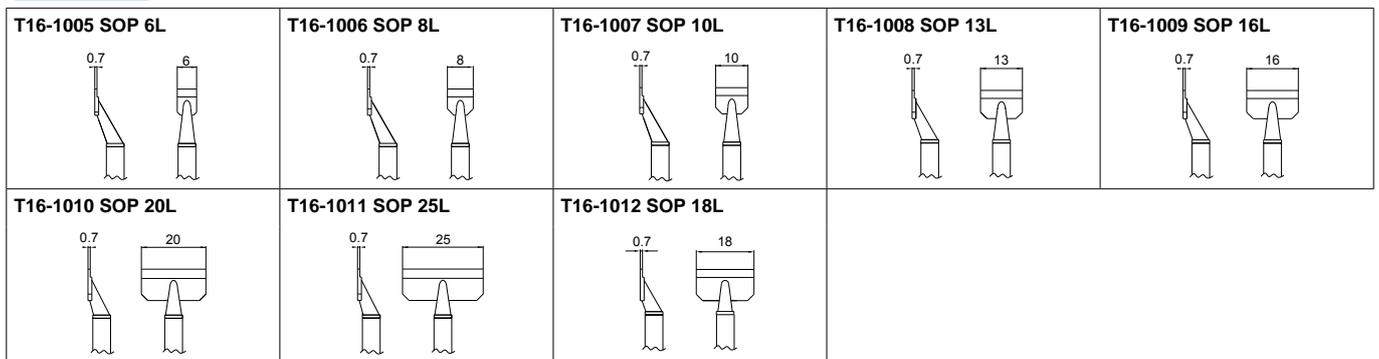
Unit: mm

CHIP

*1 set: 2 pcs



SOP

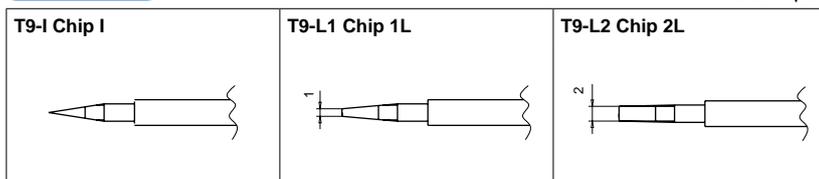


Replacement Tips for the FM-2023

Unit: mm

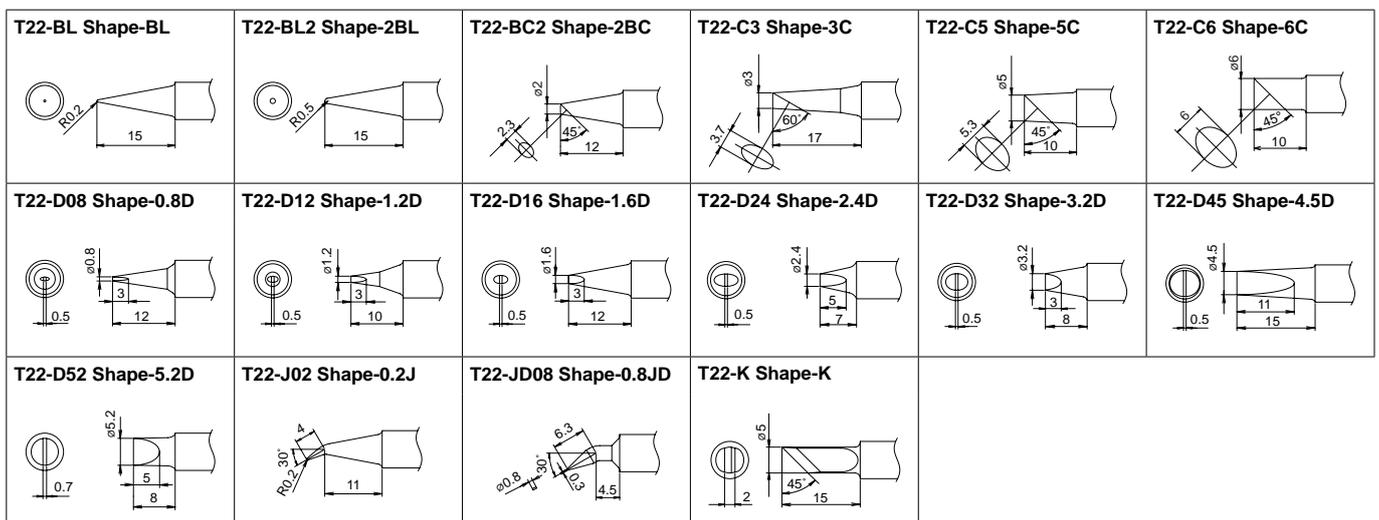
CHIP

*1 set: 2 pcs



Optional Tips for the FM-2030

Unit: mm



Optional Nozzles for the FM-2024

Unit: mm

<p>N3-06 Nozzle $\phi 0.6$</p>	<p>N3-08 Nozzle $\phi 0.8$</p>	<p>N3-10 Nozzle $\phi 1.0$</p>	<p>N3-13 Nozzle $\phi 1.3$</p>	<p>N3-16 Nozzle $\phi 1.6$</p>
<p>N3-20 Nozzle $\phi 2.0$</p>	<p>N3-23 Nozzle $\phi 2.3$</p>	<p>N3-L10 Nozzle $\phi 1.0$ Long</p>		

Optional Nozzles for the FM-2029

Unit: mm

		ϕA	ϕB
N4-01 Nozzle $\phi 2.0$		2.0	2.5
N4-02 Nozzle $\phi 4.0$		4.0	5.0
N4-03 Nozzle $\phi 6.0$		6.0	7.0
N4-04 Nozzle $\phi 8.0$		8.0	9.0

Optional Tips for the FM-2026

Please see the optional tips on P.28.

Optional Tips for the FM-2031

Please see the optional tips on P.28.

HAJKO FX-780

N. GENERATOR

N₂ Gas Generator



- Highest concentration of nitrogen gas: 99.9%
- Compact design reduces footprint.

HAJKO FX-781

N. GENERATOR



N₂ Gas Generator



- Large-capacity type accepts 2 soldering irons.

HAJKO FX-791

N. STATION

N₂ Flowmeter



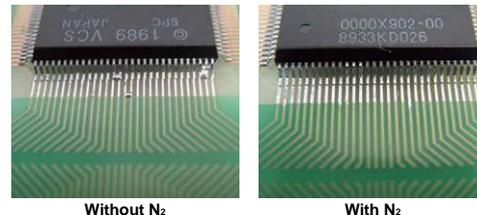
- Flowmeter for N₂ soldering iron with flow control valve and regulator

Improved Solderability

- Wettability and spreadability comparisons



- Less bridging occurs even for components susceptible to bridging.



Specifications

Model No.	FX-780	FX781
Air supply pressure	0.3 to 0.7 MPa	
Concentration of generated N ₂	99.9% (max.)	
Amount of generated N ₂	1.5 L/min. (When compressed air of 0.5 MPa is supplied at 25°C, the concentration of the generated nitrogen is 98%.)	2.4 L/min. (When compressed air of 0.5 MPa is supplied at 25°C, the concentration of the generated nitrogen is 98%.)
Dimensions*	73 (W) x 282 (H) x 71 (L) mm	73 (W) x 407 (H) x 71 (L) mm
Weight**	1.5 kg	2 kg

* Without sockets and valve
** Without racks

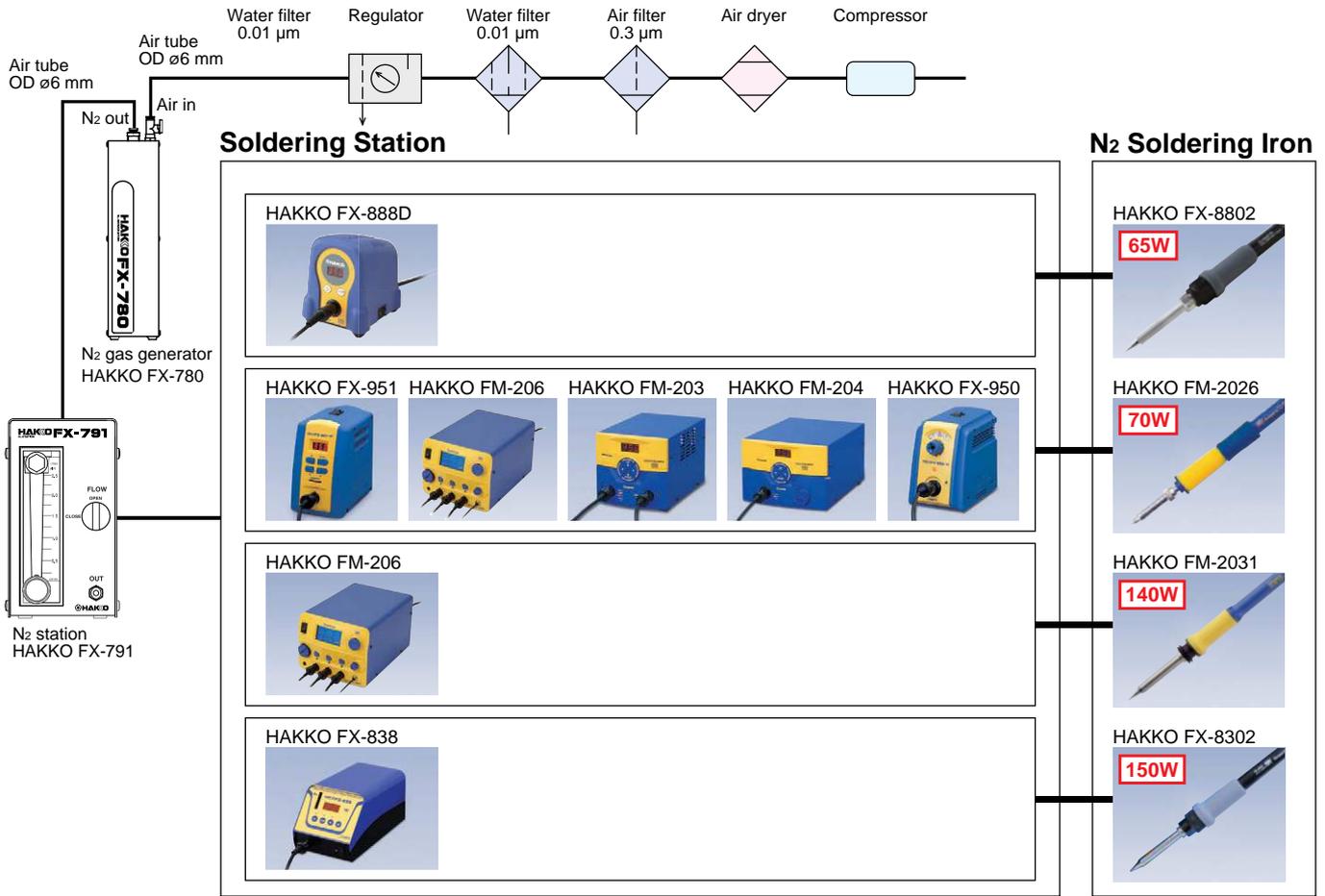
Model No.	FX-791
Pressure of discharged gas	0.2 MPa (2.0 kgf/cm ²)
Gas flow	0.25 to 2.5 L/min.
Dimensions	70 (W) x 121 (H) x 134 (D) mm
Weight	600 g

Packing List

FX-780	Unit, Rack for unit (2 pcs), Instruction manual
FX-791	Unit, Instruction manual

FX-781	Unit, Racks for unit (4 pcs), Instruction manual
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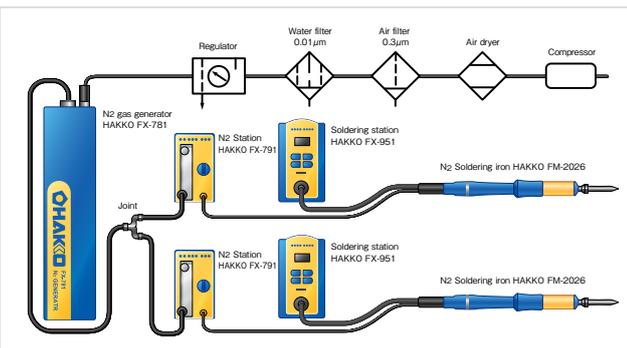
Connection Method



* Select one.

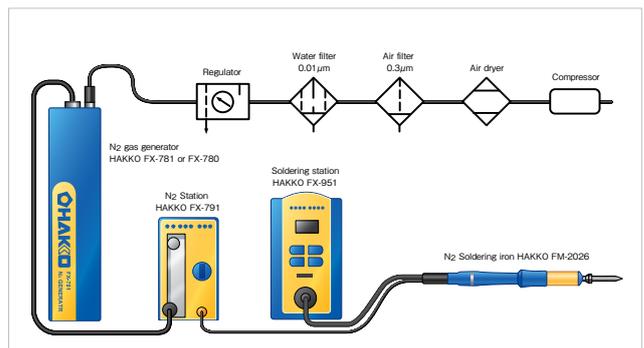
* Select one.

For two soldering irons Large-capacity type : HAKKO FX-781



* It is capable to supply high concentration Nitrogen of 97% at the output rate approx. 1L/min. (at air supply pressure of 0.5MPa)

For one soldering iron Small-capacity type : HAKKO FX-780 Large-capacity type : HAKKO FX-781

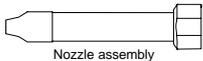
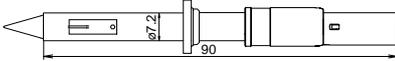
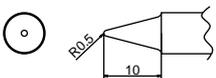
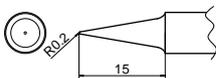
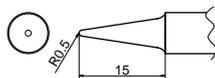
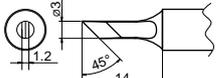
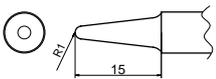
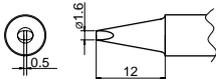
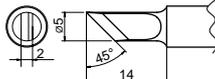
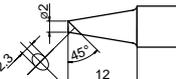
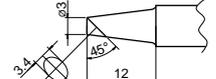
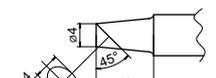
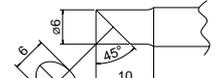
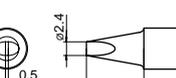
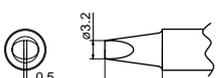
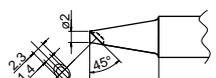
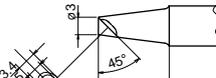
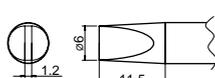


* It is capable to supply high concentration Nitrogen of 99.9% at the output rate approx. 1L/min. (at air supply pressure of 0.7MPa)

Optional Tips and Nozzles Assemblies for the FX-8302

Tip and nozzle assembly are supplied separately. Please purchase a compatible nozzle assembly for your tip referring the chart below.

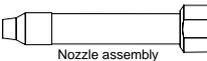
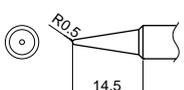
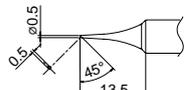
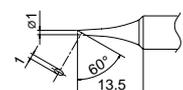
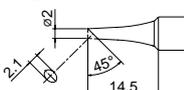
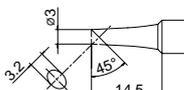
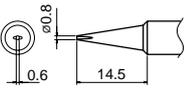
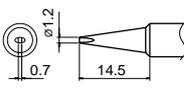
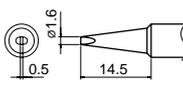
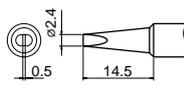
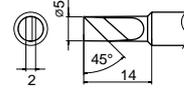
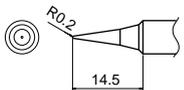
Unit: mm

 				
T20-B2 Shape-0.5B 	T20-BL Shape-BL 	T20-BL2 Shape-2BL 	T20-J02 Shape-0.2J (0.2RSB) 	T20-KU Shape-KU 
B3121 Nozzle assembly A	B3121 Nozzle assembly A	B3121 Nozzle assembly A	B3122 Nozzle assembly B	B3122 Nozzle assembly B
T20-BL3 Shape-3BL 	T20-D16 Shape-1.6D 	T20-K Shape-K 	T20-BC2 Shape-2BC T20-BCF2* 	T20-BC3 Shape-3BC T20-BCF3* 
B3123 Nozzle assembly C	B3123 Nozzle assembly C	B3123 Nozzle assembly C	B3124 Nozzle assembly D	B3124 Nozzle assembly D
T20-BC4 Shape-4BC T20-BCF4* 	T20-C5 Shape-5C 	T20-C6 Shape-6C 	T20-D24 Shape-2.4D 	T20-D32 Shape-3.2D 
B3124 Nozzle assembly D	B3124 Nozzle assembly D	B3124 Nozzle assembly D	B3124 Nozzle assembly D	B3124 Nozzle assembly D
T20-BCM2 Shape-2BC Bevel with indent 	T20-BCM3 Shape-3BC Bevel with indent 	T20-D6 Shape-6D 		
B3124 Nozzle assembly D	B3124 Nozzle assembly D	B3561 Nozzle assembly E	* These tips are tinned on the soldering surface only.	

Replacement Tips and Nozzles Assemblies for the FX-8802

Tip and nozzle assembly are supplied separately. Please purchase a compatible nozzle assembly for your tip referring the chart below.

Unit: mm

 				
T18-B Shape-B 	T18-C05 Shape-0.5C 	T18-C1 Shape-1C T18-CF1* 	T18-C2 Shape-2C T18-CF2* 	T18-C3 Shape-3C T18-CF3* 
B3662 Nozzle assembly A	B3664 Nozzle assembly C	B3664 Nozzle assembly C	B3662 Nozzle assembly A	B3663 Nozzle assembly B
T18-D08 Shape-0.8D 	T18-D12 Shape-1.2D 	T18-D16 Shape-1.6D 	T18-D24 Shape-2.4D 	T18-K Shape-K 
B3662 Nozzle assembly A	B3662 Nozzle assembly A	B3663 Nozzle assembly B	B3663 Nozzle assembly B	B3665 Nozzle assembly D
T18-I Shape-I 				
B3664 Nozzle assembly C	* These tips are tinned on the soldering surface only.			

Ceramic Heater Soldering Iron

HAKKO DASH SOLDERING IRON **New**

Ceramic Heater Soldering Iron

Tip included



- An entry model of ceramic heater soldering iron
- Ideal for electronic circuit assembly

Packing List

FX-650	Unit
--------	------

Features

Slim handle improves your work efficiency!



Simple and easy tip replacement



Quick change just loosening a screw

Specifications

Model No.	FX-650
Power consumption	16 W
Heating element	Ceramic heater
Standard tip	Shape-B (No.T34-B)
Total length*	224 mm
Weight*	60 g

* Without cord

Option

Part No.	Name	Specifications
633-01	Iron holder	With 599B
633-02	Iron holder	With cleaning sponge

Replacement Tips for the DASH

Unit: mm

		T34-B 	T34-C08
T34-C2 	T34-C3 	T34-C4 	T34-D32
		T34-I 	

Battery-Powered Soldering Iron

HAKKO FX-901 CORDLESS IRON

Battery-Powered Soldering Iron

Tip included



- Easy-to-carry soldering iron powered by AA alkaline batteries
- Cordless design makes this iron very handy and usable virtually anywhere.

Easy Replacement

Easy tip replacement

Turn the nipple
90° clockwise.



Easy battery replacement



Packing List

FX-901	Unit, Cap
--------	-----------

* Batteries not included

Specifications

Model No.	FX-901
Power supply	AA x 4 pcs
Power consumption	Alkaline batteries: 6 W (6 V) Nickel hydrogen batteries (2150 mAh): 5 W (4.8 V)
Standard tip	Shape-B (No.T11-B)
Battery life*	Alkaline batteries: 60 minutes Nickel hydrogen batteries (2150 mAh): 120 minutes
Total length**	212 mm
Weight***	76 g

Measurement conditions

- When using new batteries, performance will vary depending on the batteries.
- The operating time was measured from the point that the soldering iron was turned on to the point at which the temperature dropped below 300°C, which is the minimum temperature at which soldering can be performed.

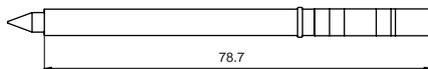
* When using batteries other than those specified above, the performance and the operating time will vary.

** Without cap

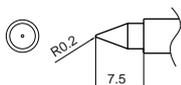
*** Without battery

Replacement Tips for the FX-901

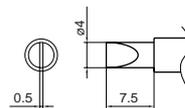
Unit: mm



T11-B Shape-B



T11-D4 Shape-4D



HAKO FX-301B

SOLDERING POT

High Performance Soldering Pot **Digital**

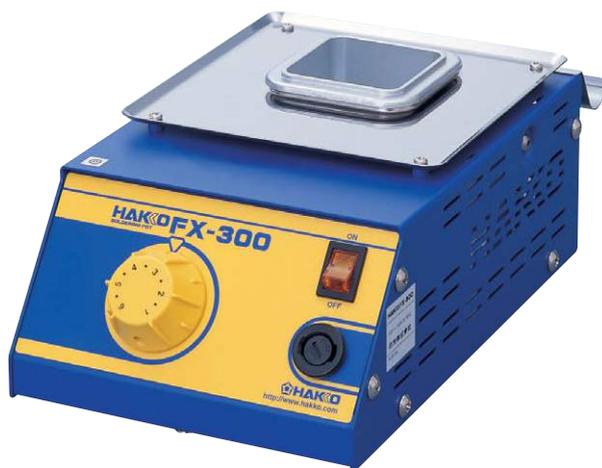


- Digital display ensures reliable temperature control and realizes precise temperature adjustment.
- Soldering pot is coated in a special long-life material, which is best suited for lead-free solder. This is provided as a standard feature.

HAKO FX-300

SOLDERING POT

High Performance Soldering Pot **Analog**

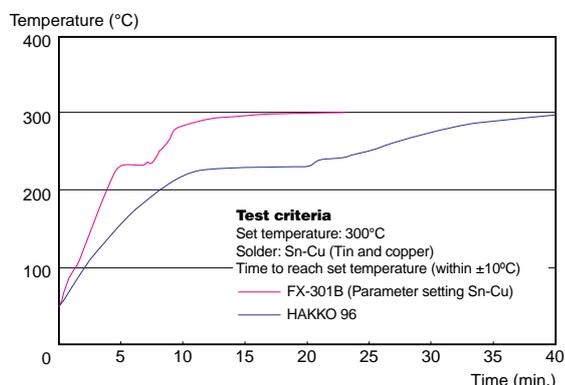


- Temperature can be adjusted just by turning a knob during operation.
- Adding an optional specially coated stainless-steel pot provides compatibility with lead-free solder.

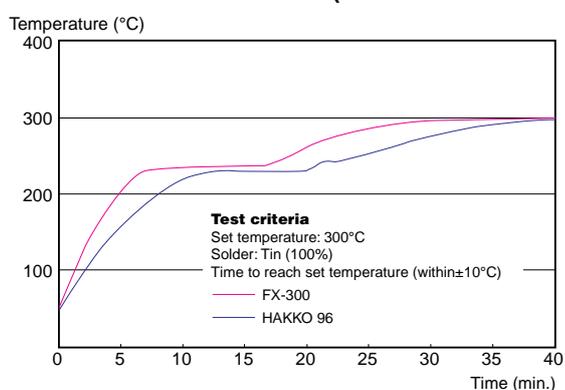
Quick Heat Up

Time comparison to reach set temperature

HAKKO FX-301B vs. HAKKO 96 (conventional model)



HAKKO FX-300 vs. HAKKO 96 (conventional model)



Easy Pot Replacement



Loosen the screw on both sides.



Change the pot and tighten the screws.

* For your safety, be sure to replace the pot after the solder completely cools.

Specially Coated Solder Pot (Durable type)

The special coating prevents the solder pot from corroding, which ensures that the solder pot has a long service life.



Standard solder pot



Specially coated solder pot

Packing List

FX-301B	Unit (with solder pot, 50 × 50 durable type), Spatula, J-shaped waste collector, Hexagon wrench, Instruction manual
FX-300	Unit (with solder pot, 50 × 50), Spatula, J-shaped waste collector, Hexagon wrench, Instruction manual

Specifications

Model No.	FX-301B
Power consumption	260 W
Dimensions	143 (W) × 100 (H) × 220 (D) mm
Weight*	1.7 kg

• Pot

Temperature range	50 × 50 square: 200 to 450°C 75 × 75 square: 200 to 380°C
Dimensions of solder pot	50 × 50 square durable type: 50 (W) × 43.5 (H) × 50 (D) mm 75 × 75 square durable type: 75 (W) × 52.5 (H) × 75 (D) mm
Molten solder capacity**	50 × 50 square: 0.85 kg 75 × 75 square: 1.2 kg

Model No.	FX-300
Power consumption	205 W
Dimensions	143 (W) × 100 (H) × 220 (D) mm
Weight*	1.7 kg

• Pot

Temperature range	50 × 50 square: 200 to 450°C 75 × 75 square: 200 to 380°C
Dimensions of solder pot	50 × 50 square standard type: 50 (W) × 43.5 (H) × 50 (D) mm 75 × 75 square standard type: 75 (W) × 52.5 (H) × 75 (D) mm
Molten solder capacity**	50 × 50 square: 0.85 kg 75 × 75 square: 1.2 kg

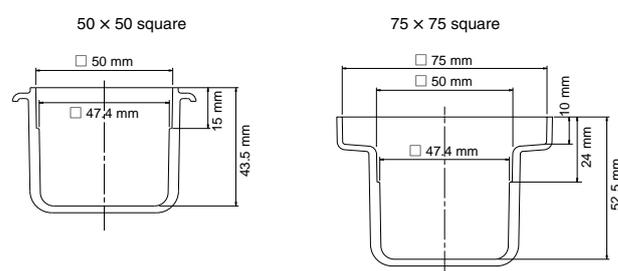
* Without solder and cord

** The 50 × 50 square solder pot is originally installed. The 75 × 75 square solder pot is an optional part.

Option / Replacements

Part No.	Name	Specifications
A1539	Solder pot	50 × 50 durable type
A1540	Solder pot	75 × 75 durable type
A1517	Solder pot	50 × 50
A1518	Solder pot	75 × 75
A1310	Temperature probe	For solder bath and pot

Dimensions of Solder Pot



HA-KO 96 SOLDERING POT

Soldering Pot

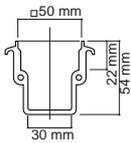


- Temperature can be adjusted just by turning a knob during operation.

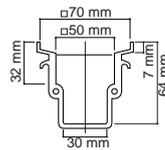
Features

Dimensions of Solder Pot

50 x 50 square



70 x 70 square



Operation



Packing List

96, 96-1	Unit, Spatula, Instruction manual
----------	-----------------------------------

Specifications

Part No.	96	96-1
Power consumption	200 W	
Dimensions	135 (W) x 105 (H) x 224 (D) mm	135 (W) x 120 (H) x 224 (D) mm
Weight*	1.5 kg	1.6 kg
Temperature range	100 to 450°C	100 to 380°C
Dimensions of solder pot	50 (W) x 54 (H) x 50 (D) mm	70 (W) x 64 (H) x 70 (D) mm
Molten solder capacity	0.85 kg	1.2 kg

* Without cord

Thermal Wire Stripper

HAKKO FT-801 THERMAL WIRE STRIPPER **ESD SAFE**

Thermal Wire Stripper

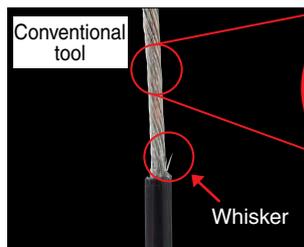
Blade not included



- Thermal wire stripper that ensures clean-cut removal of wire insulation
- High stripping performance ensures clean cut through highly heat-resistant PTFE.

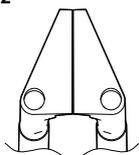
Features

Solves the problem of whiskers and scratches being left by conventional tools

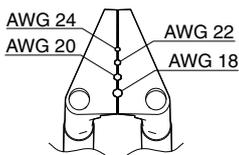


Replacement Blades

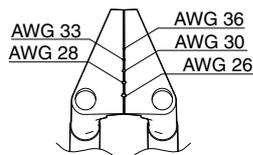
For FT-8002



G2-1601 Wire stripper blade
Straight

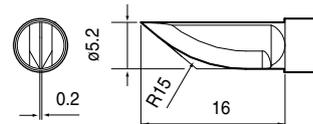


G2-1602 Wire stripper blade
AWG 18 to 24



G2-1603 Wire stripper blade
AWG 26 to 36

For FT-8003 (option)



G3-1601 Knife type blade

Packing List

FT-801	Station, Handpiece (FT-8002), Power cord, Handpiece holder, Connecting cable, Lead adjuster, Blade removal tool, Instruction manual
---------------	---

Option

Part No.	Name	Specifications
FT8003-01	HAKKO FT-8003 conversion kit	Handpiece (FT-8003), Knife blade, Handpiece holder, Instruction manual



Blade included



Specifications

Model No.	FT-801
Power consumption	68 W/ 50 W*
• Station	
Output voltage	AC 24 V
Dimensions	80 (W) × 130 (H) × 131 (D) mm
Weight**	1.2 kg
• Handpiece	
Power consumption	64 W (24 V)
Cord length	1.3 m
Total length***	96 mm
Weight***	48 g

* When connecting with FT-8003

** Without cord

*** Without cord and blade

HAKKO FT-710 ESD SAFE TIP CLEANER

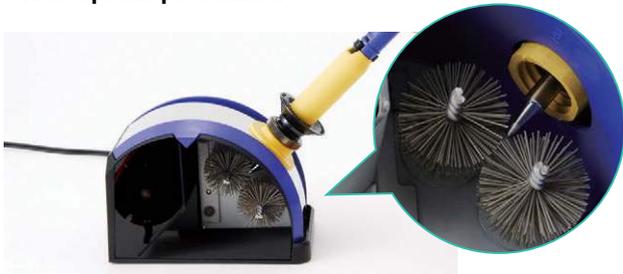
Solder-Splash-Preventing Rotary Tip Cleaner



- The solder removal level can be adjusted using two different types of brushes.
- Brushes can be replaced without using any tools, and safe design prevents solder waste from entering the drive part.

Features

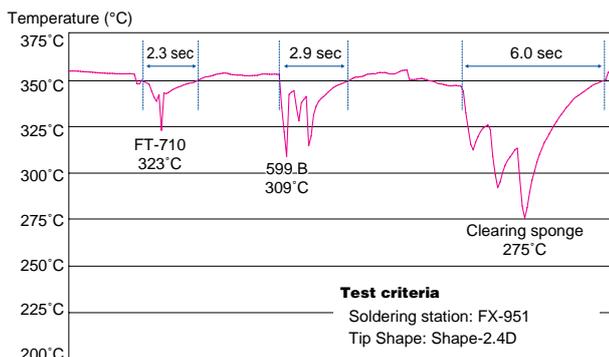
Solder-Splash prevention



Controllable solder removal level

Brush	Cleaning brush A (standard accessory)	Cleaning brush B (optional)
Material	Resin 	Metal 
Image after cleaning	Some solder remains. 	Solder is completely removed. 
Benefit	Prevents tip oxidation and extends the service life of the tip	Suitable for soldering small sections that require control over the amount of solder.

Minimizes decrease in temperature of the tip during cleaning



Packing List

FT-710	Unit, AC adapter, Receptacle A, Receptacle B, Lock nut, Gauge, Instruction manual
--------	---

Specifications

Model No.	FT-710
Power consumption	5 W
Standard receptacle	Receptacle A and B
Dimensions	71 (W) x 77 (H) x 107 (D) mm
Weight	450 g

• AC adapter

Motor rating	DC 24 V 130 mA
Dimensions	45 (W) x 40 (H) x 65 (D) mm
Weight	250 g

• Compatibility table

Tip	Receptacle A	Receptacle B	Receptacle C
T15, T11	✓		
T18, 900M		✓	
T20, T17, T22			✓

* This cleaner cannot be used with the T12-JL02, quad type, tunnel type, and spatula type soldering tips of the T12 series.

* There are some tips with dimensions that cannot be adjusted with the standard receptacles. In this situation, consult your nearest HAKKO dealer or distributor.

Option

Part No.	Name	Specifications
A1567	Cleaning brush B	Metal brushes, set of 2
B3519	Receptacle C	—

HAKO FT-700 TIP POLISHER

Tip Polisher



- Soldering tip polisher best suited to the removal of oxidation on soldering tips
- Prevents the shortening of the service life of tips caused by oxidation.

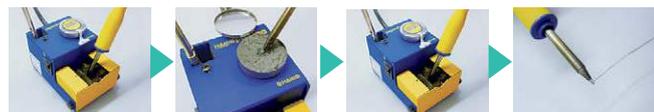
Usage



Oxidized tip

Polished and retinned tip

Cleaning procedure



1. Remove the oxidation.

2. Quickly retin the tip.

3. Remove the chemical paste attached to the tip end.

4. Feed the solder wire to the tip.

* Approximately 300°C is the most suitable temperature for cleaning the tips.



Use the brush to remove tough oxide.

Packing List

FT-700	Unit, Paste, Brush, Instruction manual
--------	--

Specifications

Model No.	FT-700
Power consumption	4.5 W
Dimensions	70 (W) × 54 (H) × 101 (D) mm
Weight*	0.65 kg

* Without cord

• Chemical paste

Amount	10 g
Ingredients	Flux, tin (Sn) 50 wt% (each)

* The flux component of chemical paste consists of alicyclic amine hydrobromate, aliphatic amine hydrobromate, petrolatum, and wax.

HAKO FS-100 CHEMICAL PASTE

Chemical Paste



- Chemical paste best suited to the removal of oxidation on soldering iron tips
- Also used for retinning of soldering tips

Packing List

FS-100	Paste, Instruction manual
--------	---------------------------

Specifications

• Chemical paste

Amount	10 g
Ingredients	Flux, tin (Sn) 50 wt% (each)

* The flux component of chemical paste consists of alicyclic amine hydrobromate, aliphatic amine hydrobromate, petrolatum, and wax.

HAJKO 373 SELF FEEDER ESD SAFE

Self Feeder



- Automatic solder feeder that enables a user to complete soldering work with just one hand
- The solder feed time and speed can be set.

Set-Up Example

•Soldering for one-handed operation

Soldering irons + HAKKO 373 + Solder diameter adjustment ring + Tube unit with switch or Guide pipe assembly or

* See the applicable soldering irons in the P.39.

Set-up example

•Soldering with a feeder pen

Soldering irons + HAKKO 373 + Solder diameter adjustment ring + Feeder pen + Switch or Foot switch or Feeder switch

* Compatible with all soldering irons

Set-up example

Specifications

Model No.	373
Power consumption	6 W
Solder feed time	0 to 7 seconds (auto mode)
Solder feed speed	4.5 to 26 mm/sec.
Solder feed quantity	0 to 182 mm
Solder return quantity	0 to 5 mm (fixed speed)
Mode	Auto and manual
Usable solder diameter*	0.6, 0.65, 0.8, 1.0, 1.2, 1.6 mm
Usable solder quantity	1 kg or less
Dimensions	107 (W) × 110 (H) × 215 (D) mm
Weight**	1.5 kg

* \varnothing 1.6 mm lead free solder can't be used.
 ** Without cord

Packing List

373	Unit, Instruction manual
-----	--------------------------

The accessories that are required for initial set-up, such as a tube unit, guide pipe assembly, and solder diameter adjustment ring, are not included. They must be ordered separately and adapted to use with the soldering iron and solder wire diameter.

Accessory Selection Guide

■ One-handed operation

Applicable soldering iron	Solder feed unit	Solder diameter	Options		
			Solder diameter adjustment ring	Guide pipe assembly	Tube unit
FM-2027 FM-2028 	373	0.6, 0.65 mm	 B1626	 B3481	 B3477
		0.8 mm	B1627	B3482	
		1.0 mm	B1628	B3483	
				1.2 mm	B1629
FM-2030 	373	0.6, 0.65 mm	B1626	B3726	B3477
		0.8 mm	B1627	B3727	
		1.0 mm	B1628	B3728	
		1.2 mm	B1629	B3729	B3478
FX-8301 	373	0.6, 0.65 mm	B1626	B3566	B3563
		0.8 mm	B1627	B3567	
		1.0 mm	B1628	B3568	
		1.2 mm	B1629	B3569	B3564
		1.6 mm	B1630	B3570	
FX-8801 907 	373	0.6, 0.65 mm	B1626	B2146	B2143
		0.8 mm	B1627	B2147	
		1.0 mm	B1628	B2148	
		1.2 mm	B1629	B2149	B2144
		1.6 mm	B1630	B2150	

■ Feeder pen

Applicable soldering iron	Solder feed unit	Solder diameter	Options		
			Solder diameter adjustment ring	Feeder pen	Switch
Compatible with all soldering irons	373	0.6, 0.65 mm	 B1626	 C1234	 B2124 feeder switch or B1649 foot switch
		0.8 mm	B1627		
		1.0 mm	B1628		
		1.2 mm	B1629	C1235	
		1.6 mm	B1630		

HAKKO 375 SELF FEEDER

V-Groove Maker



- Cutting a V-groove put on the solder surface reduces the splash of solder and flux.
- The solder feed amount can be controlled by turning the switch on and off.
- Compact, space-saving automatic solder feeder

Features

Minimize solder and flux splash

Cutting a V-groove on the solder surface enables the release of gas pressure generated by the flux, thereby suppressing splash. The HAKKO 375 can cut a groove in only the solder needed, then helps to reduce the level of defectiveness.

Advantages of V-grooved solder

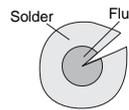
-Examination of solder and flux splash

Test criteria

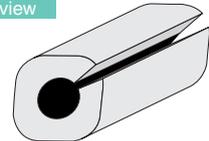
Measurement method	Measure the amount of solder and flux splashing after solder is fed to the soldering iron
Temperature setting for soldering iron	350°C and 400°C
Solder	Lead-free (Sn-3Ag-0.5Cu) Halogen-free flux ø0.3 mm and ø1.0 mm
Solder feed length	50 mm

* The effect of solder and flux splashing prevention may differ under different operation conditions.

Solder cross-section view

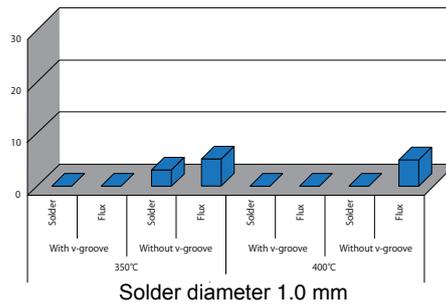
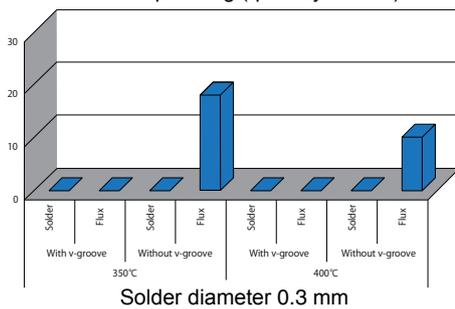


3D view



V-grooved solder

Amount of flux splashing (quantity of dots)



Packing List

375	Unit, AC Adapter, Instruction manual
-----	--------------------------------------

Option

Part No.	Name
B1649	Foot switch
B2763	Hand switch

Specifications

Model No.	375
Rating	DC 24 V 75 mA
Solder feed speed	27 mm/sec.
Usable solder diameter	0.3, 0.5, 0.6, 0.8, 1.0 mm
Dimensions	78 (W) × 98 (H) × 56 (D) mm
Weight	0.59 kg

•AC Adapter

Motor rating	DC 24 V 130 mA
Dimensions	45 (W) × 40 (H) × 65 (D) mm
Weight	0.25 kg

HAKKO CUTTING TOOL

Cutting Tool

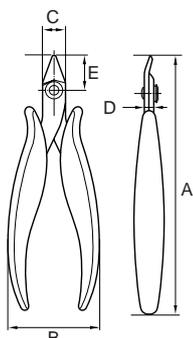


- Designed for precision assembly of delicate, complex electronic work
- Soft-touch grip enables long tool usage for long periods at a time.
- Recommend for use in cutting copper and soft lead wires

Specifications

Part No.	Name	Max. copper wire cutting capability	A	B	C	D	E
106-01	Cutting tool for flush cut with safety clip	1.3 mm	132	54	13.5	5	20
106-02	Cutting tool for flush cut with angled blade	1.3 mm	129	54	13.5	5	16
106-03	Cutting tool for flush cut with small blade	0.8 mm	130	54	9.5	4	18
106-04	Cutting tool for a front, flush cut	1.0 mm	138	54	14	6	27
106-05	Cutting tool for flush cut	1.3 mm	132	54	13.5	5	20
106-06	Short nose pliers	–	140	54	13	6	29
106-07	Long nose pliers	–	154	54	13	6	40
106-08	Bent nose pliers	–	146	54	13	4	35

(Unit: mm)



HAKKO 611 ESD SAFE SOLDER REEL STAND

Reel Stand



- Solder reel stand for coiled solder with a maximum load of 1 kg
- Smooth action when reeling out solder wire improves work efficiency
- A mounting screw for the grounding wire is attached on the baseplate.



No.611-2

Specifications

Part No.	611-1	611-2
Shaft diameter	ø15 mm	
Usable solder	Roll solder 1 kg (max.) × 1	Roll solder 1 kg (max.) × 2
Dimensions	86 (W) × 78 (H) × 141 (D) mm	87 (W) × 200 (H) × 141 (D) mm
Weight	450 g	750 g

HAKKO 153·154 LEAD FORMER

Lead Cutter and Former



- Lead cutter and former for axial components
- Can be used for forming and cutting, forming only, or cutting only

Cutting and Forming

HAKKO 153	HAKKO 154
<p>Cutting and forming</p>	<p>Cutting and forming</p>
<p>Forming</p>	<p>Forming</p>
<p>Cutting</p>	<p>Cutting</p>

Packing List

153, 154

Unit, Parts tray, Clamp, Handle, 2.0 mm Hexagon wrench, 2.5 mm Hexagon wrench, 3.0 mm Hexagon wrench, 4.0 mm Hexagon wrench, Instruction manual

Specifications

Part No.	153-1	154-1
Forming size	5.6 mm pitch	5 mm pitch
Max. diameter of lead wire	ø0.8 mm (max.)	ø0.5 mm (max.)
Lead wire*	For annealed copper lead wire only	
Outer width of tape	85 mm (max.)	
Taping pitch	5 mm	
Dimensions	125 (W) × 130 (H) × 110 (D) mm	
Weight**	2 kg	

* These tools are not suited to work on components with lead frames (multiangular lead).
** Including handle and clamp

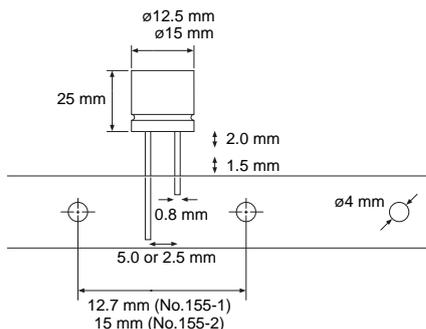
HAKKO 155 LEAD CUTTER

Lead Cutter



- Lead cutter for radial components

Cutting



* Cutting only

Packing List

155

Unit, Parts tray, Clamp, Handle, 2.0 mm Hexagon wrench, 2.5 mm Hexagon wrench, 3.0 mm Hexagon wrench, 4.0 mm Hexagon wrench, Instruction manual

Specifications

Part No.	155-1	155-2
Max. diameter of lead wire	ø0.8 mm (max.)	
Lead wire*	For annealed copper lead wire only	
Max. processing part size	ø12.5 × 25 mm (max.)	
Feed hole pitch	12.7 mm	15 mm
Lead pitch**	5.0 mm, 2.5 mm	5.0 mm
Min. processing size	1.5 mm from taping end, 2.0 mm from component end	
Dimensions	110 (W) × 140(H) × 125 (D) mm	
Weight***	1.7 kg	

* These tools are not suited to work on components with lead frames (multiangular lead).
** When shipped, the unit is set for components with a lead pitch of 5.0 mm.
*** Including handle and clamp

HAKKO DIPLINER

LEAD STRAIGHTENER

Lead Straightener



- IC lead liner for correcting variable lead pitches
- Simple mechanism enables the adjustments with just one screw.
- Simply insert the IC case into the chute.

Packing List

FT100, FT150, FT200, FT300	Unit, Instruction manual
-------------------------------	--------------------------

Specifications

Part No.	FT100	FT150	FT200	FT300
Width of IC	7.5 mm	10 mm	15 mm	19 mm
Number of IC leads	8, 14, 16 18, 20	22	24, 28 40, 42	64

HAKKO393 VACUUM PICK-UP

Dropper Type



- Portable, easy-to-carry manual dropper-type vacuum pick-up
- Maximum pick-up capacity of 40 gf
- Uses antistatic material

HAKKO394 VACUUM PICK-UP

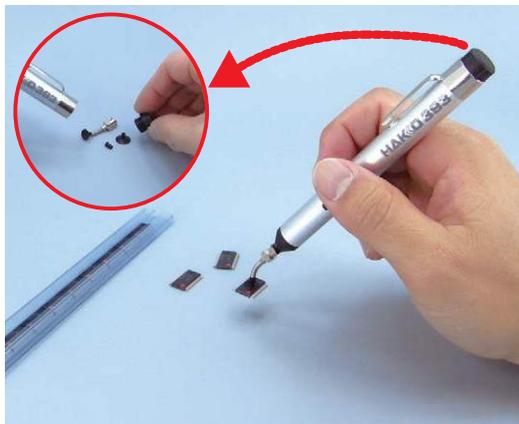
Battery-Powered Type



- Battery-powered suction pick-up tool with built-in vacuum pump
- Maximum pick-up capacity of 120 gf
- Uses antistatic material

Usage Example

HAKKO 393



HAKKO 394



With the bent nozzle accessory, 0603-size components can be picked up.



Replacement Pads and Nozzles

Part No.	Name	Specifications
A1164	Bent nozzle	0.4 mm
A1165	Bent nozzle	1.1 mm with stopper
A1198	Bent nozzle	0.26 mm
A1486	Straight nozzle	1.1 mm with stopper
A1166	Pad	3 mm
A1312	Pad	5 mm
A1167	Pad	7 mm
A1311	Pad	10 mm

Packing List

393	Unit, 1.1 mm diameter Bent nozzle with stopper, 3 mm diameter Pad, 7 mm diameter Pad, 10 mm diameter Pad, Instruction manual
394	Unit, 1.1 mm diameter Bent nozzle with stopper, 5 mm diameter Pad, 10 mm diameter Pad, two AAA Alkaline batteries (for trial), Instruction manual

Specifications

Model No.	393
Pad	Conductive silicone rubber
Dimensions	ø13 mm × 132 mm
Weight*	19.2 g

* Without nozzle and pad

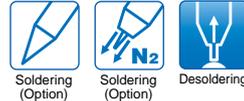
Model No.	394
Power supply	Two AAA batteries
Pad	Conductive silicone rubber
Battery life	Approx. 30,000 suction (with alkaline batteries)
Suction capacity	120 gf (with a pad diameter of 10 mm)
Dimensions	130 (W) × 29 (H) × 22 (D) mm
Weight*	43 g

* Without batteries, nozzle and pad

HAKKO FM-204 ESD SAFE DESOLDERING TOOL

High-Power Desoldering Tool Digital

Nozzle not included



- Vacuum pump built-in type desoldering tool
- Digital display ensures easy and reliable temperature control.
- Sleep function that works with iron holder prevents nozzle oxidation.

Packing List

FM-204	Station, Iron holder, Ceramic paper filter (10 pcs), Cleaning drill for heating element, Filter pipe assembly (1 pc), Control card, Power cord, Connecting cable, Nozzle remover, Desoldering tool (FM-2024), Handle for gun configuration, Instruction manual
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Option

Part No.	Name	Specifications
FM2027-03	HAKKO FM-2027 conversion kit	70 W (24 V)
FM2026-06	HAKKO FM-2026 conversion kit	70 W (24 V)

Specifications

Model No.	FM-204
Power consumption	120 W
Temperature range	FM-2024: 350 to 450°C FM-2026/2027: 200 to 450°C
Temperature stability	±5°C at idle temperature

• Station

Output voltage	AC 24 V
Vacuum generator	Double cylinder type
Vacuum pressure	Max. 80 kPa (600 mmHg)
Suction flow*	15 L/min.
Dimensions	160 (W) × 120 (H) × 225 (D) mm
Weight	3.7 kg

• Desoldering Tool

Power consumption	70 W (24 V)
Nozzle to ground resistance	<2 Ω
Nozzle to ground potential	<2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length**	180 mm (with ø1.0 mm nozzle)
Weight**	65 g (with ø1.0 mm nozzle)

* Measured at the filter case suction port of the station.

** Without cord and hose

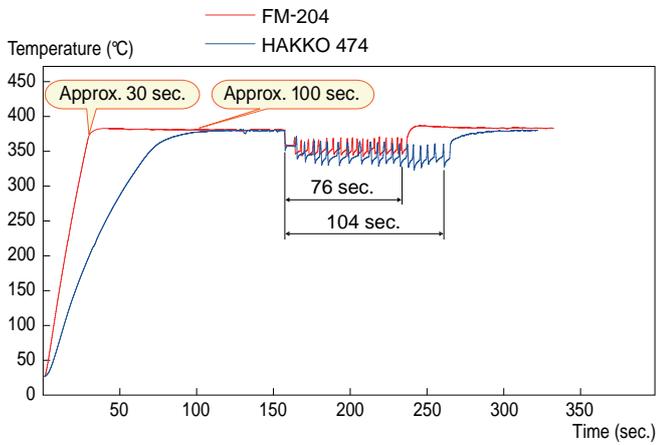
Optional Nozzles

Unit : mm

N3-06 Nozzle ø0.6 	N3-08 Nozzle ø0.8 	N3-10 Nozzle ø1.0 	N3-13 Nozzle ø1.3
N3-16 Nozzle ø1.6 	N3-20 Nozzle ø2.0 	N3-23 Nozzle ø2.3 	N3-L10 Nozzle ø1.0 Long

Features

Excellent thermal recovery



Test criteria

Measurement method	The time until the soldered portion reaches 200°C is measured for 20 points.
Nozzle used	ø1.0 mm
Solder	Lead-free solder

Two way use of grip part

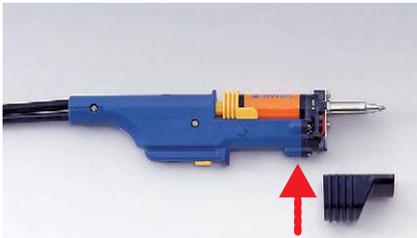


Gun configuration



Straight configuration

Simple and safe nozzle replacement by the nozzle remover



Sleep function and Auto Power Shut-off function



Connect the FM-204 station and FH-200 iron holder using a connecting cable.

Replacing the handpiece enables soldering.

■ Soldering



HAKKO FM-2027

■ N₂ System



Set-up example
 HAKKO FM-204
 HAKKO FM-2026
 HAKKO FX-780
 HAKKO FX-791

HAKKO 474 **ESD SAFE** DESOLDERING TOOL

Vacuum-Pump Type Desoldering Tool **Analog**

Nozzle included



- Vacuum pump built-in type that is easy to carry

Handpiece Variations



HAKKO 809



HAKKO 815



HAKKO 816

Packing List

474 (with 809)	Station, 809 Desoldering gun, Filter pipe, Ceramic paper filter (S; 2 pcs), Ceramic paper filter (L; 4 pcs), Spring filter (3 pcs), Cleaning pin for 1.0 mm diameter nozzle, Cleaning drill for 1.0 mm diameter nozzle, Cleaning pin for heating element, Cleaning pin holder, Wrench, Silicone grease, Iron holder base, Cleaning sponge, Spring iron holder, Instruction manual
474 (with 815)	Station, 815 Desoldering tool, Filter pipe, Ceramic paper filter (S; 2 pcs), Ceramic paper filter (L; 4 pcs), Spring filter (3 pcs), Cleaning pin for 1.0 mm diameter nozzle, Cleaning drill for 1.0 mm diameter nozzle, Cleaning pin for heating element, Cleaning pin holder, Wrench, Silicone grease, Anti-seizure, Iron holder base, Cleaning sponge, Iron receptacle with holder, Instruction manual
474 (with 816)	Station, 816 Desoldering gun, Filter pipe, Ceramic paper filter (S; 2 pcs), Ceramic paper filter (L; 4 pcs), Spring filter (3 pcs), Cleaning pin for 1.0 mm diameter nozzle, Cleaning drill for 1.0 mm diameter nozzle, Cleaning pin for heating element, Cleaning pin holder, Wrench, Silicone grease, Anti-seizure, Iron holder base, Cleaning sponge, Iron receptacle with holder, Instruction manual

Specifications

Model No.	474 (with 809)	474 (with 815)	474 (with 816)
Power consumption		100 W	
Temperature range		380 to 480°C	

•Station

Output voltage	AC 24 V
Vacuum generator	Double cylinder type
Vacuum pressure	Max. 80 kPa (600 mmHg)
Suction flow*	15 L/min.
Dimensions	165 (W) × 135 (H) × 260 (D) mm
Weight**	3.8 kg

•Desoldering Tool

Type	Gun	Pen	Gun
Power consumption		50 W (24 V)	
Nozzle to ground resistance		<2 Ω	
Nozzle to ground potential		<2 mV	
Heating element		Ceramic heater	
Standard nozzle	ø1.0 mm S type (No. A1003)	ø1.0 mm S type (No. A1499)	
Dimensions	135 (W) × 174 (H) mm	200 (W) × 80 (H) mm	180 (W) × 150 (H) mm
Weight**	200 g	100 g	120 g

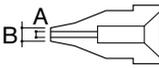
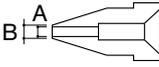
* Measured at the filter case suction port of the station.

** Without cord and hose

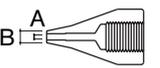
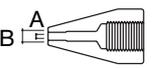
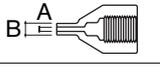
Replacement Nozzles

Unit : mm

For 809

Part No.	Figure	Size	
		A	B
A1002		0.8	1.8
A1003		1.0	2.0
A1004		0.8	2.3
A1005		1.0	2.5
A1006		1.3	3.0
A1007		1.6	3.0

For 815 and 816

Part No.	Figure	Size	
		A	B
A1496		0.8	1.8
A1499		1.0	2.0
A1498		0.8	2.3
A1500		1.0	2.5
A1501		1.3	3.0
A1502		1.6	3.0
A1503		2.0	3.6
A1497		0.8	2.2

HAKO FR-300 DESOLDERING TOOL

New

Portable Desoldering Tool

Nozzle included



- Power switch and adjustable temperature control built into the handle
- Ergonomic grip design provides superior operability



FR-300 is supplied in a carrying case with maintenance parts and simple iron holder.

Packing List

FR-300	Unit, Ceramic paper filter (L; 2 pcs), Nozzle changing tool, Protection cover, Pre-filter, Iron holder, Cleaning pin for 1.0 mm diameter nozzle, Cleaning pin for heating core, Instruction manual
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Specifications

Model No.	FR-300
Power consumption	118 W
Temperature range	350 to 500°C
Nozzle to ground resistance	<2 Ω
Nozzle to ground potential	<2 mV
Vacuum generator	Diaphragm pump
Vacuum pressure	81 kPa (610 mmHg)
Suction flow	11 L/min.
Standard nozzle	ø1.0 mm (No. N50-04)
Dimensions	210 (W) x 226 (H) mm
Weight	0.52 kg

Replacement Nozzles

Unit : mm

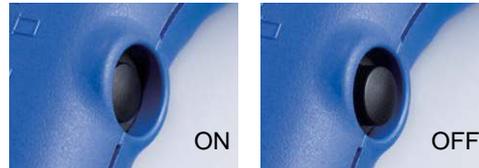
Part No.	Figure	Size	
		A	B
N50-01		0.8	2.0
N50-02		1.0	2.0
N50-03		0.8	2.5
N50-04		1.0	2.5
N50-05		1.3	3.0
N50-06		1.6	3.0

Features

Quick-change nozzle replacement with special tools



Power switch at hand



Simplified iron holder as standard



HAKKO SPPON

DESOLDERING TOOL

Desoldering Tool

Nozzle included



- Light-weight and simplified desoldering tool with high suction power
- Use a cleaning shaft that enables the nozzle to be cleaned after each use
- Nozzles can be easily replaced.

Replacement Nozzles

Unit : mm

Part No.	Figure	Adaptation products
18-N		No.18, 18G
20-N		No.20, 20G
DS01-N		No.DS01P

Specifications

Part No.	Absorption capacity
18	12 cm ³ (12 cc)
18G	12 cm ³ (12 cc) with guard
20	20 cm ³ (20 cc)
20G	20 cm ³ (20 cc) with guard
DS01P	28 cm ³ (28 cc)

HAKKO WICK

DESOLDERING WIRE

Desoldering Wire



- Handy for removing solder after dismantling surface-mounted components

Features

Through-hole solder removal



Bridging solder removal



Specifications

Regular type (Flux)

Part No.	Description
FR100-00	1.5 m × 0.6 mm
FR100-01	1.5 m × 0.9 mm
FR100-02	1.5 m × 1.4 mm
FR100-03	1.5 m × 1.9 mm
FR100-04	1.5 m × 2.5 mm
FR100-05	1.5 m × 3.3 mm

Unflux type (Unflux)

Part No.	Description
FR110-00	1.5 m × 0.6 mm
FR110-02	1.5 m × 1.4 mm
FR110-03	1.5 m × 1.9 mm
FR110-04	1.5 m × 2.5 mm
FR110-05	1.5 m × 3.3 mm

No clean type (Low residue flux) ESD SAFE package

Part No.	Description
FR120-00	1.5 m × 0.6 mm
FR120-01	1.5 m × 0.9 mm
FR120-02	1.5 m × 1.4 mm
FR120-03	1.5 m × 1.9 mm
FR120-04	1.5 m × 2.5 mm
FR120-05	1.5 m × 3.3 mm

HAJKO FR-810 ESD SAFE SMD REWORK STATION

Hot-Air SMD Rework Station **Digital**

Nozzle included



Packing List

FR-810	Station with handpiece, Handpiece holder, FP pick-up (with pick-up wire SS), Heat resistant pad, Power cord, Nozzle (ø4), Instruction manual
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- High volume airflow and high output for a various kinds of rework
- Full digital control of temperature, airflow, and time.
- Simple nozzle removal and easy maintenance

Specifications

Model No.	FR-810
Power consumption	1,200 W
Temperature range	50 to 600°C

• Station

Power consumption	30 W
Air flow	1 to 9 (5 to 115L/min.)
Dimensions*	160 (W) × 145 (H) × 220 (D) mm
Weight*	1.5 kg

• Handpiece

Power consumption	1,170 W
Standard nozzle	ø4 mm (No. N51-02)
Total length*	250 mm
Weight*	180 g

* Total length and weight do not include cord.

* Values for airflow are approximate. Actual volume of airflow may be affected by the size and shape of the nozzle used.

Option

Part No.	Name	Specifications
B5058	Conversion adapter	-

When using the FR-810 with a nozzle for the FR-803B, attach a conversion adapter No.B5058 (option).



Features

Timer function

A new timer function allows for repeatably consistent work times. This can help to prevent parts from overheating and can improve the overall quality of your work.

Preset mode

Preset mode allows you to change the settings easily to suit a variety of boards and workpieces. (You can program temperature, time and airflow settings for up to five presets) Simply switch to the desired setting for variety of jobs.

	Preset 1	Preset 2	Preset 3	Preset 4	Preset 5
Temperature (°C)	250	300	350	400	450
Time (sec.)	100	80	50	120	150
Airflow (level)	6	7	8	4	5

Chain Presets function

The Chain Presets function allows you to create a simple temperature profile by combining settings registered in preset mode. (Up to five steps can be created). It also supports sophisticated removal work, and significantly improves efficiency.



	Temperature (°C)	Time (s)	Airflow
Preset 1	250	100	6
Preset 2	300	40	6
Preset 3	350	50	6
Preset 4	100	000	6
Preset 5	100	000	6

*Presets 4 and 5 have been set to '000', so they are skipped.

Auto sleep and auto shutoff features

To ensure safety and conserve power, when the handpiece is placed in the handpiece holder, the auto sleep function is activated and it starts cooling automatically.

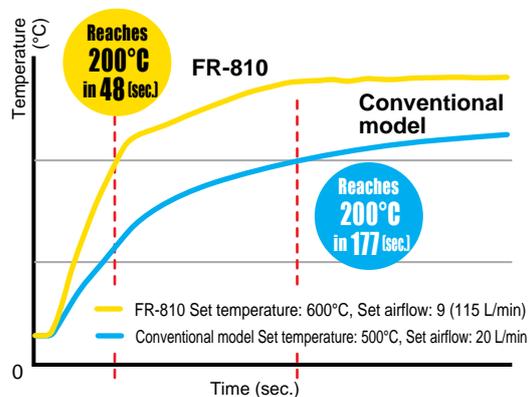
If the handpiece has not been removed from the handpiece holder (Ex. Using it in a rework fixture) and after it has been idle for 30 minutes, auto shutoff function is activated. It is automatically powered off.

Access to settings can be restricted via the password function for easy management.



Efficiency improvement

The FR-810's high volume airflow and high output make it possible to perform the same work in only one-third of the time required when using a conventional model. This reduces the thermal impact on boards and components.



*Examination of time taken for connector sections soldered onto a ceramic board to be heated to 200°C with maximum temperature and airflow settings selected. Single nozzles with an approximately 4 mm diameter were used.

Quick-change N51 nozzles



Simple, tool-free removal and attachment.

Simple heater replacement



Simply remove four screws to replace heater.

HAKKO FR-803B ESD SAFE SMD REWORK STATION

Hot-Air SMD Rework Station Digital

Nozzle not included



- 3-step temperature profile (preheating, heating, and cooling down) is available.
- Vacuum function makes it possible to pick up workpieces.

Packing List

FR-803B	Station with handpiece, Power cord, Control card, Handpiece holder, Connecting cable, Pad (3 mm, 5 mm, 7.6 mm x 2 pcs each), Instruction manual
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NOTE: This product does not come with a nozzle. When purchasing this product, be sure to order a nozzle suitable for the work to be done.

Specifications

Model No.	FR-803B
Power consumption	650 W
Temperature range	100 to 500°C (sensor)

•Station

Power consumption	50 W (stand-by power consumption: 4 W)
Air flow	5 to 20 L/min. (max.)
Operation mode	Auto or manual
Timer	50 files, 3 steps each
Dimensions*	160 (W) × 145 (H) × 230 (D) mm
Weight*	5 kg

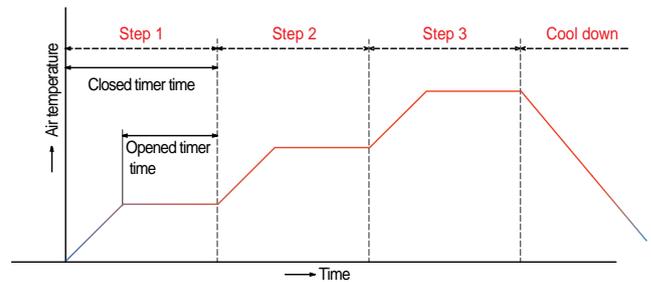
•Handpiece

Power consumption	600 W
Total length*	200 mm
Weight*	200 g

* Without cord

Features

Settable 3-step temperature profile



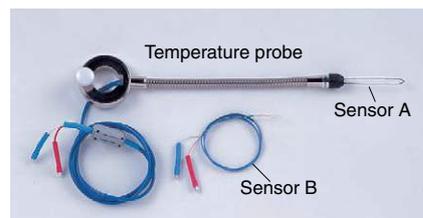
Built-in vacuum pickup



Option

Part No.	Name
C1541	Temperature probe

Controlling the temperatures of the hot air rework system and the workpiece using a temperature probe



Set-up example 1



Set-up example 2



Set-up example 3



Accessories for SMD-BGA Repair System

Set-up example; Rework fixture, Omnivise, FR-803B, FR-830, FG-100



- Combination with HAKKO FR-810 and FR-803B allows the SMD and BGA rework equipment to set up at low cost.

Features

REWORK FIXTURE 脚 No.C1392B



- Smooth vertical motion
- The handpiece may be easily installed or removed from the clamp.
- Easy to position

OMNIVISE 脚 No.C1390C



- The height can be adjusted to 72.5 mm, 78.0 mm, 84.5 mm, 91.0 mm and 97.5 mm.
- The jaws are padded to preclude damage to delicate objects.
- Full rotations of 360° are available without interference.

NOZZLE TRAY 脚 No.C1391B

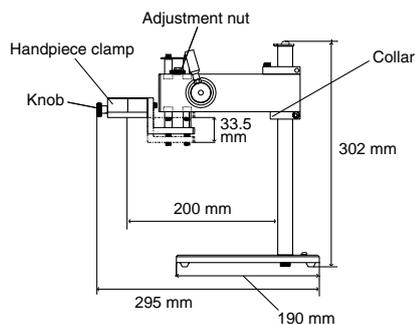


- Holds nozzles in neat rows
- Aids in nozzle installation and removal

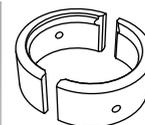
Specifications

Model No.	C1392B	C1390C	C1391B
Dimensions	—	ø57 × 88 mm	305 (W) × 64 (H) × 140 (D) mm
Weight	4.6 kg	1.2 kg (1 pc)	0.87 kg

Dimensional drawing for C1392B



Fixture adapter

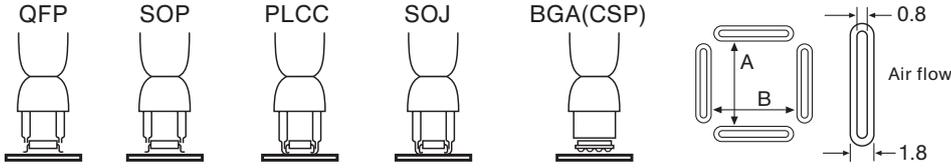


No.B5059

When using the FR-810 handpiece with a rework fixture No.C1392B, attach a fixture adapter No.B5059 (option).

Optional Nozzles for the FR-803B

Unit: mm



The size in each description indicates the size of the package.

QFP and BQFP

A1125B QFP 10 × 10  A: 10.2 B: 10.2	A1262B QFP 12 × 12  A: 12.2 B: 12.2	A1126B QFP 14 × 14  A: 15.2 B: 15.2	A1128B QFP 14 × 20  A: 15.2 B: 21.2	A1127B QFP 17.5 × 17.5  A: 19.2 B: 19.2
A1261B QFP 20 × 20  A: 20.2 B: 20.2	A1129B QFP 28 × 28  A: 29.7 B: 29.7	A1263B QFP 28 × 40  A: 27.7 B: 39.7	A1265B QFP 32 × 32  A: 32.2 B: 32.2	A1203B QFP 35 × 35  A: 35.2 B: 35.2
A1264B QFP 40 × 40  A: 40.2 B: 40.2	A1215B QFP 42.5 × 42.5  A: 42.5 B: 42.5	A1180B BQFP 17 × 17  A: 18.2 B: 18.2	A1181B BQFP 19 × 19  A: 19.2 B: 19.2	A1182B BQFP 24 × 24  A: 24.2 B: 24.2

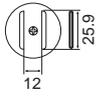
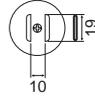
SOP and TSOL

A1131* SOP 4.4 × 10  4.8	A1132* SOP 5.6 × 13  5.7	A1133* SOP 7.5 × 15  7.2	A1134* SOP 7.5 × 18  7.2	A1258B SOP 7.6 × 12.7  8.2
A1260B SOP 8.6 × 18  8.7	A1257B SOP 11 × 21  11.7	A1259B SOP 13 × 28  13.5	A1185B TSOL 13 × 10  11.9	A1186B TSOL 18 × 10  11.7 18.2
A1187B TSOL 18.5 × 8  18.5				

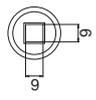
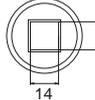
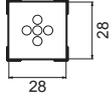
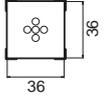
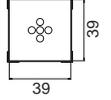
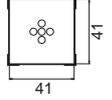
PLCC

A1188B PLCC 9 × 9 (20 pins)  A: 11 B: 11	A1140B PLCC 11.5 × 11.5 (28 pins)  A: 13 B: 13	A1141B PLCC 11.5 × 14 (32 pins)  A: 15 B: 13	A1139B PLCC 12.5 × 7.3 (18 pins)  A: 9 B: 14	A1135B PLCC 17.5 × 17.5 (44 pins)  A: 18.5 B: 18.5
A1136B PLCC 20 × 20 (52 pins)  A: 21 B: 21	A1137B PLCC 25 × 25 (68 pins)  A: 26 B: 26	A1138B PLCC 30 × 30 (84 pins)  A: 31 B: 31	A1189B PLCC 34 × 34 (100 pins)  A: 36.5 B: 36.5	

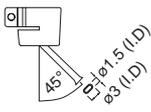
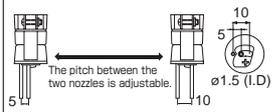
SOJ

A1214B SOJ 10 × 26 	A1183* SOJ 15 × 8 	A1184B SOJ 18 × 8 
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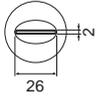
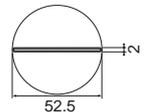
BGA

A1470 BGA 8 × 8 	A1471 BGA 12 × 12 	A1472 BGA 13 × 13 	A1473 BGA 15 × 15 	A1474 BGA 18 × 18 
A1475 BGA 27 × 27 	A1476 BGA 35 × 35 	A1477 BGA 38 × 38 	A1478 BGA 40 × 40 	

Single

A1124B* Single 2.5 	A1130* Single 4.4 	A1142B* Bent single 1.5 × 3 	A1190* Dual single 2.5 × 9.5 	A1325* Dual single ø1.5 × 5 to 10 Adjustable pitch 
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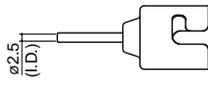
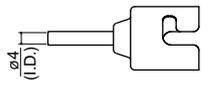
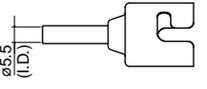
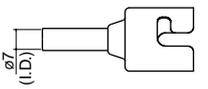
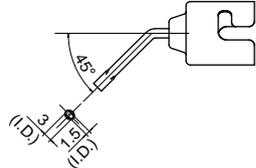
SIP

A1191* SIP 25L 	A1192* SIP 50L 
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* The vacuum function does not operate with these nozzles.
The vacuum function is not available on the FR-810.

Optional Nozzles for the FR-810

Unit: mm

N51-01 	N51-02 	N51-03 	N51-04 	N51-05 
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Single nozzle set (N51-01, N51-03, N51-04, and N51-05) is also available.

*N51-02 included with station

No. N51-50



When using the FR-810 with a nozzle for the FR-803B, attach a conversion adapter No.B5058 (option).



HAKKO 702B ESD SAFE REWORK SYSTEM

Rework System Analog

Tip included

Nozzle included



- Multi-station that enables soldering, desoldering, and SMD rework all with a single unit

Packing List

702B	Station, Soldering iron (907 × 1 pc, 900S × 1 pc), Desoldering gun (809), Handpiece (hot air), Nozzle tray, Filter pipe, Cleaning pin for 1.0 mm diameter nozzle, Cleaning pin for heating element, Cleaning drill for 1.0 mm diameter nozzle, Ceramic paper filter (S; 2 pcs), Ceramic paper filter (L; 4 pcs), Spring filter (3 pcs), Silicone grease, Wrench, Iron holder for soldering iron (2 pcs), Iron holder for desoldering gun, Handpiece holder, FP pick-up with S and L wires, Nozzle for handpiece (hot air; A1124B × 1 pc, A1128B × 1 pc), Power cord, Instruction manual, Troubleshooting guide
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Replacement Tips and Nozzles

For information on replacement tips and nozzles, see our website (<http://www.hakko.com>).

Specifications

Model No.	702B
Power consumption	500 W
Temperature range	Soldering: 200 to 480°C Desoldering: 380 to 480°C SMD Rework: 100 to 420°C (use No. A1126B)

• Station

Output voltage	AC 24 V
Vacuum generator	Double cylinder type
Vacuum pressure	Max. 80 kPa (600 mmHg)
Suction flow	15 L/min.
Air flow	23 L/min. (max.)
Dimensions	360 (W) × 150 (H) × 266 (D) mm
Weight*	10 kg

• Soldering Iron

Power consumption	50 W (24 V) × 2 pcs
Tip to ground resistance	<2 Ω
Tip to ground potential	<2 mV
Heating element	Ceramic heater
Standard tip	Shape-B (No. 900M-T-B), Shape-I (No. 900S-T-I)
Cord length	1.2 m
Total length*	907-ESD: 222 mm (with B tip) 900S-ESD: 215 mm (with B tip)
Weight*	907-ESD: 44 g (with B tip) 900S-ESD: 29 g (with B tip)

• Desoldering Gun

Power consumption	50 W (24 V)
Nozzle to ground resistance	<2 Ω
Nozzle to ground potential	<2 mV
Heating element	Ceramic heater
Standard nozzle	ø1.0 mm S type (No. A1003)
Cord length	1.2 m
Dimensions**	135 (W) × 174 (H) mm
Weight**	200 g

• Handpiece (Hot Air)

Power consumption	250 W
Standard nozzle	No. A1124B and A1128B
Total length*	196 mm
Weight*	120 g

* Without cord

** Without cord and hose

HAKKO FR-830 PREHEATER ESD SAFE

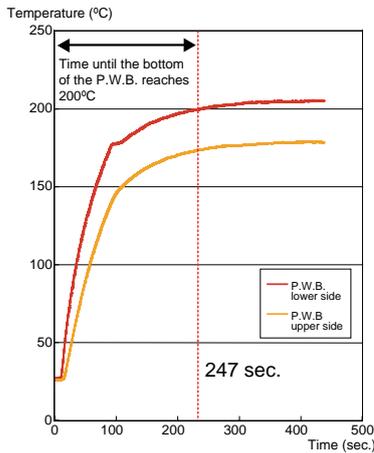
Preheater **Analog**



- Compact pre-heater best suited for heat processing on localized areas
- Featuring quick heatup and less variations in temperature

Features

Preheating in a short time



Test criteria

Measurement method	Temperature measured using sensors mounted on both the top and bottom surfaces of the P.W.B.
Distance between air outlet and P.W.B.	10 mm
Temperature setting	300°C

Set-up example



HAKKO FR-830
HAKKO FR-810
REWORK FIXTURE
OMNIVISE
HAKKO FG-100

Packing List

FR-830	Unit, Power cord, Instruction manual
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Specifications

Model No.	FR-830
Power consumption	250 W
Air flow	0.15 m ³ /min. (fan capability)
Temperature range	150 to 300°C (above the blow exit)
Dimensions*	140 (W) × 75 (H) × 185 (D) mm
Weight**	0.75 kg

* The height (H) is the distance from the bottom of the feet to the top of the exhaust outlet.
** Without cord

Option

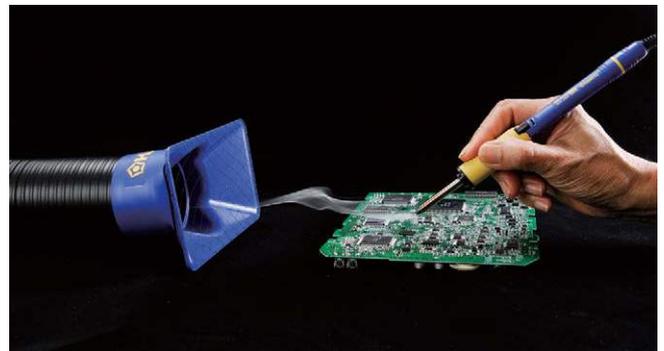
Part No.	Name	Specifications
B3263	Extension pipe	with lid
B2763	Hand switch	—
B1649	Foot switch	—

HAKKO FA-430 ESD SAFE FUME EXTRACTION

Air-Purifying Smoke Absorber



- Powerful yet quiet suction
- Freestanding flexible ducts facilitate production changeovers
- Three airflow levels are selectable according to working environments.



Packing List

FA-430	Main unit, Power cord, Main filter, Pre-filter (10 pcs), Instruction manual
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*Ducts are optional parts.

Specifications

Model No.	FA-430
Power consumption	120 W
Noise level*	50 dB
Max. suction capacity	With single duct: Max. 4.1 m ³ /min. (145 cFm) With two ducts: Max. 4.7 m ³ /min. (167 cFm)
Filtering efficiency**	99.97% 0.3 μm (LOW or MEDIUM mode) 99.96% 0.3 μm (HIGH mode)
Static pressure	1500 Pa
Duct set (sold separately)***	Duct length: ø55 mm × 1.2 m (ESD safe)
Dimensions	330 (W) × 366 (H) × 343 (D) mm
Weight****	7.5 kg

* Measured at a distance of 1 m from the face of the unit in an anechoic room.

** An initial value of the collection efficiency based on a counting method for airborne dust collected by a single plate of filter (unfolded)

*** Nets in duct sets are not protected against electrostatic discharge.

**** Without cord

Option

Part No.	Name	Specifications
C1571	Duct set	With rectangular type nozzle
C1572	Duct set	With round type nozzle



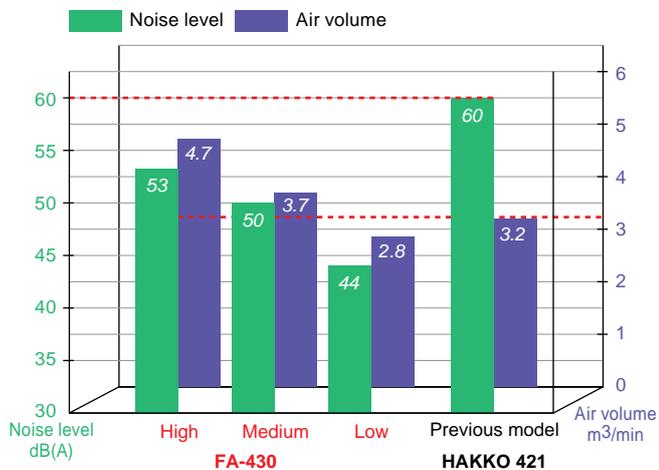
No.C1571



No.C1572

Features

Quiet operation and powerful suction



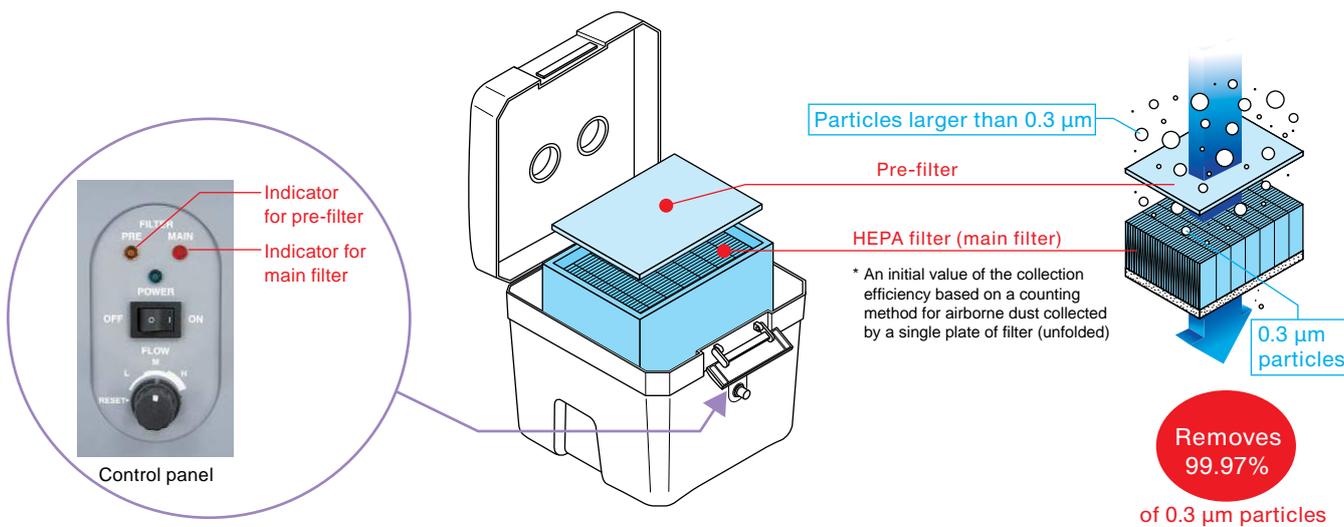
Basic noise level guide

Quiet office = 50 dB
 Ringing telephone, noisy street, or office = 70 dB

Flexible ducts and compact body for perfect placement

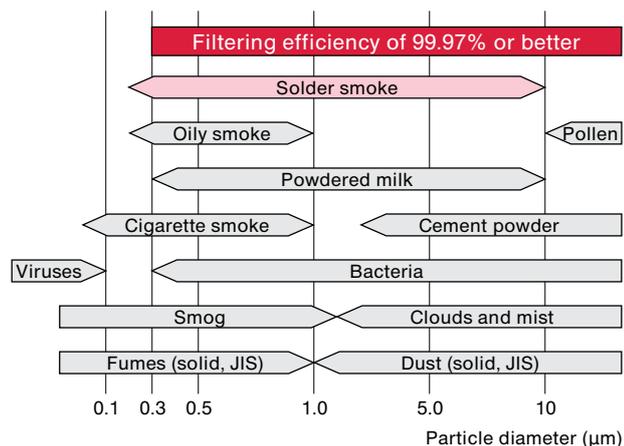


Filter replacement notification function



Aerosol particle diameter range

* During LOW and MIDDLE modes



HAKKO FA-400 SMOKE ABSORBER ESD SAFE

Desktop Type Smoke Absorber



- Desktop solder smoke absorber that can be mounted horizontally or vertically
- An optional arm stand makes a third mounting position available.

2 Way Plus Placement

Vertically mounted:



Horizontally mounted:



Using a stand:



Packing List

FA-400	Unit, Filter, Instruction manual
--------	----------------------------------

Specifications

Model No.	FA-400
Power consumption	50 Hz: 22 W 60 Hz: 18 W
Noise level*	50 Hz: 48 dB 60 Hz: 51 dB
Max. suction capacity**	Vertically: 1.0 m ³ /min. (50 Hz), 1.1 m ³ /min. (60 Hz) Horizontally: 0.4 m ³ /min. (50 Hz), 0.5 m ³ /min. (60 Hz)
Air velocity	Vertically: 1.0 m/s (50 Hz), 1.1 m/s (60 Hz) Horizontally: 2.6 m/s (50 Hz), 2.9 m/s (60 Hz)
Filter size	130 (W) × 130 (H) × 10 (D) mm
Dimensions	166 (W) × 212 (H) × 113 (D) mm
Weight***	0.91 kg

* Measured at a distance of 1 m from the face of the unit

** Measured with a filter present

*** Without cord

Option

Part No.	Name	Specifications
C1568	Arm stand	With knobs

HAKKO 490 SMOKE CLEANER

External Air Compressor Type Smoke Absorber



- External air compressor type soldering smoke absorber
- Three inner filters attached on different levels absorb soldering smoke.
- Up to 2 soldering irons can be connected to one unit.

Compatible Soldering Station for HAKKO 490



HAKKO FX-888D



HAKKO FX-951



HAKKO FX-950



HAKKO FX-838



HAKKO FM-203



HAKKO FM-206

Specifications

Model No.	490
Noise level	39 dB
Working pressure	392 to 686 kPa (4 to 7 kgf/cm ²)
Air consumption	40 L/min. (490 kPa)
Suction flow	23 L/min. (490 kPa)
Dimensions	ø120 × 200 (H) mm
Weight*	1.5 kg

* Unit only

** Use compressed air; no power supply is necessary.

Packing List

490	Unit, Absorption pipe set, Instruction manual
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* A second soldering iron can be attached to HAKKO 490 by purchasing an additional absorption pipe set.

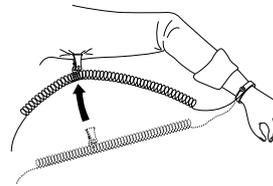
HAKKO 442B WRIST STRAP

Wrist Strap



- This antistatic wrist strap prevents the human body from becoming charged with static electricity.
- The stretchable band is easy to adjust.
- A conductive thread is used for the band lining.

Cord Helper



1. Insert the grounding wire into the ring of the cord helper.
2. Clip the cord helper to clothing as shown here.

Packing List

442B	Wrist band, Grounding wire, Cord helper, Instruction manual
------	---

Specifications

Part No.	442B-01	442B-02
Color	Blue	
Grounding wire	1.5 m	2.5 m

HAKKO 498

SYSTEM TESTER

Wrist Strap Tester



- Easy-to-use, quick-response tester for wrist straps

Features

Can be used anywhere to quickly and easily check a variety of grounding systems.



Packing List

498	Unit, 006P 9 V Manganese dry battery (for trial), Grounding wire, Instruction manual
-----	--

Specifications

Model No.	498
Power supply	006P 9 V dry battery
Indication: LOW	$R < 800 \text{ k}\Omega$
Indication: GOOD	$800 \text{ k}\Omega \leq R \leq 9 \text{ M}\Omega$
Indication: HIGH	$R > 9 \text{ M}\Omega$
Battery life	Approx. 50,000 times
Grounding wire	2.5 m
Operating environment	0 to 40°C, 20 to 90%RH (without condensation)
Dimensions	80 (W) × 40 (H) × 117 (D) mm
Weight*	150 g

* Including battery

Soldering Iron Thermometer/Tester

HAKKO FG-100 THERMOMETER

Soldering Iron Thermometer



- Tip thermometer that provides reliable temperature control of soldering iron tips
- Compact design minimizes your workspace and enables you to easily carry it around.
- Incorporating an extremely fine sensor that has high temperature reactivity.

HAKKO FG-101 SOLDERING TESTER

Soldering Iron Tester



- Tip temperature, leak voltage, and tip-to-ground resistance can be easily measured with high accuracy.
- Soldering iron tester useful for daily maintenance of station-type soldering irons

What is leak voltage and tip-to-ground resistance?

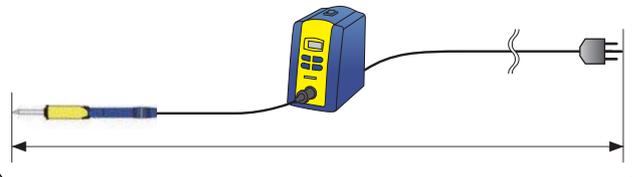
Leak voltage

Leak current is the current that leaks from the tip to a board or device. Leak voltage is a specific measurement of the level of this current. The leakage can adversely affect delicate devices, so it is necessary to check leak voltage on a daily basis.



Tip-to-ground resistance

Most leak current flows from the tip via the ground wire to the outlet ground terminal, and is prevented from affecting the device. Because of this, tip-to-ground resistance is another important issue that must be checked daily.



Common Features of FG-100 and FG-101

Dimensional measurement



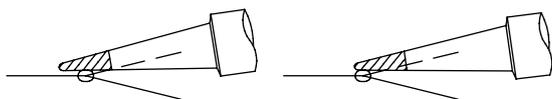
*Design image only

MAX HOLD function

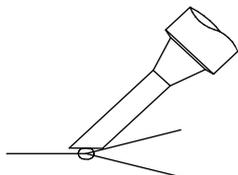
When the "MAX HOLD" button is pressed, "MAX HOLD" is displayed and the highest tip temperature is held on the display.



Procedure for Measuring the Soldering Tip Temperature



- Typical measuring point for Shape B, I and D (Measure at the center of the tin coated area)



- Typical measuring point for Shape BC and C which are tinned flat only.

Option / Replacements

Part No.	Name	Specifications
A1310	Temperature probe	For solder bath and pot
C1541	Temperature probe	For hot air
A1556	Sensor A	-
A1557	Sensor B	-
191-212	Sensor/10 pcs	-

Packing List

FG-100	Unit, 006P 9 V Manganese dry battery (for trial), Instruction manual, Sensor (10 pcs)
FG-101	Unit, Fuse, Conduction wire, Sensor (10 pcs), Multi-adapter, European adapter, Ground clip, Power cord, Instruction manual

Specifications

Model No.	FG-100
Power supply	006P 9 V dry battery
Temperature resolution	1°C
Temperature measurement range	0 to 700°C
Temperature precision	±3°C (300 to 600°C) ±5°C (other than above)
Temperature sensor	K (CA) type thermocouple
Display*	Besides measured temperatures, display indications include the following: Battery low alarm Burnout alarm MAX HOLD "MAX HOLD" is displayed in the lower right of the LCD.
Operating environment	0 to 40°C, 20 to 90%RH (without condensation)
Environmental conditions	Applicable rated pollution degree 2 (according to IEC/UL 61010-1)
Dimensions**	68 (W) × 140 (H) × 38 (D) mm
Weight***	115 g

* When the battery low alarm appears, be sure to replace the battery. Failure to do so will result in incorrect temperature measurements.

** Excluding protrusions

*** Excluding battery

Model No.	FG-101
Power consumption	2.8 W
Temperature resolution	1°C
Temperature measurement range	0 to 700°C
Temperature precision	±3°C (300 to 600°C) ±5°C (other than above)
Temperature sensor*	K (CA) type thermocouple
Voltage resolution	0.1 mV
Voltage measurement range	0 to 40 mV (CA)
Voltage precision	± (5% of reading + 1 digit)
Resistance resolution	0.1 Ω
Resistance measurement range	0 to 40 Ω
Resistance precision	± (5% of reading + 1 digit)
Display**	LCD: 3 1/2 digits Burnout: -1 MAX HOLD: "MAX HOLD" is displayed in the lower right of the LCD.
Operating environment	0 to 40°C, 20 to 90%RH (without condensation)
Environmental conditions	Applicable rated pollution degree 2 (according to IEC/UL 61010-1)
Dimensions	200 (W) × 50 (H) × 120 (D) mm
Weight***	1 kg

* The temperature sensor (No.191-212 or No.191-212C) can only be used to measure temperatures below 500°C. To measure higher temperatures, use an applicable temperature probe.

** When a sensor is not attached or it burns out, the Burnout (-1) alarm symbol is displayed. The same symbol is also displayed when a temperature outside the measurement range is detected.

*** With power cord



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