

# Air-Purifying Smoke Absorber

**HAKO** FUME EXTRACTION **FA-430** ESD SAFE

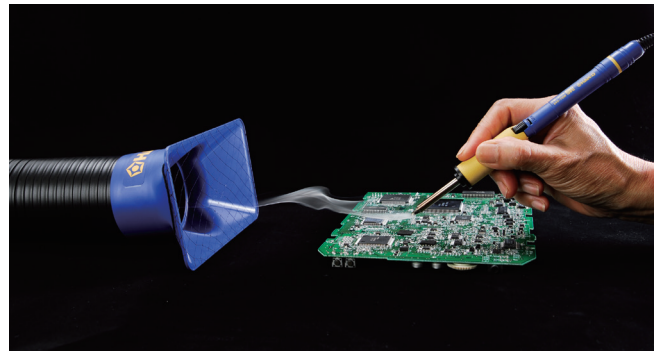
## Air-Purifying Smoke Absorber



Filter efficiency  
99.97%



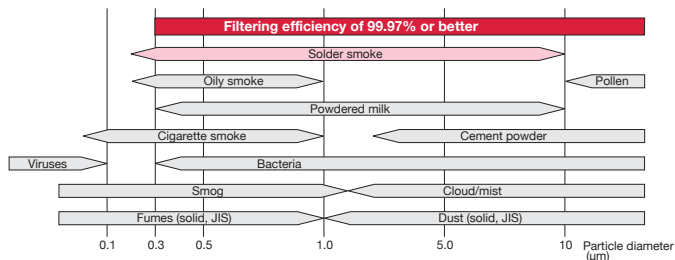
- HEPA filter (High Efficiency Particulate Air Filter)
- Filters out 99.97% of particles greater than 0.3  $\mu\text{m}$
- Recommended for quiet laboratory and office



### Features of FA-430

Filter efficiency is 99.97% of particles greater than 0.3  $\mu\text{m}$  (HEPA filter).

#### Aerosol particle diameter range



**NOTE:** Filter efficiency is an initial value of collection efficiency based on counting method for airborne dust collected by a single plate of filter (unfolded).

### Packing List

<b>FA-430</b>	Main unit, Power cord, Cap, Main filter, Pre-filter (qty 10), Instruction manual
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\* Ducts are optional parts.

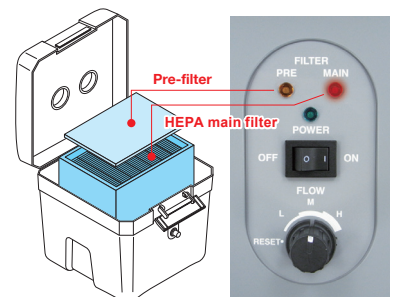
### Filter replacement notification function

#### Pre-filter

When the pre-filter is 80% clogged or has been used for 200 hours, the orange indicator flashes on and off.

#### HEPA main filter

When the 10th pre-filter needs replacing, the orange and red lamps flash on and off.



### Specifications

Model No.	FA-430	
Power consumption	110 W	
Noise level*	50 dB (A) (MEDIUM mode)	
Suction capacity**	HIGH	4.7 m <sup>3</sup> /min.
	MEDIUM	3.7 m <sup>3</sup> /min.
	LOW	2.8 m <sup>3</sup> /min.
Filtering efficiency	HIGH	99.96% (0.3 $\mu\text{m}$ )***
	MEDIUM	99.97% (0.3 $\mu\text{m}$ )***
	LOW	99.97% (0.3 $\mu\text{m}$ )***
Static pressure	1500 Pa	
Duct set (sold separately)****	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 meter from the face of the unit in an anechoic chamber.

\*\* When using two ducts

\*\*\* It is an initial value of collection efficiency based on counting method for airborne dust collected by a single plate of filter (unfolded).

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

# HAKO FA-431 ESD SAFE

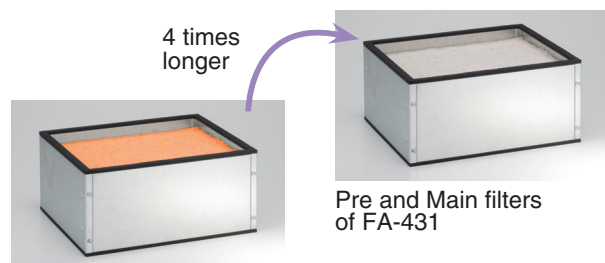
## Air-Purifying Smoke Absorber



- Excellent cost performance filter
- Filters out 97% of particles greater than 0.3  $\mu\text{m}$
- Optional sub-filters extend the life of Pre and Main filters
- Ideal for factories with a lot of soldering work

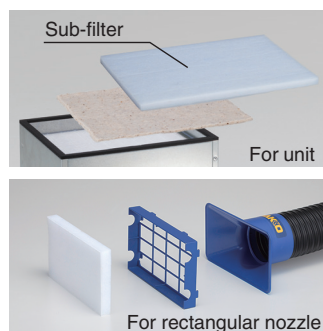
### Features of FA-431

The life of pre-filter and main filter will be approximately 4 times\* longer.



Pre and Main filters of FA-430

With the use of sub-filter, it will be approximately 10 times\* longer.



Remote control equipped  
Very easy to switch ON/OFF



\* The filter life will be differ depending on the work environments and work conditions.

### Packing List

<b>FA-431</b>	Main unit, Power cord, Remote control, Cap, Main filter, Pre-filter (qty 10), Instruction manual
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\* Ducts are optional parts.

### Specifications

Model No.		FA-431
Power consumption		110 W
Noise level*		50 dB (A) (MEDIUM mode)
Suction capacity**	HIGH	4.7 m <sup>3</sup> /min.
	MEDIUM	3.7 m <sup>3</sup> /min.
	LOW	2.8 m <sup>3</sup> /min.
Filtering efficiency	HIGH	97% ( $\geq 0.3 \mu\text{m}$ )
	MEDIUM	
	LOW	
Static pressure		1500 Pa
Duct set (sold separately)***		$\phi 55 \text{ mm} \times 1.2 \text{ m}$ (ESD SAFE)
Dimensions		330 (W) $\times$ 366 (H) $\times$ 343 (D) mm
Weight		7.2 kg

\* Measured at a distance of 1 meter from the face of the unit in an anechoic chamber.

\*\* When using two ducts

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

# Air-Purifying Smoke Absorber

## Common Features of FA-430 and FA-431

### Quiet operation and powerful suction

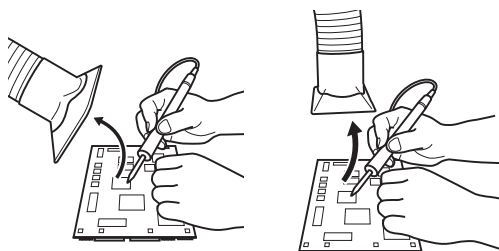
	FA-430/431		Previous model (HAKKO 421)	
	Noise level dB (A)	Air volume m³/min.	Noise level dB (A)	Air volume m³/min.
HIGH	53	4.7	60*	3.2*
MEDIUM	50	3.7		
LOW	44	2.8		

\*Values measured when the unit was used with a 60 Hz power supply.

### Flexible ducts and compact body for perfect placement



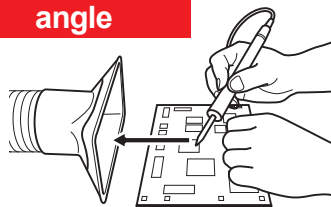
### Movement of smoke is affected by the surrounding environment



If the duct is mounted at an angle above the workpiece, it is affected by air conditioning.

If the duct is mounted directly above, it can be difficult to see the workpiece.

### Recommended angle



Duct is mounted on the worktable to provide excellent suction performance.

### Freestanding ducts



Perfect placement provides suction where you need it.

### Option

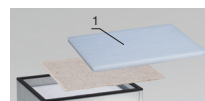
Part No.	Name	Specifications
C1571	Duct Set	With rectangular nozzle
C1572	Duct Set	With round nozzle
A5035	Sub-filter	For FA-431, set of 5
A5036	Sub-filter for rectangular nozzle	For FA-431, set of 20
A5037	Sub-filter for round nozzle	For FA-431, set of 20
B5146	Filter case for rectangular nozzle	For FA-431
B5147	Filter case for round nozzle	For FA-431



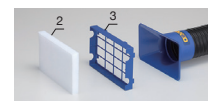
No.C1571



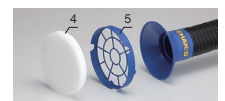
No.C1572



1: No.A5035



2: No.A5036  
3: No.B5146



4: No.A5037  
5: No.B5147

## HA-KO FA-400 ESD SAFE SMOKE ABSORBER

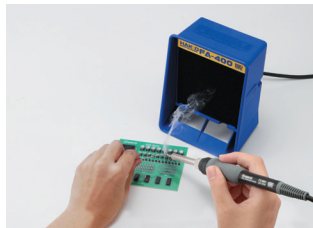
### Desktop Type Smoke Absorber



- 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 (option):



#### Packing List

FA-400	Unit, Filter, Instruction manual
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#### 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
Suction capacity**	Vertically: 1 m <sup>3</sup> /min. (50 Hz), 1.1 m <sup>3</sup> /min. (60 Hz) (max.) Horizontally: 0.4 m <sup>3</sup> /min. (50 Hz), 0.5 m <sup>3</sup> /min. (60 Hz) (max.)
Air velocity	Vertically: 1 m/sec. (50 Hz), 1.1 m/sec. (60 Hz) Horizontally: 2.6 m/sec. (50 Hz), 2.9 m/sec. (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



# Desktop Type Smoke Absorber

**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



FX-801



FX-100



FX-888D



FX-889



FX-951



FX-950



FX-838



FM-203



FM-206



DASH

## Specifications

Model No.	490
Noise level	39 dB
Working pressure	392 to 686 kPa (4 to 7 kgf/cm <sup>2</sup> )
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.

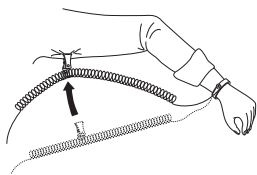
**HAKKO** 442B  
WRIST STRAP

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
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Specifications

Part No.	442B-01	442B-02	442B-04	442B-05	442B-06	442B-07
Color	Blue		Light green		Gray	
Grounding wire	1.5 m	2.5 m	1.5 m	2.5 m	1.5 m	2.5 m

# Wrist Strap Tester

**HA-KO** 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
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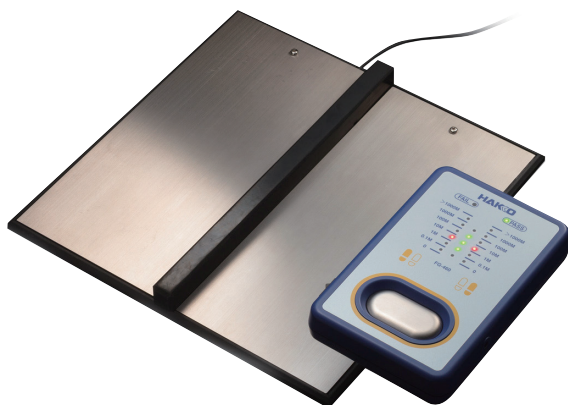
### Specifications

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*	110 g

\* Without battery

## HAKKO FG-460

### Footwear Tester



- Very easy-to-use footwear tester
- Information of measurement and evaluation of electrical resistance at a glance
- Meet the criteria of standards such as JIS T 8103:2010 and ANSI/ESD S20.20

### Features

#### Individual measurement

Measure the anti-static performance of shoes individually. Prevents faulty measurement with the divider on test plate.



#### Evaluation external output

Side view



External output terminal

Example of interlock



#### Optional Stand (C5032)



### Packing List

<b>FG-460</b>	Unit, Mounting base, AC adapter*, Test plate, Mounting screw (qty 2)**, Pan head screw (qty 2), Wood screw (qty 2), Instruction manual
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\* AC adapter may not be included depending on the specifications.

\*\* Delivered as they are screwed onto the unit.

NOTE: Stand (C5032) is sold separately.

### Specifications

Model No.		FG-460
Rating		DC 24 V 33 mA
Measurement voltage		DC 20 V
Measurement range	Upper evaluation limit	1000 MΩ (1×10 <sup>9</sup> Ω)
		100 MΩ (1×10 <sup>8</sup> Ω)
		10 MΩ (1×10 <sup>7</sup> Ω)
	Lower evaluation limit	1 MΩ (1×10 <sup>6</sup> Ω)
		0.1 MΩ (1×10 <sup>5</sup> Ω)
		R < 0.1 MΩ (1×10 <sup>5</sup> Ω)
Evaluation level accuracy	R < 0.1 MΩ	± 5%
	0.1 MΩ ≤ R ≤ 100 MΩ	± 10%
	100 MΩ < R	± 8%
Operating environment		Ambient temperature / humidity range 0 to 40°C, 20 to 90%RH (without condensation)
Environment condition		Applicable rated pollution degree 2 (According to IEC / UL61010-1)
Dimensions		120 (W) × 30 (H) × 185 (D) mm
Weight*		0.55 kg

#### Test plate

Cord length	1.6 m
Dimensions**	300 (W) × 30 (H) × 300 (D) mm
Weight**	1.9 kg

#### AC adapter

Output voltage	DC 24 V
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\* Including mounting base

\*\* Without cord

### Option

Part No.	Name
C5032	Stand



## HAKKO FG-102

### Soldering Iron Thermometer with Traceability Management System



- Free of errors in temperature measurement
- Free of transcription errors for measured temperature
- Standardization of temperature measurement
- Secure management of tip temperature records

#### Packing List

<b>FG-102</b>	Unit, Battery (6 pcs, for trial), Barcode reader, USB cable, Software (CD-ROM), Sensor (10 pcs), Barcode sticker for soldering iron ID (30 pcs), Barcode sticker for operator ID (30 pcs), Instruction manual
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#### Option / Replacements

Part No.	Name	Specifications
A1310	Temperature probe	for soldering bath & pot
C1541	Temperature probe	for hot air
A1556	Sensor A	—
A1557	Sensor B	—
C5009	Bar code reader	—
191-212	Sensor	lead-free, set of 10

#### Specifications

Model No.	FG-102
Power supply	AA sized (LR6) battery × 6 (alkaline cell recommended)
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	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**	193 (W) × 90 (H) × 219 (D) mm
Weight***	0.93 kg

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

\*\* Without barcode reader

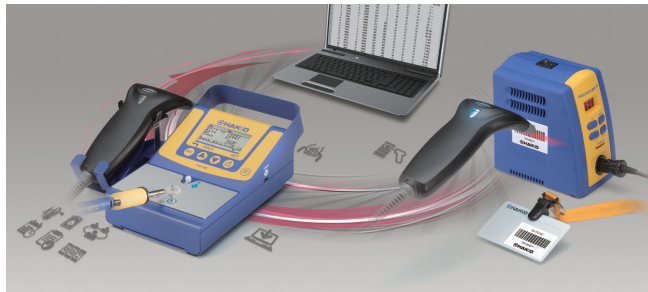
\*\*\* Without battery and barcode reader

\*\*\*\* Traceability management function can only be used for soldering irons.

## Features

### An Innovation in Tip Temperature Control

#### Flow chart of management



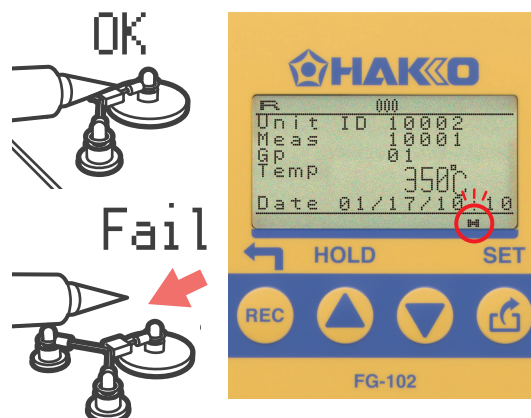
1. Scan the unit and the measurer's ID by a barcode reader.
2. Measure the temperature.
3. Press the REC button to save the data on the unit main body.
4. Transfer and save the data on the PC.

### Free of errors in temperature measurement by standardization of temperature measurement

The unit has a function to notify the end of measurement. When measurement is finished, "H" icon stops blinking. The unit can find measurement errors and prompt an operator to repeat measurement. The display shows "Fail" if tip loses appropriate contact with sensor before completion of measurement.

#### Pass/Fail judgment on measured temperature

Pass/Fail judgment on measured temperature can be automatically made if an acceptable temperature range is registered in advance (The display shows "OK" or "Fail".).



### Make it easy to manage tip temperature records by transferring the data to computer



Free of transcription errors for measured temperature

No	InstID	Gr No	MeasID	Temp	Set Temp	Month	day	hour	min	OK/NG
1	10023	0	10005	375	0	10	21	14	47	---
2	10024	0	10005	372	0	10	22	14	48	---
3	10025	0	10005	372	0	10	23	14	49	---
4	10026	0	10005	373	0	10	24	14	50	---
5	10027	0	10005	375	0	10	25	14	51	---
6	10028	0	10005	375	0	10	26	14	52	---
7	10029	0	10005	373	0	10	27	14	53	---
8	10030	0	10005	378	0	10	28	14	54	---
9	10001	1	10005	371	380	10	29	14	55	OK
10	10002	1	10005	371	380	10	30	14	55	OK
11	10003	1	10005	372	380	10	31	14	56	OK
12	10004	1	10005	382	380	10	32	14	57	OK
13	10005	5	10005	382	380	10	33	15	3	NG
14	10006	5	10005	380	380	10	34	15	4	NG

## More Features



#### Group control

Groups can be created based on different set temperatures for different operations. Pass/Fail judgment on measured temperatures can be automatically made for different acceptable temperature ranges.



GROUP A

350°C



GROUP B

320°C



GROUP C

380°C



Automatic counting of the number of measurements



Notification of the calibration date

## HAKO 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.

## HAKO FG-101

SOLDERING TESTER

### Soldering Iron Tester

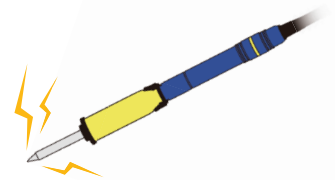


- Tip temperature, leak voltage, and tip-to-ground resistance can be easily measured with high accuracy.
- Soldering iron tester useful for daily maintenance of station-type soldering irons

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

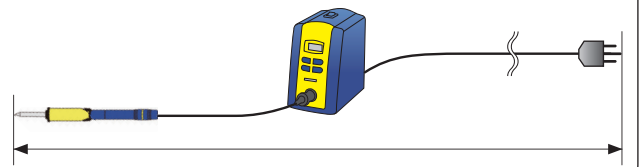
##### Leak voltage

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



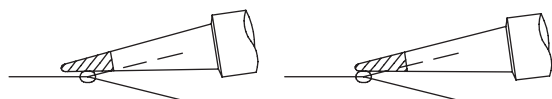
\*Design image only

#### MAX HOLD function

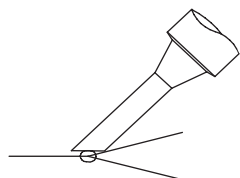
When the “MAX HOLD” button is pressed, “MAX HOLD” is displayed and the highest tip temperature is held on the display.



### 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 (alkaline cell recommended)
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	LCD: 3 1/2 digits
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

\* 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.

\*\* Excluding protrusions

\*\*\* Without 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 (AC)
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
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.



## HA-KO FV-310

### Heating Gun



- Stepless control on temperature and airflow for optimal settings
- Easy replacement of heating element
- Temperature range: 80 to 530°C
- Airflow range: 0.15 m<sup>3</sup>/min.

### Packing List

FV-310	Unit, Instruction manual
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Provided in a carrying case

### Specifications

Power Consumption	1000 W
Maximum Temperature*	530°C (80 to 530°C continuously variable)
Air Velocity	600 m/min.
Air Flow	0.15 to 0.25 m <sup>3</sup> /min.
Dimensions**	240 (W) × 190 (H) × 70 (D) mm
Weight**	0.6 kg

\* Measured at the point 10 mm from the pipe.

\*\* Without cord

## Features

### Stepless control on temperature and airflow for optimal settings

Fine control of temperature and airflow for a variety of application contributes to improvement of work efficiency.



### Types of applications

A	Drying painting and putty
B	Peeling sticker
C	Shrinking
D	Heat shrink tubing
E	Curving plastic material

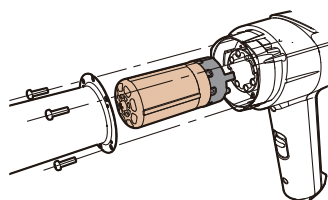
### Temperature distribution chart

\* The temperature and airflow volume are reference values; these values are not guaranteed.

Temperature control knob (TEMP.) Air flow control knob (AIR)	1	2	3	4	5
1 (0.15 m³/min.)	120 °C A B C D E	175 °C A B C D E	295 °C A B C D E	425 °C A B C D E	530 °C A B C D E
2 (0.17 m³/min.)	110 °C A B C D E	165 °C A B C D E	270 °C A B C D E	390 °C A B C D E	505 °C A B C D E
3 (0.2 m³/min.)	100 °C A B C D E	145 °C A B C D E	230 °C A B C D E	320 °C A B C D E	425 °C A B C D E
4 (0.23 m³/min.)	90 °C A B C D E	130 °C A B C D E	205 °C A B C D E	285 °C A B C D E	380 °C A B C D E
5 (0.25 m³/min.)	85 °C A B C D E	115 °C A B C D E	190 °C A B C D E	270 °C A B C D E	345 °C A B C D E

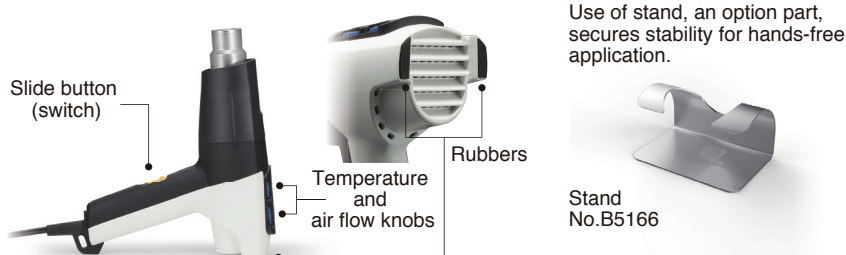
### Easy replacement of heating element

It requires only a screwdriver to remove pipe and replace heating element.

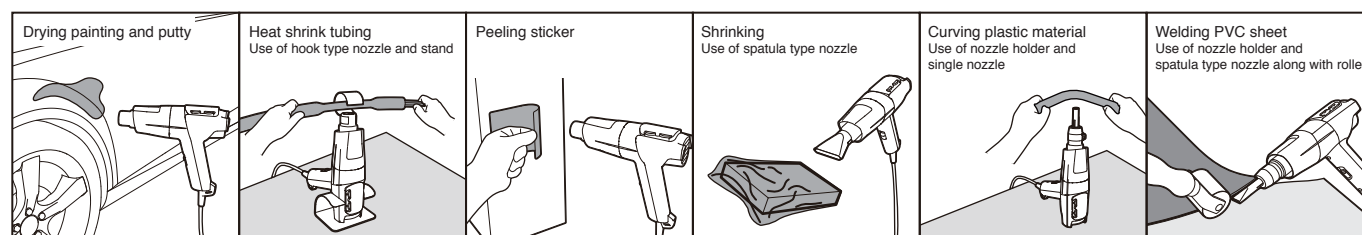


### Safety design for fall-prevention during hands-free operation

Anti-slip rubbers on the back improve stability and safety during hands-free operation.



## Option



**Spatula type nozzle 20 mm**  
No.N70-01



**Spatula type nozzle 62 mm**  
No.N70-02



**Hook type nozzle 20 mm**  
No.N70-03



**Hook type nozzle 40 mm**  
No.N70-04



\* Use this nozzle on the nozzle holder (N70-05).

**Nozzle holder**  
No.N70-05



**Single nozzle 12 mm**  
No.N70-06



\* Use this nozzle on the nozzle holder (N70-05).

**Roller**  
No.A1115

