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CA00573QbYa002 2023.02







# Experience a Whole New Level

Automobiles, smartphones, computers, home electric appliances, etc.. Soldering is supporting our daily life in various aspects. Hakko, as a manufacturer of soldering equipment, has been working closely with users to solve their problems in order to meet the needs of soldering all over the world. Now, "the standard", which has been contributing to the soldering industry for years, is evolving. Then, we keep supporting a variety of manufacturing sites, such as laboratories, developments, productions, reworks, etc.







### 940B 1st Generation

The composite-type soldering tip that integrated tip and sensor, was newly developed, which has better thermal recovery than the conventional soldering tip separated from the heater/sensor.



### 942 2nd Generation

Responding to the growing needs for high thermal capacity brought by lead-free soldering, 75 W soldering iron debuted.



### FX-951 3rd Generation

Those two models were equipped with auto-sleep and auto-shutoff functions as standard, which are effective in inhibiting tip oxidation. They took over the 942's performance in the new design and were more lead-free oriented.



### FX-952 3rd Generation



1999 >>

The global transition to lead-free solder moved forward. A major electronics manufacturer started using lead-free solder in Japan for the first time.

>> 2001 >>

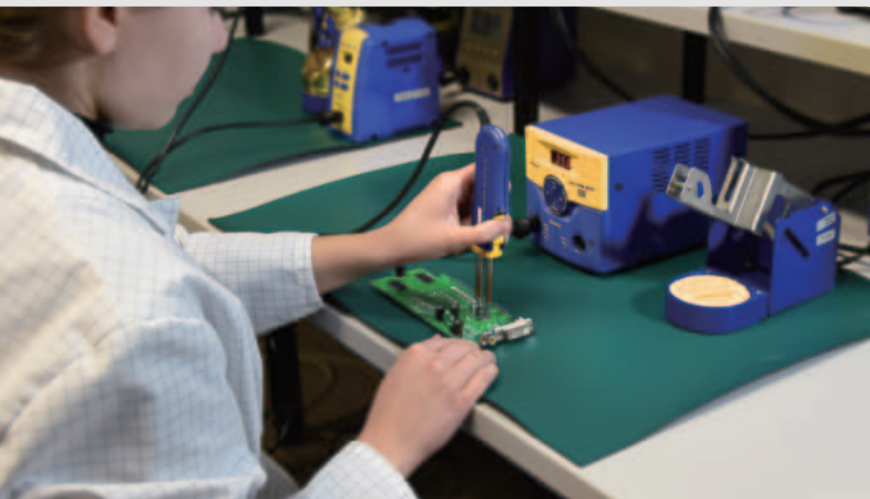
3G communications started. Multi-layered P.W.B. and smaller components of communication equipment advanced.

>> 2005 >>

Lead-free soldering became standard in the world.

>> 2012 >>

4G communications started. Alongside the spread of smartphones, the multi-layering of P.W.B. and miniaturization of components such as 0402 advanced. While, solar panels, automotive capacitors, and power modules grew in size.



### FM-202 2nd Generation

A multi-playing station for soldering, desoldering, and SMD rework.



### FM-203 3rd Generation

2-port multi-playing station for soldering, desoldering, and SMD rework.

Keep up with the changes in electronic components and the environment surrounding soldering.

# >>> 2023 >>>

## 4th Generation

Thanks to HAKKO's customers who keep using the products, we have been supplying those models to the market for over twenty years.

We will strive perseveringly in manufacturing to appreciate the customers' support and patronage with the spirit of "It's for you."



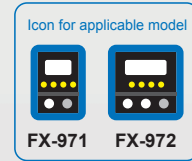
FX-971

FX-972



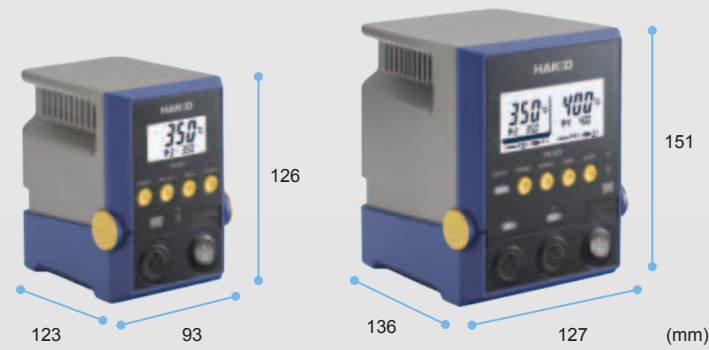
FX-971 • FX-972

## A new level of workability not experienced ever



### Compact and high power station with space-saving design

With 100 W of power in a compact body, it performs a wide range of soldering works.



### New composite tip (PATENTED)

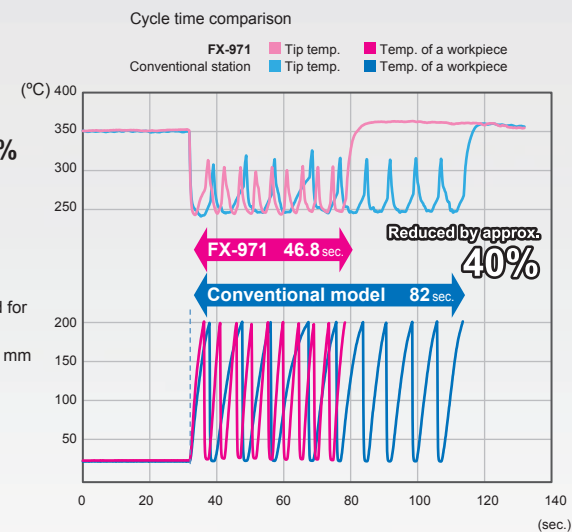
With improved sensor sensitivity and the design that smoothly transfers the heat from the heater to the tip, the tip temperature stables and it ensures better soldering.



### Cycle time reduced by approx. 40%

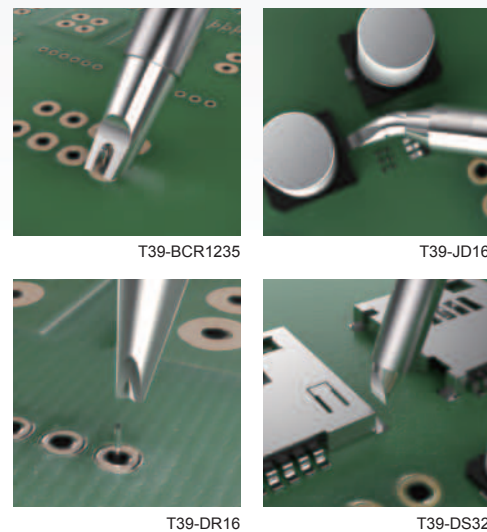
It enables soldering in a shorter time and improves work efficiency.

Test criteria : Time until the solder portion on the workpiece reaches 200°C is measured for 10 points.  
Workpiece : 0.6 mm dia. on the copper plate of 1.5 mm  
Set temp. : 350°C  
Solder : Lead-free solder (Sn/Ag/Cu)



### Tips for any soldering at various scenes

The well-selected line-up of soldering tips. Soldering that was previously impossible or time-consuming can be improved with the tips in new shapes.



100  
W  
POWER

40  
%  
SHORTER

28  
NEW  
SHAPE TIPS



FX-971

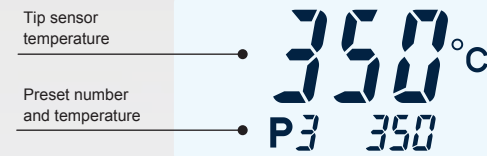


FX-972

### High visible display



It shows information such as set temperature, tip's sensor temperature, and preset setting, clearly and widely. The viewing angle is wide, and the high-brightness display provides high visibility.



### Adjustable display angle for better visibility and operation



Tilt mechanism for easy viewing and operation of the screen display, depending on the installation location, e.g., on or under the workbench or on the rack.



### Intuitive operation

Various settings can be easily configured using four buttons.

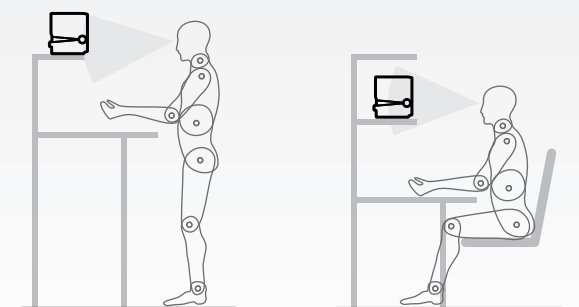


### Portability

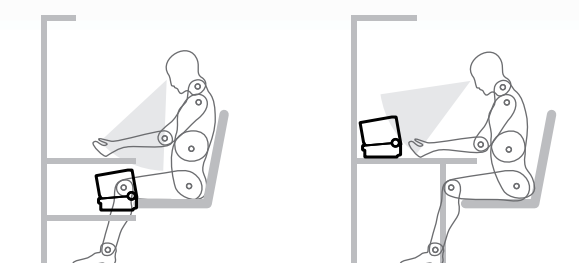
Easy to carry



### FLAT



### TILT







FX-971



FX-972

**Infrared communication**



Automatic calibration and correction can be completed by sending the measured temperature value of the thermometer (FG-100B/FG-101B), via infrared.



\*Photo is FG-100B.

**Software**



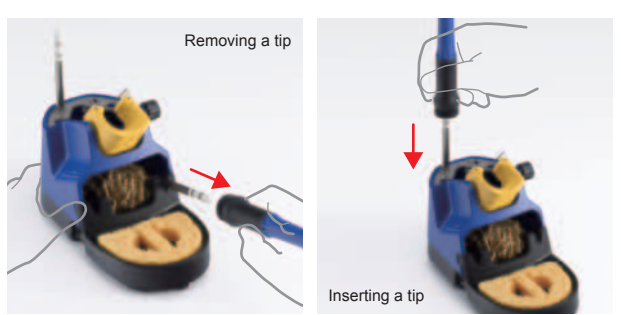
By connecting the station to the PC, the tip set temperature, calibration/correction and the temperature history of the tip during operation are recorded on the PC, enabling management with zero human error.



**Iron holder**



The newly designed iron holder allows easy and safe tip replacement with a tip removing attachment and tip insertion holder.



**Auto-sleep  
Auto-shutoff**

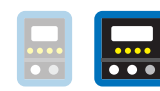


The built-in sensor of the tip inside makes it possible to use auto-sleep and auto-shutoff functions without connecting the station and the iron holder, and it helps to lay out the station and iron holder freely in the working space.

**FX-972  
200W 2-port multi-station**

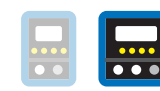
Useful 2-port type. Other than using 8 different applications, it has functions to improve work efficiency at various scenes.

**Multi-connection support**



8 different applications can be used without specifying the connecting port.

**Priority channel**

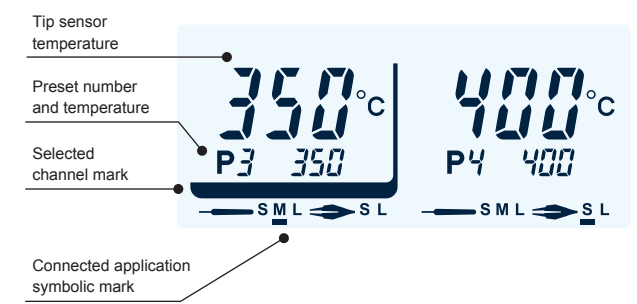


A built-in sensor detects the handpiece in use and automatically switches channels. The unused handpiece stands by at the set temperature.

**Large display with information**



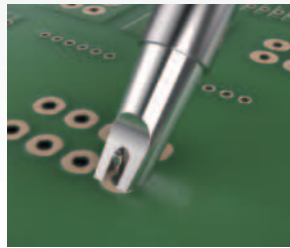
The large display shows the tip sensor temperature, the preset temperature, and the connected application for each of the two ports.







FX-9701 Soldering iron  
FX-9702 N2 soldering iron



T39-BCR1235

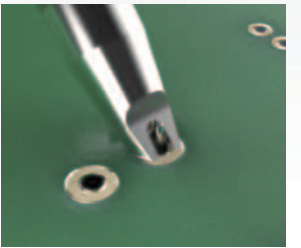
FX-9703 Micro soldering iron  
FX-9704 Micro N2 soldering iron



T50-J01



FX-9707 Heavy-duty soldering iron  
FX-9708 Heavy-duty N2 soldering iron



T53-BCR1645

**28**  
NEW SHAPE TIPS

**Tip for any soldering at various scenes**

The well-selected line-up of soldering tips. Soldering that was previously impossible or time-consuming can be improved with the tips in new shapes.

**3**  
SECONDS

**Fine soldering tips with high power**

Output power 70W is the best in its class. The new heater achieves an instant startup in 3 seconds after being powered on for immediate work. Heat damage can be avoided by using N2 gas.

**200** W  
POWER

**Heavy-duty and high power**

High power 200W is the best for heat absorbing work such as significant components like a shield case and coil or multilayered P.W.B.

**27** %  
SHORTER

**Shorter cycle time**

Thermal characteristics have been improved by approx. 27% compared to the conventional models.

**Soldering iron working with N2 system**

Most soldering tips in the T39 series can be used for both regular type iron and N2 type iron commonly. There is no need to keep and use a different tip by a same shape.



**Specialized in precise soldering**

The distance from the tip end to the handle is only 27mm. Gripping the handpiece like a pencil makes it easy to approach fine components with high precision.



**Iron holder**

Stable die-cast iron holder. The soldering tip can be attached or detached safely.



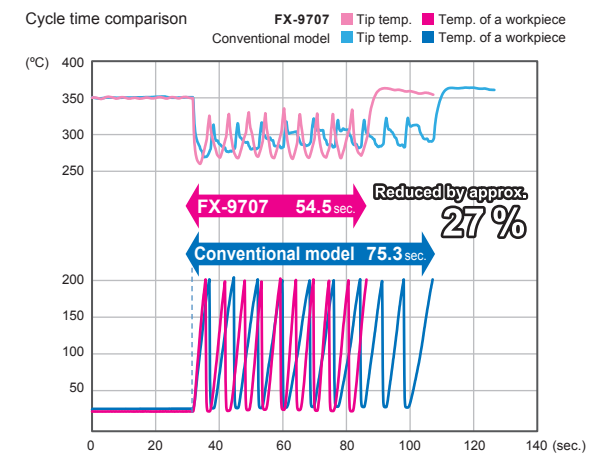
**Easy handling**

The cable diameter is 3.6mm, and the weight of the handpiece is only 14 grams. You can enjoy stress-free soldering work due to easy handling.



**Cycle time reduced by approx. 27%**

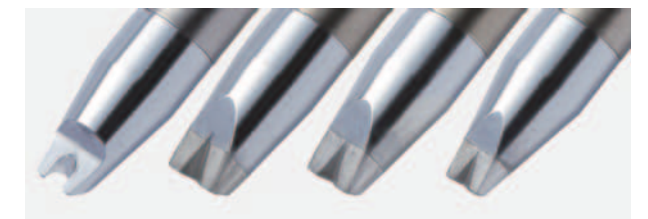
In addition to the increased power to 200 W, the synergistic effect of the new heater construction and the newly designed tip shapes help to reduce the cycle time by approximately 27% and improves work efficiency.



Test criteria : Measure the soldering time until the workpiece temperature reaches 200°C at 10 soldered points.  
Workpiece : diameter 12mm, thickness 1.5mm copper plate  
Temperature setting : 350°C Solder : Lead-free solder (Sn-Ag-Cu)

**Flow-up effective soldering tip with V-groove**

New 4 kinds of soldering tips with V-groove added, making 14 kinds of tips line-up in total. It contributes to improving solder flow-up with wider contact area to the lands or leaded parts.



**Easy handling**

The cable diameter is only 4.4mm. The handle part is thinner and lighter than the conventional model and it brings stress-free work for heavy-duty use type handpiece.



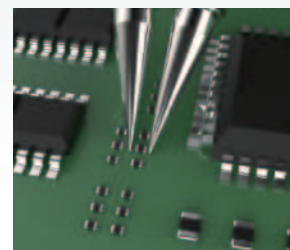




FX-9706 Micro hot tweezers



T52-K



T52-I005



**140w**  
POWER

**High power**

140 W (70 W x 2)  
It is useful for the fine components such as 0402 chips with a quick action.

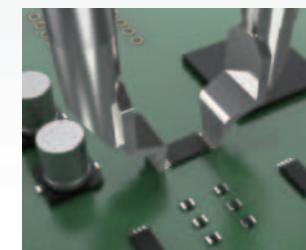
**4 TYPES**  
ALIGNMENT

**Accurate contact with micro-components**

Accurate contact with components improves heat transfer and workability.



FX-9705 Hot tweezers



T51-L3



T51-LA6



**190w**  
POWER

**High power**

190 W (95 W x 2)  
It is useful for 1005 chips as well as the SOP components with a quick action.

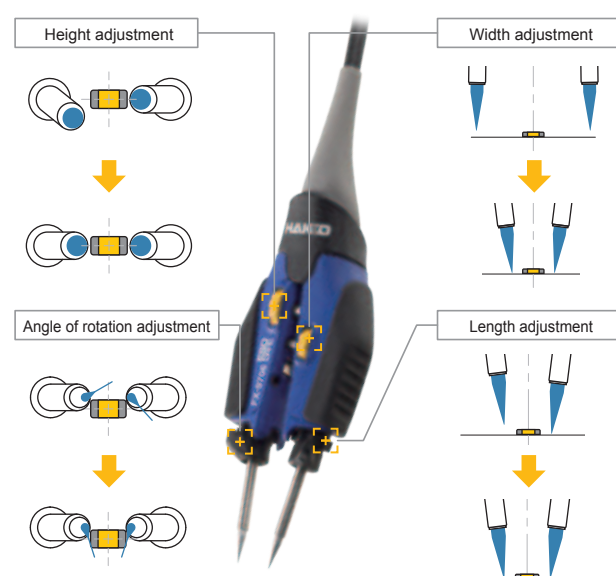
**2 WAY**  
HANDLING

**Accurate contact with components**

The new tip shapes in the line-up allow two different handling styles.

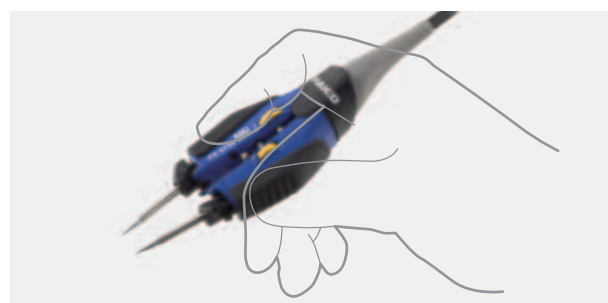
**4 adjustment mechanisms**

Height, width, angle of rotation and length can be adjusted.



**Improved operability**

The asymmetrical design fits the handle and provides stability. The heat-resistant cover reduces operator strain, and its compact design makes operation easy.



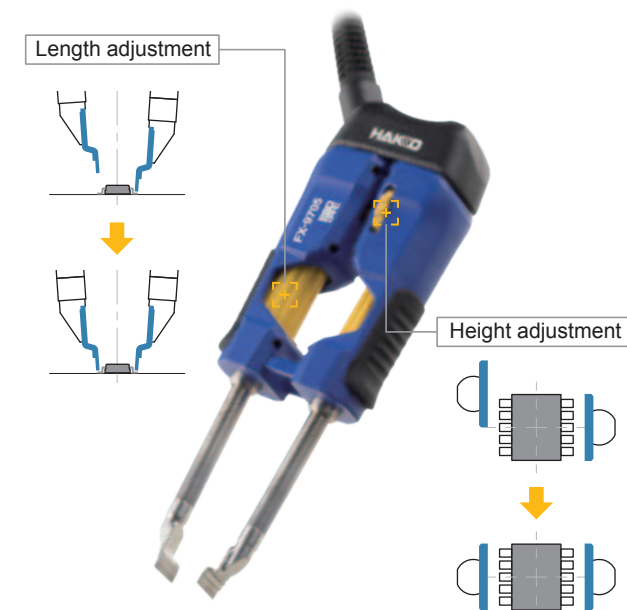
**Iron holder**

Stable die-cast iron holder. The soldering tip can be detached safely. Both cleaning sponge and cleaning brush are on the iron holder.



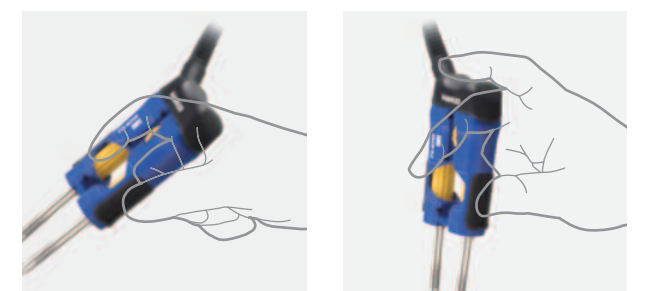
**2 adjustment mechanisms**

Height and length can be adjusted.



**Improved operability**

Handle design that fits the hand and provides stability. With the two different ways of handling, precise contact with the component is possible.



**Iron holder**

Stable die-cast iron holder. The soldering tip can be detached safely. Both cleaning sponge and cleaning wire are on the iron holder.

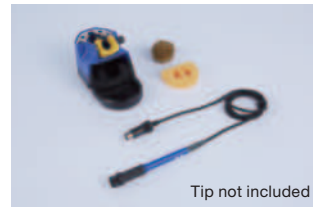




## FX-9707 Heavy-duty soldering iron



Tip not included



Tip not included

### FX9707-81

Handpiece (FX-9707), Instruction manual

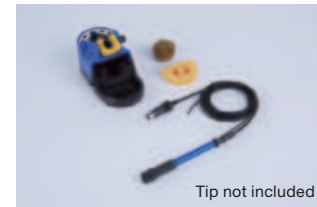
#### ■ Specifications

Model No.	FX-9707
Power consumption	200 W (24V)
Temperature range	50 to 500°C
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	222 mm (with T53-D24 tip)
Weight (w/o cord)	41 g (with T53-D24 tip)

## FX-9708 Heavy-duty N<sub>2</sub> soldering iron



Tip not included



Tip not included

### FX9708-81

Handpiece (FX-9708), Instruction manual

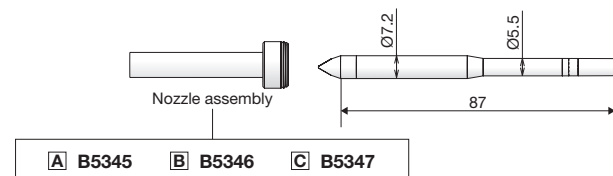
#### ■ Specifications

Model No.	FX-9708
Power consumption	200 W (24V)
Temperature range	50 to 500°C
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	231 mm (with T53-D24 tip)
Weight (w/o cord)	47 g (with T53-D24 tip and nozzle assembly C)

## T53 series soldering tip

Shape B	Shape BC	Unit: mm	
T53-B05	T53-BC2030	T53-BC4060	T53-BC6090
N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>
Shape D	Shape BC w/slot	Shape D w/V-groove	
T53-D16	T53-D24	T53-D32	T53-D45
N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>
T53-K	T53-BCR1645	T53-DR32	T53-DR45
N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>	N <sub>2</sub>
		T53-DR52	
		N <sub>2</sub>	

Use an FX-9708 Heavy-duty N<sub>2</sub> soldering iron with a proper nozzle assembly for the tip.



Setup with N<sub>2</sub> system



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## Combination table for station, handpiece, iron holder, and soldering tip

Station

FX-971



FX-972



Handpiece

**FX-9701** Soldering iron   
 **FX-9702** N<sub>2</sub> soldering iron   
 **FX-9703** Micro soldering iron   
 **FX-9704** Micro N<sub>2</sub> soldering iron   
 **FX-9705\*** Hot tweezers   
 **FX-9706\*** Micro hot tweezers   
 **FX-9707\*** Heavy-duty soldering iron   
 **FX-9708\*** Heavy-duty N<sub>2</sub> soldering iron



\*Any 2 of these 4 applications cannot work simultaneously.

Iron holder

**FH215-81**    **FH215-81**    **FH215-811**    **FH215-811**   
 **FH220-813**    **FH215-814**    **FH220-81**    **FH220-81**



Soldering tip

**T39** series   
 **T39** series + nozzle assembly (N<sub>2</sub> compatible tips only)   
 **T50** series   
 **T50** series + nozzle assembly   
 **T51** series   
 **T52** series   
 **T53** series   
 **T53** series + nozzle assembly



## FX-971 100 W 1-port station



Tip not included

### FX-971

Station, Handpiece (FX-9701), Iron holder (FH-215, with cleaning sponge and wire), USB cable, Power cord, Instruction manual

The dedicated software is available for download on HAKKO website.

#### Specifications

Model No.	FX-971
Power consumption	100 W
Temperature range	50 to 450°C
Temperature stability	±3°C (At idle temperature)

#### Station

Output	AC 24 V
Dimensions	When tilted: 93 (W) x 126 (H) x 133 (D) mm When not tilted: 93 (W) x 126 (H) x 123 (D) mm
Weight	1.2 kg

#### Handpiece

Power consumption	95 W (24V)
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	206 mm (with T39-D24 tip)
Weight (w/o cord)	31 g (with T39-D24 tip)

## FX-972 200 W 2-port station



Tip not included

### FX-972

Station, Handpiece (FX-9701), Iron holder (FH-215, with cleaning sponge and wire), Color band [qty 2], USB cable, Power cord, Instruction manual

The dedicated software is available for download on HAKKO website.

#### Specifications

Model No.	FX-972
Power consumption	200 W
Temperature range	50 to 450°C With heavy-duty soldering iron connected: 50 to 500°C
Temperature stability	±3°C (At idle temperature) With heavy-duty soldering iron connected: ±5°C (At idle temperature)

#### Station

Output	AC 24 V
Dimensions	When tilted: 126 (W) x 151 (H) x 149 (D) mm When not tilted: 126 (W) x 151 (H) x 136 (D) mm
Weight	2.8 kg

#### Handpiece

Power consumption	95 W (24V)
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	206 mm (with T39-D24 tip)
Weight (w/o cord)	31 g (with T39-D24 tip)

## FX-9701 Soldering iron



Tip not included



Tip not included

### FX9701-81

Handpiece (FX-9701)

### FX9701-811

Handpiece (FX-9701), Iron holder (FH-215, with cleaning sponge and wire)

#### Specifications

Model No.	FX-9701
Power consumption	95 W (24V)
Temperature range	50 to 450°C
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	206 mm (with T39-D24 tip)
Weight (w/o cord)	31 g (with T39-D24 tip)

## FX-9702 N<sub>2</sub> soldering iron



Tip not included



Tip not included

### FX9702-81

Handpiece (FX-9702), Instruction manual

### FX9702-811

Handpiece (FX-9702), Iron holder (FH-215, with cleaning sponge and wire), Instruction manual

#### Specifications

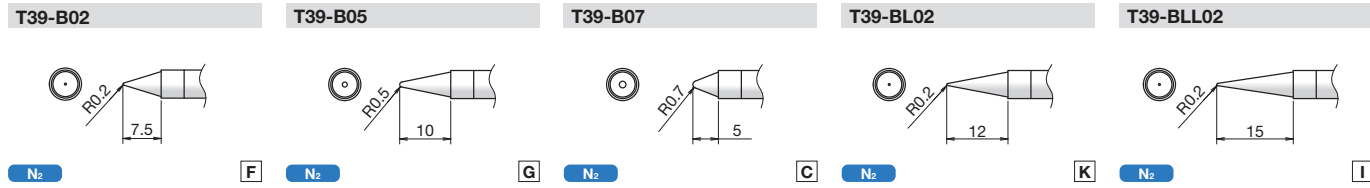
Model No.	FX-9702
Power consumption	95 W (24V)
Temperature range	50 to 450°C
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	227 mm (with T39-D24 tip)
Weight (w/o cord)	49 g (with T39-D24 tip and nozzle assembly D)



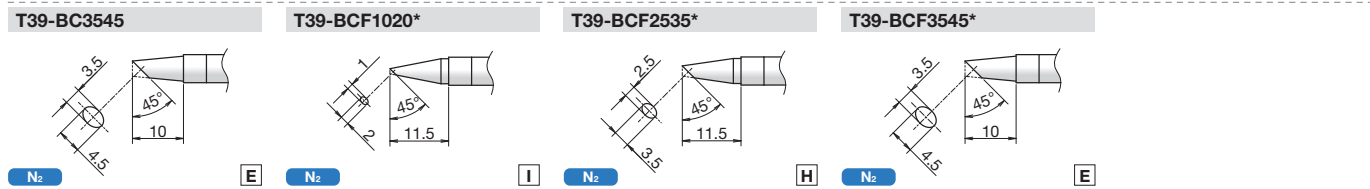
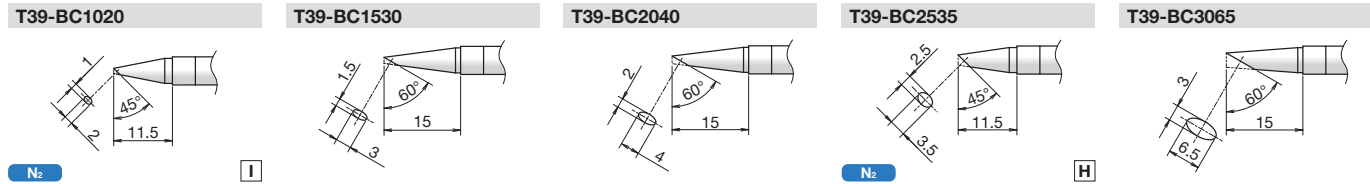
## T39 series soldering tip

### Shape B

Unit: mm



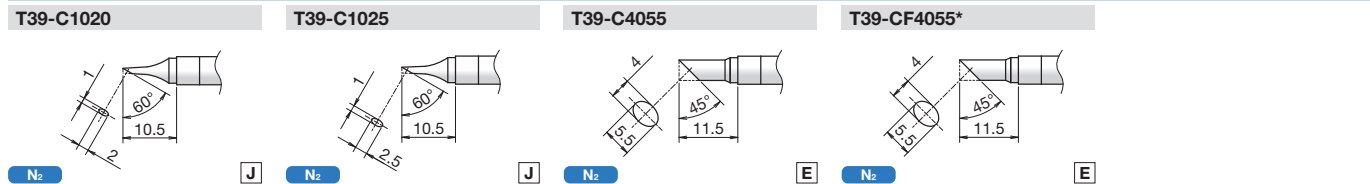
### Shape BC



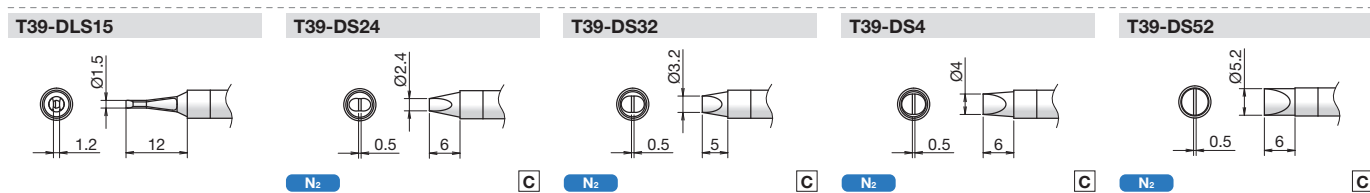
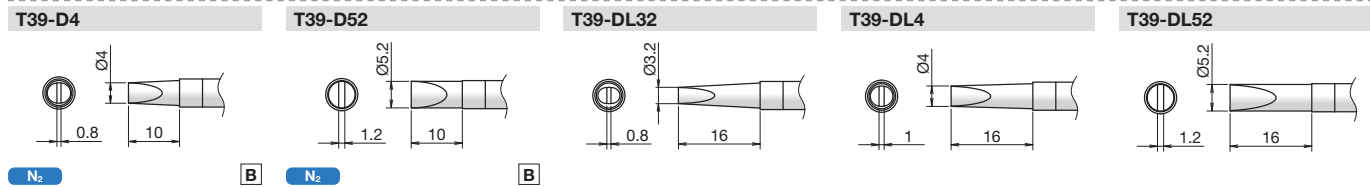
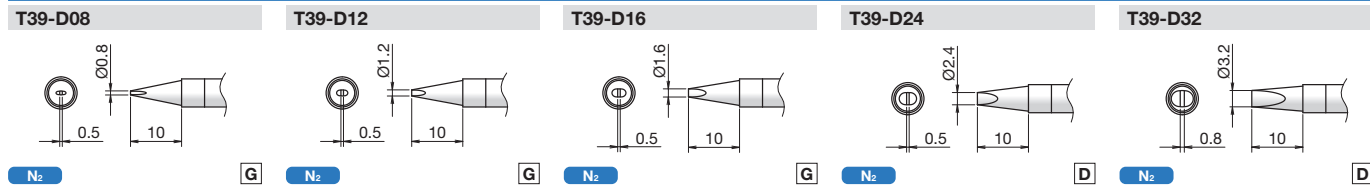
### Shape BCM



### Shape C



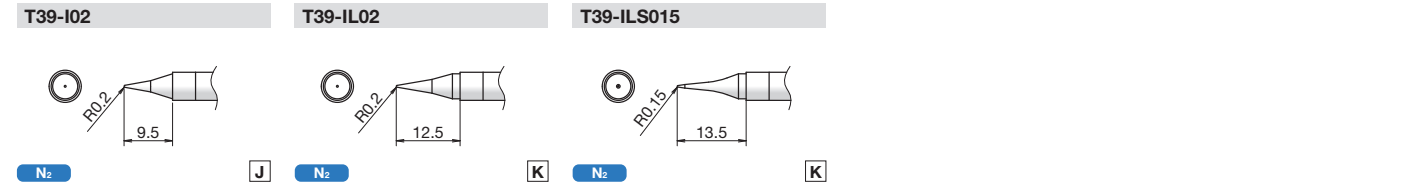
### Shape D



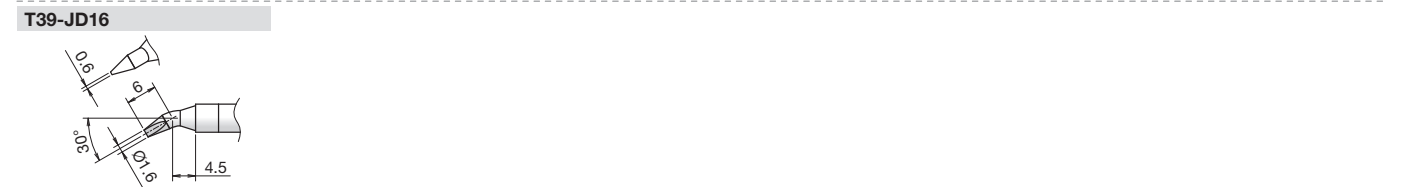
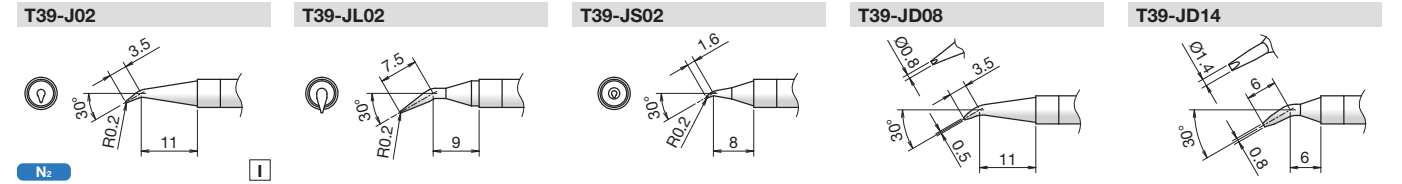
\*Pre-tinned on cut surface only

### Shape I

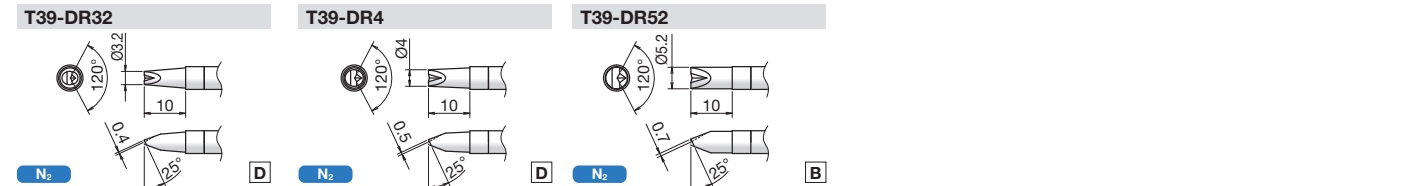
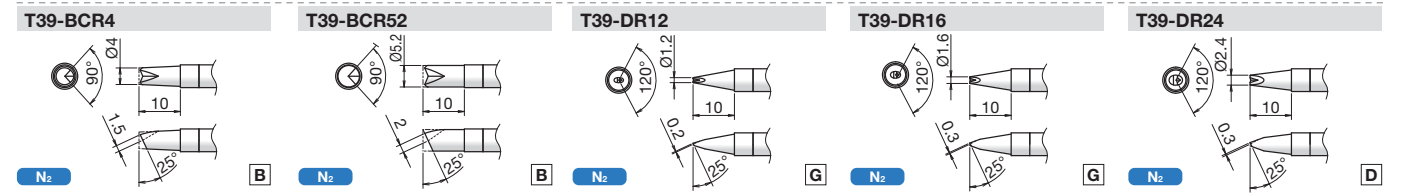
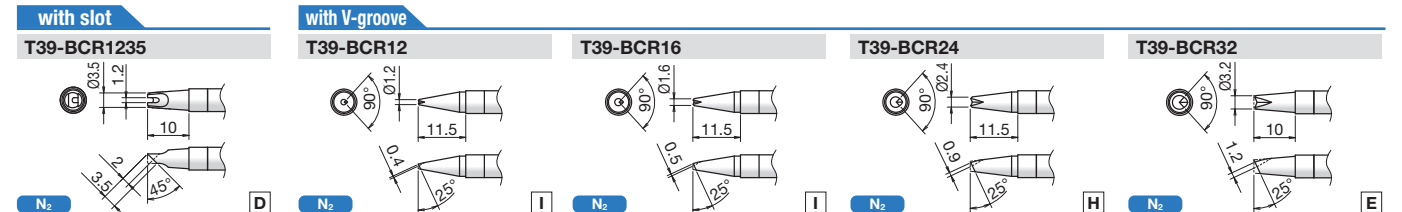
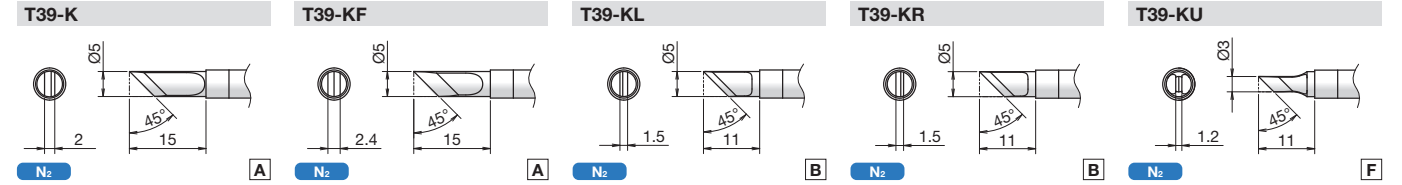
Unit: mm



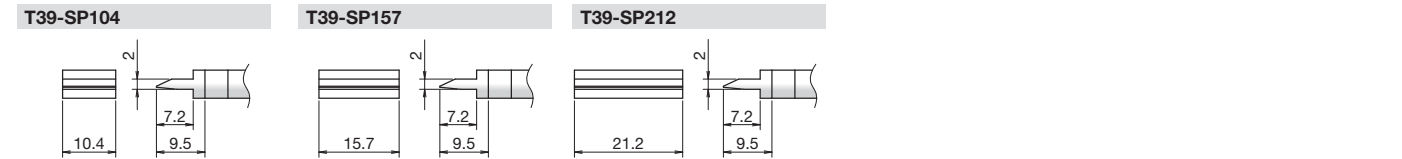
### Shape J



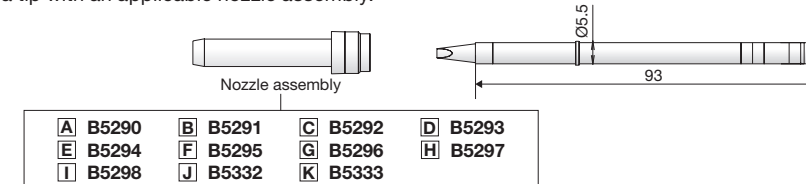
### Shape K



### Spatula



FX-9702 N<sub>2</sub> soldering iron can be used with soldering tips with N<sub>2</sub> mark.  
Use a tip with an applicable nozzle assembly.



Setup with N<sub>2</sub> system



## FX-9703 Micro soldering iron



Tip not included



Tip not included

### FX9703-81

Handpiece (FX-9703), Instruction manual

### Conversion kit FX9703-81

Handpiece (FX-9703), Iron holder (FH-215, with cleaning sponge and brush), Instruction manual

#### Specifications

Model No.	FX-9703
Power consumption	70 W (24V)
Temperature range	50 to 450°C
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	174 mm (with T50-D1 tip)
Weight (w/o cord)	15 g (with T50-D1 tip)

## FX-9704 Micro N<sub>2</sub> soldering iron



Tip not included



Tip not included

### FX9704-81

Handpiece (FX-9704), Instruction manual

### Conversion kit FX9704-81

Handpiece (FX-9704), Iron holder (FH-215, with cleaning sponge and brush), Instruction manual

#### Specifications

Model No.	FX-9704
Power consumption	70 W (24V)
Temperature range	50 to 450°C
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	196 mm (with T50-D1 tip)
Weight (w/o cord)	35 g (with T50-D1 tip and nozzle assembly A)

## FX-9705 Hot tweezers



Tip not included



Tip not included

### FX9705-81

Handpiece (FX-9705), Instruction manual

### Conversion kit FX9705-81

Handpiece (FX-9705), Iron holder (FH-220, with cleaning sponge and wire), Instruction manual

#### Specifications

Model No.	FX-9705
Power consumption	190 W (24V)
Temperature range	50 to 450°C
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	146 mm (with T51-L16 tip)
Weight (w/o cord)	55 g (with T51-L16 tip)

## FX-9706 Micro hot tweezers



Tip not included



Tip not included

### FX9706-81

Handpiece (FX-9706), Instruction manual

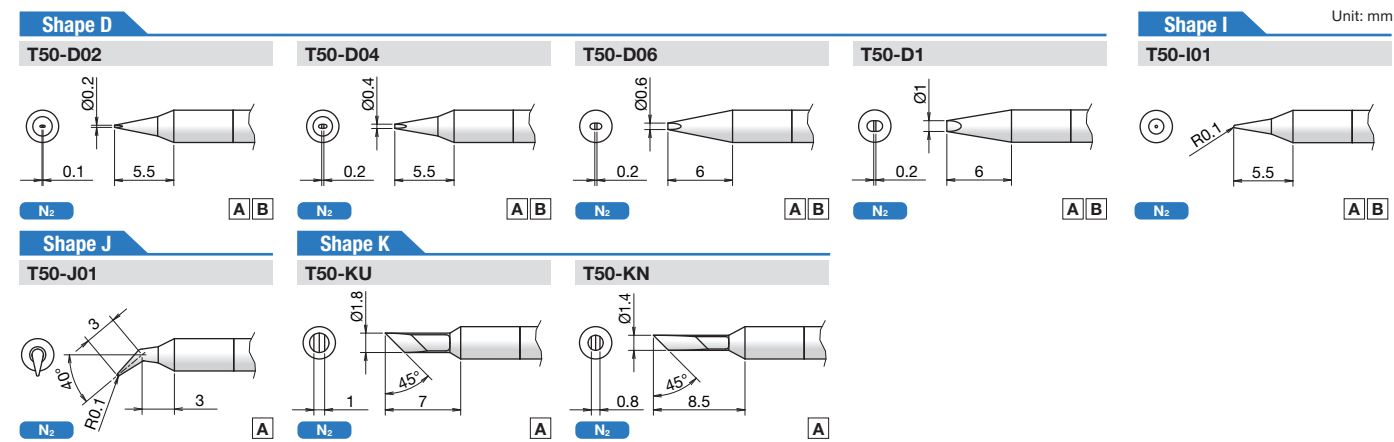
### Conversion kit FX9706-81

Handpiece (FX-9706), Iron holder (FH-215, with cleaning sponge and brush), Instruction manual

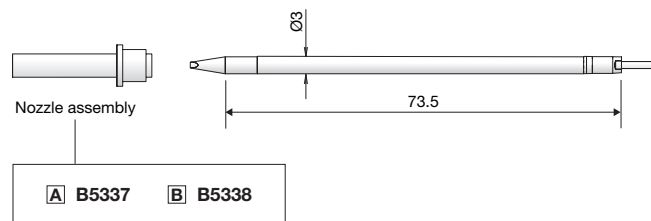
#### Specifications

Model No.	FX-9706
Power consumption	140 W (24V)
Temperature range	50 to 450°C
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Heating element	Composite heater
Cord length	1.2 m
Total length (w/o cord)	130 mm (with T52-I015 tip)
Weight (w/o cord)	33 g (with T52-I015 tip)

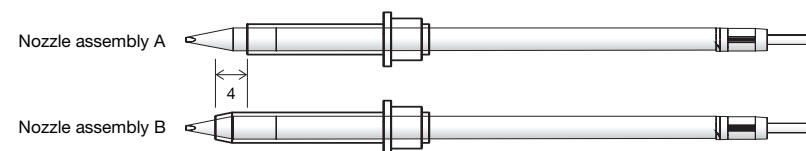
## T50 series soldering tip



Use an FX-9704 Micro N<sub>2</sub> soldering iron with a proper nozzle assembly for the tip.

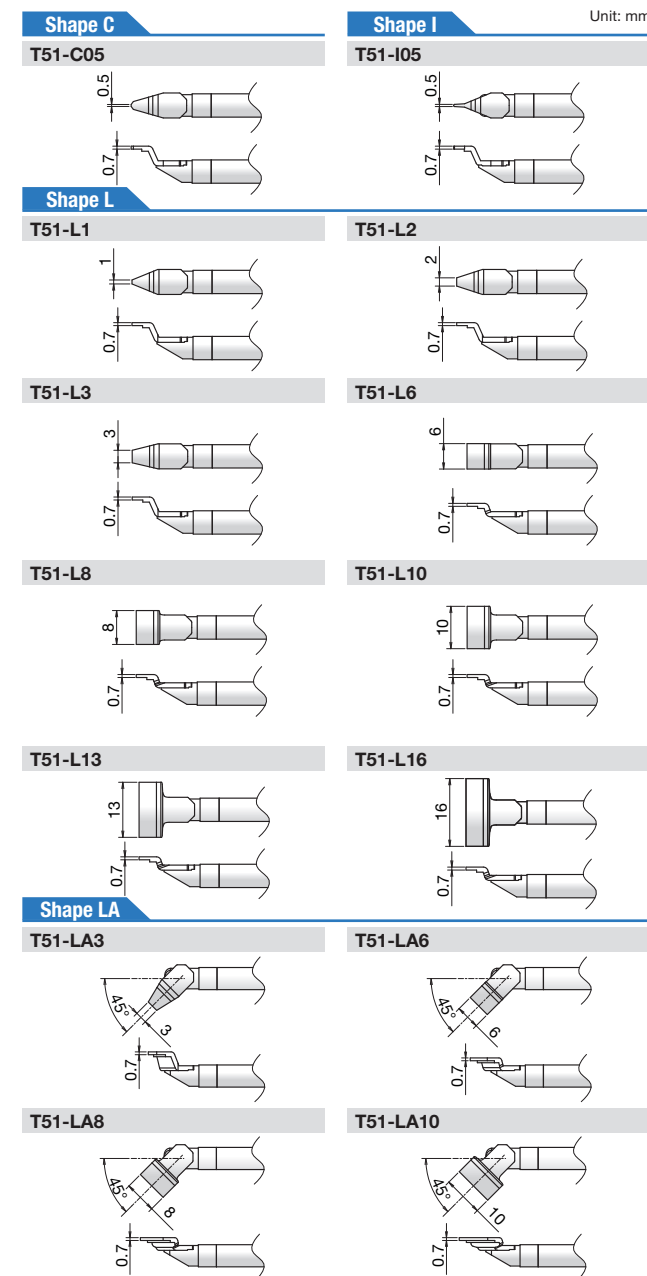


□ Check out the difference between nozzle assemblies A and B with the tip T50-D06.



Set the nozzle assembly A when using the tip horizontally or the nozzle assembly B interferes with surrounding components.

## T51 series soldering tip (set of 2)



## T52 series soldering tip (set of 2)

