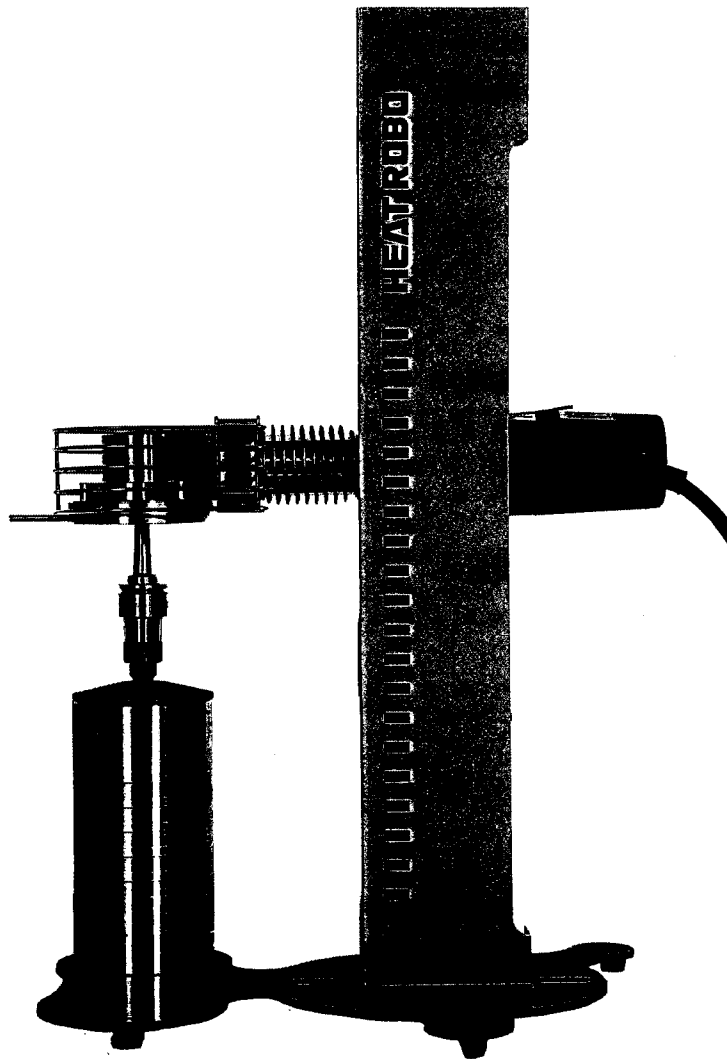


HEAT ROBO Baby3000S

Instruction Manual
For Heat Robo Baby 3000
Model HRB-03S-230AS
Model HRB-03S-230NA



MST corporation

HRB-03S-230AS-0803

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1. Introduction

Thank you very much for purchasing our shrink fit unit "Heat Robo Baby 3000S." This document covers the instructions that should be followed to protect the safety of customers and service engineers. In order to ensure the best performance of the unit, please be sure to read this instruction manual before use. After reading the instruction manual, keep the instruction manual in a place where it is accessible at any time.

For any questions on the instruction manual, please contact us at the following address, telephone or facsimile number.

1-1. Skills and qualification of users

Prior to the installation, operation, and maintenance, be sure to read all of this instructions and other related documents (e.g., the instruction manual for the holder) to understand the handling of the unit, the safety information, and the precautions.

The users for this unit are limited to the persons who have the following capability:

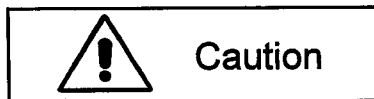
- ① Transfer, installation, and adjustment workers: Shall be capable of reading and understanding the instruction manual.
- ② Operators: Shall be capable of reading and understanding the instruction manual.
- ③ Maintenance workers: Shall have expertise and be capable of reading and understanding the instruction manual.

1-2. Hazardous levels and meanings

This instruction manual uses Warning and Caution to indicate different hazardous levels as follows:



: Indicates that improper handling of the unit could create a potentially hazardous situation resulting in death or serious injury.



: Indicates that improper handling of the unit could create a potentially hazardous situation resulting in minor or moderate injury or could cause only property damage.

Even if the event described in Caution may lead to a serious result depending on the situation. The instructions given under these signal words are critical and shall be observed without fail. The icons for forbiddance and mandatory instructions are shown below:



: Indicates forbiddance.



: Indicates grounding (mandatory).

Be sure to perform grounding.

1-3. Point of contact

MST Corporation

1738 Kitatahara, Ikoma, Nara 630-0142, Japan
TEL : 81-7437-8-1184 FAX : 81-7437-8-3854

2.Safety Precautions

2-1. Precautions on installation: See 4-1 and 4-2.



Warning

- Never use or store this unit in the following environment because fire may otherwise occur from malfunction, damage, deterioration, or the like:
 1. Location with high temperature, low temperature, or high humidity deviating from the ambient conditions (temperature: 0-40 °C [32° -104° F], relative humidity: 30-90%) specified in the instruction manual.
 2. Location where the unit is exposed to direct sunlight.
 3. Location where the unit receives heat directly from a heat source such as a space heater.
 4. Location where the unit is exposed to vibration or impact.
 5. Location near equipment that generates sparks.
 6. Location with dust, corrosive gas, salt, or combustible gas.
 7. Outdoor location.
- The AC input power source shall be used to the ratings for the unit (within 230V +/- 10% and within 50 or 60 Hz +/- 5%). The use of any other power source causes malfunction, electric shock, short-circuit, or fire.
- The input power source shall have the required capacity (3.0 kVA) minimum.
- The unit shall be connected alone to a power outlet with a rating of 20 A minimum. If the unit is used by sharing the power outlet with any other equipment, ignition may result from abnormal heating.



Caution

- Ensure that the unit does not tumble or fall during transfer or transportation because you may otherwise get injured.
- In handling the unit, take care so as to prevent lower back pain.
- Install the unit in a location where its weight (approximately 9.5 kilograms [20.9lb]) can be withstood.
- Improper installation may cause the unit to tumble or otherwise get dislocated resulting in an injury.
- Install the unit on a flat, stable table.
- Do not block the air inlet and outlet of the fan.
- Supply an air tube (outer diameter: 8 mm), a fitting, and the like to connect the unit to the factory air source. The air tube must be one for piping of pneumatic equipment.



Caution

- For wiring work, ask a specialized company. Improper wiring work may cause electric shock or fire.
- If the power cord or plug is damaged or if the plug connection is loose, do not use the unit because electric shock, short-circuit, or ignition may otherwise result.
- Do not damage, modify, forcibly bend or pull, twist, or bundle the power cord. If any heavy item is placed on the power cord or if the power cord is pinched, treated, or otherwise modified, it will be damaged resulting in fire or electric shock.
- Be sure to connect the grounding wire. Failure to connect the grounding wire can cause electric shock.



2-2. Precautions on operation: See 5.1 and 5.2.



Forbiddance

- Never use for a human or an animal.
- Avoid smoking or using fire around the unit. Otherwise, the unit may be exploded or damaged resulting in injuries and fire.



Warning

- If the unit malfunctions and emits odor or noise, immediately stop it because it may otherwise cause fire.
- Do not immerse the unit in water, nor splash water on the unit. Failure to observe this instruction may cause short-circuit or electric shock.



Caution

- This unit is made of metal. Be careful about its corners and frame edges, which may cause you to get injured.
- Ensure that the plug is free from pins and dust. Failure to observe this instruction can cause electric shock, short-circuit, or ignition.
- To disconnect the power plug, do not hold the power cord, but be sure to hold the power plug (at its leading end) and then remove it. Failure to observe this instruction can cause electric shock or short-circuit resulting in ignition.
- Do not touch the balancer (leaf springs) as you may get your hand injured.



Caution

- After use, turn OFF the power and remove the power plug from the power outlet. Failure to observe this instruction can cause electric shock, electric leakage, or fire.
- During use, keep the coil away from any other metal. Failure to observe this instruction can cause the unit to malfunction.
- The inside of the heated coil is hot. Touching it with a bare hand can cause you to get burned. After heating the coil, be sure to cool it with air.
- Do not drop the unit, nor hit it against something hard. Giving strong impact can cause the unit to malfunction.
- Use a tool with a carbide shank. If a tool with a HSS shank is shrink-fit, it cannot be removed.
- Use a carbide shank with the following dimensional tolerance:

Shank diameter (mm)	Dimensional tolerance of shank
$\phi 3 \sim \phi 5$	Within h6
$\phi 6 \sim \phi 25$	Within h7

※If the tool can be no longer removed, do not try to remove it with excessive force, but contact us.

2-3. Precautions on maintenance: See 7-1, 7-2, 7-3, and 6-4.



Caution

- No personnel other than the qualified experts shall made any internal check or repair. Failure to observe this instruction may result in causing an electric shock, an injury, burns, smoking, ignition, or the like.
- Be sure to periodically replace parts. Failure to observe this instruction can cause an electric shock, a fire, or current-carrying failure. For further details, see "7. Maintenance Manual."
- To replace a part, be sure to previously remove the plug and check that the heater has fully cooled down. Failure to observe this instruction can cause burns or an electric shock.
- For repairing your HRB-03S-230AS(230NA) or purchasing consumable parts, contact your dealer.
- If any abnormality occurs during use, immediately stop using the 3000S, turn OFF the power, and then contact your dealer or our head office/sales office. For futher information, see "7. Maintenance Manual."

2-4. Other precautions



Caution

- The HRB-03S-230AS(230NA) operates at 230 V. If the HRB-03S-230AS(230NA) is used in any country or area where a different power source is used, a transformer is required. The use of the HRB-03S-230AS(230NA) at different voltage or a different operating environment can cause smoking, ignition, or a malfunction.
- The HRB-03S-230AS(230NA) must be disposed of as industrial waste in accordance with the applicable law or ordinance of each country or local government.

Checks prior to use

After opening the package, check the items included. If any abnormality is found, contact your dealer or our head office or sales office (see P. 20).

Items included in package

(1) A set of this unit

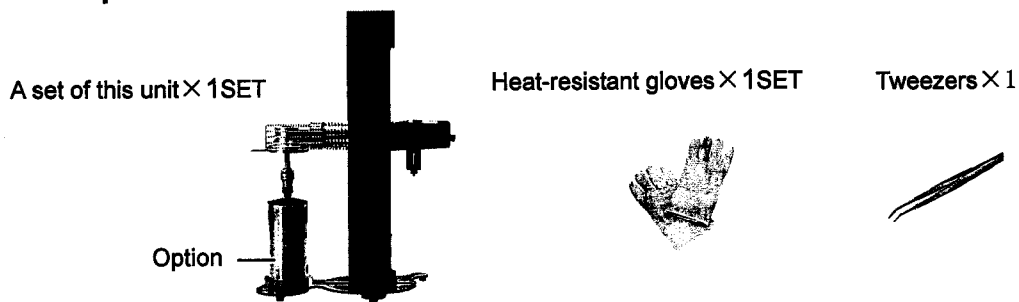
(2) Accessories (for the HRB-03S-230AS/230NA standard set)

Accessories	Q'ty	Remarks
Instruction manual	1PC	—
Supporter	1SET	Lock or vertically move the HRB-03S-230AS. (HRB-03S-230NA)
Nozzle cover	1PC	Attach this to the nozzle for the HRB-03S-230AS. (HRB-03S-230NA)
Stand Base	1PC	This is the plate to which the supports are attached.
Heat-resistant gloves (HBT-01)	1SET	Wear the gloves during work.
Tweezers (TPS-A)	1PC	An auxiliary tool to attach or detach a tool
Count Down Timer (CDT-01)	1PC	This is used to set time.
Tapping Cap	1PC	
Filter	1PC	
Brush	1SET	
Button head screw / Spring washer	EACH1	
Hexagonal Wrench	EACH1	

3. General

The HRB-03S-230AS(230NA) is designed to attach a carbide tool to our shrink fit holder (SlimLine). It allows you to heat and cool any type of shrink fit holder ranging from the thin, small-diameter type to the thick, large-diameter one without changing the nozzle. The HRB-03S-230AS(230NA) eliminates the possibility of being annoyed by a problem which may result from overheating and the troublesome procedure for setting time, thereby offering high operability and cost effectiveness.

3-1. Standard specification



Item	Standard or characteristic
Name of unit	HEAT POBO BABY3000S
Model of unit	HRB-03S-230AS (HRB-03S-230NA)
Rated power consumption	3000W
Rated voltage	230V±10%
Rated frequency	50/60 Hz±5%
Hot air temperature	approx.600°C (1112° F) maximum
Cooling method	Forced air cooling using factory air
Supply air pressure	0.5~0.7MPa
Dimensions	370(14.8in) W ×260(10.4in) D ×596(23.8in) H [mm]
Weight	9.5 kilograms (20.9lb)
Ambient conditions	Ambient temperature: 0~40°C(32° ~104° F), relative humidity: 30~90%
Noise	70Db (only during air cooling)
Accessories	heat-resistant gloves, tweezers, Count Down Timer, Filter, Brush, Button head screw / Spring washer, and Hexagonal Wrench

Caution: For overseas use, supply an appropriate transformer, which shall be of single phase and compound-wound with the secondary side being 230 V - 15 A - 3.0 kVA. For any questions on the transformer, contact us.

Caution: A cord with a breaker is used. If electric leakage or overcurrent occurs, the breaker trips. When the breaker trips, stop using the HRB-03S-230AS(230NA) and has a qualified expert check the HRB-03S-230AS(230NA) and repair it if necessary.

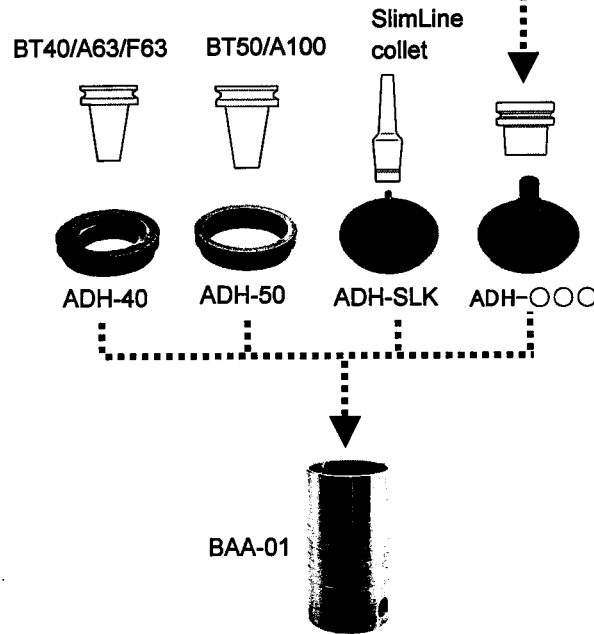
3-2. Optionally available items

3-2. Optionally available items

■ Adapter

Code	Holder
ADH-BT30	BT30
-15TR3	15TR3
-S20TR	RS20, S20TR
-HSK25	E25
-HSK32	E32
-HSK40	A40, E40
-HSK50	A50, E50, F63
-40	BT40, A63
-50	BT50
-SLK	SlimLine collet, straight arbor, and holder adapter

BT30
15TR3
RS20, 20TR
E25, E32
A40, E40
A50, E50 (F63)



■ Base

Code
BAA-01

■ Heat-resistant gloves

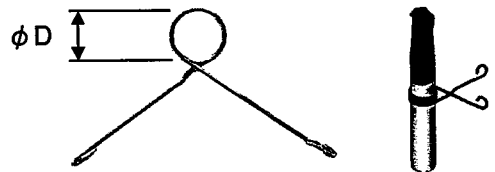
Code	Holder
HTB-01	—
HTB-01-R	For right hand
HTB-01-L	For left hand



■ Stopper

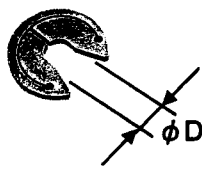
HAS type

Code	Holder
HSA- ϕ D	ϕ D=3/3.175/4/5/6 7/8/9/10/11/12/ Contains 10 pieces in each.
HSA-F	ϕ D=3/4/5/6/7/8/9/10/11/12 10 pieces in total with each one.
HSA-EF	ϕ D=3/4/5/6/8/10/12/16/20/25 10 pieces in total with each one.



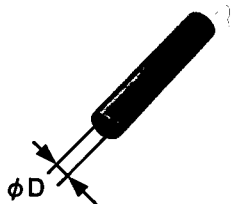
HSB type

Code	Holder
HSB- ϕd	$\phi D=3/4/6/8/10/12/16/20/25$



HSC type

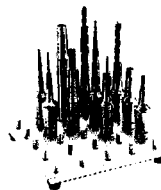
Code	Holder
HSC- ϕD	$\phi D=3/4/6$



■ Collet stand

This stand allows for accommodating 25 collets compactly. It is made of aluminum, which has a high cooling effect.

Code
SDK-01



■ Tool tray

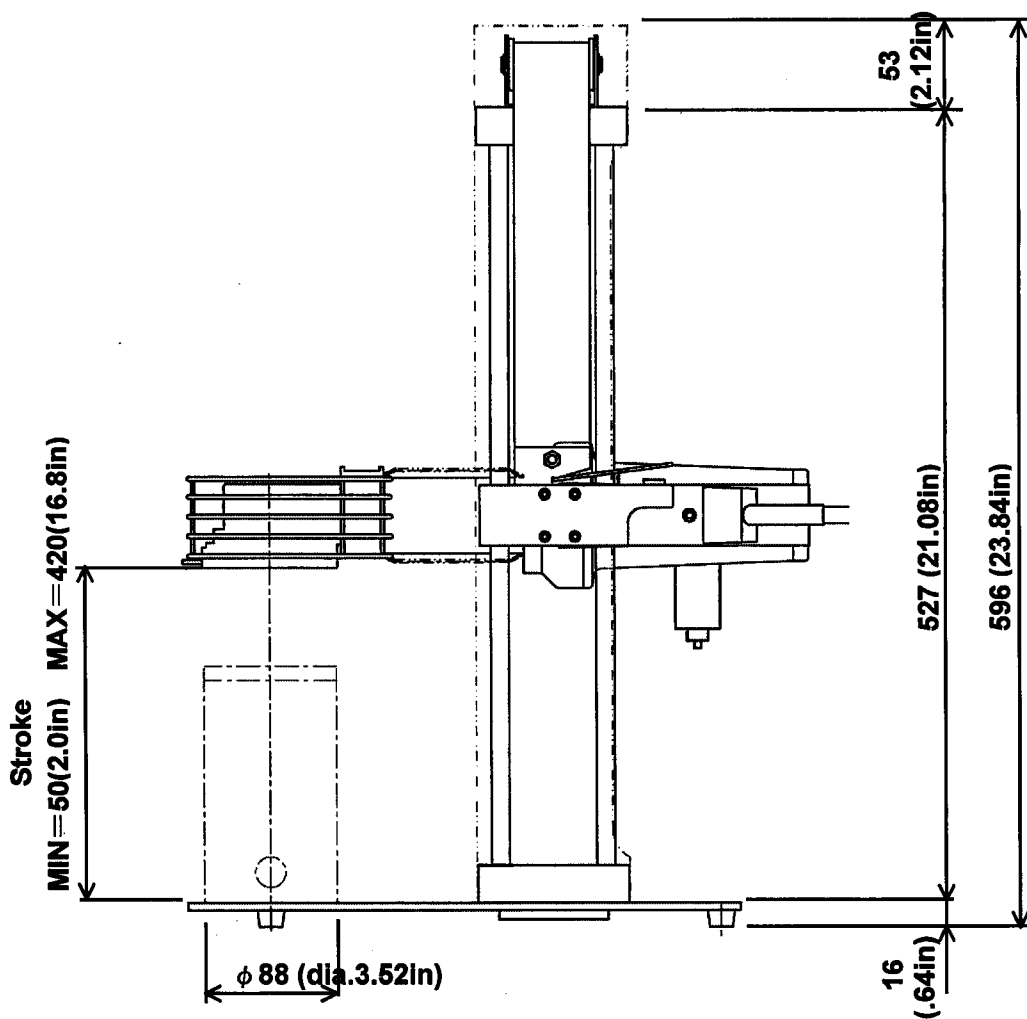
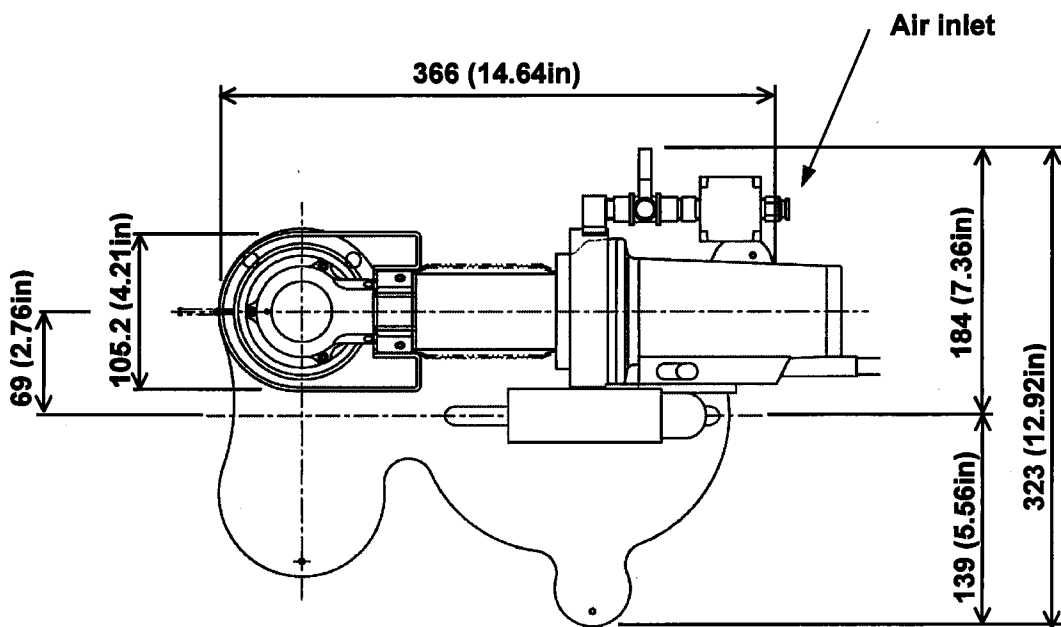
This tray is used to store tools that have been removed from the holder and the collet. It has a cooling effect on hot tools.

Code
SDH-01

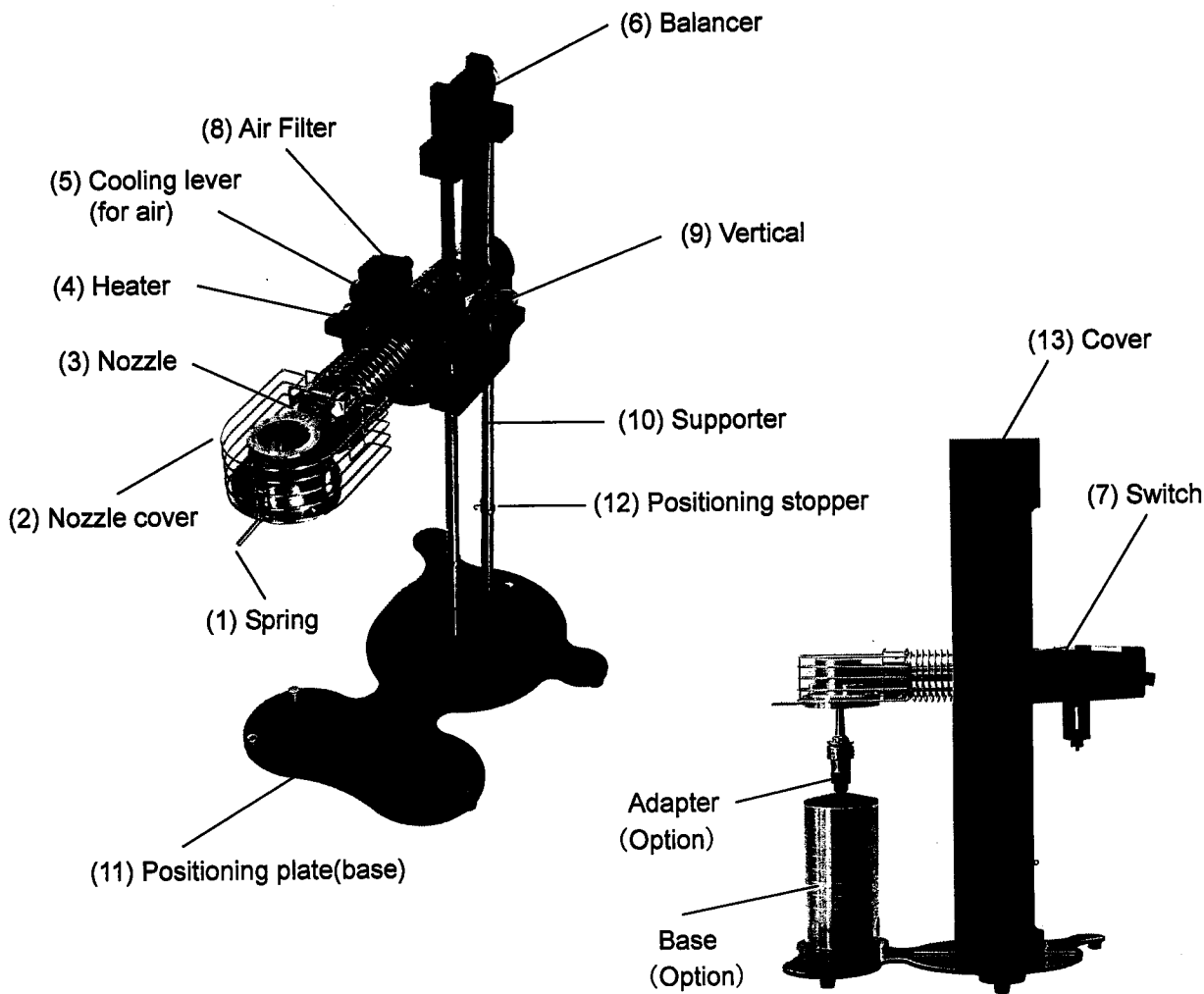


3-3. External dimensions

Model: HRB-03S-230AS(230NA) Weight: 9.5 kilograms (20.9lb)



3-4. Names




No.	Name	Description
(1)	Spring	Minimizes the escaped volume of hot air, thereby improving the heating efficiency.
(2)	Nozzle cover	Protects your hands from the high-temperature nozzle.
(3)	Nozzle	Covers the holder to improve heat absorption.
(4)	Heater	A high-power dryer for industrial use.
(5)	Cooling lever (for air)	An opening/closing lever for factory air.
(6)	Balancer	Leaf springs for balancing (consumable part)
(7)	Switch	A selector switch for the HEAT, COOL, and STOP modes.
(8)	Air Filter	Filters water and oil contained in compressed air.
(9)	Vertical	Used to vertically move the heater and then position (lock) it.
(10)	Supporter	Two supporters assure smooth vertical movement.
(11)	Positioning plate	To be secured to the work bench using two pieces of M10 bolts.
(12)	Positioning stopper	Allows the heater to be positioned at the specified height.
(13)	Cover	Safety cover.

4. Installation Manual


4-1. Environment

- (1) The ambient temperature shall be 40°C(104° F) maximum. If this maximum temperature is exceeded, provide the ventilation and cooling for the installation site.
- (2) Do not use the unit in a location with high humidity, existence of corrosive gas, or a high dust level. This can cause the unit to malfunction.

 Caution	Install the unit in a flat place with the least vibration and impact. Installing the unit in an unstable place may cause the unit to tumble, resulting in an injury.
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4-2. Carrying-in and installation

- (1) Carry in the unit in the package.
- (2) Unpack the package near the installation site.

 Caution	<ul style="list-style-type: none">• To remove the unit from the package, take care to prevent low back pain.• To remove the unit from the package or move it, ensure that the unit is held firmly. Otherwise, it may fall on your feet.• In installing the unit, be careful not to have your finger pinched between a table and the unit.
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- (3) Installation

Install the unit in a flat table that withstands the weight of the unit (approximately 9.5 kilograms [20.9lb]) or an equivalent place. Allow approximately 20cm (8in) minimum from the wall as an exhaust space. Since the unit is intended to heat the holder, keep it away from any combustible or inflammable substance.

4-3. Wiring and piping

- (1) Connect the input plug to a commercial power outlet.

HRB-03S-230AS (230V)




HRB-03S-230NA (230V)



※One of the plug outlet types is provided.

- (2) Connect the air tube (outer diameter: 8 mm) to the unit from the factory air source.

See "2-1. Instructions for installation."

 Caution	<ul style="list-style-type: none">• Ensure that the connection between the input plug and the power outlet is not loosened. If not, smoking or ignition may result.• Be sure to ground the input plug because you may otherwise get an electric shock.• Firmly connect the air hose. Otherwise, when high-pressure fluid is blown out, you may get injured by the air hose or the like.
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5. Operation Manual

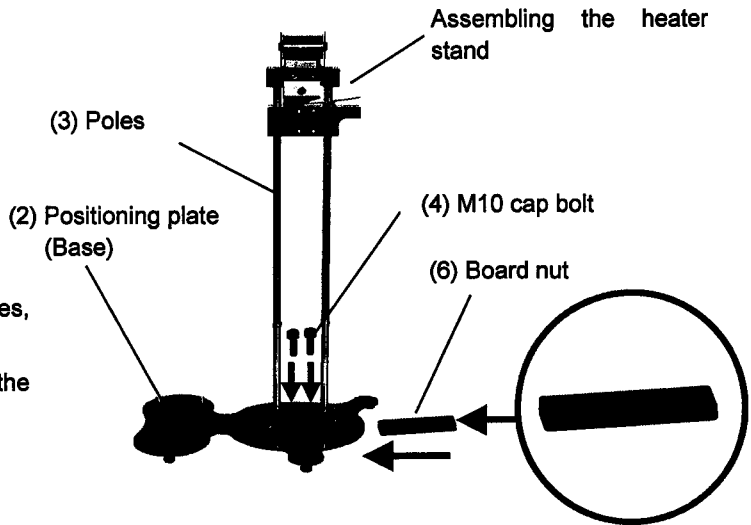
5-1. Preparations for operation

1) First of all, make sure the enclosed each parts contents

1. Assembling the poles

Supply (2) positioning plate (base), (3) poles, (6) board nut, and (4) M10 cap bolt.

Temporarily tighten the bolts as shown in the photo below:

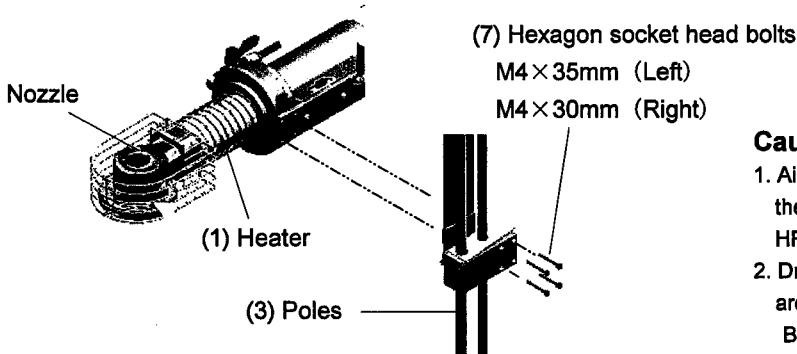


2. Installing the heater

Supply the above assembled poles, (1) heater, and (7) M4 hexagon socket head bolts.

• For HRB-03S-230AS(230NA), temporarily tighten, as illustrated, two hexagon socket head bolts of M4 x 35 mm on the left as one faces.

Temporarily tighten two hexagon socket head bolts of M4 x 30 mm on the right side.



Caution

1. Air tube (dia.8mm) from air-supply outlet to the heater body doesn't deliver you with HRB-03-230AS(230NA).

2. Draining off and cleaning of the drain tank are required periodically.

Be sure to shut down electric power during draining and cleaning operation.

3. Adjusting the position

Adjust the position of the temporarily installed heater.

1) Place the base on the positioning plate. Make an adjustment so that the nozzle of the heater horizontally comes into contact with the base.

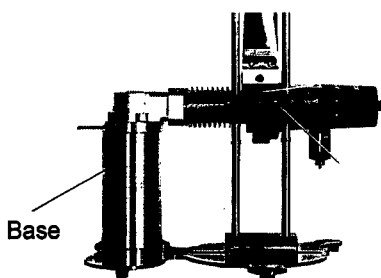
Immediately after the horizontal adjustment has been finished as shown in photo ①, firmly tighten the M4 bolts.

2) Make another adjustment so that the shrink-fit holder can be heated at the center of the nozzle. See photos ② and ③.

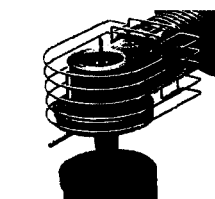
The temporarily installed poles have some allowance for adjustments to the left, right, front, and rear.

Adjust the poles to ensure that the holder comes to the center of the nozzle.

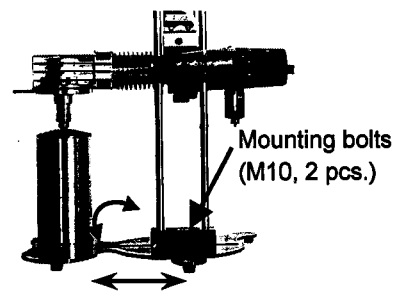
3) After the adjustment has been finished, firmly tighten the M10 hexagon socket head bolts (2 pieces).



① Horizontal adjustment of nozzle



② Make sure the holder is positioned at the center of the nozzle.



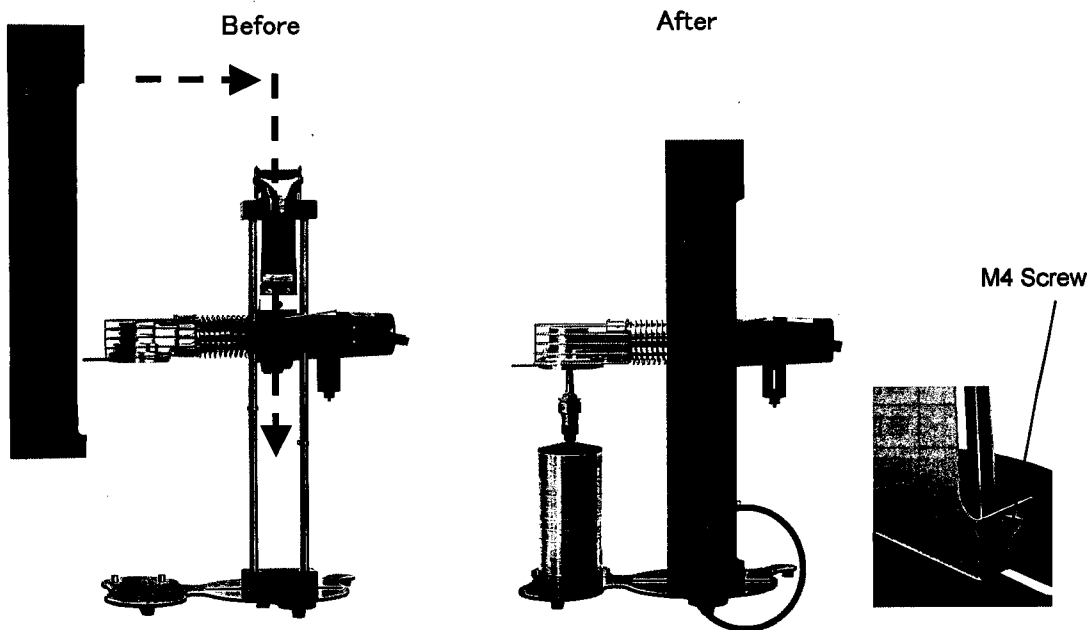
③ Carefully adjust the position of the support rod horizontally.

4. Installing the cover

Install the cover (yellow-colored) for the assembled heater.

Insert the cover from the top.

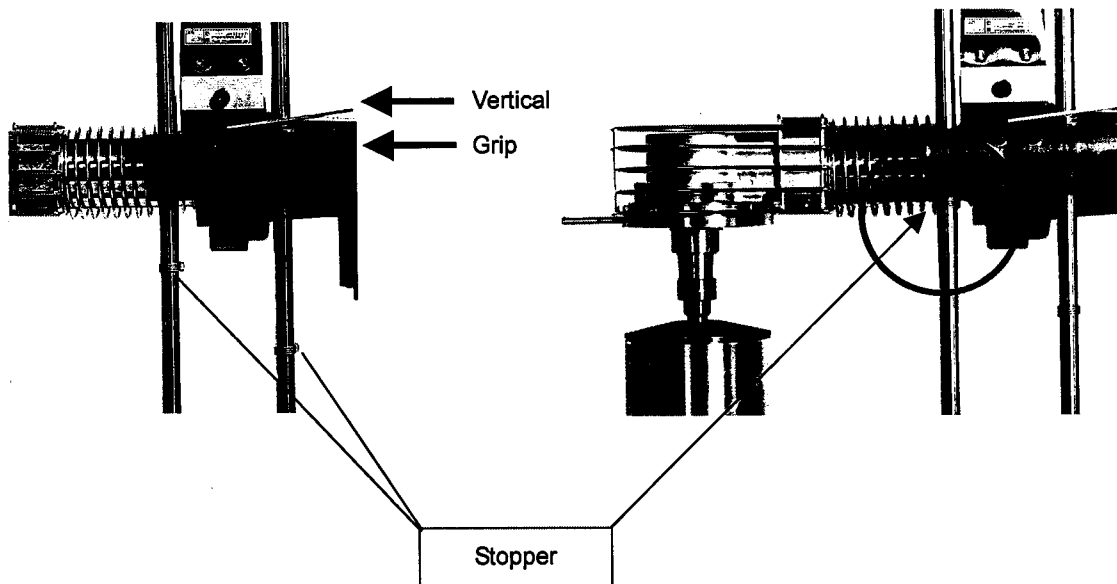
After installing the cover, secure it with M4 button head bolts.



5. Positioning stopper

Two stoppers are attached to enable the heater to be positioned at the specified height.

The stoppers can be freely adjusted in the vertical direction.



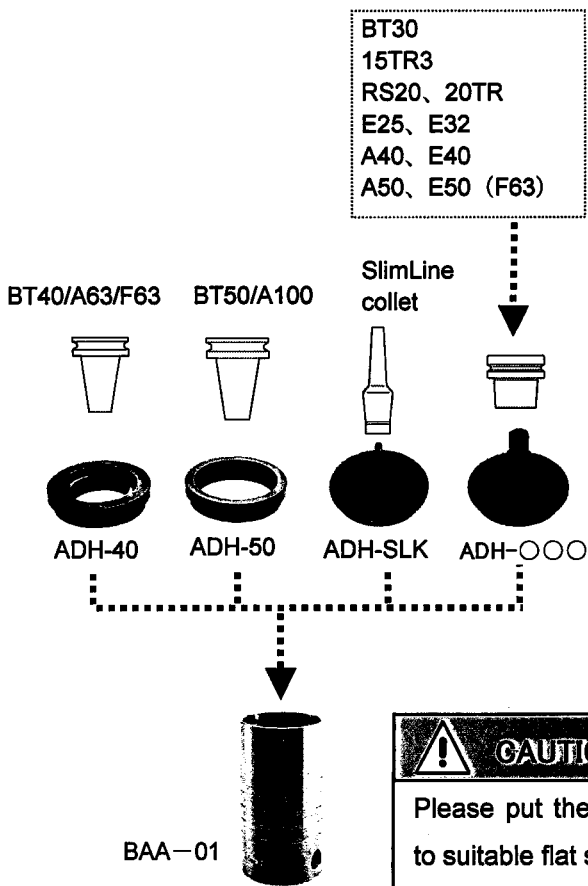
2) Assembling the holder adapter (optionally available dedicated item)

Combine a holder pot with a pot base for use.

Select a holder pot in accordance with the tool holder, SlimLine collet, and the like used. (see the following table).

■ Adapter

CODE	HOLDER
ADH-BT30	BT30
-15TR3	15TR3
-S20TR	RS20, S20TR
-HSK25	E25
-HSK32	E32
-HSK40	A40, E40
-HSK50	A50, E50, F63
-40	BT40, A63
-50	BT50
-SLK	SlimLine collet Straight arbor Holder adapter



■ Base

CODE	BAA-01

※Please ask if other type holder should be installed

※Straight arbor which is longer than 200mm (8in) please do not use holder pot

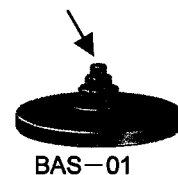
■ Base for straight arbor

CODE	BAS-01

This adapter is used to secure the straight arbor.

Use it on a stable workbench or the like.

M10, M16, M24



SIZE	HOLDER
M10	SlimLine collet
	ST16 Straight arbor
	ST20 Straight arbor
M 16	ST32 Straight arbor
M 24	ST42 Straight arbor

3) Checks (initial settings)

Prior to operation, check the following points:

- (1) The unit is connected to a power source that meets the input requirements.
- (2) The unit is free from any damage or deformation in appearance.
- (3) The power switch is OFF.



Caution

- Do not use any other manufacturer's shrink fit holder.
- The recommended maximum weight of the applicable holder and tool is shown below:
Holder: Approximately 5.5 kilograms (12.1lb)
Tool: Approximately 1.0 kilograms (2.2lb)

4) Preparations

Cutter

- (1) Clean the cutter shank to remove chips and grease completely. Otherwise, the cutter may become stuck or appropriate accuracy will not be obtained.
- (2) Use cemented carbide as the cutter shank material. If a high-speed steel cutter shank is shrink-fitted, it will not be possible to remove the cutter.
- (3) DO NOT shrink-fit a cutter with a notch. Collet deformation may result.
- (4) DO NOT shrink-fit shanks whose dimensional tolerance is outside the above-mentioned ranges. If those shanks are shrink-fitted, the cutter cannot be removed, its chuking can become insufficient, or appropriate precision will not be obtained. Use a cemented carbide cutter shank with the dimensional tolerances listed below :

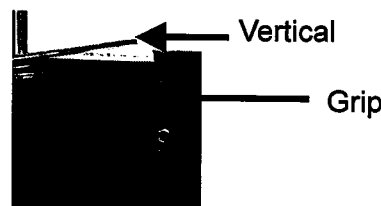
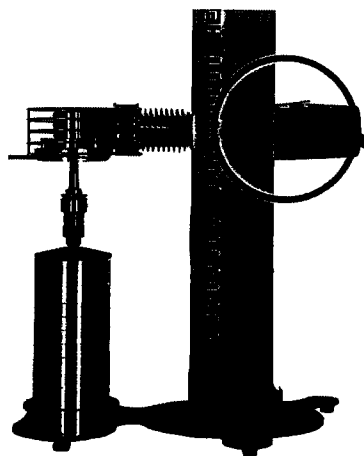
Shank Diameter [mm]	Shank Dimensional Tolerance
$\phi 3 \sim \phi 5$	within h6
$\phi 6 \sim \phi 25$	within h7

Holder

Shrink-fit the cutter after completely removing all scratches, deposits, shavings, and grease from the collet surface. Otherwise, the cutter may become stuck or appropriate accuracy will not be obtained.

Setting the Holder

Hold the grip and then raise the heater to the extent that the holder does not interfere with the heater while holding down the vertical adjustment lever. Fit the holder to be shrink-fit to the holder pot and the holder adapter.

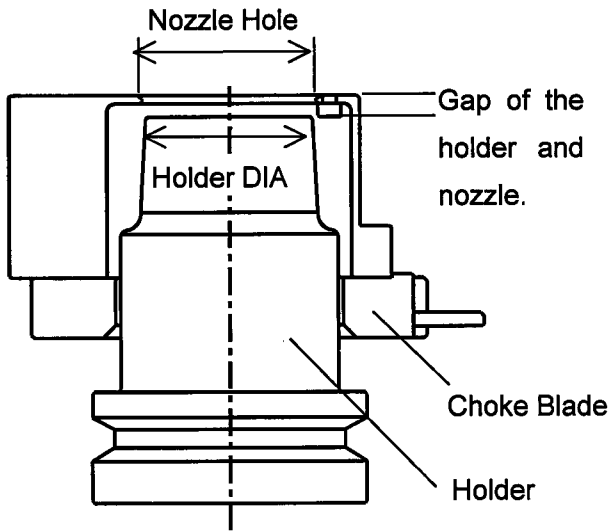


Caution

- Take care not to get your finger pinched between the vertical adjustment lever and the grip.
- For the holder pot and other adaptors, see "3-2 Optionally available items" or the catalog.

Positioning

- (1) Please clean the holder chucking area and install the holder to nozzle.
- (2) Centerized the holder/collet internal hole and nozzle hole. Then adjust the tip of the nozzle position as mentioned below.



Caution

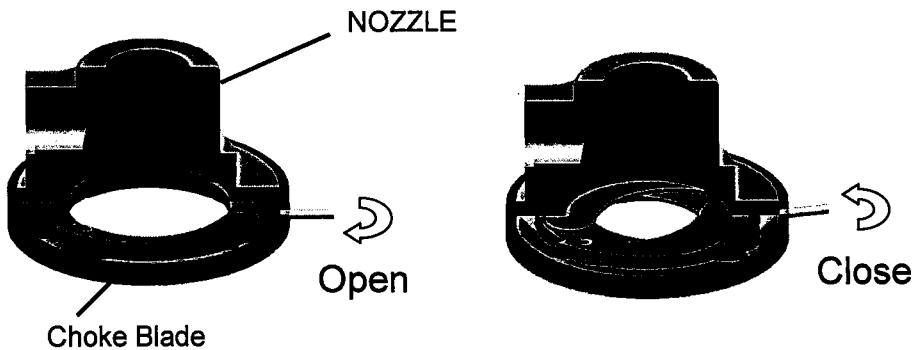
To protect the heater, the gap of tip of the holder and top of the heater nozzle should be 3 mm. In case of Regular type above than 25mm Dia type the gap should be at least 5mm.



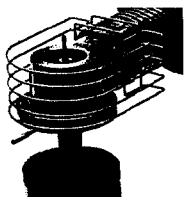
Caution

Please adjust the holder position every time. If the holder is too close to heater the heating effect will not be enough and due to of un-releasable heat the heater will get damaged.

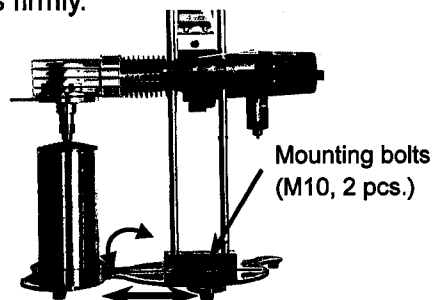
- (3) To maintain the good heating condition, please use choke blade to keep the heat inside of the nozzle.



- (4) If the holder is not positioned at the center of the nozzle, loosen the mounting bolts (as shown in figure at left) and adjust the holder position horizontally. After fine-adjustment, retighten the mounting bolts firmly.



Make sure the holder is positioned at the center of the nozzle.



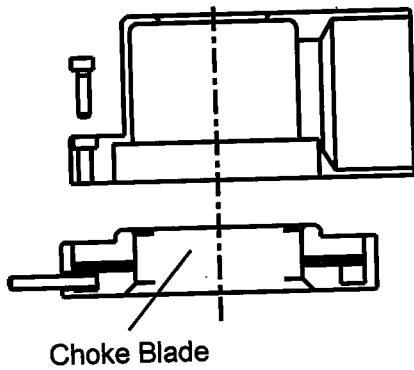
Carefully adjust the position of the support rod horizontally.

■ For the minimum length holder and F63 type holder

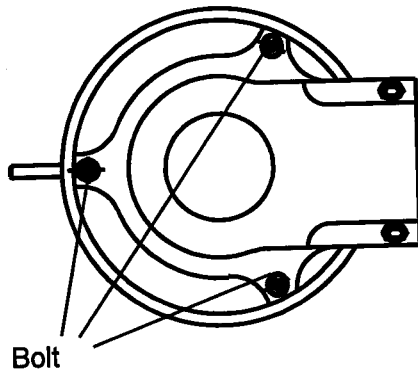
Loosen the 3 bolts and take out the choke blade parts.

For the positioning, please refer to page 6 manual.

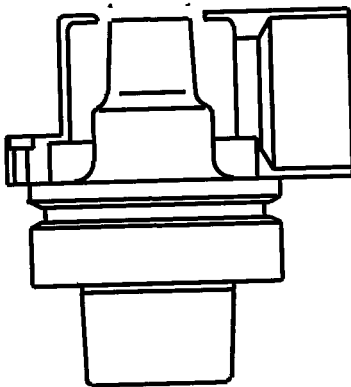
And picture is shown below; please adjust the height of the holder.




Choke Blade



Bolt





Caution

Please adjust the holder position every time. If the holder is too close to heater the heating effect will not be enough and due to of un-releasable heat the heater will get damaged.

※ Beside the F63 and Minimum length holder, please use the choke blade. Without the choke blade the heating effect will be not enough.

Below list is for holder, which should be heated without a choke blade.

■ =BT40, A63, DN40AD, CT40

CODE
■ -SLRA 3-75-M22
■ -SLRA 4-75-M22
■ -SLRB 6-75-M22
■ -SLRB 8-75-M22
■ -SLRB10-75-M22
■ -SLRB12-75-M22
■ -SLRB16-75-M22

■ =BT50, DN50AD,

CODE
■ -SLRA 3-90-M22
■ -SLRA 4-90-M22
■ -SLRB 6-90-M22
■ -SLRB 8-90-M22
■ -SLRB10-90-M22
■ -SLRB12-90-M22
■ -SLRB16-90-M22



Caution

- Be sure to wear the accompanying heat-resistant gloves.
- The nozzle is at a high temperature; do not touch it.
- Otherwise, you may burn yourself.

5-2. Operation procedure

1) Heating

(1) Use the accompanying set time period. ying timer to set the heating time period.

	SLIMLINE COLLETS	SLIMLINE MONO SERIES
Cutter insertion	1 min	3 min
Cutter removal	2 min	4 min

(2) Set the hot-air heater's switch to "HOT" and, simultaneously, start the countdown timer.



Caution

- Do not block the air inlet and outlet or put anything into the inlet during operation.
- Do not allow the inlet to take in hot air or dust
- Otherwise, damage may result.

(3) After the countdown timer's alarm stops, turn the hot-air heater switch OFF.

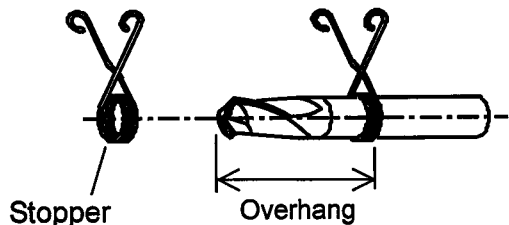
(4) For cutter insertion and removal, refer to the next section, "4. Insertion and Removal of the Cutter."

2) Inserting or removing the tool

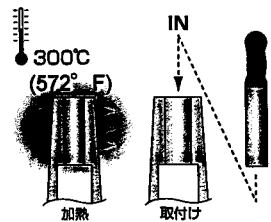
2-1) Inserting the tool

(1) Set the overhang of the cutter using the Insertion/removal stopper beforehand.

※The insertion/removal stopper
Is sold separately.

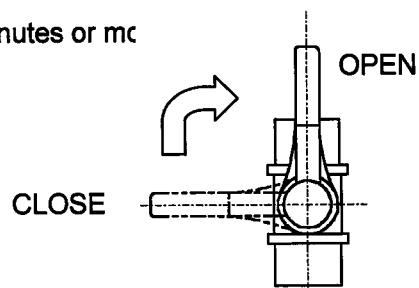


(2) When heating is complete, set the switch to "OFF" and insert the cutter as far as the position of the insertion/removal stopper.



(3) After inserting the cutter, be sure to set the switch to "COLD" and cool down the heater for 10 minutes or more.

(4) Moreover, if the joint lever is opened as shown in the figure in the "cold" condition, cooling by factory-supplied air can be concurrently performed, thus reducing the cooling time.



※ The air piping is required in advance.

2-2) Removing the tool

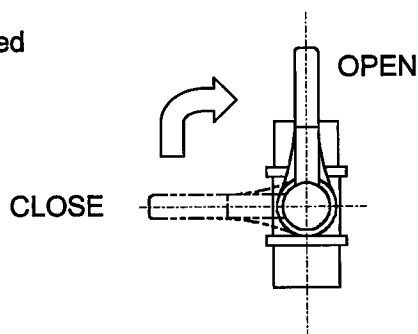
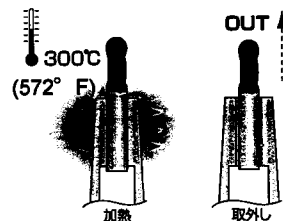
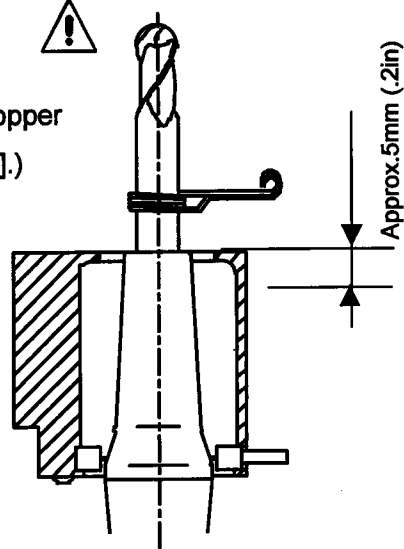
(1) Attach the stopper to the cutter. At this time, attach the stopper at a position a little apart from the holder (approx. 5mm [.2in].) In this way, you can prevent the cutter from dropping into the bottom of the holder when heating.

(2) After heating, when the cutter drops into the holder up to the stopper, turn the switch OFF.

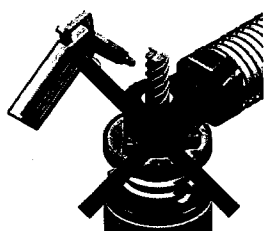
(3) Remove the cutter from the holder.

(4) After inserting the cutter, be sure to set the switch to "COLD" and cool down the heater for 10 minutes or more.

(5) Moreover, if the joint lever is opened as shown in the figure in the "cold" condition, cooling by factory-supplied air can be concurrently performed, thus reducing the cooling time.



* The air piping is required in advance.



※As shown in the figure on the right, never cool the heater by blowing air externally (using a tool such as an air gun). The hot air will flow back into the internal heater and may damage the internal instruments.


Caution

- After using the heater, be sure to set the switch to "COLD" and perform cooling operations to cool the HEAT ROBO Baby completely.
- Failing to do so may result in a fire or electric shock, as the usable life of all the parts will be shortened considerably due to the heat of the heater.

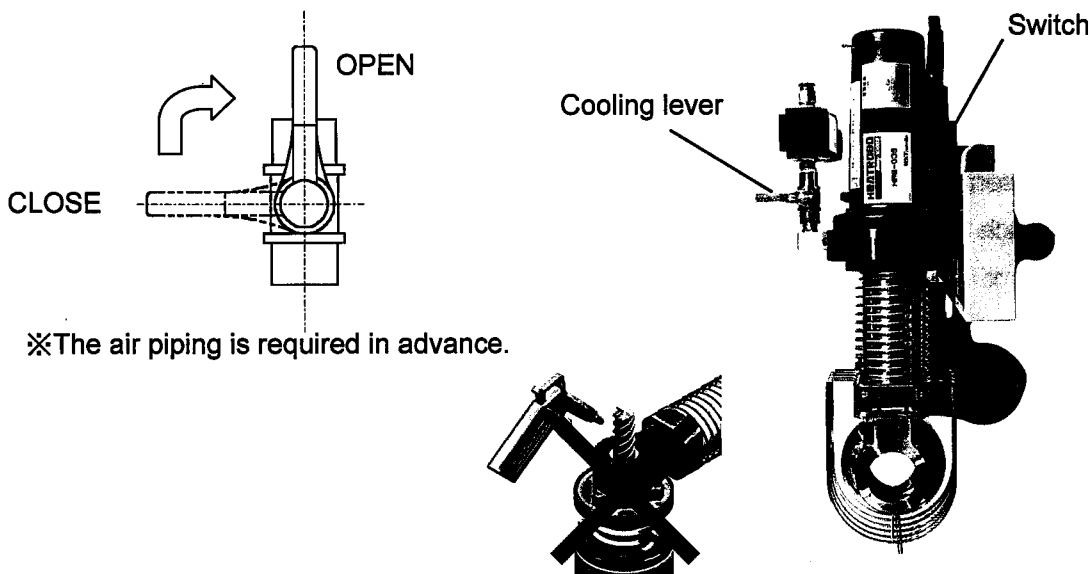
3) Cooling

(1) Set the switch of the heater to "COLD" and cool the holder for 10 minutes.

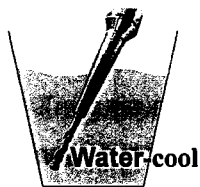
(If not cooled sufficiently at this time, the holder may not clamp the cutter properly and the cutter may drop.)

(2) Wear heat resistant gloves and remove the collet after moving the heater sufficiently upward.

(3) Moreover, if the joint lever is opened as shown in the figure in the "cold" condition, cooling by factory-supplied air can be concurrently performed, thus reducing the cooling time.



(4) Store the holder in a safe place until it is cooled to room temperature. It can then be used again. After stopping the heater, set the switch to "COOL" and cool down the holder for 10 minutes or more.



Water-cooling is possible. After water-cooling, apply rust-proof treatment as rust becomes more likely to be formed.


Caution

After using the heater, be sure to set the switch to "COOL" and perform cooling operations to cool the HEAT ROBO Baby completely. Failing to do so may result in a fire or electric shock as the usable life of all the parts will be shortened considerably due to the heat of the heater.

(5) After confirming that the heater is completely cooled, set the switch to "OFF".


Caution

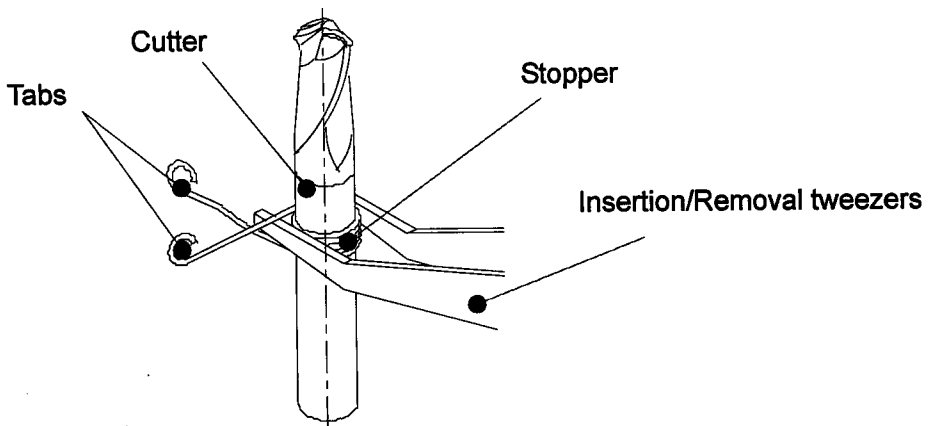
After using the heater, confirm that it is completely cooled, turn OFF the power, and pull out the power plug from the outlet. When removing the power plug from the electric outlet, be sure to hold the plug itself, rather than the cable. Otherwise, and electric shock or short-circuit may result.

Precautions

- (1) Be sure to wear the accompanying heat-resistant gloves, as shrink-fitting and shrink-removal work is very dangerous.
- (2) You may burn yourself if you use the insertion/removal tweezers during heating. Be sure to stop heating before inserting or removing the cutter.
- (3) DO NOT pinch the cutter directly with the tweezers. It is dangerous since the cutter may drop. When using the tweezers, be sure to attach the stopper (sold separately) to the shank.
- (4) DO NOT use the tweezers for cutters with a shank diameter of 6mm or more. It is dangerous, since the cutter may drop.

How to use

- (1) Shank diameter of the applicable cutter : $\phi 3 \sim \phi 6\text{mm}$
- (2) Procedure of usage (Both shrink-fitting and shrink-removal are performed with the same procedure)
 1. Attach the applicable (based on cutter shank diameter) stopper (sold separately) the cutter shank.
 2. Grab the stopper with the tweezers.
At this time, grab the shank with the tweezers so that one finger of the tweezers is inserted between the tab portions of the stopper, in order to stabilize the cutter, as shown in the figure below.
 3. Insert the cutter into (or remove it) from the collet hole.



6. Troubleshooting

6-1. Causes and countermeasures when a cutter cannot be inserted correctly.

Problems	Causes	Countermeasures
a. The cutter is stuck on something in the way.	<ul style="list-style-type: none"> • Insufficient heating. • Taking too much time before insertion. • The cutter is inserted at an angle 	Resume heating until the cutter can be inserted correctly.
b. The cutter is not inserted completely.	<ul style="list-style-type: none"> • The cutter shank diameter is too large. • The shank tolerance is not appropriate. 	Appropriately deal with the tool upon checking item ① Checking the tool (page 14) in 5-1, 4) Preparation in this manual.

6-2. Causes and countermeasures when a cutter cannot be inserted correctly.

Problems	Causes	Countermeasures
a. The cutter is stuck on something in the way.	<ul style="list-style-type: none"> • Insufficient heating. • Taking excessive time before removing the cutter. • The cutter is not being pulled straight up. 	Set the switch to "HOT" again. Set the switch to "OFF" after the insertion/removal stopper drops to the holder, and then remove the cutter from the holder.
b. The cutter cannot be removed even if it is heated.	<ul style="list-style-type: none"> • The holder was heated and cutter was inserted with shavings and debris attached to the surface of the holder, etc. 	Repeat the cutter removal procedure. If the cutter still cannot be removed, stop the work and contact MST.
	<ul style="list-style-type: none"> • A cutter other than a cemented carbide cutter has been inserted. 	The cutter cannot be removed. You must purchase a new holder.

7. Maintenance Manual

This unit uses replacement parts such as the heater, the motor, and the brush. Periodically use a repair technician to replace the specified parts. Clean the heater on a regular basis. Otherwise, abnormal heating or a malfunction of this unit may occur.

7-1. Daily checks

- (1) Check that the fan (motor) rotates normally.
- (2) Check that hot air is blown out.
- (3) Check that the heater is smoothly moved up and down.
- (4) Check that the heater get still in any arbitrary position.
- (5) Visually check the appearance for any discoloration and corrosion.
- (6) Exercise special care when the unit is installed in a dusty or high-humidity location.
- (7) Check that the surrounding area is free from dust and other combustibles. This unit is heating equipment, which can cause fire or the like if there is any combustible in the neighboring area.



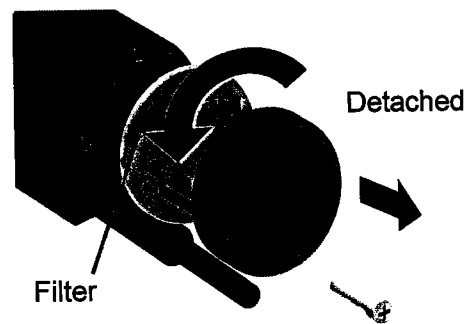
Caution

Do not allow any person other than the professional engineers to perform the maintenance and checks of the inside. Failure to observe this instruction may cause electric shock, burns, injuries, smoking, ignition, or the like.

7-2. Parts requiring periodical replacement

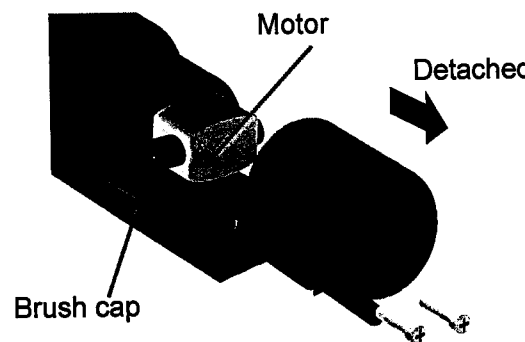
1) Maintenance for the filter

The clogged filter can shorten the service life of the unit or cause the unit to malfunction. The filter case can be removed by removing the set screw and then turn the filter case counterclockwise as illustrated. Dust should be flicked off and oil-based contamination should be rinsed with neutral detergent. After drying the cleaned filter, reassemble it to the main body.



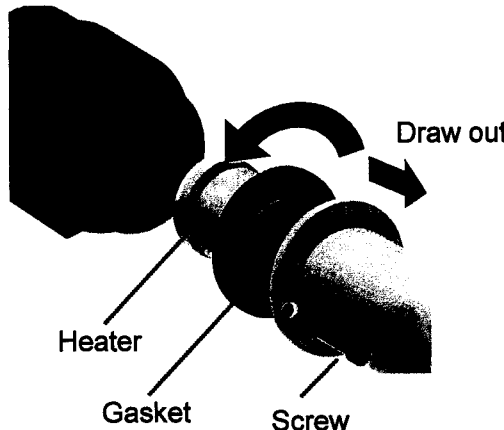
2) Checking the brush

To check the brush, remove 2 screws as illustrated. The brush part will appear. Remove the brush cap so that the brush can be removed. When the length of the brush becomes 3 mm or shorter, replace the brush. (The replacement of the brush shall be limited to 3 times.)



3) Replacing the heater

To replace the heater, remove 2 screws as illustrated and then turn the case counterclockwise. The heater will appear. Pull out the heater by holding its end part. Attach the replacement heater in place. When reassembling the case, ensure that the packing and the mica are assembled in place.



Caution

The motor brush is a consumable part. Check it once or twice monthly. When the brush length becomes 3 mm or shorter, replace the brush. If the brush has completely run out, it will damage the motor resulting in a malfunction.

7-3. Service life of product (rough standard)

The accurate durable term cannot be indicated because the service life of the heater varies depending on the operating situation. As a rough standard, however, the following experimental value is available for reference only:

Experimental result : When a continuous operation durability test was conducted at a cycle of 5-minute heating and 15-minute cooling using clean factory air, durability of 600 to 700 hours was obtained.

7-4. Troubleshooting

If any abnormality is found during use, stop using the unit by turning OFF the power and then immediately contact our company through your dealer.

MST corporation

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TEL : 81-7437-8-1184 FAX : 81-7437-8-3854

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