

Please hand out this manual to the final user.

保存用

# MULTI-DRYER HAS series

## MANUAL

● Please be sure to read before use.

- ◆ Thank you for purchasing the Multi Dryer.
- ◆ Check the name plate to see if the model, product number, and voltage are the same as the one you ordered.



1. Installation

2. Piping

3. Power supply

4. Intermittent operation

5. Each abnormality indication

6. Filter replacement

7. When using as a shoulder type

8. Maintenance and inspection

Warranty

The contents of this instruction manual are subject to change without notice. In addition, the figures and indications in the instruction manual do not guarantee the actual specifications. It is prohibited to modify or copy this instruction manual without the permission of the manufacturer.



KANSAI ELECTRIC HEAT CORP

# 1. Installation

① Install it in a horizontal position.

② Please fix it firmly if necessary.

③ Places that cannot be installed or used

- Place with vibration
- In a closed room and in a case
- Places with an ambient humidity over 85% R.H.
- Places with a lot of dust, dust, etc.
- Places with low atmospheric pressure
- Places exposed to wind and rain outdoors
- A place where the back is close to a wall
- Places other than ambient temp 0 to +40 °C
- Places where acid gas, corrosive gas, etc. are floating
- Places with conductive suspended matter (carbon fiber, etc.)
- Top of fever
- Places above 1000m above sea level
- Near combustibles

atten: : When carrying, do not hang a hoist or hanging band on the handle.

# 2. Piping

① fix the piping to the outlet

Due to the characteristics of the flexible hose, hot air leaks from the flexible hose piping to the outlet. The leaked hot air will flow back into the multi-dryer and cause damage to the electronic devices in the operation panel. Use the enclosed glass tape to prevent air leakage and install the flexible hose piping to the outlet

② Make the piping as thick and short as possible, and install it with a gentle bend.

③ Be sure to insulate the piping sufficiently.

# 3. Power supply

① Ask an electrician for power connection and grounding work.

② Do not use the 100V type with the same outlet power supply at the same time as other devices.

③ For 200V type, use the attached outlet for wiring.

※ Connect the 200V type power cord according to R (red), S (black), and ground (green + yellow: with ground seal).

④ Be sure to use a commercial power supply (50 / 60Hz) with a sinusoidal waveform for the multi-dryer. Never use a power supply that has distorted waves containing harmonics. Also, take sufficient measures to prevent surge voltage and noise from entering the power supply.

⑤ Please provide a dedicated circuit. When installing an earth leakage breaker, make a decision with a sensitivity current of about 50mA as a guide.

※ The sensitivity current of the earth leakage breaker is generally about 10 times the initial leakage current.

⑥ To prevent electric shock accidents, perform grounding work (class D grounding).

Atten: Please note that wiring that is too long will cause a voltage drop.

Atten: Be sure to shut off the power supply during wiring and inspection. Even if the power switch of the main unit is turned off, the operation circuit of the multi-dryer is still energized, so be sure to turn off the factory power supply (primary power supply). If you work with the power turned on, you will get an electric shock.

Atten: If you provide an outlet for the connection, ensure sufficient capacity. Please refrain from using the outlet as much as possible because the outlet may generate heat or break down due to poor contact due to deterioration over time, phase loss, etc.

Atten: A multi-dryer is a device mainly used in an industrial environment. When used in a residential environment, etc., there is a risk of radio interference. At that time, the user of this product may have to take appropriate measures to reduce the obstacle.

※When using a single-phase 100V power supply with a single-phase three-wire low-voltage distribution system, the single-phase 200V power supply can be easily taken out from the distribution board. If you are using a single-phase 200V model, please consult with an electrician, including the power supply capacity.

《熱風温度、設定温度、風量調節、タイマ表示部の表示文字一覧》

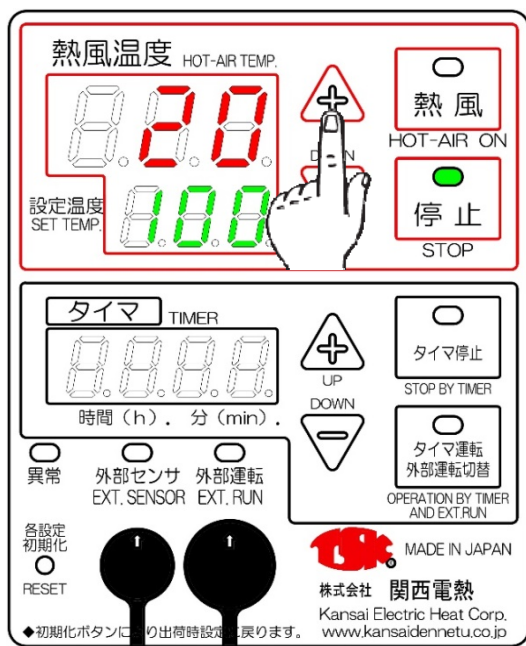
0 1 2 3 4 5 6 7 8 9 A b c d E F G H I J k L ñ n o P q r 4 r U V W X Y  
0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W Y

## 4. Intermittent operation

※Please make changes with the external operation function button.

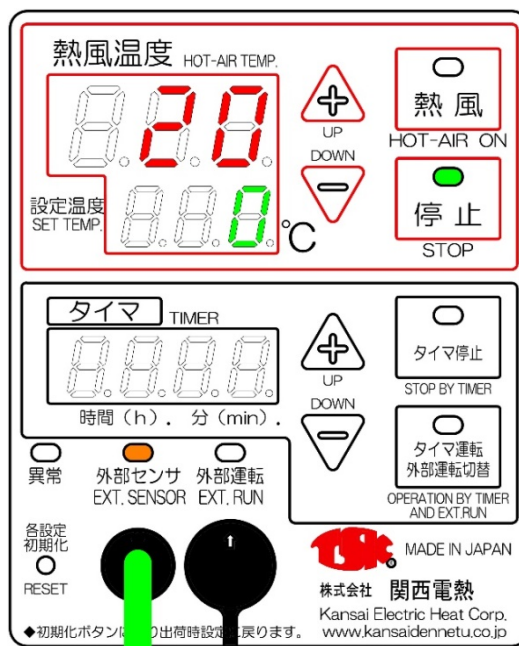
When the temperature of the constant temperature bath is controlled using an external sensor, the multi-dryer is stopped when the temperature inside the constant temperature bath reaches the set temperature, and the temperature inside the tank is  $-5^{\circ}\text{C}$  to  $-10^{\circ}\text{C}$  (optional). Once the setting is reached, you can perform energy-saving operation to restart the operation of the multi-dryer.

- ① Set the hot air temperature while stopped.  
Since this set temperature is the upper limit temperature of the discharge port of the multi-dryer, set the temperature in consideration of the set temperature of the external sensor + heat dissipation from the piping, etc. (If there is no upper limit on the discharge port temperature, set it to  $300^{\circ}\text{C}$ ). ..

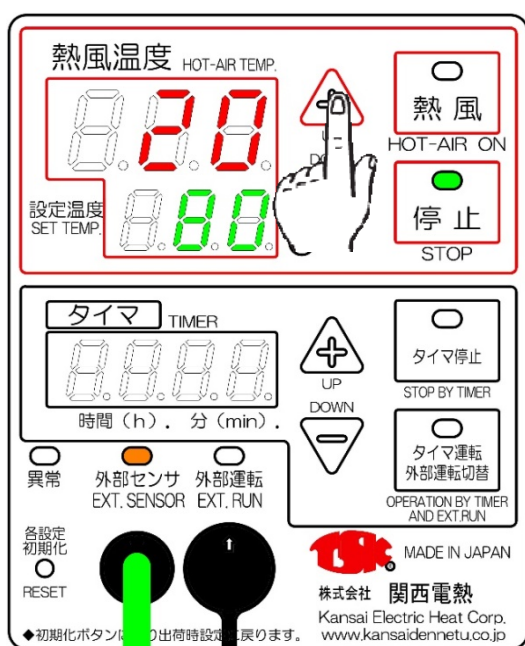


- ② Remove the cap of the external sensor socket and plug in the external sensor KX350AP (the external sensor is an automatic setting type by mounting).

The external sensor lamp (orange) lights up and "0" is displayed in the set temperature section.

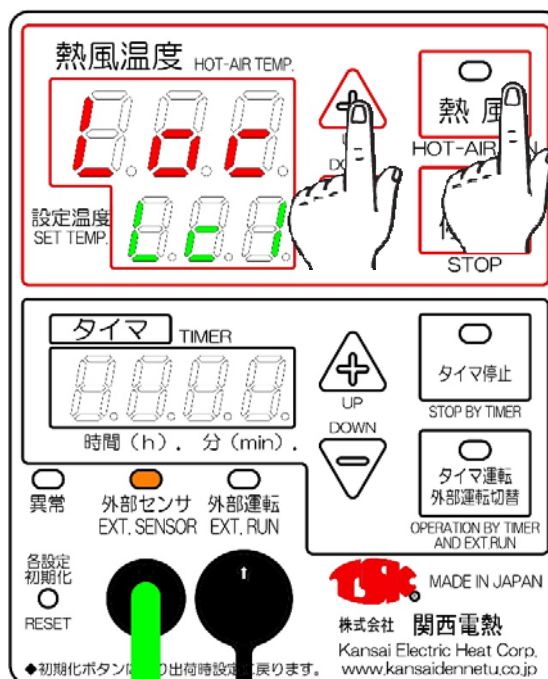


- ③ Set the temperature of the place controlled by the external sensor.



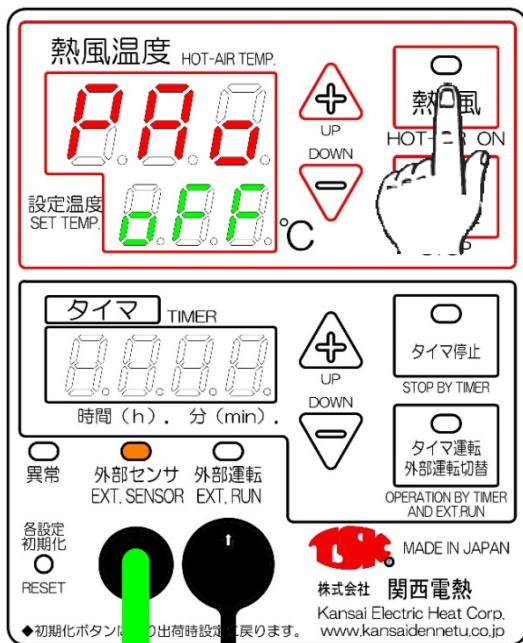
- ④ Press and hold the hot air switch and hot air temperature up key for about 3 seconds.

"Loc" is displayed in the hot air temperature section, and "Lc1" is displayed in the set temperature section.

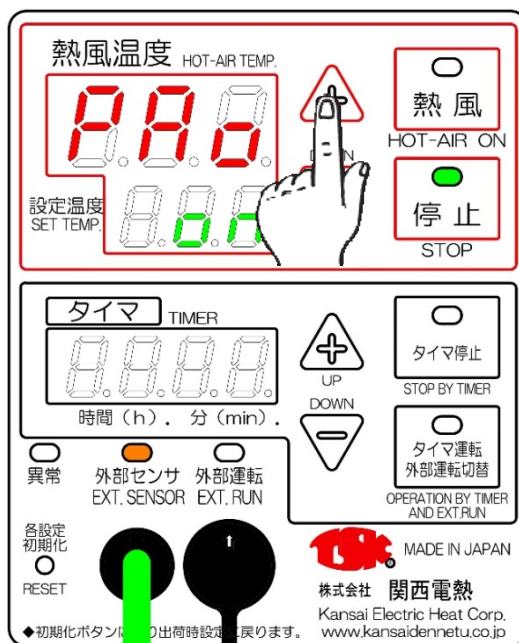


⑤ Press the hot air switch 8 times.

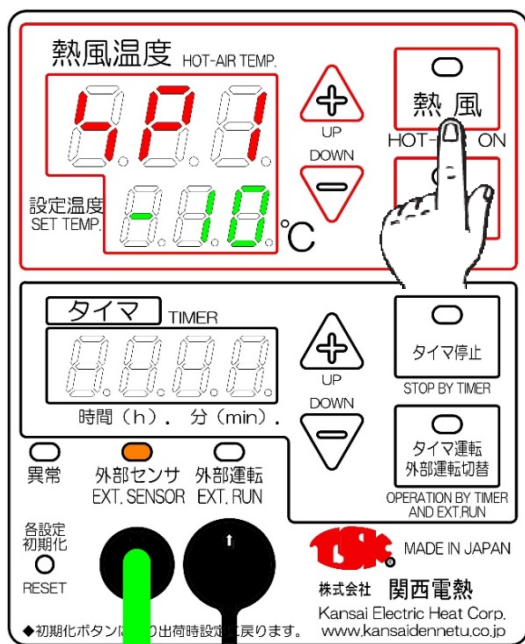
"PAo" is displayed in the hot air temperature section, and "oFF." Is displayed in the set temperature section.



⑥ Press the hot air temperature up key once to turn the set temperature display to "ON".



⑦ Press the hot air switch once to display "SP1" on the hot air temperature display, and set the desired temperature ( $-5^{\circ}\text{C}$  to  $-10^{\circ}\text{C}$ ) with the hot air temperature up / down keys.



⑧ Press the hot air switch twice to return to the normal operation state, and press the hot air switch to start the hot air operation.

The hot air lamp (orange) lights up, the external sensor lamp (orange) blinks, and hot air operation starts.

When the sensor temperature in the constant temperature bath reaches the set value, the multi-dryer stops operation, and then starts operation again when the temperature inside the tank drops to the set arbitrary temperature ( $-5^{\circ}\text{C}$  to  $-10^{\circ}\text{C}$ ). After that, the intermittent operation is continued in the same manner.

However, we do not switch from operation within 1 minute to stop and from stop to operation.

The hot air lamp blinks while the operation is stopped during intermittent operation (the external sensor lamp keeps blinking).

To cancel the intermittent operation, return to the state of ⑤ above (PAo oFF).



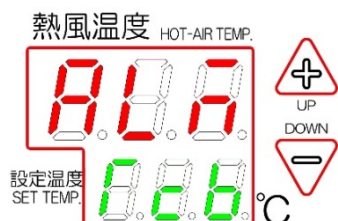
## 5. Each abnormality indication

- When the multi-dryer is abnormal, the details of each abnormality are displayed and the operation is stopped (only the internal temperature abnormality is in the ventilation operation state). Be sure to remove the abnormality and then restart the operation by turning on the power switch again. (Depending on the abnormality, it may be possible to recover with the stop switch. Also, only the overheat for detecting the temperature of the heater case will be manually restored.) ..

### ① OVERHEAT

(For detecting the temp inside the heater)

When the inside of the heater becomes abnormally high temperature, the abnormal lamp (red) lights up, "ALM" flashes in the hot air temperature section, and "Tcb" flashes in the set temperature section.



#### 《MAIN CAUSES》

Insufficient air volume due to clogging of the suction port filter, excessive resistance on the discharge side, etc.

### ② OVERHEAT

(For heater case temp sensing)

When the heater case becomes abnormally high temperature, the abnormal lamp (red) lights up, "ALM" flashes in the hot air temperature section, and "TPb" flashes in the set temperature section.



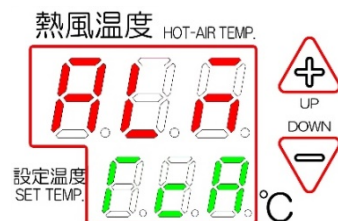
#### 《MAIN CAUSES》

Air volume supply stopped due to clogging of the intake filter, excessive resistance on the discharge side, lock of the blower, etc.

※Please contact us for manual recovery.

### ③ OUTLET TEMP UPPER LIMIT

When the discharge temperature exceeds the upper limit, the abnormal lamp (red) lights up, "ALM" flashes in the hot air temperature section, and "TcA" flashes in the set temperature section.

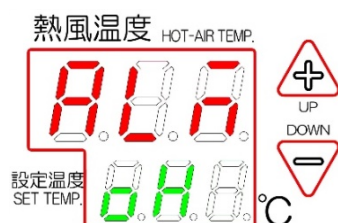


#### 《MAIN CAUSES》

Clogged suction port filter, insufficient air volume due to excessive resistance on the discharge side, or exceeding the upper limit of the discharge port temperature when using an external sensor

### ④ Abnormal temperature inside multi-dryer

When the internal temp of the multi-dryer rises above + 65°C, the abnormal lamp (red) flashes, "oh" flashes in the hot air temp section, and "ALM" flashes in the set temp section.

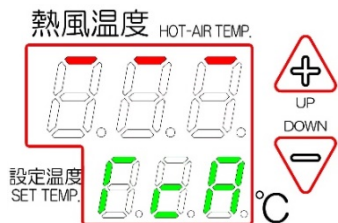


#### 《MAIN CAUSES》

The ambient temp is high, the hot air leaking from the outlet flows back into the operation panel, and the effect of heat dissipation from the furnace body due to the installation on the top of the furnace body, etc.

### ⑤ OUTLET SENSOR BURNOUT

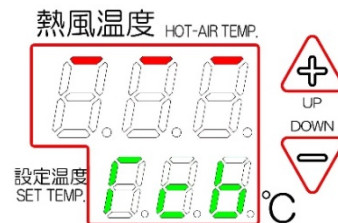
If the outlet sensor is disconnected, the abnormal lamp (red) flashes, "—" flashes in the hot air temp section, and "TcA" flashes in the set temp section.



※ Please turn off the power and request repair.

### ⑥ OVERHEAT PREVENTION SENSOR BURNOUT

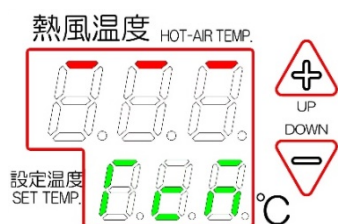
If the overheat prevention sensor is disconnected, the abnormal lamp (red) flashes, "—" flashes in the hot air temp section, and "Tcb" flashes in the set temp section.



※ Please turn off the power and request repair.

### ⑦ Multi-dryer internal temp sensor burnout

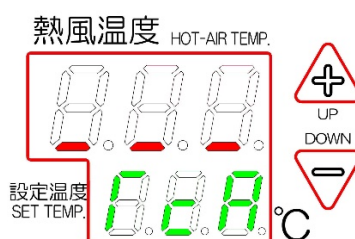
If the internal temp sensor of the multi-dryer is disconnected, the abnormal lamp (red) flashes, "—" flashes in the hot air temp section, and "TcM" flashes in the set temp section.



※ Please turn off the power and request repair.

### ⑧ outlet sensor minus display

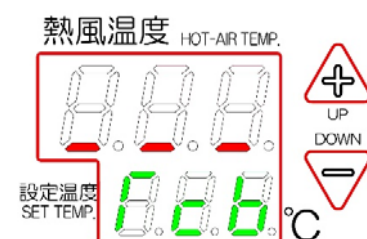
When the outlet sensor temp drops below -15°C, the abnormal lamp (red) flashes, "—" flashes in the hot air temp section, and "TcA" flashes in the set temp section.



※ After checking the installation ambient temperature, if it does not improve, please contact us for repair.

### ⑨ Overheat prevention sensor minus display

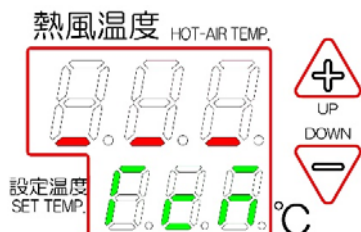
When the overheat prevention sensor temp drops below -15°C, the abnormal lamp (red) flashes, "—" flashes in the hot air temp section, and "Tcb" flashes in the set temp section.



※ After checking the installation ambient temperature, if it does not improve, please contact us for repair.

# ⑩ Internal temp sensor minus display

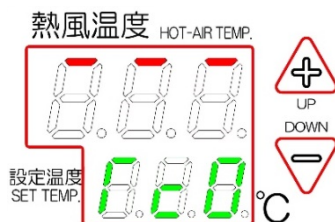
When the internal temp sensor temp drops below  $-5^{\circ}\text{C}$  the abnormal lamp (red) flashes, "—" flashes in the hot air temperature section, and "TcM" flashes in the set temp section.



※ After checking the installation ambient temperature, if it does not improve, please contact us for repair.

# ⑪ EXTERNAL SENSOR BURNOUT (OPTION)

if the external sensor is disconnected, the abnormal lamp (red) lights up after the hot air temp value is indicated to  $380^{\circ}\text{C}$ , "—" is set for the hot air tem section, and "Tc0" is set for the set temp section. Flashes.



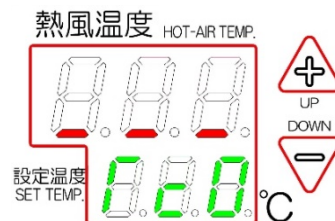
## 《MAIN CAUSES》

External sensor disconnection, compensation lead wire disconnection, loose connection, unconnected, etc.

※After the external sensor malfunction is improved, the operation can be resumed with the stop switch.

# ⑫ EXTERNAL SENSOR MINUS DISPLAY (OPTION)

When the external sensor temp drops below  $-15^{\circ}\text{C}$ , the abnormal lamp (red) flashes, "—" flashes in the hot air temp section, and "Tc0" flashes in the set temp section.



※ After checking the installation ambient temperature, if it does not improve, please contact us for repair.

# ⑫ Blower abnormality (HAS-37T、47Tのみ)

When the temp of the blower motor becomes abnormally high, the abnormal lamp (red) flashes, "ALM—" flashes in the hot air temp section, and "bL" flashes in the set temp section.



## 《MAIN CAUSES》

Bearing wear, abnormal voltage (voltage other than rated), piping with large pressure loss, etc.

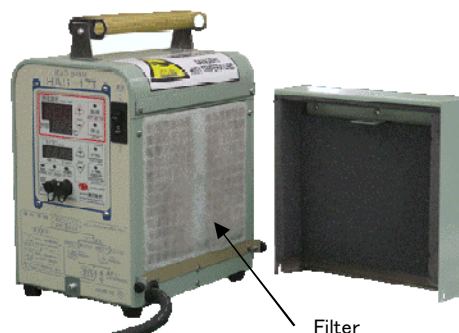
caution: Be sure to shut off the main power supply (factory power supply) when checking or reworking wiring when abnormality.

## 6. Filter Exchange

- Replace the filters of the multi-dryer HAS-17T to 47T as the outlet air volume decreases. The replacement filter is stored inside the muffling box (5 sheets are included at the time of shipment).

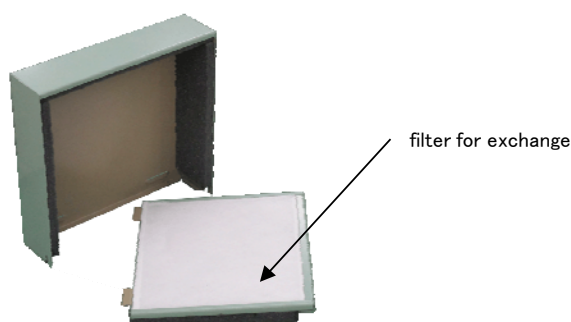
### 《THE WAY OF FILTER EXCHANGE》

- ① Loosen the two knurled screws at the bottom of the muffling box.
- ② Remove the mute box and remove the filter.



- ③ Take out the replacement filter stored inside the muffling box and attach it to the main body.

※ For replenishment, please purchase spare filters HAS-TF and HAS-43TF (1 set of 10 sheets).

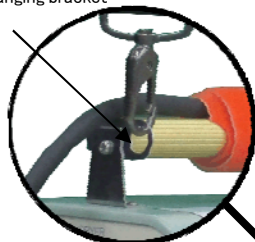


caucion : Never operate with the filter removed. If you inhale dust, the blower will break down.

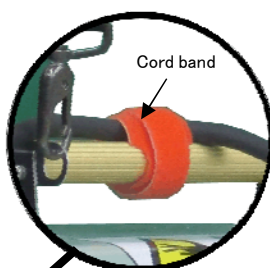
## 7. When using as a shoulder type

- Multi-dryers HAS-17T, 27T, 37T are equipped with hanging brackets for shoulder belts for use as shoulder type. By attaching a commercially available shoulder belt, you can carry the multi-dryer on your shoulder and use it for spot drying and heating.

Hanging bracket



Cord band



Attach a commercially available shoulder belt to the hanging brackets (2 places) on the handle of the multi-dryer.

※Select a shoulder belt with a load capacity of about 10 kg.



When using it for carrying around, tie the power cable to the handle with a cord band, and be careful not to put a load on the power cable.

### 《ATTENTION》

Do not operate with the power cable bundled. The power cable generates a lot of heat and may cause damage.



## 8. Maintenance and inspection

### ● Inspection of suction port filter

The intake port of the multi-dryer is equipped with a filter. Always inspect the suction filter and clean it regularly. If the filter is clogged, the temperature inside the heater case becomes abnormally high, causing overheating or abnormal temperature.

### voluntary inspection

In order to use this machine more safely, we recommend that you carry out a self-inspection if the usage period exceeds 10 years.

#### 【voluntary inspection point】

- insulation resistance value
- heater current value
- Tightening inspection of each terminal block
- Inspection and cleaning of foreign matter inside the operation panel
- Inspection and cleaning of foreign matter inside the main body and suction port
- Operation of electrical parts and heat generation inspection
- Other visual inspection

※ For self-inspection, ask the nearest electrician.

caution : Never perform an insulation withstand voltage test on this machine (already done at the time of shipment). It may cause a malfunction.



HOT AIR GENERATOR

manufacturer



KANSAI ELECTRIC HEAT CORP

5-CHOME 4-18, TAKAIDANISHI  
HIGASHIOSAKA CITY OSAKA 577-8566  
JAPAN

PHONE (06) 6785-6001(代) FAX (06) 6785-6002

HP [www.kansaidennetsu.co.jp](http://www.kansaidennetsu.co.jp)