This instruction manual must be delivered to the end user.

your rec

4･Supplement-002

Date Created: November 2022

T.S.K Heat Exchanger NSAC/NSAS Series

Instruction Manual

● Be sure to read before use.

◆ Thank you for purchasing the Heat Exchanger NSAC/NSAS Series.
◆ Please verify that the model number on the nameplate matches the product you ordered.

Heat Exchanger NSAC Series (Copper Specification)

- NSAC20-4-75
- NSAC40-8-100
- NSAC60-12-125
- NSAC40W-16-150
- NSAC60W-24-200

Heat Exchanger NSAS Series (SUS Specification)

- NSAS20-4-75
- NSAS40-8-100
- NSAS60-12-125
- NSAS40W-16-150
- NSAS60W-24-200

HIGH TEMPERATURE HOT AIR GENERATOR ®

Kansai Electric Heat Co. Ltd.

1. Installation

- When moving or installing the heat exchanger unit, securely attach the "lifting brackets (set of 2)" enclosed in the instruction manual pouch to the top surface of the unit to safely lift and move the unit.※Refer to the attached leaflet for installation instructions.

- If moisture is present in the exhaust from the furnace on the heat dissipation side, condensation will form inside the heat exchanger. In this case,drain valve at the heat-emitting side outlet.
  To efficiently drain moisture from inside the heat exchanger, we recommend installing the heat exchanger in a 'vertical position'.

① When installing the heat exchanger vertically, there are restrictions on the mounting direction.

② Use mounting brackets to install it in any desired position.

The surface of the heat exchanger may become hot depending on usage conditions (maximum temperature approximately 150° C). Always ensure a gap between the mounting bracket and the contact surface using the mounting bracket (do not install directly without using the mounting bracket).

《Installation Method》

- For Vertical Installation
  Install the unit with the cover bearing the nameplate sticker (heat dissipation inlet/heat absorption outlet) facing upward.
  the mounting brackets on both sides of the lower cover as shown in Figure 1.
- For horizontal installation
  Install the mounting brackets on the lower sides of both end surfaces as shown in Figure 2.

③ The top surface of the installed heat exchanger becomes particularly hot. Take sufficient care to prevent the accumulation of dust, etc. This can cause a fire.

④ Although the exterior of the unit is insulated, the surface may become hot depending on usage conditions. Do not install near combustible materials. Also, avoid direct contact with your hands. This could cause fire or burns.

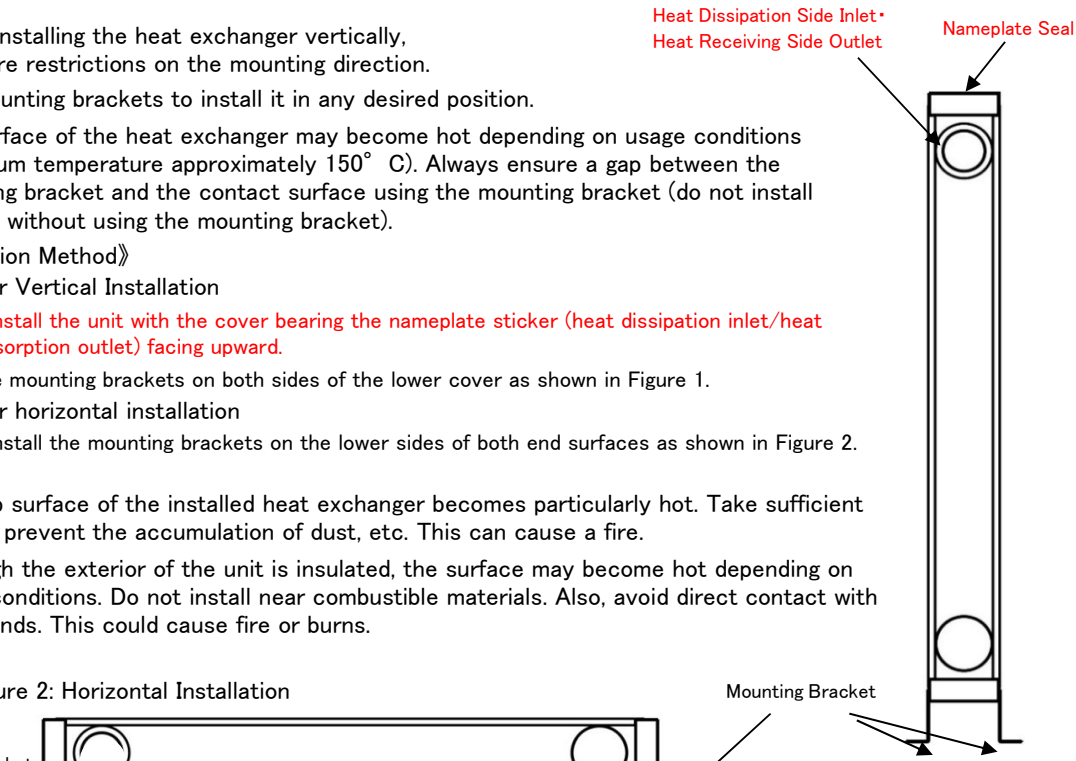


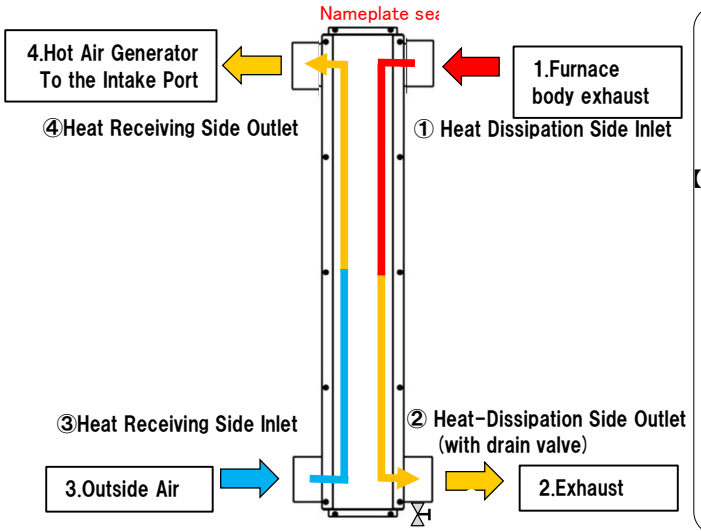
Figure 2: Horizontal Installation

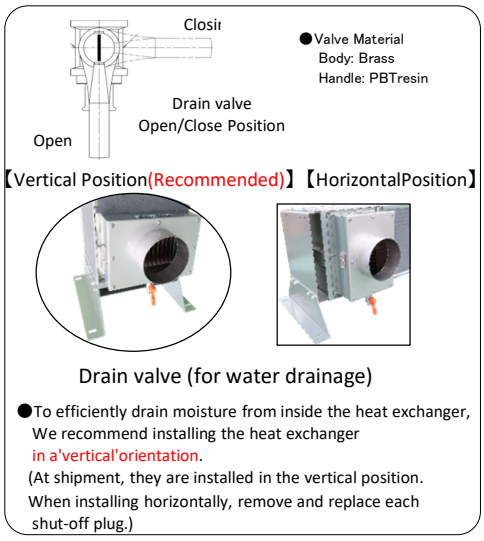
Figure 1: Vertical Installation

2. Piping

① Ensure piping is correctly connected to the heat dissipation side and the heat receiving side.

1. Exhaust air from the furnace body → ① Heat dissipation inlet	2. From the heat dissipation side outlet (with drain valve) → 2. Exhaust
3. Air for heating purposes (e.g., outside air) → ③ Heat-receiving side inlet	4. From the heat-receiving side outlet → 4. Hot air generator inlet (exhaust heat recovery)





② Ensure all piping connections to the heat dissipation side and heat absorption side are tight and secure to prevent air leaks.

③ Install piping as short as possible, considering pressure loss and heat dissipation.

3. Precautions for Use

① ●Operate each heat exchanger at or below its rated airflow capacity. Operating at airflow exceeding the rated capacity may reduce heat exchange efficiency or cause excessive pressure loss, potentially affecting the heat source or other components.

② ●Consider both the pressure loss on the heat-discharging side and the pressure loss on the heat-receiving side during operation. When a single air supply source serves both the heat-discharging and heat-receiving sides, the required pressure must account for the combined pressure loss of both sides.

③ ●When installing a heat exchanger on the exhaust side of equipment like drying ovens, pressure loss may reduce the air supply volume to the oven. If the existing air supply source cannot compensate for the heat exchanger's pressure loss, consider adding an exhaust fan.

④ The maximum operating temperature for exhaust supplied to the heat exchanger is 180° C for the NSAC Series (copper specification) and 200° C for the NSAS Series (SUS specification). Do not supply temperatures exceeding these limits, as this may cause damage to internal sealants and other components.

⑤ Silicone is used for the heat exchanger's seals and gaskets. Do not supply high-concentration gases or organic solvents that adversely affect silicone. This may cause damage to internal seals and gaskets.

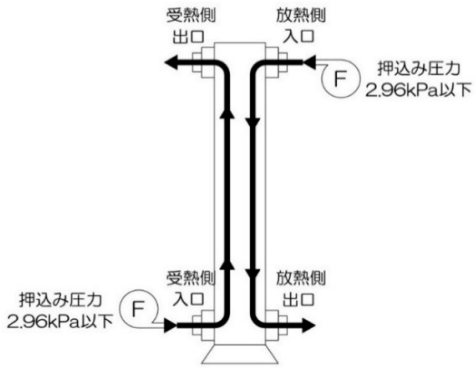
⑥ Ensure that gas flow pulsations within the piping connected to the heat exchanger (heat dissipation side/heat absorption side) are minimized as much as possible, for example, by adjusting damper openings. Significant

⑦ A drain valve is installed at the outlet of the heat exchanger's heat dissipation side. If moisture is present in the furnace exhaust, be sure to drain it. To efficiently remove moisture from inside the heat exchanger, we recommend installing the heat exchanger in a vertical position.

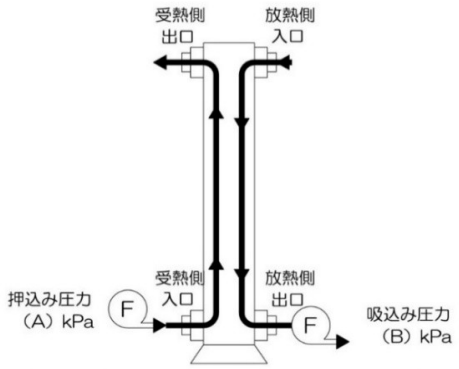
⑧ Due to its sheet metal construction, the heat exchanger may exhibit slight air leakage.

＜熱交換器本体ご使用時の耐圧条件例＞

1. 放熱・受熱両側共に押込みの場合

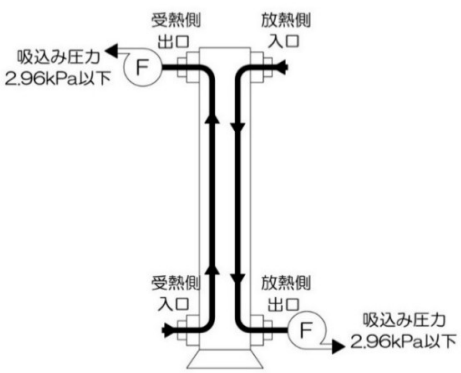


3. 放熱側吸込み、受熱側押込みの場合

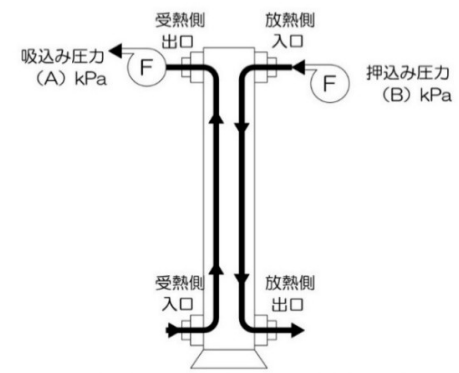


(A) と (B) の圧力差が2.96kPa以内になる事

2. 放熱・受熱両側共に吸込みの場合



4. 放熱側押込み、受熱側吸込みの場合



(A) と (B) の圧力差が2.96kPa以内になる事

※熱交換器本体の耐圧は2.96kPaです。

◆ Please pay particular attention to this.

If foreign objects, accumulated dust, or oil contaminants enter the heat exchanger, it cannot be disassembled for cleaning.
Therefore, if the exhaust air supplied to the heat exchanger or the outside air contains dust, install appropriate filters for each.

《Recommended Filters》

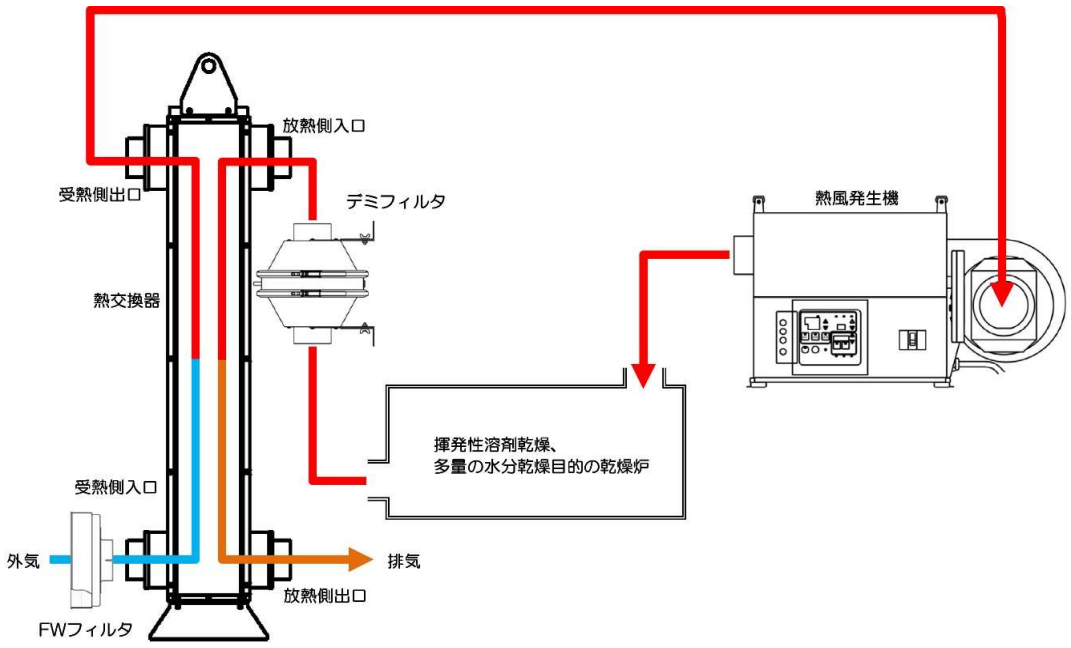
- Heat Dissipation Side Inlet (I → DEMI filter, or DEMI filter + disposable filter

NSAC (NSAS) 20-4-75	:	DF-S22S + F-22P
NSAC (NSAS) 40-8-100	:	DF-S41S + F-41P
NSAC (NSAS) 60-12-125	:	DF-S55S + F-55P
NSAC (NSSA) 40W-16-150	:	DF-S81S + F-81P
NSAC (NSSA) 60W-24-200	:	DF-S91S

- Heat Receiving Side Inlet (O → One-way FW Filter

NSAC (NSAS) 20-4-75	:	FW75
NSAC (NSAS) 40-8-100	:	FW100
NSAC (NSAS) 60-12-125	:	FW125
NSAC (NSSA) 40W-16-150	:	FW150
NSAC (NSSA) 60W-24-200	:	Please inquire.

4. Basic Usage Examples



《Caution》

●Install piping as short as possible, considering pressure loss and heat dissipation.

● If recovered exhaust heat contains sulfur components, its concentration and temperature range may create a highly corrosive environment,causing sulfuric acid corrosion on heat exchanger walls as low-temperature acid corrosion.

Hot Air Generator, Manufacturer and Distributor

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