Flow-Switching Automatic Damper

NTAD Series Instruction Manual

Kansai Erectrc Heat Corp.

OP-011 Created: November 2017

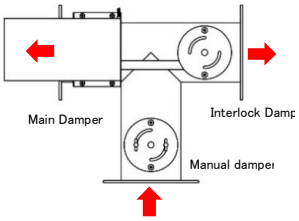
1. Specifications and Structure

- Rated Voltage: DC 24V (Current consumption: 1A or
- Output Shaft Torque: 1.96 N·m
- Rotation Time: 3 seconds/90° (Adjusted at factory to fully open main damper and fully close interlock dampe
- Drive Unit Ambient Temperature Range: −5° C to +40° C (must not freeze), however, the air contact section's heat resistance temperature is 250° C
  (For drive units installed below horizontal, air contact parts: 350° C)
- Operating ambient humidity: 85% R.H. or less
- Expected life: Approximately 100,000 cycles
- Material: SUS304 (Gas-contacting parts)

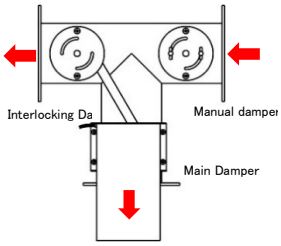
※ Recommended maximum airflow velocity: 15 m/s or less. Note: Airflow cannot be completely blocked even when fully closed.

- There are three flow direction switching patterns.

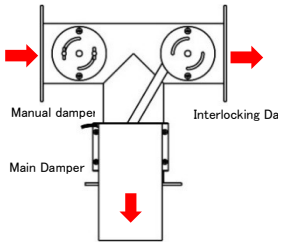
NTAD□-X Type



NTAD□-Y Type



NTAD□-Z Type



※ The flow path X, Y, and Z types can each be changed arbitrarily.

2. Installation

① The flow direction switching automatic damper has no installation direction restrictions. It can be installed in any direction.

② Depending on the type, the flow-switching automatic damper has a specific direction for airflow. Always route airflow from the manual damper side and branch it to the main damper and interlocked damper sides.

③ Securely mount the flow-switching automatic damper using the three flanges.

④ Install the flow-switching automatic damper in an environment with an ambient temperature of −5° C to +40° C. Do not install it outdoors where it will be exposed to wind and rain, in corrosive atmospheres, explosive atmospheres, or flammable atmospheres.

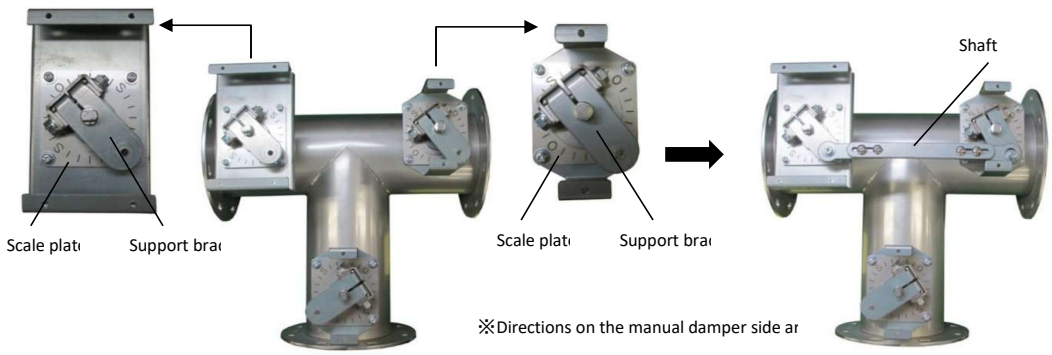
⑤ The fluid supplied to the flow-switching automatic damper must be a gas with a temperature range of 0° C to 250° C (do not supply liquids, steam, etc.). Furthermore, gas up to 350° C can be supplied only when the drive section is oriented downward from the horizontal.

⑥ paths X-type, Y-type, and Z-type can each be changed arbitrarily(each damper section includes two stacked scale plates and one spare scale plate).

《Flow Path Change Method》

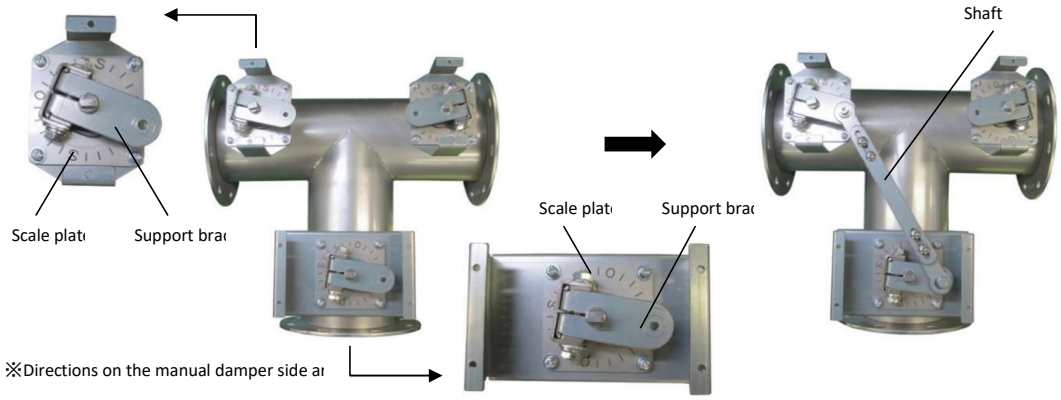
- To change to X-type

  Set the support brackets and scale plates for the main damper and linked damper as shown in the photo below, install the shaft, then reassemble.



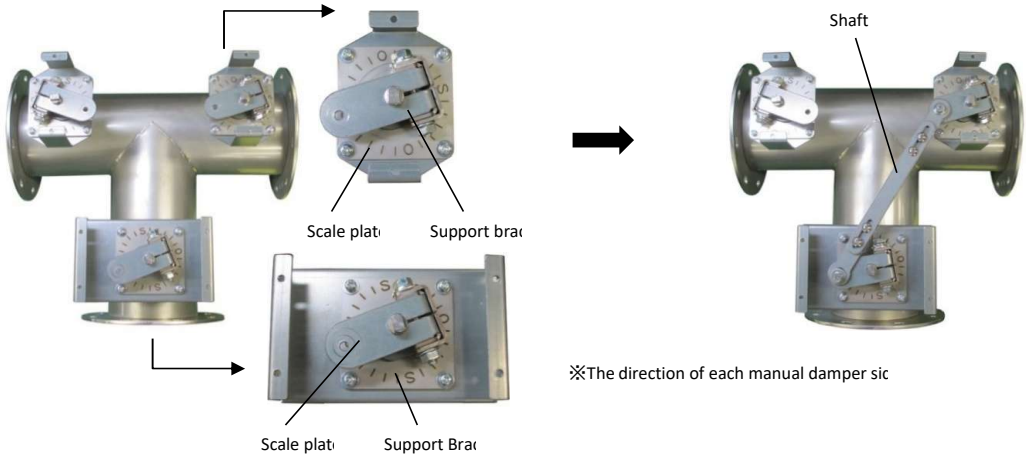
● When changing to Y Type

Set the support brackets and scale plates for the main damper and linked damper as shown in the photo below, install the shaft, then reassemble.



● When changing to Z Type

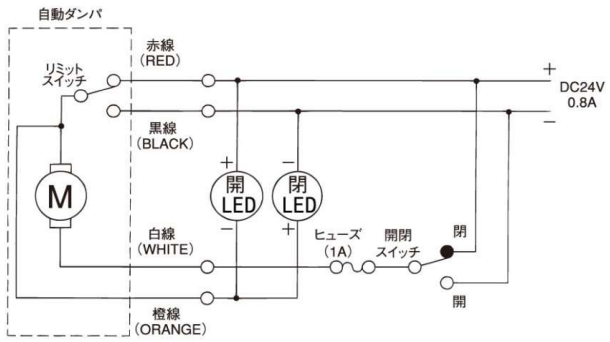
Set the support brackets and scale plates for the main damper and linked damper as shown in the photo below, install the shaft, then reassemble.



3. Wiring

①Assemble the automatic damper circuit according to the connection diagram below.

《Connection Diagram》



※ Do not switch the DC power supply or stop it during damper opening/closing operation (always maintain the open/close signal for at least 3 seconds).

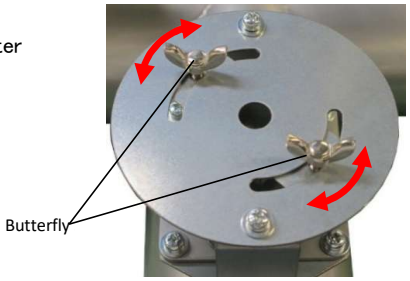
- With the main damper closed and the linked damper open, supplying DC 24V to the red wire (+) and white wire (−) will cause the main damper to open, the linked damper to close, and the limit switch to switch to the black wire side.
- When DC 24V is supplied to the white wire (+) and black wire (−) while the main damper is open and the linked damper is closed, the main damper closes, the linked damper opens, and the limit switch switches to the red wire side.
- The orange wire is used to display the main damper's open/close status via an LED with polarity.

《Caution》

To protect the damper, always incorporate a fuse (AC125V/250V 1A) into the drive circuit. Failure to incorporate a fuse, or incorporating a fuse exceeding 1A, may result in the damper not being protected and potential damage to the motor section.

4. Manual Damper Opening/Closing Method

- Loosen the two wing screws at the top of the manual damper section. Hold the wing screws to open or close the damper. After adjusting the opening/closing angle, securely tighten the wing screws again.

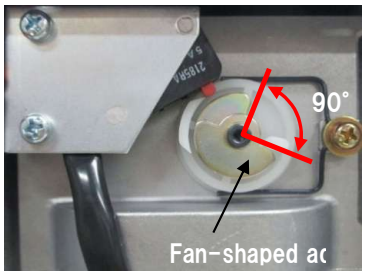


5. Main Damper and Interlock Damper Opening Angle Adjustment Method

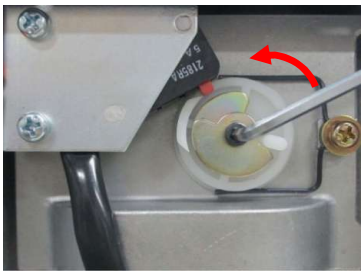
- At shipment, the opening/closing angles of the main damper and linked damper are adjusted to fully open – fully closed (90°).
  The opening/closing angles of the main damper and linked damper can be adjusted as needed.

《Damper Opening/Closing Angle Adjustment Method》

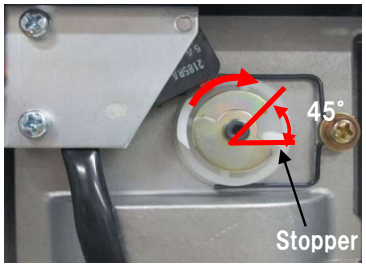
① Open the motor cover. The angles of the upper and lower fan-shaped adjustment cams are set to 90° .



② Loosen them counterclockwise using a hex wrench (2.5 mm).

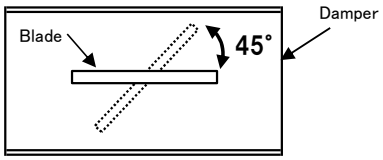


③ While keeping the upper cam against the stopper, adjust only the lower cam to the desired angle.



④ After setting the angle, tighten securely with a hex wrench. The adjusted cam angle determines the damper opening/closing angle.

〈Damper Opening/Closing Angle at 45° Adjustment〉



6. Precautions for Use

① The opening/closing status of each damper can be confirmed
O → Fully Open S → Fully Closed

② If the damper becomes difficult to open or close over time, apply silicone grease to the friction points.

Hot Air Generator

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rer
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