



# Installation Instructions

## VAV Piping Package

June 2023

VAV-SVN012D-EN

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### Warnings, Cautions, and Notices

Read this manual thoroughly before operating or servicing this unit. Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

#### ⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

#### ⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

#### NOTICE

Indicates a situation that could result in equipment or property-damage only accidents.

### Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

### Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

#### ⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

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#### ⚠ WARNING

##### Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

#### ⚠ WARNING

##### Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.

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#### ⚠ WARNING

##### Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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### General Information

1. Clean the lines of all foreign material, (welding slag, pipe scale, dirt, thread chips, etc.). Upstream installation of a strainer may be necessary in dirty systems.
2. Air should be eliminated from the system prior to startup to assure quiet operation and freedom from water hammer.
3. Flow control valves may be installed horizontally, vertically or any angle in between. Additional straight sections of pipe upstream or downstream of the automatic flow control valves are unnecessary for proper operation.
4. Standard reducing bushings or flanges may be directly connected to the hose ends if required.
5. The ATC actuator may be mounted above or along side of piping but must never be mounted where condensation can accumulate or come in contact with electrical or mechanical components.

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6. Automatic control valves are marked with direction of flow. Automatic valves will be labeled with the GPM and the water valve Cv.

**Important:** The arrow must point in the direction of flow for proper operation.

7. Automatic flow control valves must be located in the RETURN Line.

## Installation

1. Field threaded connections are made with the inch series NPT threads in accordance with ANSI STD B1.20.1 and are intended for use in building services piping meeting the requirements of ASME B 31.9.
2. Determine which is the supply section and which is the return section. The strainer is only on the supply side. Flow controls and the proportional water valve are only on the return side.
3. Apply thread sealant to pipe threads, starting with the second or third thread from the end.

**Important:** If factory applied thread sealant is present, DO NOT ADD ADDITIONAL SEALANT.

4. Torque the connection to 75 ft-lbs per inch of pipe size minimum.  
Example: 1/4", 0.25 x 75 = 19 ft lb Min
5. Rotate the components having pressure/temperature ports or pressure taps so they are not pointing down.
6. Sweat connections according to the following information:
  - a. Coil sweat fitting valves have their end connections formed to ANSI STD B16.22 requirements and are intended for use in building services piping meeting the requirements of ASME B 31.9.
  - b. The temperature/pressure rating of the solder joint is dependent upon the type of solder used. ANSI STD B16.22 pressure ratings should be reviewed prior to selecting a solder and sweating.
  - c. UNIONS, UNION END PIECES ON VALVES AND THREADED SWEAT ADAPTERS ARE SHIPPED LOOSE AND **SHOULD BE UNATTACHED DURING SWEATING.**
  - d. O-rings in the union end pieces must be removed and stored on the valve handle or on a nearby PT fitting during the sweating operation.
  - e. Ball valves must be in the closed position during sweating.

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- f. The outside of the tubing, and the inside of the fitting are to be mechanically cleaned and then lightly coated with solder flux.
- g. The tube is then inserted one diameter into the fitting and the **CENTRAL PORTION OF THE VALVE BODY WRAPPED WITH A WET RAG, WET SPONGE OR HEAT ABSORBING PUTTY.**
- h. Heat is never to be applied to the automatic temperature control valve body, without first removing all plastic parts and actuators.
- i. Valves without removable parts are to be set to the open position to prevent thermal damage.
- j. Heat may be applied, either to the tubing or to the end of the fitting so as to achieve solder flow.
- k. When the parts have achieved the necessary temperature; solder is to be added to the joint and the joint allowed to cool.
- l. The heat is to be applied for the shortest time possible, and never directly to the area where the solder is being applied.
- m. The internal parts of the piping packages are capable of continuous use at 300°F, but will be quickly damaged at higher temperatures.
- n. When soldering vertical assemblies care must be taken to prevent excess solder from dripping into the valve.
- o. Heat discoloration from the sweating operation should not extend to the major diameter of the valve body.
- p. If disassembled, the valve must be reassembled in the reverse order, with all of the parts returned to their original positions.
- q. Automatic flow valves, strainers, and unions are equipped with o-ring seals in the union connection. These seals provide reliable, easy to use connections, but care must be taken to prevent damage during installation.
- r. Do not heat valve assembly with the o-ring in place. When installing, be sure the o-ring is fully seated in the channel and not twisted or misaligned.
- s. The seal is the last item installed prior to tightening the union nut. (The union nut is shipped loose on sweat fitting 2500 and 2400 series products.) Torque to the following values:
  - 80 ft-lbs. for the 2514/2405 products
  - 130 ft-lbs for the 2524/2407 products

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- t. If chlorinated flux has been used, all parts are to be flushed thoroughly to avoid premature corrosion failure.

7. Inspect installation for leaks, kinks, twists, sharp bends, stretching and chafing.

## Operation

1. For optimum operation, air entrapment in the system must be prevented. The flow control valve must remain filled with fluid. The system must be clean and free of foreign materials.
2. The piping packages must only be used with fluids that are compatible with iron, brass, santoprene and EPDM materials. The temperature during operation must be limited to the range of 32°F to 225°F.
3. Piping packages are fully compatible with ethylene glycol and propylene glycol with all concentrations.

## Maintenance

General maintenance is not required for piping packages. However, if the system experiences large amounts of pipe scale due to poor water conditions, as sometimes is found in older or retrofit systems, some maintenance may be required. Provisions should be made to keep the system clean. Proper water treatment is also recommended.

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