



Installation, Operation, and Maintenance

Trane Rental Services

Vertical Hoses



⚠ 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.



Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

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.

⚠ 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.**

⚠ 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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Revision History

- Updated General Information, Model Number Descriptions, and Installation chapter.
- Added Vertical hose box contents and weights table in Weights and Dimensions chapter.



General Information

Overview

The purpose of this IOM is to detail technical information, installation best practices, and contents within Trane Rental Services Vertical Hose Kits.

These hoses are useful for vertical applications (high-rise buildings) because of the ability to stretch and handle heavy water columns.

For application details or questions, contact Trane Rental Services.

Accessories

Hose

- **Material:** Nitrile rubber with through the weave construction
- **Temperature rating:** -5°F to 122°F
- **Maximum pressure rating:** 300 PSI
- **Fittings:** Standard 2.5-inch NH (NST) thread with aluminum coupling

Steel Piping

- **Manifolds:** 6-inch, schedule 40 steel pipe-includes eight manifolds, each with two 2.5-inch ports with isolation ball valves and 2.5-inch swivel NST x 2.5-inch external thread to internal thread NPT fittings
- **Transition elbows:** 2.5-inch schedule, 40 steel pipe-includes 1/2 in. ball valve for air venting
- **Couplings:** Victaulic brand 107N or 107V style
- **Blank Offs:** Victaulic brand number 50



Weights and Dimensions

Table 1. Approximate overall weight and dimensions of hose box

Total weight (lbs)	1,738
Length (in.)	91.5
Width (in.)	35
Height (in.)	35

Each 2.5-inch, 100-foot hose box contains the following:

Table 2. Vertical hose box contents and weights

Item	Qty	Dry Weight (lbs)
6-inch, Two port header/Manifold with drain(s) and air vents	8	62
2.5-inch Ball valves	16	6.8
50 ft. Section of water hose	16	28
10 ft. Section of water hose	8	8
2.5-inch x 2.5-inch NST external thread fittings	16	1.5
2.5-inch Swivel NST x 2.5-inch external thread NPT fittings	16	2.7
Akron hose and ladder straps	16	1
Roof hangover elbows (Four blue and Four red)	8	19
Blue victaulic couplings and gaskets	4	9
Red victaulic couplings and gaskets	4	9
Blue no. 60 victaulic 6-inch cap	2	6.4
Red no. 60 victaulic 6-inch cap	2	6.4

Each box is stenciled with a unique model number description. See the model number description. Boxes are designed for easy shipping and handling and manufactured to be moved with fork or pallet truck. To avoid potential charges for missing parts, check the bill of material inside each box. Notify Trane Rental Services immediately if any parts are missing.



Model Number Description

Digits 1, 2 — Rental Services Prefix

RS = Rental Services

Digits 3, 4 — Denotes Vertical Hose

VH = Vertical Hose

Digits 5, 6, 7, 8 — Indicates Manifold Size

0006 = Manifold Size

Digits 9, 10 — Design Sequence

F0 = Design Sequence

Digits 11, 12 — Incremental Designator

AA = Incremental Designator



Installation

This section provides the proper installation procedures for vertical hoses as part of a Trane Rental Services rental project. Read this section carefully prior to beginning the installation.

Important: *To minimize premature or catastrophic failure of this hose follow instructions in this section. Compliance with these instructions will minimize complaints and issues associated with vertical hose installation.*

Trane disclaims any and all liability for damages, injuries or costs resulting from installation, including, but not limited to, any failure to follow the instructions, cautions and warnings set forth herein.

NOTICE

Hose Damage!
Failure to follow instructions below could result in death or serious injury, and equipment damage.

NOTICE

Hose Damage!
Failure to follow instructions made lead to hose collapse and total system failure.
Hose must always be used in pressurized application. If a negative pressure application is required, hard suction pipe must be used.

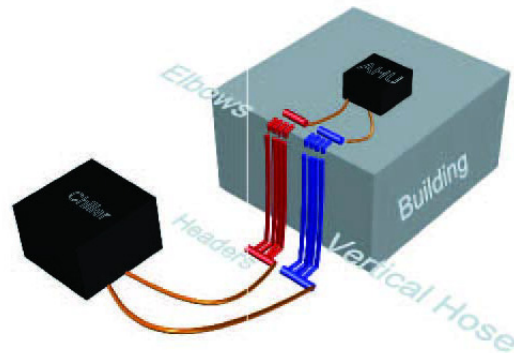
NOTICE

- **Hard pipe is recommended for indoor installations. Flexible hose can burst. Failure to follow this could lead to equipment or property damage.**
- **Do not support the hose ONLY by its couplings, support over half of the hose's length by ground or other supporting surface otherwise couplings clamps may fail.**
- **Do not cut hose to custom fit pieces This will affect the integrity of the hose.**
- **Bleed all air from system prior to pressurizing hose to avoid couplings separating from the hose.**

Before starting the installation of the hose kit, read the following and reference the vertical hose kit image below.

- Confirm the parapet wall where the roof hangover system (or elbows) will be located can withstand at least 1,000 to 4,000 pounds depending on the height of the installation.
- Pay special attention to confirm system pressure does not exceed the pressure rating of the components connected (TRS 6-inch orange hose and most chillers/pumps).
- Installations above 200 feet are not permitted. Contact TRS Engineering for installations above 200 feet, or with system pressures higher than 150 psi.
- Tie-offs must be provided at transition elbows and at every hose-to-hose joint suspended in air.
- Manifolds have two ports. If more than two are needed, join two separate manifolds to create four water line ports.

Figure 1. Installed vertical hose kit



1. Place the following parts at the highest point in the system (usually on the roof for high-rise applications).
 - Two, 6-inch headers
 - Eight roof hangover systems or elbows
 - One red and blue blank off plate/coupling
 - As many 10- or 50-foot sections of hose as necessary
2. Install a blank off plate on one side of each header.
3. On the other side of the headers install either 45° or 90° elbows.



Installation

- Join 6-inch hoses to the previously installed elbows.

Note: Run enough hose to reach the water supply connection.



- Connect 10-foot sections of hose to the long end of elbows shown below.



- Connect each end of the hoses to the respective ball valve attached to the 6-inch headers.



- On the short end of the elbows, install sufficient 50-foot sections of hose to reach to the bottom floor where the temporary equipment is located.
- Take the hose over the high-rise parapet wall and lower it slowly until it reaches the bottom floor.
- Place elbows on parapet walls and secure them to a nearby load bearing member using the hose straps provided.



- Once the 50-foot sections of hose reach the ground floor, join hose couplings to each ball valve on 6-inch headers.



- To finish installation, add blank off plates on each end of the headers. Hard pipe or run flexible hose into the chiller inlet and outlet connections. See hard pipe and flexible hose in the following images.



13. Each vertical hose kit includes eight, 0.5-inch vent valves located on each elbow. See below.



Pressure Loss

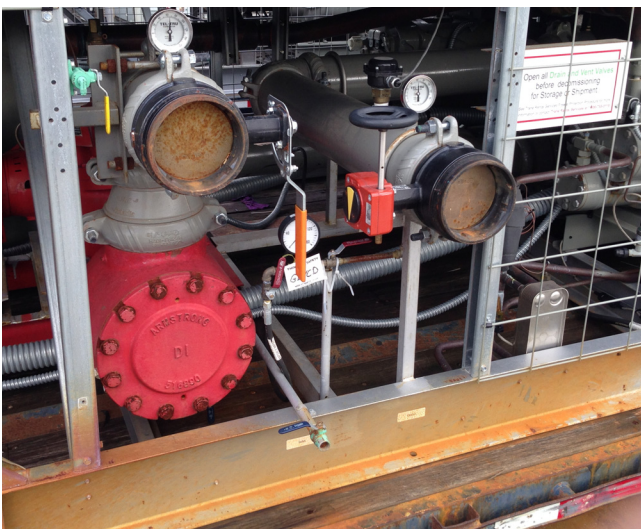
The following table details pressure losses inherent to the vertical hose.

Table 3. Pressure loss (in psi) per 100 feet of vertical hose

Hose Diameter	2.5 in.
Inlet Pressure	150 psi
Flow rate (gpm)	Pressure Loss (psi) per 100 feet of hose
100	3
200	12
300	27
400	49

Important: It is recommended to start filling the system from the bottom using the chiller ½ NPT water connection.

12. As water is filling up the system, use the chiller vent valves (painted green) to bleed air out of the system.





Notes

Trane - by Trane Technologies (NYSE: TT), a global climate innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

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