

3-19-24 7#3



3/15/2024
Woodbury County Law Enforcement
407 7th. Street
Sioux City Ia. 51102
sholden@woodburycountyiowa.gov

Dear Steve,
CW Suter will provide a 120 ton temporary chiller including the following.

- Trane 120 ton chiller on a flat bed trailer
- Delivery/pickup.
- Set up/tear down.
- Start up by Trane.
- Insurance on chiller.
- First month rental.

Your investment for the items listed above will be \$36,000.00

Each additional monthly rental and insurance will be \$15,445.00

- The rental chiller will come with a power cord that will need to be connected/disconnected by an electrician of your choice. (See attached electrical requirements). Electrician is not included in this quote – Electrician will invoice you for his work.
- We will connect temporary chiller piping to the building chilled water system and fill it with water. There is no glycol for temporary unit included in this price.
- Insulation of piping or temporary piping is not included.
- Rental chiller will be located in the alley on the east side of the building with the chilled water piping running up the side of the building across the roof and into the mechanical room through the air vent opening on the side wall.
- Coil washing/maintenance on temporary chiller is not included.
- These prices are tax exempt.

Thank you for the opportunity to quote this repair.

Jim Toben
CW Suter Service
712-389-4537

A handwritten signature in black ink that reads "Jim Toben". The signature is fluid and cursive, extending across the width of the text area.

Heating and Cooling • Temperature Control • Commercial Plumbing • Sheet Metal
1800 11th Street • Sioux City, IA 51101 • Business (712) 252-3007 • Fax (712) 252-2410



120 ton Air-Cooled CGAM

General - CSCA0120F0-F3

| | |
|---|----------------|
| Model Number | CGAM120 |
| Nominal tons | 120 |
| Refrigerant | R410A |
| Refrigerant Charge ¹ | 86 lb |
| Microchannel Refrigerant Charge ² | 50 lb |
| Water Connection Size | 6 in Victaulic |
| Ambient Operating Conditions | 0 – 125°F |
| Extreme Low Ambient Operating Conditions ³ | -20°F – 125°F |
| Chilled Water Setpoint Limits ⁴ | 0 – 65°F |
| Number of Electrical Circuits | 1 |
| Number of Refrigerant Circuits | 2 |

¹The listed refrigerant charge is per refrigeration circuit for all round tube and plate fin condenser coils.

²The listed refrigerant charge is per refrigeration circuit for all extreme low ambient Microchannel condenser coils.

³For CGAM models with Microchannel condenser coils.

⁴When leaving solution is below 42°F a glycol solution is required for all low temperature and ice-making applications.

Electrical Data

| | |
|---|--------------|
| Voltage | 460V 3-phase |
| Frequency | 60 Hz |
| F0 Power Supply Connections ^{5,6} – Lugs or Series 16 Cam-Type Connections | |
| F2-F3 Power Supply Connections ⁶ – Series 16 Cam-Type Connections Only | |

⁵Maximum Wire Size Lug(s) Can Accept - 350 MCM

⁶Depending on chiller MCA and wire used, multiple wires per phase may be required.

Without Integral Pump

| | |
|--|-------|
| Minimum Circuit Ampacity (MCA) | 244 A |
| Maximum Overcurrent Protection (MOP) | 250 A |
| Full Load Amps (FLA) | 230 A |

With Integral Pump

| | |
|--|-------|
| Minimum Circuit Ampacity (MCA) | 271 A |
| Maximum Overcurrent Protection (MOP) | 300 A |
| Full Load Amps (FLA) | 257 A |

For additional electrical information contact Trane Rental Services.

Pump Data

| | |
|------------------|---------------------|
| Horsepower | 20 HP |
| Min Flow | 91.3 gpm @ 166.6 ft |
| Max Flow | 380.5 gpm @ 123 ft |

Pump is mounted within the chiller frame with a bypass and shall be controlled by the chiller's standalone control system if not connected to end user's building automation system.

Cooling Capacity (Tons)

| Leaving Water Temp | Propylene Glycol (%) | Estimated Capacity (Tons) at 2.4 GPM / Nominal Ton | | | | |
|--------------------|----------------------|--|-------|-------|-------|-------|
| | | Ambient Air Temp | | | | |
| | | 85°F | 95°F | 105°F | 115°F | 125°F |
| 65°F | 0 | 169.7 | 158.1 | 146.3 | 134.6 | N/A |
| 55°F | 0 | 147.5 | 137.5 | 127.1 | 116.7 | N/A |
| 45°F | 0 | 126.1 | 117.6 | 108.7 | 99.6 | 90.5 |
| 35°F | 15 | 104.6 | 97.7 | 90.4 | 82.7 | 75.1 |
| 25°F | 25 | 85.1 | 79.6 | 73.7 | 67.4 | N/A |
| 15°F | 35 | 67.3 | 63 | 58.3 | N/A | N/A |
| 5°F | 45 | 52.4 | 49.1 | N/A | N/A | N/A |

Actual Tons of refrigeration in table above are based on chiller models with round tube and plate fin condenser coils.

Water Flow Rates & Pressure Drops

| Flow Rate (GPM) | Pressure Drop (FT H ₂ O) |
|-----------------|-------------------------------------|
| 136 (min flow) | 5.03 |
| 170 | 7.72 |
| 205 | 11.1 |
| 240 | 15 |
| 275 | 19.5 |
| 310 | 24.6 |
| 345 | 30.3 |
| 380 | 36.6 |
| 407 (max flow) | 41.9 |

Maximum water side pressure is 150 psi (2.31 ft H₂O = 1 psi)

120 ton Air-Cooled CGAM

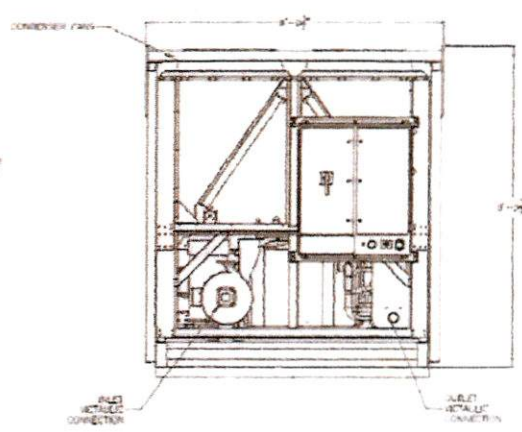
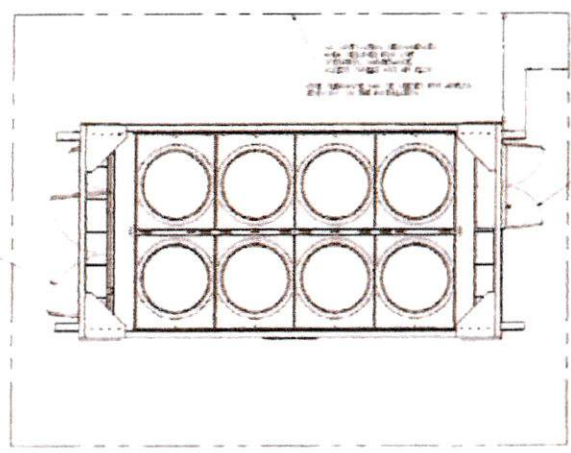
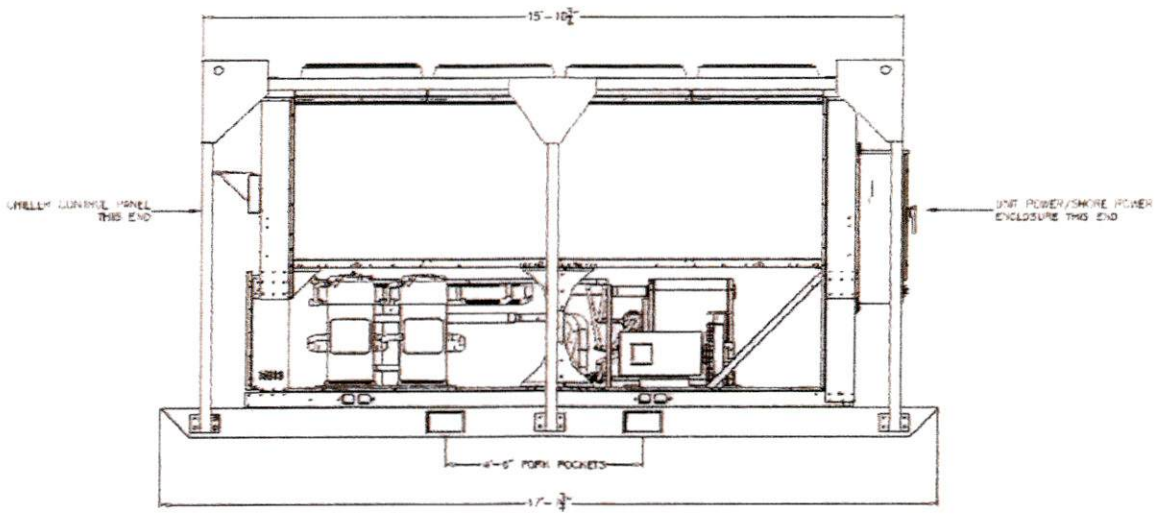
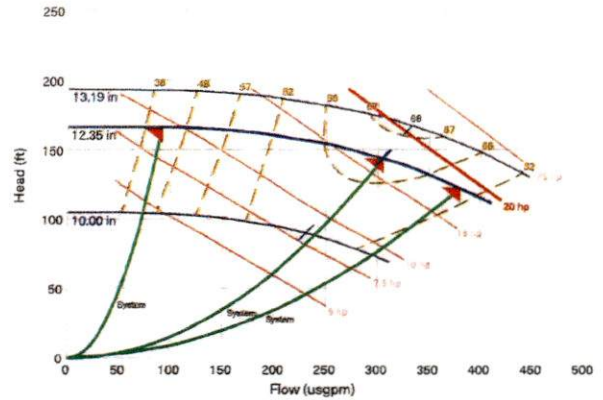
General - CSCA0120F0

Dimensions and Weights

| | |
|-------------------------------------|--------------------------|
| Length | 17' 8" |
| Width | 8' 1" |
| Height | 8' 6" |
| Shipping Weight (lbs) | 11,200 |
| Operating Weight (lbs) | 11,400 |
| Fork Pocket Dimensions | 9.25" x 5.25" x 7' 4.75" |
| Fork Pocket Cent to Center Distance | 4' 6" |

Lifting Device: Fork Lift or Crane

All weights and dimensions listed above are subject to change without notice or liability.





25 - 120 CGAM Chillers

120 ton Air-Cooled CGAM

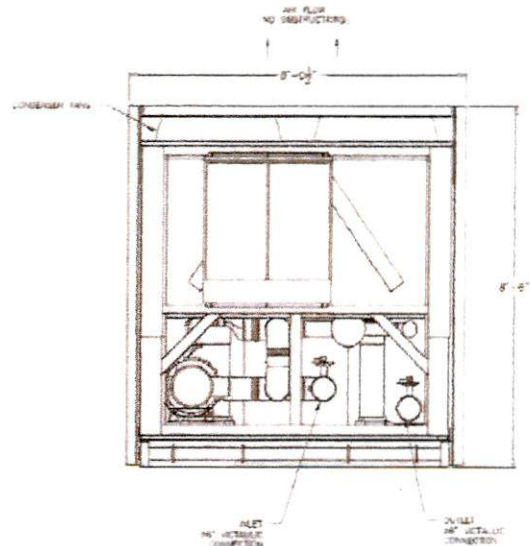
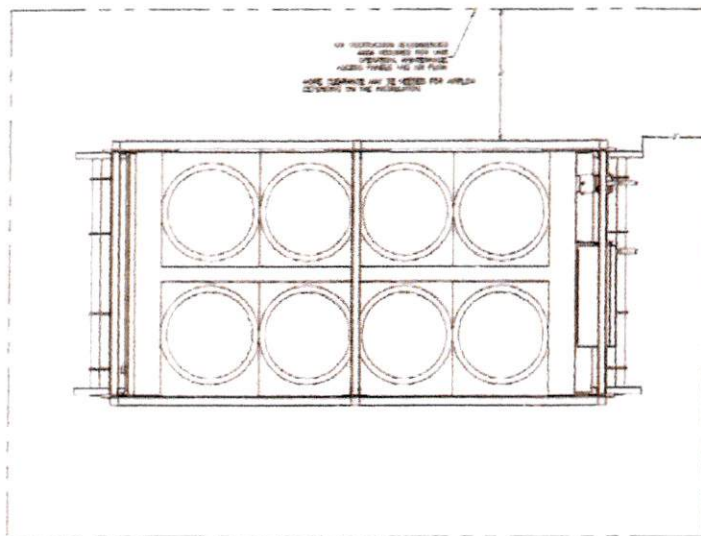
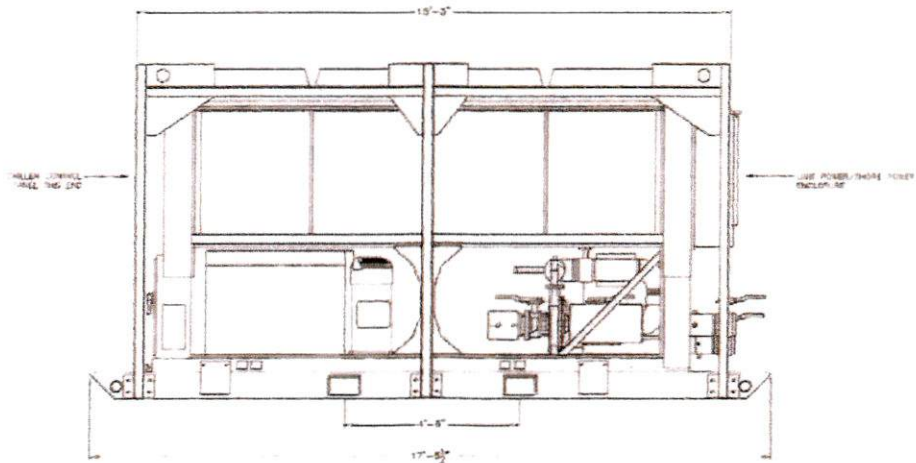
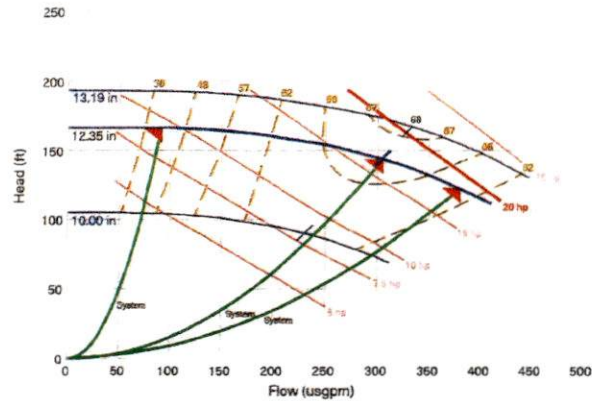
General - CSCA0120F2

Dimensions and Weights

| | |
|-------------------------------------|-----------------------|
| Length | 17' 5.5" |
| Width | 8' 0.5" |
| Height | 8' 6" |
| Shipping Weight (lbs) | 13,000 |
| Operating Weight (lbs) | 13,200 |
| Fork Pocket Dimensions | 9.25" x 5.25" x 7' 5" |
| Fork Pocket Cent to Center Distance | 4' - 6" |

Lifting Device: Fork Lift or Crane

All weights and dimensions listed above are subject to change without notice or liability.



120 ton Air-Cooled CGAM

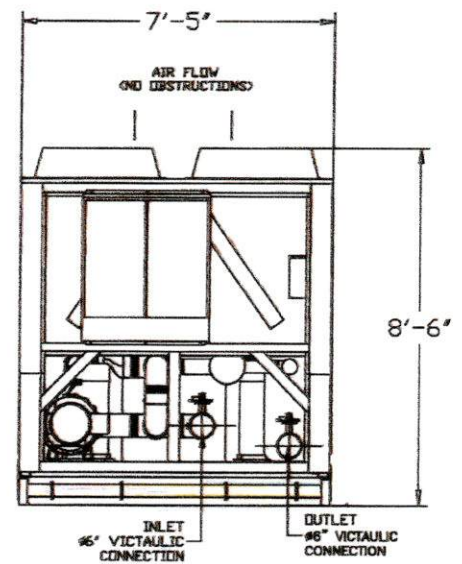
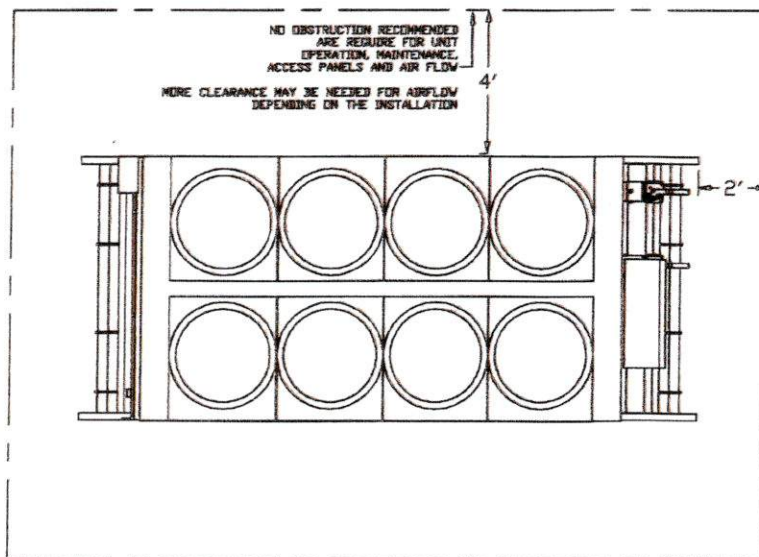
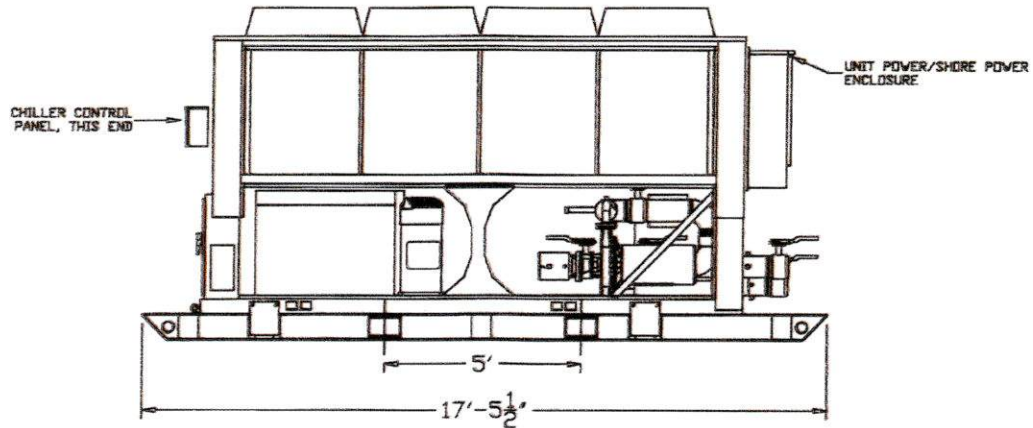
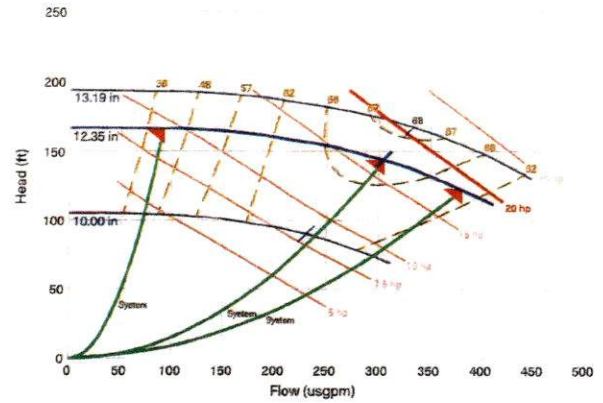
General - CSCA0120F3

Dimensions and Weights

| | |
|-------------------------------------|-----------------------|
| Length | 17' 5.5" |
| Width | 7' 5" |
| Height | 8' 6" |
| Shipping Weight (lbs) | 10,500 |
| Operating Weight (lbs) | 10,700 |
| Fork Pocket Dimensions | 9.25" x 5.25" x 7' 5" |
| Fork Pocket Cent to Center Distance | 5' |

Lifting Device: Fork Lift or Crane

All weights and dimensions listed above are subject to change without notice or liability.





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 equipment.

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-including industry replacements for CFCs such as HCFCs and HFCs.

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. 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 electrical codes.

WARNING

Personal Protective Equipment (PPE) Required!

Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards.

- 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 Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate MSDS/SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling 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.**

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

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Revision History



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Introduction

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 (such as high-rise buildings) because of their ability to stretch and to handle heavy water columns. The hose has a service pressure rating of 300 psig, making it suitable for air-cooled and/or water-cooled chillers.

For more specific details or questions in regards to your application, please contact Trane Rental Services 24/7 at 1-800-755-5115.



General Information

Weights and Dimensions

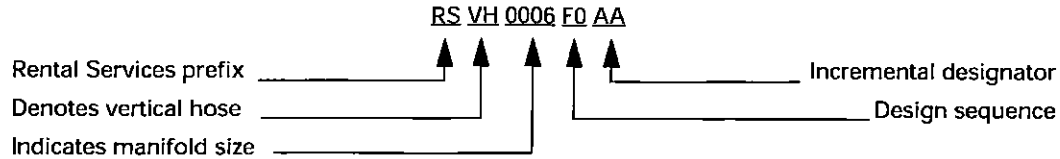
Table 1. Approximate Weight and dimensions for 2.5-inch Hose Box for 100-foot Installations

| | |
|-------------------|------|
| Total Weight (lb) | 1366 |
| Length (in) | 95 |
| Width (in) | 35 |
| Height (in) | 35.5 |

Each box is stenciled with a unique model description (see page 7). 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, be sure to check the bill of materials inside each box. Notify Trane Rental Services immediately if any parts are missing upon receipt of this equipment.

Specifications

Model Number Description



Contents of Hose Box

Each 2.5-in, 100-ft hose box contains the following:

| Qty. | Item |
|------|---|
| 4 | 6-in Header/manifold with drain and air vent |
| 16 | Ball valves |
| 16 | 50-ft Hose sections |
| 8 | 10-ft Hose sections |
| 16 | 2.5 in x 2.5 in Male adapters |
| 16 | 2.5 in x 2.5 in Female adapters |
| 16 | Akron Hose and Ladder straps |
| 8 | Roof Hangover System (elbows): 4 Supply, 4 Return |
| 2 | 6-in Blue Blank-Off plates |
| 2 | 6-in Blue Couplings |
| 2 | 6-in Red Blank-Off plates |
| 2 | 6-in Red Couplings |

Accessories Specification

- Hose material:** Nitrile rubber with through-the-weave construction ideally suited for heavy-duty applications. Its synthetic jacket is completely protected and locked in by a rubber cover and lining for extra toughness and extra durability. Its heavy rib construction makes the hose highly resistant to cuts, punches, impact, and abrasion. The hose is designed to withstand temperatures from 1200°F to -37°F.
- Hose end fittings:** Standard 2.5 in. NH (NST) thread with aluminum coupling.
- Manifolds:** 6-in Schedule 40 pipe, grooved on both ends. Each manifold has four 2.5-inch half couplings, 2.5-inch ball valves, and male-to-female swivel style brass adapters.
- Transitions (elbows):** Each piece is manufactured with 2.5-inch Schedule 40 pipe. It also includes a ½-inch ball valve to be used to vent air out of the system.

Pressure Loss through Vertical Hose

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

Table 2. Pressure Loss (in psi) per 100 feet of Vertical Hose

| Hose Diameter | 2.5 in |
|----------------|---------|
| Inlet Pressure | 150 psi |
| Flow (gpm) | |
| 100 | 3 |
| 200 | 12 |
| 300 | 27 |
| 400 | 49 |



Installation Instructions

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

This section provides the cautions and warnings that need to be recognized and understood prior to installing or operating the vertical hoses.

It is critical that this section is followed to minimize premature or catastrophic failure of this hose. 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.

⚠ WARNING

Hose Failure!
Failure to comply with installation instructions that follow could result in death or serious injury or equipment damage.

NOTICE:

Hose Damage!
Hose must always be used in pressurized application. If a negative pressure application is required, "hard" suction pipe must be utilized. Failure to do so could result in hose collapse and total system failure.

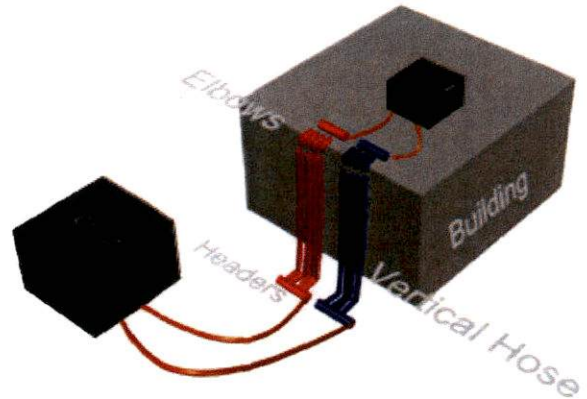
NOTICE:

- 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 application considerations as well as installation diagram shown below:

1. Make sure the parapet wall where the roof hangover system (or elbows) will be located can withstand at least 1000 to 4000 pounds, depending on the height of the installation.
2. Pay special attention to make sure system pressure does not exceed the pressure rating of the components connected (e.g., TRS 6-inch orange hose, and most chillers/pumps).
3. Installations above 200 feet are not permitted. Please contact TRS Engineering in regards to installations above 200 feet, or with system pressures higher than 150 psi.
4. Tie-offs must be provided at transition elbows and at every hose-to-hose joint suspended in air.

Figure 1. Installation



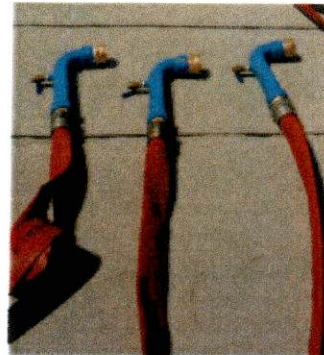
- Start by placing the following parts at the highest point in the system (usually on the roof for high-rise applications): two 6-inch headers, eight roof hangover systems or elbows, one red and blue blank off plate/coupling, and as many 10- or 50-foot sections of hose as necessary.
- Install a blank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



- Proceed to join 6-inch hoses right off the previously installed elbows and run enough hose to reach the water supply connection.



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



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

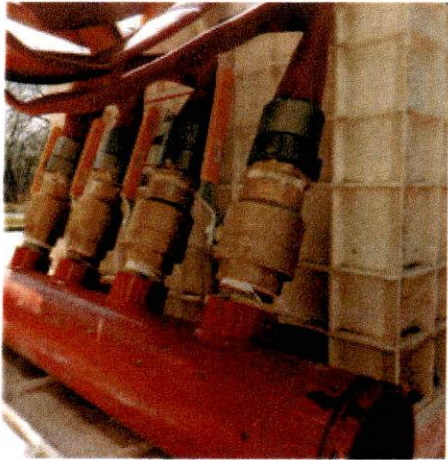


- On the short end of the elbows, install sufficient 50-foot sections of hose to reach to the bottom floor where the cooling equipment is located.
- Take the hose over the high-rise parapet wall and lower it slowly until it reaches the bottom floor.
- Place elbows on parapet walls and secure them to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



Installation Instructions

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

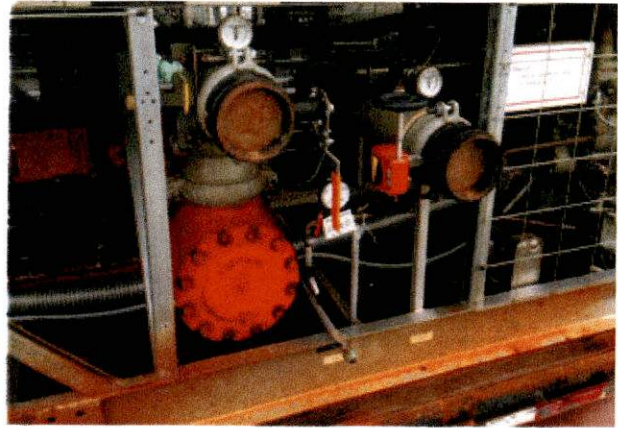


- To finish installation, add blank off plates on each end of the headers, and then either hard pipe or run flexible hose into the chiller's inlet and outlet connections (as shown below with hard pipe and flexible hose.)



- It is recommended to start filling the system from the bottom using the chiller's 1/2 NPT water connection.

- As water is filling up the system, make sure to use the chiller's vent valves (painted green) to bleed air out of the system.



- Each Vertical Hose Kit also includes a total of eight 1/2-inch vent valves located on each elbow (as shown below).





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SRV-SVX008A-EN 14 September 2015
(NEW)

We are committed to using environmentally
conscious print practices that reduce waste.

