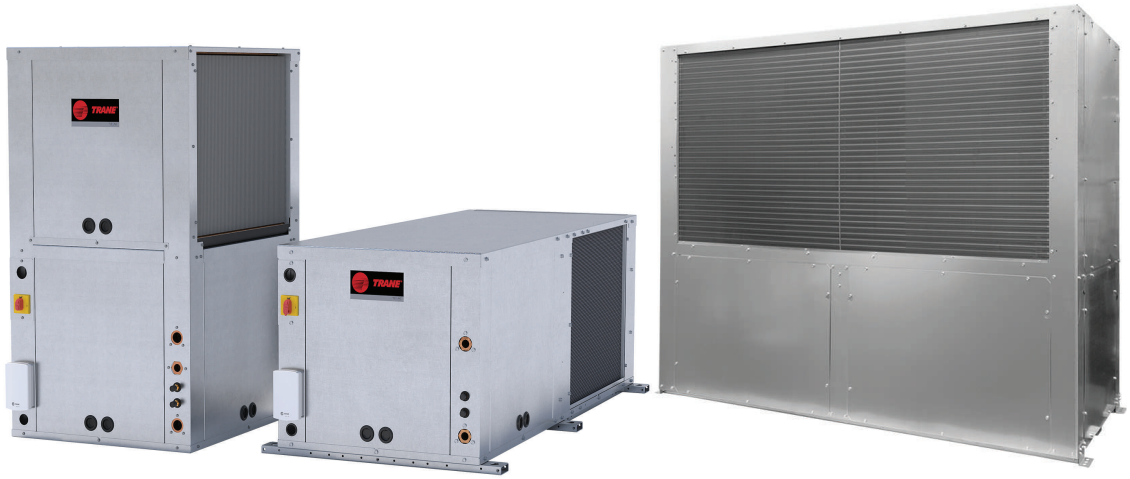
Installation, Operation, and Maintenance

Water Source Heat Pump Axiom™ Horizontal/Vertical — GEH/V*

0.5 to 25 Tons, 50/60 Hz



Model Numbers:
GEHG 006-060 - 60 Hz
GEVG 006-060 - 60 Hz
GEHE 072-180 - 50/60 Hz
GEVE 072-300 - 50/60 Hz

⚠ 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.

November 2023 **WSHP-SVX01AD-EN**

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 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.**

⚠ 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 isolator location information, on hanging the horizontal unit, in the Installation chapter.

Table of Contents

Model Number Description

Digits 1–3 — Unit Configuration

GEH = Standard Efficiency Horizontal 6 to 15 Tons
GEV = Standard Efficiency Vertical 6 to 25 Tons

Digit 4 — Development Sequence

E = R-410A

Digits 5–7 — Nominal Capacity

072 = 6 Tons
090 = 7.5 Tons
120 = 10 Tons
150 = 12.5 Tons
180 = 15 Tons
240 = 20 Tons
300 = 25 Tons

Digit 8 — Voltage (Volts/Hz/Phase)

1 = 208/60/1
2 = 230/60/1
3 = 208/60/3
4 = 460/60/3
5 = 575/60/3
6 = 220–240/50/1
8 = 230/60/3
9 = 380–415/50/3

Digit 9 — Heat Exchanger

1 = Copper-Water Coil
2 = Cupro-Nickel Water Coil
7 = Insulated Copper-Water Coil
8 = Insulated Cupro-Nickel Water Coil

Digit 10 — Current Design Sequence

Digit 11 — Refrigeration Circuit

0 = Heating and Cooling Circuit
2 = Heating and Cooling Circuit with Hot Gas Reheat
3 = Heating and Cooling Circuit with Waterside Economizer
4 = Heating and Cooling Circuit with HGR and WSE

Digit 12 — Blower Configuration

A = Drive Package A
B = Drive Package B
C = Drive Package C
D = Drive Package D
E = Drive Package E
F = Drive Package F
G = Drive Package G
H = Drive Package H
J = Drive Package J
1* = 2 Speed Drive Package A
2* = 2 Speed Drive Package B
3 = 2 Speed Drive Package C
4 = 2 Speed Drive Package D
5 = 2 Speed Drive Package E
6 = 2 Speed Drive Package F
7 = 2 Speed Drive Package G
8 = 2 Speed Drive Package H
9 = 2 Speed Drive Package J

Digit 13 — Freeze Protection[1]

A = 20°F Freezestat (For Glycol loop)
B = 35°F Freezestat (For Water loop)

Digit 14 — Open Digit = 0

Digit 15 — Supply-Air Arrangement

B = Back Supply-Air Arrangement
F = Front Supply-Air Arrangement
L = Left Supply-Air Arrangement
R = Right Supply-Air Arrangement
T = Top Supply-Air Arrangement[2]

Digit 16 — Return-Air Arrangement

B = Back Return-Air Arrangement
F = Front Return-Air Arrangement
L = Left Return-Air Arrangement
R = Right Return-Air Arrangement

Digit 17 — Control Types

D = Deluxe 24V Controls
F = Symbio™ 500/UC400
G = Symbio 500/UC400 w/Wireless Comm

Digit 18 — Tstat/Sensor Location

0 = Wall Mounted Location

Digit 19 — Fault Sensors

1 = Condensate Overflow Sensor
3 = Condensate Overflow and Filter Maintenance Timer
6 = Condensate Overflow and Fan Status
J = Fan Status, Filter Maintenance Timer and Condensate Overflow Sensor

Digit 20 — Temperature Sensor

0 = No Temperature Sensor
1 = Entering Water Sensor

Digit 21 — Insulation

1 = Standard Fiberglass Insulation

Digit 22 — Electric Heat

0 = No Electric Heat
4 = External Boilerless Electric Heat
5 = External Supplemental Electric Heat

Digit 23 — ON/OFF Switch

0 = No **ON**/**OFF** Switch
1 = **ON**/**OFF** Switch[3]

Digit 24 — Filter Type

1 = 1–inch Throwaway Filter
2 = 2–inch Throwaway Filter
4 = 2–inch MERV 8
5 = 2–inch MERV 13

Digit 25 — Acoustic Arrangement

0 = Enhanced Sound Attenuation

Digits 26–34 — Does Not Apply to GEH or GEV
00000000000 = Digits 26-36 are not applicable to the GEH or GEV products

Digits 35 — Unit Drain Pan Option

A = Polymer Drain Pan
B = Stainless Steel Drain Pan

Model Number Notes
Notes:

1. 20°F Freezestat is typically used in a geothermal application. 35°F Freezestat is typically used in a boiler/tower application.
2. Only available on vertical units
3. ON/OFF switch not available with boilerless electric heat option or units over 60 amps

GEV/GEH 006–060 Models

Digits 1–3 — Unit Configuration

GEH = Standard Efficiency Horizontal
GEV = Standard Efficiency Vertical

Digit 4 — Development Sequence

G

Digits 5–7 — Nominal Size (MBh)

006 = 6.0 MBh
009 = 9.0 MBh
012 = 12.0 MBh
015 = 15.0 MBh
018 = 18.0 MBh
024 = 24.0 MBh
030 = 30.0 MBh
036 = 36.0 MBh
042 = 42.0 MBh
048 = 48.0 MBh
060 = 60.0 MBh

Digit 8 — Voltage (Volts/Hz/Phase)

4 = 460/60/3
7 = 265/60/1
A = 208-230/60/1
B = 208-230/60/3

Digit 9 — Heat Exchanger

1 = Copper-Water Coil
2 = Cupro-Nickel Water Coil
7 = Insulated Copper-Water Coil/Suction Line
8 = Insulated Cupro-Nickel Water Coil/Suction Line

Digit 10 — Design Sequence

A First Design Sequence

Digit 11 — Refrigeration Circuit

0 = Heating and Cooling Circuit
2 = Heating and Cooling Circuit with Hot Gas Reheat
3 = Heating and Cooling Circuit with Waterside Economizer
4 = Heating and Cooling Circuit with Waterside Economizer, Hot Gas Reheat

Digit 12 — Blower Configuration

K = Variable ECM Motor, Constant Torque

Digit 13 — Freeze Protection[2]

A = 20°F Freezestat (For Glycol loop)
B = 35°F Freezestat (For Water loop)

Digit 14 — Open Digit = 0

Digit 15 — Supply-Air Arrangement

T = Top Supply-Air Arrangement
B = Back Supply-Air Arrangement
L = Left Supply-Air Arrangement
R = Right Supply-Air Arrangement

Digit 16 — Return-Air Arrangement

L = Left Return-Air Arrangement
R = Right Return-Air Arrangement

Digit 17 — Control Types

D = Deluxe 24V Controls
H = Symbio 400-B or UC400/UC400-B
J = Symbio 400-B/UC400-B w/Air-Fi® Wireless Communications

Digit 18 — Tstat/Sensor Location

0 = Wall Mounted Location

Digit 19 — Fault Sensors

1 = Condensate Overflow Sensor
3 = Condensate Overflow and Filter Maintenance Timer
6 = Condensate Overflow and Fan Status
J = Fan Status, Filter Maintenance Timer and Condensate Overflow Sensor

Digit 20 — Temperature Sensor

0 = No Additional Temperature Sensor
1 = Entering Water Sensor

Digit 21 — Insulation

1 = Matte Faced Insulation
2 = Foil Faced Insulation

Digit 22 — Electric Heat Option

0 = No Electric Heat
6 = Field Mounted External Boilerless LOW Electric Heat
7 = Field Mounted External Boilerless MED Electric Heat
8 = Field Mounted External Boilerless HIGH Electric Heat
9 = Boilerless Electric Heat Ready

Digit 23 — Unit Mounted Disconnect

0 = No Unit Mounted Disconnect
2 = Unit Mounted Disconnect

Digit 24 — Filter Type

1 = 1-inch Throwaway Filter
2 = 2-inch Throwaway Filter
4 = 2-inch MERV 8
5 = 2-inch MERV 13

Digit 25 — Acoustic Arrangement

1 = Standard Sound Attenuation
2 = Deluxe Sound Attenuation

Digits 26–36 — Does Not Apply

00000000000 = Digits 26-36 are not applicable to the GEH or GEV products

Digit 37 — Ducted Filter Rack

0 = Non-ducted Filter Rack
A = Ducted Filter Rack (Side Access/LH—RH)
C = Ducted Filter Rack (Bottom Access)

Digit 38 — Isolation Valve

0 = No Isolation Valve
1 = Factory Mounted Isolation Valve

Digit 39 — Power Connection

1 = Single Point
2 = Electric Heat Power Separate from Unit

Digit 40 — Drain Pan

A = Polymer Drain Pan
B = Stainless Steel Drain Pan

Model Number Note:
Notes:

1. Deluxe Sound option to be made available in later product release.
2. 20°F Freezestat is typically used in a geothermal application. 35°F Freezestat is typically used in a boiler/tower application.

Overview of Manual

Note: *One copy of this document ships inside the control panel of each unit and is customer property. It must be retained by the unit's maintenance personnel.*

This booklet describes proper installation, operation, and maintenance procedures for air cooled systems.

By carefully reviewing the information within this manual and following the instructions, the risk of improper operation and/or component damage will be minimized.

It is important that periodic maintenance be performed to help assure trouble free operation. A maintenance schedule is provided at the end of this manual.

Should equipment failure occur, contact a qualified service organization with qualified, experienced HVAC technicians to properly diagnose and repair this equipment.

Unit Nameplate

The unit nameplate is located on the outside of the control box access panel at the front of the unit. It includes the unit model number, serial number, electrical characteristics, refrigerant charge, and other pertinent unit data.

Compressor Nameplate

The nameplate for the compressors are located on the compressor shell.

Model Number Description

All products are identified by a multiple-character model number that precisely identifies a particular type of unit. Its use will enable the owner/operator, installing contractors, and service engineers to define the operation, specific components, and other options for any specific unit.

When ordering replacement parts or requesting service, be sure to refer to the specific model number and serial number printed on the unit nameplate.

General Information

Unit Description

Before shipment, each unit is leak tested, dehydrated, charged with refrigerant and run tested for proper control operation.

Air-to-Refrigerant Coil

The air-to-refrigerant coil is aluminum fin, mechanically bonded to the copper tubing.

Water-to-Refrigerant Coil

The water-to-refrigerant coil is a copper or cupro-nickel (option) and steel tube (tube-within-a-tube) design, leak tested to assure there is no cross leakage between the water tube (copper/cupro-nickel) and refrigerant gas (steel tube).

Table 1. High/low pressure switch

	Trip	Recover	Unit
LP	40 +/-4	56 +/-4	psig
HP	650 +/-10	550 +/-10	psig

Controls

The available control type is a Deluxe 24V control option, a LonTalk® certified control option or Symbio™ 400-B/500 or Tracer® UC400/UC400-B BACnet® control option for all unit sizes.

All power wiring to the equipment is made at the unit's compressor contactor or the optional disconnect switch for GEH/V 0.5 to 5 ton. For units without the disconnect switch, the power wiring needs to be connected to the screw terminals of the compressor contactor. For the GEH/V 6 to 25 tons units all power wiring is made to the high voltage terminal block. All low-voltage wiring is made at the unit's low voltage terminal board or terminal plug.

System Input Devices and Functions

A thermostat, zone sensor, or building automation system is required to operate the water-source heat pump. The flexibility of having several mode capabilities depends upon the type of sensor and/or remote panel selected.

Troubleshooting and connection diagrams for the 24V control systems may be located in the back of this manual. All digital control troubleshooting tips and connection diagrams are located in BAS-SVX065*-EN (UC400/UC400-B) and BAS-SVX092*-EN (Symbio™ 400-B/500).

Deluxe 24V Controls (option)

Units containing the Deluxe 24V control design will incorporate a microprocessor-based control board. The Trane microprocessor board is factory wired to a terminal strip or terminal plug to provide all necessary terminals for field connection. The deluxe board is equipped with a random start relay, anti-short cycle timer, brown out protection, compressor disable, condensate overflow, unit safety control, diagnostics, and a generic relay (which may be available for field use).

Symbio™ 400-B/500 or Tracer® UC400/UC400-B (option)

The Symbio 400-B/500 or UC400/UC400-B is a BTL Listed BACnet® controller that can operate stand- alone or within a Building Automation System (BAS) such as Tracer® SC +. For installation, operation, and maintenance, see BAS-SVX065*-EN (UC400/UC400-B) and BAS-SVX092*-EN (Symbio 400-B/500).

Pump Module (Field Installed Accessory)

The pump module shall consist of either a single or dual 1/6 HP bronze pump and a brass three-way shut-off valve. Cast iron pumps are also available. The pump module kits shall contain the necessary components for the installation, operation and maintenance of the water circuit of a closed-loop distributed pumping application.

Waterside Economizer (Option)

Instructions for mechanical connection of the waterside economizer to the water-source heat pump may be found in the dimensional section of this manual.

The waterside economizer is designed to begin economizing mode when water temperatures fall below the field adjustable temperature of 25, 35, 45, 55 or 60°F (for the Deluxe control option), or below the programmed set-point (for the Symbio™ 400-B/500 or UC400/UC400-B control option).

When the temperature is less than the setpoint, fluid will flow into the economizing coil, while simultaneously halting mechanical operation of the compressor. Mechanical cooling will continue on a call for a second stage from the thermostat or system control. Entering water temperature sensor is factory provided for field installation on the entering water side of the coil.

Boilerless Control/Electric Heat (Option)

This option targets building designs that do not incorporate a boiler to heat the loop system. During a heavy heating

load, the loop temperature may begin to fall. As the loop temperature decreases, the heating capacity of the heat pump will also decrease. In the heating mode, when the loop temperature falls below 55°F (factory setting), the electric heater is energized, and the compressor is locked out. The system's electric heat source will continue to be utilized for primary heating until the loop temperature rises above 60°F. Once the loop temperature rises above 60°F, the boilerless controller returns the unit to normal compressor heating operation and locks out the electric heater.

For the 0.5-5 GEV/H models, the electric heat will be field installed by the contractor.

For the GEH/V 6 to 25 ton units, the electric heat must be field installed by the contractor.

Note: *The boilerless controller has a field adjustable entering water temperature setting of 25, 35, 45, 55, and 60 degrees. The compressor operation will return to normal operation when the loop temperature rises 5 degrees above the setpoint. This electric heat option is designed for primary heat only, not to run as supplemental heat to the heating function of the heat pump.*

Supplemental or Boilerless Electric Heat (Option)

Only available on GEHE/GEVE 6 to 25 ton units.

Supplemental heat will turn on automatically when heat pump cannot provide sufficient heat to meet the heating load. The electric heat will be energized to supplement the heating provided by the heat pump. The heater for this model shall be external to the equipment. For the GEH/V 6 to 25 ton units, the electric heat must be field installed by the contractor.

Hot Gas Reheat (Option)

With the reheat option, the return-air from the space is conditioned by the air-to-refrigerant coil, then reheated by the reheat coil to control not only the space temperature, but to also reduce the relative humidity of the space. When operating in the reheat mode (meaning the sensible temperature has been met in the space), the humidistat signals the reheat relay coil to energize, allowing the high pressure refrigerant gas to flow from the compressor through the reheat valve, into the reversing valve and reheat coil.

A switching relay has been provided for the reheat application to adjust the blower motor from normal operation to low speed when the hot gas reheat is energized (for 0.5 to 5 ton equipment only).

Note: *Units containing the hot gas reheat option should not be used as a make-up air unit.*

2-Speed Blower Motor (Option)

The 6 to 25 ton GEH/V models have indoor blowers that are available with 2 speed motors, selectable in the model number (Digit 12, drive packages one to nine). High speed airflow matches the single speed motor airflow, referenced in the Fan Performance tables. Low fan speed airflow is approximately 50% of high fan speed airflow.

The 6 to 25 ton GEH/V two-speed blower motors are available with the following options: Deluxe 24V or Symbio™ 500/UC400 controls, Heat Pump (HP) or HP w/ Hot Gas Reheat or HP w/Waterside Economizer. Not available with Boilerless or Supplemental Electric Heat.

Table 2. 6 to 25 ton GEH/V fan speed for two-speed drive packages one to nine

RV State	Fan	Compressor 1	Compressor 2	Fan Speed
Heat	OFF	OFF	OFF	OFF
Heat	ON	OFF	OFF	LOW
Heat	ON	ON	OFF	HIGH
Heat	ON	ON	ON	HIGH
Cool	OFF	OFF	OFF	OFF
Cool	ON	OFF	OFF	LOW
Cool	ON	ON	OFF	LOW
Cool	ON	ON	ON	HIGH

Table 3. Refrigerant charge

Model (60 HZ)	Heat Pump (oz)/(Kg)		Heat Pump with HGR (oz)/(Kg)	
	Circuit 1	Circuit 2	Circuit 1	Circuit 2
GEH/V006	30.5 / 0.865	———	31.5/0.893	———
GEH/V009	31.0 / 0.879	———	32.0 / 0.907	———
GEH/V012	30.5 / 0.865	———	31.5 / 0.893	———
GEH/V015	37.5 / 1.063	———	39.0 / 1.106	———
GEH/V018	37.5 / 1.063	———	39.0 / 1.106	———
GEH/V024	47.0 / 1.332	———	4.9.0 / 1.389	———
GEH/V030	45.0 / 1.276	———	47.0 / 1.332	———
GEH/V036	50.0 / 1.417	———	52.5 / 1.488	———
GEH/V042	63.0 / 1.786	———	65.0 / 1.843	———
GEH/V048	67.0 / 1.899	———	70.5 / 1.999	———
GEH/V060	77.0 / 2.183	———	80.5 / 2.282	———

Table 3. Refrigerant charge (continued)

Model (60 HZ)	Heat Pump (oz)/(Kg)		Heat Pump with HGR (oz)/(Kg)	
GEHE072	55.0 / 1.559	55.0 / 1.559	59.0 / 1.673	55.0 / 1.559
GEHE090	64.0 / 1.814	54.0 / 1.531	68.0 / 1.928	54.0 / 1.531
GEHE120	86.0 / 2.438	86.0 / 2.438	90.0 / 2.551	86.0 / 2.438
GEHE150	136.0 / 3.856	136.0 / 3.856	144.0 / 4.082	136.0 / 3.856
GEHE180	126.0 / 3.572	126.0 / 3.572	134.0 / 3.799	126.0 / 3.572
GEVE072	58.0 / 1.644	58.0 / 1.644	62.0 / 1.758	58.0 / 1.644

Table 3. Refrigerant charge (continued)

Model (60 HZ)	Heat Pump (oz)/(Kg)		Heat Pump with HGR (oz)/(Kg)	
GEVE090	83.0 / 2.353	75.0 / 2.126	87.0 / 2.466	75.0 / 2.126
GEVE120	88.0 / 2.495	88.0 / 2.495	92.0 / 2.608	88.0 / 2.495
GEVE150	122.0 / 3.459	122.0 / 3.459	130.0 / 3.685	122.0 / 3.459
GEVE180	128.0 / 3.629	128.0 / 3.629	136.0 / 3.856	128.0 / 3.629
GEVE240	284.0 / 8.051	284.0 / 8.051	292.0 / 8.278	284.0 / 8.051
GEVE300	260.0 / 7.371	260.0 / 7.371	267.0 / 7.569	260.0 / 7.371

Pre-Installation

⚠ WARNING

Fiberglass Wool!

Exposure to glass wool fibers without all necessary PPE equipment could result in cancer, respiratory, skin or eye irritation, which could result in death or serious injury. Disturbing the insulation in this product during installation, maintenance or repair will expose you to airborne particles of glass wool fibers and ceramic fibers known to the state of California to cause cancer through inhalation.

You MUST wear all necessary Personal Protective Equipment (PPE) including gloves, eye protection, a NIOSH approved dust/mist respirator, long sleeves and pants when working with products containing fiberglass wool.

Precautionary Measures:

- **Avoid breathing fiberglass dust.**
- **Use a NIOSH approved dust/mist respirator.**
- **Avoid contact with the skin or eyes. Wear long-sleeved, loose-fitting clothing, gloves, and eye protection.**
- **Wash clothes separately from other clothing; rinse washer thoroughly.**
- **Operations such as sawing, blowing, tear-out, and spraying may generate fiber concentrations requiring additional respiratory protection. Use the appropriate NIOSH approved respirator.**

First Aid Measures:

- **Eye Contact - Flush eyes with water to remove dust. If symptoms persist, seek medical attention.**
- **Skin Contact - Wash affected areas gently with soap and warm water after handling.**

Unit Inspection Checklist

- Unpack all components of the kit.
- Check carefully for any shipping damage. If any damage is found it must be reported immediately and a claim made against the transportation company.

  Important: *Equipment is shipped FOB (Free on Board) at the manufacturer. Therefore, freight claims for damages against the carrier must be initiated by the receiver.*
- Visually inspect the components for shipping damage as soon as possible after delivery, before it is stored. Concealed damage must be reported within 15 days.
- If concealed damage is discovered, stop unpacking the shipment.
- Do not remove damaged material from the receiving location. Take photos of the damage, if possible. The owner must provide reasonable evidence that the damage did not occur after delivery.
- Notify the carrier's terminal of damage immediately by phone and by mail. Request an immediate joint inspection of the damage by the carrier and the consignee.
- Do not attempt to repair any damaged parts until the parts are inspected by the carrier's representative.

Jobsite Inspection Checklist

Always perform the following checks before accepting a unit:

- Verify that the nameplate data matches the data on the sales order and bill of lading (including electrical data).
- Verify that the power supply complies with the unit nameplate specifications.
- Visually inspect the exterior of the unit, for signs of shipping damage. Do not sign the bill of lading accepting the unit(s) until inspection has been completed. Check for damage promptly after the unit(s) are unloaded. Once the bill of lading is signed at the jobsite, the unit(s) are now the property of the SOLD TO party and future freight claims MAY NOT be accepted by the freight company.

Jobsite Storage

NOTICE

Microbial Growth!

Failure to follow instructions below could result in odors and damage to the equipment and building materials.

The floor or foundation must be level and the condensate drain at the proper height for proper drainage and condensate flow. Standing water and wet surfaces inside the equipment can become an amplification site for microbial growth (mold). If there is evidence of microbial growth on the interior insulation, it should be removed and replaced prior to operating the system.

This unit is intended for indoor use only. To protect the unit from damage due to the elements, and to prevent possible IAQ contaminant sources from growing, the unit should be stored indoors. If indoor storage is not possible, the following provisions for outdoor storage must be met:

- Place the unit(s) on a dry surface or raise above the ground to assure adequate air circulation beneath the unit.
- Cover the unit(s) with a water proof tarp to protect them from the elements.

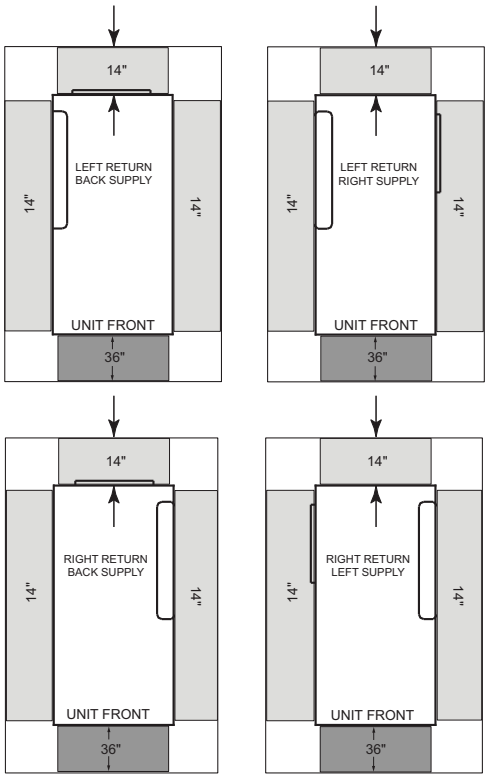
- Make provisions for continuous venting of the covered units to prevent moisture from standing on the unit(s) surfaces. Wet interior unit insulation can become an amplification site for microbial growth (mold) which has been determined to be a cause of odors and serious health related indoor air quality problems.
- Store units in the normal UP orientation to maintain oil in the compressor.
- Horizontal units may be stacked no more than three units high. Do not stack the vertical unit configurations.

Unit Dimensions

Service Clearances

Per NEC requirements, 36 inches of access and working space shall be provided and maintained around all control boxes and electrical equipment to permit ready and safe operation and maintenance of such equipment. Local codes may require more clearance to electrical equipment. Check all code requirements prior to unit installation.

Figure 1. Clearances - GEH 0.5 to 5 tons

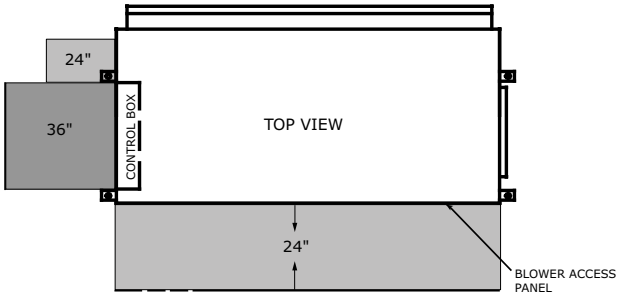


A minimum 14–inch clearance for servicing the unit is required for all 0.5 to 5 tons configurations from other mechanical and electrical equipment (where shown) to enable panel removal from the unit for service/maintenance ability. The optimum clearance required is 20 inches.

Notes:

- *Return air direction (left-hand or right hand) is NOT field convertible. Units must be ordered with correct return air side.*
- *For horizontal models, be sure to allow enough clearance between the condensate drain and the ceiling to allow for pitching of the condensate line. See Figure 49, p. 50 for pitching requirements.*

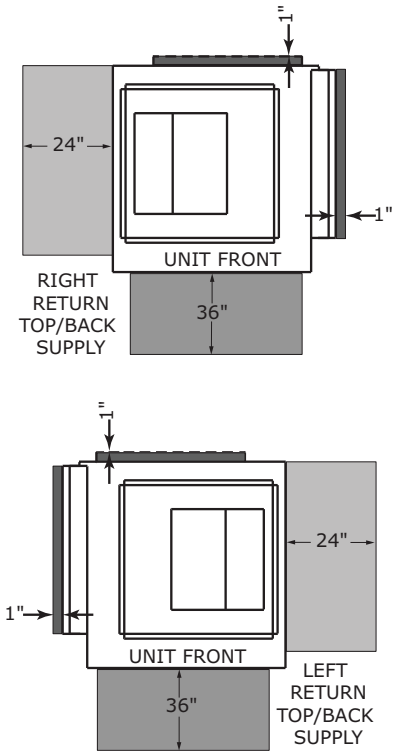
Figure 2. Clearance - GEH 6 to 15 tons



Service clearance dimensions for the GEH 6 to15 tons horizontal includes a two side access appropriate for control and blower motor/wheel access.

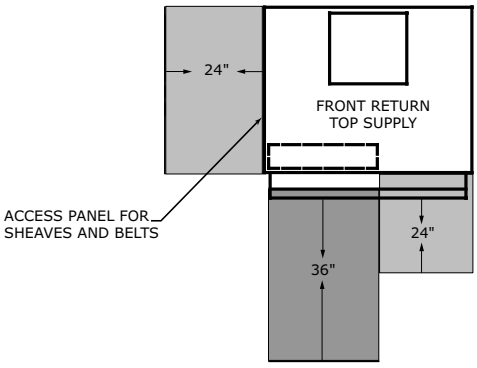
Note: *For horizontal models, be sure to allow enough clearance between the condensate drain and the ceiling to allow for pitching of the condensate line. See Figure 49, p. 50 for pitching requirements.*

Figure 3. Clearance – GEV .5 to 5 tons



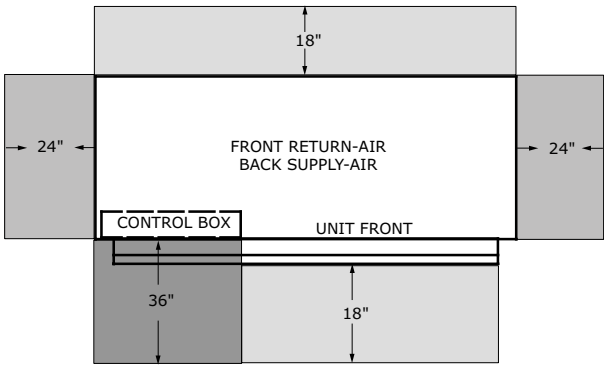
A 24–inch clearance from other mechanical and electrical equipment (where shown) is recommended for most unit configurations. This will enable panel removal from the unit for service/maintenance.
The 24–inch side clearance on GEVG 0.5 to 5T models is for optimal access only. Side clearance is not a requirement as most components can be accessed from the front of the unit.
A 1–inch minimum clearance between the filter rack and any obstacle is required for units in a free return application to provide proper air flow to the air-to-refrigerant coil. A 12–inch minimum clearance between the filter rack and any obstacle should be provided to properly attached ductwork.
The 1–inch dimension shown in the back of the unit represents the supply duct collar for the back supply option. This clearance is needed to clear these flanges.

Figure 4. Clearance - GEV 6 to 10 tons



A 24–inch clearance from other mechanical and electrical equipment (where shown) is recommended for all configurations. The unit may be serviced through the front access panel or remaining open sides.

Figure 5. Clearance - GEV 12.5 to 25 tons



A 24–inch clearance from other mechanical and electrical equipment (where shown) is recommended for all configurations. The unit may be serviced through the front access panel.

Dimensional Data

Figure 6. Left return/back supply (GEHG)

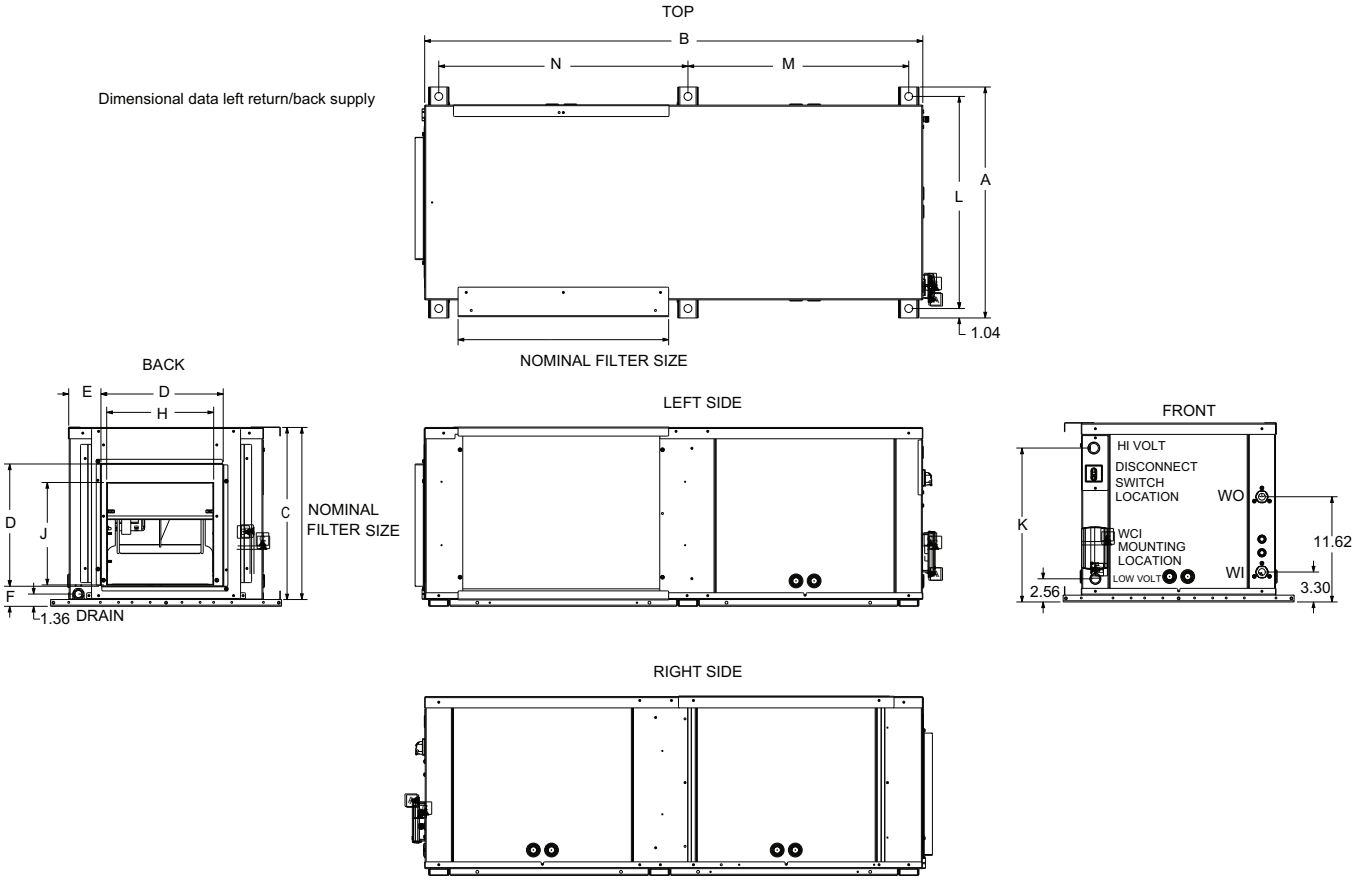


Table 4. Dimensional data left return/back supply (GEHG)

Cab Size	GEHG	Width	Depth	Height	Duct Collar	Duct Collar Location		Blower Opening		Hi Volt	Unit hanging location			Nominal Filter Size	W.I. NPTI	W.O. NPTI	DRA-IN NPTI
		A	B	C	D	E	F	H	J	K	L	M	N				
A	006-012	23.00	41.00	15.75	11.50	3.50	2.25	7.88	7.63	13.00	21.00	17.50	20.50	16 x 19	0.50	0.50	0.75
B	015, 018	25.50	46.00	17.75	13.50	3.50	2.00	10.13	9.38	15.00	23.50	19.88	23.00	17 x 20	0.50	0.50	0.75
C	024, 030	25.50	49.00	18.75	13.50	3.88	2.25	10.50	11.25	16.00	23.50	21.38	24.50	17 x 20	0.75	0.75	0.75
D	036, 042	25.50	55.00	19.75	13.50	3.50	2.25	11.75	11.25	17.00	23.50	24.38	27.50	18 x 23	0.75	0.75	0.75
E	048, 060	28.00	68.00	21.75	16.50	3.63	2.13	13.88	13.50	19.00	26.00	30.88	34.00	20 x 30	1.00	1.00	0.75

Note: Dimensions represent unit hanging dimensions including base rails for hanging.

Figure 7. Left return/right supply (GEHG)

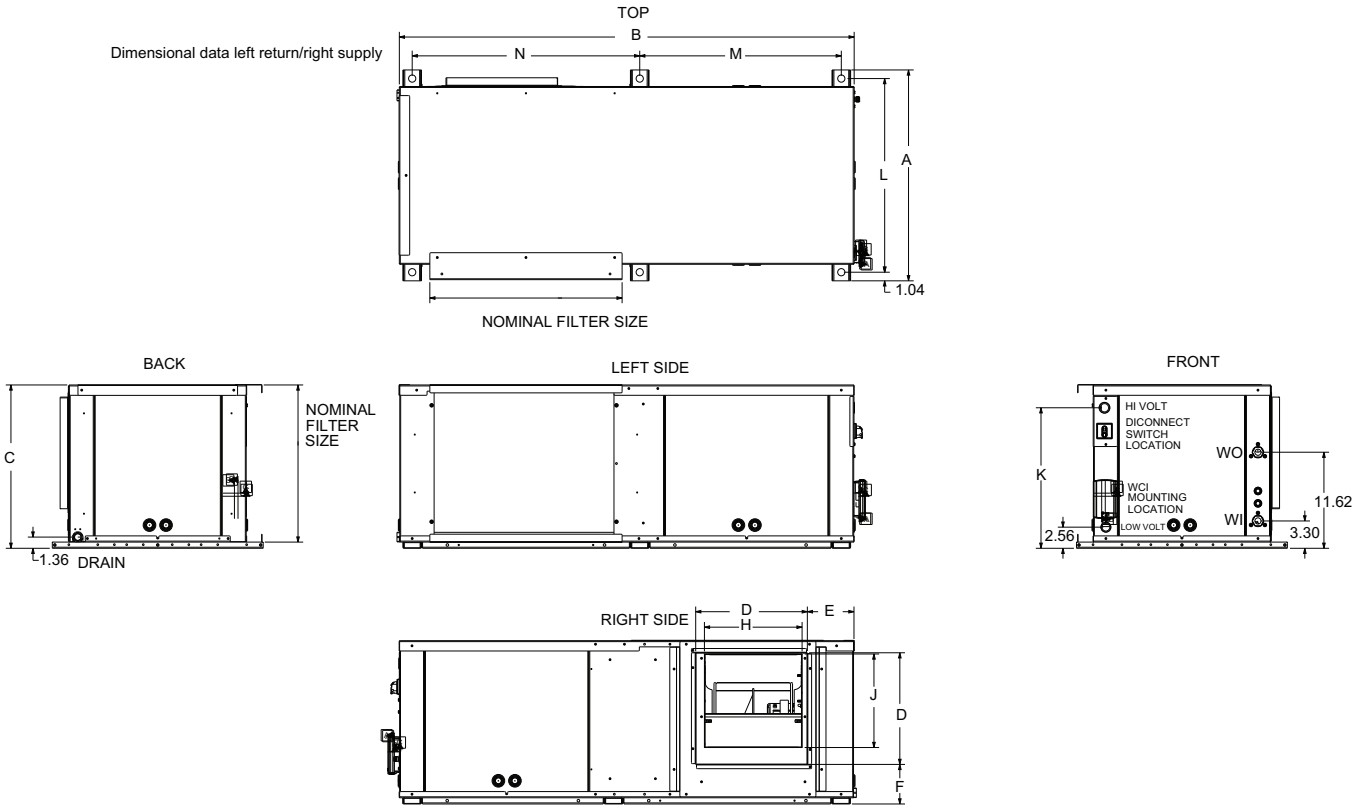


Table 5. Dimensional data left return/right supply (GEHG)

Cab Size	GEHG	Width	Depth	Height	Duct Collar	Duct Collar Location		Blower Opening		Hi Volt	Unit hanging location			Nominal Filter Size	W.I. NPTI	W.O. NPTI	DRAIN NPTI
		A	B	C	D	E	F	H	J	K	L	M	N				
A	006-012	23.00	41.00	15.75	11.50	5.75	3.00	7.88	7.63	13.00	21.00	17.50	20.50	16 x 19	0.50	0.50	0.75
B	015, 018	25.50	46.00	17.75	13.50	3.38	3.00	10.13	9.38	15.00	23.50	19.88	23.00	17 x 20	0.50	0.50	0.75
C	024, 030	25.50	49.00	18.75	13.50	5.88	4.00	10.50	11.25	16.00	23.50	21.38	24.50	17 x 20	0.75	0.75	0.75
D	036, 042	25.50	55.00	19.75	13.50	5.63	4.75	11.75	11.25	17.00	23.50	24.38	27.50	18 x 23	0.75	0.75	0.75
E	048, 060	28.00	68.00	21.75	16.50	5.63	3.88	13.88	13.50	19.00	26.00	30.88	34.00	20 x 30	1.00	1.00	0.75

Note: Dimensions represent unit hanging dimensions including base rails for hanging.

Figure 8. Right return/left supply (GEHG)

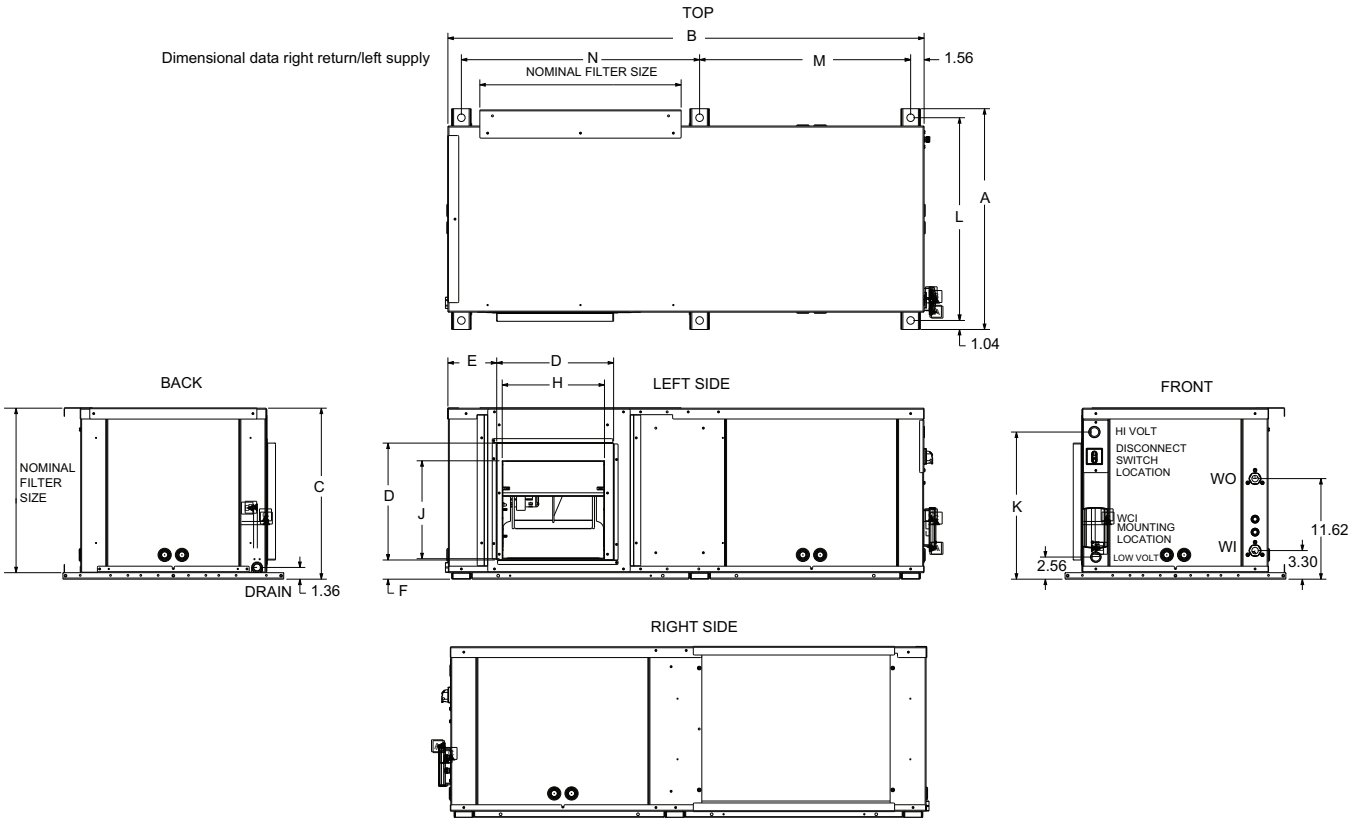


Table 6. Dimensional data right return/left supply (GEHG)

Cab Size	GEHG	Width	Depth	Height	Duct Collar	Duct Collar Location		Blower Opening		Hi Volt	Unit hanging location			Nominal Filter Size	W.I. NPTI	W.O. NPTI	DRA-IN NPTI
		A	B	C	D	E	F	H	J	K	L	M	N				
A	006-012	23.00	41.00	15.75	11.50	5.75	2.25	7.88	7.63	13.00	21.00	17.50	20.50	16 x 19	0.50	0.50	0.75
B	015, 018	25.50	46.00	17.75	13.50	5.50	2.00	10.13	9.38	15.00	23.50	19.88	23.00	17 x 20	0.50	0.50	0.75
C	024, 030	25.50	49.00	18.75	13.50	5.88	2.25	10.50	11.25	16.00	23.50	21.38	24.50	17 x 20	0.75	0.75	0.75
D	036, 042	25.50	55.00	19.75	13.50	5.63	2.25	11.75	11.25	17.00	23.50	24.38	27.50	18 x 23	0.75	0.75	0.75
E	048, 060	28.00	68.00	21.75	16.50	5.63	2.13	13.88	13.50	19.00	26.00	30.88	34.00	20 x 30	1.00	1.00	0.75

Note: Dimensions represent unit hanging dimensions including base rails for hanging.

Figure 9. Right return/back supply (GEHG)

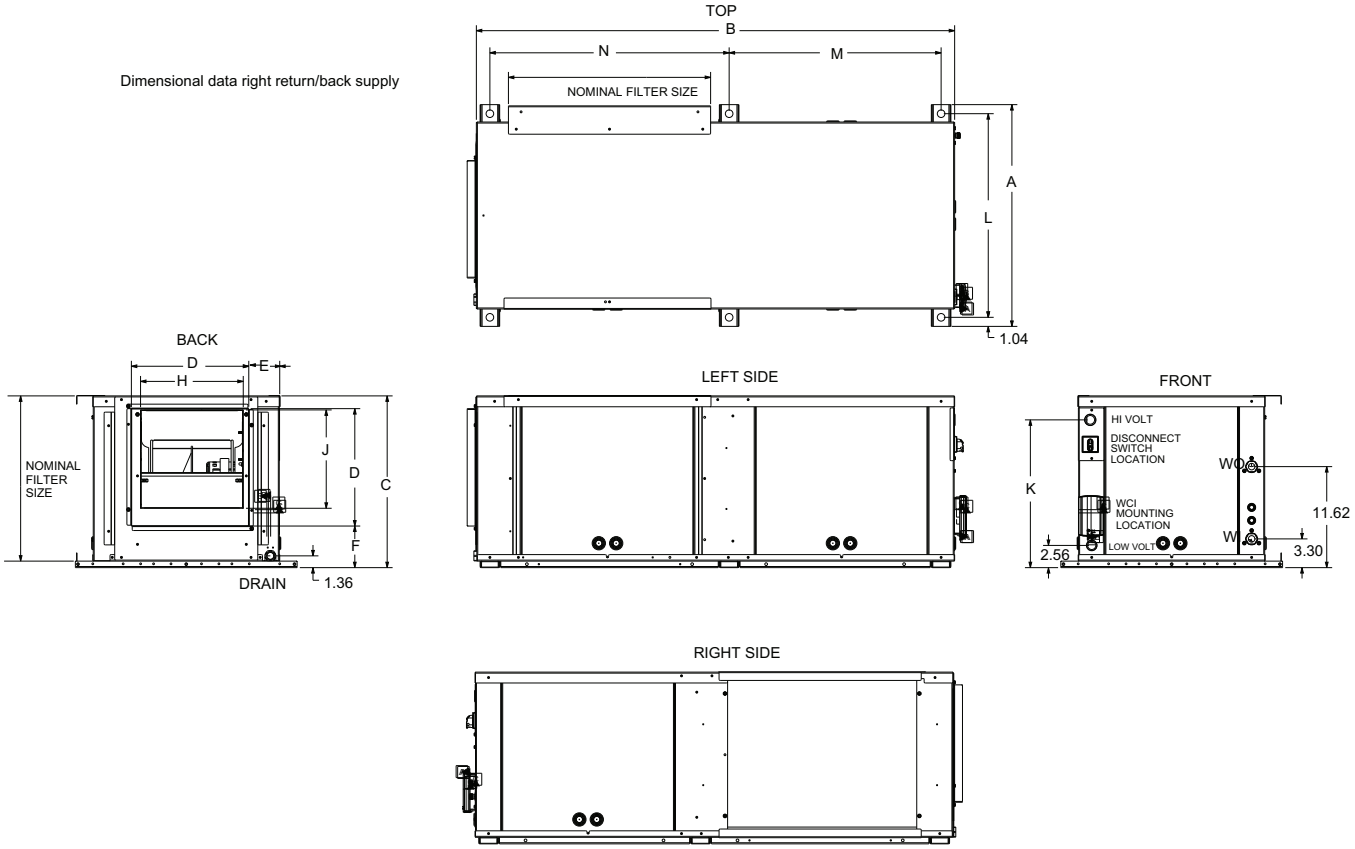


Table 7. Dimensional data right return/back supply (GEHG)

Cab Size	GEHG	Width	Depth	Height	Duct Collar	Duct Collar Location		Blower Opening		Hi Volt	Unit hanging location			Nominal Filter Size	W.I. NPTI	W.O. NPTI	DRAIN NPTI
		A	B	C	D	E	F	H	J	K	L	M	N				
A	006-012	23.00	41.00	15.75	11.50	3.50	3.00	7.88	7.63	13.00	21.00	17.50	20.50	16 x 19	0.50	0.50	0.75
B	015, 018	25.50	46.00	17.75	13.50	3.25	3.00	10.13	9.38	15.00	23.50	19.88	23.00	17 x 20	0.50	0.50	0.75
C	024, 030	25.50	49.00	18.75	13.50	3.88	4.00	10.50	11.25	16.00	23.50	21.38	24.50	17 x 20	0.75	0.75	0.75
D	036, 042	25.50	55.00	19.75	13.50	3.50	4.75	11.75	11.25	17.00	23.50	24.38	27.50	18 x 23	0.75	0.75	0.75
E	048, 060	28.00	68.00	21.75	16.50	3.63	3.88	13.88	13.50	19.00	26.00	30.88	34.00	20 x 30	1.00	1.00	0.75

Note: Dimensions represent unit hanging dimensions including base rails for hanging.

Figure 10. Left return/top supply (GEVG)

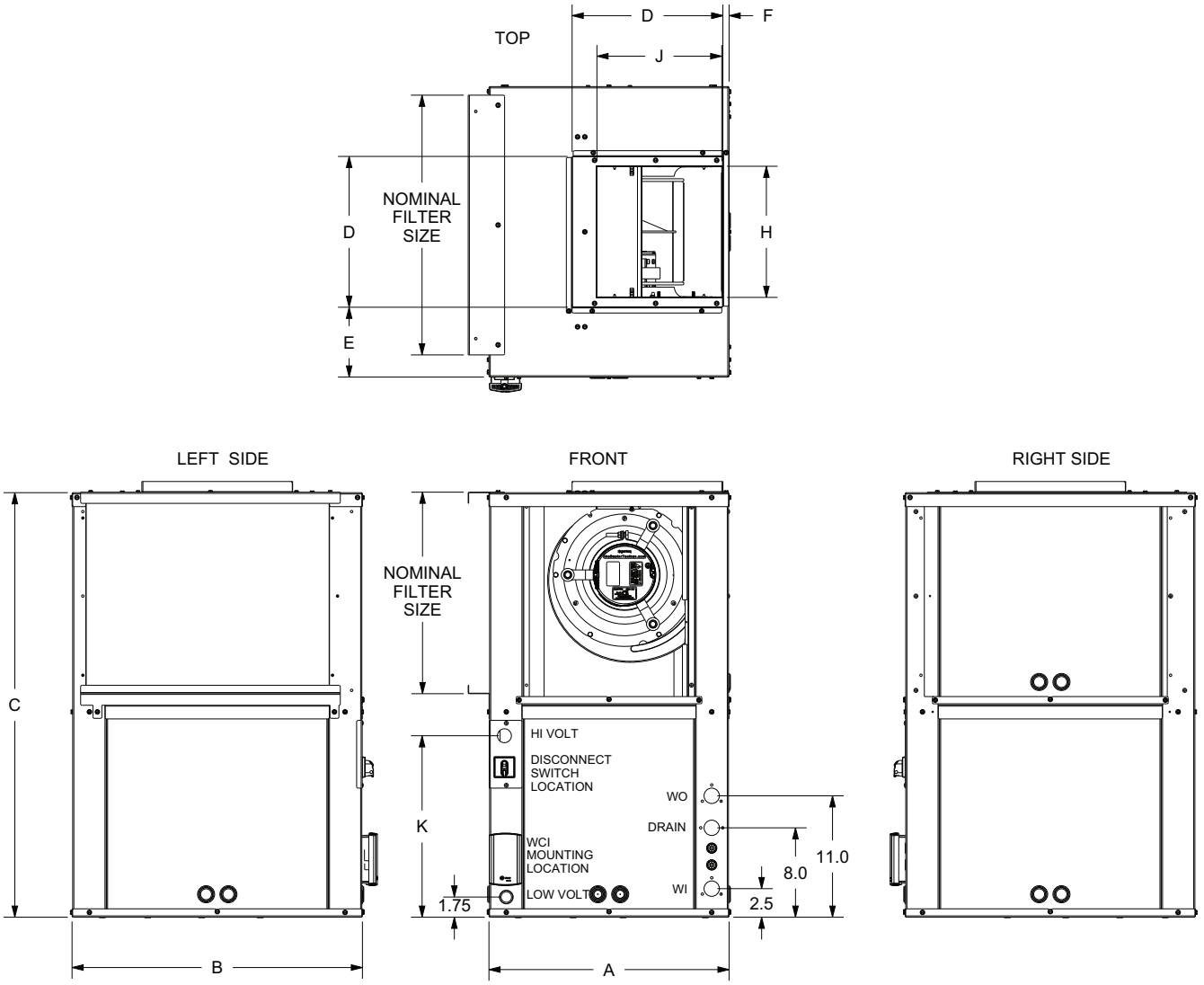


Table 8. Dimensional data left return/top supply (GEVG)

	Cabinet			Duct Collar	Duct Collar Location			Blower Opening		Hi Volt	Nominal Filter Size	W.I. NPTI	W.O. NPTI	Drain NPTI
	Width	Depth	Height											
Unit	A	B	C	D	E	F	G	H	J	K				
006-012	19.00	19.00	30.00	11.38	3.70	1.40	3.50	8.00	7.70	12.25	14 x 16	1/2	1/2	3/4
015-018	21.50	21.50	34.00	13.25	4.00	1.00	3.50	10.50	9.60	14.25	16 x 19	1/2	1/2	3/4
024-030	21.50	23.00	36.00	13.25	4.75	0.63	3.50	10.50	11.30	15.25	17 x 20	3/4	3/4	3/4
036-042	21.50	26.00	38.00	13.25	6.25	0.63	3.50	11.80	11.30	16.25	18 x 23	3/4	3/4	3/4
048-060	24.00	32.50	42.00	16.50	7.25	0.75	3.50	13.70	13.50	18.25	20 x 30	1	1	3/4

Note: Units in a free return application will require more than a 1 in. clearance to provide proper air flow to the unit's air-to-refrigerant coil.

Figure 11. Right return/top supply (GEVG)

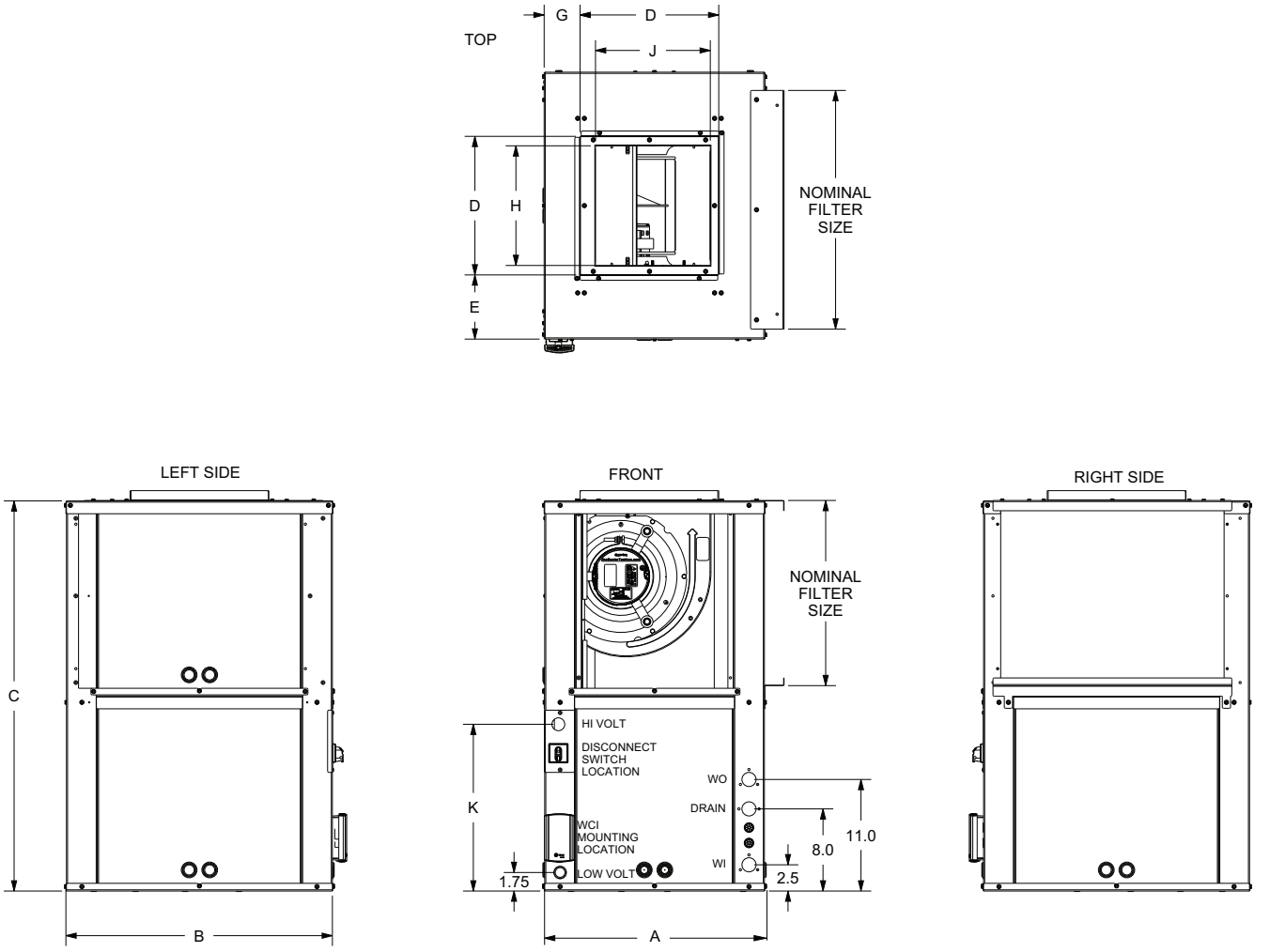


Table 9. Dimensional data right return/top supply (GEVG)

	Cabinet			Duct Collar	Duct Collar Location			Blower Opening		Hi Volt	Nominal Filter Size	W.I. NPTI	W.O. NPTI	Drain NPTI
	Width	Depth	Height											
Unit	A	B	C	D	E	F	G	H	J	K				
006-012	19.00	19.00	30.00	11.38	3.70	1.40	3.50	8.00	7.70	12.25	14 x 16	1/2	1/2	3/4
015-018	21.50	21.50	34.00	13.25	4.00	1.00	3.50	10.50	9.60	14.25	16 x 19	1/2	1/2	3/4
024-030	21.50	23.00	36.00	13.25	4.75	0.63	3.50	10.50	11.30	15.25	17 x 20	3/4	3/4	3/4
036-042	21.50	26.00	38.00	13.25	6.25	0.63	3.50	11.80	11.30	16.25	18 x 23	3/4	3/4	3/4
048-060	24.00	32.50	42.00	16.50	7.25	0.75	3.50	13.70	13.50	18.25	20 x 30	1	1	3/4

Note: Units in a free return application will require more than a 1 in. clearance to provide proper air flow to the unit's air-to-refrigerant coil.

Unit Dimensions

Figure 12. Left return/back supply (GEVG)

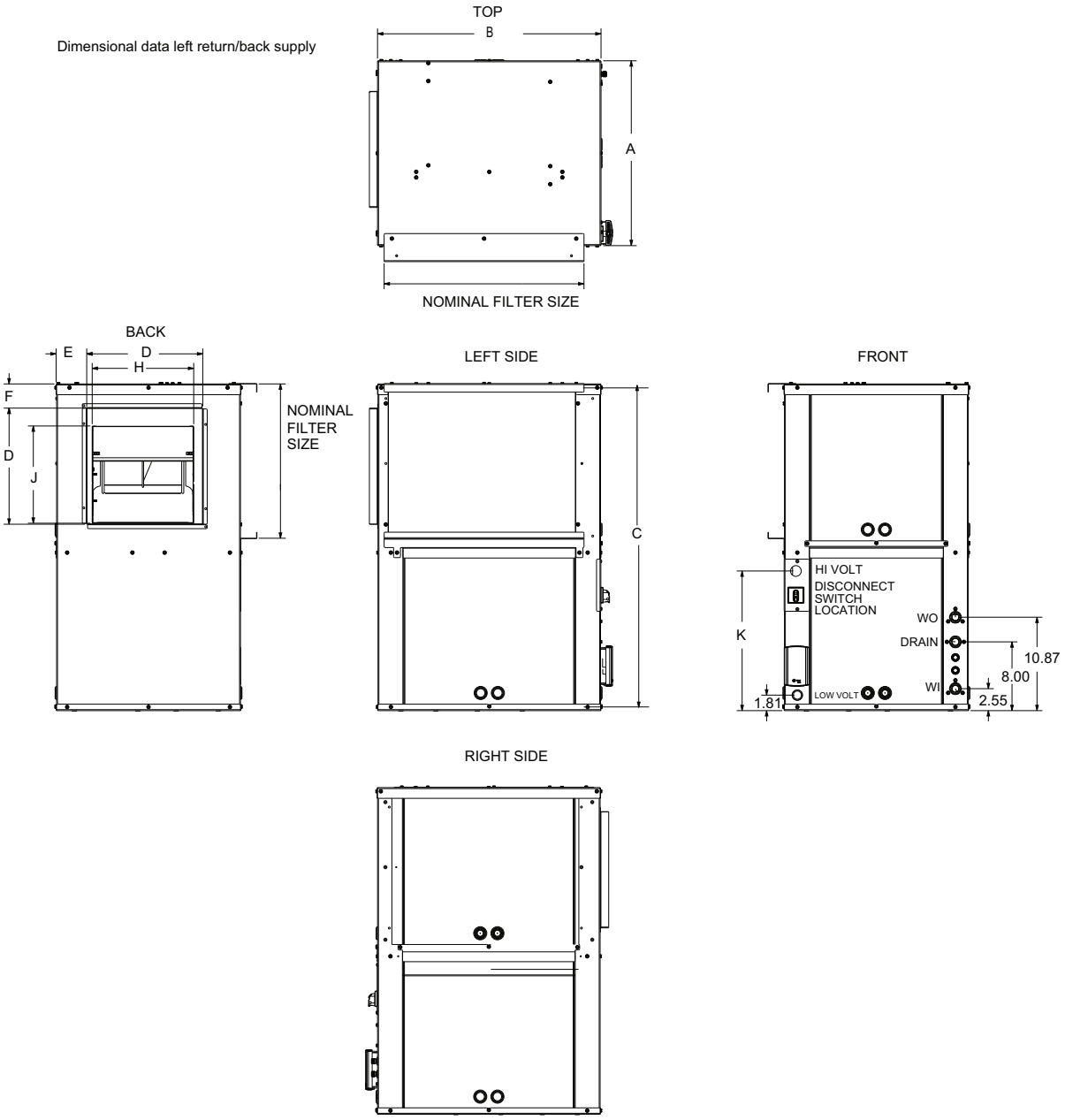


Table 10. Dimensional data left return/back supply (GEVG)

Cab	Unit	Width	Depth	Height	Duct Collar	Duct Collar Location		Blower Opening		Hi Volt	Nominal Filter Size	W.I. NPTI	W.O. NPTI	Drain NPTI
	GEVG	A	B	C	D	E	F	H	J	K				
A	006-012	19.00	19.00	30.00	11.50	3.50	2.25	7.88	7.63	12.25	14 x 16	1/2	1/2	3/4
B	015,018	21.50	21.50	34.00	13.50	3.50	2.00	10.13	9.38	14.25	16 x 19	1/2	1/2	3/4
C	024,030	21.50	23.00	36.00	13.50	3.88	2.25	10.50	11.25	15.25	17 x 20	3/4	3/4	3/4
D	036,042	21.50	26.00	38.00	13.50	3.50	2.75	11.75	11.25	16.25	18 x 23	3/4	3/4	3/4
E	048,060	24.00	32.50	42.00	16.50	3.63	2.13	13.88	13.50	18.25	20 x 30	1	1	3/4

Note: Units in a free return application will require more than a 1 in. clearance to provide proper air flow to the unit's air-to-refrigerant coil.

Figure 13. Right return/back supply (GEVG)

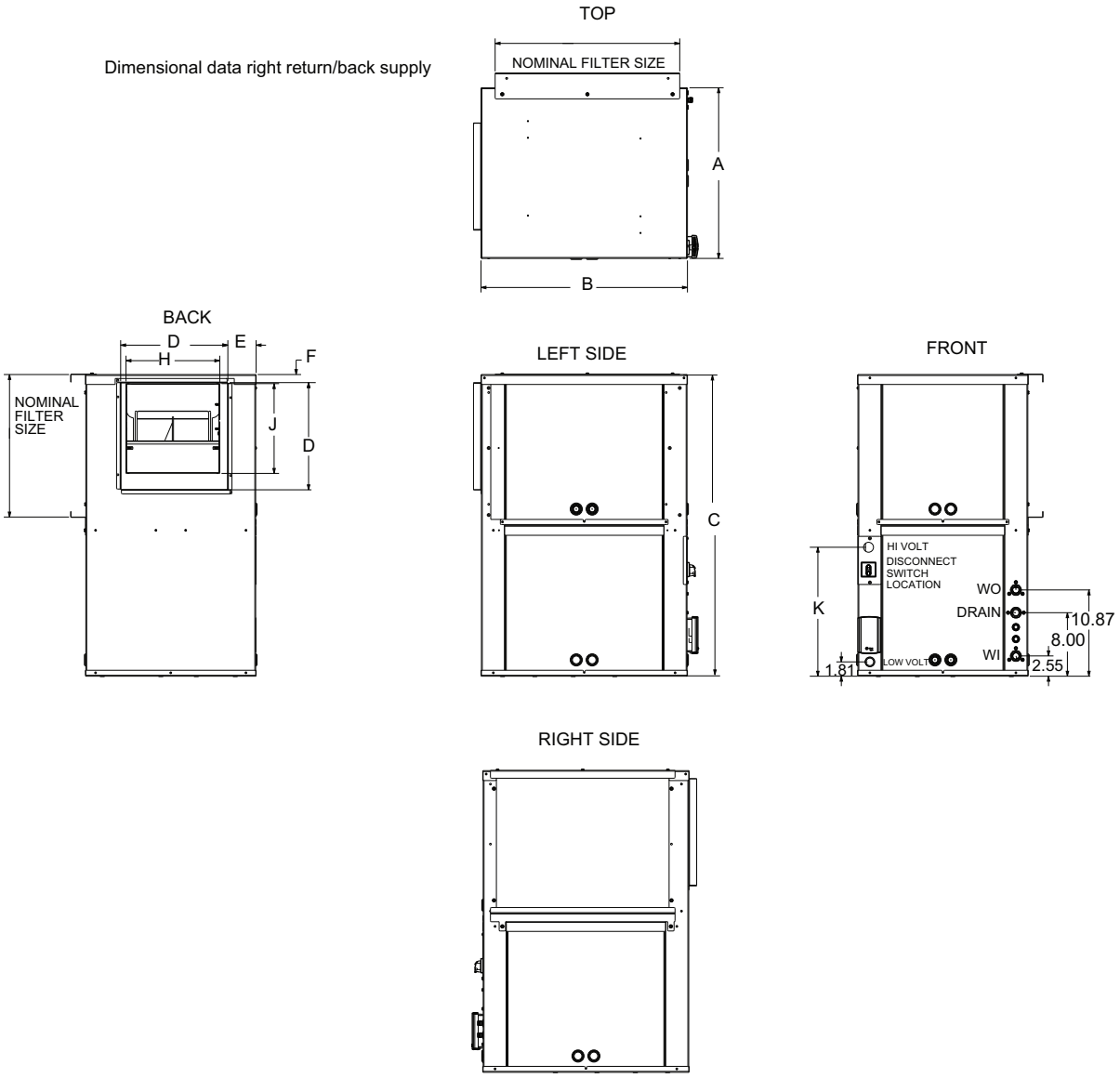


Table 11. Dimensional data right return/back supply (GEVG)

Cab	Unit	Width	Depth	Height	Duct Collar	Duct Collar Location		Blower Opening		Hi Volt	Nominal Filter Size	W.I. NPTI	W.O. NPTI	Drain NPTI
	GEVG	A	B	C	D	E	F	H	J	K				
A	006-012	19.00	19.00	30.00	11.50	3.50	1.00	7.88	7.63	12.25	14 x 16	1/2	1/2	3/4
B	015,018	21.50	21.50	34.00	13.50	3.25	1.00	10.13	9.38	14.25	16 x 19	1/2	1/2	3/4
C	024,030	21.50	23.00	36.00	13.50	3.88	1.00	10.50	11.25	15.25	17 x 20	3/4	3/4	3/4
D	036,042	21.50	26.00	38.00	13.50	3.50	1.00	11.75	11.25	16.25	18 x 23	3/4	3/4	3/4
E	048,060	24.00	32.50	42.00	16.50	3.63	1.00	13.88	13.50	18.25	20 x 30	1	1	3/4

Note: Units in a free return application will require more than a 1 in. clearance to provide proper air flow to the unit's air-to-refrigerant coil.

Figure 14. Right return/left supply - GEHE 6 to 10 tons (60 Hz); GEHE 6 to 7.5 tons (50 Hz)

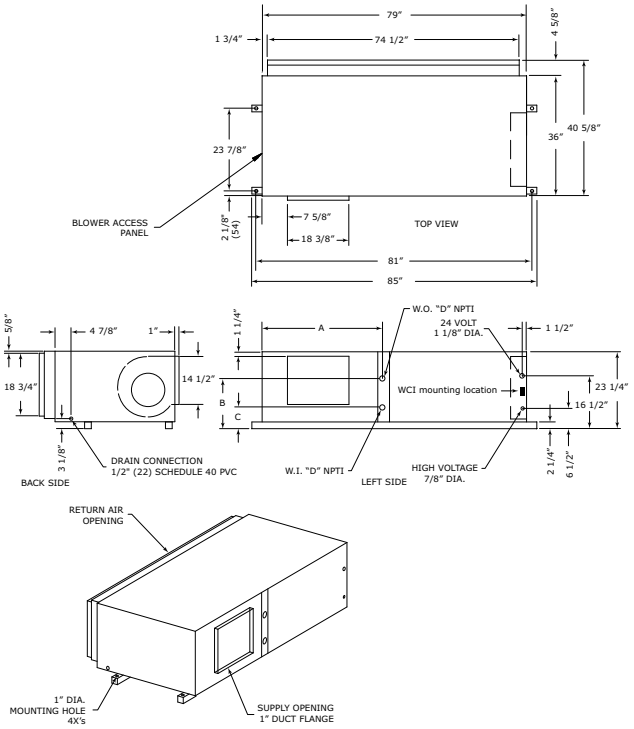


Table 12. Dimensional data right return/left supply - GEHE 6 to 10 tons (60 Hz); GEHE 6 to 7.5 tons (50 Hz)

GEH (60 Hz)	GEH (50 Hz)	A	B	C	D
72	—	36-1/4 in.	15-5/8 in.	6-5/8 in.	1-1/4 in.
90	72	36-1/8 in.	12-3/4 in.	6-3/4 in.	1-1/4 in.
120	90	36-1/8 in.	13 in.	7-1/4 in.	1-1/2 in.

Figure 15. Right return/back supply - GEHE 6 to 10 tons (60 Hz); GEHE 6 to 7.5 tons (50 Hz)

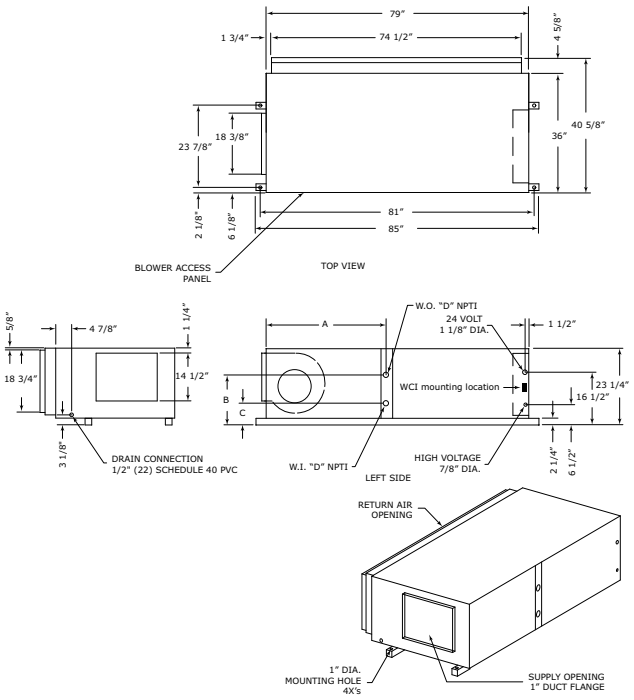


Table 13. Dimensional data right return/back supply - GEHE 6 to 10 tons (60 Hz); GEHE 6 to 7.5 tons (50 Hz)

GEH (60 Hz)	GEH (50 Hz)	A	B	C	D
72	—	36-1/4 in.	15-5/8 in.	6-5/8 in.	1-1/4 in.
90	72	36-1/8 in.	12-3/4 in.	6-3/4 in.	1-1/4 in.
120	90	36-1/8 in.	13 in.	7-1/4 in.	1-1/2 in.

Figure 16. Left return/right supply GEHE 6 to 10 tons (60 Hz); GEHE 6 to 7.5 tons (50 Hz)

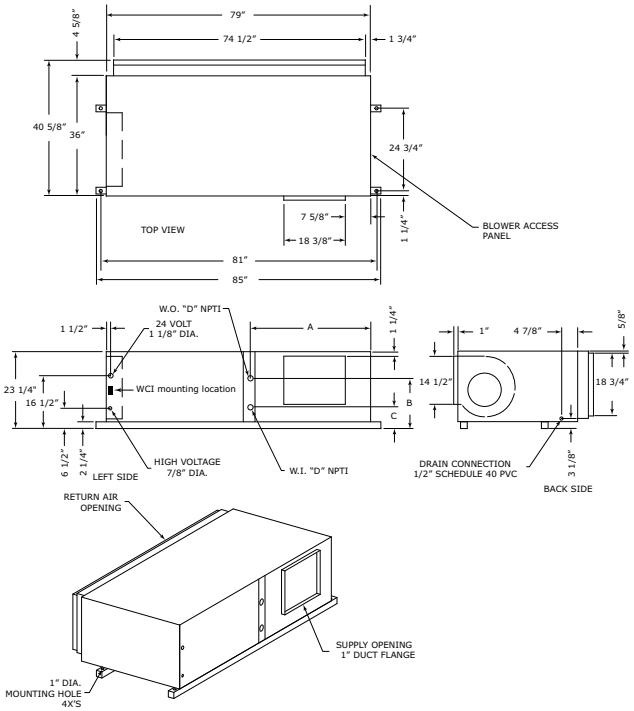


Table 14. Dimensional data left return/right supply - GEHE 6 to 10 tons (60 Hz); GEHE 6 to 7.5 tons (50 Hz)

GEH (60 Hz)	GEH (50 Hz)	A	B	C	D
72	—	36-1/8 in.	17 in.	8 in.	1-1/4 in.
90	72	36-1/8 in.	13-3/4 in.	7-3/4 in.	1-1/4 in.
120	90	36-1/8 in.	13 in.	7-1/4 in.	1-1/2 in.

Figure 17. Left return/back supply GEHE 6 to 10 tons (60 Hz); GEHE 6 to 7.5 tons (50 Hz)

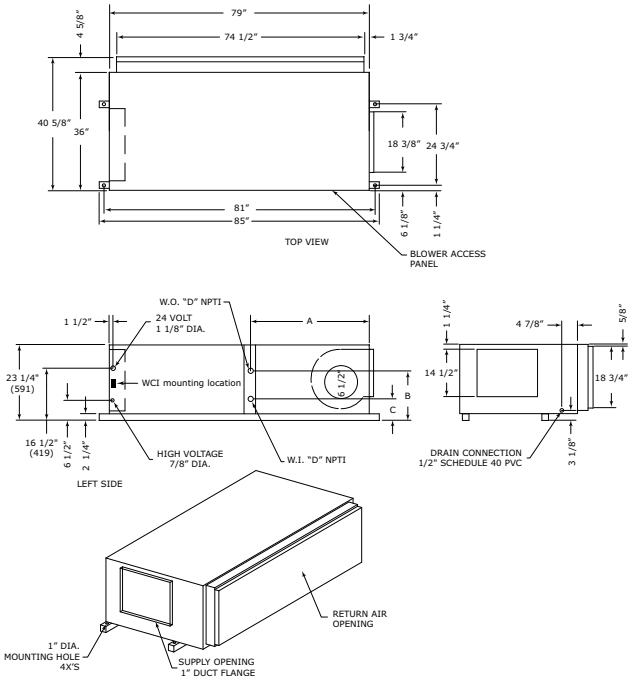


Table 15. Dimensional data left return/back supply GEHE 6 to 10 tons (60 Hz); GEHE 6 to 7.5 tons (50 Hz)

GEH (60 Hz)	GEH (50 Hz)	A	B	C	D
72	—	36-1/8 in.	17 in.	8 in.	1-1/4 in.
90	72	36-1/8 in.	13-3/4 in.	7-3/4 in.	1-1/4 in.
120	90	36-1/8 in.	13 in.	7-1/4 in.	1-1/2 in.

Unit Dimensions

Figure 18. Right return/back supply GEHE 12.5 to 15 tons (60 Hz); GEHE 10 to 12.5 tons (50 Hz)

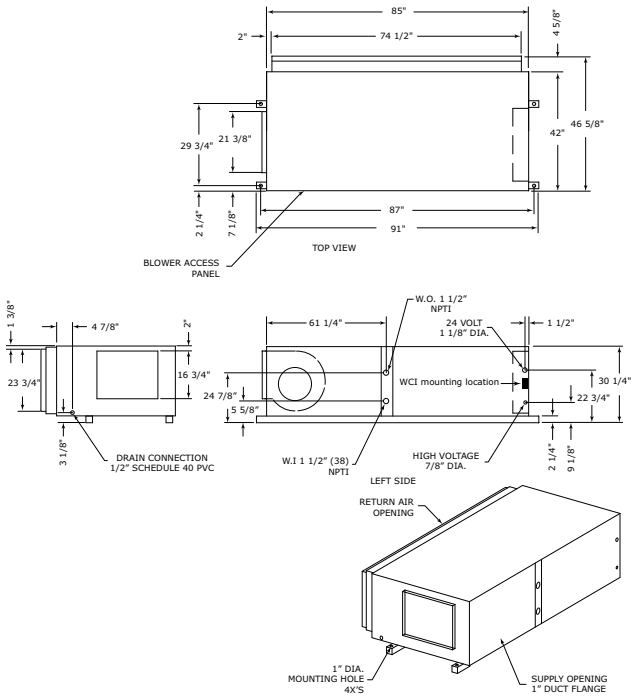


Figure 19. Left return/right supply GEHE 12.5 to 15 tons (60 Hz); GEHE 10 to 12.5 tons (50 Hz)

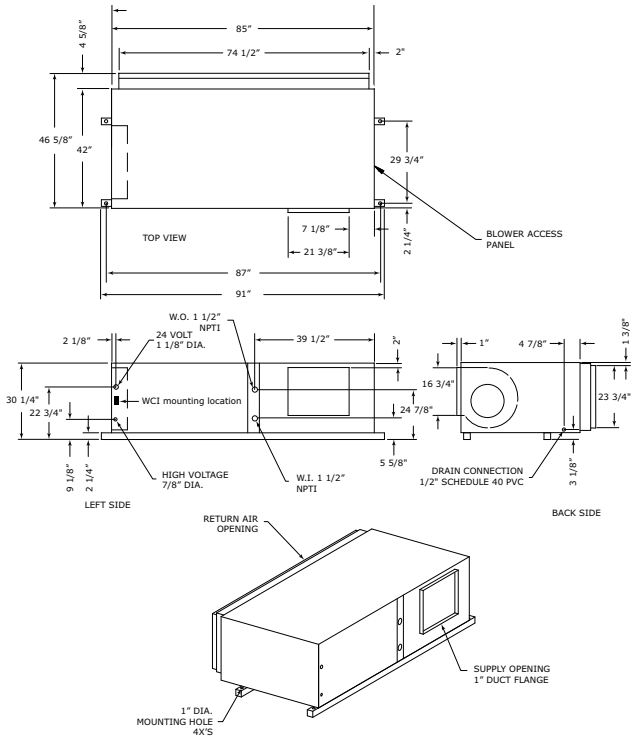


Figure 20. Left return/back supply GEHE 12.5 to 15 tons (60 Hz); GEHE 10 to 12.5 tons (50 Hz)

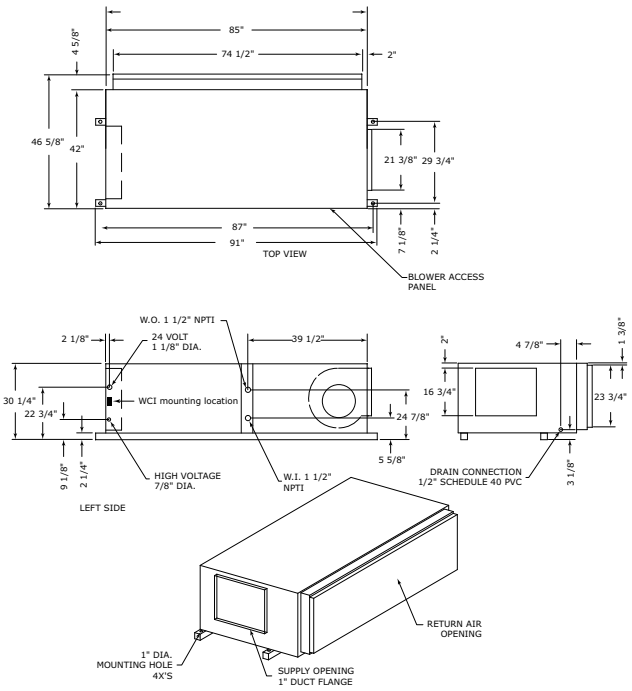


Figure 21. Front return/back supply[1] GEVE 6 to 10 tons (60 Hz); 6 and 7.5 tons (50 Hz)

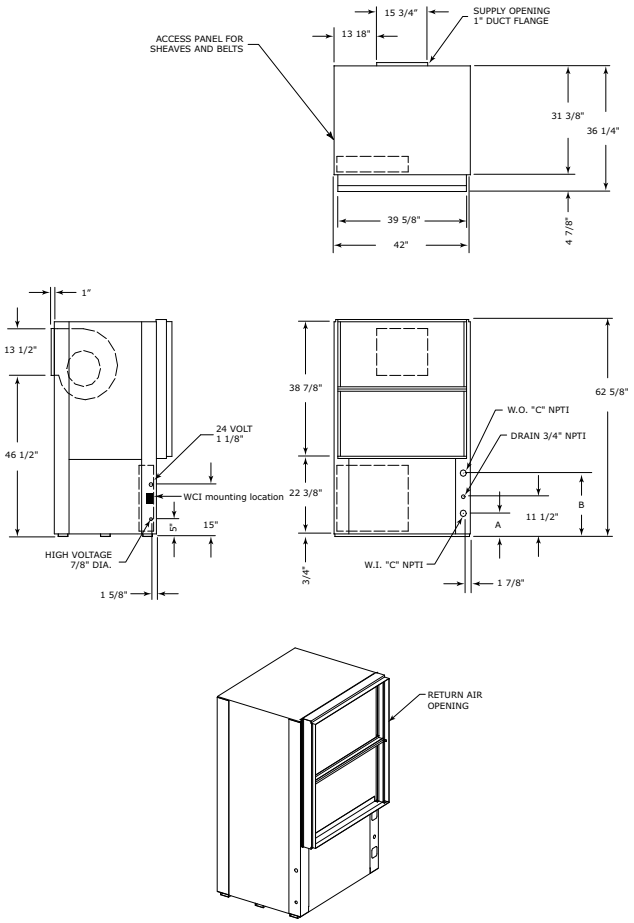


Table 16. Dimensional data front return/back supply GEVE 6 to 10 tons (60 Hz); 6 and 7.5 tons (50 Hz)

Unit (60 Hz)	Unit (50 Hz)	A	B	C
6.0 tons	—	6-5/8 in.	18-3/8 in.	1-1/4 in.
7.5 tons	6.0 tons	6-5/8 in.	18-3/8 in.	1-1/4 in.
10.0 tons	7.5 tons	6-1/2 in.	18-1/2 in.	1-1/2 in.

1. *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 22. Front return/top supply[2] GEVE 6 to 10 tons (60 Hz); 6 and 7.5 tons (50 Hz)

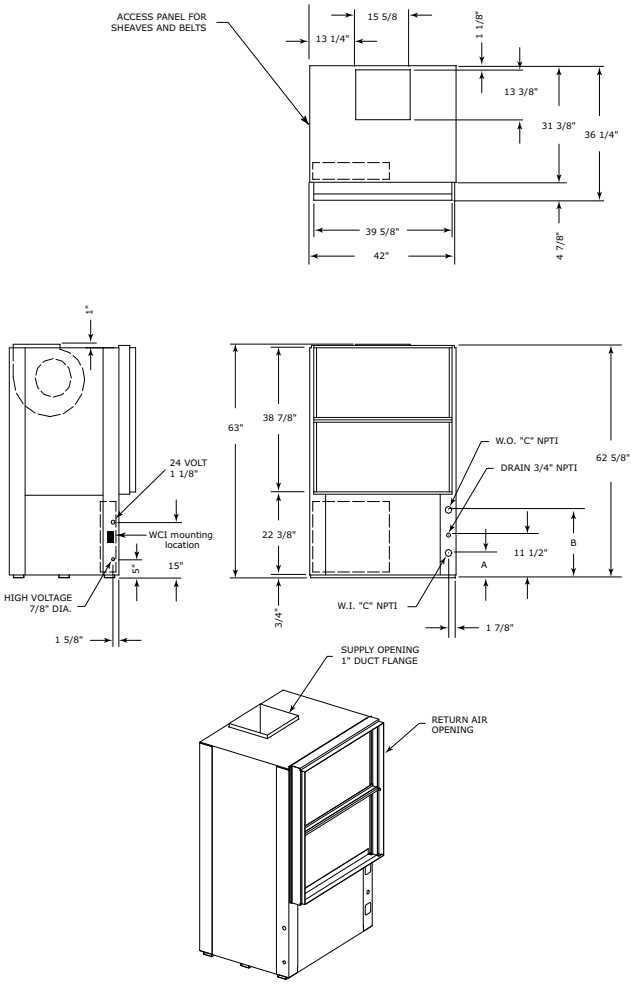


Table 17. Dimensional data front return/top supply GEVE 6 to 10 tons (60 Hz); 6 and 7.5 tons (50 Hz)

Unit (60 Hz)	Unit (50 Hz)	A	B	C
6.0 tons	—	6-5/8 in.	18-3/8 in.	1-1/4 in.
7.5 tons	6.0 tons	6-5/8 in.	18-3/8 in.	1-1/4 in.
10.0 tons	7.5 tons	6-1/2 in.	18-1/2 in.	1-1/2 in.

2. *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 23. Back return/front supply[3] GEVE 6 to 10 tons (60 Hz); 6 and 7.5 tons (50 Hz)

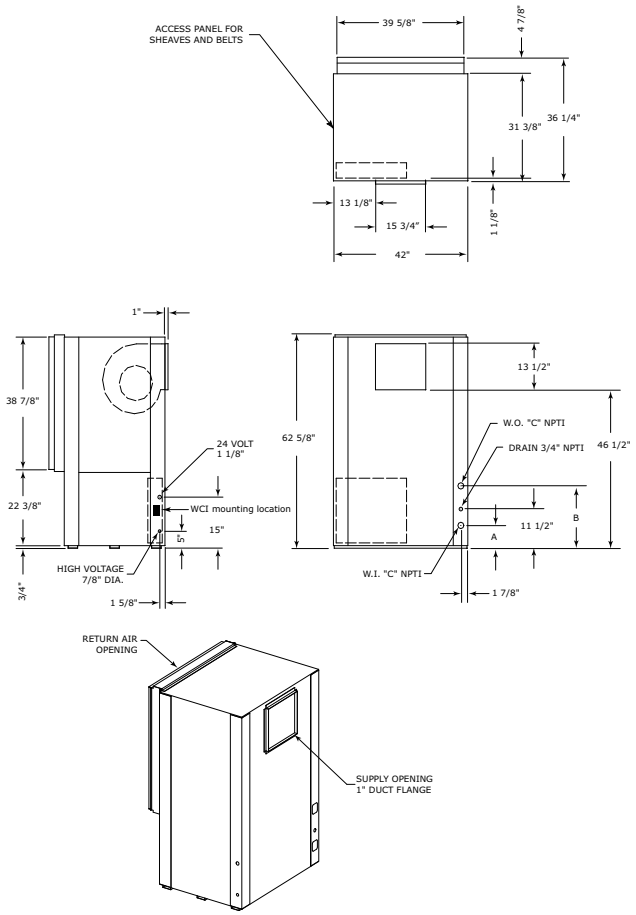


Table 18. Dimensional data back return/front supply GEVE 6 to 10 tons (60 Hz); 6 and 7.5 tons (50 Hz)

Unit (60 Hz)	Unit (50 Hz)	A	B	C
6.0 tons	—	6-5/8 in.	18-3/8 in.	1-1/4 in.
7.5 tons	6.0 tons	6-5/8 in.	18-3/8 in.	1-1/4 in.
10.0 tons	7.5 tons	6-1/2 in.	18-1/2 in.	1-1/2 in.

3. *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 24. Back return/top supply[4] GEVE 6 to 10 tons (60 Hz); 6 and 7.5 tons (50 Hz)

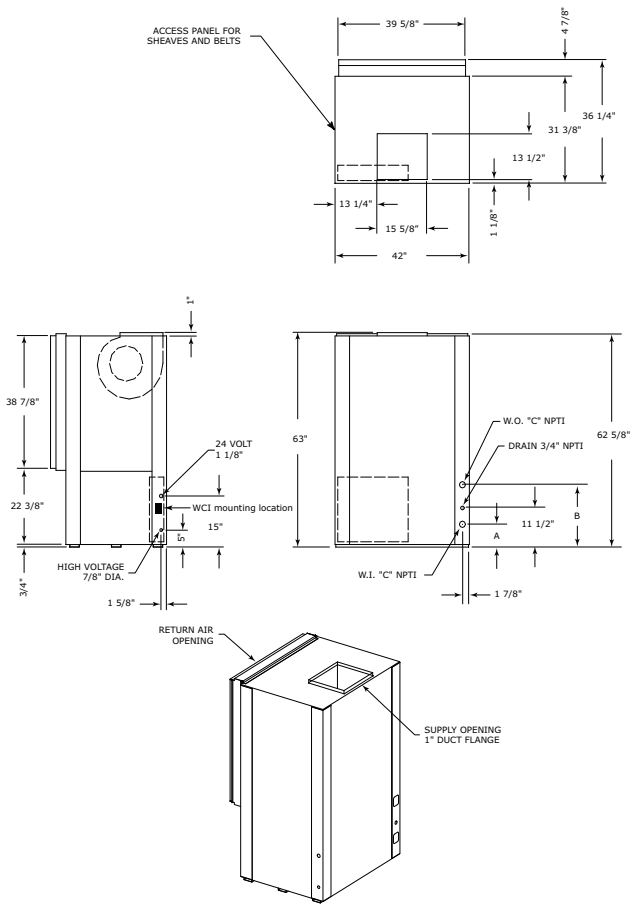


Table 19. Dimensional data back return/top supply GEVE 6 to 10 tons (60 Hz); 6 and 7.5 tons (50 Hz)

Unit (60 Hz)	Unit (50 Hz)	A	B	C
6.0 tons	—	6-5/8 in.	18-3/8 in.	1-1/4 in
7.5 tons	6.0 tons	6-5/8 in.	18-3/8 in.	1-1/4 in.
10.0 tons	7.5 tons	6-1/2 in.	18-1/2 in.	1-1/2 in.

4. *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 25. Front return/back supply[5] GEVE 12.5 to 15 tons (60 Hz); GEV 10 and 12.5 tons (50 Hz)

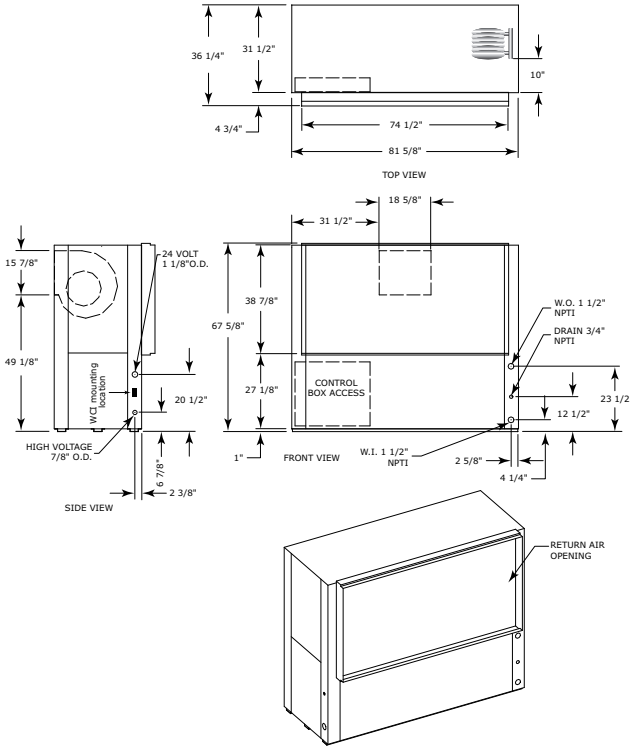
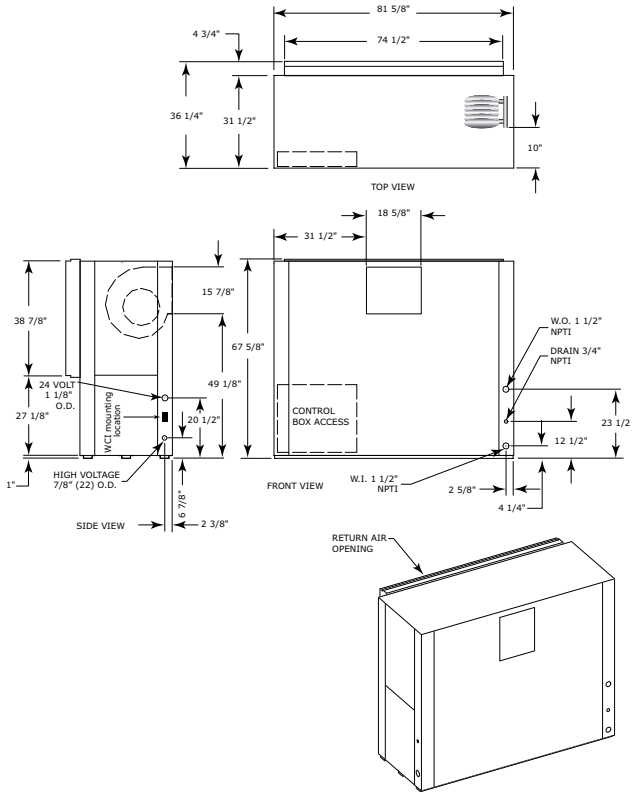


Figure 26. Back return/front supply GEVE 12.5 to 15 tons (60 Hz); GEVE 10 and 12.5 tons (50 Hz)



5. *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 27. Front return/top supply[6] GEVE 12.5 to 15 tons (60 Hz); GEVE 10 and 12.5 tons (50 Hz)

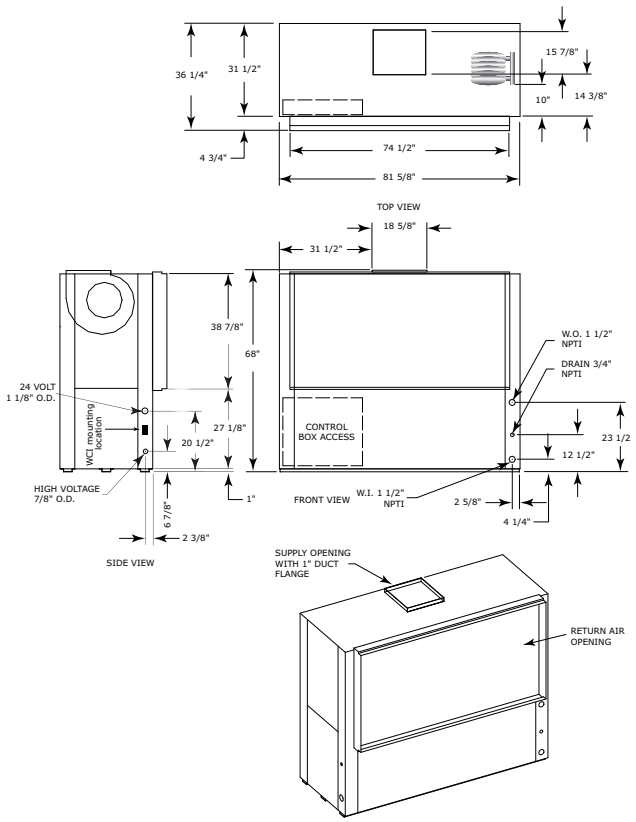
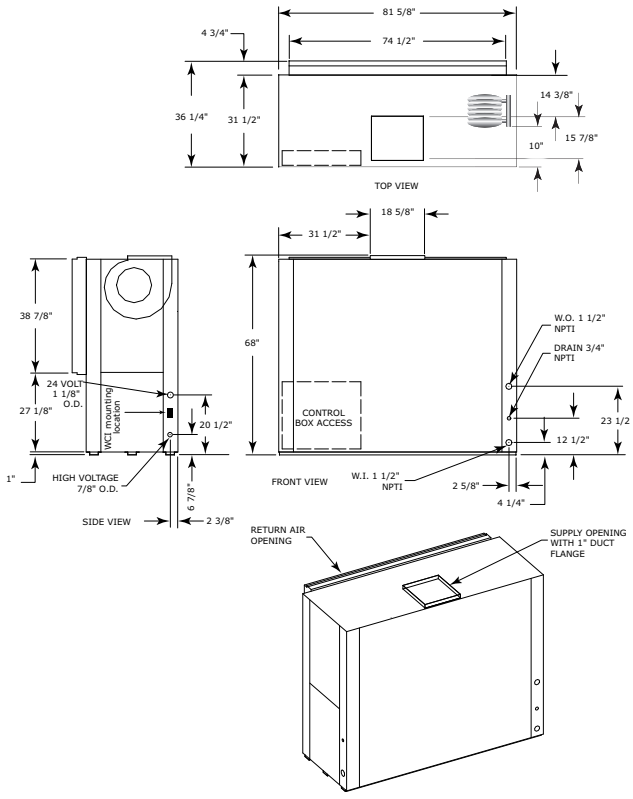


Figure 28. Back return/top supply[6] GEVE 12.5 to 15 tons (60 Hz); GEVE 10 and 12.5 tons (50 Hz)



6. *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 29. Front return/back supply[7] GEVE 20 and 25 tons (60 Hz); GEVE 15 and 20 tons (50 Hz)

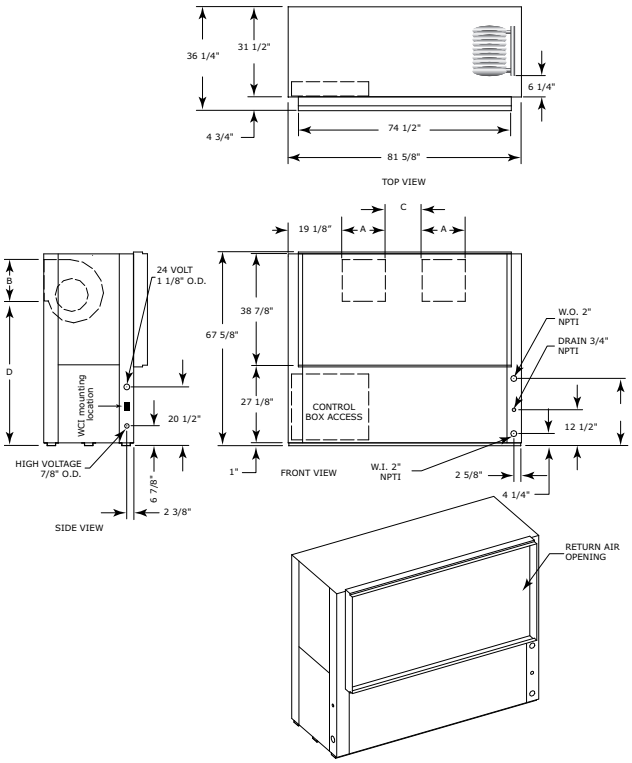


Table 20. Dimensional data front return/back supply GEVE 20 and 25 tons (60 Hz); GEVE 15 and 20 tons (50 Hz)

Unit (60 Hz)	Unit (50 Hz)	A	B	C	D	E
20 tons	15 tons	15-5/8 in.	13-1/2 in.	12 in.	51-5/8 in.	20-7/8 in.
25 tons Std Static	20 tons Std Static	14-3/4 in.	15-7/8 in.	13-7/8 in.	49-1/8 in.	23-1/2 in.
25 tons High Static	20 tons High Static	15-5/8 in.	13-1/2 in.	12 in.	51-5/8 in.	23-1/2 in.

7. *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 30. Back return/front supply[8] GEVE 20 and 25 tons (60 Hz); GEVE 15 and 20 tons (50 Hz)

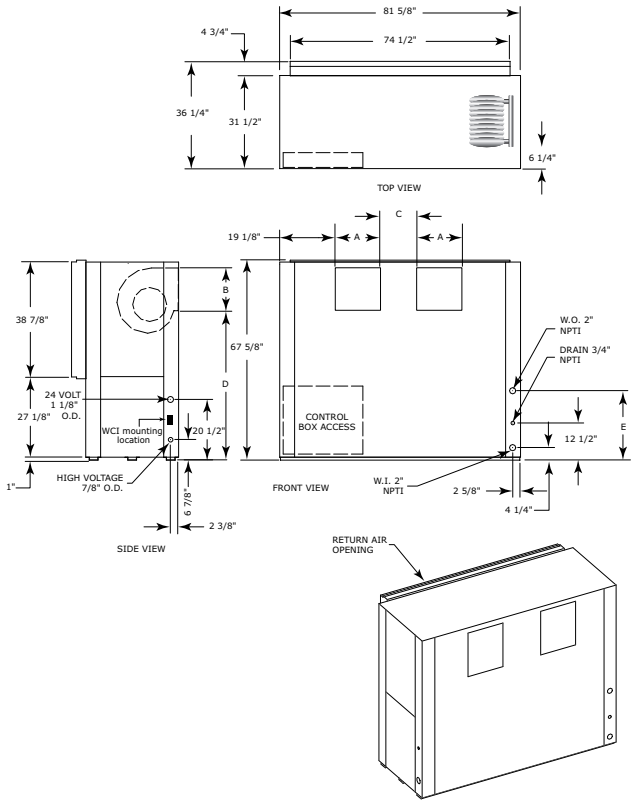


Table 21. Dimensional data back return/front supply GEVE 20 and 25 tons (60 Hz); GEVE 15 and 20 tons (50 Hz)

Unit (60 Hz)	Unit (50 Hz)	A	B	C	D	E
20 tons	15 tons	15-5/8 in.	13-1/2 in.	12 in.	51-5/8 in.	20-7/8 in.
25 tons Std Static	20 tons Std Static	14-3/4 in.	15-7/8 in.	13-7/8 in.	49-1/8 in.	23-1/2 in.
25 tons High Static	20 tons High Static	15-5/8 in.	13-1/2 in.	12 in.	51-5/8 in.	23-1/2 in.

8. *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 31. Front return/top supply[9] GEVE 20 and 25 tons (60 Hz); GEVE 15 and 20 tons (50 Hz)

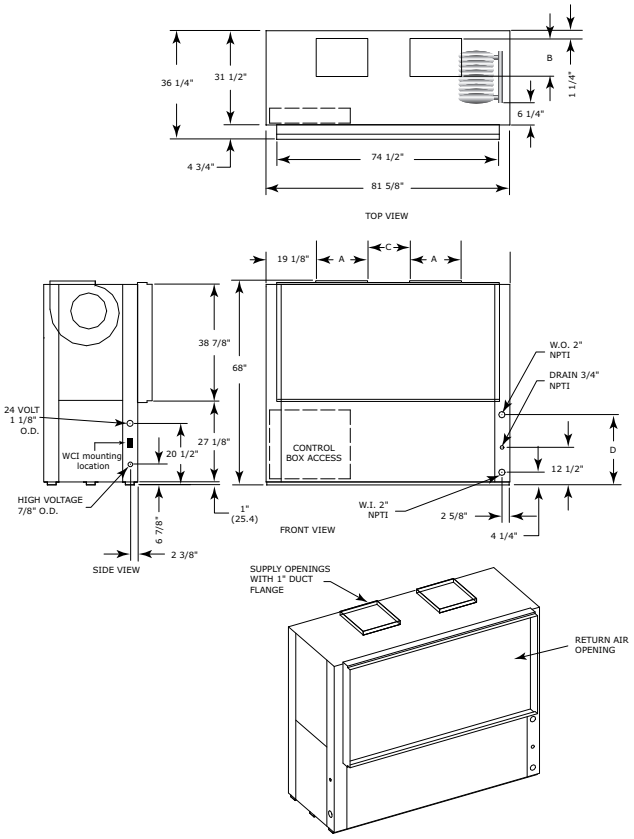


Table 22. Dimensional data front return/top supply GEVE 20 and 25 tons (60 Hz); GEVE 15 and 20 tons (50 Hz)

Unit (60 Hz)	Unit (50 Hz)	A	B	C	D
20 tons	15 tons	15-5/8 in.	13-1/2 in.	12 in.	20-7/8 in.
25 tons Std Static	20 tons Std Static	14-3/4 in.	15-7/8 in.	13-7/8 in.	23-1/2 in.
25 tons High Static	20 tons High Static	15-5/8 in.	13-1/2 in.	12 in.	23-1/2 in.

[9] *NEC requires that the GEV072-300 front return must be a non-ducted return.*

Figure 32. Back return/top supply[10] GEVE 20 and 25 tons (60 Hz); GEVE 15 and 20 tons (50 Hz)

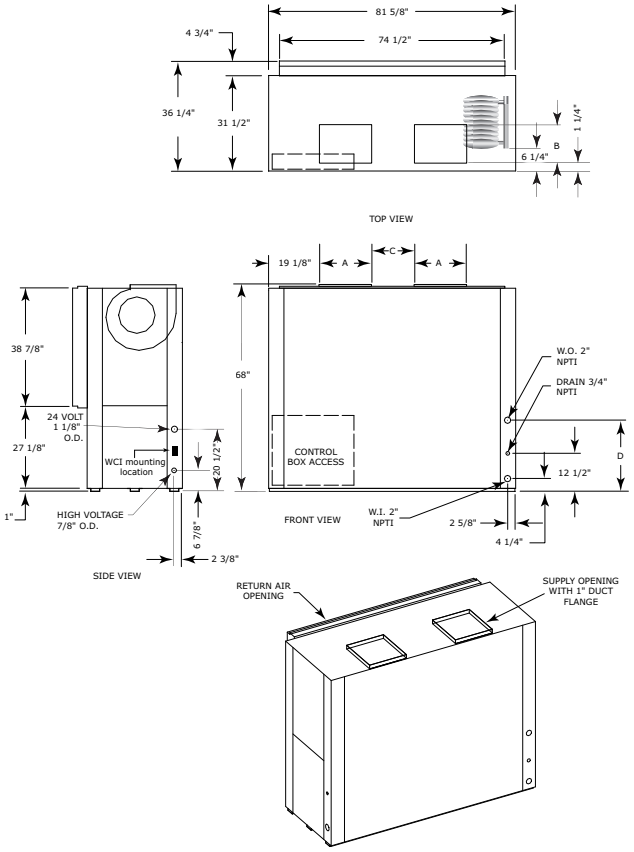


Table 23. Dimensional data back return/top supply GEVE 20 and 25 tons (240 and 300) 60 Hz; GEVE 15 and 20 tons (180 and 240) 50 Hz

Unit (60 Hz)	Unit (50 Hz)	A	B	C	D
20 tons	15 tons	15-5/8 in.	13-1/2 in.	12 in.	20-7/8 in.
25 tons Std Static	20 tons Std Static	14-3/4 in.	15-7/8 in.	13-7/8 in.	23-1/2 in.
25 tons High Static	20 tons High Static	15-5/8 in.	13-1/2 in.	12 in.	23-1/2 in.

10. *NEC requires GEV072-300 front return must be non-ducted return.*

Figure 33. Waterside economizer[11] (GEHG)

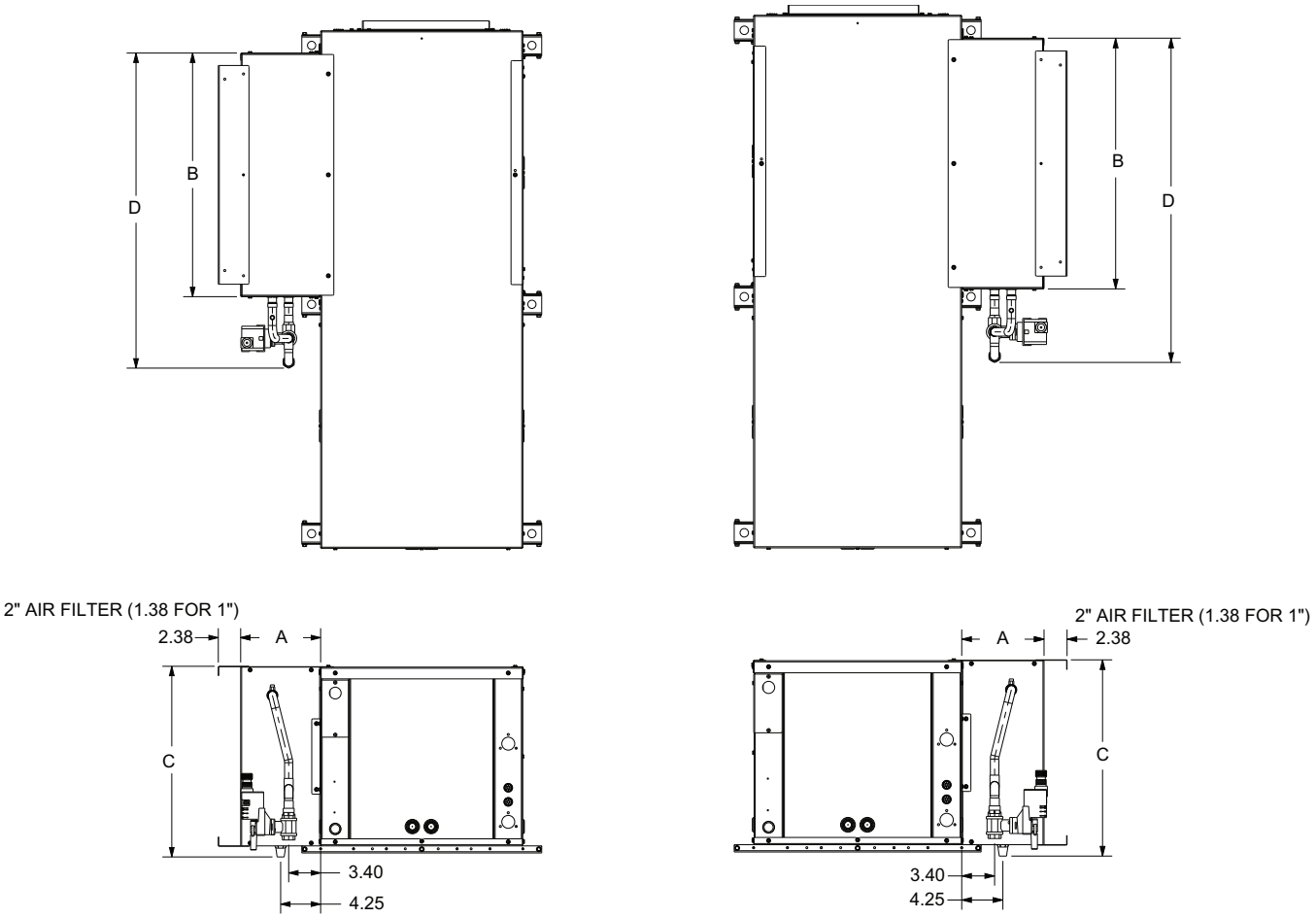


Table 24. Dimensional data waterside economizer (GEHG)

Cab	Unit			WSE Dimensions				Pipe Size	
				Width	Depth	Height	Depth W/Piping	A	B
	GEHG			A	B	C	D	NPTI	NPTI
A	006	009	012	8.5	19.0	16.25	26.50	0.5	0.5
B	015	018	–		21.5	18.25	29.00	0.75	0.75
C	024	030	–		23.0	19.25	30.50	0.75	0.75
D	036	042	–		26.0	22.25	33.50	0.75	0.75
E	048	060	–		32.5		38.25	1	1

Table 25. Waterside economizer weights and part numbers - horizontal

Unit Model	Waterside Economizer	Weight w/out H_2O	Weight w/H_2O
GEHG006-012 LR	WSHPECN00015	23	26
GEHG015-018 LR	WSHPECN00016	27	30
GEHG024-030 LR	WSHPECN00017	29	33
GEHG036-042 LR	WSHPECN00018	35	40
GEHG048-060 LR	WSHPECN00019	41	48
GEHG006-012 RR	WSHPECN00022	23	26
GEHG015-018 RR	WSHPECN00023	27	30
GEHG024-030 RR	WSHPECN00024	29	33

[11] *Waterside economizer installation requires field piping.*

Table 25. Waterside economizer weights and part numbers - horizontal (continued)

Unit Model	Waterside Economizer	Weight w/out H_2O	Weight w/H_2O
GEHG036-042 RR	WSHPECN00025	35	40
GEHG048-060 RR	WSHPECN00026	41	48

Figure 34. Waterside economizer (GEVG)

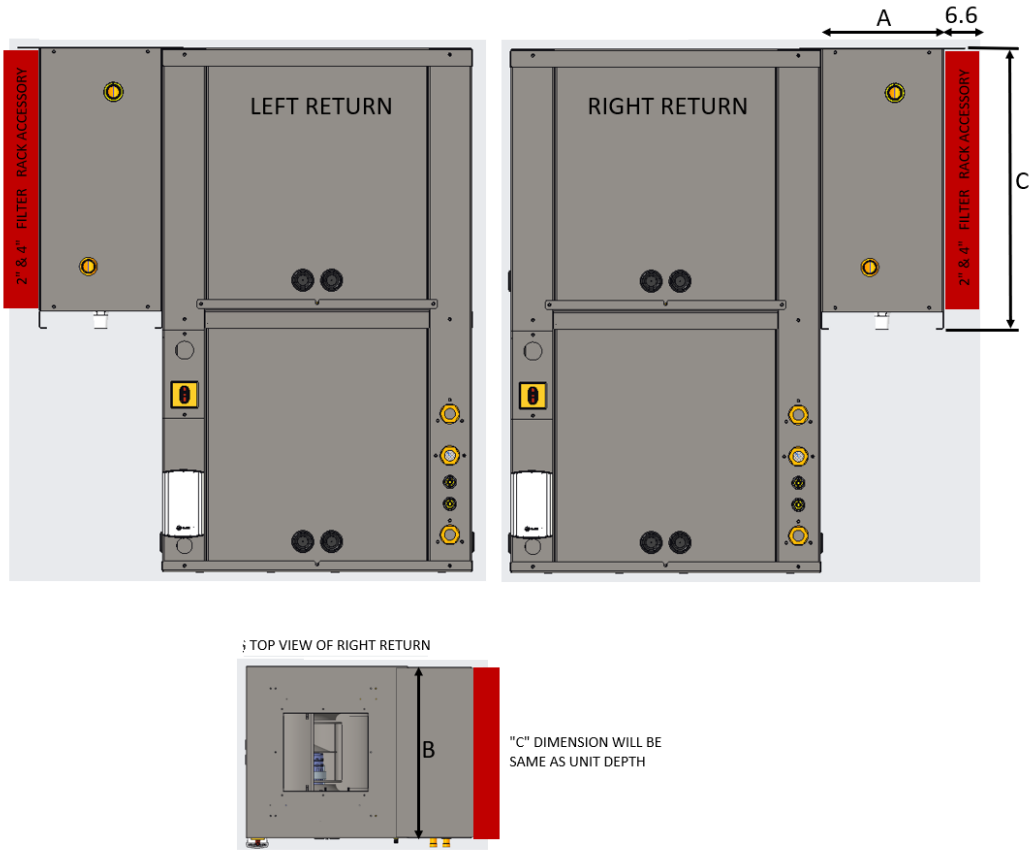


Table 26. Dimensional data waterside economizer (GEVG)

Unit	Cabinet	WSE Dimensions		
		A (Width)	B (Depth)	C (Height)
GEVG006-012	A	8.5	19.0	16.25
GEVG015-018	B	8.5	21.5	18.25
GEVG024-030	C	8.5	23.0	19.25
GEVG036-042	D	8.5	26.0	22.25
GEVG048-060	E	8.5	32.5	22.25

Figure 35. Waterside economizer (GEVG)

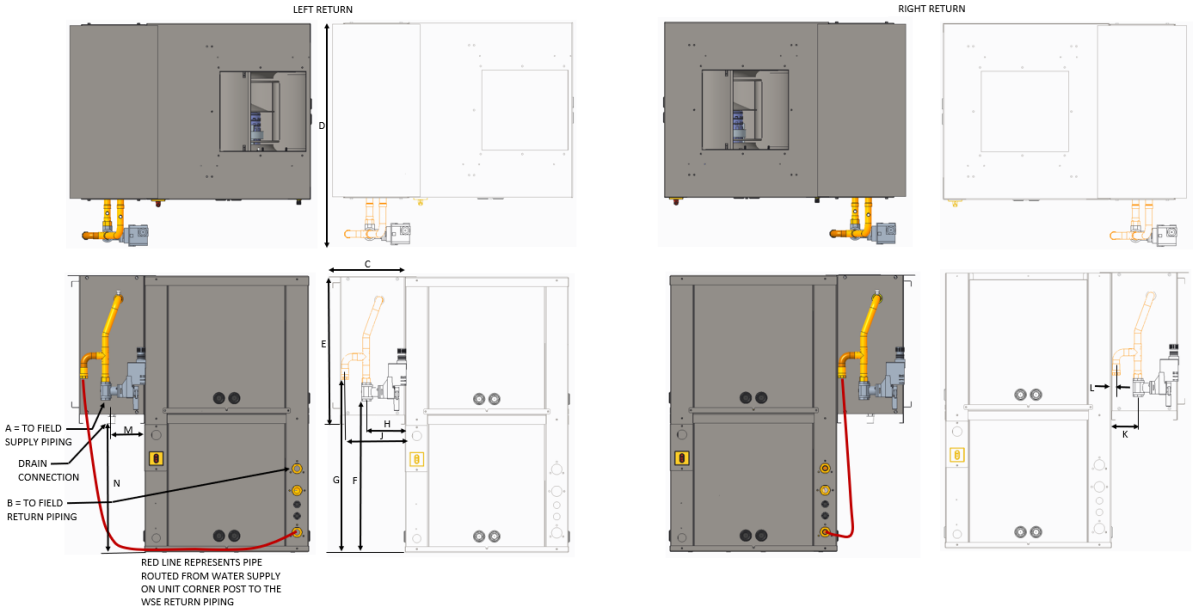


Table 27. Dimensional data waterside economizer (GEVG)

Unit	Cabinet	Pipe Size		WSE Size			Piping Location						Drain	
		A NPTI	B NPTI	C Width	D Depth	E Height	F Height	G Height	H Width	J Width	K Width	L Width	M Width	N Height
GEVG006-012	A	1/2	1/2	8.5	25.0	16.25	15.75	18.75	5.0	7.5	3.5	0.75	4.25	13.75
GEVG015-018	B	1/2	1/2	8.5	27.5	18.25	17.75	20.75	5.0	7.88	3.5	0.63	4.25	15.75
GEVG024-030	C	3/4	3/4	8.5	29.0	19.25	19.75	22.75	5.0	7.88	3.5	0.63	4.25	16.75
GEVG036-042	D	3/4	3/4	8.5	32.0	21.75	21.75	24.75	5.0	7.88	3.5	0.63	4.25	15.75
GEVG048-060	E	1	1	8.5	38.5	22.75	22.75	25.75	5.0	8	3.5	0.5	4.25	19.75

Table 28. Waterside economizer weights and part numbers - vertical

Unit Model	Waterside Economizer	Weight w/out H_2O (lbs)	Weight w/H_2O (lbs)
GEVG006-012 LR	WSHPECN00001	23	26
GEVG015-018 LR	WSHPECN00002	27	30
GEVG024-030 LR	WSHPECN00003	29	33
GEVG036-042 LR	WSHPECN00004	35	40
GEVG048-060 LR	WSHPECN00005	41	48
GEVG006-012 RR	WSHPECN00008	23	26
GEVG015-018 RR	WSHPECN00009	27	30
GEVG024-030 RR	WSHPECN00010	29	33
GEVG036-042 RR	WSHPECN00011	35	40
GEVG048-060 RR	WSHPECN00012	41	48

Figure 36. GEHE 6 to 10 tons (60 Hz), GEHE 6 to 7.5 tons (50 Hz) - right return with waterside economizer[12]

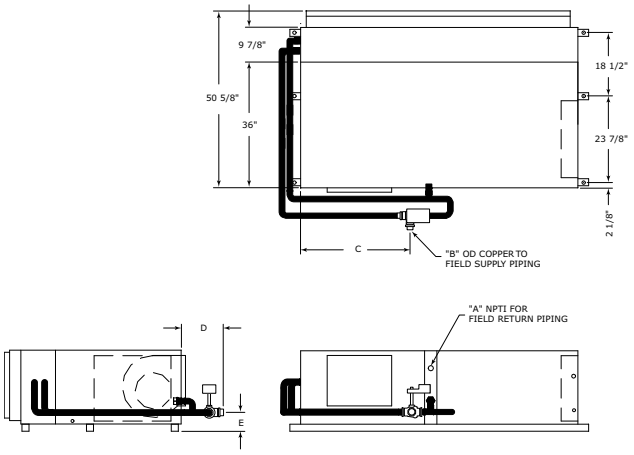


Figure 37. GEHE 6 to 10 tons (60 Hz), GEHE 6 to 7.5 tons (50 Hz) - left return with waterside economizer[12]

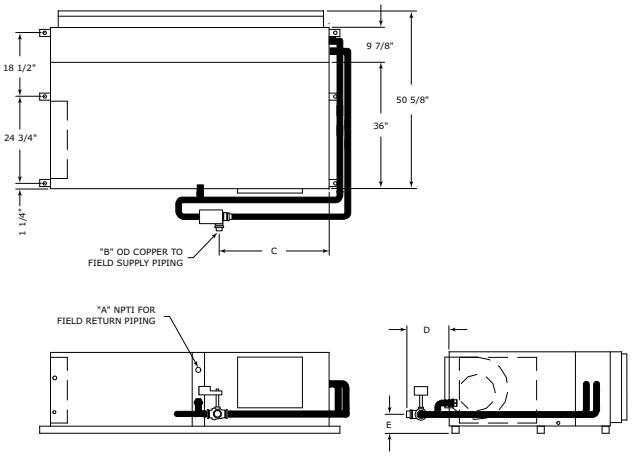


Table 29. Dimensional data GEHE 6 to 10 tons (60 Hz), GEHE 6 to 7.5 tons (50 Hz), waterside economizer

GEH (60 Hz)	GEH (50 Hz)	A	B	C	D	E	Hanging Weight	Shipping Weight
72	—	1-1/4	1-3/8	31	9-7/8	3-7/8	138 lbs	168 lbs
90	72	1-1/4	1-3/8	31	9-7/8	3-7/8	144 lbs	174 lbs
120	90	1-1/2	1-5/8	30-3/4	12-1/2	4-1/2	166 lbs	196 lbs

Figure 38. GEHE 12.5 to 15 tons (60 Hz), GEHE 10 to 12.5 tons (50 Hz), right return with waterside economizer[13]

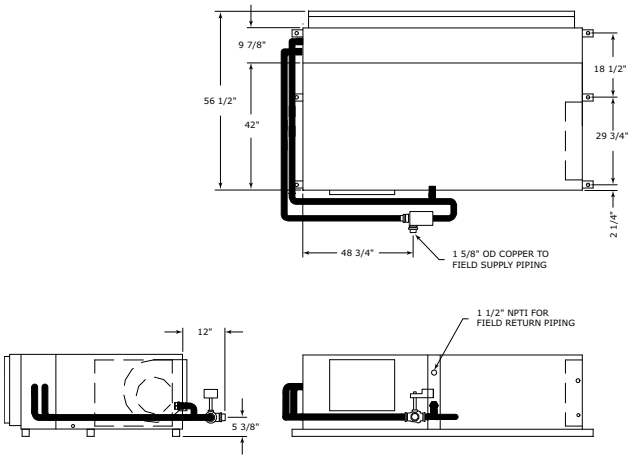


Table 30. Dimensional data GEHE 12.5 to 15 tons (60 Hz), GEHE 10 to 12.5 tons (50 Hz), right return with waterside economizer

GEHE (60 Hz)	GEHE (50 Hz)	Hanging Weight	Shipping Weight
150	120	138 lbs	168 lbs
180	150	144 lbs	174 lbs

12. *Field piping required on waterside economizer.*
13. *Field piping required on waterside economizer.*

Figure 39. GEHE 12.5 to 15 tons (60 Hz), GEHE 10 to 12.5 tons (50 Hz), left return with waterside economizer[14]

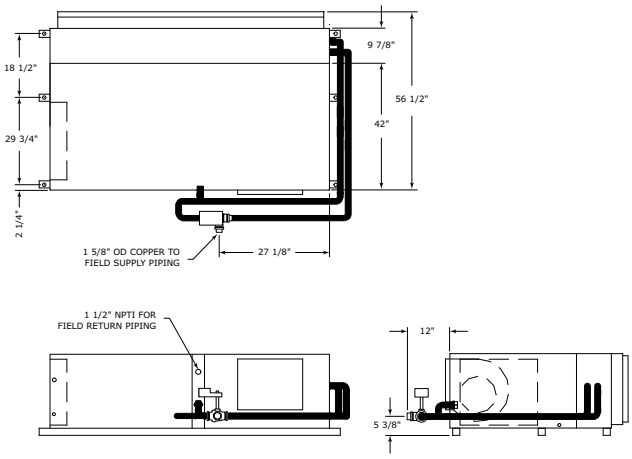


Table 31. Dimensional data GEHE 12.5 to 15 tons (60 Hz), GEHE 10 to 12.5 tons (50 Hz) - left return with waterside economizer

GEHE (60 Hz)	GEHE (50 Hz)	Hanging Weight	Shipping Weight
150 - 180	120-150	213 lbs	243 lbs

Table 32. Waterside economizer part numbers - horizontal

Unit Model	Waterside Economizer
GEHE072 LR	447705070001
GEHE090 LR	447705080001
GEHE120 LR	447705090001
GEHE150 LR	447705100001
GEHE180 LR	447705100001
GEHE072 RR	447705110001
GEHE090 RR	447705120001
GEHE120 RR	447705130001
GEHE150 RR	447705140001
GEHE180 RR	447705140001

[14] *Field piping required on waterside economizer.*

Figure 40. GEVE 6 to 10 tons (60 Hz), 6 and 7.5 tons (50 Hz) - waterside economizer

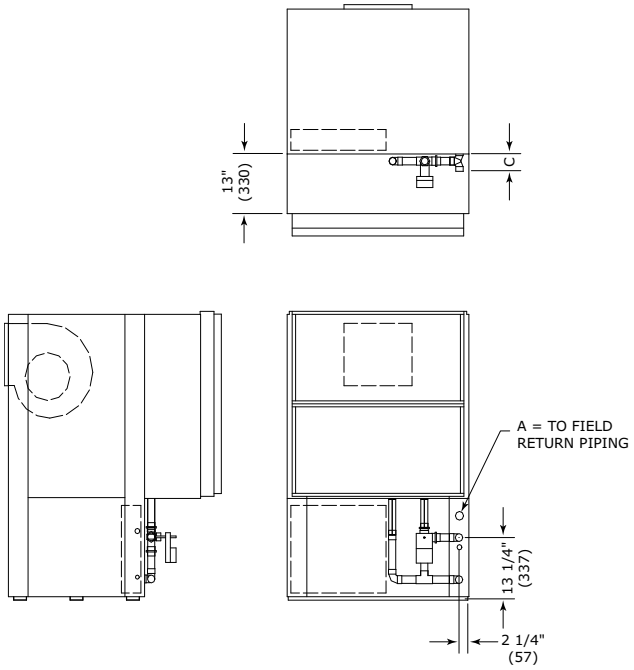


Table 33. Dimensional data GEVE 6 to 10 tons (60 Hz), 6 and 7.5 tons (50 Hz) - waterside economizer

Unit (60 Hz)	Unit (50 Hz)	A	B	C	Hanging Weight	Shipping Weight
72	—	1-1/4	1-3/8	4	148 lbs	178 lbs
90	72	1-1/4	1-1/4	4	168 lbs	198 lbs
120	90	1-1/2	1-5/8	4-3/8	207 lbs	237 lbs

Figure 41. GEVE 12.5 to 25 tons - waterside economizer

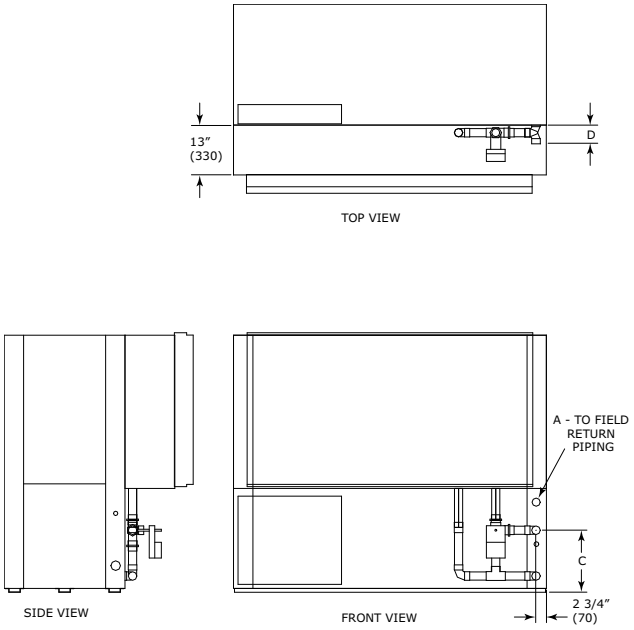


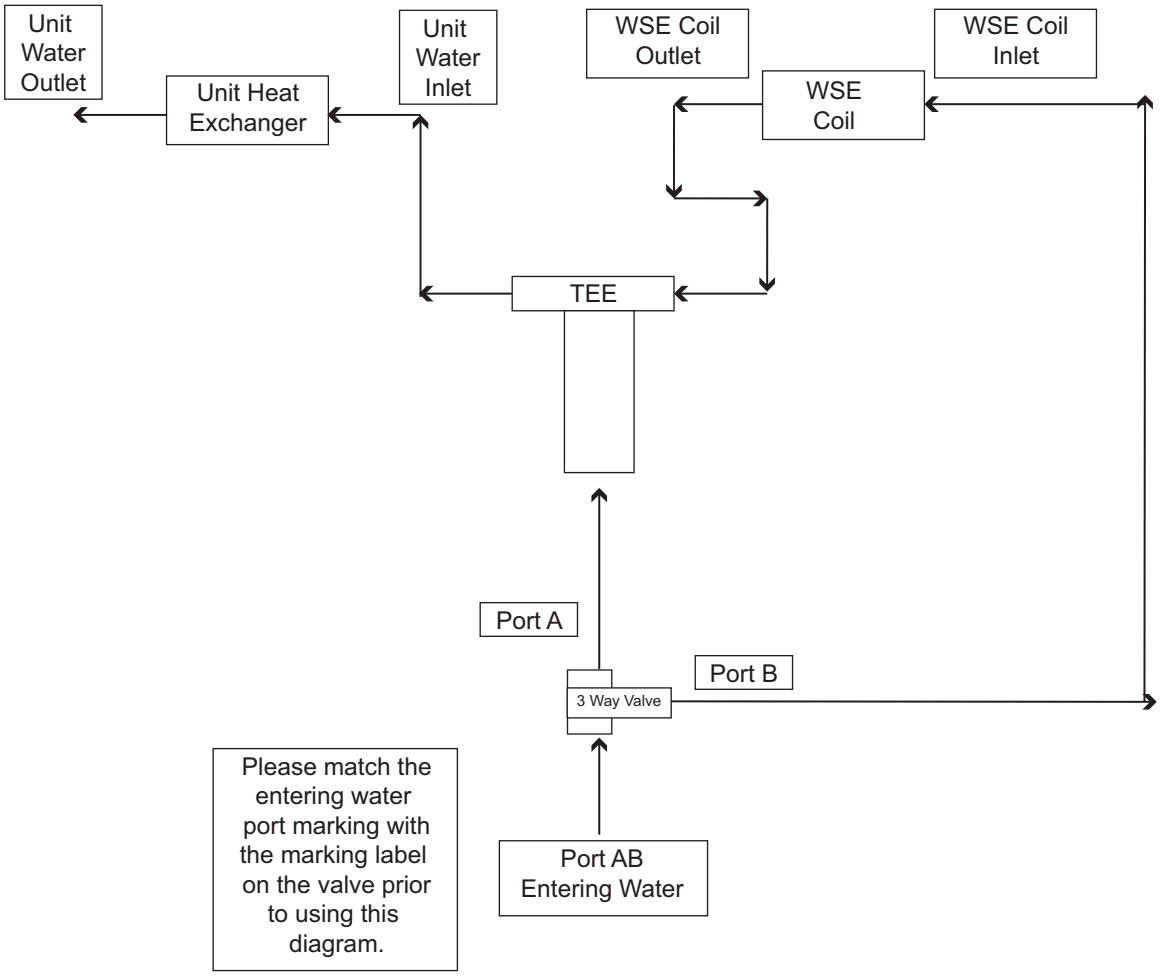
Table 34. Dimensional data GEVE 12.5 to 25 tons - waterside economizer

GEVE (60 Hz)	GEVE (50 Hz)	A - NPTI	B - I.D.	C	D	Hanging Weight	Shipping Weight
150-180	120-150	1-1/2	1-5/8	15-7/8	4-3/8	275 lbs	305 lbs
240	180	2	2-1/8	16-1/4	4-7/8	310 lbs	340 lbs
300	240	2	2-1/8	16-1/4	4-7/8	395 lbs	425 lbs

Table 35. Waterside economizer part numbers - vertical

Unit Model	Waterside Economizer
GEVE072	447705040001
GEVE090	447705050001
GEVE120	447705060001
GEVE150	447705010001
GEVE180	447705010001
GEVE240	447705020001
GEVE300	447705030001

Figure 42. Waterside economizer coil piping diagram



Weights

Table 36. Unit weights GEH 0.5 to 5 tons (Approximate)

GEH (60 Hz)	Shipping Weight with pallet (lbs)	Unit Weight without pallet (lbs)
006	255	165
009	255	165
012	255	165
015	297	173
018	297	173
024	393	269
030	393	269
036	437	313
042	437	313
048	526	381
060	539	394

Table 37. Unit weights GEV 0.5 to 5 tons (Approximate)

GEV (60 Hz)	Shipping Weight with pallet (lbs)	Unit Weight without pallet (lbs)
006	201	149
009	201	149
012	201	149
015	210	155
018	212	157
024	268	210
030	272	214
036	280	220
042	312	252
048	343	280
060	348	285

Weight Distribution for Hanging the GEH Model

⚠ WARNING

Improper Unit Lift!

Failure to properly lift unit in a LEVEL position could result in unit dropping and possibly crushing operator/technician which could result in death or serious injury, and equipment or property-only damage.

Test lift unit approximately 24 inches (61 cm) to verify proper center of gravity lift point. To avoid dropping of unit, reposition lifting point if unit is not level.

Approximate weight distribution for proper hanging of the unit is indicated by weight distribution in the figure below.

Tolerance on the weights determined are ±15%.

Figure 43. Weight distribution GEH 0.5 to 5 tons

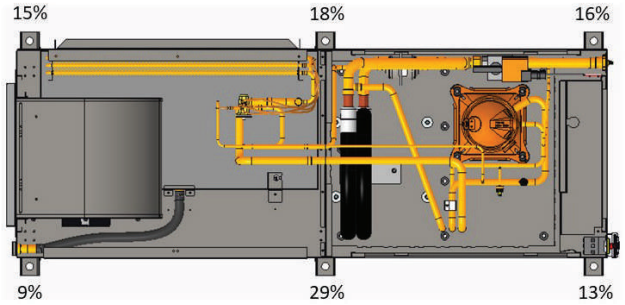
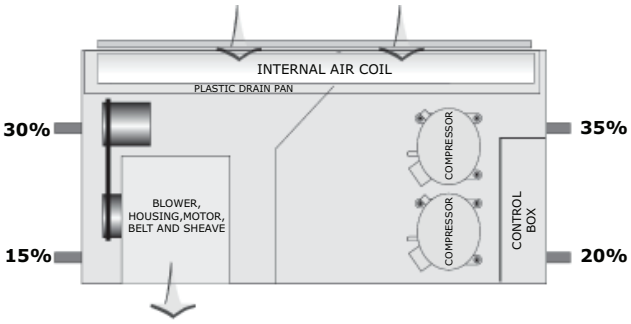


Figure 44. Weight distribution GEH 6 to 15 tons



Installation

⚠ 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.

General Installation Checks

The checklist below is a summary of the steps required to successfully install a commercial unit. This checklist is intended to acquaint the installing personnel with what is required in the installation process. It does not replace the detailed instructions that are in the applicable sections of this manual.

1. Remove packaging and inspect the unit. Check the unit for shipping damage and material shortage; file a freight claim and notify appropriate sales representation.

   The GEH/V 0.5 to 5 ton and GEVE 6 to 25 ton units have been anchored to the skid with (4) angle brackets. Remove these brackets before lifting unit into place.

   The GEH 6 to 15 ton units are anchored to the cross brace of the skid with (4) wood screws. Remove these screws prior to lifting the unit into place.
2. Verify the correct model, options and voltage from the unit nameplate.
3. Pull out all field attached parts (i.e. filter rack, duct collar, filter and mounting screws) from the unit packaging for field mounting.
4. Verify the installation location of the unit will provide the required clearance for proper operation.
5. Remove refrigeration access panel and inspect the unit. Be certain the refrigerant tubing has clearance from adjacent parts.
6. Fabricate and install duct work
7. Install and connect a condensate drain line and trap to the drain connection.

Main Electrical

⚠ WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

1. Verify the power supply complies with the unit nameplate specifications.
2. Inspect all control panel components; tighten any loose connections.
3. Connect properly sized and protected power supply wiring to a field-supplied/installed disconnect switch and to the main compressor contactor/power block 1K1 (compressor contactor on the 0.5 to 5 ton) for GEH/V 0.5 to 5 ton or 1TB1 for GEH/V 6 to 25 ton equipment in the unit control panel .
4. Install proper grounding wires to an earth ground.

Note: *All field-installed wiring must comply with NEC and applicable local codes.*

Electric Heat Requirements

1. Verify that the power supply complies with the electric heater specifications on the unit and heater nameplate.
2. Inspect the heater junction box and control panel; tighten any loose connections.
3. Check electric heat circuits for continuity.

Low Voltage Wiring (AC) Requirements

1. Install the zone sensor or thermostat.
2. Connect properly sized control wiring to the proper termination points between the zone thermostat or sensor and the unit control panel.

Filter Installation

Each unit ships with 1 in. (25.4 mm) standard, 2 in. (50.8 mm) standard, 2 in. MERV 8 or 2 in. MERV 13 filter. The quantity of filters is determined by unit size. The GEH 0.5 to 5 ton units require field installation of the 1 in. or 2 in. filters rack. All sheet metal bracket, filter and hardware are in a box located on the side of the unit within the unit packaging. All vertical and GEH 6 to 15 ton horizontal units ship with the filter rack and filters factory installed.

Note: *Do not operate the unit without filters.*

Supply-Air Ductwork

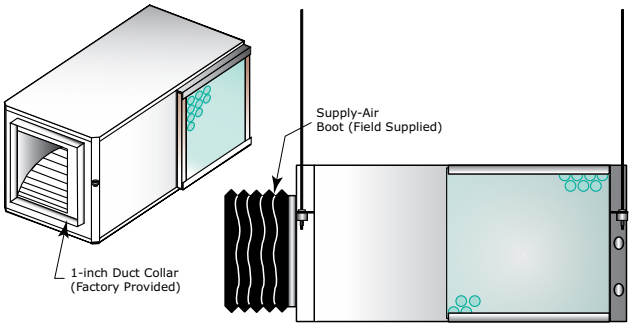
Horizontal 0.5 to 5 ton units require duct flanges to be field installed. The duct flange ships in a box on the side of the unit. Install the flange with (8) 3/8 in. (213 mm) factory supplied screws.

Install the 1 in. (25.4 mm) supply-air duct flange to the vertical and horizontal equipment with the (8) 5/16 in. (7.94 mm) factory-supplied head screws. The duct collar assembly for each unit is shipped with the unit in the same box where the IOM manual is located.

When attaching the field ductwork to the unit, provide a watertight flexible connector at the unit to prevent operating sounds from transmitting through the ductwork (See the figure below).

Elbows with turning vanes or splitters are recommended to minimize air noise due to turbulence and to reduce static pressure.

Figure 45. Flexible supply-air connector (field provided)



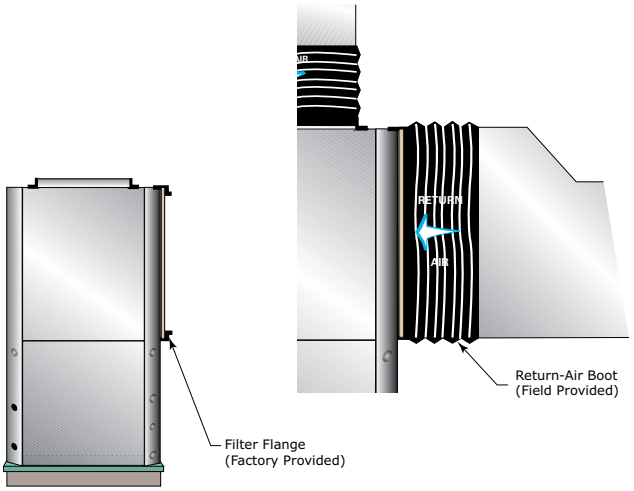
Return-Air Ductwork

Install the 1/2 in. (25.4 mm/50.8 mm) adjustable filter rack to the horizontal equipment only with the use of (4) 5/16 in. (7.94 mm) factory supplied head screws. The vertical equipment factory ships with the filter rack and filter(s) installed.

When attaching the field ductwork to the unit, provide a water-tight flexible connector at the unit to prevent operating sounds from transmitting through the ductwork.

Elbows with turning vanes or splitters are recommended to minimize air noise due to turbulence and to reduce static pressure.

Figure 46. Flexible return-air connector (field provided)



Ducted Panel

The return-air arrangement may be easily converted from a free return-air system, to a ducted return-air system with the addition of a return-air side panel. By replacing the filter racks with the return-air panel, a complete seal from the duct to the unit is possible. The 1.5 duct flange facilitates ease of field connection to the duct system. This accessory is typically used when the return-air filter is placed in a built-in ceiling grille, or placed within a field provided filter rack assembly.

Install the return-air duct panel to the return-air opening with the six screws provided for the filter rack assembly.

Figure 47. Return-air duct panel

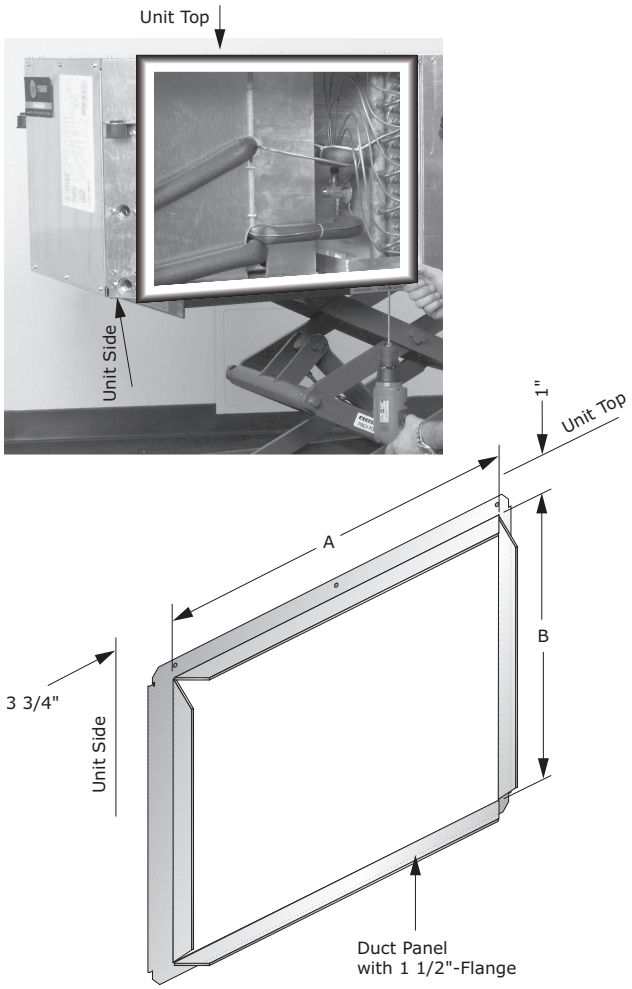


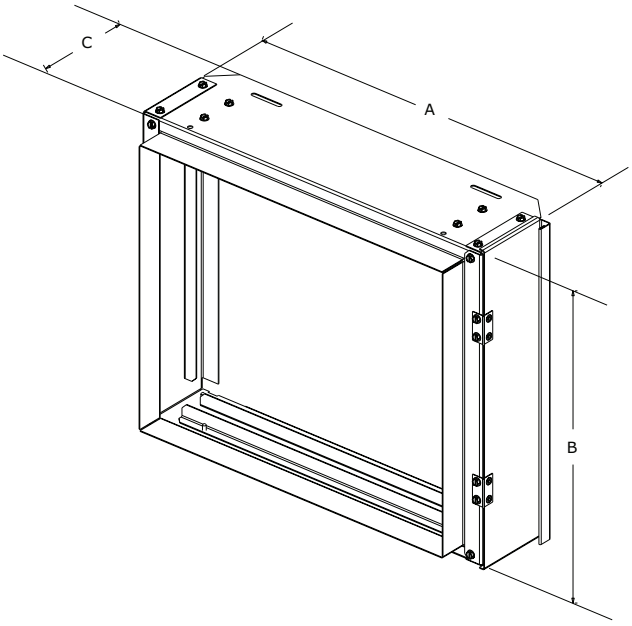
Table 38. Ducted panel - return air

Unit Size (60 Hz)	A (in.)	B (in.)	Duct Collar Part Number
GEVG006-012	16.00	14.50	WSHPPN-D00001
GEVG015-018	18.50	16.50	WSHPPN-D00002
GEVG024-030	20.00	17.50	WSHPPN-D00003
GEVG036-042	23.00	18.50	WSHPPN-D00004

Table 38. Ducted panel - return air (continued)

Unit Size (60 Hz)	A (in.)	B (in.)	Duct Collar Part Number
GEVG048-060	29.50	20.50	WSHPPN-D00005
GEHG006-012	16.00	14.50	WSHPPN-D00010
GEHG015-018	18.50	16.50	WSHPPN-D00011
GEHG024-030	20.00	17.50	WSHPPN-D00012
GEHG036-042	23.00	18.50	WSHPPN-D00013
GEHG048-060	29.50	20.50	WSHPPN-D00014

Ducted Filter Rack (0.5 to 5 tons only)



When it is necessary to have filter access at the unit in a ducted return, a ducted filter rack is available. This option allows access to the filter at the unit. Vertical unit filter racks are available in right or left access configurations. Horizontal units are available in bottom access configuration.

Table 39. Ducted filter opening size - 0.5 to 5 tons

Unit Size	A (in.)	B (in.)	C (in.)
GEH/V 006-012	16.50	14.25	6.60
GEH/V 015–018	19.00	16.25	6.60
GEH/V 024–030	20.50	17.25	6.60
GEH/V 036–042	23.50	18.50	6.60

Table 39. Ducted filter opening size - 0.5 to 5 tons (continued)

Unit Size	A (in.)	B (in.)	C (in.)
GEH/V 048-060	30.00	20.25	6.60

Note: *All dimensions in inches. GEH/V dimensions are for accessory 2 or 4–inch Filter Rack.*

Sound Attenuation Pad

For sound-sensitive installations, a vibration pad (field provided) should be placed beneath the horizontal or vertical equipment. For the horizontal unit, the pad should be approximately twice the size of the unit foot print. For the vertical unit, the pad should be 0.5 in. (12.7 mm) thick, and equal to the overall unit foot print.

Hanging the Horizontal Unit

⚠ WARNING

Proper Structural Support Required!

Failure to ensure proper structural ceiling support could result in unit falling from its location which could result in death or serious injury.

Ceiling structure must be strong enough to support the weight of the unit and any accessories. If unsure, check with a structural engineer.

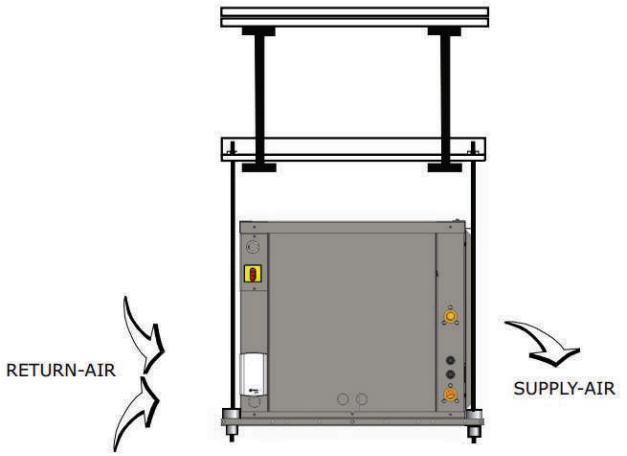
To hang the horizontal configuration (see the figure below):

1. Install the hanging isolators (located in the control box from factory) into the six hanging brackets.
2. The base of the unit (hanging rails) must be fully supported while unit is being lifted for install. This can be achieved by using a lift with a large enough supporting surface, or a wooden structure can fully support the base if desired.
3. Secure the equipment to a joist, concrete, etc. with the use of 3/8 in. (9.7 mm) field provided (all-thread) rod. Each rod should contain field provided nuts and washers to complete the hanging installation.
4. Slope 6 to 25 ton horizontal units in two directions. The unit should contain a dual 0.25-12 pitch toward the drain connection. This will insure proper drainage of the unit. All plumbing to the unit should conform per national and local codes and is the responsibility of the contractor. The 0.5 to 5 ton horizontals and GEHG models do not need to be sloped. GEHG 0.5 to 5 ton models must be installed level.

Notes:

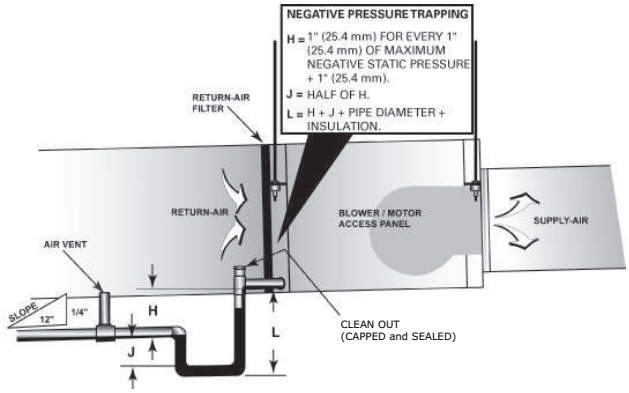
- *Rods must be perpendicular to the mounting holes in the base rail of the horizontal unit.*
- *For 0.5 to 5 ton GEHE models, follow pitching instructions from previous generation IOM.*

Figure 48. Hanging the unit



Condensate Drain Connection

Figure 49. Negative pressure system



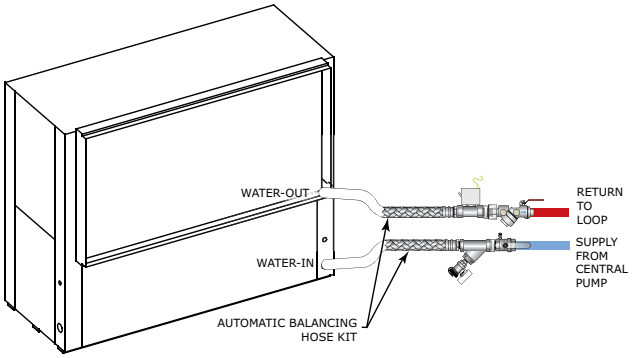
Install proper trapping to the equipment. The unit drain connection is 0.75 in. NPT for all GEV 0.5 to 25 ton and GEH 0.5 to 5 ton models. For 6 to 15 ton GEH models, the drain connection is 0.5 in. PVC schedule 40 pipe.

When designing the condensate trap for the water-source system, it is important to consider the unit draw-thru design requiring negative pressure trapping.

In a properly trapped system, when condensate forms during normal operation, the water level in the trap rises until there is a constant flow. It is imperative to maintain water in the trap and not allow the trap to dry out during heating season. Keeping trap primed at all times will enable the water to flow properly. See the figure above for appropriate dimensions required in a negative pressure system.

Supply Pipe Connections

Figure 50. Supply/return pipe connections



Connect the supply and return hoses to the water-inlet (from supply) and water-outlet (to return) of the unit. For vibration isolation, it is recommended that flexible steel braided hoses be installed instead of hard piping the equipment to the main loop system. Figure above shows connection of a Hays Mesurflo® balancing hose kit to the water-in and water-out of a vertical unit.

Note: *Above figure example incorporates the Hays Mesurflo® balancing hose kit and a 2-position isolation valve into the system design. An isolation valve is often used in variable speed pumping applications. The isolation valve is designed to stop water flow to the unit during non operation times. This allows the loop water pumps to run only when a requirement for pumping is needed for greater energy efficiency of the overall system design.*

Cleaning and Flushing the Water Loop

After the piping system is complete, the flexible hose connectors should be doubled back to complete the water circuit external to the unit (avoiding trash settle-out in the condenser). An extra pipe may be necessary to connect the hose kits.

1. Water circulation system should be filled with clean water using the water make up connections.

Note: *Air vents should be open during filling.*

2. With the air vents closed, start the circulating pump and then crack the air vents to bleed off the trapped air, assuring circulation through all components of the system.

Note: *Make up water must be available to the system to replace the volume formerly occupied by the air that is bled off.*

3. With the air vented and the water circulating, the entire system should be checked for leaks with repairs made as required.
4. Operate the supplementary heat system (boiler) making checks per manufacturer's instructions. During this operation, visual checks should be made for leaks that may have occurred due to increased heat. Repair as required.
5. Open the system at the lowest point for the initial blow down (making sure the make up water is equal to the water being dumped). Continue blow down until the water leaving the drain runs clear, but not less than 2 hours.
6. Shut down pumps and supplementary heat system. Reconnect the hoses placing the water-to-refrigerant heat exchanger in the water circulating system.

Note: *Vents should be open when the pumps and supplementary heat system are shut down.*

Field Installed Power Wiring

⚠ 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.

NOTICE

Use Copper Conductors Only!

Failure to use copper conductors could result in equipment damage as the equipment was not designed or qualified to accept other types of conductors.

Verify that the power supply available is compatible with the unit's nameplate. Use only copper conductors to connect the power supply to the unit.

Main Unit Power Wiring

⚠ 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.

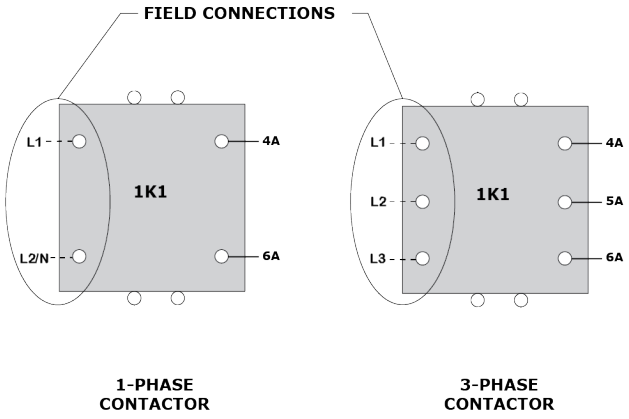
A field supplied disconnect switch must be installed at or near the unit in accordance with the National Electric Code (NEC latest edition).

Location of the applicable electric service entrance for HIGH (line voltage) may be found in the Dimensions section of this manual.

The high-voltage connection is made at the 1K1 contactor or 1TB power block inside the unit control box (See the figure below). Refer to the customer connection diagram that is shipped with the unit for specific termination points.

Provide proper grounding for the unit in accordance with the local and national codes.

Figure 51. Power wiring example



Control Power Transformer

The 24 V control power transformers are to be used only with the accessories called out in this manual. A 50 VA transformer is externally fused. Transformers rated greater than 50 VA are equipped with circuit breakers. If a circuit breaker trips, turn OFF all power to the unit before attempting to reset it.

⚠ WARNING

Hazardous Voltage!

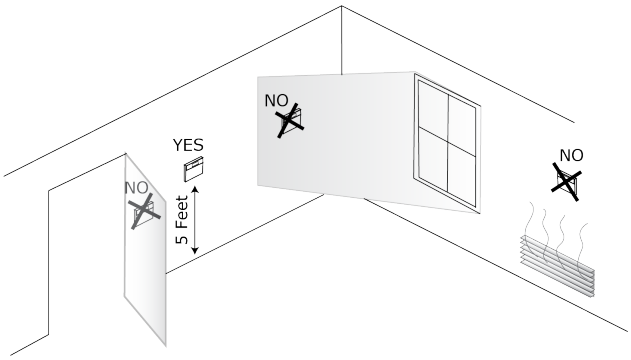
Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

The transformer is located in the control panel.

Thermostat Location

Figure 52. Thermostat/sensor location



Location of the thermostat or zone sensor is an important element of effective room control.

Areas where the thermostat or zone sensor should not be located include:

- Behind doors or corners
- Near hot or cold air ducts
- Near radiant heat (heat emitted from appliances or the sun)
- Near concealed pipes or chimneys
- On outside walls or other non conditioned surfaces
- In airflows from adjacent zones or other units.

Thermostats and Zone Sensors

Table 40. Thermostat selection for use with the Deluxe controller

Thermostat	Part Number	Description
	X13511535010	1 Heat/1 Cool, non-programmable commercial thermostat for conventional air conditioners and heat pumps that are configured without auxiliary heat • 1 H/1 C
	X13511536010	3 Heat/2 Cool, non-programmable commercial thermostat for conventional air conditioners and heat pumps that are configured with or without auxiliary heat. • 3 H/2 C
	X13511537010	3 Heat/2 Cool, programmable commercial thermostat for conventional (rooftop) air conditioners and heat pumps that are configured with or without auxiliary heat. • 3 H/2 C
	X13511538010	3Heat/2 Cool, programmable touch screen thermostat for conventional air conditioners and heat pump systems. The thermostat will provide the human interface, zone temperature sensing both local and optional remote temperature sensing, and set point scheduling on a daily/ weekly basis. This thermostat can also display humidity with a control signal for dehumidification with a local humidity sensor or optional remote humidity sensor. • 3 H/2 C
	Pivot — BAYSTAT814A-W.	Pivot Smart Thermostat is a Wi-Fi/ethernet thermostat for commercial applications. It has a very simple interface for occupants to adjust the thermostat. Cooling and heating control of multiple systems is made even easier and faster when connected to the Pivot App. Supports 2 stage heat pump with auxiliary heat.
	XL824 - TCONT824AS52DB.	The XL824 Smart thermostat is a Wi-Fi/ethernet thermostat for Residential applications such as single family homes, condominiums and apartments. Supports 2 stage heat pump with auxiliary heat. The XL824 can be connected to the Nexia Home App and other home automation systems.

Table 41. Zone sensor selection for use with Symbio™ 400-B/500 or Tracer® UC400-B controller

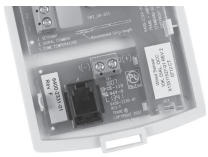
Sensor	Part Number	Description
	X13790886010	Wired temperature sensor with an LCD display • Allows an occupant to control the temperature setpoint, request timed override of system operation, and provides a COMM module to service technicians. Symbio 400-B/500 or UC400-B Compatible
	X13651467020	Communication Module • Sold in packs of 12 • Provides local RJ22 connection to Trane® service tools for easy, low cost maintenance.
	X13511529010	Zone Sensor • Symbio 400-B/500 or UC400-B compatible • External setpoint adjustment wheel
	X13511527010	Zone Sensor • Symbio 400-B/500 or UC400-B compatible • External setpoint adjustment wheel • ON and CANCEL buttons
	X1379084501	Zone Sensor • Symbio 400-B/500 or UC400-B compatible • External setpoint adjustment wheel • ON and CANCEL buttons • Fan switch AUTO-OFF
	X1379044401	Temperature and relative humidity sensor • Symbio 400-B/500 or UC400-B compatible

Table 41. Zone sensor selection for use with Symbio™ 400-B/500 or Tracer® UC400-B controller (continued)

Sensor	Part Number	Description
	X13790993001	Commercial Touch Screen Programmable Zone Sensor • Supports Standby, Occupied, and Unoccupied • 7 day, 5+2 day, and 5+1+1 day • Cannot be used with BAS as sensor ties up BACnet link. For use with factory-programmed Symbio 400-B/500 or UC400-B. ***Notes:*** • *Adjusting the rotary switch on Symbio 400-B/500 or UC400-B may be required to correspond address configuration in the sensor. See the installation manual for more information.* • *Additional configuration is needed in the field to use the Programmable zone sensors (to put BAS points in service on Symbio 400-B/500 or UC400-B).*
	X13790992001	Residential Touch Screen Programmable Zone Sensor • Supports Awake, Away, Home, and Sleep • 7 day, 5+2 day, and 5+1+1 day • Cannot be used with BAS as sensor ties up BACnet link. For use with factory-programmed Symbio 400-B/500 or UC400-B. ***Notes:*** • *Adjusting the rotary switch on Symbio 400-B/500 or UC400-B may be required to correspond address configuration in the sensor. See the installation manual for more information.* • *Additional configuration is needed in the field to use the Programmable zone sensors (to put BAS points in service on Symbio 400-B/500 or UC400-B).*

Table 42. Wireless zone sensor selection for use with Symbio 400-B/500 or UC400-B controller

Sensor	Part Number	Description
	X13790955010	Trane Air-Fi® WCS-SD (display) • Symbio 400-B/500 or UC400-B Compatible • Easy-to-use interface for clear and simple monitoring and control
	X13790956010	Trane Air-Fi WCS-SB (base) • Symbio 400-B/500 or UC400-B Compatible • Simplicity • Eliminates local temperature control when higher control level is required.
	X13790973030	Wireless communications sensor accessory—2% relative humidity (RH) sensor module (WCS-SH) The optional RH sensor module plugs in to any WCS model, further simplifying installation by eliminating the needed for additional wiring.

Controls Using 24 Vac

Before installing any wire, refer to the electrical access locations in the Unit Dimensions and Weights sections of this manual.

Ensure that the AC control wiring between the controls and the unit termination point does not exceed 3 Ohms/ conductor for the length of the run.

NOTICE

Component Failure!

Resistance in excess of 3 ohms per conductor could result in component failure due to insufficient AC voltage supply.

Do not exceed three (3) ohms per conductor for the length of the run.

Check all loads and conductors for grounds, shorts, and mis-wiring. Use copper conductors unless otherwise specified. Do not run the AC low-voltage wiring in the same conduit with the high voltage power wiring.

Table 43. 24V AC conductors

Distance from unit to control	Recommended wire size
000-460 ft	18 gauge
461-732 ft	16 gauge
733-1000 ft	14 gauge

Low-voltage connection diagrams for deluxe 24 V control packages for these thermostats mounted on 6 to 25 ton equipment sizes are shown in the figures below.

Figure 53. Low-voltage connection (GEH/V 6 to 25 ton)

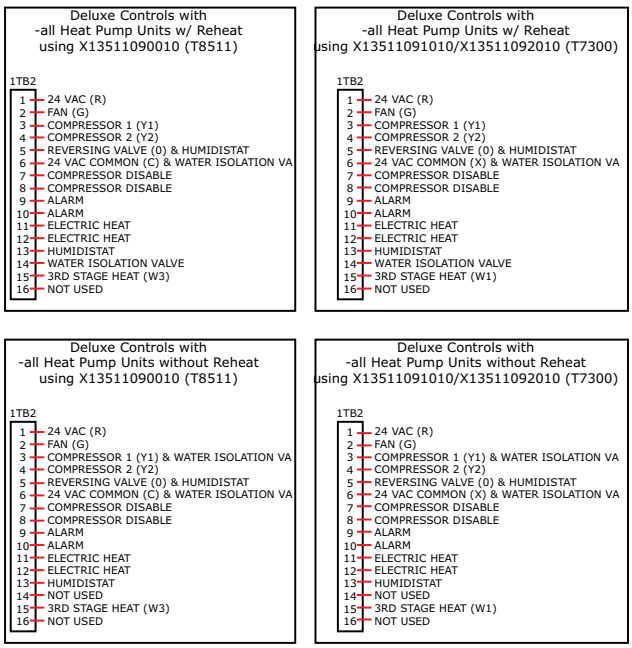


Figure 54. Low voltage wire connection (GEH/V 0.5 to 5 ton)

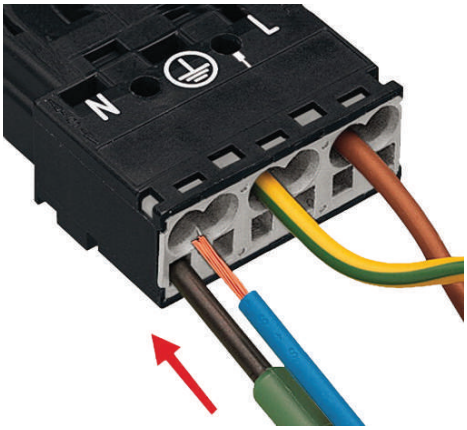
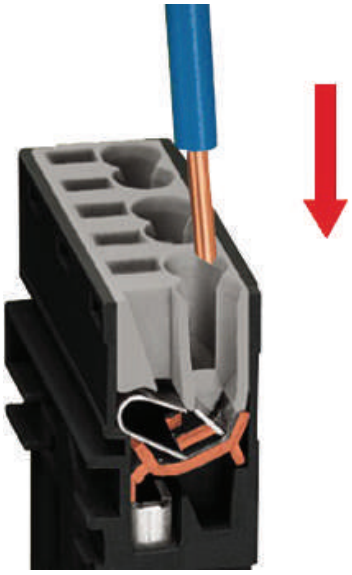
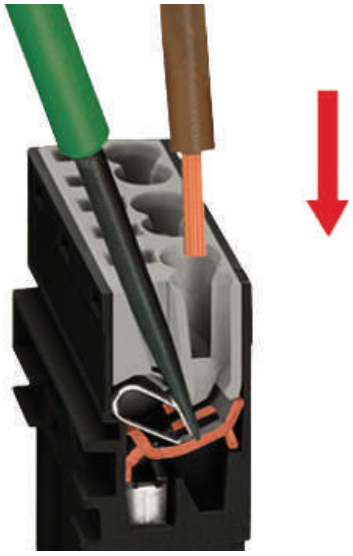


Figure 55. Low voltage single wire connection (GEH/ V 0.5 to 5 ton)



Make connection for a single-wire by inserting a single wire after stripping off the coating.

Figure 56. Low voltage stranded wire connection (GEH/V 0.5 to 5 ton)



Follow the steps to connect the stranded wire:

1. Release the spring with a dedicated screwdriver (blade width 2.5 mm)
2. Insert the stripped cable as far as it gets inserted.
3. Complete the connection by removing the screwdriver.

Figure 57. Deluxe controls low voltage connection (0.5 to 5 ton)

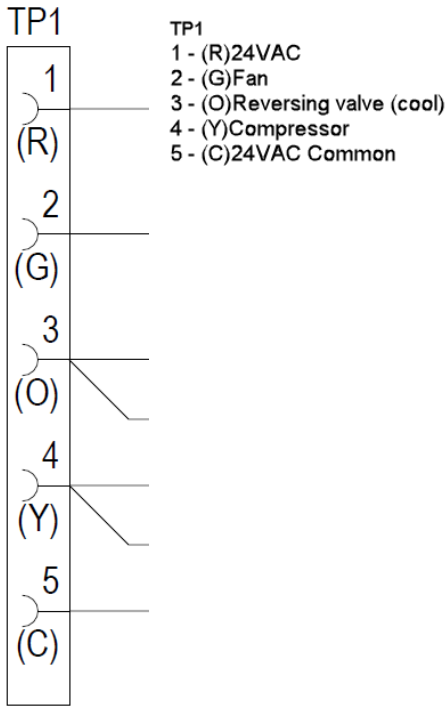
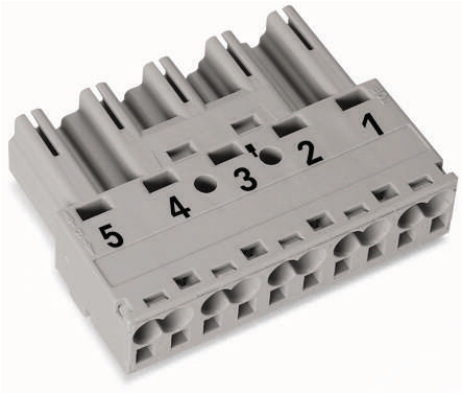


Figure 58. TP1 connection type



Present on all 0.5 to 5 ton H/V units.

Figure 59. Deluxe controls with WSE two-stage low voltage connection (0.5 to 5 ton)

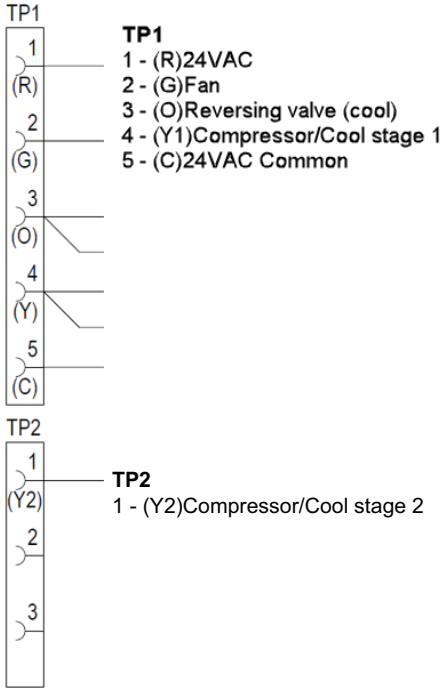


Figure 60. TP2 connection type

Only present on units with Deluxe 24V controls and either 2-speed compressor (DXV/H) or water side economizer (WSE) coil DX and WSE on DLX.

Figure 61. Deluxe controls humidistat connections between wires H1 and H2 in control box low voltage connection (0.5 to 5 ton)

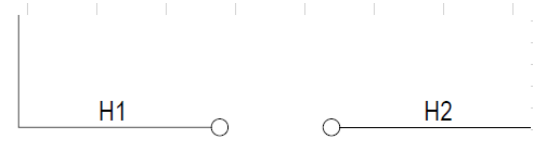
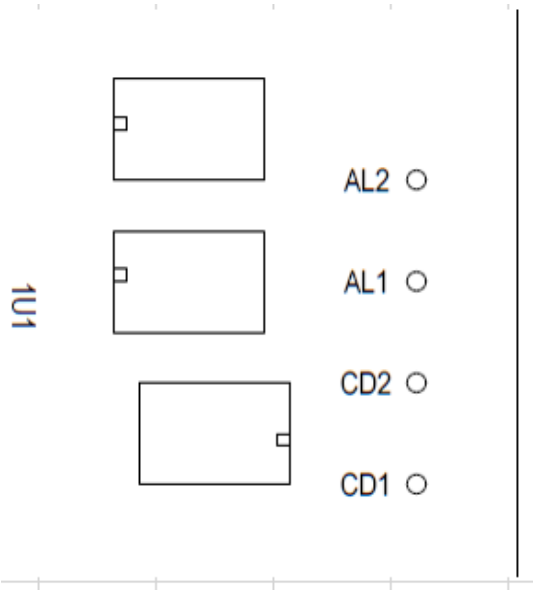


Figure 62. Deluxe controls general alarm and compressor disable (0.5 to 5 ton)



Deluxe board (1U1) connections

AL1, AL2 - Alarm Contact output

CD1, CD2 - Compressor Disable input (24Vac)

For installation, operation and programming see BAS-SVX065*-EN (UC400/UC400-B) and BAS-SVX092*-EN (Symbio™ 400-B/500).

⚠ WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

⚠ 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.

External Smoke Detection Wiring to Unit

Deluxe Controller

To inhibit operation of the compressor and fan for a safety shutdown, it is necessary to break the wire (21X) from the 24 Volt transformer to the 1TB1 terminal block. This can be done with the dry contacts of a relay. When that connection is opened, it terminates voltage to both the deluxe controller and the thermostat, which stops/prevents all control function to the fan and compressor.

Symbio™ 400-B/500 or UC400-B Controller

To inhibit operation of the compressor and fan for a safety shutdown, it is necessary to break the wire (21A) from the 24 Volt transformer to the Symbio 400-B/500 or UC400-B (1U1). This can be done with the dry contacts of a relay. When that connection is opened, it terminates the power voltage to the controller, which stops/prevents all control function including the fan and compressor.

Airflow Adjustment

⚠ WARNING

Rotating Components!

Failure to disconnect power before servicing could result in rotating components cutting and slashing technician which could result in death or serious injury.

During installation, testing, servicing and troubleshooting of this product it may be necessary to work with live and exposed rotating components. Have a qualified or licensed service individual who has been properly trained in handling exposed rotating components, perform these tasks.

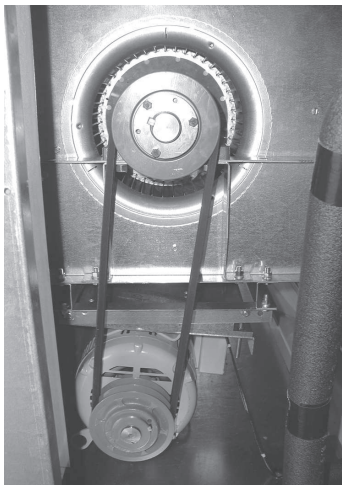
Note: *GEH/V 6 to 25 ton units only.*

To increase cfm, loosen the turns open set screw on the sheave, and turn the sheave clockwise. To decrease cfm, Loosen the turns open set screw on the sheave, and turn the sheave counterclockwise.

To increase belt tension, loosen the adjustment bolt and pull motor mounting plate back until the belt is tight. Tighten the adjustment bolt after the belt has reached the desired tension.

See the figure below for fan motor and sheave adjustment.

Figure 63. Fan motor and sheave adjustment



1. Belt
2. Adjustment bolt and plate
3. Sheave

GEV/H 0.5 to 5 tons - Units with Deluxe 24V controls

For sizes 006-060, the ECM is programmed for constant torque and delivers airflow similar to a PSC motor while operating at a higher efficiency.

Figure 64. ECM control box

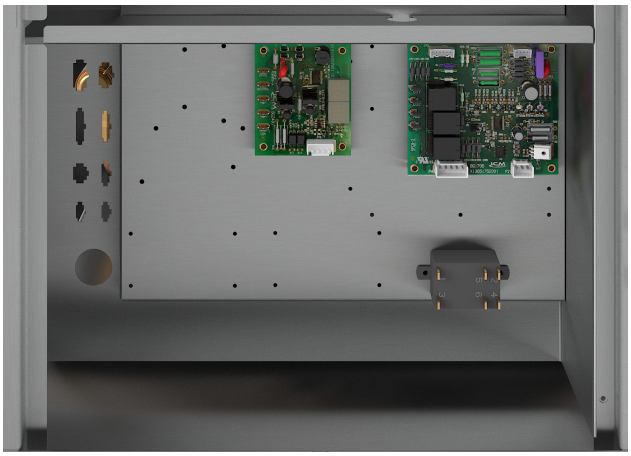
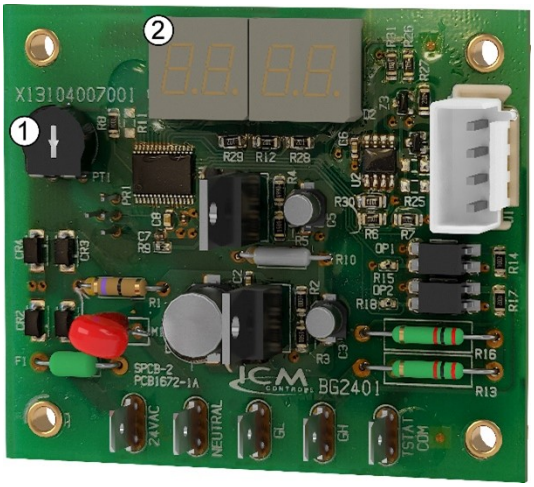


Figure 65. ECM control board



1. Potentiometer will be used to adjust the PWM output
2. Seven segment display

Using a screwdriver, the potentiometer will be used to adjust the PWM output from 20% to 100% PWM. Increasing the PWM will increase the motor speed. When setting the airflow for air balancing, the high-speed terminal (GH) must have 24 Vac signal. This will ensure that the PWM output will be adjusted for the full load airflow.

The display will show the commanded motor speed percentage. If running on low speed (GL), the low-speed value will be displayed. If running in GH the high-speed value will be displayed. If both GH and GL input signals are present, the PWM output value will be the GH value.

Note: *ECM control board is only on units with Deluxe 24V controls. Tracer® TU is used to adjust fan speed on units with Symbio™ 400-B/UC400-B controls.*

Waterside Economizer Installation

⚠ WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

⚠ 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.

Waterside Economizer Installation for Horizontal 0.5 to 5 Ton Units

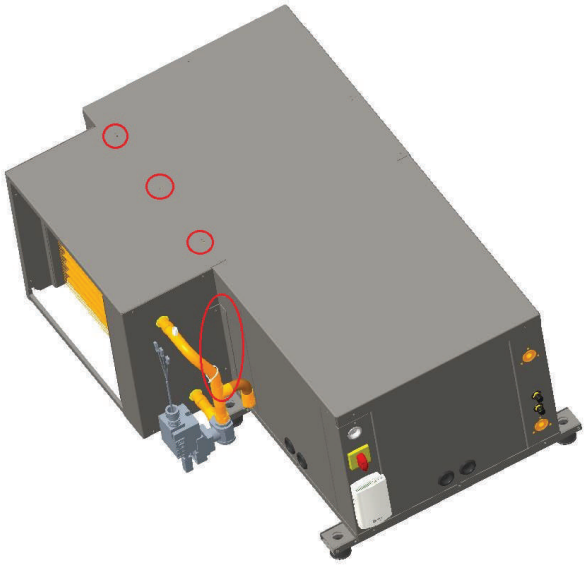
The following steps were sequenced to aid in the installation and pairing of a water side economizer to a 0.5 to 5 ton horizontal water source heat pump.

1. Remove the filter bracket from the unit. It is secured by four screws: three on top (circled) and two on the bottom (not shown). Do not discard the filter brackets.

Figure 66. Step 1

2. Mount the waterside economizer to the unit. It is secured to the unit using the three engagement holes used for the filter bracket on the top. Secure the sides of the economizer using the two L-Brackets on each side by lining up the engagement holes for the fasteners (total of four for each bracket). The engagement hole locations and L-Bracket can be seen in the Figure 67, p. 60 .

Figure 67. Step 2



3. Attach the filter bracket to the waterside economizer using the five screws removed earlier. Install the air filter.
4. Install the braided hose connecting point A (leaving the WSE) to point B (entering the WSHP). Connect the supply water to point D and the return water to point C.

Figure 68. Step 4

5. Locate the entering water sensor that is located behind the unit's control box, and wire tie it to the water SUPPLY side of the piping. The sensor must be mounted before the two-position valve. Attaching the sensor anywhere else will cause the WSE to not operate correctly. Bundle up any excess sensor wire and wire tie the bundle neatly.
6. Locate the WSE valve wires (35B (COM), 36B (OPEN), 37B (CLOSE)) behind control box, and connect to the valve actuator. Bundle up any excess wire and wire tie the bundle neatly. Direction of rotation is reversible with switch.
7. Insulate the economizing piping package and the associated hoses via field pipe insulation. Insulating the

piping will prevent condensation from forming on the pipe and dripping on the floor.

Notes:

- *Trane does not provide insulation on the economizing piping package. The insulation must be field provided and field installed.*
- *Trane does not provide condensate overflow protection of the waterside economizer. This must be field provided and installed.*

8. Field pipe the drain lines of the waterside economizer and water-source heat pump. Both the WSE and unit condensate drains must be separately trapped for proper handling of condensation (see Figure 69, p. 61). Both Vertical and Horizontal units will be piped similar to each other. The drain connection is located on the bottom side of the economizing coil.

Figure 69. Step 8

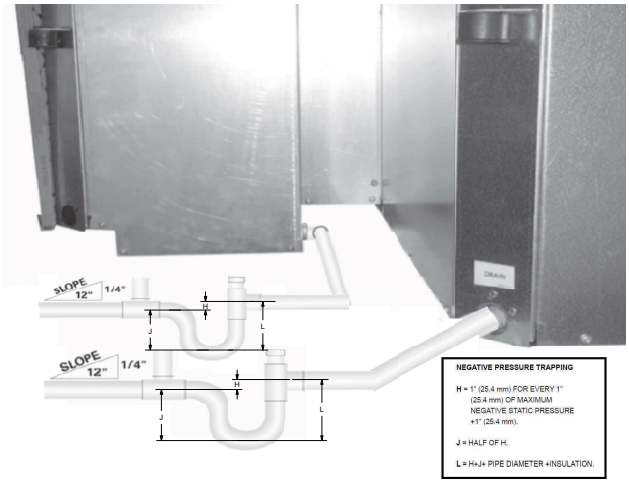


Table 44. Economizer part numbers

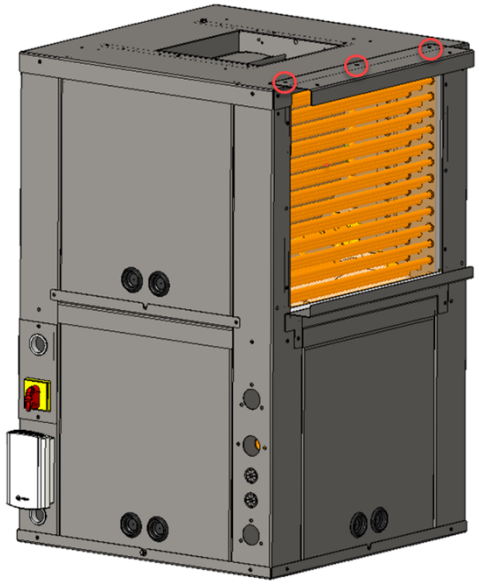
Supply-Air Arrangement	Unit	Part Number
Left Supply	GEVG006-012	WSHPECN00015
	GEVG015-018	WSHPECN00016
	GEVG024-030	WSHPECN00017
	GEVG036-042	WSHPECN00018
	GEVG048-060	WSHPECN00019
Right Supply	GEVG006-012	WSHPECN00022
	GEVG015-018	WSHPECN00023
	GEVG024-030	WSHPECN00024
	GEVG036-042	WSHPECN00025
	GEVG048-060	WSHPECN00026

Waterside Economizer Installation for Vertical 0.5 to 5 Ton Units

The following steps were sequenced to aid in the installation and pairing of a water side economizer to a 0.5 to 5 ton vertical water source heat pump.

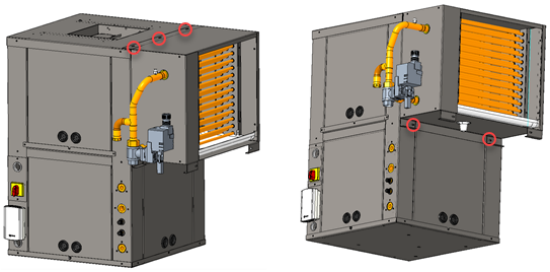
1. Remove the filter bracket from the unit. It is secured by five screws: three on top (circled) and two on the bottom (not shown). Do not discard the filter brackets.

Figure 70. Step 1



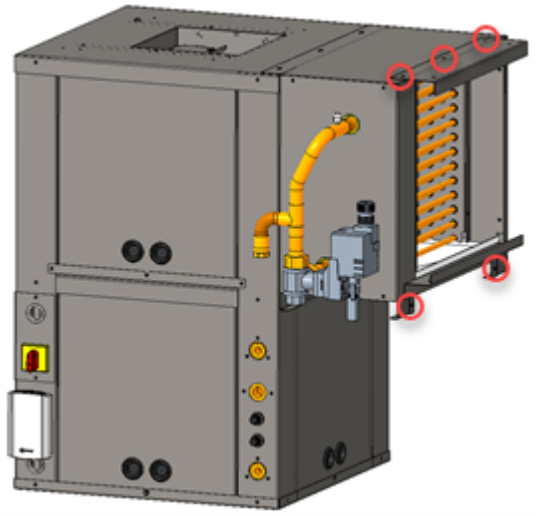
2. Mount the waterside economizer to the unit. It is secured to the unit using the five engagement holes that were used for the filter brackets: three on top and two on the bottom.

Figure 71. Step 2



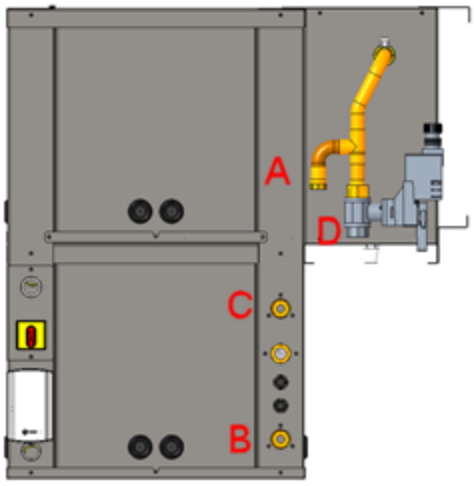
3. Attach the filter brackets to the waterside economizer using five screws. Install the air filter.

Figure 72. Step 3



4. Install the braided hose connecting point A (leaving the WSE) to point B (entering the WSHP). Connect the supply water to point D and the return water to point C.

Figure 73. Step 4



5. Locate the entering water sensor that is located inside the unit's control box, and wire tie it to the water SUPPLY side of the piping. The sensor must be mounted before the two-position valve. Attaching the sensor anywhere else will cause the WSE to not operate correctly. Bundle up any excess sensor wire and wire tie the bundle neatly.
6. Locate the WSE valve wires (35B (COM), 36B (OPEN), 37B (CLOSE)) behind control box, and connect to the valve actuator. Bundle up any excess wire and wire tie the bundle neatly. Direction of rotation is reversible with switch.
7. Insulate the economizing piping package and the associated hoses via field pipe insulation. Insulating the piping will prevent condensation from forming on the pipe and dripping on the floor.

Notes:

- *Trane does not provide insulation on the economizing piping package. This insulation must be field provided and field installed.*
- *Trane does not provide condensate overflow protection of the waterside economizer. This must be field provided and installed.*

8. Field pipe the drain lines of the waterside economizer and water-source heat pump together prior to installing a condensate trap for proper trapping of condensation (see). The vertical units will be piped similar to the horizontal units.

Figure 74. Step 8

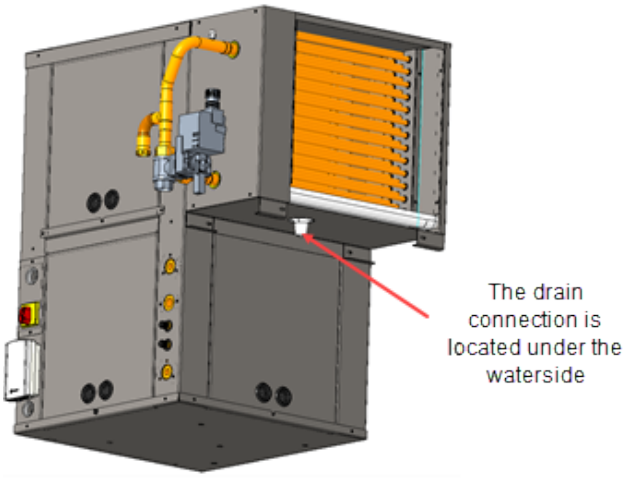


Table 45. Economizer part numbers

Supply-Air Arrangement	Unit	Part Number
Left Supply	GEVG006-012	WSHPECN00001
	GEVG015-018	WSHPECN00002
	GEVG024-030	WSHPECN00003
	GEVG036-042	WSHPECN00004
	GEVG048-060	WSHPECN00005
Right Supply	GEVG006-012	WSHPECN00008
	GEVG015-018	WSHPECN00009
	GEVG024-030	WSHPECN00010
	GEVG036-042	WSHPECN00011
	GEVG048-060	WSHPECN00012

Waterside Economizer Installation for GEH and GEV 6 to 25 Ton Models

⚠ WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

⚠ 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.

1. Remove the filter frame from the unit.
2. Remove the waterside service panel from the unit.
3. Remove the control box service panel from the unit.
4. Remove the economizer and miscellaneous mounting parts from it's packaging.
5. GEV ONLY: Mount the economizer support angle (4475 1637 0100) found in the economizer packaging in the same holes of the return air filter frame removed in Step 1. The support angle screws into the unit roof.
6. GEV ONLY: Hang the economizer assembly from the economizer support angle mounted in Step 5.
7. Secure the economizer to the unit using the four plates (4475 1630 0100) found in the economizer packaging. Two plates should be applied to each economizer side. GEV ONLY: Secure the bracket on the bottom of the economizer cabinet to the unit compressor compartment center post.
8. Install the field portion of the water piping and the 3-way valve together.
9. Verify the control board for the waterside economizer is located inside the unit. The temperature rating of this board is factory set to 55ºF.
10. Thread the economizer's entering water temperature sensor (4RT1) through the water-in line of the water-source heat pump upstream from the valve. This sensor is used by the economizer's 3-way valve to determine if water flow should be directed through the waterside economizing coil.
11. Tie wrap the thermistor to the water line (supply side) upstream of the water pipe to the economizer. The thermistor must be situated so that the thermistor is capable of reading the actual entering water temperature regardless of the economizer's on or off situation.
12. Insulate the thermistor with tubing insulation.
13. Tie wrap each end of the tubing insulation to prevent air filtration. The tie wraps and insulation are located in a bag and shipped inside of the unit.
14. Route the factory wire harness through the low voltage hole of the heat pump to the 3-way valve's wire harness.
15. Connect the factory installed wire harness to the wire harness supplied with the 3-way valve.
16. Bundle excess valve wire, and wire tie the bundle neatly.
17. Install control side service panel to the heat pump.
18. Install the unit filter frame to the economizing inlet.
19. Insulate the economizing piping package with field supplied pipe insulation. Insulating the piping will help stop condensation from forming on the pipe.

Notes:

- *Trane does not provide insulation on the economizing piping package. This insulation must be field provided and field installed.*
- *Trane does not provide condensate overflow protection of the waterside economizer. This must be field provided and field installed.*

20. Install waterside service panel to the heat pump.

The economizer condensate line must be trapped prior to the unit's drain line. This helps prevent air from being sucked through the drain line causing condensate to spit or build-up in the economizer or unit drain pans. Field pipe the drain lines of the waterside economizer and water-source heat pump together prior to installing a condensate trap. See Condensate Drain Connection for proper trapping of condensation.

Waterside Economizer Start-Up Sequence

1. Set the thermostat to the highest position.
2. Set the thermostat system switch to COOL with the fan control to AUTO. The compressor should NOT run.
3. Reduce the thermostat setting until the compressor, reversing valve, solenoid valve, and loop pump are energized. Adjust water flow utilizing pressure/temperature plugs and comparing to tables contained in specification sheet data. Water leaving the heat exchanger should be warmer than the entering water temperature (approximately 9 to 12ºF); blower operation should be smooth; compressor and blower amps should be within data plate ratings; the suction line should be cool with no frost observed in the refrigerant circuit.
4. Check the cooling refrigerant pressures against values in "Operating Pressures," p. 82.

Note: *If cooling mode is activated, and the entering water temperature of the heat pump falls below 55ºF, the 2-position, water side economizing valve will become energized (open) and compressor operation will halt allowing for free cooling in the space.*

5. Turn the thermostat system switch to the OFF position. Unit should stop running and the reversing valve should de-energize.
6. Leave unit off for approximately FIVE minutes to allow for pressure equalization.
7. Turn the thermostat to the lowest setting.
8. Set the thermostat system switch to the HEAT position.
9. Adjust the temperature setting upward until the unit is energized. Warm air should blow from the register. A water temperature decrease of approximately 5 to 9°F leaving the heat exchanger should be noted. The blower and compressor operation should be smooth with no frost observed in the refrigeration circuit.
10. Check the heating refrigerant pressures against values in "Operating Pressures," p. 82.

Note: *For units with boilerless electric heat option: In heating mode, if the entering water temperature of the heat pump falls below 45ºF, the electric heater will be energized, and compressor operation will halt. Once the entering water temperature rises above 50ºF, the boilerless controls returns the unit.*

11. Set the thermostat to maintain the desired space temperature.
12. Instruct the owner on system operation.

Table 46. Waterside economizing three-way valve specifications (GEH/V units)

Unit Size (60 Hz)	Unit Size (50 Hz)	Valve Conn. Size	Valve Pres. Rating	Valve Close-off pressure	Valve Temp. Range	Actuator
GEHG 006-015 GEVG 006-012	GEHE 006-012	1/2 FPT	600 psi	200 psi	0°F to 250°F -18°C to 121°C	Non-spring return type 24 Vac +/- 20% 135 second stroke time 10 Cv at full port
GEHG 018-042 GEVG 015-042	GEHE 015-036	3/4 FPT	600 psi	200 psi	0°F to 250°F -18°C to 121°C	Non-spring return type 24 Vac +/- 20% 135 second stroke time 24 Cv at full port
GEHG 048-060 GEVG 048-060	GEHE 042-060	1 FPT	600 psi	200 psi	0°F to 250°F -18°C to 121°C	Non-spring return type 24 Vac +/- 20% 135 second stroke time 30 Cv at full port
GEVE/GEHE 6-7.5 Ton	GEVE 6 Ton	1-1/4 FPT	600 psi	200 psi	0°F to 250°F -18°C to 121°C	Non-spring return type 24 Vac +/- 20% 135 second stroke time 33 Cv at full port
GEVE/GEHE 10-15 Ton	GEVE/GEHE 7.5-12.5 Ton	1.5 FPT	600 psi	200 psi	0°F to 250°F -18°C to 121°C	Non-spring return type 24 Vac +/- 20% 135 second stroke time 37 Cv at full port

Table 46. Waterside economizing three-way valve specifications (GEH/V units) (continued)

Unit Size (60 Hz)	Unit Size (50 Hz)	Valve Conn. Size	Valve Pres. Rating	Valve Close-off pressure	Valve Temp. Range	Actuator
GEVE 20 and 25 Ton	GEVE 15 and 20 Ton	2 FPT	600 psi	200 psi	0°F to 250°F -18°C to 121°C	Non-spring return type 24 Vac +/- 20% 135 second stroke time 57 Cv at full port

Note: *The valve body is constructed from forged brass with nickel plating, with the ball and stem constructed of stainless steel. For other information pertaining to the economizing water valve, see the valve's data plate.*

Table 47. Electrical data single speed blower motor (6 to 25 tons)

Model No.	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp.	Blower Motor FLA	Blower Motor hp	Fan Motor Num	Minimum Circuit Ampacity	Maximum Overcur- rent Protective Device	Electric Heat kW[(a)]	Electric Heat Amps[(a)]
GEHE072	208/60/1	39.9	16.7	79.0	2	6.50	1	1	44.08	60	—	—
GEHE072	230/60/1	39.9	16.7	79.0	2	6.50	1	1	44.08	60	—	—
GEHE072	208/60/1	42.7	16.7	79.0	2	9.30	1 1/2	1	46.88	60	—	—
GEHE072	230/60/1	42.3	16.7	79.0	2	8.90	1 1/2	1	46.48	60	—	—
GEHE072	208/60/1	44.6	16.7	79.0	2	11.20	2	1	48.78	60	—	—
GEHE072	230/60/1	43.6	16.7	79.0	2	10.20	2	1	47.78	60	—	—
GEHE072	208/60/3	24.3	10.4	73.0	2	3.50	1	1	26.90	35	—	—
GEHE072	230/60/3	24.6	10.4	73.0	2	3.80	1	1	27.20	35	—	—
GEHE072	460/60/3	13.4	5.8	38.0	2	1.80	1	1	14.85	20	—	—
GEHE072	208/60/3	26.4	10.4	73.0	2	5.60	1 1/2	1	29.00	35	—	—
GEHE072	230/60/3	25.6	10.4	73.0	2	4.80	1 1/2	1	28.20	35	—	—
GEHE072	460/60/3	14.0	5.8	38.0	2	2.40	1 1/2	1	15.45	20	—	—
GEHE072	208/60/3	27.9	10.4	73.0	2	7.10	2	1	30.50	40	—	—
GEHE072	230/60/3	27.0	10.4	73.0	2	6.20	2	1	29.60	40	—	—
GEHE072	460/60/3	14.7	5.8	38.0	2	3.10	2	1	16.15	20	—	—
GEHE090	208/60/3	28.4	14.5/10.4	98.0/73.0	2	3.50	1	1	32.03	45	—	—
GEHE090	230/60/3	28.7	14.5/10.4	98.0/73.0	2	3.80	1	1	32.33	45	—	—
GEHE090	460/60/3	13.9	6.3/5.8	55.0/38.0	2	1.80	1	1	15.48	20	—	—
GEHE090	208/60/3	30.5	14.5/10.4	98.0/73.0	2	5.60	1 1/2	1	34.13	45	—	—
GEHE090	230/60/3	29.7	14.5/10.4	98.0/73.0	2	4.80	1 1/2	1	33.33	45	—	—
GEHE090	460/60/3	14.5	6.3/5.8	55.0/38.0	2	2.40	1 1/2	1	16.08	20	—	—
GEHE090	208/60/3	32.0	14.5/10.4	98.0/73.0	2	7.10	2	1	35.63	50	—	—
GEHE090	230/60/3	31.1	14.5/10.4	98.0/73.0	2	6.20	2	1	34.73	45	—	—
GEHE090	460/60/3	15.2	6.3/5.8	55.0/38.0	2	3.10	2	1	16.78	20	—	—
GEHE090	575/60/3	12.1	6.0/3.8	41.0/36.5	2	2.30	2	1	13.60	15	—	—

Table 47. Electrical data single speed blower motor (6 to 25 tons) (continued)

Model No.	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp.	Blower Motor FLA	Blower Motor hp	Fan Motor Num	Minimum Circuit Ampacity	Maximum Overcur-rent Protective Device	Electric Heat kW[a]	Electric Heat Amps[a]
GEHE090	208/60/3	34.3	14.5/10.4	98.0/73.0	2	9.40	3	1	37.93	50	—	—
GEHE090	230/60/3	33.1	14.5/10.4	98.0/73.0	2	8.20	3	1	36.73	50	—	—
GEHE090	460/60/3	16.7	6.3	55.0/38.0	2	4.10	3	1	18.28	20	—	—
GEHE090	575/60/3	13.1	6.0/3.8	41.0/36.5	2	3.30	3	1	14.60	20	—	—
GEHE120	208/60/3	37.6	16.0	110.0	2	5.60	1 1/2	1	41.60	50	—	—
GEHE120	230/60/3	36.8	16.0	110.0	2	4.80	1 1/2	1	40.80	50	—	—
GEHE120	460/60/3	18.0	7.8	52.0	2	2.40	1 1/2	1	19.95	25	—	—
GEHE120	208/60/3	39.1	16.0	110.0	2	7.10	2	1	43.10	50	—	—
GEHE120	230/60/3	38.2	16.0	110.0	2	6.20	2	1	42.20	50	—	—
GEHE120	460/60/3	18.7	7.8	52.0	2	3.10	2	1	20.65	25	—	—
GEHE120	575/60/3	13.7	5.7	38.9	2	2.30	2	1	15.13	20	—	—
GEHE120	208/60/3	41.4	16.0	110.0	2	9.40	3	1	45.40	60	—	—
GEHE120	230/60/3	40.2	16.0	110.0	2	8.20	3	1	44.20	60	—	—
GEHE120	460/60/3	19.7	7.8	52.0	2	4.10	3	1	21.65	25	—	—
GEHE120	575/60/3	14.7	5.7	38.9	2	3.30	3	1	16.13	20	—	—
GEHE120	208/60/3	46.0	16.0	110.0	2	14.00	5	1	50.00	60	—	—
GEHE120	230/60/3	45.0	16.0	110.0	2	13.00	5	1	49.00	60	—	—
GEHE120	460/60/3	22.1	7.8	52.0	2	6.50	5	1	24.05	30	—	—
GEHE120	575/60/3	16.7	5.7	38.9	2	5.30	5	1	18.13	20	—	—
GEHE150	208/60/3	50.4	22.4	149.0	2	5.60	1 1/2	1	56.00	70	—	—
GEHE150	230/60/3	49.6	22.4	149.0	2	4.80	1 1/2	1	55.20	70	—	—
GEHE150	460/60/3	23.6	10.6	75.0	2	2.40	1 1/2	1	26.25	35	—	—
GEHE150	575/60/3	17.3	7.7	54.0	2	1.90	1 1/2	1	19.23	25	—	—
GEHE150	208/60/3	51.9	22.4	149.0	2	7.10	2	1	57.50	70	—	—
GEHE150	230/60/3	51.0	22.4	149.0	2	6.20	2	1	56.60	70	—	—
GEHE150	460/60/3	24.3	10.6	75.0	2	3.10	2	1	26.96	35	—	—

Table 47. Electrical data single speed blower motor (6 to 25 tons) (continued)

Model No.	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp.	Blower Motor FLA	Blower Motor hp	Fan Motor Num	Minimum Circuit Ampacity	Maximum Overcur- rent Protective Device	Electric Heat kW[a]	Electric Heat Amps[a]
GEHE150	575/60/3	17.7	7.7	54.0	2	2.30	2	1	19.63	25	—	—
GEHE150	208/60/3	54.2	22.4	149.0	2	9.40	3	1	59.80	80	—	—
GEHE150	230/60/3	53.0	22.4	149.0	2	8.20	3	1	58.60	80	—	—
GEHE150	460/60/3	25.3	10.6	75.0	2	4.10	3	1	27.95	35	—	—
GEHE150	575/60/3	18.7	7.7	54.0	2	3.30	3	1	20.63	25	—	—
GEHE150	208/60/3	58.8	22.4	149.0	2	14.00	5	1	64.40	80	—	—
GEHE150	230/60/3	57.8	22.4	149.0	2	13.00	5	1	63.40	80	—	—
GEHE150	460/60/3	27.7	10.6	75.0	2	6.50	5	1	30.35	40	—	—
GEHE150	575/60/3	20.7	7.7	54.0	2	5.30	5	1	22.63	30	—	—
GEHE180	208/60/3	57.1	25.0	164.0	2	7.10	2	1	63.35	80	—	—
GEHE180	230/60/3	56.2	25.0	164.0	2	6.20	2	1	62.45	80	—	—
GEHE180	460/60/3	27.5	12.2	100.0	2	3.10	2	1	30.56	40	—	—
GEHE180	575/60/3	20.3	9.0	78.0	2	2.30	2	1	22.55	30	—	—
GEHE180	208/60/3	59.4	25.0	164.0	2	9.40	3	1	65.65	90	—	—
GEHE180	230/60/3	58.2	25.0	164.0	2	8.20	3	1	64.45	80	—	—
GEHE180	460/60/3	28.5	12.2	100.0	2	4.10	3	1	31.55	40	—	—
GEHE180	575/60/3	21.3	9.0	78.0	2	3.30	3	1	23.55	30	—	—
GEHE180	208/60/3	64.0	25.0	164.0	2	14.00	5	1	70.25	90	—	—
GEHE180	230/60/3	63.0	25.0	164.0	2	13.00	5	1	69.25	90	—	—
GEHE180	460/60/3	30.9	12.2	100.0	2	6.50	5	1	33.95	45	—	—
GEHE180	575/60/3	23.3	9.0	78.0	2	5.30	5	1	25.55	30	—	—
GEHE180	208/60/3	70.0	25.0	164.0	2	20.00	7 1/2	1	76.25	100	—	—
GEHE180	230/60/3	69.4	25.0	164.0	2	19.40	7 1/2	1	75.65	100	—	—
GEHE180	460/60/3	34.1	12.2	100.0	2	9.70	7 1/2	1	37.15	45	—	—
GEHE180	575/60/3	26.0	9.0	78.0	2	8.00	7 1/2	1	28.25	35	—	—
GEVE072	208/60/1	40.0	16.7	79.0	2	6.60	1	1	44.13	60	—	—
GEVE072	230/60/1	39.9	16.7	79.0	2	6.50	1	1	44.08	60	—	—

Table 47. Electrical data single speed blower motor (6 to 25 tons) (continued)

Model No.	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp.	Blower Motor FLA	Blower Motor hp	Fan Motor Num	Minimum Circuit Ampacity	Maximum Overcur-rent Protective Device	Electric Heat kW[a]	Electric Heat Amps[a]
GEVE072	208/60/1	42.7	16.7	79.0	2	9.30	1 1/2	1	46.88	60	—	—
GEVE072	230/60/1	42.3	16.7	79.0	2	8.90	1 1/2	1	46.48	60	—	—
GEVE072	208/60/1	44.6	16.7	79.0	2	11.20	2	1	48.78	60	—	—
GEVE072	230/60/1	43.6	16.7	79.0	2	10.20	2	1	47.81	60	—	—
GEVE072	208/60/3	24.3	10.4	73.0	2	3.50	1	1	26.90	35	—	—
GEVE072	230/60/3	24.6	10.4	73.0	2	3.80	1	1	27.20	35	—	—
GEVE072	460/60/3	13.4	5.8	38.0	2	1.80	1	1	14.85	20	—	—
GEVE072	208/60/3	26.4	10.4	73.0	2	5.60	1 1/2	1	29.00	35	—	—
GEVE072	230/60/3	25.6	10.4	73.0	2	4.80	1 1/2	1	28.20	35	—	—
GEVE072	460/60/3	14.0	5.8	38.0	2	2.40	1 1/2	1	15.45	20	—	—
GEVE072	208/60/3	27.9	10.4	73.0	2	7.10	2	1	30.50	40	—	—
GEVE072	230/60/3	27.0	10.4	73.0	2	6.20	2	1	29.60	40	—	—
GEVE072	460/60/3	14.7	5.8	38.0	2	3.10	2	1	16.16	20	—	—
GEVE090	208/60/3	28.4	14.5/10.4	98.0/73.0	2	3.50	1	1	32.03	45	—	—
GEVE090	230/60/3	28.7	14.5/10.4	98.0/73.0	2	3.80	1	1	32.33	45	—	—
GEVE090	460/60/3	13.9	6.3/5.8	55.0/38.0	2	1.80	1	1	15.48	20	—	—
GEVE090	208/60/3	30.5	14.5/10.4	98.0/73.0	2	5.60	1 1/2	1	34.13	45	—	—
GEVE090	230/60/3	29.7	14.5/10.4	98.0/73.0	2	4.80	1 1/2	1	33.33	45	—	—
GEVE090	460/60/3	14.5	6.3/5.8	55.0/38.0	2	2.40	1 1/2	1	16.08	20	—	—
GEVE090	208/60/3	32.0	14.5/10.4	98.0/73.0	2	7.10	2	1	35.63	50	—	—
GEVE090	230/60/3	31.1	14.5/10.4	98.0/73.0	2	6.20	2	1	34.73	45	—	—
GEVE090	460/60/3	15.2	6.3/5.8	55.0/38.0	2	3.10	2	1	16.79	20	—	—
GEVE090	575/60/3	12.1	6.0/3.8	41.0/36.5	2	2.30	2	1	13.60	15	—	—
GEVE090	208/60/3	34.3	14.5/10.4	98.0/73.0	2	9.40	3	1	37.93	50	—	—

Table 47. Electrical data single speed blower motor (6 to 25 tons) (continued)

Model No.	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp.	Blower Motor FLA	Blower Motor hp	Fan Motor Num	Minimum Circuit Ampacity	Maximum Overcur-rent Protective Device	Electric Heat kW[a]	Electric Heat Amps[a]
GEVE090	230/60/3	33.1	14.5/10.4	98.0/73.0	2	8.20	3	1	36.73	50	—	—
GEVE090	460/60/3	16.2	6.3/5.8	55.0/38.0	2	4.10	3	1	17.78	20	—	—
GEVE090	575/60/3	13.1	6.0/3.8	41.0/36.5	2	3.30	3	1	14.60	20	—	—
GEVE120	208/60/3	37.6	16	110	2	5.60	1 1/2	1	41.60	50	—	—
GEVE120	230/60/3	36.8	16	110	2	4.80	1 1/2	1	40.80	50	—	—
GEVE120	460/60/3	18.0	7.8	52	2	2.40	1 1/2	1	19.95	25	—	—
GEVE120	208/60/3	39.1	16	110	2	7.10	2	1	43.10	50	—	—
GEVE120	230/60/3	38.2	16	110	2	6.20	2	1	42.20	50	—	—
GEVE120	460/60/3	18.7	7.8	52	2	3.10	2	1	20.66	25	—	—
GEVE120	575/60/3	13.7	5.7	38.9	2	2.30	2	1	15.13	20	—	—
GEVE120	208/60/3	41.4	16	110	2	9.40	3	1	45.40	60	—	—
GEVE120	230/60/3	40.2	16	110	2	8.20	3	1	44.20	60	—	—
GEVE120	460/60/3	19.7	7.8	52	2	4.10	3	1	21.65	25	—	—
GEVE120	575/60/3	14.7	5.7	38.9	2	3.30	3	1	16.13	20	—	—
GEVE120	208/60/3	46.0	16	110	2	14.00	5	1	50.00	60	—	—
GEVE120	230/60/3	45.0	16	110	2	13.00	5	1	49.00	60	—	—
GEVE120	460/60/3	22.1	7.8	52	2	6.50	5	1	24.05	30	—	—
GEVE120	575/60/3	16.7	5.7	38.9	2	5.30	5	1	18.13	20	—	—
GEVE150	208/60/3	51.9	22.4	149	2	7.10	2	1	57.50	70	—	—
GEVE150	230/60/3	51.0	22.4	149	2	6.20	2	1	56.60	70	—	—
GEVE150	460/60/3	24.3	10.6	75	2	3.10	2	1	26.96	35	—	—
GEVE150	575/60/3	17.7	7.7	54	2	2.30	2	1	19.63	25	—	—
GEVE150	208/60/3	54.2	22.4	149	2	9.40	3	1	59.80	80	—	—
GEVE150	230/60/3	53.0	22.4	149	2	8.20	3	1	58.60	80	—	—
GEVE150	460/60/3	25.3	10.6	75	2	4.10	3	1	27.95	35	—	—
GEVE150	575/60/3	18.7	7.7	54	2	3.30	3	1	20.63	25	—	—

Table 47. Electrical data single speed blower motor (6 to 25 tons) (continued)

Model No.	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp.	Blower Motor FLA	Blower Motor hp	Fan Motor Num	Minimum Circuit Ampacity	Maximum Overcur-rent Protective Device	Electric Heat kW[a]	Electric Heat Amps[a]
GEVE150	208/60/3	58.8	22.4	149	2	14.00	5	1	64.40	80	—	—
GEVE150	230/60/3	57.8	22.4	149	2	13.00	5	1	63.40	80	—	—
GEVE150	460/60/3	27.7	10.6	75	2	6.50	5	1	30.35	40	—	—
GEVE150	575/60/3	20.7	7.7	54	2	5.30	5	1	22.63	30	—	—
GEVE180	208/60/3	59.4	25	164	2	9.40	3	1	65.65	90	—	—
GEVE180	230/60/3	58.2	25	164	2	8.20	3	1	64.45	80	—	—
GEVE180	460/60/3	28.5	12.2	100	2	4.10	3	1	31.55	40	—	—
GEVE180	575/60/3	21.3	9	78	2	3.30	3	1	23.55	30	—	—
GEVE180	208/60/3	64.0	25	164	2	14.00	5	1	70.25	90	—	—
GEVE180	230/60/3	63.0	25	164	2	13.00	5	1	69.25	90	—	—
GEVE180	460/60/3	30.9	12.2	100	2	6.50	5	1	33.95	45	—	—
GEVE180	575/60/3	23.3	9	78	2	5.30	5	1	25.55	30	—	—
GEVE180	208/60/3	70.0	25	164	2	20.00	7 1/2	1	76.25	100	—	—
GEVE180	230/60/3	69.4	25	164	2	19.40	7 1/2	1	75.65	100	—	—
GEVE180	460/60/3	34.1	12.2	100	2	9.70	7 1/2	1	37.15	45	—	—
GEVE180	575/60/3	26.0	9	78	2	8.00	7 1/2	1	28.25	35	—	—
GEVE240	208/60/3	74.2	30.1	225	2	14.00	5	1	81.73	110	—	—
GEVE240	230/60/3	73.2	30.1	225	2	13.00	5	1	80.73	110	—	—
GEVE240	460/60/3	39.9	16.7	114	2	6.50	5	1	44.08	60	—	—
GEVE240	575/60/3	29.7	12.2	80	2	5.30	5	1	32.75	40	—	—
GEVE240	208/60/3	80.2	30.1	225	2	20.00	7 1/2	1	87.73	110	—	—
GEVE240	230/60/3	79.6	30.1	225	2	19.40	7 1/2	1	87.13	110	—	—
GEVE240	460/60/3	43.1	16.7	114	2	9.70	7 1/2	1	47.28	60	—	—
GEVE240	575/60/3	32.4	12.2	80	2	8.00	7 1/2	1	35.45	45	—	—
GEVE240	208/60/3	86.2	30.1	225	2	26.00	10	1	93.73	110	—	—
GEVE240	230/60/3	85.2	30.1	225	2	25.00	10	1	92.73	110	—	—
GEVE240	460/60/3	45.9	16.7	114	2	12.50	10	1	50.08	60	—	—

Table 47. Electrical data single speed blower motor (6 to 25 tons) (continued)

Model No.	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp.	Blower Motor FLA	Blower Motor hp	Fan Motor Num	Minimum Circuit Ampacity	Maximum Overcur-rent Protective Device	Electric Heat kW[a]	Electric Heat Amps[a]
GEVE240	575/60/3	34.4	12.2	80	2	10.00	10	1	37.45	45	—	—
GEVE240	208/60/3	97.2	30.1	225	2	37.00	15	1	106.45	125	—	—
GEVE240	230/60/3	96.2	30.1	225	2	36.00	15	1	105.20	125	—	—
GEVE240	460/60/3	51.4	16.7	114	2	18.00	15	1	55.90	70	—	—
GEVE240	575/60/3	38.5	12.2	80	2	14.10	15	1	42.03	50	—	—
GEVE300	208/60/3	110.2	48.1	245	2	14.00	5	1	122.23	150	—	—
GEVE300	230/60/3	109.2	48.1	245	2	13.00	5	1	121.23	150	—	—
GEVE300	460/60/3	43.7	18.6	125	2	6.50	5	1	48.35	60	—	—
GEVE300	575/60/3	34.7	14.7	100	2	5.30	5	1	38.38	50	—	—
GEVE300	208/60/3	116.2	48.1	245	2	20.00	7 1/2	1	128.23	175	—	—
GEVE300	230/60/3	115.6	48.1	245	2	19.40	7 1/2	1	127.63	175	—	—
GEVE300	460/60/3	46.9	18.6	125	2	9.70	7 1/2	1	51.55	70	—	—
GEVE300	575/60/3	37.4	14.7	100	2	8.00	7 1/2	1	41.08	50	—	—
GEVE300	208/60/3	122.2	48.1	245	2	26.00	10	1	134.23	175	—	—
GEVE300	230/60/3	121.2	48.1	245	2	25.00	10	1	133.23	175	—	—
GEVE300	460/60/3	49.7	18.6	125	2	12.50	10	1	54.35	70	—	—
GEVE300	575/60/3	39.4	14.7	100	2	10.00	10	1	43.08	50	—	—
GEVE300	208/60/3	133.2	48.1	245	2	37.00	15	1	145.23	175	—	—
GEVE300	230/60/3	132.2	48.1	245	2	36.00	15	1	144.23	175	—	—
GEVE300	460/60/3	55.2	18.6	125	2	18.00	15	1	59.85	70	—	—
GEVE300	575/60/3	43.5	14.7	100	2	14.10	15	1	47.18	60	—	—

Table 48. Electrical data - ECM motors - 0.5 to 5 tons GEV/H

Model No.	Unit Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	Blower Motor FLA	Blower Motor HP	Minimum Circuit Ampacity	Maximum Overcur-rent Protective Device
GEV/H006	208-230/60/1	3.9	3.6	27.0	0.3	1/3	5/5	15/15
GEV/H006	265/60/1	3.3	3.0	22.0	0.3	1/3	5	15
GEV/H009	208-230/60/1	4.7	4.0	27.0	0.7	1/3	6/6	15/15
GEV/H009	265/60/1	3.9	3.3	22.0	0.6	1/3	5	15
GEV/H012	208-230/60/1	6.6	5.7	27.0	0.9	1/3	9/9	15/15
GEV/H012	265/60/1	5.3	4.5	32.0	0.8	1/3	7	15
GEV/H015	208-230/60/1	8.2	7.3	36.0	0.9	1/3	10/10	15/15
GEV/H015	265/60/1	5.6	4.8	30.0	0.8	1/3	7	15
GEV/H018	208-230/60/1	9.7	8.5	38.0	1.2	1/3	12/12	20/20
GEV/H018	265/60/1	7.8	6.8	35.0	1.0	1/3	10	15
GEV/H024	208-230/60/1	15.2	13.5	58.3	1.7	1/2	19/19	30/30
GEV/H024	265/60/1	10.4	9.0	54.0	1.4	1/2	13	20
GEV/H024	208-230/60/3	8.8	7.1	55.4	1.7	1/2	11/11	15/15
GEV/H024	460/60/3	4.3	3.5	28.0	0.8	1/2	6	15
GEV/H030	208-230/60/1	15.9	14.1	73.0	1.8	3/4	20/20	30/30
GEV/H030	208-230/60/3	10.7	8.9	58.0	1.8	3/4	13/13	20/20
GEV/H030	265/60/1	12.8	11.2	60.0	1.6	3/4	16	25
GEV/H030	460/60/3	5.1	4.2	28.0	0.9	3/4	7	15
GEV/H036	208-230/60/1	19.3	16.7	79.0	2.7	3/4	24/24	40/40
GEV/H036	265/60/1	15.8	13.5	72.0	2.3	3/4	20	30
GEV/H036	208-230/60/3	13.1	10.4	73.0	2.7	3/4	16/16	25/25
GEV/H036	460/60/3	7.1	5.8	38.0	1.3	3/4	9	15
GEV/H042	208-230/60/1	21.2	17.9	112.0	3.3	3/4	26/26	40/40
GEV/H042	208-230/60/3	16.8	13.5	88.0	3.3	3/4	21/21	30/30
GEV/H042	460/60/3	7.6	6.0	44.0	1.6	1	10	15
GEV/H048	208-230/60/1	25.3	21.4	135.0	4.0	1	31/31	50/50
GEV/H048	208-230/60/3	18.5	14.5	98.0	4.0	1	23/23	35/35
GEV/H048	460/60/3	8.3	6.3	55.0	2.0	1	10	15
GEV/H060	208-230/60/1	31.3	26.4	134.0	4.9	1	38/38	60/60
GEV/H060	208-230/60/3	20.9	16.0	110.0	4.9	1	25/25	40/40
GEV/H060	460/60/3	10.3	7.8	52.0	2.5	1	13	20

Table 49. Electrical data two speed blower motor 6 to 25 tons

Model	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp	Blower Motor FLA	Blower Motor HP	Fan Motors No.	Minimum Circuit Ampacity	Maximum Overcurrent Protection
GEHE072	208/60/3	24.1	10.4	73	2	3.3	1	1	26.70	35
GEHE072	230/60/3	23.8	10.4	73	2	3.0	1	1	26.40	35
GEHE072	460/60/3	13.1	5.8	38	2	1.5	1	1	14.55	20
GEHE072	208/60/3	25.7	10.4	73	2	4.9	1 1/2	1	28.30	35
GEHE072	230/60/3	25.2	10.4	73	2	4.4	1 1/2	1	27.80	35
GEHE072	460/60/3	13.8	5.8	38	2	2.2	1 1/2	1	15.25	20
GEHE072	208/60/3	27.5	10.4	73	2	6.7	2	1	30.10	40
GEHE072	230/60/3	26.9	10.4	73	2	6.1	2	1	29.50	35
GEHE072	460/60/3	14.7	5.8	38	2	3.1	2	1	16.15	20
GEHE090	208/60/3	28.2	14.5/10.4	98/73	2	3.3	1	1	31.83	45
GEHE090	230/60/3	27.9	14.5/10.4	98/73	2	3.0	1	1	31.53	45
GEHE090	460/60/3	13.6	6.3/5.8	55/38	2	1.5	1	1	15.18	20
GEHE090	208/60/3	29.8	14.5/10.4	98/73	2	4.9	1 1/2	1	33.43	45
GEHE090	230/60/3	29.3	14.5/10.4	98/73	2	4.4	1 1/2	1	32.93	45
GEHE090	460/60/3	14.3	6.3/5.8	55/38	2	2.2	1 1/2	1	15.88	20
GEHE090	208/60/3	31.6	14.5/10.4	98/73	2	6.7	2	1	35.23	45
GEHE090	230/60/3	31.0	14.5/10.4	98/73	2	6.1	2	1	34.63	45
GEHE090	460/60/3	15.2	6.3/5.8	55/38	2	3.1	2	1	16.78	20
GEHE090	208/60/3	33.7	14.5/10.4	98/73	2	8.8	3	1	37.33	50
GEHE090	230/60/3	32.9	14.5/10.4	98/73	2	8.0	3	1	36.53	50
GEHE090	460/60/3	16.6	6.3	55	2	4.0	3	1	18.18	20
GEHE120	208/60/3	36.9	16.0	110	2	4.9	1 1/2	1	40.90	50
GEHE120	230/60/3	36.4	16.0	110	2	4.4	1 1/2	1	40.40	50
GEHE120	460/60/3	17.8	7.8	52	2	2.2	1 1/2	1	19.75	25
GEHE120	208/60/3	38.7	16.0	110	2	6.7	2	1	42.70	50
GEHE120	230/60/3	38.1	16.0	110	2	6.1	2	1	42.10	50
GEHE120	460/60/3	18.7	7.8	52	2	3.1	2	1	20.65	25
GEHE120	208/60/3	40.8	16.0	110	2	8.8	3	1	44.80	60
GEHE120	230/60/3	40.0	16.0	110	2	8.0	3	1	44.00	60
GEHE120	460/60/3	19.6	7.8	52	2	4.0	3	1	21.55	25

Table 49. Electrical data two speed blower motor 6 to 25 tons (continued)

Model	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp	Blower Motor FLA	Blower Motor HP	Fan Motors No.	Minimum Circuit Ampacity	Maximum Overcurrent Protection
GEHE120	208/60/3	46.6	16.0	110	2	14.6	5	1	50.60	60
GEHE120	230/60/3	45.2	16.0	110	2	13.2	5	1	49.20	60
GEHE120	460/60/3	22.2	7.8	52	2	6.6	5	1	24.15	30
GEHE150	208/60/3	49.7	22.4	149	2	4.9	1 1/2	1	55.30	70
GEHE150	230/60/3	49.2	22.4	149	2	4.4	1 1/2	1	54.80	70
GEHE150	460/60/3	23.4	10.6	75	2	2.2	1 1/2	1	26.05	35
GEHE150	208/60/3	51.5	22.4	149	2	6.7	2	1	57.10	70
GEHE150	230/60/3	50.9	22.4	149	2	6.1	2	1	56.50	70
GEHE150	460/60/3	24.3	10.6	75	2	3.1	2	1	26.95	35
GEHE150	208/60/3	53.6	22.4	149	2	8.8	3	1	59.20	80
GEHE150	230/60/3	52.8	22.4	149	2	8.0	3	1	58.40	80
GEHE150	460/60/3	25.2	10.6	75	2	4.0	3	1	27.85	35
GEHE150	208/60/3	59.4	22.4	149	2	14.6	5	1	65.00	80
GEHE150	230/60/3	58.0	22.4	149	2	13.2	5	1	63.60	80
GEHE150	460/60/3	27.8	10.6	75	2	6.6	5	1	30.45	40
GEHE180	208/60/3	56.7	25.0	164	2	6.7	2	1	62.95	80
GEHE180	230/60/3	56.1	25.0	164	2	6.1	2	1	62.35	80
GEHE180	460/60/3	27.5	12.2	100	2	3.1	2	1	30.55	40
GEHE180	208/60/3	58.8	25.0	164	2	8.8	3	1	65.05	90
GEHE180	230/60/3	58.0	25.0	164	2	8.0	3	1	64.25	80
GEHE180	460/60/3	28.4	12.2	100	2	4.0	3	1	31.45	40
GEHE180	208/60/3	64.6	25.0	164	2	14.6	5	1	70.85	90
GEHE180	230/60/3	63.2	25.0	164	2	13.2	5	1	69.45	90
GEHE180	460/60/3	31.0	12.2	100	2	6.6	5	1	34.05	45
GEHE180	208/60/3	72.1	25.0	164	2	22.1	7 1/2	1	78.35	100
GEHE180	230/60/3	70.0	25.0	164	2	20.0	7 1/2	1	76.25	100
GEHE180	460/60/3	34.4	12.2	100	2	10.0	7 1/2	1	37.45	45
GEVE072	208/60/3	24.1	10.4	73	2	3.3	1	1	26.70	35
GEVE072	230/60/3	23.8	10.4	73	2	3.0	1	1	26.40	35
GEVE072	460/60/3	13.1	5.8	38	2	1.5	1	1	14.55	20

Table 49. Electrical data two speed blower motor 6 to 25 tons (continued)

Model	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp	Blower Motor FLA	Blower Motor HP	Fan Motors No.	Minimum Circuit Ampacity	Maximum Overcurrent Protection
GEVE072	208/60/3	25.7	10.4	73	2	4.9	1 1/2	1	28.30	35
GEVE072	230/60/3	25.2	10.4	73	2	4.4	1 1/2	1	27.80	35
GEVE072	460/60/3	13.8	5.8	38	2	2.2	1 1/2	1	15.25	20
GEVE072	208/60/3	27.5	10.4	73	2	6.7	2	1	30.10	40
GEVE072	230/60/3	26.9	10.4	73	2	6.1	2	1	29.50	35
GEVE072	460/60/3	14.7	5.8	38	2	3.1	2	1	16.15	20
GEVE090	208/60/3	28.2	14.5/10.4	98/73	2	3.3	1	1	31.83	45
GEVE090	230/60/3	27.9	14.5/10.4	98/73	2	3.0	1	1	31.53	45
GEVE090	460/60/3	13.6	6.3/5.8	55/38	2	1.5	1	1	15.18	20
GEVE090	208/60/3	29.8	14.5/10.4	98/73	2	4.9	1 1/2	1	33.43	45
GEVE090	230/60/3	29.3	14.5/10.4	98/73	2	4.4	1 1/2	1	32.93	45
GEVE090	460/60/3	14.3	6.3/5.8	55/38	2	2.2	1 1/2	1	15.88	20
GEVE090	208/60/3	31.6	14.5/10.4	98/73	2	6.7	2	1	35.23	45
GEVE090	230/60/3	31.0	14.5/10.4	98/73	2	6.1	2	1	34.63	45
GEVE090	460/60/3	15.2	6.3/5.8	55/38	2	3.1	2	1	16.78	20
GEVE090	208/60/3	33.7	14.5/10.4	98/73	2	8.8	3	1	37.33	50
GEVE090	230/60/3	32.9	14.5/10.4	98/73	2	8.0	3	1	36.53	50
GEVE090	460/60/3	16.1	6.3/5.8	55/38	2	4.0	3	1	17.68	20
GEVE120	208/60/3	36.9	16.0	110	2	4.9	1 1/2	1	40.90	50
GEVE120	230/60/3	36.4	16.0	110	2	4.4	1 1/2	1	40.40	50
GEVE120	460/60/3	17.8	7.8	52	2	2.2	1 1/2	1	19.75	25
GEVE120	208/60/3	38.7	16.0	110	2	6.7	2	1	42.70	50
GEVE120	230/60/3	38.1	16.0	110	2	6.1	2	1	42.10	50
GEVE120	460/60/3	18.7	7.8	52	2	3.1	2	1	20.65	25
GEVE120	208/60/3	40.8	16.0	110	2	8.8	3	1	44.80	60
GEVE120	230/60/3	40.0	16.0	110	2	8.0	3	1	44.00	60
GEVE120	460/60/3	19.6	7.8	52	2	4.0	3	1	21.55	25
GEVE120	208/60/3	46.6	16.0	110	2	14.6	5	1	50.60	60
GEVE120	230/60/3	45.2	16.0	110	2	13.2	5	1	49.20	60
GEVE120	460/60/3	22.2	7.8	52	2	6.6	5	1	24.15	30

Table 49. Electrical data two speed blower motor 6 to 25 tons (continued)

Model	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp	Blower Motor FLA	Blower Motor HP	Fan Motors No.	Minimum Circuit Ampacity	Maximum Overcurrent Protection
GEVE150	208/60/3	51.5	22.4	149	2	6.7	2	1	57.10	70
GEVE150	230/60/3	50.9	22.4	149	2	6.1	2	1	56.50	70
GEVE150	460/60/3	24.3	10.6	75	2	3.1	2	1	26.95	35
GEVE150	208/60/3	53.6	22.4	149	2	8.8	3	1	59.20	80
GEVE150	230/60/3	52.8	22.4	149	2	8.0	3	1	58.40	80
GEVE150	460/60/3	25.2	10.6	75	2	4.0	3	1	27.85	35
GEVE150	208/60/3	59.4	22.4	149	2	14.6	5	1	65.00	80
GEVE150	230/60/3	58.0	22.4	149	2	13.2	5	1	63.60	80
GEVE150	460/60/3	27.8	10.6	75	2	6.6	5	1	30.45	40
GEVE180	208/60/3	58.8	25.0	164	2	8.8	3	1	65.05	90
GEVE180	230/60/3	58.0	25.0	164	2	8.0	3	1	64.25	80
GEVE180	460/60/3	28.4	12.2	100	2	4.0	3	1	31.45	40
GEVE180	208/60/3	64.6	25.0	164	2	14.6	5	1	70.85	90
GEVE180	230/60/3	63.2	25.0	164	2	13.2	5	1	69.45	90
GEVE180	460/60/3	31.0	12.2	100	2	6.6	5	1	34.05	45
GEVE180	208/60/3	72.1	25.0	164	2	22.1	7 1/2	1	78.35	100
GEVE180	230/60/3	70.0	25.0	164	2	20.0	7 1/2	1	76.25	100
GEVE180	460/60/3	34.4	12.2	100	2	10.0	7 1/2	1	37.45	45
GEVE240	208/60/3	74.8	30.1	225	2	14.6	5	1	82.33	110
GEVE240	230/60/3	73.4	30.1	225	2	13.2	5	1	80.93	110
GEVE240	460/60/3	40.0	16.7	114	2	6.6	5	1	44.18	60
GEVE240	208/60/3	82.3	30.1	225	2	22.1	7 1/2	1	89.83	110
GEVE240	230/60/3	80.2	30.1	225	2	20.0	7 1/2	1	87.73	110
GEVE240	460/60/3	43.4	16.7	114	2	10.0	7 1/2	1	47.58	60
GEVE240	208/60/3	87.8	30.1	225	2	27.6	10	1	95.33	125
GEVE240	230/60/3	85.2	30.1	225	2	25.0	10	1	92.73	110
GEVE240	460/60/3	46.4	16.7	114	2	13.0	10	1	50.58	60
GEVE240	460/60/3	53.4	16.7	114	2	20.0	15	1	58.40	70
GEVE300	208/60/3	110.8	48.1	245	2	14.6	5	1	122.83	150
GEVE300	230/60/3	109.4	48.1	245	2	13.2	5	1	121.43	150

Table 49. Electrical data two speed blower motor 6 to 25 tons (continued)

Model	Volts	Total Unit FLA	Comp RLA (ea)	Comp LRA (ea)	No. of Comp	Blower Motor FLA	Blower Motor HP	Fan Motors No.	Minimum Circuit Ampacity	Maximum Overcurrent Protection
GEVE300	460/60/3	43.8	18.6	125	2	6.6	5	1	48.45	60
GEVE300	208/60/3	118.3	48.1	245	2	22.1	7 1/2	1	130.33	175
GEVE300	230/60/3	116.2	48.1	245	2	20.0	7 1/2	1	128.23	175
GEVE300	460/60/3	47.2	18.6	125	2	10.0	7 1/2	1	51.85	70
GEVE300	208/60/3	123.8	48.1	245	2	27.6	10	1	135.83	175
GEVE300	230/60/3	121.2	48.1	245	2	25.0	10	1	133.23	175
GEVE300	460/60/3	50.2	18.6	125	2	13.0	10	1	54.85	70
GEVE300	460/60/3	57.2	18.6	125	2	20.0	15	1	62.20	80

Table 50. Electrical minimum and maximum 0.5 to 25 tons

Digit 8	Rated Voltage	Hz	pH	Min Utiliz. Volts	Max Utiliz. Volts
1	208	60	1	197	229
2	230	60	1	207	253
3	208	60	3	187	229
4	460	60	3	414	506
5	575	60	3	518	633
6	220-240	50	1	198	264
7	265	60	1	239	292
8	230	60	3	207	253
9	380-415	50	3	342	456
A	208-230	60	1	197	253
B	208-230	60	3	187	253

Table 51. GEV/H Electric duct heater data (0.5-6T)

MODEL	EH Size	Volts	kW	Amps
GEV/H006	Medium	208-230/60/1	1.2/1.5	5.9/6.5
GEV/H006	Medium	265/60/1	1.4	5.2
GEV/H009	Medium	208-230/60/1	1.2/1.5	5.9/6.5
GEV/H009	Medium	265/60/1	1.4	5.2
GEV/H012	Medium	208-230/60/1	1.2/1.5	5.9/6.5
GEV/H012	Medium	265/60/1	1.4	5.2
GEV/H015	Medium	208-230/60/1	2.0/2.5	9.8/10.9
GEV/H015	Medium	265/60/1	2.3	8.6
GEV/H018	Medium	208-230/60/1	2.0/2.5	9.8/10.9
GEV/H018	Medium	265/60/1	2.3	8.6
GEV/H024	Medium	208-230/60/1	3.3/4.0	15.7/17.4
GEV/H024	Medium	265/60/1	3.7	13.8
GEV/H024	Medium	208-230/60/3	3.3/4.0	9.1/10.1
GEV/H024	Medium	460/60/3	3.7	4.6
GEV/H030	Medium	208-230/60/1	3.3/4.0	15.7/17.4
GEV/H030	Medium	208-230/60/3	3.3/4.0	9.1/10.1
GEV/H030	Medium	265/60/1	3.7	13.8
GEV/H030	Medium	460/60/3	3.7	4.6
GEV/H036	Low	208-230/60/1	4.9/6.0	23.6/26.1
GEV/H036	Medium	208-230/60/1	8.2/10.0	39.3/43.5
GEV/H036	High	208-230/60/1	12.3/15.0	59.0/65.2
GEV/H036	Low	265/60/1	5.5	20.7
GEV/H036	Medium	265/60/1	9.2	34.5
GEV/H036	High	265/60/1	13.7	51.8
GEV/H036	Low	208-230/60/3	4.9/6.0	13.6/15.1
GEV/H036	Medium	208-230/60/3	8.2/10.0	22.7/25.1
GEV/H036	High	208-230/60/3	12.3/15.0	34.1/37.7
GEV/H036	Low	460/60/3	5.5	6.9

Table 51. GEV/H Electric duct heater data (0.5-6T) (continued)

MODEL	EH Size	Volts	kW	Amps
GEV/H036	Medium	460/60/3	9.2	11.5
GEV/H036	High	460/60/3	13.8	17.3
GEV/H042	Low	208-230/60/1	4.9/6.0	23.6/26.1
GEV/H042	Medium	208-230/60/1	8.2/10.0	39.3/43.5
GEV/H042	High	208-230/60/1	12.3/15.0	59.0/65.2
GEV/H042	Low	208-230/60/3	4.9/6.0	13.6/15.1
GEV/H042	Medium	208-230/60/3	8.2/10.0	22.7/25.1
GEV/H042	High	208-230/60/3	12.3/15.0	34.1/37.7
GEV/H042	Low	460/60/3	5.5	6.9
GEV/H042	Medium	460/60/3	9.2	11.5
GEV/H042	High	460/60/3	13.8	17.3
GEV/H048	Low	208-230/60/1	4.9/6.0	23.6/26.1
GEV/H048	Medium	208-230/60/1	8.2/10.0	39.3/43.5
GEV/H048	High	208-230/60/1	12.3/15.0	59.0/65.2
GEV/H048	Low	208-230/60/3	4.9/6.0	13.6/15.1
GEV/H048	Medium	208-230/60/3	8.2/10.0	22.7/25.1
GEV/H048	High	208-230/60/3	12.3/15.0	34.1/37.7
GEV/H048	Low	460/60/3	5.5	6.9
GEV/H048	Medium	460/60/3	9.2	11.5
GEV/H048	High	460/60/3	13.8	17.3
GEV/H060	Low	208-230/60/1	4.9/6.0	23.6/26.1
GEV/H060	Medium	208-230/60/1	8.2/10.0	39.3/43.5
GEV/H060	High	208-230/60/1	12.3/15.0	59.0/65.2
GEV/H060	Low	208-230/60/3	4.9/6.0	13.6/15.1
GEV/H060	Medium	208-230/60/3	8.2/10.0	22.7/25.1
GEV/H060	High	208-230/60/3	12.3/15.0	34.1/37.7
GEV/H060	Low	460/60/3	5.5	6.9
GEV/H060	Medium	460/60/3	9.2	11.5
GEV/H060	High	460/60/3	13.8	17.3

Note: *Electric heat performance table with heat rise data can be found in Electric Heat and 575V Water Source Heat Pump 0 to 5 Tons Installation Instructions (WSHP-SVN011*-EN).*

Pre-Start Checklist

Before energizing the unit, the following system devices must be checked:

- Is the high voltage power supply correct and in accordance with the nameplate ratings?
- Is phasing of the unit correct per compressor rotation (scroll compressor only)?
- Is the field wiring and circuit protection the correct size?
- Is the low voltage control circuit wiring correct per the unit wiring diagram?
- Is the piping system clean/complete and correct? (A recommendation of all system flushing of debris from the water-to-refrigerant heat exchanger, along with air purging from the water-to-refrigerant heat exchanger be done in accordance with the Closed-Loop/Ground Source Heat Pump Systems Installation Guide).
- Is vibration isolation provided? (i.e. unit isolation pad, hose kits)
- Is unit serviceable? (See clearance specifications in Unit Dimensions and Weights).
- Are the low/high-side pressure temperature caps secure and in place?
- Are all the unit access panels secure and in place?
- Is the thermostat in the OFF position?
- Is the water flow established and circulating through all the units?
- Is the duct work correctly sized, run, taped, insulated and weather proofed with proper unit arrangement?
- Is the condensate line properly sized, run, trapped, pitched and primed?
- Is the zone sensor correctly wired and in a good location?
- Does the indoor blower turn freely without rubbing?
- Has all work been done in accordance with applicable local and national codes?
- Has heat transfer fluid been added in the proper mix to prevent freezing in closed system application?

Start-Up

Initial Unit Start-Up

Note: *Start-up with the heat pump thermostat is included below:*

1. Set the thermostat to the highest position.
2. Set the thermostat system switch to COOL with the fan control to AUTO. The compressor should NOT run.
3. Reduce the thermostat setting until the compressor, reversing valve, solenoid valve, and loop pump are energized. Adjust water flow utilizing pressure/ temperature plugs and comparing to tables contained in specification sheet data.
4. Water leaving the heat exchanger should be warmer than the entering water temperature (approximately 9-12ºF); blower operation should be smooth; compressor and blower amps should be within data plate ratings; the suction line should be cool with no frost observed in the refrigerant circuit.
5. Check the cooling refrigerant pressures against values in “Operating Pressures,” p. 82.
6. Turn the thermostat system switch to the OFF position. Unit should stop running and the reversing valve should de-energize.
7. Leave unit off for approximately FIVE minutes to allow for pressure equalization.
8. Turn the thermostat to the lowest setting.
9. Set the thermostat system switch to the HEAT position.
10. Adjust the temperature setting upward until the unit is energized. Warm air should blow from the register. A water temperature decrease of approximately 5-9ºF leaving the heat exchanger should be noted. The blower and compressor operation should be smooth with no frost observed in the refrigeration circuit.
11. Check the heating refrigerant pressures against values in “Operating Pressures,” p. 82.
12. Set the thermostat to maintain the desired space temperature.
13. Instruct the owner on system operation.

Table 52. Checklist

MODE	Heat	Cool
Entering fluid temperature	_____F	_____F
Leaving fluid temperature	_____F	_____F
Temperature differential	_____F	_____F
Return-air temperature DB/WB	_____F	_____F

Table 52. Checklist (continued)

MODE	Heat	Cool
Supply-air temperature DB/WB	_____F	_____F
Temperature differential	_____F	_____F
Water coil heat exchanger (Water Pressure IN)	_____PSIG	_____PSIG
Water coil heat exchanger (Water Pressure OUT)	_____PSIG	_____PSIG
Pressure Differential	_____PSIG	_____PSIG
COMPRESSOR		
Amps		
Volts		
Discharge line temperature (after 10 minutes)	_____F	_____F

Start-Up Checklist and Log

Installing Contractor: Use this checklist to thoroughly check-out the system and units before and during start-up. (This form need not be returned to the factory unless requested during technical service support).

Job Name:	
Model Number:	
Date:	
Serial Number:	

To minimize troubleshooting and costly system failures, complete the following checks and data entries before the system is put into full operation.

Operating Pressures

There are many variables (airflow, air temperatures) in an air conditioning system that will affect operating refrigerant pressures and temperatures. The charts below shows approximate conditions and is based on air flow at the rated SCFM, entering air at 80.6°F (DB), 66.2°F (WB) in cooling, 68°F (DB) in heating. (+)Heating data with 35°F EWT is based on the use of an anti-freeze solution having a freezing point 20°F lower than the minimum expected entering temperature.

Table 53. Operating pressures in cooling/heating for GE units

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEV/H006	32	1.20	—	—	—	—	90-104	284-361	5-6	19-28
GEV/H006	32	1.50	—	—	—	—	92-106	286-365	4-5	19-28
GEV/H006	45	1.20	128-147	184-234	15-18	27-32	111-127	308-392	7-9	26-36
GEV/H006	45	1.50	127-146	174-221	12-15	27-32	114-131	311-396	6-7	26-36
GEV/H006	55	1.20	129-148	215-273	15-18	26-31	127-146	328-417	8-10	31-41
GEV/H006	55	1.50	129-148	205-261	12-15	26-31	131-151	332-422	7-9	32-42
GEV/H006	68	1.20	133-153	254-324	14-18	25-30	151-173	355-451	10-13	37-48
GEV/H006	68	1.50	133-153	245-311	11-14	26-31	156-180	360-458	8-11	38-49
GEV/H006	75	1.20	136-157	275-350	14-18	25-30	165-190	370-470	11-14	40-51
GEV/H006	75	1.50	136-156	266-338	11-14	25-30	171-197	376-478	9-11	41-53
GEV/H006	86	1.20	141-162	314-399	13-17	24-29	190-219	393-501	12-15	44-56
GEV/H006	86	1.50	141-162	304-387	11-14	24-29	198-228	401-510	10-13	45-57
GEV/H006	95	1.20	144-166	351-447	13-17	24-29	—	—	—	—
GEV/H006	95	1.50	144-165	341-435	11-13	24-29	—	—	—	—
GEV/H009	32	1.80	—	—	—	—	91-105	259-330	4-5	15-24
GEV/H009	32	2.25	—	—	—	—	93-107	262-334	4-4	16-25
GEV/H009	45	1.80	131-151	178-226	11-15	25-30	111-128	289-367	6-8	21-30
GEV/H009	45	2.25	131-151	170-216	9-12	25-30	114-131	292-372	5-6	22-31
GEV/H009	55	1.80	133-153	208-265	11-14	24-29	127-146	306-390	7-9	25-35
GEV/H009	55	2.25	132-152	200-254	9-11	24-29	130-150	309-394	6-8	26-35
GEV/H009	68	1.80	137-158	250-318	11-14	23-28	149-172	326-415	8-11	29-40
GEV/H009	68	2.25	137-157	242-307	9-11	23-29	154-177	330-419	7-9	30-40
GEV/H009	75	1.80	141-162	271-345	11-14	23-28	163-188	341-433	9-12	32-43
GEV/H009	75	2.25	140-162	263-335	9-11	23-28	169-194	344-438	8-10	33-43
GEV/H009	86	1.80	146-167	311-396	11-14	22-27	189-217	362-460	11-13	36-47
GEV/H009	86	2.25	145-167	303-386	9-11	22-27	196-225	365-464	9-11	37-48
GEV/H009	95	1.80	148-170	351-447	11-14	21-27	—	—	—	—
GEV/H009	95	2.25	148-170	343-437	9-11	21-27	—	—	—	—
GEV/H012	32	2.40	—	—	—	—	91-104	275-350	5-6	17-25
GEV/H012	32	3.00	—	—	—	—	93-107	277-352	4-5	17-26
GEV/H012	45	2.40	133-153	180-229	10-13	22-27	111-128	296-377	6-8	22-31
GEV/H012	45	3.00	133-153	172-218	8-10	22-27	114-131	299-380	5-6	22-32
GEV/H012	55	2.40	134-155	209-266	10-13	21-27	128-147	313-399	7-9	26-35
GEV/H012	55	3.00	134-154	201-256	8-10	21-27	131-151	317-403	6-8	26-36
GEV/H012	68	2.40	138-159	251-320	10-12	21-26	152-175	337-429	9-11	31-41
GEV/H012	68	3.00	138-159	243-309	8-10	21-26	157-180	341-434	7-9	31-42
GEV/H012	75	2.40	141-162	272-347	10-12	20-26	167-192	350-446	10-12	33-44
GEV/H012	75	3.00	141-162	264-337	8-10	21-26	172-198	355-452	8-10	34-45
GEV/H012	86	2.40	144-165	312-397	10-12	20-26	193-222	372-473	11-14	37-48
GEV/H012	86	3.00	144-165	304-387	8-10	20-26	200-230	378-481	9-11	38-49
GEV/H012	95	2.40	146-168	351-447	10-12	20-25	—	—	—	—

Table 53. Operating pressures in cooling/heating for GE units (continued)

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEV/H012	95	3.00	146-167	343-437	8-10	20-26	—	—	—	—
GEV/H015	32	3.00	—	—	—	—	90-103	274-349	5-7	18-27
GEV/H015	32	3.75	—	—	—	—	91-105	276-351	4-6	18-27
GEV/H015	45	3.00	134-154	180-229	12-15	25-30	110-127	294-374	7-8	22-32
GEV/H015	45	3.75	134-154	172-219	10-12	25-30	112-129	296-377	5-7	23-32
GEV/H015	55	3.00	137-158	211-268	12-15	24-30	126-146	310-394	7-10	26-36
GEV/H015	55	3.75	137-158	203-258	10-12	25-30	129-149	312-397	6-8	26-36
GEV/H015	68	3.00	142-163	253-322	12-15	24-29	150-173	332-422	9-11	30-41
GEV/H015	68	3.75	142-163	245-311	10-12	24-29	154-178	335-426	7-9	31-41
GEV/H015	75	3.00	144-166	274-348	12-15	23-29	165-190	344-438	9-12	33-44
GEV/H015	75	3.75	144-166	266-338	9-12	23-29	170-195	348-443	8-10	34-45
GEV/H015	86	3.00	147-169	313-399	12-15	23-28	191-220	366-466	11-14	37-48
GEV/H015	86	3.75	147-169	305-389	9-12	23-28	197-227	371-473	9-11	38-49
GEV/H015	95	3.00	149-171	353-449	11-14	22-28	—	—	—	—
GEV/H015	95	3.75	149-171	345-439	9-12	22-28	—	—	—	—
GEV/H018	32	3.60	—	—	—	—	89-102	279-355	4-5	16-25
GEV/H018	32	4.50	—	—	—	—	90-104	281-358	3-4	17-26
GEV/H018	45	3.60	128-147	179-228	12-15	23-28	107-124	301-383	6-7	22-32
GEV/H018	45	4.50	128-147	171-218	10-12	23-28	110-126	303-386	5-6	23-32
GEV/H018	55	3.60	129-148	207-264	12-15	22-28	123-142	318-405	7-9	26-36
GEV/H018	55	4.50	128-148	200-255	10-12	22-28	126-145	321-409	5-7	26-36
GEV/H018	68	3.60	133-153	247-314	12-15	22-27	146-168	342-435	8-10	31-41
GEV/H018	68	4.50	133-153	239-305	10-12	22-27	150-173	346-440	7-8	31-42
GEV/H018	75	3.60	136-156	267-339	12-15	21-27	161-185	355-452	9-11	33-44
GEV/H018	75	4.50	136-156	259-330	9-12	22-27	165-190	359-457	7-9	34-45
GEV/H018	86	3.60	140-161	305-388	12-15	21-27	187-215	377-480	10-13	37-48
GEV/H018	86	4.50	140-161	297-378	9-12	21-27	192-221	381-485	8-10	38-49
GEV/H018	95	3.60	142-163	343-436	12-15	21-27	—	—	—	—
GEV/H018	95	4.50	142-163	335-427	9-12	21-27	—	—	—	—
GEV/H024	32	4.80	—	—	—	—	89-102	289-368	5-6	17-26
GEV/H024	32	6.00	—	—	—	—	90-104	291-370	4-5	18-27
GEV/H024	45	4.80	132-151	179-228	12-15	24-30	107-123	311-396	6-8	23-32
GEV/H024	45	6.00	132-151	173-220	9-12	24-30	110-126	314-399	5-7	23-33
GEV/H024	55	4.80	134-154	208-265	11-15	24-29	122-141	329-419	7-9	26-36
GEV/H024	55	6.00	134-154	202-257	9-12	24-29	126-144	332-423	6-8	27-37
GEV/H024	68	4.80	136-157	248-315	11-14	23-29	145-167	353-450	9-11	31-41
GEV/H024	68	6.00	136-156	241-306	9-11	23-29	149-172	357-455	7-9	31-42
GEV/H024	75	4.80	137-158	272-346	11-14	23-28	159-183	367-467	9-12	33-44
GEV/H024	75	6.00	137-158	264-336	9-11	23-28	164-189	371-472	8-10	34-45
GEV/H024	86	4.80	139-160	313-398	11-14	22-27	185-212	387-493	11-13	37-48
GEV/H024	86	6.00	139-160	305-388	9-11	22-28	192-220	392-499	9-11	38-49

Table 53. Operating pressures in cooling/heating for GE units (continued)

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEV/H024	95	4.80	141-162	350-445	11-14	21-27	—	—	—	—
GEV/H024	95	6.00	141-162	342-435	9-11	21-27	—	—	—	—
GEV/H030	32	6.00	—	—	—	—	87-100	288-366	4-6	16-25
GEV/H030	32	7.50	—	—	—	—	89-102	289-368	4-5	17-26
GEV/H030	45	6.00	129-148	180-229	11-14	24-29	105-121	312-397	6-8	22-31
GEV/H030	45	7.50	128-148	173-220	9-11	24-29	108-124	315-400	5-6	22-32
GEV/H030	55	6.00	130-150	208-265	11-14	23-29	120-139	332-423	7-9	25-35
GEV/H030	55	7.50	130-149	201-256	9-11	23-29	123-142	335-426	6-8	26-36
GEV/H030	68	6.00	133-153	249-317	11-14	23-28	143-165	358-455	8-11	30-40
GEV/H030	68	7.50	133-153	242-308	9-11	23-28	147-169	361-460	7-9	30-41
GEV/H030	75	6.00	134-155	272-346	11-14	22-28	157-181	371-472	9-12	32-43
GEV/H030	75	7.50	134-154	264-337	9-11	22-28	162-186	375-477	7-10	33-43
GEV/H030	86	6.00	137-157	312-397	11-14	22-27	183-211	391-498	10-13	36-47
GEV/H030	86	7.50	137-157	305-388	9-11	22-27	189-218	395-503	8-11	37-48
GEV/H030	95	6.00	138-159	349-445	11-14	21-27	—	—	—	—
GEV/H030	95	7.50	138-159	342-436	8-11	21-27	—	—	—	—
GEV/H036	32	7.20	—	—	—	—	85-98	291-370	5-6	17-26
GEV/H036	32	9.00	—	—	—	—	86-99	292-372	4-5	18-27
GEV/H036	45	7.20	129-148	185-235	11-15	22-28	103-119	312-397	6-8	22-32
GEV/H036	45	9.00	128-148	177-225	9-12	22-28	105-121	314-399	5-6	23-32
GEV/H036	55	7.20	129-149	214-272	11-15	22-27	118-136	329-419	7-9	26-36
GEV/H036	55	9.00	129-148	206-263	9-12	22-27	121-139	331-421	6-8	26-36
GEV/H036	68	7.20	132-152	256-326	11-14	21-27	141-163	352-448	9-11	30-40
GEV/H036	68	9.00	132-152	248-316	9-11	21-27	145-167	355-452	7-9	30-41
GEV/H036	75	7.20	134-154	278-354	11-14	21-27	156-179	365-465	9-12	33-43
GEV/H036	75	9.00	134-154	271-345	9-11	21-27	160-184	369-469	8-10	33-44
GEV/H036	86	7.20	137-158	319-406	11-14	21-26	182-209	387-493	10-13	37-48
GEV/H036	86	9.00	137-158	312-397	9-11	21-26	187-215	391-498	8-11	37-48
GEV/H036	95	7.20	139-160	358-455	11-14	20-26	—	—	—	—
GEV/H036	95	9.00	139-160	350-446	9-11	20-26	—	—	—	—
GEV/H042	32	8.40	—	—	—	—	88-101	309-393	5-6	18-28
GEV/H042	32	10.50	—	—	—	—	90-103	311-395	4-5	19-28
GEV/H042	45	8.40	125-144	179-228	11-15	22-27	106-122	334-425	6-8	23-33
GEV/H042	45	10.50	125-144	174-221	9-12	22-27	109-125	337-429	5-7	24-33
GEV/H042	55	8.40	127-146	207-263	11-14	21-27	122-140	355-451	7-9	27-37
GEV/H042	55	10.50	127-146	200-255	9-11	21-27	125-144	358-456	6-8	27-37
GEV/H042	68	8.40	130-150	247-314	11-14	21-26	145-166	382-486	9-11	32-42
GEV/H042	68	10.50	130-150	240-305	9-11	21-26	149-172	386-492	7-9	32-43

Table 53. Operating pressures in cooling/heating for GE units (continued)

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEV/H042	75	8.40	132-152	271-345	11-14	20-26	159-183	396-505	10-12	34-45
GEV/H042	75	10.50	132-151	264-336	9-11	20-26	164-189	401-510	8-10	35-46
GEV/H042	86	8.40	134-155	312-397	11-14	20-26	185-213	418-532	11-14	38-49
GEV/H042	86	10.50	134-154	304-387	9-11	20-26	191-220	423-538	9-11	39-50
GEV/H042	95	8.40	136-157	348-443	11-14	20-25	—	—	—	—
GEV/H042	95	10.50	136-157	340-433	9-11	20-25	—	—	—	—
GEV/H048	32	9.60	—	—	—	—	86-98	289-368	4-6	17-25
GEV/H048	32	12.00	—	—	—	—	87-100	291-371	4-5	17-26
GEV/H048	45	9.60	129-148	181-230	12-15	25-30	104-120	312-397	6-8	22-32
GEV/H048	45	12.00	129-148	173-220	10-12	25-31	107-123	315-400	5-6	23-32
GEV/H048	55	9.60	129-149	209-266	12-15	25-30	119-137	330-420	7-9	27-37
GEV/H048	55	12.00	129-148	201-256	10-12	25-30	123-141	333-424	6-8	27-37
GEV/H048	68	9.60	132-152	249-317	12-15	24-30	142-164	355-451	9-11	32-42
GEV/H048	68	12.00	132-152	241-307	10-12	24-30	147-169	359-456	7-9	33-43
GEV/H048	75	9.60	134-154	271-345	12-15	24-29	157-180	368-468	10-12	35-45
GEV/H048	75	12.00	134-154	264-336	9-12	24-29	162-186	372-474	8-10	35-46
GEV/H048	86	9.60	137-158	311-396	11-14	23-28	182-210	389-495	11-14	38-50
GEV/H048	86	12.00	137-158	304-387	9-12	23-28	189-217	394-501	9-11	39-50
GEV/H048	95	9.60	140-161	348-443	11-14	22-28	—	—	—	—
GEV/H048	95	12.00	139-160	340-433	9-11	22-28	—	—	—	—
GEV/H060	32	12.00	—	—	—	—	85-98	297-378	5-6	17-25
GEV/H060	32	15.00	—	—	—	—	86-99	299-380	4-5	17-26
GEV/H060	45	12.00	126-144	183-232	11-14	23-29	103-119	326-415	6-8	21-31
GEV/H060	45	15.00	125-144	178-226	9-11	23-29	106-122	328-418	5-6	22-31
GEV/H060	55	12.00	126-145	211-268	11-14	23-29	119-137	349-444	7-9	25-35
GEV/H060	55	15.00	126-145	205-260	9-11	23-29	122-141	352-448	6-7	26-36
GEV/H060	68	12.00	129-148	249-317	11-13	22-28	143-164	377-480	9-11	30-40
GEV/H060	68	15.00	128-148	243-309	8-11	23-28	147-169	381-485	7-9	31-41
GEV/H060	75	12.00	130-150	273-347	10-13	22-28	157-181	391-498	9-12	33-43
GEV/H060	75	15.00	130-150	266-338	8-11	22-28	162-186	396-504	8-10	33-44
GEV/H060	86	12.00	133-153	313-398	10-13	21-27	183-210	412-525	10-13	36-47
GEV/H060	86	15.00	133-153	306-389	8-10	22-27	189-217	417-531	8-11	37-48
GEV/H060	95	12.00	136-156	349-444	10-13	21-27	—	—	—	—
GEV/H060	95	15.00	135-156	342-435	8-10	21-27	—	—	—	—
GEHE/GEVE072 (60 Hz)	32	12.00	—	—	—	—	67-77	250-319	6-8	20-24
GEHE/GEVE072 (60 Hz)	32	18.00	—	—	—	—	70-80	253-322	4-5	20-25
GEHE/GEVE072 (60 Hz)	45	12.00	129-148	176-224	15-18	25-30	85-97	266-338	8-10	24-29
GEHE/GEVE072 (60 Hz)	45	18.00	128-148	163-208	10-12	25-31	89-103	269-342	5-7	25-30

Table 53. Operating pressures in cooling/heating for GE units (continued)

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEHE/GEVE072 (60 Hz)	55	12.00	130-150	205-260	14-18	24-30	102-117	281-357	8-11	28-35
GEHE/GEVE072 (60 Hz)	55	18.00	130-149	191-243	10-12	24-30	107-123	285-362	6-7	29-35
GEHE/GEVE072 (60 Hz)	68	12.00	133-153	247-314	14-18	23-29	125-144	300-382	10-13	34-42
GEHE/GEVE072 (60 Hz)	68	18.00	132-152	232-296	9-12	24-29	133-153	305-388	7-9	35-43
GEHE/GEVE072 (60 Hz)	77	12.00	134-155	286-363	15-18	23-28	139-160	311-396	11-14	37-45
GEHE/GEVE072 (60 Hz)	77	18.00	134-154	268-341	10-12	23-29	148-170	317-403	8-10	38-47
GEHE/GEVE072 (60 Hz)	86	12.00	136-156	317-403	14-17	22-28	163-188	329-419	13-16	41-50
GEHE/GEVE072 (60 Hz)	86	18.00	135-155	300-382	9-12	23-28	175-201	335-427	9-11	43-53
GEHE/GEVE072 (60 Hz)	95	12.00	137-158	356-453	13-17	22-27	—	—	—	—
GEHE/GEVE072 (60 Hz)	95	18.00	137-157	340-432	9-11	22-27	—	—	—	—
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	32	15.00	—	—	—	—	65-75	245-312	6-8	22-27
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	32	22.50	—	—	—	—	68-78	248-316	4-5	23-28
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	45	15.00	125-144	183-233	15-19	24-30	83-95	260-331	8-10	26-31
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	45	22.50	124-143	170-216	10-12	24-30	87-101	263-335	5-7	26-32
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	55	15.00	126-145	213-271	14-18	24-29	100-115	274-348	8-11	29-36
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	55	22.50	126-145	198-252	10-12	24-29	105-121	277-353	6-7	30-37
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	68	15.00	128-148	257-327	14-18	23-28	123-142	291-370	10-13	34-42
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	68	22.50	128-147	241-307	9-12	23-29	131-150	296-376	7-9	35-43
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	77	15.00	130-150	298-379	15-19	23-28	137-158	301-383	11-14	37-45
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	77	22.50	130-149	279-355	10-12	23-28	146-168	306-390	8-10	38-47
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	86	15.00	131-151	328-418	14-17	22-27	161-185	317-403	13-16	40-50
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	86	22.50	131-151	311-396	9-12	22-28	173-199	324-412	9-11	42-52
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	95	15.00	133-153	370-471	13-17	22-27	—	—	—	—
GEHE/GEVE090 (60 Hz) GEHE/GEVE072 (50 Hz)	95	22.50	133-153	352-448	9-11	22-27	—	—	—	—

Table 53. Operating pressures in cooling/heating for GE units (continued)

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	32	20.00	—	—	—	—	65-75	246-313	6-7	25-30
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	32	30.00	—	—	—	—	68-79	248-316	4-5	25-31
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	45	20.00	124-143	174-221	14-18	23-29	84-96	259-330	7-9	28-34
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	45	30.00	123-142	162-206	9-12	23-29	88-101	263-335	5-6	28-34
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	55	20.00	125-144	202-258	14-18	23-29	101-116	274-349	8-10	30-37
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	55	30.00	125-144	189-241	9-12	23-29	106-122	279-355	6-7	31-38
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	68	20.00	127-146	244-311	13-17	23-28	124-143	292-372	10-12	34-42
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	68	30.00	127-146	230-293	9-11	23-28	132-152	297-378	7-8	35-43
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	77	20.00	129-148	281-358	14-18	23-28	139-159	303-385	10-13	37-45
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	77	30.00	128-148	265-337	9-12	23-28	147-170	308-392	7-9	37-46
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	86	20.00	130-150	311-396	13-16	22-27	163-187	320-407	12-15	40-50
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	86	30.00	130-150	296-376	9-11	22-27	174-200	326-415	8-11	41-51
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	95	20.00	132-152	348-443	13-16	22-27	—	—	—	—
GEHE/GEVE120 (60 Hz) GEHE/GEVE090 (50 Hz)	95	30.00	132-152	333-423	8-11	22-27	—	—	—	—
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	32	25.00	—	—	—	—	66-75	256-326	7-8	23-29
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	32	37.50	—	—	—	—	69-79	258-329	5-6	24-30
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	45	25.00	120-138	187-238	15-19	22-29	84-96	272-346	8-10	26-32
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	45	37.50	120-138	172-219	10-12	22-29	88-102	275-350	6-7	26-32
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	55	25.00	122-140	216-275	14-18	22-28	101-116	290-369	9-11	28-35

Table 53. Operating pressures in cooling/heating for GE units (continued)

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	55	37.50	121-140	200-255	10-12	22-28	107-123	293-372	6-8	29-37
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	68	25.00	124-143	259-329	14-18	22-28	124-143	310-395	11-14	32-40
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	68	37.50	124-142	242-308	9-12	22-28	132-152	315-401	7-9	33-42
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	77	25.00	126-145	300-382	14-18	22-28	138-159	323-411	12-15	34-43
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	77	37.50	125-144	280-356	10-12	22-28	148-170	328-418	8-10	36-45
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	86	25.00	128-147	328-417	13-17	21-27	162-187	344-438	13-17	37-47
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	86	37.50	127-146	309-393	9-11	22-27	174-201	351-446	9-12	39-49
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	95	25.00	129-149	366-466	13-17	21-27	—	—	—	—
GEHE/GEVE150 (60 Hz) GEHE/GEVE120 (50 Hz)	95	37.50	129-148	348-442	9-11	21-27	—	—	—	—
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	32	30.00	—	—	—	—	62-71	260-331	7-9	23-29
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	32	45.00	—	—	—	—	65-75	263-334	5-6	24-30
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	45	30.00	119-136	189-240	15-19	22-29	79-91	277-352	8-10	26-32
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	45	45.00	118-136	172-219	10-13	22-29	84-97	280-356	6-7	27-33
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	55	30.00	120-138	220-280	15-19	22-28	96-111	294-375	9-11	29-36
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	55	45.00	120-138	205-261	10-12	22-28	102-117	297-378	6-8	30-37
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	68	30.00	122-140	266-338	14-18	22-28	119-137	316-402	11-14	32-41
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	68	45.00	121-140	249-317	10-12	22-28	127-146	320-407	7-9	34-43
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	77	30.00	123-142	308-392	15-19	22-28	133-153	329-419	12-15	35-43
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	77	45.00	123-141	288-367	10-13	22-28	142-163	334-425	8-10	36-46

Table 53. Operating pressures in cooling/heating for GE units (continued)

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	86	30.00	124-143	340-432	14-18	21-27	156-179	351-447	13-17	38-48
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	86	45.00	124-143	321-409	9-12	21-27	167-192	357-455	9-12	40-50
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	95	30.00	126-145	381-485	14-17	21-27	—	—	—	—
GEHE/GEVE180 (60 Hz) GEHE/GEVE150 (50 Hz)	95	45.00	126-145	363-461	9-12	21-27	—	—	—	—
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	32	40.00	—	—	—	—	64-73	256-326	6-8	25-31
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	32	60.00	—	—	—	—	67-77	259-329	4-5	26-32
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	45	40.00	126-145	178-226	15-19	23-29	82-94	270-344	7-9	27-34
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	45	60.00	125-144	165-210	10-12	23-29	86-99	274-349	5-7	28-35
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	55	40.00	127-146	208-265	14-18	23-29	99-113	285-362	8-10	29-37
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	55	60.00	127-146	194-247	10-12	23-29	104-120	289-368	6-7	30-38
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	68	40.00	129-148	253-321	14-18	22-29	122-140	303-386	10-13	33-41
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	68	60.00	129-148	237-301	9-12	23-29	129-149	309-394	7-9	34-42
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	77	40.00	131-150	294-374	15-19	22-28	135-156	315-400	11-14	34-43
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	77	60.00	130-150	275-350	10-12	22-28	144-166	322-409	8-10	36-45
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	86	40.00	132-152	325-414	14-17	22-28	159-183	334-425	12-16	37-47
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	86	60.00	132-152	308-392	9-12	22-28	170-196	342-436	9-11	39-49
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	95	40.00	134-154	367-467	13-17	22-27	—	—	—	—
GEHE/GEVE240 (60 Hz) GEHE/GEVE180 (50 Hz)	95	60.00	134-154	349-444	9-11	22-28	—	—	—	—
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	32	50.00	—	—	—	—	62-71	275-350	6-8	24-30

Table 53. Operating pressures in cooling/heating for GE units (continued)

Operating Data										
Model	Entering Water Temp (°F)	Water Flow (GPM)	Cooling				Heating			
			Suction Pressure (psig)	Discharge Pressure (pgig)	Water Temp Rise (°F)	Air Temp Drop (°F DB)	Suction Pressure (psig)	Discharge Pressure (psig)	Water Temp Drop (°F)	Air Temp Rise (°F DB)
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	32	75.00	—	—	—	—	65-75	279-355	4-6	25-31
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	45	50.00	120-138	181-231	15-19	22-28	80-92	291-370	8-10	26-33
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	45	75.00	119-137	169-215	10-13	22-28	84-97	295-376	5-7	27-34
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	55	50.00	121-140	209-267	14-18	22-28	96-111	309-394	8-11	29-36
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	55	75.00	121-139	196-249	10-12	22-28	102-117	314-399	6-8	30-37
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	68	50.00	124-142	251-320	14-18	22-27	119-137	330-420	10-13	32-40
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	68	75.00	123-142	236-301	9-12	22-27	127-146	335-427	7-9	33-42
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	77	50.00	126-145	289-368	15-18	21-27	133-153	342-435	11-14	34-43
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	77	75.00	125-144	272-346	10-12	21-27	142-163	348-443	8-10	35-45
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	86	50.00	127-147	319-406	13-17	21-27	156-180	362-461	13-16	37-46
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	86	75.00	127-146	302-385	9-11	21-27	168-193	371-472	9-11	39-49
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	95	50.00	130-149	357-454	13-17	21-26	—	—	—	—
GEHE/GEVE300 (60 Hz) GEHE/GEVE240 (50 Hz)	95	75.00	129-148	340-433	9-11	21-26	—	—	—	—

Water Pressure Drop

Use the following tables to define feet of head/pressure drop. Please note the feet of pressure (ft/head) provided is at AHRI/ISO standard.

To calculate feet of head, when using gauges that read in PSIG, multiply PSI by 2.31.

Table 54. Cooling water pressure drop (WPD) in feet of head for GE* units – 0.5 to 6 tons

Unit Size (60 Hz)	Unit Size (50 Hz)	EWT °F	GPM	Ft. Pressure
GEV/H006	—	86	1.5	1.8
GEV/H009	—	86	2.3	2.6

Table 54. Cooling water pressure drop (WPD) in feet of head for GE* units – 0.5 to 6 tons (continued)

Unit Size (60 Hz)	Unit Size (50 Hz)	EWT °F	GPM	Ft. Pressure
GEV/H012	—	86	3.0	5.4
GEV/H015	—	86	3.8	8.6
GEV/H018	—	86	4.5	11.8
GEV/H024	—	86	6.0	6.2
GEV/H030	—	86	7.5	7.9
GEV/H036	—	86	9.0	11.7
GEV/H042	—	86	10.5	8.5

Table 54. Cooling water pressure drop (WPD) in feet of head for GE* units – 0.5 to 6 tons (continued)

Unit Size (60 Hz)	Unit Size (50 Hz)	EWT °F	GPM	Ft. Pressure
GEV/H048	—	86	12.0	13.8
GEV/H060	—	86	15.0	12.4
GEVE072	—	86	18.0	12.0
GEVE090	GEV072	86	22.5	13.4
GEVE120	GEV090	86	30.0	14.1
GEVE150	GEV120	86	37.5	13.4
GEVE180	GEV150	86	45.0	18.2
GEVE240	GEV180	86	60.0	14.0
GEVE300	GEV240	86	75.0	13.2

Table 55. Heating water pressure drop (WPD) in feet of head for * GE units

Unit Size (60 Hz)	Unit Size (50 Hz)	EWT °F	GPM	Ft. Pressure
GEHE072	—	68	18.0	13.9
GEHE090	GEHE072	68	22.5	15.7
GEHE120	GEHE090	68	30.0	16.0
GEHE150	GEHE120	68	37.5	14.8
GEHE180	GEHE150	68	45.0	20.3
GEV/H006	—	68	1.5	1.9
GEV/H009	—	68	2.3	2.9
GEV/H012	—	68	3.0	5.9
GEV/H015	—	68	3.8	9.5
GEV/H018	—	68	4.5	12.8
GEV/H024	—	68	6.0	6.4
GEV/H030	—	68	7.5	8.5
GEV/H036	—	68	9.0	12.6
GEV/H042	—	68	10.5	9.0
GEV/H048	—	68	12.0	14.1
GEV/H060	—	68	15.0	12.6
GEVE072	—	68	18.0	13.9
GEVE090	GEVE072	68	22.5	15.3
GEVE120	GEVE090	68	30.0	16.0
GEVE150	GEVE120	68	37.5	14.8

Table 55. Heating water pressure drop (WPD) in feet of head for * GE units (continued)

Unit Size (60 Hz)	Unit Size (50 Hz)	EWT °F	GPM	Ft. Pressure
GEVE180	GEVE150	68	45.0	20.3
GEVE240	GEVE180	68	60.0	16.0
GEVE300	GEVE240	68	75.0	14.8

Water Volume

The information below is provided for use in calculating glycol requirements for the unit.

Table 56. Water volume for GE* units

Unit Size (60 Hz)	Unit Size (50 Hz)	Water Side Volume (in^3)	Water Side Volume (ft^3)	Water Side Volume (gallons)
GEV/H006	—	27.5	0.016	0.119
GEV/H009	—	27.5	0.016	0.119
GEV/H012	—	27.5	0.016	0.119
GEV/H015	—	34.6	0.02	0.15
GEV/H018	—	41.0	0.024	0.177
GEV/H024	—	41.0	0.024	0.177
GEV/H030	—	62.9	0.036	0.272
GEV/H036	—	62.9	0.036	0.272
GEV/H042	—	118.6	0.069	0.513
GEV/H048	—	118.6	0.069	0.513
GEV/H060	—	196.5	0.114	0.851
GEHE/ GEVE072	—	181.0	0.105	0.783
GEHE/ GEVE090	GEHE/ GEVE072	214.0	0.125	0.927
GEHE/ GEVE120	GEHE/ GEVE090	390.0	0.227	1.69
GEHE/ GEVE150 GEHE/ GEVE180	GEHE/ GEVE120 GEHE/ GEVE150	508.0	0.296	2.201
GEHE/ GEVE240	GEHE/ GEVE180	779.0	0.453	3.374
GEHE/ GEVE300	GEHE/ GEVE240	1057.0	0.615	4.576

Maintenance

⚠ WARNING

Hazardous Service Procedures!

Failure to follow all precautions in this manual and on the tags, stickers, and labels 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 following instructions: Unless specified otherwise, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks.

Preventative Maintenance

Maintenance on the unit is simplified with the following preventive suggestions:

Filter maintenance must be performed to assure proper operation of the equipment. Filters should be inspected at least every three months, and replaced when it is evident they are dirty. Filter sizing is shown below.

Table 57. Filter sizing GE* models

Size (60 Hz)	Size (50 Hz)	Filter Size (Nominal) inches
GEH		
006	—	14 x 16
009	—	14 x 16
012	—	14 x 16
015	—	16 x 19
018	—	16 x 19
024	—	17 x 20
030	—	17 x 20
036	—	18 x 23
042	—	18 x 23
048	—	20 x 30
060	—	20 x 30
072	—	20 x 25 (3)
090	072	20 x 25 (3)
120	090	20 x 25 (3)
150	120	20 x 25 (3)

Table 57. Filter sizing GE* models (continued)

Size (60 Hz)	Size (50 Hz)	Filter Size (Nominal) inches
180	150	20 x 25 (3)
GEV		
006	—	14 x 16
009	—	14 x 16
012	—	14 x 16
015	—	16 x 19
018	—	16 x 19
024	—	17 x 20
030	—	17 x 20
036	—	18 x 23
042	—	18 x 23
048	—	20 x 30
060	—	20 x 30
072	—	20 x 20 (4)
090	072	20 x 20 (4)
120	090	20 x 20 (4)
150	120	20 x 25 (6)
180	150	20 x 25 (6)
240	180	20 x 25 (6)
300	240	20 x 25 (6)

Check the contactors and relays within the control panel at least once a year. It is good practice to check the tightness of the various wiring connections within the control panel.

A strainer (60 mesh or greater) must be used on an open loop system to keep debris from entering the unit heat exchanger and to ensure a clean system.

For units on well water, it is important to check the cleanliness of the water-to-refrigerant heat exchanger. Should it become contaminated with dirt and scaling as a result of bad water, the heat exchanger will have to be back flushed and cleaned with a chemical that will remove the scale. This service should be performed by an experienced service person.

⚠ WARNING

Hazardous Chemicals!

Failure to follow this safety precaution could result in death or serious injury. Coil cleaning agents can be either acidic or highly alkaline and can burn severely if contact with skin or eyes occurs.
Handle chemical carefully and avoid contact with skin. ALWAYS wear Personal Protective Equipment (PPE) including goggles or face shield, chemical resistant gloves, boots, apron or suit as required. For personal safety refer to the cleaning agent manufacturer's Materials Safety Data Sheet and follow all recommended safe handling practices.

It should be noted that the water quality should be checked periodically (See below).

Table 58. Water quality

Scaling	Amount
Calcium and magnesium (total hardness)	Less than 350 ppm
Corrosion	
pH	7-9.5
Hydrogen Sulfide	Less than 1 ppm

Table 58. Water quality (continued)

Scaling	Amount
Sulfates	Less than 25 ppm
Chlorides	Less than 125 ppm
Carbon Dioxide	Less than 75 ppm
Total dissolved solids (TDS)	Less than 1000 ppm
Biological Growth	
Iron Bacteria	Low
Erosion	
Suspended Solids	Low

Condensate Trap

For units incorporating a negative trap design, ensure that the condensate system is primed with water at all times. Allowing a negative, pressure condensate system to run dry could cause a break in the condensate seal allowing the fan to draw water from the condensate line to spray moisture into the mechanical system. By maintaining a primed condensate trap, a seal will be created and will help prevent these complications.

Troubleshooting

⚠ WARNING

Hazardous Service Procedures!

Failure to follow all precautions in this manual and on the tags, stickers, and labels 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 following instructions: Unless specified otherwise, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks.

Deluxe Controls

Troubleshooting units which contain the deluxe control option may be made easy by using the three LEDs (light emitting diodes). These LEDs are provided for indicating the operating mode of the controller. The LEDs are intended to aid in troubleshooting. The LEDs are labeled on the circuit board with numbers as referenced in the table below.

Table 59. Diagnostic LEDs

Color: Green	Color: Red		Controller Mode
LED1	LED2	LED3	
OFF	OFF	OFF	Control OFF
ON	OFF	OFF	Normal/Compressor OFF
ON	OFF	FLASH	Anti-short cycle
ON	OFF	ON	Normal/Compressor ON
FLASH	ON	OFF	Brownout Condition
ON	FLASH	ON	Soft Lockout (low pressure)
ON	FLASH	FLASH	Soft Lockout (high pressure)
ON	ON	ON	Manual Lockout (low pressure)
ON	ON	FLASH	Manual Lockout (high pressure)
ON	FLASH	OFF	Manual Lockout (condensate overflow)
ON	ON	OFF	Compressor Disable

Table 60. Troubleshooting table

Problem	Heating	Cooling	Cause	Correction
No response to any thermostat setting				
	X	X	Main power off	Check fuses
	X	X	Defective control transformer	Replace
	X	X	Broken or loose connection	Repair
	X	X	Defective thermostat	Replace
	X	X	Transformer	Reset Transformer
Unit short cycles	X	X	Thermostat or sensor improperly located	Relocate

Table 60. Troubleshooting table (continued)

Problem	Heat-ing	Cool-ing	Cause	Correction
Blower runs, but compressor does not	X	X	Defective compressor overload	Replace (if external)
	X	X	Defective compressor contactor	Replace
	X	X	Supply Voltage too low	Correct
	X	X	Defective compressor capacitor	Replace
	X	X	Defective windings	Replace
	X	X	Limit switches open	Check cause/Replace or repair
Insufficient capacity	X	X	Dirty filter	Replace/clean
	X	X	Blower RPM too low	Correct
	X	X	Loss of conditioned air due to leaks in ductwork	Repair leaks
		X	Introduction of excessively hot return-air	Correct
	X		Introduction of excessively cold return-air	Correct
	X	X	Low on refrigerant charge	Locate leak, repair and recharge by weight (not by superheat)
	X	X	Restricted thermal expansion valve	Replace
	X	X	Defective reversing valve	See WSHP-IOM-# for touch test chart
	X	X	Thermostat improperly located	Relocate
	X	X	Unit undersized	Recalculate heat gains/losses
	X	X	Inadequate water flow	Increase GPM
	X	X	Scaling in heat exchanger	Clean or replace
		X	Water too hot	Decrease temperature
	X		Water too cold	Increase temperature
	X	X	Filter drier blocked	Replace
	X	X	Defective reversing valve	Check or replace
High pressure switch open		X	Inadequate GPM	Increase water flow to unit
		X	Water too hot	Decrease temperature
	X		Inadequate air flow	Check, clean blower and coil
	X		Dirty filter	Clean/replace
	X	X	Overcharged with refrigerant	Decrease charge
	X	X	Defective pressure switch	Check or replace
High head pressure		X	Trash in heat exchanger	Backflush
		X	Low water flow	Increase GPM
	X	X	Overcharge of refrigerant	Decrease charge
	X	X	Non-condensable in system	Evacuate and recharge by weight
	X	X	Water too hot	Decrease temperature
	X		Dirty filter	Clean / replace
	X		Inadequate air flow	Check, clean blower and coil

Table 60. Troubleshooting table (continued)

Problem	Heat-ing	Cool-ing	Cause	Correction
Low suction pressure	X	X	Undercharged	Locate leak, repair and recharge
	X	X	Restricted thermal expansion valve	Repair / replace
		X	Inadequate air flow	Check, clean blower and coil
		X	Dirty filter	Clean/replace
	X		Inadequate GPM	Increase GPM
Low pressure switch open	X		Inadequate GPM	Increase GPM
	X		Water too cold	Increase temperature
		X	Inadequate air flow	Increase CFM
		X	Dirty filter	Clean/replace
	X	X	Undercharged with refrigerant	Increase charge
	X	X	Defective pressure switch	Replace
	X	X	Heat transfer fluid too cold	Raise water temperature

Wiring Diagrams

This section contains wiring diagrams and isolation valve wiring connections.

Table 61. Isolation valve wiring connections (0.5 to 5 tons)

Control Type	3-Wire Isolation Valve Connections (0.5 to 5 tons)		
	Common	Close	Open
Deluxe 24V	93B	92B	91B

Note: *For field installed valves, wires 91B, 92B and 93B are coiled behind control box. For field-provided two wire valves connect to wires 91B and 93B.*

Table 62. Isolation valve wiring connections (6 to 25 tons)

Control Type	3-Wire Honeywell Isolation Valve Connections (6 to 25 tons)		
	Blue	Brown	Black
Deluxe 24V	1TB1-6	1TB1-1	1TB1-4

Note: *Wiring diagrams can be accessed via e-Library by entering the diagram number in the literature order number search field or by calling technical support.*

Table 63. Wiring diagram matrix for GEV/H, EXV/H, and DXV/H models

Number	Unit Description	Model
23115845	DELUXE CONTROLS 2 STAGE HEAT PUMP w/ECM MOTOR, SINGLE PHASE	DX only
23115846	DELUXE CONTROLS HEAT PUMP w/HOT GAS REHEAT AND ECM MOTOR, SINGLE PHASE	EX/GE
23115847	DELUXE CONTROLS HEAT PUMP w/WATER SIDE ECONOMIZER AND ECM MOTOR, SINGLE PHASE	EX/GE
23115848	DELUXE CONTROLS HEAT PUMP w/ECM MOTOR, SINGLE PHASE	EX/GE
23115849	DELUXE CONTROLS 2 STAGE HEAT PUMP w/ECM MOTOR, THREE PHASE	DX only
23115850	DELUXE CONTROLS HEAT PUMP w/HOT GAS REHEAT AND ECM MOTOR, THREE PHASE	EX/GE
23115851	DELUXE CONTROLS HEAT PUMP w/WATER SIDE ECONOMIZER AND ECM MOTOR, THREE PHASE	EX/GE
23115852	DELUXE CONTROLS HEAT PUMP w/ECM MOTOR, THREE PHASE	EX/GE
23115861	SYMBIO™ 400-B/UC400-B CONTROLS w/ECM MOTOR, SINGLE PHASE	EX/DX/GE
23115862	SYMBIO 400-B/UC400-B CONTROLS w/ECM MOTOR, THREE PHASE	EX/DX/GE
23116088	DELUXE CONTROLS 2 STAGE HEAT PUMP w/HOT GAS REHEAT, SINGLE PHASE	DXV/H
23116089	DELUXE CONTROLS 2 STAGE HEAT PUMP w/HOT GAS REHEAT, THREE PHASE	DXV/H
23116151	DELUXE CONTROLS HEAT PUMP w/BOILERLESS ELECTRIC HEAT, SINGLE PHASE	EX/GE
23116152	DELUXE CONTROLS HEAT PUMP w/BOILERLESS ELECTRIC HEAT, THREE PHASE	EX/GE
23116153	400-B CONTROLS HEAT PUMP w/BOILERLESS ELECTRIC HEAT CONTROL, SINGLE PHASE	EX/DX/GE
23116154	400-B CONTROLS HEAT PUMP w/BOILERLESS ELECTRIC HEAT CONTROL, THREE PHASE	EX/DX/GE
23116156	400-B CONTROLS HEAT PUMP AND HOT GAS REHEAT w/BOILERLESS ELEC HEAT CONTROL, SINGLE PHASE	EX/DX/GE
23116157	400-B CONTROLS HEAT PUMP AND HOT GAS REHEAT w/BOILERLESS ELEC HEAT CONTROL, THREE PHASE	EX/DX/GE

Figure 75. GEH_V (6 to 25 tons) - deluxe 380V - 420V - 50 Hz - 3 ph

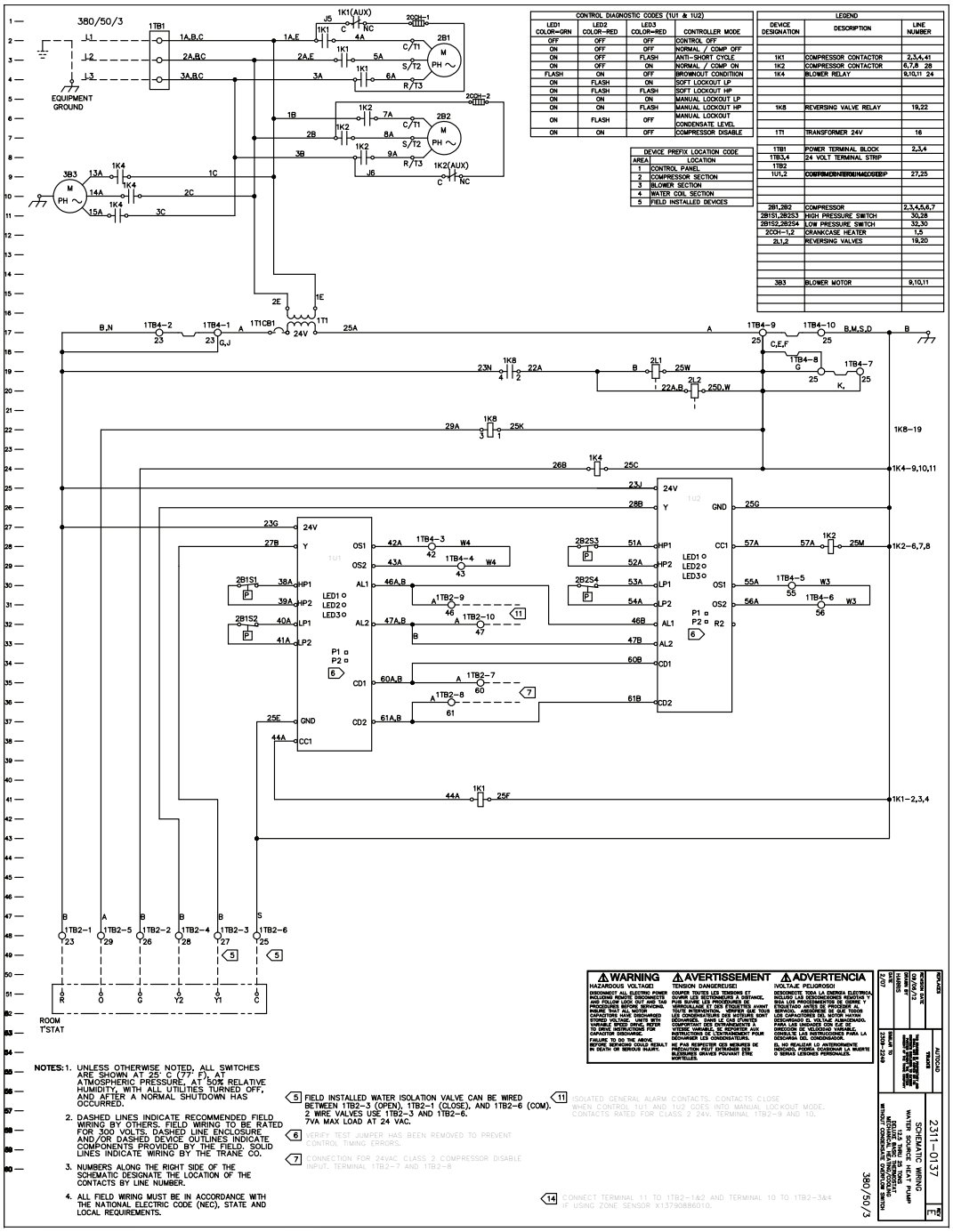


Figure 76. GEH_V (6 to 25 tons) - deluxe 24V - 460V - 60 Hz - 3 ph

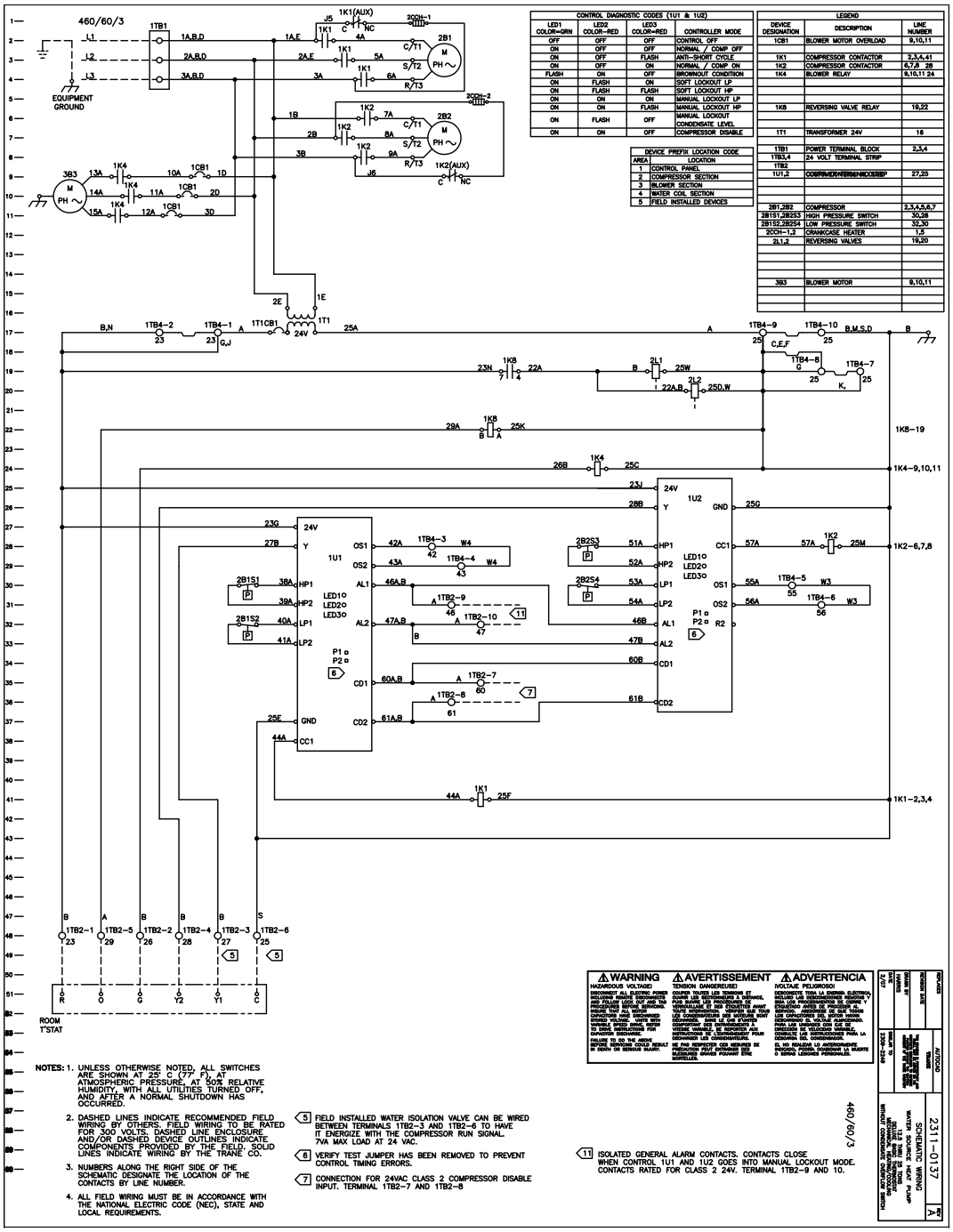
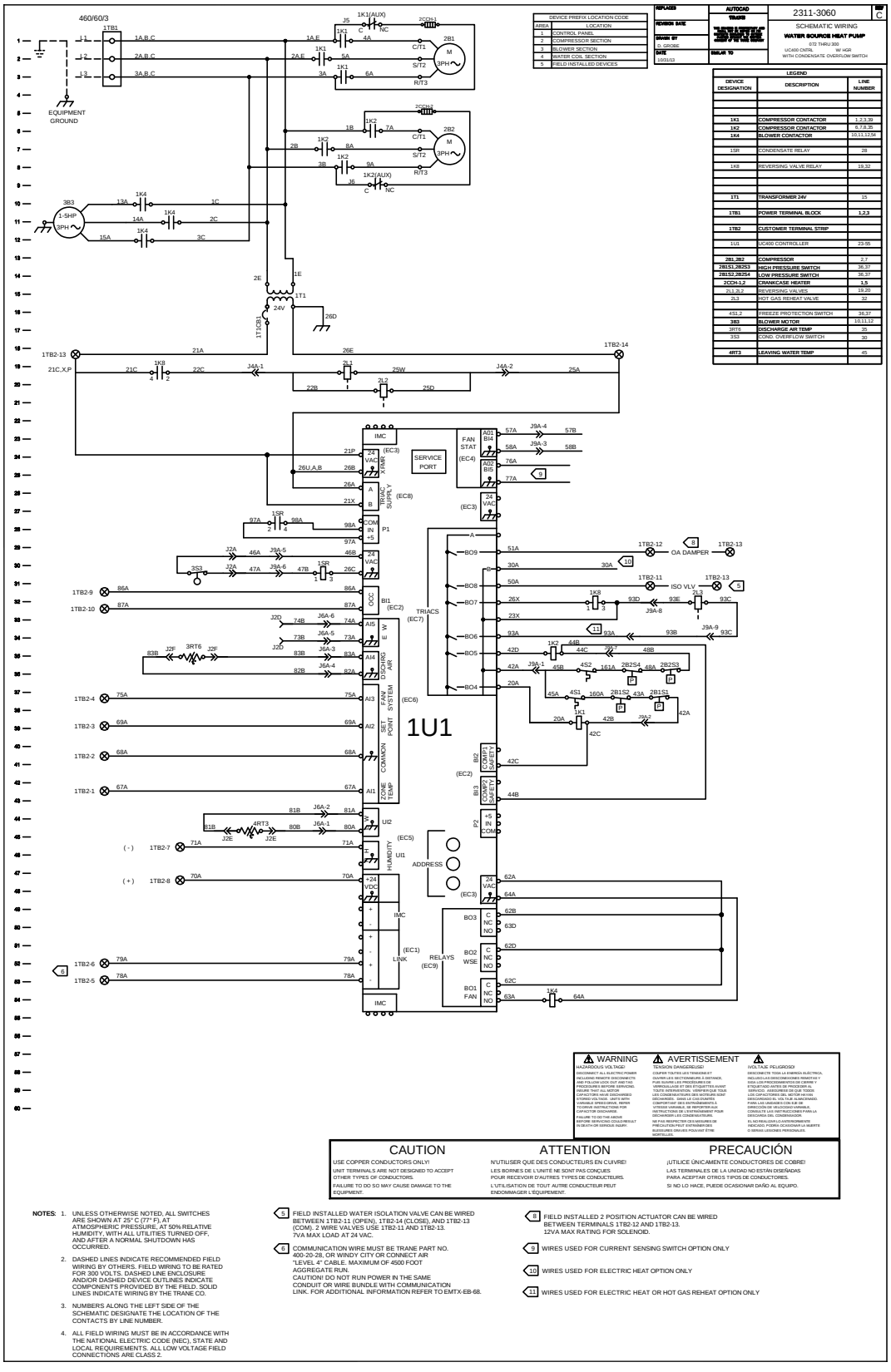


Figure 77. GEH_V (6 to 25 tons) - Symbio™ 500/UC400



DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	CONTROL PANEL
2	COMPRESSOR SECTION
3	BLOWER SECTION
4	WATER COIL SECTION
5	FIELD INSTALLED DEVICES

LEGEND		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
1K1	COMPRESSOR CONTACTOR	1,2,3,39
1K2	COMPRESSOR CONTACTOR	6,7,8,35
1K4	BLOWER CONTACTOR	10,11,1258
1SR	CONDENSATE RELAY	28
1K8	REVERSING VALVE RELAY	19,32
1T1	TRANSFORMER 24V	15
1TB1	POWER TERMINAL BLOCK	1,2,3
1TB2	CUSTOMER TERMINAL STRIP	
1U1	UC400 CONTROLLER	23-55
2B1, 2B2	COMPRESSOR	2,7
2B1S1,2B2S3	HIGH PRESSURE SWITCH	36,37
2B1S2,2B2S4	LOW PRESSURE SWITCH	36,37
2CCH-1,2	CRANKCASE HEATER	1,5
21,L2	REVERSING VALVES	19,20
2L3	HOT GAS REHEAT VALVE	32
4S1,2	FREEZE PROTECTION SWITCH	36,37
3B3	BLOWER MOTOR	10,11,12
3RT6	DISCHARGE AIR TEMP	35
3S3	COND. OVERFLOW SWITCH	30
4RT3	LEAVING WATER TEMP	45

NOTES:

1. UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25° C (77° F), AT ATMOSPHERIC PRESSURE, AT 50% RELATIVE HUMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A NORMAL SHUTDOWN HAS OCCURRED.
2. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. FIELD WIRING TO BE RATED FOR 300 VOLTS. DASHED LINE ENCLOSURE AND/OR DASHED DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD. SOLID LINES INDICATE WIRING BY THE TRANE CO.
3. NUMBERS ALONG THE LEFT SIDE OF THE SCHEMATIC DESIGNATE THE LOCATION OF THE CONTACTS BY LINE NUMBER.
4. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC), STATE AND LOCAL REQUIREMENTS. ALL LOW VOLTAGE FIELD CONNECTIONS ARE CLASS 2.

5. FIELD INSTALLED WATER ISOLATION VALVE CAN BE WIRED BETWEEN 1TB2-11 (OPEN), 1TB2-14 (CLOSE), AND 1TB2-13 (COM). 2 WIRE VALVES USE 1TB2-11 AND 1TB2-13. 7VA MAX LOAD AT 24 VAC.
6. COMMUNICATION WIRE MUST BE TRANE PART NO. 400-20-28, OR WINDY CITY OR CONNECT AIR "LEVEL 4" CABLE. MAXIMUM OF 4500 FOOT AGGREGATE RUN. CAUTION! DO NOT RUN POWER IN THE SAME CONDUIT OR WIRE BUNDLE WITH COMMUNICATION LINK. FOR ADDITIONAL INFORMATION REFER TO EMTX-EB-68.
8. FIELD INSTALLED 2 POSITION ACTUATOR CAN BE WIRED BETWEEN TERMINALS 1TB2-12 AND 1TB2-13. 12VA MAX RATING FOR SOLENOID.
9. WIRES USED FOR CURRENT SENSING SWITCH OPTION ONLY
10. WIRES USED FOR ELECTRIC HEAT OPTION ONLY
11. WIRES USED FOR ELECTRIC HEAT OR HOT GAS REHEAT OPTION ONLY

Warranty Information

Standard Warranty

The standard water-source heat pump warranty is Trane's parts-only warranty, running 12 months from startup, not to exceed 18-months from shipment.

There is a standard 5-year compressor warranty.

Extended Warranty

The optional extended warranty is a second through fifth year warranty. The time starts at the end of the standard 1 year coverage through the fifth year.

These extended warranties apply only to new equipment installed in domestic Trane Commercial Systems Group sales territories and must be ordered prior to start-up.

Trane - by Trane Technologies (NYSE: TT), a global 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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