DAIKIN

Catalog 1109-16

Enfinity™ Large Capacity Vertical Water Source Heat Pumps

LVC Standard Range & LVW Geothermal Range

Unit Sizes 072 – 290 (6 to 25 Tons) • R-410A Refrigerant

Category	Code Item	Code Position	Code Designation & Description
Product Category	**01**	**1**	W = Water Source Heat Pump
Product Identifier	**02**	**2-4**	LVC = R-410A, Floor Mounted, Standard Range LVW = R-410A, Floor Mounted, Geothemal Range
Design Series (Vintage)	**03**	**5**	1 = Design Series 1
Nominal Capacity	**04**	**6-8**	072 = 72,000 Btuh Nominal Cooling 096 = 96,000 Btuh Nominal Cooling 120 = 120,000 Btuh Nominal Cooling 180 = 180,000 Btuh Nominal Cooling 215 = 215,000 Btuh Nominal Cooling 290 = 290,000 Btuh Nominal Cooling
Control Board Option	**05**	**9**	B = MicroTech® III Unit Controller A = DDC-Less Board (Alerton Rep Option)
Network Module Option	**06**	**10**	L = Lon Module B = BACnet F = BACnet - WSHP System Y = None
Condensate Overflow Protection	**07**	**11**	S = Standard Overflow Sensor
Freeze Fault Protection	**09**	**13**	F = Freeze Fault Protection
Voltage	**11**	**15**	D = 208-60-3 H = 230-60-3 K = 460-60-3 L = 575-60-3
Options	**12**	**16**	Y = None P = Phase Monitor
Return Air	**13**	**17**	Y = Front Return
Discharge Air	**14**	**18**	T = Top Horizontal Discharge U = Upblast Rear F = Upblast Front
Blower Motor	**15**	**19-20**	01 = Belt Drive – Integral HP Motor 02 = High Static 03 = Ultra High Static 11 = Standard with VFD 12 = High Static with VFD 13 = Ultra High Static with VFD
Construction Type	**17**	**23**	A = Standard 1/2" Fiberglass Insulation B = Closed Cell Foam Insulation F = Standard 1/2" Fiberglass Insulation w/Compressor Sound Blankets G = Closed Cell Foam Insulation w/Compressor Sound Blankets
Water To Refrigerant Heat Exchanger Construction	**18**	**24**	C = Copper Inner Tube - Steel Outer Tube S = Cupro-nickel Inner Tube - Steel Outer Tube
Secondary Heating/Cooling Option	**19**	**25**	W = Waterside Economizer *(Not to be combined with HGRH)*
Options	**20**	**26-27**	AA = Hot Gas Reheat *(Not to be combined with WSE)* AB = Hot Gas Bypass YY = None
Piping Hand	**21**	**28**	L = Left Side Pipe Connections R = Right Side Pipe Connections
Filter Options	**23**	**32-34**	SD1 = Standard 1" Disposable filter M08 = Merv 8 in 2" frame M13 = Merv 13 in 4" frame N02 = No Filter with 2" Filter Rack (Low Leak) N00 = No Filter-No Filter Rack
Condensate Drain Pan	**27**	**41-42**	GL = Galvanized Steel SS = Stainless Steel
Control Transformer Option	**29**	**44-46**	050 = 50VA Control Transformer 075 = 75VA Control Transformer

Table 1: Water loop - rated in accordance with AHRI/ASHRAE/ISO 13256-1

In English (IP) Units				Cooling		Heating	
Large Vertical				EWT 86°F		EWT 68°F	
Unit Size	Airflow CFM	Fluid Flow Rate GPM	Voltages	Capacity Btuh/hr	EER	Capacity Btuh/hr	COP
072	2300	18.5	208-60-3	72800	13.1	88500	4.6
			230-60-3				
			460-60-3				
096	3000	22.2	208-60-3	86500	13.0	100800	4.7
			230-60-3				
			460-60-3				
			575-60-3				
120	4000	30.0	208-60-3	119700	14.0	150200	5.3
			230-60-3				
			460-60-3				
			575-60-3				
180	6000	46.0	208-60-3	189200	14.9	209800	4.9
			230-60-3				
			460-60-3				
			575-60-3				
215	7200	54.0	208-60-3	220800	14.2	254800	4.9
			230-60-3				
			460-60-3				
			575-60-3				
290	9700	80.0	208-60-3	308800	11.0	422100	4.1
			230-60-3				
			460-60-3				
			575-60-3				

Notes: 1. Cooling capacity is based on 80.6°F db, 66.2°F wb (27/19°C) EAT and 86°F (30°C) EWT.
2. Heating capacity is based on 68°F db, 59.0°F wb (20/15°C) EAT and 68°F (20°C) EWT.

Table 2: Ground loop - rated in accordance with AHRI/ASHRAE/ISO 13256-1

In English (IP) Units				Cooling		Heating	
Large Vertical				EWT 68°F		EWT 32°F	
Unit Size	Airflow CFM	Fluid Flow Rate GPM	Voltages	Capacity Btuh/hr	EER	Capacity Btuh/hr	COP
072	2300	18.5	208-60-3	74500	14.6	59100	3.4
			230-60-3				
			460-60-3				
096	3000	22.2	208-60-3	89200	14.6	69700	3.6
			230-60-3				
			460-60-3				
			575-60-3				
120	4000	30.0	208-60-3	123200	15.9	98000	3.9
			230-60-3				
			460-60-3				
			575-60-3				
180	6000	46.0	208-60-3	191200	16.1	132000	3.6
			230-60-3				
			460-60-3				
			575-60-3				
215	7200	54.0	208-60-3	229200	16.3	147600	3.7
			230-60-3				
			460-60-3				
			575-60-3				
290	9700	80.0	208-60-3	322400	12.4	260700	3.3
			230-60-3				
			460-60-3				
			575-60-3				

Notes: 1. Cooling capacity is based on 80.6°F db, 66.2°F wb (27/19°C) EAT and 68°F (20°C) EWT.
2. Heating capacity is based on 68°F db, 59.0°F wb (20/15°C) EAT and 32°F (0°C) EWT.

Large capacity vertical water source heat pumps models LVC & LVW, sizes 072 - 290 (6 to 25 tons)

- Model LVC (standard range: 55°F to 110°F)
- Model LVW (geothermal range: 30°F to 110°F0

Large vertical water source heat pump units are easily located in small equipment rooms or floor-by-floor installations. They can be applied to all building types where it is advantageous to extend the water source heat pump concept to larger or core areas.

Each heat pump is factory assembled and run tested for reliability. Service is accomplished through multiple front, back and side access panels. Access is available to all serviceable components. Each unit ships on a wooden skid and covered with plastic to facilitate moving with a fork truck.

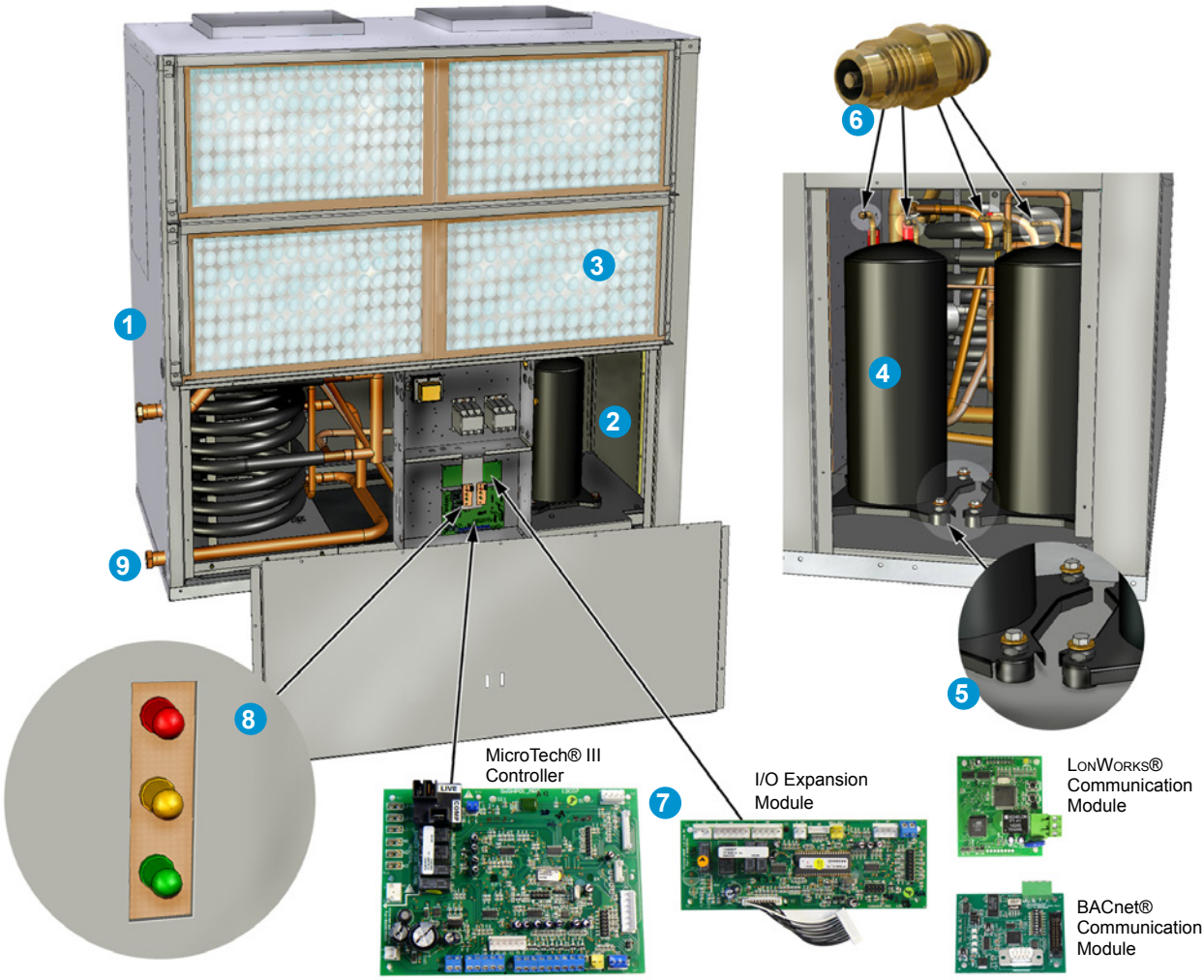
Two unique frame sizes make up our 6- through 25-ton product line - each with a consistent shape for easy layout of the ductwork, water piping, condensate piping and electrical connections.

Units are constructed of G-60 galvanized steel. The interiors of all framework and panels are covered with 1/2" thick, 1½ lb. dual-density fiberglass insulation. Closed-cell foam (IAQ) insulation is available as a selectable option, suitable for fiberglass-free applications. Multiple 1" filters are supported by factory-mounted brackets for side removal in either direction.

Electrical components are located in the lower section, adjacent to the compressor(s). Knockouts are provided on both sides of the unit to facilitate main power and low voltage wiring through separate holes. Each unit is rated to accept time delay fuses for branch circuit over-current protection. Each unit is listed with CETL.

The control box is accessible through the compressor section access panel. The control box houses the major operating electrical controls, including the control circuit board(s), transformer, compressor contactor(s), fan contactor(s) and terminal block. Each component is accessible for service or replacement.

The standard control for all large capacity units is the MicroTech® III controller. The unit controller receives its power from the 75VA control transformer. A LONWORKS® or BACnet® communication module is available as a selectable option.



1 Cabinet
- Robust heavy gauge G-60 galvanized steel for long term equipment protection and superior sound attenuation

2 Insulation
- All interior framework and panels are lined with 1/2" thick, 1½ lb. dual-density fiberglass insulation. Optional (IAQ) closed-cell foam insulation

3 Filter
- Standard 1" factory-installed filter rack with 1" disposable filter. Optional 2" filter rack with duct collar for field -installation
- Optional Merv 8 in a 2" filter rack or Merv 13 in a 4" filter rack

4 Refrigerant circuit
- All units have a dual refrigerant circuit with scroll compressors, thermal expansion valve, coaxial heat exchanger, finned tube air side coil and reversing valve

5 Compressor vibration isolators
- Standard feature for all units, reduces vibration sound levels during compressor operation

6 Service valves
- Four service valves – one on the low side and one on the high side of refrigeration circuit – for charging and servicing

7 MicroTech® III controls
- Designed for flexibility, the control board is used in standalone applications in conjunction with the I/O expansion module for control of the second refrigerant circuit. A separate LONWORKS® or BACnet® communication module can be easily snapped onto the board to allow communication with a building automation system. The control system accommodates use of two-stage heat/two-stage cool 7-day programmable or non-programmable wall-mounted thermostats, offered as a field-installed option. Sensors are available for building automation system applications
- **Electrical -** The control enclosure includes fan relay, compressor relays, 24-volt control transformer, lockout circuits and control circuit board

8 LED annunciator
- Two sets of external LED status lights display fault conditions to provide easy troubleshooting and diagnosis, visible without removing access panel

9 External pipe connections
- Supply and return pipe connections located outside the cabinet make pipe connections easy without removing access panels

Refrigeration system

All Large Vertical unit sizes have dual independent circuits. Each circuit includes a scroll compressor, reversing valve, water to- refrigerant coaxial heat exchanger, expansion valve, air side coil, and safety controls.

The compressor is located adjacent to the compressor access panel and isolated from a bottom panel with rubber isolators.

The reversing valve is energized in the heating mode and will “fail-safe” to the cooling mode, which is the predominant mode of operation.

Both heat exchanger components incorporate advanced heat transfer technologies. The coaxial heat exchanger has a copper inner tube and steel outer tube. The large face area coil has copper tubes and aluminum fins. Geothermal units include coil and piping insulation to protect against condensation in low temperature applications.

Safety controls on each refrigerant circuit include a suction line temperature sensor, low refrigerant pressure and high pressure switches to lock out compressor operation at extreme conditions. The safety controls can be reset from the main disconnect switch to prevent unauthorized reset. The unit can also be reset from the thermostat by cycling the unit from OFF-to AUTO or FAN and back to OFF (see Thermostat fault reset on page 11.) Each circuit has high and low side refrigerant service valves for refrigerant circuit diagnostics and charging.

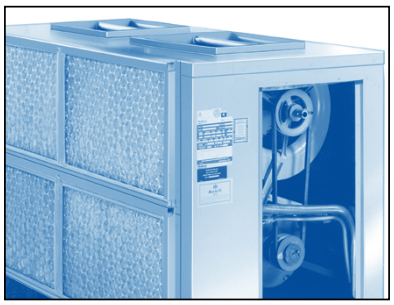
Thermal expansion valve

Units include a Thermal Expansion Valve (TXV) for refrigerant metering. The TXV allows the unit to operate at optimum efficiency with fluid temperatures ranging from 30°F to 110°F, and entering air temperatures ranging from 50°F to 85°F. The TXV precisely meters the exact amount of refrigerant flow through the system to meet the load and deliver rated heating and cooling capacity.

Fan section

The fan section includes a belt-driven fan assembly, multiple DWDI forward curved fan wheels, solid fan shaft, steel ball bearings, three phase fan motor, adjustable motor sheave, adjustable motor base, fan pulley and insulated divider panel between the compressor section. Unit sizes 072 through 120 have two fan assemblies and unit sizes 180 through 290 have three fan assemblies. The fan motor is always located at the piping end.

Figure 1: Belt-driven fan assembly compartment



Factory installed options

Optional high static or ultra static fan motors are available on each unit size to handle increased CFM and static pressure applications.

The optional Variable Frequency Drive (VFD) provides adjustable speed control of a single fan motor. Factory installed internally in the cabinet fan section, the VFD provides not only a lower cost compared to field installation, but also an optimal installation location. The VFD is preprogrammed and includes a keypad for local or remote control.

Filter rack and filters

Units come standard with a 1-inch, 4-sided, factory-installed filter rack and 1-inch disposable filters. Four filters for unit sizes 072-120 and 6 filters for unit sizes 180-290. Filters can be removed from either side of the filter rack.

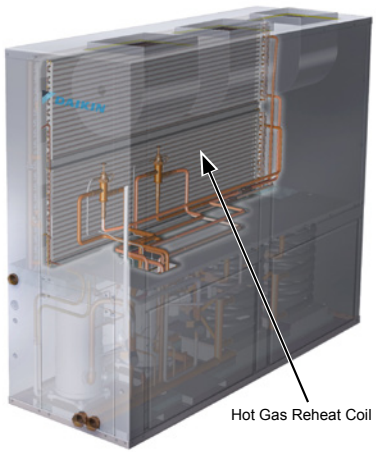
Selectable options:

- No filter or filter rack, or filter rack and no filters
- 2-inch factory-installed filter rack with MERV 8 filter or 4-inch factory-installed filter rack with MERV 13 filter

Hot gas reheat

For improved indoor climate control, Daikin Applied offers accurate and cost effective dehumidification control using a hot gas reheat coil. The hot gas reheat coil option is an excellent solution for applications where maintaining low humidity in a space is crucial. Once the space temperature is satisfied, the humidistat signal diverts the high temperature refrigerant gas to the reheat coil located downstream of the cooling coil. The conditioned and reheated air prevents over cooling of the space and maximizes moisture removal for improved indoor comfort. Under humid conditions (60%RH) and typical loop water temperatures, the latent capacity is optimized for approximately 90% of the sensible capacity. With loop water conditions of 85°F, the leaving air temperature is approximately the same as the entering air temperature, resulting in effective dehumidification without over cooling the space.

Figure 2: LVC size 215 with hot gas reheat (HGRH)



Waterside economizer

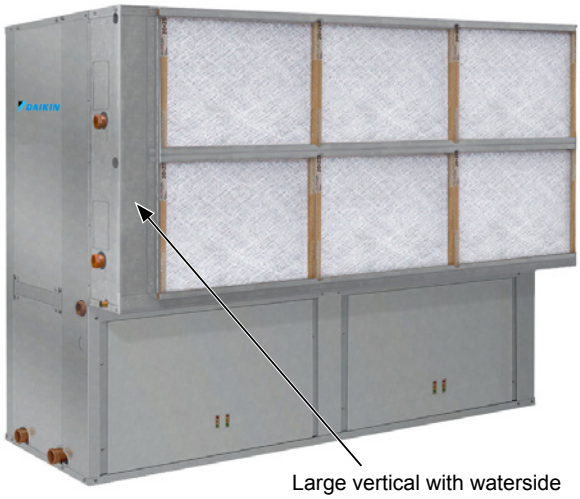
The waterside economizer option helps to reduce energy consumption by using cool loop water temperatures to condition a space without energizing mechanical cooling. Even in the coldest weather a space can experience a build-up of ambient heat from people, equipment, lighting and the sun. Buildings with temperature controlled computer rooms, media/resource rooms or medical equipment rooms, benefit from the waterside economizer when the geothermal loop field or cooling tower temperatures are cool enough to provide air conditioning.

The waterside economizer includes a hydronic cooling coil located upstream of the unit's evaporator coil and after the filter. When entering water temperatures are between 35° to 70°F, a multi-stage thermostat or room temperature sensor in conjunction with a factory-installed entering water temperature sensor and a 2-position 3-way diverting valve, determines when loop water can be diverted to the hydronic coil for economizer cooling. The MicroTech III controller determines if the economizer or mechanical cooling will be utilized. The controller also provides low temperature protection to avoid economizer operation when entering water temperatures are below 35°F.

Hot gas bypass

During cooling operation an external equalizer senses the suction pressure at the evaporator outlet. If the suction pressure drops below 115 psig the Hot Gas Bypass valve will begin to open and bypass hot discharge gas to the evaporator inlet, helping to prevent evaporator coil icing due to low suction pressure. The valve will continue to open as required to full capacity. As suction pressure rises to normal levels the HGBP valve will begin to close until normal cooling operation resumes.

Figure 3: LVC with waterside economizer coil option



Boilerless heat control (field installed)

When the entering water temperature is below setpoint, the compressors will not be allowed to operate. On an initial call for heating, the fan and electric heat will start. When the room setpoint conditions are satisfied, electric heat will be de-energized and the fan will continue to operate at its “fan only” setting when enabled, for continuous fan operation. If fan cycling is enabled, the fan will turn off after 30 seconds once room setpoint conditions are satisfied.

Control choices and added functionality

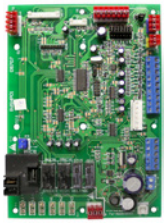
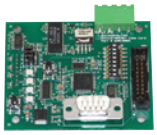
The control enclosure houses the major operating electrical controls including the MicroTech® III controller and I/O expansion module, control transformer, compressor relays and fan relay. Each component is accessible for service or replacement.

Three unique control choices are offered with the MicroTech III control system:

- Standalone operation using a MicroTech III controller and I/O expansion module
- MicroTech III controller and I/O expansion module with a LONWORKS® communication module
- MicroTech III controller and I/O expansion module with a BACnet® communication module

Each option features direct quick-connect wiring to all unit-controlled components for “clean” wiring inside the control box. Each control circuit board receives power from a 75VA transformer.

Table 3: Control options

Control	Description	Application	Protocol
MicroTech III  (Standalone) Unit Controller with I/O Expansion Module 	The MicroTech III controller is a standalone microprocessor-based control board conveniently located in the unit control enclosure for easy accessibility. The board is designed to provide thermostat control of a Water Source Heat Pump using a two-stage wall thermostat. The unit controller provides unit-wide control of the WSHP and control of the first refrigerant circuit.	Each unit controller is factory programmed, wired, and tested for complete control of single zone, standalone operation of your Daikin Water Source Heat Pump.	Unit-mounted or wall-mounted thermostat or room sensor
	The I/O Expansion Module is an extension of the Microtech III controller and provides control of the second refrigerant circuit. External LED status lights display fault conditions to provide easy troubleshooting and diagnosis of the second circuit.	Allows for: Control of second refrigeration circuit, secondary heating options and cooling/dehumidification options.	
LONWORKS  Communication Module	The MicroTech III control system accepts a plug-in LONWORKS communication module to provide network communications and added functionality to easily integrate with an existing BAS. The communication module can be factory- or field-installed and is tested with all logic required to monitor and control the unit.	LONTALK application protocol is designed for units that are integrated into a LONWORKS communication network for centralized scheduling and management of multiple heat pumps.	LONMARK 3.4 Certified
BACnet  Communication Module	The MicroTech III controller accepts a plug-in BACnet communication module to provide network communications and added functionality to easily integrate with an existing BAS. The communication module can be factory- or field-installed and is tested with all logic required to monitor and control the unit.	Designed to be linked with a centralized building automation system (BAS) through a BACnet communications network for centralized scheduling and management of multiple heat pumps.	BACnet MS/TP

MicroTech® III controller

General use and information

All Microtech III controller inputs must be operated by dry contacts powered by the control board's power terminals. No solid state devices (Triacs) may be used to operate the Microtech III controller inputs. No outside power source may be used to operate the Microtech III controller inputs.

The MicroTech III control system includes two microprocessor-based control boards conveniently located in the unit control box for easy access through a removable access panel. The standalone controls are a hard wired interface and provides all the necessary field connections. The board can be wired for 24-volt AC output to the wall thermostat by using terminals R & C. Two sets of LED annunciators are located on the front of the unit chassis to allow quick check of the unit operating status.

Standard sequence of operation

Assumes cycle fan operation-not continuous fan operation:

- **Cooling mode** – On an initial call for stage 1 cooling, the fan will energize and the 45 second flow timer will start. When the compressor minimum off, and random startup timers are expired, the unit will start in stage 1 cooling. If additional capacity is needed, the unit wilili initiate stage 2 cooling. When the room setpoint conditions are satisfied, the stage 2 compressor will shut off first followed by the stage 1 compressor. If fan cycling is enabled, the fan will turn off once room setpoint conditions are satisfied.
- **Heating mode** – On an initial call for heating, the fan will energize, the pump request will energize, the 45 second flow timer will start. After the flow, compressor minimum off, and random startup timers are expired, the lead compressor will start at stage 1 heating settings; the reversing valve shall energize 5 seconds after the lead compressor turns on. If room setpoint conditions are not satisfied, the lag compressor will operate at stage 2 heating settings. When the room setpoint conditions are satisfied, the compressor will shut off. If fan cycling is enabled, the fan will turn off, once room setpoint conditions are satisfied.
- **Hot gas reheat with temperature control –** If the space temperature setpoint is satisfied, but the space humidity is above the humidity setpoint, the hot gas reheat mode is activated. The fan will energize, the pump request will energize, the 45 second flow timer will start, the compressor minimum off, and random startup timers expire, the hot gas reheat valve opens sending hot gas to the reheat coil, the stage 1 compressor energizes, and after 180 seconds the stage 2 compressor energizes. Return air is cooled and reheated to near space temperature. A call for cooling will close the hot gas reheat valve and the unit will resume normal cooling operation. If the space cooling and heating temperature setpoints are satisfied, but the humidity falls below the space humidity setpoint, the dehumidification mode is suspended.
- **Waterside economizer** – This mode requires the optional factory-installed waterside economizer. A hydronic economizer coil, 3-way water valve and temperature sensor are added to the unit. The purpose of this mode is to satisfy some or all of the cooling demand by using the loop water, which is often reduced to 50°F or less via the cooling tower to achieve sufficient cooling performance. When a call for 1st stage cooling is engaged, with the entering loop water below the economizer changeover temperature, the H8 output on the MicroTech III board is activated to open the motorized valve allowing water flow to the equipment. The compressor is locked out, the 3-way water valve opens to allow cool loop water to flow through the economizer coil. The fan starts after 30 seconds (unless it is already on thru activation of the G terminal by the thermostat fan switch "on"). On a further demand for cooling, stage 2; the 1st compressor will start in the cooling mode. On a further demand for cooling the second compressor will energize. The waterside economizer mode will not be activated if the entering water temperature is below 35°F and an alarm (fault) signal will be generated. When the room setpoint conditions are satisfied, the compressor will shut off, the 3-way valve will close and the fan will either shut off (fan switch "auto") or continue to run (fan switch "on"). The minimum off timer of 360 seconds starts. If the loop temperature increases above the changeover temperature, waterside economizer mode will be suspended and the unit will resume normal mechanical cooling mode with stage 1 of the thermostat now starting the compressor.

Available operating modes

- **Unoccupied mode –** A simple “grounded” signal between terminals U and C (no power source required), puts the unit into the unoccupied mode for night setback operation.
- **Override mode –** A switch on the deluxe automatic changeover thermostat can be activated during the unoccupied mode to put the unit back into the occupied mode for two hours for after-hours heating or cooling.

Secondary heating modes (field installed)

- **Supplementary electric heat control** – The supplemental electric heating option provides an additional stages of heating that can be used in conjunction with compressor heating, or exclusively if the compressor is not available for heating.
- **Boilerless electric heat mode** – When the entering water temperature is below setpoint, the compressors will not be allowed to operate. On an initial call for heating, the fan and electric heat will start. When the room setpoint conditions are satisfied, electric heat will be de-energized and the fan will continue to operate at its “fan only” setting when enabled, for continuous fan operation. If fan cycling is enabled, the fan will turn off after 30 seconds once room setpoint conditions are satisfied.

MicroTech III unit protections & LED fault status annunciation

- **Short cycle protection & random start –** After power cycle or deactivation of certain alarms, or when leaving the unoccupied mode, a new random compressor start-delay time between 300 and 360 seconds is generated. The random start timer prevents compressors in different units from starting simultaneously. Compressor minimum OFF 360 sec) and compressor minimum ON (180 sec) timers prevent compressor short cycling.
- **Interstaging timer –** A default value of 5 minutes between staging of compressors, this feature minimizes short cycling of compressors and improves comfort.
- **Motorized valve/pump restart –** The IV/PR (H8) terminals on the The MicroTech III unit controller are used to energize (open) a motorized valve or start a water pump to get water circulating prior to starting the compressor on call for heating or cooling. Lead compressor operation shall be delayed a minimum of 45 seconds, after the motorized valve/isolation valve output energizes to allow for supply water flow.
- **Brownout protection –** The MicroTech III unit controller measures the input voltage and will suspend compressor and fan operation if the voltage falls below 80% of the unit nameplate rated value. Two external LED status are generated and an output is available to a "fault" LED at the thermostat.
- **Emergency unit shutdown** – A simple grounded signal puts the unit into the shutdown mode. Remote shutdown is provided so that when properly connected to a water loop controller or remote switch, the emergency shutdown input can be used to shut down the water source heat pump. Compressor and fan operations are suspended, and an a unique two external LED status is generated.
- **Condensate overflow protection (cooling & dehumidification modes only)** – The MicroTech III unit controller incorporates a liquid sensor at the top of the drain pan. When the unit senses a high condensate water level for 60 consecutive seconds while in the cooling or dehumidification modes the unit enters the "Off Alarm" machine state. The dehumidification or cooling mode operation will immediately be de-energized as well as the pump output.
- **Thermostat fault reset (preferred method) –** A feature to reset some lockouts like high pressure and/or low temperature remote from the unit is available. When the cause of the fault condition has been fixed, repaired or resolved, the unit can be reset from the thermostat. To reset the fault, move the system switch on the thermostat from its current position (Heat/Auto/Cool) to the Off position and back to its original position two times within 30 seconds. The unit will now be reset. The intelligent reset counter and the 24 hour timer are cleared.

⚠ CAUTION

Some thermostats have internal timers greater than 30 seconds that delay their switching capabilities. Defeating their internal timers may be required to reset the fault using the thermostat.

Alternatively, the "Programmable & Non-Programmable Electronic Thermostats 2 Heat/2 Cool, Auto Changeover, Hardwired – P/N 910121746 & P/N 910121748" on page 20 for example have an optional “reset” feature, by activating the reset feature and adding a wire from terminal O to terminal TB1, pin 4, on the MicroTech III board.

- **Reset of automatic lockouts (alternate method) -** A feature to reset some lockouts like high pressure and/or low temperature at the unit is available. When the cause of the fault condition has been fixed, repaired or resolved, the unit can be reset at the unit. Apply a grounded signal to the tenant override input (screw terminal connection at TB1, pin 4) for a minimum of 10 seconds. The unit will now be reset. Alternatively, dropping power to the unit from the disconnect switch and re-applying power will reset the unit.

- **Intelligent alarm reset** – The Intelligent Reset feature helps to minimize nuisance trips of automatic lockouts caused by low-temperature faults. This feature clears faults the first two times they occur within a 24-hour period and triggers an automatic lockout on the 3rd fault. The fault remains active until the alarm is manually cleared. At the end of the 24 hour period, all counts for that specific intelligent reset alarm are cleared to zero only if the occurrence counter is presently less than the value of three. The 24-hour period and alarm counts are stored in memory that is cleared when power is cycled.
- **Selectable lead compressor** – The lead compressor selection provides a method to utilize circuit 2 if repairs are required on circuit 1. This is not intended for normal equipment operation. The jumper setting JP8 in the I/O expansion board is used to configure the "Lead Compressor" settings.

MicroTech III unit protections & LED fault status annunciation (continued)

- **Lead compressor fail replacement** – Upon detection of a lead compressor fault and the lag compressor is available, the selected lead compressor will be "failed replaced" by the lag compressor. Lead compressor will immediately be de-energized by ignoring the compressor minimum ON timer. Lag compressor will energize in place of the failed lead compressor, when the lag compressor minimum OFF timer has expired. Reversing valve for the lag compressor will be positioned, if necessary, 5 seconds after the lag compressor starts up.
- **Equipment protection control –** The MicroTech III controller receives separate input signals from the refrigerant high-pressure switch and the low suction line temperature sensor. In a high-pressure situation, compressor operation is suspended. In a low temperature situation, the unit goes into a defrost cycle where the unit is put into cooling operation for 60 seconds until the coaxial heat exchanger is free of ice. Each switch generates its own unique LED status.
- **Compressor protection for size 290 –** A communications module installed in the compressor electrical box provides advanced diagnostics, protection and communications, that enhance compressor performance and reliability.
- **Freeze fault protection option –** This factory-mounted option adds a leaving water temp, LWT, sensor to shut down compressor operation if the LWT gets too cold. It's a dual setting sensor, set for 35°F on boiler/tower and ground water applications (those with no anti-freeze) in the cooling & heating modes and geothermal applications in the cooling mode, or 13.5°F LWT on geothermal applications in the heating mode (those with anti-freeze). **Caution:** If you move the jumper to the lower (geothermal) setting, there is a risk of freeze-up if there is no anti-freeze in the loop.
- **Phase monitor option –** The factory-installed phase monitor helps to protect against phase loss, phase reversal and phase unbalance, and ideally suited for protection against reverse rotation of scroll and screw compressors.

Note: *The settings of the hardware configuration jumpers are read when the controller is powered. Any changes to the jumper settings require cycling power to the controller or sending a controller a reboot command through the network communications.*

Table 4: MicroTech III controller configuration jumper settings

Baseboard Description	Jumper(s)	Jumper Setting	Function
Normal / Test Mode	JP1	Open	Normal Operation
		Shorted	Service / Test Mode
Fan Operation	JP2	Open	Continuous Fan Operation (On), when not operating in the unoccupied mode.
		Shorted	Cycling Fan Operation (Auto)
Loop Fluid	JP3 (see warning)	Open	Water Loop Fluid - Water freeze protection (factory default setting)
		Shorted	Glycol Loop Fluid - Systems with anti-freeze protection
Freeze Fault Protection	JP4	Open	None
		Shorted	Freeze fault protection enabled
Room Sensor Setpoint Potentiometer Range	JP5	Open	Short Range: -5 to +5 ºF (-2.78 to +2.78 ºC)
		Shorted	Long Range: 55 to 95ºF (12.78 to 35ºC)
Thermostat / Room Sensor	JP6	Open	Thermostat Control
		Shorted	Room Sensor Control
Compressor Availability	JP7 & JP8	JP7 Open	Both Compressors Available (default)
		JP8 Open	
		JP7 Shorted	One Compressor Available
		JP8 Open	
		JP7 Open	No Compressors Available
		JP8 Shorted	

⚠ WARNING

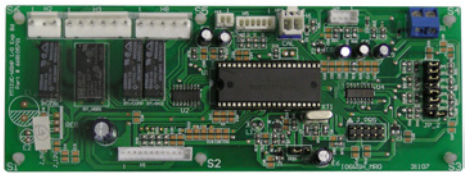
Jumper JP3 is factory provided in the open position. Geothermal range units require freeze protection down to 15 degrees. Jumper JP3 must be field configured.

Table 5: MicroTech III controller status LED's

Description	Type*	Yellow	Green	Red
I/O Expansion Communication Fail	Fault	ON	Flash	Flash
Invalid Configuration	Fault	Flash	Flash	OFF
Low Voltage Brownout	Fault	OFF	Flash	OFF
Emergency Shutdown	Mode	OFF	Flash	OFF
Compressor #1 High Pressure (HP1)	Fault	OFF	OFF	Flash
Compressor #1 Low Pressure (LP1)	Fault	OFF	OFF	ON
Compressor #1 Suction Temp Sensor Fail	Fault	Flash	Flash	ON
Freeze Fault Detect (Freeze Fault Protection Only)	Fault	Flash	OFF	Flash
Compressor #1 Low Suction Temp (LT1)	Fault	Flash	OFF	OFF
Room Temp Sensor Fail (with Room Sensor Control Only)	Fault	Flash	Flash	ON
Leaving Water Temp Sensor Fail (Freeze Fault Protection Only)	Fault	Flash	Flash	ON
Condensate Overflow (Cooling & Dehumidification Modes Only)	Fault	ON	OFF	OFF
Serial EEPROM Corrupted	Fault	ON	ON	ON
Waterside Economizer Low Temp Cutout (WSE Control & Call For Cooling Only)	Mode	Flash	ON	Flash
Service Test Mode Enabled	Mode	Flash	Flash	Flash
Unoccupied Mode	Mode	ON	ON	OFF
Occupied, Bypass, Standby, or Tenant Override Modes	Mode	OFF	ON	OFF

Note: * The MicroTech III baseboard LED's mode / faults are listed in order of priority.

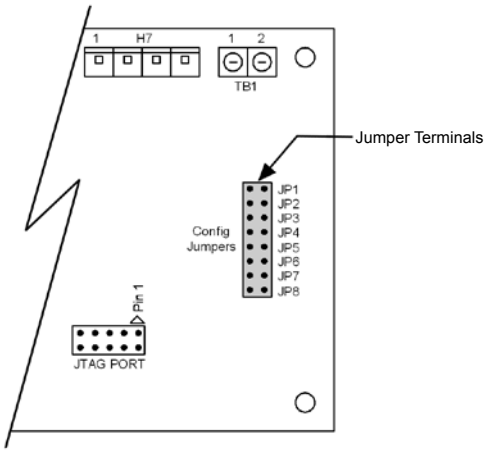
I/O expansion module



The I/O expansion module is factory-installed for control of the second refrigeration circuit.

The I/O Expansion Module has an independent LED annunciator to identify operational fault conditions for all the codes listed below.

Figure 4: I/O expansion module configuration jumper terminals



Note: *The settings of the hardware configuration jumpers are read when the controller is powered. Any changes to the jumper settings require cycling power to the controller or sending a controller a reboot command through the network communications.*

Table 6: I/O expansion module jumper settings

I/O Expansion Description	Jumper(s)	Jumper Setting		Model
Not Used	JP1	JP1	Open	–
Not Used	JP2	JP2	Open	–
Secondary Heating Options	JP3 & JP4	JP3	Open	None
		JP4	Open	
		JP3	Shorted	Supplemental Electric Heat
		JP4	Open	
		JP3	Open	Boilerless Electric Heat
		JP4	Shorted	
Cooling / Dehumidification Options	JP5 & JP6	JP5	Shorted	Without Hydronic Cooling
		JP6	Open	
		JP5	Open	Hydronic Cooling (Waterside Economizer)
		JP6	Shorted	
Not Used	JP7	JP7	Open	–
Lead Compressor Option	JP8	JP8	Open	Compressor #1 is Lead (factory default setting)
		JP8	Shorted	Compressor #2 is Lead

Table 7: I/O expansion module LED & fault outputs

Description	Type	Yellow	Green	Red
Baseboard Communication Fail	Fault	OFF	Flash	Flash
Compressor #2 High Pressure (HP2)	Fault	OFF	OFF	Flash
Compressor #2 Low Pressure (LP2)	Fault	OFF	OFF	ON
Compressor #2 Low Suction Temp (LT2) Sensor Fail	Fault	Flash	Flash	ON
Compressor #2 Low Suction Temp (LT2)	Fault	Flash	OFF	OFF
Entering Water Temp Sensor Fail (with Boilerless Electric Heat and Waterside Economizer)	Fault	ON	OFF	Flash
Low Entering Water Temperature (No Display with Boilerless Electric Heat)	Fault	OFF	ON	Flash
Fan is OFF	Mode	OFF	ON	OFF
Fan is ON	Mode	OFF	Flash	OFF

Note: Mode / Faults are listed in order of priority.

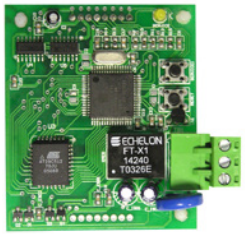
MicroTech® III controller with LONWORKS® or BACnet® communication module

The Large Vertical Water Source Heat Pump can be equipped with a LONWORKS or BACnet communication module. The LONWORKS module is LonMark 3.4 certified and designed to communicate over a LONWORKS communications network to a Building Automation System (BAS). The BACnet module is designed to communicate over a BACnet MS/TP communications network to a building automation system. Both controllers are microprocessor-based and can be factory or field-installed.

The control modules are programmed and tested with all the logic required to monitor and control the unit. Optional wall sensors may be used with the communication modules to provide limited local control of the Vertical Water Source Heat Pump. The MicroTech III controller monitors water and air temperatures and passes information to the communication module. The module communicates with the BAS, to provide network control of the Water Source Heat Pump.

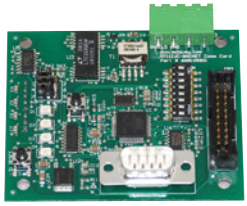
MicroTech III LONWORKS communication module

The LONWORKS communication module is designed for units that are integrated into a LONWORKS communication network for centralized scheduling and management of multiple heat pumps.



MicroTech III BACnet communication module

Designed to be linked with a centralized building automation system (BAS) through a BACnet communications network for centralized scheduling and management of multiple heat pumps.



MicroTech III controller with communication modules features

The MicroTech III controller with LONWORKS or BACnet communication module orchestrates the following unit operations:

- Enable heating and cooling to maintain space temperature setpoint based on a room sensor setting
- Enable fan and compressor operation
- Monitors all equipment protection controls
- Monitors room and discharge air temperatures
- Monitors leaving water temperature
- Relays status of all vital unit functions

An on-board status LED indicates the status of the MicroTech III LONWORKS or BACnet module.

The MicroTech III unit controller with communication module includes:

- Return air temperature sensor (RAT) (field-installed)
- Discharge air temperature sensor (DAT) (field-installed)
- Leaving water temperature sensor (LWT) (field installed)

⚠ CAUTION

When an optional wall-mounted room temperature sensor is connected to the unit controller, the Return Air Temperature (RAT) sensor must not be installed. A wall-mounted room temperature sensor and the return air temperature sensor must not be connected simultaneously or the unit will not operate properly.

The communication modules provide network access to setpoints for operational control

Available wall sensors include:

- Room sensor
- Room sensor with LED status and tenant override button
- Temperature sensor with LED status, timed-override button; ±5°F setpoint adjustment
- Room sensor with LED status, timed-override button, 55° to 95°F setpoint adjustment
- Room sensor with digital display, timed override button, occupancy button; ±5°F setpoint adjustment or 55 to 95°F temperature setpoint and dehumidification control

Table 8: Thermostats & remote room sensors for standalone operation

Thermostats & Remote Sensors Used with MicroTech III – Standalone Operation		**Thermostats**						**Remote Room Sensor**		
		Programmable / Non-Programmable				**Non-Programmable**	**Programmable**			
										
Standard		**Part #:** 910193126	**Part #:** 910193127	**Part #:** 910193128	**Part #:** 910193129	**Part #:** 910121746	**Part #:** 910121748	**Part #:** 667720401	**Part #:** 107096001	**Part #:** 107096010
Wi-Fi		**Part #:** 910193131	**Part #:** 910193132	**Part #:** 910193133	**Part #:** 910193134					
Feature								**Used With Thermostats**		
Display	Room Temp. & Setpoint	●	●	●	●	●	●	910193126 910193127 910193128 910193129 910193131 910193132 910193133 910193134		910121746 & 910121748
	Room Humidity & Setpoint				●					
Changeover	Manual	●	●	●	●	●	●			
	Automatic	●	●	●	●	●	●			
Stages	Heating	2	2	3	2	2	2			
	Cooling	2	3	2	2	2	2			
Operating Modes	System	Cool-Off-Heat-Auto	Cool-Off-Heat-Auto	Cool-Off-Heat-Auto	Cool-Off-Heat-Auto	Cool-Off-Heat-Auto	Cool-Off-Heat-Auto			
	Fan	On-Auto-Hourly	On-Auto-Hourly	On-Auto-Hourly	On-Auto-Hourly	On-Auto	On-Auto			
Annunciation	Status LED 5VDC					●	●			
	Alarm Fault LED 24 VAC	●	●	●	●	●	●			
Reset	Alarm	●	●	●	●	●	●			
	Override	●	●	●	●	●	●			
Remote Sensors	Indoor	●	●	●	●	●	●			
Application										
Dehumidification	Smart Dehumid.				●					
	Simplified		●		●					
	Humidistat Controlled				●					
	Dehumid. Only				●					
Electric Heat	Boilerless	●	●	●	●	●	●			
	Supplemental	●	●	●	●	●	●			
	Primary	●	●	●	●	●	●			
	Emergency	●	●	●	●	●	●			
Waterside Economizer	–	●	●	●	●	●	●			
Hydronic Heat	–	●	●	●	●	●	●			

Table 9: Room temperature sensors for BAS operation

Sensors used with MicroTech III Control – Building Automated System (BAS) Operation		Room Temperature Sensors			
		Digitally Adjustable	**Digitally Adjustable Display Sensor**	**Basic Room Sensor With Cool to Warm Adjust**	**Basic Room Sensor**
					
		With Temperature & Humidity Display for Smart Dehumidification or Waterside Economizer Operation	With Temperature Display, Indicates, ALARM, Override and Occupancy.	Senses Temperature, With Temperature Adjust Cool to Warm, LED Status Indication, Override Reset Button	Senses Temperature, LED Status Indication, Override Reset Button
		Part # 910121754	**Part #** 910152147	**Part #** 910171464	**Part #** 910152149
Feature					
Setpoint Adjustment		Digitally Adjustable	Digitally Adjustable	Cool to Warm	None
Display	Room Temperature & Setpoint	●	●		
	Room Humidity & Setpoint	●			
Stages	Heating	4	4	4	4
	Cooling	3	3	3	3
Operating Modes	System	Heat-Cool-Auto-Off-Dehum			
	Fan	Auto-On			
	Occupancy	LCD Display of Occupied-Unoccupied Icon	LCD Display of Occupied-Unoccupied Icon		
Annunciation	Status LED	LCD Display of Unit Status	LCD Display of Unit Status	●	●
	LCD Alarm Display	●	●		
Reset	Alarm	●	●	●	●
	Setback Override	●	●	●	●
Application					
Dehumidification		●			
Electric Heat	Boilerless	●	●	●	●
	Supplemental	●	●	●	●
	Primary	●	●	●	●
Waterside Economizer	–	●	●	●	●
Hydronic Heat	–	●	●	●	●

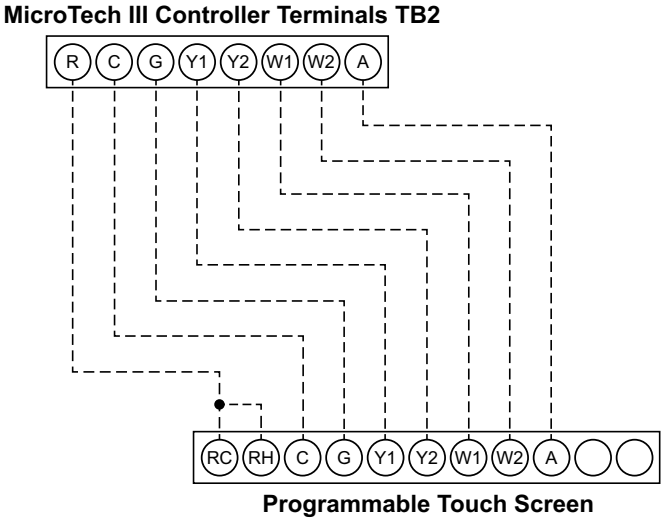
Notes: For complete specification and wiring information refer to *ED 19107_WSHP-Tstats_Specs*.

Table 10: Room temperature sensors for BAS operation

Sensors used with MicroTech III Control – Building Automated System (BAS) Operation		Room Temperature Sensors			
		Adjustable Cool/Warm with Occupancy Switch	Adjustable 55°F to 95°F	Adjustable +/- 3ºF (+/- 1.5°C)	Basic Sensor
					
		Part # 910121753	**Part #** 669529101	**Part #** 669529201	**Part #** 669529001
Feature					
Setpoint Adjustment		Cool to Warm	55ºF to 95ºF (13º to 35ºC)	-3º to +3ºF (-1.5º to +1.5ºC	None
Display	Room Temperature & Setpoint				
	Room Humidity & Setpoint				
Stages	Heating	4	4	4	4
	Cooling	3	3	3	3
Operating Modes	System	Cool-Auto-Heat	Cool-Auto-Heat	Cool-Auto-Heat	
	Fan	Auto-On	Auto-On	Auto-On	
	Occupancy	Occ-Unoc-Off			
Annunciation	Status LED	●	●	●	●
	LCD Alarm Display				
Reset	Alarm	●	●	●	●
	Setback Override	●	●	●	●
Application					
Dehumidification					
Waterside Economizer	–	●	●	●	●
Electric Heat	Boilerless	●	●	●	●
	Supplemental	●	●	●	●
	Primary	●	●	●	●
Hydronic Heat	–	●	●	●	●

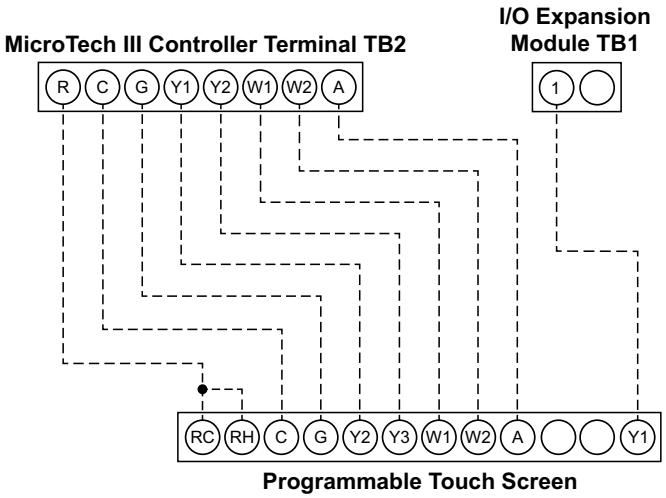
Thermostats for use with MicroTech III standalone – wiring

Programmable Electronic Thermostat 2 Heat/2 Cool, 7-Day Programmable, Auto Changeover, Hardwired – P/N 910193126 & Wi-Fi P/N 910193131



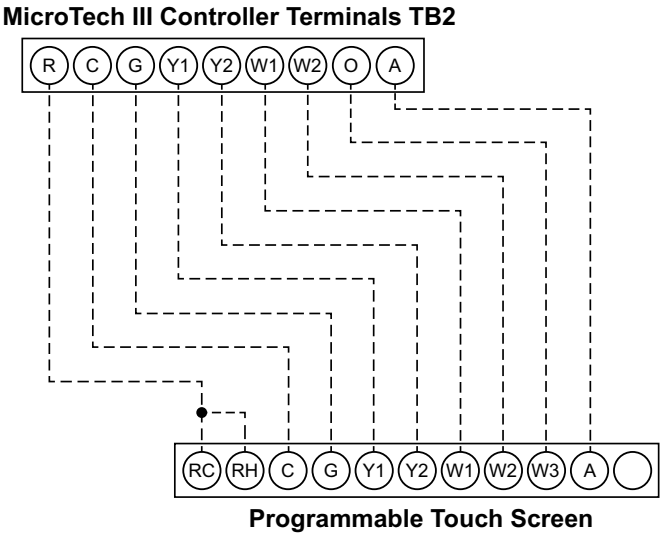
Notes: *Includes thermostat and wall plate Refer to IO manual 910193126*

Programmable Electronic Thermostat 2 Heat/3 Cool, 7-Day Programmable, Auto Changeover, Hardwired – P/N 910193127 & Wi-Fi P/N 910193132



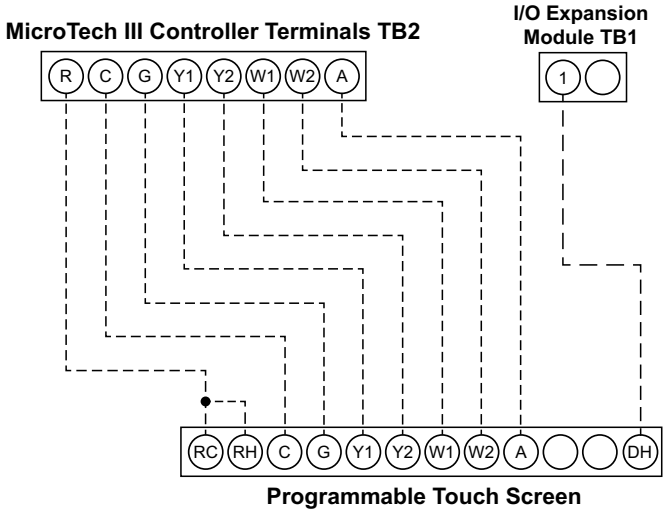
Notes: *Includes thermostat and wall plate Refer to IO manual 910193127*

Programmable Electronic Thermostat 3 Heat/2 Cool, 7-Day Programmable, Auto Changeover, Hardwired – P/N 910193128 & Wi-Fi P/N 910193133



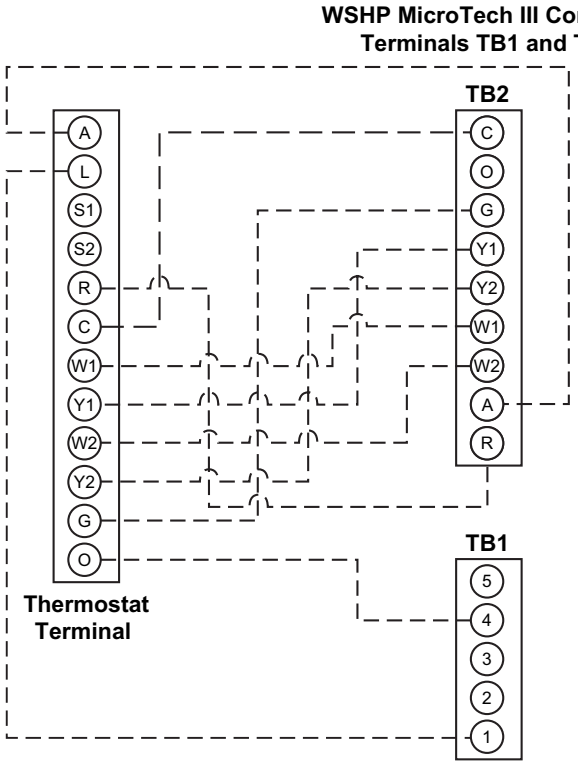
Notes: *Includes thermostat and wall plate Refer to IO manual 910193128*

Programmable Electronic Thermostat 2 Heat/2 Cool, 7-Day Programmable, Dehumidification, Auto Changeover, Hardwired – P/N 910193129 & Wi-Fi P/N 910193134



Notes: *Includes thermostat and wall plate Refer to IO manual 910193129*

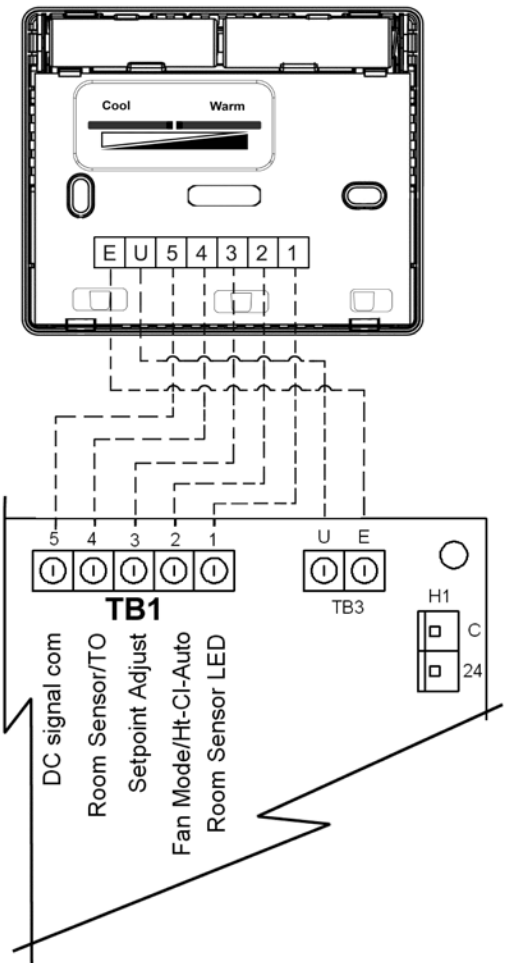
Programmable & Non-Programmable Electronic Thermostats 2 Heat/2 Cool, Auto Changeover, Hardwired – P/N 910121746 & P/N 910121748



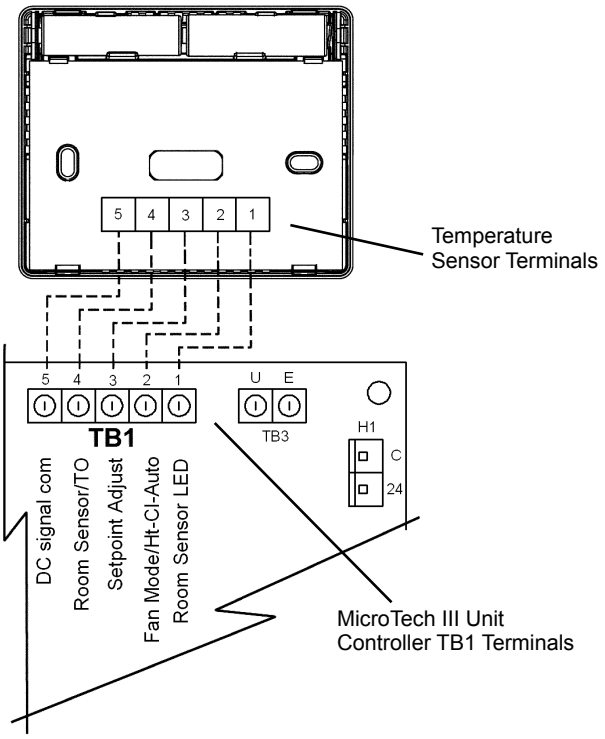
Notes: *Includes thermostat and wall plate. Refer to 910121746 or 910121748 Install Manual.*

Sensors used with MicroTech III control – building automated system operation – wiring

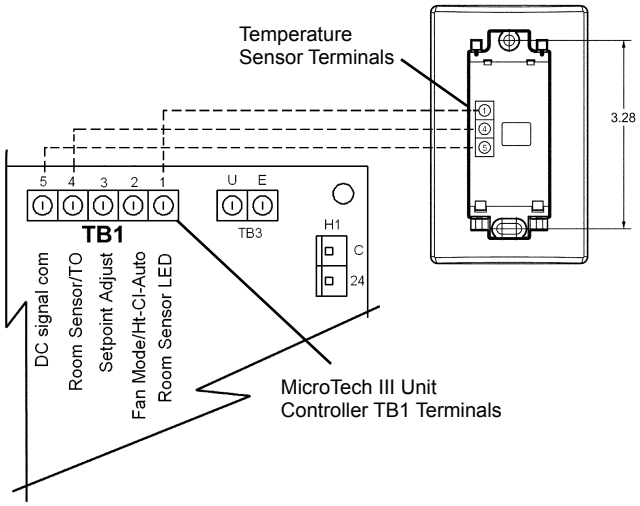
Adjustable Cool/Warm with Occupancy Switch – P/N 910121753



Adjustable 55°F to 95°F – P/N 669529101 & Adjustable +/- 3ºF (+/- 1.5°C) – P/N 669529201



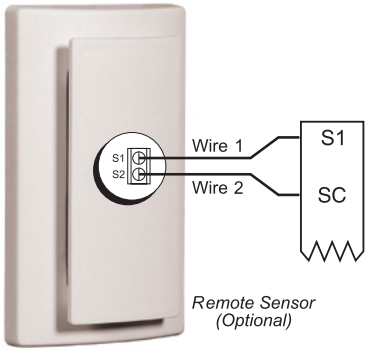
Temperature Sensor Wiring to MicroTech III Unit Controller – P/N 669529001



Accessory Remote Room Sensors – Wiring (Part No.667720401 & 107096001)

Used with Thermostats 910193126, 910193127, 910193128, 910193129, 910193131 910193132, 910193133, 910193134

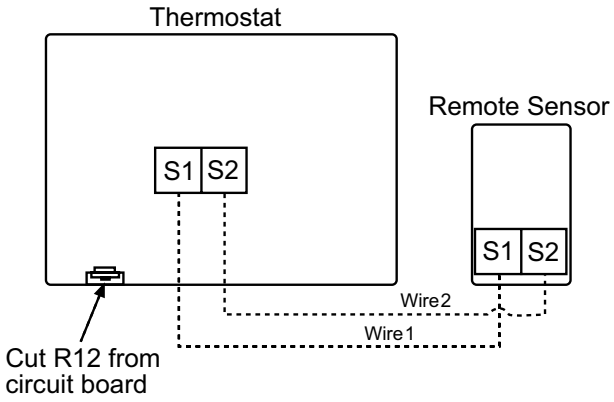
The remote indoor temperature sensor provides the ability to measure room temperature remote from the thermostat location.



Accessory Remote Room Sensor (Part No. 107096010)

Used with Thermostats – P/N 910121746 and P/N 910121748

The remote indoor temperature sensor provides the ability to measure room temperature remote from the thermostat location.



Supply and return water hoses

Available as fire rated construction in 2 or 3 foot (610 mm or 914 mm) lengths. Fire rated hoses have a synthetic polymer core with an outer rated covering of stainless steel. Fittings are steel. Assembly is “fire rated” and tested according to UL 94 with a VO rating and ASTM 84. Each hose has MPT connections. Hoses have a swivel connection at one end and are available in 1¼" (32 mm) to match the FPT fittings on unit sizes 072 through 120. Unit sizes 180 through 290 have 1½" (38 mm) FPT fittings.

Figure 5: Flexible, steel braided supply and return hoses

Hose specifications

Inner tube:

Fire retardant TRP (Thermosplastic Rubber) tested to UL-94 with V-O rating.

Outer braid:

Stainless steel wire (ANSI 302/304)

Temperature range:

-40°F to 212°F

Condensate hose kit

Available as a long clear plastic hose with the necessary clamps and a MPT hose fitting for connection to the FPT field piping.

Figure 6: Condensate hose kit

Combination balancing and shutoff (ball) valves

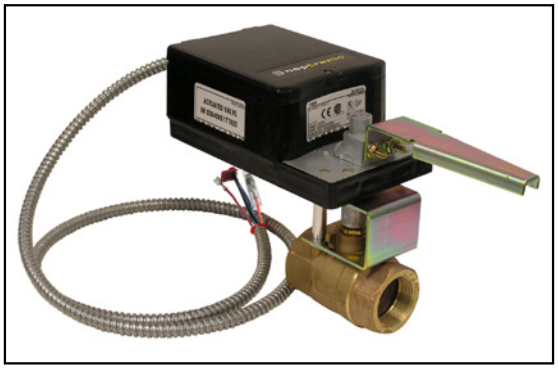
Constructed of brass and rated at 400 psig (2758 kPa) maximum working pressure. Valves have a built-in adjustable memory stop to eliminate rebalancing. Valves have FPT connections on both ends for connection to the water hose and to the field piping.

Figure 7: Shut off ball valve

Motorized valve

Used in variable pumping type applications, the valve actuator is wired and typically piped in the return water line. The 2-way motorized water valve kit includes the valve body, actuator and wire harness. The 24VAC valve actuator must be wired directly to terminal block H8 on the MicroTech III controller. The valve will only energize on a call for heating or cooling. The 1-1/4" valve is rated for 300 psig (2068 kPa and the 1-1/2" valve is rated for 150 psig (1034 kPa).

Figure 8: 2-way motorized valve



2" filter rack kit with duct flange

Figure 9: Accessory 2" deep filter rack kit with return air duct flange – sizes 072-120

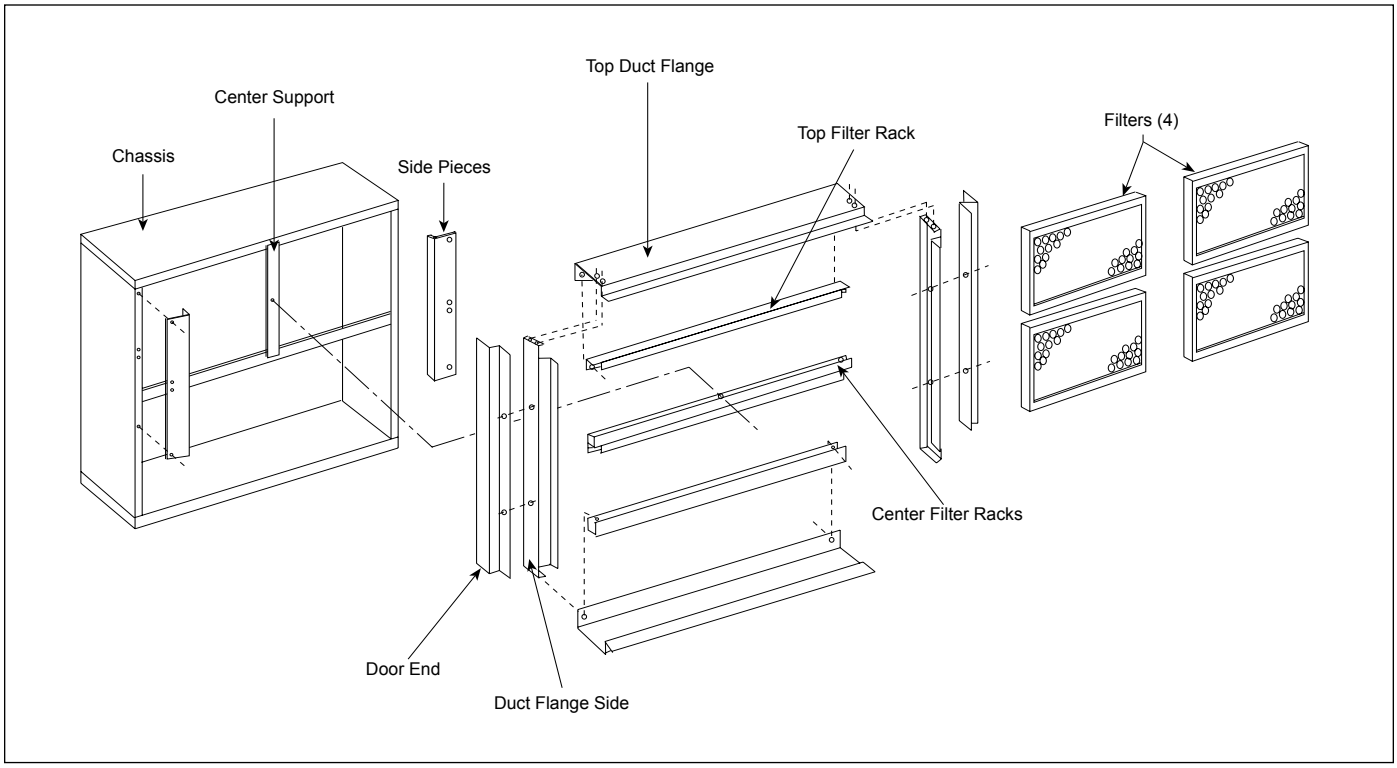
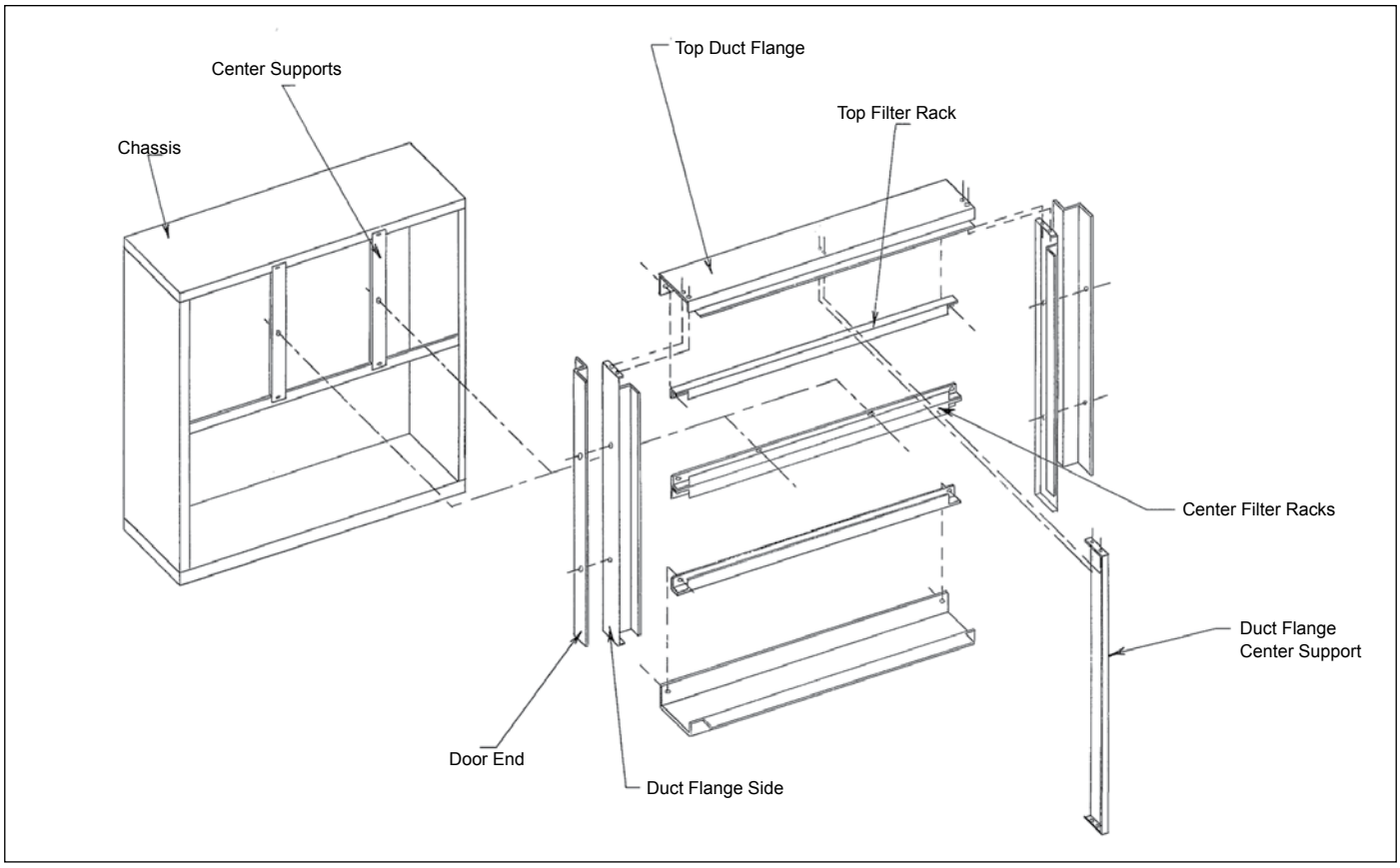


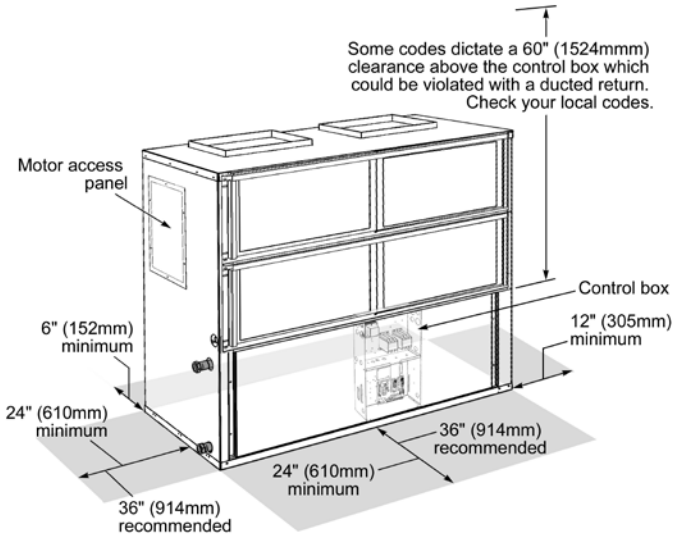
Figure 10: Accessory 2"deep filter rack kit with return air duct flange – sizes 180-290



Unit location

Large Vertical Water Source Heat Pump units are easily located in equipment rooms or floor-by-floor installations. They can be applied to all building types where it is advantageous to extend the water source heat pump concept to larger or core areas. Locate the unit in an area that allows for easy removal of the filter and access panels, and has enough space for service personnel to perform maintenance or repair. Provide sufficient room to make water, electrical and duct connections.

Figure 11: Service clearances



Notes

1. *A 12" (305 mm) minimum clearance is required on the side opposite the pipe connection side to gain access to panel to remove locking collar for shaft removal.*
2. *Top clearance is required for fan shaft removal.*

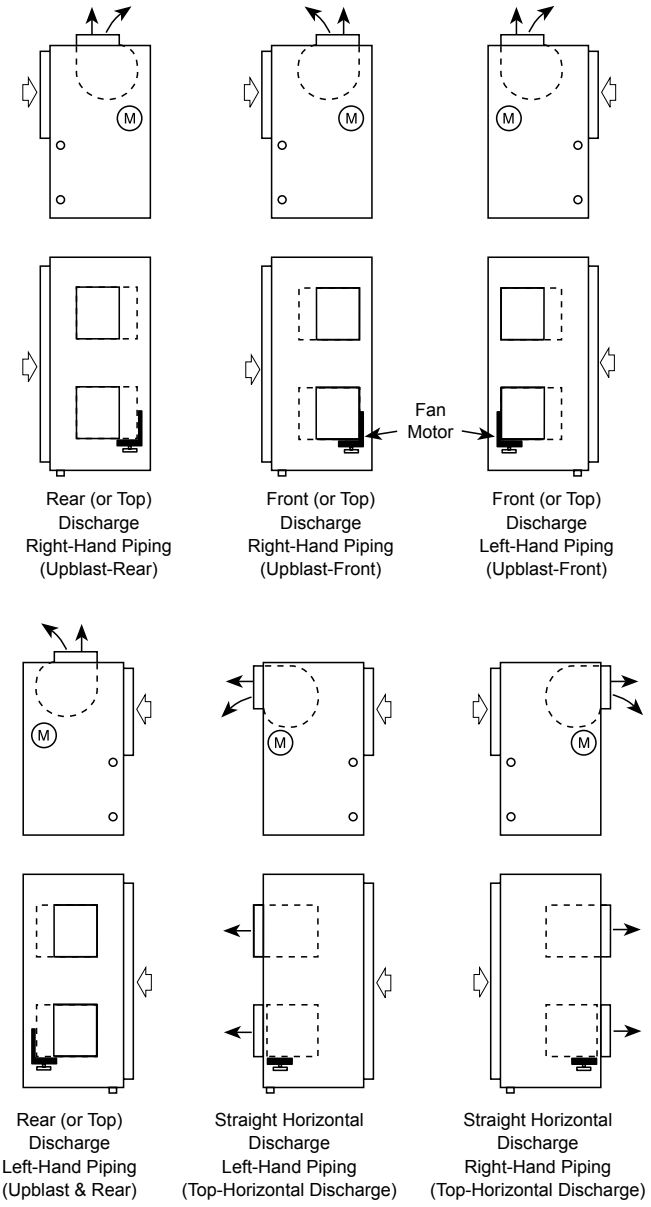
The contractor should make sure that access has been provided including clearance for 2" (51 mm) thick filter brackets, duct collars and fittings at water and electrical connections. Allow adequate room around the unit for a condensate trap. The unit can be installed “free standing” in an equipment room. Generally, the unit is located in a separate room with the non-ducted return air facing the return air intake. Alternatively, the unit can have a ducted return air. It is recommended that the unit be located on vibration isolators to reduce any vibration (see Figure 13 on page 25).

Fan deck arrangements

Six fan discharge arrangements and two piping arrangements are available. With the return air side defined as the “front” of the unit, the water piping connections may be right-hand (side) or left-hand. All units have a single supply and return water connection with a copper FPT type fitting that protrudes through the unit casing for easy connection. The condensate connection is also a copper FPT type and is located on both sides of the unit. The unused connection is plugged.

The main control panel is located in the center front of the unit. The fan discharge is top front, and the fan motor is always located at the piping end. Unit sides opposite the control panel and opposite the piping side may be up against walls and still allow for service and maintenance through the remaining access panels.

Figure 12: Fan deck arrangements



Notes:

1. *The return air (filter) side is considered the “front” of the unit. The piping and electrical connections are always made on the “hand” side of the unit.*
2. *The fan motor is always located at the piping/ electrical connection (hand) side of the unit.*

Vibration isolators

For minimum sound and vibration transmission, it is recommended that the unit be mounted on vibration isolators.

Holes are provided in the bottom panel to facilitate connection of isolators (see Figure 14 & Figure 15 for hole locations).

Isolators supplied by the manufacturer are the type shown in Figure 13. Four white isolators are used for single compressor units and six green isolators are used for dual compressor units. The holes in the bottom of the unit allow for a 3⁄8" (10 mm) bolt to be secured to the isolator.

Figure 13: Vibration isolator dimensions

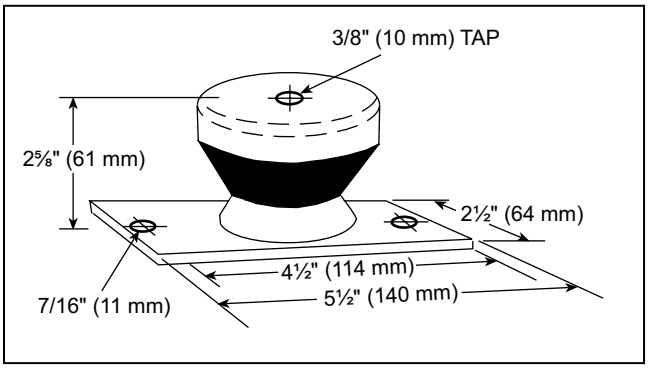


Figure 14:Vibration isolators locations - single compressor unit

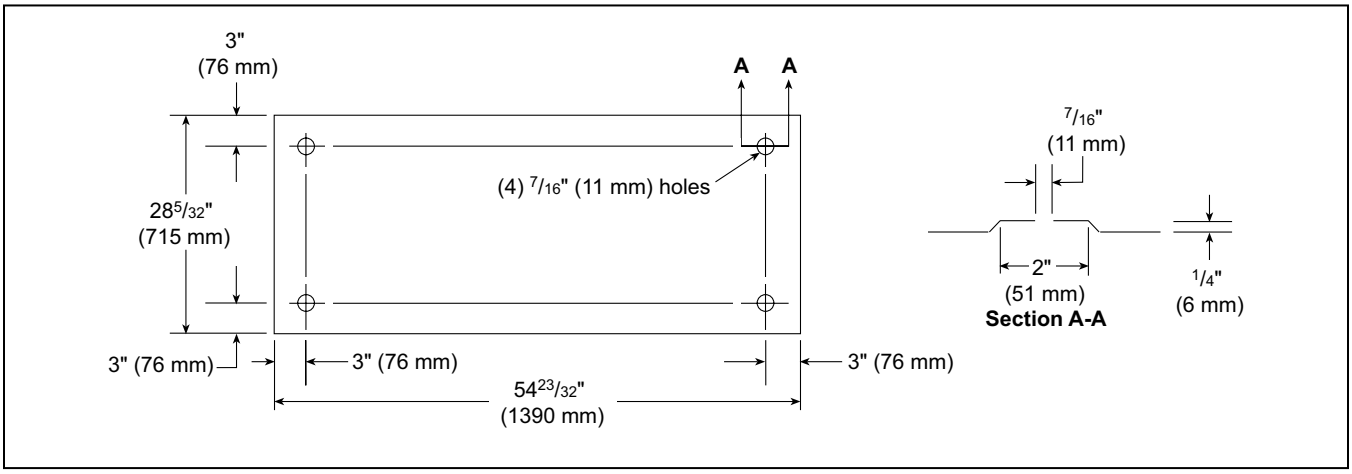
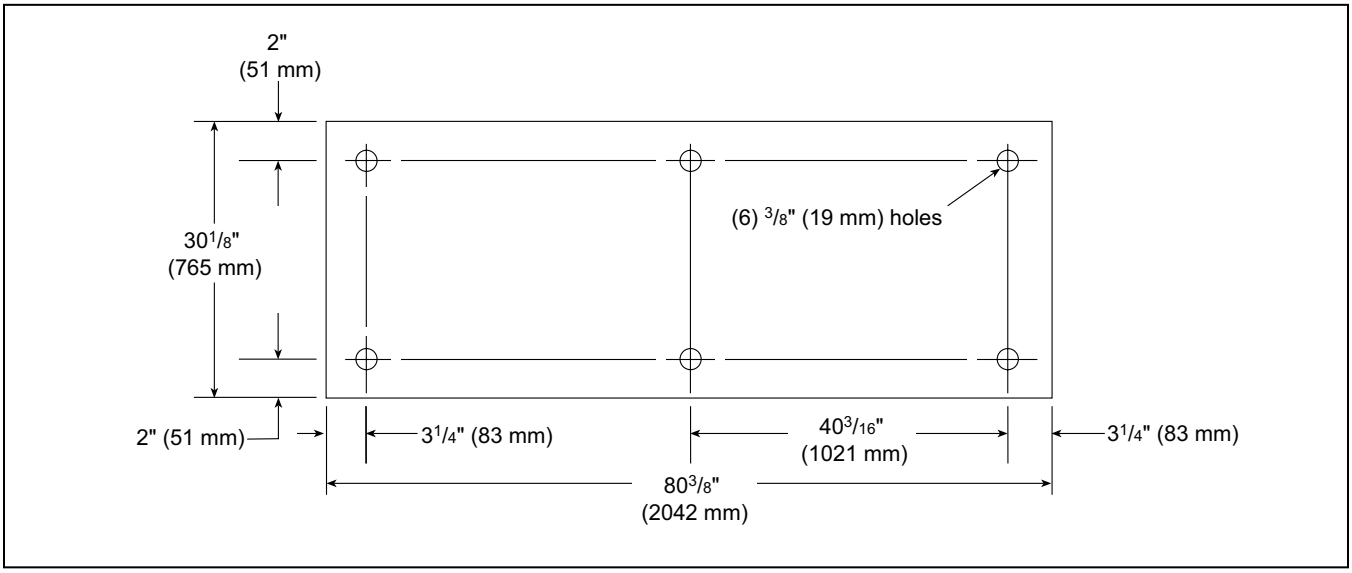


Figure 15: Vibration isolators locations - dual compressor unit



Ductwork and attenuation

Discharge ductwork is normally used with these conditioners. Return air ductwork may also be required but will require field installation of a return air duct collar.

All ductwork should conform to industry standards of good practice as described in ASHRAE Systems Guide.

The discharge duct system will normally consist of a flexible connector, a transition piece to the final duct size, a short run of duct, an elbow without vanes and a trunk duct tee'd into branch ducts with discharge diffusers. Transformation duct must not have angles totalling more than 30 degrees or severe loss of air performance can result.

All units have multiple fan outlets. The preferred method for minimum static pressure loss would be individual ducts at each outlet connected to a larger main duct downstream (Figure 16).

For minimum noise transmission, the metal duct material should be internally lined with acoustic fibrous insulation.

The ductwork should be laid out so that there is no line of sight between the conditioner discharge and the distribution diffusers.

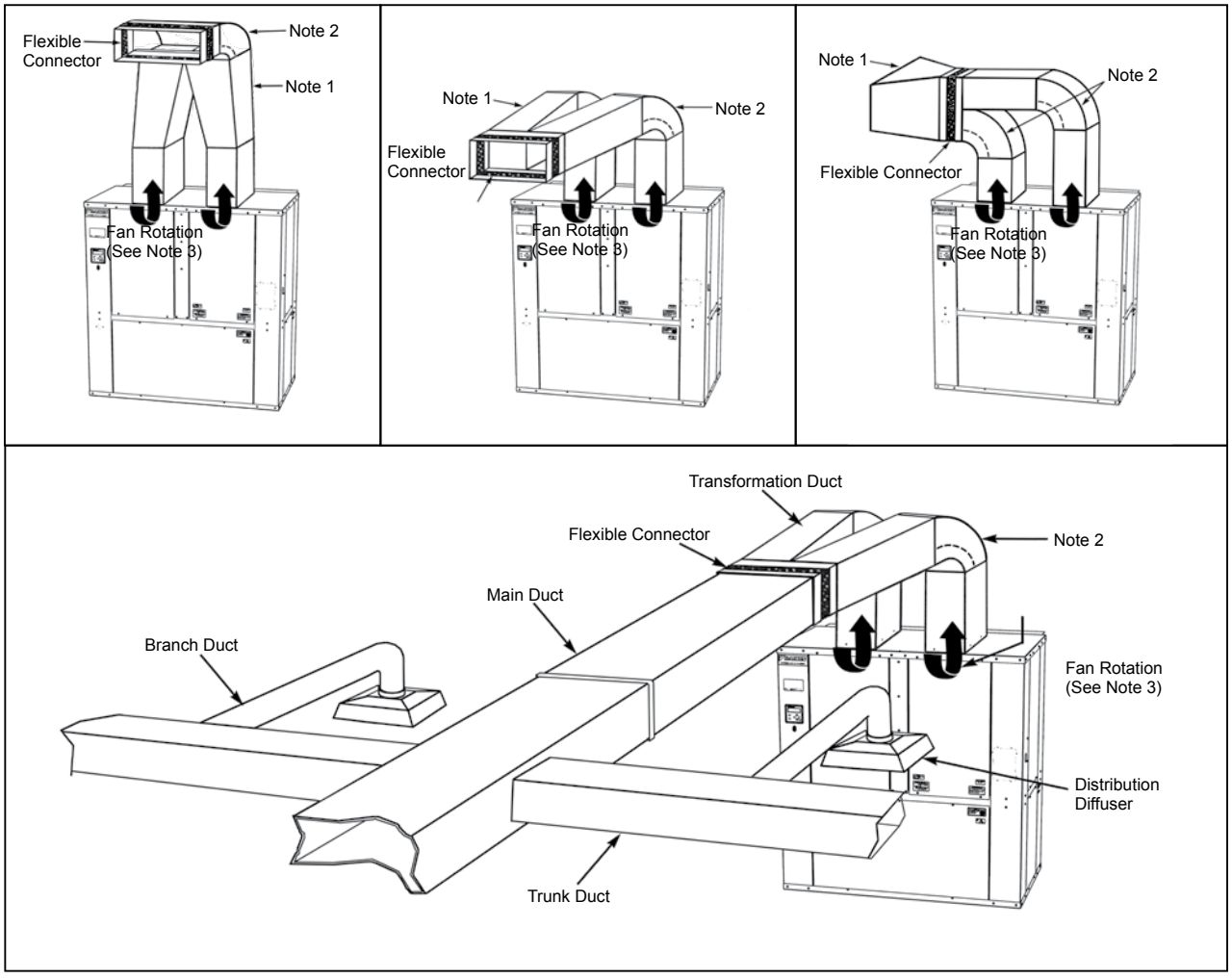
Return air ducts can be brought in adjacent to the return air of the conditioner. Typically, the equipment room becomes the common return air plenum.

Do not insert sheet metal screws directly into the unit cabinet for connection of supply or return air ductwork, especially return air ductwork which can hit the drain pan or the air coil.

Notes:

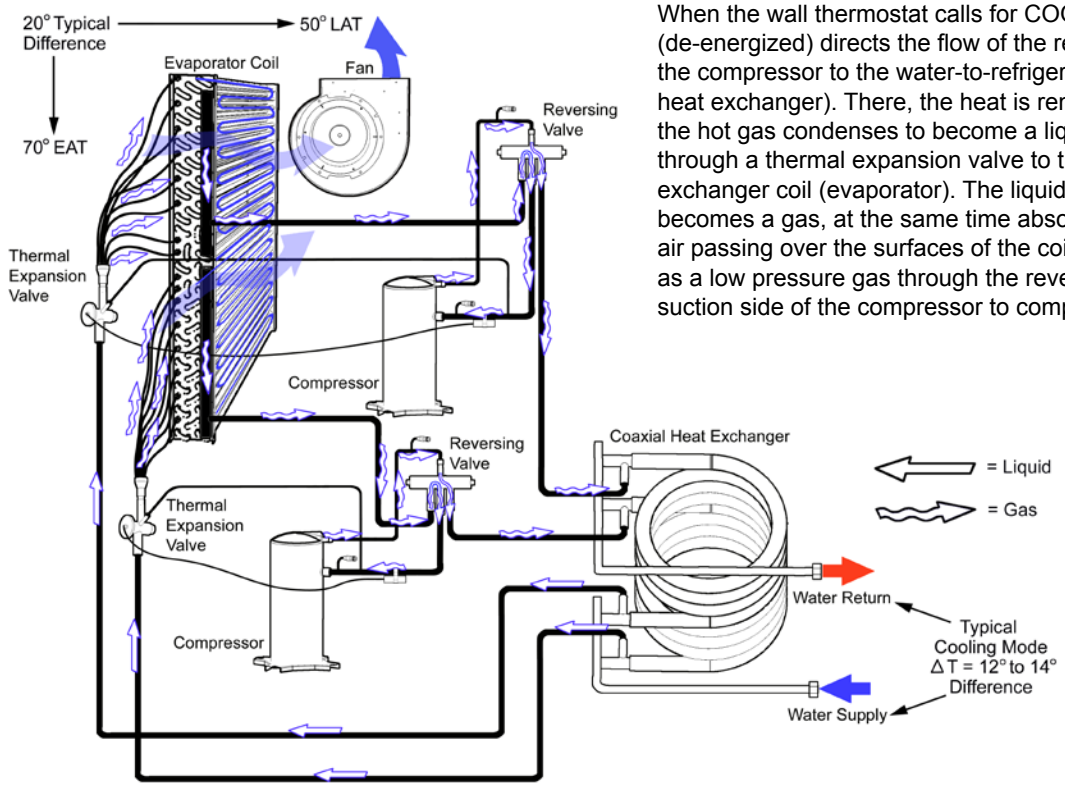
1. *Transformations to supply duct have maximum slope of 1" to 7".*
2. *Square elbows with double thickness vanes may be substituted.*
3. *Do not install ducts so that the air flow is counter to fan rotation. If necessary, turn fan deck assembly and motor.*
4. *Transformations and units shall be adequately supported so no weight is on the flexible connection.*

Figure 16: Suggested supply ducting per ASHRAE and SMACNA publications



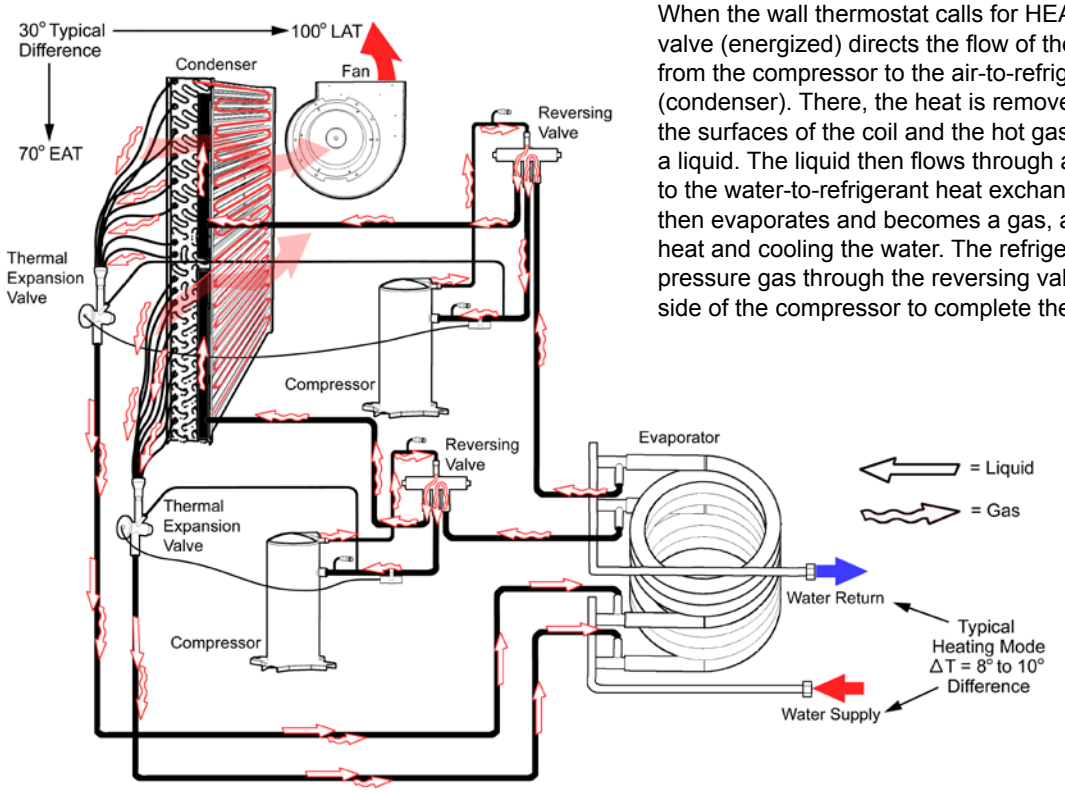
Typical cooling and heating refrigeration cycles – dual compressors

Figure 17: Cooling refrigeration cycle



When the wall thermostat calls for COOLING, the reversing valve (de-energized) directs the flow of the refrigerant, a hot gas, from the compressor to the water-to-refrigerant heat exchanger (coaxial heat exchanger). There, the heat is removed by the water, and the hot gas condenses to become a liquid. The liquid then flows through a thermal expansion valve to the air-to-refrigerant heat exchanger coil (evaporator). The liquid then evaporates and becomes a gas, at the same time absorbing heat and cooling the air passing over the surfaces of the coil. The refrigerant then flows as a low pressure gas through the reversing valve and back to the suction side of the compressor to complete the cycle

Figure 18: Heating refrigeration cycle



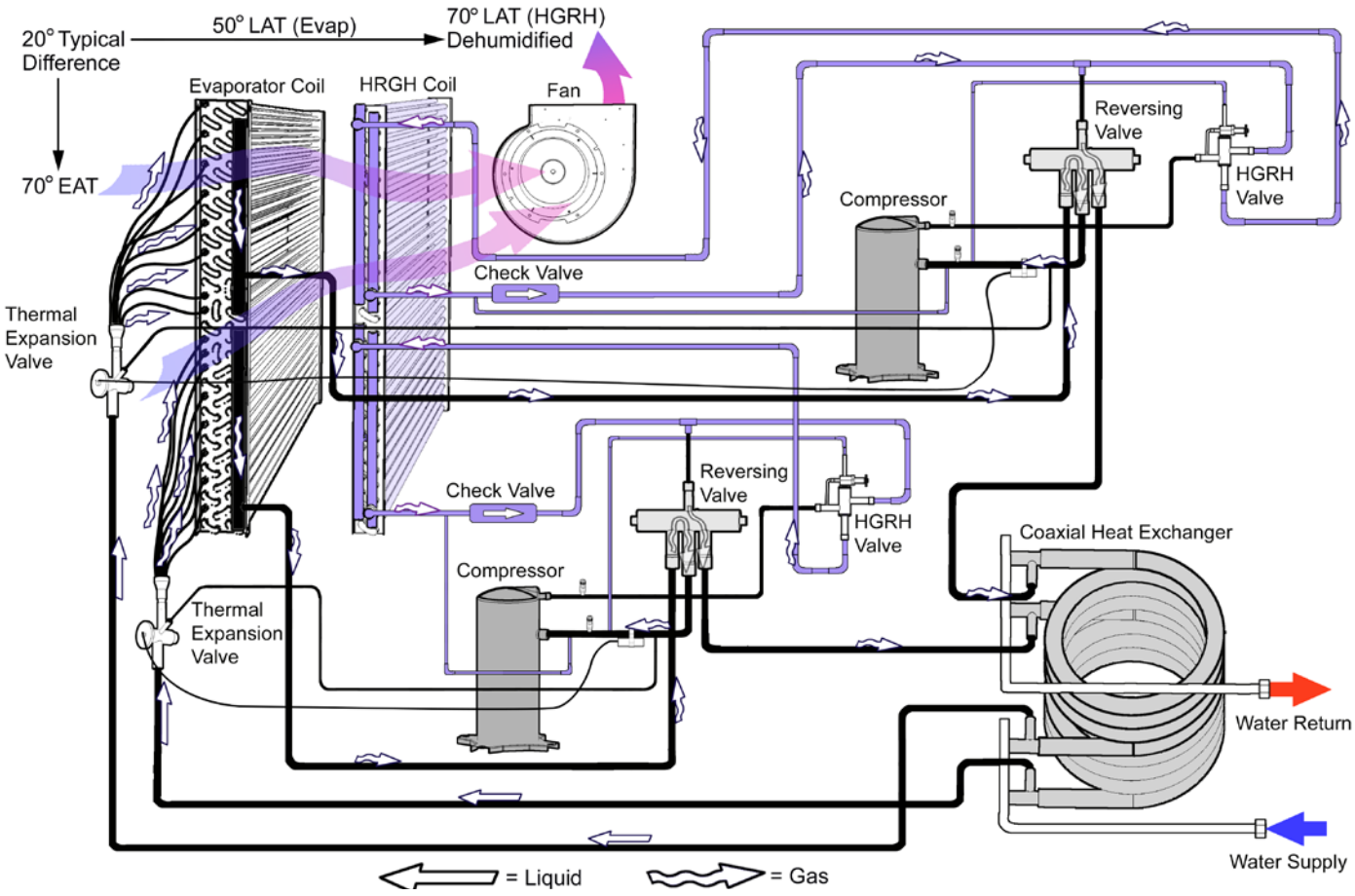
When the wall thermostat calls for HEATING, the reversing valve (energized) directs the flow of the refrigerant, a hot gas, from the compressor to the air-to-refrigerant heat exchanger coil (condenser). There, the heat is removed by the air passing over the surfaces of the coil and the hot gas condenses and becomes a liquid. The liquid then flows through a thermal expansion valve to the water-to-refrigerant heat exchanger (evaporator). The liquid then evaporates and becomes a gas, at the same time absorbing heat and cooling the water. The refrigerant then flows as a low pressure gas through the reversing valve and back to the suction side of the compressor to complete the cycle.

Note: *Typical temperature readings are at full load conditions at ISO-13256 for boiler-tower applications.*

Typical hot gas reheat refrigeration cycle – dual compressors

When the DEHUMID setting is not satisfied and COOLING has been satisfied the reversing valve remains (de-energized) but the hot gas reheat (HGRH) valve is (energized). This directs the flow of the refrigerant, a hot gas, from the compressor through the hot gas reheat (HGRH) coil thus heat is removed from the refrigerant gas to reheating the cooled air from the evaporator coil. Then the refrigerant flows to the water-to-refrigerant heat exchanger (coaxial heat exchanger). There, the heat is removed by the water, and the hot gas condenses to become a liquid. The liquid then flows through a thermal expansion valve to the air-to-refrigerant heat exchanger coil (evaporator). The liquid then evaporates and becomes a gas, at the same time absorbing heat and cooling the air passing over the surfaces of the coil. The refrigerant then flows as a low pressure gas through the reversing valve and back to the suction side of the compressor to complete the cycle.

Figure 19: Hot gas reheat refrigeration cycle



Systems

Water source heat pump systems are one of the most efficient, environmentally friendly systems available for heating and cooling buildings. High-efficiency, self contained units (sizes 7,000 btuh to 290,000 btuh) can be placed in virtually any location within a building. Each unit responds only to the heating or cooling load of the individual zone it serves. This permits an excellent comfort level for occupants, better control of energy use for building owners and lower seasonal operating costs. The Air-Conditioning Refrigeration Institute (ARI) and the International Standards Organization (ISO) publish standards so that water source heat pumps are rated for specific applications. The ARI/ISO loop options shown in this catalog are typical water source heat pump loop choices available in today's market. These systems offer benefits ranging from low cost installation to the highest energy efficiency available in the market today.

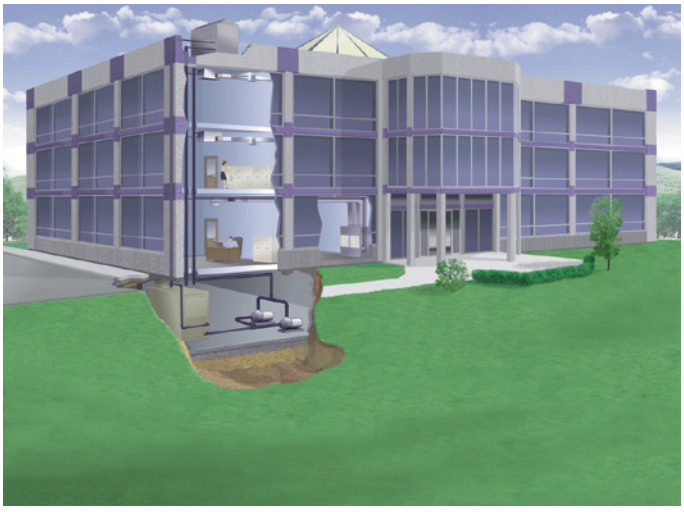
Boiler / tower applications

AHRI / ASHRAE / ISO standard 13256-1

A "Boiler/Tower" application uses a simple two-pipe water circulating system that adds heat, removes heat or transfers rejected heat to other units throughout the building. The water temperature for heating is generally maintained between 65ºF – 70ºF and is usually provided by a natural gas or electric boiler located in a mechanical room. The condensing water temperature, during cooling months, is maintained between 85ºF and 95ºF and requires the use of a cooling tower to dissipate waste heat. Cooling towers can be located on the roof, or inside or adjacent to the building. This application can be the lowest cost of the loop options available.

Note: ASHRAE 90.1 standards require that circulating pumps over 10 HP will require use of "variable frequency drive" equipment and pipe insulation to be used whenever water temperatures are below 60 degrees and above 105 degrees. See ASHRAE 90.1 Standards for details.

Figure 20: Boiler/tower application

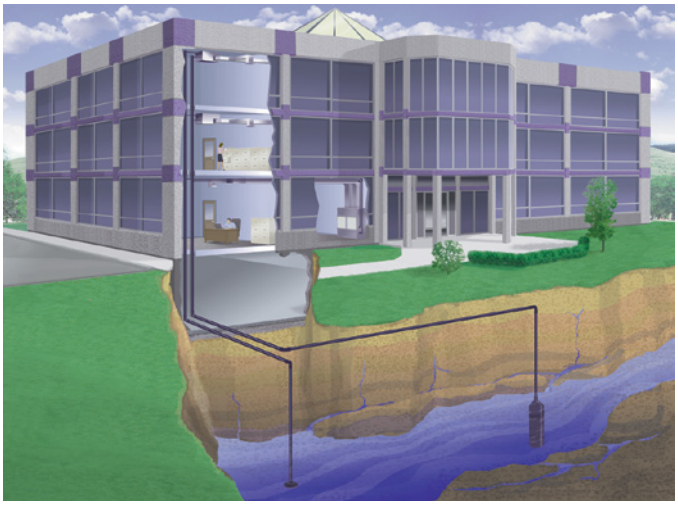


Open loop well water applications

AHRI / ASHRAE / ISO standard 13256-1

"Open Loop" well water systems use ground water to remove or add heat to the interior water loop. The key benefit of an open loop system is the constant water temperature, usually 50ºF to 60ºF, which provides efficient operation at a low first cost. Most commercial designers incorporate a heat exchanger to isolate the building loop from the well water. Using heat exchangers can reduce maintenance issues while still allowing the transfer of heat from unit to unit as with the "Boiler/Tower System". A successful design provides an ample amount of groundwater (approximately 2 GPM per ton) and adequate provisions for discharging water back to the aquifer or surface. Open Loop applications are commonly used in coastal areas where soil characteristics allow reinjection wells to return the water back to the aquifer. Note that some states have requirements on the depths of return water reinjection wells, and such wells must be approved by the United States Environmental Protection Agency. Also, bad water quality can increase problems with heat exchanger scaling. Suspended solids can erode the heat exchanger. Strainers can be used to contain suspended solids.

Figure 21: Open loop well application

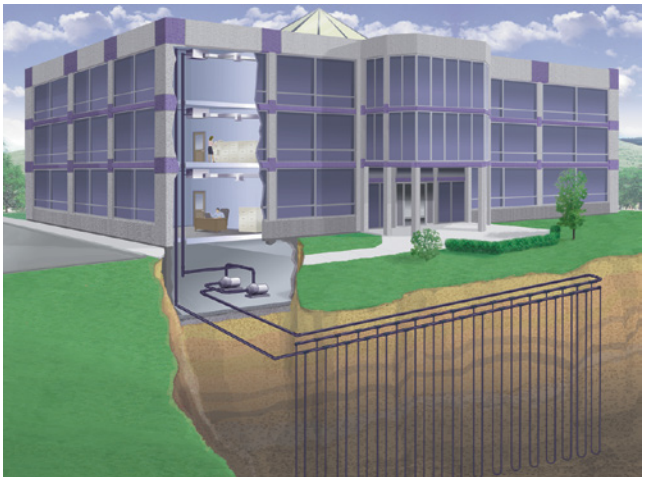


Closed loop geothermal applications

AHRI / ASHRAE / ISO standard 13256-1

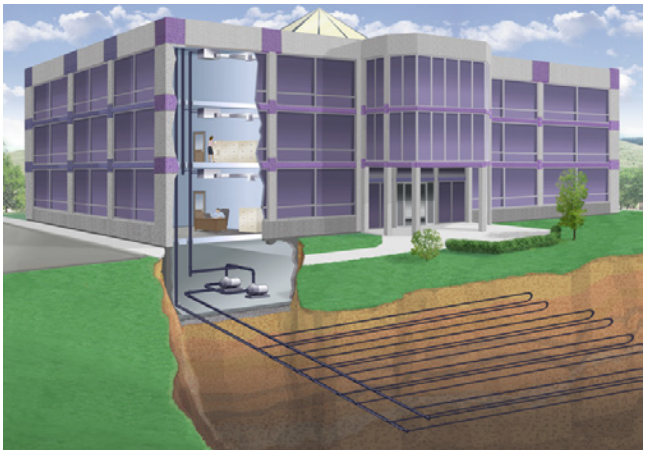
"Vertical Closed Loop" applications are installed by drilling vertical bore holes into the earth and inserting a plastic polyethylene supply/return pipe into the holes. The vertical wells are connected in parallel reverse return fashion to allow the water from the building to circulate evenly throughout the bore field. The circulating fluid dissipates heat to the ground in a similar manner as a "tower" and adds heat back to the loop like a boiler. If properly designed, the loop field can maintain the loop temperatures necessary to condition the building without the use of a boiler or a tower. Loop temperatures usually range from 37ºF to 95ºF in Northern climates. Southern applications can see temperatures ranging from 40ºF to 100ºF. The number of bore holes and their depth should be determined by using commercial software that is specifically designed for vertical geothermal applications. Typical bore depths of a vertical loop range from 150 to 400 feet and generally require about 250 feet of surface area per ton of cooling.

Figure 22: Vertical loop application



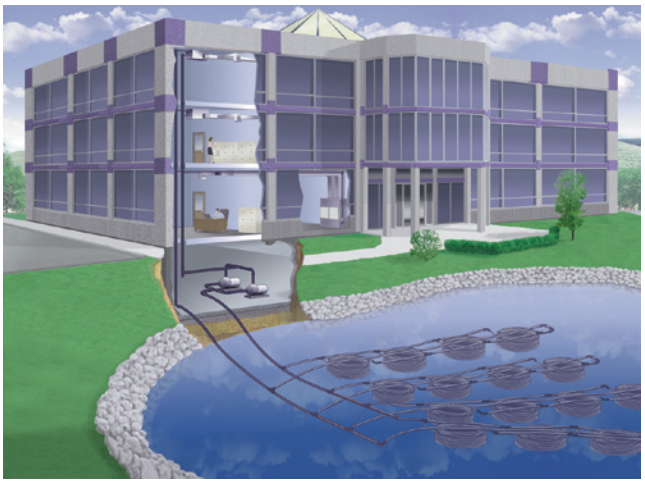
A closed loop "Horizontal" geothermal application is similar to a vertical loop application with the exception that the loops are installed in trenches approximately 5 feet below the ground surface. The piping may be installed using a "four-pipe" or "six-pipe" design and could require 1,500 to 2,000 square feet of surface area per ton of cooling. Loop temperatures for a commercial application can range from 35ºF to 95ºF in Northern climates. Southern climates can see temperatures ranging from 40ºF to 100ºF. Horizontal loops are generally not applied in urban areas because land use and costs can be prohibitive. New advances in installation procedures have improved the assembly time of horizontal loops while keeping the first cost lower than a vertical loop.

Figure 23: Horizontal loop application



A "Surface Water" or "Lake" closed loop system is a geothermal loop that is directly installed in a lake or body of water that is near the building. In many cases, the body of water is constructed on the building site to meet drainage or aesthetic requirements. Surface loops use bundled polyethylene coils that are connected in the same manner as a vertical or horizontal loop using a parallel reverse return design. The size and the depth of the lake is critical. Commercial design services should be used to certify that a given body of water is sufficient to withstand the building loads. Loop temperatures usually range from 35ºF to 90ºF and prove to be the best cooling performer and lowest cost loop option of the three geothermal loops. Some applications may not be good candidates due to public access or debris problems from flooding.

Figure 24: Surface water loop application



Size 072 (2300 SCFM)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
20	12.0	3.7	8.5	65/55	Tint = Operation Not Recommended Refer to "Capacity table legend" on page 67					45600	4.887	28900	84	2.73
		3.7	8.5	70/59						45300	5.075	28000	88	2.61
		3.7	8.5	75/63						44900	5.311	26800	93	2.48
		3.7	8.5	80/67						44600	5.546	25700	98	2.35
		3.7	8.5	85/71										
	18.0	7.2	16.4	65/55						50800	4.987	33800	86	2.98
		7.2	16.4	70/59						50500	5.176	32800	90	2.86
		7.2	16.4	75/63						50100	5.411	31600	95	2.71
		7.2	16.4	80/67						49700	5.647	30400	100	2.58
		7.2	16.4	85/71										
	24.0	11.4	26.1	65/55						56000	5.088	38600	88	3.22
		11.4	26.1	70/59						55700	5.277	37700	92	3.09
		11.4	26.1	75/63						55300	5.512	36500	97	2.94
		11.4	26.1	80/67						54900	5.748	35300	102	2.80
		11.4	26.1	85/71										
30	12.0	3.6	8.2	65/55						53800	5.038	36600	88	3.13
		3.6	8.2	70/59	72600	54300	3.329	84000	21.8	53500	5.226	35700	91	3.00
		3.6	8.2	75/63	76600	55600	3.371	88100	22.7	53100	5.462	34500	96	2.85
		3.6	8.2	80/67	80600	56900	3.414	92300	23.6	52700	5.697	33300	101	2.71
		3.6	8.2	85/71	84500	58300	3.456	96300	24.5					
	18.0	6.9	15.9	65/55	69300	55600	3.219	80300	21.5	59000	5.138	41500	90	3.36
		6.9	15.9	70/59	73200	54500	3.259	84300	22.5	58700	5.327	40500	94	3.23
		6.9	15.9	75/63	77200	55800	3.301	88500	23.4	58300	5.562	39300	98	3.07
		6.9	15.9	80/67	81200	57200	3.344	92600	24.3	57900	5.798	38100	103	2.92
		6.9	15.9	85/71	85100	58500	3.386	96700	25.1					
	24.0	11.1	25.2	65/55	69900	55800	3.149	80600	22.2	64100	5.239	46200	92	3.58
		11.1	25.2	70/59	73800	54700	3.189	84700	23.1	63800	5.428	45300	96	3.44
		11.1	25.2	75/63	77800	56100	3.232	88800	24.1	63400	5.663	44100	100	3.28
		11.1	25.2	80/67	81800	57400	3.274	93000	25.0	63100	5.899	43000	105	3.13
		11.1	25.2	85/71	85700	58800	3.316	97000	25.8					
40	12.0	3.5	8.0	65/55	70900	56800	3.688	83500	19.2	62000	5.189	44300	91	3.50
		3.5	8.0	70/59	74800	55700	3.728	87500	20.1	61700	5.377	43300	95	3.36
		3.5	8.0	75/63	78800	57000	3.770	91700	20.9	61300	5.613	42100	100	3.20
		3.5	8.0	80/67	82700	58400	3.813	95700	21.7	60900	5.848	40900	104	3.05
		3.5	8.0	85/71	86700	59700	3.855	99900	22.5					
	18.0	6.7	15.4	65/55	71500	57000	3.618	83800	19.8	67100	5.289	49000	93	3.71
		6.7	15.4	70/59	75400	55900	3.658	87900	20.6	66800	5.478	48100	97	3.57
		6.7	15.4	75/63	79400	57300	3.700	92000	21.5	66400	5.713	46900	102	3.40
		6.7	15.4	80/67	83300	58600	3.743	96100	22.3	66100	5.949	45800	106	3.25
		6.7	15.4	85/71	87300	60000	3.785	100200	23.1					
	24.0	10.7	24.5	65/55	72100	57300	3.548	84200	20.3	72300	5.390	53900	95	3.93
		10.7	24.5	70/59	76000	56200	3.588	88200	21.2	72000	5.579	53000	99	3.78
		10.7	24.5	75/63	80000	57500	3.631	92400	22.0	71600	5.814	51800	104	3.61
		10.7	24.5	80/67	83900	58900	3.673	96400	22.8	71200	6.050	50600	109	3.45
		10.7	24.5	85/71	87900	60200	3.715	100600	23.7					
50	12.0	3.4	7.8	65/55	70700	56700	4.086	84600	17.3	70100	5.340	51900	94	3.84
		3.4	7.8	70/59	74600	55700	4.126	88700	18.1	69800	5.528	50900	98	3.70
		3.4	7.8	75/63	78600	57000	4.168	92800	18.9	69400	5.764	49700	103	3.53
		3.4	7.8	80/67	82600	58300	4.210	97000	19.6	69100	5.999	48600	108	3.37
		3.4	7.8	85/71	86500	59700	4.253	101000	20.3					
	18.0	6.6	15.0	65/55	71300	57000	4.016	85000	17.8	75300	5.440	56700	96	4.05
		6.6	15.0	70/59	75200	55900	4.056	89000	18.5	75000	5.629	55800	100	3.90
		6.6	15.0	75/63	79200	57200	4.098	93200	19.3	74600	5.864	54600	105	3.73
		6.6	15.0	80/67	83200	58600	4.140	97300	20.1	74200	6.100	53400	110	3.56
		6.6	15.0	85/71	87100	59900	4.183	101400	20.8					
	24.0	10.5	23.9	65/55	71900	57200	3.946	85400	18.2	80500	5.541	61600	98	4.25
		10.5	23.9	70/59	75800	56100	3.986	89400	19.0	80200	5.730	60600	102	4.10
		10.5	23.9	75/63	79800	57500	4.028	93500	19.8	79800	5.965	59400	107	3.92
		10.5	23.9	80/67	83800	58800	4.071	97700	20.6	79400	6.201	58200	112	3.75
		10.5	23.9	85/71	87700	60100	4.113	101700	21.3					
60	12.0	3.3	7.6	65/55	68700	55500	4.501	84100	15.3	78300	5.491	59600	97	4.18
		3.3	7.6	70/59	72600	54400	4.540	88100	16.0	78000	5.679	58600	101	4.02
		3.3	7.6	75/63	76600	55700	4.583	92200	16.7	77600	5.915	57400	106	3.84
		3.3	7.6	80/67	80600	57100	4.625	96400	17.4	77200	6.150	56200	111	3.68
		3.3	7.6	85/71	84500	58400	4.667	100400	18.1					
	18.0	6.4	14.6	65/55	69300	55700	4.431	84400	15.6	83500	5.591	64400	99	4.37
		6.4	14.6	70/59	73200	54600	4.471	88500	16.4	83200	5.780	63500	103	4.21
		6.4	14.6	75/63	77200	56000	4.513	92600	17.1	82800	6.015	62300	108	4.03
		6.4	14.6	80/67	81200	57300	4.555	96700	17.8	82400	6.251	61100	113	3.86
		6.4	14.6	85/71	85100	58600	4.597	100800	18.5					
	24.0	10.2	23.3	65/55	69900	55900	4.361	84800	16.0	88600	5.692	69200	101	4.56
		10.2	23.3	70/59	73800	54900	4.401	88800	16.8	88300	5.881	68200	105	4.40
		10.2	23.3	75/63	77800	56200	4.443	93000	17.5	87900	6.116	67000	110	4.21
		10.2	23.3	80/67	81800	57500	4.485	97100	18.2	87600	6.352	65900	115	4.04
		10.2	23.3	85/71	85700	58900	4.528	101200	18.9					

Size 072 (2300 SCFM) (continued)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
70	12.0	3.3	7.4	65/55	65400	53300	4.950	82300	13.2	86500	5.642	67200	101	4.49
		3.3	7.4	70/59	69300	52200	4.990	86300	13.9	86200	5.830	66300	105	4.33
		3.3	7.4	75/63	73300	53500	5.032	90500	14.6	85800	6.066	65100	109	4.14
		3.3	7.4	80/67	77300	54900	5.075	94600	15.2	85400	6.301	63900	114	3.97
		3.3	7.4	85/71	81200	56200	5.117	98700	15.9					
	18.0	6.3	14.3	65/55	66000	53500	4.880	82700	13.5	91600	5.742	72000	103	4.67
		6.3	14.3	70/59	69900	52400	4.920	86700	14.2	91300	5.931	71100	107	4.51
		6.3	14.3	75/63	73900	53800	4.962	90800	14.9	90900	6.166	69900	111	4.32
		6.3	14.3	80/67	77800	55100	5.005	94900	15.5	90600	6.402	68700	116	4.14
		6.3	14.3	85/71	81800	56400	5.047	99000	16.2					
	24.0	10.0	22.8	65/55	66600	53700	4.810	83000	13.8	96800	5.843	76900	105	4.85
		10.0	22.8	70/59	70500	52700	4.850	87100	14.5	96500	6.032	75900	109	4.68
		10.0	22.8	75/63	74500	54000	4.893	91200	15.2	96100	6.267	74700	113	4.49
		10.0	22.8	80/67	78400	55300	4.935	95200	15.9	95700	6.503	73500	118	4.31
		10.0	22.8	85/71	82400	56700	4.977	99400	16.6					
80	12.0	3.2	7.3	65/55	61300	50500	5.453	79900	11.2	94600	5.793	74800	104	4.78
		3.2	7.3	70/59	65200	49400	5.492	83900	11.9	94300	5.981	73900	108	4.62
		3.2	7.3	75/63	69200	50700	5.535	88100	12.5	93900	6.217	72700	113	4.42
		3.2	7.3	80/67	73200	52000	5.577	92200	13.1	93600	6.452	71600	117	4.25
		3.2	7.3	85/71	77100	53400	5.619	96300	13.7					
	18.0	6.2	14.0	65/55	61900	50700	5.383	80300	11.5	99800	5.893	79700	106	4.96
		6.2	14.0	70/59	65800	49600	5.423	84300	12.1	99500	6.082	78700	110	4.79
		6.2	14.0	75/63	69800	51000	5.465	88500	12.8	99100	6.317	77500	115	4.59
		6.2	14.0	80/67	73800	52300	5.507	92600	13.4	98700	6.553	76300	120	4.41
		6.2	14.0	85/71	77700	53600	5.549	96600	14.0					
	24.0	9.8	22.4	65/55	62500	50900	5.313	80600	11.8	105000	5.994	84500	108	5.13
		9.8	22.4	70/59	66400	49900	5.353	84700	12.4	104700	6.183	83600	112	4.96
		9.8	22.4	75/63	70400	51200	5.395	88800	13.0	104300	6.418	82400	117	4.76
		9.8	22.4	80/67	74400	52500	5.437	93000	13.7	103900	6.654	81200	122	4.57
		9.8	22.4	85/71	78300	53900	5.480	97000	14.3					
90	12.0	3.1	7.2	65/55	56900	47300	6.026	77500	9.4	102800	5.944	82500	107	5.06
		3.1	7.2	70/59	60900	46200	6.066	81600	10.0	102500	6.132	81600	111	4.89
		3.1	7.2	75/63	64800	47600	6.108	85600	10.6	102100	6.368	80400	116	4.69
		3.1	7.2	80/67	68800	48900	6.150	89800	11.2	101700	6.603	79200	121	4.51
		3.1	7.2	85/71	72800	50200	6.193	93900	11.8					
	18.0	6.1	13.8	65/55	57500	47500	5.956	77800	9.7	108000	6.044	87400	109	5.23
		6.1	13.8	70/59	61500	46500	5.996	82000	10.3	107700	6.233	86400	113	5.06
		6.1	13.8	75/63	65400	47800	6.038	86000	10.8	107300	6.468	85200	118	4.86
		6.1	13.8	80/67	69400	49100	6.080	90200	11.4	106900	6.704	84000	123	4.67
		6.1	13.8	85/71	73400	50500	6.123	94300	12.0					
	24.0	9.6	22.0	65/55	58100	47800	5.886	78200	9.9	113100	6.145	92100	111	5.39
		9.6	22.0	70/59	62100	46700	5.926	82300	10.5	112800	6.334	91200	115	5.21
		9.6	22.0	75/63	66000	48000	5.968	86400	11.1	112400	6.569	90000	120	5.01
		9.6	22.0	80/67	70000	49400	6.011	90500	11.6	112100	6.805	88900	125	4.82
		9.6	22.0	85/71	74000	50700	6.053	94700	12.2					
100	12.0	3.1	7.1	65/55	52800	44100	6.688	75600	7.9					
		3.1	7.1	70/59	56800	43000	6.728	79800	8.4					
		3.1	7.1	75/63	60700	44400	6.770	83800	9.0					
		3.1	7.1	80/67	64700	45700	6.812	87900	9.5					
		3.1	7.1	85/71	68700	47100	6.855	92100	10.0					
	18.0	6.0	13.6	65/55	53400	44400	6.618	76000	8.1					
		6.0	13.6	70/59	57400	43300	6.658	80100	8.6					
		6.0	13.6	75/63	61300	44600	6.700	84200	9.1					
		6.0	13.6	80/67	65300	46000	6.743	88300	9.7					
		6.0	13.6	85/71	69300	47300	6.785	92500	10.2					
	24.0	9.5	21.7	65/55	54000	44600	6.548	76300	8.2					
		9.5	21.7	70/59	58000	43500	6.588	80500	8.8					
		9.5	21.7	75/63	61900	44900	6.630	84500	9.3					
		9.5	21.7	80/67	65900	46200	6.673	88700	9.9					
		9.5	21.7	85/71	69900	47500	6.715	92800	10.4					
110	12.0	3.1	7.0	65/55	49500	41200	7.457	75000	6.6					
		3.1	7.0	70/59	53400	40100	7.497	79000	7.1					
		3.1	7.0	75/63	57400	41500	7.539	83100	7.6					
		3.1	7.0	80/67	61400	42800	7.582	87300	8.1					
		3.1	7.0	85/71	65400	44100	7.624	91400	8.6					
	18.0	5.9	13.5	65/55	50100	41400	7.387	75300	6.8					
		5.9	13.5	70/59	54000	40400	7.427	79300	7.3					
		5.9	13.5	75/63	58000	41700	7.469	83500	7.8					
		5.9	13.5	80/67	62000	43000	7.512	87600	8.3					
		5.9	13.5	85/71	65900	44400	7.554	91700	8.7					
	24.0	9.4	21.5	65/55	50700	41700	7.317	75700	6.9					
		9.4	21.5	70/59	54600	40600	7.357	79700	7.4					
		9.4	21.5	75/63	58600	41900	7.400	83900	7.9					
		9.4	21.5	80/67	62600	43300	7.442	88000	8.4					
		9.4	21.5	85/71	66500	44600	7.484	92000	8.9					

Tint = Operation Not Recommended

Notes:

1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
3. See performance correction tables for operating conditions other than those listed.
4. Interpolation is permissible; extrapolation is not.
5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program
6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
7. Data is base on unit at full load operation.

Size 096 (3000 SCFM)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
20	16.0	5.9	13.5	65/55	Tint = Operation Not Recommended Refer to "Capacity table legend" on page 67					55200	5.243	37300	82	3.08
		5.9	13.5	70/59						54500	5.585	35400	87	2.86
		5.9	13.5	75/63						53800	5.926	33600	92	2.66
		5.9	13.5	80/67						53000	6.267	31600	96	2.48
		5.9	13.5	85/71										
	24.0	11.4	26.1	65/55						64400	5.423	45900	85	3.48
		11.4	26.1	70/59						63700	5.764	44000	90	3.24
		11.4	26.1	75/63						62900	6.105	42100	94	3.02
		11.4	26.1	80/67						62200	6.446	40200	99	2.83
		11.4	26.1	85/71										
	32.0	18.2	41.5	65/55						73500	5.602	54400	88	3.84
		18.2	41.5	70/59						72800	5.943	52500	92	3.59
		18.2	41.5	75/63						72100	6.284	50700	97	3.36
		18.2	41.5	80/67						71400	6.626	48800	102	3.16
		18.2	41.5	85/71										
30	16.0	5.7	13.1	65/55						63800	5.403	45400	85	3.46
		5.7	13.1	70/59	90500	67000	3.217	101500	28.1	63100	5.745	43500	89	3.22
		5.7	13.1	75/63	96000	69200	3.275	107200	29.3	62400	6.086	41600	94	3.00
		5.7	13.1	80/67	101600	71500	3.334	113000	30.5	61700	6.427	39800	99	2.81
		5.7	13.1	85/71	107100	73700	3.392	118700	31.6					
	24.0	11.1	25.2	65/55	86100	65200	3.035	96500	28.4	73000	5.583	53900	87	3.83
		11.1	25.2	70/59	91600	67400	3.094	102200	29.6	72300	5.924	52100	92	3.57
		11.1	25.2	75/63	97100	69600	3.152	107900	30.8	71600	6.265	50200	97	3.35
		11.1	25.2	80/67	102600	71900	3.210	113600	32.0	70900	6.606	48400	102	3.14
		11.1	25.2	85/71	108100	74100	3.269	119300	33.1					
	32.0	17.6	40.2	65/55	87100	65600	2.912	97000	29.9	82200	5.762	62500	90	4.18
		17.6	40.2	70/59	92700	67800	2.970	102800	31.2	81500	6.103	60700	95	3.91
		17.6	40.2	75/63	98200	70100	3.029	108500	32.4	80800	6.444	58800	100	3.67
		17.6	40.2	80/67	103700	72300	3.087	114200	33.6	80000	6.786	56800	105	3.45
		17.6	40.2	85/71	109200	74500	3.145	119900	34.7					
40	16.0	5.6	12.7	65/55	84600	63900	3.777	97500	22.4	72500	5.563	53500	87	3.82
		5.6	12.7	70/59	90100	66200	3.835	103200	23.5	71800	5.905	51600	92	3.56
		5.6	12.7	75/63	95600	68400	3.894	108900	24.6	71000	6.246	49700	97	3.33
		5.6	12.7	80/67	101100	70600	3.952	114600	25.6	70300	6.587	47800	102	3.13
		5.6	12.7	85/71	106600	72900	4.011	120300	26.6					
	24.0	10.7	24.5	65/55	85600	64400	3.654	98100	23.4	81600	5.743	62000	90	4.16
		10.7	24.5	70/59	91100	66600	3.712	103800	24.5	80900	6.084	60100	95	3.89
		10.7	24.5	75/63	96700	68800	3.770	109600	25.6	80200	6.425	58300	100	3.66
		10.7	24.5	80/67	102200	71100	3.829	115300	26.7	79500	6.766	56400	104	3.44
		10.7	24.5	85/71	107700	73300	3.887	121000	27.7					
	32.0	17.1	39.0	65/55	86700	64800	3.530	98700	24.6	90800	5.922	70600	93	4.49
		17.1	39.0	70/59	92200	67000	3.589	104400	25.7	90100	6.263	68700	98	4.21
		17.1	39.0	75/63	97700	69300	3.647	110100	26.8	89400	6.604	66900	102	3.96
		17.1	39.0	80/67	103200	71500	3.705	115800	27.9	88700	6.946	65000	107	3.74
		17.1	39.0	85/71	108800	73700	3.764	121600	28.9					
50	16.0	5.4	12.4	65/55	82800	62400	4.395	97800	18.8	81100	5.723	61600	90	4.15
		5.4	12.4	70/59	88300	64600	4.454	103500	19.8	80400	6.065	59700	95	3.88
		5.4	12.4	75/63	93800	66900	4.512	109200	20.8	79700	6.406	57800	99	3.64
		5.4	12.4	80/67	99300	69100	4.571	114900	21.7	79000	6.747	56000	104	3.43
		5.4	12.4	85/71	104900	71300	4.629	120700	22.7					
	24.0	10.5	23.9	65/55	83900	62800	4.272	98500	19.6	90300	5.903	70200	93	4.48
		10.5	23.9	70/59	89400	65100	4.330	104200	20.6	89600	6.244	68300	98	4.20
		10.5	23.9	75/63	94900	67300	4.389	109900	21.6	88900	6.585	66400	102	3.95
		10.5	23.9	80/67	100400	69500	4.447	115600	22.6	88100	6.926	64500	107	3.72
		10.5	23.9	85/71	105900	71800	4.506	121300	23.5					
	32.0	16.6	38.0	65/55	84900	63200	4.149	99100	20.5	99500	6.082	78700	96	4.79
		16.6	38.0	70/59	90400	65500	4.207	104800	21.5	98800	6.423	76900	100	4.50
		16.6	38.0	75/63	96000	67700	4.265	110600	22.5	98000	6.764	74900	105	4.24
		16.6	38.0	80/67	101500	70000	4.324	116300	23.5	97300	7.106	73000	110	4.01
		16.6	38.0	85/71	107000	72200	4.382	122000	24.4					
60	16.0	5.3	12.1	65/55	79900	60400	5.014	97000	15.9	89700	5.883	69600	93	4.46
		5.3	12.1	70/59	85400	62600	5.072	102700	16.8	89000	6.225	67800	97	4.19
		5.3	12.1	75/63	91000	64800	5.131	108500	17.7	88300	6.566	65900	102	3.94
		5.3	12.1	80/67	96500	67100	5.189	114200	18.6	87600	6.907	64000	107	3.71
		5.3	12.1	85/71	102000	69300	5.247	119900	19.4					
	24.0	10.2	23.3	65/55	81000	60800	4.890	97700	16.6	98900	6.063	78200	95	4.78
		10.2	23.3	70/59	86500	63000	4.949	103400	17.5	98200	6.404	76300	100	4.49
		10.2	23.3	75/63	92000	65300	5.007	109100	18.4	97500	6.745	74500	105	4.23
		10.2	23.3	80/67	97500	67500	5.066	114800	19.2	96800	7.086	72600	110	4.00
		10.2	23.3	85/71	103100	69700	5.124	120600	20.1					
	32.0	16.2	37.1	65/55	82100	61200	4.767	98400	17.2	108100	6.242	86800	98	5.07
		16.2	37.1	70/59	87600	63500	4.825	104100	18.2	107400	6.583	84900	103	4.78
		16.2	37.1	75/63	93100	65700	4.884	109800	19.1	106700	6.924	83100	108	4.51
		16.2	37.1	80/67	98600	67900	4.942	115500	20.0	106000	7.266	81200	113	4.27
		16.2	37.1	85/71	104100	70200	5.001	121200	20.8					

Size 096 (3000 SCFM) (continued)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
70	16.0	5.2	11.8	65/55	76200	58100	5.632	95400	13.5	98400	6.043	77800	95	4.77
		5.2	11.8	70/59	81700	60300	5.691	101100	14.4	97700	6.385	75900	100	4.48
		5.2	11.8	75/63	87200	62600	5.749	106800	15.2	97000	6.726	74000	105	4.22
		5.2	11.8	80/67	92800	64800	5.807	112600	16.0	96200	7.067	72100	110	3.99
		5.2	11.8	85/71	98300	67000	5.866	118300	16.8					
	24.0	10.0	22.8	65/55	77300	58500	5.509	96100	14.0	107600	6.223	86400	98	5.06
		10.0	22.8	70/59	82800	60800	5.567	101800	14.9	106900	6.564	84500	103	4.77
		10.0	22.8	75/63	88300	63000	5.626	107500	15.7	106100	6.905	82500	108	4.50
		10.0	22.8	80/67	93800	65200	5.684	113200	16.5	105400	7.246	80700	112	4.26
		10.0	22.8	85/71	99300	67500	5.742	118900	17.3					
	32.0	15.9	36.3	65/55	78400	59000	5.385	96800	14.6	116700	6.402	94800	101	5.34
		15.9	36.3	70/59	83900	61200	5.444	102500	15.4	116000	6.743	93000	106	5.04
		15.9	36.3	75/63	89400	63400	5.502	108200	16.2	115300	7.084	91100	110	4.77
		15.9	36.3	80/67	94900	65700	5.561	113900	17.1	114600	7.426	89300	115	4.52
		15.9	36.3	85/71	100400	67900	5.619	119600	17.9					
80	16.0	5.1	11.6	65/55	71900	55900	6.251	93200	11.5	107000	6.203	85800	98	5.05
		5.1	11.6	70/59	77400	58100	6.309	98900	12.3	106300	6.545	84000	103	4.76
		5.1	11.6	75/63	82900	60300	6.367	104600	13.0	105600	6.886	82100	107	4.49
		5.1	11.6	80/67	88400	62600	6.426	110300	13.8	104900	7.227	80200	112	4.25
		5.1	11.6	85/71	93900	64800	6.484	116000	14.5					
	24.0	9.8	22.4	65/55	72900	56300	6.127	93800	11.9	116200	6.383	94400	101	5.33
		9.8	22.4	70/59	78400	58500	6.186	99500	12.7	115500	6.724	92600	105	5.03
		9.8	22.4	75/63	84000	60800	6.244	105300	13.5	114800	7.065	90700	110	4.76
		9.8	22.4	80/67	89500	63000	6.302	111000	14.2	114100	7.406	88800	115	4.51
		9.8	22.4	85/71	95000	65200	6.361	116700	14.9					
	32.0	15.6	35.6	65/55	74000	56700	6.004	94500	12.3	125400	6.562	103000	103	5.60
		15.6	35.6	70/59	79500	58900	6.062	100200	13.1	124700	6.903	101100	108	5.29
		15.6	35.6	75/63	85000	61200	6.121	105900	13.9	124000	7.244	99300	113	5.01
		15.6	35.6	80/67	90600	63400	6.179	111700	14.7	123200	7.586	97300	118	4.76
		15.6	35.6	85/71	96100	65700	6.237	117400	15.4					
90	16.0	5.0	11.4	65/55	67100	53900	6.869	90500	9.8	115700	6.363	94000	101	5.32
		5.0	11.4	70/59	72600	56100	6.927	96200	10.5	115000	6.705	92100	105	5.02
		5.0	11.4	75/63	78100	58400	6.986	101900	11.2	114200	7.046	90200	110	4.75
		5.0	11.4	80/67	83700	60600	7.044	107700	11.9	113500	7.387	88300	115	4.50
		5.0	11.4	85/71	89200	62800	7.103	113400	12.6					
	24.0	9.6	22.0	65/55	68200	54300	6.746	91200	10.1	124800	6.543	102500	103	5.59
		9.6	22.0	70/59	73700	56600	6.804	96900	10.8	124100	6.884	100600	108	5.28
		9.6	22.0	75/63	79200	58800	6.862	102600	11.5	123400	7.225	98700	113	5.00
		9.6	22.0	80/67	84700	61000	6.921	108300	12.2	122700	7.566	96900	118	4.75
		9.6	22.0	85/71	90200	63300	6.979	114000	12.9					
	32.0	15.4	35.0	65/55	69200	54800	6.622	91800	10.5	134000	6.722	111100	106	5.84
		15.4	35.0	70/59	74800	57000	6.681	97600	11.2	133300	7.063	109200	111	5.53
		15.4	35.0	75/63	80300	59200	6.739	103300	11.9	132600	7.404	107300	116	5.24
		15.4	35.0	80/67	85800	61500	6.797	109000	12.6	131900	7.746	105500	120	4.99
		15.4	35.0	85/71	91300	63700	6.856	114700	13.3					
100	16.0	4.9	11.3	65/55	62200	52500	7.487	87800	8.3					
		4.9	11.3	70/59	67700	54700	7.546	93500	9.0					
		4.9	11.3	75/63	73200	56900	7.604	99200	9.6					
		4.9	11.3	80/67	78700	59200	7.663	104900	10.3					
		4.9	11.3	85/71	84200	61400	7.721	110600	10.9					
	24.0	9.5	21.7	65/55	63300	52900	7.364	88400	8.6					
		9.5	21.7	70/59	68800	55100	7.422	94100	9.3					
		9.5	21.7	75/63	74300	57400	7.481	99800	9.9					
		9.5	21.7	80/67	79800	59600	7.539	105500	10.6					
		9.5	21.7	85/71	85300	61800	7.598	111200	11.2					
	32.0	15.1	34.5	65/55	64300	53300	7.241	89000	8.9					
		15.1	34.5	70/59	69800	55600	7.299	94700	9.6					
		15.1	34.5	75/63	75400	57800	7.357	100500	10.2					
		15.1	34.5	80/67	80900	60000	7.416	106200	10.9					
		15.1	34.5	85/71	86400	62300	7.474	111900	11.6					
110	16.0	4.9	11.1	65/55	57300	51800	8.106	85000	7.1					
		4.9	11.1	70/59	62800	54100	8.164	90700	7.7					
		4.9	11.1	75/63	68300	56300	8.223	96400	8.3					
		4.9	11.1	80/67	73900	58500	8.281	102200	8.9					
		4.9	11.1	85/71	79400	60800	8.339	107900	9.5					
	24.0	9.4	21.5	65/55	58400	52300	7.982	85600	7.3					
		9.4	21.5	70/59	63900	54500	8.041	91300	7.9					
		9.4	21.5	75/63	69400	56700	8.099	97000	8.6					
		9.4	21.5	80/67	74900	59000	8.158	102700	9.2					
		9.4	21.5	85/71	80400	61200	8.216	108400	9.8					
	32.0	15.0	34.2	65/55	59500	52700	7.859	86300	7.6					
		15.0	34.2	70/59	65000	54900	7.917	92000	8.2					
		15.0	34.2	75/63	70500	57100	7.976	97700	8.8					
		15.0	34.2	80/67	76000	59400	8.034	103400	9.5					
		15.0	34.2	85/71	81500	61600	8.093	109100	10.1					

Tint = Operation Not Recommended

Notes:

1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
3. See performance correction tables for operating conditions other than those listed.
4. Interpolation is permissible; extrapolation is not.
5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program
6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
7. Data is base on unit at full load operation.

Size 120 (4000 SCFM)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
20	20.0	3.6	8.1	65/55	Tint = Operation Not Recommended Refer to "Capacity table legend" on page 67					70100	7.179	45600	81	2.86
		3.6	8.1	70/59						69200	7.612	43200	86	2.66
		3.6	8.1	75/63						68300	8.045	40800	91	2.49
		3.6	8.1	80/67						67400	8.477	38500	96	2.33
		3.6	8.1	85/71										
	30.0	7.0	15.9	65/55						84400	7.459	58900	84	3.31
		7.0	15.9	70/59						83500	7.892	56600	89	3.10
		7.0	15.9	75/63						82600	8.325	54200	94	2.91
		7.0	15.9	80/67						81700	8.757	51800	99	2.73
		7.0	15.9	85/71										
	40.0	11.2	25.6	65/55						98700	7.739	72300	88	3.73
		11.2	25.6	70/59						97900	8.172	70000	93	3.51
		11.2	25.6	75/63						97000	8.605	67600	97	3.30
		11.2	25.6	80/67						96100	9.037	65300	102	3.11
		11.2	25.6	85/71										
30	20.0	3.4	7.8	65/55						84600	7.449	59200	84	3.33
		3.4	7.8	70/59	118800	88700	5.516	137600	21.5	83700	7.882	56800	89	3.11
		3.4	7.8	75/63	125500	91600	5.589	144600	22.5	82800	8.315	54400	94	2.92
		3.4	7.8	80/67	132300	94400	5.662	151600	23.4	81900	8.747	52000	99	2.74
		3.4	7.8	85/71	139100	97300	5.734	158700	24.3					
	30.0	6.7	15.4	65/55	113700	86400	5.250	131600	21.7	98900	7.729	72500	88	3.75
		6.7	15.4	70/59	120400	89300	5.322	138600	22.6	98000	8.162	70100	93	3.52
		6.7	15.4	75/63	127200	92200	5.395	145600	23.6	97100	8.595	67800	97	3.31
		6.7	15.4	80/67	134000	95100	5.468	152700	24.5	96200	9.027	65400	102	3.12
		6.7	15.4	85/71	140700	98000	5.540	159600	25.4					
	40.0	10.9	24.8	65/55	115300	87100	5.056	132600	22.8	113300	8.009	86000	91	4.14
		10.9	24.8	70/59	122100	90000	5.128	139600	23.8	112400	8.442	83600	96	3.90
		10.9	24.8	75/63	128900	92900	5.201	146700	24.8	111500	8.875	81200	101	3.68
		10.9	24.8	80/67	135600	95800	5.274	153600	25.7	110600	9.307	78800	105	3.48
		10.9	24.8	85/71	142400	98700	5.346	160600	26.6					
40	20.0	3.3	7.6	65/55	114100	87300	5.926	134300	19.3	99100	7.719	72800	88	3.76
		3.3	7.6	70/59	120900	90200	5.998	141400	20.2	98200	8.152	70400	93	3.53
		3.3	7.6	75/63	127600	93100	6.071	148300	21.0	97300	8.585	68000	97	3.32
		3.3	7.6	80/67	134400	96000	6.144	155400	21.9	96400	9.017	65600	102	3.13
		3.3	7.6	85/71	141100	98900	6.216	162300	22.7					
	30.0	6.5	14.9	65/55	115800	88000	5.732	135400	20.2	113400	7.999	86100	91	4.15
		6.5	14.9	70/59	122500	90900	5.804	142300	21.1	112600	8.432	83800	96	3.91
		6.5	14.9	75/63	129300	93800	5.877	149400	22.0	111700	8.865	81400	101	3.69
		6.5	14.9	80/67	136000	96700	5.950	156300	22.9	110800	9.297	79100	106	3.49
		6.5	14.9	85/71	142800	99600	6.022	163400	23.7					
	40.0	10.5	24.1	65/55	117400	88600	5.538	136300	21.2	127800	8.279	99500	94	4.52
		10.5	24.1	70/59	124200	91500	5.610	143300	22.1	126900	8.712	97200	99	4.27
		10.5	24.1	75/63	130900	94400	5.683	150300	23.0	126000	9.145	94800	104	4.03
		10.5	24.1	80/67	137700	97300	5.756	157300	23.9	125100	9.577	92400	109	3.82
		10.5	24.1	85/71	144500	100200	5.828	164400	24.8					
50	20.0	3.2	7.4	65/55	113400	86900	6.446	135400	17.6	113600	7.989	86300	91	4.16
		3.2	7.4	70/59	120100	89800	6.519	142300	18.4	112700	8.422	84000	96	3.92
		3.2	7.4	75/63	126900	92700	6.591	149400	19.3	111800	8.855	81600	101	3.70
		3.2	7.4	80/67	133700	95600	6.664	156400	20.1	110900	9.287	79200	106	3.50
		3.2	7.4	85/71	140400	98400	6.737	163400	20.8					
	30.0	6.4	14.5	65/55	115000	87500	6.252	136300	18.4	128000	8.269	99800	94	4.53
		6.4	14.5	70/59	121800	90400	6.325	143400	19.3	127100	8.702	97400	99	4.28
		6.4	14.5	75/63	128600	93300	6.397	150400	20.1	126200	9.135	95000	104	4.05
		6.4	14.5	80/67	135300	96200	6.470	157400	20.9	125300	9.567	92600	109	3.83
		6.4	14.5	85/71	142100	99100	6.543	164400	21.7					
	40.0	10.3	23.4	65/55	116700	88200	6.058	137400	19.3	142300	8.549	113100	98	4.87
		10.3	23.4	70/59	123500	91100	6.131	144400	20.1	141400	8.982	110700	103	4.61
		10.3	23.4	75/63	130200	94000	6.203	151400	21.0	140500	9.415	108400	107	4.37
		10.3	23.4	80/67	137000	96900	6.276	158400	21.8	139600	9.847	106000	112	4.15
		10.3	23.4	85/71	143700	99800	6.349	165400	22.6					
60	20.0	3.2	7.2	65/55	110400	85100	7.038	134400	15.7	128100	8.259	99900	94	4.54
		3.2	7.2	70/59	117200	88000	7.110	141500	16.5	127300	8.692	97600	99	4.29
		3.2	7.2	75/63	123900	90900	7.183	148400	17.2	126400	9.125	95300	104	4.06
		3.2	7.2	80/67	130700	93800	7.255	155500	18.0	125500	9.557	92900	109	3.85
		3.2	7.2	85/71	137400	96700	7.328	162400	18.8					
	30.0	6.2	14.2	65/55	112100	85800	6.844	135500	16.4	142500	8.539	113400	98	4.89
		6.2	14.2	70/59	118800	88700	6.916	142400	17.2	141600	8.972	111000	103	4.62
		6.2	14.2	75/63	125600	91600	6.989	149500	18.0	140700	9.405	108600	107	4.38
		6.2	14.2	80/67	132300	94400	7.061	156400	18.7	139800	9.837	106200	112	4.16
		6.2	14.2	85/71	139100	97300	7.134	163400	19.5					
	40.0	10.0	22.9	65/55	113700	86400	6.650	136400	17.1	156800	8.819	126700	101	5.21
		10.0	22.9	70/59	120500	89300	6.722	143400	17.9	155900	9.252	124300	106	4.93
		10.0	22.9	75/63	127200	92200	6.795	150400	18.7	155000	9.685	121900	111	4.69
		10.0	22.9	80/67	134000	95100	6.867	157400	19.5	154100	10.117	119600	115	4.46
		10.0	22.9	85/71	140800	98000	6.940	164500	20.3					

Size 120 (4000 SCFM) (continued)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
70	20.0	3.1	7.1	65/55	105700	82600	7.732	132100	13.7	142700	8.529	113600	98	4.90
		3.1	7.1	70/59	112500	85500	7.805	139100	14.4	141800	8.962	111200	103	4.63
		3.1	7.1	75/63	119200	88400	7.877	146100	15.1	140900	9.395	108800	107	4.39
		3.1	7.1	80/67	126000	91300	7.950	153100	15.8	140000	9.827	106500	112	4.17
		3.1	7.1	85/71	132800	94100	8.022	160200	16.6					
	30.0	6.1	13.9	65/55	107400	83200	7.538	133100	14.2	157000	8.809	126900	101	5.22
		6.1	13.9	70/59	114100	86100	7.611	140100	15.0	156100	9.242	124600	106	4.95
		6.1	13.9	75/63	120900	89000	7.683	147100	15.7	155200	9.675	122200	111	4.70
		6.1	13.9	80/67	127700	91900	7.756	154200	16.5	154300	10.107	119800	116	4.47
		6.1	13.9	85/71	134400	94800	7.828	161100	17.2					
	40.0	9.8	22.4	65/55	109000	83900	7.344	134100	14.8	171300	9.089	140300	104	5.52
		9.8	22.4	70/59	115800	86800	7.417	141100	15.6	170500	9.522	138000	109	5.24
		9.8	22.4	75/63	122600	89700	7.489	148200	16.4	169600	9.955	135600	114	4.99
		9.8	22.4	80/67	129300	92600	7.562	155100	17.1	168700	10.387	133200	119	4.76
		9.8	22.4	85/71	136100	95500	7.634	162200	17.8					
80	20.0	3.0	7.0	65/55	99900	79700	8.562	129100	11.7	157200	8.799	127200	101	5.23
		3.0	7.0	70/59	106700	82600	8.635	136200	12.4	156300	9.232	124800	106	4.96
		3.0	7.0	75/63	113400	85500	8.707	143100	13.0	155400	9.665	122400	111	4.71
		3.0	7.0	80/67	120200	88400	8.780	150200	13.7	154500	10.097	120000	116	4.48
		3.0	7.0	85/71	126900	91300	8.852	157100	14.3					
	30.0	6.0	13.6	65/55	101600	80400	8.368	130200	12.1	171500	9.079	140500	104	5.53
		6.0	13.6	70/59	108300	83300	8.441	137100	12.8	170600	9.512	138100	109	5.25
		6.0	13.6	75/63	115100	86200	8.513	144200	13.5	169700	9.945	135800	114	5.00
		6.0	13.6	80/67	121800	89100	8.586	151100	14.2	168800	10.377	133400	119	4.76
		6.0	13.6	85/71	128600	92000	8.658	158100	14.9					
	40.0	9.6	22.0	65/55	103200	81000	8.174	131100	12.6	185900	9.359	154000	108	5.82
		9.6	22.0	70/59	110000	83900	8.247	138100	13.3	185000	9.792	151600	113	5.53
		9.6	22.0	75/63	116700	86800	8.319	145100	14.0	184100	10.225	149200	117	5.27
		9.6	22.0	80/67	123500	89700	8.392	152100	14.7	183200	10.657	146800	122	5.03
		9.6	22.0	85/71	130300	92600	8.464	159200	15.4					
90	20.0	3.0	6.8	65/55	93500	76800	9.560	126100	9.8	171700	9.069	140700	105	5.54
		3.0	6.8	70/59	100300	79700	9.633	133200	10.4	170800	9.502	138400	109	5.26
		3.0	6.8	75/63	107000	82600	9.705	140100	11.0	169900	9.935	136000	114	5.01
		3.0	6.8	80/67	113800	85500	9.778	147200	11.6	169000	10.367	133600	119	4.77
		3.0	6.8	85/71	120600	88400	9.850	154200	12.2					
	30.0	5.9	13.4	65/55	95200	77500	9.366	127200	10.2	186000	9.349	154100	108	5.83
		5.9	13.4	70/59	101900	80400	9.439	134100	10.8	185200	9.782	151800	113	5.54
		5.9	13.4	75/63	108700	83300	9.511	141200	11.4	184300	10.215	149400	117	5.28
		5.9	13.4	80/67	115500	86200	9.584	148200	12.1	183400	10.647	147100	122	5.04
		5.9	13.4	85/71	122200	89100	9.656	155200	12.7					
	40.0	9.5	21.6	65/55	96800	78200	9.172	128100	10.6	200400	9.629	167500	111	6.09
		9.5	21.6	70/59	103600	81100	9.245	135200	11.2	199500	10.062	165200	116	5.81
		9.5	21.6	75/63	110400	83900	9.317	142200	11.8	198600	10.495	162800	121	5.54
		9.5	21.6	80/67	117100	86800	9.390	149100	12.5	197700	10.927	160400	126	5.30
		9.5	21.6	85/71	123900	89700	9.462	156200	13.1					
100	20.0	3.0	6.7	65/55	87100	74100	10.758	123800	8.1					
		3.0	6.7	70/59	93900	77000	10.831	130900	8.7					
		3.0	6.7	75/63	100600	79900	10.904	137800	9.2					
		3.0	6.7	80/67	107400	82800	10.976	144900	9.8					
		3.0	6.7	85/71	114100	85700	11.049	151800	10.3					
	30.0	5.8	13.2	65/55	88800	74800	10.564	124900	8.4					
		5.8	13.2	70/59	95500	77700	10.637	131800	9.0					
		5.8	13.2	75/63	102300	80600	10.710	138900	9.6					
		5.8	13.2	80/67	109000	83400	10.782	145800	10.1					
		5.8	13.2	85/71	115800	86300	10.855	152800	10.7					
	40.0	9.3	21.3	65/55	90400	75400	10.370	125800	8.7					
		9.3	21.3	70/59	97200	78300	10.443	132800	9.3					
		9.3	21.3	75/63	103900	81200	10.516	139800	9.9					
		9.3	21.3	80/67	110700	84100	10.588	146800	10.5					
		9.3	21.3	85/71	117500	87000	10.661	153900	11.0					
110	20.0	2.9	6.7	65/55	81200	71600	12.190	122800	6.7					
		2.9	6.7	70/59	88000	74500	12.262	129900	7.2					
		2.9	6.7	75/63	94700	77300	12.335	136800	7.7					
		2.9	6.7	80/67	101500	80200	12.407	143800	8.2					
		2.9	6.7	85/71	108300	83100	12.480	150900	8.7					
	30.0	5.7	13.1	65/55	82900	72200	11.996	123800	6.9					
		5.7	13.1	70/59	89600	75100	12.068	130800	7.4					
		5.7	13.1	75/63	96400	78000	12.141	137800	7.9					
		5.7	13.1	80/67	103200	80900	12.213	144900	8.5					
		5.7	13.1	85/71	109900	83800	12.286	151800	8.9					
	40.0	9.2	21.1	65/55	84500	72900	11.802	124800	7.2					
		9.2	21.1	70/59	91300	75800	11.874	131800	7.7					
		9.2	21.1	75/63	98100	78700	11.947	138900	8.2					
		9.2	21.1	80/67	104800	81600	12.019	145800	8.7					
		9.2	21.1	85/71	111600	84400	12.092	152900	9.2					

Tint = Operation Not Recommended

Notes:

1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
3. See performance correction tables for operating conditions other than those listed.
4. Interpolation is permissible; extrapolation is not.
5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program
6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
7. Data is base on unit at full load operation.

Size 180 (6000 SCFM)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
20	30.0	6.7	15.4	65/55	Tint = Operation Not Recommended Refer to "Capacity table legend" on page 67					78900	10.074	44500	77	2.29
		6.7	15.4	70/59						77500	10.735	40900	82	2.11
		6.7	15.4	75/63						76200	11.395	37300	87	1.96
		6.7	15.4	80/67						74800	12.056	33700	91	1.82
		6.7	15.4	85/71										
	45.0	13.7	31.4	65/55						111100	10.704	74600	82	3.04
		13.7	31.4	70/59						109800	11.365	71000	87	2.83
		13.7	31.4	75/63						108400	12.025	67400	92	2.64
		13.7	31.4	80/67						107100	12.686	63800	96	2.47
		13.7	31.4	85/71										
	60.0	22.8	52.0	65/55						143400	11.334	104700	87	3.70
		22.8	52.0	70/59						142000	11.995	101100	92	3.47
		22.8	52.0	75/63						140700	12.655	97500	97	3.26
		22.8	52.0	80/67						139300	13.316	93900	101	3.06
		22.8	52.0	85/71										
30	30.0	6.5	14.9	65/55						100500	10.575	64400	80	2.78
		6.5	14.9	70/59	161600	114800	8.675	191200	18.6	99100	11.235	60800	85	2.58
		6.5	14.9	75/63	171500	119400	8.783	201500	19.5	97800	11.896	57200	90	2.41
		6.5	14.9	80/67	181500	123900	8.890	211800	20.4	96400	12.557	53500	95	2.25
		6.5	14.9	85/71	191500	128500	8.997	222200	21.3					
	45.0	13.3	30.4	65/55	155300	111700	8.132	183100	19.1	132700	11.205	94500	85	3.47
		13.3	30.4	70/59	165300	116300	8.239	193400	20.1	131400	11.865	90900	90	3.24
		13.3	30.4	75/63	175300	120800	8.346	203800	21.0	130000	12.526	87200	95	3.04
		13.3	30.4	80/67	185200	125400	8.453	214100	21.9	128700	13.187	83700	100	2.86
		13.3	30.4	85/71	195200	130000	8.560	224400	22.8					
	60.0	22.1	50.4	65/55	159100	113200	7.695	185400	20.7	165000	11.835	124600	90	4.08
		22.1	50.4	70/59	169000	117800	7.802	195600	21.7	163700	12.495	121100	95	3.84
		22.1	50.4	75/63	179000	122300	7.910	206000	22.6	162300	13.156	117400	100	3.61
		22.1	50.4	80/67	189000	126900	8.017	216400	23.6	160900	13.817	113700	105	3.41
		22.1	50.4	85/71	199000	131500	8.124	226700	24.5					
40	30.0	6.3	14.5	65/55	157000	113200	9.549	189600	16.4	122100	11.075	84300	84	3.23
		6.3	14.5	70/59	167000	117800	9.657	200000	17.3	120700	11.736	80600	89	3.01
		6.3	14.5	75/63	176900	122400	9.764	210200	18.1	119400	12.397	77100	93	2.82
		6.3	14.5	80/67	186900	126900	9.871	220600	18.9	118000	13.057	73400	98	2.65
		6.3	14.5	85/71	196900	131500	9.978	231000	19.7					
	45.0	12.9	29.5	65/55	160700	114700	9.113	191800	17.6	154400	11.705	114500	89	3.86
		12.9	29.5	70/59	170700	119300	9.220	202200	18.5	153000	12.366	110800	93	3.62
		12.9	29.5	75/63	180700	123900	9.327	212500	19.4	151600	13.027	107100	98	3.41
		12.9	29.5	80/67	190700	128400	9.434	222900	20.2	150300	13.687	103600	103	3.22
		12.9	29.5	85/71	200600	133000	9.542	233200	21.0					
	60.0	21.4	48.9	65/55	164500	116200	8.676	194100	19.0	186600	12.335	144500	94	4.43
		21.4	48.9	70/59	174400	120800	8.784	204400	19.9	185300	12.996	140900	98	4.17
		21.4	48.9	75/63	184400	125300	8.891	214700	20.7	183900	13.657	137300	103	3.94
		21.4	48.9	80/67	194400	129900	8.998	225100	21.6	182500	14.317	133600	108	3.73
		21.4	48.9	85/71	204400	134500	9.105	235500	22.4					
50	30.0	6.2	14.1	65/55	159300	115500	10.531	195200	15.1	143700	11.576	104200	87	3.63
		6.2	14.1	70/59	169300	120100	10.638	205600	15.9	142300	12.237	100500	92	3.40
		6.2	14.1	75/63	179200	124700	10.745	215900	16.7	141000	12.897	97000	97	3.20
		6.2	14.1	80/67	189200	129300	10.852	226200	17.4	139600	13.558	93300	101	3.01
		6.2	14.1	85/71	199200	133800	10.959	236600	18.2					
	45.0	12.6	28.7	65/55	163000	117000	10.094	197500	16.1	176000	12.206	134300	92	4.22
		12.6	28.7	70/59	173000	121600	10.201	207800	17.0	174600	12.867	130700	97	3.97
		12.6	28.7	75/63	183000	126200	10.308	218200	17.8	173300	13.527	127100	102	3.75
		12.6	28.7	80/67	192900	130800	10.416	228400	18.5	171900	14.188	123500	106	3.55
		12.6	28.7	85/71	202900	135300	10.523	238800	19.3					
	60.0	20.9	47.6	65/55	166800	118500	9.658	199800	17.3	208200	12.836	164400	97	4.75
		20.9	47.6	70/59	176700	123100	9.765	210000	18.1	206900	13.497	160800	102	4.49
		20.9	47.6	75/63	186700	127700	9.872	220400	18.9	205500	14.157	157200	107	4.25
		20.9	47.6	80/67	196700	132200	9.979	230800	19.7	204200	14.818	153600	111	4.04
		20.9	47.6	85/71	206700	136800	10.086	241100	20.5					
60	30.0	6.0	13.7	65/55	159000	116900	11.512	198300	13.8	165300	12.077	124100	90	4.01
		6.0	13.7	70/59	168900	121500	11.619	208600	14.5	164000	12.737	120500	95	3.77
		6.0	13.7	75/63	178900	126100	11.726	218900	15.3	162600	13.398	116900	100	3.55
		6.0	13.7	80/67	188900	130700	11.833	229300	16.0	161200	14.059	113200	105	3.36
		6.0	13.7	85/71	198900	135200	11.941	239700	16.7					
	45.0	12.3	28.0	65/55	162700	118400	11.075	200500	14.7	197600	12.707	154200	95	4.55
		12.3	28.0	70/59	172700	123000	11.183	210900	15.4	196200	13.367	150600	100	4.30
		12.3	28.0	75/63	182600	127600	11.290	221100	16.2	194900	14.028	147000	105	4.07
		12.3	28.0	80/67	192600	132100	11.397	231500	16.9	193500	14.689	143400	110	3.86
		12.3	28.0	85/71	202600	136700	11.504	241900	17.6					
	60.0	20.4	46.5	65/55	166400	119900	10.639	202700	15.6	229800	13.337	184300	100	5.05
		20.4	46.5	70/59	176400	124500	10.746	213100	16.4	228500	13.997	180700	105	4.78
		20.4	46.5	75/63	186400	129000	10.853	223400	17.2	227100	14.658	177100	110	4.54
		20.4	46.5	80/67	196400	133600	10.960	233800	17.9	225800	15.319	173500	115	4.32
		20.4	46.5	85/71	206300	138200	11.068	244100	18.6					

Size 180 (6000 SCFM) (continued)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
70	30.0	5.9	13.4	65/55	156500	117100	12.493	199100	12.5	186900	12.577	144000	94	4.35
		5.9	13.4	70/59	166500	121700	12.600	209500	13.2	185600	13.238	140400	98	4.11
		5.9	13.4	75/63	176500	126300	12.707	219900	13.9	184200	13.899	136800	103	3.88
		5.9	13.4	80/67	186400	130900	12.815	230100	14.5	182900	14.559	133200	108	3.68
		5.9	13.4	85/71	196400	135400	12.922	240500	15.2					
	45.0	12.0	27.4	65/55	160300	118600	12.057	201500	13.3	219200	13.207	174100	99	4.86
		12.0	27.4	70/59	170200	123200	12.164	211700	14.0	217800	13.868	170500	103	4.60
		12.0	27.4	75/63	180200	127800	12.271	222100	14.7	216500	14.529	166900	108	4.36
		12.0	27.4	80/67	190200	132400	12.378	232400	15.4	215100	15.189	163300	113	4.15
		12.0	27.4	85/71	200200	136900	12.485	242800	16.0					
	60.0	19.9	45.5	65/55	164000	120100	11.620	203700	14.1	251500	13.837	204300	104	5.32
		19.9	45.5	70/59	174000	124700	11.727	214000	14.8	250100	14.498	200600	108	5.05
		19.9	45.5	75/63	183900	129300	11.834	224300	15.5	248700	15.159	197000	113	4.80
		19.9	45.5	80/67	193900	133800	11.942	234700	16.2	247400	15.819	193400	118	4.58
		19.9	45.5	85/71	203900	138400	12.049	245000	16.9					
80	30.0	5.8	13.2	65/55	152500	116000	13.474	198500	11.3	208500	13.078	163900	97	4.67
		5.8	13.2	70/59	162400	120500	13.581	208800	12.0	207200	13.739	160300	102	4.42
		5.8	13.2	75/63	172400	125100	13.689	219100	12.6	205800	14.399	156700	107	4.19
		5.8	13.2	80/67	182400	129700	13.796	229500	13.2	204500	15.060	153100	111	3.98
		5.8	13.2	85/71	192400	134300	13.903	239900	13.8					
	45.0	11.8	26.9	65/55	156200	117400	13.038	200700	12.0	240800	13.708	194000	102	5.14
		11.8	26.9	70/59	166200	122000	13.145	211100	12.6	239400	14.369	190400	107	4.88
		11.8	26.9	75/63	176200	126600	13.252	221400	13.3	238100	15.029	186800	112	4.64
		11.8	26.9	80/67	186100	131200	13.359	231700	13.9	236700	15.690	183200	116	4.42
		11.8	26.9	85/71	196100	135700	13.466	242100	14.6					
	60.0	19.6	44.6	65/55	159900	118900	12.601	202900	12.7	273100	14.338	224200	107	5.58
		19.6	44.6	70/59	169900	123500	12.708	213300	13.4	271700	14.999	220500	112	5.30
		19.6	44.6	75/63	179900	128100	12.816	223600	14.0	270300	15.659	216900	116	5.05
		19.6	44.6	80/67	189900	132700	12.923	234000	14.7	269000	16.320	213300	121	4.83
		19.6	44.6	85/71	199800	137200	13.030	244300	15.3					
90	30.0	5.7	13.0	65/55	147300	113100	14.455	196600	10.2	230100	13.579	183800	100	4.96
		5.7	13.0	70/59	157300	117700	14.563	207000	10.8	228800	14.239	180200	105	4.71
		5.7	13.0	75/63	167300	122300	14.670	217400	11.4	227400	14.900	176500	110	4.47
		5.7	13.0	80/67	177200	126800	14.777	227600	12.0	226100	15.561	173000	115	4.25
		5.7	13.0	85/71	187200	131400	14.884	238000	12.6					
	45.0	11.6	26.5	65/55	151000	114600	14.019	198800	10.8	262400	14.209	213900	105	5.41
		11.6	26.5	70/59	161000	119200	14.126	209200	11.4	261100	14.869	210400	110	5.14
		11.6	26.5	75/63	171000	123800	14.233	219600	12.0	259700	15.530	206700	115	4.90
		11.6	26.5	80/67	181000	128300	14.340	229900	12.6	258300	16.191	203000	120	4.67
		11.6	26.5	85/71	190900	132900	14.448	240200	13.2					
	60.0	19.2	43.9	65/55	154800	116100	13.582	201200	11.4	294700	14.839	244100	110	5.82
		19.2	43.9	70/59	164800	120700	13.690	211500	12.0	293300	15.499	240400	115	5.54
		19.2	43.9	75/63	174700	125200	13.797	221800	12.7	292000	16.160	236800	120	5.29
		19.2	43.9	80/67	184700	129800	13.904	232200	13.3	290600	16.821	233200	125	5.06
		19.2	43.9	85/71	194700	134400	14.011	242500	13.9					
100	30.0	5.6	12.8	65/55	141500	108400	15.437	194200	9.2					
		5.6	12.8	70/59	151500	113000	15.544	204600	9.7					
		5.6	12.8	75/63	161500	117600	15.651	214900	10.3					
		5.6	12.8	80/67	171500	122100	15.758	225300	10.9					
		5.6	12.8	85/71	181400	126700	15.865	235500	11.4					
	45.0	11.4	26.1	65/55	145300	109900	15.000	196500	9.7					
		11.4	26.1	70/59	155200	114500	15.107	206800	10.3					
		11.4	26.1	75/63	165200	119000	15.214	217100	10.9					
		11.4	26.1	80/67	175200	123600	15.322	227500	11.4					
		11.4	26.1	85/71	185200	128200	15.429	237900	12.0					
	60.0	19.0	43.3	65/55	149000	111400	14.564	198700	10.2					
		19.0	43.3	70/59	159000	115900	14.671	209100	10.8					
		19.0	43.3	75/63	169000	120500	14.778	219400	11.4					
		19.0	43.3	80/67	178900	125100	14.885	229700	12.0					
		19.0	43.3	85/71	188900	129700	14.992	240100	12.6					
110	30.0	5.5	12.7	65/55	135600	101600	16.418	191600	8.3					
		5.5	12.7	70/59	145600	106100	16.525	202000	8.8					
		5.5	12.7	75/63	155600	110700	16.632	212400	9.4					
		5.5	12.7	80/67	165600	115300	16.739	222700	9.9					
		5.5	12.7	85/71	175500	119900	16.847	233000	10.4					
	45.0	11.3	25.8	65/55	139400	103000	15.981	193900	8.7					
		11.3	25.8	70/59	149400	107600	16.089	204300	9.3					
		11.3	25.8	75/63	159300	112200	16.196	214600	9.8					
		11.3	25.8	80/67	169300	116800	16.303	224900	10.4					
		11.3	25.8	85/71	179300	121400	16.410	235300	10.9					
	60.0	18.8	42.8	65/55	143100	104500	15.545	196200	9.2					
		18.8	42.8	70/59	153100	109100	15.652	206500	9.8					
		18.8	42.8	75/63	163100	113700	15.759	216900	10.3					
		18.8	42.8	80/67	173000	118300	15.866	227200	10.9					
		18.8	42.8	85/71	183000	122800	15.974	237500	11.5					

Tint = Operation Not Recommended

Notes:

1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
3. See performance correction tables for operating conditions other than those listed.
4. Interpolation is permissible; extrapolation is not.
5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program
6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
7. Data is base on unit at full load operation.

Size 215 (7167 SCFM)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
20	35.8	3.0	6.8	65/55	Tint = Operation Not Recommended Refer to "Capacity table legend" on page 67					71500	10.620	35300	74	1.97
		3.0	6.8	70/59						69900	11.414	30900	79	1.79
		3.0	6.8	75/63						68200	12.207	26500	84	1.64
		3.0	6.8	80/67						66600	13.001	22200	89	1.50
		3.0	6.8	85/71										
	53.8	5.8	13.3	65/55						117500	11.519	78200	80	2.99
		5.8	13.3	70/59						115900	12.312	73900	85	2.76
		5.8	13.3	75/63						114300	13.106	69600	90	2.55
		5.8	13.3	80/67						112700	13.900	65300	94	2.37
		5.8	13.3	85/71										
	71.7	9.4	21.4	65/55						163600	12.418	121200	86	3.86
		9.4	21.4	70/59						161900	13.211	116800	91	3.59
		9.4	21.4	75/63						160300	14.005	112500	96	3.35
		9.4	21.4	80/67						158700	14.799	108200	100	3.14
		9.4	21.4	85/71										
30	35.8	2.9	6.6	65/55						101300	11.606	61700	78	2.56
		2.9	6.6	70/59	214100	160700	10.348	249400	20.7	99600	12.399	57300	83	2.35
		2.9	6.6	75/63	225900	166200	10.475	261700	21.6	98000	13.193	53000	88	2.18
		2.9	6.6	80/67	237800	171800	10.602	274000	22.4	96400	13.987	48700	92	2.02
		2.9	6.6	85/71	249600	177400	10.730	286200	23.3					
	53.8	5.6	12.9	65/55	207600	157300	9.597	240400	21.6	147300	12.504	104600	84	3.45
		5.6	12.9	70/59	219400	162800	9.725	252600	22.6	145700	13.298	100300	89	3.21
		5.6	12.9	75/63	231300	168400	9.852	264900	23.5	144100	14.092	96000	94	2.99
		5.6	12.9	80/67	243100	173900	9.979	277200	24.4	142400	14.886	91600	98	2.80
		5.6	12.9	85/71	255000	179500	10.107	289500	25.2					
	71.7	9.1	20.7	65/55	212900	159400	8.975	243500	23.7	193300	13.403	147600	90	4.22
		9.1	20.7	70/59	224700	164900	9.102	255800	24.7	191700	14.197	143200	95	3.95
		9.1	20.7	75/63	236600	170500	9.229	268100	25.6	190100	14.991	138900	99	3.71
		9.1	20.7	80/67	248400	176000	9.357	280300	26.5	188500	15.785	134600	104	3.50
		9.1	20.7	85/71	260300	181600	9.484	292700	27.4					
40	35.8	2.8	6.4	65/55	206000	158000	11.360	244800	18.1	131000	12.591	88000	82	3.05
		2.8	6.4	70/59	217900	163600	11.487	257100	19.0	129400	13.385	83700	87	2.83
		2.8	6.4	75/63	229700	169100	11.615	269300	19.8	127800	14.179	79400	91	2.64
		2.8	6.4	80/67	241600	174700	11.742	281700	20.6	126200	14.973	75100	96	2.47
		2.8	6.4	85/71	253400	180300	11.869	293900	21.3					
	53.8	5.5	12.5	65/55	211400	160100	10.737	248000	19.7	177100	13.490	131100	88	3.84
		5.5	12.5	70/59	223200	165700	10.865	260300	20.5	175500	14.284	126700	93	3.60
		5.5	12.5	75/63	235100	171300	10.992	272600	21.4	173800	15.078	122300	97	3.38
		5.5	12.5	80/67	246900	176800	11.119	284800	22.2	172200	15.872	118000	102	3.18
		5.5	12.5	85/71	258800	182400	11.247	297200	23.0					
	71.7	8.8	20.1	65/55	216700	162300	10.114	251200	21.4	223100	14.389	174000	94	4.54
		8.8	20.1	70/59	228500	167800	10.242	263500	22.3	221500	15.183	169700	98	4.27
		8.8	20.1	75/63	240400	173400	10.369	275800	23.2	219900	15.977	165400	103	4.03
		8.8	20.1	80/67	252200	178900	10.496	288000	24.0	218200	16.770	161000	108	3.81
		8.8	20.1	85/71	264100	184500	10.624	300400	24.9					
50	35.8	2.7	6.2	65/55	204700	157000	12.497	247400	16.4	160800	13.577	114500	86	3.47
		2.7	6.2	70/59	216600	162600	12.625	259700	17.2	159200	14.371	110200	90	3.24
		2.7	6.2	75/63	228400	168100	12.752	271900	17.9	157600	15.165	105800	95	3.04
		2.7	6.2	80/67	240300	173700	12.879	284300	18.7	156000	15.958	101500	100	2.86
		2.7	6.2	85/71	252100	179300	13.007	296500	19.4					
	53.8	5.3	12.2	65/55	210000	159100	11.875	250500	17.7	206900	14.476	157500	92	4.19
		5.3	12.2	70/59	221900	164700	12.002	262900	18.5	205200	15.270	153100	96	3.93
		5.3	12.2	75/63	233700	170300	12.129	275100	19.3	203600	16.064	148800	101	3.71
		5.3	12.2	80/67	245600	175800	12.257	287400	20.0	202000	16.857	144500	106	3.51
		5.3	12.2	85/71	257400	181400	12.384	299700	20.8					
	71.7	8.6	19.6	65/55	215400	161300	11.252	253800	19.1	252900	15.375	200400	97	4.82
		8.6	19.6	70/59	227200	166800	11.379	266000	20.0	251300	16.169	196100	102	4.55
		8.6	19.6	75/63	239100	172400	11.507	278400	20.8	249600	16.962	191700	107	4.31
		8.6	19.6	80/67	250900	177900	11.634	290600	21.6	248000	17.756	187400	112	4.09
		8.6	19.6	85/71	262800	183500	11.761	302900	22.3					
60	35.8	2.7	6.1	65/55	199300	152900	13.684	246000	14.6	190600	14.563	140900	89	3.83
		2.7	6.1	70/59	211100	158500	13.811	258200	15.3	189000	15.357	136600	94	3.60
		2.7	6.1	75/63	223000	164000	13.939	270600	16.0	187400	16.150	132300	99	3.40
		2.7	6.1	80/67	234800	169600	14.066	282800	16.7	185700	16.944	127900	104	3.21
		2.7	6.1	85/71	246700	175100	14.194	295100	17.4					
	53.8	5.2	11.9	65/55	204600	155000	13.061	249200	15.7	236600	15.462	183800	95	4.48
		5.2	11.9	70/59	216500	160600	13.189	261500	16.4	235000	16.255	179500	100	4.23
		5.2	11.9	75/63	228300	166100	13.316	273700	17.1	233400	17.049	175200	105	4.01
		5.2	11.9	80/67	240200	171700	13.443	286100	17.9	231800	17.843	170900	110	3.80
		5.2	11.9	85/71	252000	177200	13.571	298300	18.6					
	71.7	8.4	19.1	65/55	210000	157100	12.439	252500	16.9	282700	16.361	226900	101	5.06
		8.4	19.1	70/59	221800	162700	12.566	264700	17.7	281000	17.154	222500	106	4.80
		8.4	19.1	75/63	233700	168200	12.693	277000	18.4	279400	17.948	218100	111	4.56
		8.4	19.1	80/67	245500	173800	12.821	289300	19.1	277800	18.742	213800	116	4.34
		8.4	19.1	85/71	257400	179400	12.948	301600	19.9					

Size 215 (7167 SCFM) (continued)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
70	35.8	2.6	6.0	65/55	190800	146400	14.972	241900	12.7	220400	15.549	167300	93	4.15
		2.6	6.0	70/59	202700	152000	15.099	254200	13.4	218800	16.342	163000	98	3.92
		2.6	6.0	75/63	214500	157500	15.227	266500	14.1	217100	17.136	158600	103	3.71
		2.6	6.0	80/67	226400	163100	15.354	278800	14.7	215500	17.930	154300	108	3.52
		2.6	6.0	85/71	238200	168600	15.481	291000	15.4					
	53.8	5.1	11.6	65/55	196100	148500	14.349	245100	13.7	266400	16.447	210300	99	4.74
		5.1	11.6	70/59	208000	154100	14.476	257400	14.4	264800	17.241	206000	104	4.50
		5.1	11.6	75/63	219800	159600	14.604	269600	15.1	263200	18.035	201600	109	4.27
		5.1	11.6	80/67	231700	165200	14.731	282000	15.7	261500	18.829	197200	114	4.07
		5.1	11.6	85/71	243500	170800	14.858	294200	16.4					
	71.7	8.2	18.7	65/55	201500	150600	13.726	248300	14.7	312400	17.346	253200	105	5.27
		8.2	18.7	70/59	213300	156200	13.854	260600	15.4	310800	18.140	248900	110	5.02
		8.2	18.7	75/63	225200	161800	13.981	272900	16.1	309200	18.934	244600	115	4.78
		8.2	18.7	80/67	237000	167300	14.108	285200	16.8	307600	19.728	240300	120	4.57
		8.2	18.7	85/71	248900	172900	14.236	297500	17.5					
80	35.8	2.6	5.8	65/55	180200	138300	16.412	236200	11.0	250200	16.534	193800	97	4.43
		2.6	5.8	70/59	192100	143900	16.539	248500	11.6	248500	17.328	189400	102	4.20
		2.6	5.8	75/63	203900	149500	16.667	260800	12.2	246900	18.122	185000	107	3.99
		2.6	5.8	80/67	215800	155000	16.794	273100	12.8	245300	18.916	180700	112	3.80
		2.6	5.8	85/71	227600	160600	16.921	285400	13.5					
	53.8	5.0	11.4	65/55	185600	140500	15.789	239500	11.8	296200	17.433	236700	103	4.98
		5.0	11.4	70/59	197400	146000	15.917	251700	12.4	294600	18.227	232400	108	4.73
		5.0	11.4	75/63	209300	151600	16.044	264100	13.0	292900	19.021	228000	113	4.51
		5.0	11.4	80/67	221100	157100	16.171	276300	13.7	291300	19.815	223700	117	4.30
		5.0	11.4	85/71	233000	162700	16.299	288600	14.3					
	71.7	8.0	18.4	65/55	190900	142600	15.167	242700	12.6	342200	18.332	279600	109	5.47
		8.0	18.4	70/59	202800	148100	15.294	255000	13.3	340600	19.126	275300	114	5.21
		8.0	18.4	75/63	214600	153700	15.421	267200	13.9	339000	19.920	271000	119	4.98
		8.0	18.4	80/67	226500	159200	15.549	279600	14.6	337400	20.713	266700	123	4.77
		8.0	18.4	85/71	238300	164800	15.676	291800	15.2					
90	35.8	2.5	5.7	65/55	168600	129500	18.056	230200	9.3	279900	17.520	220100	101	4.68
		2.5	5.7	70/59	180500	135000	18.184	242600	9.9	278300	18.314	215800	106	4.45
		2.5	5.7	75/63	192300	140600	18.311	254800	10.5	276700	19.108	211500	111	4.24
		2.5	5.7	80/67	204200	146100	18.438	267100	11.1	275100	19.901	207200	115	4.05
		2.5	5.7	85/71	216000	151700	18.566	279400	11.6					
	53.8	4.9	11.2	65/55	174000	131600	17.434	233500	10.0	326000	18.419	263100	107	5.18
		4.9	11.2	70/59	185800	137100	17.561	245700	10.6	324300	19.213	258700	112	4.94
		4.9	11.2	75/63	197700	142700	17.688	258100	11.2	322700	20.007	254400	116	4.72
		4.9	11.2	80/67	209500	148300	17.816	270300	11.8	321100	20.800	250100	121	4.52
		4.9	11.2	85/71	221400	153800	17.943	282600	12.3					
	71.7	7.9	18.1	65/55	179300	133700	16.811	236700	10.7	372000	19.318	306100	113	5.64
		7.9	18.1	70/59	191100	139300	16.938	248900	11.3	370400	20.112	301800	118	5.39
		7.9	18.1	75/63	203000	144800	17.066	261200	11.9	368800	20.905	297500	122	5.17
		7.9	18.1	80/67	214800	150400	17.193	273500	12.5	367100	21.699	293000	127	4.95
		7.9	18.1	85/71	226700	155900	17.320	285800	13.1					
100	35.8	2.5	5.7	65/55	157000	120600	19.956	225100	7.9					
		2.5	5.7	70/59	168800	126100	20.084	237300	8.4					
		2.5	5.7	75/63	180700	131700	20.211	249700	8.9					
		2.5	5.7	80/67	192500	137200	20.338	261900	9.5					
		2.5	5.7	85/71	204400	142800	20.466	274300	10.0					
	53.8	4.9	11.1	65/55	162300	122700	19.334	228300	8.4					
		4.9	11.1	70/59	174100	128200	19.461	240500	8.9					
		4.9	11.1	75/63	186000	133800	19.588	252900	9.5					
		4.9	11.1	80/67	197800	139400	19.716	265100	10.0					
		4.9	11.1	85/71	209700	144900	19.843	277400	10.6					
	71.7	7.8	17.8	65/55	167600	124800	18.711	231500	9.0					
		7.8	17.8	70/59	179500	130400	18.838	243800	9.5					
		7.8	17.8	75/63	191300	135900	18.966	256000	10.1					
		7.8	17.8	80/67	203200	141500	19.093	268400	10.6					
		7.8	17.8	85/71	215000	147000	19.220	280600	11.2					
110	35.8	2.5	5.6	65/55	146300	112400	22.164	221900	6.6					
		2.5	5.6	70/59	158100	118000	22.291	234200	7.1					
		2.5	5.6	75/63	170000	123500	22.418	246500	7.6					
		2.5	5.6	80/67	181800	129100	22.546	258700	8.1					
		2.5	5.6	85/71	193700	134600	22.673	271100	8.5					
	53.8	4.8	10.9	65/55	151600	114500	21.541	225100	7.0					
		4.8	10.9	70/59	163500	120100	21.668	237500	7.5					
		4.8	10.9	75/63	175300	125600	21.796	249700	8.0					
		4.8	10.9	80/67	187200	131200	21.923	262000	8.5					
		4.8	10.9	85/71	199000	136800	22.050	274300	9.0					
	71.7	7.7	17.6	65/55	156900	116600	20.918	228300	7.5					
		7.7	17.6	70/59	168800	122200	21.046	240600	8.0					
		7.7	17.6	75/63	180600	127800	21.173	252900	8.5					
		7.7	17.6	80/67	192500	133300	21.300	265200	9.0					
		7.7	17.6	85/71	204300	138900	21.428	277400	9.5					

Tint = Operation Not Recommended

Notes:

1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
3. See performance correction tables for operating conditions other than those listed.
4. Interpolation is permissible; extrapolation is not.
5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program
6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
7. Data is base on unit at full load operation.

Size 290 (9670 SCFM)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
20	48.3	5.3	12.2	65/55	Tint = Operation Not Recommended Refer to "Capacity table legend" on page 67					110000	19.983	41800	75	1.61
		5.3	12.2	70/59						107800	21.062	35900	80	1.50
		5.3	12.2	75/63						105600	22.141	30000	85	1.40
		5.3	12.2	80/67						103400	23.220	24200	90	1.30
		5.3	12.2	85/71										
	72.5	9.8	22.4	65/55						193800	21.619	120000	83	2.62
		9.8	22.4	70/59						191600	22.697	114100	88	2.47
		9.8	22.4	75/63						189400	23.776	108300	93	2.33
		9.8	22.4	80/67						187200	24.855	102400	98	2.21
		9.8	22.4	85/71										
	96.7	15.1	34.6	65/55						277500	23.254	198100	91	3.49
		15.1	34.6	70/59						275300	24.333	192300	96	3.31
		15.1	34.6	75/63						273100	25.412	186400	101	3.15
		15.1	34.6	80/67						270900	26.491	180500	106	2.99
		15.1	34.6	85/71										
30	48.3	5.2	11.8	65/55						154900	21.932	80000	80	2.07
		5.2	11.8	70/59	296400	224100	18.575	359800	16.0	152700	23.011	74200	85	1.94
		5.2	11.8	75/63	312300	231800	18.745	376300	16.7	150500	24.090	68300	89	1.83
		5.2	11.8	80/67	328100	239400	18.916	392700	17.3	148300	25.169	62400	94	1.73
		5.2	11.8	85/71	344000	247100	19.087	409100	18.0					
	72.5	9.5	21.7	65/55	290200	220300	17.271	349100	16.8	238600	23.568	158200	88	2.96
		9.5	21.7	70/59	306100	228000	17.442	365600	17.5	236400	24.647	152300	93	2.81
		9.5	21.7	75/63	321900	235600	17.612	382000	18.3	234200	25.726	146400	97	2.67
		9.5	21.7	80/67	337800	243300	17.783	398500	19.0	232000	26.805	140500	102	2.53
		9.5	21.7	85/71	353700	251000	17.954	415000	19.7					
	96.7	14.7	33.5	65/55	299900	224200	16.138	355000	18.6	322400	25.203	236400	96	3.75
		14.7	33.5	70/59	315800	231800	16.309	371500	19.4	320200	26.282	230500	100	3.57
		14.7	33.5	75/63	331600	239500	16.479	387800	20.1	318000	27.361	224600	105	3.40
		14.7	33.5	80/67	347500	247200	16.650	404300	20.9	315800	28.440	218700	110	3.25
		14.7	33.5	85/71	363400	254800	16.821	420800	21.6					
40	48.3	5.0	11.4	65/55	285800	220500	20.461	355600	14.0	199700	23.882	118200	84	2.45
		5.0	11.4	70/59	301700	228200	20.631	372100	14.6	197500	24.961	112300	89	2.32
		5.0	11.4	75/63	317600	235800	20.802	388600	15.3	195300	26.040	106400	94	2.20
		5.0	11.4	80/67	333400	243500	20.973	405000	15.9	193100	27.119	100500	98	2.08
		5.0	11.4	85/71	349300	251200	21.143	421500	16.5					
	72.5	9.2	21.1	65/55	295500	224400	19.328	361500	15.3	283400	25.517	196300	92	3.25
		9.2	21.1	70/59	311400	232000	19.498	377900	16.0	281200	26.596	190400	97	3.10
		9.2	21.1	75/63	327300	239700	19.669	394400	16.6	279000	27.675	184500	102	2.95
		9.2	21.1	80/67	343100	247400	19.840	410800	17.3	276800	28.754	178700	106	2.82
		9.2	21.1	85/71	359000	255000	20.010	427300	17.9					
	96.7	14.2	32.5	65/55	305200	228200	18.195	367300	16.8	367200	27.152	274500	100	3.96
		14.2	32.5	70/59	321100	235900	18.365	383800	17.5	365000	28.231	268600	105	3.79
		14.2	32.5	75/63	337000	243600	18.536	400300	18.2	362800	29.310	262800	110	3.62
		14.2	32.5	80/67	352800	251200	18.707	416600	18.9	360600	30.389	256900	114	3.47
		14.2	32.5	85/71	368700	258900	18.877	433100	19.5					
50	48.3	4.9	11.1	65/55	284000	219100	22.519	360900	12.6	244500	25.831	156300	88	2.77
		4.9	11.1	70/59	299900	226800	22.689	377300	13.2	242300	26.910	150500	93	2.64
		4.9	11.1	75/63	315700	234400	22.860	393700	13.8	240100	27.989	144600	98	2.51
		4.9	11.1	80/67	331600	242100	23.030	410200	14.4	237900	29.068	138700	103	2.40
		4.9	11.1	85/71	347500	249800	23.201	426700	15.0					
	72.5	9.0	20.5	65/55	293700	223000	21.386	366700	13.7	328300	27.466	234600	96	3.50
		9.0	20.5	70/59	309500	230600	21.556	383100	14.4	326100	28.545	228700	101	3.35
		9.0	20.5	75/63	325400	238300	21.727	399600	15.0	323900	29.624	222800	106	3.20
		9.0	20.5	80/67	341300	245900	21.897	416000	15.6	321700	30.703	216900	111	3.07
		9.0	20.5	85/71	357200	253600	22.068	432500	16.2					
	96.7	13.9	31.6	65/55	303400	226800	20.253	372500	15.0	412000	29.101	312700	104	4.15
		13.9	31.6	70/59	319200	234500	20.423	388900	15.6	409800	30.180	306800	109	3.98
		13.9	31.6	75/63	335100	242100	20.594	405400	16.3	407600	31.259	300900	114	3.82
		13.9	31.6	80/67	351000	249800	20.764	421900	16.9	405400	32.338	295000	119	3.67
		13.9	31.6	85/71	366900	257500	20.935	438400	17.5					
60	48.3	4.8	10.9	65/55	276400	213300	24.670	360600	11.2	289300	27.780	194500	93	3.05
		4.8	10.9	70/59	292300	221000	24.840	377100	11.8	287100	28.859	188600	97	2.91
		4.8	10.9	75/63	308100	228600	25.011	393500	12.3	284900	29.938	182700	102	2.79
		4.8	10.9	80/67	324000	236300	25.182	409900	12.9	282700	31.017	176800	107	2.67
		4.8	10.9	85/71	339900	244000	25.352	426400	13.4					
	72.5	8.8	20.0	65/55	286100	217100	23.537	366400	12.2	373100	29.415	272700	101	3.71
		8.8	20.0	70/59	302000	224800	23.707	382900	12.7	370900	30.494	266800	105	3.56
		8.8	20.0	75/63	317800	232500	23.878	399300	13.3	368700	31.573	260900	110	3.42
		8.8	20.0	80/67	333700	240100	24.049	415800	13.9	366500	32.652	255100	115	3.29
		8.8	20.0	85/71	349600	247800	24.219	432300	14.4					
	96.7	13.5	30.9	65/55	295800	221000	22.404	372300	13.2	456800	31.051	350800	108	4.31
		13.5	30.9	70/59	311700	228700	22.574	388700	13.8	454600	32.130	344900	113	4.14
		13.5	30.9	75/63	327500	236300	22.745	405100	14.4	452400	33.209	339100	118	3.99
		13.5	30.9	80/67	343400	244000	22.916	421600	15.0	450200	34.287	333200	123	3.84
		13.5	30.9	85/71	359300	251700	23.086	438100	15.6					

Size 290 (9670 SCFM) (continued)

EWT (°F)	GPM	WPD		EAT (°F)	Cooling					Heating				
		PSI	FT of W.C.		Total (Btu/hr)	Sensible (Btu/hr)	Power Input (kW)	THR (Btu/hr)	EER	Total (Btu/hr)	Power Input (kW)	THA (Btu/hr)	LAT (°F)	COP
70	48.3	4.7	10.6	65/55	264500	204200	27.006	356700	9.8	334200	29.729	232700	97	3.29
		4.7	10.6	70/59	280400	211800	27.176	373200	10.3	332000	30.808	226900	102	3.16
		4.7	10.6	75/63	296200	219500	27.347	389500	10.8	329800	31.887	221000	106	3.03
		4.7	10.6	80/67	312100	227200	27.518	406000	11.3	327600	32.966	215100	111	2.91
		4.7	10.6	85/71	328000	234800	27.688	422500	11.8					
	72.5	8.6	19.6	65/55	274200	208000	25.873	362500	10.6	417900	31.365	310900	105	3.90
		8.6	19.6	70/59	290100	215700	26.043	379000	11.1	415700	32.443	305000	110	3.75
		8.6	19.6	75/63	305900	223400	26.214	395400	11.7	413500	33.522	299100	114	3.61
		8.6	19.6	80/67	321800	231000	26.385	411900	12.2	411300	34.601	293200	119	3.48
		8.6	19.6	85/71	337700	238700	26.555	428300	12.7					
	96.7	13.2	30.2	65/55	283900	211900	24.740	368300	11.5	501700	33.000	389100	113	4.45
		13.2	30.2	70/59	299800	219600	24.910	384800	12.0	499500	34.079	383200	118	4.29
		13.2	30.2	75/63	315600	227200	25.081	401200	12.6	497300	35.158	377300	122	4.14
		13.2	30.2	80/67	331500	234900	25.252	417700	13.1	495100	36.237	371400	127	4.00
		13.2	30.2	85/71	347400	242600	25.422	434200	13.7					
80	48.3	4.6	10.4	65/55	249700	192900	29.619	350800	8.4	379000	31.678	270900	101	3.50
		4.6	10.4	70/59	265600	200500	29.789	367300	8.9	376800	32.757	265000	106	3.37
		4.6	10.4	75/63	281500	208200	29.960	383800	9.4	374600	33.836	259100	111	3.24
		4.6	10.4	80/67	297300	215900	30.131	400100	9.9	372400	34.915	253200	115	3.12
		4.6	10.4	85/71	313200	223500	30.301	416600	10.3					
	72.5	8.4	19.2	65/55	259400	196700	28.486	356600	9.1	462700	33.314	349000	109	4.07
		8.4	19.2	70/59	275300	204400	28.656	373100	9.6	460500	34.393	343100	114	3.92
		8.4	19.2	75/63	291200	212000	28.827	389600	10.1	458300	35.472	337200	119	3.78
		8.4	19.2	80/67	307000	219700	28.998	406000	10.6	456100	36.551	331400	123	3.65
		8.4	19.2	85/71	322900	227400	29.168	422500	11.1					
	96.7	13.0	29.7	65/55	269100	200600	27.353	362500	9.8	546500	34.949	427200	117	4.58
		13.0	29.7	70/59	285000	208200	27.523	378900	10.4	544300	36.028	421300	122	4.42
		13.0	29.7	75/63	300800	215900	27.694	395300	10.9	542100	37.107	415500	127	4.28
		13.0	29.7	80/67	316700	223600	27.865	411800	11.4	539900	38.186	409600	131	4.14
		13.0	29.7	85/71	332600	231200	28.035	428300	11.9					
90	48.3	4.5	10.3	65/55	233500	180400	32.600	344800	7.2	423800	33.628	309000	105	3.69
		4.5	10.3	70/59	249300	188100	32.771	361100	7.6	421600	34.707	303100	110	3.56
		4.5	10.3	75/63	265200	195700	32.941	377600	8.1	419400	35.786	297300	115	3.43
		4.5	10.3	80/67	281100	203400	33.112	394100	8.5	417200	36.865	291400	120	3.31
		4.5	10.3	85/71	296900	211100	33.283	410500	8.9					
	72.5	8.3	18.9	65/55	243100	184200	31.467	350500	7.7	507600	35.263	387200	113	4.21
		8.3	18.9	70/59	259000	191900	31.638	367000	8.2	505400	36.342	381400	118	4.07
		8.3	18.9	75/63	274900	199600	31.808	383500	8.6	503200	37.421	375500	123	3.94
		8.3	18.9	80/67	290800	207200	31.979	399900	9.1	501000	38.500	369600	128	3.81
		8.3	18.9	85/71	306600	214900	32.150	416300	9.5					
	96.7	12.8	29.2	65/55	252800	188100	30.334	356300	8.3	591300	36.898	465400	121	4.69
		12.8	29.2	70/59	268700	195800	30.505	372800	8.8	589100	37.977	459500	126	4.54
		12.8	29.2	75/63	284600	203400	30.675	389300	9.3	586900	39.056	453600	131	4.40
		12.8	29.2	80/67	300500	211100	30.846	405800	9.7	584700	40.135	447700	136	4.27
		12.8	29.2	85/71	316300	218800	31.017	422200	10.2					
100	48.3	4.4	10.1	65/55	217100	167900	36.042	340100	6.0					
		4.4	10.1	70/59	233000	175500	36.213	356600	6.4					
		4.4	10.1	75/63	248900	183200	36.383	373100	6.8					
		4.4	10.1	80/67	264700	190900	36.554	389500	7.2					
		4.4	10.1	85/71	280600	198500	36.725	405900	7.6					
	72.5	8.2	18.7	65/55	226800	171700	34.909	345900	6.5					
		8.2	18.7	70/59	242700	179400	35.080	362400	6.9					
		8.2	18.7	75/63	258600	187100	35.250	378900	7.3					
		8.2	18.7	80/67	274400	194700	35.421	395300	7.7					
		8.2	18.7	85/71	290300	202400	35.592	411800	8.2					
	96.7	12.6	28.8	65/55	236500	175600	33.776	351800	7.0					
		12.6	28.8	70/59	252400	183300	33.947	368300	7.4					
		12.6	28.8	75/63	268300	190900	34.117	384700	7.9					
		12.6	28.8	80/67	284100	198600	34.288	401100	8.3					
		12.6	28.8	85/71	300000	206300	34.458	417600	8.7					
110	48.3	4.4	10.0	65/55	202200	156400	40.036	338800	5.1					
		4.4	10.0	70/59	218000	164100	40.207	355200	5.4					
		4.4	10.0	75/63	233900	171700	40.377	371700	5.8					
		4.4	10.0	80/67	249800	179400	40.548	388200	6.2					
		4.4	10.0	85/71	265600	187100	40.719	404600	6.5					
	72.5	8.1	18.4	65/55	211900	160300	38.903	344700	5.4					
		8.1	18.4	70/59	227700	167900	39.074	361100	5.8					
		8.1	18.4	75/63	243600	175600	39.244	377500	6.2					
		8.1	18.4	80/67	259500	183300	39.415	394000	6.6					
		8.1	18.4	85/71	275300	190900	39.586	410400	7.0					
	96.7	12.5	28.4	65/55	221600	164100	37.770	350500	5.9					
		12.5	28.4	70/59	237400	171800	37.941	366900	6.3					
		12.5	28.4	75/63	253300	179400	38.111	383400	6.6					
		12.5	28.4	80/67	269200	187100	38.282	399900	7.0					
		12.5	28.4	85/71	285000	194800	38.453	416200	7.4					

Tint = Operation Not Recommended

Notes:

1. Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
2. Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
3. See performance correction tables for operating conditions other than those listed.
4. Interpolation is permissible; extrapolation is not.
5. For performance data outside the EAT listed, refer to the Daikin SelectTools selection program
6. Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
7. Data is base on unit at full load operation.

Waterside economizer cooling capacity data

Table 11: Waterside economizer cooling capacity

Unit Size	GPM	1800 CFM		2400 CFM		3200 CFM		4000 CFM		5000 CFM		WSE Water side dP (ft. of wc.)		
		Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Coil Only	Pipes, valve in by-pass	Pipes, valve thru WSE coil
072	12	48.5	40.0	54.0	48.7	59.9	57.1					2.0	8.1	9.0
	18	58.2	44.1	66.2	53.6	74.3	65.5					4.4	18.2	20.1
	24	65.5	47.5	74.8	57.2	84.9	69.3					7.7	32.4	35.5
	[2]PD (" wc.)	0.07		0.11		0.16								
096	16			62.8	52.1	69.9	63.2	75.7	71.3			3.5	14.4	15.9
	24			74.8	57.2	84.9	69.3	93.0	79.6			7.7	32.4	35.5
	32			83.7	61.4	95.3	73.5	105.2	84.9			13.4	57.5	62.7
	[2]PD (" wc.)			0.11		0.16		0.23						
120	20					78.4	66.2	84.9	77.1	91.9	86.7	5.4	22.5	24.8
	30					93.1	72.5	102.1	84.0	111.6	96.3	11.8	50.6	55.2
	32					102.6	77.2	112.6	88.3	123.3	102.2	20.7	89.9	97.4
	[2]PD (" wc.)					0.18		0.24		0.33				
Unit Size	**GPM**	**4500 CFM**		**6000 CFM**		**7200 CFM**		**9660 CFM**		**12000 CFM**		**WSE Water side dP (ft. of wc.)**		
		Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Total	Sensible	Coil Only	Pipes, valve in by-pass	Pipes, valve thru WSE coil
180	30	122.8	98.6	136.5	116.2	143.7	131.4					4.7	8.0	8.2
	45	148.6	110.5	167.8	131.4	177.0	143.8					10.3	17.6	18.5
	60	166.0	118.1	188.3	140.4	202.9	155.9					18.0	30.8	32.8
	[2]PD (" wc.)	0.09		0.14		0.19								
215	36			150.0	122.7	159.5	135.3	173.8	161.8			6.7	14.0	14.6
	54			181.0	137.2	194.4	152.2	212.3	176.1			14.7	30.8	32.8
	72			199.1	145.3	213.9	161.0	238.1	188.7			25.5	54.1	58.2
	[2]PD (" wc.)			0.14		0.19		0.28						
290	48					182.6	146.4	201.8	170.7	215.3	189.4	11.7	21.6	22.8
	72					213.9	161.0	238.1	188.7	253.4	209.4	25.5	47.7	51.2
	96					231.6	169.1	258.8	198.3	278.1	221.6	44.5	83.6	90.9
	[2]PD (" wc.)					0.19		0.31		0.43				

Notes: [1] Capacity is based on 80/67°F entering air and 45°F entering water temperatures. Total and sensible capacities are Mbtuh.

[2] Air PD is air pressure drop in inches of water column wet coil.

Physical data

Table 12: Large vertical size 072 - 290

Unit Size		072	096	120	180	215	290
Fan Wheel - D x W (In.)		(2) 13 3/16" × 12 5/8"	(2) 13 3/16" × 12 5/8"	(2) 13 3/16" × 12 5/8"	(3) 13 3/16" × 12 5/8"	(3) 13 3/16" × 12 5/8"	(3) 13 3/16" × 12 5/8"
Fan Motor Horsepower	Standard Static	1.5	1.5	2.0	3.0	3.0	7.5
	High Static	2.0	2.0	3.0	5.0	5.0	10.0
	Ultra-Static	3.0	3.0	5.0	7.5	7.5	–
Coil Face Area (Sq. Ft.)		10.0	10.0	10.0	20.0	20.0	20.0
Coil Rows		3	3	4	3	3	4
Refrigerant Charge (Oz.)	Comp. 1	60	60	80	113	118	220
	Comp 2	55	56	86	113	118	220
Filter, (Qty.) Size (In.)		(4) 16" × 25 × 1"	(4) 16" × 25 × 1"	(4) 16" × 25 × 1"	(6) 20" × 25 × 1"	(6) 20" × 25 × 1"	(6) 20" × 25 × 1"
Water Connections, Female NPT		1 1/4" FPT	1 1/4" FPT	1 1/4" FPT	1 1/2" FPT	1 1/2" FPT	1 1/2" FPT
Condensate Connections, Female NPT		1" FPT	1" FPT	1" FPT	1¼" FPT	1¼" FPT	1¼" FPT
Weight Based on Motor HP		**1.5 / 2.0 / 3.0**	**1.5 / 2.0 / 3.0**	**2.0 / 3.0 / 5.0**	**3.0 / 5.0 / 7.5**	**3.0 / 5.0 / 7.5**	**7.5 / 10.0**
Weight, Operating (Lbs.)		588 / 590 / 603	588 / 590 / 603	681 / 696 / 701	1029 / 1049 / 1059	1029 / 1049 / 1059	1074 / 1079
Weight, Shipping (Lbs.)		620 / 622 / 635	620 / 622 / 635	710 / 725 / 730	1074 / 1094 / 1104	1074 / 1094 / 1104	1297 / 1302
Weight, Operating (Lbs.) with Economizer		688 / 690 / 703	688 / 690 / 703	781 / 796 / 801	1215 / 1235 / 1245	1215 / 1235 / 1245	1260 / 1265
Weight, Shipping (Lbs.) with Economizer		740 / 742 / 755	740 / 742 / 755	830 / 845 / 850	1280 / 1300 / 1310	1280 / 1300 / 1310	1503 / 1508

Electrical data

Table 13: Large vertical unit

Unit Size	Voltage/Hz/Phase	Fan Motor HP	Compressor 1		Compressor 2		Fan Motor FLA	Total Unit Amps	Minimum Voltage	Min. Circuit Amps	Max. Fuse Amps
			RLA	LRA	RLA	LRA					
072	208-60-3	1.5	13.2	88.0	13.2	88.0	5.0	31.4	187	34.7	45
	230-60-3	1.5	13.2	88.0	13.2	88.0	4.8	31.2	197	34.5	45
	208-60-3	2	13.2	88.0	13.2	88.0	6.4	32.8	187	36.1	45
	230-60-3	2	13.2	88.0	13.2	88.0	5.6	32.0	197	35.3	45
	208-60-3	3	13.2	88.0	13.2	88.0	8.3	34.7	187	38.0	50
	230-60-3	3	13.2	88.0	13.2	88.0	7.6	34.0	197	37.3	50
	460-60-3	1.5	6.0	44.0	6.0	44.0	2.4	14.4	416	15.9	20
	460-60-3	2	6.0	44.0	6.0	44.0	2.8	14.8	416	16.3	20
	460-60-3	3	6.0	44.0	6.0	44.0	3.8	15.8	416	17.3	20
096	208-60-3	1.5	13.7	83.1	13.7	83.1	5.0	32.4	187	35.8	45
	230-60-3	1.5	13.7	83.1	13.7	83.1	4.8	32.2	197	35.6	45
	208-60-3	2	13.7	83.1	13.7	83.1	6.4	33.8	187	37.2	50
	230-60-3	2	13.7	83.1	13.7	83.1	5.6	33.0	197	36.4	50
	208-60-3	3	13.7	83.1	13.7	83.1	8.3	35.7	187	39.1	50
	230-60-3	3	13.7	83.1	13.7	83.1	7.6	35.0	197	38.4	50
	460-60-3	1.5	6.2	41.0	6.2	41.0	2.4	14.8	416	16.4	20
	460-60-3	2	6.2	41.0	6.2	41.0	2.8	15.2	416	16.8	20
	460-60-3	3	6.2	41.0	6.2	41.0	3.8	16.2	416	17.8	20
	575-60-3	1.5	4.2	33.0	4.2	33.0	1.7	10.1	520	11.2	15
	575-60-3	2	4.2	33.0	4.2	33.0	2.2	10.6	520	11.7	15
	575-60-3	3	4.2	33.0	4.2	33.0	3.1	11.5	520	12.6	15

Electrical data (continued)

Unit Size	Voltage/Hz/ Phase	Fan Motor HP	Compressor 1		Compressor 2		Fan Motor FLA	Total Unit Amps	Minimum Voltage	Min. Circuit Amps	Max. Fuse Amps
			RLA	LRA	RLA	LRA					
120	208-60-3	2	15.6	110.0	15.6	110.0	6.4	37.6	187	41.5	50
	230-60-3	2	15.6	110.0	15.6	110.0	5.6	36.8	197	40.7	50
	208-60-3	3	15.6	110.0	15.6	110.0	8.3	39.5	187	43.4	50
	230-60-3	3	15.6	110.0	15.6	110.0	7.6	38.8	197	42.7	50
	208-60-3	5	15.6	110.0	15.6	110.0	13.7	44.9	187	48.8	60
	230-60-3	5	15.6	110.0	15.6	110.0	12.4	43.6	197	47.5	60
	460-60-3	2	7.8	52.0	7.8	52.0	2.8	18.4	416	20.4	25
	460-60-3	3	7.8	52.0	7.8	52.0	3.8	19.4	416	21.4	25
	460-60-3	5	7.8	52.0	7.8	52.0	6.2	21.8	416	23.8	30
	575-60-3	2	5.8	38.9	5.8	38.9	2.2	13.8	520	15.3	20
	575-60-3	3	5.8	38.9	5.8	38.9	3.1	14.7	520	16.2	20
	575-60-3	5	5.8	38.9	5.8	38.9	4.9	16.5	520	18.0	20
180	208-60-3	3	25.0	164.0	25.0	164.0	8.3	58.3	187	64.6	80
	230-60-3	3	25.0	164.0	25.0	164.0	7.6	57.6	197	63.9	80
	208-60-3	5	25.0	164.0	25.0	164.0	13.7	63.7	187	70.0	90
	230-60-3	5	25.0	164.0	25.0	164.0	12.4	62.4	197	68.7	90
	208-60-3	7.5	25.0	164.0	25.0	164.0	20.2	70.2	187	76.5	100
	230-60-3	7.5	25.0	164.0	25.0	164.0	18.5	68.5	197	74.8	90
	460-60-3	3	12.2	100.0	12.2	100.0	3.8	28.2	416	31.3	40
	460-60-3	5	12.2	100.0	12.2	100.0	6.2	30.6	416	33.7	45
	460-60-3	7.5	12.2	100.0	12.2	100.0	9.3	33.7	416	36.8	45
	575-60-3	3	9.0	78.0	9.0	78.0	3.1	21.1	520	23.4	30
	575-60-3	5	9.0	78.0	9.0	78.0	4.9	22.9	520	25.2	30
	575-60-3	7.5	9.0	78.0	9.0	78.0	7.3	25.3	520	27.6	35
215	208-60-3	3	30.1	225.0	30.1	225.0	8.3	68.5	187	76.0	100
	230-60-3	3	30.1	225.0	30.1	225.0	7.6	67.8	197	75.3	100
	208-60-3	5	30.1	225.0	30.1	225.0	13.7	73.9	187	81.4	110
	230-60-3	5	30.1	225.0	30.1	225.0	12.4	72.6	197	80.1	110
	208-60-3	7.5	30.1	225.0	30.1	225.0	20.2	80.4	187	87.9	110
	230-60-3	7.5	30.1	225.0	30.1	225.0	18.5	78.7	197	86.2	110
	460-60-3	3	16.7	114.0	16.7	114.0	3.8	37.2	416	41.4	50
	460-60-3	5	16.7	114.0	16.7	114.0	6.2	39.6	416	43.8	60
	460-60-3	7.5	16.7	114.0	16.7	114.0	9.3	42.7	416	46.9	60
	575-60-3	3	12.2	80.0	12.2	80.0	3.1	27.5	520	30.6	40
	575-60-3	5	12.2	80.0	12.2	80.0	4.9	29.3	520	32.4	40
	575-60-3	7.5	12.2	80.0	12.2	80.0	7.3	31.7	520	34.8	45
290	208-60-3	7.5	51.3	300.0	51.3	300.0	20.2	122.8	187	135.6	175
	230-60-3	7.5	51.3	300.0	51.3	300.0	18.5	121.1	197	133.9	175
	208-60-3	10	51.3	300.0	51.3	300.0	28.1	130.7	187	143.5	175
	230-60-3	10	51.3	300.0	51.3	300.0	23.8	126.4	197	139.2	175
	460-60-3	7.5	23.1	150.0	23.1	150.0	9.3	55.5	416	61.3	80
	460-60-3	10	23.1	150.0	23.1	150.0	11.9	58.1	416	63.9	80
	575-60-3	7.5	19.9	109.0	19.9	109.0	7.3	47.1	520	52.1	70
	575-60-3	10	19.9	109.0	19.9	109.0	9.8	49.6	520	54.6	70

Airflow correction factors

Table 14: Airflow correction factors

	Percent of Nominal Airflow									
	55	60	65	70	75	80	85	90	95	100
Total Cooling Capacity	0.935	0.942	0.948	0.955	0.962	0.969	0.976	0.983	0.990	1.000
Sensible Cooling Capacity	0.779	0.803	0.828	0.852	0.877	0.901	0.926	0.950	0.975	1.000
kW - Cooling	0.925	0.933	0.942	0.950	0.959	0.967	0.976	0.984	0.993	1.000
Total Heat of Rejection	0.931	0.939	0.946	0.954	0.961	0.969	0.976	0.984	0.991	1.000
Total Heating Capacity	0.912	0.921	0.931	0.940	0.950	0.960	0.969	0.979	0.988	1.000
kW - Heating	1.025	1.022	1.019	1.017	1.014	1.011	1.009	1.006	1.003	1.000
Total Heat of Absorption	0.908	0.918	0.928	0.938	0.948	0.958	0.968	0.978	0.988	1.000

	Percent of Nominal Airflow									
	105	110	115	120	125	130	135	140	145	150
Total Cooling Capacity	1.004	1.011	1.017	1.024	1.031	1.038	1.045	1.052	1.059	1.066
Sensible Cooling Capacity	1.024	1.048	1.073	1.098	1.122	1.147	1.171	1.196	1.220	1.245
kW - Cooling	1.010	1.019	1.027	1.036	1.044	1.053	1.061	1.070	1.078	1.087
Total Heat of Rejection	1.006	1.014	1.021	1.029	1.036	1.044	1.051	1.059	1.066	1.074
Total Heating Capacity	1.007	1.017	1.027	1.036	1.046	1.055	1.065	1.074	1.084	1.094
kW - Heating	0.998	0.995	0.992	0.990	0.987	0.984	0.981	0.979	0.976	0.973
Total Heat of Absorption	1.008	1.018	1.028	1.038	1.048	1.058	1.068	1.078	1.088	1.098

	Percent of Nominal Airflow								
	155	160	165	170	175	180	185	190	195
Total Cooling Capacity	1.073	1.079	1.086	1.093	1.100	1.107	1.114	1.121	1.128
Sensible Cooling Capacity	1.269	1.294	1.318	1.343	1.367	1.392	1.417	1.441	1.466
kW - Cooling	1.095	1.104	1.113	1.121	1.130	1.138	1.147	1.155	1.164
Total Heat of Rejection	1.081	1.089	1.096	1.104	1.111	1.119	1.126	1.134	1.141
Total Heating Capacity	1.103	1.113	1.122	1.132	1.141	1.151	1.161	1.170	1.180
kW - Heating	0.971	0.968	0.965	0.962	0.960	0.957	0.954	0.952	0.949
Total Heat of Absorption	1.108	1.118	1.128	1.138	1.149	1.159	1.169	1.179	1.189

Antifreeze correction factors

Table 15: Ethylene glycol

	10%	20%	30%	40%	50%
Cooling Capacity	0.9950	0.9920	0.9870	0.9830	0.9790
Heating Capacity	0.9910	0.9820	0.9770	0.9690	0.9610
Pressure Drop	1.0700	1.1300	1.1800	1.2600	1.2800

Table 16: Propylene glycol

	10%	20%	30%	40%	50%
Cooling Capacity	0.9900	0.9800	0.9700	0.9600	0.9500
Heating Capacity	0.9870	0.9750	0.9620	0.9420	0.9300
Pressure Drop	1.0700	1.1500	1.2500	1.3700	1.4200

Table 17: Methanol

	10%	20%	30%	40%	50%
Cooling Capacity	0.9980	0.9720	–	–	–
Heating Capacity	0.9950	0.9700	–	–	–
Pressure Drop	1.0230	1.0570	–	–	–

Table 18: Ethanol

	10%	20%	30%	40%	50%
Cooling Capacity	0.9910	0.9510	–	–	–
Heating Capacity	0.9950	0.9600	–	–	–
Pressure Drop	1.0350	0.9600	–	–	–

Performance curves

Figure 25: Large vertical size 072, 096 (Includes allowance for dry coil and filter)

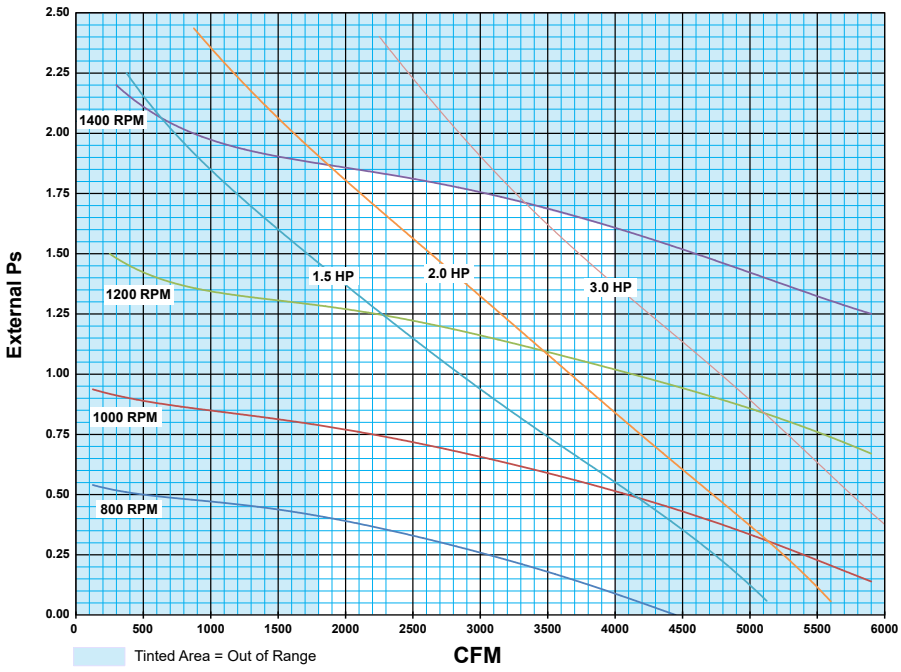
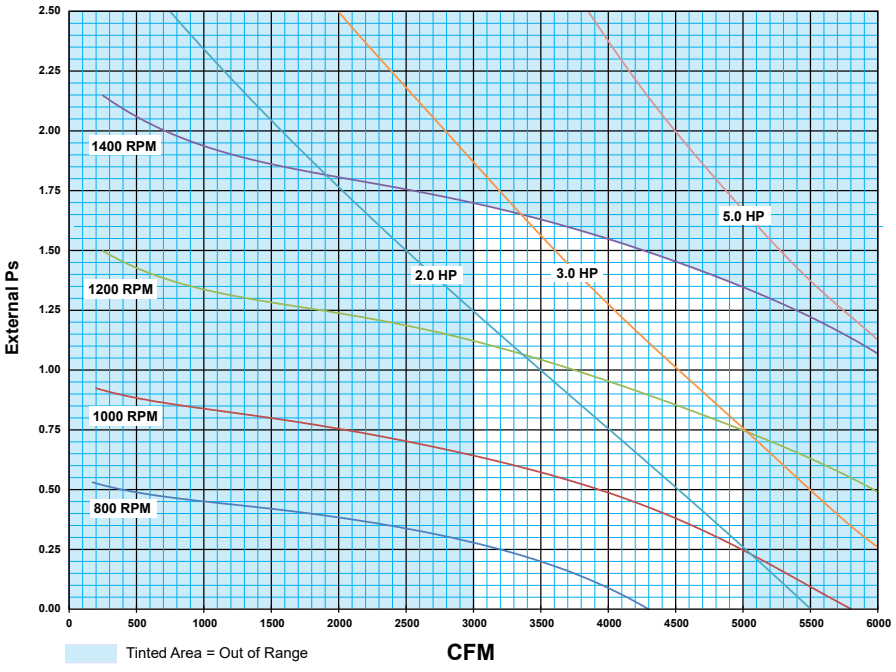


Figure 26: Large vertical size 120 (includes allowance for dry coil and filter)



cfm = 0.472 = L/s
hp × 0.746 = kW
inches × 249 Pa = mm

Table 19: Size 072, 096 and 120 fan data

Unit Size	Motor HP	RPM Range	Factory Setting (RPM)	Motor Sheave Position
072	1.5	595-770	735	1 Turn Open
	2.0	1005-1329	1134	4 Turns Open
	3.0	1013-1340	1144	4 Turns Open
	Airflow Range: 1800–3000 CFM			
096	1.5	677-960	903	1 Turn Open
	2.0	1005-1329	1134	4 Turns Open
	3.0	1107-1406	1227	4 Turns Open
	Airflow Range: 2400–4000 CFM			
120	2.0	960-1242	1185	1 Turn Open
	3.0	1013-1340	1144	4 Turns Open
	5.0	1097-1394	1216	4 Turns Open
	Airflow Range: 3000–5000 CFM			

Note: For wet coil, calculate face velocity (cfm ÷ coil face area). Add the following external static pressure for the corresponding face velocity

English units

300 fpm = .20"

400 fpm = .31"

500 fpm = .44"

Note: Re-enter curve at the increased static pressure to determine final cfm.

Performance curves (continued)

Figure 27: Large vertical size 180, 215

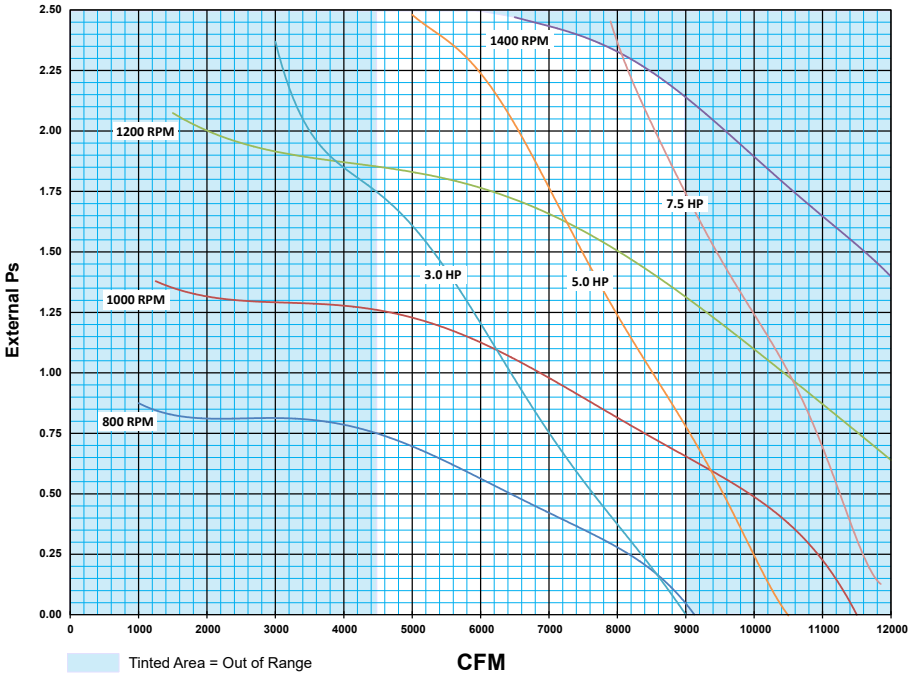
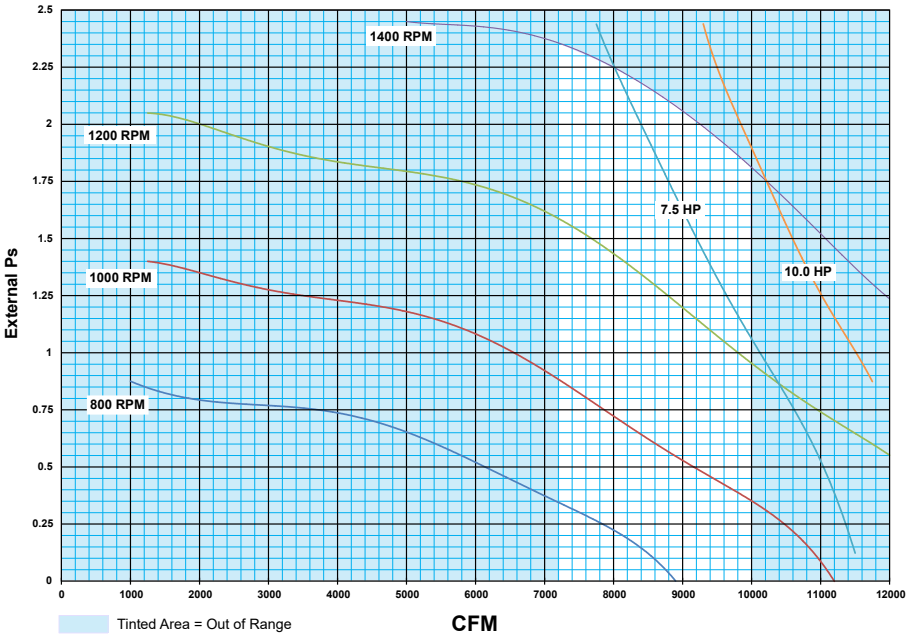


Figure 28: Large vertical size 290



cfm = 0.472 = L/s
hp × 0.746 = kW
inches × 249 Pa = mm

Table 20: Size 180, 215 and 290 fan data

Unit Size	Motor HP	RPM Range	Factory Setting (RPM)	Motor Sheave Position
180	3.0	920-1108	1051	2.5 Turns Open
	5.0	1085-1307	1241	2.5 Turns Open
	7.5	1196-1462	1351	2.5 Turns Open
	Airflow Range: 4500–7500 CFM			
215	3.0	832-1001	950	2.5 Turns Open
	5.0	963-1160	1101	2.5 Turns Open
	7.5	1196-1462	1351	2.5 Turns Open
	Airflow Range: 5400–9000 CFM			
290	7.5	1005-1229	1136	2.5 Turns Open
	10.0	1169-1407	1136	2.5 Turns Open
	Airflow Range: 7200–10000 CFM			

Note: For wet coil, calculate face velocity (cfm ÷ coil face area). Add the following external static pressure for the corresponding face velocity

English units

300 fpm = .20"

400 fpm = .31"

500 fpm = .44"

Note: Re-enter curve at the increased static pressure to determine final cfm.

Operating limits

Information for initial start-up only

Standard range units:

Units are designed to start in an ambient of 50ºF (10ºC), with entering air at 50ºF (10ºC), with entering water at 70ºF (21ºC), with both air and water at the flow rates used in the ISO 13256-1 rating test, for initial start-up in winter.

Geothermal range units:

Geothermal range heat pump conditioners are designed to start in an ambient of 40ºF (5ºC), with entering air at 40ºF (5ºC), with entering water at 40ºF (5ºC), with both air and water at the flow rates used in the ISO 13256-1 rating test, for initial start-up in winter.

Note: *These are not normal or continuous operating conditions. It is assumed that such a start-up is for the purpose of bringing the building space up to occupancy temperature.*

Table 21: Water source heat pump operating temperature limits (for continuous duty)

Operating Mode	Entering Air °F				Entering Water °F			
	Minimum		Maximum		Standard Range		Geothermal Range	
	DB	WB	DB	WB	Minimum	Maximum	Minimum	Maximum
Cooling	65	55	85	71	55	110	50	110
Ambient	50	–	100	–	–	–	–	–
Heating	50	–	80	–	55	90	20	90
Ambient	50	–	85	–	–	–	–	–

Notes: 1. In the heating mode, the sum of the entering air + entering water must be ≥ 100°F.

2. MINIMUM WATER FLOW = 1.5 GPM/Ton.

3. Maximum and minimum values may not be combined. If one value is at maximum or minimum, the other two conditions may not exceed the normal condition for standard units. Geothermal range units may combine any two maximum conditions, but not more than two, with all other conditions being normal conditions.

Table 22: Water source heat pump operating temperature limits at start-up (not for continuous duty)

Operating Mode	Entering Air °F				Entering Water °F			
	Minimum		Maximum		Standard Range		Geothermal Range	
	DB	WB	DB	WB	Minimum	Maximum	Minimum	Maximum
Cooling	50	40	105	87	45	120	30	120
Ambient	45	–	110	–	–	–	–	–
Heating	40	–	85	–	40	95	20	100
Ambient	40	–	85	–	–	–	–	–

Environment

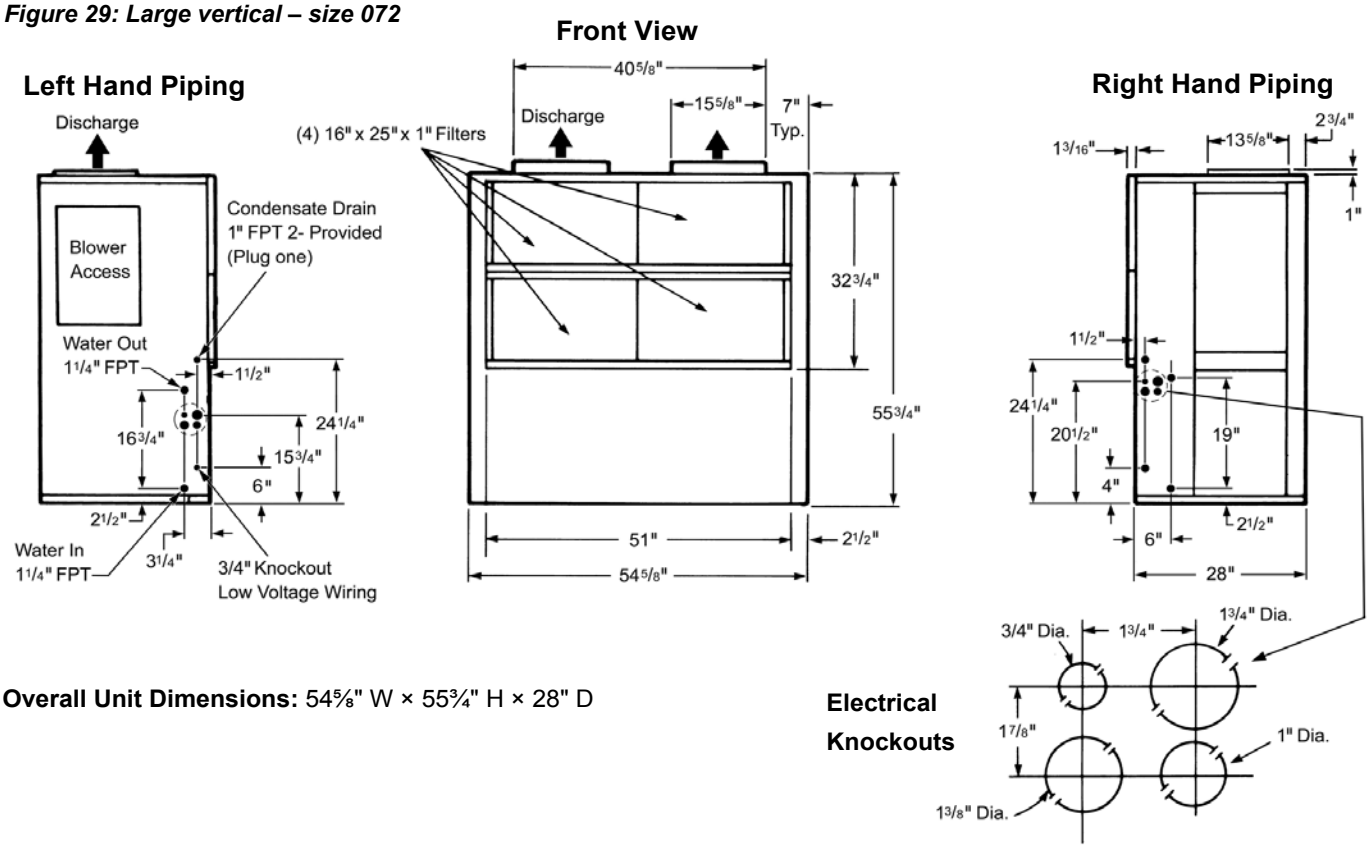
This equipment is designed for indoor installation only. Sheltered locations such as attics, garages, etc., generally will not provide sufficient protection against extremes in temperature and/or humidity, and equipment performance, reliability, and service life may be adversely affected.

Power supply

A voltage variation of +/-10% of nameplate voltage is acceptable. Three-phase system imbalance shall not exceed 2%.

LVC/LVW top discharge – 072

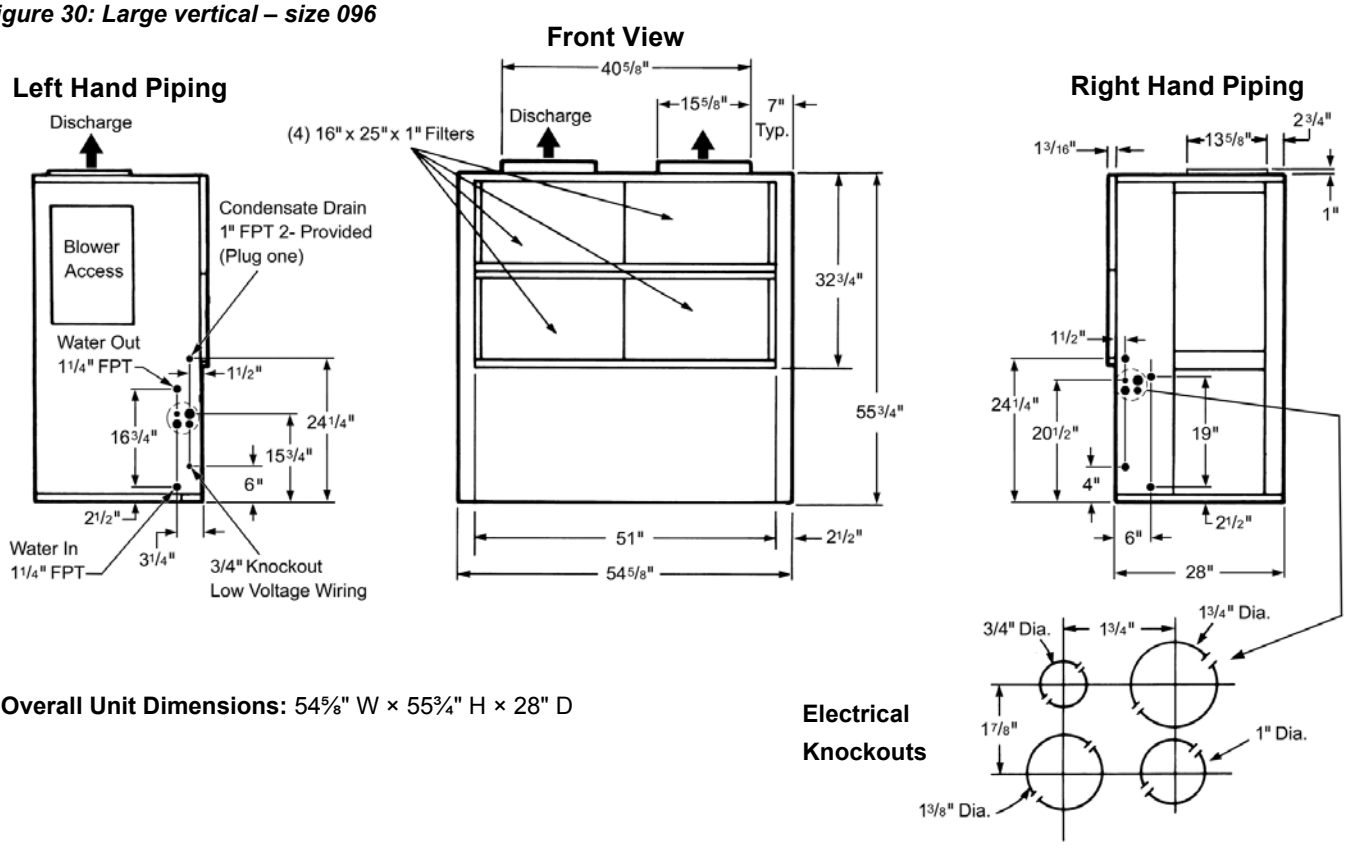
Figure 29: Large vertical – size 072



Overall Unit Dimensions: 54⅝" W × 55¾" H × 28" D

LVC/LVW top discharge – 096

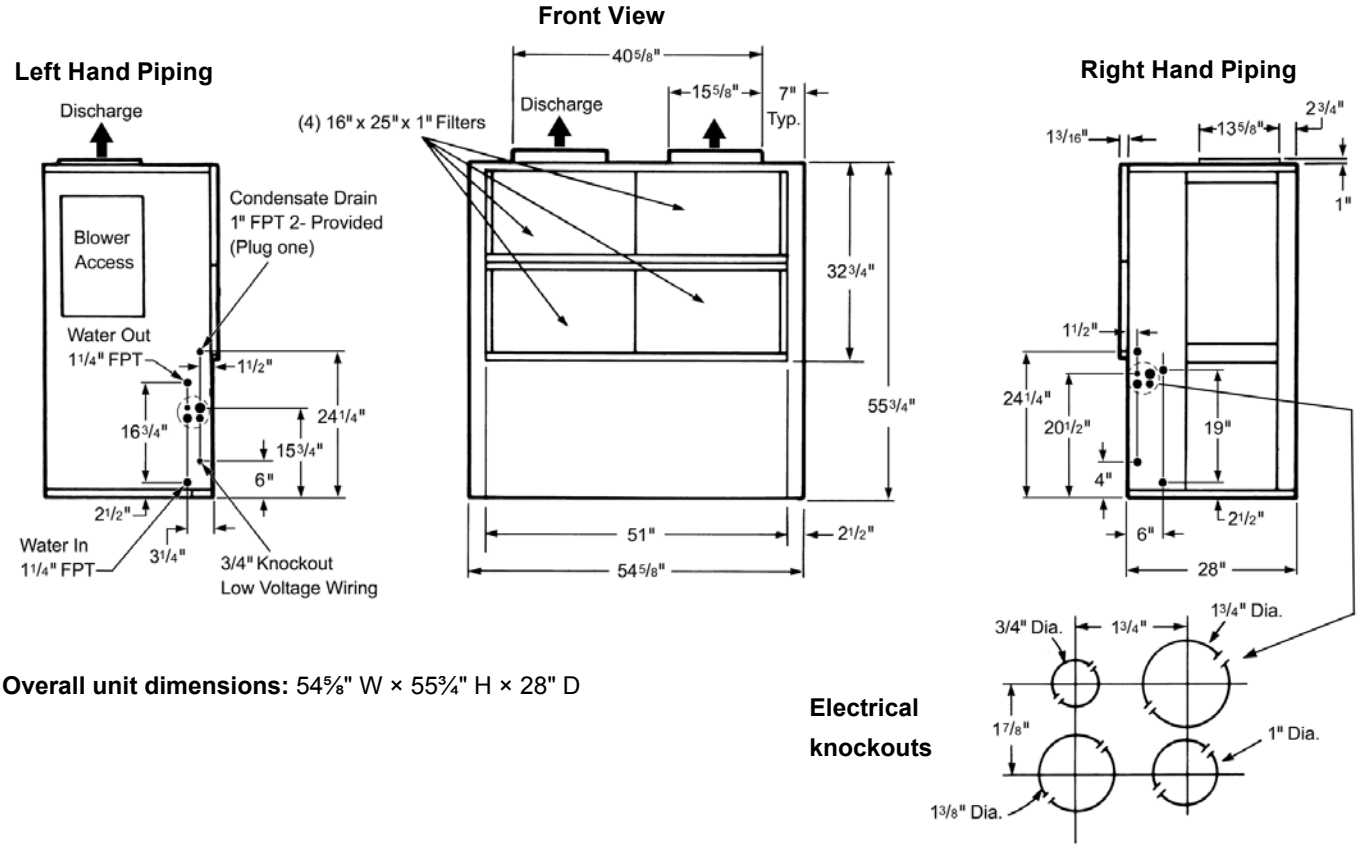
Figure 30: Large vertical – size 096



Overall Unit Dimensions: 54⅝" W × 55¾" H × 28" D

LVC/LVW top discharge – 120

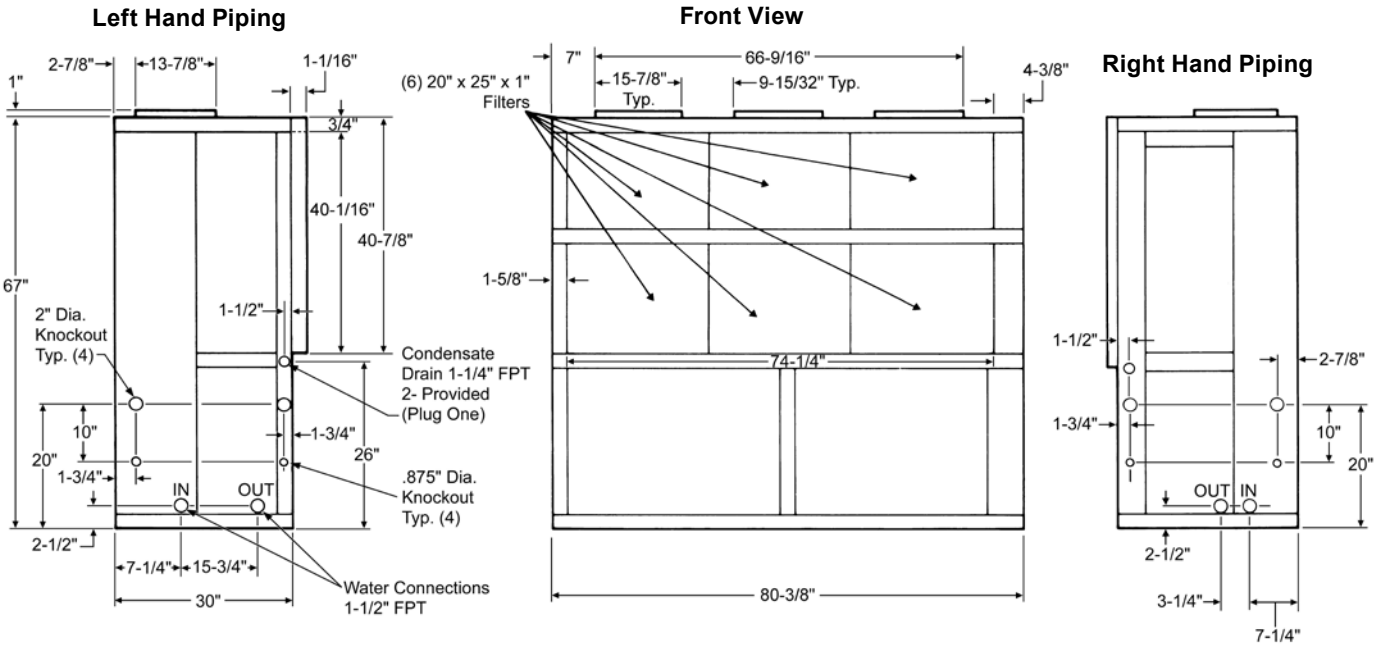
Figure 31: Large vertical – size 120



Overall unit dimensions: 54⅝" W × 55¾" H × 28" D

LVC/LVW top discharge – 180

Figure 32: Large vertical – size 180

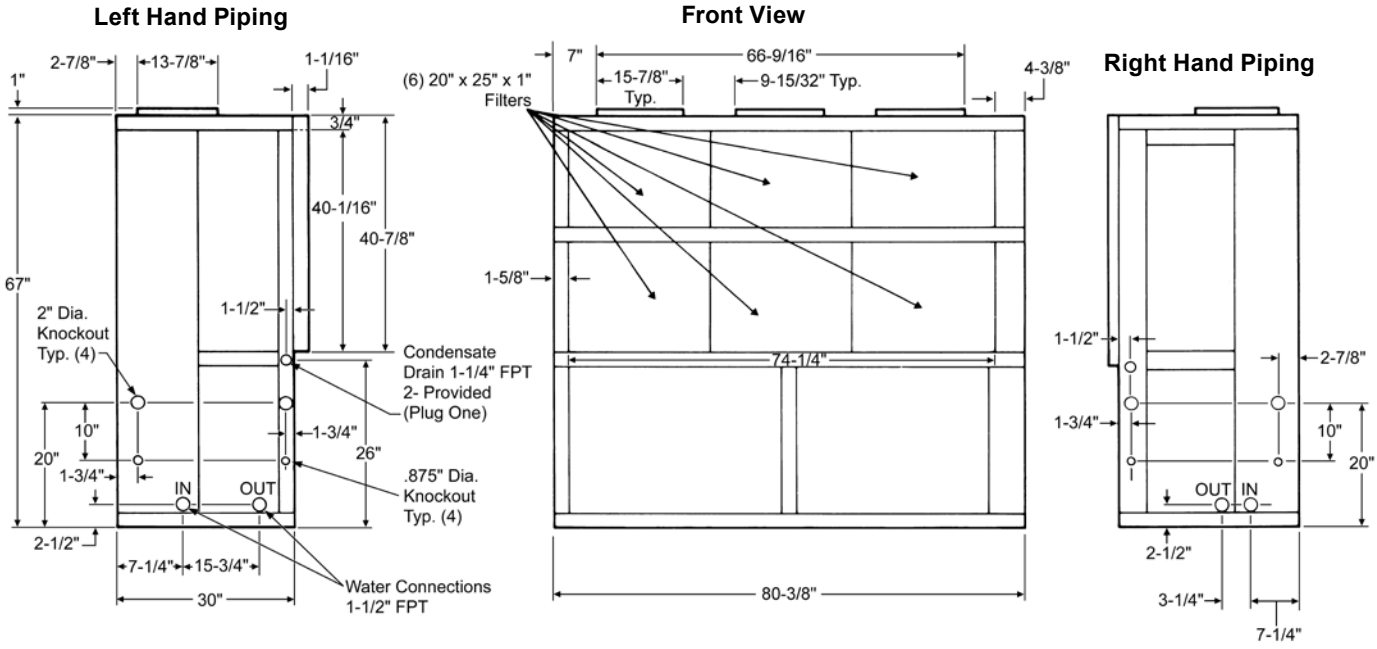


Overall unit dimensions: 80-3/8" W × 67" H × 30" D

Overall filter rack dimensions: 74-1/4" W × 40-1/16"H

LVC/LVW top discharge – 215

Figure 33: Large vertical – size 215

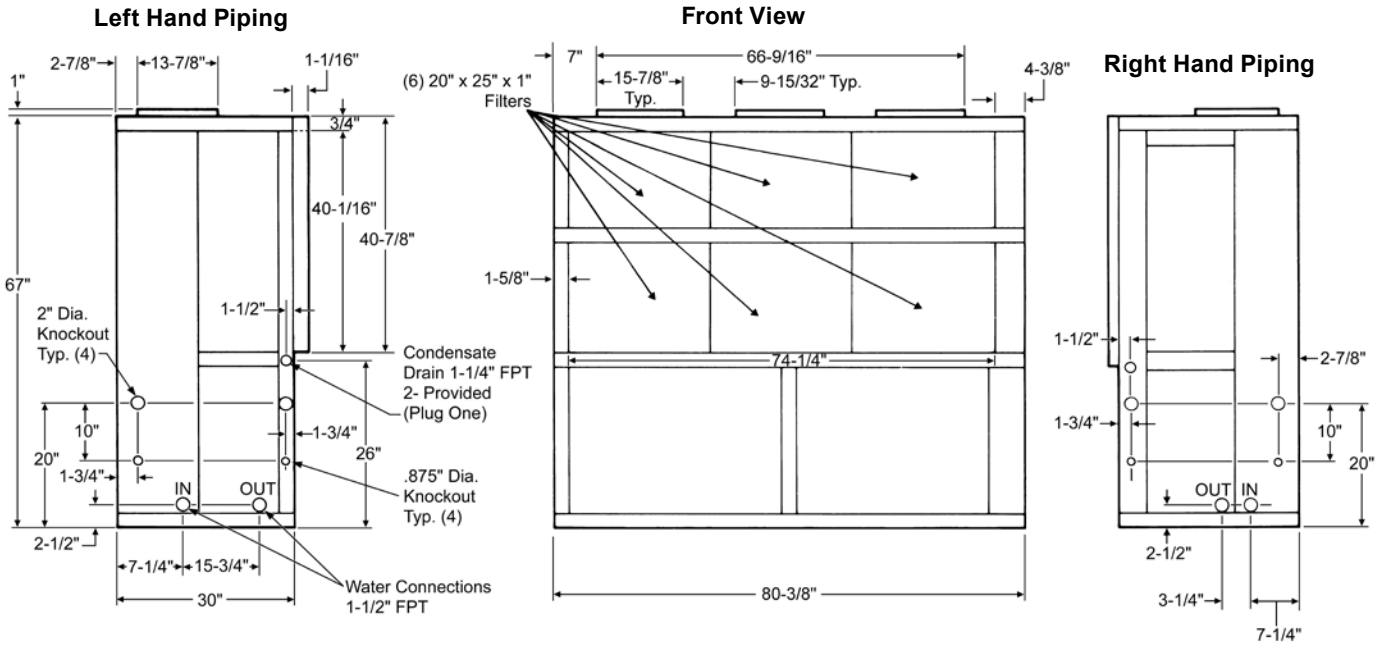


Overall unit dimensions: 80-3/8" W × 67" H × 30" D

Overall filter rack dimensions: 74-1/4" W × 40-1/16"H

LVC/LVW top discharge – 290

Figure 34: Large vertical – size 290

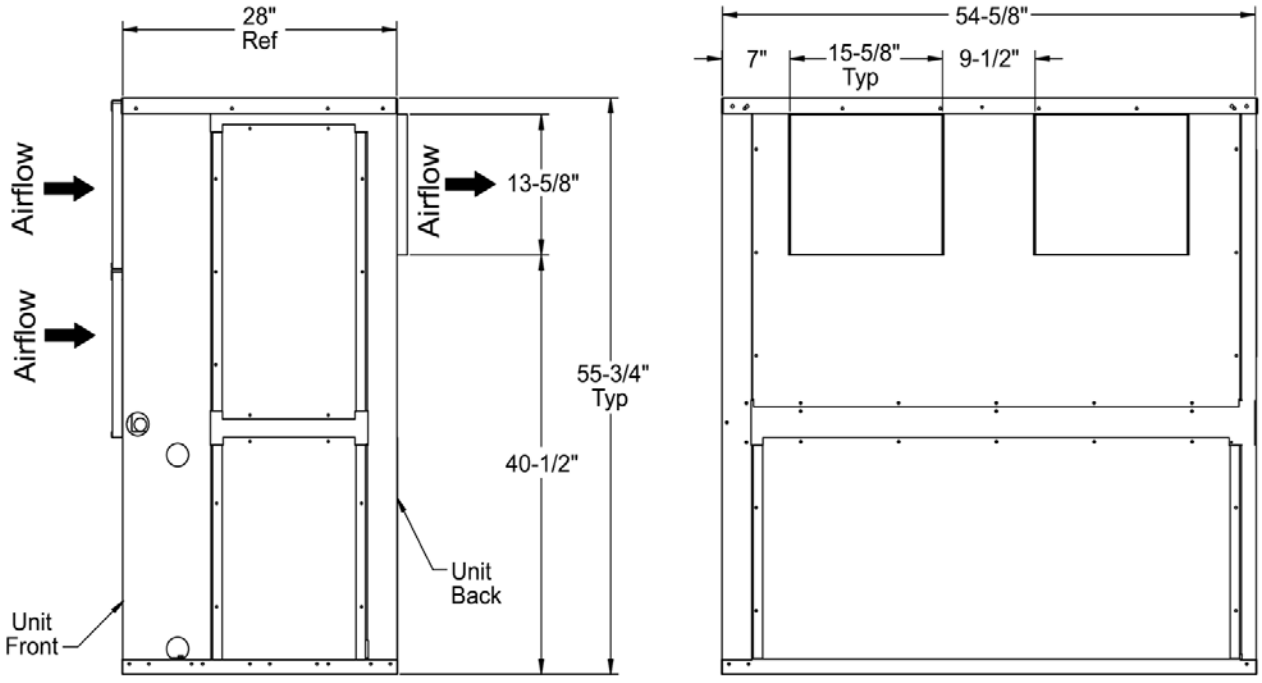


Overall unit dimensions: 80-3/8" W × 67" H × 30" D

Overall filter rack dimensions: 74-1/4" W × 40-1/16"H

LVC/LVW top horizontal discharge – 072, 096, 120

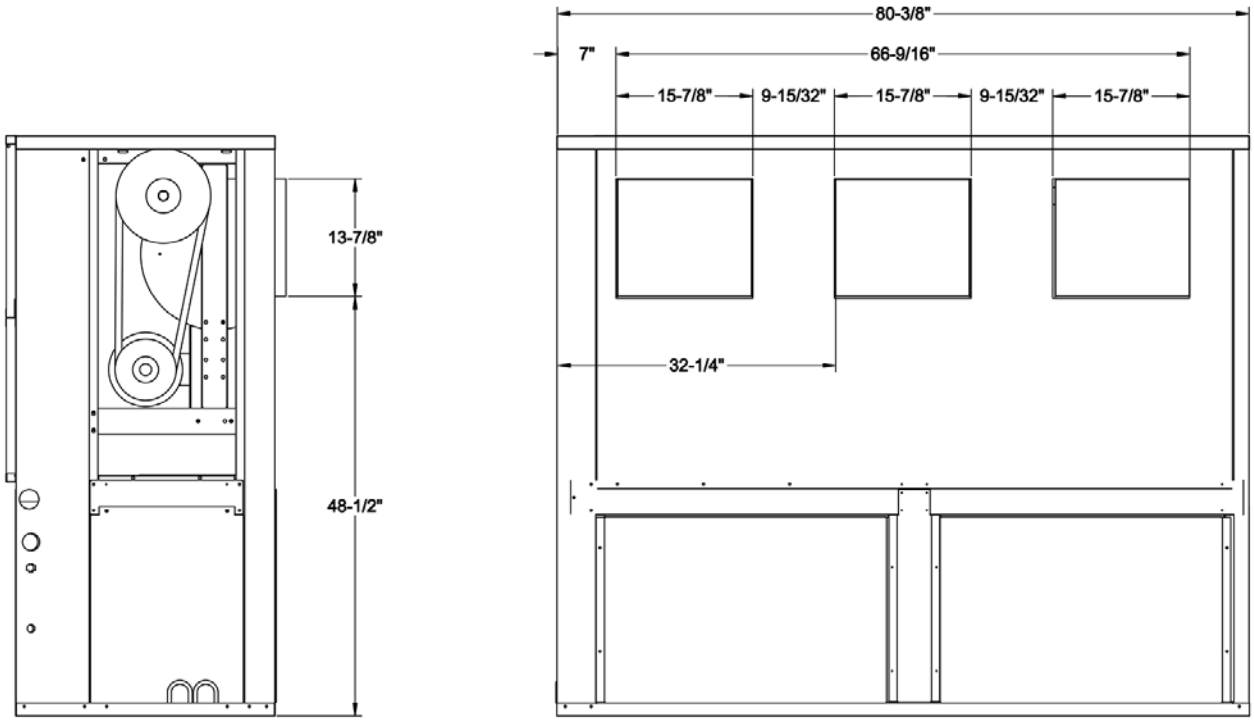
Figure 35: LVC/LVW top horizontal discharge opening – sizes 072, 096, 120



Right Side View **Rear View**

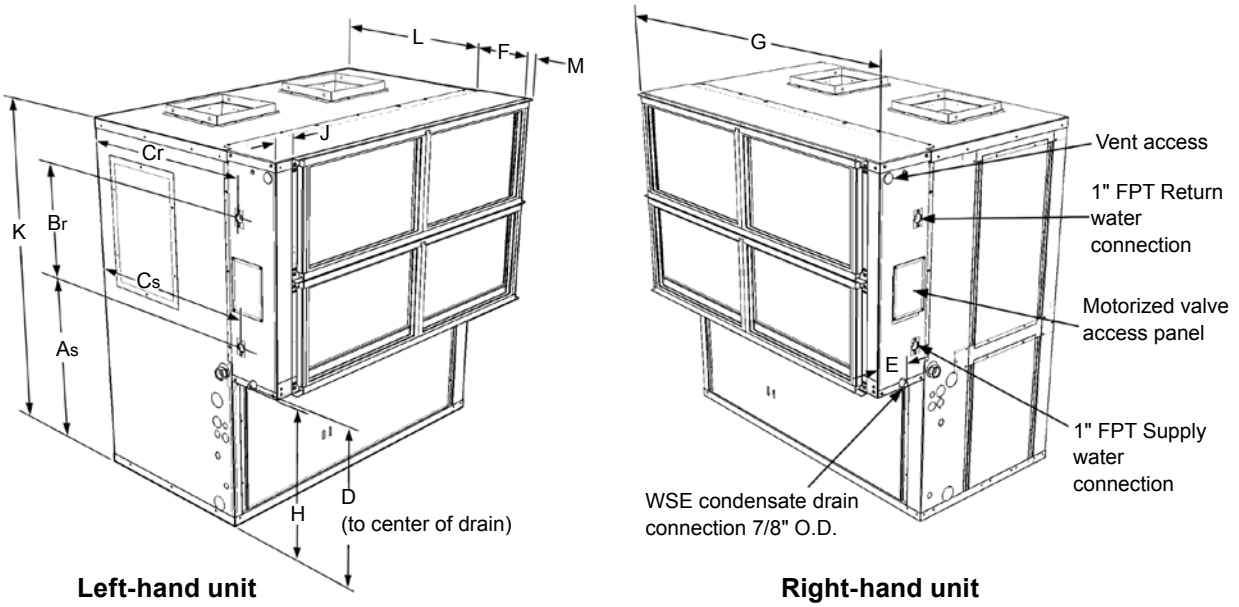
LVC/LVW top horizontal discharge – 180, 215, 290

Figure 36: LVC/LVW top horizontal discharge opening – sizes 180, 215, 290



Right Side View **Rear View**

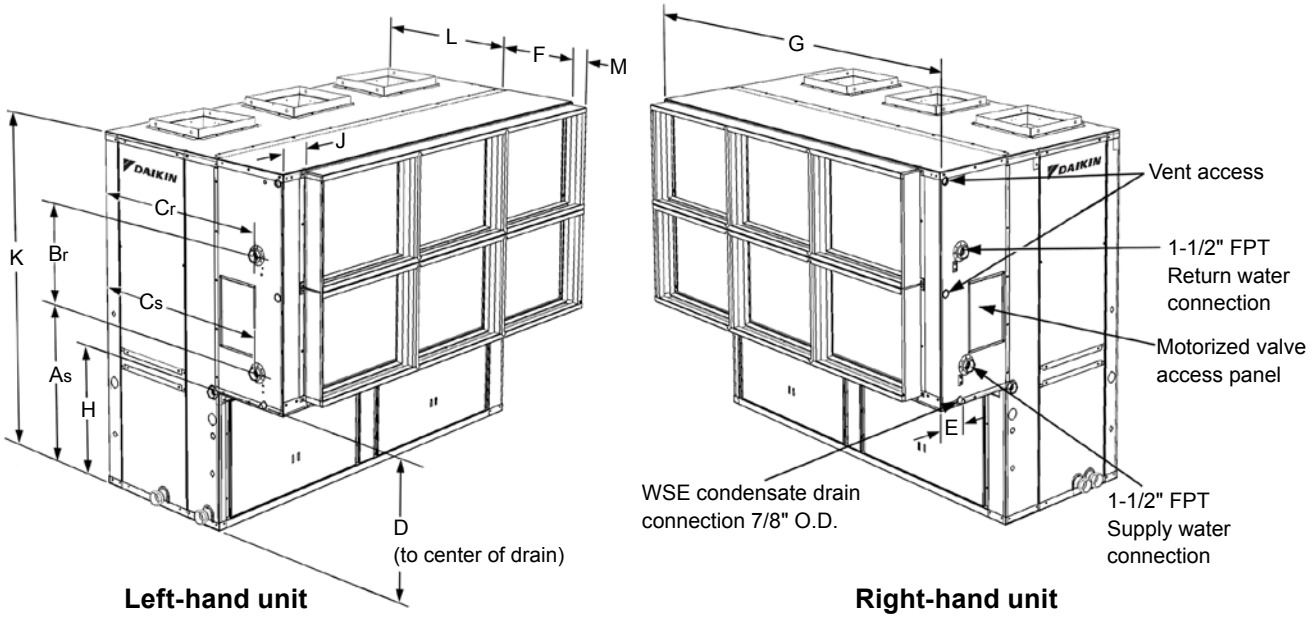
LVC/LVW WSE piping location dimensions – sizes 072-120



Left-hand unit **Right-hand unit**

Note: Piping connections from WSE return to unit supply to be field installed

LVC/LVW WSE piping location dimensions – sizes 180-290



Left-hand unit **Right-hand unit**

Note: Piping connections from WSE return to unit supply to be field installed

Unit Size	Supply & Return Connections					Condensate Drain 7/8" O.D.		F	G	H	J	K	L	M (filter rack)	
		As	Br	Cs	Cr	D	E							Stan-dard	Op-tional
072 – 120[1]	Left & right-hand	28.80	18.27	30.00	30.00	24.00	4.50	9.00	54.90	23.15	3.80	55.75	28.00	1.13"	2.13" or 4.13"
180 – 290[2]	Left-hand	31.53	20.66	39.92	39.75	26.18	4.50	16.00	80.63	25.33	5.10	67.25	30.00		
	Right-hand	32.13	20.39	39.92	41.16										

Notes: [1] *Supply and return piping connections = 1-1/4" FPT.*
[2] *Supply and return piping connections = 1-1/2" FPT.*

Factory installed filter rack without duct flange (options) for large vertical units

- Standard 1" disposable filter
- Merv 8 in 2" frame
- Merv 13 in 4" frame
- No filter with 2" filter rack (low leak)
- No filter-no filter rack

Field installed filter rack with return air duct flange (accessory) for large vertical units

- 2" filter rack with return air duct flange

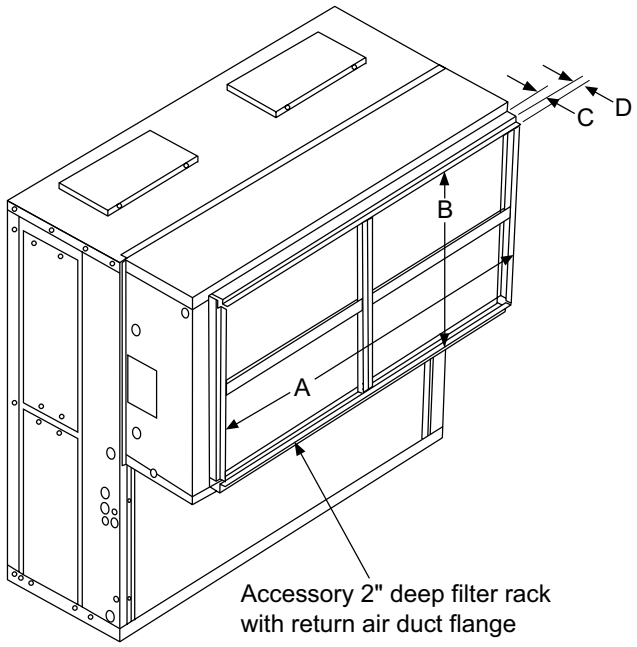


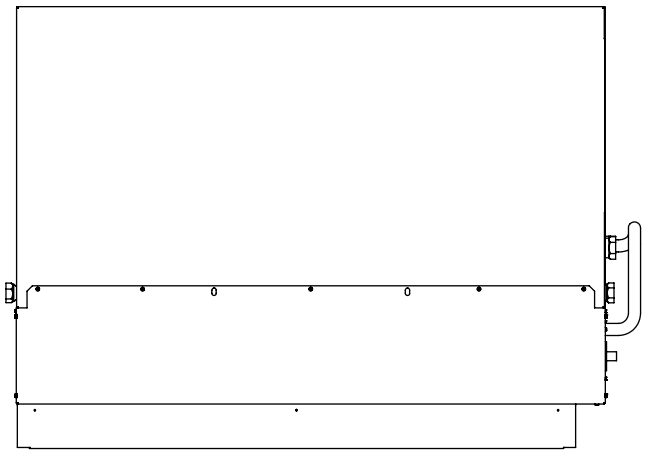
Table 23: Accessory filter rack with return air duct flange dimensions

Unit Size	A	B	C	D	Filters (quantity)
			2" deep		
072-120	50.10"	30.90"	2.29"	1"	4
180-290	74.10"	38.90"			6

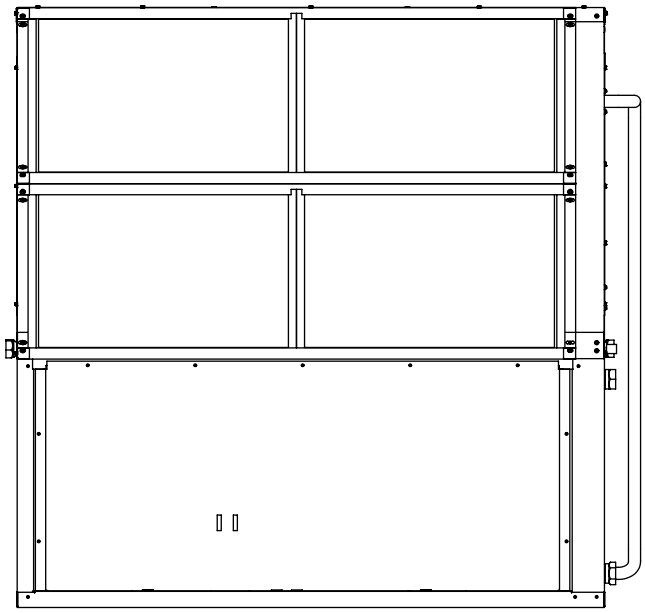
Note: Dimensions are to outside edge of filter rack flange.

Typical WSE field provided and installed jumper piping routing details

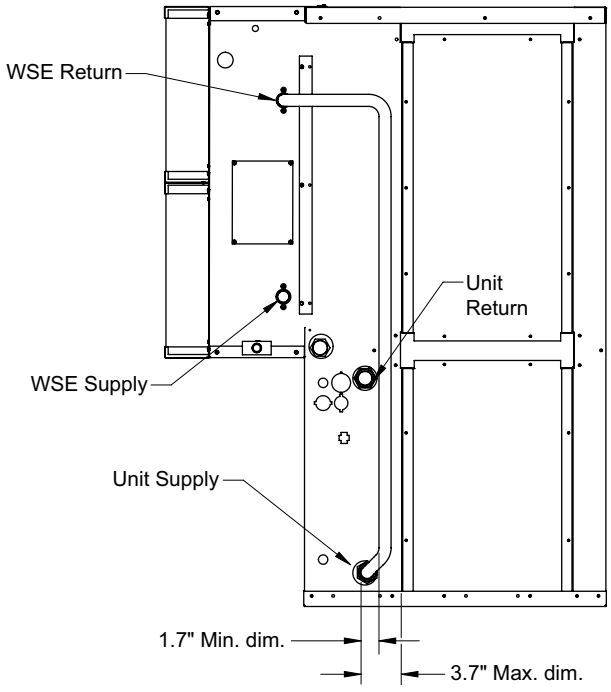
LVC/LVW– sizes 072-120, right-hand



Top View

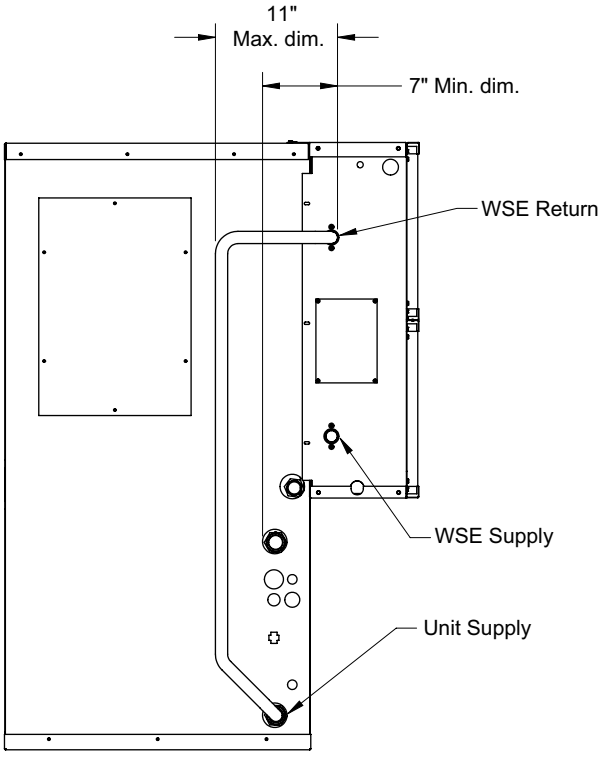


Front View

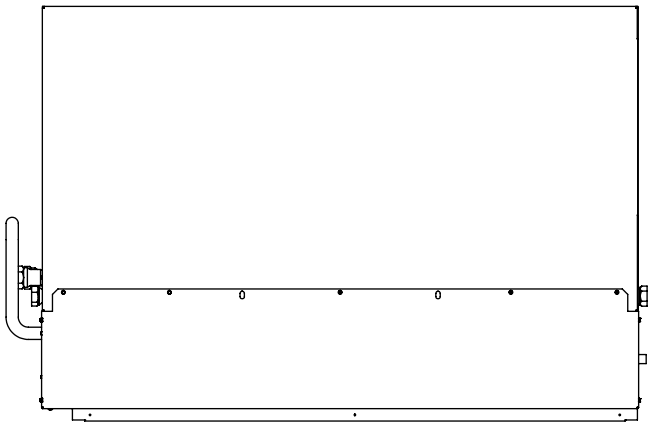


Right End View

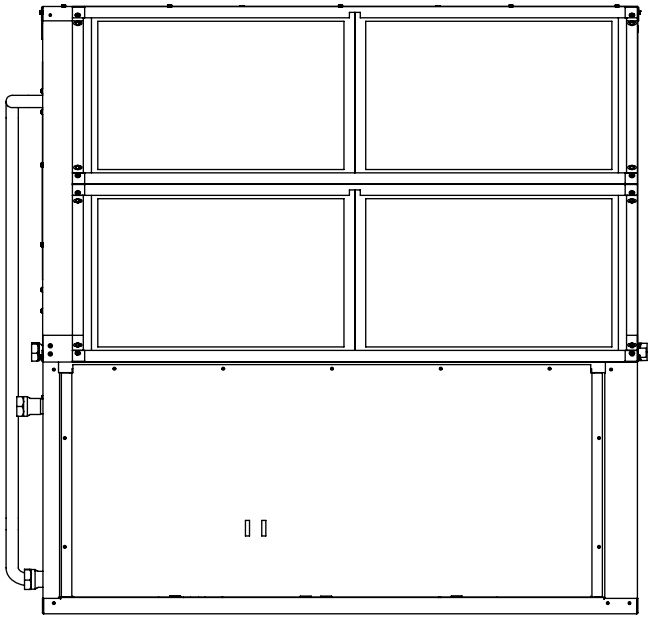
LVC/LVW – sizes 072-120, left-hand



Left End View

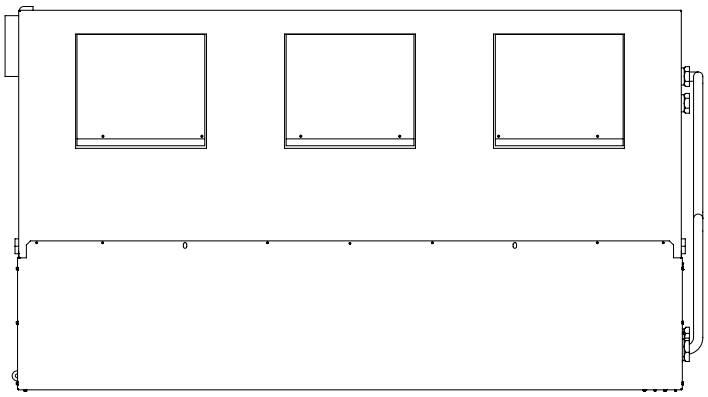


Top View

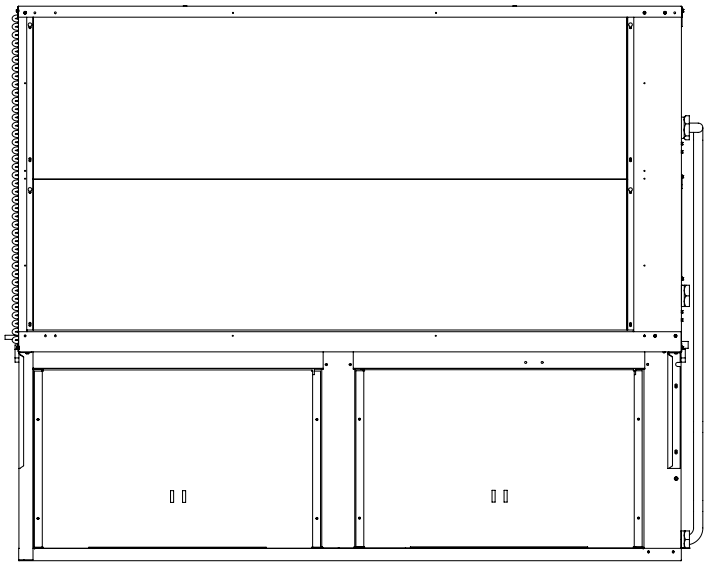


Front View

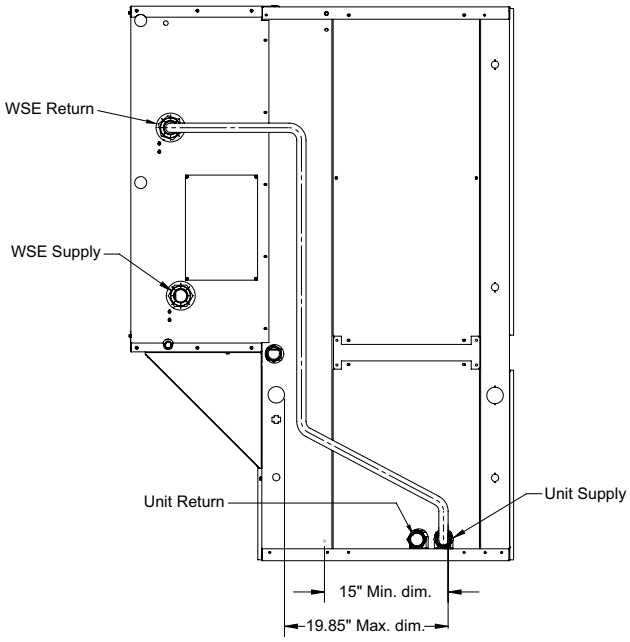
LVC/LVW– sizes 180-290, right-hand



Top View

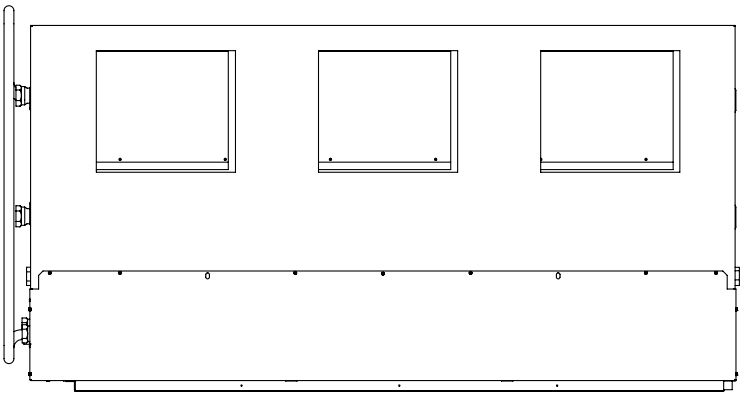


Front View

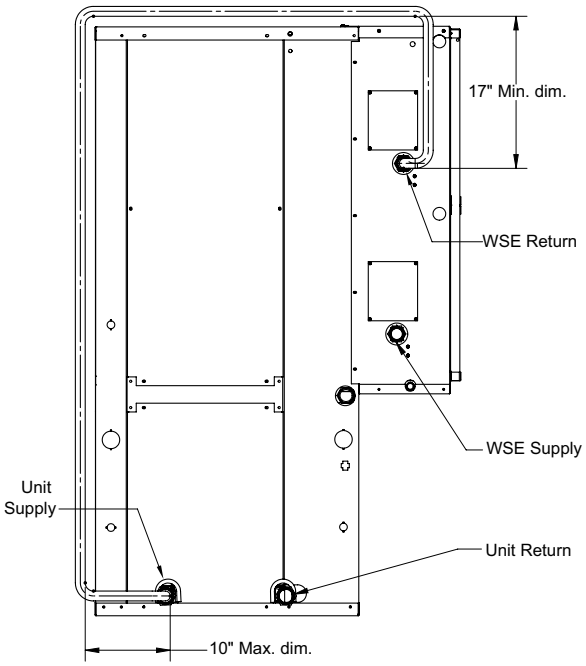


Right End View

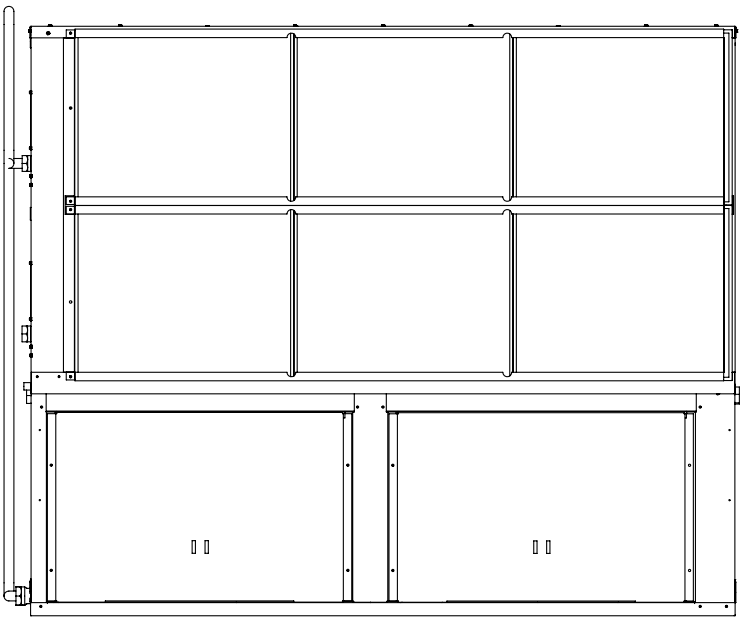
LVC/LVW – sizes 180-290, left-hand



Top View



Left End View

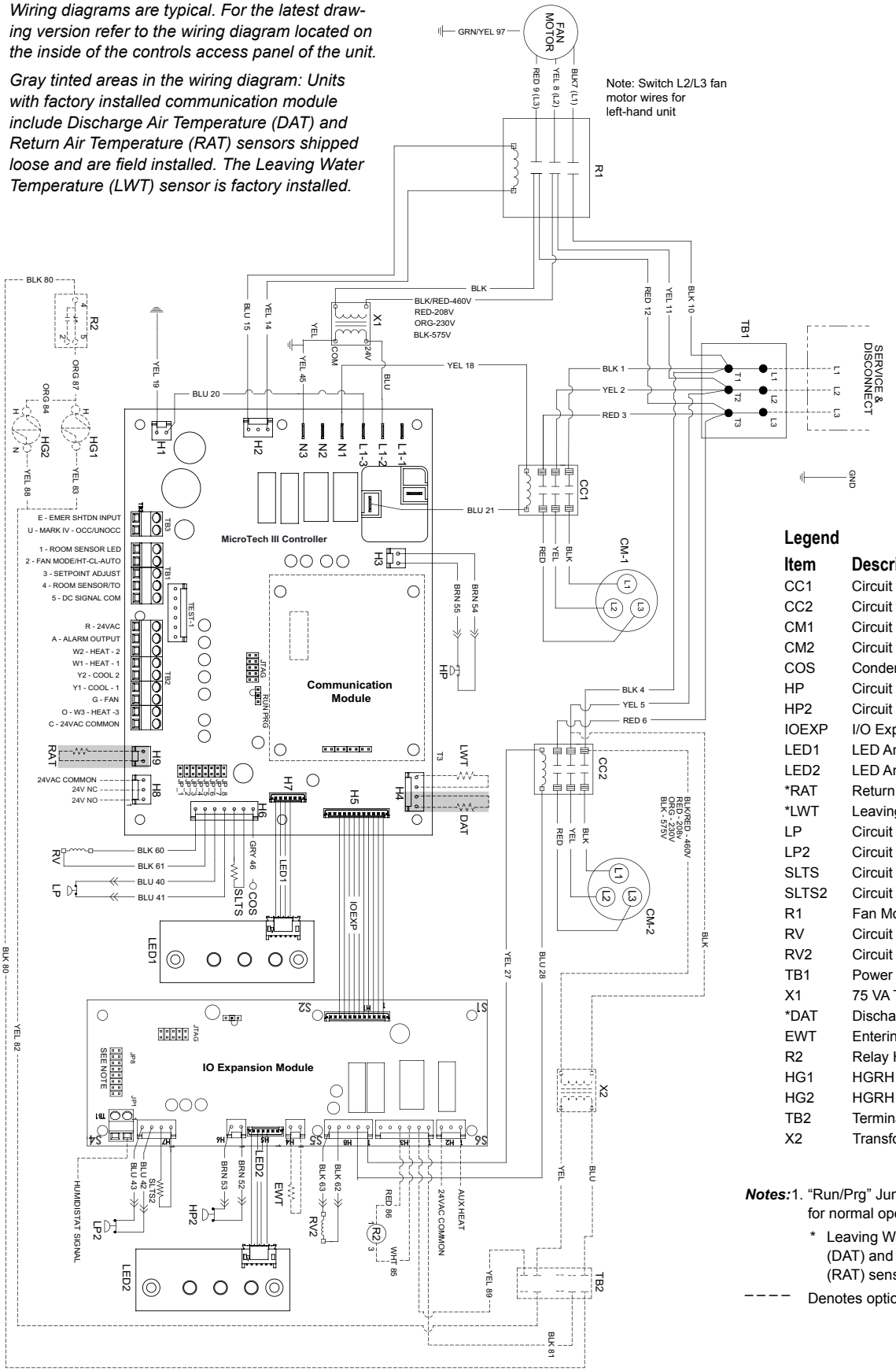


Front View

MicroTech III controller with I/O expansion module with HGRH 208/230, 460, 575-60-3 (1.5 hp or less)

Note: *Wiring diagrams are typical. For the latest drawing version refer to the wiring diagram located on the inside of the controls access panel of the unit.*

Gray tinted areas in the wiring diagram: Units with factory installed communication module include Discharge Air Temperature (DAT) and Return Air Temperature (RAT) sensors shipped loose and are field installed. The Leaving Water Temperature (LWT) sensor is factory installed.



Legend

Item	Description
CC1	Circuit 1 Compressor Contactor
CC2	Circuit 2 Compressor Contactor
CM1	Circuit 1 Compressor
CM2	Circuit 2 Compressor
COS	Condensate Overflow Sensor
HP	Circuit 1 High Pressure Switch
HP2	Circuit 2 High Pressure Switch
IOEXP	I/O Expansion Board / Harness
LED1	LED Annunciator / Harness
LED2	LED Annunciator / Harness
*RAT	Return Air Temp Sensor
*LWT	Leaving Water Temp Sensor
LP	Circuit 1 Low Pressure Switch
LP2	Circuit 2 Low Pressure Switch
SLTS	Circuit 1 Suction Line Temp Sensor
SLTS2	Circuit 2 Suction Line Temp Sensor
R1	Fan Motor Starter
RV	Circuit 1 Reversing Valve Solenoid
RV2	Circuit 2 Reversing Valve Solenoid
TB1	Power Terminal Block
X1	75 VA Transformer
*DAT	Discharge Air Temp Sensor
EWT	Entering Water Temp Sensor
R2	Relay HGRH
HG1	HGRH Solenoid 1
HG2	HGRH Solenoid 2
TB2	Terminal Block
X2	Transformer 24VAC Output

Notes: 1. "Run/Prg" Jumper to be in "Run" position for normal operation

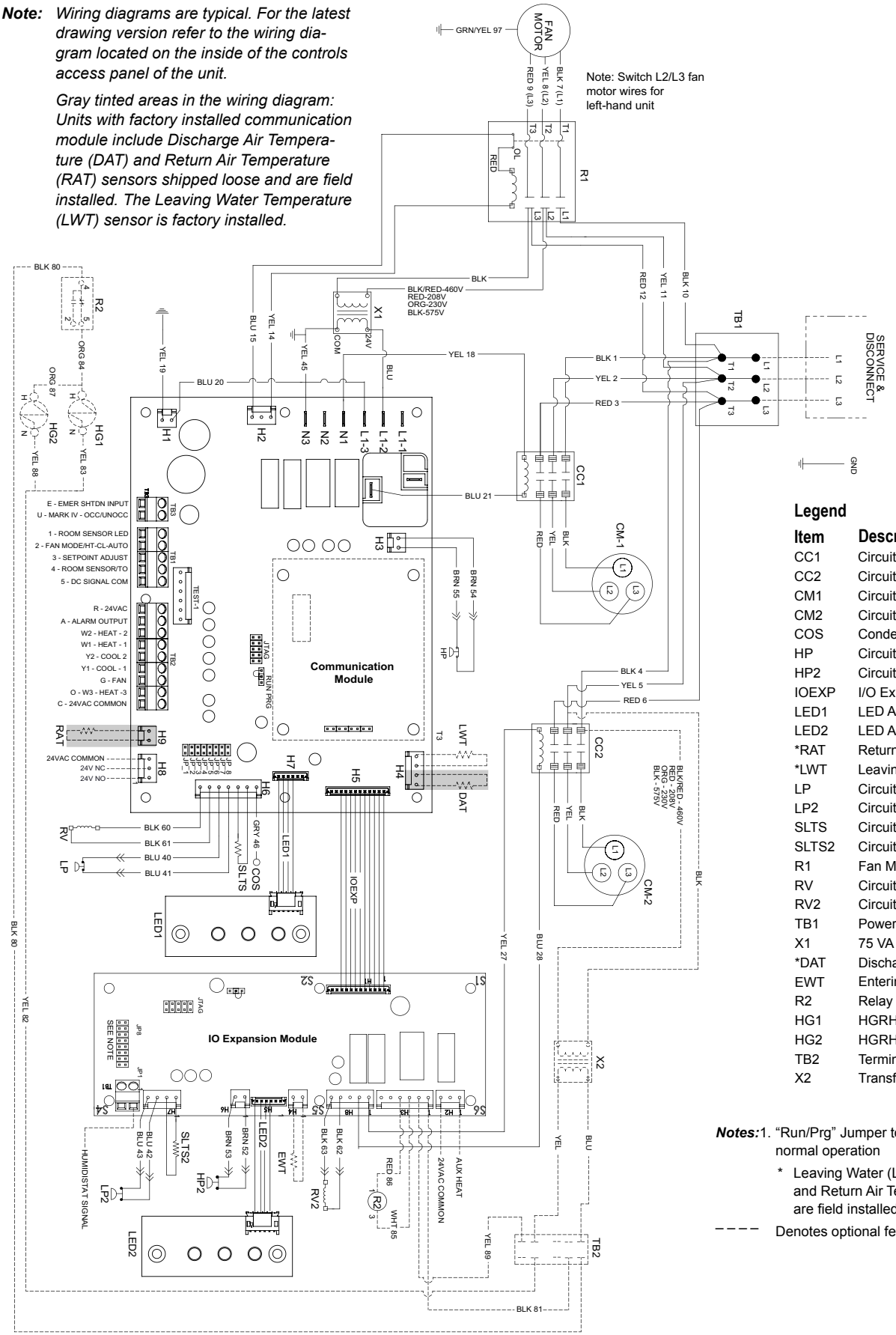
* Leaving Water (LWT), Discharge Air (DAT) and Return Air Temperature (RAT) sensors are field installed.

– – – – Denotes optional feature

MicroTech III controller with I/O expansion module with hot gas reheat (HGRH) 208/230, 460, 575-60-3 (greater than 1.5 hp)

Note: *Wiring diagrams are typical. For the latest drawing version refer to the wiring diagram located on the inside of the controls access panel of the unit.*

Gray tinted areas in the wiring diagram: Units with factory installed communication module include Discharge Air Temperature (DAT) and Return Air Temperature (RAT) sensors shipped loose and are field installed. The Leaving Water Temperature (LWT) sensor is factory installed.



Legend

Item	Description
CC1	Circuit 1 Compressor Contactor
CC2	Circuit 2 Compressor Contactor
CM1	Circuit 1 Compressor
CM2	Circuit 2 Compressor
COS	Condensate Overflow Sensor
HP	Circuit 1 High Pressure Switch
HP2	Circuit 2 High Pressure Switch
IOEXP	I/O Expansion Board / Harness
LED1	LED Annunciator / Harness
LED2	LED Annunciator / Harness
*RAT	Return Air Temp Sensor
*LWT	Leaving Water Temp Sensor
LP	Circuit 1 Low Pressure Switch
LP2	Circuit 2 Low Pressure Switch
SLTS	Circuit 1 Suction Line Temp Sensor
SLTS2	Circuit 2 Suction Line Temp Sensor
R1	Fan Motor Starter
RV	Circuit 1 Reversing Valve Solenoid
RV2	Circuit 2 Reversing Valve Solenoid
TB1	Power Terminal Block
X1	75 VA Transformer
*DAT	Discharge Air Temp Sensor
EWT	Entering Water Temp Sensor
R2	Relay HGRH
HG1	HGRH Solenoid 1
HG2	HGRH Solenoid 2
TB2	Terminal Block
X2	Transformer 24VAC Output

Notes: 1. "Run/Prg" Jumper to be in "Run" position for normal operation

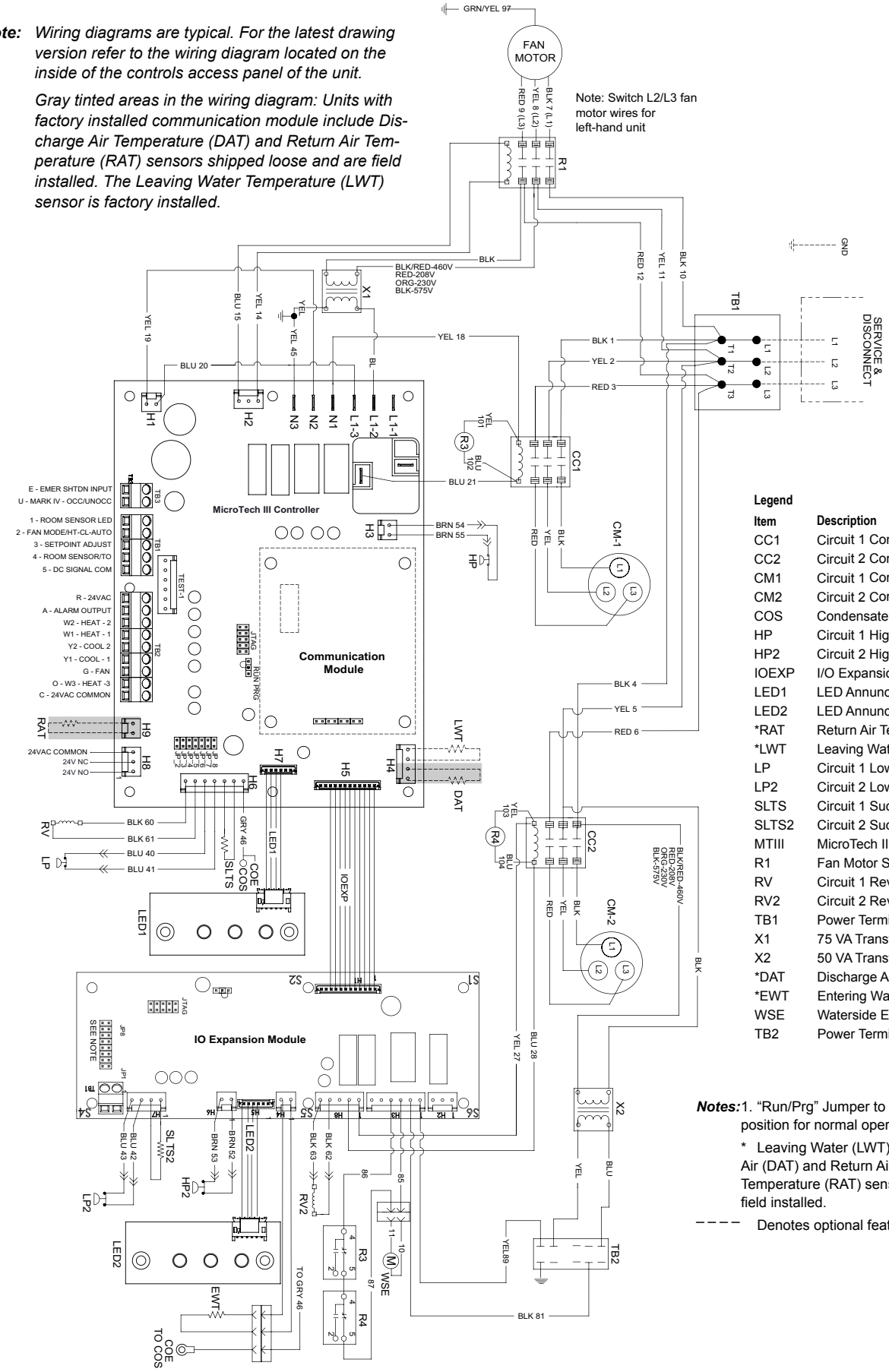
* Leaving Water (LWT), Discharge Air (DAT) and Return Air Temperature (RAT) sensors are field installed.

– – – – Denotes optional feature

MicroTech III controller with I/O expansion module – with waterside economizer 208/230, 460, 575-60-3

Note: *Wiring diagrams are typical. For the latest drawing version refer to the wiring diagram located on the inside of the controls access panel of the unit.*

Gray tinted areas in the wiring diagram: Units with factory installed communication module include Discharge Air Temperature (DAT) and Return Air Temperature (RAT) sensors shipped loose and are field installed. The Leaving Water Temperature (LWT) sensor is factory installed.



Legend

Item	Description
CC1	Circuit 1 Compressor Contactor
CC2	Circuit 2 Compressor Contactor
CM1	Circuit 1 Compressor
CM2	Circuit 2 Compressor
COS	Condensate Overflow Sensor
HP	Circuit 1 High Pressure Switch
HP2	Circuit 2 High Pressure Switch
IOEXP	I/O Expansion Board / Harness
LED1	LED Annunciator / Harness
LED2	LED Annunciator / Harness
*RAT	Return Air Temperature
*LWT	Leaving Water Temp Sensor
LP	Circuit 1 Low Pressure Switch
LP2	Circuit 2 Low Pressure Switch
SLTS	Circuit 1 Suction Line Temp Sensor
SLTS2	Circuit 2 Suction Line Temp Sensor
MTIII	MicroTech III Main Board
R1	Fan Motor Starter
RV	Circuit 1 Reversing Valve Solenoid
RV2	Circuit 2 Reversing Valve Solenoid
TB1	Power Terminal Block
X1	75 VA Transformer
X2	50 VA Transformer
*DAT	Discharge Air Temp Sensor
*EWT	Entering Water Temp Sensor
WSE	Waterside Economizer
TB2	Power Terminal Block

Notes: 1. "Run/Prg" Jumper to be in "Run" position for normal operation

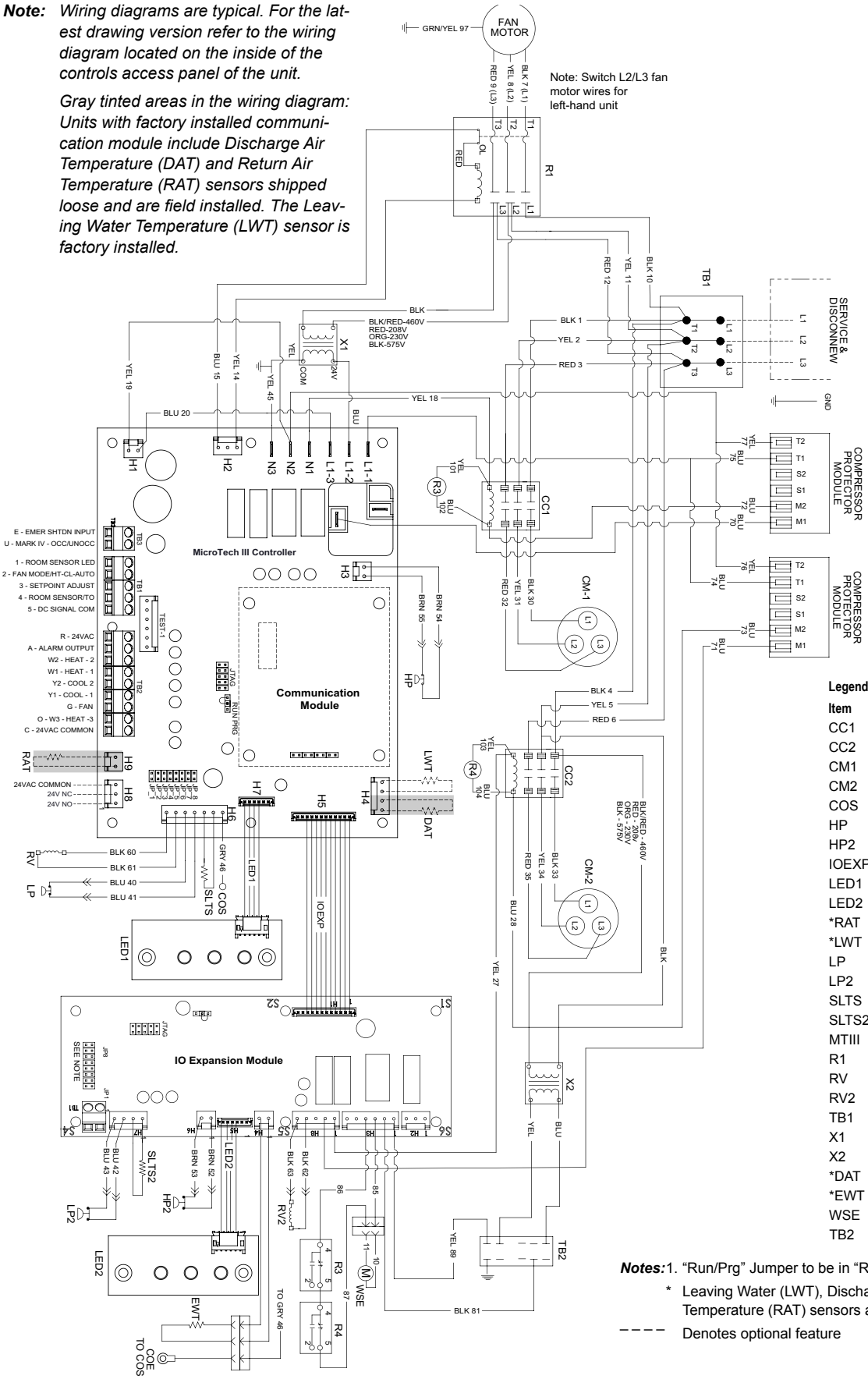
* Leaving Water (LWT), Discharge Air (DAT) and Return Air Temperature (RAT) sensors are field installed.

– – – – Denotes optional feature

MicroTech III controller with I/O expansion module – with waterside economizer 208/230, 460, 575-60-3

Note: *Wiring diagrams are typical. For the latest drawing version refer to the wiring diagram located on the inside of the controls access panel of the unit.*

Gray tinted areas in the wiring diagram: Units with factory installed communication module include Discharge Air Temperature (DAT) and Return Air Temperature (RAT) sensors shipped loose and are field installed. The Leaving Water Temperature (LWT) sensor is factory installed.



Legend

Item	Description
CC1	Circuit 1 Compressor Contactor
CC2	Circuit 2 Compressor Contactor
CM1	Circuit 1 Compressor
CM2	Circuit 2 Compressor
COS	Condensate Overflow Sensor
HP	Circuit 1 High Pressure Switch
HP2	Circuit 2 High Pressure Switch
IOEXP	I/O Expansion Board / Harness
LED1	LED Annunciator / Harness
LED2	LED Annunciator / Harness
*RAT	Return Air Temperature
*LWT	Leaving Water Temp Sensor
LP	Circuit 1 Low Pressure Switch
LP2	Circuit 2 Low Pressure Switch
SLTS	Circuit 1 Suction Line Temp Sensor
SLTS2	Circuit 2 Suction Line Temp Sensor
MTIII	MicroTech III Main Board
R1	Fan Motor Starter
RV	Circuit 1 Reversing Valve Solenoid
RV2	Circuit 2 Reversing Valve Solenoid
TB1	Power Terminal Block
X1	75 VA Transformer
X2	50 VA Transformer
*DAT	Discharge Air Temp Sensor
*EWT	Entering Water Temp Sensor
WSE	Waterside Economizer
TB2	Power Terminal Block

Notes: 1. "Run/Prg" Jumper to be in "Run" position for normal operation

* Leaving Water (LWT), Discharge Air (DAT) and Return Air Temperature (RAT) sensors are field installed.

– – – – Denotes optional feature

General

Contractor shall furnish and install Water Source Heat Pumps as indicated on plans. Each unit shall be CETL Listed. Units less than 135,000 Btu/hr. total cooling capacity shall be ISO rated per Standard 13256-1. Each unit shall be fully run tested at the factory. Each unit shall be shipped on a wooden skid and covered with plastic.

Casing and cabinet

The casing shall be constructed of heavy-gauge G-60 galvanized steel corner posts and steel panel construction with heavy gauge steel base pan. The base pan shall have holes to accept field installation of rubber or spring isolators. The interior shall be lined with 1/2" thick, 1½ lb. density glass fiber. Multiple panels on front, back and sides shall provide access to compressor, control box, fan motor and fan assembly. Unit shall have a galvanized steel painted drain pan with a drain connection extending through the unit casing. Insulated drain pan shall act as a divider panel between the compressor and fan sections. Units shall have as standard a factory installed 1" thick filter brackets for side filter removal. Unit shall have multiple 1" thick throwaway filters. Cabinets shall have knockouts for entrance of line voltage and low voltage control wiring. Supply return water and condensate connections shall be copper FPT fittings and protrude through the casing.

R-410A refrigerant circuit

Units shall be dual circuit design containing scroll compressors, electronic expansion valve, water-to-refrigerant coaxial heat exchanger, reversing valve, finned tube heat exchanger, and safety controls. Non-ozone depleting R-410A refrigerant must be used. Compressor(s) shall be scroll type with thermal overload protection and external rubber vibration isolation mounts. Air coil shall be aluminum fins bonded to copper tubes. The coaxial heat exchanger shall be copper inner tube and steel outer tube with a U.L. Listing and a 500 psig water side rating and a 600 psig refrigerant side rating. Optional Cupro-nickel Coax coil is available for geothermal units.

High and low side service valves shall be provided on each refrigerant circuit for measuring and charging of the refrigerant circuit.

Safety controls shall include a low suction temperature (freezestat), high refrigerant pressure and low refrigerant pressure switches. Units shall be capable of being reset only by interrupting the power supply to the unit and not from the wall thermostat. Unit shall be capable of starting in an ambient of 40º F with entering water at 55º F standard range, 20º F geothermal range, with both air and water flow rates at the ISO rating conditions.

Hot gas reheat

The optional factory-installed hot gas reheat coil shall be used as part of a dehumidification operating sequence. Hot gas reheat shall be enabled when the space humidity level is above a user selectable set point. It is especially effective during low load conditions when proper control is critical. Under humid conditions when humid conditions (60% RH) and typical loop water temperatures, the latent capacity is optimized for approximately 90% of the sensible capacity.

Superheated refrigerant gas shall be diverted to the reheat coil and unit fan shall operate upon a call for dehumidification. This option includes a hot gas reheat coil and a solenoid actuated 3-way valve. Coil shall be proof and leak tested.

The two dehumidification modes of operation uses hot gas reheat with a 2-stage thermostat or humidistat for precise humidity control.

Waterside economizer

An optional factory-installed waterside economizer shall consist of a hydronic cooling coil located between the unit filter rack and evaporator, a 2-position 3-way diverting valve, a manual air vent, and an entering fluid sensor. The waterside economizer outer cabinet shall be fabricated from heavy gauge G060 galvanized sheet metal. Components shall be accessible without removing economizer. An insulated stainless steel drain pan compliant with ASHRAE 62.1 including electronic condensate overflow protection shall be provided.

Economizer flush mounted piping connections shall be on the same side as the water source heat pump piping connections. A field installed hard pipe connection is required for the connection between the waterside economizer and water source heat pump unit. Economizer operation shall be permitted when entering fluid temperature is below 55°F yet adjustable between 70°F to 50°F. Economizer operation shall be initiated from a 3-stage wall mounted thermostat or room temperature sensor. Economizer operation shall not be permitted when entering fluid temperature is below 35°F

Hot gas bypass

The optional factory-installed hot gas bypass option shall limit the minimum suction pressure during cooling operation to protect the air coil from freezing.

Electrical

A control enclosure shall be located within the unit and shall contain controls for compressor(s), reversing valves(s) and fan motor operation. A terminal block shall facilitate main power wiring connection. A 75 VA transformer shall supply the low voltage control circuit. Unit shall be name plated to accept time delay fuses for branch over-current protection of the power conductors. Unit control system shall provide one or two stage cooling and heating as required by the setpoints of the wall thermostat. The unit shall be capable of providing an output signal to a unit-mounted LED annunciator to indicate a “fault” condition.

The control system shall be microprocessor based and provide the following:

- Stand-alone operation
- LONWORKS communication capabilities (Must be LonMark 3.4 certified)
- BACnet communication capabilities (BACnet MS/TP Network)

Fan and motor assembly

Units shall have a belt driven centrifugal fan. A high efficiency TEFC blower motor shall be provided on 72,000 BTUH through 120,000 BTUH units. Factory adjustable sheaves shall be set for optimum fan performance. Field adjustment of sheaves and belt tension shall be required for airflow balancing. The fan housing shall protrude through the cabinet to facilitate field duct connection. (Option):Unit shall have a Variable Frequency Drive (VFD) capable of soft start and programmable for air balance, controlled by an external signal by others.

Filter rack and filters

Unit shall come standard with a 1-inch disposable filter and a 1-inch 4-sided factory-installed combination filter rack. The filters shall be removable from either side of the unit. As selectable options, unit shall have a 2-inch thick MERV 8 or 4 inch MERV 13 filter, with a 2-inch or 4-inch factory-installed filter rack.
As factory installed options, units shall be available:

- No filter rack or filters
- With filter rack and no filters.

All filter racks shall be 4-sided with door.

Solid-state control system

MicroTech III control system - Unit shall have a microprocessor- based control system. The unit control logic shall provide heating and cooling operation as required by the wall thermostat set point. The control system shall provide the following for stand-alone operation:

1. The use of standard non-programmable or programmable wall thermostats.
2. Fan operation simultaneous with the compressor (fan interlock) regardless of thermostat logic.
3. Anti-short cycle time delay for compressor operation.
4. Random start up on power up mode.
5. Single grounded connection to the "E" terminal will place the unit in the remote shutdown mode.
6. Ground signal to the "U" terminal will put the unit in night setback mode.
7. Night setback override function is available with the MicroTech III control system. The thermostat must have an override feature/capability.
8. Brownout protection to suspend unit operation if the supply voltage drops below 80% of normal. This is low voltage protection.
9. Condensate overflow protection to suspend cooling operation or dehumidification, in an event of a full drain pan.
10. Unit protection during high or low refrigerant pressure conditions.
11. Water coil low temperature protection.
12. Method of defeating compressor, time delays for fast service diagnostics.
13. Option to reset unit at thermostat (remote reset) - Provides means to remotely reset automatic lock-outs generated by high/low pressure faults and/or low temperature faults.
14. Intelligent alarm reset - clears re-settable faults the 1st two times they occur within a 24-hour period and triggers automatic lock-out on 3rd fault.
15. Freeze fault protection is based on the leaving water temperature (LWT) input, and is used to help protect the unit from excessively low water and air coil temperature.
16. 24V output to cycle a motorized water valve when water flow is required
17. The low-pressure switch condition may exist for 30 seconds at compressor start up to avoid nuisance low pressure trips.
18. Light emitting diode (LED) for the MicroTech III and I/O expansion control boards indicate high pressure, low pressure, low voltage, low water/air temperature cut out, condensate overflow, and freeze fault.
19. Optional phase monitor shall monitor quality of all phases of supplied power and if irregularity is detected unit shall be disabled.

MicroTech III control with I/O expansion module – I/O Expansion Module connects directly to the main MicroTech III controller to provide control of the second refrigeration circuit.

MicroTech III control with LONWORKS communication module – Unit shall have a microprocessor-based control system. The unit control logic shall communicate over a LONMARK communications network. The unit controller is factory programmed [LONMARK ® 3.4 certified Application Code the current standard for new applications] and tested with all the logic required to monitor and control heating and cooling operation. The controller sets the unit mode of operation, monitors water and air temperatures, and can communicate fault conditions via a LONMARK communications network. Units with the MicroTech III and LONWORKS communication module include return air, discharge air and leaving water temperature sensors. Space temperature sensor options include a set-point adjustment, tenant override button, and the capability of substituting the return air sensor with a wall-mounted room sensor.

Microtech III control w/ BACnet communication module – Unit shall have a microprocessor-based control system. The unit control logic shall communicate over a BACnet communications network. The BACnet communication module shall incorporate an Atmel ARM7 Thumb series MC precise temperature and humidity sensing and control. When combined with a multiple-stage heat pump and electric heat control this thermostat provides the ultimate in thermostatic control with a +/- 1°F accuracy.

Warranty

- An optional 1-year extended compressor warranty covers the compressor for 2 years from the date at which the unit ships from the factory.
- An optional 1-year extended refrigeration circuit warranty covers the entire refrigeration circuit and related components for 2 years
- An optional 1-year extended complete parts warranty covers all parts components for 2 years.
- An optional 4-year extended compressor warranty covers the compressor for 5 years from the date at which the unit ships from the factory.
- An optional 4-year extended refrigeration circuit warranty covers the entire refrigeration circuit and related components for 5 years
- An optional 4-year extended complete parts warranty covers all parts components for 5 years.

In addition to the above warranties an optional 1st year labor allowance is available.

Wall mounted room temperature sensors for BACnet and LONWORKS communications:

- Wall Sensor with timed-override button.
- Wall Sensor with timed-override button and set point adjustment (55 to 95 deg F), fan mode switch (auto/on), operational mode button (Heat/Cool/Auto) and status LED to display fault condition.
- Wall sensor with digital display has four buttons for temperature, occupancy, alarm, setpoint adjustment (55 to 95 deg F) and status indication. Controls include, occupied/unoccupied request, and override reset.

Humidistat

- To be used in conjunction with one of the dehumidification options. Humidistat to be wall mounted and capable of providing solid state input to unit controls to enable/disable dehumidification features.

Hose kits:

Hose kits with standard flexible supply and return hoses are recommended between the water source heat pump unit and building's hard piping system. This is to control possible noise and transmission of vibration from the unit in the space.

Standard supply and return fire-rated hoses have Thermoplastic Rubber (EPTF) with braided covering of stainless steel. The supply and return hoses have a swivel fitting at one end to facilitate removal of the unit for replacement or service. Fittings are either plated steel or brass. The maximum working pressure for both the shut-off ball valve and shut-off ball valve with strainer is 400 psig. The maximum operating temperature is -4°F (-20°C) to 250°F (121°C).

A summary of various hose kits are listed below. See Catalog 1196 for more detailed hose kit features.

Hose kit # 1: Condensate hose kits – one flexible fire rated condensate hose with fixed male NPT x female JIC swivel with male NPT adapter.

Hose kit # 2: Supply and return hose kits – two flexible supply and return hoses with fixed male NPT x female JIC swivel with male NPT adapter.

Hose kit # 4: Supply and return hose kits with shut-off ball valves - valves have pressure and temperature (P/T) ports to allow pressure and temperature readings during commissioning.

Hose kit # 5: Supply and return hose kits with shut-off ball valves, Y-strainer and blowdown valve – the supply hose assembly includes a shut-off ball valve with one pressure/temperature test port, Y-strainer with blowdown valve. The return assembly includes a shut-off ball valve with pressure/temperature test port and drain valve for servicing.

Hose kit # 6: Supply and return hose kits with ball valve and autoflow control valve – the supply hose assembly includes a shut-off ball valve with one pressure/temperature test port. The return assembly includes a shut-off ball valve with two pressure/temperature test ports and autoflow control valve.

Hose kit # 7: Supply and return hose kits with ball valve and autoflow control valve, Y-strainer and blowdown valve – the supply hose assembly includes a shut-off ball valve with one pressure/temperature test port Y-strainer with blowdown valve. The return assembly includes a shut-off ball valve with two pressure/temperature test ports and autoflow control valve.

Valve options:

- Combination water balancing and shutoff valve with adjustable memory stop.
- Optional 2-way, Normally Open (N.O.) or Normally Closed (N.C.) motorized water valves.

Capacity table legend

Btu/hr = British Thermal Units per Hour
CFM = Airflow Rate, Cubic Feet per Minute
COP = Coefficient of Performance
EAT = Entering Air Temperature
EER = Energy Efficiency Ratio
EWT = Entering Water Temperature
Ft of W.C. = Feet of Water Column
GPM = Gallons per Minute
kW = Kilowatts
PSI = Pounds per Square Inch
LAT = Leaving Air Temperature
THA = Total Heat of Absorption
THR = Total Heat of Rejection
WPD = Waterside Pressure Drop

◄ BACK TO Capacity Data Tables beginning on page 31.

Daikin Applied Training and Development

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at www.DaikinApplied.com and click on Training, or call 540-248-9646 and ask for the Training Department.

Warranty

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied representative for warranty details. Refer to Form 933-430285Y. To find your local Daikin Applied representative, go to www.DaikinApplied.com.

Aftermarket Services

To find your local parts office, visit www.DaikinApplied.com or call 800-37PARTS (800-377-2787). To find your local service office, visit www.DaikinApplied.com or call 800-432-1342.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to www.DaikinApplied.com.

Products manufactured in an ISO Certified Facility.