BENNETT
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(207) 865-9475

☐ NO EXCEPTIONS TAKEN	☐ SUBMIT SPECIFIED ITEM
☒ MAKE CORRECTIONS NOTED	☐ REJECTED-SEE REMARKS
☐ AMEND & RE-SUBMIT	☐ SEE COMMENTS BELOW

CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE, FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATION OF THE WORK WITH THAT OF OTHER TRADES AND THE SATISFACTORY PERFORMANCE OF THE WORK.

Stephen P. Doel	**7/31/13**
SIGNATURE	REVIEW DATE

Project: Marriott Hotel - Portland, Maine

Submittal: McQuay Water Source Heat Pumps

Comments: MAKE CORRECTIONS NOTED

1. **Provide with condensate pumps, as scheduled / required.**
2. **Opechee Construction to verify stacked vertical unit configuration (supply/return grilles).**
3. **Provide condensate overflow safety switches as specified.**
4. **Provide two (2) spare sets of filters for each heat pump.**

Project Name: Marriott Courtyard
321 commercial Street
Portland, Maine 04101

Architect:

Contractor: Opechee Construction Corporation
11 Corporate Drive
Belmont, NH 03220

Subcontractor: Warren Mechanical, Inc.
P.O. Box 149
Westbrook, Maine 04098-0149

Supplier: Briggs Equipment Sales, Inc.
P.O. Box 1375
Gray, Maine 04039

Manufacturer: Daikin

Section: 230000/2.14 Water Source Heat Pumps

Contractor Review

Architect's Review

BRIGGS
EQUIPMENT SALES, INC.

SUBMITTAL DATA

Project:	Marriott Hotel
Mechanical Engineer:	Bennett Engineering
Mechanical Contractor:	Warren Mechanical
Date:	July 30, 2013
Product:	Console WSHPs
Specification Section:	230000-15
Revision:	00

Tag	**Qty**	**Model / Description**	**Manufacturer**
HP-D	3	WMHC/ Console WSHPs	Daikin McQuay

Comments / Notes

McQuay International

An Authorized Representative for Northern New England

ENFINITY™ Heat Pump

DAIKIN McQUAY

Job Information	*Technical Data Sheet*
Job Name	Marriott Hotel
Date	7/29/2013
Submitted By	Briggs Equipment Sales, Inc.
Software Version	08.61
Unit Tag	HP-D
Qty:	3

Unit Overview

Model Number	Voltage V/Hz/Phase	Air Flow CFM	Fluid Flow gpm	Cooling Capacity Btu/hr	Cooling Efficiency EER	Heating Capacity Btu/hr	Heating Efficiency COP
WMHC1018	208-230/60/1	392	2.50	16615	13.41	20742	4.53

Unit

Model Number:	WMHC1018
Unit Type:	R-410A, Wall Mounted, Standard Range
Unit Construction:	Standard Construction
Approval:	ETL, CETL, ARI

Refrigerant Type	Refrigerant Weight
R-410A	32.0 oz

Unit Performance

Air & Water Flow

Airflow	Fluid Flow	Fluid Type	Fluid Pressure Drop
392 CFM	2.50 gpm / 1.67 gpm/ton	Water	3.94 ft H_2O

Cooling Performance

Fluid Temperature		Air Temperature				Capacity		Heat of Rejection Btu/hr	EER
Entering °F	Leaving °F	Entering		Leaving		Total Btu/hr	Sensible Btu/hr		
		Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F				
88.0	104.7	80.0	67.0	53.5	52.5	16615	11033	20597	13.41

Heating Performance

Fluid Temperature		Air Temperature		Capacity	Heat of Absorption Btu/hr	COP
Entering °F	Leaving °F	Entering Dry Bulb °F	Leaving Dry Bulb °F	Total Btu/hr		
70.0	56.4	70.0	119.1	20742	16687	4.53

Electrical

Unit Voltage	Minimum Voltage	Total Unit MCA	Total Unit Full Load Current
208-230/60/1	187 V	9.50 A	7.73 A

Compressor RLA	Compressor LRA	Motor FLA	Maximum Recommended Fuse Size / HACR Breaker Size
7.4 A	33.0 A	0.33 A	15.0 A

Power Connection

Unit Mounted 20A Plug & Cord w/Non-Fused Disconnect Sw

Physical

Unit

Length	Height	Width	Weight		Connections	
			Shipping	Operating	Water, OD	Condensate, ID
54.00 in	25.00 in	10.75 in	201 lb	171 lb	0.625 in	0.750 in

Cabinet

Construction Type	Cabinet Type
Standard Construction	Slope Top

Piping Hand	Cabinet Height	Discharge Grille
(2) Left (1) Right Hand	High Sill	Standard Stamped Louver (Painted Steel)

Color

Cabinet	Subbase	Grille
Antique Ivory	Oxford Brown	Oxford Brown

Fan / Controls

Fan				Controls
Type	Motor		Drive	Type
	Type	Horsepower	Type	
Tangential	Standard	0.056 hp	Direct	MT III - Standalone

Airstream

Filter

(Quantity) Height x Width x Depth

(1) 37.25 in x 9.75 in x 0.5 in

Options

Heating

Heat Exchanger:	Copper Inner - Steel Outer Tube

Controls

Thermostat Mounting:	Wall Mounted T'stat with Fan Speed Switch
Thermostat Type:	Non-Programmable
Power Connection:	Unit Mounted 20A Plug & Cord w/Non-Fused Disconnect Sw
Flow Control:	2-Way Mtrzd 1/2" Iso Vlv HC Prss NC & Spl Rtn Byps Hnd Vlv Mrflw
Control Transformer:	75VA Control Transformer

Warranty

Unit Warranty:	Extended 4 years Parts (Refrigerant Circuit)

AHRI Certification

All equipment is rated and certified in accordance with AHRI / ISO 13256-1 and tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada.

Accessories

Optional

Part Number	Description
668811201	Thermostat, Wall Mtd, Non-Prog, Hi-Low Fan Switch

Certified Drawing	MHC-MHW-ST-HS-L-018 Specs
The Water Source Heat Pump product represented on this document will conform to the drawings and specifications set out below, in accordance with the express, written Limited Warranty. Purchaser's acceptance of this drawing certifies that the conforming equipment meets the order specifications. No changes may be made to this document without the prior, express, written authorization of the manufacturer.	Group: **WSHP** Type: **Console** Date: **June 2010**

Console Water Source Heat Pump – Slope Top Unit, High Sill, Left Hand

Models MHC/MHW – Unit Size 018

Cabinets – Selectable flat top or slope top cabinet configuration with multiple grille options. Individual panels- top, front and end panels are designed for easy removal and provides easy access to unit components for service and maintenance.

Compressor - High efficiency rotary type, using R-410A refrigerant with zero ozone depletion potential or phase-out date.

Gentleflo™ Fan – User selectable, multi-speed tangential fan system provides high efficiency and very quiet operation suitable for noise sensitive applications.

LED Annunciator – LED status lights display fault conditions to provide easy troubleshooting and diagnosis. Accessed by removing the left or right end panel to the control enclosure.

Filter– Units come standard with a 1/2" (12.7mm) thick disposable filter that is easy to access and replace without removing panels.

Hinged Control Box– Provides added accessibility to plumbing end compartment for easier access for service.

MicroTech® III Unit Controller – Designed for flexibility, the main control board is used in standalone applications. An optional I/O expansion module can be used to control electric heat and multiple fan speeds. A ~~separate LonWorks® or BACnet® communication module can be easily snapped onto the board to accommodate the building automation system of your choice~~.

Double-Sloped Drain Pan – Made of durable, non-corrosive polymer, promotes positive condensate drainage for superior Indoor Air Quality (IAQ). Drain Pan is easy to remove for cleaning.

~~Air Dampers (Field-installed Accessory) – Motorized or manually operated outside air dampers provide ventilation air.~~

Unit Flexibility– Selectable for standard (boiler/tower) or extended range (geothermal) applications to achieve the highest efficiency for your application requirements.

Warranty

- ☐ Ext. 4-Yr. Parts (Compressor Only)
- → ☒ Ext. 4-Yr. Parts (Refrigerant Circuit)

2-Way Motorized Valve Packages (Option)

Factory-installed or field-installed accessory for variable pumping applications. Other valve options available upon request.

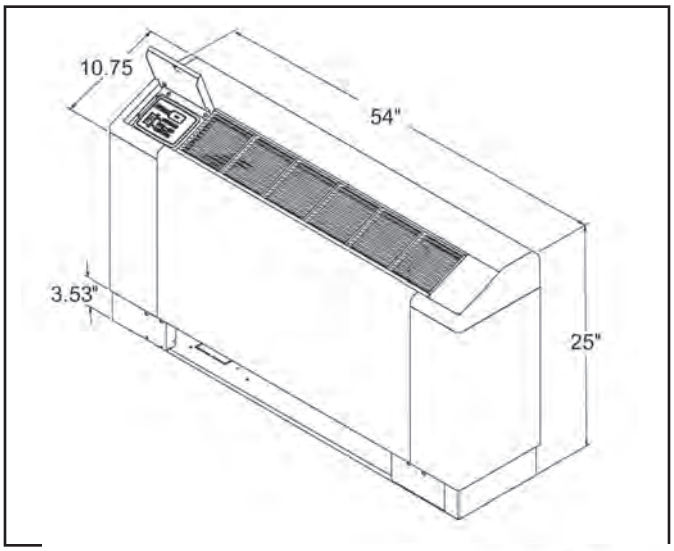
Physical Data

Unit Size	018
Fan Wheel - D x W (In.)	4⅜ x 35 7/16
Fan Motor Horsepower	1/18
Coil Face Area (Sq. Ft.)	2.22
Coil Rows	3
Refrigerant Charge (Oz.)	32
Filter, (Qty.) Size (Nominal)	(1) 37¼W x 9¾D
Water Connections, Female NPT (In.)	5/8 O.D.
Condensate Connections, Female NPT (In.)	3/4 I.D.
Weight, Operating (Lbs.)	171
Weight, Shipping (Lbs.)	201

Slope Top Unit, High Sill, Left Hand Piping – Size 018

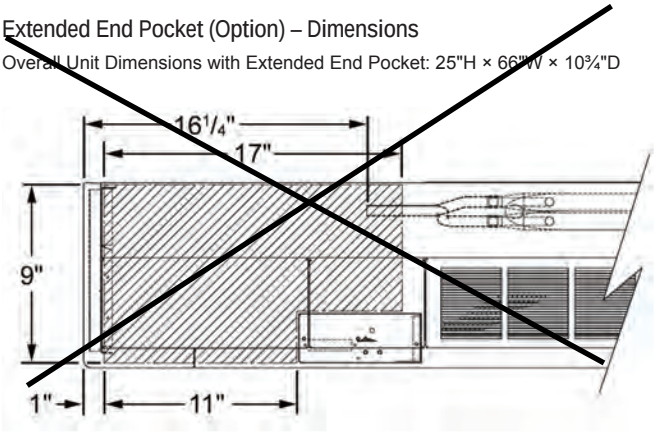
Left and right hand piping determined by facing the front of the unit.

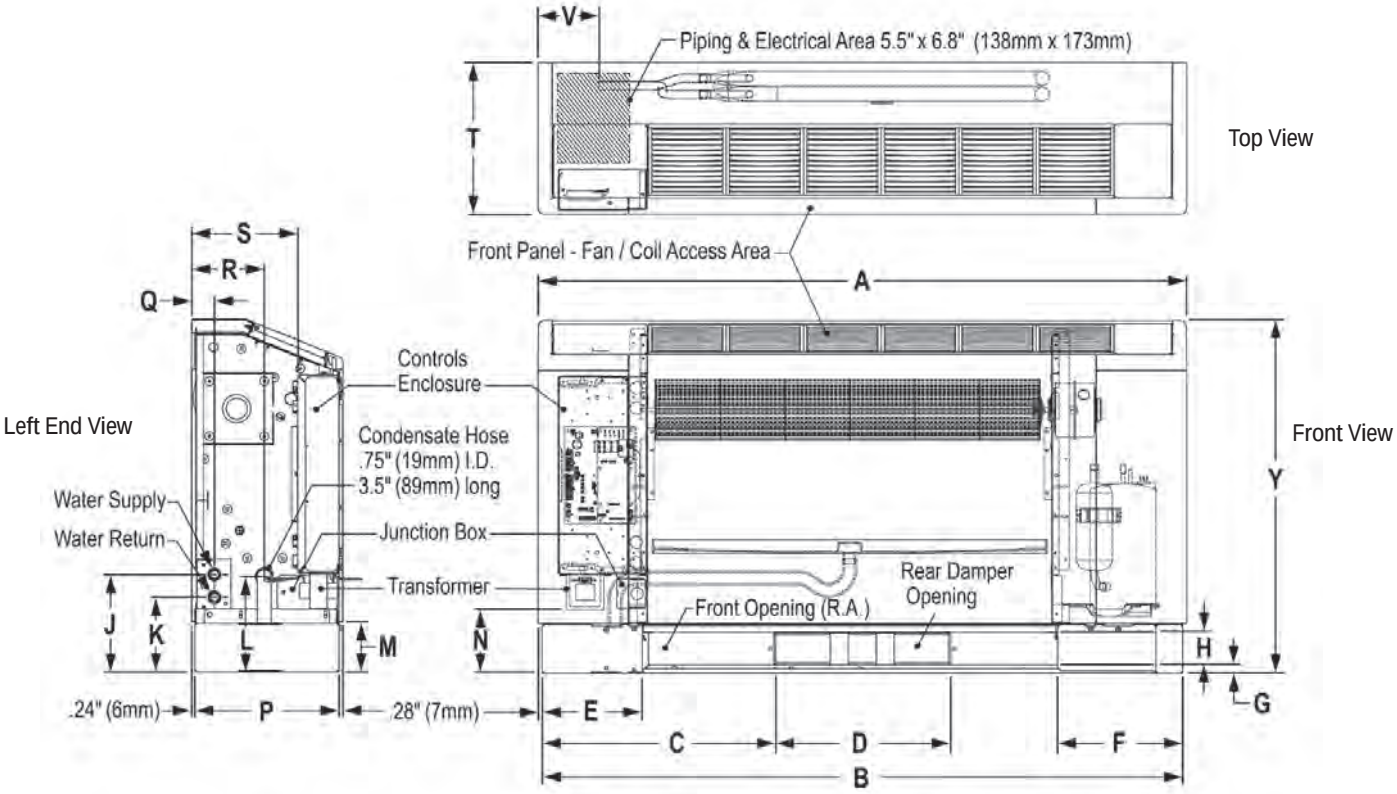
Overall Unit Dimensions: 25"H × 54"W × 10¾"D



Extended End Pocket (Option) – Dimensions

Overall Unit Dimensions with Extended End Pocket: 25"H × 66"W × 10¾"D





Dimensions

Unit Size	A	B	C	D	E	F	G	H	J	K	L	M
018	54" (1372mm)	53⅜" (1356mm)	20½" (519mm)	12½" (318mm)	7" (181mm)	8⅞" (225mm)	0.6" (14mm)	2¼" (57mm)	6⅞" (175mm)	5 1/5" (132mm)	6¾" (172mm)	3½" (90mm)

N	P	Q	R	S	T	V	Y
4¼" (108mm)	10¼" (260mm)	1 3/5" (41mm)	5¼" (134mm)	7½" (192mm)	10¾" (273mm)	4⅝" (118mm)	25" (635mm)

Note: Dimensions are approximate

Certified Drawing	MHC-MHW-ST-HS-R-018 Specs
The Water Source Heat Pump product represented on this document will conform to the drawings and specifications set out below, in accordance with the express, written Limited Warranty. Purchaser's acceptance of this drawing certifies that the conforming equipment meets the order specifications. No changes may be made to this document without the prior, express, written authorization of the manufacturer.	Group: **WSHP** Type: **Console** Date: **June 2010**

Console Water Source Heat Pump – Slope Top Unit, High Sill, Right Hand

Models MHC/MHW – Unit Size 018

Cabinets – Selectable flat top or slope top cabinet configuration with multiple grille options. Individual panels- top, front and end panels are designed for easy removal and provides easy access to unit components for service and maintenance.

Compressor - High efficiency rotary type, using R-410A refrigerant with zero ozone depletion potential or phase-out date.

Gentleflo™ Fan – User selectable, multi-speed tangential fan system provides high efficiency and very quiet operation suitable for noise sensitive applications.

LED Annunciator – LED status lights display fault conditions to provide easy troubleshooting and diagnosis. Accessed by removing the left or right end panel to the control enclosure.

Filter– Units come standard with a 1/2" (12.7mm) thick disposable filter that is easy to access and replace without removing panels.

Hinged Control Box– Provides added accessibility to plumbing end compartment for easier access for service.

MicroTech® III Unit Controller – Designed for flexibility, the main control board is used in standalone applications. An optional I/O expansion module can be used to control electric heat and multiple fan speeds. A separate LonWorks® or BACnet® communication module can be easily snapped onto the board to accommodate the building automation system of your choice.

Double-Sloped Drain Pan – Made of durable, non-corrosive polymer, promotes positive condensate drainage for superior Indoor Air Quality (IAQ). Drain Pan is easy to remove for cleaning.

Air Dampers (Field-installed Accessory) – Motorized or manually operated outside air dampers provide ventilation air.

Unit Flexibility– Selectable for standard (boiler/tower) or extended range (geothermal) applications to achieve the highest efficiency for your application requirements.

Warranty

- ☐ Ext. 4-Yr. Parts (Compressor Only)
- → ☐ Ext. 4-Yr. Parts (Refrigerant Circuit)

2-Way Motorized Valve Packages (Option)

Factory-installed or field-installed accessory for variable pumping applications. Other valve options available upon request.

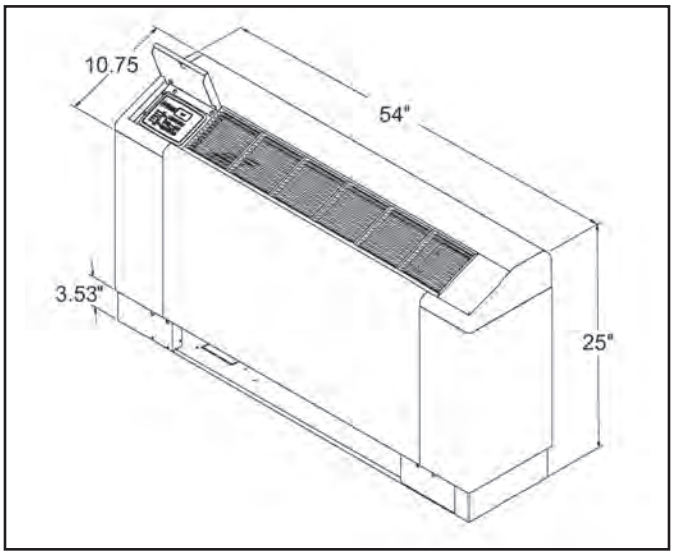
Physical Data

Unit Size	018
Fan Wheel - D x W (In.)	4⅜ x 35 7/16
Fan Motor Horsepower	1/18
Coil Face Area (Sq. Ft.)	2.22
Coil Rows	3
Refrigerant Charge (Oz.)	32
Filter, (Qty.) Size (Nominal)	(1) 37¼W x 9¾D
Water Connections, Female NPT (In.)	5/8 O.D.
Condensate Connections, Female NPT (In.)	3/4 I.D.
Weight, Operating (Lbs.)	171
Weight, Shipping (Lbs.)	201

Slope Top Unit, High Sill, Right Hand Piping – Size 018

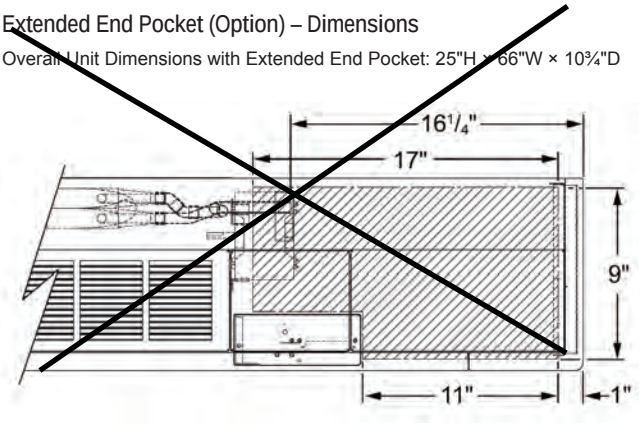
Left and right hand piping determined by facing the front of the unit.

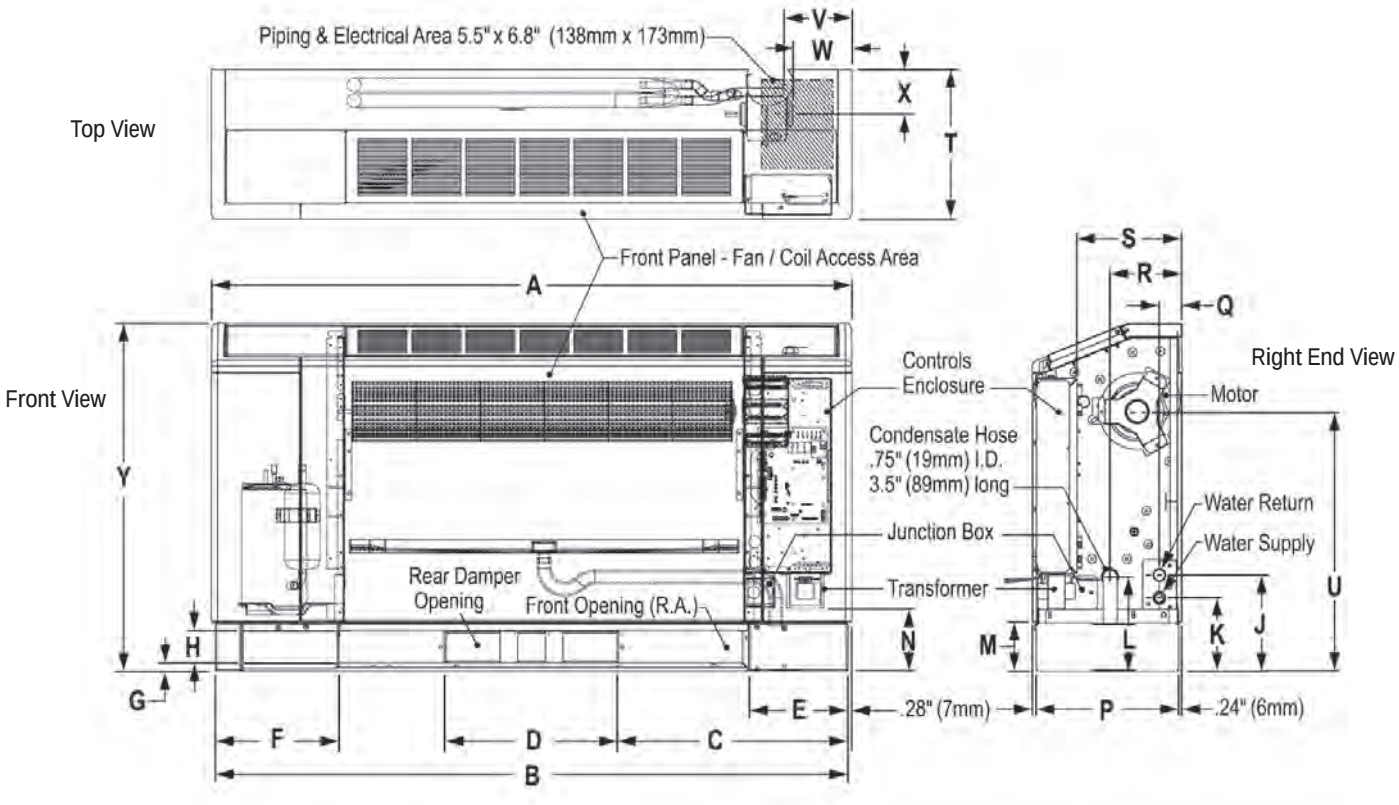
Overall Unit Dimensions: 25"H × 54"W × 10¾"D



Extended End Pocket (Option) – Dimensions

Overall Unit Dimensions with Extended End Pocket: 25"H × 66"W × 10¾"D





Dimensions

Unit Size	A	B	C	D	E	F	G	H	J	K	L	M
018	54" (1372mm)	53⅜" (1356mm)	20½" (519mm)	12½" (318mm)	7" (181mm)	8⅞" (225mm)	0.6" (14mm)	2¼" (57mm)	6⅞" (175mm)	5 1/5" (132mm)	6¾" (172mm)	3½" (90mm)

N	P	Q	R	S	T	U	V	W	X	Y
4¼" (108mm)	10¼" (260mm)	1 3/5" (41mm)	5¼" (134mm)	7½" (192mm)	10¾" (273mm)	18¾" (476mm)	4⅝" (118mm)	4¼" (108mm)	3¼" (83mm)	25" (635mm)

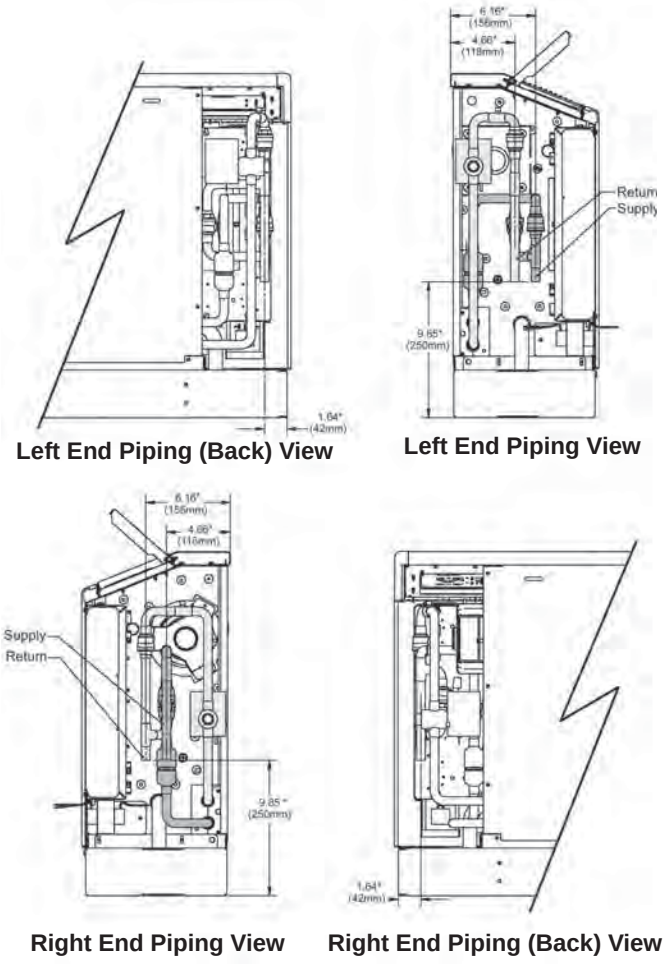
Note: Dimensions are approximate

Optional Factory-Installed Motorized & Hand Valve Assemblies

Console water source heat pumps can be configured with factory-installed motorized valves. Valves should be mounted on the return water line. All valve assemblies terminate with 1/2"-NPT threaded connections and will also accommodate factory supplied hose kits.

Note: *Make sure the pipes fit the confines of the piping compartment of the heat pump unit (Figure 6).*

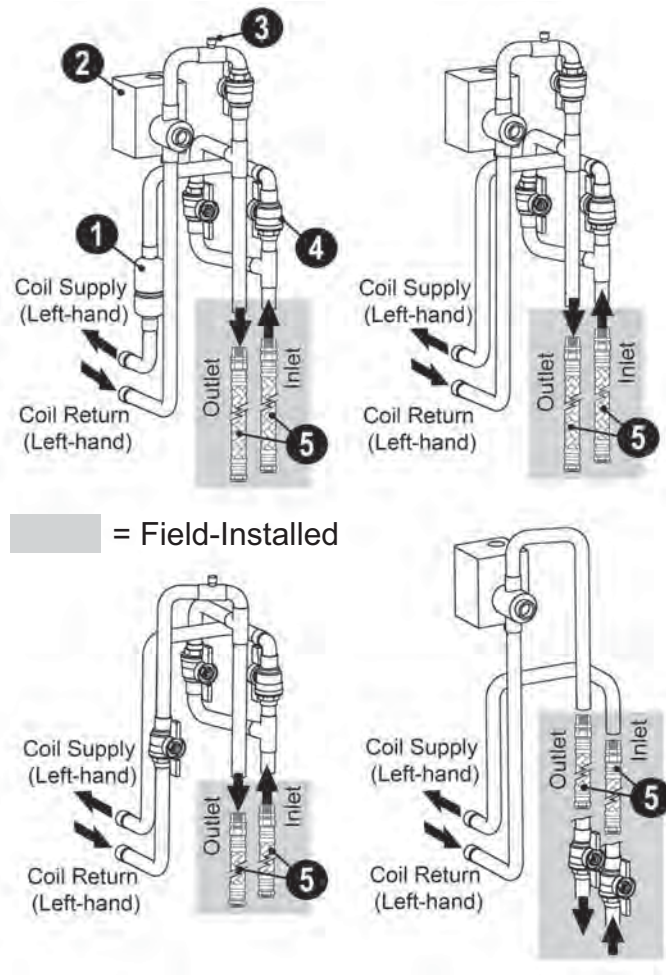
Figure 6: Typical Motorized Valve Piping



Note: *Daikin McQuay International offers a wide variety of piping packages. Consult your local sales rep for more information.*

When installing the hoses on valve assemblies, use the method as outlined in "Shutoff/Balancing Valve Piping" on page 9.

Figure 7: Typical Piping Package Configurations (Left-Hand Unit Piping Connections Shown)



1. Measureflow Device
2. 2-Way Motorized Isolation Valve
3. Air Bleed Vent
4. Supply-Bypass Hand Valve
5. Inlet, Outlet Flexible, Braided-Stainless Steel Hoses (Field-Installed Accessories)

Note: *On left hand piping units, the water supply connection is at the top location. On right-hand piping units, the water supply connection is at the bottom location.*

Non-Programmable Electronic Thermostat

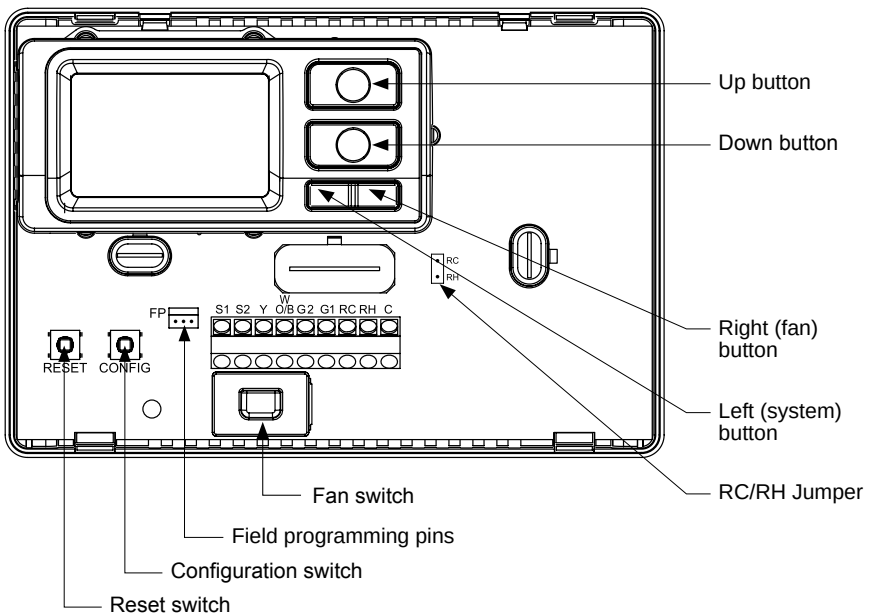
1 Heat/1 Cool, Auto Changeover, Fan Speed Control, Hardwire
Part No.668811201

- Configurable
- Single-Stage Heat/Cool Systems
- Single-Stage Heat Pump Systems
- Two Speed Fan Control
- Large Display With Backlight
- Selectable Fahrenheit or Celsius
- Compatible with Gas, Oil, or Electric
- SimpleSet™ Field Programming
- Status Indicator Light
- Relay Outputs (minimum voltage drop in thermostat)
- Remote Sensor Compatible
- Ideally Suited for:
  – Residential (New Construction/Replacement)
  – Light Commercial

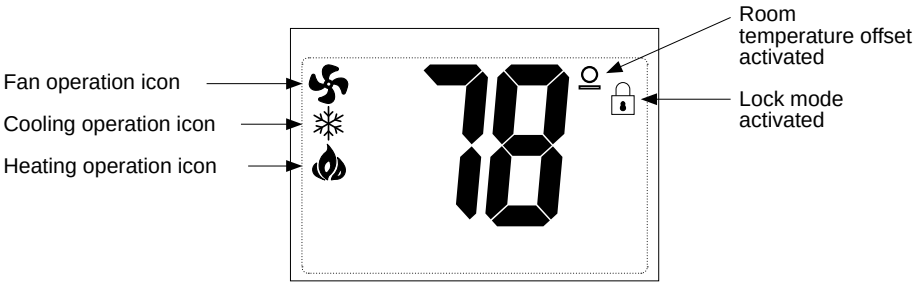
McQuay®
Air Conditioning

For replacement parts call 1-800-377-2787

Parts Diagram



Icon Descriptions



Specifications

Electrical rating:
- 24 VAC (18-30 VAC)
- 1 amp maximum per terminal
- 3 amp maximum total load

Temperature control range: 45°F to 90°F (7°C to 32°C) **Accuracy:** ± 1°F (± 0.5°C)

System configurations: 1-stage heat, 1-stage cool, heat pump, gas, oil, electric

Timing: *Anti-short Cycle:* 4 minutes
Backlight Operation

Terminations: S1, S2, Y, W/O/B, G2, G1, RC, RH, C

Typical Wiring Diagrams

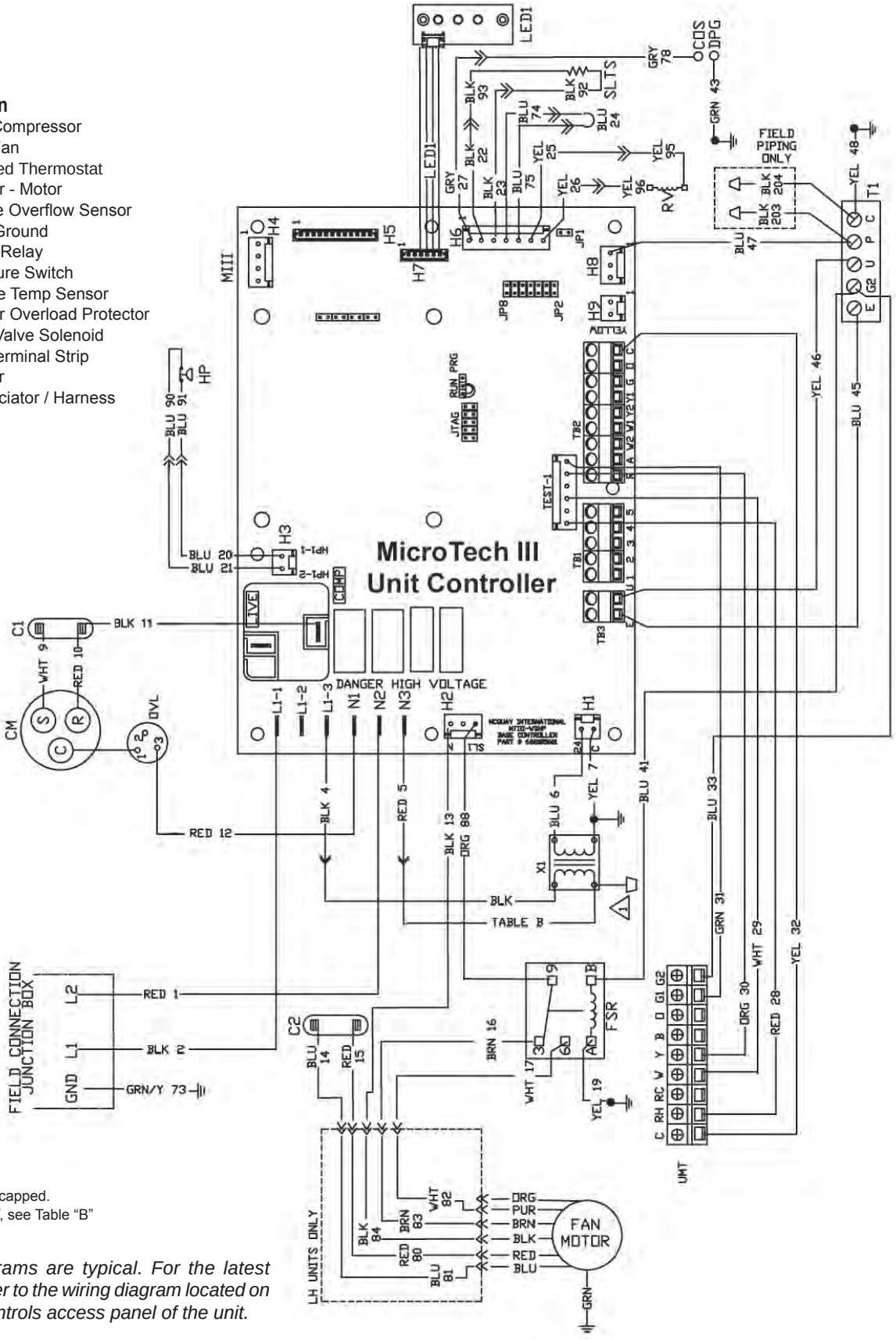
MicroTech III Unit Controller

Drawing No. 669539003A

Legend

Item	Description
C1	Capacitor-Compressor
C2	Capacitor-Fan
UMT	Unit-Mounted Thermostat
CM	Compressor - Motor
COS	Condensate Overflow Sensor
DPG	Drain Pan Ground
FSR	Fan Speed Relay
HP	High Pressure Switch
SLTS	Suction Line Temp Sensor
OVL	Compressor Overload Protector
RV	Reversing Valve Solenoid
T1	EG2UPC Terminal Strip
X1	Transformer
LED1	LED Annunciator / Harness

Table B	
208V	RED
230V	ORG



Notes:

1. Transformer:
   Unused wire to be capped.
2. Unit wired for 208V, see Table "B"

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.*

BRIGGS EQUIPMENT SALES, INC.

SUBMITTAL DATA

Project:	Marriott Hotel
Mechanical Engineer:	Bennett Engineering
Mechanical Contractor:	Warren Mechanical
Date:	July 30, 2013
Product:	Horizontal WSHPs
Specification Section:	230000-15
Revision:	00

Tag	Qty	Model / Description	Manufacturer
HP-F	3	WCCH-019 Horizontal WSHPs	Daikin McQuay
HP-H	1	WCCH-036 Horizontal WSHP	Daikin McQuay
HP-J	2	WCCH-070 Horizontal WSHPs	Daikin McQuay

Comments / Notes

McQuay International

An Authorized Representative for Northern New England

ENFINITY™ Heat Pump

DAIKIN McQUAY

Job Information	*Technical Data Sheet*
Job Name	Marriott Hotel
Date	7/29/2013
Submitted By	Briggs Equipment Sales, Inc.
Software Version	08.61
Unit Tag	HP-F
Qty:	3

Unit Overview

Model Number	Voltage V/Hz/Phase	Air Flow CFM	Fluid Flow gpm	Cooling Capacity Btu/hr	Cooling Efficiency EER	Heating Capacity Btu/hr	Heating Efficiency COP
WCCH4019	208-230/60/1	630	4.00	20221	12.89	24534	4.61

Unit

Model Number:	WCCH4019
Unit Type:	R-410A, Ceiling Mounted, Standard Range
Unit Construction:	Standard w/Compressor Sound Blanket
Approval:	ETL, CETL, ARI

Refrigerant Type	Refrigerant Weight
R-410A	45.0 oz

Unit Performance

Air & Water Flow

Airflow	Total External Static Pressure	Fluid Flow	Fluid Type	Fluid Pressure Drop
630 CFM	0.75 inH_2O	4.00 gpm / 2.53 gpm/ton	Water	4.57 ft H_2O

Cooling Performance

Fluid Temperature		Air Temperature				Capacity		Heat of Rejection	EER
Entering °F	Leaving °F	Entering Dry Bulb °F	Entering Wet Bulb °F	Leaving Dry Bulb °F	Leaving Wet Bulb °F	Total Btu/hr	Sensible Btu/hr	Btu/hr	
88.0	100.8	80.0	67.0	56.9	56.4	20221	15473	25574	12.89

Heating Performance

Fluid Temperature		Air Temperature		Capacity	Heat of Absorption Btu/hr	COP
Entering °F	Leaving °F	Entering Dry Bulb °F	Leaving Dry Bulb °F	Total Btu/hr		
70.0	60.4	70.0	106.1	24534	19217	4.61

Electrical

Unit Voltage	Minimum Voltage	Total Unit MCA	Total Unit Full Load Current
208-230/60/1	197 V	11.10 A	9.50 A

Compressor RLA	Compressor LRA	Motor FLA	Maximum Recommended Fuse Size / HACR Breaker Size
6.5 A	43.0 A	3.00 A	15.0 A

Physical

Unit						
Length	Height	Width	Weight		Connections	
			Shipping	Operating	Water, FPT	Condensate, FPT
42.00 in	19.00 in	20.00 in	214 lb	195 lb	0.500 in	0.750 in

Cabinet
Construction Type
Standard w/Compressor Sound Blanket

Fan				Controls
Type	Motor		Drive	Type
	Type	Horsepower	Type	
DWDI Centrifugal	ECM	0.333 hp	Direct	MT III - Standalone

Airstream		
Air		Filter
Discharge	Return	(Quantity) Height x Width x Depth
Straight Discharge	(2) Left Hand Return Air (1) Right Hand Return Air	(1) 18 in x 24 in x 1 in

Options

Heating	
Heat Exchanger:	Copper Inner - Steel Outer Tube
Controls	
Control Transformer:	75VA Control Transformer

Warranty

Unit Warranty:	Extended 4 years Parts (Refrigerant Circuit)

AHRI Certification

All equipment is rated and certified in accordance with AHRI / ISO 13256-1 and tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada.

Accessories

Optional	
Part Number	Description
668996003	Kit, Mtrzd Valve,1/2" 2-Way, NC, 30 PSi Close Off
106582908	Fire Rated Hose Kit, 4.0 GPM, 1/2 X2ft
668375401	WallStat,AC/DC,Non-Prog,2HT/2Cl,NSB&OR,w/Plate,1Pk

Certified Drawing	CCH-CCW-R410-019 Specs
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Daikin McQuay Horizontal WSHP Model CCH & CCW – Size 019

Left Hand Return, End and Straight Discharge (R-410A Refrigerant)

Features

Range of Operation - CCH-Standard (55º to 110ºF), CCW-Geothermal (30º to 110ºF).

Cabinet - Heavy-gauge unpainted G-60 galvanized steel.

Insulation - 1/2" thick, 1-1/2 lb. dual density fiber glass. IAQ closed-cell foam insulation also available as an option.

Drain Pan - ABS plastic, corrosion-resistant, double-sloped, for positive draining to reduce standing water, microbial growth and promote good indoor air quality.

Filter - 1" thick throwaway type, mounted in a combination filter rack/return air duct collar. Filters can be removed from the side or bottom. A 2" filter rack is available as a factory-installed selectable option to accept higher efficiency filters.

Refrigerant Circuit - Includes a reciprocating compressor, reversing valve, water-to-refrigerant heat exchanger, TXV expansion device, airside coil, high/low side refrigerant access valves, and safety controls.

Safety Controls - Low suction temperature sensor, electronic condensate overflow protection and high pressure switches to lock out compressor operation at extreme conditions.

Fan Section - Direct drive centrifugal fan. The housing has a removable orifice ring to facilitate fan motor and fan wheel removal. The fan housing protrudes through the cabinet to facilitate field duct connection. Units have a straight-through or end discharge air arrangement, and can be field converted from one to the other without the use of additional parts.

Electronically Commutated Motor (Optional) - The ECM fan motor offers higher efficiency than the standard fan motor as well as a constant volume of air being moved over the static pressure operating range of the WSHP.

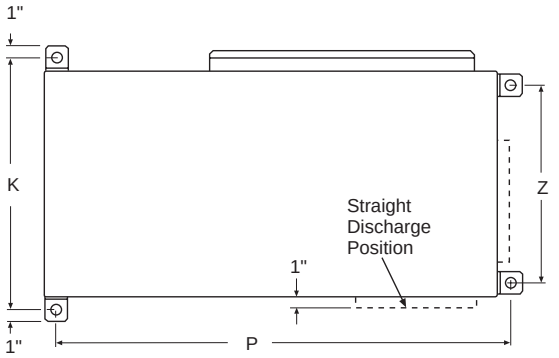
Electrical - The control box is accessible through a panel, and houses major electrical controls including the control circuit board, transformer, compressor relay and fan relay.

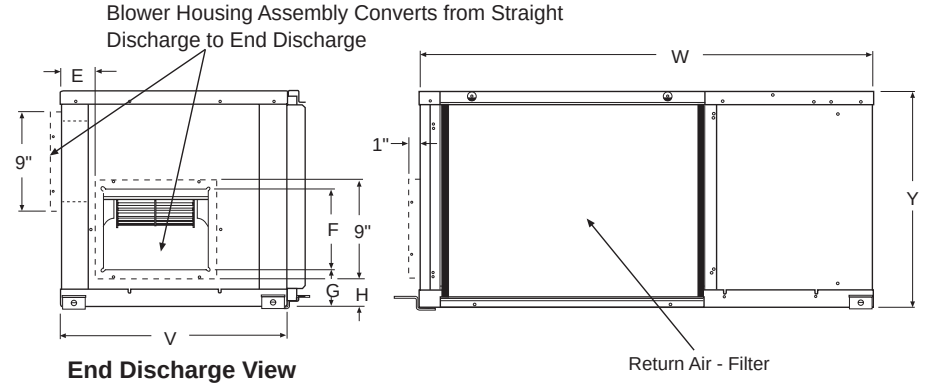
MicroTech™ III Unit Controller – Designed for flexibility, the main control board is used in standalone applications. A ~~separate LonWorks® or BACnet® communication module can be easily snapped onto the board to accommodate the building automation system of your choice~~.

Overall Unit Dimensions =
20"W x 42"L x 19"H

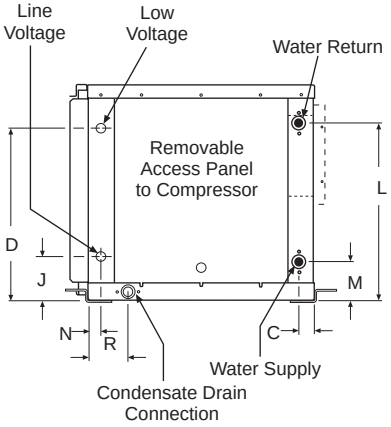
Dimensions are approximate.

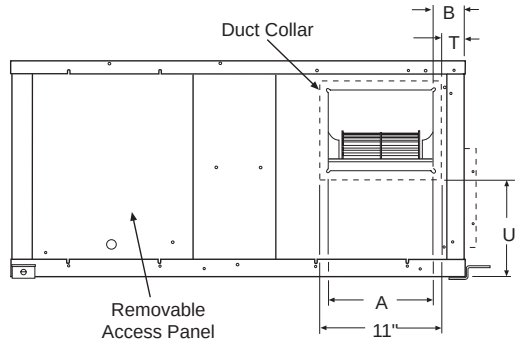
Right and left hand return determined by facing the water connection side of the unit.





End Discharge View





Straight Discharge View

Dimensional Data (in inches)

Unit Size	Dimensions																				
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	Z
019	9.22	3.00	1.45	14.93	2.91	7.12	3.15	2.15	4.10	22	15.43	3.60	1.25	42	3.73	2.03	8.30	20	42	19	17.5

DAIKIN McQUAY®

Daikin McQuay Horizontal WSHP Model CCH & CCW – Size 019

Right Hand Return, End and Straight Discharge (R-410A Refrigerant)

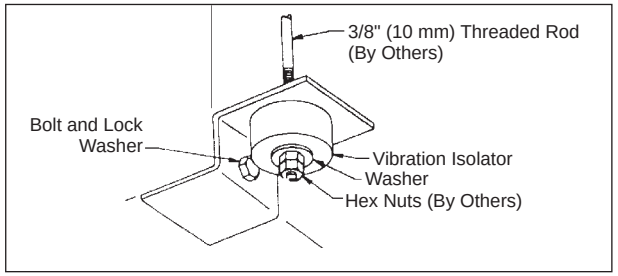
Physical Data (in inches)

Unit Size	019
Fan Wheel - D x W	9.5 x 7.1
Stamdard PSC Motor Horsepower	1/3
Coil Face Area (Sq. Ft.)	2.75
Coil Rows	3
Refrigerant Charge (oz.)	45 oz.
1-inch Filter, (Qty.) Size (In.)	(1) 18H x 24W
Water Connections, FPT	1/2
Condensate Connections, FPT	3/4 I.D.
Weight, Operate (Lbs.)	195
Weight, Shipping (Lbs.)	214
2-inch Filter (Qty) Size (in.)	(1) 18H x 25W

Electrical Data – (Optional) ECM Motor

Unit Size	Voltage/Hz/Ph	Compressor		Fan Motor FLA	Total Unit FLA	Minimum Voltage	Minimum Circuit Amps	Maximum Fuse Size
		RLA	LRA					
019	208/230-60-1	6.5	43.0	3.0	9.5	197	11.1	15
	265/277-60-1	5.8	46.0	2.6	8.4	240	9.9	15

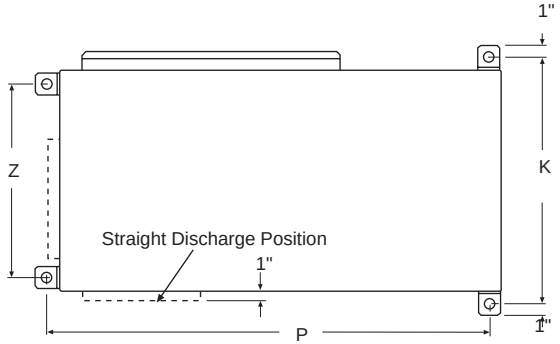
Hanger Kit Detail

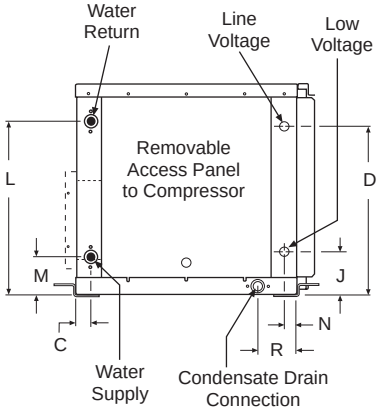


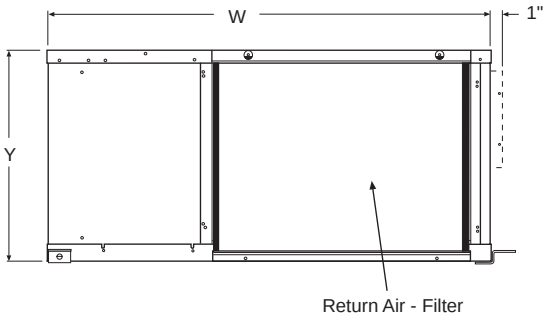
Overall Unit Dimensions = 20"W x 42"L x 19"H

Dimensions are approximate.

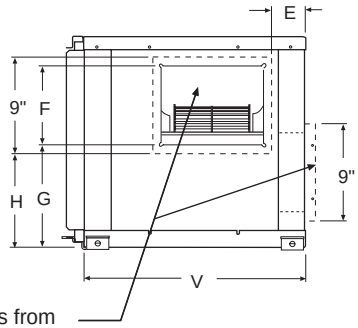
Right and left hand return determined by facing the water connection side of the unit.



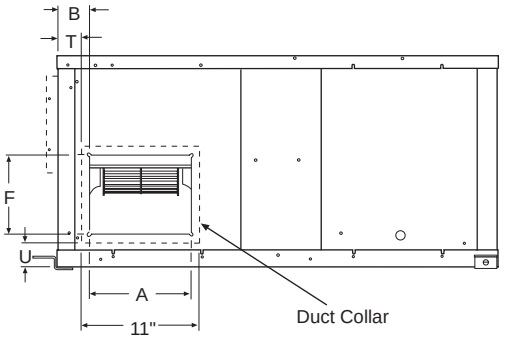




Blower Housing Assembly Converts from Straight Discharge to End Discharge



End Discharge View



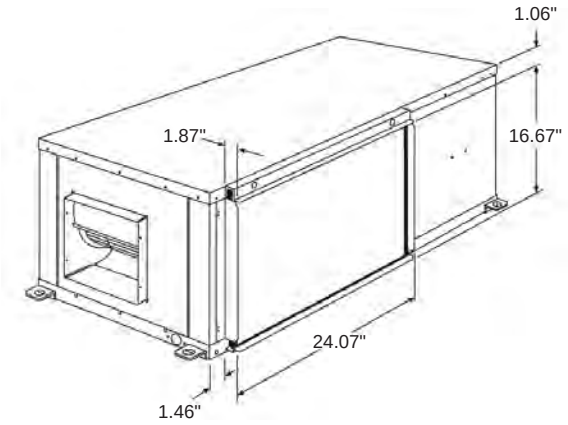
Straight Discharge View

Dimensional Data (in inches)

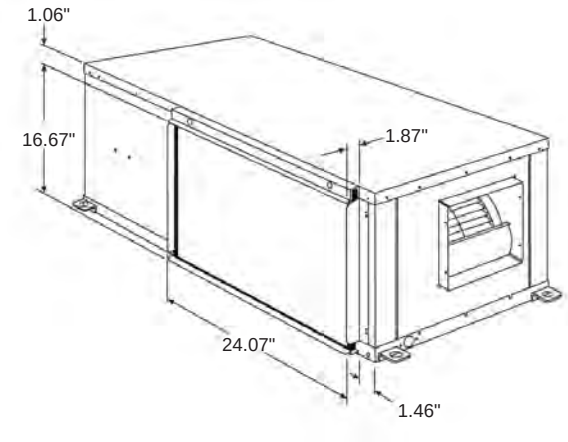
Unit Size	Dimensions																				
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	Z
019	9.22	2.98	1.45	14.93	2.91	7.12	9.28	8.30	4.10	22	15.43	3.60	1.25	42	3.73	2.00	2.15	20	42	19	17.5

Filter Racks / Return Air Duct Collars Dimensions – Size 019

1" Standard Filter Rack Left Hand Return, End Discharge



1" Standard Filter Rack – Right Hand Return, End Discharge



Ductwork and Sound Attenuation Considerations

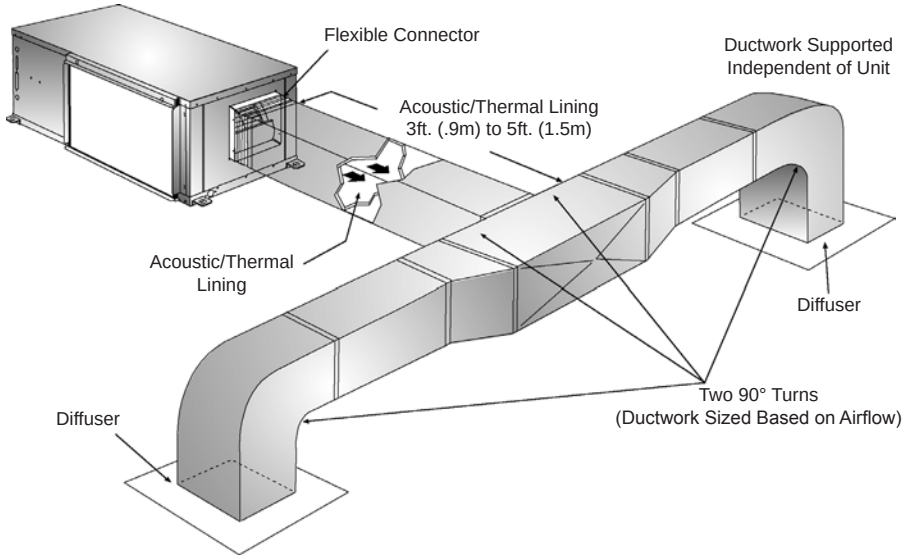
Ductwork is normally applied to ceiling-mounted heat pumps on the discharge side of the unit. A discharge collar is provided on all horizontal unit models for fastening the ductwork. Use a flexible connector between the discharge collar and the duct transformation to help reduce vibration transmission from the cabinet and to simplify disconnection of the unit from the ceiling ductwork. If return ductwork is to be used, attach a flexible connector to the filter rack collar to help reduce vibration transmission and removal of the unit. Return plenum ducting should be at least 12 inches away from the coil so that the coil is evenly loaded with return air.

As a general recommendation, duct interiors should have an acoustic / thermal lining at least 1/2 inch thick over the entire duct run. For better sound attenuation, line the last five diameters of duct before each register with a one-inch thick sound blanket. Elbows, tees and dampers can create turbulence or distortion in the airflow. Place a straight length of duct, 5 to 10 times the duct width, before the next fitting to smooth out airflow. Diffusers that are located in the bottom of a trunk duct can also produce noise. For this same reason, volume control dampers should be located several duct widths upstream from an air outlet.

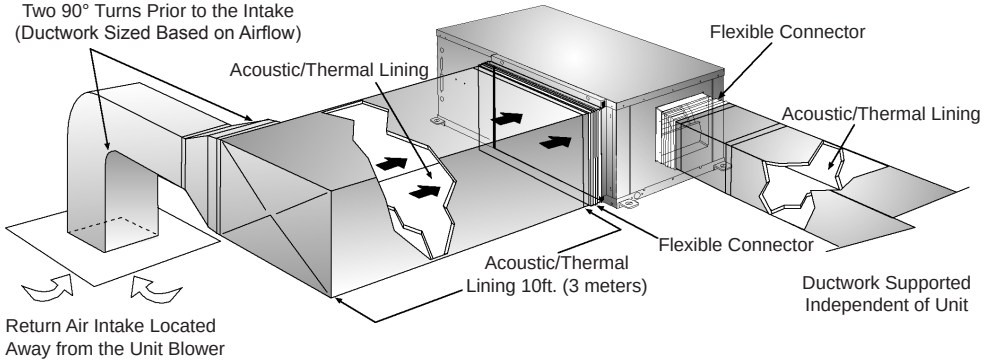
For Hotel, Motel, Dormitory or Nursing Home applications that use a single duct discharge, a velocity of 500 to 600 fpm is suggested. These applications typically have static pressures as low as 0.05 inches of water and duct lengths approximately six feet in length. The discharge duct must be fully lined and have a square elbow without turning vanes. Return air for these applications should enter through a “low” sidewall filter grille and route up the stud space to a ceiling plenum. For horizontal heat pumps mounted from the ceiling, an insulated return plenum is sometimes placed at the return air opening to further attenuate line-of-sight sound transmission through return openings.

Suggested Supply & Return Ducting

Suggested Supply Ducting per ASHRAE and SMACNA Publications



Suggested Return Ducting per ASHRAE and SMACNA Publications



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ENFINITY™ Heat Pump

DAIKIN McQUAY

Job Information	*Technical Data Sheet*
Job Name	Marriott Hotel
Date	7/29/2013
Submitted By	Briggs Equipment Sales, Inc.
Software Version	08.61
Unit Tag	HP-H

Unit Overview

Model Number	Voltage V/Hz/Phase	Air Flow CFM	Fluid Flow gpm	Cooling Capacity Btu/hr	Cooling Efficiency EER	Heating Capacity Btu/hr	Heating Efficiency COP
WCCH5036	208-230/60/1	1200	8.00	35916	14.51	42535	4.64

Unit

Model Number:	WCCH5036
Unit Type:	R-410A, Ceiling Mounted, Standard Range
Unit Construction:	Standard w/Compressor Sound Blanket
Approval:	ETL, CETL, ARI

Refrigerant Type	Refrigerant Weight
R-410A	49.0 oz

Unit Performance

Air & Water Flow

Airflow	Total External Static Pressure	Fluid Flow	Fluid Type	Fluid Pressure Drop
1200 CFM	0.50 inH_2O	8.00 gpm / 2.67 gpm/ton	Water	6.45 ft H_2O

Cooling Performance

Fluid Temperature		Air Temperature				Capacity		Heat of Rejection Btu/hr	EER
Entering °F	Leaving °F	Entering		Leaving		Total Btu/hr	Sensible Btu/hr		
		Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F				
88.0	99.1	80.0	67.0	59.7	57.2	35916	25825	44362	14.51

Heating Performance

Fluid Temperature		Air Temperature		Capacity	Heat of Absorption Btu/hr	COP
Entering °F	Leaving °F	Entering	Leaving	Total Btu/hr		
		Dry Bulb °F	Dry Bulb °F			
70.0	61.7	70.0	102.9	42535	33372	4.64

Electrical

Unit Voltage	Minimum Voltage	Total Unit MCA	Total Unit Full Load Current
208-230/60/1	197 V	25.80 A	21.70 A

Compressor RLA	Compressor LRA	Motor FLA	Maximum Recommended Fuse Size / HACR Breaker Size
16.7 A	79.0 A	5.00 A	40.0 A

Physical

Unit

Length	Height	Width	Weight		Connections	
			Shipping	Operating	Water, FPT	Condensate, FPT
46.00 in	20.00 in	21.00 in	242 lb	223 lb	0.750 in	0.750 in

Cabinet

Construction Type
Standard w/Compressor Sound Blanket

Fan

Type	Motor		Drive	Controls
	Type	Horsepower	Type	Type
DWDI Centrifugal	ECM	0.500 hp	Direct	MT III - Standalone

Airstream

Air		Filter
Discharge	Return	(Quantity) Height x Width x Depth
Straight Discharge	Right Hand Return Air	(1) 19 in x 27 in x 1 in

Options

Heating

Heat Exchanger:	Copper Inner - Steel Outer Tube

Controls

Control Transformer:	75VA Control Transformer

Warranty

Unit Warranty:	Extended 4 years Parts (Refrigerant Circuit)

AHRI Certification

All equipment is rated and certified in accordance with AHRI / ISO 13256-1 and tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada.

Accessories

Optional

Part Number	Description
668375401	WallStat,AC/DC,Non-Prog,2HT/2Cl,NSB&OR,w/Plate,1Pk
668996006	Kit, Mtrzd Valve,3/4" 2-Way, NC, 30 PSi Close Off
106582923	Fire Rated Hose Kit, 8.0 GPM, 3/4 X 2Ft

Certified Drawing	CCH-CCW-R410-036 Specs
The Water Source Heat Pump product represented on this document will conform to the drawings and specifications set out below, in accordance with the express, written Limited Warranty. Purchaser's acceptance of this drawing certifies that the conforming equipment meets the order specifications. No changes may be made to this document without the prior, express, written authorization of the manufacturer.	Group: **WSHP** Type: **Horizontal** Date: **October 2009**

McQuay Horizontal WSHP Model CCH & CCW – Size 036

Left Hand Return, End and Straight Discharge (R-410A Refrigerant)

Features

Range of Operation - CCH-Standard (55º to 110ºF), CCW-Geothermal (30º to 110ºF).

Cabinet - Heavy-gauge unpainted G-60 galvanized steel.

Insulation - 1/2" thick, 1-1/2 lb. dual density fiber glass. IAQ closed-cell foam insulation also available as an option.

Drain Pan - ABS plastic, corrosion-resistant, double-sloped, for positive draining to reduce standing water, microbial growth and promote good indoor air quality.

Filter - 1" thick throwaway type, mounted in a combination filter rack/return air duct collar. Filters can be removed from the side or bottom. A 2" filter rack is available as a factory-installed selectable option to accept higher efficiency filters.

Refrigerant Circuit - Includes a scroll compressor, reversing valve, water-to-refrigerant heat exchanger, TXV expansion device, airside coil, high/low side refrigerant access valves, and safety controls.

Safety Controls - Low suction temperature sensor, electronic condensate overflow protection and high pressure switches to lock out compressor operation at extreme conditions.

Fan Section - Direct drive centrifugal fan. The housing has a removable orifice ring to facilitate fan motor and fan wheel removal. The fan housing protrudes through the cabinet to facilitate field duct connection. Units have a straight-through or end discharge air arrangement, and can be field converted from one to the other without the use of additional parts.

Electronically Commutated Motor (Optional) - The ECM fan motor offers higher efficiency than the standard fan motor as well as a constant volume of air being moved over the static pressure operating range of the WSHP.

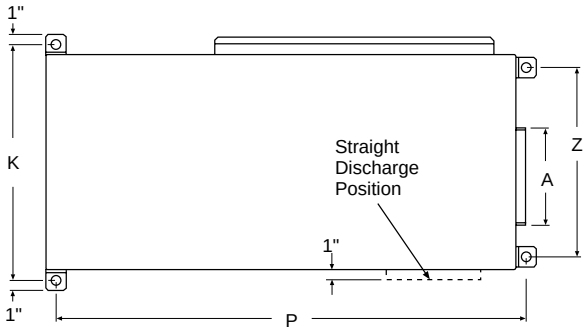
Electrical - The control box is accessible through a panel, and houses major electrical controls including the control circuit board, transformer, compressor relay and fan relay.

MicroTech™ III Unit Controller – Designed for flexibility, the main control board is used in stand-alone applications. A separate LonWorks® or BACnet® communication module can be easily snapped onto the board to accommodate the building automation system of your choice.

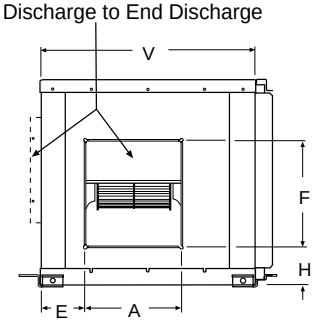
Overall Unit Dimensions =
21"W x 46"L x 20"H

Dimensions are approximate.

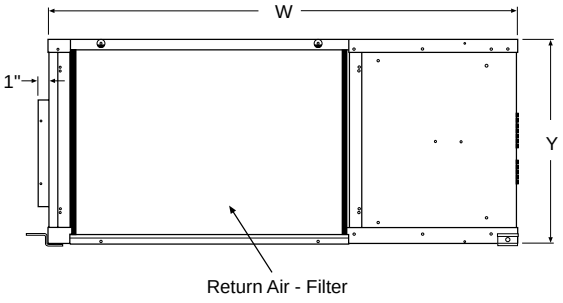
Right and left hand return determined by facing the water connection side of the unit.

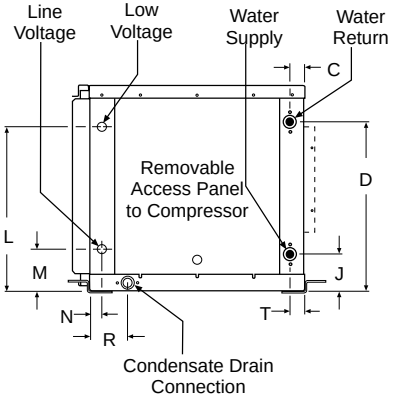


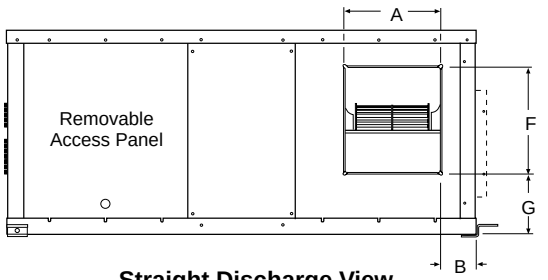
Blower Housing Assembly Converts from Straight Discharge to End Discharge



End Discharge View







Straight Discharge View

Dimensional Data (in inches)

Unit Size	Dimensions																			
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	V	W	Y	Z
036	9.29	3.53	1.45	16.43	4.41	10.26	6.17	4.06	3.60	23	15.93	4.10	1.25	46	3.74	1.45	21	46	20	18.5

McQuay Horizontal WSHP Model CCH & CCW – Size 036

Right Hand Return, End and Straight Discharge (R-410A Refrigerant)

Electrical Data – Standard PSC Motor

Unit Size	Voltage/Hz/Phase	Compressor		Fan Motor FLA	Total Unit FLA	Minimum Voltage	Minimum Circuit Amps	Maximum Fuse Size
		RLA	LRA					
036	208/230-60-1	17.1	83.0	3.50	20.6	197	24.9	35.0
	265/277-60-1	17.1	83.0	2.80	19.9	240	24.2	35.0
	208/230-60-3	12.9	77.0	3.50	16.4	197	19.6	25.0
	460-60-3	5.7	35.0	1.60	7.3	416	8.7	15.0

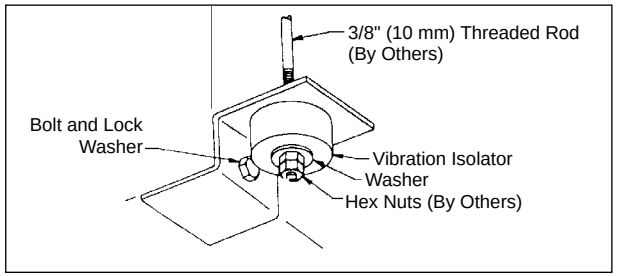
Electrical Data – (Optional) ECM Motor

Unit Size	Voltage/Hz/Phase	Compressor		Fan Motor FLA	Total Unit FLA	Minimum Voltage	Minimum Circuit Amps	Maximum Fuse Size	Fan Motor HP
		RLA	LRA						
036	208/230-60-1	17.1	83.0	4.30	21.4	197	25.7	40.0	1/2
	265/277-60-1	17.1	83.0	4.10	21.2	240	25.5	40.0	
	208/230-60-3	12.9	77.0	4.30	17.2	197	30.4	30.0	
	460-60-3	5.7	35.0	4.10	9.8	416	11.2	15.0	

Physical Data (in inches)

Unit Size	036
Fan Wheel - D x W	9.5 x 7.1
Standard PSC Motor Horsepower	1/2
Coil Face Area (Sq. Ft.)	3.43
Coil Rows	3
Refrigerant Charge (oz.)	49 oz.
1-inch Filter, (Qty.) Size (In.)	(1) 19H x 27W
Water Connections, FPT	3/4
Condensate Connections, FPT	3/4 I.D.
Weight, Operate (Lbs.)	223
Weight, Shipping (Lbs.)	242
2-inch Filter (Qty) Size (in.)	(1)18.5H x 30.5W

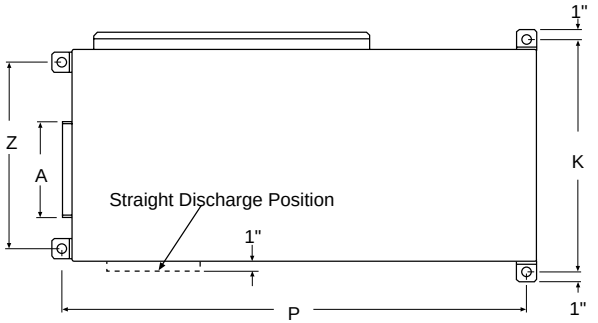
Hanger Kit Detail

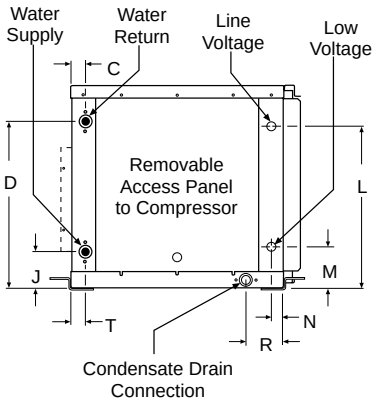


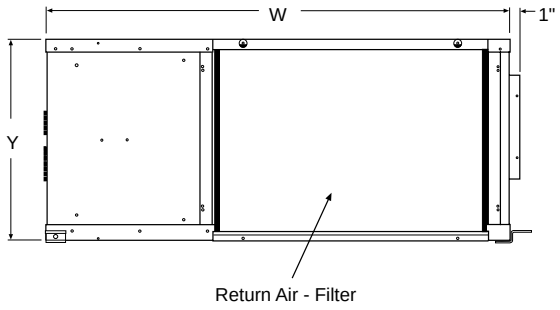
Overall Unit Dimensions = 21"W x 46"L x 20"H

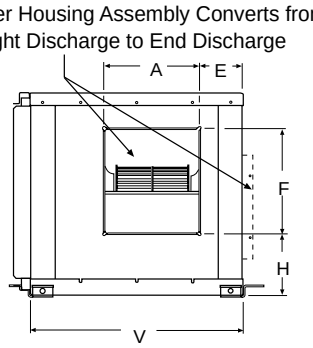
Dimensions are approximate.

Right and left hand return determined by facing the water connection side of the unit.

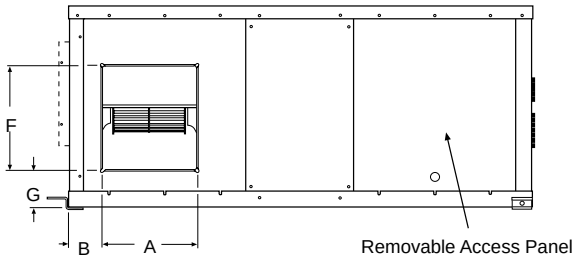








End Discharge View



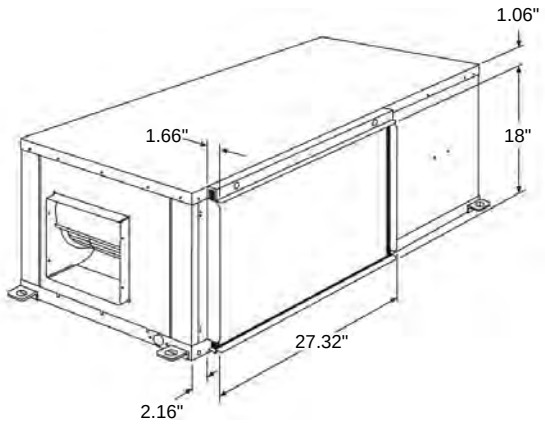
Straight Discharge View

Dimensional Data (in inches)

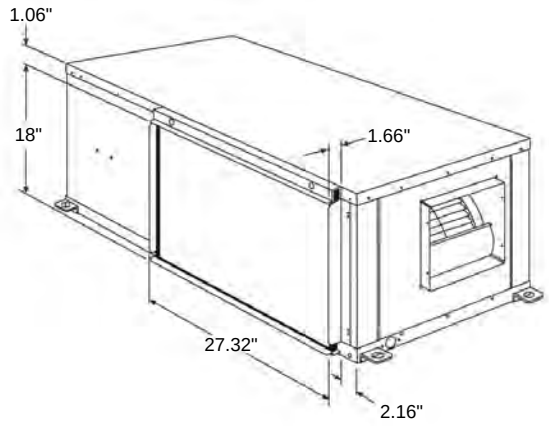
Unit Size	Dimensions																			
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	V	W	Y	Z
036	9.29	3.53	1.45	16.43	4.41	10.26	4.06	6.17	3.60	23	15.93	4.10	1.25	46	3.74	1.45	21	46	20	18.5

Filter Racks / Return Air Duct Collars Dimensions – Size 036

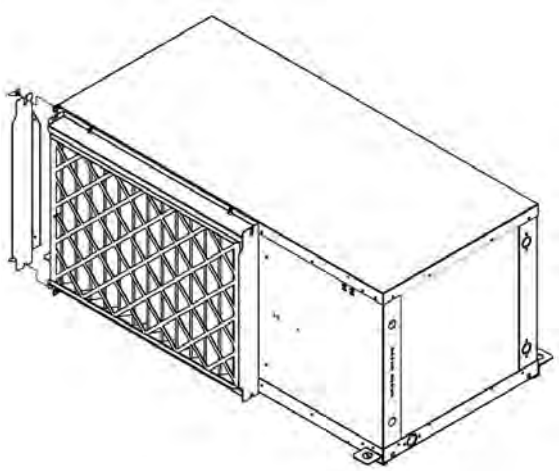
1" Standard Filter Rack Left Hand Return, End Discharge

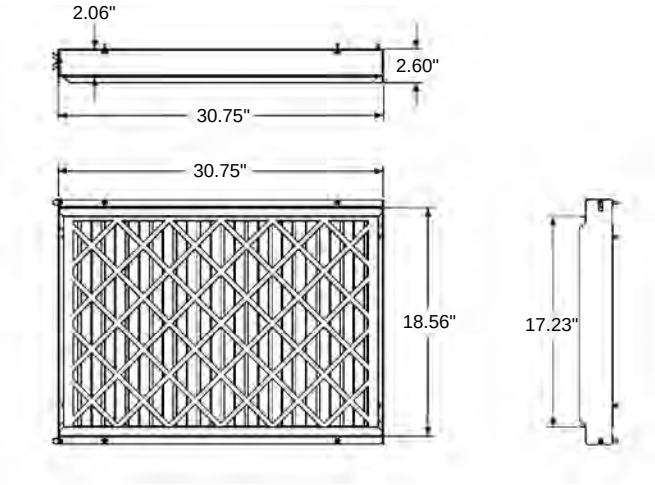


1" **Standard** Filter Rack – Right Hand Return, End Discharge



Optional 2" Filter Rack





Ductwork and Sound Attenuation Considerations

Ductwork is normally applied to ceiling-mounted heat pumps on the discharge side of the unit. A discharge collar is provided on all horizontal unit models for fastening the ductwork. Use a flexible connector between the discharge collar and the duct transformation to help reduce vibration transmission from the cabinet and to simplify disconnection of the unit from the ceiling ductwork. If return ductwork is to be used, attach a flexible connector to the filter rack collar to help reduce vibration transmission and removal of the unit. Return plenum ducting should be at least 12 inches away from the coil so that the coil is evenly loaded with return air.

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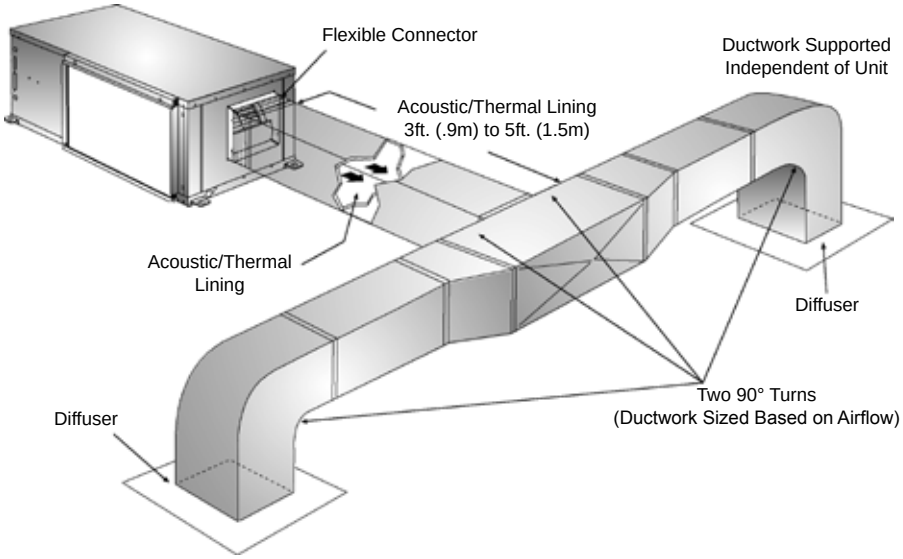
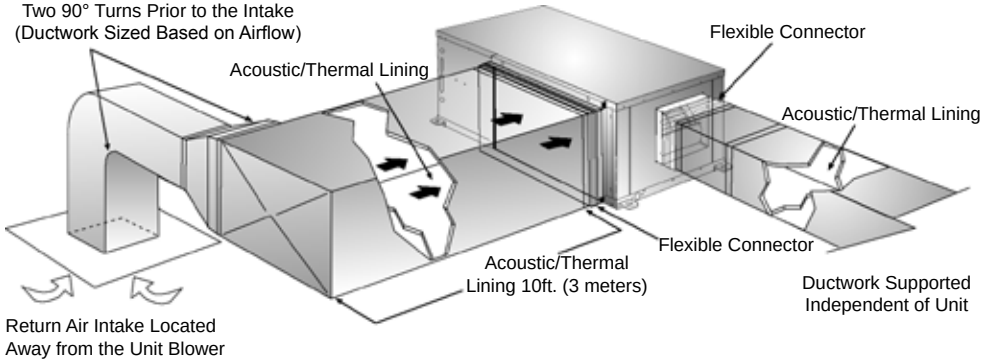
For Hotel, Motel, Dormitory or Nursing Home applications that use a single duct discharge, a velocity of 500 to 600 fpm is suggested. These applications typically have static pressures as low as 0.05 inches of water and duct lengths approximately six feet in length. The discharge duct must be fully lined and have a square elbow without turning vanes. Return air for these applications should enter through a “low” sidewall filter grille and route up the stud space to a ceiling plenum. For horizontal heat pumps mounted from the ceiling, an insulated return plenum is sometimes placed at the return air opening to further attenuate line-of-sight sound transmission through return openings.

Suggested Supply & Return Ducting

Suggested Supply Ducting per ASHRAE and SMACNA Publications



Suggested Return Ducting per ASHRAE and SMACNA Publications



McQuay International
a member of DAIKIN group

ENFINITY™ Heat Pump

DAIKIN McQUAY

Job Information	*Technical Data Sheet*
Job Name	Marriott Hotel
Date	7/29/2013
Submitted By	Briggs Equipment Sales, Inc.
Software Version	08.61
Unit Tag	HP-J
Qty:	2

Unit Overview

Model Number	Voltage V/Hz/Phase	Air Flow CFM	Fluid Flow gpm	Cooling Capacity Btu/hr	Cooling Efficiency EER	Heating Capacity Btu/hr	Heating Efficiency COP
WCCH4070	208-230/60/3	2330	15.00	69851	12.05	87954	4.12

Unit

Model Number:	WCCH4070
Unit Type:	R-410A, Ceiling Mounted, Standard Range
Unit Construction:	Standard w/Compressor Sound Blanket
Approval:	ETL, CETL, ARI

Refrigerant Type	Refrigerant Weight
R-410A	64.0 oz

Unit Performance

Air & Water Flow

Airflow	Total External Static Pressure	Fluid Flow	Fluid Type	Fluid Pressure Drop
2330 CFM	0.35 inH_2O	15.00 gpm / 2.57 gpm/ton	Water	17.76 ft H_2O

Cooling Performance

Fluid Temperature		Air Temperature				Capacity		Heat of Rejection	EER
Entering °F	Leaving °F	Entering Dry Bulb °F	Entering Wet Bulb °F	Leaving Dry Bulb °F	Leaving Wet Bulb °F	Total Btu/hr	Sensible Btu/hr	Btu/hr	
88.0	100.0	80.0	67.0	59.5	57.1	69851	50612	89642	12.05

Heating Performance

Fluid Temperature		Air Temperature		Capacity	Heat of Absorption	COP
Entering °F	Leaving °F	Entering Dry Bulb °F	Leaving Dry Bulb °F	Total Btu/hr	Btu/hr	
70.0	61.1	70.0	105.0	87954	66620	4.12

Electrical

Unit Voltage	Minimum Voltage	Total Unit MCA	Total Unit Full Load Current
208-230/60/3	197 V	37.40 A	31.80 A

Compressor RLA	Compressor LRA	Motor FLA	Maximum Recommended Fuse Size / HACR Breaker Size
25.0 A	149.0 A	9.40 A	65.0 A

Physical

Unit						
Length	Height	Width	Weight		Connections	
			Shipping	Operating	Water, FPT	Condensate, FPT
52.00 in	23.00 in	28.00 in	351 lb	332 lb	0.750 in	0.750 in

Cabinet
Construction Type
Standard w/Compressor Sound Blanket

Fan				Controls
Type	Motor		Drive	Type
	Type	Horsepower	Type	
DWDI Centrifugal	ECM	1.000 hp	Direct	MT III - Standalone

Airstream		
Air		Filter
Discharge	Return	(Quantity) Height x Width x Depth
(1) End Discharge	(1) Left Hand Return Air	(2) 22 in x 22 in x 1 in
(1) Straight Discharge	(1) Right Hand Return Air	

Options

Heating	
Heat Exchanger:	Copper Inner - Steel Outer Tube
Controls	
Control Transformer:	75VA Control Transformer

Warranty

Unit Warranty:	Extended 4 years Parts (Refrigerant Circuit)

AHRI Certification

All equipment is rated and certified in accordance with AHRI / ISO 13256-1 and tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada.

Accessories

Optional	
Part Number	Description
668375401	WallStat,AC/DC,Non-Prog,2HT/2Cl,NSB&OR,w/Plate,1Pk
668996006	Kit, Mtrzd Valve,3/4" 2-Way, NC, 30 PSi Close Off
106582929	Fire Rated Hose Kit, 15.0 GPM, 3/4 X 2Ft

Certified Drawing	CCH-CCW-R410-070 Specs
The Water Source Heat Pump product represented on this document will conform to the drawings and specifications set out below, in accordance with the express, written Limited Warranty. Purchaser's acceptance of this drawing certifies that the conforming equipment meets the order specifications. No changes may be made to this document without the prior, express, written authorization of the manufacturer.	Group: **WSHP** Type: **Horizontal** Date: **May 2013**

Daikin McQuay Horizontal WSHP Model CCH & CCW – Size 070

Left Hand Return, End and Straight Discharge (R-410A Refrigerant)

Features

Range of Operation - CCH-Standard (55º to 110ºF), CCW-Geothermal (30º to 110ºF).

Cabinet - Heavy-gauge unpainted G-60 galvanized steel.

Insulation - 1/2" thick, 1-1/2 lb. dual density fiber glass. IAQ closed-cell foam insulation also available as an option.

Drain Pan - ABS plastic, corrosion-resistant, double-sloped, for positive draining to reduce standing water, microbial growth and promote good indoor air quality.

Filter - 1" thick throwaway type, mounted in a combination filter rack/return air duct collar. Filters can be removed from the side or bottom. A 2" filter rack is available as a factory-installed selectable option to accept higher efficiency filters.

Refrigerant Circuit - Includes a scroll compressor, reversing valve, water-to-refrigerant heat exchanger, TXV expansion device, airside coil, high/low side refrigerant access valves, and safety controls.

Safety Controls - Low suction temperature sensor, electronic condensate overflow protection and high pressure switches to lock out compressor operation at extreme conditions.

Fan Section - Direct drive centrifugal fan. The housing has a removable orifice ring to facilitate fan motor and fan wheel removal. The fan housing protrudes through the cabinet to facilitate field duct connection. Units have a straight-through or end discharge air arrangement, and can be field converted from one to the other without the use of additional parts.

Electronically Commutated Motor - The ECM fan motor offers higher efficiency with a constant volume of air being moved over the static pressure operating range of the WSHP.

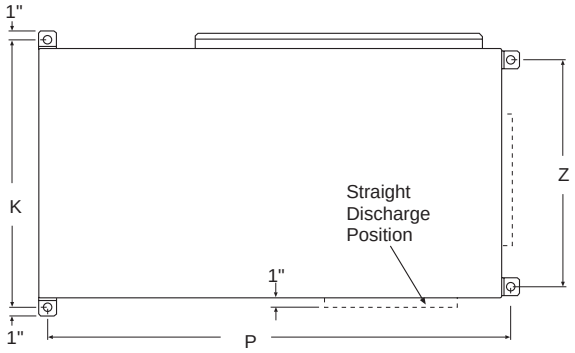
Electrical - The control box is accessible through a panel, and houses major electrical controls including the control circuit board, transformer, compressor relay and fan relay.

MicroTech™ III Unit Controller – Designed for flexibility, the main control board is used in standalone applications. A separate LonWorks® or BACnet® communication module can be easily snapped onto the board to accommodate the building automation system of your choice.

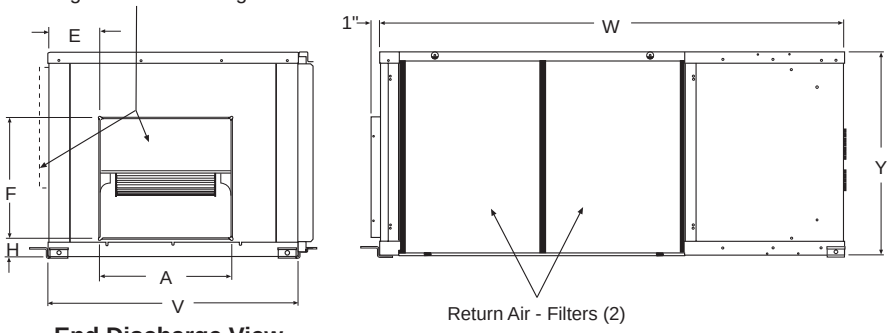
Overall Unit Dimensions =
28"W x 52"L x 23"H

Dimensions are approximate.

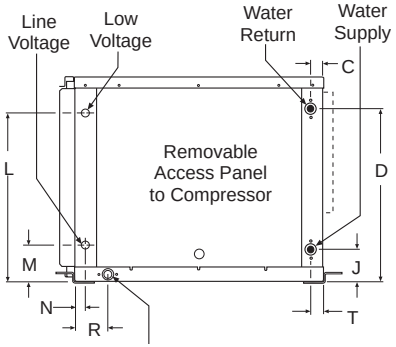
Right and left hand return determined by facing the water connection side of the unit.

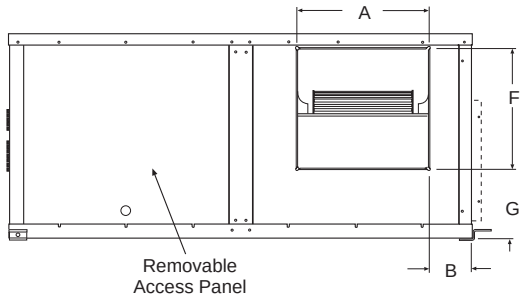


Blower Housing Assembly Converts from Straight Discharge to End Discharge



End Discharge View





Straight Discharge View

Dimensional Data (in inches)

Unit Size	Dimensions																			
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	V	W	Y	Z
070	14.68	4.89	1.45	19.43	5.76	13.43	8.06	1.95	3.60	30	17.43	5.60	1.25	52	3.74	1.45	28	52	23	25.5

DAIKIN McQUAY®

Daikin McQuay Horizontal WSHP Model CCH & CCW – Size 070

Right Hand Return, End and Straight Discharge (R-410A Refrigerant)

Electrical Data – ECM Motor

Unit Size	Voltage/Hz/Ph	Compressor		Fan Motor FLA	Total Unit FLA	Minimum Voltage	Minimum Circuit Amps	Maximum Fuse Size
		RLA	LRA					
070	208/230-60-3	22.4	149.0	9.4	31.8	197	37.4	50
	460-60-3*	10.6	75.0	6.9	17.5	416	20.2	30

Note: **All 460-60-3 units require 4-wire power, which includes a neutral wire. ECM motors 460-60-3 volt units require a 265 volt power supply. Both a hot AND a neutral wire are required to obtain proper fan motor voltage. Therefore, 4- wires with a wye type wiring arrangement is required.*

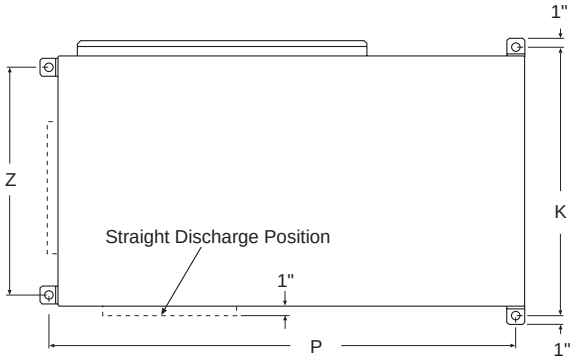
Physical Data (in inches)

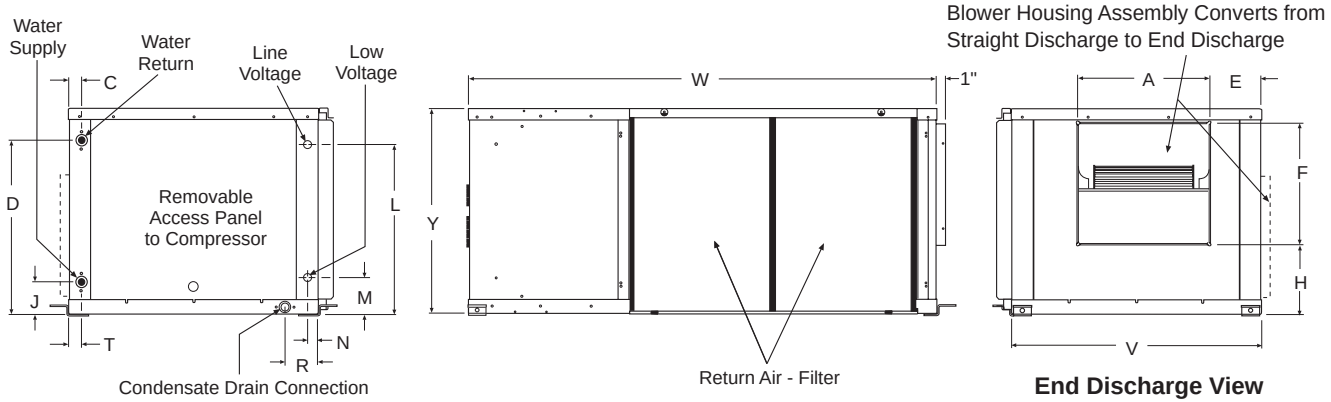
Unit Size	070
Fan Wheel - D x W	12.9 x 11.1
ECM Motor Horsepower	1
Coil Face Area (Sq. Ft.)	6.11
Coil Rows	3
Refrigerant Charge (oz.)	64 oz.
1-inch Filter, (Qty.) Size (In.)	(2) 22H x 22W
Water Connections, FPT	3/4
Condensate Connections, FPT	3/4 I.D.
Weight, Operate (Lbs.)	332
Weight, Shipping (Lbs.)	351
2-inch Filter (Qty) Size (in.)	(1)21.5H x 46.5W

Overall Unit Dimensions = 28"W x 52"L x 23"H

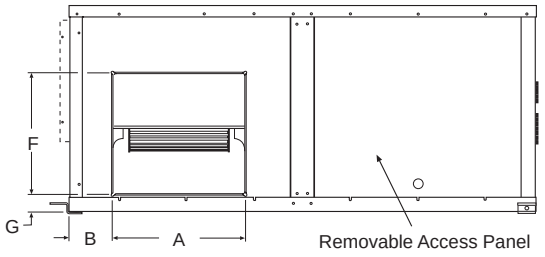
Dimensions are approximate.

Right and left hand return determined by facing the water connection side of the unit.





End Discharge View



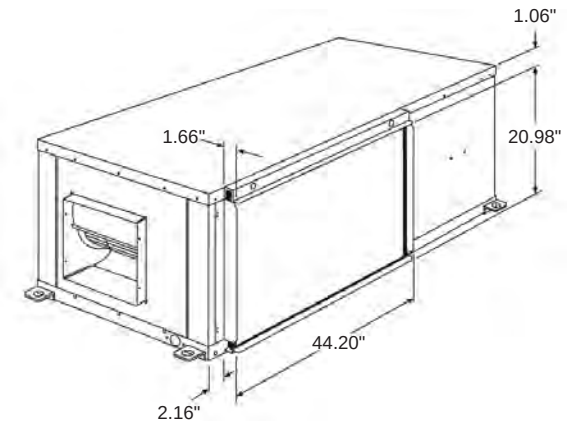
Straight Discharge View

Dimensional Data (in inches)

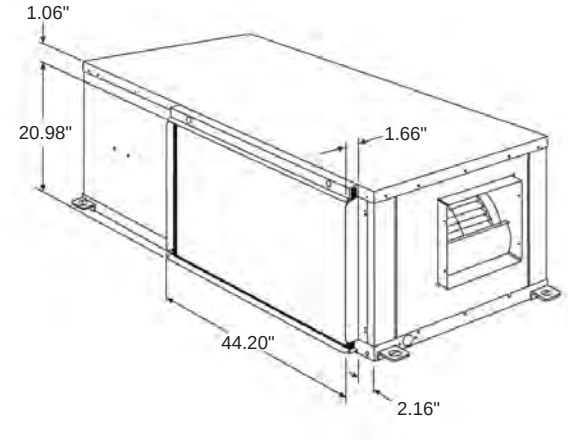
Unit Size	Dimensions																			
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	V	W	Y	Z
070	14.68	4.89	1.45	19.43	5.76	13.43	1.95	8.06	3.60	30	17.43	5.60	1.25	52	3.74	1.45	28	52	23	25.5

Filter Racks / Return Air Duct Collars Dimensions – Size 070

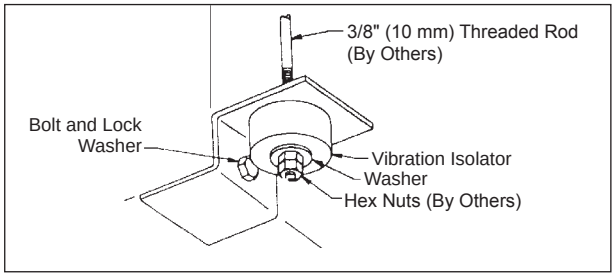
1" Standard Filter Rack Left Hand Return, End Discharge



1" Standard Filter Rack – Right Hand Return, End Discharge



Hanger Kit Detail



Ductwork and Sound Attenuation Considerations

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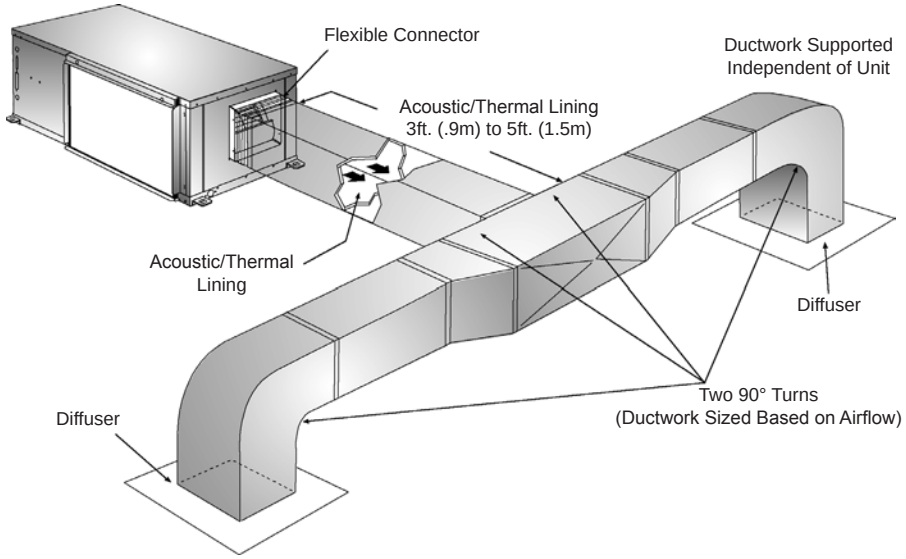
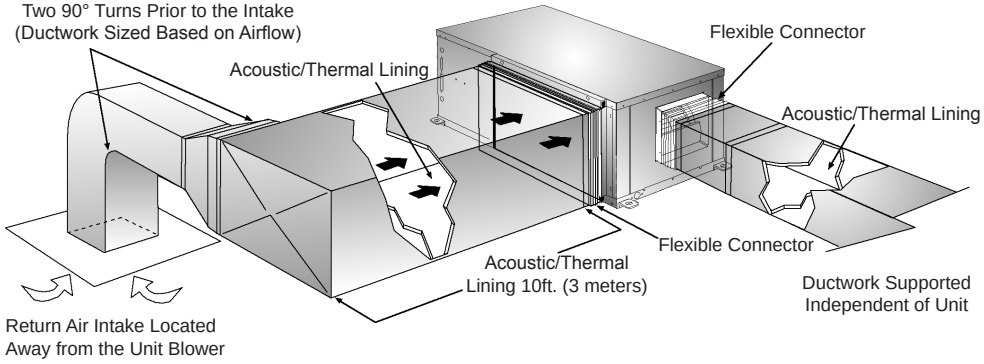
Suggested Supply & Return Ducting

Suggested Supply Ducting per ASHRAE and SMACNA Publications



Suggested Return Ducting per ASHRAE and SMACNA Publications



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 • www.daikinmcquay.com • (800) 432-1342

Motorized Valve and Relay Used With MicroTech® III Unit Controller or Mark IV Unit Controller

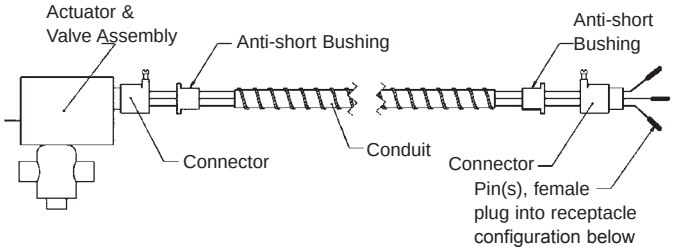
Introduction

The Motorized Valve and Relay kit it is a field-installed accessory for use with a MicroTech III unit controller and Mark IV controlled units. See page 2 for application with Mark IV unit controller.

Note: *The Motorized Valve and Relay is provided with either two pins (female) or three pins, depending on the valve selected. See figure 2 receptacle configurations to determine the valve type.*

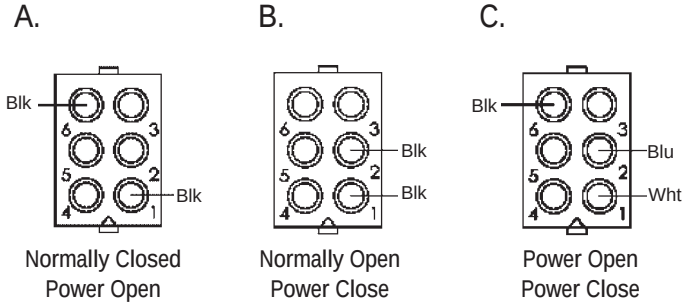
Wired as shown in Figure 2 and 3 the motorized valve will open on a call for compressor operation. Valves for unit sizes 007 to 019 are 1/2" while unit sizes 024 to 070 are 3/4".

Figure 1. Typical Motorized Valve and Relay used with MicroTech III Unit Controller



P/N 668996001 - 1/2" Motorized Valve Kit (N/C - Normally Closed)
P/N 668996002 - 1/2" Motorized Valve Kit (N/O - Normally Closed)
P/N 668996003 - 1/2" Motorized Valve Kit (N/C - High Closed)
P/N 668996004 - 3/4" Motorized Valve Kit (N/C - Normally Closed)
P/N 668996005 - 3/4" Motorized Valve Kit (N/O - Normally Closed)
P/N 668996006 - 3/4" Motorized Valve Kit (N/C - High Closed)
P/N 859004354 - Valve Relay Kit (Mark IV Controlled Units Only)

Figure 2. Motorized Valve Pin Locations on the 6-pin adapter Plug



Procedure For Use with MicroTech III Unit Controller

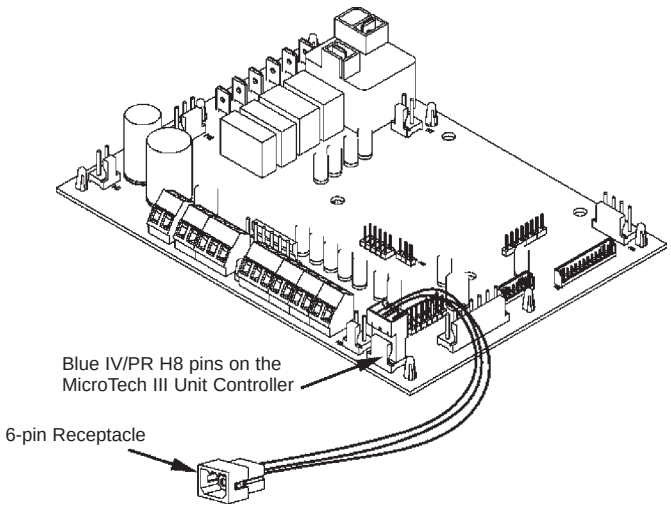
1. Insert motorized valve pins into the appropriate pin locations on the 6-pin receptacle. Refer to Figure 2 for appropriate pin locations.

   A. Normally Closed – Power Open
   B. Normally Open – Power Close
   C. Power Open – Power Close

2. Plug in 6-pin adapter plug into 6-pin receptacle.

3. Connect 3-pin connector to Blue IV/PR H8 pins on the MicroTech III unit controller (Figure 3).

Figure 3. Plug 3-pin Connector to IV/PR H8



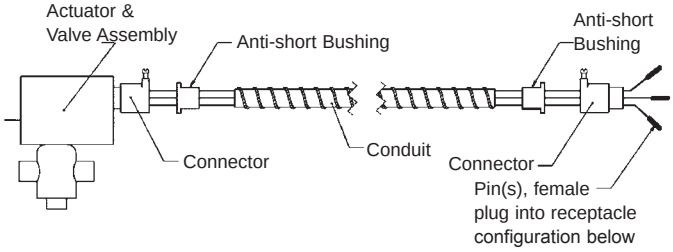
Motorized Valve & Relay for Use with Mark IV Controlled Units – Sizes 007 thru 070

Introduction

Wired as shown in figure 5, the motorized valve will open on a call for compressor operation. Valves for unit sizes 007 to 019 are 1⁄2" power-open spring-return while unit sizes 024 to 070 are 3⁄4" power-open spring return.

Note: *The wiring shown below can only be used when the "P" terminal is not being used as a pump restart signal to other equipment. If the "P" terminal must be used as a pump restart signal to other equipment, then wire the auxiliary relay's yellow wire to "Y1", white wire to "W1", and orange wire to "C", then the valve will open on a call for occupied heating or cooling from the thermostat.*

Figure 4. Typical Motorized Valve and Relay used with Mark IV Unit Controller

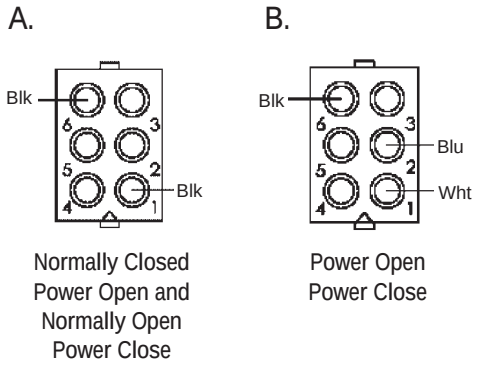


P/N 668996001 - 1/2" Motorized Valve Kit (N/C - Normally Closed)
P/N 668996002 - 1/2" Motorized Valve Kit (N/O - Normally Closed)
P/N 668996003 - 1/2" Motorized Valve Kit (N/C - High Closed)
P/N 668996004 - 3/4" Motorized Valve Kit (N/C - Normally Closed)
P/N 668996005 - 3/4" Motorized Valve Kit (N/O - Normally Closed)
P/N 668996006 - 3/4" Motorized Valve Kit (N/C - High Closed)
P/N 859004354 - Valve Relay Kit (Mark IV Controlled Units Only)

Procedure for Use with Mark IV Controller

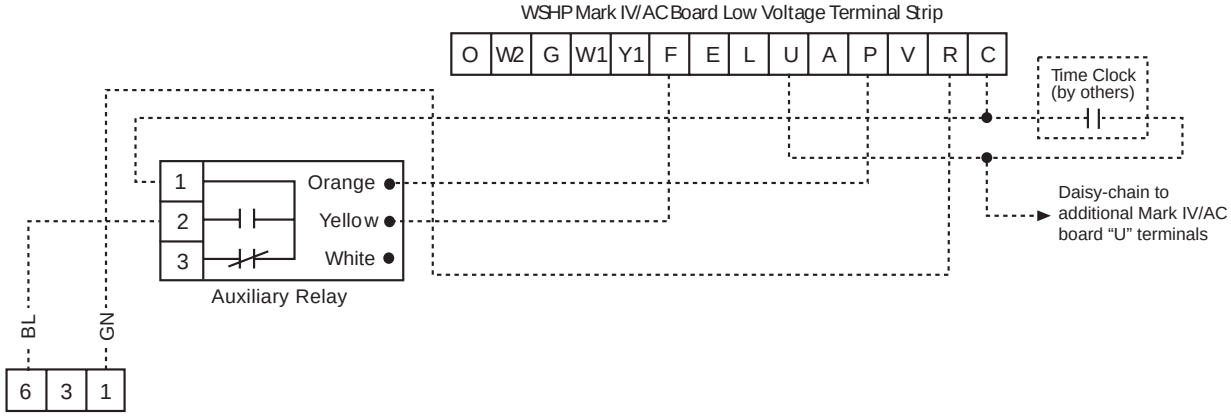
1. Insert motorized valve pins into the appropriate pin locations on the 6-pin receptacle as shown in Figure 5.

Figure 5. Motorized Valve Pin Locations on the 6-pin adapter Plug



2. Plug in 6-pin receptacle into relay plug. Refer to Figure 6 for connections.

Figure 6. Typical Wiring for Motorized Valve and Relay used with Mark IV Unit Controller (Normally Closed, Power Open)



Auto-changeover Electronic Thermostat

2 Heat/2 Cool, Auto or Manual Changeover, Hardwired

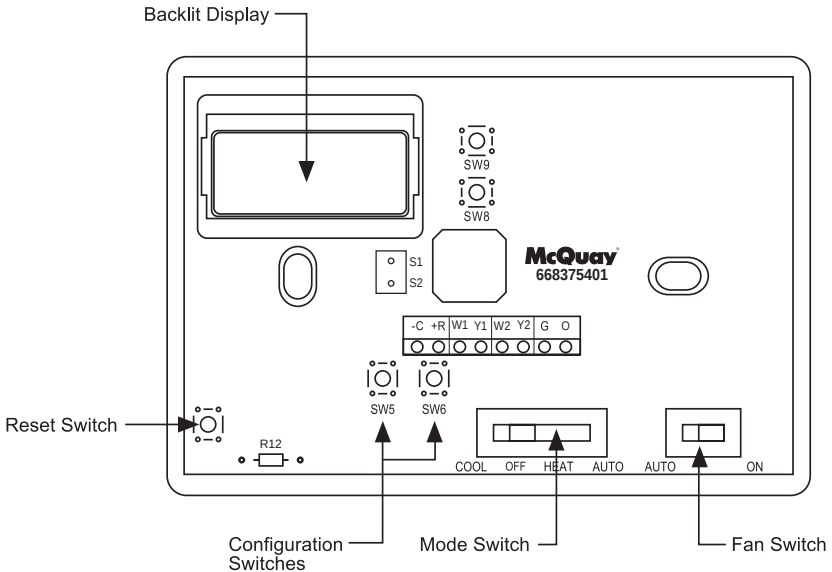
Part No. 668375401

- Configurable
- Two Stage Heat / 2 Stage Cool Systems
- Backlit Display
- Field Temperature Calibration
- Status Indicator Light
- Relay Outputs (minimum voltage drop in thermostat)
- Night Set-Back Override
- Reset

McQuay Air Conditioning

For replacement parts call 1-800-377-2787

Parts Diagram



Specifications

Electrical rating: • 24 VAC/VDC (18-30 VAC/VDC) • 4 amp maximum total load
• 1 amp maximum per terminal
Temperature control range: 45˚F to 90˚F (7˚C to 32˚C) **Accuracy:** ± 1˚F (± 0.5˚C)
System configurations: 2-stage heat, 2-stage cool
Timing: *Backlight Operation:* 13 seconds after mode change or button press
Terminations: -C, +R, W1, Y1, W2, Y2, G, O, S1, S2

Important Safety Information

WARNING!: *Always turn off power at the main power supply before installing, cleaning, or removing thermostat.*

- This thermostat is for 24 VAC/VDC applications only; do not use on voltages over 30 VAC/VDC
- Do not short across terminals of system control to test operation; this will damage your thermostat and void your warranty
- All wiring must conform to local and national electrical and building codes
- Use this thermostat only as described in this manual

Package Contents/Tools Required

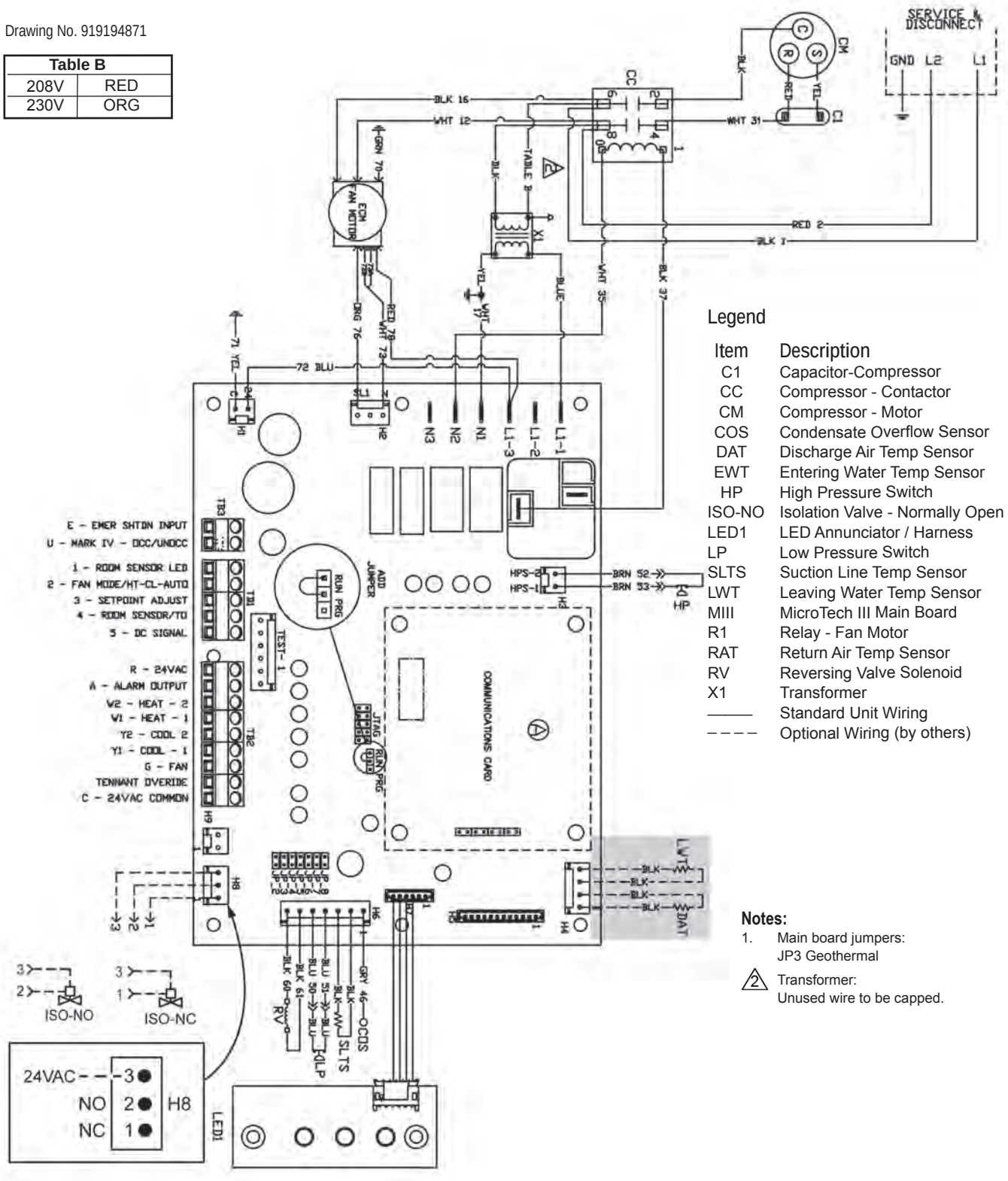
Package includes: Thermostat on base, thermostat cover, wiring labels, screws and wall anchors, Installation, Operation and Application Guide
Tools required for installation: Drill with 3/16" bit, hammer, screwdriver

Typical Wiring Diagram

MicroTech III Unit Controller with ECM Motor – 208/230-60-1 Unit Sizes 015-060

Drawing No. 919194871

Table B	
208V	RED
230V	ORG



Legend

Item	Description
C1	Capacitor-Compressor
CC	Compressor - Contactor
CM	Compressor - Motor
COS	Condensate Overflow Sensor
DAT	Discharge Air Temp Sensor
EWT	Entering Water Temp Sensor
HP	High Pressure Switch
ISO-NO	Isolation Valve - Normally Open
LED1	LED Annunciator / Harness
LP	Low Pressure Switch
SLTS	Suction Line Temp Sensor
LWT	Leaving Water Temp Sensor
MIII	MicroTech III Main Board
R1	Relay - Fan Motor
RAT	Return Air Temp Sensor
RV	Reversing Valve Solenoid
X1	Transformer
———	Standard Unit Wiring
– – – –	Optional Wiring (by others)

Notes:

1. Main board jumpers: JP3 Geothermal
2. Transformer: Unused wire to be capped.

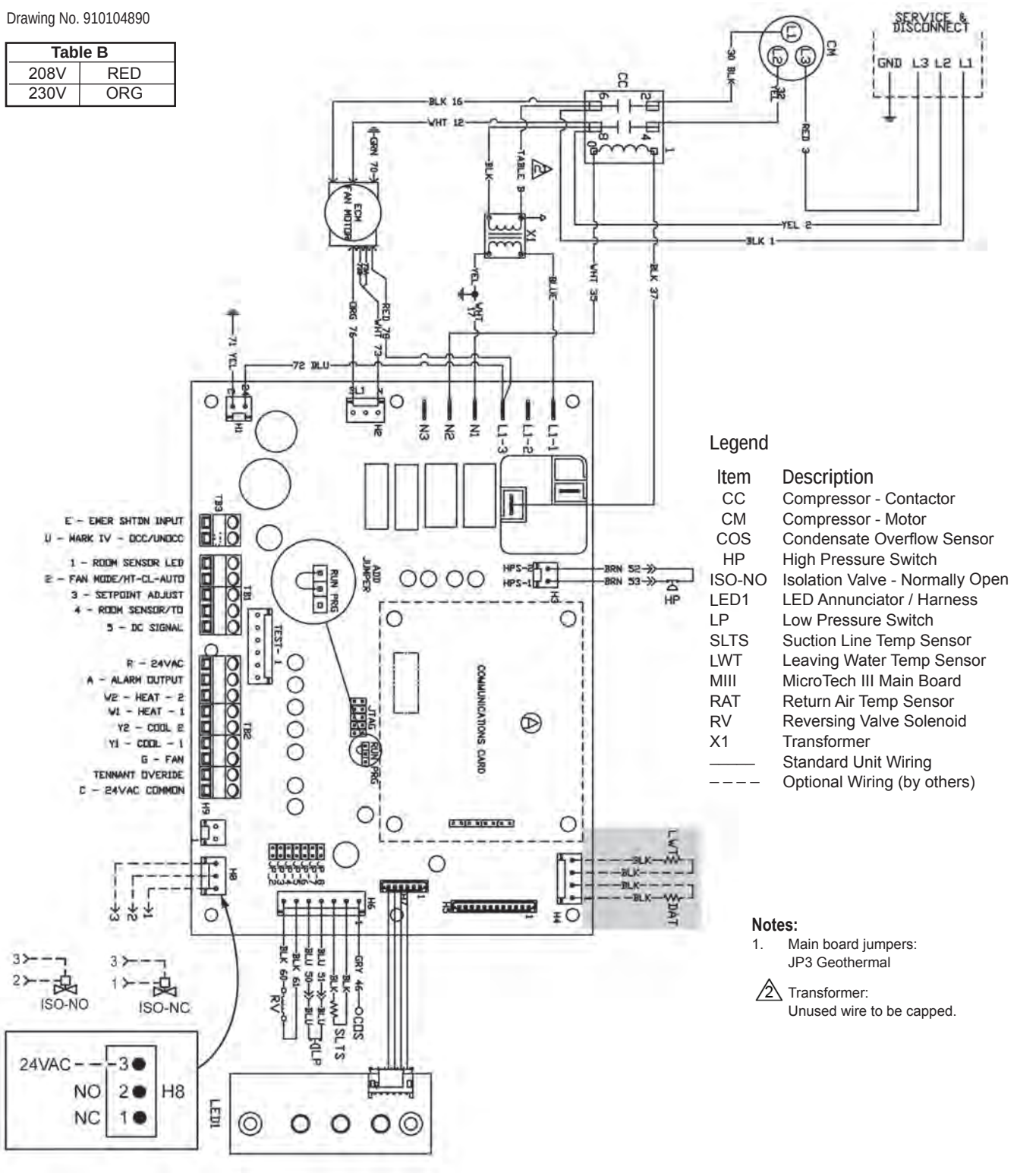
Note: *The gray tinted areas in the wiring diagram; Leaving Water (LWT) and Discharge Air (DAT) Temperature sensors are shipped or are field installed on units configured with a communication module.*

**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.*

MicroTech III Unit Controller with ECM Motor – 208/230-60-3 Unit Sizes 024-070

Drawing No. 910104890

Table B	
208V	RED
230V	ORG



Legend

Item	Description
CC	Compressor - Contactor
CM	Compressor - Motor
COS	Condensate Overflow Sensor
HP	High Pressure Switch
ISO-NO	Isolation Valve - Normally Open
LED1	LED Annunciator / Harness
LP	Low Pressure Switch
SLTS	Suction Line Temp Sensor
LWT	Leaving Water Temp Sensor
MIII	MicroTech III Main Board
RAT	Return Air Temp Sensor
RV	Reversing Valve Solenoid
X1	Transformer
———	Standard Unit Wiring
– – – –	Optional Wiring (by others)

Notes:

1. Main board jumpers:
   JP3 Geothermal

2 Transformer:
Unused wire to be capped.

Note: *The gray tinted areas in the wiring diagram; Leaving Water (LWT) and Discharge Air (DAT) Temperature sensors are shipped or are field installed on units configured with a communication module.*
**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.*

BRIGGS EQUIPMENT SALES, INC.

SUBMITTAL DATA

Project:	Marriott Hotel
Mechanical Engineer:	Bennett Engineering
Mechanical Contractor:	Warren Mechanical
Date:	July 30, 2013
Product:	Vertical Stack WSHPs
Specification Section:	230000-15
Revision:	00

Tag	Qty	Model / Description	Manufacturer
HP-A	118	WVHC/F-009 Vertical Stack HP	Daikin McQuay
HP-B	20	WVHC/F-024 Vertical Stack HP	Daikin McQuay
HP-C	6	WVHC/F-030 Vertical Stack HP	Daikin McQuay

Comments / Notes

McQuay International

An Authorized Representative for Northern New England

Job Name: Marriott Hotel
Date: 7/29/2013
Submitted By: Briggs Equipment Sales, Inc.
Tag: HP-A
Qty: 118

Unit Description:

McQuay Model Number: WVHC1009, WVHF1009

Evaporator Coil:

Coil:

Fins Per Inch:	14
Rows:	3
Face Area:	1.85 ft²

Cooling Performance:

Total Capacity:	9357 Btu/hr
Sensible Capacity:	8339 Btu/hr
Entering Air db/wb:	80.0 °F / 67.0 °F
Leaving Air db/wb:	59.0 °F / 58.9 °F
kW:	0.688 kW
Total Heat of Rejection:	11625 Btu/hr
EER:	13.60

Heating Performance:

Total Capacity:	10651 Btu/hr
Entering Air db:	70.0 °F
Leaving Air db:	96.4 °F
kW:	0.596 kW
Total Heat of Absorption:	8850 Btu/hr
COP:	5.23

Condenser Coil:

Cooling:

Entering Loop Fluid Temp:	88.0 °F
Leaving Loop Fluid Temp:	99.8 °F

Heating:

Entering Loop Fluid Temp:	70.0 °F
Leaving Loop Fluid Temp:	60.6 °F

Loop Fluid:

Glycol:	0.0 % / Water
Fluid Flow Rate:	2.00 gpm
Fluid Pressure Drop:	5.20 ft H_2O

Condenser Coil:

Refrigerant Type:	R-410A
Refrigerant Charge:	23.0 oz

Fan:

Performance:

Air Flow:	374 CFM
Total External Static Pressure:	0.12 inH_2O
Fan Speed:	None

Fan:

Type:	Centrifugal
Fan Wheel Dia. x Width.:	6.3 in x 6.2 in

Motor:

Horsepower:	0.06 HP
Type:	Standard (PSC)
Full Load Current:	0.45 A

Drives:

Type:	Direct

Return Air:

Return Air Option:

Type:	Front

Supply Air:

Qty: 73	Single Discharge Front
Qty: 31	Single Discharge Left
Qty: 14	Single Discharge Right

Filters:

Filter Quantity / Size (W x H):	(1) 30 in x 16 in x 1 in

Risers: PROVIDED AND INSTALLED IN THE FIELD

Unit Electrical Data:

Unit Voltage:	208-230/60/1
Unit Minimum Voltage:	187 V
Total Unit MCA:	5.08 A
Total Unit Full Load Current:	4.15 A
Max. Recommended Fuse or HACR Breaker Size:	15.0 A
Field Connection:	Non-Fused Disconnect w/ Wire Harness
Compressor RLA:	3.7 A
Compressor LRA:	22.0 A

Unit Control Data:

Controls:	Microtech III Unitary Controller - Stand Alone

Chassis Construction:

Construction Type:	Standard - Fiberglass Insulation
Approval Listing:	ETL, CETL, ARI

Cabinet Construction:

Construction Type:	Standard - Fiberglass Insulation
Approval Listing:	ETL, CETL, ARI

Unit Dimensions & Weights:

Cabinet Length:	18.11 in
Cabinet Height:	88.00 in
Cabinet Width:	18.07 in
Cabinet Shipping Weight:	138 lb
Chassis Shipping Weight:	
Unit Operating Weight (Chassis w/Cabinet):	187 lb
Water Connections, FPT:	0.50 in
Condensate Connection, FPT:	1.00 in

Certified Drawing	VHF-VHC-18in.-009 Specs
The Water Source Heat Pump product represented on this document will conform to the drawings and specifications set out below, in accordance with the express, written Limited Warranty. Purchaser's acceptance of this drawing certifies that the conforming equipment meets the order specifications. No changes may be made to this document without the prior, express, written authorization of the manufacturer.	Group: **WSHP**
	Type: **Vertical Stack**
	Date: **June 2009**

McQuay Vertical Stack WSHP

Model VHF 18" × 18" (Cabinet) & VHC (Chassis) – Size 009

Multiple Unit Sizes – 009 (3/4 ton, 2.6kW) through 036 (3 ton, 10.6kW).

R-410A Refrigerant – Environmentally friendly with zero ozone depletion.

Compressors – High efficiency rotary and scroll, available with optional mass plate and/or compressor blanket for quiet operation.

High Efficiency Operation – Exceeds ASHRAE 90.1 Efficiency levels.

Chassis – Removable, allows staged installation and ease of service and routine maintenance. Vibration isolators integral to the chassis support rails.

Vibration Isolation System – Vibration isolators are integral to the chassis support rails to help minimize noise and vibration transmission to the cabinet and wall structure.

Compact Cabinet – Constructed of unpainted galvanized steel, with the smallest possible footprint. 18" x 18" cabinet for unit sizes 009 through 018.

Motor/Blower Assembly – PSC motor and housing is removable and slides out through the front of the cabinet.

TXV Refrigerant Metering Device – Standard on all unit sizes.

Microtech III Control System – Offering "Open Choices" for stand-alone operation or communicate ~~via LonWorks® or BACnet® open protocols.~~

Primary Condensate Drain Pan – is sloped and constructed of a corrosion resistant ABS plastic. The primary drain pan sits below the air coil to capture all condensate in cooling mode. A factory installed condensate overflow sensor disables unit operation when the condensate level reaches the sensor.

Factory-Installed 2-Way Motorized Valves (Optional) – Ideal in variable pumping applications. On a call for cooling or heating the valve opens providing full water flow prior to compressor operation.

Factory-Installed Auto-Flow Regulator (Optional) – Eliminates the need for a circuit setter on the field installed hose kit. The auto-flow regulator is sized for 2-1/2 gpm/ton.

Supply Air Plenum – Allows for multiple discharge air configurations.

Field-Installed Accessories include, but not limited to:

- **Stainless Steel Braided Hoses –** Connect the chassis to the risers
- **Hinged Return Air Grille/Panel –** allows easy filter replacement and chassis removal
- **Supply Air Diffusers –** Double-deflection or double-deflection with adjustable damper.
- **Filters –** 1" standard
- **Thermostats –** Wall-mounted or wireless (programmable/non-programmable)

Options (Factory Installed)

Indoor Air Quality (IAQ)
- ☐ Non-Fibrous Insulation - Closed-cell type (Rubatex)

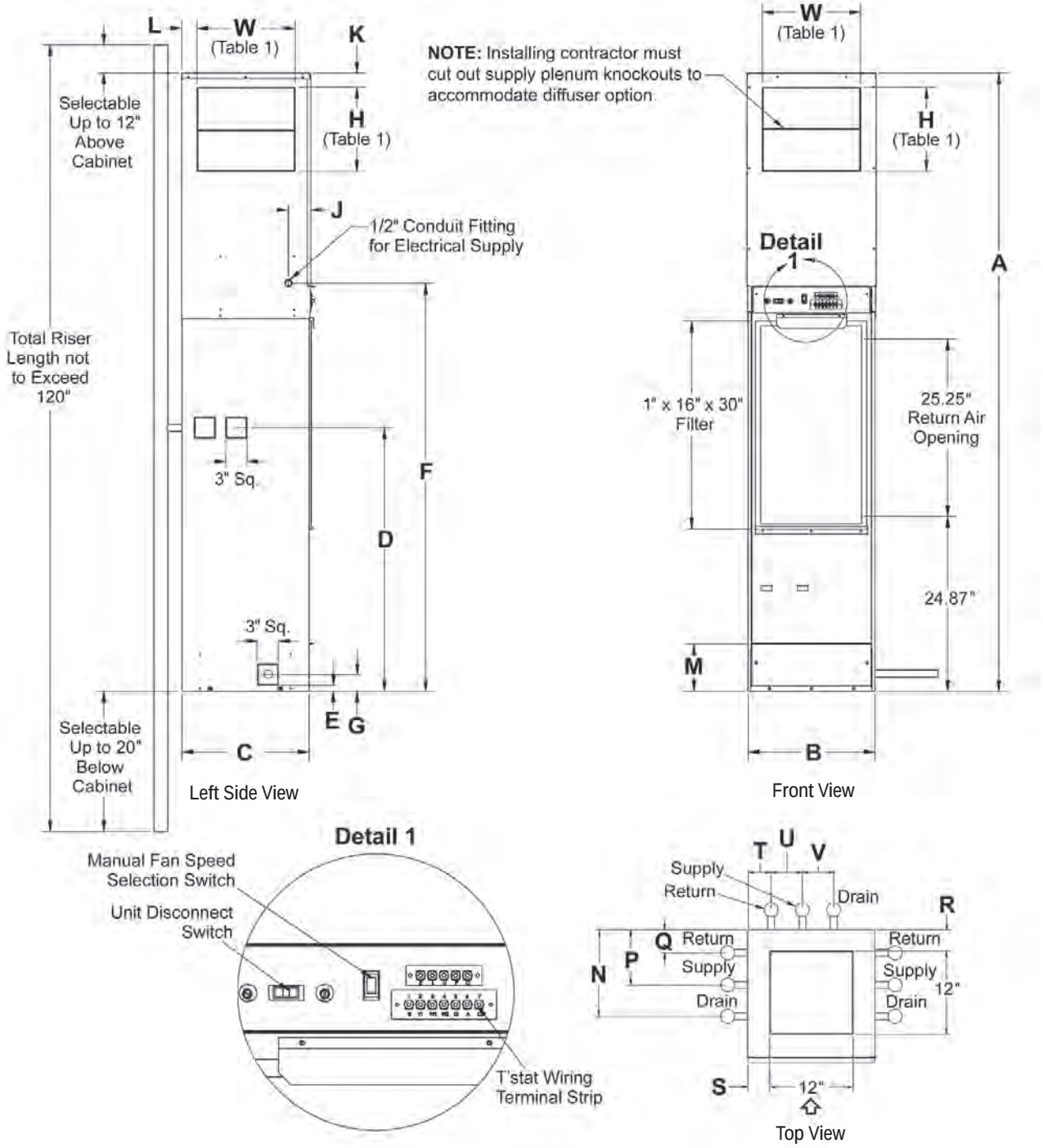
Controls
- ☐ MicroTech III - LonWorks® Communication Module
- ☐ MicroTech III - BACnet® Communication Module

Coaxial Coil
- ☐ Cupro-Nickel

Warranty
- ☐ Ext. 4-Yr. Parts (Compressor Only)
- ☐ Ext. 4-Yr. Parts (Refrigerant Circuit)

McQuay Air Conditioning

Dimensional Data – Cabinet (VHF)



Dimensions – Cabinet (VHF)

Unit Size	A	B	C	D	E	F	G	J	K	L	M	N	P	Q
009 18" × 18" Cabinet	80"	18.07"	18.11"	37.50"	.88"	58.09"	2.38"	3.125"	2"	2"	6.72"	12.4"	7.9"	3.3"
	88"	18.07"	18.11"	37.50"	.88"	58.09"	2.38"	3.125"	2"	2"	6.72"	12.4"	7.9"	3.3"
	92"	18.07"	18.11"	37.50"	.88"	58.09"	2.38"	3.125"	2"	2"	6.72"	12.4"	7.9"	3.3"
	96"	18.07"	18.11"	37.50"	.88"	58.09"	2.38"	3.125"	2"	2"	6.72"	12.4"	7.9"	3.3"

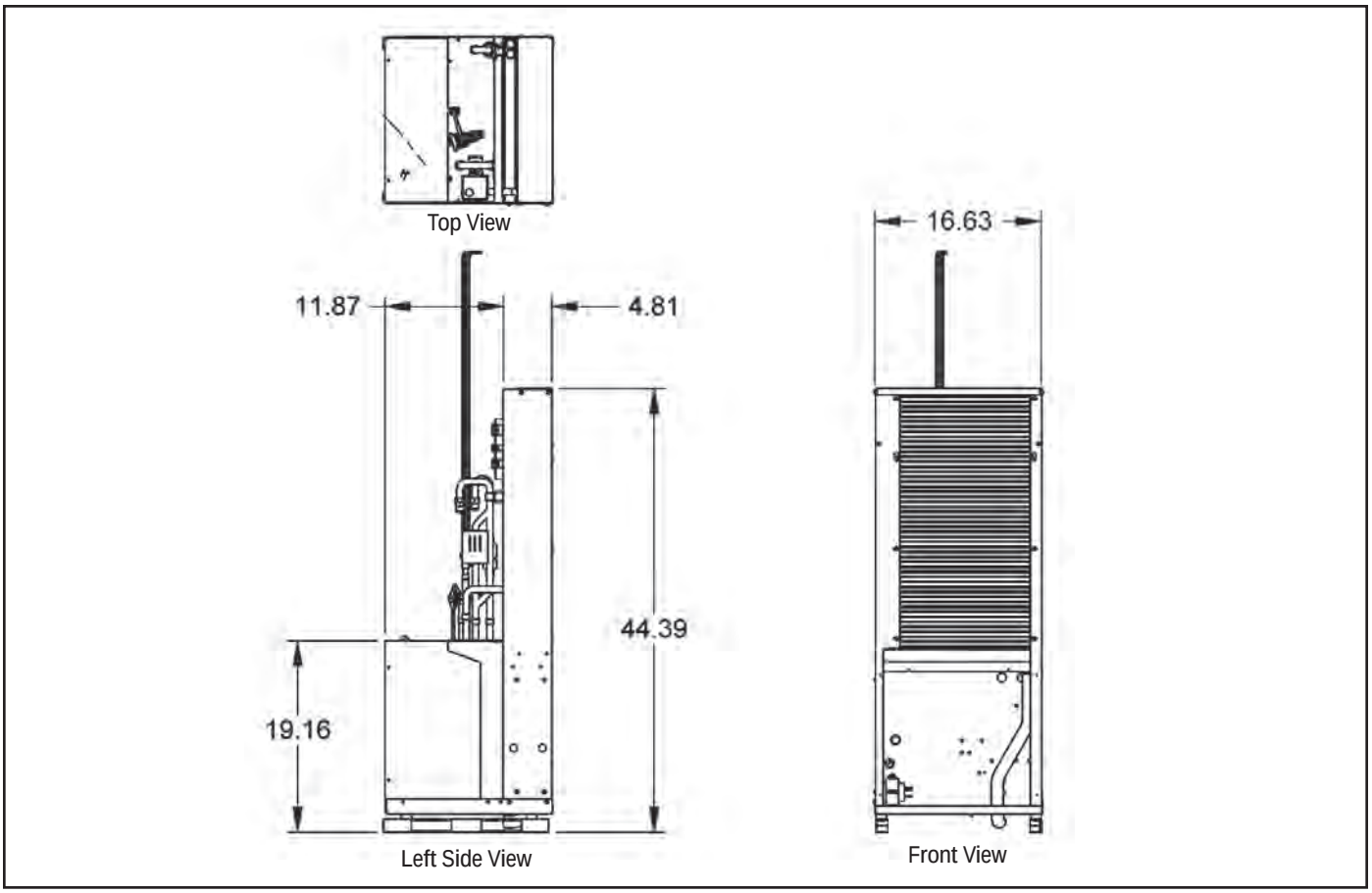
A	R	S	T	U	V
80"	3"	3"	3.3"	4.50"	4.50"
88"	3"	3"	3.3"	4.50"	4.50"
92"	3"	3"	3.3"	4.50"	4.50"
96"	3"	3"	3.3"	4.50"	4.50"

Table 1.

Unit Size	Discharge Openings							
	Single		Double		Triple		Single-Top Opening	
	W	H	W	H	W	H	W	H
009	14"	16"	14"	8"	NR	NR	12"	12"

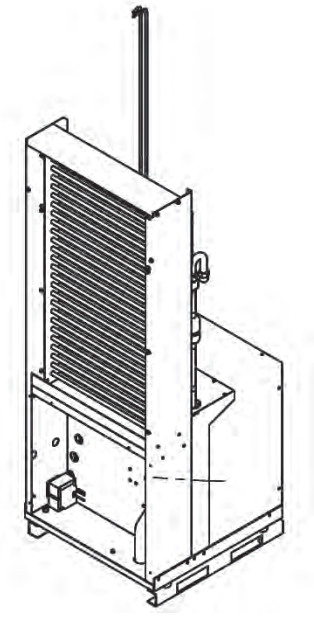
NR = Not Recommended

Dimensions – Chassis (VHC)



Physical Data

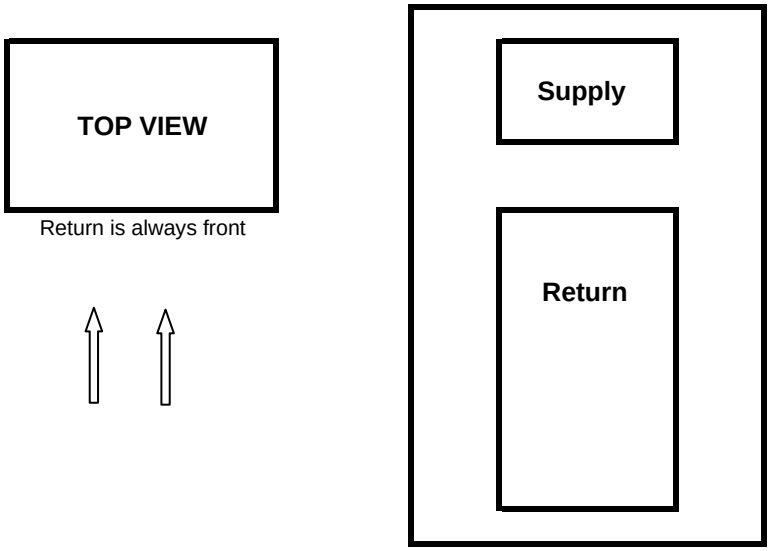
Unit Size			009
Fan Wheel - D x W (In.)			6.31 x 6.16
Fan Motor Horsepower			1/16
Coil Face Area (Sq. Ft.)			1.85
Coil Rows			3
Refrigerant Charge (Oz.)			23
Filter, (Qty.) Size (In.)			(1) 16W x 30H
Water Connections, Female NPT (In.)			1/2
Condensate Connections, Female NPT (In.)			7/8 I.D.
Weight, Operating (Lbs.)	Chassis		87
	Cabinet	80"	100
		88"	108
		92"	111
		96"	115
Weight, Shipping (Lbs.)	[1] Chassis w/Carton		97
	Cabinet	80"	100 [3]
		88"	108 [3]
		92"	111 [4]
		96"	115 [4]



Notes:
Chassis' ship 4 per skid.
Cabinets ship 4 per skid.
[1] Add 41 lbs. for skid weight to the overall chassis w/carton shipping weight, i.e., (Chassis w/carton x 4 + 41 lbs.).
[3] Add 98 lbs. for skid weight to overall cabinet shipping weight, i.e., (Cabinet x 4 + 98 lbs.).
[4] Add 106 lbs. for skid weight to overall cabinet shipping weight, i.e., (Cabinet x 4 + 106 lbs.).

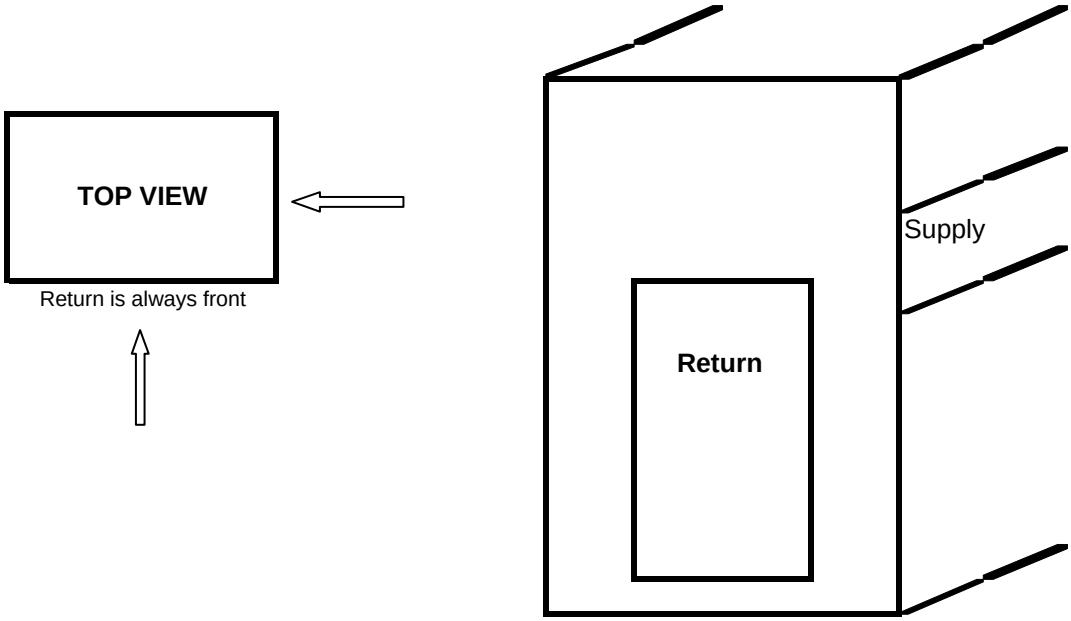
HP-A Front Return

Single Discharge Front Discharge Qty: 73



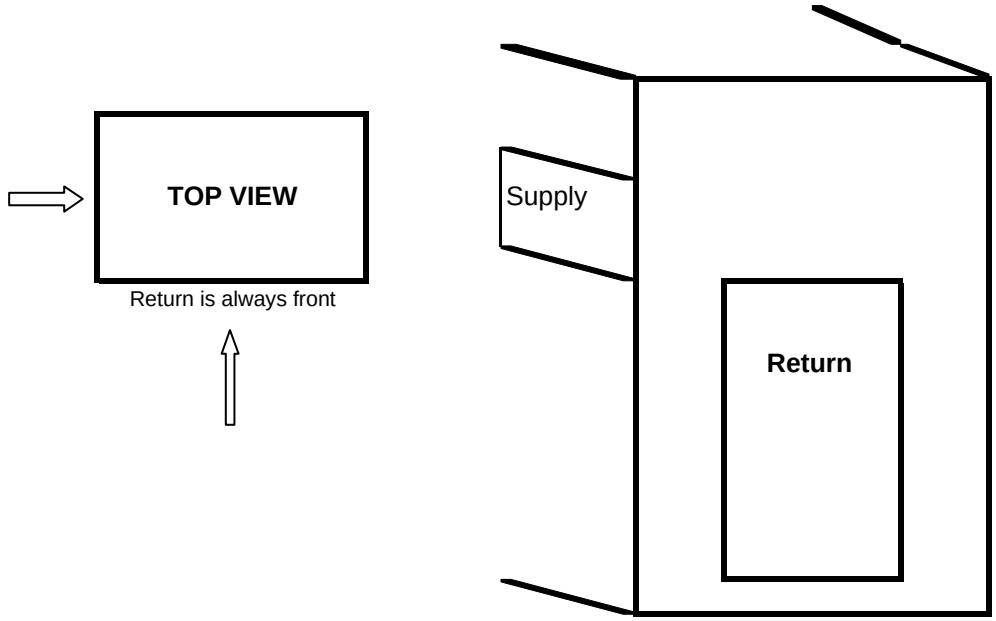
Not to Scale

HP-A Front Return
Single Discharge Right Discharge Qty: 14



Not to Scale

HP-A Front Return
Single Discharge Left Discharge Qty: 31



Not to Scale

Job Name: Marriott Hotel
Date: 7/29/2013
Submitted By: Briggs Equipment Sales, Inc.
Tag: HP-B
Qty: 20

Unit Description:

McQuay Model Number: WVHC1024, WVHF1024

Evaporator Coil:

Coil:

Fins Per Inch:	14
Rows:	3
Face Area:	2.90 ft²

Cooling Performance:

Total Capacity:	24404 Btu/hr
Sensible Capacity:	18860 Btu/hr
Entering Air db/wb:	80.0 °F / 67.0 °F
Leaving Air db/wb:	56.3 °F / 56.2 °F
kW:	1.655 kW
Total Heat of Rejection:	29854 Btu/hr
EER:	14.75

Heating Performance:

Total Capacity:	29993 Btu/hr
Entering Air db:	70.0 °F
Leaving Air db:	107.1 °F
kW:	1.781 kW
Total Heat of Absorption:	24043 Btu/hr
COP:	4.93

Condenser Coil:

Cooling:

Entering Loop Fluid Temp:	88.0 °F
Leaving Loop Fluid Temp:	97.9 °F

Heating:

Entering Loop Fluid Temp:	70.0 °F
Leaving Loop Fluid Temp:	62.2 °F

Loop Fluid:

Glycol:	0.0 % / Water
Fluid Flow Rate:	5.00 gpm
Fluid Pressure Drop:	7.44 ft H_2O

Condenser Coil:

Refrigerant Type:	R-410A
Refrigerant Charge:	40.0 oz

Fan:

Performance:

Air Flow:	750 CFM
Total External Static Pressure:	0.02 inH_2O
Fan Speed:	None

Fan:

Type:	Centrifugal
Fan Wheel Dia. x Width.:	9.9 in x 7.1 in

Motor:

Horsepower:	0.12 HP
Type:	Standard (PSC)
Full Load Current:	0.90 A

Drives:

Type:	Direct

Return Air:

Return Air Option:

Type:	Front

Supply Air:

Qty: 3	Single Discharge front
Qty 10	Dual discharge front, left
Qty: 7	Dual discharge front, right

Filters:

Filter Quantity / Size (W x H):	(1) 36 in x 20 in x 1 in

Risers – ALL RISERS SUPPLIED AND INSTALLED IN THE FIELD

Unit Electrical Data:

Unit Voltage:	208-230/60/1
Unit Minimum Voltage:	187 V
Total Unit MCA:	17.77 A
Total Unit Full Load Current:	14.40 A
Max. Recommended Fuse or HACR Breaker Size:	30.0 A
Field Connection:	Non-Fused Disconnect w/ Wire Harness
Compressor RLA:	13.5 A
Compressor LRA:	58.0 A

Unit Control Data:

Controls:	Microtech III Unitary Controller - Stand Alone

Chassis Construction:

Construction Type:	Standard - Fiberglass Insulation
Approval Listing:	ETL, CETL, ARI

Cabinet Construction:

Construction Type:	Standard - Fiberglass Insulation
Approval Listing:	ETL, CETL, ARI

Unit Dimensions & Weights:

Cabinet Length:	24.04 in
Cabinet Height:	88.00 in
Cabinet Width:	24.00 in
Cabinet Shipping Weight:	206 lb
Chassis Shipping Weight:	
Unit Operating Weight (Chassis w/Cabinet):	313 lb
Water Connections, FPT:	0.75 in
Condensate Connection, FPT:	1.00 in

Certified Drawing	VHF-VHC-24in.-024 Specs
The Water Source Heat Pump product represented on this document will conform to the drawings and specifications set out below, in accordance with the express, written Limited Warranty. Purchaser's acceptance of this drawing certifies that the conforming equipment meets the order specifications. No changes may be made to this document without the prior, express, written authorization of the manufacturer.	Group: **WSHP** Type: **Vertical Stack** Date: **June 2009**

McQuay Vertical Stack WSHP

Model VHF 24" × 24" (Cabinet) & VHC (Chassis) – Size 024

Multiple Unit Sizes – 009 (3/4 ton, 2.6kW) through 036 (3 ton, 10.6kW).

R-410A Refrigerant – Environmentally friendly with zero ozone depletion.

Compressors – High efficiency rotary and scroll, available with optional mass plate and/or compressor blanket for quiet operation.

High Efficiency Operation – Exceeds ASHRAE 90.1 Efficiency levels.

Chassis – Removable, allows staged installation and ease of service and routine maintenance. Vibration isolators integral to the chassis support rails.

Vibration Isolation System – Vibration isolators are integral to the chassis support rails to help minimize noise and vibration transmission to the cabinet and wall structure.

Compact Cabinet – Constructed of unpainted galvanized steel, with the smallest possible footprint. 18" x 18" cabinet for unit sizes 009 through 018.

Motor/Blower Assembly – PSC motor and housing is removable and slides out through the front of the cabinet. Optional ECM motor available.

TXV Refrigerant Metering Device – Standard on all unit sizes.

Microtech III Control System – Offering "Open Choices" for stand-alone operation or communicate ~~via LonWorks® or BACnet® open protocols~~.

Primary Condensate Drain Pan – is sloped and constructed of a corrosion resistant ABS plastic. The primary drain pan sits below the air coil to capture all condensate in cooling mode. A factory installed condensate overflow sensor disables unit operation when the condensate level reaches the sensor.

Factory-Installed 2-Way Motorized Valves (Optional) – Ideal in variable pumping applications. On a call for cooling or heating the valve opens providing full water flow prior to compressor operation.

Factory-Installed Auto-Flow Regulator (Optional) – Eliminates the need for a circuit setter on the field installed hose kit. The auto-flow regulator is sized for 2-1/2 gpm/ton.

Supply Air Plenum – Allows for multiple discharge air configurations.

Field-Installed Accessories include, but not limited to:

- **Stainless Steel Braided Hoses –** Connect the chassis to the risers
- **Hinged Return Air Grille/Panel –** allows easy filter replacement and chassis removal
- **Supply Air Diffusers –** Double-deflection or double-deflection with adjustable damper.
- **Filters –** 1" standard
- **Thermostats –** Wall-mounted or wireless (programmable/non-programmable)

Options (Factory Installed)

Indoor Air Quality (IAQ)
- ☐ Non-Fibrous Insulation - Closed-cell type (Rubatex)

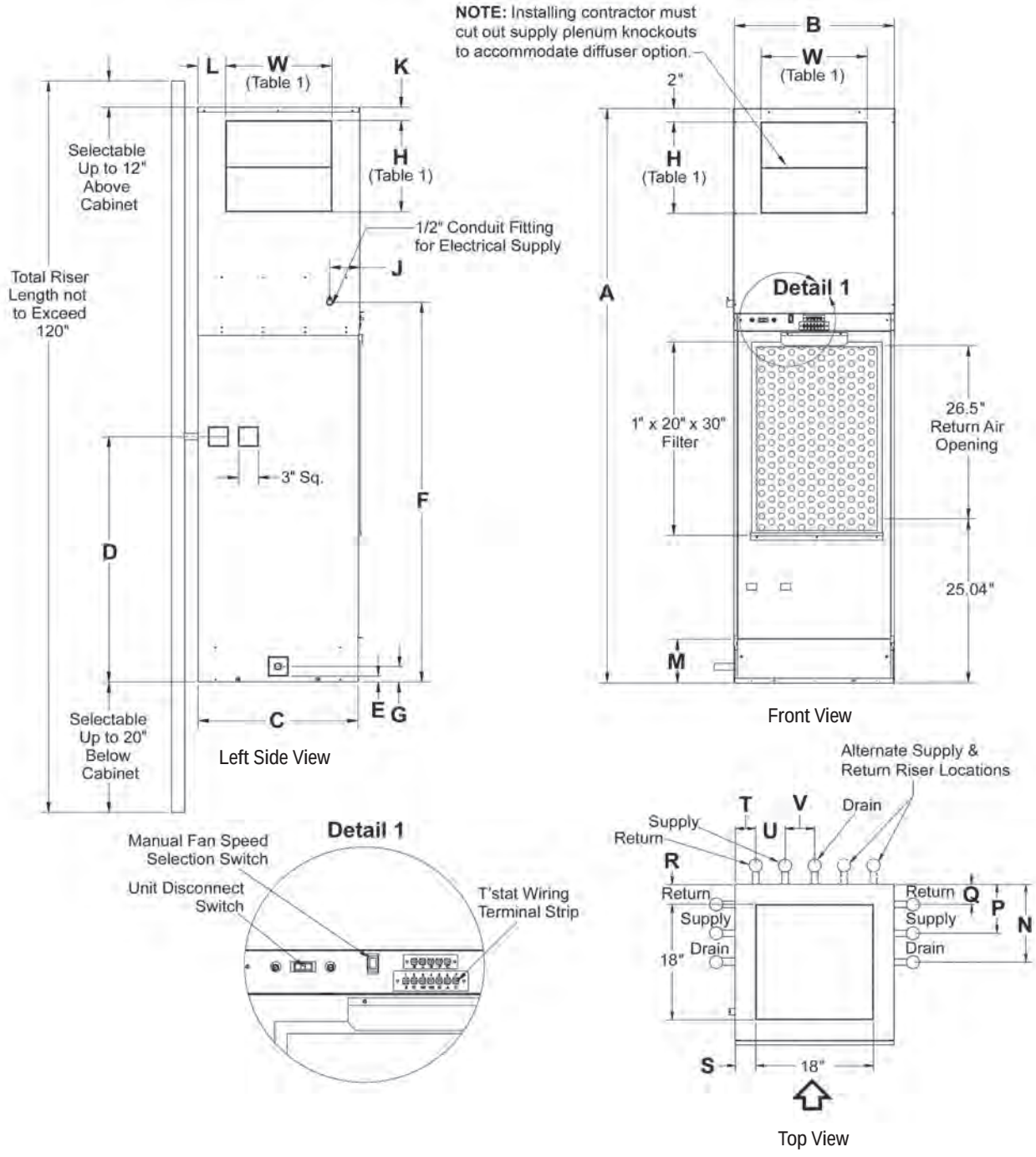
Controls
- ☐ MicroTech III - LonWorks® Communication Module
- ☐ MicroTech III - BACnet® Communication Module

Coaxial Coil
- ☐ Cupro-Nickel

Warranty
- ☐ Ext. 4-Yr. Parts (Compressor Only)
- ☐ Ext. 4-Yr. Parts (Refrigerant Circuit)

McQuay Air Conditioning

Dimensional Data – Cabinet (VHF)



Dimensions

Unit Size	A	B	C	D	E	F	G	J	K	L	M	N	P	Q
024 24" × 24" Cabinet	80"	24"	24.04"	37.50"	.88"	58.08"	2.38"	4.54"	2"	3"	6.72"	12.13"	7.63"	3.13"
	88"	24"	24.04"	37.50"	.88"	58.08"	2.38"	4.54"	2"	3"	6.72"	12.13"	7.63"	3.13"
	92"	24"	24.04"	37.50"	.88"	58.08"	2.38"	4.54"	2"	3"	6.72"	12.13"	7.63"	3.13"
	96"	24"	24.04"	37.50"	.88"	58.08"	2.38"	4.54"	2"	3"	6.72"	12.13"	7.63"	3.13"

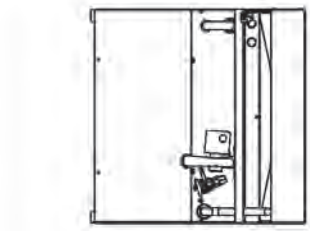
A	R	S	T	U	V
80"	3.09"	3.10"	3.12"	4.50"	4.50"
88"	3.09"	3.10"	3.12"	4.50"	4.50"
92"	3.09"	3.10"	3.12"	4.50"	4.50"
96"	3.09"	3.10"	3.12"	4.50"	4.50"

Table 1.

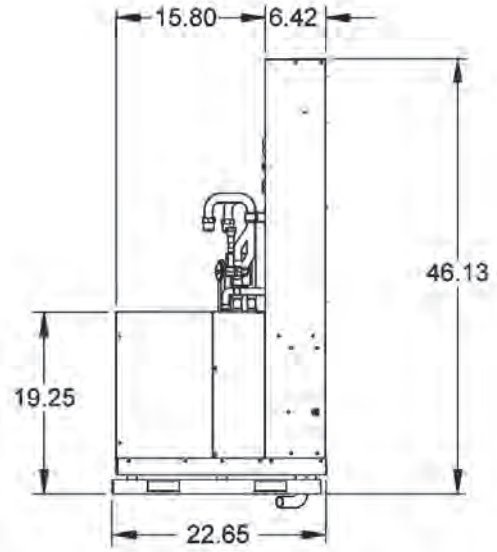
Unit Size	Discharge Openings							
	Single		Double		Triple		Single-Top Opening	
	W	H	W	H	W	H	W	H
024	NR	NR	18"	10"	18"	10"	18"	18"

NR = Not Recommended

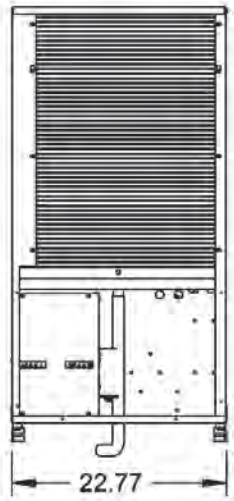
Dimensions – Chassis (VHC)



Top View



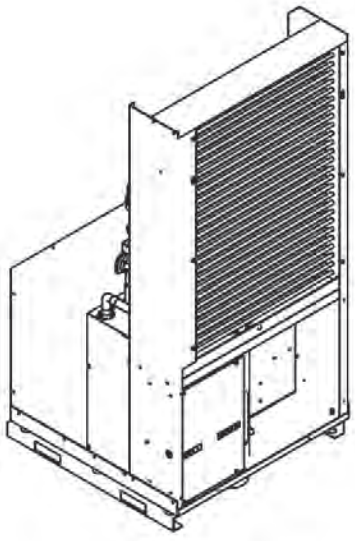
Left Side View



Front View

Physical Data

Unit Size			024
Fan Wheel - D x W (In.)			9.94 x 7.12
Fan Motor Horsepower			1/8
Coil Face Area (Sq. Ft.)			2.90
Coil Rows			3
Refrigerant Charge (Oz.)			40
Filter, (Qty.) Size (In.)			(1) 20W x 30H
Water Connections, Female NPT (In.)			3/4
Condensate Connections, Female NPT (In.)			1 I.D.
Weight, Operating (Lbs.)	Chassis		156
	Cabinet	80"	157
		88"	168
		92"	173
		96"	178
Weight, Shipping (Lbs.)	[2] Chassis w/Carton		171
	Cabinet	80"	157 [5]
		88"	168 [5]
		92"	173 [6]
		96"	178 [6]

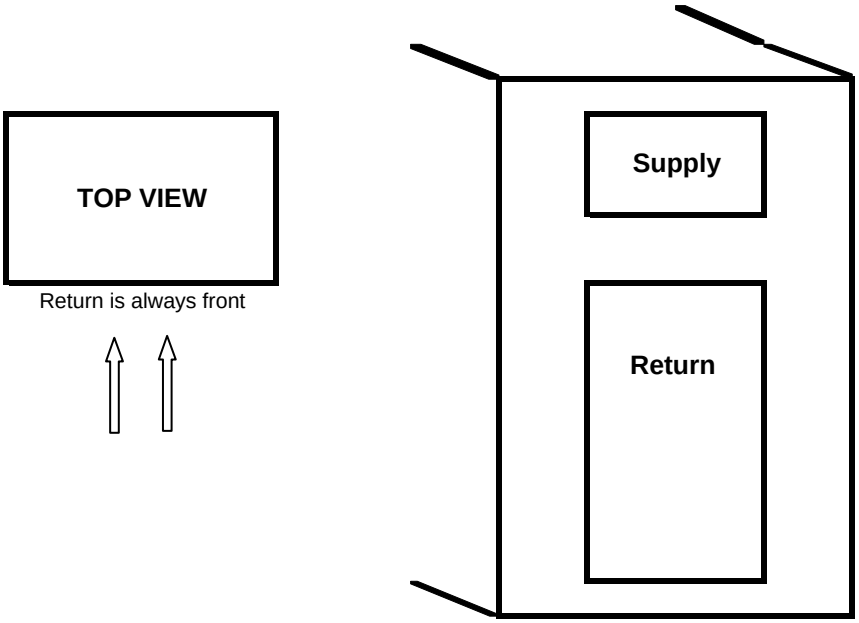


Notes:
Chassis' ship 4 per skid.
Cabinets ship 4 per skid.
[2] Add 50 lbs. for skid weight to overall chassis w/carton shipping weight, i.e., (Chassis w/carton x 4 + 50 lbs.).
[5] Add 117 lbs. for skid weight to overall cabinet shipping weight, i.e., (Cabinet x 4 + 117 lbs.).
[6] Add 127 lbs. for skid weight to overall cabinet shipping weight, i.e., (Cabinet x 4 + 127 lbs.).

McQuay International

HP-B Front Return
Single Discharge Front

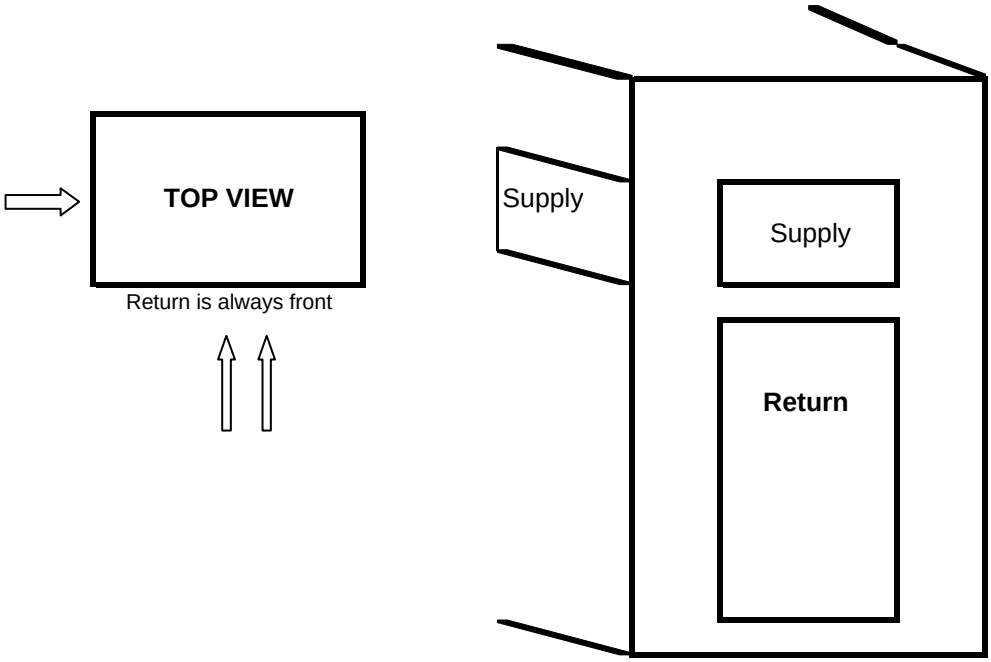
Qty: 3



Not to Scale

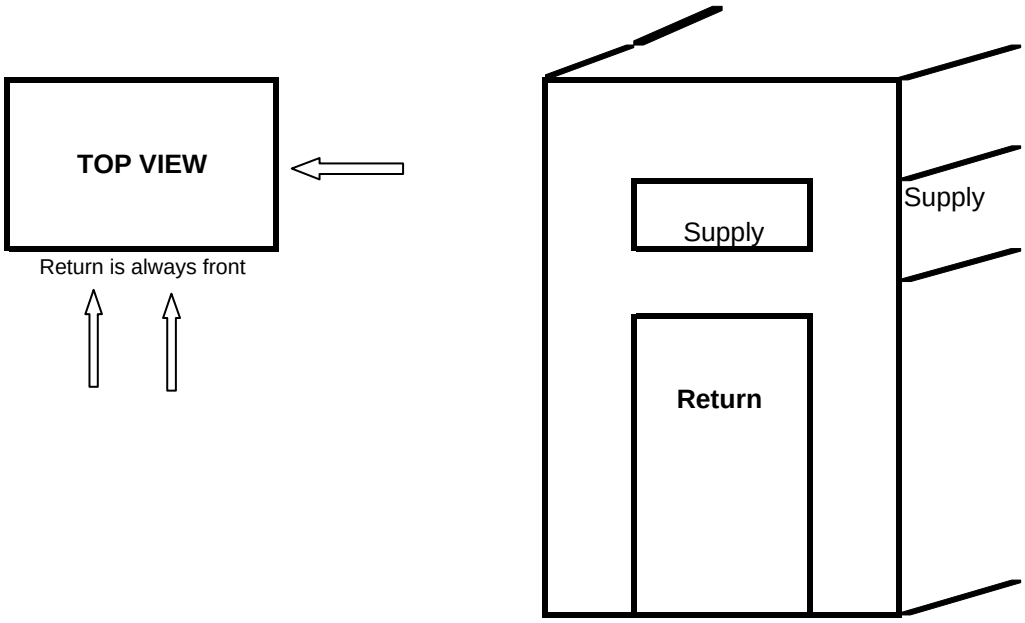
HP-B Front Return
Dual Discharge Front, Left

Qty: 10



Not to Scale

HP- B Front Return
Dual Discharge Front, Right Qty: 7



Not to Scale

Job Name: Marriott Hotel
Date: 7/29/2013
Submitted By: Briggs Equipment Sales, Inc.
Tag: HP-C
Qty: 6

Unit Description:

McQuay Model Number: WVHC1030, WVHF1030

Evaporator Coil:

Coil:

Fins Per Inch:	14
Rows:	3
Face Area:	3.69 ft²

Cooling Performance:

Total Capacity:	28656 Btu/hr
Sensible Capacity:	24299 Btu/hr
Entering Air db/wb:	80.0 °F / 67.0 °F
Leaving Air db/wb:	58.2 °F / 58.1 °F
kW:	1.977 kW
Total Heat of Rejection:	34726 Btu/hr
EER:	14.50

Heating Performance:

Total Capacity:	35728 Btu/hr
Entering Air db:	70.0 °F
Leaving Air db:	101.6 °F
kW:	2.198 kW
Total Heat of Absorption:	28910 Btu/hr
COP:	4.76

Condenser Coil:

Cooling:

Entering Loop Fluid Temp:	88.0 °F
Leaving Loop Fluid Temp:	100.4 °F

Heating:

Entering Loop Fluid Temp:	70.0 °F
Leaving Loop Fluid Temp:	59.9 °F

Loop Fluid:

Glycol:	0.0 % / Water
Fluid Flow Rate:	6.00 gpm
Fluid Pressure Drop:	3.70 ft H_2O

Condenser Coil:

Refrigerant Type:	R-410A
Refrigerant Charge:	52.0 oz

Fan:

Performance:

Air Flow:	1050 CFM
Total External Static Pressure:	0.04 inH_2O
Fan Speed:	None

Fan:

Type:	Centrifugal
Fan Wheel Dia. x Width.:	9.9 in x 9.5 in

Motor:

Horsepower:	0.20 HP
Type:	Standard (PSC)
Full Load Current:	1.30 A

Drives:

Type:	Direct

Return Air:

Return Air Option:

Type:	Front

Supply Air:

Qty: 2 Top Ducted Connection
Qty: 4 Dual Discharge Front, Left

Filters:

Filter Quantity / Size (W x H):	1/36 in x 20 in

Risers: ALL RISERS SUPPLIED AND INSTALLED IN THE FIELD

Unit Electrical Data:

Unit Voltage:	208-230/60/1
Unit Minimum Voltage:	187 V
Total Unit MCA:	18.92 A
Total Unit Full Load Current:	15.40 A
Max. Recommended Fuse or HACR Breaker Size:	30.0 A
Field Connection:	Non-Fused Disconnect w/ Wire Harness
Compressor RLA:	14.1 A
Compressor LRA:	73.0 A

Unit Control Data:

Controls:	Microtech III Unitary Controller - Stand Alone

Chassis Construction:

Construction Type:	Standard - Fiberglass Insulation
Approval Listing:	ETL, CETL, ARI

Cabinet Construction:

Construction Type:	Standard - Fiberglass Insulation
Approval Listing:	ETL, CETL, ARI

Unit Dimensions & Weights:

Cabinet Length:	24.04 in
Cabinet Height:	88.00 in
Cabinet Width:	24.00 in
Cabinet Shipping Weight:	214 lb
Chassis Shipping Weight:	
Unit Operating Weight (Chassis w/Cabinet):	321 lb
Water Connections, FPT:	0.75 in
Condensate Connection, FPT:	1.00 in

Certified Drawing	VHF-VHC-24in.-030 Specs
The Water Source Heat Pump product represented on this document will conform to the drawings and specifications set out below, in accordance with the express, written Limited Warranty. Purchaser's acceptance of this drawing certifies that the conforming equipment meets the order specifications. No changes may be made to this document without the prior, express, written authorization of the manufacturer.	Group: **WSHP** Type: **Vertical Stack** Date: **June 2009**

McQuay Vertical Stack WSHP

Model VHF 24" × 24" (Cabinet) & VHC (Chassis) – Size 030

Multiple Unit Sizes – 009 (3/4 ton, 2.6kW) through 036 (3 ton, 10.6kW).

R-410A Refrigerant – Environmentally friendly with zero ozone depletion.

Compressors – High efficiency rotary and scroll, available with optional mass plate and/or compressor blanket for quiet operation.

High Efficiency Operation – Exceeds ASHRAE 90.1 Efficiency levels.

Chassis – Removable, allows staged installation and ease of service and routine maintenance. Vibration isolators integral to the chassis support rails.

Vibration Isolation System – Vibration isolators are integral to the chassis support rails to help minimize noise and vibration transmission to the cabinet and wall structure.

Compact Cabinet – Constructed of unpainted galvanized steel, with the smallest possible footprint. 18" x 18" cabinet for unit sizes 009 through 018.

Motor/Blower Assembly – PSC motor and housing is removable and slides out through the front of the cabinet. Optional ECM motor available.

TXV Refrigerant Metering Device – Standard on all unit sizes.

Microtech III Control System – Offering "Open Choices" for stand-alone operation or communicate ~~via LonWorks® or BACnet® open protocols~~.

Primary Condensate Drain Pan – is sloped and constructed of a corrosion resistant ABS plastic. The primary drain pan sits below the air coil to capture all condensate in cooling mode. A factory installed condensate overflow sensor disables unit operation when the condensate level reaches the sensor.

Factory-Installed 2-Way Motorized Valves (Optional) – Ideal in variable pumping applications. On a call for cooling or heating the valve opens providing full water flow prior to compressor operation.

Factory-Installed Auto-Flow Regulator (Optional) – Eliminates the need for a circuit setter on the field installed hose kit. The auto-flow regulator is sized for 2-1/2 gpm/ton.

Supply Air Plenum – Allows for multiple discharge air configurations.

Field-Installed Accessories include, but not limited to:

- **Stainless Steel Braided Hoses –** Connect the chassis to the risers
- **Hinged Return Air Grille/Panel –** allows easy filter replacement and chassis removal
- **Supply Air Diffusers –** Double-deflection or double-deflection with adjustable damper.
- **Filters –** 1" standard
- **Thermostats –** Wall-mounted or wireless (programmable/non-programmable)

Options (Factory Installed)

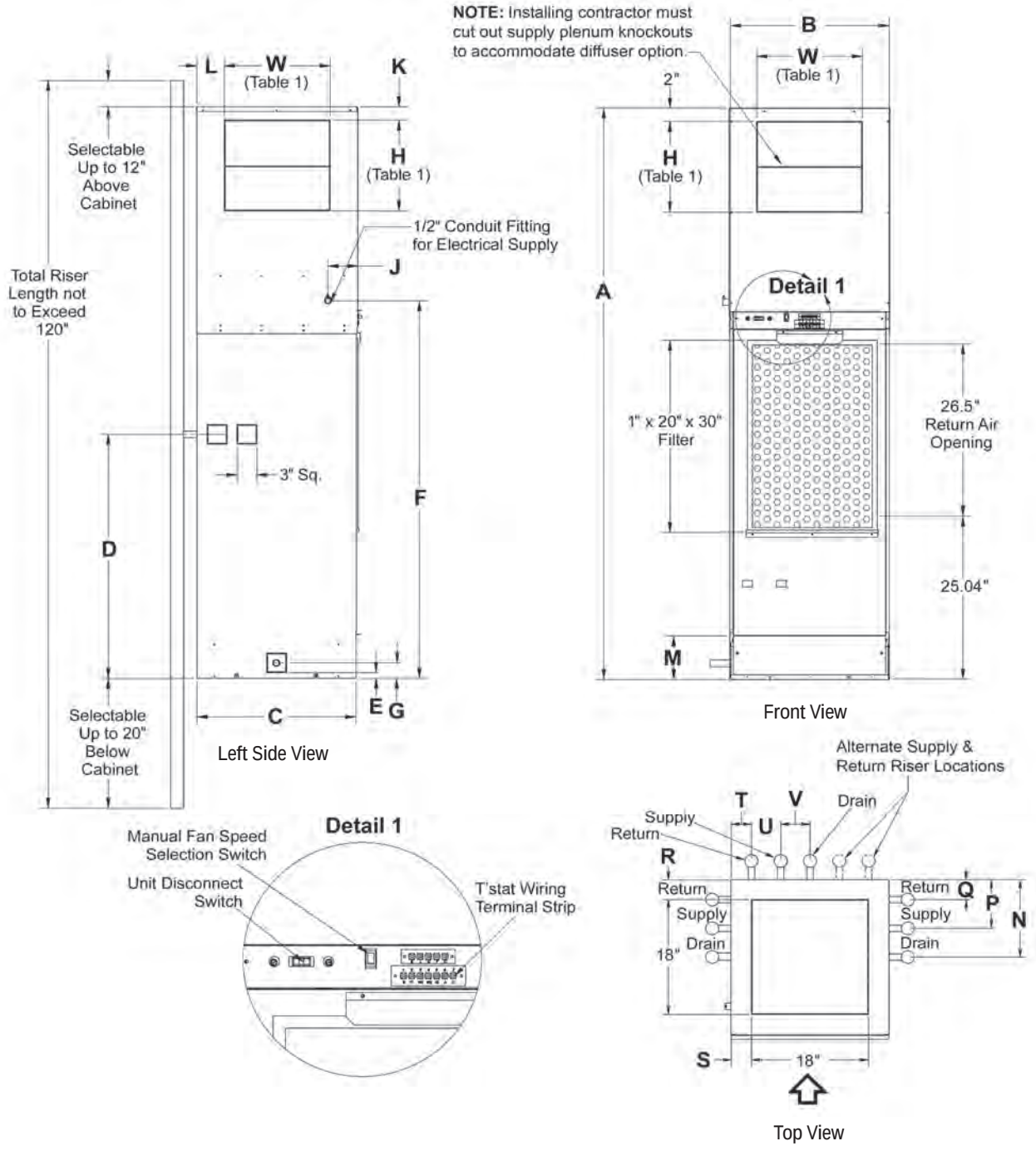
Indoor Air Quality (IAQ)
- ☐ Non-Fibrous Insulation - Closed-cell type (Rubatex)

Controls
- ☐ MicroTech III - LonWorks® Communication Module
- ☐ MicroTech III - BACnet® Communication Module

Coaxial Coil
- ☐ Cupro-Nickel

Warranty
- ☐ Ext. 4-Yr. Parts (Compressor Only)
- ☐ Ext. 4-Yr. Parts (Refrigerant Circuit)

Dimensional Data – Cabinet (VHF)



Dimensions

Unit Size	A	B	C	D	E	F	G	J	K	L	M	N	P	Q
030 24" × 24" Cabinet	80"	24"	24.04"	37.50"	.88"	58.08"	2.38"	4.54"	2"	3"	6.72"	12.13"	7.63"	3.13"
	88"	24"	24.04"	37.50"	.88"	58.08"	2.38"	4.54"	2"	3"	6.72"	12.13"	7.63"	3.13"
	92"	24"	24.04"	37.50"	.88"	58.08"	2.38"	4.54"	2"	3"	6.72"	12.13"	7.63"	3.13"
	96"	24"	24.04"	37.50"	.88"	58.08"	2.38"	4.54"	2"	3"	6.72"	12.13"	7.63"	3.13"

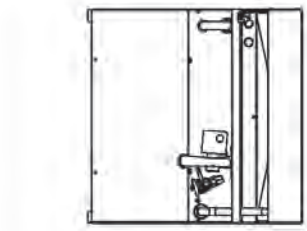
A	R	S	T	U	V
80"	3.09"	3.10"	3.12"	4.50"	4.50"
88"	3.09"	3.10"	3.12"	4.50"	4.50"
92"	3.09"	3.10"	3.12"	4.50"	4.50"
96"	3.09"	3.10"	3.12"	4.50"	4.50"

Table 1.

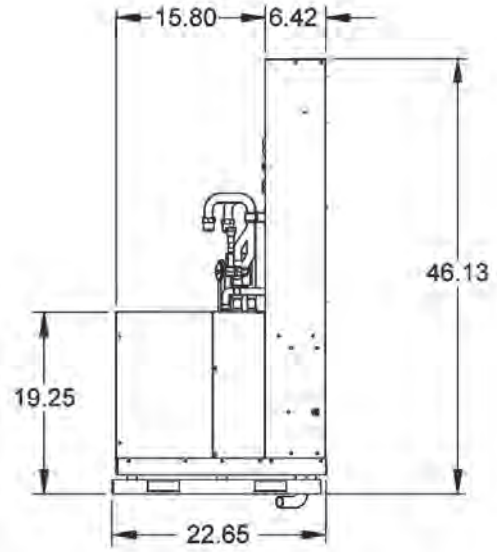
Unit Size	Discharge Openings							
	Single		Double		Triple		Single-Top Opening	
	W	H	W	H	W	H	W	H
030	NR	NR	18"	14"	18"	10"	18"	18"

NR = Not Recommended

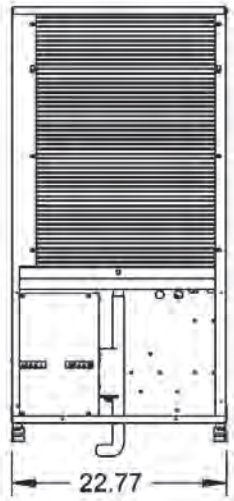
Dimensions – Chassis (VHC)



Top View



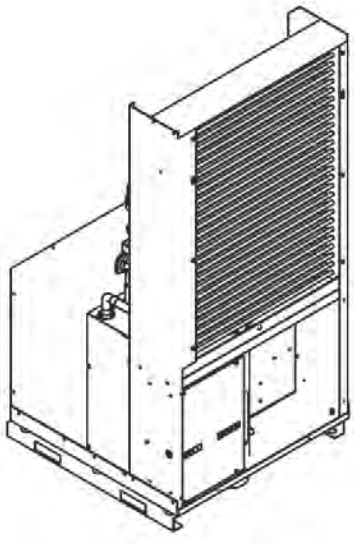
Left Side View



Front View

Physical Data

Unit Size			030
Fan Wheel - D x W (In.)			9.94 x 9.5
Fan Motor Horsepower			1/5
Coil Face Area (Sq. Ft.)			3.69
Coil Rows			3
Refrigerant Charge (Oz.)			52
Filter, (Qty.) Size (In.)			(1) 20W x 30H
Water Connections, Female NPT (In.)			3/4
Condensate Connections, Female NPT (In.)			1 I.D.
Weight, Operating (Lbs.)	Chassis		164
	Cabinet	80"	157
		88"	168
		92"	173
		96"	178
Weight, Shipping (Lbs.)	[2] Chassis w/Carton		179
	Cabinet	80"	157 [5]
		88"	168 [5]
		92"	173 [6]
		96"	178 [6]

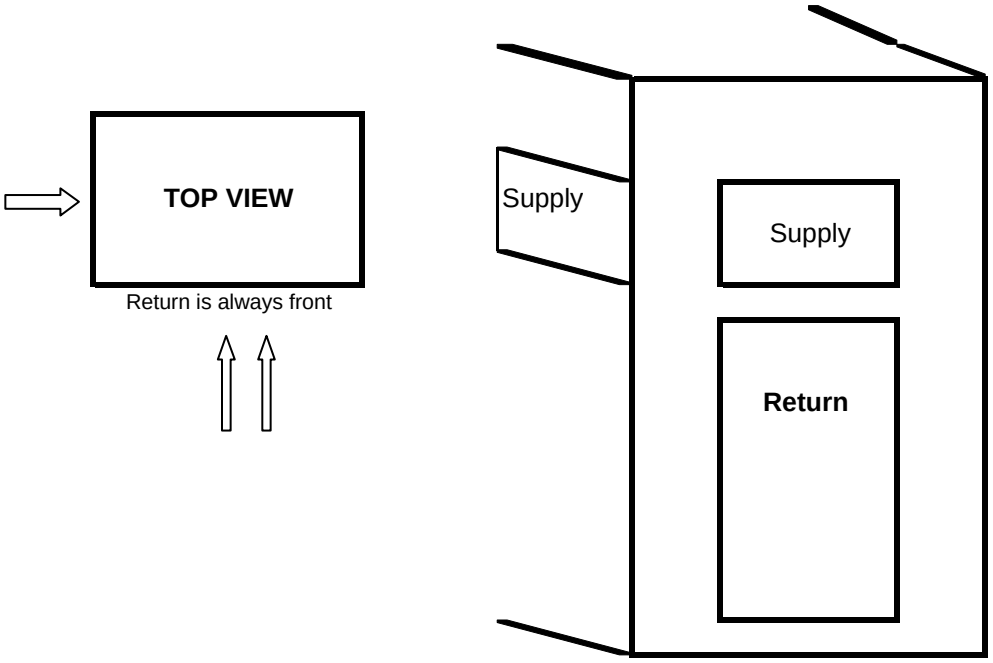


Notes:
Chassis' ship 4 per skid.
Cabinets ship 4 per skid.
[2] Add 50 lbs. for skid weight to overall chassis w/carton shipping weight, i.e., (Chassis w/carton x 4 + 50 lbs.).
[5] Add 117 lbs. for skid weight to overall cabinet shipping weight, i.e., (Cabinet x 4 + 117 lbs.).
[6] Add 127 lbs. for skid weight to overall cabinet shipping weight, i.e., (Cabinet x 4 + 127 lbs.).

McQuay International

HP-C Front Return
Dual Discharge Front, Left

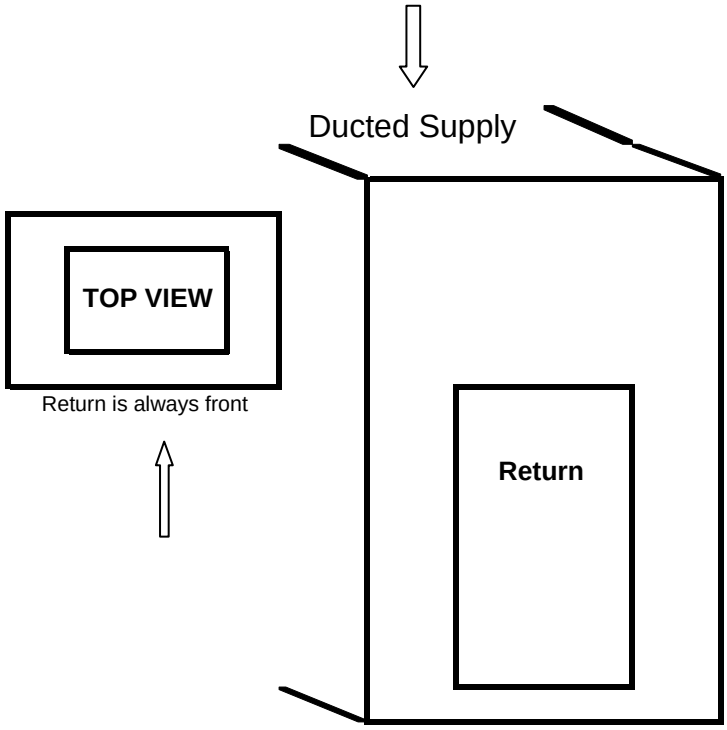
Qty: 4



Not to Scale

HP-C Front Return
Single Discharge Top Ducted

Qty: 2



Not to Scale

Accessories

Supply Air Diffusers

Diffusers are made of aluminum with a mill finish and available in three variations: double deflection, double deflection with optional extension and double deflection with adjustable damper. Damper blades are positioned vertically and adjust easily for directing the unit discharge air.

Aluminum Diffuser with mill finish

Painted Diffuser (option)

Note: *Supply air diffuser 1/2" foam seal field-furnished and installed.*

Hinged Return Air Grille

Constructed of heavy guage steel, lined with insulation to help attenuate sound from the compressor and fan assembly. Magnetic latching clips ensure the panel door stays closed during operation. Electrostatic powder coat finish, available in Antique Ivory or Cupola White

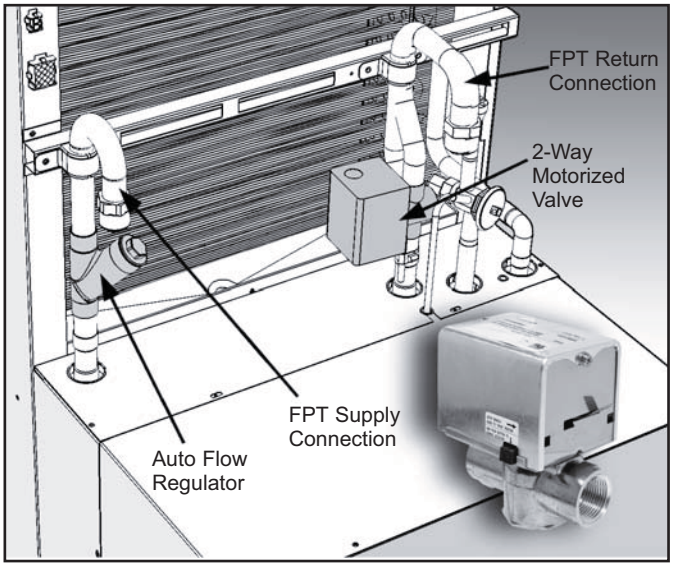
Magnetic Latches

Shutoff/Balancing Valve

Each heat pump requires a shutoff valve on both the supply and return risers for easy serviceability and removal of the chassis when necessary.

We suggest using a factory installed 2-way motorized isolation valve on the return line of the chassis and a Auto Flow Regulator (AFR) installed on the supply line which allows proper water flow in a given size unit. Each valve package has 1/2" FPT or 3/4" FPT threaded connections (Figure 31).

Figure 31: Typical Motorized Valve Piping



The Vertical stack water source heat pump chassis can be configured with a 2-way motorized valve. The 2-way motorized valve is mounted on the return line of each unit and the Auto Flow Regulator (AFR) is mounted to the supply line. Valve assemblies terminate with either a 1/2" (unit sizes 009-018) or 3/4" (unit sizes 021-036) NPT threaded connection

Certified Drawing	NonProgmbl Tstat 910121746 Specs
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Non-Programmable Electronic Thermostat
2 Heat/2 Cool, Auto Changeover, Hardwired
(Part No. 910121746)

Used With:

Water Source Heat Pumps

- SmartSource Units with MicroTech® III Controls – Models GS & GT
- Enfinity™ Units with MicroTech III Controls – Models CCH, CCW; VFC, VFW; LVC, LVW; MHC, MHW & VHC, VHF

Overview

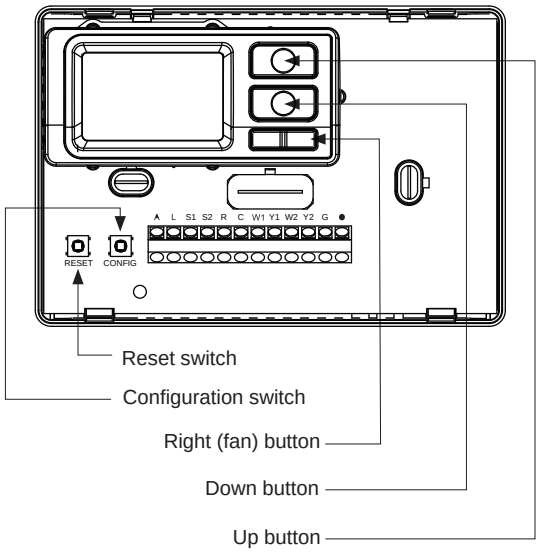
For 2-stage heating, 2-stage cooling and boilerless electric heat control, the Non-Programmable thermostat provides simple control capabilities. With alarm fault clearing, a timed override button and unit status LED, this thermostat provides an easy interface to the MicroTech III SmartSource controller for both automatic and manual changeover capabilities. It can be connected to the accessory remote temperature sensor.

Note: *For complete installation, operation and maintenance information for the Room Temperature Sensor, refer to LIAF179*

Features

- Configurable
- 2-Stage Heat/2-Stage Cool Systems
- Large Display With Backlight
- Selectable Fahrenheit or Celsius
- Status Indicator Light
- Relay Outputs (minimum voltage drop in thermostat)
- Remote Sensor Compatible

Parts Diagram



Specifications

Electrical rating:

- 24 VAC (18-30 VAC)
- 1 amp maximum per terminal
- 3 amp maximum total load

Temperature control range: 55°F to 90°F (13°C to 32°C)
Accuracy: ± 1°F (± 0.5°C)

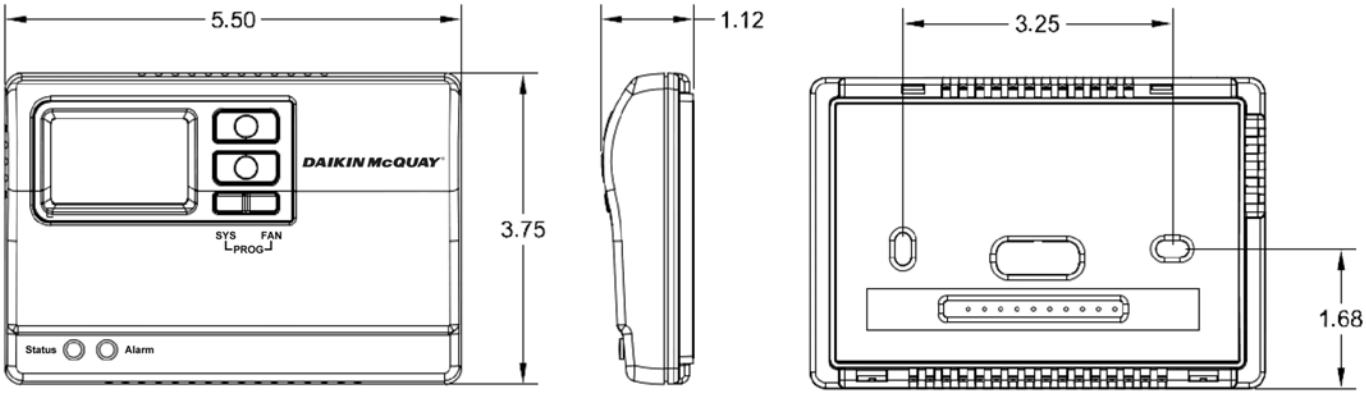
System configurations: 2-stage heat, 2-stage cool

Timing: Anti-short Cycle: 4 minutes (bypass anti-short cycle delay by returning to OFF mode for 5 seconds)

Backlight Operation: 10 seconds

Terminations: A – Alarm input, **L** – Status input, **S1 & S2** – (Accessory Remote or Outdoor Sensor), **R** – 24 VAC hot, **C** – 24 VAC common, **W1** – 1st stage heat, **Y1** – 1st stage cool, **W2** – 2nd stage heat, **Y2** – 2nd stage cool, **G** – Fan, **O** – Override/reset

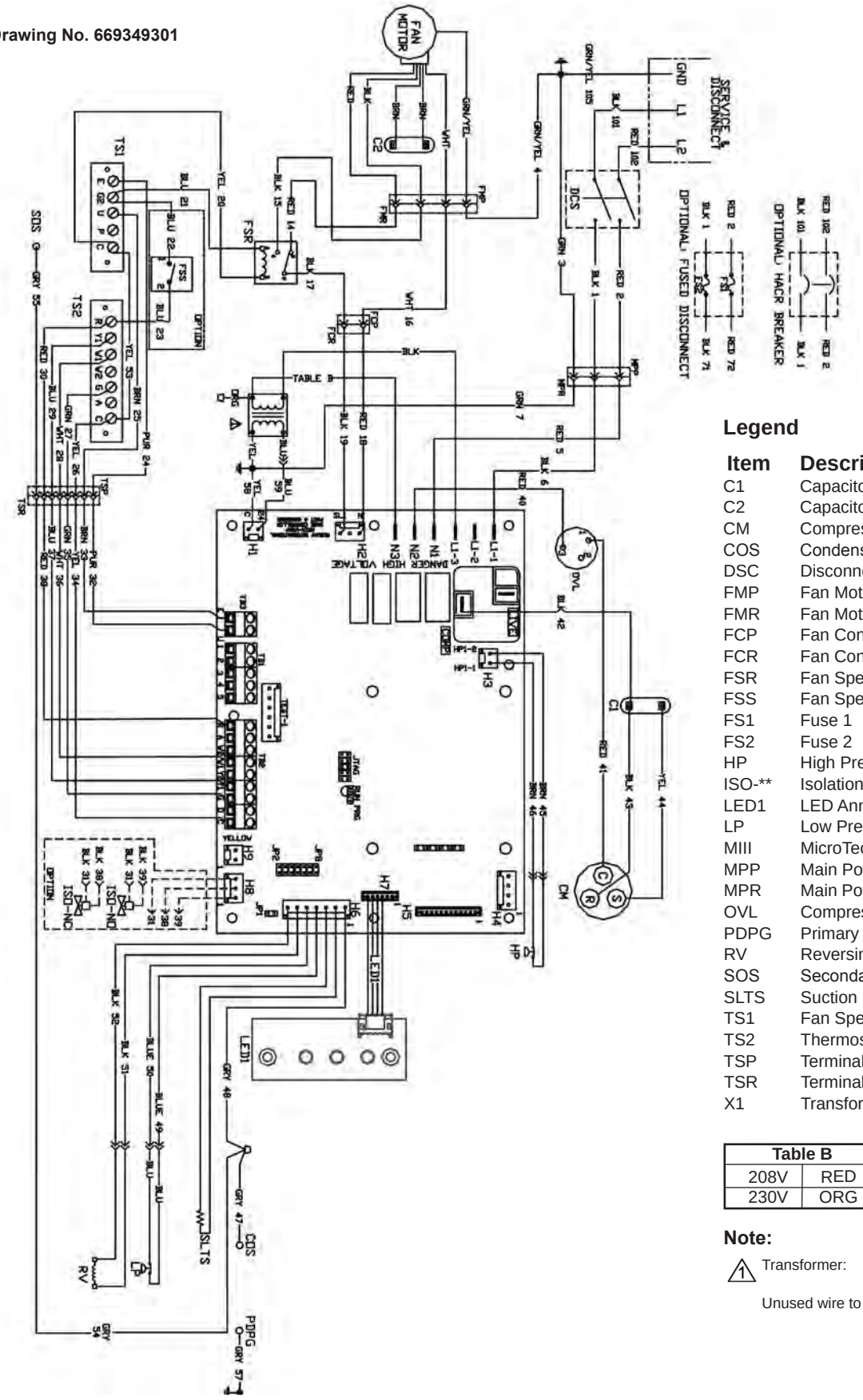
Dimensions



Typical Wiring Diagrams

MicroTech III Unit Controller, 2-Speed Fan (Toggle or Thermostat), PSC Motor 208-230/60Hz/1-Phase – Unit Sizes 009-018

Drawing No. 669349301



Legend

Item	Description
C1	Capacitor-Compressor
C2	Capacitor-Fan
CM	Compressor - Motor
COS	Condensate Overflow Sensor
DSC	Disconnect Switch
FMP	Fan Motor Connector Plug
FMR	Fan Motor Connect Receptacle
FCP	Fan Connector Plug
FCR	Fan Connector Receptacle
FSR	Fan Speed Relay
FSS	Fan Speed Switch - Optional
FS1	Fuse 1
FS2	Fuse 2
HP	High Pressure Switch
ISO-**	Isolation Valve - Optional
LED1	LED Annunciator / Harness
LP	Low Pressure Switch
MIII	MicroTech III Main Board
MPP	Main Power Connector Plug
MPR	Main Power Connector Receptacle
OVL	Compressor Overload Protector
PDPG	Primary Drain Pan Ground
RV	Reversing Valve Solenoid
SOS	Secondary Overflow Sensor
SLTS	Suction Line Temp Sensor
TS1	Fan Speed Terminal Strip
TS2	Thermostat Terminal Strip
TSP	Terminal Strip Connector Plug
TSR	Terminal Strip Connector Terminal
X1	Transformer

Table B	
208V	RED
230V	ORG

Note:

1. Transformer:

   Unused wire to be capped.