

HEAT CONTROLLER, INC.

**ENGINEERING
DESIGN GUIDE**

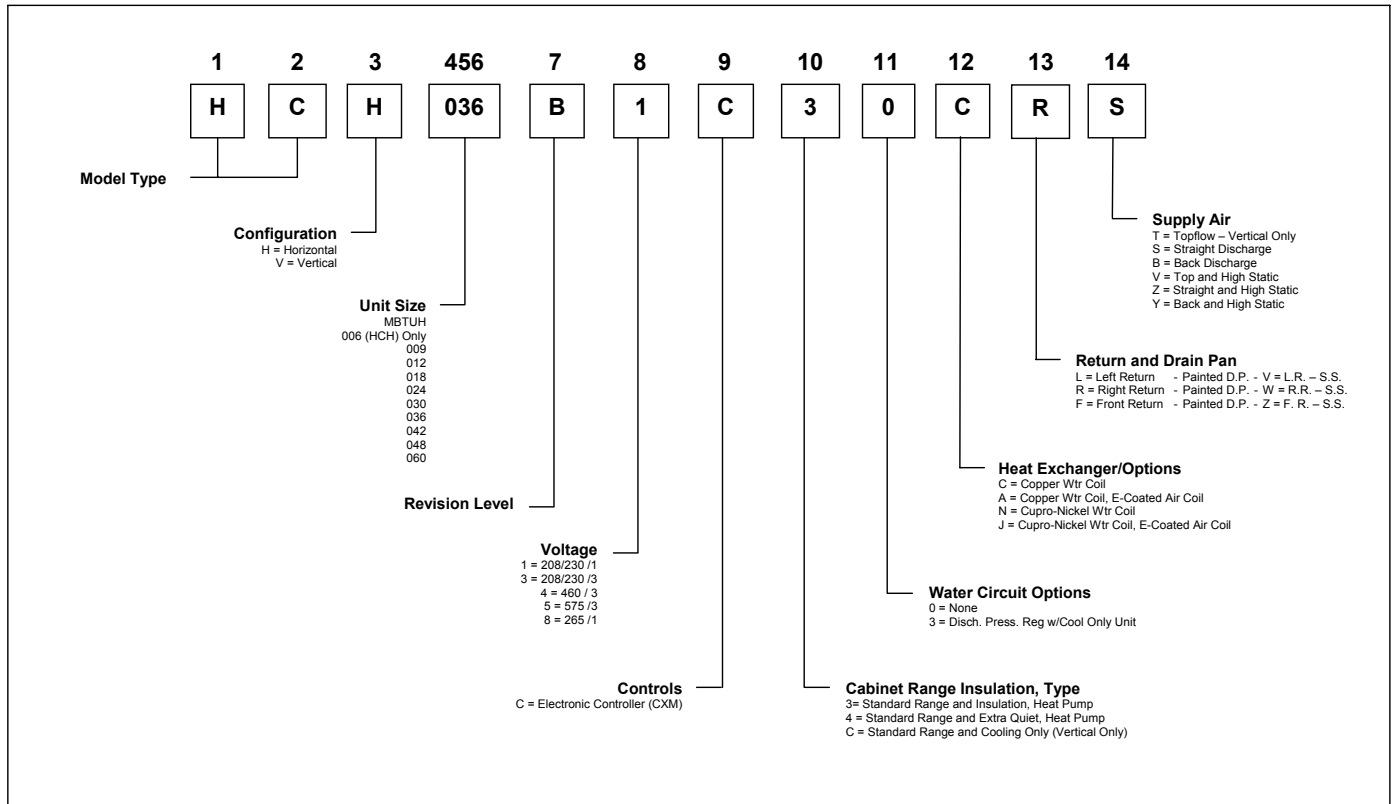
**HC Series
1/2 to 5 Tons
Commercial
Water Source Heat Pumps**

HEAT CONTROLLER, INC.

1900 Wellworth Ave., Jackson, Michigan 49203 • Ph. 517-787-2100 • Fax 517-787-9341 • www.heatcontroller.com

THE QUALITY LEADER IN CONDITIONING AIR

MODEL NOMENCLATURE



Specifications and performance data subject to change without notice.

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WATER-SOURCE HEAT PUMPS

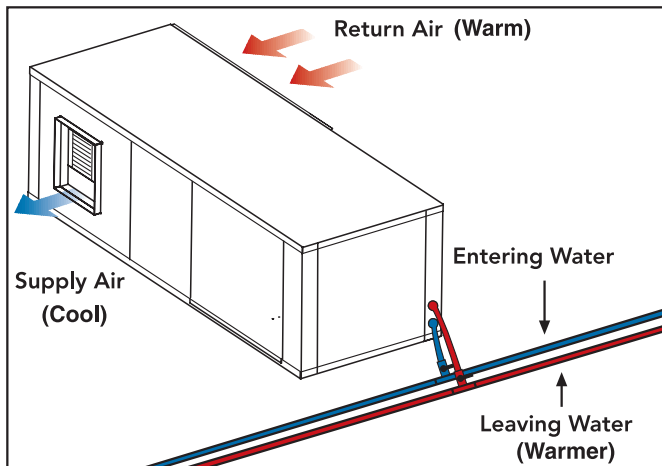
Water-Source Heat Pump systems are comprised of individual packaged units that transfer heat via a single- or two-pipe water loop. Each unit can be used in either heating or cooling mode year-round and loop temperature is maintained via a boiler/tower combination. Each zone has complete control of its heating/cooling mode and each unit is independent from the others. This means if one unit goes down, the whole system is not affected. Controls can be as simple as one unit, one thermostat. Water-Source Heat Pump systems are the most energy, cost, and space efficient of any system in the industry.

As the most energy efficient HVAC systems on the market, Water-Source Heat Pumps are uniquely simple in design. Heat is moved through an interconnected water loop and either rejected through a cooling tower, or put to work in other areas. Each unit is an independent, packaged system, eliminating the chance of a total system failure. If one unit goes down, the other units are not affected. Conveniently located above the ceiling or in a closet, units can be easily accessed.

SYSTEM MODES

Water-Source Heat Pump systems can operate in one of four modes depending on the space conditioning requirements. The versatility of operation allows Water-Source Heat Pumps to show their full potential as a solution for customized comfort and flexibility.

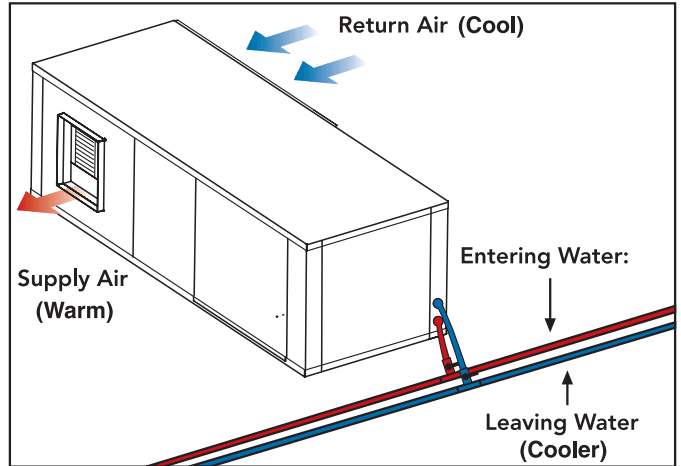
COOLING MODE



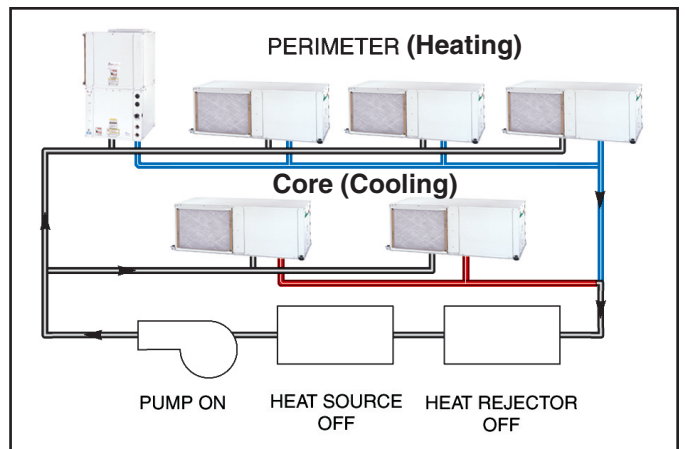
The system extracts heat from the air and rejects it into the water loop through the coaxial refrigerant-to-water heat exchanger. This heat can either be moved to a different part of the building to satisfy a heating mode requirement, or be rejected out of the building via a cooling tower.

HEATING MODE

The system extracts heat from the water loop through the coaxial heat exchanger and compresses it to a higher temperature. This heat is then transferred into the air through the air coil and used to condition the building space. A nominally sized boiler is often used to maintain a constant temperature of 60 to 70°F in the water loop during high heating demand months. Within this temperature range, the units can operate in either heating or cooling mode.



BALANCED MODE



A mixture of units in heating mode and units in cooling mode create a constant temperature in the water loop. In Balanced Mode, there is no need for heat injection or rejection via the boiler or cooling tower. The heat is simply moved from one zone to another.

A WATER-SOURCE EXAMPLE

As an example of how Water-source Heat Pumps can handle a variety of different applications, a typical factory in the midwest comprises a production floor and office space. Often there is space reserved for future use. The cooling tower and boiler work as needed to maintain an average loop temperature between 60 to 95°F. Water-source Heat Pumps can efficiently operate in either heating, or cooling mode under these conditions. This gives individual and specialized zone control for maximum comfort and the ability to change operation modes as needed.

A mixture of units in heating mode and units in cooling mode create a constant temperature in the water loop.

PRODUCTION DESIGN

From concept to product, our Development Team brings a fusion of knowledge and creativity from every aspect of our business: Engineering, Sales, Marketing, and Manufacturing to develop some of the most advanced, efficient, and versatile products available.

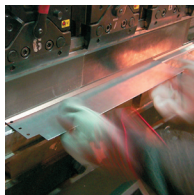
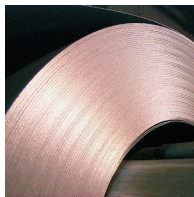


INNOVATION

Whether it is a need to reduce sound, fit in a smaller space, make easier to service, achieve better efficiencies, changing technologies, or new government regulations, Heat Controller leads the way in advancing new designs and technology. Our Design Team continually strives to improve our products. It is this continual drive that sets Heat Controller apart from all other.

FABRICATION

Every sheet-metal component is produced in our fabrication department. Panels are precisely constructed of galvanized or stainless steel using computerized cutting, punching, and forming equipment. This precise fabrication means a tighter fit that makes for a more solid unit and reduced vibration, for reduced noise. On vertical series, an optional epoxy powder coating is then applied to increase corrosion resistance and enhance the look of the unit. The final step is the addition of fiberglass insulation to the inside as an additional layer of sound deadening. This insulation meets stringent NFPA regulations, and includes antibacterial material.



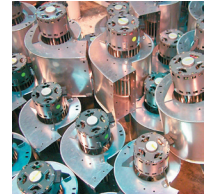
ASSEMBLY

Each unit is assembled under the close supervision of our state of the art process control system. This computer system watches each unit as it comes down the assembly line. In addition, our Quality department is stationed on each line and performs random audits not only on the units, but also on component parts. All component parts must pass each and every quality checkpoint before a unit is packaged and shipped. These systems and processes are maximized by comprehensive and ongoing training of every employee.



COMPONENT PARTS

To produce a quality unit, you have to start with quality components. We are relentless in our search for the best components for our products - while securing these components at prices that keep costs low. Any new component must go through a grueling testing phase before it ever sees the production line. Working closely with vendors and their engineers, we continually find new ways to not only improve our units, but to ensure component quality as well.



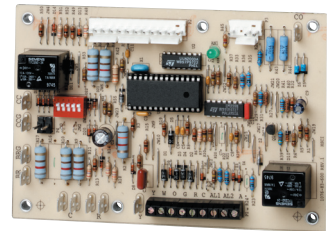
CONTROLS

Heat Controller offers state of the art solid-state digital controls – the CXM control board.

HCI (HEAT-COOL INTEGRATED_

Our standard CXM control board comes programmed with our Unit Performance Sentinel (UPS) which monitors unit performance and notifies the owner of potential unit problems before a lockout occurs. Additionally, the CXM's eight standard safeties protect the unit from damage.

- Anti-Short Cycle
- Low Voltage
- High Voltage
- High Refrigerant Pressure
- Low Refrigerant Pressure (Loss of Charge)
- Air Coil Freeze
- Water Coil Freeze
- Condensate Overflow



CONFIGURATIONS

Heat Controller commercial water source heat pumps are available in a large variety of sizes from 1/2 ton to 25 tons of cooling. There are horizontal and vertical configurations to meet the designer's, the installing contractor's or the building owner's every need!

SOUND

Our units have been tested for both ducted discharge and free inlet air combined with case radiated tests. Comfort has never been so quiet with our intelligent sound design. Our products use a variety of technologies to maintain our lead as the quietest units in the industry.

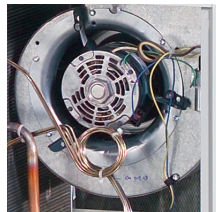
DUAL LEVEL VIBRATION ISOLATION

Heat Controller units use an exclusive double isolation compressor mounting system. This dual level isolation deadens vibration and provides quiet operation.



TORSION-FLEX BLOWERS

Blower motors, on select models, are mounted with a unique torsion-flex mounting system which not only allows for easy service, but also reduces vibration from the blower motor during operation.



VOLTAGES

Heat Controller units are available in a wide variety of commercial voltages, providing maximum flexibility in building design. Available voltages are as follows:

- 208-230/60/1
- 208-230/60/3
- 265/60/1
- 460/60/3
- 575/60/3

* Not all units are available with every voltage combination shown above.

ACCESSORIES

Heat Controller offers a complete line of accessories to complete any project, including hoses, thermostats, valves, fittings, filters and more.

COMPACT HC SERIES

These units are uniquely designed to be compatible with hundreds of thousands of older water-source heat pumps the HC Series utilizes an innovative cabinet design to meet ASHRAE 90.1 efficiencies, while maintaining a very compact cabinet.

The HC Series is designed specifically for boiler-tower applications where low first cost matters. Refrigerant circuits use trouble-free cap tube metering devices and reliable rotary, reciprocating or scroll compressors to create a full line of products to meet the varying needs of today's construction projects. Sizes from 1/2 ton through 5 tons and field convertible discharge options for horizontal units make the GC Series extremely flexible.

The HC Series features long-lasting G90 galvanized steel for all models and epoxy powder coat paint for vertical units. Our exclusive double isolation compressor mounting system and standard cabinet insulation make the GC Series exceptionally quiet.

Some manufacturers' compact cabinet designs offer limited features. The HC series includes many standard features and a number of options. Factory installed hanger brackets on horizontal units, microprocessor controls and torsion flex motor mounting (006-042) are standard features. Optional high static motors help overcome some of the challenges associated with ductwork for retrofit installations.

The HC Series water-source heat pumps are designed to meet the challenges of today's HVAC demands with a low cost/high value solution.

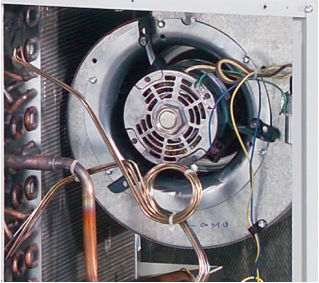
UNIT FEATURES

- Sizes 006 (1/2 ton) through 060 (5 tons)
- Meets ASHRAE 90.1 efficiencies
- Compact cabinet design: Great for retrofit or tight spaces
- G90 galvanized steel construction (powder coat paint on vertical units)
- Unique double isolation compressor mounting for quiet operation
- Reliable rotary, reciprocating and scroll compressors
- Trouble-free cap tube refrigerant metering device
- Microprocessor controls standard
- Field convertible discharge air arrangement for horizontal units
- High static blowers available
- Low cost/high value product specifically designed for standard range (boiler/tower) applications
- Seven Safeties Standard

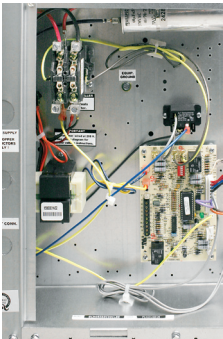


Double grommet
compressor isolation

Easy to remove
torsion-flex motor
mounts for quiet
operation and
blower inlet ring for
quick service
(Optional High-
Static blowers)



Easy Service
Access from
multiple sides

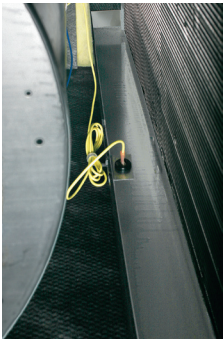


Advanced digital
controls with Remote
Service Sentinel



Factory installed
hanger brackets

Insulated Drain Pan
with condensate
overflow
protection



HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data ARI/ASHRAE/ISO 13256-1

ASHRAE/ARI/ISO 13256-1. English (IP) Units

Model	Water Loop Heat Pump			
	Cooling 86°F		Heating 68°F	
	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
HCH006	6,400	12.5	8,300	4.2
HCH/V009	8,300	12.7	10,800	4.3
HCH/V012	11,500	12.7	14,300	4.2
HCH/V018	18,200	12.3	22,000	4.2
HCH/V024	23,800	13.0	27,800	4.6
HCH/V030	28,000	12.2	33,500	4.4
HCH/V036	35,000	12.0	45,500	4.2
HCH/V042	41,000	12.0	52,600	4.2
HCH/V048	47,100	12.2	58,200	4.4
HCH/V060	58,000	12.0	76,800	4.2

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
Heating capacities based upon 68°F DB, 59°F WB entering air temperature
All air flow is rated on high speed
All ratings based upon operation at lower voltage of dual voltage rated models

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1900 WELLWORTH AVENUE • JACKSON, MICHIGAN 49203

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HCH006

220 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	0.9	0.7	1.7	7.6	5.1	0.67	0.49	9.3	15.4	7.5	0.58	5.5	101.4	3.75
	1.1	1.2	2.9	7.8	5.1	0.66	0.47	9.4	16.6	7.7	0.59	5.7	102.6	3.83
	1.7	2.0	4.5	8.0	5.2	0.65	0.44	9.5	18.2	8.1	0.60	6.0	104.0	3.92
70	0.9	0.7	1.6	7.1	5.0	0.69	0.54	9.0	13.1	8.3	0.61	6.2	105.0	3.98
	1.1	1.2	2.7	7.4	5.0	0.68	0.52	9.2	14.2	8.6	0.62	6.5	106.1	4.06
	1.7	1.9	4.4	7.6	5.1	0.67	0.49	9.3	15.6	8.9	0.63	6.8	107.5	4.14
80	0.9	0.7	1.6	6.6	4.8	0.73	0.59	8.6	11.3	9.0	0.63	6.9	108.1	4.18
	1.1	1.2	2.7	6.9	4.9	0.71	0.57	8.8	12.1	9.3	0.64	7.1	109.1	4.25
	1.7	1.8	4.3	7.2	5.0	0.69	0.54	9.0	13.3	9.6	0.65	7.4	110.5	4.32
85	0.9	0.7	1.5	6.3	4.7	0.75	0.60	8.3	10.4	9.4	0.64	7.2	109.5	4.27
	1.1	1.1	2.6	6.6	4.8	0.73	0.59	8.6	11.2	9.6	0.65	7.4	110.5	4.33
	1.7	1.8	4.2	6.9	4.9	0.71	0.56	8.8	12.2	10.0	0.66	7.7	112.0	4.40
90	0.9	0.7	1.5	5.9	4.6	0.77	0.62	8.1	9.6	9.7	0.65	7.5	110.8	4.34
	1.1	1.1	2.6	6.3	4.7	0.75	0.61	8.3	10.3	10.0	0.66	7.7	112.0	4.40
	1.7	1.8	4.1	6.6	4.8	0.73	0.59	8.6	11.3	10.3	0.68	8.0	113.5	4.46
95	0.9	0.6	1.5	5.6	4.5	0.80	0.63	7.7	8.9	Operation Not Recommended				
	1.1	1.1	2.6	5.9	4.6	0.78	0.62	8.0	9.5					
	1.7	1.8	4.1	6.3	4.7	0.75	0.60	8.3	10.4					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating. ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

See performance correction tables for operating conditions other than those listed above.

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 009

325 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	1.1	2.4	5.6	9.3	7.0	0.75	0.58	11.3	16.2	9.6	0.70	7.2	97.2	3.98
	1.7	3.1	7.2	9.6	7.1	0.74	0.54	11.5	17.8	10.0	0.72	7.6	98.6	4.09
	2.3	4.0	9.3	9.7	7.2	0.74	0.53	11.5	18.5	10.2	0.73	7.8	99.2	4.14
70	1.1	2.3	5.4	8.9	6.8	0.76	0.63	11.1	14.1	10.5	0.73	8.0	99.9	4.19
	1.7	3.0	6.9	9.2	7.0	0.76	0.59	11.2	15.6	10.9	0.74	8.4	101.1	4.29
	2.3	3.9	9.0	9.4	7.0	0.75	0.57	11.3	16.3	11.1	0.75	8.5	101.6	4.34
80	1.1	2.3	5.2	8.4	6.5	0.78	0.69	10.8	12.2	11.3	0.75	8.7	102.1	4.38
	1.7	2.9	6.7	8.8	6.7	0.77	0.65	11.0	13.6	11.7	0.77	9.1	103.4	4.48
	2.3	3.8	8.8	8.9	6.8	0.76	0.63	11.1	14.2	11.9	0.77	9.3	104.0	4.54
85	1.1	2.2	5.1	8.2	6.4	0.78	0.72	10.6	11.3	11.6	0.76	9.0	103.2	4.47
	1.7	2.9	6.7	8.5	6.6	0.77	0.68	10.8	12.6	12.2	0.78	9.5	104.7	4.58
	2.3	3.7	8.6	8.7	6.7	0.77	0.66	10.9	13.2	12.4	0.79	9.8	105.5	4.63
90	1.1	2.2	5.1	7.9	6.2	0.79	0.75	10.5	10.5	12.1	0.78	9.4	104.4	4.56
	1.7	2.8	6.6	8.3	6.4	0.78	0.71	10.7	11.7	12.7	0.79	10.0	106.1	4.68
	2.3	3.7	8.5	8.4	6.5	0.78	0.69	10.8	12.2	13.0	0.81	10.3	107.1	4.73
95	1.1	2.2	5.0	7.6	6.0	0.79	0.79	10.3	9.7	Operation Not Recommended				
	1.7	2.8	6.5	8.0	6.3	0.79	0.74	10.5	10.8					
	2.3	3.6	8.4	8.1	6.4	0.78	0.72	10.6	11.3					

Interpolation is permissible; extrapolation is not.

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 012

400 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	1.5	2.3	5.3	12.7	9.0	0.71	0.82	15.5	15.5	13.0	1.00	9.5	100.0	3.79
	2.3	4.5	10.3	13.1	9.2	0.70	0.77	15.7	17.1	13.6	1.02	10.1	101.6	3.90
	3.0	6.4	14.9	13.2	9.2	0.70	0.74	15.8	17.8	13.9	1.03	10.4	102.3	3.95
70	1.5	2.2	5.1	12.1	8.7	0.71	0.90	15.2	13.5	14.4	1.05	10.8	103.2	4.01
	2.3	4.3	9.9	12.6	8.9	0.71	0.84	15.5	14.9	15.0	1.07	11.4	104.8	4.11
	3.0	6.2	14.3	12.8	9.0	0.71	0.82	15.6	15.6	15.3	1.08	11.7	105.5	4.16
80	1.5	2.1	4.9	11.4	8.3	0.73	0.98	14.7	11.6	15.6	1.09	11.9	106.1	4.19
	2.3	4.2	9.7	11.9	8.6	0.72	0.92	15.1	12.9	16.3	1.11	12.5	107.7	4.28
	3.0	6.0	13.9	12.1	8.7	0.71	0.90	15.2	13.5	16.6	1.12	12.7	108.3	4.33
85	1.5	2.1	4.9	11.0	8.1	0.73	1.02	14.4	10.7	16.2	1.11	12.4	107.5	4.27
	2.3	4.1	9.5	11.5	8.3	0.72	0.96	14.8	12.0	16.8	1.13	13.0	108.9	4.36
	3.0	6.0	13.8	11.8	8.5	0.72	0.94	15.0	12.5	17.1	1.14	13.2	109.6	4.40
90	1.5	2.1	4.8	10.5	7.8	0.75	1.07	14.1	9.8	16.7	1.13	12.9	108.7	4.35
	2.3	4.1	9.4	11.1	8.1	0.73	1.01	14.5	11.0	17.3	1.14	13.4	110.1	4.44
	3.0	5.9	13.6	11.4	8.3	0.73	0.98	14.7	11.6	17.6	1.15	13.7	110.8	4.48
95	1.5	2.1	4.8	10.0	7.6	0.76	1.11	13.8	9.0	Operation Not Recommended				
	2.3	4.0	9.3	10.6	7.9	0.74	1.05	14.2	10.1					
	3.0	5.8	13.4	10.9	8.0	0.74	1.03	14.4	10.6					

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 018

600 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	2.3	2.1	4.8	20.2	14.8	0.73	1.37	24.8	14.7	19.9	1.54	14.6	100.7	3.78
	3.4	3.0	7.0	20.9	15.1	0.72	1.28	25.3	16.4	20.7	1.57	15.4	102.0	3.87
	4.5	4.3	9.8	21.3	15.2	0.71	1.24	25.6	17.2	21.1	1.58	15.7	102.6	3.90
70	2.3	2.0	4.6	19.3	14.4	0.75	1.48	24.4	13.1	21.6	1.60	16.1	103.3	3.95
	3.4	2.9	6.7	20.0	14.7	0.74	1.39	24.7	14.3	22.4	1.63	16.8	104.6	4.03
	4.5	4.1	9.5	20.3	14.9	0.73	1.36	24.9	14.9	22.7	1.64	17.1	105.1	4.06
80	2.3	1.9	4.5	18.3	13.8	0.75	1.58	23.7	11.5	23.1	1.65	17.4	105.6	4.09
	3.4	2.8	6.5	19.1	14.3	0.75	1.50	24.2	12.7	23.8	1.68	18.1	106.8	4.15
	4.5	4.0	9.2	19.4	14.4	0.74	1.47	24.4	13.2	24.1	1.69	18.3	107.2	4.17
85	2.3	1.9	4.4	17.6	13.4	0.76	1.63	23.1	10.8	23.7	1.68	18.0	106.6	4.14
	3.4	2.8	6.4	18.6	14.0	0.75	1.56	23.9	11.9	24.4	1.71	18.6	107.6	4.19
	4.5	3.9	9.1	18.9	14.2	0.75	1.52	24.1	12.4	24.7	1.72	18.8	108.1	4.20
90	2.3	1.9	4.4	16.7	12.9	0.77	1.67	22.4	10.0	24.3	1.70	18.5	107.5	4.18
	3.4	2.7	6.3	17.9	13.6	0.76	1.61	23.4	11.2	24.9	1.73	19.0	108.5	4.22
	4.5	3.9	9.0	18.3	13.8	0.75	1.58	23.7	11.6	25.3	1.74	19.4	109.0	4.25
95	2.3	1.9	4.3	15.7	12.3	0.78	1.72	21.5	9.1	Operation Not Recommended				
	3.4	2.7	6.3	17.1	13.1	0.77	1.65	22.7	10.3					
	4.5	3.8	8.9	17.6	13.4	0.76	1.63	23.2	10.8					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating. ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

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HEAT CONTROLLER, INC.

1900 WELLWORTH AVENUE • JACKSON, MICHIGAN 49203

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 024

800 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	3.0	2.0	4.6	25.5	19.1	0.75	1.71	31.3	14.9	26.3	1.74	20.3	100.4	4.42
	4.5	3.8	8.9	25.8	19.2	0.74	1.62	31.4	15.9	27.4	1.78	21.4	101.8	4.51
	6.0	6.4	14.9	26.0	19.3	0.74	1.58	31.4	16.5	28.0	1.80	21.9	102.4	4.55
70	3.0	1.9	4.4	24.9	18.7	0.75	1.85	31.2	13.5	28.6	1.83	22.4	103.1	4.59
	4.5	3.7	8.5	25.3	19.0	0.75	1.76	31.3	14.4	29.7	1.87	23.3	104.3	4.66
	6.0	6.2	14.3	25.5	19.1	0.75	1.71	31.3	14.9	30.1	1.89	23.7	104.9	4.68
80	3.0	1.9	4.3	23.9	18.0	0.75	1.97	30.6	12.1	30.5	1.90	24.0	105.3	4.70
	4.5	3.6	8.3	24.6	18.5	0.75	1.89	31.0	13.0	31.3	1.94	24.7	106.2	4.73
	6.0	6.0	13.9	24.9	18.7	0.75	1.84	31.2	13.5	31.6	1.95	25.0	106.6	4.74
85	3.0	1.8	4.2	23.2	17.6	0.76	2.03	30.2	11.4	31.2	1.93	24.6	106.1	4.73
	4.5	3.6	8.2	24.1	18.2	0.75	1.95	30.8	12.4	31.9	1.97	25.1	106.9	4.75
	6.0	6.0	13.8	24.5	18.4	0.75	1.91	31.0	12.8	32.1	1.98	25.3	107.2	4.75
90	3.0	1.8	4.2	22.4	17.2	0.77	2.08	29.5	10.8	31.8	1.96	25.1	106.8	4.75
	4.5	3.5	8.1	23.5	17.8	0.76	2.01	30.3	11.7	32.3	1.99	25.5	107.3	4.75
	6.0	5.9	13.6	23.9	18.1	0.75	1.97	30.6	12.1	32.4	2.00	25.6	107.5	4.74
95	3.0	1.8	4.1	21.5	16.6	0.77	2.13	28.7	10.1	Operation Not Recommended				
	4.5	3.5	8.0	22.7	17.3	0.76	2.07	29.8	11.0					
	6.0	5.8	13.4	23.2	17.6	0.76	2.03	30.2	11.5					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating. ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 030

1000 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	3.8	1.6	3.6	28.8	21.3	0.74	2.00	35.7	14.4	31.2	2.22	23.6	98.9	4.12
	5.6	2.8	6.5	29.2	21.5	0.74	1.91	35.7	15.3	32.1	2.24	24.5	99.7	4.21
	7.5	4.4	10.1	29.4	21.7	0.74	1.87	35.7	15.7	32.6	2.25	24.9	100.2	4.25
70	3.8	1.5	3.5	28.1	21.0	0.75	2.17	35.5	13.0	33.3	2.26	25.5	100.8	4.31
	5.6	2.7	6.2	28.7	21.2	0.74	2.06	35.7	13.9	34.1	2.28	26.3	101.6	4.38
	7.5	4.2	9.7	28.9	21.3	0.74	2.01	35.7	14.4	34.6	2.29	26.7	102.0	4.42
80	3.8	1.5	3.4	26.9	20.4	0.76	2.34	34.9	11.5	35.0	2.30	27.2	102.4	4.45
	5.6	2.6	6.1	27.7	20.8	0.75	2.23	35.4	12.4	35.8	2.33	27.9	103.2	4.51
	7.5	4.1	9.4	28.1	20.9	0.75	2.18	35.5	12.9	36.2	2.34	28.2	103.5	4.53
85	3.8	1.4	3.3	26.2	20.1	0.77	2.43	34.5	10.8	35.8	2.33	27.9	103.2	4.51
	5.6	2.6	6.0	27.1	20.5	0.76	2.32	35.0	11.7	36.6	2.36	28.5	103.8	4.55
	7.5	4.0	9.3	27.5	20.7	0.75	2.27	35.3	12.1	36.9	2.37	28.8	104.2	4.56
90	3.8	1.4	3.3	25.4	19.7	0.77	2.50	33.9	10.2	36.6	2.36	28.5	103.8	4.55
	5.6	2.6	5.9	26.4	20.1	0.76	2.41	34.6	11.0	37.2	2.38	29.1	104.5	4.58
	7.5	4.0	9.2	26.8	20.4	0.76	2.35	34.9	11.4	37.5	2.40	29.3	104.8	4.59
95	3.8	1.4	3.2	24.5	19.2	0.78	2.57	33.3	9.5	Operation Not Recommended				
	5.6	2.5	5.8	25.6	19.7	0.77	2.49	34.1	10.3					
	7.5	3.9	9.1	26.1	20.0	0.77	2.44	34.4	10.7					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating. ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 036

1200 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	4.5	1.8	4.1	38.2	26.8	0.70	2.74	47.6	14.0	39.0	2.94	28.9	100.1	3.88
	6.8	3.2	7.4	39.0	26.9	0.69	2.58	47.8	15.1	41.4	3.03	31.0	101.9	4.00
	9.0	5.1	11.8	39.3	27.1	0.69	2.50	47.8	15.7	42.6	3.07	32.1	102.9	4.06
70	4.5	1.7	3.9	36.6	26.3	0.72	2.95	46.6	12.4	43.9	3.12	33.3	103.9	4.12
	6.8	3.1	7.2	37.8	26.7	0.71	2.80	47.3	13.5	46.2	3.21	35.2	105.6	4.22
	9.0	4.9	11.3	38.3	26.8	0.70	2.72	47.6	14.1	47.2	3.25	36.1	106.4	4.26
80	4.5	1.7	3.8	34.4	25.6	0.74	3.15	45.1	10.9	47.9	3.28	36.7	107.0	4.28
	6.8	3.0	7.0	35.9	26.2	0.73	3.01	46.2	11.9	49.7	3.36	38.2	108.3	4.34
	9.0	4.8	11.0	36.7	26.4	0.72	2.94	46.7	12.5	50.5	3.40	38.9	108.9	4.35
85	4.5	1.6	3.8	33.1	25.0	0.76	3.24	44.1	10.2	49.5	3.35	38.1	108.2	4.33
	6.8	3.0	6.9	34.8	25.8	0.74	3.11	45.4	11.2	50.9	3.42	39.3	109.3	4.36
	9.0	4.7	10.9	35.6	26.0	0.73	3.05	46.0	11.7	51.5	3.45	39.7	109.7	4.37
90	4.5	1.6	3.7	31.6	24.3	0.77	3.34	43.0	9.5	50.8	3.41	39.1	109.2	4.36
	6.8	2.9	6.8	33.5	25.2	0.75	3.21	44.5	10.4	51.8	3.47	39.9	110.0	4.37
	9.0	4.6	10.7	34.4	25.6	0.74	3.15	45.1	10.9	52.1	3.50	40.2	110.2	4.36
95	4.5	1.6	3.7	30.1	23.5	0.78	3.43	41.8	8.8	Operation Not Recommended				
	6.8	2.9	6.7	32.0	24.6	0.77	3.31	43.3	9.7					
	9.0	4.6	10.6	33.0	25.0	0.76	3.25	44.1	10.2					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating. ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 042

1350 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	5.3	1.0	2.4	43.2	31.0	0.72	3.03	53.5	14.3	46.8	3.47	34.9	102.1	3.95
	8.0	2.7	6.2	43.8	31.0	0.71	2.89	53.6	15.2	48.9	3.58	36.7	103.5	4.00
	11.0	5.5	12.7	44.2	31.0	0.70	2.84	53.9	15.6	50.0	3.63	37.6	104.3	4.04
70	5.3	1.0	2.3	42.3	30.8	0.73	3.29	53.5	12.8	51.2	3.69	38.7	105.1	4.07
	8.0	2.6	6.0	42.9	30.9	0.72	3.11	53.5	13.8	53.3	3.79	40.4	106.6	4.13
	11.0	5.3	12.2	43.2	31.0	0.72	3.02	53.5	14.3	54.4	3.83	41.3	107.3	4.16
80	5.3	1.0	2.2	40.8	30.2	0.74	3.58	53.0	11.4	55.1	3.87	42.0	107.8	4.18
	8.0	2.5	5.8	41.9	30.7	0.73	3.38	53.4	12.4	57.0	3.95	43.6	109.1	4.24
	11.0	5.2	11.9	42.3	30.8	0.73	3.28	53.5	12.9	58.0	3.98	44.4	109.8	4.26
85	5.3	1.0	2.2	39.6	29.7	0.75	3.72	52.3	10.7	56.9	3.94	43.4	109.0	4.23
	8.0	2.5	5.8	41.1	30.4	0.74	3.53	53.1	11.6	58.6	4.01	45.0	110.2	4.29
	11.0	5.1	11.8	41.6	30.6	0.73	3.43	53.3	12.1	59.5	4.04	45.7	110.8	4.32
90	5.3	0.9	2.2	38.2	29.0	0.76	3.85	51.3	9.9	58.4	4.00	44.8	110.1	4.28
	8.0	2.5	5.7	40.0	29.9	0.75	3.67	52.6	10.9	60.1	4.06	46.2	111.2	4.34
	11.0	5.0	11.6	40.8	30.2	0.74	3.58	53.0	11.4	60.8	4.08	46.9	111.7	4.37
95	5.3	0.9	2.2	36.4	28.0	0.77	3.96	49.9	9.2	Operation Not Recommended				
	8.0	2.4	5.6	38.7	29.2	0.76	3.81	51.7	10.1					
	11.0	5.0	11.5	39.6	29.7	0.75	3.72	52.3	10.6					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating. ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 048

1600 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	6.0	1.2	2.9	50.2	35.8	0.71	3.67	62.7	13.7	52.1	3.70	39.5	100.1	4.13
	9.0	2.9	6.7	50.9	36.1	0.71	3.48	62.8	14.6	54.6	3.79	41.7	101.6	4.22
	12.0	5.3	12.3	51.2	36.3	0.71	3.39	62.8	15.1	56.0	3.84	42.9	102.4	4.27
70	6.0	1.2	2.8	48.8	35.4	0.73	3.96	62.3	12.3	57.4	3.89	44.1	103.2	4.32
	9.0	2.8	6.5	49.8	35.6	0.72	3.76	62.6	13.3	59.9	3.98	46.3	104.6	4.41
	12.0	5.1	11.8	50.2	35.8	0.71	3.66	62.7	13.7	61.1	4.02	47.4	105.4	4.45
80	6.0	1.2	2.7	46.6	34.8	0.75	4.25	61.1	11.0	62.0	4.05	48.2	105.9	4.48
	9.0	2.7	6.3	48.2	35.3	0.73	4.05	62.0	11.9	64.2	4.13	50.1	107.1	4.56
	12.0	5.0	11.5	48.8	35.4	0.73	3.95	62.3	12.4	65.2	4.16	51.0	107.8	4.60
85	6.0	1.2	2.7	45.2	34.3	0.76	4.38	60.2	10.3	64.0	4.12	49.9	107.0	4.55
	9.0	2.7	6.2	47.1	34.9	0.74	4.20	61.4	11.2	66.0	4.18	51.7	108.2	4.62
	12.0	4.9	11.3	47.9	35.2	0.73	4.10	61.8	11.7	66.9	4.21	52.6	108.7	4.66
90	6.0	1.1	2.6	43.5	33.5	0.77	4.51	58.9	9.7	65.7	4.18	51.5	108.0	4.61
	9.0	2.7	6.1	45.7	34.5	0.75	4.34	60.5	10.5	67.6	4.23	53.1	109.1	4.68
	12.0	4.8	11.2	46.7	34.8	0.75	4.24	61.1	11.0	68.4	4.25	53.9	109.6	4.71
95	6.0	1.1	2.6	41.6	32.6	0.78	4.62	57.4	9.0	Operation Not Recommended				
	9.0	2.6	6.1	44.1	33.8	0.77	4.47	59.3	9.9					
	12.0	4.8	11.0	45.2	34.3	0.76	4.38	60.2	10.3					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating. ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

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HC Series 60Hz - R22 Submittal Data Eng/I-P

Performance Data HC H/V 060

1600 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	7.5	4.4	10.1	60.5	43.1	0.71	4.36	75.4	13.9	63.0	5.02	45.9	99.2	3.68
	11.3	7.6	17.5	61.2	43.2	0.71	4.17	75.5	14.7	67.4	5.17	49.8	101.2	3.82
	15.0	11.5	26.7	61.6	43.3	0.70	4.08	75.5	15.1	69.8	5.25	51.9	102.3	3.90
70	7.5	4.2	9.7	59.0	42.9	0.73	4.68	74.9	12.6	72.6	5.34	54.4	103.6	3.98
	11.3	7.3	16.9	60.1	43.1	0.72	4.46	75.3	13.5	77.0	5.49	58.2	105.6	4.11
	15.0	11.1	25.6	60.5	43.2	0.71	4.36	75.4	13.9	79.2	5.56	60.2	106.6	4.17
80	7.5	4.1	9.4	56.8	42.4	0.75	5.04	74.0	11.3	80.6	5.61	61.5	107.3	4.21
	11.3	7.1	16.4	58.3	42.8	0.73	4.80	74.7	12.2	84.4	5.74	64.8	109.1	4.31
	15.0	10.8	25.0	59.0	42.9	0.73	4.68	74.9	12.6	86.2	5.80	66.4	109.9	4.35
85	7.5	4.0	9.3	55.4	42.0	0.76	5.23	73.3	10.6	83.9	5.73	64.4	108.9	4.30
	11.3	7.0	16.2	57.2	42.5	0.74	4.98	74.1	11.5	87.3	5.84	67.4	110.4	4.38
	15.0	10.7	24.6	57.9	42.7	0.74	4.86	74.5	11.9	88.7	5.89	68.7	111.1	4.42
90	7.5	4.0	9.2	53.9	41.4	0.77	5.44	72.4	9.9	86.8	5.82	66.9	110.2	4.37
	11.3	6.9	16.0	55.8	42.1	0.75	5.17	73.5	10.8	89.5	5.91	69.4	111.5	4.44
	15.0	10.5	24.3	56.7	42.4	0.75	5.04	73.9	11.2	90.6	5.95	70.3	112.0	4.46
95	7.5	3.9	9.1	52.1	40.5	0.78	5.66	71.4	9.2	Operation Not Recommended				
	11.3	6.8	15.8	54.3	41.6	0.77	5.38	72.7	10.1					
	15.0	10.4	24.0	55.3	42.0	0.76	5.24	73.2	10.6					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating. ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

See performance correction tables for operating conditions other than those listed above.

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Blower Performance Data

Airflow in CFM with wet coil and clean air filter.

Model	Fan Speed	Rated Airflow	Min CFM	Airflow (cfm) at External Static Pressure (in. wg)															
				0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
HCH 006	HI	220	150			310	300	290	280	270	250	230	210	180					
	MED	220	150			260	250	240	230	210	200	190	150						
	LOW	220	150			210	200	190	180	160	150								
HCH/V 009	HI	325	225			410	400	380	360	350	330	320	300	280					
	MED	325	225			390	370	360	340	320	310	290	280	260					
	LOW	325	225			340	330	322	310	300	280	260	250	220					
HCH/V 012	HI	400	300			470	460	450	440	430	420	400	390	380	320				
	MED	400	300			420	410	400	390	380	370	360	350	340					
	LOW	400	300			360	360	350	340	320	320	310	300	290					
HCH/V 018	HI	600	450			760	740	720	710	700	680	650	600	550	460				
	MED	600	450	700	690	680	670	660	650	630	620	600	560	520	430				
	LOW	600	450	620	610	600	590	580	570	560	540	520	490	460					
HCH/V 024	HI	800	600									1000	970	930	870	770	690		
	MED	800	600	1010	1000	990	980	960	940	920	900	880	860	830	770	700	600		
	LOW	800	600	820	810	800	790	780	770	760	750	730	720	700	650	600			
HCH/V 030	HI	1000	750							1160	1130	1100	1070	1030	950	840			
	MED	1000	750	1250	1230	1200	1180	1150	1120	1090	1070	1040	1010	970	890	750			
	LOW	1000	750	1120	1100	1070	1050	1030	1010	980	960	930	900	870	790	710			
HCH/V 036	HI	1200	900	1520	1500	1480	1460	1430	1400	1370	1350	1320	1270	1210	1110	960	840		
	MED	1200	900	1210	1200	1140	1140	1130	1130	1120	1110	1100	1070	1040	940				
	LOW	1200	900	1010	1010	1000	1000	990	990	980	980	970	950	930					
HCH/V 042	HI	1350	1050	1640	1610	1580	1550	1520	1490	1450	1410	1370	1330	1290	1190	1100			
	MED	1350	1050	1490	1470	1440	1420	1390	1370	1340	1310	1270	1230	1190	1120	1010			
	LOW	1350	1050	1140	1140	1130	1130	1120	1110	1100	1080	1060	1010						
HCH/V 048	HI	1600	1200					1980	1950	1910	1860	1800	1740	1680	1490	1280	1280		
	MED	1600	1200	1940	1920	1900	1880	1860	1820	1770	1740	1710	1660	1600	1410	1000			
	LOW	1600	1200	1770	1750	1730	1710	1690	1670	1650	1610	1570	1510	1450	1330				
HCH/V 060	HI	2000	1500	2240	2240	2230	2220	2200	2160	2120	2090	2060	2040	2010	1960	1880	1790	1660	1510
	MED	2000	1500	2050	2050	2040	2020	1990	1970	1940	1920	1890	1860	1830	1780	1710	1620	1490	
	LOW	2000	1500	1850	1850	1840	1830	1810	1800	1780	1760	1730	1700	1670	1600	1510			

Shaded areas denote ESP where operation is not recommended
 Units factory shipped on medium speed, other speeds require field selection
 All airflow is rated at lowest Voltage if unit is dual Voltage rated, e.g. 208V for 208-230V units
 All units ARI/ISO/ASHRAE 13256-1 rated on high fan speed
 Only two speed fan (H & M) available on 575V units

Specifications and performance data subject to change without notice.

HEAT CONTROLLER, INC.

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Blower Performance Data - High Static

Airflow in CFM with wet coil and clean air filter.

Model	Fan Speed	Rated Airflow	Min CFM	Airflow (cfm) at External Static Pressure (in. wg)																
				0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00	
HCH/V 018	HS HI	600	450				790	780	770	760	750	730	710	690	650	530	430			
	HS MED	600	450	750	740	720	710	700	690	670	670	660	650	630	600	490	390			
	HS LOW	600	450	670	660	640	630	620	610	600	590	580	580	570	530	420				
HCH/V 024	HS HI	800	600											1030	950	840	700			
	HS MED	800	600									1040	1010	970	890	750	620			
	HS LOW	800	600					1030	1010	980	960	930	900	870	790	710				
HCH/V 030	HS HI	1000	750											1160	1040	920	800	750		
	HS MED	1000	750									1130	1080	1030	930	820	750			
	HS LOW	1000	750	1050	1040	1030	1010	990	980	960	940	910	880	840	750					
HCH/V 036	HS HI	1200	900											1530	1500	1470	1400	1290	1170	960
	HS MED	1200	900	1360	1350	1340	1330	1320	1310	1300	1280	1260	1250	1230	1150	1070	910			
	HS LOW	1200	900	1030	1020	1010	1010	1000	1000	990	980	960	950	930						
HCH/V 042	HS HI	1350	1050					1550	1540	1520	1500	1470	1460	1450	1380	1240	1080			
	HS MED	1350	1050	1390	1380	1370	1360	1350	1340	1320	1310	1300	1280	1250	1180	1080				
	HS LOW	1350	1050																	
HCH/V 048	HS HI	1600	1200									2060	2040	2010	1960	1880	1790	1660	1510	
	HS MED	1600	1200	2050	2050	2040	2020	1990	1970	1940	1920	1890	1860	1830	1780	1710	1620	1490	1320	
	HS LOW	1600	1200	1850	1850	1840	1830	1810	1800	1780	1760	1730	1700	1670	1600	1510	1380	1220		
HCH/V 060	HS HI	2000	1500	2400	2400	2390	2380	2370	2360	2340	2320	2300	2270	2240	2200	2130	2060	1980	1890	
	HS MED	2000	1500	2160	2160	2150	2150	2140	2110	2080	2060	2040	2030	2020	1980	1930	1880	1490	1750	
	HS LOW	2000	1500	1930	1930	1920	1920	1910	1900	1890	1890	1880	1870	1850	1830	1800	1750	1700	1620	

Shaded areas denote ESP where operation is not recommended
 Units factory shipped on medium speed, other speeds require field selection
 All airflow is rated at lowest Voltage if unit is dual Voltage rated, e.g. 208V for 208-230V units
 All units ARI/ISO/ASHRAE 13256-1 rated on high fan speed
 Only two speed fan (H & M) available on 575V units

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Air Flow Correction Table

Airflow	Cooling				Heating		
	% of Rated	Total Capacity	Sensible Capacity	Power	Heat of Rejection	Heating Capacity	Power
75%	0.970	0.899	0.953	0.967	0.966	1.051	0.939
81%	0.979	0.924	0.966	0.976	0.976	1.037	0.956
88%	0.987	0.949	0.979	0.985	0.985	1.023	0.973
94%	0.994	0.975	0.990	0.993	0.993	1.012	0.987
100%	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106%	1.005	1.026	1.008	1.005	1.006	0.991	1.010
113%	1.009	1.051	1.016	1.010	1.011	0.982	1.020
119%	1.011	1.077	1.022	1.013	1.014	0.975	1.027
125%	1.013	1.102	1.027	1.016	1.017	0.968	1.033

Entering Air Correction Table

Heating				Cooling										
Entering Air DB°F	Heating Capacity	Power	Heat of Extraction	Entering Air WB°F	Total Capacity	Sensible Cooling Capacity Multiplier - Entering DB °F						Power	Heat of Rejection	
						70	75	80	80.6	85	90			95
45	1.044	0.803	1.123	60	0.858	0.812	1.062	1.217	1.229	*	*	*	0.982	0.886
50	1.042	0.847	1.107	65	0.964	0.622	0.876	1.076	1.098	1.240	*	*	0.996	0.971
55	1.037	0.888	1.086	66.2	0.986	0.577	0.822	1.032	1.055	1.214	*	*	0.999	0.989
60	1.028	0.927	1.062	67	1.000	0.547	0.785	1.000	1.024	1.192	1.362	1.508	1.000	1.000
65	1.016	0.965	1.033	70	1.049		0.630	0.864	0.891	1.086	1.236	1.399	1.004	1.039
68	1.007	0.986	1.014	75	1.113			0.580	0.609	0.814	1.027	1.218	1.007	1.089
70	1.000	1.000	1.000											
75	0.980	1.033	0.963											
80	0.957	1.065	0.921											

* = Sensible capacity equals total capacity
ARI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1 and Heating - 68°F DB/59°F WB entering air temperature

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Model	006	009	012	018	024	030	036	042	048	060
Compressor (1 Each)	Rotary			Recipricating						Scroll
Factory Charge Vertical R22 (oz) [kg]	-	14 [.40]	14 [.40]	25 [.74]	38 [1.08]	37 [1.05]	42 [1.19]	51 [1.87]	66 [1.87]	74 [2.10]
Factory Charge Horizontal R22 (oz) [kg]	14 [.40]	14 [.40]	14 [.40]	25 [.74]	38 [1.08]	37 [1.05]	41 [1.16]	51 [1.87]	66 [1.87]	74 [2.10]
PSC Fan Motor & Blower (3 Speeds)										
Fan Motor (hp) [W]	1/25 [30]	1/10 [75]	1/10 [75]	1/6 [124]	1/4 [187]	3/4 [560]	1/2 [373]	3/4 [560]	3/4 [560]	1 [746]
Blower Wheel Size (dia x w) - (in) [mm]	5 x 5 [127 x 127]	5 x 5 [127 x 127]	6 x 5 [152 x 127]	8 x 7 [208 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 8 [229 x 203]	9 x 8 [229 x 203]	10 x 10 [254 x 254]	10 x 10 [254 x 254]
Water Connection Size										
IPT (in)	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	1	1
Vertical Upflow										
Air Coil Dimensions (h x w) - (in) [mm]	-	10 x 15 [254 x 381]	10 x 15 [254 x 381]	20 x 17.25 [508 x 438]	20 x 17.25 [508 x 438]	20 x 17.25 [508 x 438]	24 x 21.75 [610 x 552]	24 x 21.75 [610 x 552]	24 x 28.25 [610 x 718]	24 x 28.25 [610 x 718]
Standard Filter - 1" [25.4mm] Throwaway, qty (in) [mm]	-	10 x 18 [254 x 457]	10 x 18 [254 x 457]	20 x 20 [508 x 508]	20 x 20 [508 x 508]	20 x 20 [508 x 508]	24 x 24 [610 x 610]	24 x 24 [610 x 610]	1 - 14 x 24, 1 - 18 x 24 [356 x 610], [457 x 610]	1 - 14 x 24, 1 - 18 x 24 [356 x 610], [457 x 610]
Horizontal										
Air Coil Dimensions (h x w) - (in) [mm]	10 x 15 [254 x 381]	10 x 15 [254 x 381]	10 x 15 [254 x 381]	16 x 22 [406 x 559]	16 x 22 [406 x 559]	16 x 22 [406 x 559]	20 x 25 [508 x 635]	20 x 25 [508 x 635]	20 x 35 [508 x 889]	20 x 35 [508 x 889]
Standard Filter - 1" [25.4mm] Throwaway, qty (in) [mm]	10 x 18 [254 x 457]	10 x 18 [254 x 457]	10 x 18 [254 x 457]	16 x 25 [406 x 635]	16 x 25 [406 x 635]	16 x 25 [406 x 635]	20 x 28 or 2 - 20 x 14 [508 x 711] or [2 - 508 x 356]	20 x 28 or 2 - 20 x 14 [508 x 711] or [2 - 508 x 356]	1 - 20 x 24, 1 - 20 x 14 [508 x 610], [508 x 356]	1 - 20 x 24, 1 - 20 x 14 [508 x 610], [508 x 356]
Weight - Operating, (lbs) [kg]	103 [47]	105 [48]	114 [52]	181 [82]	189 [86]	197 [89]	203 [92]	218 [99]	263 [119]	278 [126]
Weight - Packaged, (lbs) [kg]	113 [51]	115 [52]	124 [56]	186 [84]	194 [88]	202 [92]	209 [95]	224 [102]	270 [122]	285 [129]

All units have grommet compressor mountings, and 1/2" [12.2mm] & 3/4" [19mm] electrical knockouts.

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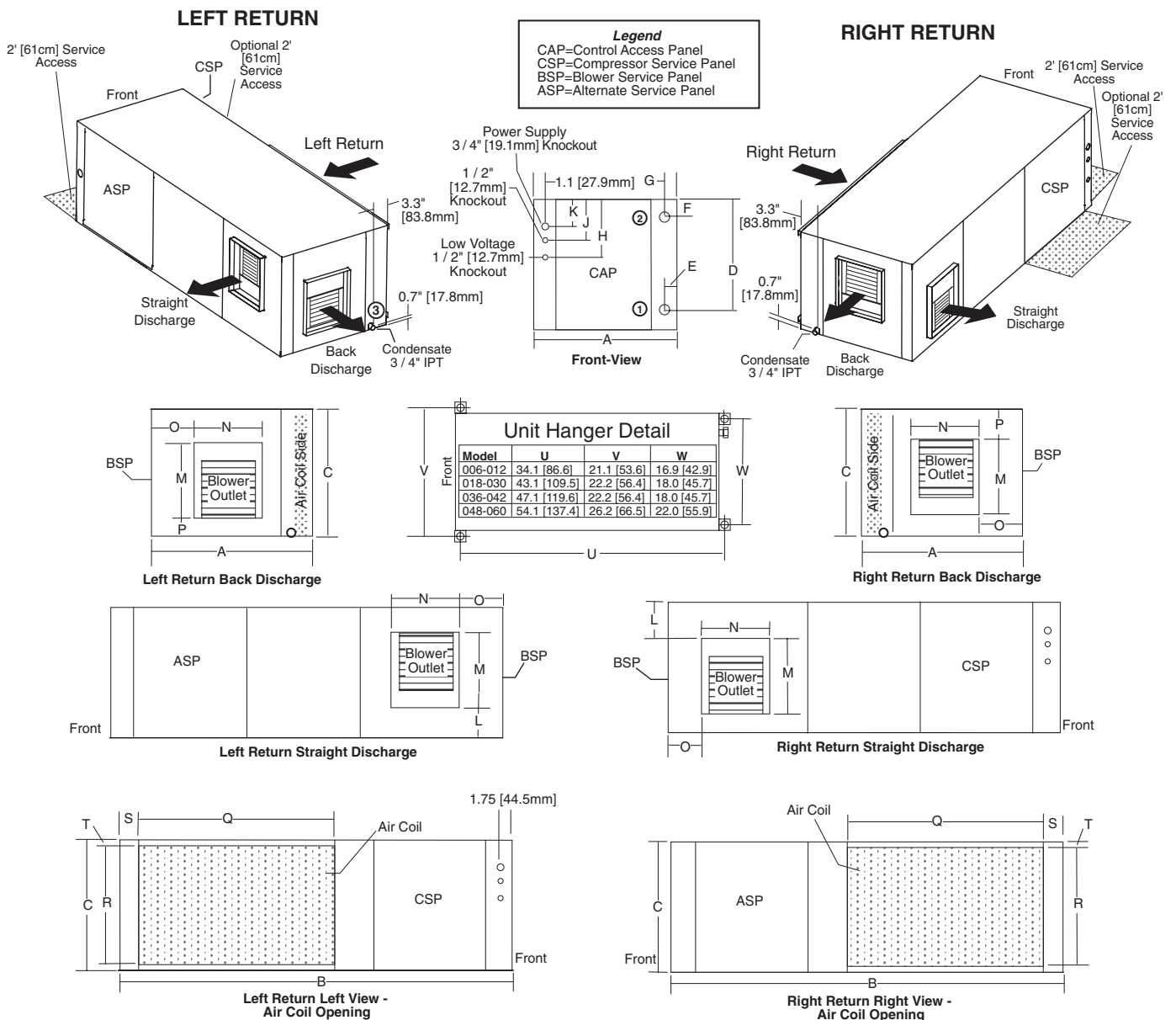
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Horizontal Model	Overall Cabinet			Water Connections				Water IPT Size	Electrical Knockouts			Discharge Connections duct flange (± 0.10 in. ± 2.54mm)					Return Connection using return air opening			
	A	B	C	1 - In		2 - Out			H	J	K	L	M	N	O	P	Q	R	S	T
	Width	Depth	Height	D	E	F	G		1/2" cond Low Voltage	1/2" cond Low Voltage	3/4" cond Power Supply	Supply Height	Supply Depth	Supply Depth	Supply Depth	Return Depth	Return Height	Return Height	Return Height	Return Height
006-012	in.	19.1	34.1	11.0	9.6	0.8	1.8	0.8	8.1	5.1	2.1	0.8	8.9	6.7	5.2	1.3	16.1	9.8	1.1	0.6
	cm.	48.5	86.6	27.9	24.4	2.0	4.4	2.0	20.6	13.0	5.4	1.9	22.7	17.0	13.3	3.3	41.0	25.0	2.7	1.5
018	in.	20.1	43.1	17.1	15.3	2.4	1.9	2.1	12.1	9.1	6.1	2.6	13.3	9.9	4.1	1.3	23.0	15.0	1.1	1.0
	cm.	51.1	109.5	43.4	38.9	6.1	4.9	5.3	30.8	23.2	15.6	6.6	33.8	25.1	10.5	3.3	58.4	38.1	2.8	2.5
024-030	in.	20.1	43.1	17.1	15.3	2.4	1.9	2.1	12.1	9.1	6.1	2.6	13.3	9.9	4.1	1.3	23.0	15.0	1.1	1.0
	cm.	51.1	109.5	43.4	38.9	6.1	4.9	5.3	30.8	23.2	15.6	6.6	33.8	25.1	10.5	3.3	58.4	38.1	2.8	2.5
036-042	in.	20.1	47.1	21.1	18.8	2.2	4.7	1.2	16.1	13.1	10.1	2.5	16.1	11.0	3.0	2.5	25.9	19.0	1.1	1.0
	cm.	51.1	119.6	53.6	47.6	5.5	11.9	3.0	41.0	33.3	25.7	6.3	40.9	27.9	7.7	6.4	65.8	48.3	2.8	2.5
048	in.	24.1	54.1	21.1	19.4	5.9	4.3	2.3	16.1	13.1	10.1	3.7	16.1	13.7	4.1	1.3	35.9	19.0	1.1	1.0
	cm.	61.2	137.4	53.6	49.2	14.9	11.0	5.8	41.0	33.3	25.7	9.5	41.0	34.8	10.3	3.2	91.2	48.3	2.8	2.5
060	in.	24.1	54.1	21.1	19.4	5.9	4.3	2.3	16.1	13.1	10.1	1.7	18.1	13.7	4.1	1.3	35.9	19.0	1.1	1.0
	cm.	61.2	137.4	53.6	49.2	14.9	11.0	5.8	41.0	33.3	25.7	4.4	46.0	34.8	10.3	3.2	91.2	48.3	2.8	2.5

Condensate is 3/4" IPT copper.
Horizontal unit shipped with filter bracket only. This bracket should be removed for return duct connection.
Hanger bracket is factory installed



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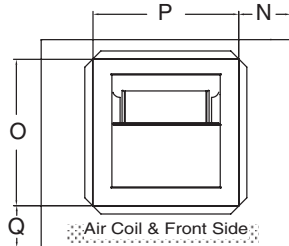
Design, specifications and Performance Data subject to change without notice.

Vertical Upflow Dimensional Data

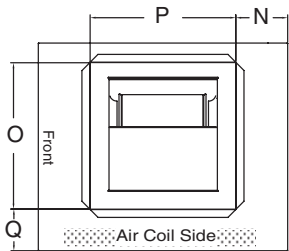
Vertical Upflow Model	Overall Cabinet			Water Connections						Water IPT Size	Electrical Knockouts			Discharge Connection duct flange installed (±0.10 in, ±2.54mm)					Return Connection using return air opening				
				1		2		3			J	K	L	M	N	O	P	Q	R	S	T	U	
	A	B	C	D	E	F	G	H	I	1/2" cond Low Voltage	1/2" cond Low Voltage	3/4" cond Power Supply	Supply Width	Supply Depth		Return Depth	Return Depth	Return Height	Return Height				
	Width	Depth	Height	In	Out		Condensate																
009-012	in.	19.1	19.1	22.0	1.4	2.8	9.4	2.8	6.1	2.3	1/2"	2.9	5.9	8.9	8.9	5.1	9.0	9.0	5.5	2.1	16.2	9.9	0.7
	cm.	48.5	48.5	55.9	3.6	7.1	24.0	7.1	15.6	5.9		7.3	14.9	22.5	22.7	12.9	22.9	22.9	14.0	5.3	41.1	25.1	1.9
018	in.	21.5	21.5	39.0	1.8	3.8	15.2	3.6	8.1	2.3	1/2"	4.1	7.1	10.1	6.4	3.8	14.0	14.0	5.3	2.3	18.3	20.2	0.7
	cm.	54.6	54.6	99.1	4.5	9.7	38.6	9.1	20.6	5.8		10.5	18.1	25.7	16.1	9.5	35.6	35.6	13.6	5.8	46.5	51.3	1.9
024-030	in.	21.5	21.5	39.0	1.8	3.8	15.2	3.6	8.1	2.3	3/4"	4.1	7.1	10.1	6.4	3.8	14.0	14.0	5.3	2.3	18.3	20.2	0.7
	cm.	54.6	54.6	99.1	4.5	9.7	38.6	9.1	20.6	5.8		10.5	18.1	25.7	16.1	9.5	35.6	35.6	13.6	5.8	46.5	51.3	1.9
036 & 042	in.	21.5	26.0	44.0	2.0	3.7	16.2	2.6	10.4	2.3	3/4"	4.1	7.1	10.1	6.4	3.8	14.0	14.0	5.1	2.3	22.8	24.2	0.7
	cm.	54.6	66.0	111.8	5.1	9.4	41.1	6.6	26.4	5.8		10.5	18.1	25.7	16.1	9.5	35.6	35.6	13.1	5.8	57.9	61.4	1.9
048-060	in.	24.0	32.5	46.0	1.8	5.9	16.7	2.3	10.1	2.3	1"	4.1	7.1	10.1	6.9	7.3	16.0	18.0	5.1	2.3	29.3	24.2	0.7
	cm.	61.0	82.6	116.8	4.5	14.9	42.4	5.8	25.7	5.8		10.5	18.1	25.7	17.4	18.4	40.6	45.7	13.1	5.8	74.4	61.4	1.9

Condensate is 3/4" IPT
 Filter bracket extending from unit 2.5" [6.4 cm]. This bracket should be removed when connecting return duct.
 Discharge flange field installed

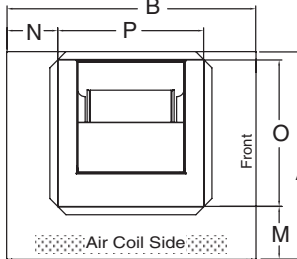
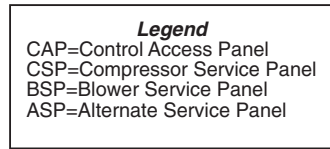
- Notes:
1. Front & Side access is preferred for service access.
 2. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.



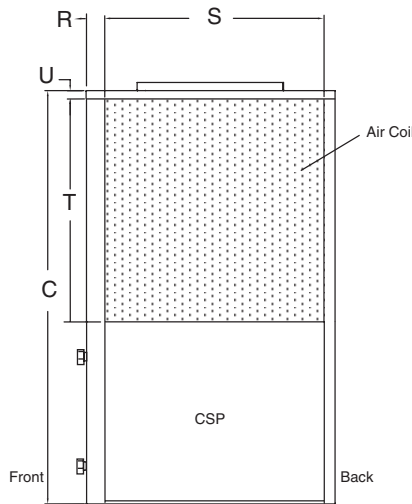
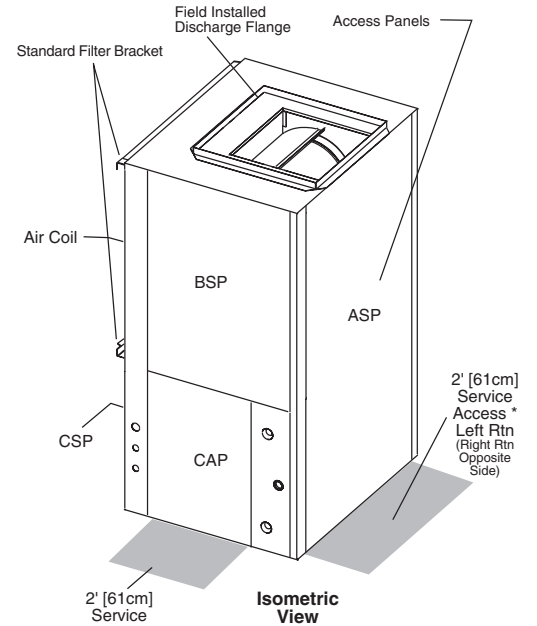
Top View-Front Return



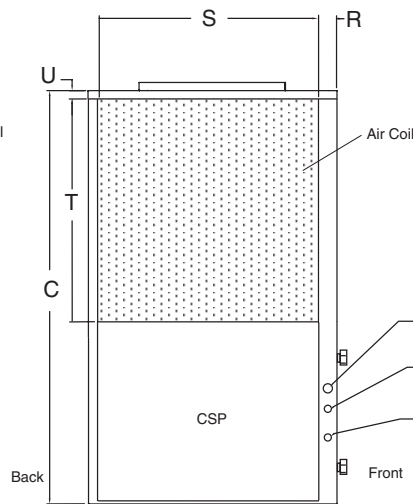
Top View-Right Return



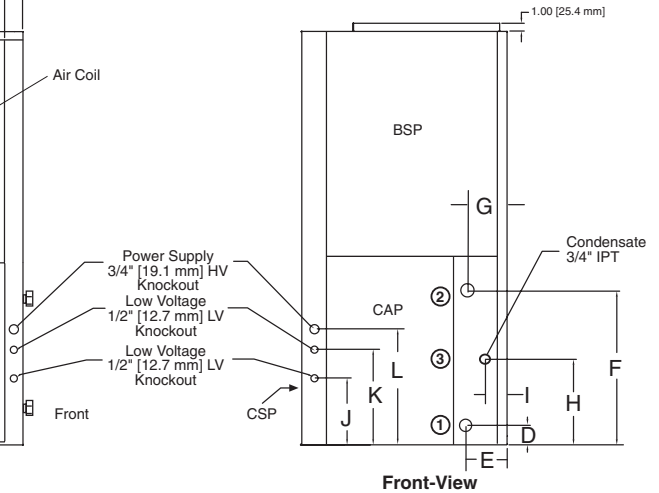
Top View-Left Return



Right Return Right View - Air Coil Opening



Left Return Left View - Air Coil Opening



* Note: Shaded areas are recommended service areas, not required.

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			Standard HC Unit						
Model	Voltage	Min/Max Voltage	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amps	Max Fuse/HACR
			QTY	RLA	LRA				
HCH 006	208-230/60/1	197/254	1	2.9	17.7	0.40	3.3	4.1	15
	265/60/1	239/292	1	2.5	15.0	0.35	2.8	3.5	15
HCH/V 009	208-230/60/1	197/254	1	3.9	22.2	0.80	4.7	5.7	15
	265/60/1	239/292	1	3.3	18.8	0.70	4.0	4.8	15
HCH/V 012	208-230/60/1	197/254	1	5.3	27.9	0.80	6.1	7.5	15
	265/60/1	239/292	1	4.2	22.2	0.70	4.9	6.0	15
HCH/V 018	208-230/60/1	197/254	1	8.6	49.0	1.00	9.6	11.7	20
	265/60/1	239/292	1	8.1	44.0	0.86	8.9	11.0	15
HCH/V 024	208-230/60/1	197/254	1	9.8	56.0	1.50	11.3	13.8	20
	265/60/1	239/292	1	9.1	55.0	1.30	10.4	12.7	20
	208-230/60/3	197/254	1	6.7	51.0	1.50	8.2	9.9	15
	460/60/3	414/506	1	3.5	25.0	0.76	4.2	5.1	15
HCH/V 030	208-230/60/1	197/254	1	11.2	61.0	3.00	14.2	16.9	25
	265/60/1	239/292	1	10.0	58.0	2.70	12.7	15.2	25
	208-230/60/3	197/254	1	6.9	55.0	3.00	9.9	11.7	15
	460/60/3	414/506	1	3.6	28.0	1.70	5.3	6.2	15
HCH/V 036	208-230/60/1	197/254	1	15.4	82.0	1.80	17.2	21.1	35
	265/60/1	239/292	1	14.4	83.0	2.00	16.4	20.0	30
	208-230/60/3	197/254	1	9.6	70.0	1.80	11.4	13.8	20
	460/60/3	414/506	1	4.9	33.0	1.24	6.1	7.4	15
HCH/V 042	208-230/60/1	197/254	1	17.1	105.0	3.00	20.1	24.3	40
	208-230/60/3	197/254	1	10.7	85.0	3.00	13.7	16.4	25
	460/60/3	414/506	1	5.3	42.0	1.70	7.0	8.3	15
	575/60/3	518/633	1	4.3	34.0	1.40	5.7	6.8	15
HCH/V 048	208-230/60/1	197/254	1	18.3	102.0	3.40	21.7	26.3	40
	208-230/60/3	197/254	1	12.6	91.0	3.40	16.0	19.2	30
	460/60/3	414/506	1	5.7	42.0	1.80	7.5	8.9	15
	575/60/3	518/633	1	4.7	39.0	1.40	6.1	7.2	15
HCH/V 060	208-230/60/1	197/254	1	25.6	170.0	4.30	29.9	36.4	60
	208-230/60/3	197/254	1	14.7	124.0	4.30	19.0	22.7	35
	460/60/3	414/506	1	7.4	59.6	2.50	9.9	11.8	15
	575/60/3	518/633	1	5.9	49.4	1.90	7.8	9.3	15

HACR circuit breaker in USA only
All fuses Class RK-5

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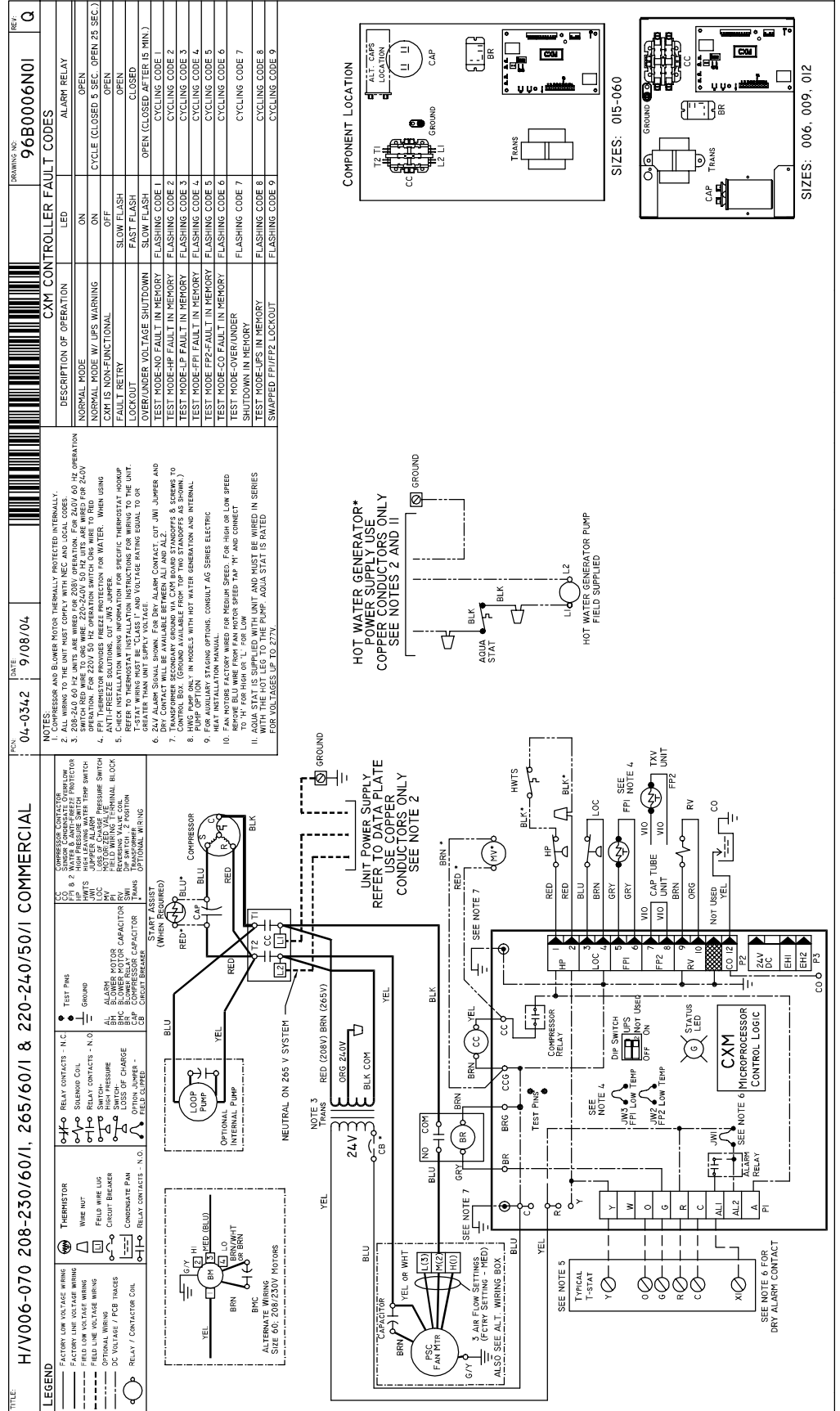
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Typical Wiring Diagram
Single Phase HC Units
With CXM Controller

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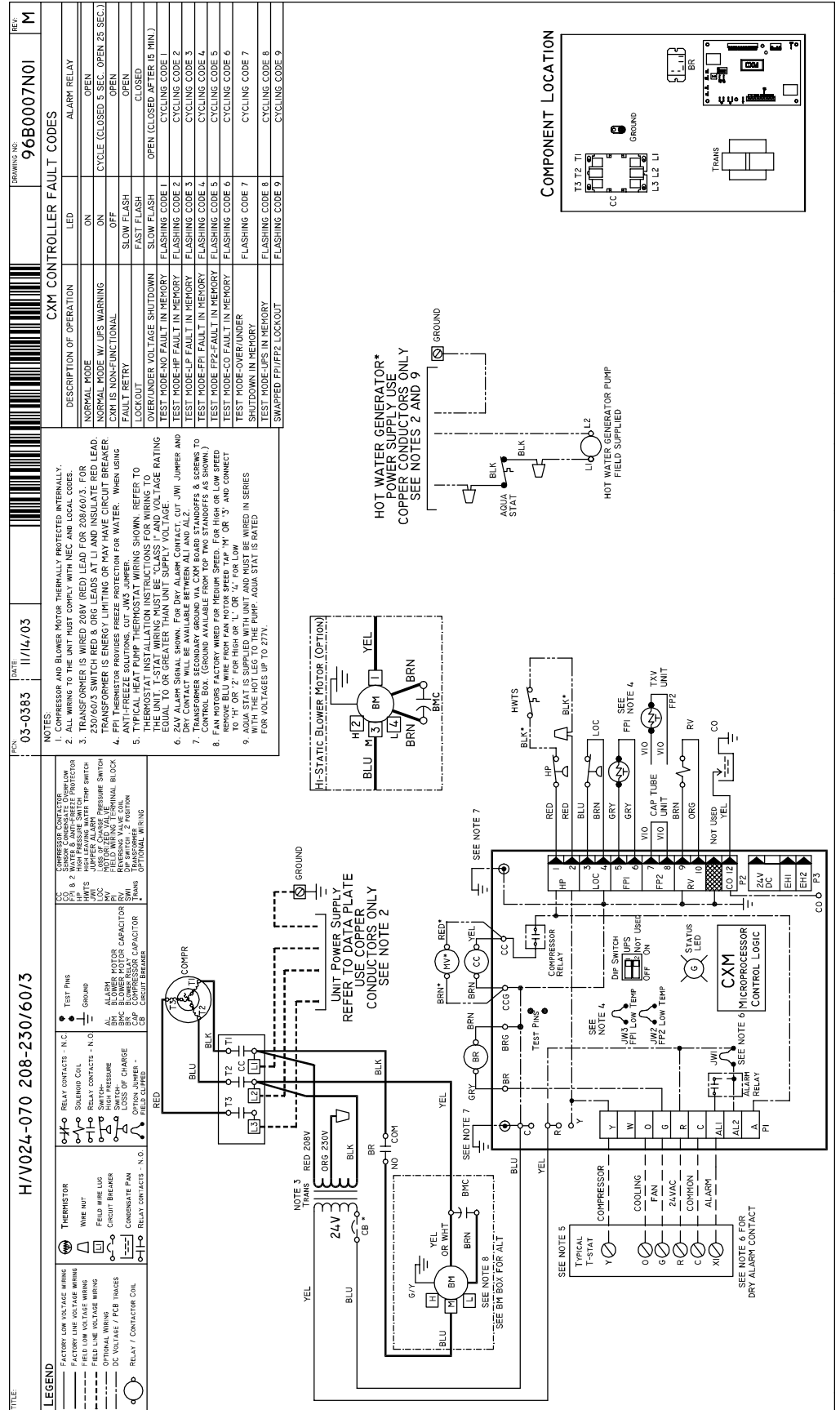


Typical Wiring Diagram
Three Phase 208/230V HC Units
With CXM Controller

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