CA Model

Water Source Heat Pump

¾ to 1½ ton

The CA console provides high performing heating and cooling in a compact size when space and access is at a premium.

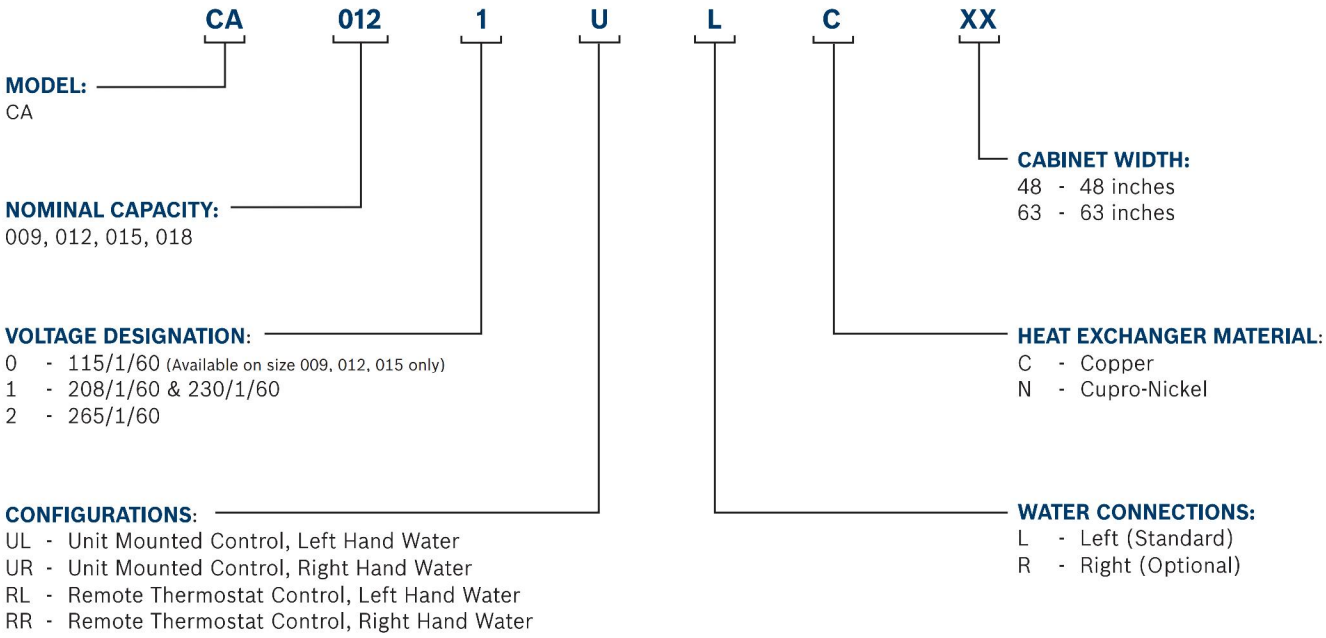
CA MODEL	UP TO 16.0 EER GLHP	UP TO 4.6 COP WSHP

Made in the U.S.A.

Commercial Sales Catalog
fhp-mfg.com

BOSCH
Invented for life

Model Nomenclature



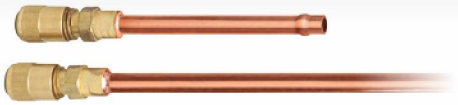
Certified Performance Data

AHRI/ANSI 13256-1 Performance Data													
Model	GPM	Water Loop Heat Pump				Ground Water Loop Heat Pump				Ground Loop Heat Pump			
		Cooling 86˚F		Heating 68˚F		Cooling 86˚F		Heating 68˚F		Cooling 77˚F		Heating 32˚F	
		Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
CA009	2.0	8200	12.9	9400	4.6	10200	22.3	7400	3.8	9000	16.0	5400	3.3
CA012	2.5	10500	12.0	12400	4.3	13000	19.4	10900	3.8	11500	14.2	8400	3.3
CA015	4.0	14400	13.3	15000	4.3	16400	19.8	11800	3.6	14700	14.5	9800	3.3
CA018	5.0	16400	12.3	17500	4.2	18300	17.6	14600	3.4	17000	14.0	12000	3.1

Ratings based upon AHRI/ANSI 13256-1 with 3/8" washable mesh filter

Stainless Steel
Drain Pan

Single Capacity
Rotary Compressor



Schrader Charging
Valves for Servicing

CA Model

The FHP console water source heat pumps are designed to provide heating and cooling in areas where space and access are limited. Utilize as a decentralized room terminal unit that are field connected to a closed-circuit piping loop within a structure. Typically these units are installed in perimeter zones and are ideal for installations where ducted systems are impractical. Office buildings, hotel/motels, schools and assisted living complexes are some of the popular applications these units are used.

Quality

The CA features as standard a heavy-gauge powder coat paint galvanized steel cabinet, a stainless steel drain pan to ensure long life and to help prevent corrosion the evaporator coils are protected with a electro type coating. Rigorous factory testing helps to ensure no hassles from the start while FHP's 40+ years of experience in designing heat pumps is your assurance of the highest quality product.

Advantages of FHP Technology

- Affordable comfort
- Simple installation and operation
- Low installation costs
- Lower operating costs
- Flexibility in designing and installation
- Energy efficiency
- Space savings
- Superior quality
- Quiet operation

Flexible Installation

Typically, the cabinet and chassis are installed together, but with the two-piece design, the chassis can be installed in a custom architectural cabinet. All units are available with a compact chassis designed with the same dimensions for all model sizes and with multiple configurations for water and controls flexibility. To add to ease of installation, CA models arrive Geothermal ready as a greener alternative to the boiler/tower systems application.

Quiet Operation

Noise reduction is a critical consideration of the unit's design which is why all CA Models utilize thermal and acoustical double isolated compressor with closed cell foam insulation below the compressor base to support sound attenuation. The compressor is mounted to the bottom of chassis with a 2 piece base pan to reduce noise transmission and vibration.

Serviceability

All units are designed to be serviced from the front of the unit by utilizing the removable slide out chassis (fan section, refrigeration unit with controls). The unit comes as a one piece "sloped top" cover with rigid steel discharge air grille and bottom return air filter rack for easy removal of washable mesh air filter. The electrical junction box (2" x 4") comes with a removable cover located on the Water Piping side (LH or RH) to facilitate field connections. Schrader valves for high and low pressure gauges are standard along with electrical box components are easily accessible for diagnosing and servicing the unit. These service friendly features benefit equipment owners with easier service access which saves time and money.

CA Model 009-018

- 5 Models from ¾ through 1½ tons
- Console unit configurations – 48" & 63" L cabinet
- Unit mounted control, left hand water
- Unit mounted control, right hand water
- Remote thermostat control, left hand water
- Remote thermostat control, right hand water

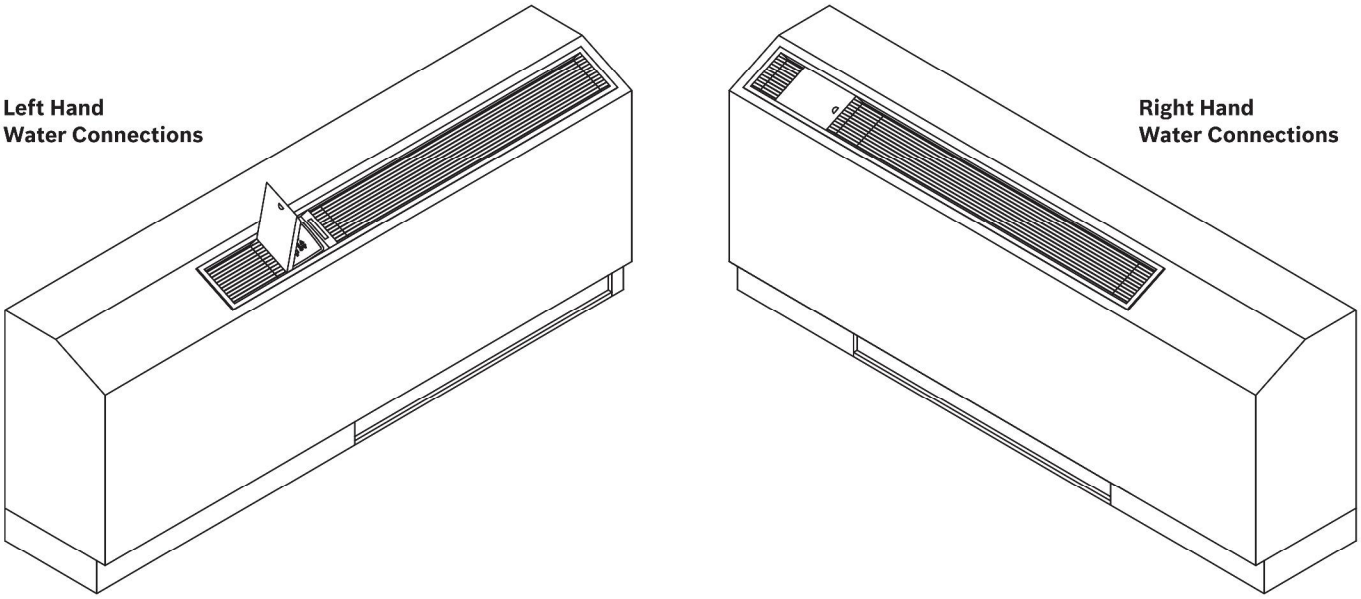


Figure 1

Physical Data

CA Model Water Source Heat Pump

CA Model	CA009	CA012	CA015	CA018
Compressor Type (Qty 1)	Rotary	Rotary	Rotary	Rotary
Refrigeration Charge (oz)	19	22	23	23
Max Water Working Pressure (PSIG/kPa)	400/3100	400/3100	400/3100	400/3100
Number of Refrigeration Circuits	1	1	1	1
Evaporator Coil				
Coil Type	Tube-Fin	Tube-Fin	Tube-Fin	Tube-Fin
Air Coil Dimensions (H x L)	10x27	10x27	10x27	10x27
Row(s)	2	2	3	3
Motor & Blower				
Fan Motor Type/Speeds	PSC/2	PSC/2	PSC/2	PSC/2
Fan Motor (HP)	1/10	1/10	1/4	1/4
Blower Wheel Size (Dia. x W)	5.5 x 8 (2)	5.5 x 8 (2)	5.5 x 8 (2)	5.5 x 8 (2)
Water Connection Size				
Type	Tube / FPT Option	Tube / FPT Option	Tube / FPT Option	Tube / FPT Option
Size	5/8" / 1/2"	5/8" / 1/2"	5/8" / 1/2"	5/8" / 1/2"
Water Coil Type	Coaxial	Coaxial	Coaxial	Coaxial
Coaxial Coil Volume (gal)	0.08	0.08	0.16	0.16
Cabinet				
Standard Filter - 1/2" Washable Aluminum (H x L)	7 x 31-1/4 x 3/8	7 x 31-1/4 x 3/8	7 x 31-1/4 x 3/8	7 x 31-1/4 x 3/8
Weight - Operating (lbs)	131	138	144	144
Weight - Shipping (lbs)	151	158	164	164

Standard Length Unit Dimensions

CA Model Water Source Heat Pump

Model	A	B	C	D	E	F	G	H	J	K	M	N	O	P
	Width	Depth	Height	Control Door Width	Discharge Grille Width	Grille Edge to Door, Left Hand	Clearance to Unit Bottom	Sub-Base Depth	Cabinet End to Return Air, Left Hand	Return Air Width	Grille Edge to Door, Right Hand	Cabinet End to Return Air, Right Hand	Control Panel Width	Return Air to Chassis End, Left Hand
CA009	48.00	12.00	23.88	6.00	45.00	6.12	3.37	11.00	12.87	30.75	2.87	12.87	12.00	1.63
CA012	48.00	12.00	23.88	6.00	45.00	6.12	3.37	11.00	12.87	30.75	2.87	12.87	12.00	1.63
CA015	48.00	12.00	23.88	6.00	45.00	6.12	3.37	11.00	12.87	30.75	2.87	12.87	12.00	1.63
CA018	48.00	12.00	23.88	6.00	45.00	6.12	3.37	11.00	12.87	30.75	2.87	12.87	12.00	1.63

Model	Q	R	S	T	U	V	W	X	Y	Z	Condenser Water Connections	Permanent Washable Filter Size
	Power Switch Height from Sub-base, Left Hand	Condensate Height from Sub-base, Left Hand	Condensate Depth from Rear, Left Hand	Water Connection Height from Sub-base	Water Out Depth from Rear	Water In Depth from Rear	Return Air to Chassis End, Right Hand	Power Switch Height from Sub-base, Right Hand	Condensate Height from Sub-base, Right Hand	Condensate Depth from Front, Right Hand		
CA009	13.50	5.00	1.75	13.75	1.00	2.00	4.00	15.00	8.69	7.31	5/8" tube	30.12 x 7 x 0.37
CA012	13.50	5.00	1.75	13.75	1.00	2.00	4.00	15.00	8.69	7.31	5/8" tube	30.12 x 7 x 0.37
CA015	13.50	5.00	1.75	13.75	1.00	2.00	4.00	15.00	8.69	7.31	5/8" tube	30.12 x 7 x 0.37
CA018	13.50	5.00	1.75	13.75	1.00	2.00	4.00	15.00	8.69	7.31	5/8" tube	30.12 x 7 x 0.37

NOTES: 1. All dimensions in inches unless otherwise noted. All dimensions within +-0.125". Specifications subject to change without notice.
2. Fresh Air Opening (In Sub-base Rear)
3. Caution! When installing unit in cold climates, an outside air damper must be provided to prevent possible condenser freeze-up.

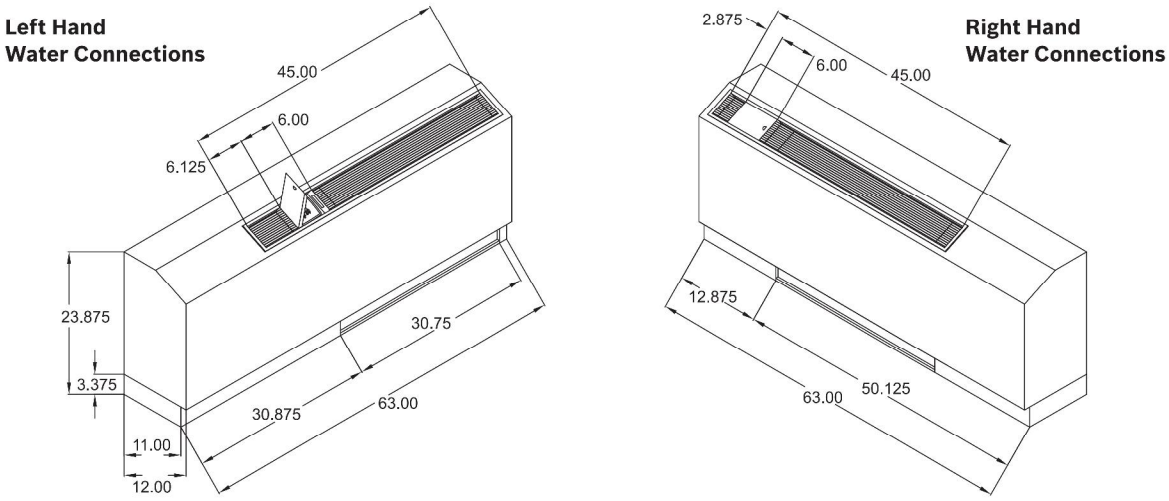


Figure 5

Extended Length Unit Dimensions

CA Model Water Source Heat Pump

Model	A	B	C	D	E	F	G	H	J	K	M	N	O	P
	Width	Depth	Height	Control Door Width	Discharge Grille Width	Grille Edge to Door, Left Hand	Clearance to Unit Bottom	Sub-Base Depth	Cabinet End to Return Air, Left Hand	Return Air Width	Grille Edge to Door, Right Hand	Cabinet End to Return Air, Right Hand	Control Panel Width	Return Air to Chassis End, Left Hand
CA009	63.00	12.00	23.88	6.00	45.00	6.12	3.37	11.00	30.87	30.75	2.87	12.87	12.00	1.63
CA012	63.00	12.00	23.88	6.00	45.00	6.12	3.37	11.00	30.87	30.75	2.87	12.87	12.00	1.63
CA015	63.00	12.00	23.88	6.00	45.00	6.12	3.37	11.00	30.87	30.75	2.87	12.87	12.00	1.63
CA018	63.00	12.00	23.88	6.00	45.00	6.12	3.37	11.00	30.87	30.75	2.87	12.87	12.00	1.63

Model	Q	R	S	T	U	V	W	W	Y	Z	Condenser Water Connections	Permanent Washable Filter Size
	Power Switch Height from Sub-base, Left Hand	Condensate Height from Sub-base, Left Hand	Condensate Depth from Rear, Left Hand	Water Connection Height from Sub-base	Water Out Depth from Rear	Water In Depth from Rear	Return Air to Chassis End, Right Hand	Power Switch Height from Sub-base, Right Hand	Condensate Height from Sub-base, Right Hand	Condensate Depth from Front, Right Hand		
CA009	13.50	5.00	1.75	13.75	1.00	2.00	4.00	15.00	8.69	7.31	5/8" tube	30.12 x 7 x 0.37
CA012	13.50	5.00	1.75	13.75	1.00	2.00	4.00	15.00	8.69	7.31	5/8" tube	30.12 x 7 x 0.37
CA015	13.50	5.00	1.75	13.75	1.00	2.00	4.00	15.00	8.69	7.31	5/8" tube	30.12 x 7 x 0.37
CA018	13.50	5.00	1.75	13.75	1.00	2.00	4.00	15.00	8.69	7.31	5/8" tube	30.12 x 7 x 0.37

NOTES: 1. All dimensions in inches unless otherwise noted. All dimensions within +-0.125". Specifications subject to change without notice.
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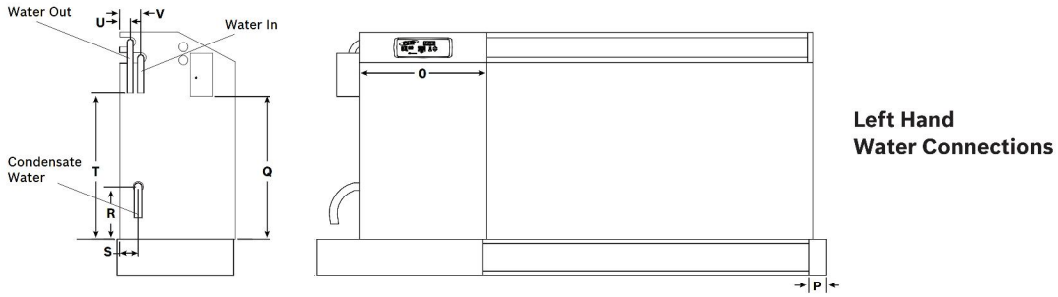
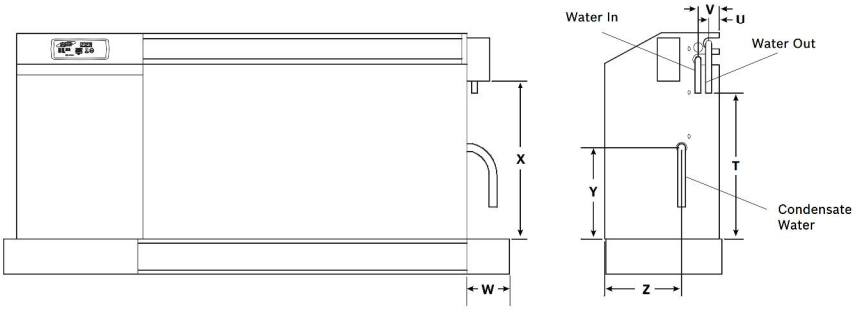


Left Hand Water Connections



Right Hand Water Connections

Figure 6

Guide Specifications

General

Units shall be performance certified to ISO standard 13256-1 for Water Loop Heat Pump, Ground Water Heat Pump and Ground Loop Heat Pump applications. All units shall be listed with Intertek (ETL), Nationally Recognized Testing Laboratories (NRTL) or Canadian Standards Association (CSA). All units shall have ARI-13256-1 labels with ETL or NRTL or CSA or equivalent labels. Each unit shall be run tested at the factory. Each unit shall be pallet mounted and stretch wrapped.

Units shall be designed to operate throughout the range of entering fluid temperature of 50°F to 110°F in the cooling mode and 30°F to 80°F in the heating mode (extended range allows for 20°F to 80°F in the heating mode). The units shall be manufactured in an ISO9001 certified facility.

Cabinetwork

Cabinetwork shall include two (2) separate integral assemblies: Cabinet and Sub-base. Cabinet shall be factory fabricated from heavy gauge “paint-grip” galvanized steel and finished with powder coat paint. Cabinet dimensions are in accordance with drawings and are manufactured for left or right water discharge piping. Cabinet shall be single-piece construction. Removal of the cabinet shall give complete side and front access to unit for routine servicing. The cabinet is mounted onto the sub-base and secured with two screws for security. A wall mounting bracket secured to the sub-base shall be provided. Air flow is bottom intake-top discharge. Cabinets will be factory fabricated specifically for left hand or right hand connections as specified. Cabinet shall be slope top style, flat top cabinet is not acceptable.

Sub-Base

Factory mounted 3-3/8" sub-base is constructed of heavy gauge painted steel. Cutouts are provided for floor connections and outside air. Includes integral filter mounts to support a bottom mount permanent, washable, aluminum mesh filter. Sub-base has a bracket that may be secured to the wall to provide stability.

Chassis

Chassis is of compact design and of the same dimensions for all model sizes. Dimensions must match details on drawings. Chassis mounts directly on support structures provided by the sub-base and shall be removable from the sub-base without dismantling the sub-base. Both compressor and coil compartments shall be thermally and acoustically insulated, and have removable steel cover plates giving double acoustical protection between the two compartments. Compressor is mounted to the bottom of chassis with a 2 piece base pan to reduce noise transmission and vibration. The compressor access panel shall have a closed cell foam insulation for extra quiet operation. Fiberglass insulation is not acceptable on compressor access panel. The stainless steel condensate drain pan shall be IAQ with positive double slope and be removable without disturbing the evaporator assembly for cleaning as needed.

Refrigerant Circuit

All units shall contain sealed R-410A refrigerant circuit including a hermetic compressor, finned tube refrigerant to air heat exchanger, four-way solenoid activated reversing valve, expansion valve refrigerant metering device and coaxial tube-in-tube water to refrigerant heat exchanger. Compressor shall be high efficiency designed for heat pump duty and mounted on vibration isolators. Fin-tube refrigerant-to-air exchanger shall be aluminum fin plate and copper tube construction rated to withstand 600 PSIG (4140 Kpa) refrigerant working pressure. Coils shall be coated using an electro coating process for protection against most airbourne chemicals. Water-to-refrigerant heat exchanger shall be constructed of a convoluted copper or cupro-nickel inner tube and steel outer tube with a designed refrigerant working pressure of 600 PSIG (4140 Kpa) and water side working pressure of no less than 400 PSIG (2750 Kpa). Four-way solenoid activated refrigerant reversing valve shall allow heating operation should the solenoid fail to function. All interconnecting tubing shall be copper. High and low pressure access shall be provided via schrader style ports.

Guide Specifications

Fan Motor Assembly

Unit blower is three-speed high efficiency PSC type. Motor is direct connected to two double width, double inlet forward curved oversized centrifugal blower wheels that are selected for quiet operation, and balanced to minimize vibration. Blower wheel access is through removable blower inlet rings. Motor and Blower assembly shall be removable without removing the chassis. Blower CFM is per scheduled data.

Electrical

Control circuit shall be 24 volt with direct sensing high and low pressure switches connected to a normally closed safety circuit. Line voltage control circuit and/or normally open safety switches are unacceptable. Compressor and blower motors shall be individually protected against current and/or heat overload. Standard control options shall be: a) Unit mounted CUC controller incorporating the following features: Tactile touchpad for temperature, fan and mode adjustment, Digital temperature display, LED display indicating unit operating mode as well as fan speed and fault indication, adjustable temperature set point and differential, Options for manual or automatic changeover, hi or low fan speed and constant or cycling fan operation or, b) Provisions for a remotely mounted thermostat. The control box will additionally have a compressor contactor, fan relay, solid state lock-out device and class-2 transformer. The lockout circuit shall include diagnostic LED's, anti short cycle time delay, random start time delay and low pressure bypass time delay. A low voltage terminal board is provided for NEC class-2 connection to units intended for remote thermostat connection only.

Power Connection

Units shall be provided with a factory mounted 2 x 4 junction box with removable cover on the same side as the water connections (left or right) for direct wire connection. This cover may be supplied with a non-fused power disconnect switch for servicing the unit. The unit shall operate with specified voltages 115v, 208/230v or 265v, single phase, 60 Hz supply current. Supply power ampacity and maximum fuse size are per electrical specifications marked on each unit's data plate.

Remote Thermostat

Console units capable of remote mounted controllers shall be field supplied with a 24 volt anticipating type wall thermostat. a) The thermostat shall be a manual changeover type with an OFF, HEAT, COOL selector switch and a FAN, AUTO selector switch. b) The thermostat shall be an auto changeover type with an OFF, AUTO selector switch and a FAN, AUTO selector switch. The Hi/Lo fan switch shall be unit mounted for fan speed control.

Cabinet Options

The unit shall be chassis only, chassis on sub-base, or chassis with sub-base and cabinet.

Piping Options

The unit shall be provided with factory installed supply and return water connection on right or left side. Supply and return water connections shall be a) 5/8" copper pipe for field connection of male or female pipe thread b) factory installed 1/2" FPT fitting for hose connection c) Factory supplied 1/2" FPT thread and field installed 1/2" x 12" stainless steel hose kit with an automatic flow control valve, ball valves with P/T ports, y-strainer with blow down valve. Continuing engineering research results in steady improvements. Therefore, these ratings and specifications are subject to change without notice.