ICE AIR® LLC
80 HARTFORD AVENUE, MOUNT VERNON, NY 10553
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VERTICAL STACK WATER SOURCE HEAT PUMP (VS816) REPLACEMENT CERTIFIED DRAWING

DWG. NO.
Submittal VS816 (Replacement)
REV. - 01

PROJECT		DATE	8/13/21		BY	JL	REVISIONS	
PURCHASER		P.O. #		QTY	DATE		BY	DESCRIPTION
ARCHITECT		SHIPPING DATES						
ENGINEER								
HVAC CONTR.								
GEN. CONTR.								

DESIGNATION	MODEL NUMBER	QTY
TOTAL		

GENERAL NOTES
1: PROVIDE UNITS WITH R410A GREEN REFRIGERANT
2: PROVIDE 1" WASHABLE FILTERS
3: CLIMATEMASTER 816 MODEL REPLACEMENT UNIT

UNIT SPECIFICATIONS+

PERFORMACE DATA

TABLE 1

MODEL	8VS81609	8VS81612	8VS81615	8VS81618	8VS81624	8VS81630	8VS81636
COOLING CAPACITY*	9,000	12,000	13,300	18,000	25,200	27,000	36,000
SENSIBLE CAPACITY	7,100	9,700	10,600	12,800	20,200	22,200	26,200
COOLING EER	13.3	14.4	14.4	14.1	13.7	13.7	13.0
HEATING CAPACITY**	12,000	14,000	15,300	20,100	31,000	32,000	41,000
HEATING COP	4.4	4.5	4.4	4.4	4.4	4.4	4.3
FLOW RATE (GPM)	2.5	3.0	3.8	5.0	7.0	7.5	9.0
TYPICAL CFM	420	440	460	630	1000	1000	1150

COOLING CAPACITY BTUH RATED @ 80.6°F DB, 66.2°F WB EAT, 86°F EWT @ 3 GPM/TON
HEATING CAPACITY BTUH RATED @ 68°F DB, 59°F WB EAT, 68°F EWT @ 3 GPM/TON

OPTIONAL
1: STAINLESS STEEL HOSE KITS
2: MOTORIZED TWO-WAY CONTROL VALVE

CUSTOM NOTES
1:

PHYSICAL DATA

TABLE 2

MODEL	8VS81609	8VS81612	8VS81615	8VS81618	8VS81624	8VS81630	8VS81636
COMPRESSOR TYPE (1 EA)	ROTARY						
REFRIGERANT	R410A						
REFRIGERANT FACTORY CHARGE (oz)	28.2	28.9	29.9	32.8	52.9	52.9	63.4
FAN MOTOR (W)	35	35	35	150	200	200	200
BLOWER WHEEL SIZE (DIAMETERXWIDTH) (IN)	7X7	7X7	7X7	7X7	8X8	8X8	8X8
HOSES (IN)	1/2	1/2	1/2	3/4	3/4	3/4	3/4
WATER CONNECTION SIZE (IN)	1/2	1/2	1/2	3/4	3/4	3/4	3/4
CONDENSATE CONNECTION SIZE (IN)	3/4" ID						
AIR COIL DIMENSION (IN)	20X11.4	20X11.4	20X11.4	26X12.2	26X12.2	26X17.2	26X17.2
STANDARD FILTER-1"	29.5X13.9	29.5X13.9	29.5X13.9	31.1X15.9	31.6X19.8	31.6X19.8	31.6X19.8
AC CHASSIS WEIGHT (LB)	100	102	102	137	160	160	165
CABINET WEIGHT (LB)	156	156	156	183	260	260	264

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VERTICAL STACK WATER SOURCE HEAT PUMP (VSHPW) CERTIFIED DRAWING

DWG. NO.
Submittal VS816 (Replacement)
REV. - 01

PROJECT		DATE			BY		REVISIONS	
PURCHASER		P.O. #		QTY	DATE		BY	DESCRIPTION
ARCHITECT		SHIPPING DATES						
ENGINEER								
HVAC CONTR.								
GEN. CONTR.								

UNIT SPECIFICATIONS+

ELECTRICAL DATA

TABLE 4

MODEL	VOLTAGE/HZ-PHASE	COMPRESSOR RLA	COMPRESSOR LRA
8VS81609	208-230/60-1	4.05	20
8VS81612	208-230/60-1	5.0	25.9
8VS81615	208-230/60-1	5.4	27
8VS81618	208-230/60-1	7.35	42
8VS81624	208-230/60-1	11.6	60.2
8VS81630	208-230/60-1	11.6	60.2
8VS81636	208-230/60-1	15.45	75.6

AIR FLOW CORRECTION TABLE

TABLE 5

	% OF RATED AIR FLOW	70%	75%	80%	85%	90%	95%	100%	105%
COOLING FACTORS	TOTAL CAPACITY	0.92	0.93	0.95	0.96	0.97	0.99	1.00	1.02
	SENSIBLE CAPACITY	0.80	0.83	0.87	0.90	0.93	0.97	1.00	1.04
	POWER	0.97	0.97	0.98	0.99	0.99	1.00	1.00	1.01
	HEAT REJECTION	0.94	0.95	0.96	0.97	0.98	0.99	1.00	1.01
HEATING FACTORS	HEATING CAPACITY	0.94	0.95	0.96	0.97	0.98	0.99	1.00	1.01
	POWER	1.08	1.06	1.05	1.04	1.02	1.01	1.00	0.99
	HEAT EXTRACTION	0.93	0.95	0.96	0.97	0.98	0.99	1.00	1.01

AIR TEMPERATURE CORRECTION TABLE

TABLE 6

HEATING								
EAT DB (°F)	45	50	55	60	65	70	75	80
HEATING CAPACITY FACTOR	1.11	1.09	1.06	1.04	1.02	1.00	0.98	0.95
POWER FACTOR	0.77	0.81	0.86	0.91	0.95	1.00	1.05	1.10
HEAT EXTRACTION FACTOR	1.18	1.14	1.11	1.07	1.04	1.00	0.96	0.92

TABLE 7

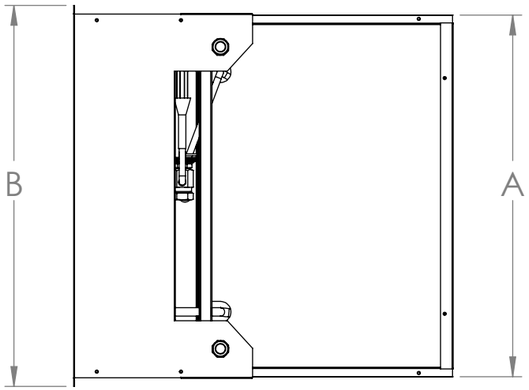
COOLING						
EAT WB (°F)		60	65	67	70	75
TOTAL CAPACITY FACTOR		0.85	0.96	1.00	1.06	1.17
SENSIBLE CAPACITY FACTOR EAT DB	70	0.85	0.62	0.52	–	–
	75	1.09	0.86	0.76	0.62	–
	80	1.33	1.09	1.00	0.86	0.63
	85	*	1.33	1.23	1.09	0.85
	90	*	*	1.48	1.34	1.10
	95	*	*	*	1.56	1.32
POWER FACTOR		1.00	1.00	1.00	1.00	1.01
HEAT REJECTION FACTOR		0.90	0.97	1.00	1.05	1.12

DB - DRY BULB AIR TEMPERATURE
WB - WET BULB AIR TEMPERATURE
EAT - ENTERING AIR TEMPERATURE
ALL TEMPERATURES ARE IN °F
* = SENSIBLE CAPACITY EQUALS TOTAL CAPACITY

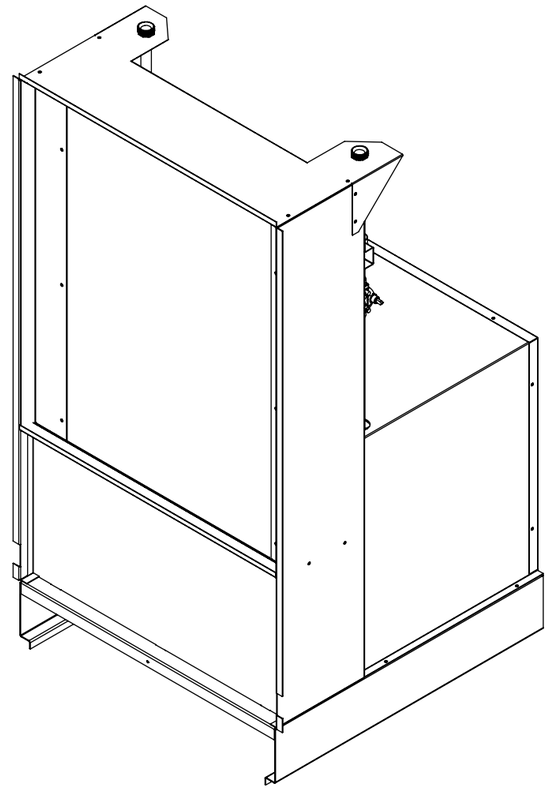
SAB-10423

REVISIONS			
REV.	DESCRIPTION	BY	DATE

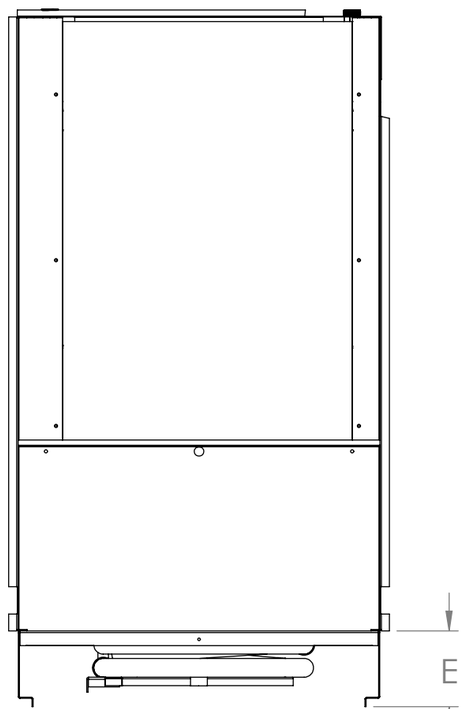
MODEL SIZE	A	B	C	D	E
09, 12, 15	14 1/2	15 1/2	15 1/2	36 3/4	4 1/4
18	17 3/8	18 1/2	18 5/8	41 3/8	4 1/2
24, 30, 36	21 1/2	22 5/8	22 1/2	41 3/8	4 1/2



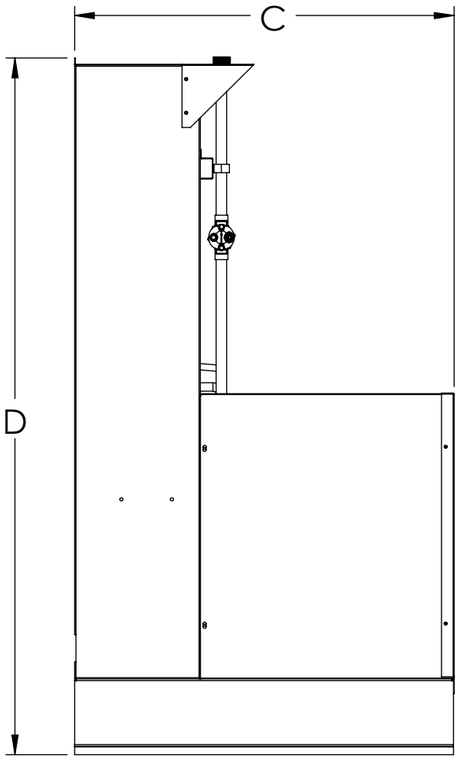
TOP VIEW



ISOMETRIC VIEW



FRONT VIEW



RIGHT VIEW

Third Angle Projection

MATERIAL:

WEIGHT (LBS): 128.41

FINISH: N/A

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/32
ANGULAR: MACH ± ° BEND ± 1°
TWO PLACE DECIMAL ± .03
THREE PLACE DECIMAL ± .015

ICE-AIR LLC.
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MOUNT VERNON, NY 10553

TITLE: CLIMATEMASTER 816 REPLACEMENT V-WSHP CHASSIS

MODEL BY: VP | DATE: 04/11/19 | DWG. NO. SAB-10423
DRAWING BY: JL | DATE: 08/13/21

SIZE B | SCALE: NONE DO NOT SCALE DRAWING | SHEET 1 OF 1 | REV D

8 7 6 5 4 3 2 1

ICE AIR LLC

VERTICAL STACK, MODEL "8VS816" SIZE 09-36
WATER SOURCE HEAT PUMP SPECIFICATIONS

General:
Furnish and install Ice Air Water Source Heat Pump A/C, as indicated on the plans with capacities and characteristics as listed in the schedule and the specifications that follow.

Vertical Stack Water Source Heat Pump A/C:
Units shall operate in range 60° to 100°F entering water. All equipment listed in this section must be rated in accordance with American Refrigeration Institute / International Standards Organization (ARI / ISO) and Environmental Testing Laboratories for United States and Canada (ETL-US-C). The units shall have ETL-US-C labels. All chassis shall be factory tested under normal operating and water flow rates.

Chassis:
The chassis, which incorporates the air coil, drain pan, compressor, and coaxial condenser coil shall be an easily installed, slide-in type for quick jobsite installation and future servicing purposes. The slide-in chassis shall have an insulated panel separating the fan compartment from the compressor compartment. Compressors are not in the air stream. The chassis base shall be fabricated from heavy gauge galvanized steel formed to match the slide-in rails of the cabinet. The chassis shall be powered by directly plugging into the original cabinet. Units shall have a factory installed 1-inch (25.4mm) thick filter bracket and throwaway type glass fiber filter.

Water connections between chassis and the cabinet shall be accomplished via a hose kit with a stainless-steel braid. Hose kit shall have brass fittings with stainless-steel ferrules. The hose kit shall be rated for 350 psi (2412 kPa) design working pressure.

Valve Package (Optional):
All chassis will have a factory installed valve package. The valve package consists of a 2-way normally closed motorized valve and 1- auto flow valve.

Refrigerant Circuit:
All units shall contain an HFC 410A sealed refrigerant circuit including a high efficiency scroll or rotary compressor designed for heat pump operation, an enhanced corrugated aluminum lanced fin and rifled copper tube refrigerant-to-air heat exchanger, reversing valve, coaxial (tube in tube) refrigerant-to-water heat exchanger, and safety controls including a high pressure switch, low pressure switch (loss of charge), water coil low temperature sensor, and air coil low temperature sensor. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service. Activation of any safety device shall prevent compressor operation via a microprocessor lockout circuit.

Hermetic compressors shall be internally sprung and externally isolated. The compressor shall have an external, dual level vibration isolation system. The compressor will be mounted on rubber grommets to a large heavy gauge compressor mounting tray plate, which is then isolated

from the cabinet base with vibration isolators for maximized vibration attenuation. Compressor shall have thermal overload protection.

Refrigerant-to-air heat exchanger shall utilize enhanced corrugated lanced aluminum fins and rifled copper tube construction. Refrigerant-to-water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design. The refrigeran-to-water heat exchanger shall be "electro-coated" with a low cure cathodic epoxy material a minimum of 0.4 mils thick (0.4 – 1.5 mils range) on all surfaces.

Controls:
The chassis controls shall function in accordance with the original control system in the cabinet. The controls shall be powered by directly plugging into the original cabinet.

a) Control type shall be specified by installer to match the original control system in the cabinet.
b) Safety components shall be included that protect the chassis from the following conditions:
    i. High pressure
    ii. Low pressure/loss of refrigerant charge
    iii. Air coil frosting
    iv. Water coil freeze