



WSV6

Water Source Heat Pump

HydroTech™

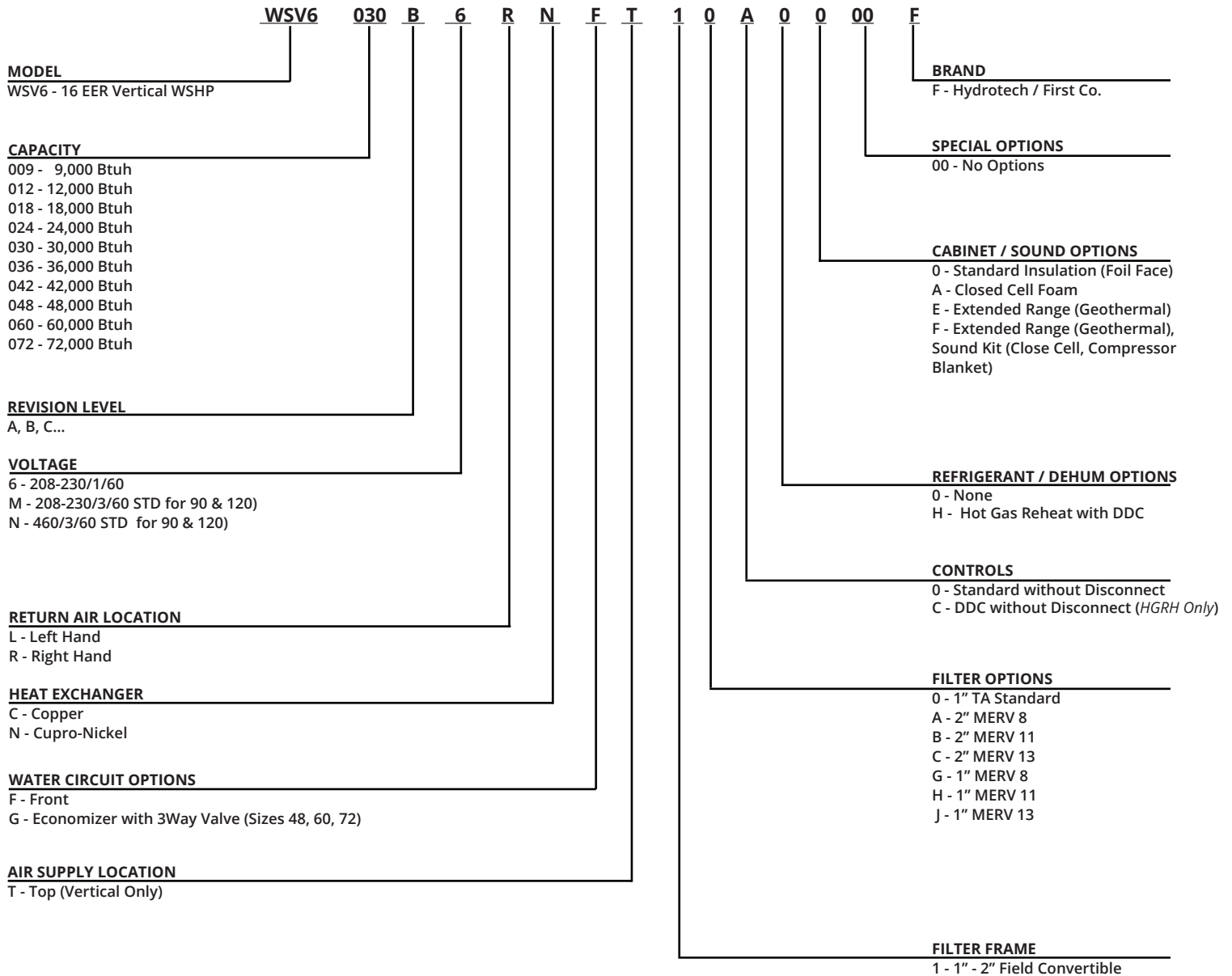
Vertical

3/4 thru 6 Tons

16 EER



NOMENCLATURE

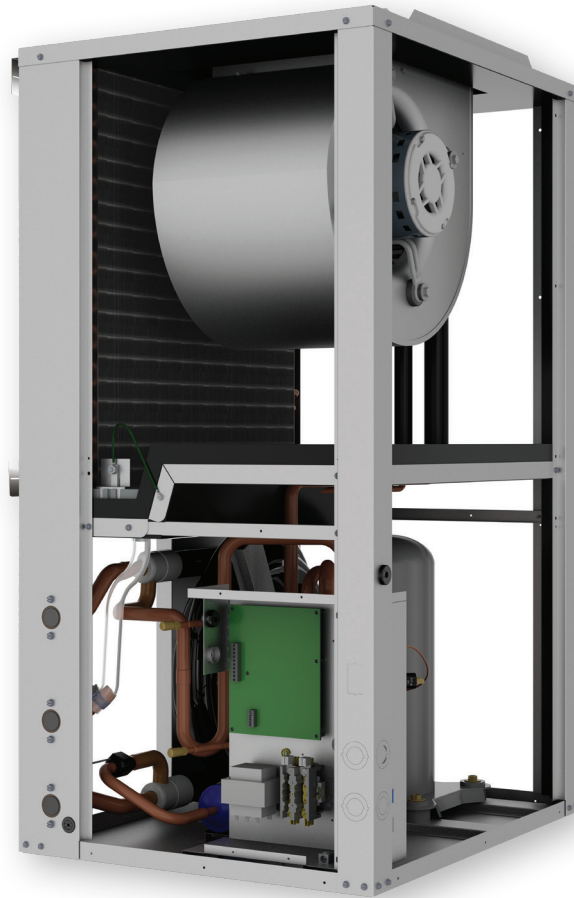


WSV6

WATER SOURCE HEAT PUMP

The Hydro-Tech includes many standard features found only in higher priced products, plus a number of unique features, including:

- **Optional Vacated Premises Control (VPC) kit with reset feature:** Ensures that the unit will operate a minimum of one or two hours per day during extended periods of unoccupancy. This option also includes an automatic reset feature. If a fault occurs, the system will shut down, but then automatically reset every 24 hours. If the same fault exists each day, the unit will lockout on the fourth day and have to be manually reset.
- **Superior insulation:** Fully insulated with 1" fiberglass insulation with FSK which is a flame retardant, vapor barrier facing. Improves quality, efficiency, and control condensation.
- **Removable discharge flange:** Provides additional installation clearance.
- **Tool-less filter rack installation:** Can be installed after the unit is in the closet, providing additional installation clearance.
- **State-of-the-art Digital Control Module**

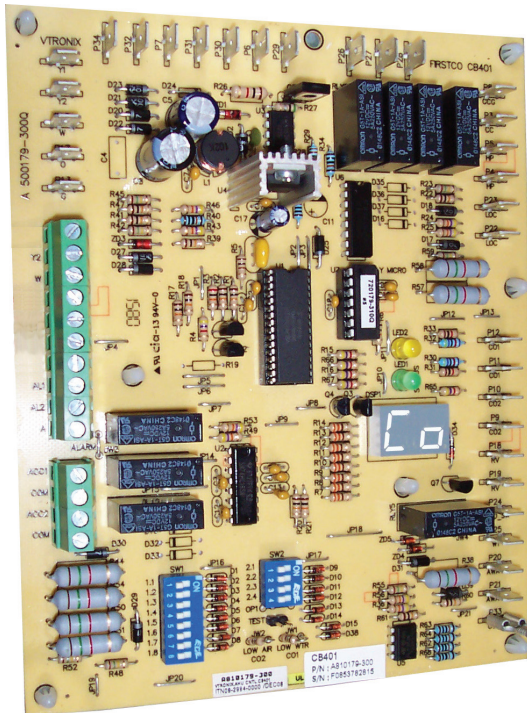


DIGITAL CONTROL MODULE

Controls unit operation and monitors all safety controls. *(Patent Pending)*

STANDARD FEATURES

- Digital Diagnostic Display - A two-digit display indicates either the current operational mode or a fault code
- Through-the-door site glass to read display
- 24V Status LED - Green light indicates 24V power to the control module
- VPC (Vacated Premises Control) - Allows the unit to operate for either 1 or 2 hours per day (total) during extended periods of unoccupancy (requires optional kit).
- Nuisance Trip Protection - Unit will attempt to start up to three times with a fault signal. If the fault continues, the unit locks out.
- Condensate Overflow Lockout
- High and Low Pressure Controls
- Water Coil Low Temperature Protection
- Over / Under Voltage Protection
- Random Re-start Timer
- Anti-short Cycle Timer
- Test Mode With LED Indicator - Speeds up control timers for service personnel
- Alarm Relay - Activated if the unit locks out
- Conformal Coating (both sides) for humidity and condensation protection



Electronic Control Module



Thermoplastic Drain Pan



DIP SWITCHES

(FIELD SELECTABLE SETTINGS):

- 5 Second Compressor Delay - Blower starts before the compressor, which helps attenuate compressor start up sound.
- 45 Second Blower-off Delay - Increases cooling efficiency.
- Dehumidification Mode - Selects low speed fan operation for increased humidity removal.
- VPC Switch - Selects either one or two hour daily operation (requires optional kit)
- Lower Water and Air Coil Temperature Cutout Options - Optional 10 degree F. cutouts for applications where water temperature is below 50 degrees F. (requires antifreeze solution).
- Two Accessory Relays - The relays can cycle with either the fan or compressor. In addition, relay number one can be configured for use with slow opening water valves (60 second pre-compressor initialization) and relay number 2 can be configured for a 30 second post fan delay.



DESCRIPTION OF OPERATION	LED Readout
NORMAL MODE	ON (Green Light)
CONTROLLER NON-FUNCTIONAL	OFF (Green Light)
TEST MODE (pins shorted momentarily)	ON (Yellow Light)
STANDBY	ST
FAN ONLY (G active)	Fo
COOL (Y1 & O active)	Co
HEAT 1st Stage (Y1 active)	H1
ACCESSORY RELAY 1	A1
ACCESSORY RELAY 2	A2
VACATED PREMISES CONTROL	Vp
FAULTY RETRY	rE & CODE #
LOCKOUT	Lo & Code #
OVER / UNDER VOLTAGE SHUTDOWN	Ou & Code #
TEMPERATURE SENSOR ERROR	SE & CODE #
TEST MODE - NO FAULT	CODE 11
TEST MODE - HP FAULT	CODE 12
TEST MODE - LP FAULT	CODE 13
TEST MODE - CO1 FAULT	CODE 14
TEST MODE - CO2 FAULT	CODE 15
TEST MODE - COND. OVERFLOW FAULT	CODE 16
TEST MODE - OVER/UNDER SHUTDOWN	CODE 17
TEST MODE - SWAPPED CO1/CO2 THERMISTORS	CODE 18
TEST MODE - TEMPERATURE SENSOR ERROR	CODE 19

LRL02

Sight Glass on Door



Optional Vacated Premises Selector Switch
(Kit# 9WS01)

ADDITIONAL STANDARD FEATURES

- 100% Factory Tested
- R-410A Refrigerant - All units operate with environmentally friendly R-410A refrigerant.
- Non-corrosive Thermoplastic Condensate Pan- Sloped for positive drainage
- High and Low pressure Service Ports
- Refrigerant Filter-drier
- Panel-mounted FPT Water Connections - No back-up wrench needed.
- Removable Panels for Service
- 50 VA Transformer
- 1" to 2" Filter Rack
- Water Coil Freeze Sensor
- Air Coil Freeze Sensor
- Condensate Overflow Sensor

OPTIONAL FEATURES

- Cupronickel Coaxial Heat Exchanger
 - Vacated Premises Control
 - E-Coated Air Coil Corrosion Protection
 - Compressor Cover: A heavy duty, insulated compressor cover that reduces unwanted compressor noise.
 - Extended Range (Geothermal)
 - Hot Gas Reheat
 - Waterside Economizer (sizes 48, 60 and 72 only)
-
-

WSV6 Series

WATER SOURCE HEAT PUMP



MODEL WSV6		Size									
		9	12	18	24	30	36	42	48	60	72
Compressor	1 Each	Rotary					Scroll				
Refrigerant Type		R410A									
Factory Charge	(oz) [kg]	36 [1.02]	42 [1.19]	39 [1.11]	43 [1.22]	50 [1.42]	67 [1.90]	80 [2.27]	76 [2.16]	100 [2.83]	101 [2.87]
Motor	Type	ECM									
	Speeds	Multiple									
	HP [kw]	1/4 [.18]	1/4 [.18]	1/3 [.24]	1/2 [.37]	1/2 [.37]	1/2 [.37]	3/4 [.56]	1 [0.75]	1 [0.75]	1 [0.75]
Blower Wheel in. [cm]	(Dia x W)	6.75 x 7 [17.15 x 17.78]		9 x 7 [22.86 x 17.78]		10 x 8 [25.4 x 20.32]			11 x 10 [27.94 x 25.4]		
COAX Volume	(US Gallons)	0.116	0.144	0.144	0.359	0.432	0.533	0.624	0.88	0.88	1.084
Water Connection FTP	in	3/4	3/4	3/4	3/4	3/4	3/4	1	1	1	1
Condensate Connection FPT	in	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Air Coil Dimension	(W x H) in [cm]	16.38 x 18.13 [41.61 x 46.05]				16.25 x 20.13 [41.28 x 51.13]	20.88 x 24.13 [53.04 x 61.29]	20.88 x 28.13 [53.04 x 71.45]		20.88 x 36.13 [53.04 x 91.77]	
Standard TA Filter 1"	(W x H) in [cm]	18 x 20 [45.72 x 50.8]				20 x 20 [50.8 x 50.8]	24 x 24 [60.96 x 60.96]	24 x 30 [60.96 x 72.2]		18 x 24 [45.72 x 60.96] 20 x 24 [50.8 x 60.96]	
Filter	Qty	1	1	1	1	1	1	1	1	2	2
Operating Weight	lbs [kg]	154 [70]	156 [71]	185 [84]	198 [90]	211 [96]	244 [111]	285 [129]	305 [138]	350 [159]	355 [161]
Shipping Weight		164 [74]	166 [75]	195 [88]	208 [94]	221 [100]	254 [115]	295 [134]	315 [143]	360 [163]	365 [166]

BLOWER DATA

MODEL NUMBER	FAN SPEED	RATED AIR-FLOW	CFM vs EXTERNAL STATIC PRESSURE (inches of water)									
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
WSV6009	WHITE	330	380	360	330	300	270	250	---	---	---	---
	VIOLET		360	330	300	260	230	---	---	---	---	
	GRAY		310	290	270	250	---	---	---	---	---	
WSV6012	WHITE	430	470	450	430	400	370	340	310	---	---	---
	VIOLET		440	410	380	350	320	300	---	---	---	
	GRAY		380	360	340	320	300	---	---	---	---	
WSV6018	T3	600	730	700	660	630	590	550	520	---	---	---
	T2		610	580	540	500	460	---	---	---	---	
	T1		540	510	480	450	---	---	---	---	---	
WSV6024	T3	800	900	870	840	810	780	750	720	---	---	---
	T2		760	740	710	650	610	---	---	---	---	
	T1		700	670	630	600	---	---	---	---	---	
WSV6030	T3	925	1,160	1,130	1,100	1,070	1,040	1,010	980	950	930	900
	T2		1,040	1,000	980	940	900	870	840	810	---	---
	T1		940	910	870	830	800	760	---	---	---	---
WSV6036	T3	1150	1,380	1,350	1,320	1,290	1,270	1,240	1,210	1,180	1,150	1,120
	T2		1,130	1,090	1,060	1,030	1,000	970	---	---	---	---
	T1		1,060	1,030	990	960	---	---	---	---	---	---
WSV6042	T3	1330	1,420	1,400	1,370	1,340	1,320	1,290	1,260	1,230	1,200	1,170
	T2		1,330	1,300	1,270	1,240	1,220	1,190	1,160	1,130	---	---
	T1		1,190	1,160	1,130	1,100	---	---	---	---	---	---
WSV6048	T3	1500	1,660	1,630	1,620	1,580	1,560	1,520	1,490	1,460	1,430	1,400
	T2		1,550	1,530	1,510	1,480	1,450	1,420	1,390	1,360	1,330	1,300
	T1		1,370	1,350	1,330	1,290	1,260	---	---	---	---	---
WSV6048 Economizer	T3	1500	1,660	1,630	1,620	1,580	1,560	1,520	1,490	1,460	1,430	1,400
	T2		1,550	1,530	1,510	1,480	1,450	1,420	1,390	1,360	1,330	1,300
	T1		1,370	1,350	1,330	1,290	1,260	---	---	---	---	---
WSV6060	T3	1875	2,290	2,250	2,210	2,160	2,120	2,070	2,020	1,970	1,910	1,840
	T2		1,920	1,880	1,840	1,790	1,750	1,700	1,650	1,600	1,540	1,470
	T1		1,820	1,780	1,730	1,690	1,640	1,590	1,550	1,490	1,440	1,370
WSV6060 Economizer	T3	1875	2,290	2,250	2,210	2,160	2,120	2,070	2,020	1,970	1,910	1,840
	T2		1,920	1,880	1,840	1,790	1,750	1,700	1,650	1,600	1,540	1,470
	T1		1,820	1,780	1,730	1,690	1,640	1,590	1,550	1,490	1,440	1,370
WSV6072	T3	1900	2,290	2,250	2,210	2,160	2,120	2,070	2,020	1,970	1,940	1,910
	T2		2,140	2,100	2,060	2,010	1,970	1,920	1,870	1,820	1,760	1,690
	T1		1,990	1,950	1,910	1,860	1,820	1,770	1,720	1,670	1,610	1,540
WSV6072 Economizer	T3	1900	2,290	2,250	2,210	2,160	2,120	2,070	2,020	1,970	1,940	1,910
	T2		2,140	2,100	2,060	2,010	1,970	1,920	1,870	1,820	1,760	1,690
	T1		1,990	1,950	1,910	1,860	1,820	1,770	1,720	1,670	1,610	1,540

1 Dipswitch 1.4 set to ON activates Dehumidification Mode, OFF will operate in Normal Mode

2 Factory Setting

NOTE:

Airflow data shown is with a dry coil at 70°F DB EAT and with standard 1" filter

Data is subject to change. Please verify current information on www.firstco.com.

ELECTRICAL DATA

MODEL NUMBER	VOLTAGE	COMPRESSOR		BLOWER		MIN. CIRCUIT AMPACITY	MAX. CIRCUIT PROTECTION
		RLA	LRA	FLA	HP		
WSV6009	208/230V-1-60	3.7	22	2.3	1/4	7	15
WSV6012	208/230V-1-60	4.7	25	2.3	1/4	9	15
WSV6018	208/230V-1-60	9	56.3	2.8	1/3	15	20
WSV6024	208/230V-1-60	10.9	62.9	4.6	1/2	19	25
	208/230V-3-60	7.1	55.4	4.6	1/2	14	20
	460V-3-60	3.5	28	2.1	1/2	7	15
WSV6030	208/230V-1-60	15.4	82.6	4.6	1/2	24	35
	208/230V-3-60	10	71	4.6	1/2	18	25
	460V-3-60	4.7	38	2.1	1/2	8	15
WSV6036	208/230V-1-60	15.4	83.9	4.6	1/2	24	35
	208/230V-3-60	10.4	73	4.6	1/2	18	25
	460V-3-60	5.8	38	2.1	1/2	10	15
WSV6042	208/230V-1-60	19.2	123.9	6.3	3/4	31	45
	208/230V-3-60	13.5	88	6.3	3/4	24	35
	460V-3-60	6	44	3.2	3/4	11	15
WSV6048	208/230V-1-60	19.6	130	7.6	1	33	50
	208/230V-3-60	13.7	83.1	7.6	1	25	35
	460V-3-60	6.2	41	4	1	12	15
WSV6060	208/230V-1-60	24.4	144.2	7.6	1	39	60
	208/230V-3-60	16	110	7.6	1	28	40
	460V-3-60	7.8	52	4	1	14	20
WSV6072	208/230V-1-60	30.8	178	7.6	1	47	70
	208/230V-3-60	19.6	136	7.6	1	33	50
	460V-3-60	8.2	66.1	4	1	15	20

Data is subject to change. Please verify current information on www.firstco.com.

WATER FLOW DATA

WATER FLOW PRESSURE DROP TABLE								
WSV6009*	Flow Rate (GPM)	1.0	2.0	3.0	4.0	5.0	6.0	7.0
	Pressure Drop (PSI)	0.2	0.9	1.9	3.0	4.5	6.3	8.2
WSV6012*	Flow Rate (GPM)	2.0	3.0	4.0	5.0	6.0	7.0	8.0
	Pressure Drop (PSI)	1.0	2.0	3.3	4.8	6.6	8.7	10.9
WSV6018*	Flow Rate (GPM)	2.0	3.0	4.0	5.0	6.0	7.0	8.0
	Pressure Drop (PSI)	1.0	2.0	3.3	4.8	6.6	8.7	10.9
WSV6024*	Flow Rate (GPM)	5.0	6.0	7.0	8.0	9.0	10.0	11.0
	Pressure Drop (PSI)	1.4	2.0	2.6	3.3	4.1	5.0	6.0
WSV6030*	Flow Rate (GPM)	6.0	7.0	8.0	9.0	10.0	11.0	12.0
	Pressure Drop (PSI)	2.3	3.0	3.9	4.8	5.8	6.9	8.0
WSV6036*	Flow Rate (GPM)	6.0	8.0	10.0	12.0	14.0	16.0	18.0
	Pressure Drop (PSI)	1.1	1.9	2.8	4.0	5.2	6.7	8.2
WSV6042*	Flow Rate (GPM)	7.0	9.0	11.0	13.0	15.0	17.0	19.0
	Pressure Drop (PSI)	1.4	2.1	3.0	4.1	5.2	6.6	8.0
WSV6048*	Flow Rate (GPM)	12.0	14.0	16.0	18.0	20.0	---	---
	Pressure Drop (PSI)	2.6	3.5	4.7	5.9	7.4	---	---
WSV6048* Economizer	Flow Rate (GPM)	12.0	14.0	16.0	18.0	20.0	---	---
	Pressure Drop (PSI)	6.5	8.8	11.8	14.8	18.5	---	---
WSV6060*	Flow Rate (GPM)	12.0	14.0	16.0	18.0	20.0	22.0	24.0
	Pressure Drop (PSI)	2.6	3.3	4.2	5.1	6.2	7.3	8.5
WSV6060* Economizer	Flow Rate (GPM)	12.0	14.0	16.0	18.0	20.0	22.0	24.0
	Pressure Drop (PSI)	6.0	8.2	10.6	13.4	16.5	19.9	23.7
WSV6072*	Flow Rate (GPM)	12.0	14.0	16.0	18.0	20.0	22.0	24.0
	Pressure Drop (PSI)	2.6	3.3	4.2	5.1	6.2	7.3	8.5
WSV6072* Economizer	Flow Rate (GPM)	12.0	14.0	16.0	18.0	20.0	22.0	24.0
	Pressure Drop (PSI)	6.0	8.2	10.6	13.4	16.5	19.9	23.7

Data is subject to change. Please verify current information on www.firstco.com.

PERFORMANCE DATA

MODEL NUMBER	NOM. CFM	GPM	WATER LOOP (Entering Water Temperature)			
			86° Deg. F		68° Deg. F	
			COOLING	EER	HEATING	COP
WSV6009	340	2.3	9,200	16.0	10,800	4.8
WSV6012	440	3.0	11,500	16.0	13,200	4.7
WSV6018	625	4.5	17,800	16.0	19,500	4.6
WSV6024	800	6.0	24,000	16.0	29,500	5.0
WSV6030	925	7.5	28,000	16.0	32,600	5.2
WSV6036	1150	9.0	35,000	16.0	43,500	5.2
WSV6042	1330	10.5	42,000	16.0	45,000	5.0
WSV6048	1500	12.0	48,000	16.0	48,400	4.7
WSV6060	1875	15.0	60,000	16.0	67,000	5.3
WSV6072	1900	18.0	70,000	15.5	75,000	4.7

MODEL NUMBER	NOM. CFM	GPM	GROUND WATER (Entering Water Temperature)				GROUND LOOP (Entering Water Temperature)			
			59° Deg. F		50° Deg F		77° Deg. F		32° Deg F	
			COOLING	EER	HEATING	COP	COOLING	EER	HEATING	COP
WSV6009	340	2.3	11,000	26.0	9,000	4.3	10,000	19.0	7,500	3.7
WSV6012	440	3.0	13,500	26.0	11,000	4.1	12,500	19.0	9,000	3.6
WSV6018	625	4.5	20,000	21.1	16,500	4.1	18,000	17.2	13,500	3.6
WSV6024	800	6.0	24,000	23.0	22,000	4.1	24,000	18.0	17,500	3.6
WSV6030	925	7.5	35,500	22.5	30,000	4.1	33,500	17.5	25,000	3.6
WSV6036	1150	9.0	37,000	22.0	35,000	4.1	37,000	18.0	28,000	3.6
WSV6042	1330	10.5	44,000	24.0	38,500	4.4	42,000	18.5	30,000	3.6
WSV6048	1500	12.0	55,500	23.0	47,000	4.3	51,000	17.7	37,000	3.6
WSV6060	1875	15.0	68,000	23.8	53,500	4.3	63,000	18.0	42,500	3.6
WSV6072	1900	18.0	77,500	22.6	66,000	4.1	73,500	18.0	52,000	3.6

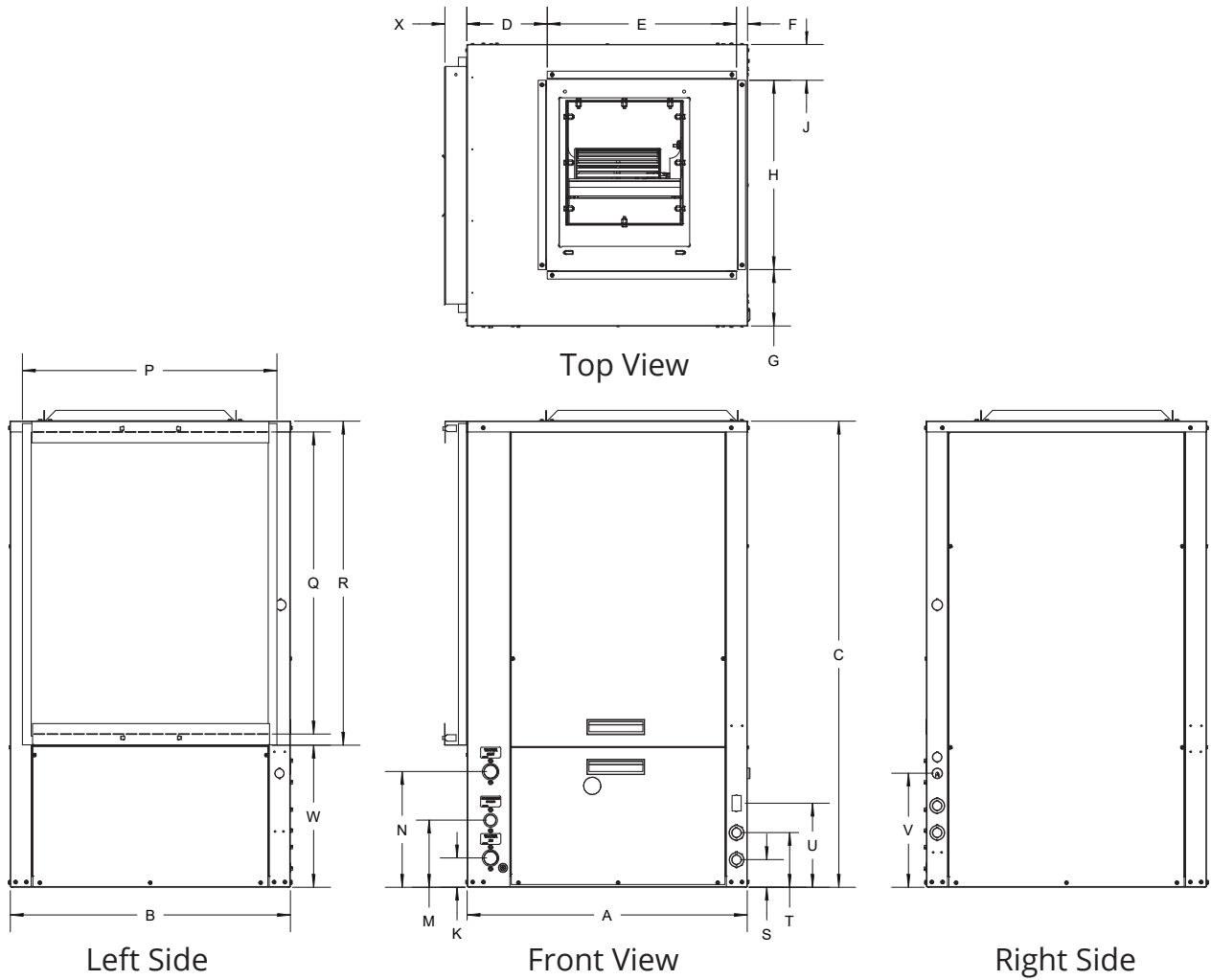
Cooling capacities based on 80.6°F DB, 66.2°F WB entering air temperature
 Heating capacities based on 68°F DB, 59°F WB entering air temperature
 All ratings based upon operation at lower voltage of dual voltage rated models

NOTE:

Ground loop requires extended range temperature package

Data is subject to change. Please verify current information on www.firstco.com.

DIMENSIONS



DIMENSIONS																					
MODEL NUMBER	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	S	T	U	V	W	X
	Width	Depth	Height		Duct			Duct		Water In	Condensate Drain	Water Out	R/A Duct Flange Width	R/A Duct Flange Height	Filter Rack Height						
WSV6009	21.50	21.50	36.25	9.50	7.75	4.25	4.50	12.75	4.25	2.75	7.25	13.25	17.50	16.00	18.00	4.25	67.5	10.50	15.00	18.25	2.00
WSV6012	21.50	21.50	36.25	9.50	7.75	4.25	4.50	12.75	4.25	2.75	7.25	13.25	17.50	16.00	18.00	4.25	67.5	10.50	15.00	18.25	2.00
WSV6018	21.50	21.50	36.25	5.50	13.75	2.25	3.63	16.25	1.75	2.75	7.25	13.25	17.50	16.00	18.00	4.25	67.5	10.50	15.00	18.25	2.00
WSV6024	21.20	21.50	36.25	5.50	13.75	2.25	3.63	16.25	1.75	2.75	7.25	12.75	17.50	16.00	18.00	4.25	67.5	10.50	15.00	18.25	2.00
WSV6030	21.50	21.50	39.25	5.50	13.75	2.25	3.63	16.25	1.75	2.75	7.25	12.75	17.50	18.00	20.00	4.25	67.5	10.50	15.00	19.00	2.00
WSV6036	21.50	26.00	43.25	5.00	15.75	0.75	5.00	16.25	4.75	2.75	7.25	12.75	22.00	22.00	24.00	4.25	67.5	10.50	15.00	19.00	2.00
WSV6042	26.00	26.00	43.25	7.25	17.75	1.00	5.00	17.75	3.25	2.75	6.25	10.75 LH 16.75 RH	22.00	28.00	30.00	2.50	5.00	7.75	10.50	13.25	2.00
WSV6048	26.00	26.00	43.25	7.25	17.75	1.00	5.00	17.75	3.25	2.75	6.25	10.75	22.00	28.00	30.00	2.50	5.00	7.75	10.50	13.25	2.00
WSV6060	26.00	26.00	51.25	5.20	19.00	1.75	4.75	19.00	3.35	2.75	6.25	10.75	22.00	36.00	38.00	2.50	5.00	7.75	10.50	13.25	2.00
WSV6072	26.00	26.00	51.25	5.20	19.00	1.75	4.75	19.00	3.35	2.75	6.25	10.75	22.00	36.00	38.00	2.50	5.00	7.75	10.50	13.25	2.00

NOTE:

1. Right Hand and Left Hand return air is determined by facing the front of the unit.

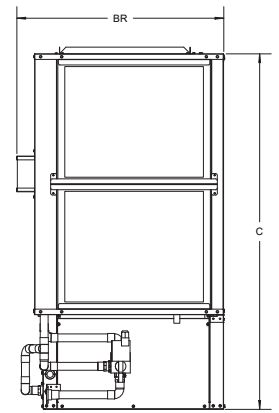
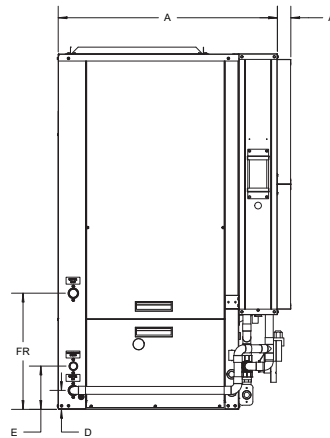
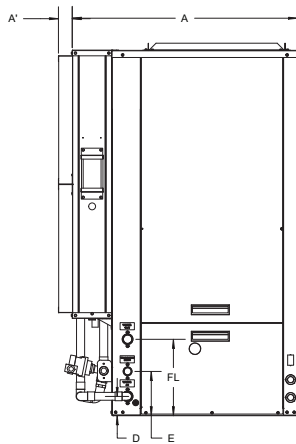
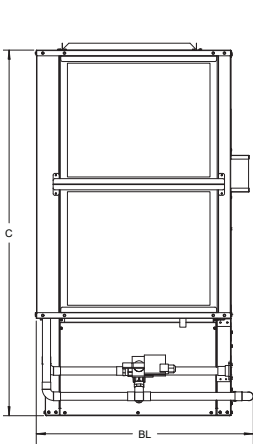
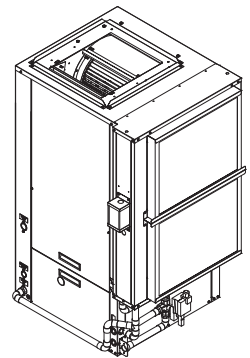
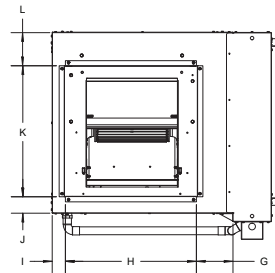
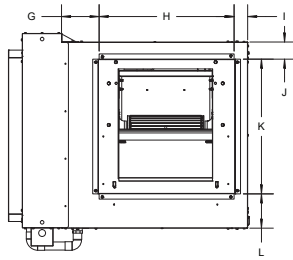
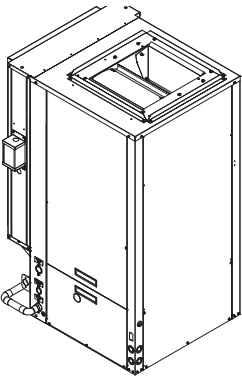
WSV6

WATER SOURCE HEAT PUMP

Connections, Filters and Weights				
MODEL NUMBER	Water Connections	Condensate Connections	Nominal Filter Size H x W x QTY	Ship Weight
WSV6009	3/4" F.P.T.	3/4" F.P.T.	18 X 20 X 1	164
WSV6012	3/4" F.P.T.	3/4" F.P.T.	18 X 20 X 1	166
WSV6018	3/4" F.P.T.	3/4" F.P.T.	18 X 20 X 1	195
WSV6024	3/4" F.P.T.	3/4" F.P.T.	18 X 20 X 1	208
WSV6030	3/4" F.P.T.	3/4" F.P.T.	20 X 20 X 1	221
WSV6036	3/4" F.P.T.	3/4" F.P.T.	24 X 24 X 1	254
WSV6042	1" F.P.T.	3/4" F.P.T.	24 X 30 X 1	295
WSV6048	1" F.P.T.	3/4" F.P.T.	24 X 30 X 1	315
WSV6048 Economizer	1" F.P.T.	3/4" F.P.T.	14 X 24 X 2	340
WSV6060	1" F.P.T.	3/4" F.P.T.	18 x 24 x 1 20 x 24 x 1	360
WSV6060 Economizer			16 x 24 x 2	400
WSV6072	1" F.P.T.	3/4" F.P.T.	18 x 24 x 1 20 x 24 x 1	365
WSV6072 Economizer			16 x 24 x 2	405

WSV6

Economizer Unit



Left Hand Unit

Right Hand Unit

MODEL NUMBER	DIMENSIONS														
	A	A'	B		C	D	E	F		G	H	I	J	K	L
		2"	L	R				L	R						
WSV6048 Economizer	31.59	1.91	30.39	29.82	43.16	2.72	6.22	10.72	16.72	5.25	18.88	1.92	2.38	18.88	4.77
WSV6060 Economizer	31.59	1.91	30.39	29.82	51.20	2.72	6.22	10.72	16.72	5.25	18.88	1.92	2.38	18.88	4.77
WSV6072 Economizer	31.59	1.91	30.39	29.82	51.20	2.72	6.22	10.72	16.72	5.25	18.88	1.92	2.38	18.88	4.77

WSV6

Economizer Unit

ECONOMIZER PERFORMANCE DATA									
MODEL NUMBER	GPM	CFM	Pressure Drop PSI	Coil PD IWC	86° Deg. F / 68° Deg. F				
					Total MBH	Sensible MBH	Leaving Dry Bulb	Leaving Wet Bulb	Temperature Rise
WSV6048 Economizer	6	1200	2.0	0.18	34061	27638	59.1	58.1	11.2
		1400		0.22	36080	30473	60.3	59	11.9
		1600		0.28	37882	33030	61.3	59.7	12.4
	9	1200	3.8	0.18	39967	30172	57.2	56.4	8.8
		1400		0.23	42413	33349	58.4	57.5	9.3
		1600		0.29	44758	36327	59.4	58.3	9.8
	12	1200	6.6	0.19	43850	31874	55.9	55.3	7.2
		1400		0.24	46978	35280	57.2	56.4	7.7
		1600		0.30	46978	38398	58.3	57.2	8.1
WSV6060 Economizer	7.5	1500	2.4	0.15	42871	34689	59	58.1	11.3
		1750		0.19	45405	38295	60.2	58.9	11.9
		2000		0.23	47684	41532	61.2	59.6	12.5
	11.3	1500	5.4	0.16	50209	37870	57.1	56.4	8.8
		1750		0.20	53423	41802	58.4	57.4	9.4
		2000		0.23	56192	45616	59.3	58.2	9.9
	15	1500	9.3	0.16	54969	39966	55.9	55.3	7.2
		1750		0.20	59057	44264	57.1	56.3	7.8
		2000		0.24	62306	48209	58.2	57.2	8.2
WSV6072 Economizer	9	1800	3.4	0.20	49584	40625	59.5	58.4	10.9
		2100		0.25	52429	44762	60.7	59.3	11.5
		2400		0.31	55029	48472	61.7	59.9	12.1
	13.5	1800	7.6	0.21	57767	44222	57.7	56.9	8.4
		2100		0.26	61220	48819	58.9	57.9	8.9
		2400		0.32	64425	53112	59.9	58.6	9.4
	18	1800	13.4	0.21	62879	46489	56.6	55.9	6.9
		2100		0.27	67219	51408	57.8	56.9	7.4
		2400		0.32	70664	55982	58.9	57.8	7.7

NOTE - Cooling capacities based on 45°F entering water temperature.

Data is subject to change. Please verify current information on www.firstco.com.

SPECIFICATION GUIDE

GENERAL

Equipment is completely assembled, piped, internally wired, fully charged with R410A refrigerant and factory tested. Filters, thermostat field interfaces, and all safety controls are factory installed.

Units shall be capable of operating over entering fluid temperature ranges of 50°- 110° in cooling mode and 50°- 90° in heating mode in standard configuration.

UNIT CONSTRUCTION

CONFIGURATIONS

Vertical units are configurable in the following arrangements: left return/top supply, right return/top supply. For all systems, water, refrigerant and electrical connections are accessible from the front service access panel.

CABINET CONSTRUCTION

Units are built with a corner post and base design using a minimum of 18 gauge galvanized steel on any weight bearing component. Corner posts and panels are designed to allow for service access to all internal components. Structural integrity of the cabinets is unaffected by the removal of any or all of the access panels.

Air handling section interior surfaces are lined with 1" thick foil faced insulation. The insulation is placed such that there is no exposed section of the fiberglass fibers into the airstream.

The condensing section interior surfaces are lined with 1" of fiberglass insulation on the condensing section base pan, mid pan, and all lower access panels.

SERVICE CONNECTIONS

Water connections are accessible from the front of the unit. Water connections shall be made through factory installed brass FPT fittings which will be flush to the water panel. The water fittings shall be rigidly attached to the corner posts to forgo the use of a backup wrench when connecting the supply water.

SUPPLY AIR CONNECTIONS

Vertical systems have 1" integral supply duct collars to allow for connection of the supply duct. All duct collars are installed on the unit from the factory.

DRAIN PAN

All units use a thermoplastic drain pan to increase corrosion resistance. The drain pan will be internally two-way sloped, with the drain port located near the front of the unit. The unit comes standard with an electronic condensate overflow sensor attached to the edge of the drain pan.

REFRIGERATION CIRCUIT

GENERAL

All systems use R410A refrigerant. All units have factory charged refrigeration circuits, each with its own compressor, reversing valve, bi-flow TXV, coaxial heat exchanger and finned tube refrigerant to air heat exchanger. Each circuit includes a high pressure switch, low pressure switch, and heat exchanger freeze sensors. The circuits each have a high-side and low-side Schrader valve to allow for service access to the refrigeration systems. All service ports are accessible from the front of the unit.

COMPRESSOR

All systems use a high efficiency compressor. The scroll compressor is attached to a 12 gauge double-isolated compressor mounting plate to dampen vibration throughout the system.

For additional sound attenuation, an optional sound package is available which offers a compressor blanket.

COAXIAL HEAT EXCHANGER

The systems use one high efficiency coaxial heat exchanger. The coaxial heat exchanger is designed for working refrigerant pressures up to 600psi and working water pressures up to 400psi. The heat exchanger is coated in an epoxy resin to protect against corrosion.

Optional cupro-nickel coaxial heat exchangers are offered to provide additional corrosion resistance in certain hard water and open loop applications.

SPECIFICATION GUIDE (Cont.)

REVERSING VALVE

A system reversing valve (4-way valve) is included with all heat pump systems. The valve is piped to be energized in cooling mode to provide heat if a valve failure were to occur. Once the valve is energized in cooling mode, it will remain energized as long as the "O" call is provided to the unit control board.

THERMOSTATIC EXPANSION VALVE

Each independent refrigeration circuit has its own balanced port, externally equalized bi-flow thermostatic expansion valve. The thermostatic expansion valve has sweat connections on the inlet/outlet and feature a screw on equalizer port connection.

EVAPORATOR COIL

Internally finned, 3/8-inch copper tubes mechanically bonded to a configured aluminum finned plate is standard. Coils are leak tested at the factory to ensure the pressure integrity. The coils are leak tested to 450 psig and pressure tested to 650 psig. The tubes are completely evacuated of air and correctly charged with proper volume of refrigerant prior to shipment. The refrigerant coil distributor assembly is of orifice style with round copper distributor tubes. The tubes are sized consistently with the capacity of the coil. Suction header is fabricated from rounded copper pipe.

REFRIGERANT OPTIONS

The reheat coil circuit will be controlled via the "H" terminal, which must be wired to an external humidistat to provide dehumidification call to enable hot gas reheat mode. The HGRH circuit provide two stages of dehumidification based on cooling demand. In full load, the 3-way valve will bypass all refrigerant flow into the reheat coil. In part load, the 3 way valve diverts refrigerant flow into both the coaxial heat exchanger and reheat coil to reduce the amount of heat added back into the air stream. When the call for dehumidification is removed, both the 3-way valve and 2 way solenoid valve will close to divert all refrigerant flow through the coaxial coil.

ELECTRICAL AND CONTROLS

VPC (Vacated Premises Control) - Allows the unit to operate for either 1 or 2 hours a day (total) during extended periods of un-occupancy (requires optional kit).

Nuisance Trip Protection - Unit will attempt to start up to three times with a fault signal. If the fault continues, the unit locks out.

Dip Switches (field selectable settings):

- 5 Second Compressor Delay- Blower starts before the compressor, which helps attenuate compressor start up sound.
- 45 Second Blower Off Delay - Increases cooling efficiency.
- VPC Switch - Selects either one or two hour daily operation (requires optional kit).
- Lower Water and Air Cil Temperature Cutout Options - Optional 10°F cutouts for applications where water temperature is below 50°F (requires antifreeze solution).
 - Two Accessory Relays - The relays can cycle with either the fan or compressor. In addition, relay number one can be configured for use with a slow opening water valves (60 second pre-compressor initialization) and relay number two can be configured for a 30 second post fan delay.

GENERAL

All units have a control box mounted in the condensing section compartment which houses all necessary electrical components for unit operation. This control box serves as the location for wiring of the high voltage and low voltage circuits for unit operation.

The unit is controlled via 24V low voltage terminals, which connects to an external thermostat or controller which will control the heating and cooling provided by the unit.

The electrical control box contains the following components.

1. Compressor Contactors
2. Blower motor contactors
3. Control Board
4. Low Voltage Wiring Connections
5. High Voltage terminal block
6. 24V Transformer for low voltage control
7. Phase monitor
8. High Voltage Disconnect Switch
9. Ground Connection

SPECIFICATION GUIDE (Cont.)

WATER SOURCE CONTROL MODULE

All units will come standard with a WSCM electromechanical module that will control unit operation and contain safety features to protect the compressors, coaxial heat exchangers and fin-tube heat exchangers. The board will contain the following features:

1. Single cooling and Single heating control modes for optimal temperature and
2. Anti-short cycle protection
3. Random Start
4. High and Low Pressure Safeties
5. Water Coil Freeze Protection
6. Air-coil Freeze protection
7. Over/under voltage protection
8. Fault Retry
9. Lockout with soft and hard reset
10. Condensate overflow sensor
11. Diagnostic LED display
12. Test Mode
13. Alarm Relay
14. Accessory Relays
15. Option Delays

In keeping with its policy of continuous progress and product improvement, First Co. reserves the right to make changes without notice.

CATALOG NO. WSV61020 (REPLACES WSV6621)



FIRST CO.
P.O. Box 270969 - Dallas, Texas 75227
Ph. (214) 388-5751 | Fax (214) 388-2255

MAY 2024