



50R-3SB

**50RHR, 50RVR, 50RHS, 50RVS
HORIZONTAL AND VERTICAL
AQUAZONE™ WATER SOURCE
HEAT PUMPS**



1/2 to 6 NOMINAL TONS

- PERFORMANCE DATA**
- DIMENSION PRINTS**



Date:	Supersedes:	50RHR,50RVR,50RHS,50RVS AQUAZONE™ WATER SOURCE HEAT PUMPS	50RHR,50RVR, 50RHS,50RVS	Rev: -3SB
JOB NAME:		LOCATION:		
BUYER:		BUYER P.O. #	CARRIER #	
UNIT NUMBER:		MODEL NUMBER:		
PERFORMANCE DATA CERTIFIED BY:				DATE:
   DESCRIPTION Carrier's Aquazone single-packaged horizontal and vertical water source heat pumps are available in standard and high efficiency configurations. Carrier provides the optimum balance between maintaining occupant comfort conditions, high product quality, low energy utilization, and a flexible water source heat pump design that is user friendly to both system designers and service personnel. Carrier's horizontal and vertical water source heat pumps are designed for quality and high performance over a lifetime of operation. Standard efficiency models offer cooling EER's to 13.3 and heating COP's to 4.6. High efficiency models offer cooling EER's to 16.0 and heating COP's to 5.3. All efficiencies stated are in accordance with standard conditions under ISO (International Organization for Standardization) Standard 13256-1 and provide among the highest ratings in the industry, exceeding ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) 90.1 Energy Standards. All units are manufactured to meet extensive quality control protocol from start to finish through an automated control system, which provides continuous monitoring of each unit and performs quality control checks as equipment progresses through the production process. STANDARD UNIT FEATURES • Corrosion protected, heavy gage galvanized sheet metal lined with 1/2 in. thick, 1 1/2 lb. acoustic type insulation. • Compressor isolating springs are specially selected for each compressor size. • Permanent split capacitor (PSC) three-speed blowers • Blower motors operate at lower temperatures • Sealed refrigerant circuit provided with a standard thermostatic expansion valve (TXV) include a rotary, reciprocating, or scroll compressor. • Reversing valve (4-way valve) • Water-to-refrigerant coaxial (tube in tube) coil • Enhanced aluminum fin/rifled copper tube air-to-refrigerant heat exchanger coil • Fan motor insulation and compressor springs for sound isolation • Low speed blowers are utilized for quiet operation through reduced outlet air velocities • Four airflow configurations for horizontal units • Horizontal units are field convertible from left or right discharge to back discharge • Three airflow patterns for vertical units with right or left return • Extended water temperature range between 20 F and 110 F • Water flow rates as low as 1.5 gpm per ton • High-pressure switch • Low-pressure sensor to detect loss of refrigerant • Low air temperature sensor to safeguard against freezing • Water loop temperature monitoring • Voltage protection • Water coil freeze protection • Standard electronic condensate overflow shutdown • All units are pre-wired and factory charged with refrigerant • Horizontal units are provided with factory-installed hanger isolation brackets. • Vertical units are provided with an internally-trapped condensate drain to reduce labor associated with installing an external trap for each unit. • Water connections (FPT) and condensate drains (FPT) are anchored securely to the unit cabinet. • Complete Plus C solid-state control system provides control of unit compressor, reversing valve, fan, safety features, and troubleshooting fault indication features.				

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE

PERFORMANCE DATA

UNIT

Operating Weight _____ lbs
Shipping Weight _____ lbs

COOLING

Total Capacity _____ Btuh
Sensible Capacity _____ Btuh
Unit CFM _____
Total Heat of Rejection _____ Btuh
Entering Water Temperature _____ °F
GPM _____
Water Pressure Drop _____ ft wg
Unit Power Input _____ kW

HEATING

Total Capacity _____ Btuh
Unit CFM _____
Total Heat of Absorption _____ Btuh
Entering Water Temperature _____ °F
GPM _____
Water Pressure Drop _____ ft wg
Unit Power Input _____ kW

ELECTRICAL DATA

Power Supply to Unit _____ Volts _____ Phase _____ Hz
Minimum Circuit Amps _____ Maximum Fuse Amps _____

COMPLETE C CONTROL FEATURES

- Anti-short cycle timer
- Random start delay
- Condensate overflow protection
- High and low pressure refrigerant protection
- High and low voltage protection
- Automatic intelligent reset
- Accessory output
- Performance monitor (PM)
- Water coil freeze protection
- Air coil freeze protection
- Service Test mode with LED
- Alarm relay setting

FACTORY-INSTALLED OPTIONS

- ☐ Cupronickel Heat Exchangers
- ☐ High Temperature Water Switch
- ☐ Sound Attenuation Package (Mute Package)
- ☐ Insulated Water Circuit
- ☐ High Static Blower
- ☐ Enhanced DXM Control System

FIELD-INSTALLED ACCESSORIES

- ☐ Hose Kit Assembly
- ☐ Ball Valves (brass body)
- ☐ Y Strainers (bronze body)
- ☐ Solenoid Valves (brass body)
- ☐ Thermostats (programmable and non-programmable)
- ☐ Loop Controller
- ☐ Filter Rack (2 in.)
- ☐ Carrier Comfort Network (CCN) Controller
- ☐ Fire-Rated Hoses

DIMENSION PRINT

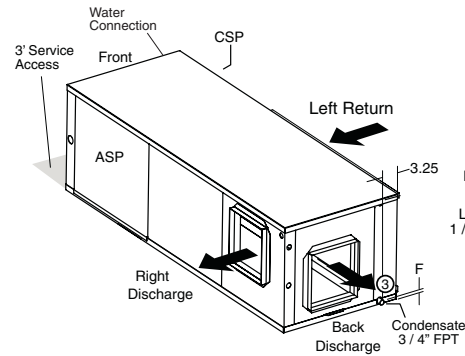
50RHR006-060 UNITS

50RHR UNITS	OVERALL CABINET			WATER CONNECTIONS				ELECTRICAL KNOCKOUTS (in.)			DISCHARGE CONNECTION Duct Flange Installed (±0.10 in.)						RETURN CONNECTION Using Return Air Opening			
				1	2	3	Loop Water FPT	G 1/2 conduit	H 1/2 conduit	I 3/4 conduit										
	A Width	B Depth	C Height	D In	E Out	F Condensate		Low Voltage	Ext Pump	Power Supply	J	K	L Supply Height	M Supply Depth	N	O	P Return Depth	Q Return Height	R	S
006-012	in. 22.4 56.8	43.1 109.5	11.3 28.7	2.4 6.1	5.4 13.7	0.6 1.5	1/2	3.5 8.9	5.5 14.0	8.2 20.8	5.8 14.7	4.0 10.2	5.8 14.7	8.0 20.3	5.8 14.7	1.5 3.8	17.1 43.4	9.3 23.6	2.2 5.6	1.0 2.5
015-024	in. 22.4 56.8	43.1 109.5	17.3 43.9	2.4 6.1	4.9 12.4	0.6 1.5	3/4	3.5 8.9	7.5 19.1	10.2 25.9	5.0 12.7	5.6 14.2	10.4 26.4	9.3 23.6	5.0 12.7	1.5 3.8	17.1 43.4	15.3 38.9	2.2 5.6	1.0 2.5
030	in. 22.4 56.8	53.2 135.1	19.3 49.0	2.4 6.1	5.4 13.7	0.6 1.5	3/4	5.7 14.5	9.7 24.6	12.2 31.0	5.0 12.7	6.8 17.3	10.4 26.4	9.3 23.6	5.0 12.7	2.1 5.3	23.1 58.7	17.3 43.9	2.2 5.6	1.0 2.5
036	in. 22.4 56.8	53.2 135.1	19.3 49.0	2.4 6.1	5.4 13.7	0.6 1.5	3/4	5.7 14.5	9.7 24.6	12.2 31.0	2.9 7.4	3.8 9.7	13.5 34.3	13.1 33.3	2.9 7.4	1.9 4.8	23.1 58.7	17.3 43.9	2.2 5.6	1.0 2.5
042-048	in. 22.4 56.8	62.2 158.0	19.3 49.0	2.4 6.1	5.4 13.7	0.6 1.5	1	5.7 14.5	9.7 24.6	12.2 31.0	2.9 7.4	3.8 9.7	13.5 34.3	13.1 33.3	2.9 7.4	1.9 4.8	32.1 81.5	17.3 43.9	2.2 5.6	1.0 2.5
060	in. 25.4 64.5	71.2 180.8	21.3 54.1	2.4 6.1	5.4 13.7	0.6 1.5	1	8.1 20.6	11.7 29.7	14.2 36.1	5.8 14.7	5.0 12.7	13.6 34.5	13.3 33.8	5.8 14.7	2.9 7.4	36.1 91.7	19.3 49.0	2.2 5.6	1.0 2.5

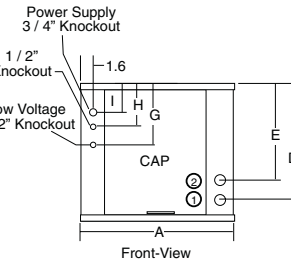
NOTES:

- Condensate is 3/4-in. FPT copper.
- Horizontal unit shipped with filter bracket only. This bracket should be removed for return duct connection.
- Hanger kit is factory installed. Isolation grommets are provided.
- Right and left orientation is determined by looking at water connection side.

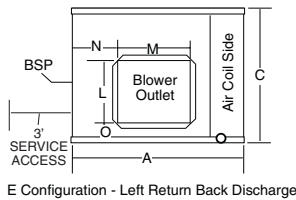
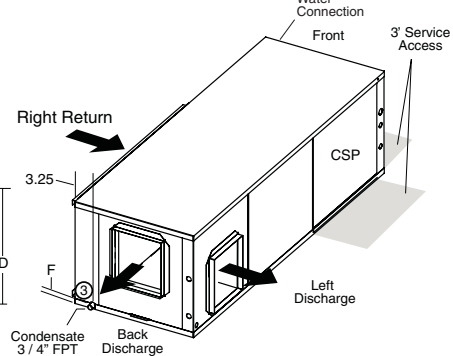
LEFT RETURN



CAP=Control Access Panel
CSP=Compressor Service Panel
BSP=Blower Service Panel
ASP=Alternate Service Panel

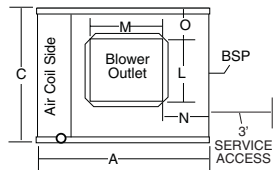


RIGHT RETURN

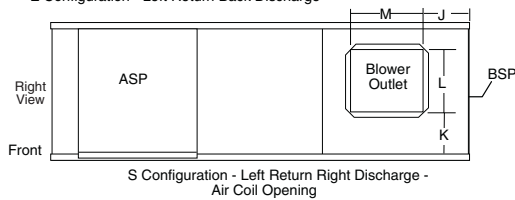


E Configuration - Left Return Back Discharge

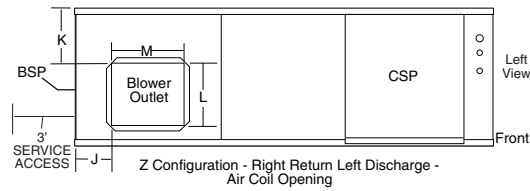
Unit Hanger Detail			
Model	X	Y	Z
006-024	43.1	24.375	20.375
030-036	53.1	24.375	20.375
042-048	62.1	24.375	20.375
060	71.1	27.375	23.375



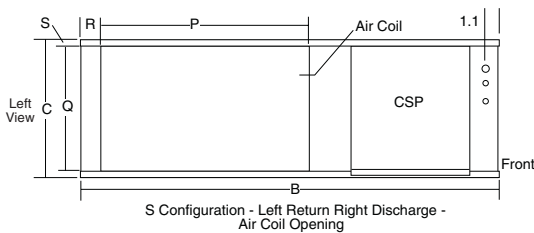
B Configuration - Right Return Back Discharge



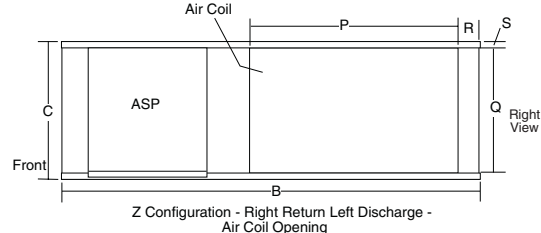
S Configuration - Left Return Right Discharge - Air Coil Opening



Z Configuration - Right Return Left Discharge - Air Coil Opening



S Configuration - Left Return Right Discharge - Air Coil Opening



Z Configuration - Right Return Left Discharge - Air Coil Opening

AIRFLOW CONFIGURATION

Code	Return	Discharge
S	Left	Right
E	Left	Back
Z	Right	Left
B	Right	Back

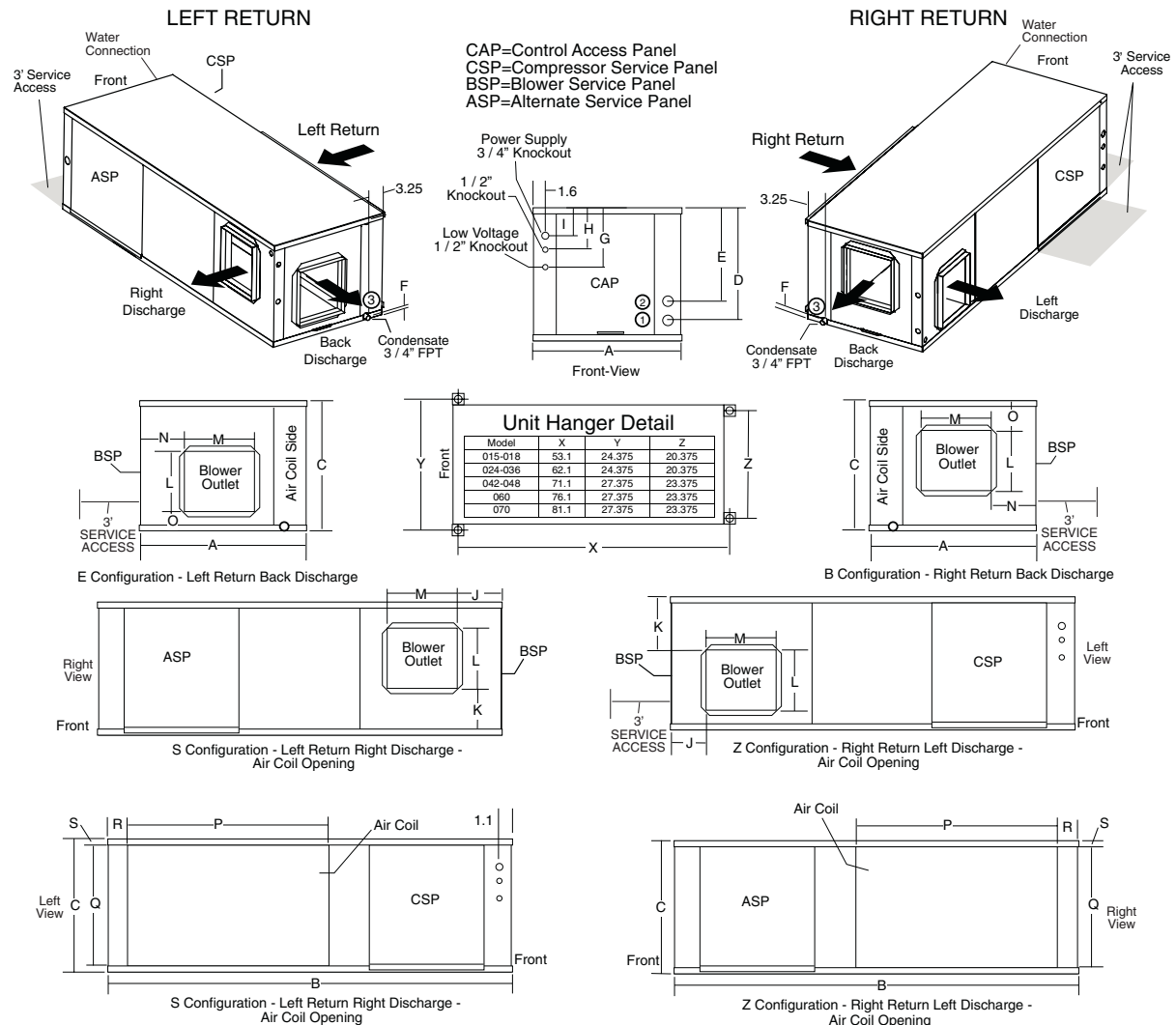
DIMENSION PRINT

50RHS015-070 UNITS

50RHS UNIT		OVERALL CABINET			WATER CONNECTIONS				ELECTRICAL KNOCKOUTS (in.)			DISCHARGE CONNECTION Duct Flange Installed (±0.10 in.)						RETURN CONNECTION Using Air Coil Opening			
					1	2	3	Loop Water FPT	G 1/2 conduit	H 1/2 conduit	I 3/4 conduit										
		A Width	B Depth	C Height	D In	E Out	F Cond- ensate		Low Voltage	Ext Pump	Power Supply	J	K	L Supply Height	M Supply Depth	N	O	P Return Depth	Q Return Height	R	S
015-018	in. cm	22.4 56.8	53.2 135.1	19.3 49.0	2.4 6.1	5.4 13.7	0.6 1.5	3/4	5.7 14.5	9.7 24.6	12.2 31.0	5.0 12.7	6.8 17.3	10.4 26.4	9.3 23.6	5.0 12.7	2.1 5.3	23.1 58.7	17.3 43.9	2.2 5.6	1.0 2.5
024-030	in. cm	22.4 56.8	62.2 158.0	19.3 49.0	2.4 6.1	5.4 13.7	0.6 1.5	3/4	5.7 14.5	9.7 24.6	12.2 31.0	5.0 12.7	6.8 17.3	10.4 26.4	9.3 23.6	5.0 12.7	2.1 5.3	28.1 71.4	17.3 43.9	2.2 5.6	1.0 2.5
036	in. cm	22.4 56.8	62.2 158.0	19.3 49.0	2.4 6.1	5.4 13.7	0.6 1.5	3/4	5.7 14.5	9.7 24.6	12.2 31.0	5.0 12.7	6.8 17.3	10.4 26.4	9.3 23.6	5.0 12.7	2.1 5.3	32.1 81.5	17.3 43.9	2.2 5.6	1.0 2.5
042-048	in. cm	25.4 64.5	71.2 180.8	21.3 54.1	2.4 6.1	5.4 13.7	0.6 1.5	1	8.1 20.6	11.7 29.7	14.2 36.1	5.8 14.7	5.0 12.7	13.6 34.5	13.3 33.8	5.8 14.7	2.9 7.4	36.1 91.7	19.3 49.0	2.2 5.6	1.0 2.5
060	in. cm	25.4 64.5	76.2 193.5	21.3 54.1	2.4 6.1	5.4 13.7	0.6 1.5	1	8.1 20.6	11.7 29.7	14.2 36.1	5.8 14.7	5.0 12.7	13.6 34.5	13.3 33.8	5.8 14.7	2.9 7.4	41.1 104.4	19.3 49.0	2.2 5.6	1.0 2.5
070	in. cm	25.4 64.5	81.2 206.2	21.3 54.1	2.4 6.1	5.4 13.7	0.6 1.5	1	8.1 20.6	11.7 29.7	14.2 36.1	5.8 14.7	5.0 12.7	13.6 34.5	13.3 33.8	5.8 14.7	2.9 7.4	46.1 117.1	19.3 49.0	2.2 5.6	1.0 2.5

NOTES:

- Condensate is 3/4-in. FPT copper.
- Horizontal unit shipped with filter bracket only. This bracket should be removed for return duct connection.
- Hanger kit is factory installed. Isolation grommets are provided.
- Right and left orientation is determined by looking at water connection side.



AIRFLOW CONFIGURATION

Code	Return	Discharge
S	Left	Right
E	Left	Back
Z	Right	Left
B	Right	Back

DIMENSION PRINT

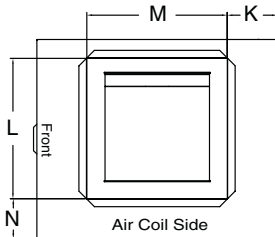
50RVR009-060 UNITS

50RVR UNIT		OVERALL CABINET			WATER CONNECTIONS				ELECTRICAL KNOCKOUTS (in.)			DISCHARGE CONNECTION Duct Flange Installed (±0.10 in.)					RETURN CONNECTION Using Air Coil Opening			
					1	2	3	Loop Water FPT	G 1/2 conduit	H 1/2 conduit	I 3/4 conduit									
		A Width	B Depth	C Height	D In	E Out	F Condensate		Low Voltage	Ext Pump	Power Supply	J	K	L Supply Height	M Supply Depth	N	O	P Return Depth	Q Return Height	R
009-012	in. cm	22.4 56.8	21.6 54.9	22.6 57.4	2.6 6.6	5.4 13.7	7.8 19.8	1/2	3.5 8.9	5.5 14.0	8.2 20.8	10.6 26.9	6.8 17.3	5.8 14.7	8.0 20.3	6.0 15.2	2.2 5.6	17.1 43.4	9.3 23.6	1.0 2.5
015-024	in. cm	22.4 56.8	21.6 54.9	34.6 87.9	2.4 6.1	4.8 12.2	8.5 21.6	3/4	3.5 8.9	7.5 19.1	10.2 25.9	7.2 18.3	3.8 9.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	17.1 43.4	15.3 38.9	1.0 2.5
030	in. cm	22.4 56.8	25.6 65.1	40.6 103.1	2.4 6.1	5.4 13.7	9.7 24.6	3/4	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	19.2 48.8	1.0 2.5
036	in. cm	22.4 56.8	25.6 65.1	40.6 103.1	2.4 6.1	5.4 13.7	9.7 24.6	3/4	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	19.2 48.8	1.0 2.5
042-048	in. cm	22.4 56.8	25.6 65.1	48.6 123.4	2.4 6.1	5.4 13.7	9.7 24.6	1	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	27.2 69.1	1.0 2.5
060	in. cm	25.4 64.5	30.6 77.8	50.6 128.5	2.4 6.1	5.4 13.7	10.7 27.2	1	8.1 20.6	11.7 29.7	14.2 36.1	6.2 15.7	6.3 16.0	18.0 45.7	18.0 45.7	5.1 13.0	2.2 5.6	26.1 66.3	27.2 69.1	1.0 2.5

NOTES:

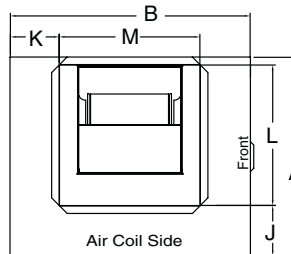
1. Condensate is 3/4-in. FPT and is switchable from side to front.
2. Vertical unit shipped with filter bracket only extending from unit 2.5 inches. This bracket should be removed when connecting return duct.
3. Discharge flange field installed.
4. Right and left orientation is determined by looking at water connection side.

RIGHT RETURN

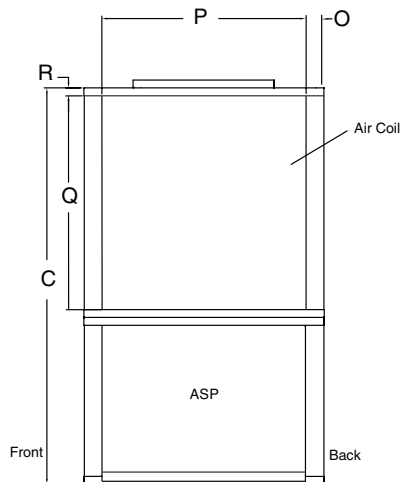
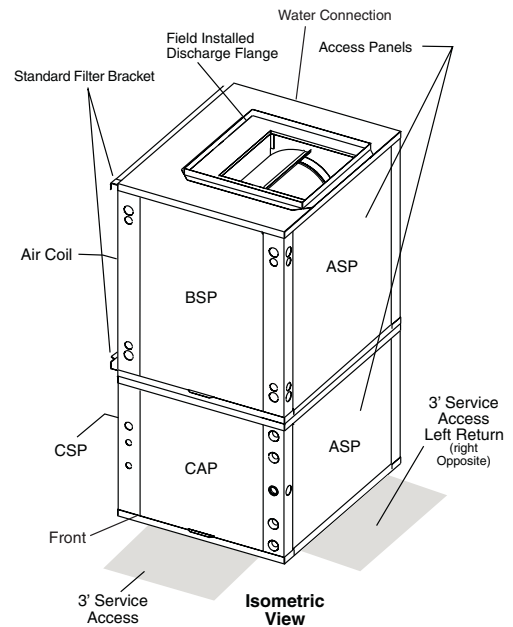


R Configuration - Top View-Right Return

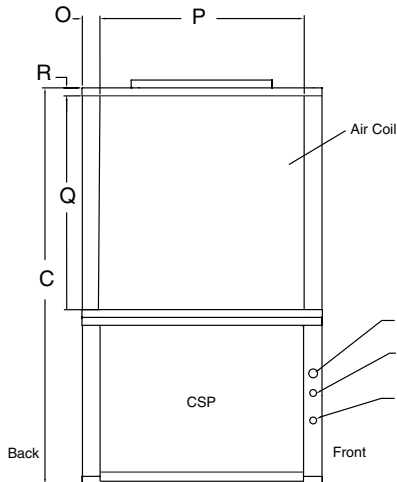
LEFT RETURN



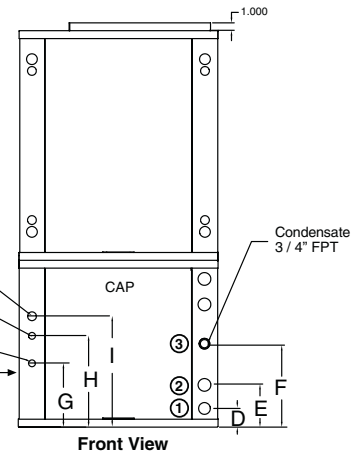
L Configuration - Top View-Left Return



R Configuration - Right Return Right View - Air Coil Opening



L Configuration - Left Return Left View - Air Coil Opening



Front View

AIRFLOW CONFIGURATION

Code	Return	Discharge
L	Left	Top
R	Right	Top

DIMENSION PRINT

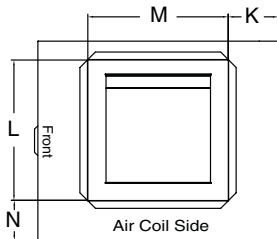
50RVS015-070 UNITS

50RVS UNIT		OVERALL CABINET			WATER CONNECTIONS				ELECTRICAL KNOCKOUTS (in.)			DISCHARGE CONNECTION Duct Flange Installed (±0.10 in.)					RETURN CONNECTION Using Air Coil Opening			
					1	2	3	Loop Water FPT	G 1/2 conduit	H 1/2 conduit	I 3/4 conduit									
		A Width	B Depth	C Height	D In	E Out	F Cond- ensate		Low Voltage	Ext Pump	Power Supply	J	K	L Supply Height	M Supply Depth	N	O	P Return Depth	Q Return Height	R
015-018	in. cm	22.4 56.8	25.6 65.1	40.6 103.1	2.4 6.1	5.4 13.7	9.7 24.6	3/4	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	19.2 48.8	1.0 2.5
024-030	in. cm	22.4 56.8	25.6 65.1	44.6 113.3	2.4 6.1	5.4 13.7	9.7 24.6	3/4	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	23.2 58.9	1.0 2.5
036	in. cm	22.4 56.8	25.6 65.1	48.6 123.4	2.4 6.1	5.4 13.7	9.7 24.6	3/4	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	27.2 69.1	1.0 2.5
042-048	in. cm	25.4 64.5	30.6 77.8	50.6 128.5	2.4 6.1	5.4 13.7	10.7 27.2	1	8.1 20.6	11.7 29.7	14.2 36.1	6.2 15.7	6.3 16.0	18.0 45.7	18.0 45.7	5.1 13.0	2.2 5.6	26.1 66.3	27.2 69.1	1.0 2.5
060	in. cm	25.4 64.5	30.6 77.8	54.6 138.7	2.4 6.1	5.4 13.7	10.7 27.2	1	8.1 20.6	11.7 29.7	14.2 36.1	6.2 15.7	6.3 16.0	18.0 45.7	18.0 45.7	5.1 13.0	2.2 5.6	26.1 66.3	31.2 79.2	1.0 2.5
070	in. cm	25.4 64.5	30.6 77.8	58.6 148.8	2.4 6.1	5.4 13.7	10.7 27.2	1	8.1 20.6	11.7 29.7	14.2 36.1	6.2 15.7	6.3 16.0	18.0 45.7	18.0 45.7	5.1 13.0	2.2 5.6	26.1 66.3	35.2 89.4	1.0 2.5

NOTES:

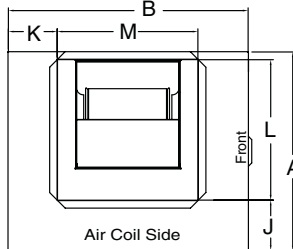
1. Condensate is 3/4-in. FPT and is switchable from side to front.
2. Vertical unit shipped with filter bracket only extending from unit 2.5 inches. This bracket should be removed when connecting return duct.
3. Discharge flange field installed.
4. Right and left orientation is determined by looking at water connection side.

RIGHT RETURN

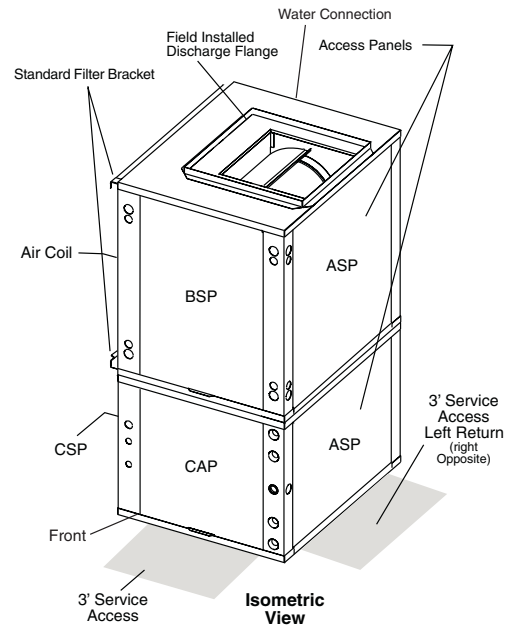


R Configuration - Top View-Right Return

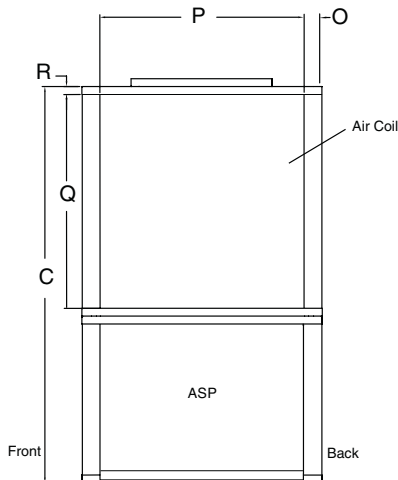
LEFT RETURN



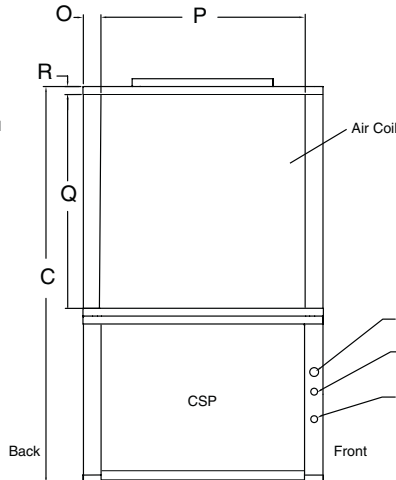
L Configuration - Top View-Left Return



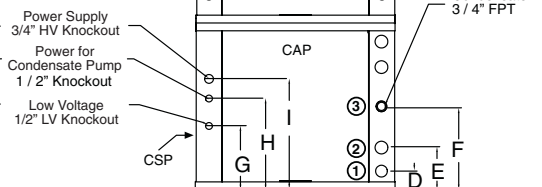
Isometric View



R Configuration - Right Return Right View
- Air Coil Opening



L Configuration - Left Return Left View
- Air Coil Opening



Front View

AIRFLOW CONFIGURATION

Code	Return	Discharge
L	Left	Top
R	Right	Top

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE

