Carrier

Product Data

Omnizone™ Water-Cooled Indoor Self-Contained Systems

5 to 20 Nominal Tons

OMNIZONE™

Puron

50XCW Sizes 06-24 Water-Cooled Indoor Self-Contained Systems with Puron® Refrigerant (R-410A)

Features/Benefits

The Omnizone 50XCW units provide a practical and economical approach to comfort conditioning requirements for offices, factories, and other applications in existing buildings when indoor air-cooled condensers are required.

The 50XCW single-package cooling units with integral water-cooled condenser offer:

- Optional Staged Air Volume (SAV™) fan operation
- Compact, durable, and attractive cabinet fits any working environment
- Ducted or free return with rear return connections with vertical supply air discharge
- High-efficiency cooling for commercial and industrial projects
- 2 in. and 4 in. filtration options
- Optional coated evaporator coil
- Puron® refrigerant (R-410A)
- Optional hot water or steam heat
- Optional waterside economizer

Design flexibility

The 50XCW water-cooled indoor packaged units are designed to provide the flexibility required in replacement, renovation, and new construction. Units are available in 6 sizes from 5 tons to 20 tons which meet the needs for cooling restaurants, retail stores, warehouses, offices, and building additions.

The compact footprint and service from the front of the units save valuable floor space in equipment rooms. Belt drive motors provide adequate static to overcome ducting and louver static losses. These units can be installed in the equipment room or the conditioned space and used for either ducted or free return applications. Unit supply air discharge is vertical or horizontal.

Easy installation and maintenance

The units are completely pre-piped and wired at the factory to ensure time and money saving installation and service. Exterior access panels are easily removed to provide speedy inspection, and service work may be done from the front of the unit. Precision engineered parts translate to a quality built, reliable design that will operate efficiently, minimize service calls, and provide years of reliable operation.

Designed for customer satisfaction

Where space and styling are important considerations, 50XCW units are designed to exceed expectations. The high quality baked enamel finish will fit any environment attractively. These packaged systems provide the user with economy and product satisfaction in cooling, dehumidification, filtering, and air circulation.

Special features for outstanding performance

- High efficiency two-stage or tandem scroll compressors provide quiet, reliable two-stage cooling on all units.
- High-efficiency, brazed-plate condensers provide maximum exposed heat transfer surface for greater heat rejection with less water, and can operate at up to 400 psig working pressure.
- Space-saver slab type evaporator and condenser coils use advanced heat transfer technology and provide peak heat transfer efficiency with large coil face area. Fins are mechanically bonded to nonferrous, seamless tubing for efficient leak-free operation.
- Quiet fan performance moves large volumes of indoor air. Compact housing and specially designed discharge air section provide superior air handling capacity.
- Convenient front access electrical control center contains all factory pre-wired control devices.
- A stainless steel, sloped, condensate pan is standard. As a result of this new design, the coil is easily accessed for cleaning.
- The cabinets are constructed of galvanized steel, bonderized, and coated on all external surfaces with a baked enamel finish. The paint finish is non-chalking and is capable of withstanding ASTM (American Society for Testing and Materials) Standard No. B117 500-hour salt spray test.
- Optional factory installed head pressure control includes a water regulating valve for cooling operation below 65°F entering water temperature.
- Waterside economizer provides a condenser water pre-cooling coil located before the direct expansion cooling coils, allowing the use of condenser water to provide free cooling.
- Hot water or steam coil can be factory-installed on the inlet side of the direct expansion cooling coils with field piping connections on the side of the unit. The hot water or steam coil requires separate in/out water connections.
- Staged Air Volume (SAV™) fan operation is available for all units and offers fan speed that operates at 67% of full speed for first-stage cooling operation and 100% of full speed for second-stage cooling operation.
- The compressor is protected by several devices, including current-sensing lockout relay(s), anti-short cycle control, and high and low-pressure stats. These devices lock out the compressor(s) under abnormal operating conditions to prevent compressor damage and ensure long life.

Table of contents

Features/Benefits (cont)

- The 50XCW units are covered by a standard limited 5-year part warranty on the compressor and a standard limited one-year warranty on all other parts.
- Easy to understand and operate controls provide a virtually mistake-proof control operation.
- All motors are protected against single-phasing conditions.
- The management system governing the manufacture of this product is ISO 9001 certified.

Environmentally balanced

Carrier's Puron® refrigerant (R-410A) enables you to make an environmentally responsible decision. Puron refrigerant (R-410A) is an HFC refrigerant that does not contain chlorine that is damaging to the stratospheric ozone layer.

Model number nomenclature

50XC W 24 A A – G 5 A A – 2 AA

50XC – Omnizone™ Indoor Packaged Unit

Condenser Option
W – Water-Cooled

Unit Size – Nominal Tons
06 – 5
08 – 7.5
12 – 10
14 – 12
16 – 15
24 – 20

Water Connections/Discharge Air Options[1]
A – Right Hand, Vertical Discharge, Ducted Return
B – Right Hand, Vertical Discharge, Louvered Return
E – Right Hand, Horizontal Discharge, Ducted Return
F – Right Hand, Horizontal Discharge, Louvered Return

Heating Coil Options
A – No Factory Installed Heating Coil
B – Hot Water Coil
C – Steam Coil

Evaporator Fan Speed
Set by selection program

Evaporator Motor Hp Options
D – 1 Hp Motor
E – 1-1/2 Hp Motor
F – 2 Hp Motor
G – 3 Hp Motor
H – 5 Hp Motor
J – 7-1/2 Hp Motor

Voltage Options
1 – 575-3-60
5 – 208/230-3-60
6 – 460-3-60

Control Options
A – Standard Controls
B – Standard Controls with Disconnect
F – SAV[2] (2-speed fan) Control with Standard Controls
G – SAV[2] (2-speed fan) Control with Disconnect

Condenser Coil Options
A – No Head Pressure Control (HPC), No Service Valve, No Strainer
D – Service Valve and Strainer
E – Head Pressure Control
H – Head Pressure Control and Service Valve with Strainer
J – Waterside Economizer
M – Waterside Economizer with Service Valve and Strainer

Reserved for later use

Design Revision Level
0 – Original Release
2 – Control Box Supplier Change, Design Revision 2

Factory-Installed Options Code
See codes in unit price pages

[1] Horizontal discharge is not available on size 06 or 08.
[2] Staged Air Volume (SAV) option is not available for 575V units.

AHRI capacity ratings

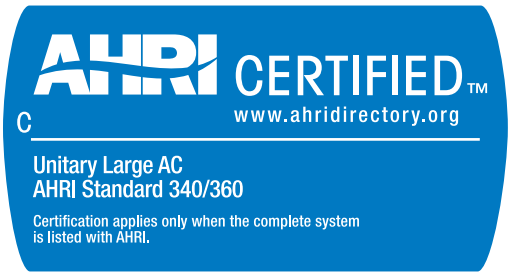
AHRI Capacity Ratings[a,b]

UNIT 50XCW	NOMINAL TONS	EVAPORATOR cfm	NET COOLING (Btuh)	TOTAL kW	EER	IEER
06	5	1875	68,000	5.0	13.1	16.5
08	7-1/2	2625	80,000	6.3	13.0	16.7
12	10	3500	120,000	10.7	15.3	14.2
14	12	4200	140,000	12.7	16.3	15.6
16	15	5000	180,000	12.0	16.1	18.6
24	20	7000	245,000	17.5	13.7	14.1

NOTE(S):

a. Units are certified in accordance with AHRI standard 340/360.
b. Ratings subject to change without notice. Please use Carrier ECat SCU builder for latest ratings.

LEGEND
AHRI — Air-Conditioning, Heating, and Refrigeration Institute
EER — Energy Efficiency Ratio
IEER — Integrated Energy Efficiency Ratio



Physical data

UNIT 50XCW	06	08	12	14	16	24
NOMINAL CAPACITY (tons)	5	7.5	10	12	15	20
UNIT OPERATING WEIGHT (lb)	635	833	1137	1228	1228	1790
COMPRESSOR	Scroll					
Compressor Model	ZPS60	ZPS67	ZP54/ZP49	ZP61/ZP57	ZP91/ZP67	ZP122/ZP91
Qty	1	1	2	2	2	2
Steps of Control (stages)	2	2	2	2	2	2
Operating Charge R-410A (lb)	3.9	5.5	11.7	13.8	17.2	19.7
EVAPORATOR FAN	Adjustable, Belt-Drive, Centrifugal Type					
Nominal cfm	1875	2625	3500	4200	5000	7000
Evaporator Fan Size	110-10R	110-10R	120-9R	120-9R	120-9R	120-11R
Number of Evaporator Fans	1	2	2	2	3	3
Max. Allowable rpm	1600	1700	2000	2000	2000	2000
Std Hp	1.0	1.0	1.0	1.5	1.5	3
Hp Range	1 - 2	1 - 2	1 - 3	1.5 - 5	1.5 - 5	3 - 7.5
Fan Shaft Size (in.)	3/4	1	1	1	1-3/16	1-3/16
Motor Shaft Size (in.)	7/8	7/8	7/8	7/8	7/8	1-1/4
Center Distance (in.) - Vertical	15.3	15.3	18.1	18.1	18.1	21.3
Center Distance (in.) - Horizontal	N/A	N/A	15.5	13	15.7	18.1
EVAPORATOR COIL	3/8 in. OD, Enhanced Copper Tube, Aluminum Fins					
Quantity Rows ... Fin/ (in.)	3…15	4…15	3…15	4…15	4… 15	4… 15
Fin Block Size (H x L) (in.)	28x35	28x46	32x60	32x60	32x80	36x80
Face Area (sq ft)	6.8	8.9	13.3	13.3	17.7	20
RETURN AIR FILTERS						
Std 1 in., Throwaway	(2) 25 x 25	(2) 25 x 25	(8) 16 x 16	(8) 16 x 16 (2) 16 x 20	(8) 16 x 16 (2) 16 x 20	(4) 18 x 18 (4) 18 x 24
CONDENSER HEAT EXCHANGER						
Number of Condensers	1	1	1	1	1	1
Nominal Gpm	15	23	30	38	45	60
Gpm Range	10 - 20	15 - 30	20 - 40	25 - 50	30 - 60	40 - 80
Water Connection Size (MPT) (OD) (in.)	1-5/8	1-5/8	2-1/8	2-1/8	2-5/8	2-5/8
HIGH-PRESSURE SWITCH	Opens at 595 ± 10 psig; Closes at 443 ± 15 psig				Opens at 650± 10 psig; Closes at 500 ± 15 psig	
LOW-PRESSURE SWITCH	Opens at 53 ± 5 psig; Closes at 80 ± 7 psig					
CONDENSATE DRAIN LINE (in.)	1 at 3/4 MPT					

LEGEND

MPT — Male Pipe Thread

Options and accessories

ITEM	FACTORY-INSTALLED OPTIONS	FIELD-INSTALLED ACCESSORY
Hot Water Coil	X	X
Thermostat		X
Waterside Economizer	X	
Two-Speed Supply Fan	X	
Steam Heat	X	X
Head Pressure Control	X	
Evaporator Coil Coating	X	
Airside Economizer		X

Factory-installed options

Two-speed supply fan

A factory installed and programmed VFD is used to operate the supply fan at 67% during first stage cooling and 100% fan speed during second stage cooling or any heating call.

Waterside economizer

A condenser water pre-cooling coil located before the direct expansion cooling coils allows the use of the condenser water to provide free cooling. When the condenser water temperature is less than an adjustable set point or more below the return-air temperature, condenser water is directed to the economizer coil to obtain free cooling. When free cooling is available the economizer coil functions as the first stage of cooling. The economizer coil valve can be modulated to control discharge-air temperature when the economizer can meet or exceed the cooling needs. If the economizer coil can not control the discharge-air temperature, stages of compressors are brought on to control the discharge-air temperature.

The waterside economizer option consists of the economizer coil, two position 3 way motorized valve, vent and drain fittings and the required piping. The economizer coils are 4 or 8-row coils with 8 or 10 fins per inch and are chemically cleanable. The unit controller controls all required control logic and changeover.

Factory-installed hot water or steam coil

A factory-installed hot water or steam coil shall be available inside the unit cabinet in the pre-heat position. Steam coil shall be 1 row, steam distributing type. Hot water coil shall be 2 row. Control valves and freeze protection shall be field provided.

Head pressure control

The factory installed head pressure control option includes a pressure activated water regulating valve that reduces entering water flow when low head pressure is detected to allow mechanical cooling during low entering water temperature conditions (<65°F, typical). The water regulating valve allows the unit to operate with entering water temperatures as low as 40°F.

Evaporator coil coating

A continuous coating, covering the whole fin surface, tubing, manifolds, and feeder lines, if applicable.

Field-installed accessories

Hot water or steam coil (Field installed)

A field-installed hot water or steam coil shall be available for installation outside of the cabinet in the pre-heat position. Steam coil shall be 1 row, steam distributing type. Hot water coil shall be 2 row. Control valves and freeze protection shall be field provided.

Airside economizer

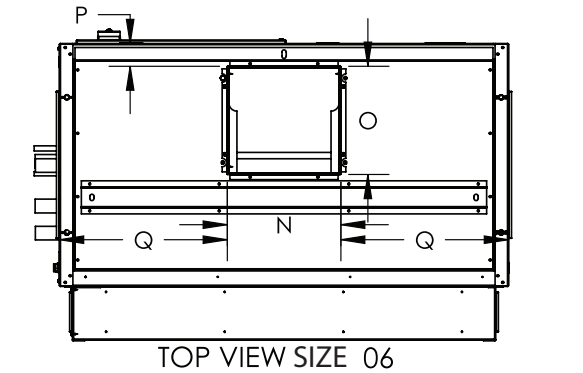
The field-installed airside economizer shall have a low leak damper assembly with Honeywell W7220 economizer controller for fault detection and diagnostics (FDD).

Thermostat

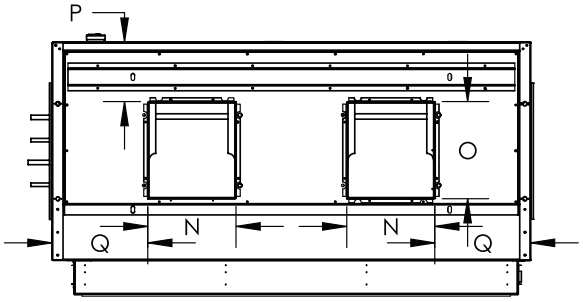
A complete line of thermostats is available to meet any application control requirement.

Dimensions — 50XCW06,08

Rear Return, Vertical Discharge



TOP VIEW SIZE 06



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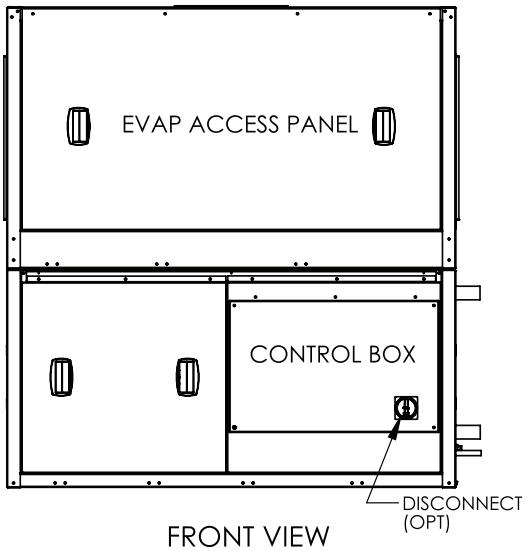
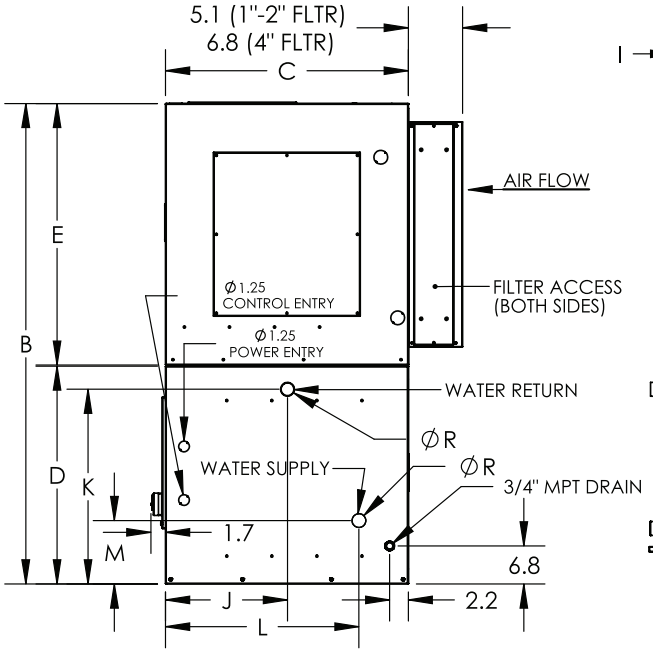
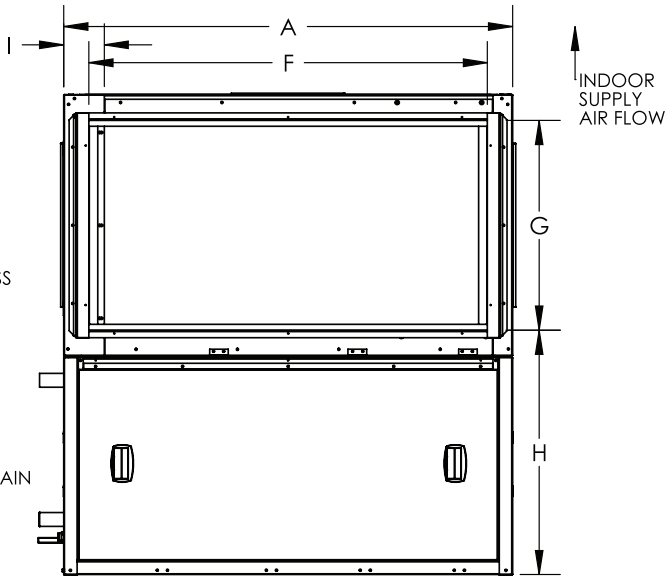


FRONT VIEW



RIGHT VIEW



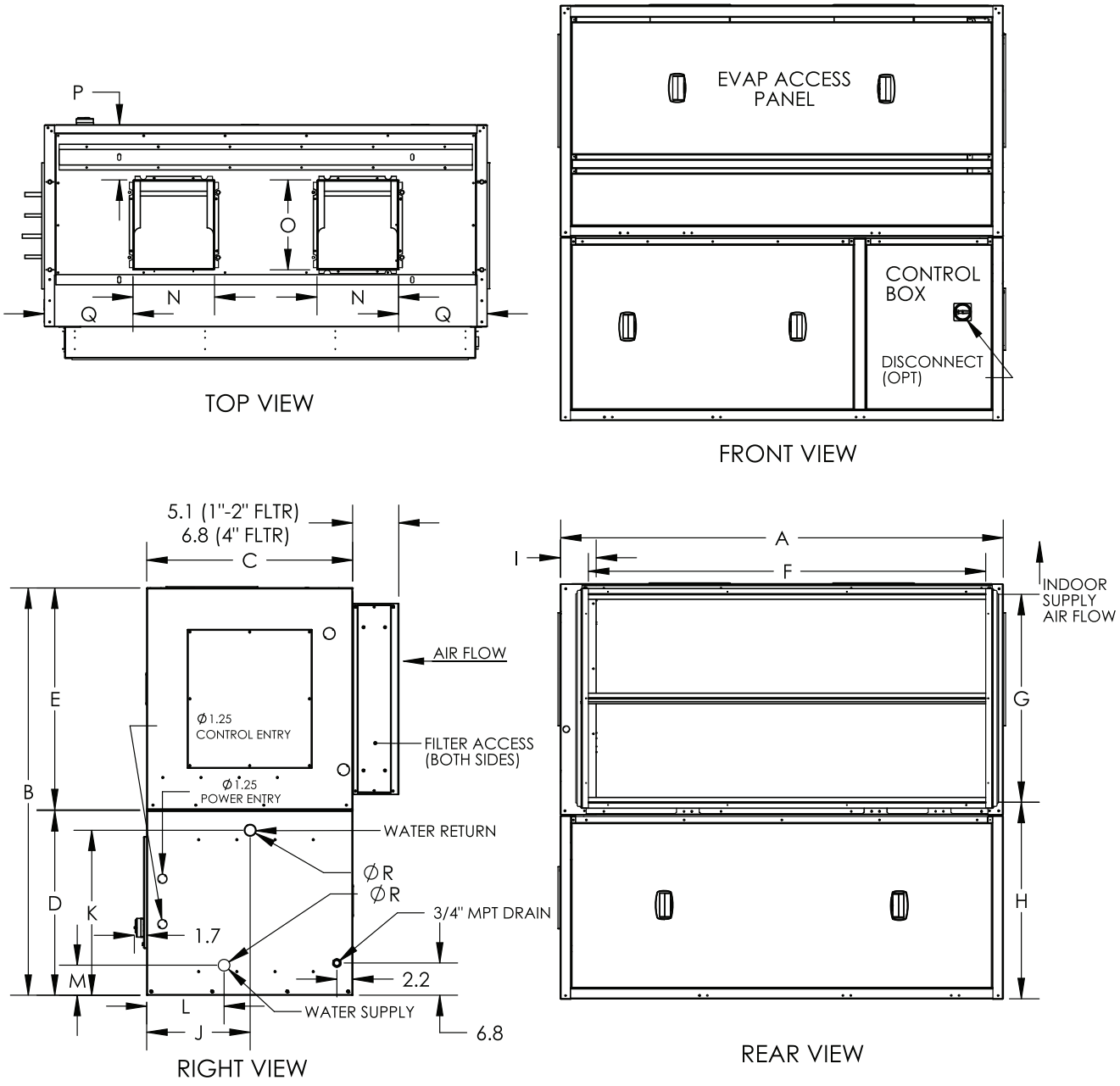
REAR VIEW

UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)				WATER SUPPLY/RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
06	53.1	57.0	29.0	25.8	31.0	47.2	24.8	28.9	4.8	14.4	23.0	22.9	7.5	13.4	12.8	2.7	19.8	1.625
08	53.1	57.0	29.0	25.8	31.0	47.2	24.8	28.9	4.8	14.4	23.0	22.9	7.5	13.4	12.8	2.7	7.6	1.625

NOTE: Dimensions are in inches.

Dimensions — 50XCW12,14

Rear Return, Vertical Discharge

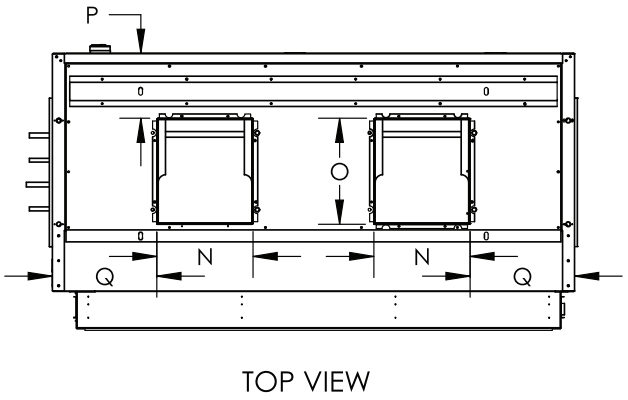


UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND. SECTION	EVAP. SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)				WATER SUPPLY/ RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
12	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	10.8	4.2	12.5	13.8	8.5	13.6	2.125
14	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	10.8	4.2	12.5	13.8	8.5	13.6	2.125

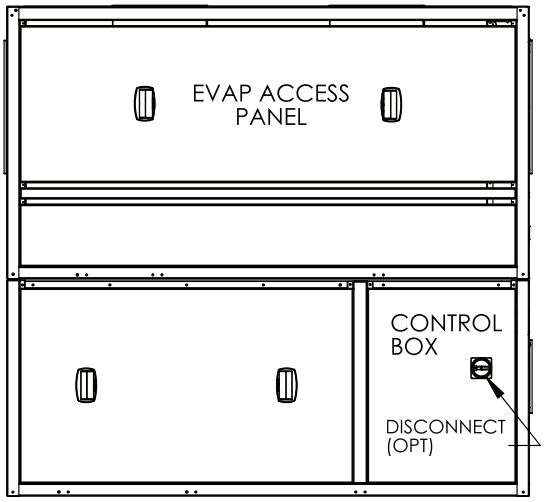
NOTE: Dimensions are in inches.

Dimensions — 50XCW12,14 (cont)

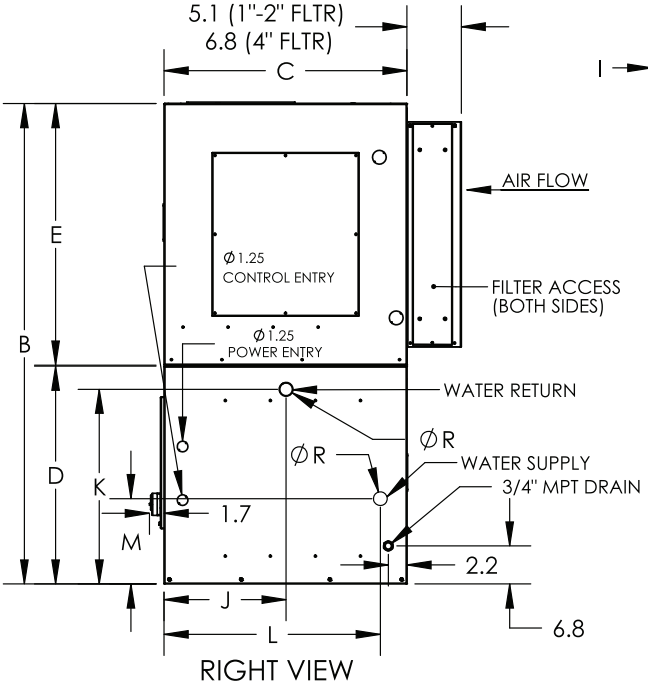
Rear Return, Vertical Discharge with Head Pressure Control (HPC)



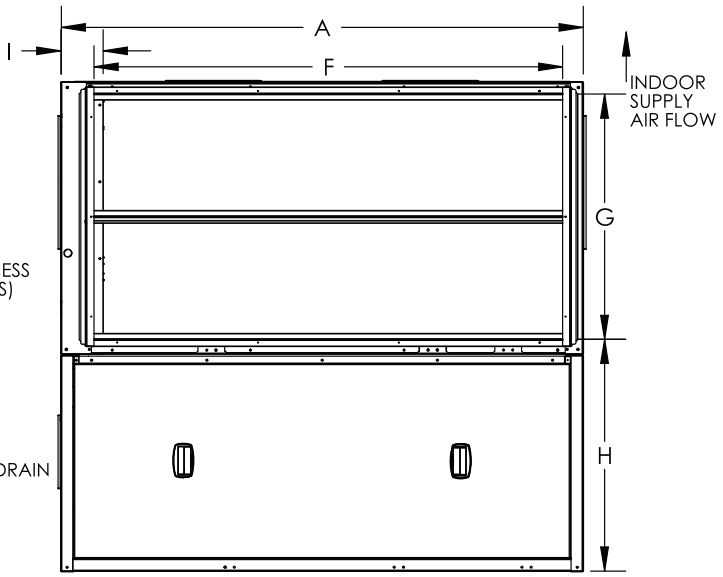
TOP VIEW



FRONT VIEW



RIGHT VIEW



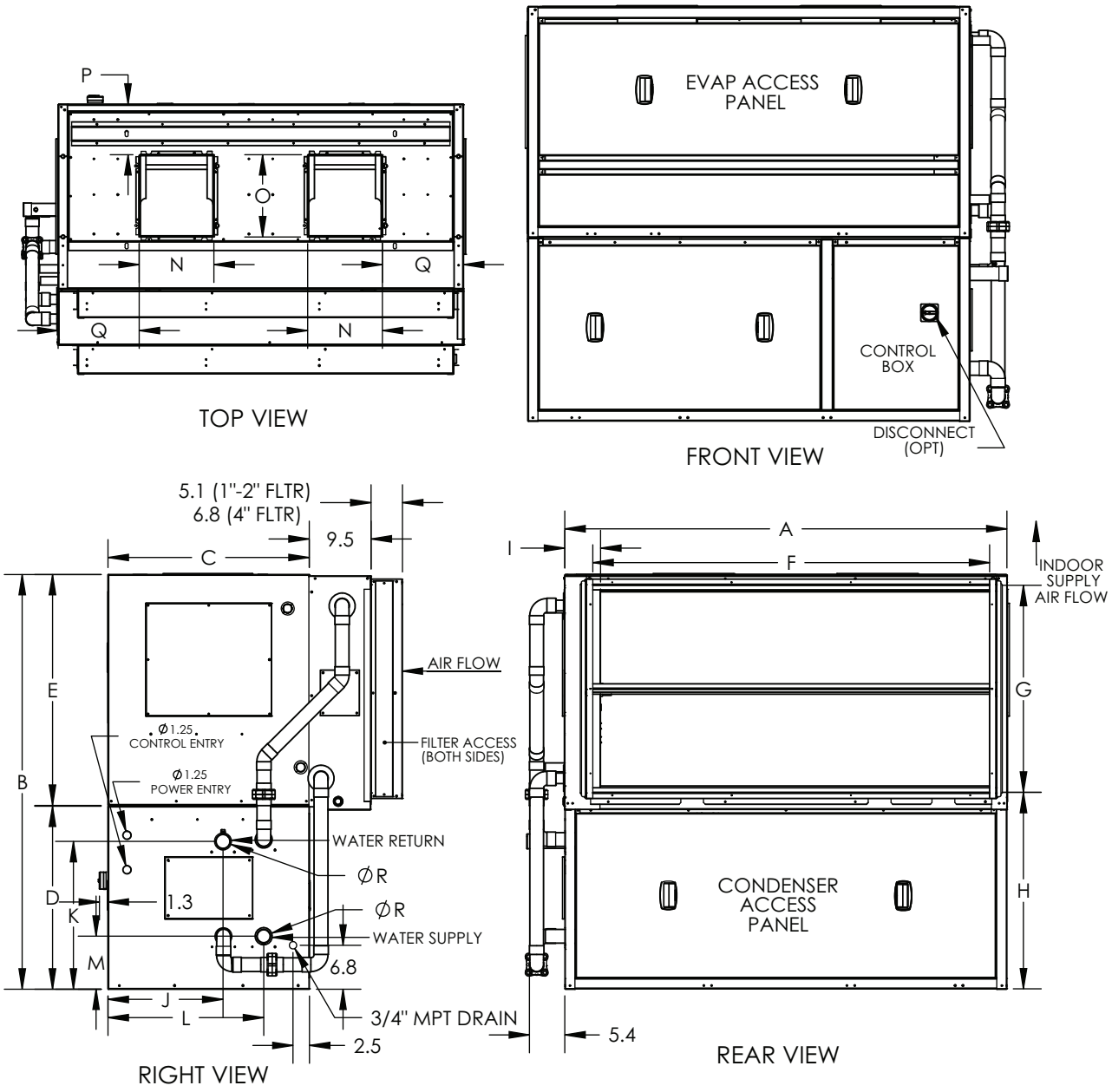
REAR VIEW

UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)				WATER SUPPLY/ RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
12	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	25.6	10.1	12.5	13.8	8.5	13.6	2.125
14	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	25.6	10.1	12.5	13.8	8.5	13.6	2.125

NOTE: Dimensions are in inches.

Dimensions — 50XCW12,14 (cont)

Rear Return, Vertical Discharge with Economizer



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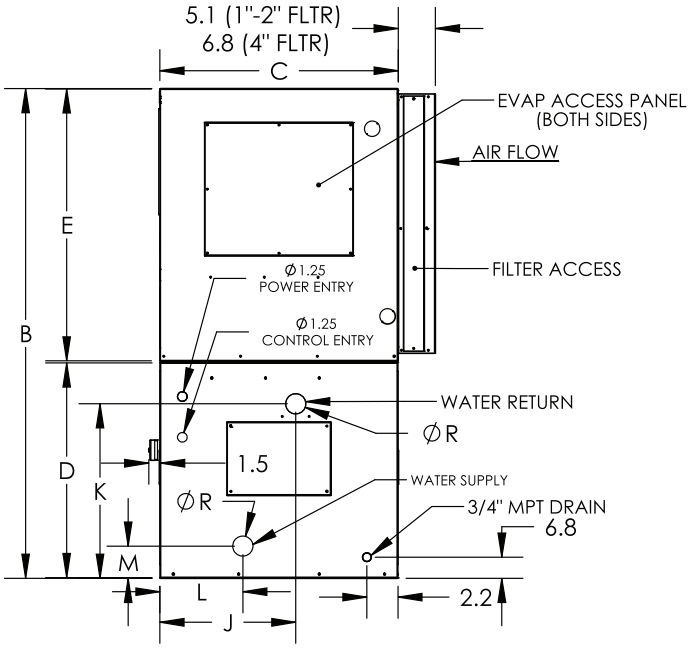
14	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	23.9	8.1	12.5	13.8	8.5	13.6	2.125

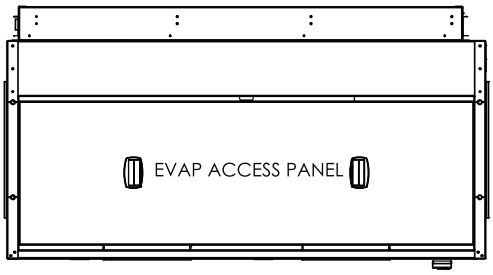
NOTE: Dimensions are in inches.

Dimensions — 50XCW12,14 (cont)

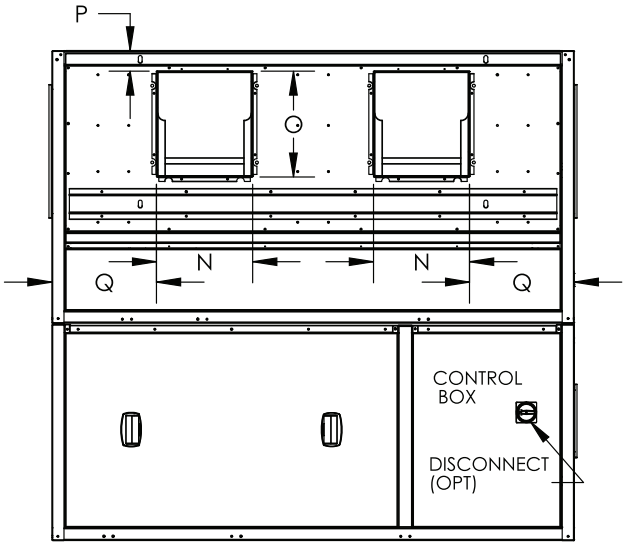
Rear Return, Horizontal Discharge



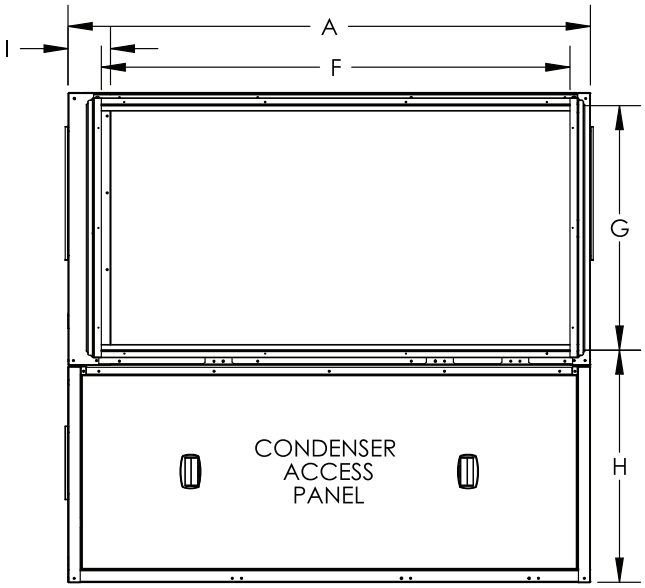
RIGHT VIEW



TOP VIEW



FRONT VIEW



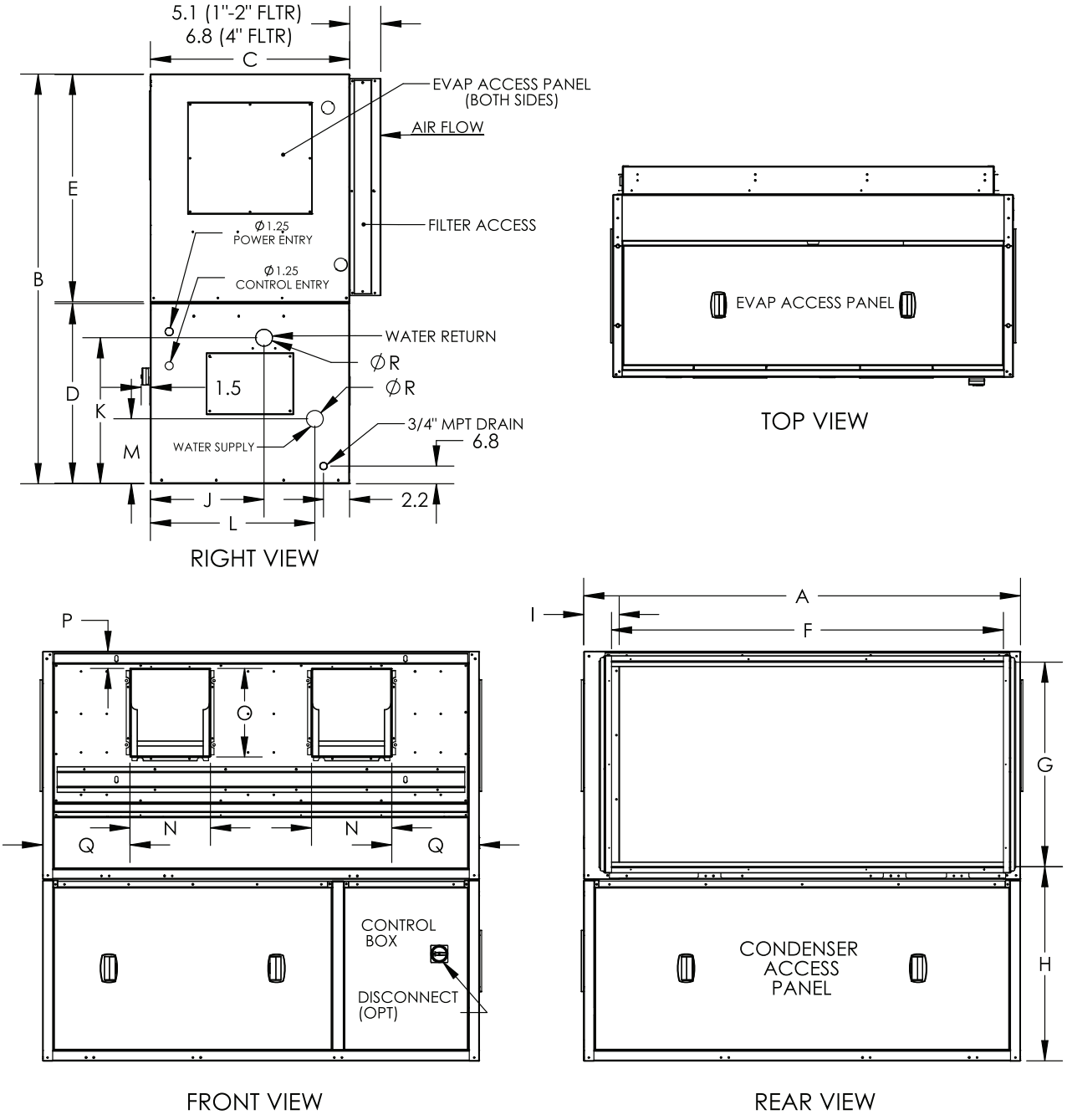
REAR VIEW

UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)				WATER SUPPLY/ RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
12	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	10.8	4.2	12.5	13.8	2.7	13.6	2.125
14	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	10.8	4.2	12.5	13.8	2.7	13.6	2.125

NOTE: Dimensions are in inches.

Dimensions — 50XCW12,14 (cont)

Rear Return, Horizontal Discharge with Head Pressure Control (HPC)

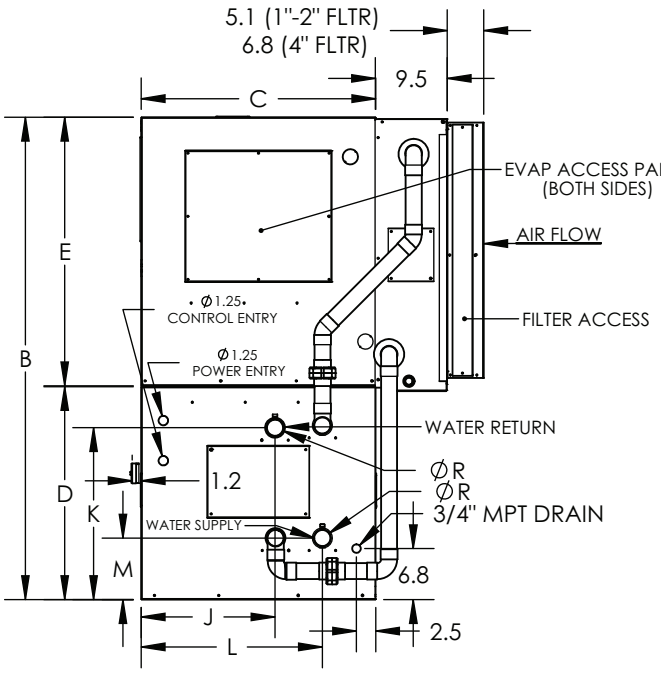


UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)				WATER SUPPLY/RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
12	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	25.6	10.1	12.5	13.8	2.7	13.6	2.125
14	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	25.6	10.1	12.5	13.8	2.7	13.6	2.125

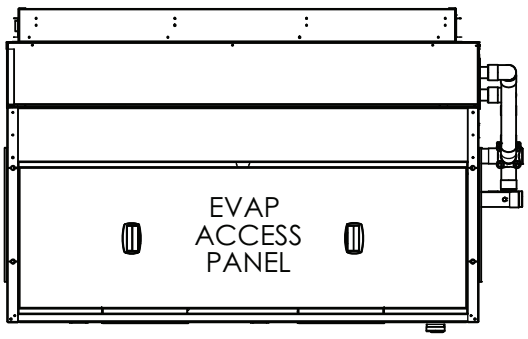
NOTE: Dimensions are in inches.

Dimensions — 50XCW12,14 (cont)

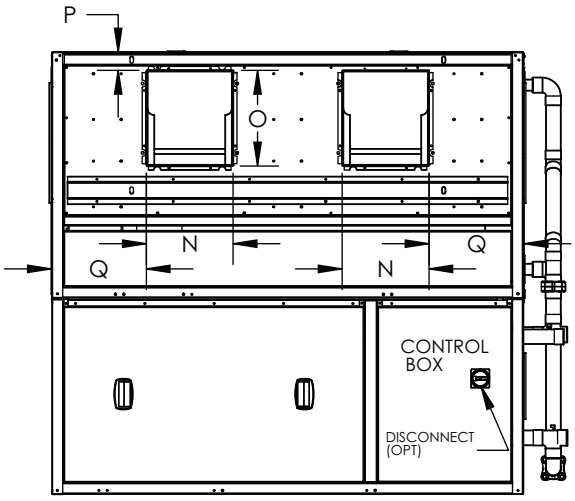
Rear Return, Horizontal Discharge with Economizer



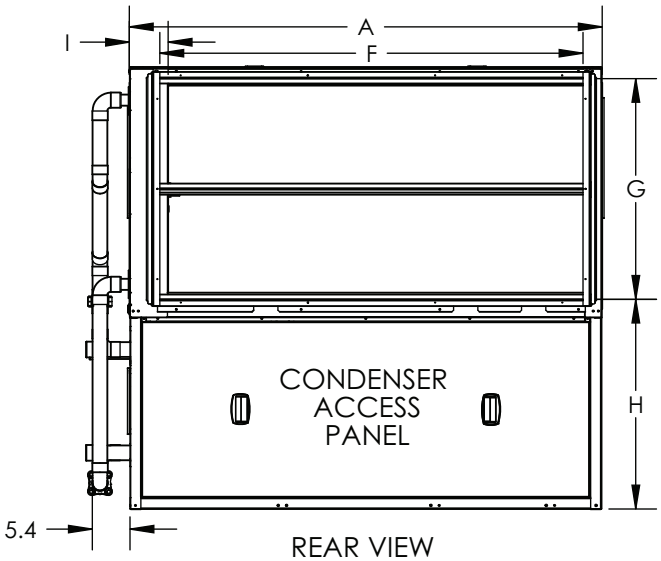
RIGHT VIEW



TOP VIEW



FRONT VIEW



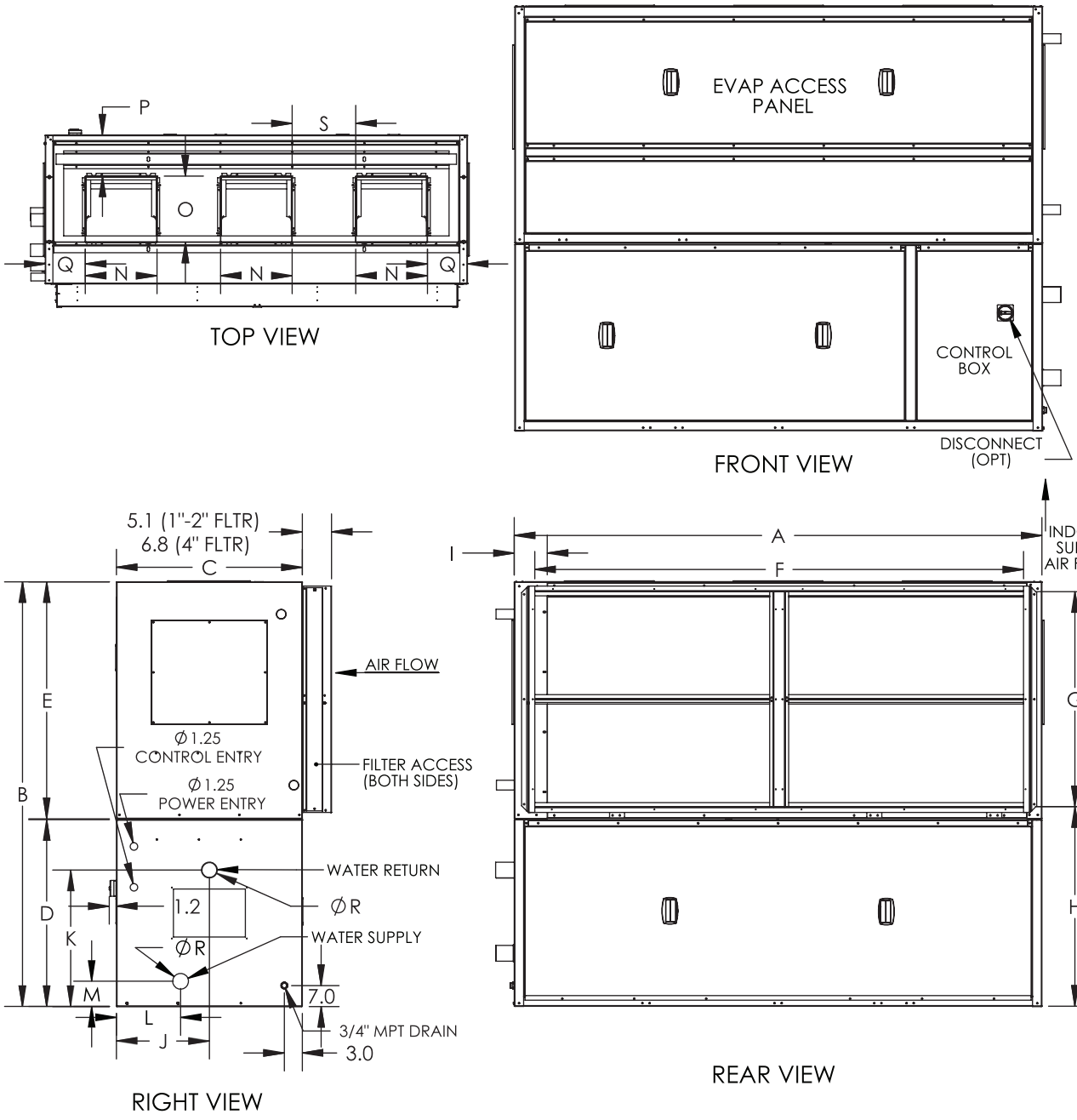
REAR VIEW

UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)				WATER SUPPLY/ RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
12	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	23.9	8.1	12.5	13.8	2.7	13.6	2.125
14	68.0	64.0	31.2	28.0	35.5	61.1	31.8	29.4	5.5	17.7	22.7	23.9	8.1	12.5	13.8	2.7	13.6	2.125

NOTE: Dimensions are in inches.

Dimensions — 50XCW16,24

Rear Return, Vertical Discharge

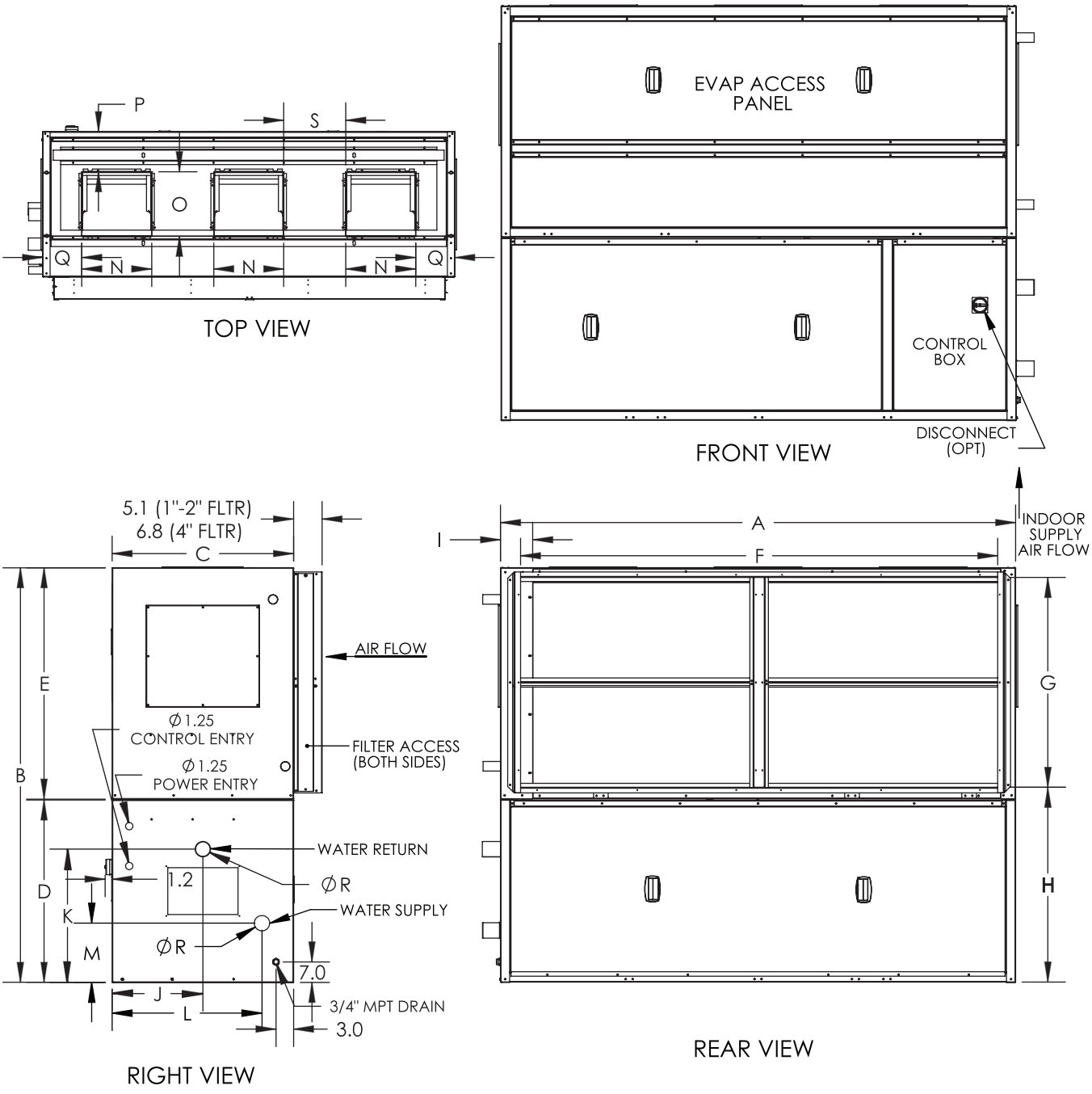


UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)					WATER SUPPLY/ RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	R
16	88.0	66.7	31.2	31.2	35.5	81.0	31.8	33.2	5.5	17.8	22.8	10.7	4.2	12.5	13.8	8.5	13.5	11.7	2.625
24	88.0	70.8	31.2	31.2	39.5	81.5	35.8	33.3	5.5	17.8	22.8	10.7	4.2	14.9	13.8	8.6	8.3	13.2	2.625

NOTE: Dimensions are in inches.

Dimensions — 50XCW16,24 (cont)

Rear Return, Vertical Discharge with Head Pressure Control (HPC)

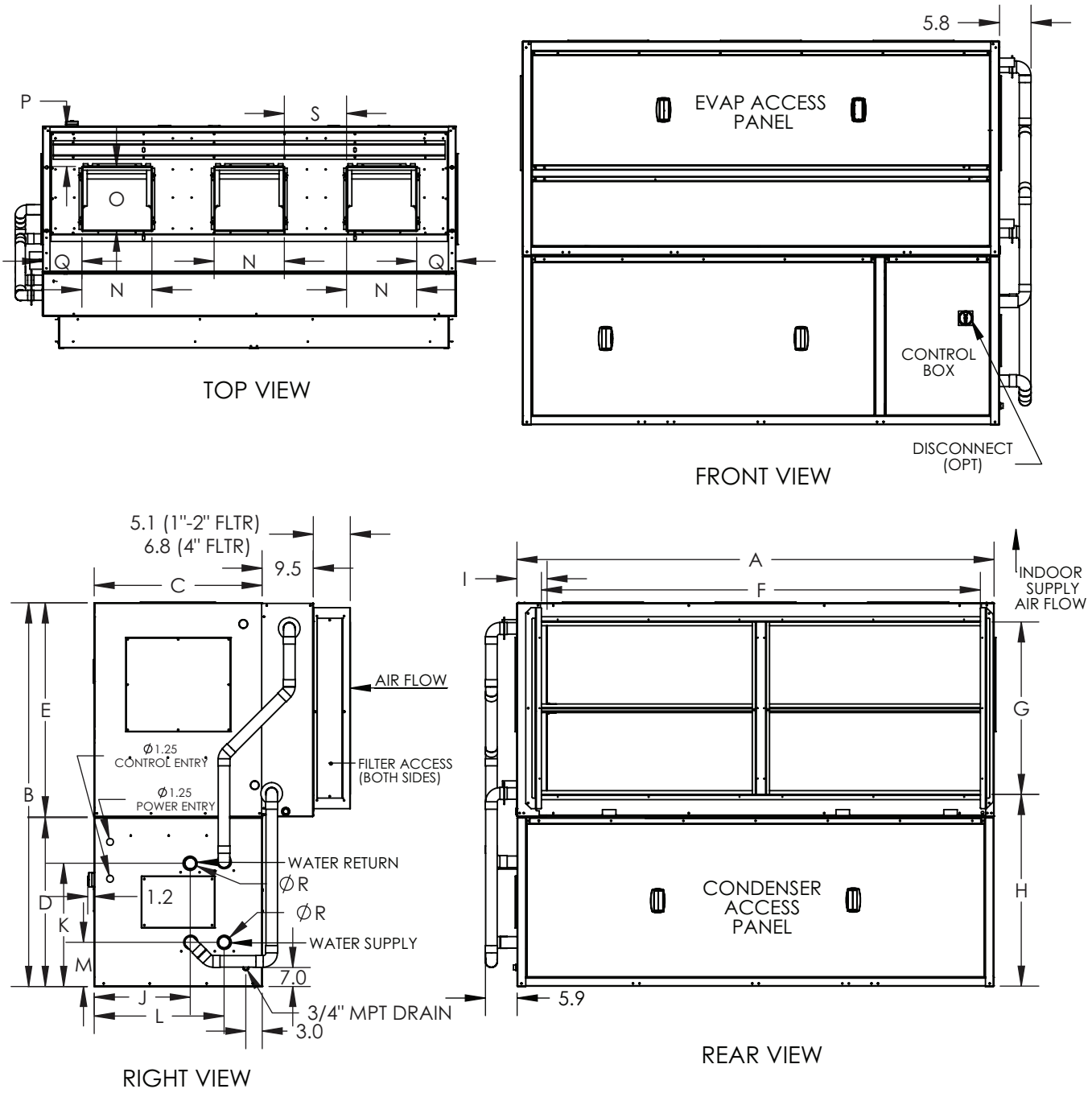


UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)					WATER SUPPLY/RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	R
16	88.0	66.7	31.2	31.2	35.5	81.0	31.8	33.2	5.5	17.8	22.8	25.6	10.1	12.5	13.8	8.5	13.5	11.7	2.625
24	88.0	70.8	31.2	31.2	39.5	81.5	35.8	33.3	5.5	17.8	22.8	25.6	10.1	14.9	13.8	8.6	8.3	13.2	2.625

NOTE: Dimensions are in inches.

Dimensions — 50XCW16,24 (cont)

Rear Return, Vertical Discharge with Economizer

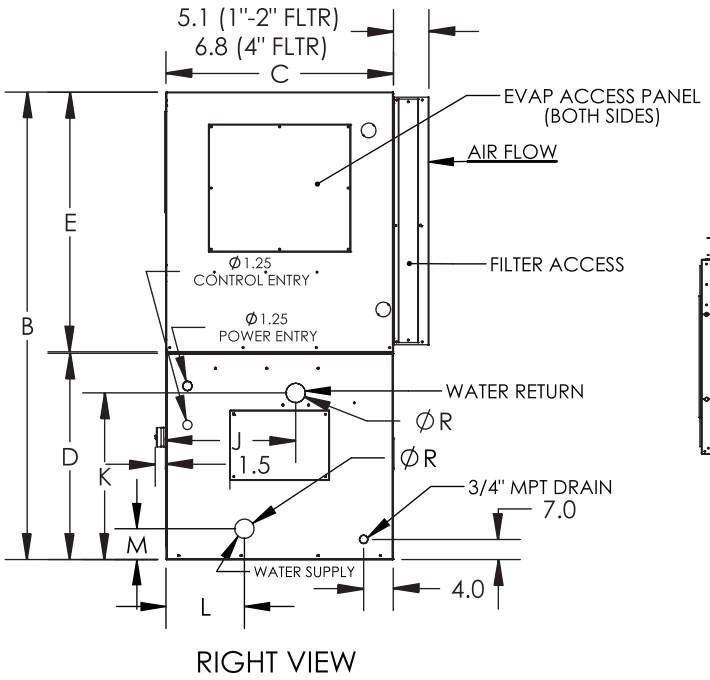


UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)					WATER SUPPLY/ RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	R
16	88.0	66.7	31.2	31.2	35.5	81.0	31.8	33.2	5.5	17.8	22.8	24.0	8.9	12.5	13.8	8.5	13.5	11.7	2.625
24	88.0	70.8	31.2	31.2	39.5	81.5	35.8	33.3	5.5	17.8	22.8	24.0	8.9	14.9	13.8	8.6	8.3	13.2	2.625

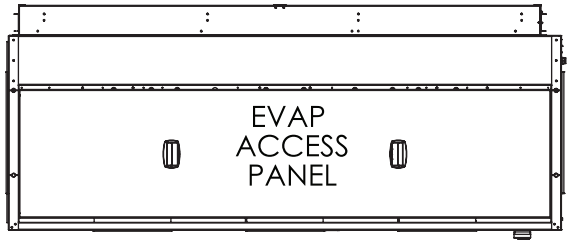
NOTE: Dimensions are in inches.

Dimensions — 50XCW16,24 (cont)

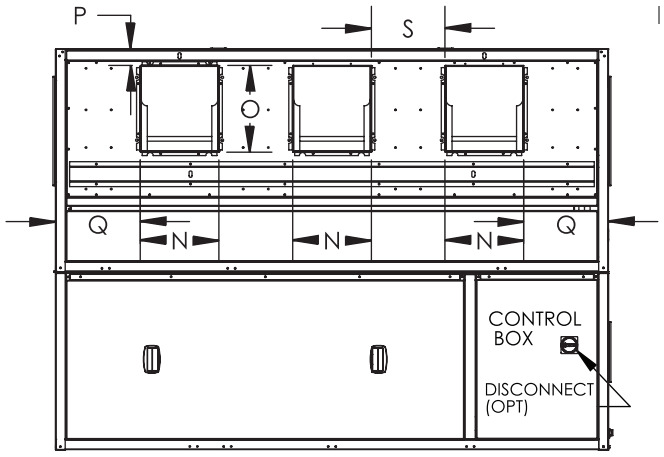
Rear Return, Horizontal Discharge



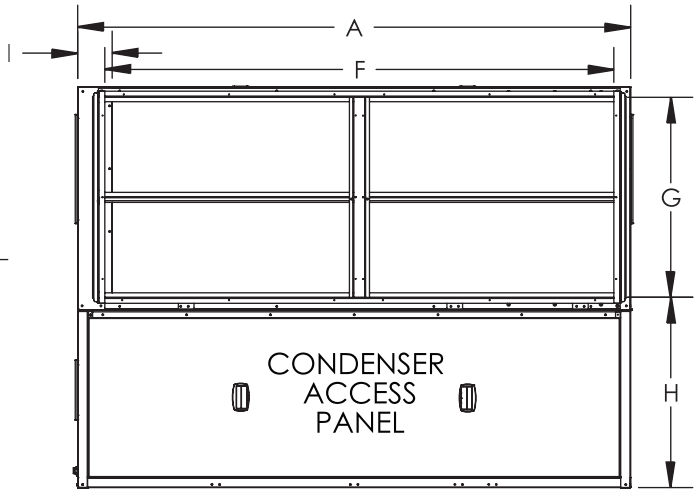
RIGHT VIEW



TOP VIEW



FRONT VIEW



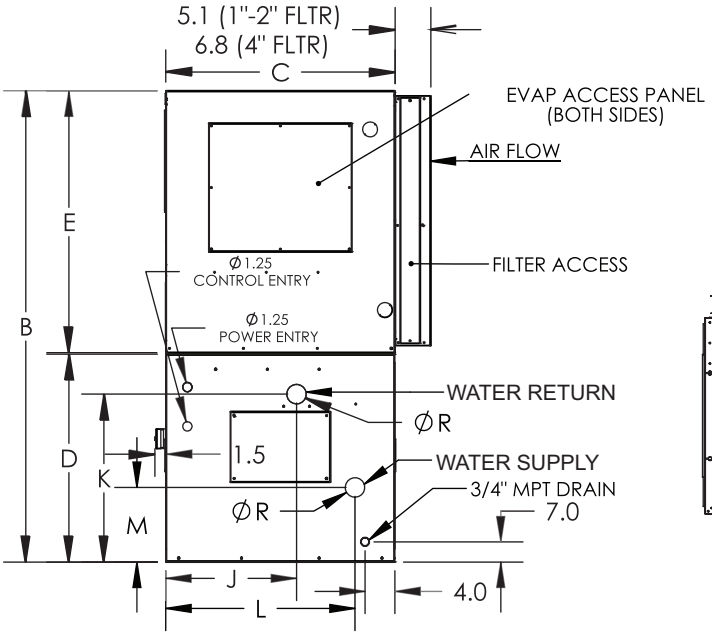
REAR VIEW

UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)					WATER SUPPLY/ RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	R
16	88.0	66.7	31.2	31.2	35.5	81.0	31.8	33.2	5.5	17.8	22.8	10.7	4.2	12.5	13.8	2.6	13.5	11.7	2.625
24	88.0	70.8	31.2	31.2	39.5	81.5	35.8	33.3	5.5	17.8	22.8	10.7	4.2	14.9	13.8	2.6	8.3	13.2	2.625

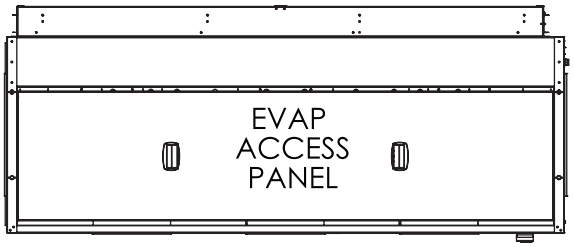
NOTE: Dimensions are in inches.

Dimensions — 50XCW16,24 (cont)

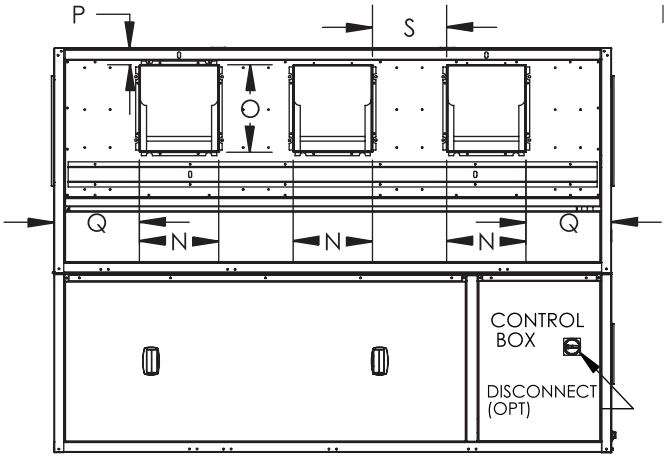
Rear Return, Horizontal Discharge With Head Pressure Control (HPC)



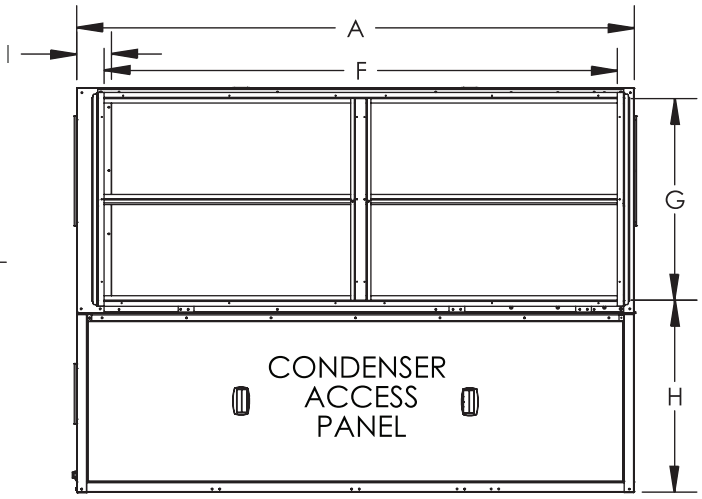
RIGHT VIEW



TOP VIEW



FRONT VIEW



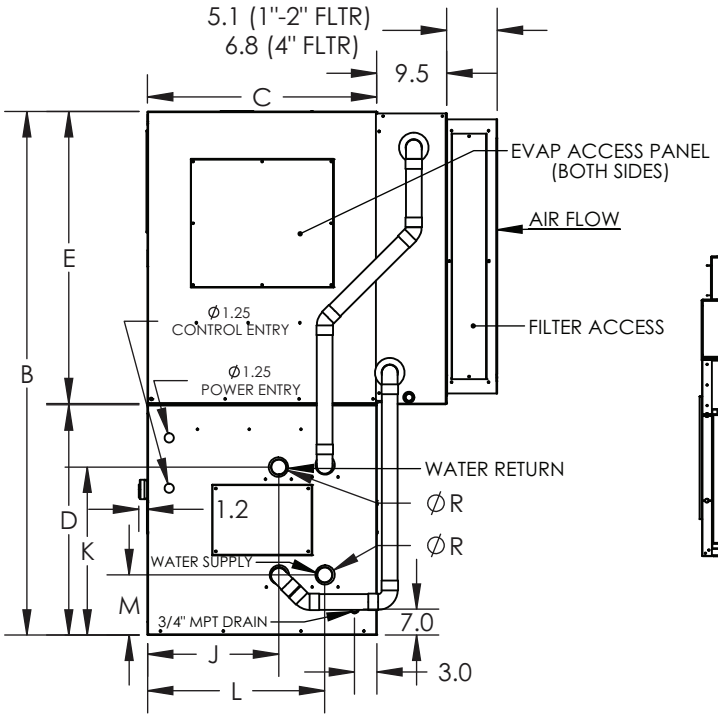
REAR VIEW

UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)					WATER SUPPLY/RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	R
16	88.0	66.7	31.2	31.2	35.5	81.0	31.8	33.2	5.5	17.8	22.8	25.6	10.1	12.5	13.8	2.6	13.5	11.7	2.625
24	88.0	70.8	31.2	31.2	39.5	81.5	35.8	33.3	5.5	17.8	22.8	25.6	10.1	14.9	13.8	2.6	8.3	13.2	2.625

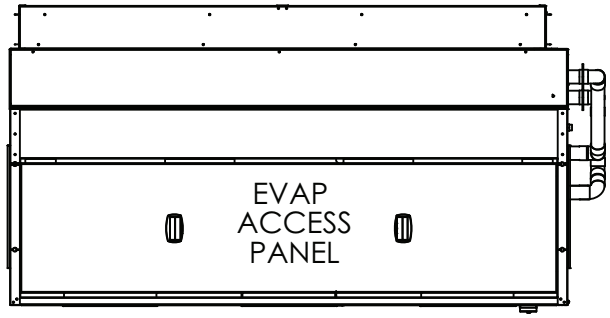
NOTE: Dimensions are in inches.

Dimensions — 50XCW16,24 (cont)

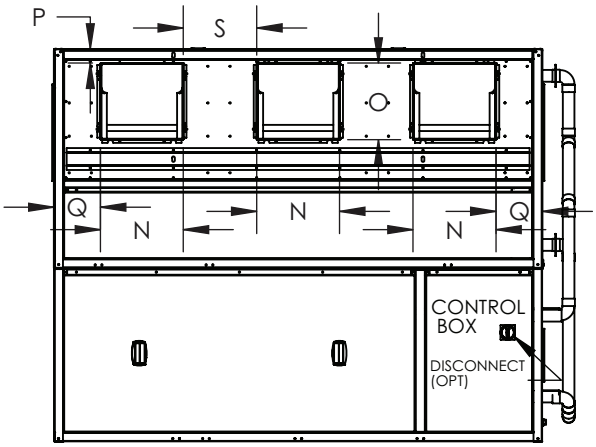
Rear Return, Horizontal Discharge with Economizer



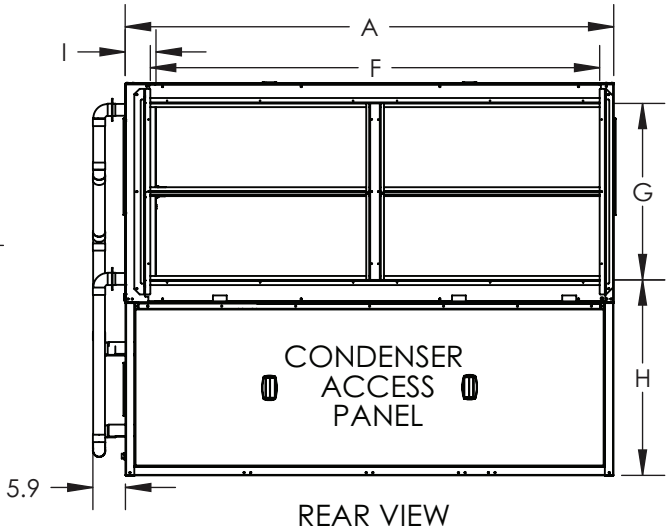
RIGHT VIEW



TOP VIEW



FRONT VIEW



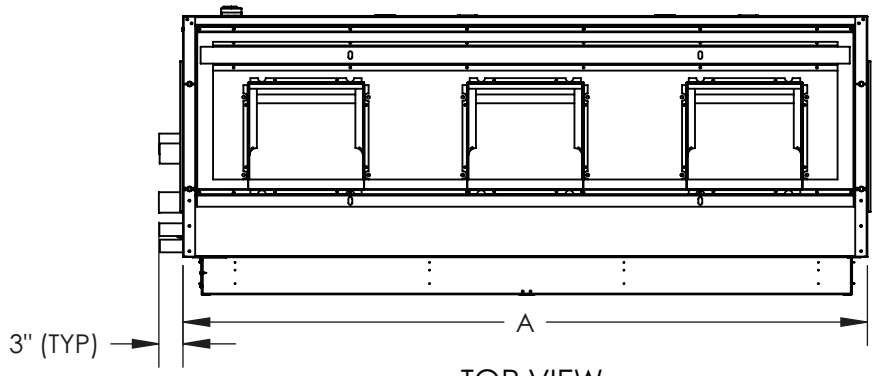
REAR VIEW

UNIT 50XCW	WIDTH	HEIGHT	DEPTH	COND SECTION	EVAP SECTION	EVAPORATOR RETURN DUCT				WATER RETURN CONN		WATER SUPPLY CONN		EVAP SUPPLY DUCT (Blower Opening)					WATER SUPPLY/ RETURN CONNECTIONS MPT (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	R
16	88.0	66.7	31.2	31.2	35.5	81.0	31.8	33.2	5.5	17.8	22.8	24.0	8.9	12.5	13.8	2.6	13.5	11.7	2.625
24	88.0	70.8	31.2	31.2	39.5	81.5	35.8	33.3	5.5	17.8	22.8	24.0	8.9	14.9	13.8	2.6	8.3	13.2	2.625

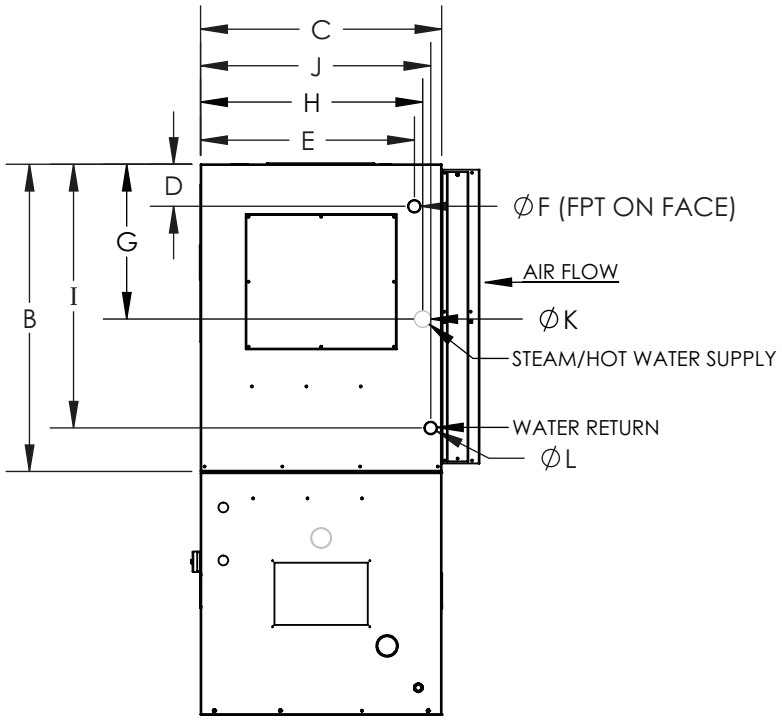
NOTE: Dimensions are in inches.

Dimensions (cont)

50XC Hot Water/Steam



TOP VIEW



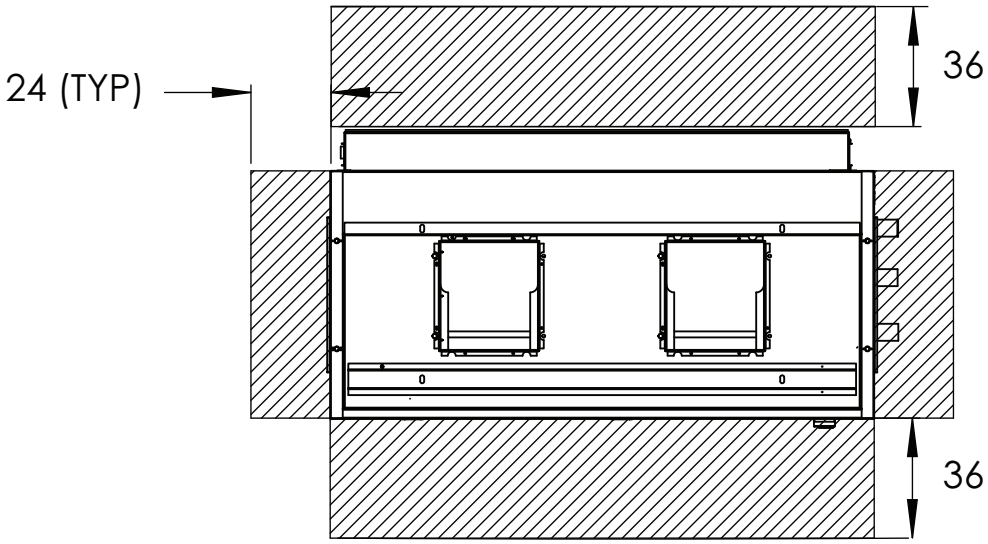
RIGHT VIEW

UNIT SIZE	A	B	C	VENT			STEAM/HOT WATER COIL STUBOUTS				COIL/CONNECTION TYPE	SUPPLY/ RETURN DIAMETER	
				D	E	F	G	H	I	J		K	L
06,08	51.3	31.0	29.0	—	—	—	6.4	25.4	25.4	27.4	Hot Water (OD)	1.375	1.375
	51.3	31.0	29.0	3.3	28.2	0.5	15.5	28.2	26.9	28.2	Steam (MPT)	2.0	1.5
12	68.0	35.5	31.2	—	—	—	5.2	27.6	29.7	29.6	Hot Water (OD)	1.375	1.375
	68.0	35.5	31.2	3.6	29.3	0.5	17.8	29.3	31.2	29.3	Steam (MPT)	2.0	1.5
14	68.0	35.5	31.2	—	—	—	5.2	27.6	29.7	29.6	Hot Water (OD)	1.375	1.375
	68.0	35.5	31.2	3.6	29.3	0.5	17.8	29.3	31.2	29.3	Steam (MPT)	2.0	1.5
16	88.0	35.5	31.2	—	—	—	5.2	27.5	29.7	29.6	Hot Water (OD)	1.625	1.625
	88.0	35.5	31.2	3.6	29.3	0.5	17.8	29.3	31.2	29.3	Steam (MPT)	2.0	1.5
24	88.0	39.5	31.2	—	—	—	3.9	27.5	33.7	29.6	Hot Water (OD)	1.625	1.625
	88.0	39.5	31.2	3.6	29.3	0.5	19.8	29.3	35.2	29.3	Steam (MPT)	2.0	1.5

NOTE: Dimensions are in inches.

Dimensions (cont)

Unit Clearances



NOTE: Dimensions are in inches.

Performance data

Steam Capacities[a,b]

UNIT SIZE 50XCW	STEAM PRESSURE (psig)	cfm	40°F EAT		50°F EAT		60°F EAT		70°F EAT	
			TC	LDB	TC	LDB	TC	LDB	TC	LDB
06	2	1,500	86	92.1	81	99.2	76	106.3	72	113.4
		2,000	103	86.7	97	94.1	91	101.5	86	108.9
		2,500	118	82.8	111	90.4	104	98.0	98	105.6
	5	1,500	90	94.5	85	101.6	80	108.7	76	115.8
		2,000	108	88.9	102	96.3	96	103.6	90	111.0
		2,500	123	84.7	116	92.3	110	99.9	103	107.5
	10	1,500	96	97.9	91	105.0	86	112.1	81	119.2
		2,000	114	92.0	109	99.3	103	106.7	97	114.1
		2,500	131	87.5	124	95.1	118	102.8	111	110.4
08	2	2,250	124	90.1	117	97.3	110	104.5	103	111.7
		3,000	148	84.8	140	92.3	132	99.8	123	107.3
		3,750	169	80.9	159	88.6	150	96.4	141	104.1
	5	2,250	130	92.4	123	99.6	116	106.8	109	114.0
		3,000	155	86.9	147	94.4	138	101.9	130	109.4
		3,750	177	82.8	167	90.5	158	98.2	148	105.9
	10	2,250	138	95.7	131	102.9	124	110.1	117	117.3
		3,000	165	89.8	156	97.4	148	104.8	140	112.4
		3,750	188	85.5	178	93.2	169	100.9	159	108.7
12	2	3,000	174	92.8	164	99.8	155	106.9	145	113.9
		4,000	209	87.4	197	94.8	185	102.1	174	109.5
		5,000	238	83.4	225	90.9	212	98.5	199	106.1
	5	3,000	182	95.2	173	102.3	163	109.3	153	116.4
		4,000	218	89.6	207	96.9	195	104.3	183	111.6
		5,000	249	85.3	236	92.9	223	100.5	209	108.1
	10	3,000	194	98.7	184	105.7	174	112.8	164	119.8
		4,000	232	92.7	220	100.0	209	107.4	197	114.8
		5,000	265	88.2	252	95.8	239	103.4	225	110.9
14	2	3,750	200	88.6	189	95.9	178	103.2	167	110.4
		5,000	239	83.4	225	91.0	212	98.5	199	106.1
		6,250	272	79.5	257	87.3	241	95.1	226	102.9
	5	3,750	210	90.8	198	98.1	187	105.4	176	112.7
		5,000	250	85.4	236	92.9	223	100.5	210	108.1
		6,250	284	81.4	269	89.1	254	96.9	239	104.7
	10	3,750	223	94.0	212	101.3	200	108.6	189	115.6
		5,000	265	88.2	252	95.8	239	103.4	225	111.0
		6,250	302	84.0	287	91.8	272	99.5	257	107.3
16	2	4,500	250	90.6	236	97.7	222	104.9	208	112.1
		6,000	299	85.3	282	92.7	265	100.2	249	107.7
		7,500	341	81.3	322	89.0	303	96.7	284	104.4
	5	4,500	262	92.9	248	100.1	234	107.2	220	114.4
		6,000	312	87.3	296	94.8	279	102.3	262	109.8
		7,500	357	83.2	338	90.9	319	98.6	300	106.3
	10	4,500	278	96.2	264	103.4	250	110.6	236	117.8
		6,000	332	90.3	315	97.8	299	105.3	282	112.7
		7,500	379	86.0	360	93.6	341	101.4	322	109.0
24	2	6,000	310	87.0	293	94.4	276	101.7	258	109.1
		8,000	368	81.9	348	89.5	327	97.2	307	104.9
		10,000	419	78.1	395	85.9	372	93.8	349	101.7
	5	6,000	324	89.2	307	96.5	290	103.9	272	111.3
		8,000	385	83.8	365	91.4	344	99.1	324	106.8
		10,000	438	79.8	415	87.7	391	95.6	368	103.4
	10	6,000	345	92.2	328	99.6	310	107.0	293	114.4
		8,000	410	86.5	389	94.2	368	101.9	348	109.5
		10,000	466	82.3	442	90.2	419	98.1	396	106.0

NOTE(S):

a. Elevation is sea level.
b. Operating at discharge temperatures above 104°F (40°C) is not recommended due to the shortened service life of the electrical components.

LEGEND

CFM — Cubic Feet per Minute
EAT — Entering Air Temperature
LDB — Leaving Dry-Bulb (F)
TC — Total Capacity (thousands of Btu per hour)

Performance data (cont)

Evaporator Fan Performance — 50XCW06, 50XCA06, 50XCR06 Units[a,b,c,d,e]

cfm	ESP (in. wg)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1500	***477***	***0.19***	***542***	***0.24***	***603***	***0.30***	660	0.36	714	0.43	766	0.50	816	0.58	864	0.66	910	0.74	954	0.83
1600	***509***	***0.23***	***570***	***0.28***	627	0.34	682	0.41	734	0.48	784	0.55	832	0.63	878	0.71	923	0.80	966	0.89
1700	***540***	***0.27***	***598***	***0.33***	653	0.40	705	0.46	755	0.54	803	0.61	849	0.69	894	0.78	937	0.87	979	0.96
1800	***572***	***0.32***	627	0.39	679	0.45	729	0.52	777	0.60	823	0.68	868	0.76	911	0.85	953	0.94	994	1.03
1900	***604***	***0.38***	656	0.45	706	0.52	754	0.59	800	0.67	844	0.75	887	0.83	929	0.92	970	1.01	1009	1.11
2000	636	0.44	685	0.51	733	0.58	779	0.66	823	0.74	866	0.83	908	0.91	948	1.01	988	1.10	1026	1.20
2100	668	0.51	715	0.58	760	0.66	804	0.74	847	0.82	888	0.91	929	1.00	968	1.09	1006	1.19	1044	1.29
2200	699	0.59	744	0.66	788	0.74	831	0.83	872	0.91	912	1.00	951	1.09	989	1.19	1026	1.29	1062	1.39
2300	731	0.67	774	0.75	816	0.83	857	0.92	897	1.01	935	1.10	973	1.20	1010	1.30	1046	1.40	1081	1.50
2400	763	0.76	804	0.85	845	0.93	884	1.02	922	1.11	960	1.21	996	1.31	1032	1.41	1067	1.51	1101	1.62
2500	795	0.86	835	0.95	873	1.04	911	1.13	948	1.22	985	1.32	1020	1.42	1055	1.53	1089	1.63	1122	1.74
2600	826	0.97	865	1.06	902	1.15	939	1.25	975	1.35	1010	1.45	1044	1.55	1078	1.66	1111	1.77	1144	1.88
2700	858	1.09	895	1.18	931	1.28	967	1.37	1002	1.47	1036	1.58	1069	1.68	1102	1.79	—	—	—	—
2800	890	1.21	926	1.31	961	1.41	995	1.51	1029	1.61	1062	1.72	1094	1.83	—	—	—	—	—	—
2900	922	1.35	956	1.45	990	1.55	1023	1.65	1056	1.76	1088	1.87	—	—	—	—	—	—	—	—

cfm	ESP (in. wg)																			
	1.00		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1500	997	0.92	1039	1.02	1080	1.12	1119	1.22	1158	1.33	***1195***	***1.44***	***1232***	***1.55***	***1268***	***1.67***	***1303***	***1.79***	—	—
1600	1008	0.99	1049	1.08	1088	1.18	1127	1.29	1165	1.40	***1201***	***1.51***	***1237***	***1.62***	***1273***	***1.74***	***1307***	***1.86***	—	—
1700	1020	1.05	1060	1.15	1098	1.26	1136	1.36	1173	1.47	***1209***	***1.58***	***1244***	***1.70***	***1279***	***1.82***	—	—	—	—
1800	1033	1.13	1072	1.23	1110	1.33	1147	1.44	***1183***	***1.55***	***1218***	***1.66***	***1252***	***1.78***	***1286***	***1.90***	—	—	—	—
1900	1048	1.21	1086	1.31	1122	1.42	1158	1.53	***1193***	***1.64***	***1228***	***1.75***	***1262***	***1.87***	—	—	—	—	—	—
2000	1063	1.30	1100	1.40	1136	1.51	1171	1.62	***1205***	***1.73***	***1239***	***1.85***	—	—	—	—	—	—	—	—
2100	1080	1.39	1116	1.50	1151	1.61	***1185***	***1.72***	***1219***	***1.84***	—	—	—	—	—	—	—	—	—	—
2200	1098	1.50	1132	1.61	1166	1.72	***1200***	***1.83***	—	—	—	—	—	—	—	—	—	—	—	—
2300	1116	1.61	1150	1.72	***1183***	***1.83***	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2400	1135	1.73	1168	1.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2500	1155	1.86	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicate field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Evaporator Fan Performance — 50XCW08, 50XCA08, 50XCR08 Units[a,b,c,d,e]

cfm	ESP (in. wg)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2200	***497***	***0.27***	581	0.39	655	0.52	722	0.66	782	0.80	839	0.95	892	1.11	941	1.28	989	1.45	1034	1.62
2400	542	0.35	621	0.48	690	0.62	753	0.77	812	0.92	866	1.08	917	1.25	966	1.42	1012	1.60	1056	1.78
2600	587	0.45	660	0.59	726	0.74	787	0.89	843	1.06	895	1.22	945	1.40	992	1.58	1037	1.76	—	—
2800	632	0.56	701	0.71	763	0.87	821	1.04	875	1.21	925	1.38	974	1.57	1019	1.75	—	—	—	—
3000	677	0.69	742	0.85	801	1.02	856	1.19	908	1.37	957	1.56	1003	1.75	—	—	—	—	—	—
3200	723	0.84	783	1.01	839	1.19	892	1.37	942	1.56	989	1.76	—	—	—	—	—	—	—	—
3400	768	1.01	825	1.19	879	1.37	929	1.57	977	1.77	—	—	—	—	—	—	—	—	—	—
3600	813	1.19	867	1.39	918	1.58	967	1.79	—	—	—	—	—	—	—	—	—	—	—	—

cfm	ESP (in. wg)									
	1.00		1.10		1.20		1.30		1.40	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2200	1077	1.80	—	—	—	—	—	—	—	—
2400	—	—	—	—	—	—	—	—	—	—
2600	—	—	—	—	—	—	—	—	—	—
2800	—	—	—	—	—	—	—	—	—	—
3000	—	—	—	—	—	—	—	—	—	—
3200	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—
3600	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicate field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Evaporator Fan Performance — 50XCW12, 50XCA12, 50XCR12 Units[a,b,c,d,e]

cfm	ESP (in. wg)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	***381***	***0.26***	***434***	***0.33***	***492***	***0.41***	553	0.51	614	0.63	674	0.77	730	0.93	783	1.10	831	1.29	877	1.47
3200	***406***	***0.32***	***456***	***0.39***	510	0.48	566	0.58	624	0.69	681	0.83	735	0.99	788	1.16	837	1.35	882	1.54
3400	***432***	***0.39***	***478***	***0.46***	528	0.55	581	0.65	635	0.76	689	0.90	742	1.05	793	1.22	841	1.41	887	1.61
3600	***457***	***0.46***	501	0.54	548	0.63	597	0.73	647	0.84	699	0.98	749	1.13	799	1.30	847	1.48	892	1.68
3800	***483***	***0.54***	524	0.62	568	0.72	614	0.82	661	0.93	710	1.06	758	1.21	806	1.38	852	1.56	897	1.76
4000	508	0.63	547	0.71	588	0.81	632	0.92	677	1.04	722	1.17	768	1.31	814	1.47	859	1.65	903	1.85
4200	533	0.73	570	0.82	609	0.92	650	1.03	693	1.15	736	1.28	780	1.42	823	1.58	867	1.76	910	1.95
4400	559	0.83	594	0.93	631	1.03	670	1.15	710	1.27	751	1.40	792	1.54	834	1.70	876	1.87	917	2.06
4600	584	0.95	618	1.05	653	1.16	690	1.28	728	1.40	767	1.53	806	1.68	846	1.83	886	2.01	926	2.19
4800	610	1.08	641	1.19	675	1.30	710	1.42	746	1.54	783	1.68	821	1.82	859	1.98	897	2.15	936	2.33
5000	635	1.22	666	1.33	698	1.45	731	1.57	766	1.70	801	1.84	837	1.98	873	2.14	910	2.31	946	2.49

cfm	ESP (in. wg)																			
	1.00		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3200	925	1.74	965	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400	931	1.82	972	2.03	1010	2.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	936	1.89	977	2.11	1016	2.33	1053	2.56	1089	2.78	—	—	—	—	—	—	—	—	—	—
3800	941	1.97	982	2.19	1022	2.42	1059	2.65	—	—	—	—	—	—	—	—	—	—	—	—
4000	946	2.06	987	2.28	1027	2.51	1064	2.75	—	—	—	—	—	—	—	—	—	—	—	—
4200	951	2.16	992	2.38	1031	2.61	1069	2.85	—	—	—	—	—	—	—	—	—	—	—	—
4400	958	2.27	998	2.49	1037	2.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	965	2.39	1004	2.61	1042	2.83	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4800	974	2.53	1011	2.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5000	983	2.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicate field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Evaporator Fan Performance — 50XCW14, 50XCA14, 50XCR14 Units[a,b,c,d,e]

cfm	ESP (in. wg)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3500	***450***	***0.30***	***495***	***0.46***	537	0.56	583	0.65	633	0.76	687	0.89	742	1.05	793	1.23	841	1.41	885	1.60
3700	***476***	***0.35***	519	0.53	558	0.64	600	0.73	646	0.84	696	0.96	748	1.12	799	1.29	847	1.48	892	1.68
3900	502	0.41	543	0.60	580	0.72	619	0.83	661	0.93	707	1.05	756	1.19	805	1.37	852	1.56	898	1.76
4100	527	0.48	566	0.68	602	0.82	639	0.93	678	1.03	720	1.15	765	1.29	811	1.45	858	1.64	903	1.84
4300	553	0.55	591	0.77	625	0.92	659	1.04	696	1.15	735	1.26	776	1.40	820	1.55	865	1.73	909	1.93
4500	579	0.63	615	0.87	648	1.03	681	1.15	715	1.27	751	1.39	789	1.52	830	1.67	872	1.84	915	2.03
4700	604	0.72	639	0.97	671	1.14	702	1.28	734	1.40	768	1.52	804	1.65	842	1.80	882	1.96	922	2.15
4900	630	0.81	664	1.08	694	1.27	724	1.41	755	1.55	786	1.67	820	1.80	855	1.94	892	2.10	931	2.28
5100	656	0.92	688	1.20	718	1.40	746	1.56	776	1.70	806	1.83	837	1.96	870	2.10	905	2.26	941	2.43
5300	682	1.03	713	1.33	741	1.54	769	1.71	797	1.86	826	2.00	855	2.14	886	2.28	919	2.43	953	2.59
5500	707	1.15	738	1.47	765	1.69	792	1.88	819	2.03	846	2.18	874	2.32	903	2.46	934	2.62	966	2.78
5700	733	1.28	763	1.61	789	1.85	815	2.05	841	2.22	867	2.37	894	2.52	921	2.67	950	2.82	980	2.98
5900	759	1.42	787	1.77	813	2.02	838	2.23	863	2.41	888	2.57	914	2.73	940	2.88	968	3.03	996	3.19
6100	784	1.57	812	1.93	838	2.20	862	2.42	886	2.62	910	2.79	934	2.95	960	3.11	986	3.27	1013	3.43

cfm	ESP (in. wg)																			
	1.00		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3500	925	1.78	962	1.97	997	2.15	1030	2.32	1061	2.50	—	—	—	—	—	—	—	—	—	—
3700	933	1.88	971	2.07	1007	2.27	1041	2.46	1072	2.65	1103	2.83	—	—	—	—	—	—	—	—
3900	940	1.97	979	2.17	1016	2.38	1051	2.59	1083	2.79	1114	2.99	1143	3.19	1172	3.38	1199	3.57	1225	3.76
4100	946	2.05	986	2.27	1024	2.49	1059	2.71	1093	2.93	1124	3.14	1154	3.35	1183	3.56	1211	3.77	1237	3.97
4300	951	2.15	992	2.37	1030	2.60	1067	2.83	1101	3.06	1133	3.29	1164	3.51	1194	3.73	1222	3.95	1249	4.17
4500	957	2.24	998	2.47	1036	2.71	1073	2.94	1108	3.18	1141	3.43	1173	3.66	1203	3.90	1232	4.14	1260	4.37
4700	963	2.35	1003	2.58	1042	2.81	1079	3.06	1115	3.31	1149	3.56	1181	3.81	1212	4.06	1241	4.31	1269	4.56
4900	970	2.48	1009	2.70	1047	2.93	1085	3.18	1121	3.43	1155	3.69	1188	3.95	1219	4.22	1249	4.48	1278	4.74
5100	978	2.62	1016	2.83	1053	3.06	1090	3.31	1126	3.56	1161	3.83	1194	4.10	1226	4.37	1257	4.64	—	—
5300	988	2.78	1024	2.98	1060	3.20	1096	3.44	1132	3.70	1166	3.97	1200	4.24	1232	4.52	—	—	—	—
5500	999	2.95	1033	3.15	1068	3.37	1103	3.60	1137	3.85	1172	4.11	1205	4.39	1238	4.67	—	—	—	—
5700	1012	3.15	1044	3.34	1077	3.55	1110	3.77	1144	4.02	1178	4.28	1211	4.55	—	—	—	—	—	—
5900	1025	3.36	1056	3.55	1087	3.75	1119	3.97	1152	4.20	1184	4.45	1217	4.72	—	—	—	—	—	—
6100	1040	3.60	1069	3.78	1099	3.97	1129	4.18	1160	4.41	1192	4.65	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicate field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Evaporator Fan Performance — 50XCW16, 50XCA16, 50XCR16 Units[a,b,c,d,e]

cfm	ESP (in. wg)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	***414***	***0.53***	482	0.69	544	0.86	600	1.03	652	1.21	701	1.40	747	1.59	790	1.79	832	1.99	872	2.20
4750	***437***	***0.63***	502	0.79	561	0.97	615	1.15	666	1.34	714	1.53	758	1.73	801	1.94	842	2.15	881	2.37
5000	***460***	***0.73***	522	0.91	579	1.09	632	1.28	681	1.48	727	1.68	771	1.89	813	2.10	853	2.32	892	2.54
5250	***483***	***0.85***	542	1.04	597	1.23	648	1.43	696	1.63	741	1.84	784	2.06	825	2.28	865	2.50	902	2.73
5500	506	0.98	563	1.17	616	1.38	665	1.58	712	1.79	756	2.01	798	2.24	838	2.46	877	2.70	914	2.94
5750	529	1.12	584	1.33	635	1.54	682	1.75	728	1.97	771	2.20	812	2.43	851	2.67	889	2.91	926	3.15
6000	552	1.28	604	1.49	654	1.71	700	1.93	744	2.16	786	2.40	826	2.64	865	2.88	902	3.13	938	3.38
6250	575	1.45	625	1.67	673	1.90	718	2.13	761	2.37	802	2.61	841	2.86	879	3.11	916	3.37	951	3.63
6500	598	1.63	647	1.86	693	2.10	737	2.34	778	2.59	818	2.84	857	3.09	894	3.35	929	3.62	964	3.89
6750	621	1.83	668	2.07	713	2.32	755	2.57	796	2.82	835	3.08	872	3.34	909	3.61	944	3.89	978	4.16
7000	644	2.04	689	2.29	733	2.55	774	2.81	814	3.07	852	3.34	888	3.61	924	3.89	958	4.17	992	4.46
7250	667	2.27	711	2.53	753	2.80	793	3.07	832	3.34	869	3.62	905	3.90	940	4.18	973	4.47	—	—
7500	690	2.52	732	2.79	773	3.06	812	3.34	850	3.62	886	3.91	922	4.20	956	4.49	—	—	—	—
7750	713	2.79	754	3.07	794	3.35	832	3.63	869	3.92	904	4.22	939	4.52	—	—	—	—	—	—
8000	736	3.07	776	3.36	814	3.65	852	3.94	887	4.24	922	4.55	—	—	—	—	—	—	—	—

cfm	ESP (in. wg)																			
	1.00		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	910	2.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4750	919	2.59	955	2.82	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5000	929	2.77	965	3.01	999	3.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5250	939	2.97	974	3.21	1008	3.46	1042	3.71	—	—	—	—	—	—	—	—	—	—	—	—
5500	950	3.18	984	3.43	1018	3.68	1051	3.94	1083	4.21	1114	4.47	—	—	—	—	—	—	—	—
5750	961	3.40	995	3.66	1028	3.92	1061	4.19	1092	4.46	1123	4.73	—	—	—	—	—	—	—	—
6000	973	3.64	1006	3.91	1039	4.17	1071	4.45	1102	4.72	—	—	—	—	—	—	—	—	—	—
6250	985	3.90	1018	4.17	1050	4.44	1082	4.72	—	—	—	—	—	—	—	—	—	—	—	—
6500	998	4.16	1030	4.44	1062	4.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6750	1011	4.45	1043	4.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7000	1024	4.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicate field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Evaporator Fan Performance — 50XCW24, 50XCA24, 50XCR24 Units[a,b,c,d,e]

cfm	ESP (in. wg)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	558	1.10	619	1.37	675	1.65	728	1.93	777	2.23	824	2.53	869	2.84	912	3.15	952	3.47	992	3.79
6,300	585	1.27	644	1.55	698	1.84	749	2.14	797	2.45	843	2.76	887	3.08	928	3.41	968	3.74	1007	4.08
6,600	613	1.46	669	1.76	722	2.06	771	2.37	818	2.69	862	3.02	905	3.35	945	3.69	985	4.03	1023	4.38
6,900	641	1.67	695	1.98	746	2.29	793	2.62	839	2.95	882	3.29	923	3.63	963	3.98	1002	4.34	1039	4.70
7,200	669	1.90	721	2.22	770	2.55	816	2.88	860	3.23	902	3.58	943	3.93	982	4.30	1019	4.66	1056	5.03
7,500	697	2.14	747	2.48	794	2.82	839	3.17	882	3.53	923	3.89	962	4.26	1000	4.63	1037	5.01	1073	5.39
7,800	725	2.41	773	2.76	818	3.11	862	3.48	904	3.85	944	4.22	982	4.60	1020	4.99	1056	5.38	1091	5.77
8,000	743	2.60	790	2.96	835	3.32	878	3.69	918	4.07	958	4.45	996	4.84	1033	5.23	1068	5.63	1103	6.04
8,300	771	2.90	817	3.27	860	3.65	901	4.03	941	4.42	979	4.82	1017	5.22	1053	5.63	1087	6.04	1121	6.45
8,600	799	3.23	843	3.61	885	4.00	925	4.40	964	4.80	1001	5.21	1038	5.62	1073	6.04	1107	6.47	1140	6.89
8,900	827	3.58	869	3.98	910	4.38	949	4.79	987	5.20	1024	5.62	1059	6.05	1093	6.48	1127	6.92	—	—
9,200	855	3.96	896	4.36	935	4.78	973	5.20	1010	5.63	1046	6.06	1081	6.50	1114	6.94	—	—	—	—
9,500	883	4.35	923	4.78	961	5.21	998	5.64	1034	6.08	1069	6.53	1103	6.98	—	—	—	—	—	—
9,800	911	4.78	949	5.22	987	5.66	1023	6.11	1058	6.56	1092	7.02	—	—	—	—	—	—	—	—
10,000	929	5.08	967	5.52	1004	5.97	1039	6.43	1074	6.89	—	—	—	—	—	—	—	—	—	—

cfm	ESP (in. wg)																			
	1.00		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1030	4.12	1067	4.46	1102	4.80	1137	5.14	1171	5.49	1203	5.84	—	—	—	—	—	—	—	—
6,300	1044	4.42	1080	4.76	1116	5.12	1150	5.47	1183	5.83	1215	6.20	1247	6.56	1278	6.94	—	—	—	—
6,600	1059	4.73	1095	5.09	1129	5.45	1163	5.82	1196	6.19	1228	6.57	1259	6.95	—	—	—	—	—	—
6,900	1075	5.06	1110	5.43	1144	5.81	1177	6.18	1209	6.57	1241	6.96	—	—	—	—	—	—	—	—
7,200	1091	5.41	1125	5.79	1159	6.18	1191	6.57	1223	6.97	—	—	—	—	—	—	—	—	—	—
7,500	1108	5.78	1141	6.18	1174	6.57	1206	6.98	—	—	—	—	—	—	—	—	—	—	—	—
7,800	1125	6.17	1158	6.58	1190	6.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8,000	1137	6.45	1169	6.86	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8,300	1154	6.88	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8,600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8,900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9,200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9,800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicate field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Electrical data

Electrical Data[a,b,c,d]

UNIT 50XCW	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR NO. 1		COMPRESSOR NO. 2	
		Min	Max	RLA	LRA	RLA	LRA
06	208/230-3-60	187	253	18.3	136	—	—
	460-3-60	414	506	8.8	66	—	—
	575-3-60	518	632	6.6	55	—	—
08	208/230-3-60	187	253	23.0	149	—	—
	460-3-60	414	506	11.0	75	—	—
	575-3-60	518	632	8.0	54	—	—
12	208/230-3-60	187	253	15.6	110	15.9	110
	460-3-60	414	506	7.8	52	7.1	52
	575-3-60	518	632	5.8	39	5.1	39
14	208/230-3-60	187	253	19.6	136	19.2	136
	460-3-60	414	506	8.2	66	8.7	66
	575-3-60	518	632	6.6	55	6.9	55
16	208/230-3-60	187	253	28.7	191	23.0	149
	460-3-60	414	506	13.3	100	11.0	75
	575-3-60	518	632	10.0	78	8.0	54
24	208/230-3-60	187	253	40.7	240	28.7	191
	460-3-60	414	506	19.3	140	13.3	100
	575-3-60	518	632	15.6	107	10.0	78

NOTE(S):

a. In compliance with NEC requirements for multimotor and combination load equipment (NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR circuit breaker. Canadian units may be fuse or circuit breaker.
b. Wire sizing amps are a sum of 125% of the compressor RLA plus 100% of indoor fan motor FLA.
c. Motors are protected against primary single phasing condition.
d. Indoor-fan motors are 3-phase motors of same voltage as unit.

LEGEND

FLA — Full Load Amps
LRA — Locked Rotor Amps
NEC — National Electrical Code
RLA — Rated Load Amps

Electrical data (cont)

Fan Electrical Data

MOTOR CODE	HP	V-PH-Hz	VOLTAGE RANGE		FLA
			Min	Max	
D	1.00	208/230-3-60	187	253	3.2/3.2
		460-3-60	414	506	1.6
		575-3-60	518	632	1.1
E	1.50	208/230-3-60	187	253	4.6/4.8
		460-3-60	414	506	2.4
		575-3-60	518	632	1.6
F	2.00	208/230-3-60	187	253	6.0/5.8
		460-3-60	414	506	2.9
		575-3-60	518	632	2.1
G	3.00	208/230-3-60	187	253	9.2/8.6
		460-3-60	414	506	4.3
		575-3-60	518	632	3.4
H	5.00	208/230-3-60	187	253	14.5/13.6
		460-3-60	414	506	6.8
		575-3-60	518	632	5.4
J	7.50	208/230-3-60	187	253	21.5/19.4
		460-3-60	414	506	9.7
		575-3-60	518	632	7.5

LEGEND

FLA — Full Load Amps

Operating sequence

All units require the addition of a thermostat or DDC control package to complete the control circuit. The sequence of operation may vary depending on which package is selected.

Room-mounted thermostat

The unit uses a field-supplied electronic thermostat mounted in the conditioned space.

Fan circulation

When the thermostat selector switch is set to the FAN position, the evaporator-fan motor will operate to provide air circulation.

Cooling

The supply fan will operate continuously or when the compressor runs, depending on the setting of the thermostat fan selector switch. When the thermostat closes (on a call for cooling), the compressor contactor(s) close. The control relay will start the indoor fan if it is not already running.

A second stage will close if additional cooling demand is required, and will start the second-stage compressor. When the thermostat is satisfied, the second-stage compressor will stop first, and then the first-stage compressors will stop when cooling demand is satisfied.

A 5-minute timer, TDR (time-delay relay), will prevent the compressor(s) from restarting for 5 minutes after any compressor has stopped.

Heating

The supply fan will operate continuously or when heat source (steam or hot water) is enabled. The heat source control and control valve shall be field provided.

Two-speed fan operation

For dual-stage, fan speed shall operate at 67% of full speed for first stage cooling operation and 100% of full speed for second stage cooling operation or any heating operation.

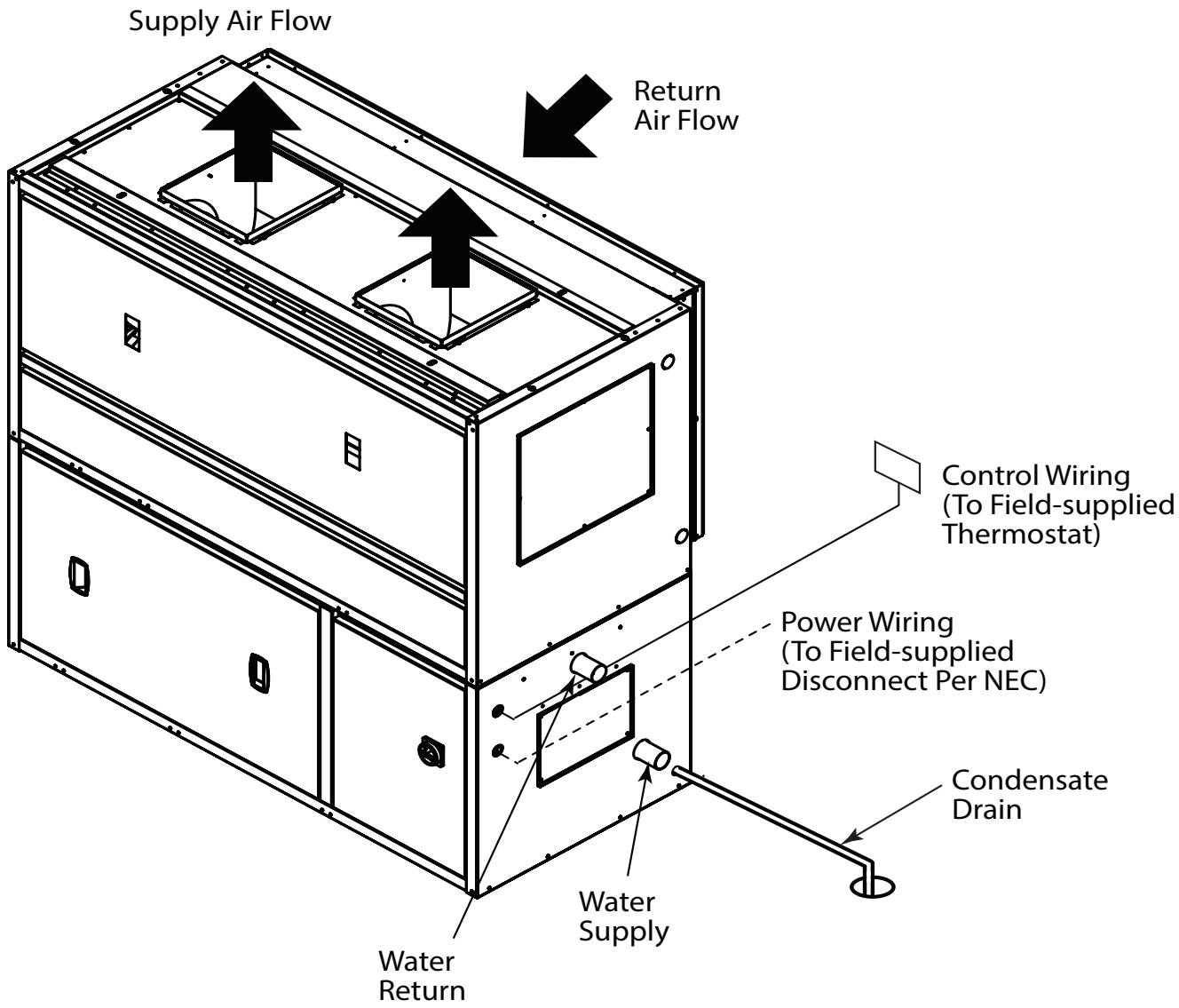
Waterside economizer operation

Economizer operation is enabled if the entering water temperature is below the economizer entering water temperature set point and there is a call for first-stage cooling (Y1 closes at the thermostat). If the water supply temperature is above the set point then economizer operation will be disabled and the first-stage cooling will enable compressor operation. Economizer control valve will be modulated open or closed to maintain a supply-air temperature between 50 and 55°F. The economizer valve will be fully open when the supply-air temperature exceeds 55°F. On call for second-stage cooling if economizer is enabled, first-stage compressors will be enabled if entering water temperature is still below set point.

All units

The control circuit incorporates a current sensing lockout relay (Cycle-LOC™ device) that locks off the compressor(s) when any safety device is activated (low or high-pressure switches, or compressor internal overload). If any compressor safety device opens, the compressor will stop. High and low-pressure switches and compressor motor overload protectors will reset automatically when the condition which caused the device to trip has dropped below the reset condition. To reset the Cycle-LOC control device, manually turn the control power OFF, then back ON.

Typical piping and wiring



LEGEND

NEC — National Electrical Code

Evaporator Airflow

Power Wiring

Control Wiring

NOTES:

1. Wiring and piping shown are general points of connection guides only and are not intended for or to include all details for a specific installation.
2. All wiring must comply with applicable local and national codes.
3. All piping must follow standard piping techniques.
4. Connect drain to building waste system and provide a trap of sufficient depth for unit static.

Application data

Location

For best results, the unit must be properly located and installed. Selected location should not be adjacent to an acoustically sensitive location such as a conference room or executive office. The best location is a mechanical room, next to elevators, restrooms or stairways. The mechanical room should be constructed to help isolate the transmission of acoustical energy.

Unit isolation

Unit compressors are internally isolated and the compressor compartment is lined with acoustical insulation. If additional vibration isolation is desired, rubber shear pads are recommended under the 4 corners of the unit. Spring isolation is not recommended.

Ductwork

The supply duct should be properly supported and the aspect ratio as close to square as possible. The duct should be sized for a maximum of 2000 ft/min. velocity in areas outside the equipment room. The duct should be lined with acoustical insulation for a minimum of 10 ft beyond the equipment room. A flexible duct connection should be used on the connection to the unit to prevent transmission of any unit vibrations into the duct. Units with two or more supply fans require a "pair of paints" duct connection. Refer to the installation instructions for more details.

A return duct may be attached to the unit, but is not necessary. The return to the unit should prevent line of sight visibility to the space. Insulation on the return duct is also recommended. The maximum velocity should not exceed 1000 ft/min. over occupied spaces. An adequate return area is essential for proper unit operation.

Piping

Recommended system piping configuration includes a reverse return system to minimize balancing. A strainer is recommended at the inlet to each unit to prevent sediments from plugging the condensers. Pressure gauges are also recommended before the strainer and at the unit outlet to check any potential condenser fouling. Gate type isolation valves are also recommended at each unit to allow service without the need to drain the entire system.

Condenser head pressure control

When tower bypass control is not used and the unit will be required to operate with entering-water temperatures below 65°F, a water regulating valve is required. This valve allows for unit operation as low as 40°F. The factory-installed option should be selected. If the factory option is not selected, a 2-way water regulating valve should be installed on the unit's inlet water connection. The valve should be controlled by the refrigerant pressure using the low ambient port connection on the compressor discharge line.

Operational limits

Airflow:	300 to 500 cfm/ton
Entering air temperature cooling (db):	Max 95°F, Min 65°F
Water Flow:	2.0 to 4.0 gpm/ton
Water Temperature:	Max 100°F, Min 65°F (without HPC), Min 40°F (with HPC)

Water quality

All 50XCW units utilize stainless steel brazed plate heat exchanger (BPHX) condensers. As such, water quality is crucial to ensuring proper unit operation. BPHX may clog if particles, such as silt, slag, biological matter, etc., are not prevented from entering the unit. A field provided 20 mesh strainer is required on the entering water line to each unit.

Suspended solids over 25 microns (max.):	200 ppm
Chlorides (max.):	100 ppm
Carbon Dioxide (max.):	20 ppm
PH:	6.0-10.0
Sulfides:	< 0.1
Oxygen (max.):	<0.02 ppm

Operation on ethylene glycol

When the unit will be operated in a system that will use ethylene glycol to prevent freezing, the following table can be used to estimate system performance. Solution concentrations above 40% are not recommended. Capacity and pressure drop from the selection tables are multiplied by the percent factors in the table below.

% EG	% CAPACITY	% PRESSURE
0	100.0	100
10	98.8	104
20	97.2	108
30	95.6	114
40	95.6	124

LEGEND

EG — Ethylene Glycol

NOTE: Pressure drop is based on 85°F entering water with 10°F water temperature rise.

Application data (cont)

Water Quality Guidelines

CONDITION	HX MATERIAL[a]	CLOSED RECIRCULATING[b]	OPEN LOOP AND RECIRCULATING WELL[c]		
Scaling Potential — Primary Measurement Above the given limits, scaling is likely to occur. Scaling indexes should be calculated using the limits below.					
pH/Calcium Hardness Method	All	N/A	**pH < 7.5 and Ca Hardness, <100 ppm**		
Index Limits for Probable Scaling Situations (Operation outside these limits is not recommended.)					
Scaling indexes should be calculated at 150°F for direct use and HWG applications, and at 90°F for indirect HX use. A monitoring plan should be implemented.					
Ryznar Stability Index	All	N/A	**6.0 - 7.5** If >7.5 minimize steel pipe use.		
Langelier Saturation Index	All	N/A	**–0.5 to +0.5** If <–0.5 minimize steel pipe use. Based upon 150°F HWG and direct well, 85°F indirect well HX.		
Iron Fouling					
Iron Fe^{2+} (Ferrous) (Bacterial Iron Potential)	All	N/A	**<0.2 ppm (Ferrous)** If Fe^{2+} (ferrous) >0.2 ppm with pH 6 - 8, O_2<5 ppm check for iron bacteria.		
Iron Fouling	All	N/A	**<0.5 ppm of Oxygen** Above this level deposition will occur.		
Corrosion Prevention[d]					
pH	All	6 - 8.5 Monitor/treat as needed.	**6 - 8.5** Minimize steel pipe below 7 and no open tanks with pH <8.		
Hydrogen Sulfide (H_2S)	All	N/A	**<0.5 ppm** At H_2S>0.2 ppm, avoid use of copper and cupronickel piping or HXs. Rotten egg smell appears at 0.5 ppm level. Copper alloy (bronze or brass) cast components are okay to <0.5 ppm.		
Ammonia Ion as Hydroxide, Chloride, Nitrate and Sulfate Compounds	All	N/A	**<0.5 ppm**		
Maximum Chloride Levels			Maximum allowable at maximum water temperature.		
			50°F (10°C)	75°F (24°C)	100°F (38°C)
	Copper	N/A	<20 ppm	NR	NR
	Cupronickel	N/A	<150 ppm	NR	NR
	304 SS	N/A	<400 ppm	<250 ppm	<150 ppm
	316 SS	N/A	<1000 ppm	<550 ppm	<375 ppm
	Titanium	N/A	>1000 ppm	>550 ppm	>375 ppm
Erosion and Clogging					
Particulate Size and Erosion	All	<10 ppm of particles and a maximum velocity of 6 fps. Filtered for maximum 800 micron size.	<10 ppm (<1 ppm “sandfree” for reinjection) of particles and a maximum velocity of 6 fps. Filtered for maximum 800 micron size. Any particulate that is not removed can potentially clog components.		
Brackish	All	N/A	Use cupronickel heat exchanger when concentrations of calcium or sodium chloride are greater than 125 ppm are present. (Seawater is approximately 25,000 ppm.)		

NOTE(S):

a. Heat exchanger materials considered are copper, cupronickel, 304 SS (stainless steel), 316 SS, titanium.
b. Closed recirculating system is identified by a closed pressurized piping system.
c. Recirculating open wells should observe the open recirculating design considerations.
d. If the concentration of these corrosives exceeds the maximum allowable level, then the potential for serious corrosion problems exists.
Sulfides in the water quickly oxidize when exposed to air, requiring that no agitation occur as the sample is taken. Unless tested immediately at the site, the sample will require stabilization with a few drops of one Molar zinc acetate solution, allowing accurate sulfide determination up to 24 hours after sampling. A low pH and high alkalinity cause system problems, even when both values are within ranges shown. The term pH refers to the acidity, basicity, or neutrality of the water supply. Below 7.0, the water is considered to be acidic. Above 7.0, water is considered to be basic. Neutral water contains a pH of 7.0.
To convert ppm to grains per gallon, divide by 17. Hardness in mg/l is equivalent to ppm.

LEGEND

HWG — Hot Water Generator
HX — Heat Exchanger
N/A — Design Limits Not Applicable Considering Recirculating Potable Water
NR — Application Not Recommended
SS — Stainless Steel

Indoor Self-Contained Water-Cooled Unit Constant Volume Application

HVAC Guide Specifications

Size Range: **5 to 20 Tons**

Carrier Model Number: **50XCW**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor packaged vertical water-cooled cooling unit using hermetic scroll compressors and brazed plate heat exchange. Unit shall discharge supply air vertically or horizontally (units 10 tons and above).

1.02 QUALITY ASSURANCE

A. Units shall be rated in accordance with AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Standard 340/360, latest edition.

B. Unit shall be designed to conform to ANSI/ASHRAE (American National Standards Institute/American Society of Heating Refrigerating, and Air-Conditioning Engineers) 15, latest revision safety code, and UL Standard 1995, and shall be UL listed under both American and Canadian Standards.

C. The management system governing the manufacture of this product is ISO 9001:2015 certified.

D. Insulation, adhesive, and liner system shall meet NFPA (National Fire Protection Association) 90A requirements for flame spread and smoke generation.

1.03 DELIVERY, STORAGE, AND HANDLING

Units shall be stored and handled according to manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory-assembled, single-piece, water-cooled cooling unit. Unit shall consist of scroll refrigerant compressor(s), indoor fan section with belt drive centrifugal fans and motor, evaporator coil section with direct expansion coil and drain pan, brazed plate condenser, factory wiring, piping and controls, and a system charge of refrigerant (R-410A). Unit may be used with or without return ductwork.

B. Unit Cabinet:

1. Cabinet shall be constructed of minimum 18 gauge zinc surface alloyed steel with a baked enamel finish. Unit shall be capable of withstanding ASTM (American Society for Testing and Materials) B117 500-hour salt spray test.
2. Cabinet shall be fully insulated.
3. Configurations include vertical or horizontal discharge with a ducted or louvered return.
4. Unit drain pan shall have positive double slope to the drain to prevent standing water in pan.
5. Panels for servicing shall be easily removable.

C. Evaporator Fan Section:

1. Fans shall be double inlet, centrifugal wheel with forward curved blades designed for continuous operation. Fan wheel shall be constructed of steel with corrosion resistant finish, and statically and dynamically balanced.
2. Fan shall be belt drive with an adjustable pitch motor pulley and fixed pitch fan pulley, with permanently lubricated ball-bearing type bearings.
3. Motor shall be 3-phase high-efficiency NEMA (National Electrical Manufactures Association) frame ODP (open drip proof), of the same voltage as the compressor(s). Motor shall have permanently lubricated ball bearings.
4. Units with Staged Air Volume (SAV™) shall be equipped with a variable frequency drive to operate at 67% of full speed for first stage cooling and 100% of full speed for second stage cooling.

D. Compressor:

Hermetic scroll compressors shall be internally protected with high pressure relief. Compressors shall be factory-mounted with vibration isolators. Compressors shall be two-stage (size 06-08) or single circuit tandem (size 12-24) for two-stage cooling operation.

E. Coils:

1. Evaporator coil shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. Tube sheet openings shall be swaged to prevent tube wear. Coils shall be full face for all sizes.
2. Direct expansion coil shall be designed and tested in accordance with ANSI/ASHRAE 15, latest revision safety code.
3. Coil and drain pan shall be accessible through service access panels for cleaning.

F. Filter:

Filter frame shall be installed upstream of the cooling coil, designed to take a 1 in. or 2 in. thick cleanable or disposable type commercially available filter. Filters shall be accessible from either side of the unit and filter rack shall be usable with ducted or free return. Disposable filters will be supplied with the unit. 4 in. filter racks are available.

G. Condenser:

Condenser shall be single pass, water-cooled, ANSI type 316, stainless steel brazed plate construction and shall provide positive subcooling of liquid refrigerant. Condenser shall have a maximum working water side pressure of 400 psig. An independent condenser shall be provided for each refrigerant circuit.

H. Operating Characteristics:

Unit shall be capable of providing a constant volume of conditioned air at a specified static pressure within the unit's normal operating range. Unit shall have

Guide specifications (cont)

dual-stage cooling capacity control on all units sizes. Sizes 6 and 8 have a single compressor, with two speed capability; sizes 12 thru 24 shall have two compressors in tandem on a single circuit.

I. Controls and Safeties:

1. Units shall be furnished with a control terminal block for connection of low voltage controls and thermostats.
2. Unit shall require a room-mounted thermostat mounted in the conditioned space. Thermostat shall be digital type.
3. Thermostat shall control fan operation and be capable of turning unit on and off.
4. Units shall have the following factory-installed safeties: high and low-pressure switches, motor and compressor overtemperature, current lockout, and inherent automatic fan motor overload.

J. Electrical Requirements:

Units shall have a short circuit current rating (SCCR) of no less than 5 kA. All electrical power wiring shall enter the unit cabinet at a single location. Control circuit is 24-v, suitable for a field-supplied 24-v thermostat.

K. Refrigerant Components:

Refrigerant circuit components include thermal expansion valves, distributor with nozzle, filter driers, and charging service valves on each circuit. Suction line shall have a refrigerant loop to prevent refrigerant drain back to the compressor. Suction piping shall be insulated with closed cell piping insulation.

L. Special Features:

1. Heating Coil:

Field-installed hot water coil shall be two rows with copper tube aluminum fins and a powder coated steel casing. Fins shall be bonded to tubes by mechanical expansion. Coil to be leak tested at 400 psig air pressure submerged in water and charged with dry air.

2. Thermostats:

A complete line of thermostats shall be available to meet any application control requirements.

3. Steam Coil:

Field-installed steam heating coil shall be of a steam distributing tube type. Aluminum fin coil to be mounted external to the unit.

4. Evaporator Coil Coating:

The coating shall be continuous and cover the whole fin surface, tubing, manifolds, and feeder lines if applicable. For evaporator coils with thermostatic expansion valve assemblies, valve body, head, and bulb shall be masked. A minimum of 2 in. shall be masked on all coil connection points. Expansion valve inlet piping if less than 6 in. in total length, expansion valve distributor, and external equalizer line are not required to be coated.

5. Waterside Economizer:

Waterside economizer is available as a factory-installed option. Valve and controls are to be factory-installed.

6. Head Pressure Control:

Pressure activated water regulating valve shall slow water flow to allow mechanical cooling during low entering water temperature conditions.

7. SAV™ (Two-Speed Fan):

Fan speed shall operate at 67% of full speed for first stage cooling operation and 100% of full speed for second stage cooling operation or heating operation.

8. Non-Fused Disconnect:

Shall be located by the unit control panel to disconnect all unit power. The lockable switch shall be accessible without opening any control panels.

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