

engineering manual



Convertible- Vertical

Vertical A/C's & Heat Pumps 2-20* Tons

- Fit Thru Standard Doors, Ideal For Tenant Fit-Out and Other Commercial Applications
- Self-Contained & Split, Vertical Floor Mounted
- Cabinet Can be Split for Ease of Field Rigging
- DX Air, Water, Glycol Cooled & Chilled Water Systems

* Up to 12 Ton for Air Cooled, Up to 20 Ton for Water/Glycol/Chilled Water Systems. Consult Factory



Excellence In Ceiling Mounted AC and Environmental Control Systems
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CPG-EM-CV-1002-9



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Do It Upright!

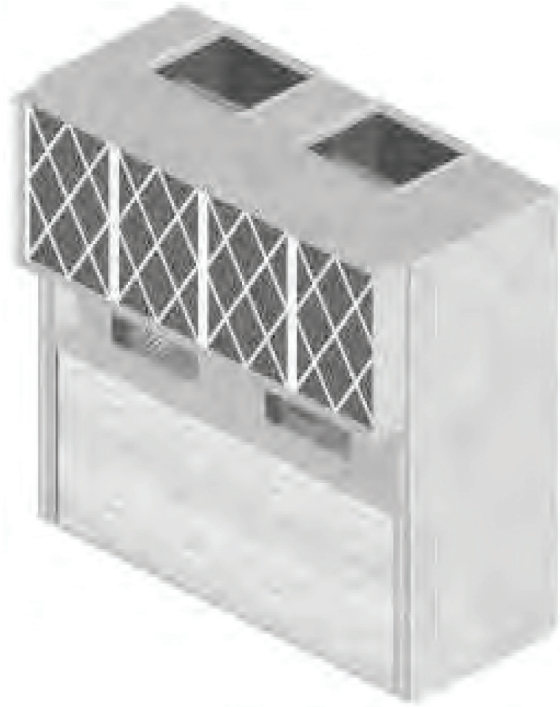


Table of Contents

TOPIC	PAGE(S)
Table of Contents	2
Model Nomenclature	2
Vertical Package™ Comfort Series Overview	3
Available Air Pattern Configurations	4-5
Mechanical Data	
Performance / Technical Data	6-8
Physical Data	
Approximate Unit Shipping Weights	8
Electrical Data	
Self-Contained Systems	9
Split Evaporators & Condensing Units	10-11
Guide Specifications	
Standard Features	12-14
Optional Features	14-16
Dimensional Data	
2-6 Ton, Air Cooled, Self-Contained	17
8-12 Ton, Air Cooled, Self-Contained	18
2-10 Ton, Water/Glycol Cooled Self-Contained Systems	19
14-20 Ton, Water/Glycol Cooled Self-Contained Systems	20
2-10 Ton Chilled Water Systems	21
12-20 Ton Chilled Water Systems	22
Remote Air Cooled Condensing Units	23
Remote Water/Glycol Cooled Condensing Units	24

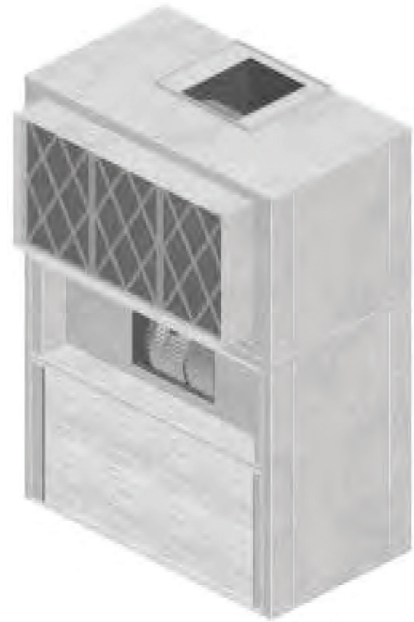
Model Nomenclature

PWA-120-V4-ECX

Convertible Series - P						ECX - Economizer Coil
DX - Air Handling Unit - B						FU - Propeller Style Condensing Unit
Condensing Unit - C						F - Propeller Fan Condenser
DX - Evaporator Section - X						FAC - Outdoor Horizontal Slab Style Condenser
Outdoor - O						
Air Cooled - A						
Chilled Water - C						
Water Cooled - W						
Glycol Cooled - G						
Comfort - A						
Heat Pump - H						
						1 - 208-230/1/60
						3 - 208-230/3/60
						4 - 460/3/60
						5 - 572/3/60
						7 - 277/3/60
					Vertical	
						024 - Nominal 2.0 Ton
						036 - Nominal 3.0 Ton
						048 - Nominal 4.0 Ton
						060 - Nominal 5.0 Ton
						072 - Nominal 6.0 Ton
						096 - Nominal 8.0 Ton
						120 - Nominal 10.0 Ton
						144 - Nominal 12.0 Ton
						180 - Nominal 15.0 Ton
						240 - Nominal 20.0 Ton

Convertible-Vertical™

Skil-aire™ Built to Last With Design Features That Assure Superior Performance and Dependability in Any Application.



The **Convertible-Vertical™**, packaged or split air conditioners and heat pumps are available in DX - Air, Water, Glycol Cooled or Chilled Water configurations. Systems are available from 4 to 20 tons and are the perfect compact solution for today's tenant renovations and other commercial comfort air conditioning applications.

Flexible Control Options:



DigiSkil-200 & 202



MicroSkil-2015

IAQ Comfort Solutions:

- Electric, Hot Water, Steam or Heat Pump Heating
- High Efficiency Air Filtration

Energy Saving Options:

- Air-Side Economizer/Free-Cooling
- ECX - Water/Glycol Side Economizer/Free-Cooling

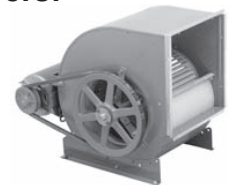
Head Pressure Control:

- Air Cooled - Low Ambient Damper Control
- Water/Glycol Cooled - 2 and 3-way standard and high pressure regulating valve options



High Static Belt-Drive Blowers:

- Ducted Systems Available with Up to 2.0" E.S.P.



Capacity Modulation:

- Hot Gas Bypass

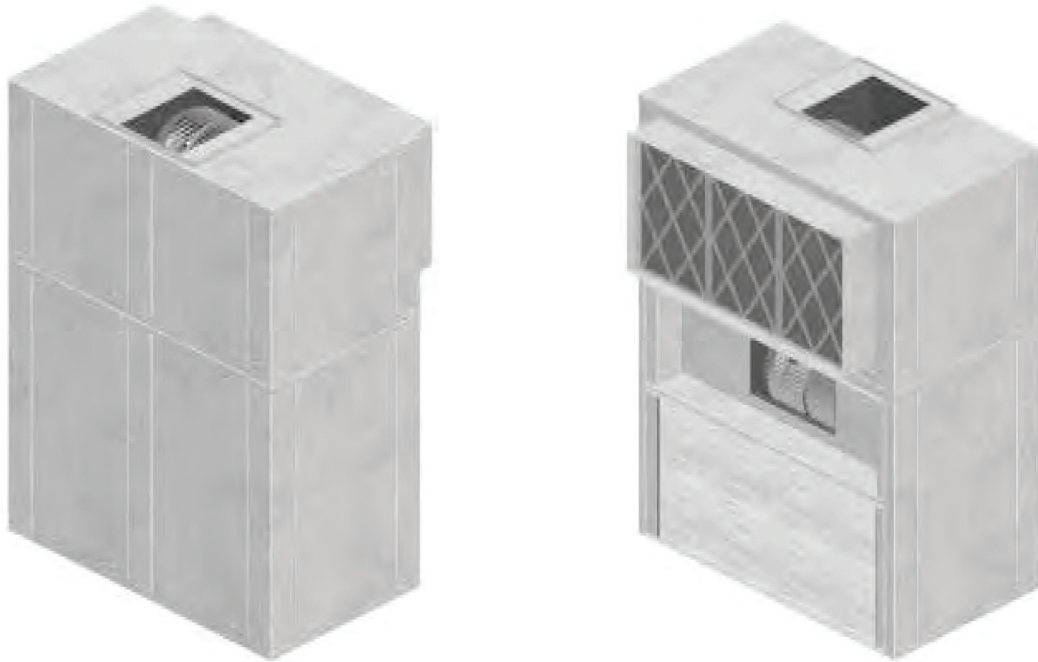
Select Accessories:

- Condensate Pumps
- Non-Fused Disconnects
- Firestats
- Smoke Detectors
- Remote Water Detectors
- And more ...!

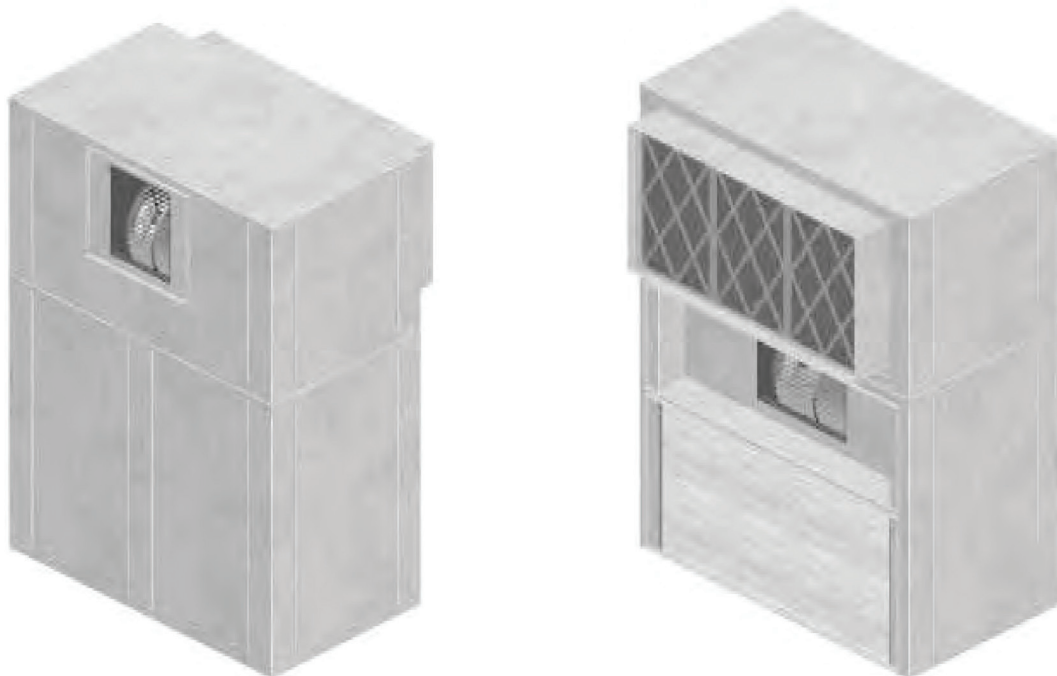


*Note - with use of optional stub kit

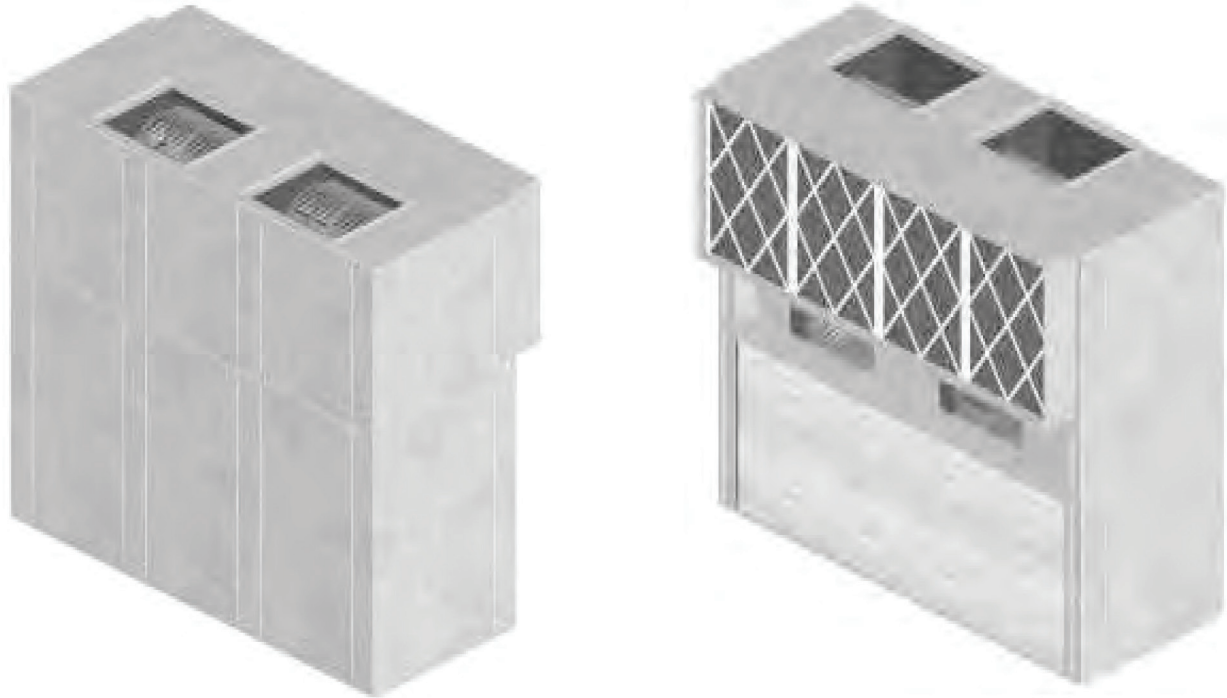
TOP Evaporator Air Discharge - 2 to 6 Tons



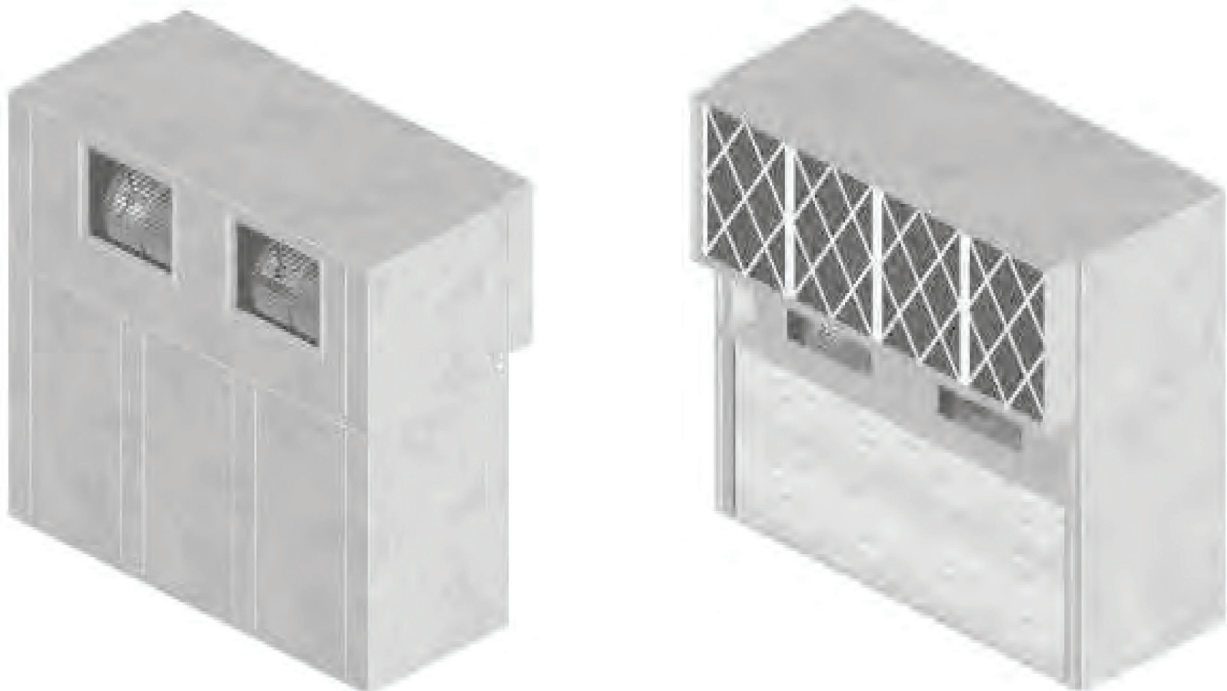
**FRONT Evaporator Air Discharge - 2 to 6 Tons
(Optional Configuration)**



TOP Evaporator Air Discharge - 8 to 20 Tons*



**FRONT Evaporator Air Discharge - 8 to 20 Tons*
(Optional Configuration)**



* Up to 12 Ton for Air Cooled, Up to 20 Ton for Water/Glycol/Chilled Water Systems.

TECHNICAL DATA: Convertible-Vertical™

Nominal Tons Model Size	2.0 024	3.0 036	4.0 048	5.0 060	8.0 096	10.0 120	12.0 144	
DX - AIR COOLED @ 35°C (95°F) Entering Condenser Air								
26.7°C (80°F) DB, 50% RH								
Total / Sensible	KW (MBH)	7.2 / 5.2 (24.4 / 17.8)	10.4 / 7.5 (35.4 / 25.7)	13.9 / 10.2 (47.4 / 34.7)	18.5 / 13.4 (63.1 / 45.8)	29.0 / 20.9 (98.9 / 71.4)	36.6 / 26.7 (125.0 / 91.2)	44.2 / 31.4 (150.8 / 107.0)
23.9°C (75°F) DB, 50% RH								
Total / Sensible	KW (MBH)	6.6 / 4.8 (22.4 / 16.4)	9.79 / 6.91 (33.4 / 23.6)	14.0 / 10.6 (47.8 / 36.2)	17.3 / 13.4 (59.2 / 45.7)	25.1 / 19.8 (85.7 / 67.5)	33.7 / 26.9 (115.0 / 92.0)	39.76 / 29.12 (135.7 / 99.4)
AIR SOURCE HEAT PUMP HEATING CAPACITY @ 8.3°C (47°F) DB & -8.3°C (17°F) DB								
21.1°C (70°F) DB / Indoor Air	KW (MBH)	7.15 / 5.22 (24.4 / 17.8)	10.67 / 7.53 (36.4 / 25.7)	16.9 / 9.4 (54.7 / 32.1)	19.0 / 10.6 (65.0 / 36.2)	28.0 / 18.4 (95.7 / 62.7)	35.7 / 19.8 (121.7 / 67.7)	43.17 / 31.62 (147.3 / 107.9)
EER/SEER		13.79	13.48	13.73	14.45	12.92	12.18	11.45

Nominal Tons Model Size	2.0 024	3.0 036	4.0 048	5.0 060	8.0 096	10.0 120	12.0 144	15.0 180	20.0 240	
DX - WATER COOLED @ 29.4°C (85°F) Entering Condenser Water										
26.7°C (80°F) DB, 50% RH										
Total / Sensible	KW (MBH)	7.8 / 5.5 (26.3 / 18.7)	11.1 / 7.9 (37.8 / 26.9)	15.1 / 10.7 (51.5 / 36.6)	19.1 / 13.4 (65.3 / 45.7)	30.3 / 21.5 (103.5 / 73.2)	37.7 / 25.8 (128.6 / 88.2)	47.8 / 33.3 (163.2 / 114.8)	58.7 / 41.3 (200.4 / 140.8)	74.3 / 52.6 (253.6 / 179.4)
23.9°C (75°F) DB, 50% RH										
Total / Sensible	KW (MBH)	7.2 / 5.3 (24.4 / 18.0)	10.3 / 7.6 (35.1 / 25.9)	14.0 / 10.4 (47.9 / 35.5)	17.8 / 13.0 (60.7 / 44.2)	28.1 / 20.7 (96.0 / 70.7)	35.0 / 25.1 (119.5 / 85.5)	44.3 / 32.5 (151.3 / 111.0)	55.0 / 40.2 (187.6 / 137.0)	69.2 / 50.8 (236.1 / 50.8)
EER/SEER		13.66	13.40	13.77	13.60	13.58	13.08	13.36	13.48	13.1

DX - GLYCOL COOLED @ 43.3°C (110°F), 40% Entering Ethylene Glycol										
26.7°C (80°F) DB, 50% RH										
Total / Sensible	KW (MBH)	7.7 / 5.7 (26.2 / 19.4)	10.6 / 8.0 (36.0 / 27.3)	14.4 / 10.7 (49.1 / 36.4)	17.8 / 13.4 (60.7 / 45.7)	26.9 / 20.1 (91.7 / 68.6)	35.5 / 26.5 (121.3 / 90.5)	49.1 / 35.4 (167.7 / 120.8)	56.2 / 40.3 (191.9 / 137.4)	70.1 / 51.7 (239.1 / 176.6)
23.9°C (75°F) DB, 50% RH										
Total / Sensible	KW (MBH)	6.2 / 5.2 (21.0 / 17.6)	8.5 / 7.3 (29.0 / 24.8)	13.0 / 10.4 (44.5 / 35.5)	16.2 / 13.1 (55.3 / 44.8)	24.3 / 19.7 (82.8 / 67.3)	32.1 / 25.0 (109.8 / 85.2)	39.3 / 31.9 (134.0 / 108.8)	51.0 / 40.1 (174.1 / 136.9)	64.0 / 51.5 (218.3 / 175.8)

CHILLED WATER SYSTEMS @ 7.2°C (45°F) Entering Water Temp.										
26.7°C (80°F) DB, 50% RH										
Total / Sensible	KW (MBH)	7.7 / 5.7 (26.2 / 19.4)	10.6 / 8.0 (36.0 / 27.3)	14.4 / 10.7 (49.1 / 36.4)	17.8 / 13.4 (60.7 / 45.7)	26.9 / 20.1 (91.7 / 68.6)	35.5 / 26.5 (121.3 / 90.5)	49.1 / 35.4 (167.7 / 120.8)	56.2 / 40.3 (191.9 / 137.4)	70.1 / 51.7 (239.1 / 176.6)
23.9°C (75°F) DB, 50% RH										
Total / Sensible	KW (MBH)	6.2 / 5.2 (21.0 / 17.6)	8.5 / 7.3 (29.0 / 24.8)	13.0 / 10.4 (44.5 / 35.5)	16.2 / 13.1 (55.3 / 44.8)	24.3 / 19.7 (82.8 / 67.3)	32.1 / 25.0 (109.8 / 85.2)	39.3 / 31.9 (134.0 / 108.8)	51.0 / 40.1 (174.1 / 136.9)	64.0 / 51.5 (218.3 / 175.8)
Flow Rate	LPM (GPM)	18.9 (5.0)	26.5 (7.0)	28.4 (7.5)	37.9 (10.0)	68.1 (18.0)	113.6 (30.0)	132.5 (35.0)	166.6 (44.0)	208.2 (55.0)
Pressure Drop W.G.)	kPa (FT	21.5 (7.2)	39.1 (13.1)	6.6 (2.2)	11.7 (3.9)	22.7 (7.6)	25.1 (8.4)	29.0 (9.7)	32.9 (11.0)	48.7 (16.3)
Standard Value		2-way	2-way	2-way	2-way	2-way	2-way	2-way	2-way	2-way

AIR COOLED EVAPORATOR FEATURES

Evaporator Airflow - @ 12.7 mm (0.5") E.S.P., Belt Drive Centrifugal (higher static drives available)										
Discharge	L/S (CFM)	377.6 (800)	566.3 (1,200)	755.1 (1,600)	943.9 (2,000)	1,415.8 (3,000)	1,887.8 (4,000)	2,123.8 (4,500)	2,548.5 (5,400)	4,011.6 (8,500)
	IN ESP	0.10	0.15	0.20	0.20	0.25	0.30	0.35	0.35	0.40
Fan Motor	HP	1/2 Hp	1/2 Hp	3/4 Hp	1 Hp	2 Hp	3 Hp	5 Hp	5 Hp	5 Hp
Fan Dia (Qty.)	CM	30.5 X 22.9	30.5 X 22.9	30.5 X 22.9	38.1 X 38.1	38.1 X 38.1	38.1 X 38.1	38.1 X 38.1	38.1 X 38.1	38.1 X 38.1
	IN (NO)	12 X 9 (1)	12 X 9 (1)	12 X 9 (1)	15 X 9 (1)	15 X 15 (2)	15 X 15 (2)	15 X 15 (2)	15 X 15 (2)	15 X 15 (2)
Evaporator Coil - Aluminum Fin, Copper Tube										
Rows	NO	4	4	4	3	4	4	4	4	4
Face Area	M ² (FT ²)	0.2 (2.5)	0.2 (2.5)	0.38 (4.1)	0.76 (8.2)	1.34 (14.4)	1.34 (14.4)	1.34 (14.4)	1.34 (14.4)	1.34 (14.4)
Face Velocity	FPM	320	480	392	244	209	278	313	375	590
Air Filtration - @ 40% NBS Dust Spot										
Nominal Size	CM	35.6x63.5x5.1	35.6x63.5x5.1	35.6x63.5x5.1	40.6x76.2x5.1	50.8x76.2x5.1	50.8x76.2x5.1	50.8x76.2x5.1	50.8x76.2x5.1	50.8x76.2x5.1
	IN (NO)	14x25x2 (4)	14x25x2 (4)	14x25x2 (4)	16x30x2 (3)	20x30x2 (4)	20x30x2 (4)	20x30x2 (4)	20x30x2 (4)	20x30x2 (4)

TECHNICAL DATA: Convertible-Vertical™

WATER COOLED EVAPORATOR FEATURES

Nominal Tons		2.0	3.0	4.0	5.0	8.0	10.0	12.0	15.0	20.0
Model Size		024	036	048	060	096	120	144	180	240
Evaporator Airflow - @ 12.7 mm (0.5") E.S.P., Belt Drive Centrifugal (higher static drives available)										
Discharge	L/S (CFM)	377.6 (800)	566.3 (1,200)	755.1 (1,600)	944.0 (2,000)	1,510.4 (3,200)	1,746.4 (3,700)	2,265.6 (4,800)	2,548.5 (5,400)	3,776.0 (8,000)
	IN ESP	0.10	0.15	0.20	0.20	0.25	0.30	0.35	0.35	0.40
Fan Motor	HP	1/2 Hp	1/2 Hp	3/4 Hp	1 Hp	2 Hp	3 Hp	5 Hp	5 Hp	5 Hp
Fan Dia (Qty.)	CM IN (NO)	30.5 X 22.9 12 X 9 (1)	30.5 X 22.9 12 X 9 (1)	30.5 X 22.9 12 X 9 (1)	30.5 X 22.9 12 X 9 (1)	38.1 X 38.1 15 X 9 (1)	38.1 X 38.1 15 X 9 (1)	38.1 X 38.1 15 X 15 (2)	38.1 X 38.1 15 X 15 (2)	38.1 X 38.1 15 X 15 (2)
Evaporator Coil - Aluminum Fin, Copper Tube										
Rows	NO	4	4	4	4	3	3	4	4	4
Face Area	M ² (FT ²)	0.2 (2.5)	0.2 (2.5)	0.38 (4.1)	0.38 (4.1)	0.8 (8.2)	0.8 (8.2)	1.34 (14.4)	1.34 (14.4)	1.34 (14.4)
Face Velocity	FPM	320	480	390	487	390	451	333	375	555
Air Filtration - @ 40% NBS Dust Spot										
Nominal Size	CM IN (NO)	35.6x63.5x5.1 14x25x2 (4)	35.6x63.5x5.1 14x25x2 (4)	35.6x63.5x5.1 14x25x2 (4)	35.6x63.5x5.1 14x25x2 (4)	40.6x76.2x5.1 16x30x2 (3)	40.6x76.2x5.1 16x30x2 (3)	50.8x76.2x5.1 20x30x2 (4)	50.8x76.2x5.1 20x30x2 (4)	50.8x76.2x5.1 20x30x2 (4)

COMMON FEATURES

Compressor - Heat Pump Duty Hermetic										
(NO) HP		(1) 1.0	(1) 3.0	(1) 4.0	(1) 5.0	(2) 4.0	(2) 5.0	(2) 6.0	(2) 8.0	(2) 10.0
Connection Sizes										
Condensate Drain	FPT CM (IN)	1.9 (3/4)	1.9 (3/4)	1.9 (3/4)	1.9 (3/4)	1.9 (3/4)	1.9 (3/4)	1.9 (3/4)	2.5 (1)	2.5 (1)

Condenser Data

Nominal Tons	2.0	3.0	4.0	5.0	8.0	10.0	12.0
Model Size	024	036	048	060	096	120	144

DX - AIR COOLED CONDENSER DATA

Indoor, Centrifugal Air Cooled Condensing Unit Data - (PAA-V, PAH-V & CAA-V models)								
Discharge	L/S (CFM)	755.1 (1,600)	943.9 (2,000)	1,179.9 (2,500)	1,510.2 (3,200)	2,359.7 (5,000)	2,831.7 (6,000)	3,539.6 (7,500)
	IN ESP	0	0	0	0	0	0	0
Blower Motor	HP	3/4	1	1	1.5	3	5	5
Fan Diameter (Qty.)	CM IN (NO)	38.1 x 38.1 15 x 15 (1)	38.1 x 38.1 15 x 15 (1)	38.1 x 38.1 15 x 15 (1)	38.1 x 38.1 15 x 15 (1)	38.1 x 38.1 15 x 15 (2)	38.1 x 38.1 15 x 15 (2)	38.1 x 38.1 15 x 15 (2)
Blower Type		Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Coil Face Area	M ² (FT ²)	0.39 (4.2)	0.62 (6.7)	0.62 (6.7)	0.86 (9.3)	1.63 (17.5)	1.63 (17.5)	1.63 (17.5)
Rows	NO	4	4	4	5	5	5	5

Nominal Tons	2.0	3.0	4.0	5.0	8.0	10.0	12.0	15.0	20.0
Model Size	024	036	048	060	096	120	144	180	240

DX - WATER COOLED CONDENSER DATA

Water Cooled Condenser Data - (PWA-V & CWA-V models)										
Flow @29.4°C (85°F) EWT	LPM (GPM)	24.2 (6.4)	34.4 (9.1)	46.9 (12.4)	60.9 (16.1)	95.8 (25.3)	122.3 (32.3)	149.5 (39.5)	180.6 (47.7)	231.3 (61.1)
Water Press. Drop	kPa (FTWG)	11.6 (3.9)	12.4 (4.1)	27.2 (9.1)	11.2 (3.7)	28.2 (9.4)	11.2 (3.7)	15.5 (5.2)	26.7 (8.9)	41.4 (13.8)
Water Reg. Valve		2-Way, 150 psig - factory installed, (3-way & High Pressure Valves are Optional)								
Water IN/OUT	MPTIN	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2

DX - GLYCOL COOLED CONDENSER DATA

Glycol Cooled Condenser Data - @ 40% Ethylene Glycol (PGA-V & CGA-V models)										
Flow @43.3°C (110°F) EGT	LPM (GPM)	25.7 (6.8)	37.1 (9.8)	50.3 (13.3)	72.7 (19.2)	103.0 (27.2)	130.0 (34.4)	160.5 (42.4)	193.8 (51.2)	247.9 (65.5)
Glycol Press. Drop	kPa (FTWG)	13.1 (4.4)	14.0 (4.7)	30.9 (10.3)	14.9 (5.0)	32.2 (10.8)	12.5 (4.2)	17.5 (5.9)	30.2 (10.1)	46.3 (15.5)
Glycol Reg. Valve		2-Way, 150 psig - factory installed, (3-way & High Pressure Valves are Optional)								
Glycol IN/OUT	MPTIN	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2

TECHNICAL DATA: Convertible-Vertical™

HEATER DATA

Electric Duct Heater (Optional) - Field Installed & Separately Powered										
Capacity/ Stages	KW /(NO)	5.0 (one)	10.0 (two)	15.0 (two)	15.0 (two)	15.0 (two)	20.0 (two)	20.0 (two)	20.0 (two)	20.0 (two)
208/3/60	FLA	13.9	27.8	36.0	36.0	36.0	47.9	47.9	47.9	47.9
460/3/60	FLA	6.3	12.6	18.0	18.0	18.0	24.1	24.1	24.1	24.1

Approximate Unit Ship Weights

UNIT SIZE	MODEL TYPE							
	PAA-V & PAH-V	BAA-V	CAA-V	XAA-V	PWA-V & PGA-V	PWA & PGA-V-ECX	CWA & CGA-V	PCA-V
024	940	290	650	835	865	1,300	575	650
036	960	290	670	835	870	1,310	580	675
048	990	300	690	860	935	1,375	635	700
060	1,135	360	775	930	963	1,403	654	725
072	1,170	365	805	960	995	1,525	680	750
096	2,135	595	1540	1,790	1,210	1,705	810	925
120	2,150	600	1550	1,800	1,294	1,927	886	925
144	2,190	600	1590	1,840	1,959	2,660	1,325	1,200
180	N/A				2,013	2,714	1,413	1,200
240	N/A				2,128	2,818	1,428	1,250

ELECTRICAL DATA: Convertible-Vertical™

Typical Electrical Data See Notes 1-2 Below

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Max Fuse Size)

AIR COOLED

Power Supply	208/3/60	460/3/60
PAA & PAH-024		
FLA	13.4	6.4
MCA	15.6	7.4
MFS	25.0	15.0
PAA & PAH-036		
FLA	17.4	9.3
MCA	20.3	10.9
MFS	35.0	20.0
PAA & PAH-048		
FLA	22.3	10.4
MCA	26.1	12.1
MFS	45.0	20.0
PAA & PAH-060		
FLA	26.2	13.0
MCA	30.6	15.2
MFS	50.0	25.0
PAA & PAH-072		
FLA	33.8	18.1
MCA	36.7	19.7
MFS	50.0	30.0
PAA & PAH-096		
FLA	44.0	20.5
MCA	47.8	22.2
MFS	70.0	30.0
PAA & PAH-120		
FLA	54.6	27.1
MCA	59.0	29.3
MFS	80.0	40.0
PAA & PAH-144		
FLA	74.4	35.8
MCA	80.7	38.8
MFS	110.0	60.0

WATER & GLYCOL COOLED

Power Supply	208/3/60	460/3/60
PWA, PWH, PGA & PGH-024		
FLA	10.4	4.9
MCA	12.6	5.9
MFS	25.0	15.0
PWA, PWH, PGA & PGH-036		
FLA	13.4	7.3
MCA	16.3	8.9
MFS	30.0	20.0
PWA, PWH, PGA & PGH-048		
FLA	18.3	8.4
MCA	22.1	10.1
MFS	40.0	20.0
PWA, PWH, PGA & PGH-060		
FLA	21.4	10.6
MCA	25.8	12.8
MFS	45.0	25.0
PWA, PWH, PGA & PGH-072		
FLA	28.0	15.2
MCA	30.9	16.8
MFS	45.0	25.0
PWA, PWH, PGA & PGH-096		
FLA	36.4	16.7
MCA	40.2	18.4
MFS	60.0	30.0
PWA, PWH, PGA & PGH120		
FLA	42.4	21.0
MCA	46.8	23.2
MFS	70.0	35.0
PWA, PWH, PGA & PGH-144		
FLA	62.2	29.7
MCA	68.5	32.7
MFS	100.0	45.0
PWA, PWH, PGA & PGH-180		
FLA	68.0	33.3
MCA	75.0	36.7
MFS	110.0	60.0
PWA, PWH, PGA & PGH-240		
FLA	75.0	38.9
MCA	82.9	43.0
MFS	125.0	60.0

Note:

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- 2) High Static Blowers & ECX Option - Consult your local sales representative for High Static Blower Option and ECX Economizer Coil Option blower motor and electrical data.

Typical Electrical Data See Notes 1-2 Below

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Max Fuse Size)

AIR HANDLER & CHILLED WATER UNITS

Power Supply	208/3/60	460/3/60
BAA & PCA-024		
FLA	1.8	0.9
MCA	2.3	1.1
MFS	15.0	15.0
BAA & PCA-036		
FLA	1.8	0.9
MCA	2.3	1.1
MFS	15.0	15.0
BAA & PCA-048		
FLA	3.0	1.5
MCA	3.8	1.9
MFS	15.0	15.0
BAA & PCA-060		
FLA	4.0	2.0
MCA	5.0	2.5
MFS	15.0	15.0
BAA & PCA-072		
FLA	4.8	2.4
MCA	6.0	3.0
MFS	15.0	15.0
BAA & PCA-096		
FLA	5.8	2.9
MCA	7.3	3.6
MFS	15.0	15.0
BAA & PCA-120		
FLA	7.6	3.8
MCA	9.5	4.8
MFS	20.0	15.0
BAA & PCA-144		
FLA	12.2	6.1
MCA	15.3	7.6
MFS	30.0	15.0
BAA & PCA-180		
FLA	12.2	6.1
MCA	15.3	7.6
MFS	30.0	15.0
BAA & PCA-240		
FLA	12.2	6.1
MCA	15.3	7.6
MFS	30.0	15.0

AIR COOLED CONDENSING UNITS

Power Supply	208/3/60	460/3/60
CAA-024		
FLA	11.6	5.5
MCA	13.8	6.5
MFS	25.0	15.0
CAA-036		
FLA	15.6	8.4
MCA	18.5	10.0
MFS	35.0	20.0
CAA-048		
FLA	19.3	8.9
MCA	23.1	10.6
MFS	40.0	20.0
CAA-060		
FLA	22.2	11.0
MCA	26.6	13.2
MFS	45.0	25.0
CAA-072		
FLA	29.0	15.7
MCA	31.9	17.3
MFS	45.0	25.0
CAA-096		
FLA	38.2	17.6
MCA	42.0	19.3
MFS	60.0	30.0
CAA-120		
FLA	47.0	23.3
MCA	51.4	25.5
MFS	70.0	35.0
CAA-144		
FLA	62.2	29.7
MCA	68.5	32.7
MFS	100.0	45.0

Note:

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- 2) High Static Blowers & ECX Option - Consult your local sales representative for High Static Blower Option and ECX Economizer Coil Option blower motor and electrical data.

ELECTRICAL DATA: Convertible-Vertical™

Typical Electrical Data See Notes 1-2 Below

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Max Fuse Size)

AIR COOLED SPLIT UNIT (COMPRESSOR IN EVAP)

Power Supply	208/3/60	460/3/60
XAA-024		
FLA	10.4	4.9
MCA	12.6	5.9
MFS	25.0	15.0
XAA-036		
FLA	13.4	7.3
MCA	16.3	8.9
MFS	30.0	20.0
XAA-048		
FLA	18.3	8.4
MCA	22.1	10.1
MFS	40.0	20.0
XAA-060		
FLA	21.4	10.6
MCA	25.8	12.8
MFS	45.0	25.0
XAA-072		
FLA	28.0	15.2
MCA	30.9	16.8
MFS	45.0	25.0
XAA-096		
FLA	36.4	16.7
MCA	40.2	18.4
MFS	60.0	30.0
XAA-120		
FLA	42.4	21.0
MCA	46.8	23.2
MFS	70.0	35.0
XAA-144		
FLA	62.2	29.7
MCA	68.5	32.7
MFS	100.0	45.0
XAA-180		
FLA	68.0	33.3
MCA	75.0	36.7
MFS	110.0	60.0
XAA-240		
FLA	75.0	38.9
MCA	82.9	43.0
MFS	125.0	60.0

WATER & GLYCOL COOLED CONDENSING UNITS

Power Supply	208/3/60	460/3/60
CWA & CGA-024		
FLA	8.6	4.0
MCA	10.8	5.0
MFS	20.0	15.0
CWA & CGA-036		
FLA	11.6	6.4
MCA	14.5	8.0
MFS	30.0	15.0
CWA & CGA-048		
FLA	15.3	6.9
MCA	19.1	8.6
MFS	35.0	20.0
CWA & CGA-060		
FLA	17.4	8.6
MCA	21.8	10.8
MFS	40.0	20.0
CWA & CGA-072		
FLA	23.2	12.8
MCA	26.1	14.4
MFS	40.0	25.0
CWA & CGA-096		
FLA	30.6	13.8
MCA	34.4	15.5
MFS	50.0	25.0
CWA & CGA-120		
FLA	34.8	17.2
MCA	39.2	19.4
MFS	60.0	30.0
CWA & CGA-144		
FLA	50.0	23.6
MCA	56.3	26.6
MFS	90.0	40.0
CWA & CGA-180		
FLA	55.8	27.2
MCA	62.8	30.6
MFS	100.0	45.0
CWA & CGA-240		
FLA	62.8	32.8
MCA	70.7	36.9
MFS	110.0	60.0

Note:

- 1) Due to a policy of continuous improvement, Skil-air reserves the right to change specifications without notice and without incurring any liability. Always consult equipment name plate for exact electrical requirements.
- 2) High Static Blowers & ECX Option - Consult your local sales representative for High Static Blower Option and ECX Economizer Coil Option blower motor and electrical data.

1.0 GENERAL

1.1 SUMMARY

These specifications describe requirements for an air conditioning system. The system shall be designed to maintain temperature conditions within the specified room. The manufacturer shall design and furnish all equipment to be fully compatible with the heat dissipation requirements of the site.

The system shall be manufactured by Skil-aire, a division of Tithe Corporation, in Baltimore, Maryland U.S.A. The system shall be approved and labeled by Underwriters Laboratories, Inc. (UL). The system shall be New York City MEA (MEA-386-90-E) and Chicago Code Approved.

1.2 DESIGN REQUIREMENTS

The comfort control system shall be an Skil-aire factory assembled Convertible-Vertical™ model vertical floor mounted system. The system shall be specifically designed for indoor installation, unless specified otherwise.

The system shall have a total cooling capacity of _____ BTUH and a sensible cooling capacity of _____ BTUH based on an entering air temperature of _____°F DB and _____°F WB. The unit shall be supplied with _____ volt, _____ phase, _____ Hz electrical service. The system model number shall be _____.

2.0 PRODUCTS

2.1 STANDARD FEATURES / ALL SYSTEMS

2.1.1 CABINET

The cabinet and access panels shall be fabricated from sturdy heavy gauge galvanized steel. The panels shall be lined with 2lb. hi-density thermal/acoustical insulation for whisper quiet operation. Large recessed, removable side panels with quarter-turn fasteners shall provide ease of installation, service and maintenance on the system.

Splittable for Ease of Rigging:

The cabinet shall be modular in design to allow for easy field break-down and reassembly of top evaporator and bottom condensing unit sections for rigging purposes. As a standard, the system shall ship from the factory as a one piece unit.

(Note: Optionally the Convertible-Vertical™ system can ship from the factory split for field assembly after rigging.)

2.1.2 BLOWER ASSEMBLIES

Blowers shall be belt driven double-inlet, dynamically balanced with multiple forward curved blades mounted on a solid steel keyed shaft. A heavy-duty V-belt fan drive (sized for 200% of motor nameplate horsepower) with adjustable cast iron pulleys keyed and secured to the blower shaft shall be provided for adjusting fan speed to system requirements.

2.1.3 MOTOR ASSEMBLIES

All fan motors shall be permanently mounted, 1750 or 3450 RPM, with overload protection. Motors shall have permanently lubricated ball bearings and be resiliently mounted to an adjustable motor frame. Motor pulleys shall be cast iron, keyed, with variable pitch design to allow for field adjustment of specific air flow and static requirements.

2.1.4 AIR PATTERN - Top Evaporator Discharge

The system shall be configured for rear ducted or free return evaporator air intake and top ducted evaporator air discharge. Packaged air cooled systems shall be configured for rear ducted same-face condenser air inlet and outlet. Air inlet and outlet connections shall include factory provided turned-out duct flanges for ease of field duct connection.

(Note: Front Evaporator Air Discharge is optionally available.)

2.1.5 FILTERS

The system shall be provided with 50.8 mm (2") extended surface pleated disposable type filters rated for a 40% average dust-spot efficiency and a MERV rating of 8. The filters shall be removable without shutting down the system.

2.1.6 ELECTRICAL CIRCUITS

The system shall be provided with a factory installed main electrical enclosure per NEC code requirements. A low voltage transformer with integral protection shall be provided to supply 24 VAC to the control circuit. The 24 volt control circuit terminal strips shall be clearly labeled for thermostat wiring and interlock. The fan motor(s), compressor and electric heater (if applicable) shall each have their own contactor. A float switch shall be provided in the evaporator section to sense a clogged condensate drain and shall shut the unit down to prevent water damage.

Self-Contained Systems: (single point power)

Self-Contained systems shall be designed for single point main power connection.

Split DX Systems: (separate power)

Split systems shall require separate main power supplies to the evaporator and condensing unit sections. The evaporator and condensing unit sections shall be electrically interlocked by a field wired 24 volt control signal.

2.2 DIRECT EXPANSION SYSTEM COMPONENTS

2.2.1 EVAPORATOR COILS

The evaporator coil shall be quality construction of seamless drawn rifed copper tube, mechanically bonded to tempered aluminum fins with galvanized coil end plates. The coil shall have _____ sq. ft. face area, _____ rows deep. The coil shall be factory pressure tested and the refrigeration system sealed prior to shipment. A stainless steel drain pan shall be provided to cover the entire coil area.

2.2.2 COMPRESSORS

Each compressor shall be the heat pump duty scroll. Each compressor shall be mounted on vibration isolators and located in the condensing section out of the evaporator air stream. Each compressor shall be complete with reversible positive oil pump, charging and service ports, internal spring isolation, and discharge gas vibration eliminator.

2.2.3 REFRIGERATION CIRCUIT

Each refrigeration circuit shall be pre-piped with type "L" refrigerant copper tubing. Each refrigeration circuit shall include, but not be limited to: expansion valve with external equalizer and rapid bleed-through capacity. Features shall include filter dryer, sight glass, pressure fittings and high pressure/low pressure safety cutouts.

2.3 CHILLED WATER SYSTEMS

2.3.1 CHILLED WATER AIR HANDLERS (Models PCA-V)

The system shall be a chilled water air handling unit. The chilled water coil shall be of quality construction of seamless drawn rifled copper tube, mechanically bonded to tempered aluminum fins with galvanized coil end plates. The coil shall be factory pressure tested. The coil shall have ____ sq. ft. face area, ____ rows deep. A stainless steel drain pan shall be provided to cover the entire coil area. The coil shall be controlled by a factory installed 2-way chilled water control valve. The coil shall be designed to distribute water into the entire coil face area. The coil shall be supplied with ____°F entering water temperature with a ____°F temperature rise. The coil shall require ____ GPM of chilled water and the pressure drop shall not exceed ____ Ft. w.g.

2.4 STANDARD FEATURES - INDIVIDUAL SYSTEMS

2.4.1 AIR COOLED SYSTEMS

2.4.1.1 AIR COOLED, SELF-CONTAINED (Models PAA-V)

The system shall be self-contained vertical floor mounted air conditioner with integral factory installed air cooled condensing unit. The condensing unit shall be a belt driven, centrifugal blower type. The condenser coil shall be constructed of copper tubes and aluminum fins. The condenser coil shall be sized for full heat of rejection at 35°C (95°F) ambient and be capable of operation to ____°F low ambient air temperature. The system shall be factory tested, charged with refrigerant, sealed prior to shipment.

2.4.1.2 DX - SPLIT EVAPORATOR WITH REMOTE OUTDOOR PROPELLER FAN AIR COOLED CONDENSER (Models XAA-V / F)

The system shall be a split system with indoor vertical floor mounted evaporator unit and remote outdoor propeller

fan condenser. The indoor evaporator section shall include, but not be limited to: evaporator coil, stainless steel condensate drain pan, adjustable belt-driven blower, blower motor, thermal expansion valve with external equalizer, heat pump duty compressors, refrigerant service valves, refrigerant sight glass / moisture indicator, filter drier, 24 volt terminal connection and 50.8 mm (2") filters. The remote propeller fan condenser shall include, but not be limited to: condenser coil rated for 35°C (95°F) ambient, low rpm direct driven propeller fans and low ambient controls. The evaporator and condenser sections shall ship with a dry-nitrogen holding charge ready for field refrigerant charging.

2.4.1.3 DX - AIR HANDLING UNIT ONLY (Models BAA-V)

The system shall be a vertical floor mounted split DX - Air Handling Unit designed for field connection to the specified remote condensing unit. The air handling unit shall include, but not be limited to: evaporator coil, stainless steel condensate drain pan, adjustable belt-driven blower, blower motor, thermal expansion valve with external equalizer, refrigerant service valves, refrigerant sight glass/moisture indicator, filter drier, 24 volt terminal connection and 50.8 mm (2") filters.

2.4.1.4 INDOOR REMOTE CENTRIFUGAL BLOWER AIR COOLED CONDENSING UNIT (Models CAA-V)

The system shall be a vertical floor mounted indoor remote air cooled condensing unit designed for field connection to the specified DX Air Handling Unit. The condensing unit shall be a belt driven, centrifugal blower type. The condensing unit shall be sized for full heat of rejection at 35°C (95°F) ambient and be capable of operation to ____°F low ambient air temperature. The condensing unit shall be factory tested, charged with refrigerant, sealed and prior to shipment.

2.4.2 WATER COOLED SYSTEMS

2.4.2.1 WATER COOLED, SELF-CONTAINED (PWA-V models)

The system shall be self-contained vertical floor mounted air conditioner with integral factory installed water cooled condensing unit. Water cooled systems shall have coaxial, counter flow liquid condensers with adjustable 2-way water regulating valves per circuit to maintain head pressure with condenser water flow. The unit shall require ____ GPM of ____°F water and have a maximum pressure drop of ____ Ft. w.g.

2.4.2.2 REMOTE WATER COOLED CONDENSING UNIT (CWA-V models)

The system shall be a vertical floor mounted indoor remote water cooled condensing unit designed for field connection to the specified DX Air Handling Unit. Water cooled systems shall have coaxial, counter flow liquid condensers with optional adjustable 2-way water regulating valves

GUIDE SPECIFICATIONS: Convertible-Vertical™

per circuit to maintain head pressure with condenser water flow. The unit shall require ____ GPM of ____°F water and have a maximum pressure drop of ____ Ft. w.g.

2.4.3 GLYCOL COOLED SYSTEMS

2.4.3.1 GLYCOL COOLED, SELF-CONTAINED (PGA-V models)

The system shall be self-contained vertical floor mounted air conditioner with integral factory installed glycol cooled condensing unit. Glycol cooled systems shall have coaxial, counter flow liquid condensers with adjustable 2-way glycol regulating valves to maintain head pressure with condenser glycol flow. The unit shall require ____ GPM of ____°F glycol and have a maximum pressure drop of ____ Ft. w.g.

2.4.3.2 REMOTE GLYCOL COOLED CONDENSING UNIT (CGA-V models)

The system shall be a vertical floor mounted indoor remote glycol cooled condensing unit designed for field connection to a DX Air Handling Unit. Glycol cooled systems shall have coaxial, counter flow liquid condensers with adjustable 2-way glycol regulating valves per circuit to maintain head pressure with condenser glycol flow. The unit shall require ____ GPM of ____°F glycol and have a maximum pressure drop of ____ Ft. w.g.

2.4.3.3 DRY COOLER & SIMPLEX PUMP PACKAGE (FCPP models)

The dry cooler shall be complete with field mounted expansion tank and aquastat to control fan motor operation. The coil shall have seamless copper tubes bonded to aluminum fins for high transfer efficiency. The motor(s) shall have permanently lubricated bearings with inherent overload protection on 1 Phase motors and three coil overloads on 3 Phase motors.

The pump package shall include controls to operate the dry cooler and the pump. The pump package shall be enclosed in a weatherproof housing. The pump shall be rated for ____ GPM at ____ Ft. of head, and operate on ____ volt, ____ PH, 60Hz.

2.5 OPTIONS

2.5.1 AIR COOLED CONDENSER - LOW AMBIENT CONTROL

2.5.1.1 -34°C (-30°F) FLOODED CONDENSER (PAA, CAA & FU Models)

A flooded condenser system shall be provided to allow for low ambient condenser operation to -34°C (-30°F). The flooded system shall include a factory installed liquid refrigerant receiver and head pressure control valve.

2.5.1.2 -17.8°C (0°F) AMBIENT - FAN CYCLING (F Model Remote Propeller Fan Condensers)

Condenser fan cycling controls shall be factory installed to allow for low ambient condenser operation to -17.8°C (0°F) minimum air temperature.

2.5.1.3 -28.9°C (-20°F) VARIABLE SPEED FAN (F Model Remote Propeller Fan Condensers)

Variable speed head pressure controls shall be factory installed to allow for low ambient condenser operation to -28.9°C (-20°F) minimum air temperature.

2.5.2 WATER / GLYCOL COOLED - HEAD PRESSURE CONTROL VALVES

2.5.2.1 3-WAY WATER / GLYCOL HEAD PRESSURE CONTROL VALVES (PWA & PGA Models)

Each refrigerant circuit's head pressure shall be controlled by a factory provided 3-way water/glycol regulating valve rated for 150 psig w.w.p.

2.5.2.2 350 PSI HIGH PRESSURE - WATER/GLYCOL HEAD PRESSURE CONTROL VALVES

Each refrigerant circuit's head pressure shall be controlled by a factory provided high pressure rated ____ (2 or 3) -way water/glycol regulating valve rated for 350 psig w.w.p.

2.5.3 CONTROL OPTIONS

2.5.3.1 DigiSkil-100™: Remote Wall Mounted, Non-Programmable Digital Thermostat

A DigiSkil-100™ model remote wall mounted single stage heat / cool non-programmable thermostat with digital display shall be factory provided for field installation. The thermostat shall include FAN AUTO-ON and COOL-OFF-HEAT selector switches.

2.5.3.2 DigiSkil-200™: 7-Day Programmable Wall Mounted Digital Heat / Cool Thermostat

A DigiSkil-200™ model remote wall mounted deluxe 7-day programmable heat pump ready thermostat with digital display shall be factory provided for field installation. The thermostat shall include FAN AUTO-ON, COOL-OFF-HEAT-EM (emergency heat), SET and PROG/MAN selector switches.

2.5.3.3 MicroSkil-100™: Microprocessor with Alarms

The system shall be provided with a MicroSkil-100™ model Microprocessor based controller with Alarms. Centered in the remote wall mounted controller shall be a graphic LCD display with characters to show the operating mode, time, set points and actual readings. The temperature and humidity sensors shall be internal to the remote display. The controller shall be capable of three different set points: normal, temporary and night per day, 7 days per week.

GUIDE SPECIFICATIONS: Convertible-Vertical™

The controller shall include the following visual and audible alarm indications (if applicable):

- High and Low Temperature
- Dirty Filter
- Sensor Failure
- Common Alarm Failure

The controller shall include the following system operations (if applicable):

- Unit Operational Status Indication-Cooling, Heating
- Fan-continuous or on demand
- Auto-restart upon power loss
- Remote stop/start connection
- Short cycle protection
- Cold start time delay
- Heat pump operation with aux. heat

2.5.3.4 MicroSkil-2015/2015a™, Advanced Microprocessor Controller with Alarms

The system shall be provided with a MicroSkil-2015™ advanced microprocessor based controller with alarms.

Available Features/Benefits:

- 4x20 Character Liquid Crystal Alpha-numerical Display
- User Configurable
- Run-Time Hours
- Current Unit Mode Status
- Alarm Status
- Digital & Analog Inputs/Outputs
- Temperature Anticipation
- Remote Stop/Start Contact
- Summary Alarm Contact
- Automatic or Manual (selectable) Restart After Power Loss
- Sequential Load After Restart
- Recovery Delay
- Compressor Short Cycle Timers
- Cold Start Time Delay
- Security Password Access
- Self-Diagnostics
- Service Mode

Unit Status Display

The control system shall display current unit functions and room status (if applicable):

- Current Dry Bulb Temp Set Point
- Current Relative Humidity Set Point
- System ON/OFF
- Cooling
- Heating
- Actual Room DB Temperature
- Actual Room Relative Humidity

Alarm Conditions:

Alarm conditions activate an audible and visual indicator plus close a summary alarm dry contact connection. The

control system shall alert to the following alarm conditions (if applicable) May require additional accessories:

- High Temperature
- Low Temperature
- Firestat
- High Head Press
- Loss of Air Flow
- Loss of Power
- Dirty Filter
- Smoke Detection
- Leak Detection
- Sensor Failure
- Summary Failure

Digital & Analog Control Inputs / Outputs:

The control system shall be capable of both digital (ON/OFF) and analog (proportional integral, PI) input and output control.

Select Options:

- Multi-Unit Sequencing (Optional)
- BMS Communications (Optional)

RS 485 Serial Port Connection: (Optional)

An RS 485 Serial Port Connection shall be provided for remote communications to BSM and/or Modem.

2.5.4 HEAT OPTIONS

2.5.4.1 ELECTRIC DUCT HEATER

(Field Installed)

The electric heat shall be a field installed duct heater with nichrome open wire elements, contactors and limit controls. The electric heater shall be UL approved. The electric heat shall have a capacity of _____ BTUH and a KW rating of ____ KW.

2.5.4.2 STEAM HEAT

(Field Installed Steam Heat Coil Box & Valve)

A steam heating coil box and valve shall be provided for field installation to the evaporator air inlet. The steam heating coil shall have copper tubes and aluminum fins with capacity of _____ BTUH with ____ Ft. w.g. steam. A factory provided 2-way steam control valve shall be provided for field installation.

2.5.4.3 HOT WATER HEAT

(Field Installed Hot Water Heat Coil Box & Valve)

A hot water heating coil box and valve shall be provided for field installation to the evaporator air inlet. The hot water heating coil shall have copper tubes and aluminum fins with a capacity of _____ BTUH when supplied with ____ °F entering water temperature, ____ GPM at ____ Ft. w.g. A factory provided 2-way hot water control valve shall be provided for field installation.

2.5.4.4 HEAT PUMP OPTION

(PAH-V, PWH-V & PGH_V models)

The system shall include a factory installed heat pump heating cycle including reversing valve, automatic defrost cycle (if appl.) and remote wall mounted temperature controller with auxiliary heating control capability. The heat pump mode heating capacity shall be _____ BTU/HR.

2.5.5 CONDENSATE PUMP

A condensate pump shall be factory provided for field installation. The condensate pump shall have the capacity of ____ GPH at ____ Ft. of head. The condensate pump shall be complete with integral float switch, pump and motor assembly, check valve and reservoir.

2.5.6 HOT GAS BYPASS

(DX Systems)

Each refrigerant circuit shall be provided with a hot gas bypass system for evaporator freeze-protection and capacity modulation during low load conditions.

2.5.7 VARIABLE AIR VOLUME (VAV) OPTION KIT

The system shall be designed for evaporator supply air control for application with a variable air volume (VAV) system. The shall incorporate Skil-aire's VAV Option Kit which shall include, but not be limited to:

- Variable Frequency Drive - factory installed
- Static Pressure Sensor/Transducer - field installed
- MicroSkil-2015/2015a, Advanced Microprocessor Controller w/ Supply Air Control Algorithm
- Circuit 1: Modulating (0-10 Vdc) Hot Gas Bypass
- Circuit 2: Standard Hot Gas Bypass

2.5.8 MAIN POWER NON-FUSED DISCONNECT

A main power non-fused disconnect shall be factory provided for field installation.

2.5.9 AIR SIDE ECONOMIZER

(All Model Types)

The system shall be provided with an Air-Side Economizer to include factory provided and field installed air side economizer mixing box and controls per the following sequence of control:

On a call for cooling by the indoor space thermostat, the indoor fan and the economizer shall be energized. The outdoor air control shall determine whether the outdoor air is suitable for "free/economizer-cooling". If the outdoor air is suitable, mechanical cooling shall be locked out by the outdoor enthalpy control. The motor actuator shall be energized, operating the outdoor air and the return air dampers. The motor actuator shall be regulated by the mixed air sensor to maintain proper discharge air temperature.

When outdoor air is not suitable for "free/economizer-cooling", the Economizer shall be locked out and the outdoor air damper shall maintain minimum position while the indoor fan is operating. Upon unit shutdown or power loss, the spring return motor actuator shall close the outdoor air damper.

The Economizer shall be automatically locked out during the heat mode (if applicable).

The Air Side Economizer shall include: prewired modulating spring return motor actuator, compressor lockout, minimum position potentiometer, outdoor air control (enthalpy), mixed air sensor, multi-tap transformer and damper linkage.

The Air-Side Economizer and Controls shall ship separately from the unit for field installation.

(Note: Refer to supplemental Air Side Economizer dimensional data for more information.)

2.5.10 ECX - ECONOMIZER / FREE - COOLING CYCLE

(Field Installed ECX Coil Box & Valves)

The system shall be provided with field installed external economizer cooling coil box with field installed 3-way control valve. The ECX coil shall be capable of providing rated sensible capacity without compressor operation when entering water/glycol fluid temperatures are 7.2°C (45°F) or below.

(Note: Please Consult your local sales representative for dimensional and upgraded blower motor requirements for ECX option.)

2.5.11 COMPRESSOR SOUND JACKETS

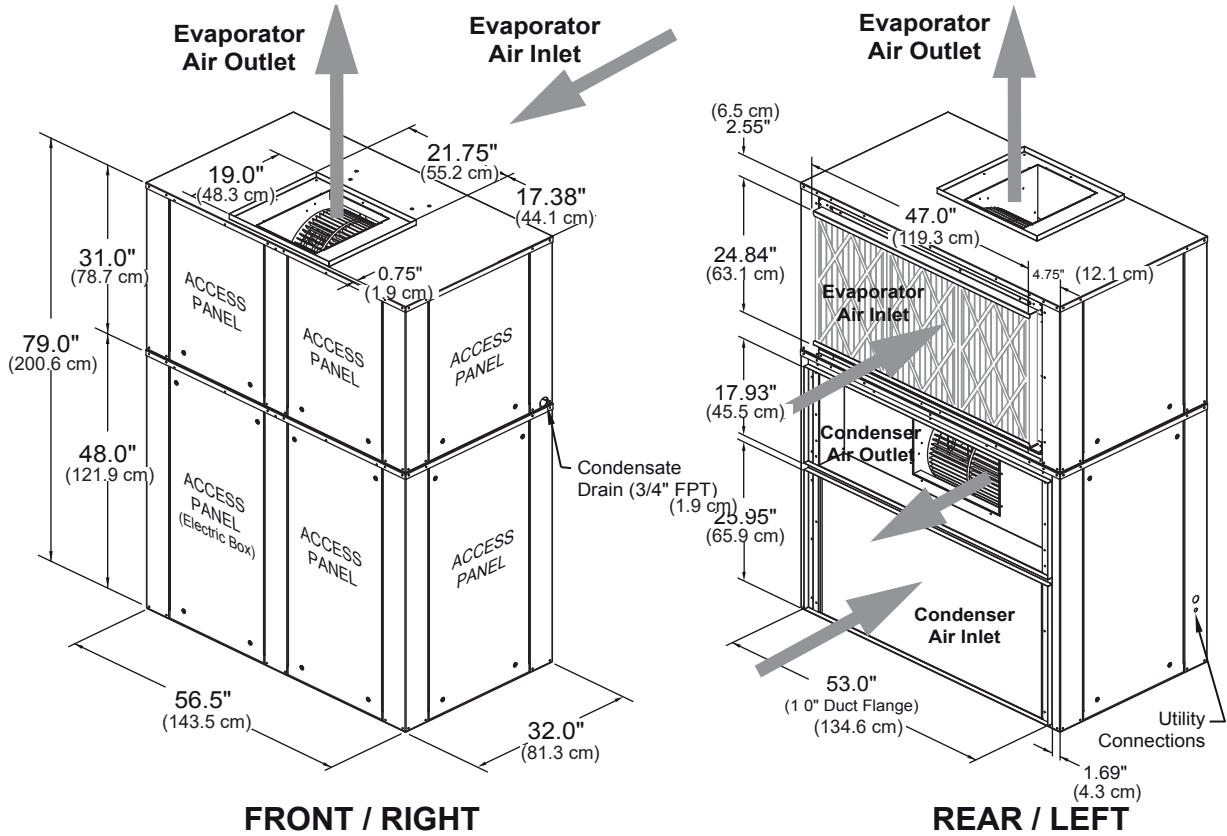
(Not Available with Crankcase Heater Option)

Acoustical compressor sound jackets shall be factory installed. The sound jacket shall have a snap closure system for ease of removing and reinstallation during maintenance. The sound jacket shall have a Noise Reduction Coefficient (NRC) of 85 per ASTM C-423 and a Sound Transmission Loss (STC) of 11 per ASTM E-90.

UNIT DIMENSIONS: Convertible-Vertical™

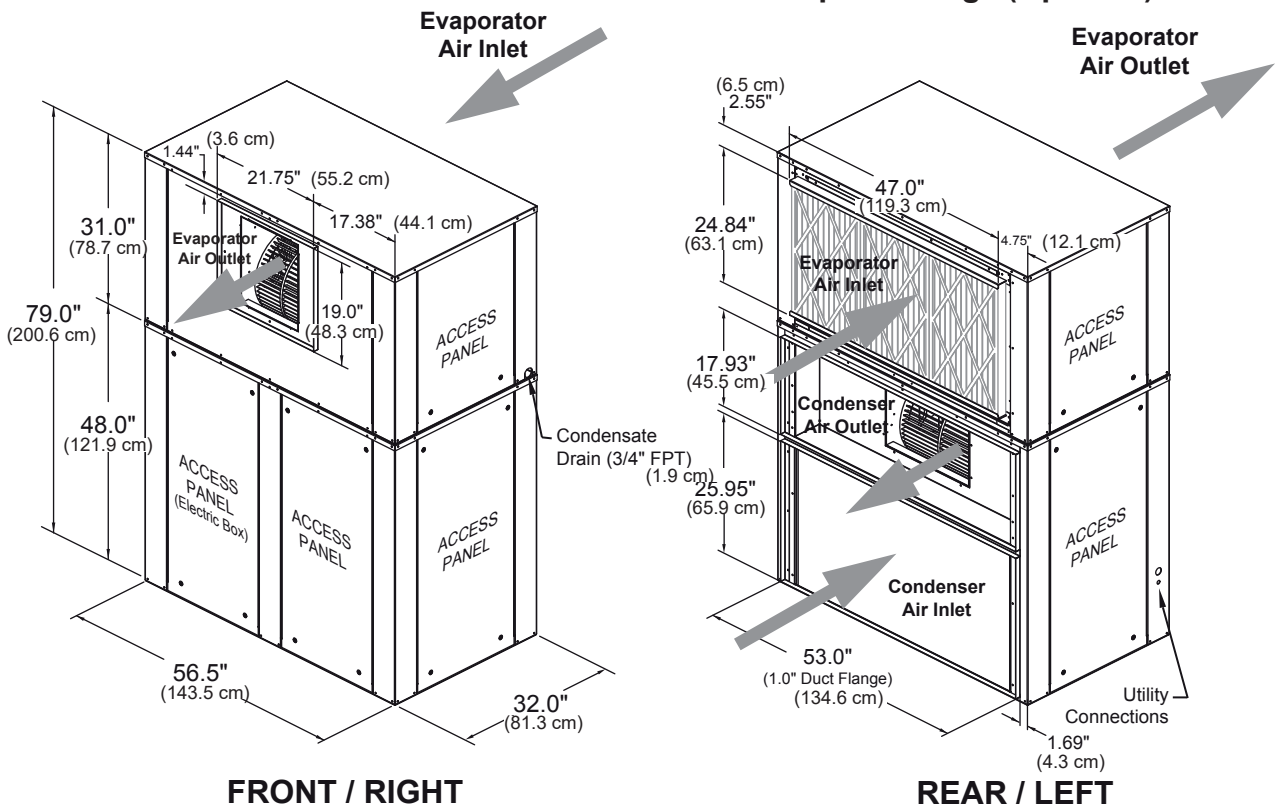
2 to 6 Ton - (PAA, PAH-024, 036, 048, 060 & 072-V)

Air Cooled - Self-Contained Vertical A/C - Top Evap Discharge



2 to 6 Ton - (PAA, PAH-024, 036, 048, 060 & 072-V)

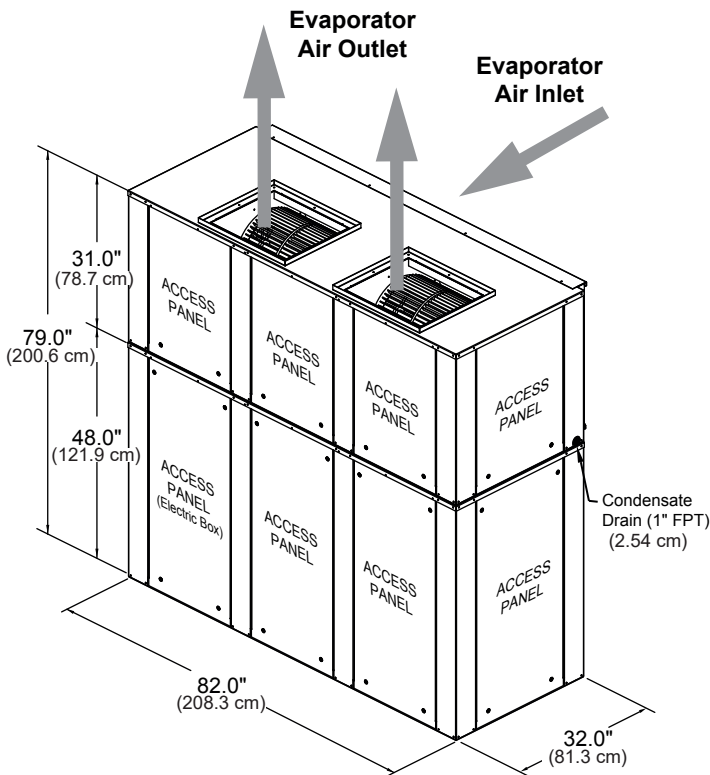
Air Cooled - Self-Contained Vertical A/C - Front Evap Discharge (Optional)



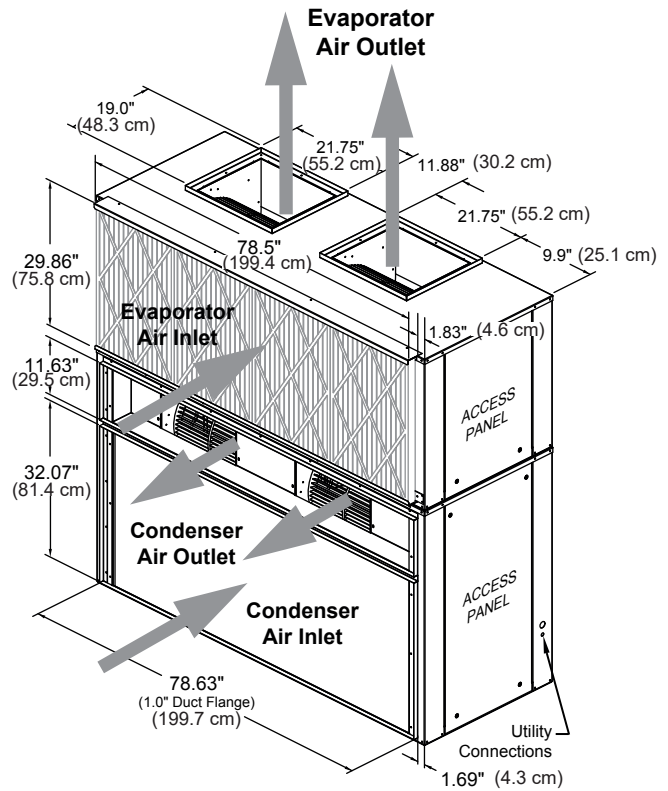
UNIT DIMENSIONS: Convertible-Vertical™

8 to 12 Ton - (PAA, PAH-096, 120 & 144-V)

Air Cooled - Self-Contained Vertical A/C - Top Evap Discharge



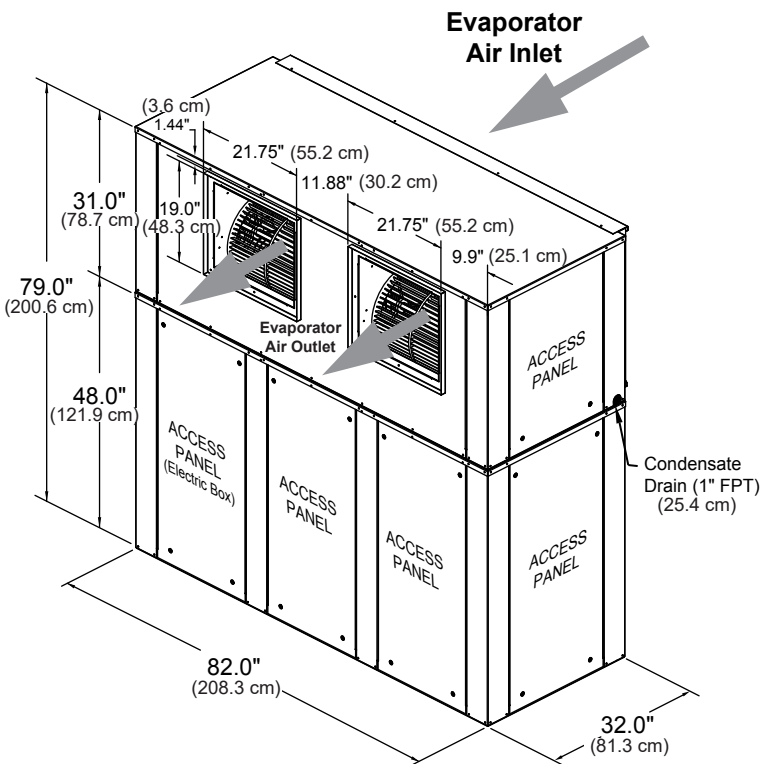
FRONT / RIGHT



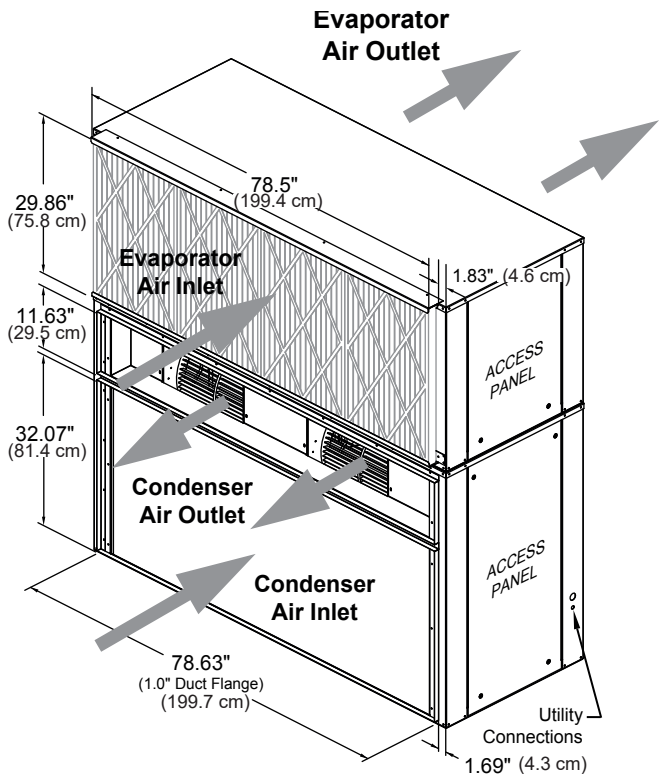
REAR / LEFT

8 to 12 Ton - (PAA, PAH-096, 120 & 144-V)

Air Cooled - Self-Contained Vertical A/C - Front Evap Discharge (Optional)



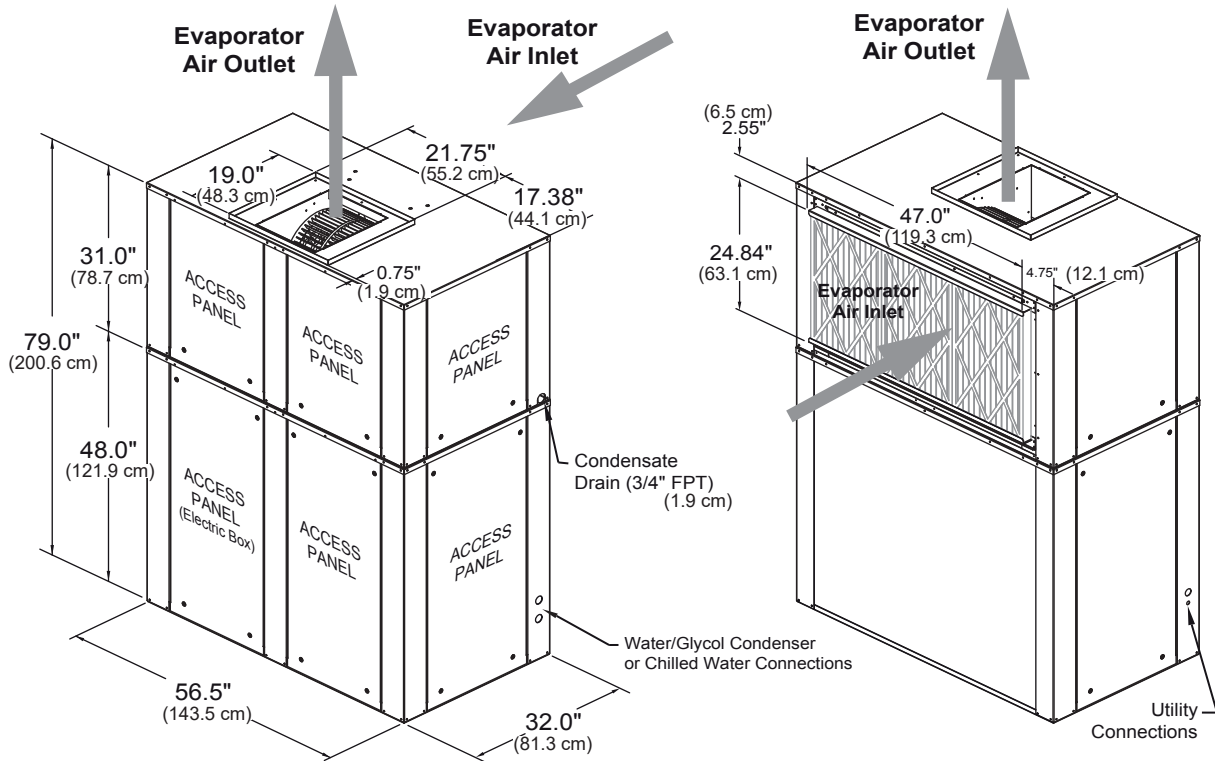
FRONT / RIGHT



REAR / LEFT

UNIT DIMENSIONS: Convertible-Vertical™

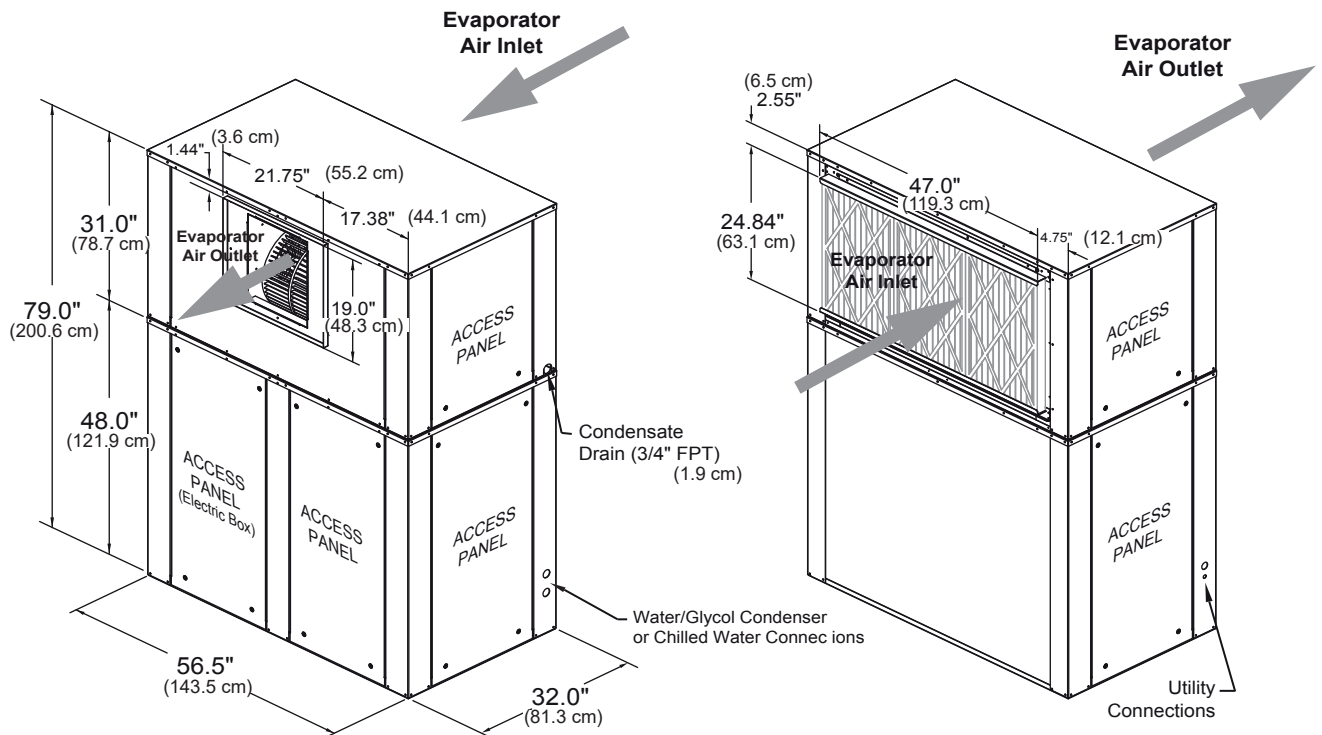
2 to 10 Ton - (PWA, PGA-024, 036, 048, 060, 072, 096 & 120-V) Water/Glycol Cooled Self-Contained - Top Evap Discharge



FRONT / RIGHT

REAR / LEFT

2 to 10 Ton - (PWA, PGA-024, 036, 048, 060, 072, 096 & 120-V) Water/Glycol Cooled Self-Contained - Front Evap Discharge (Optional)



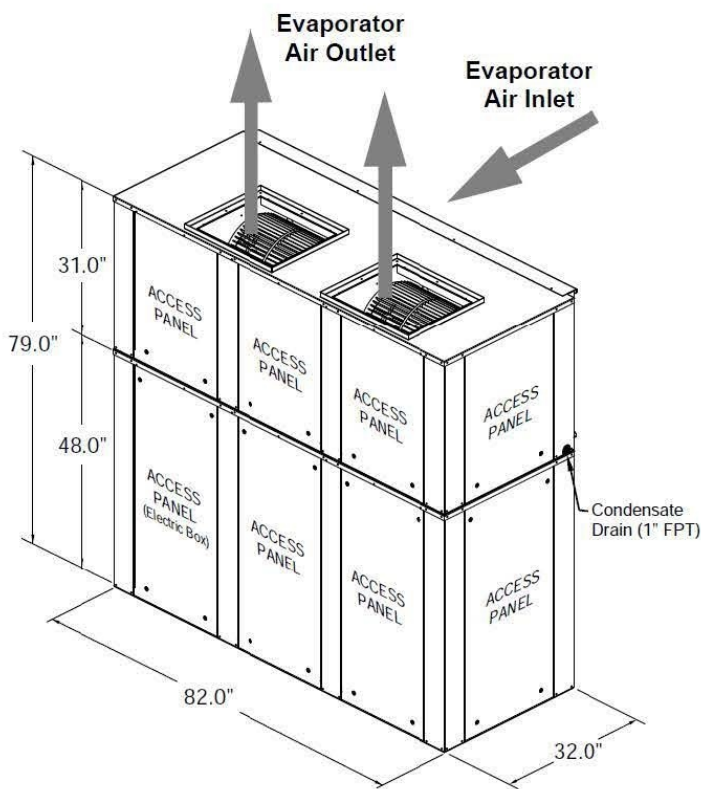
FRONT / RIGHT

REAR / LEFT

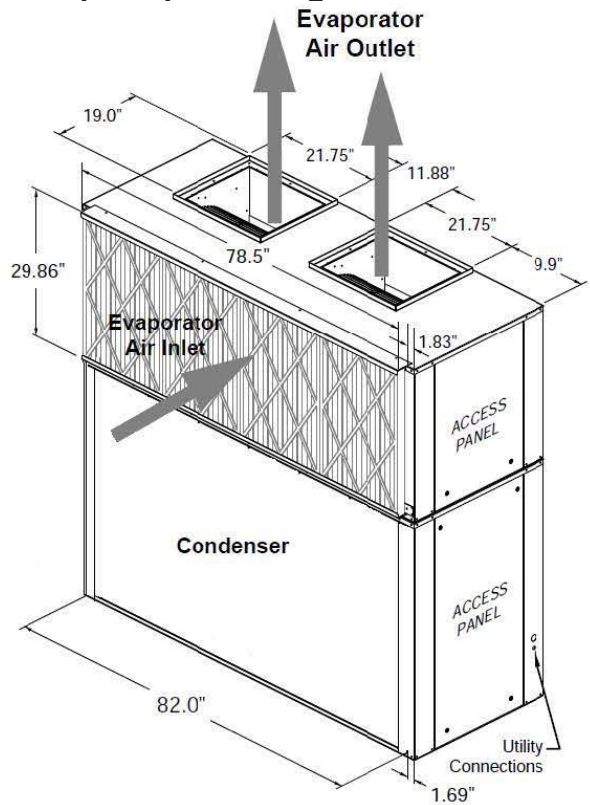
UNIT DIMENSIONS: Convertible-Vertical™

12 to 20 Ton - (PWA, PGA-144, 180 & 240-V)

Water/Glycol Cooled Self-Contained - Top Evap Discharge



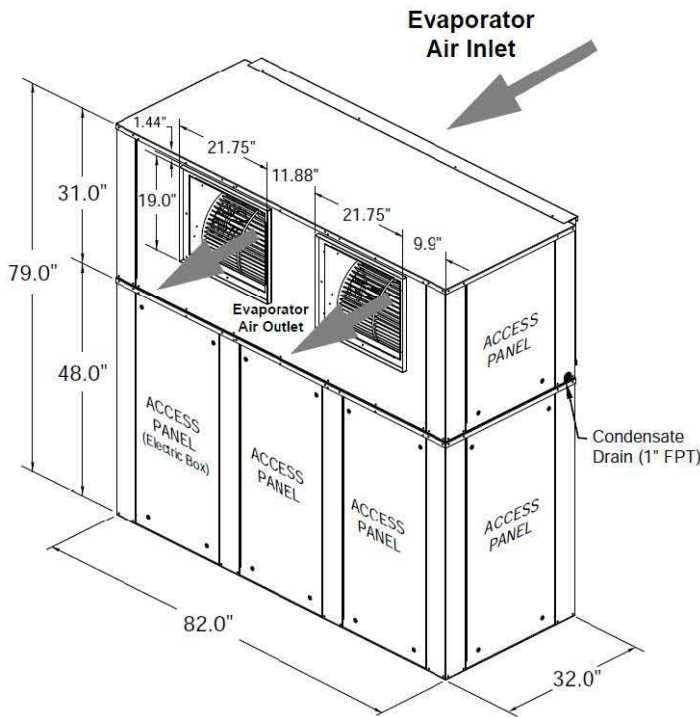
FRONT / RIGHT



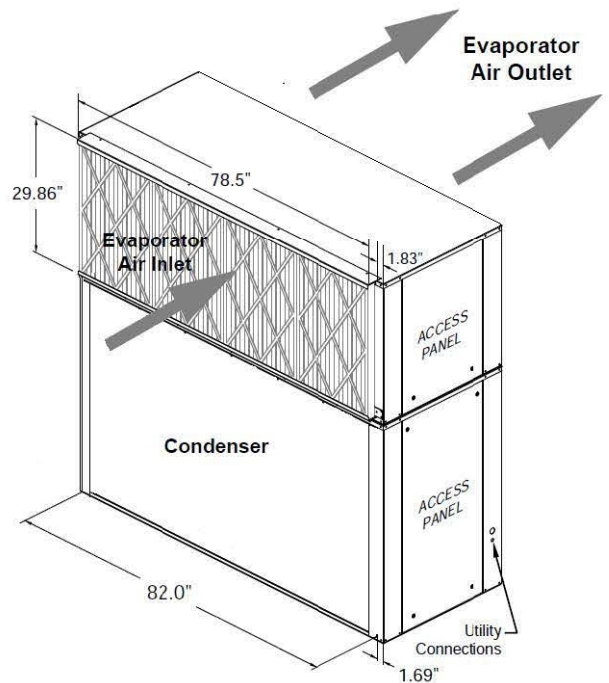
REAR / LEFT

12 to 20 Ton - (PWA, PGA-144, 180 & 240-V)

Water/Glycol Cooled Self-Contained - Front Evap Discharge (Optional)



FRONT / RIGHT

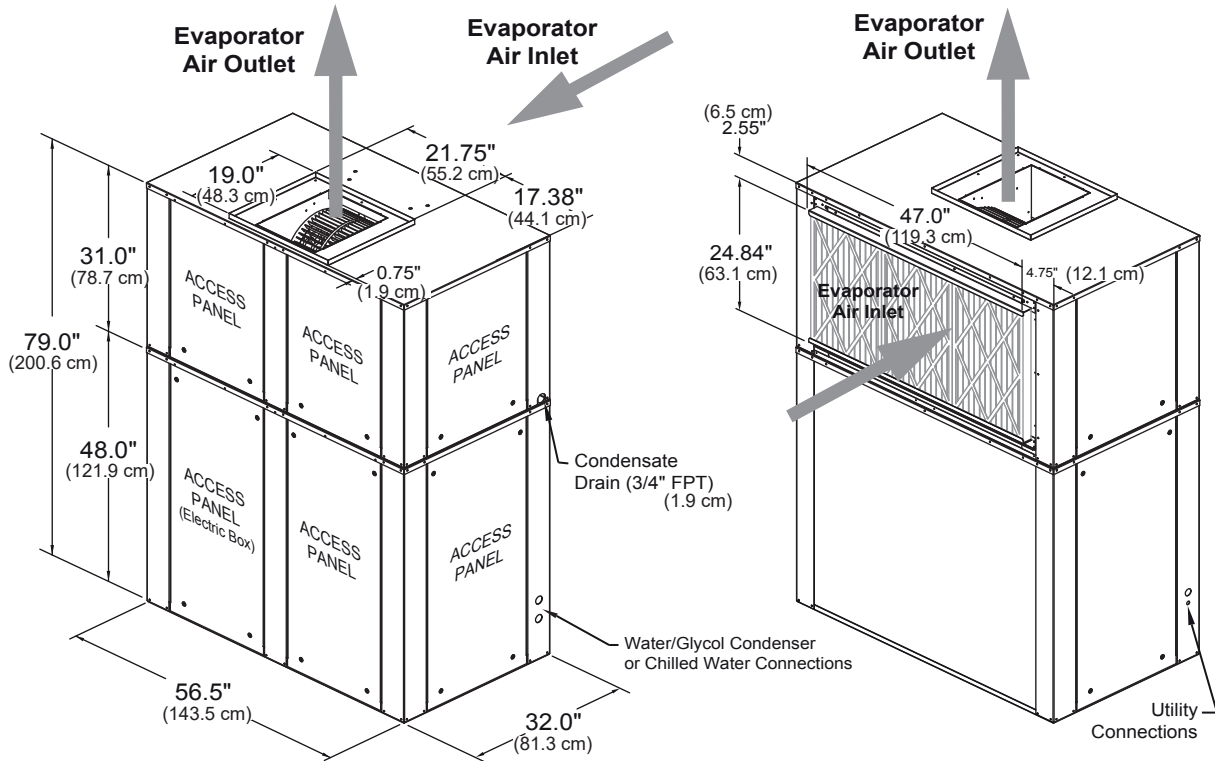


REAR / LEFT

UNIT DIMENSIONS: Convertible-Vertical™

2 to 10 Ton - (PCA-024, 036, 048, 060, 072, 096 & 120-V)

Chilled Water, Self-Contained - Top Evap Discharge

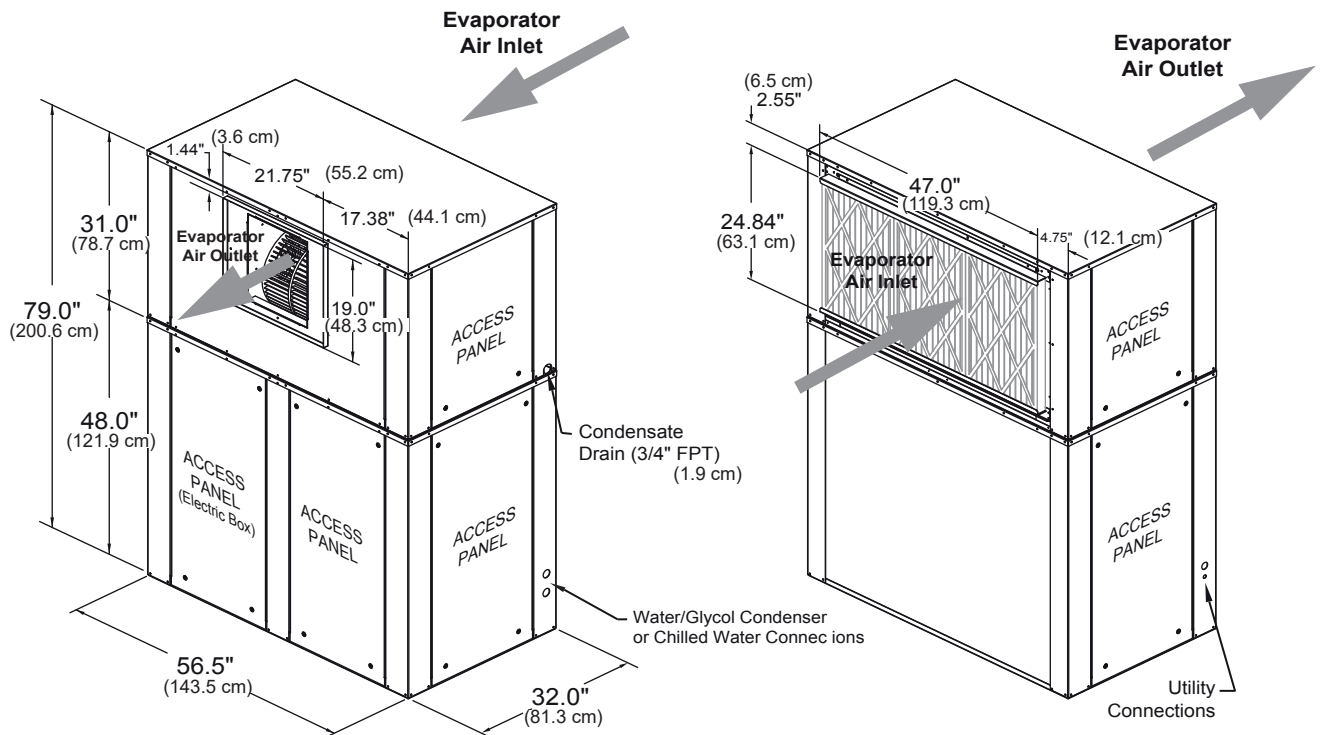


FRONT / RIGHT

REAR / LEFT

2 to 10 Ton - (PCA-024, 036, 048, 060, 072, 096 & 120-V)

Chilled Water, Self-Contained - Front Evap Discharge (Optional)



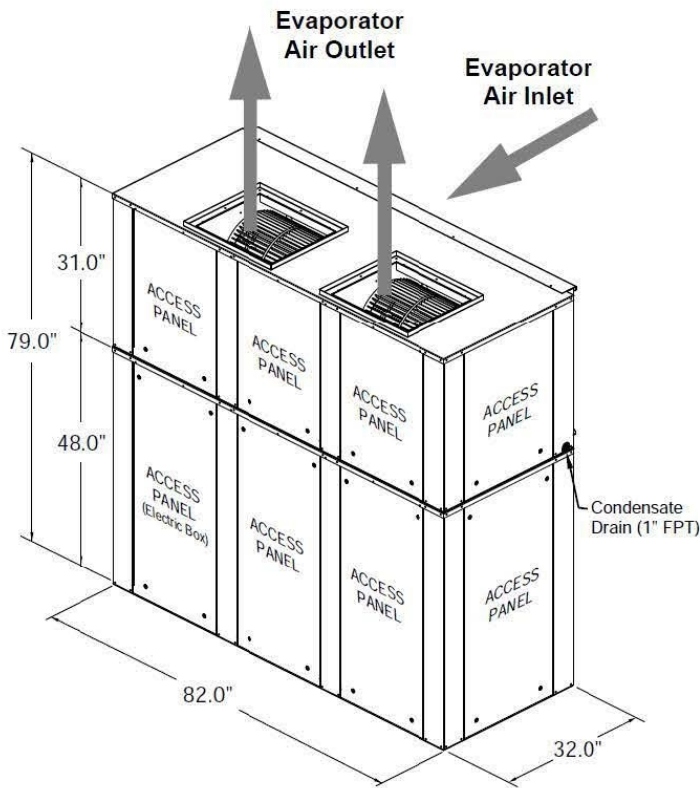
FRONT / RIGHT

REAR / LEFT

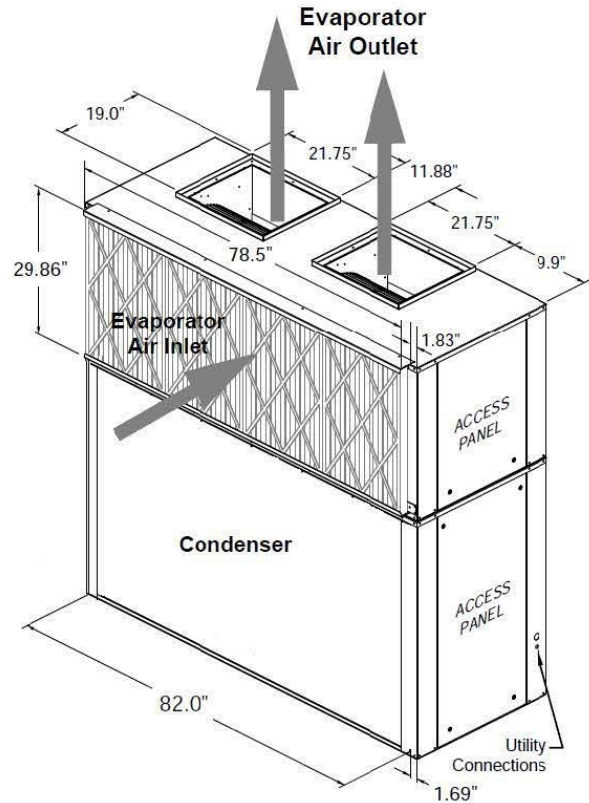
UNIT DIMENSIONS: Convertible-Vertical™

12 to 20 Ton - (PCA-144, 180 & 240-V)

Chilled Water, Self-Contained - Top Evap Discharge



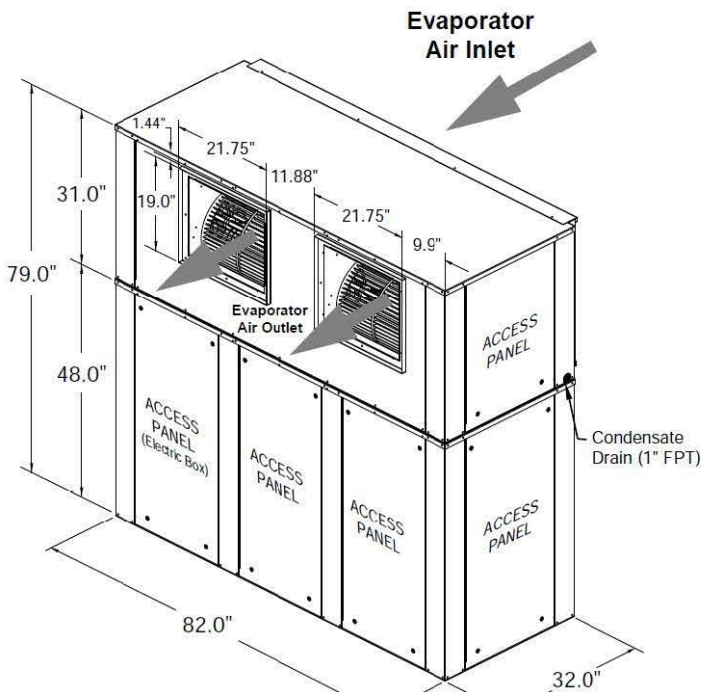
FRONT / RIGHT



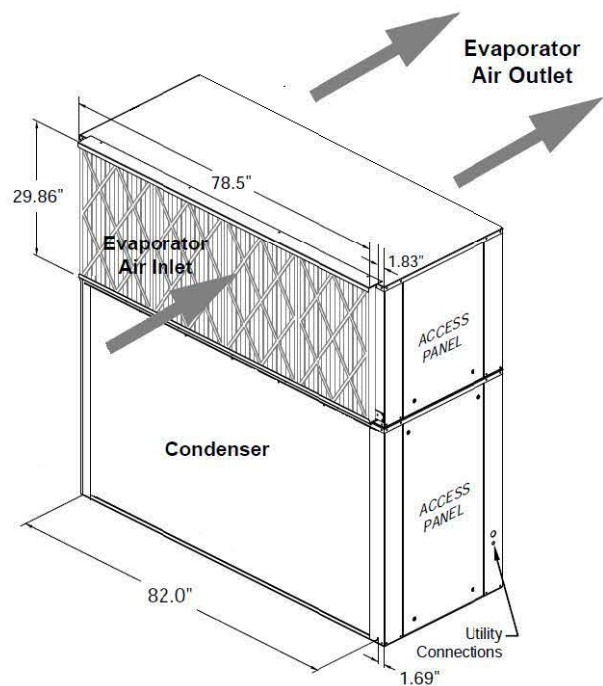
REAR / LEFT

12 to 20 Ton - (PCA-144, 180 & 240-V)

Chilled Water, Self-Contained - Front Evap Discharge (Optional)



FRONT / RIGHT

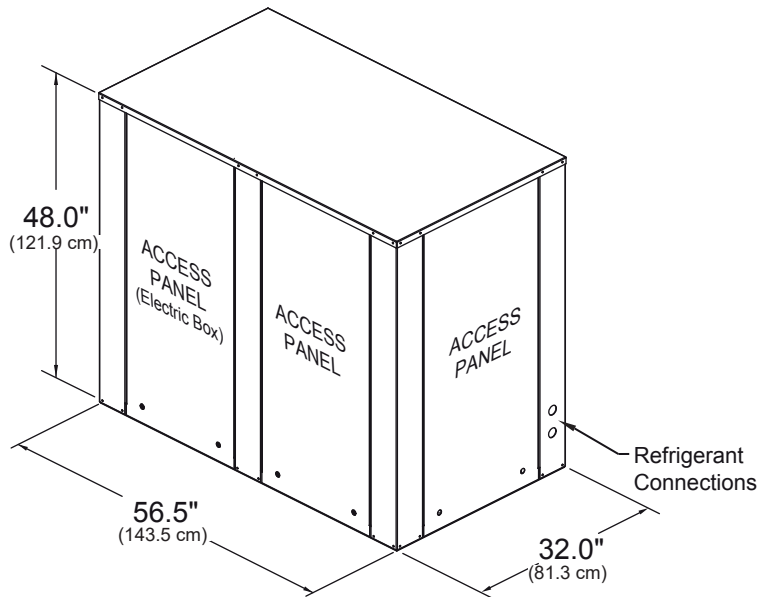


REAR / LEFT

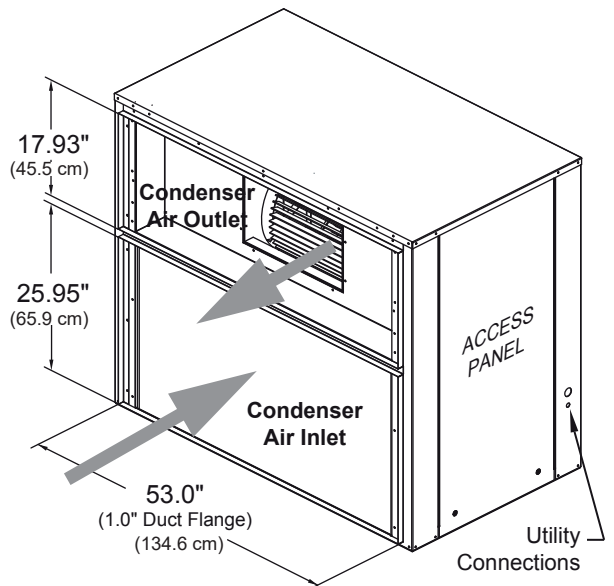
UNIT DIMENSIONS: Convertible-Vertical™

2 to 6 Ton - (CAA-024, 036, 048, 060 & 072-V)

Indoor, Vertical Floor Mounted, Remote Centrifugal Blower Air Cooled Condensing Unit



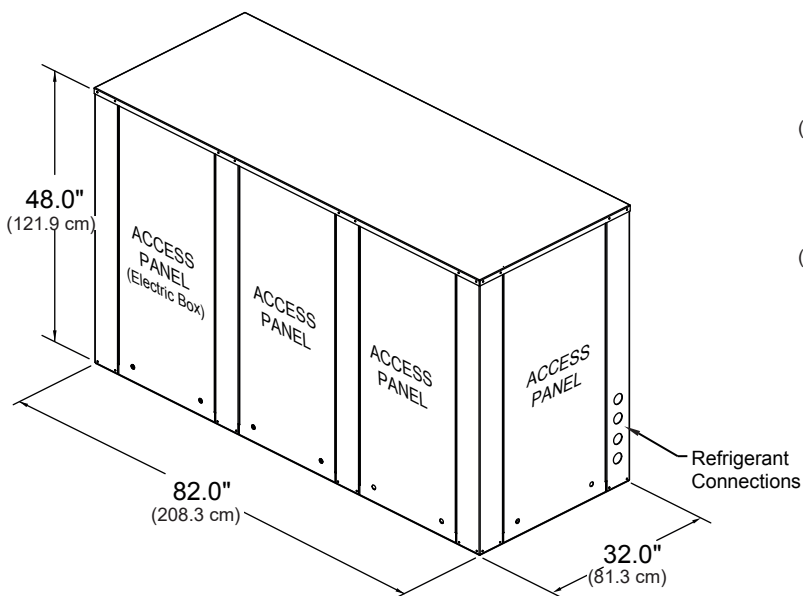
FRONT / RIGHT



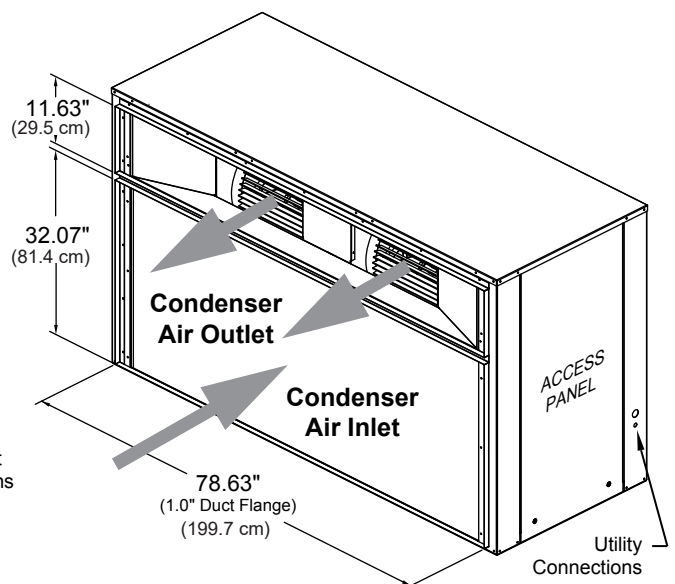
REAR / LEFT

8 to 12 Ton - (CAA-096, 120 & 144-V)

Indoor, Vertical Floor Mounted, Remote Centrifugal Blower Air Cooled Condensing Unit



FRONT / RIGHT

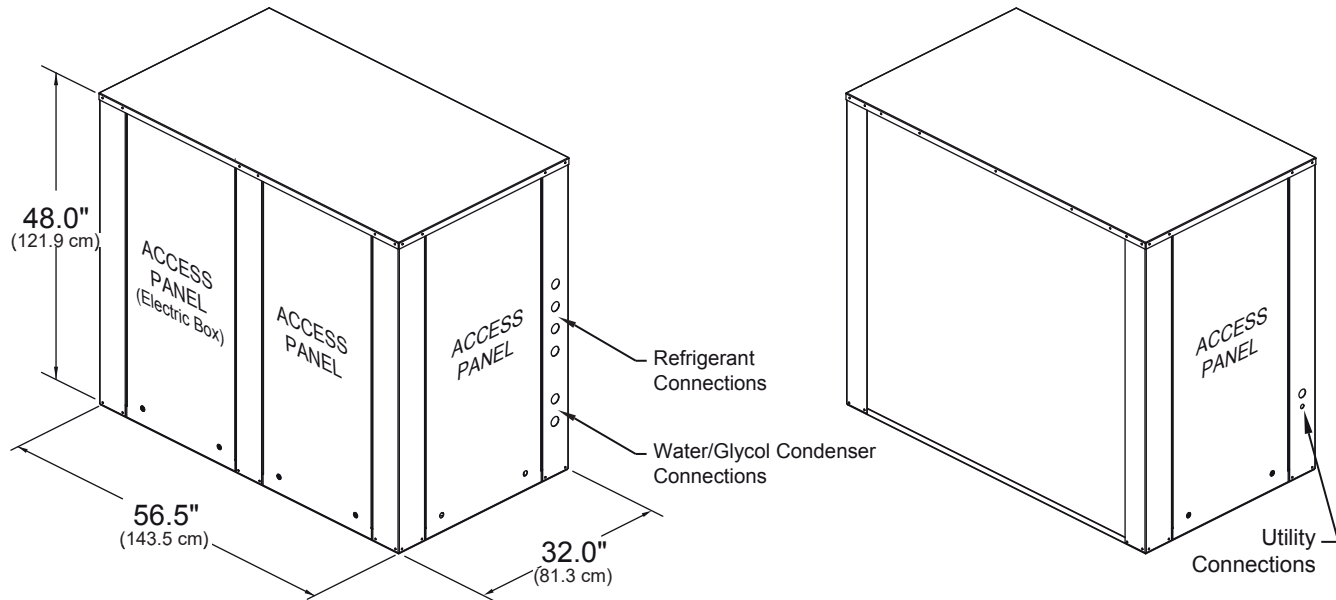


REAR / LEFT

UNIT DIMENSIONS: Convertible-Vertical™

2 to 10 Ton - (CWA/CGA-024, 036, 048, 060 & 072, 096 & 120-V)

Indoor, Vertical Floor Mounted, Remote Water/Glycol Cooled Condensing Unit

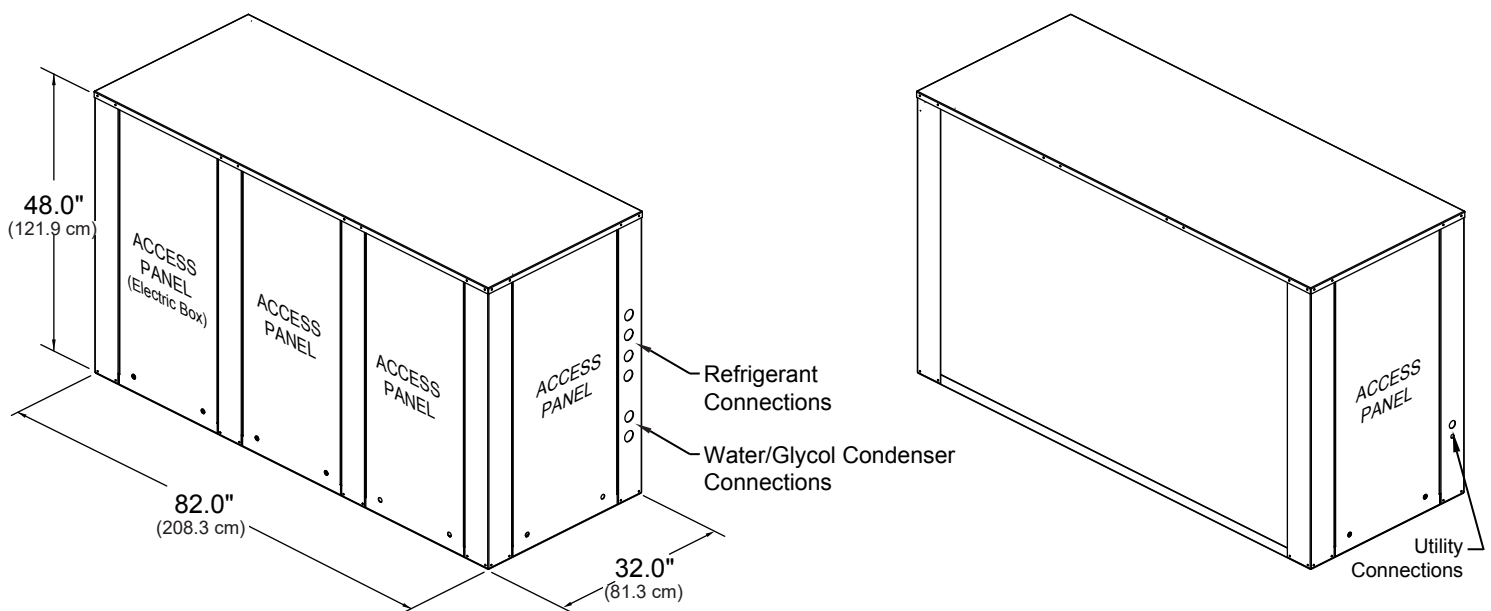


FRONT / RIGHT

REAR / LEFT

12 to 20 Ton - (CWA/CGA-144, 180 & 240-V)

Indoor, Vertical Floor Mounted, Remote Water/Glycol Cooled Condensing Unit



FRONT / RIGHT

REAR / LEFT