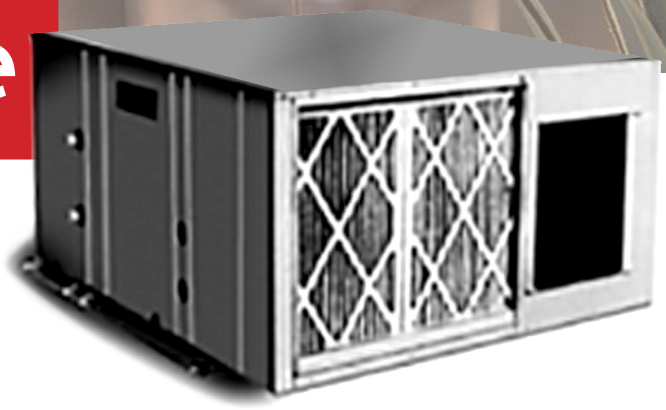
engineering manual

Comfort Cooling

Convertible

Horizontal A/C's & Heat Pumps 2-15 Tons



- 2 to 15 Ton Capacities, High Static Capacity
- Ceiling Mounted, Unit Fits Completely Indoors
- Perfect for Office Spaces, Restaurants & Retail Stores
- Packaged & Split DX Air, Water/Glycol Cooled & Chilled Water Systems
- Fit Thru 30" Doors, Ideal for Retro Fit

Skil-aire
A division of Tithe Corporation

Excellence In Ceiling Mounted AC and Environmental Control Systems

800.625.7545 www.Skil-aire.com

CPG-CH16a

Skil-aire™. We Always Hang Around All The Best Places.

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A division of Tithe Corporation

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Model Nomenclature

PWA-120-H4-ECX

- Convertible - **P**
- Evaporator Only - **B**
- Centrifugal Condenser - **C**
- Air Cooled - **A**
- Chilled Water - **C**
- Water Cooled - **W**
- Glycol Cooled - **G**
- Comfort - **A**
- Heat Pump - **H**

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

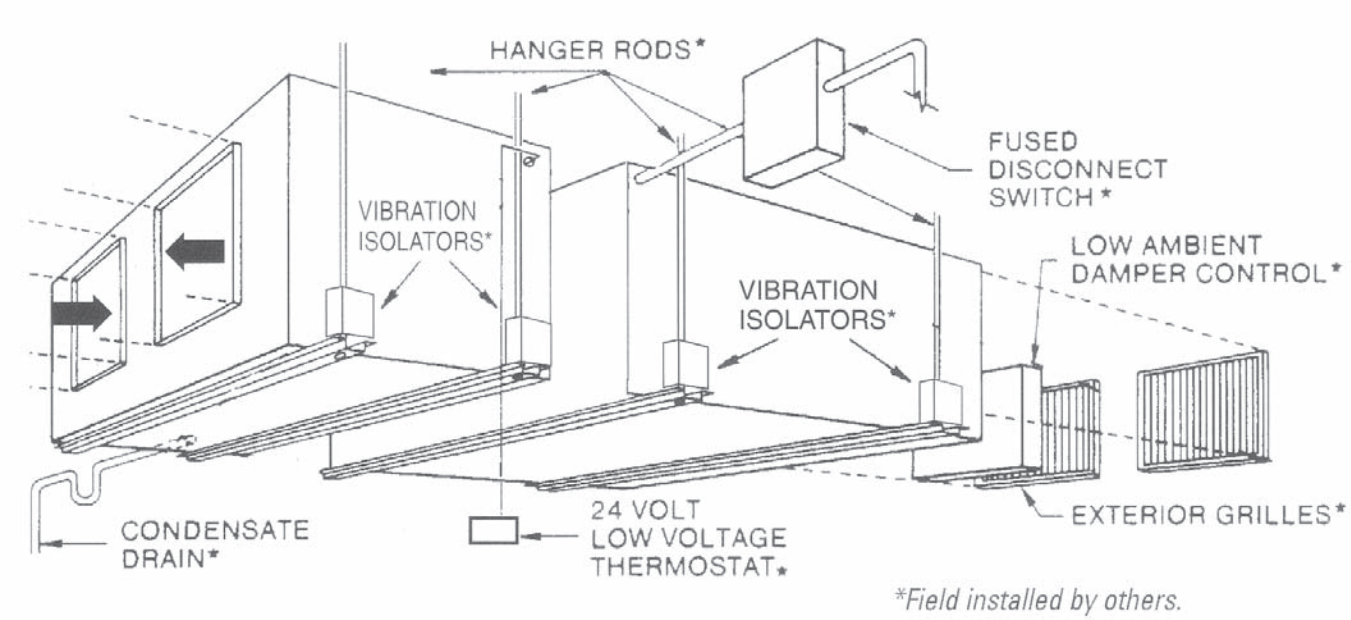
H - Horizontal

1 - 208-230/1/60
3 - 208-230/3/60
4 - 460/3/60

ECX - Economizer Coil
EXT - Extended Cabinet Option
FU - Outdoor Propeller Fan Condensing Unit

Convertible™

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



The **Skil-aire Convertible™**, packaged or split air conditioners and heat pumps have high external static pressures. These compact units fit through standard 30" doors and are field splittable, up to 150 equivalent feet, without losing the factory tested refrigerant*

Flexible Microprocessor Controls:

DigiSkil-100 & 200

MicroSkil-100 & 200

IAQ Comfort:

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

Energy $aving Options:

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

Head Pressure Control:

- Air Cooled - Choose from 0°F, -20°F and -30°F Low Ambient Options
- Water/Glycol Cooled - 2 and 3-way standard and high pressure regulating valve options

High Static Belt-Drive Blowers:

- Ducted Systems Availble 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

FEATURES & BENEFITS

MECHANICAL DATA: Convertible™

Nominal Tons		2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0
Model Size		024	036	048	060	072	096	120	144	180
DX - AIR COOLED @ 95°F Entering Condenser Air										
80°F DB, 50% RH										
Total / Sensible	MBH	25.1 / 19.0	39.5/28.7	47.6/36.1	60.5/44.8	77.3/56.^	103.3/75.8	125.0/94.0	144.0 / 108.0	197.0 / 169.0
75°F DB, 50% RH										
Total / Sensible	MBH	26.3 / 19.5	35.6 / 27.4	47.8/36.2	59.2/45.7	71.1 / 56.5	85.7 / 67.5	115.0/92.0	135.0 / 105.0	183.0 / 150.0
AIR SOURCE HEAT PUMP HEATING CAPACITY @ 47°F DB & 17°F DB										
70°F DB / Indoor Air	MBH	30.0 / 17.4	40.7 / 22.5	54.7 / 32.1	65.0 / 36.2	76.8 / 42.6	95.7 / 62.7	121.7 / 67.7	151.9 / 88.7	182.6 / 101.6
DX - WATER COOLED @ 85°F Entering Condenser Water										
80°F DB, 50% RH										
Total / Sensible	MBH	31.8 / 21.4	43.1 / 30.1	56.7 / 39.3	69.5 / 49.3	87.9 / 62.1	106.1 / 74.4	132.0 / 97.6	152.6 / 114.5	208.8 / 179.1
75°F DB, 50% RH										
Total / Sensible	MBH	28.7 / 21.0	39.7 / 28.6	51.4 / 38.7	64.3 / 47.0	80.1 / 61.0	97.3 / 71.0	126.8 / 103.4	146.2 / 122.8	165.6 / 142.2
DX - GLYCOL COOLED @ 110°F, 40% Entering Ethylene Glycol										
80°F DB, 50% RH										
Total / Sensible	MBH	26.8 / 19.5	37.2 / 27.7	49.1 / 36.4	60.7 / 45.7	75.7 / 57.1	91.7 / 68.6	121.3 / 90.5	139.8 / 104.0	191.2 / 162.7
75°F DB, 50% RH										
Total / Sensible	MBH	24.0 / 18.8	33.6 / 27.0	44.5 / 35.5	55.3 / 44.8	68.4 / 55.9	82.8 / 67.3	109.8 / 85.2	125.6 / 97.8	173.4 / 153.4
CHILLED WATER SYSTEMS @ 45°F Entering Water Temp.										
80°F DB, 50% RH										
Total / Sensible	MBH	26.4 / 19.4	39.4 / 28.5	48.6 / 36.1	61.6 / 45.9	81.5 / 59.3	103.2 / 74.2	136.0 / 102.0	160.0 / 120.0	219.0 / 198.0
75°F DB, 50% RH										
Total / Sensible	MBH	21.1 / 17.9	31.2 / 26.2	38.8 / 33.4	49.2 / 42.4	65.1 / 54.7	81.9 / 68.1	104.0 / 91.0	133.0 / 120.0	162.0 / 149.0
Flow Rate	GPM	4.0	7.0	7.5	10.0	12.0	18.0	30.0	36.0	41.0
Pressure Drop	FT W.G.	2.5	7.1	2.2	3.9	4.0	7.6	8.4	11.6	14.7
Standard Valve		2-way, 150 psig - factory installed *(3-way & High Pressure Valves are Optional)*								

COMMON FEATURES

Evaporator Airflow										
Discharge	CFM	800	1,200	1,600	2,000	2,400	3,000	4,000	4,800	5,400
Fan Motor	HP	1/2	1/2	3/4	1	1 1/2	2	3	5	5
Fan Diameter	IN	10 X 7	10 X 7	12 X 9	12 X 9	12 X 9	12 X 9	15 X 9	15 X9	15 X 9
Evaporator Coil - Aluminum Fin, Copper Tube										
Rows	NO	4	4	4	4	5	5	3	3	3
Face Area	FT^2	2.5	2.5	4.1	4.1	4.9	4.9	8.2	8.2	8.2
Face Velocity	FPM	320	480	390	487	489	612	489	585	659
Air Filtration - @ 40% NBS Dust Spot										
Nominal Size	(NO) IN	(1)20x20x2	(1)20x20x2	(2)14x25x2	(2)14x25x2	(2)14x25x2	(2)14x25x2	(3)16x25x2	(3)16x25x2	(3)16x25x2
Compressor - Heat Pump Duty Hermetic										
	(NO) HP	(1) 2.0	(1) 3.0	(1) 4.0	(1) 5.0	(2) 3.0	(2) 4.0	(2) 5.0	(3) 4.0	(3) 5.0
Heat (Duct Mounted) - includes evaporator motor heat, **(Optional)**										
Capacity	MBH	18.9	37.8	55.5	55.5	55.5	55.5	75.5	75.5	75.5
	KW	5.0	10.0	15.0	15.0	15.0	15.0	20.0	20.0	20.0
Stages	NO	1	2	2	2	2	2	2	2	2
Steam Canister Humidifier - (Optional)										
Steam Canister	LBS/HR	5	5	10	10	15	15	15	15	15
Connection Sizes - Copper										
Condensate Drain	FPT IN	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Humidifier Inlet	FLARE IN	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4

MECHANICAL DATA: Convertible™

Condenser Data

Nominal Tons / Model Size	2.0 / 024	3.0 / 036	4.0 / 048	5.0 / 060	6.0 / 072	8.0 / 096	10.0 / 120	12.0 / 144	15.0 / 180
DX - AIR COOLED CONDENSER DATA									
Indoor / Outdoor, Centrifugal Air Cooled Condensing Unit Data - (PAA, PAH & CAA models)									
Discharge CFM	1,600	2,000	2,500	3,200	3,800	4,000	6,000	6,000	6,300
IN ESP	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Blower Motor HP	3/4	1	1	1.5	2	3	5	5	5
Fan Diameter IN	12 X 9	12 X 9	12 X 12	12 X 12	15 X 15	15 X 15	15 X 15	15 X 15	15 X 15
Blower Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Coil Face Area FT sq.	4.2	4.2	6.7	6.7	7.0	7.0	9.3	9.3	9.3
Rows NO	4	4	4	4	5	5	5	5	5
Outdoor, Remote Air Cooled Condensing Unit - (FU models)									
Discharge CFM	1,400	2,000	3,000	3,000	(2) 2,000	(2) 3,000	(2) 3,000	(3) 3,000	(3) 3,000
IN ESP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fan Motor (NO) HP	(1) 1/6	(1) 1/6	(1) 1/4	(1) 1/6	(2) 1/6	(2) 1/4	(2) 1/6	(3) 1/4	(3) 1/6
Fan Type	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller
DX - WATER COOLED CONDENSER DATA									
Water Cooled Condenser Data - (PWA models)									
Flow @ 85F EWT GPM	6.1	8.8	12.6	14.3	17.6	23.0	28.6	37.8	42.9
Water Press. Drop FT W.G.	7.1	9.7	14.0	10.8	14.0	10.6	12.5	14.0	10.8
Water Reg. Valve	2-Way, 150 psig - factory installed, *(3-way & HIgh Pressure Valves are Optional)*								
DX - GLYCOL COOLED CONDENSER DATA									
Glycol Cooled Condenser Data - @40% Ethylene Glycol (PGA models)									
Flow @ 110F EGT GPM	7.1	10.6	13.8	17.8	21.2	26.3	35.6	41.4	53.4
Glycol Press. Drop FT W.G.	9.6	13.8	14.5	16.0	16.0	13.8	18.0	14.5	16.0
Glycol Reg. Valve	2-Way, 150 psig - factory installed, *(3-way & High Pressure Valves are Optional)*								

Connection Sizes

Nominal Tons / Model Size	2.0 / 024	3.0 / 036	4.0 / 048	5.0 / 060	6.0 / 072	8.0 / 096	10.0 / 120	12.0 / 144	16.0 / 180
DX - AIR COOLED REFRIGERANT (R410a) CONNECTION DATA (Note: Convertible dx evap-cond systems include as a standard refrigerant quick disconnects fittings. BAA or CAA only units require field sweat connection.)									
DX Air Handling Units - (BAA models only, condensing unit by others)									
Liquid Line OD IN	(1) 3/8	(1) 3/8	(1) 1/2	(1) 1/2	(2) 3/8	(2) 1/2	(2) 1/2	(3) 1/2	(3) 1/2
Suction Line OD IN	(1) 5/8	(1) 7/8	(1) 7/8	(1) 7/8	(2) 7/8	(2) 7/8	(2) 7/8	(3) 7/8	(3) 7/8
Outdoor, Propeller Remote Air Cooled Condensing Units - (FU models)									
Liquid Line OD IN	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8
Suction Line OD IN	(1) 3/4	(1) 3/4	(1) 7/8	(1) 7/8	(2) 3/4	(2) 7/8	(2) 7/8	(3) 7/8	(3) 7/8
Indoor, Centrifugal Remote Air Cooled condensing Units - (CAA models only, dx air handling unit by others)									
Liquid Line OD IN	(1) 3/8	(1) 3/8	(1) 1/2	(1) 1/2	(2) 3/8	(2) 1/2	(2) 1/2	(3) 1/2	(3) 1/2
Suction Line OD IN	(1) 5/8	(1) 7/8	(1) 7/8	(1) 7/8	(2) 7/8	(2) 7/8	(2) 7/8	(3) 7/8	(3) 7/8
DX - WATER COOLED CONDENSER CONNECTION DATA									
Water Cooled Condenser Data - (PWA models)									
Water IN/OUT OD IN	5/8	3/4	7/8	7/8	1	1 1/4	1 1/4	1 1/2	1 1/2
DX - GLYCOL COOLED CONDENSER CONNECTION DATA									
Glycol Cooled Condenser Data - @ 40% Ethylene Glycol (PGA models)									
Glycol IN/OUT OD IN	3/4	7/8	7/8	1 1/8	1 1/4	1 1/4	1 5/8	1 1/2	2
CHILLED WATER SYSTEMS CONNECTION DATA									
Chilled Water Systems Data - (PCA models)									
Chilled Water IN/OUT OD IN	1/2	1	1	1	1	1 1/2	2	2	2

Air Cooled, Self-Contained

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Min Fuse Size) * see notes 1-4 below

HEAT	None, Heat Pump, Hot Water or Steam Heat *(No Electric Heat)*				None, Heat Pump, Hot Water or Steam Heat *(No Electric Heat)*				ELECTRIC DUCT HEATER *see note-2 (Requires Separate Power Supply)					
HUMIDIFICATION	None				Steam Canister Humidifier									
DX - AIR COOLED SELF-CONTAINED														
Power Supply	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**	**KW**	**NO. OF STAGES**	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**
PAA & PAH-024											FLA			
FLA	20.2	15.3	16.1	7.3	28.4	21.5	24.3	11.0						
MCA	22.8	17.2	18.8	8.4	31.0	23.4	27.0	12.1	**5 KW**	**1 STG**	20.8	18.1	13.9	6.3
MFS	30	25	25	15	40	30	35	15						
PAA & PAH-036														
FLA	26.7	20.2	16.5	8.2	34.9	26.4	24.7	11.9						
MCA	30.7	23.1	19.2	9.5	38.9	29.3	27.4	13.2	**10 KW**	**2 STG**	41.7	36.1	27.8	12.6
MFS	45	35	25	15	50	40	35	15						
PAA & PAH-048														
FLA 36.0	Consult Factory	Consult Factory	21.4	10.9	Consult Factory	Consult Factory	37.8	18.3						
MCA 42.1			25.0	12.7			41.4	20.1	**15 KW**	**2 STG**	N/A	N/A	41.6	18.8
MFS 50			35	15			50	25						
PAA & PAH-060														
FLA 45.7	Consult Factory	Consult Factory	24.6	14.3	Consult Factory	Consult Factory	41.0	21.7						
MCA 53.2			28.7	16.8			45.1	24.2	**15 KW**	**2 STG**	N/A	N/A	41.6	18.8
MFS 65			45	25			60	30						
PAA & PAH-072														
FLA	N/A	N/A	31.5	15.4	N/A	N/A	45.7	21.8						
MCA			34.2	16.7			48.4	23.1	**15 KW**	**2 STG**	N/A	N/A	41.6	18.8
MFS			40	20			50	25						
PAA & PAH-096														
FLA	N/A	N/A	43.1	21.7	N/A	N/A	57.3	28.1						
MCA			46.7	23.5			60.9	29.9	**15 KW**	**2 STG**	N/A	N/A	41.6	18.8
MFS			60	30			70	35						
PAA & PAH-120														
FLA	N/A	N/A	54.7	31.1	N/A	N/A	68.9	37.5						
MCA			58.8	33.6			73.0	40.0	**20 KW**	**2 STG**	N/A	N/A	55.5	25.1
MFS			70	40			80	50						

**** Notes:***

1) *277V available via field installed step-down transformer.*
2) *Factory installed electric heat is available within the Optional Convertible™ Extended Cabinet Configuration ("EXT"). Please consult your local representative for details.*
3) *The above unit electrical data is reflective of the standard performance data and standard options as shown on pages 4 & 5.*
4) *Due to a policy of continuous improvement, Skil-aire reserves the right to change specifications without notice and without incurring any liability. Always consult equipment name plate for exact electrical requirements.*

Water & Glycol Cooled, Self-Contained

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Min Fuse Size) * see notes 1-4 below

HEAT	None, Heat Pump, Hot Water or Steam Heat *(No Electric Heat)*				None, Heat Pump, Hot Water or Steam Heat *(No Electric Heat)*			
HUMIDIFICATION	None				Steam Canister Humidifier			

DX - WATER & GLYCOL COOLED, SELF-CONTAINED								
Power Supply	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**
PWA & PGA-024								
FLA	15.1	11.5	13.1	5.8	23.3	17.7	21.3	9.5
MCA	17.7	13.4	15.8	6.9	25.9	19.6	24.0	10.6
MFS	25	20	25	15	35	25	30	15
PWA & PGA-036								
FLA	20.5	15.5	13.1	6.5	28.7	21.7	21.3	10.2
MCA	24.5	18.5	15.8	7.8	32.7	24.7	24.0	11.5
MFS	40	30	25	15	45	35	30	15
PWA & PGA-048								
FLA	Consult Factory	Consult Factory	18.0	9.2	Consult Factory	Consult Factory	34.4	16.6
MCA			21.6	11.0			38.0	18.4
MFS			35	15			50	25
PWA & PGA-060								
FLA	Consult Factory	Consult Factory	20.4	12.2	Consult Factory	Consult Factory	36.8	19.6
MCA			24.5	14.7			40.9	22.1
MFS			40	25			50	30
PWA & PGA-072								
FLA	N/A	N/A	25.9	12.6	N/A	N/A	40.1	19.0
MCA			28.6	13.9			42.8	20.3
MFS			35	15			50	25
PWA & PGA-096								
FLA	N/A	N/A	35.1	17.7	N/A	N/A	49.3	24.1
MCA			38.7	19.5			52.9	25.9
MFS			50	25			60	30
PWA & PGA-120								
FLA	N/A	N/A	41.5	24.5	N/A	N/A	55.7	30.9
MCA			45.6	27.0			59.8	33.4
MFS			60	35			70	40

ELECTRIC DUCT HEATER *see note-2 (Requires Separate Power Supply)					
KW	**NO. OF STAGES**	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**
		FLA			
5 KW	**1 STG**	20.8	18.1	13.9	6.3
10 KW	**2 STG**	41.7	36.1	27.8	12.6
15 KW	**2 STG**	N/A	N/A	41.6	18.8
15 KW	**2 STG**	N/A	N/A	41.6	18.8
15 KW	**2 STG**	N/A	N/A	41.6	18.8
15 KW	**2 STG**	N/A	N/A	41.6	18.8
20 KW	**2 STG**	N/A	N/A	55.5	25.1

**** Notes:***

1) *277V available via field installed step-down transformer.*
2) *Factory installed electric heat is available within the Optional Convertible™ Extended Cabinet Configuration ("EXT"). Please consult your local representative for details.*
3) *The above unit electrical data is reflective of the standard performance data and standard options as shown on pages 4 & 5.*
4) *Due to a policy of continuous improvement, Skil-aire reserves the right to change specifications without notice and without incurring any liability. Always consult equipment name plate for exact electrical requirements.*

DX and Chilled Water Air Handling Units

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Min Fuse Size) * see notes 1-4 below

HEAT	None, Heat Pump, Hot Water or Steam Heat *(No Electric Heat)*				None, Heat Pump, Hot Water or Steam Heat *(No Electric Heat)*				ELECTRIC DUCT HEATER *see note-2 (Requires Separate Power Supply)					
HUMIDIFICATION	None				Steam Canister Humidifier									
DX - SPLIT AIR HANDLING UNITS ONLY & CHILLED WATER SYSTEMS														
Power Supply	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**	**KW**	**NO. OF STAGES**	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**
BAA & PCA-024											**FLA**			
FLA	4.7	3.7	2.5	1.5	12.9	9.9	10.7	5.2						
MCA	5.9	4.6	3.1	1.9	16.1	12.3	13.4	6.5	**5 KW**	**1 STG**	20.8	18.1	13.9	6.3
MFS	15	15	15	15	20	15	15	15						
BAA & PCA-036														
FLA	4.7	3.7	2.5	1.5	12.9	9.9	10.7	5.2						
MCA	5.9	4.6	3.1	1.9	16.1	12.3	13.4	6.5	**10 KW**	**2 STG**	41.7	36.1	27.8	12.6
MFS	15	15	15	15	20	15	15	15						
BAA & PCA-048														
FLA	Consult Factory	Consult Factory	3.5	2.0	Consult Factory	Consult Factory	19.9	9.4						
MCA			4.4	2.5			24.9	11.8	**15 KW**	**2 STG**	N/A	N/A	41.6	18.8
MFS			15	15			25	15						
BAA & PCA-060														
FLA	Consult Factory	Consult Factory	3.9	2.2	Consult Factory	Consult Factory	20.3	9.6						
MCA			4.9	2.8			25.4	12.0	**15 KW**	**2 STG**	N/A	N/A	41.6	18.8
MFS			15	15			25	15						
BAA & PCA-072														
FLA	N/A	N/A	4.7	2.6	N/A	N/A	18.9	9.0						
MCA			5.9	3.3			23.6	11.3	**15 KW**	**2 STG**	N/A	N/A	41.6	18.8
MFS			15	15			25	15						
BAA & PCA-096														
FLA	N/A	N/A	6.1	3.3	N/A	N/A	20.3	9.7						
MCA			7.6	4.1			25.4	12.1	**15 KW**	**2 STG**	N/A	N/A	41.6	18.8
MFS			15	15			30	15						
BAA & PCA-120														
FLA	N/A	N/A	8.5	4.5	N/A	N/A	22.7	10.9						
MCA			10.6	5.6			28.4	13.6	**20 KW**	**2 STG**	N/A	N/A	55.5	25.1
MFS			15	15			30	15						

**** Notes:***

1) *277V available via field installed step-down transformer.*
2) *Factory installed electric heat is available within the Optional Convertible™ Extended Cabinet Configuration ("EXT"). Please consult your local representative for details.*
3) *The above unit electrical data is reflective of the standard performance data and standard options as shown on pages 4 & 5.*
4) *Due to a policy of continuous improvement, Skil-aire reserves the right to change specifications without notice and without incurring any liability. Always consult equipment name plate for exact electrical requirements.*

Air Cooled, Remote Condensing Units

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Min Fuse Size) * see notes 1-3 below

CAA - Indoor Centrifugal Blower Air Cooled Remote Condensing Units				
Power Supply	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**
CAA-024				
FLA	16.0	12.1	14.1	6.3
MCA	18.6	14.1	16.8	7.4
MFS	25	20	25	15
CAA-036				
FLA	22.5	17.0	14.5	7.2
MCA	26.5	20.0	17.2	8.5
MFS	40	30	25	15
CAA-048				
FLA	Consult Factory	Consult Factory	18.4	9.4
MCA			22.0	11.2
MFS			35	15
CAA-060				
FLA	Consult Factory	Consult Factory	21.2	12.6
MCA			25.3	15.1
MFS			40	25
CAA-072				
FLA	N/A	N/A	27.3	13.3
MCA			30.0	14.6
MFS			40	15
CAA-096				
FLA	N/A	N/A	37.5	18.9
MCA			41.1	20.7
MFS			50	25
CAA-120				
FLA	N/A	N/A	46.7	27.1
MCA			50.8	29.6
MFS			60	35
CAA-144				
FLA	N/A	N/A	57.2	28.7
MCA			64.5	32.3
MFS			90	45
CAA-180				
FLA	N/A	N/A	63.2	37.1
MCA			71.5	42.1
MFS			100	60

FU - Outdoor Propeller Fan Air Cooled Remote Condensing Units				
Power Supply	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**
024 / FU				
FLA	11.9	Consult Factory	N/A	N/A
MCA	14.6			
MFS	20			
036 / FU				
FLA	12.7	Consult Factory	11.6	5.8
MCA	15.5		14.2	7.1
MFS	20		20	15
048 / FU				
FLA	Consult Factory	Consult Factory	14.7	7.2
MCA			17.9	8.8
MFS			30	15
060 / FU				
FLA	Consult Factory	Consult Factory	20.5	8.7
MCA			25.1	10.7
MFS			40	15

Qty. one FU condensing unit is provided per circuit:

- PAA/PAH-072 units are provided with qty. 2 x 036-FU units
- PAA/PAH-096 units are provided with qty. 2 x 048-FU units
- PAA/PAH-120 units are provided with qty. 2 x 060-FU units
- PAA/PAH-144 units are provided with qty. 3 x 048-FU units
- PAA/PAH-180 units are provided with qty. 3 x 060-FU units

**** Notes:***

1) 277V available via field installed step-down transformer.
2) The above unit electrical data is reflective of the standard performance data and standard options as shown on pages 4 & 5.
3) Due to a policy of continuous improvement, Skil-aire reserves the right to change specifications without notice and without incurring any liability. Always consult equipment name plate for exact electrical requirements.

Approximate Ship Weights (lbs.)

UNIT SIZE	MODEL TYPE									
	PAA & PAH			BAA	CAA	FU	PWA/H & PGA/H			PCA
	Evap	Cond	Packaged				Evap	Cond	Packaged	
024	160	420	580	160	420	187	160	385	545	225
036	175	455	630	175	455	219	175	405	580	305
048	210	525	735	210	525	198	215	445	655	360
060	225	555	780	225	555	242	225	470	695	375
072	240	585	825	240	585	219 x 2	240	500	740	380
096	255	615	870	255	615	198 x 2	255	545	800	390
120	350	760	1,110	350	760	242 x 2	350	670	1,020	600
144	350	875	1,225	350	875	219 x 3	350	700	1,035	700
180	350	975	1,325	350	975	242 x 3	350	770	1,120	700

1.0 GENERAL

1.1 SUMMARY

These specifications describe requirements for an air conditioning system. The system shall be designed to maintain temperature and relative humidity 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 a Skil-aire factory assembled Convertible™ model ceiling mounted system. The evaporator section shall be specifically designed for above ceiling 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 2 lb. density thermal/acoustical insulation for whisper quiet operation. The evaporator cabinet shall be equipped with a full condensate pan constructed of stainless steel. Large removable side panels shall provide ease of installation, service and maintenance on the system.

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 airflow and static requirements.

2.1.4 AIR PATTERN - DUCTED

Evaporators and indoor air cooled remote condensing unit sections shall be designed for ducted air distribution. Air inlet and outlet connections shall include factory provided turned-out duct flanges for ease of field duct connection.

2.1.5 FILTERS

The system shall be provided with 2” extended surface pleated disposable type filters rated for a 40% average dust-spot efficiency. 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, humidifier 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 rifled 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 is heat pump duty. 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 system 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)

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)

The system shall be self-contained 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 condensing unit shall be sized for full heat of rejection at 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 be capable of being connected to the evaporator section directly when the units are close coupled or using pre-charged refrigerant lines sets when the condensing unit is mounted remote from the evaporator.

Models PAA-024/180 shall ship from the factory as a one-piece unit as standard. Models PAA-024/180 may ship split from the factory for field rigging purposes.

***(Note:** PAA-024/096 packaged units are designed to be field converted to split systems; refrigerant quick disconnects and Stub-Kit Option for field provided interconnecting piping available.)*

2.4.1.2 OUTDOOR, REMOTE PROPELLER FAN, AIR COOLED CONDENSING UNIT
(FU models)

The remote air cooled condensing unit shall be an outdoor mounted direct drive, propeller fan type arranged for vertical air discharge. The condensing unit shall be sized for full heat of rejection at 95°F ambient and be capable of operation to ___ °F. The condenser coil shall be constructed of copper tube and aluminum fins. The coil shall be factory tested, and refrigeration system sealed prior to shipment. The condenser fan motor shall have permanently lubricated bearings and inherent internal overload protection.

2.4.1.3 DX - AIR HANDLING UNIT ONLY
(Models BAA)

The system shall be a split DX - Air Handling Unit designed for field connection to a 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, refrigerant quick connect fittings, 24 volt terminal connection and 2" filters.

***(Note:** When purchased without a Skil-aire™ condensing unit, BAA systems ship from the factory with a dry nitrogen holding charge. When purchased with a Skil-aire™ condensing unit, BAA systems ship from the factory with a full refrigerant operating charge.)*

2.4.1.4 INDOOR (OPTIONAL OUTDOOR) REMOTE CENTRIFUGAL BLOWER AIR COOLED CONDENSING UNIT
(Models CAA)

The system shall be an indoor *(outdoor - optional)* remote air cooled condensing unit designed for field connection to a 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 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 be capable of being connected to the evaporator section directly when the units are close coupled or using pre-charged refrigerant lines sets when the condensing unit is mounted remote from the evaporator.

***(Note-1:** When purchased without a Skil-aire™ evaporator unit, CAA systems ship from the factory with a dry nitrogen holding charge. When purchased with a Skil-aire™ evaporator unit, CAA systems ship from the factory with a full refrigerant operating charge.*

***Note-2:** CAA condensing units can be configured for outdoor installation via outdoor weather protection kit option.)*

2.4.2 WATER COOLED CONDENSERS
(PWA models)

Water cooled systems shall have a coaxial, counter flow liquid condenser with adjustable 2-way water regulating valve 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 CONDENSER
(PGA models)

Glycol cooled systems shall have a coaxial, counter flow liquid condenser with adjustable 2-way glycol regulating valve 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.

2.4.4 DRY COOLER & SIMPLEX PUMP PACKAGE
(FCPP models)

The drycooler 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 drycooler 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, 60 Hz.

2.5 OPTIONS

2.5.1 AIR COOLED CONDENSER - LOW AMBIENT CONTROL

2.5.1.1 0°F AMBIENT - FAN CYCLING
(FU Propeller Fan Models)

Condenser fan cycling controls shall be factory provided for field installation to allow for low ambient condenser operation to 0°F minimum air temperature.

2.5.1.2 0°F - LOW AMBIENT DAMPER-NOT AVAILABLE
(PAA, CAA Centrifugal Blower Condensing Units)

A low ambient inlet damper shall be provided for the condenser section to allow operation to 0°F minimum air temperature. The damper shall include an actuator that is controlled directly by the condensed liquid line pressure. The damper shall be field mounted with all control piping furnished by the installer.

2.5.1.3 -20°F VARIABLE SPEED FAN
(FU Propeller Fan Models)

Variable speed head pressure controls shall be factory provided for field installation to allow for low ambient condenser operation to -20°F minimum air temperature.

2.5.1.4 -30°F FLOODED CONDENSER
(PAA, CAA & FU Models)

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

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 Temperature Humidity Controller with Alarms*

The system shall be provided with a MicroSkil-100™ model Microprocessor based Temperature and Humidity 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.

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

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

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

- Unit Operational Status Indication - Cooling, Heating, Humidifying, Dehumidifying (if applicable)
- 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-200™, Advanced Microprocessor Temperature & Humidity Controller with Alarms

The system shall be provided with a MicroSkil-200™ advanced microprocessor based temperature and humidity controller with alarms.

Select 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
- Humidifying
- Dehumidifying - *(Available with Satellite™ Series)*
- Reheating - *(Available with Satellite™ Series)*
- 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):

- High Temperature
- Low Temperature
- High Humidity
- Low Humidity
- High Head Press
- Loss of Air Flow
- Loss of Power
- Dirty Filter
- Smoke Detection
- Firestat
- 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.

*(**Note:** Factory installed electric heat is available within the Optional Convertible™ Extended Cabinet Configuration "EXT". Please consult your local representative for details.)*

2.5.4.2 STEAM HEAT

(Requires Extended Cabinet for 2-8 Ton Units)

The steam heat coil shall have copper tubes and aluminum fins with capacity of _____ BTUH with ____ Ft. w.g. steam. The system shall be factory pre-piped with a 2-way steam control valve. Steam Heat coils are field installed. (They can be FACTORY installed on 2-8 ton units with the purchase of the extended cabinet option.)

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, PWH & PGH 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 STEAM GENERATING HUMIDIFIER

The humidification system shall be an electrode canister type, complete with fill valve, drain valve, adjustable humidity output, and automatic flush cycle. The humidifier shall have a steam output capacity of _____ lbs/hr.

2.5.6 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.

2.5.7 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.

2.5.8 VARIABLE AIR VOLUME (VAV) OPTION KIT

The system shall be designed for evaporoator 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-200, Advanced Microprocessor Controller w/ Supply Air Control Algorithm
- Circuit 1: Modulating (0-10 Vdc) Hot Gas Bypass
- Circuit 2: Standard Hot Gas Bypass

2.5.9 MAIN POWER NON-FUSED DISCONNECT

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

2.5.10 FIRESTAT

A firestat shall be factory provided. The firestat shall immediately shut down the environmental control system when activated. The firestat shall be mounted with sensing element in the return air duct, and wired by the installer to unit control panel.

2.5.11 SMOKE DETECTOR

A duct mounted type smoke detector shall be factory provided. The smoke detector shall immediately shut down the environmental control system when activated. The smoke detector shall be mounted in the return air duct by the installer and wired to the unit control panel.

2.5.12 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.)*

2.5.13 ECX - ECONOMIZER / FREE-COOLING CYCLE
(Models PAA/PWA/PGA-ECX)

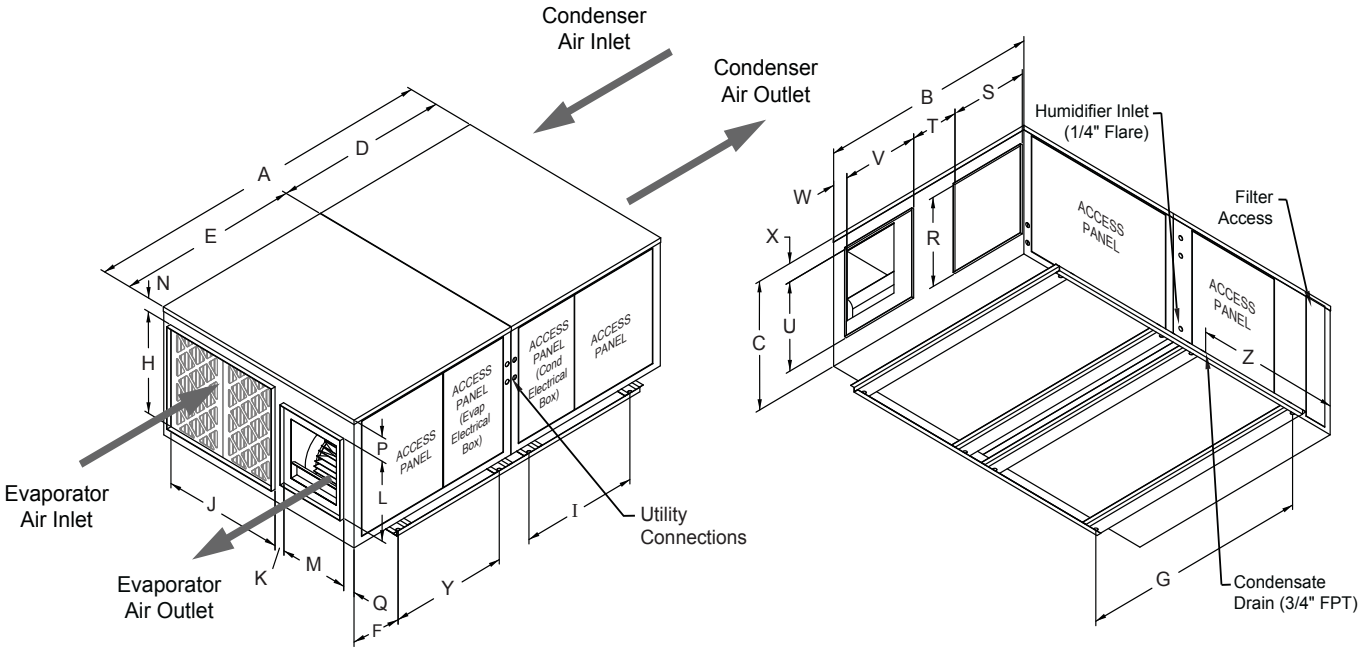
The system shall be provided with an auxiliary Skil-aire™ ECX economizer cooling coil with a factory mounted 3-way control valve. The ECX coil shall be capable of providing rated sensible capacity without compressor operation when entering water/glycol fluid temperatures are 45°F or below.

*(**Note:** ECX option includes cabinet extension for 2-8 ton systems "EXT", external filter rack for 10-15 ton systems and upgraded fan motor (if required). Consult your local sales representative for details.)*

2.5.14 REFRIGERANT STUB KITS
(Split DX Systems)

Each refrigerant circuit shall be factory provided with refrigerant stub kits for ease of field refrigerant piping installation. Each stub kit shall include a pair of male and female Suction & Liquid Line refrigerant quick connect couplings matching the couplings factory installed to each

PAA & PAH-024/120
(Self-Contained Air Cooled)



FRONT / RIGHT / TOP **REAR / LEFT / BOTTOM**

PAA / PAH-( ) MODEL SIZE	DIMENSIONS (inches)												
024 & 036	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**
	59	**43 1/8**	**22**	34 1/2	24 1/2	5 5/8	44 3/4	18	27 1/8	20	2 3/4	14	12
	N	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	
	1 1/4	2 1/4	5 3/4	16	16	5 1/2	16	16	5 1/2	1 7/8	16 3/4	24	

048&060 096	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**
	68 1/2	**51 1/4**	**29**	40 1/4	28 1/4	7 3/8	52 5/8	23	27 1/8	28	2 1/2	18	16
	N	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	
	3 1/4	5 5/8	2 7/8	20	18	11 1/4	20	18	3 1/2	4 7/8	18 3/4	25	

120, 144 180 &1	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**
	89 1/2	**70**	**29**	55	34 1/2	7 1/2	71 1/2	25	42 3/4	46	2 1/2	20	18
	N	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	
	1 1/4	2	1 3/4	24	30	12 1/4	24	24	3 1/4	2	24 3/4	20 1/2	

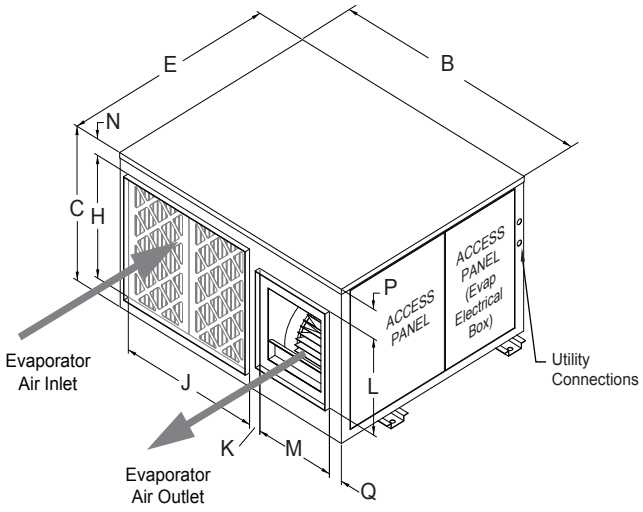
Notes:

1) Models PAA/H-024/096 shall ship from the factory as a one-piece unit as standard. Models PAA/H-120/180 shall ship split from the factory for field rigging purposes.

2) If site conditions require, , PAA/H-024/096 packaged units are designed to be field converted to split systems via standard unit refrigerant quick disconnects and Stub-Kit Option for field provided interconnecting piping.

BAA & PCA-024/180

(DX Split & Chilled Water Air Handlers)



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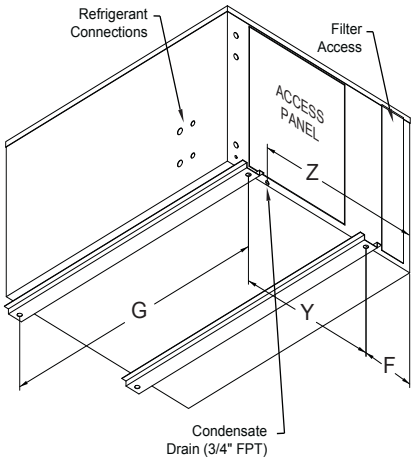

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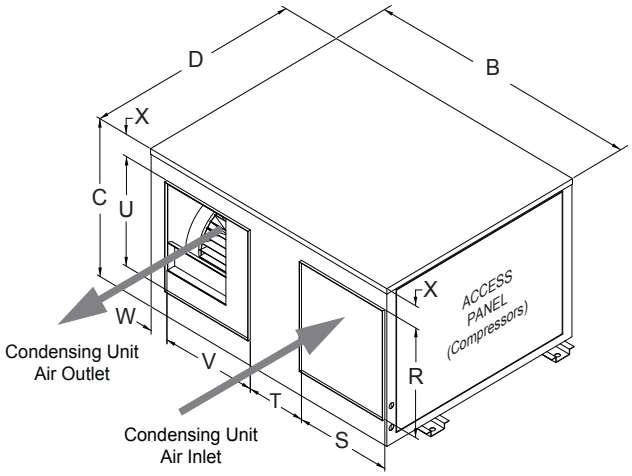
BAA & PCA-( ) MODEL SIZE	DIMENSIONS (inches)							
024 & 036	B	C	E	F	G	H	J	K
	43 1/8	22	24 1/2	5 5/8	44 3/4	18	20	2 3/4
	L	M	N	P	Q	Y	Z	
	14	12	1 1/4	2 1/4	5 3/4	16 3/4	24	
048, 060, 072 & 096	B	C	E	F	G	H	J	K
	51 1/4	29	28 1/4	7 3/8	52 5/8	23	28	2 1/2
	L	M	N	P	Q	Y	Z	
	18	16	3 1/4	5 5/8	2 7/8	18 3/4	25	
120, 144, 180	B	C	E	F	G	H	J	K
	70	29	34 1/2	7 1/2	71 1/2	25	46	2 1/2
	L	M	N	P	Q	Y	Z	
	20	18	1 1/4	2	1 3/4	24 3/4	20 1/2	

CAA-024/180

(Remote Centrifugal Blower, Indoor/Outdoor Air Cooled Condensing Units)



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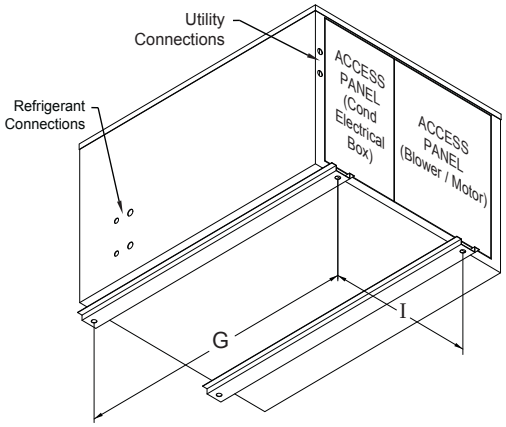

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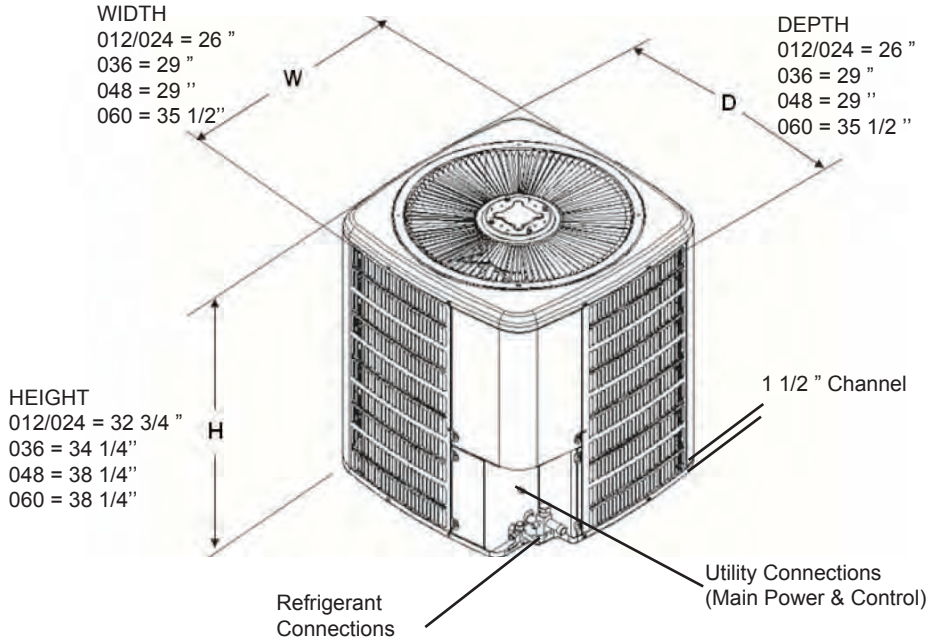
CAA-( ) MODEL SIZE	DIMENSIONS (inches)					
024 & 036	B	C	D	G	I	R
	43 1/8	22	34 1/2	44 3/4	27 1/8	16
	S	T	U	V	W	X
	16	5 1/2	16	16	5 1/2	1 7/8
048, 060, 072 & 096	B	C	D	G	I	R
	51 1/4	29	40 1/4	52 5/8	27 1/8	20
	S	T	U	V	W	X
	18	11 1/4	20	18	3 1/2	4 7/8
120, 144, 180	B	C	D	G	I	R
	70	29	55	71 1/2	42 3/4	24
	S	T	U	V	W	X
	30	12 1/4	24	24	3 1/4	2

024/180-FU

(Remote Propeller Fan,
Outdoor Air Cooled Condensing Units)



Note:

Qty. one FU condensing unit is provided per circuit:

- PAA/PAH-072 units are provided with qty. 2 x 036-FU units
- PAA/PAH-096 units are provided with qty. 2 x 048-FU units
- PAA/PAH-120 units are provided with qty. 2 x 060-FU units
- PAA/PAH-144 units are provided with qty. 3 x 048-FU units
- PAA/PAH-180 units are provided with qty. 3 x 060-FU units

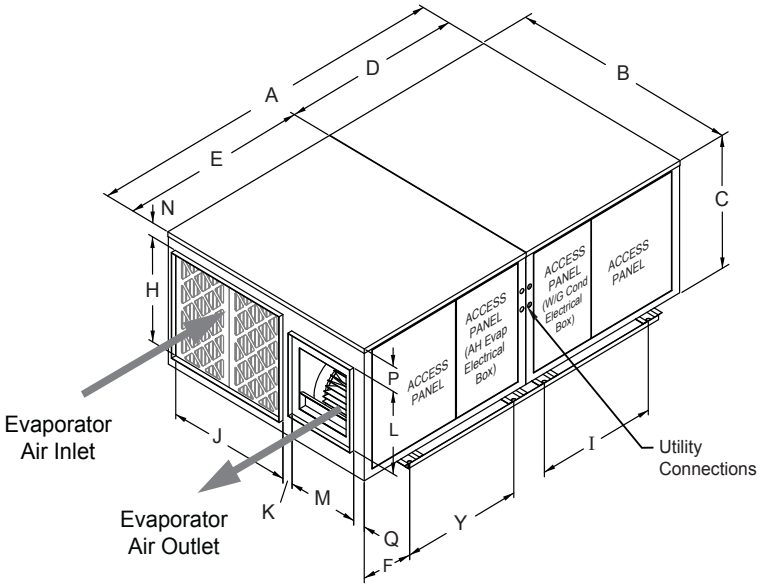
Recommended
Refrigerant (R410a) Piping Line Sizing

(Compressor(s) located with Condensing Unit Section)

STANDARD MODEL		SUCTION LINE				LIQUID LINE	
		EVAP. LOWER THAN COND. MAX. LIFT 40 FT. TRAP EVERY 15 FT. OF VERTICAL LIFT.		EVAP. HIGHER THAN OR ON SAME LEVEL AS COND. UNIT		ANY CONFIGURATION	
	TONS	UP TO 100FT	OVER 100FT	UP TO 100FT	OVER 100FT	UP TO 100FT	OVER 100FT
MAA/MWA/MAC/MWC/PAA/HW/SAC/W 012	1	5/8	5/8	3/4	7/8	3/8	3/8
MAA/MWA/MAC/MWC/PAA/HW/SAC/W 018	1.5	5/8	5/8	3/4	7/8	3/8	3/8
MAA/MWA/MAC/MWC/PAA/HW/SAC/W 024	2	3/4	3/4	3/4	7/8	3/8	3/8
MAA/MWA/MAC/MWC/PAA/HW/SAC/W 036	3	3/4	7/8	7/8	1 1/8	1/2	1/2
PAA,PWA,SAC,SWC048	4	7/8	7/8	1 1/8	1 1/8	1/2	5/8
PAA,PWA,SAC,SWC060	5	7/8	1 1/8	1 1/8	1 3/8	1/2	5/8
PAA,PWA,SAC,SWC072	6	(2) 3/4	(2) 7/8	(2) 7/8	(2) 1 1/8	(2) 1/2	(2) 1/2
PAA,PWA,SAC,SWC096	8	(2) 7/8	(2) 7/8	(2) 1 1/8	(2) 1 1/8	(2) 1/2	(2) 5/8
PAA,PWA,SAC,SWC120	10	(2) 7/8	(2) 1 1/8	(2) 1 1/8	(2) 1 3/8	(2) 1/2	(2) 5/8

Note: Units with mixed size compressors must follow the recommendations for the particular size compressor.

PWA & PGA-024/180
(Self-Contained Water / Glycol Cooled)



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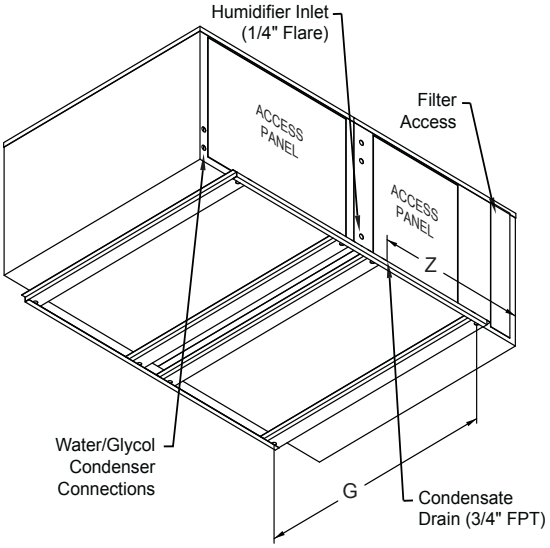

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PWA/PGA-( ) MODEL SIZE	DIMENSIONS (inches)								
024 & 036	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**
	59	**43 1/8**	**22**	34 1/2	24 1/2	5 5/8	44 3/4	18	27 1/8
	J	**K**	**L**	**M**	**N**	**P**	**Q**	**Y**	**Z**
	20	2 3/4	14	12	1 1/4	2 1/4	5 3/4	16 3/4	24

048, 060, 072 & 096	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**
	68 1/2	**51 1/4**	**29**	40 1/4	28 1/4	7 3/8	52 5/8	23	27 1/8
	J	**K**	**L**	**M**	**N**	**P**	**Q**	**Y**	**Z**
	28	2 1/2	18	16	3 1/4	5 5/8	2 7/8	18 3/4	25

120, 144, 180	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**
	89 1/2	**70**	**29**	55	34 1/2	7 1/2	71 1/2	25	42 3/4
	J	**K**	**L**	**M**	**N**	**P**	**Q**	**Y**	**Z**
	46	2 1/2	20	18	1 1/4	2	1 3/4	24 3/4	20 1/2

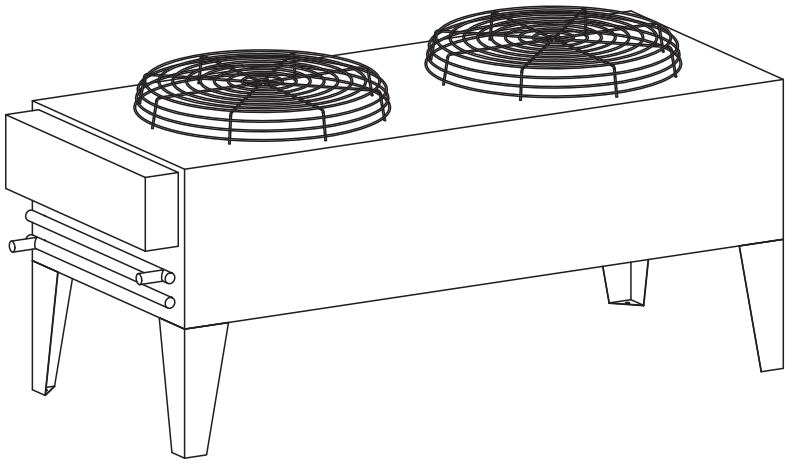
Notes:

1) Models PWA & PGA-024/120 shall ship from the factory as a one-piece unit as standard. Models PWA & PGA-024/120 may ship split from the factory for field rigging purposes.

2) If site conditions require, PWA & PGA-024/120 packaged units are designed to be field converted to split systems via standard unit refrigerant quick disconnects and Stub-Kit Op-

Glycol Drycooler/Fluid Cooler

(For PGA-024/180 Glycol Cooled Systems)

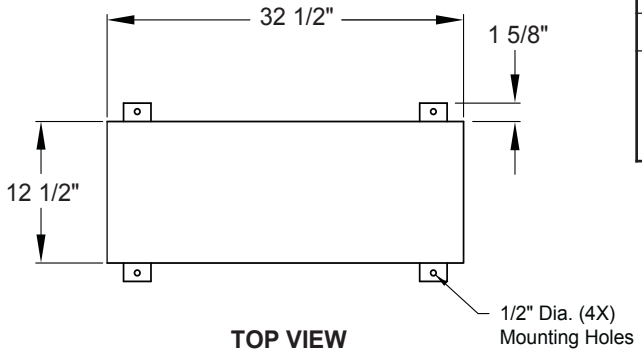


Refer to Skil-aire Glycol Drycooler Engineering Manual for Dimensional & Performance Selection Details.

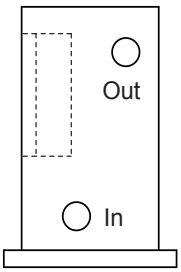
Glycol Pump Packages

Simplex Pump Package Technical Data

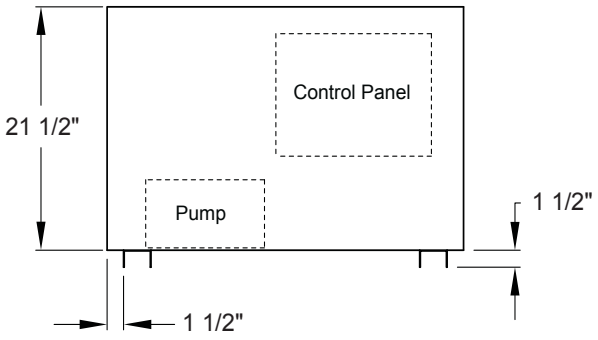
Pump Model	HP	GPM	Total Head	Power Supply (V / PH / HZ	FLA
PP-005	1/2	5	70 Ft.	208-230/1/60	5.3
PP-075	3/4	10	70 Ft.	208-230/1/60	7.4
PP-010	1	20	85 Ft.	208-230/1/60	8.5
PP-015	1 1/2	40	88 Ft.	208-230/1/60	9.9
				208-230/3/60	6.5
				460/3/60	3.0



TOP VIEW



END VIEW



SIDE VIEW