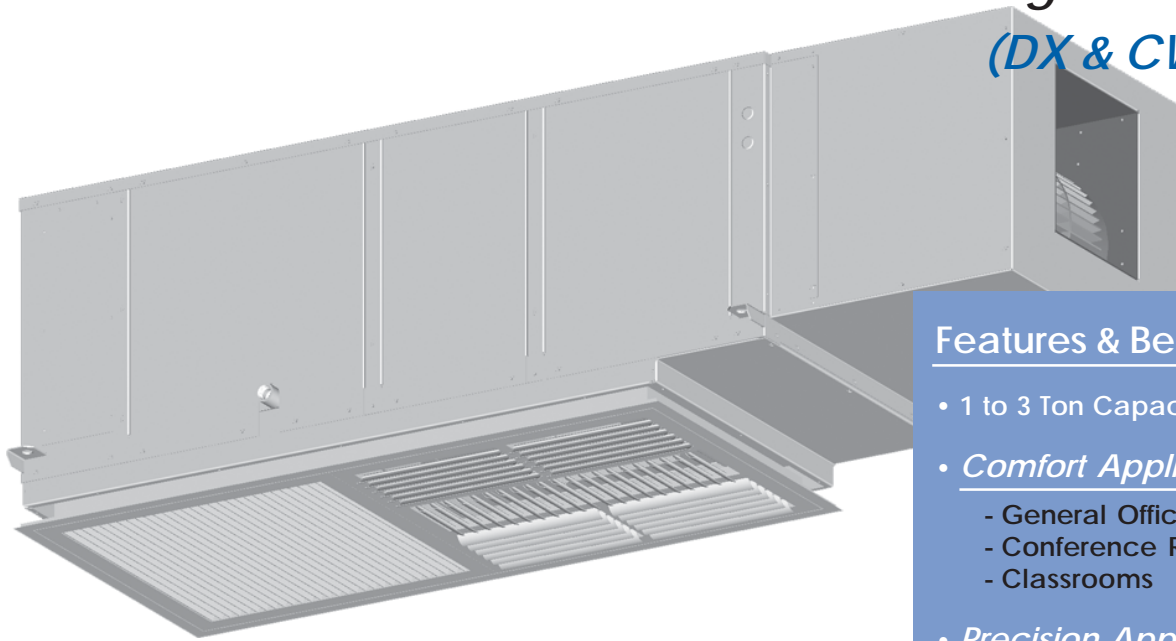


R407c & R410a

SC™ SpotCool

2 x 4 Packaged & Split

*Ceiling Mounted A/C's
(DX & CW Systems)*



1 to 3 Tons

"Spot-Cooler & Ducted"



MEA230-06-E



Features & Benefits

- 1 to 3 Ton Capacities
- *Comfort Applications*
 - General Office Spaces
 - Conference Rooms
 - Classrooms
- *Precision Applications*
 - Computer / Server Rooms
 - Telecom Rooms
 - Labs / Hospitals
- 2' by 4' Ductless Spot Cooler or Optional Ducted Evaporator
- DX Air, Water & Glycol Cooled, Chilled Water & Heat Pump
- Total Temp & Humidity Control
 - Optional Steam Humidifier
 - Optional Heat/Reheat via Electric, Hot Gas, Hot Water, Steam or Heat Pump
- Microprocessor Controls & More!

AboveAir™ ceiling mounted air conditioners & heat pumps are the space saving environmental control solution to your comfort and precision cooling needs. Available in a wide variety of cooling methods and cabinet configurations including a full range of options, **AboveAir™** ceiling mounted Air Conditioners are a step above!

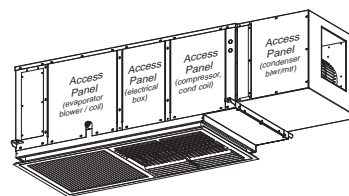
- ☑ R407c or Optional R410a Refrigerant
- ☑ Hidden above-the-ceiling installation
- ☑ Space saving "spot-cooler" air pattern
- ☑ Variety of cooling methods
- ☑ Self-contained & split systems
- ☑ Flexible options and accessories
- ☑ Energy efficient operation
- ☑ Low sound operation

Contents

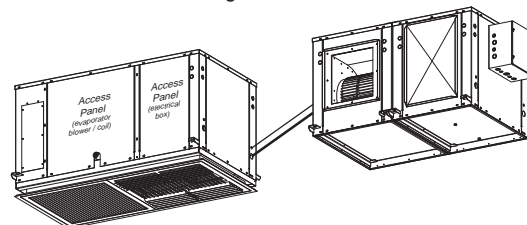
Introduction	2
Features and Benefits	3
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Electrical Data	7-9
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Approximate Unit Weights (lbs)	27

DX - Air Cooled

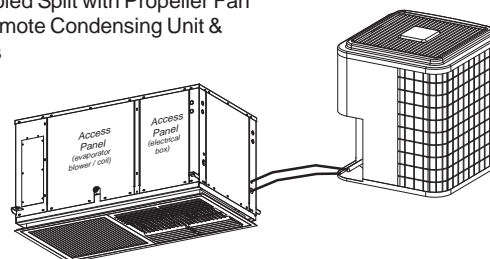
SPA-()
DX - Air Cooled Self-Contained



SPH/SPE & CCU/CCX -()
DX - Air Cooled Split with Centrifugal Blower
Indoor / Outdoor Remote Condensing Unit & Condensers

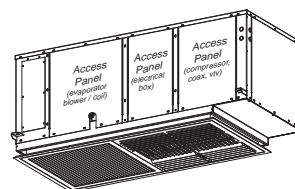


SPH/SPE & XPU/XP1-()
DX - Air Cooled Split with Propeller Fan
Outdoor Remote Condensing Unit & Condensers



DX - Water/Glycol Cooled

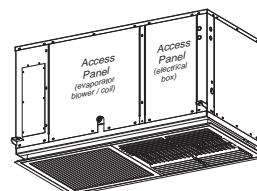
SPW & SPG-()
DX - Water/Glycol Cooled Self-Contained



* Split Water/Glycol
also Available!
(SPH & CWU/CGU)

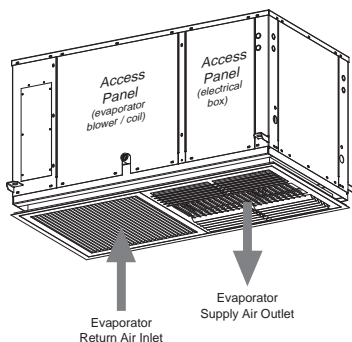
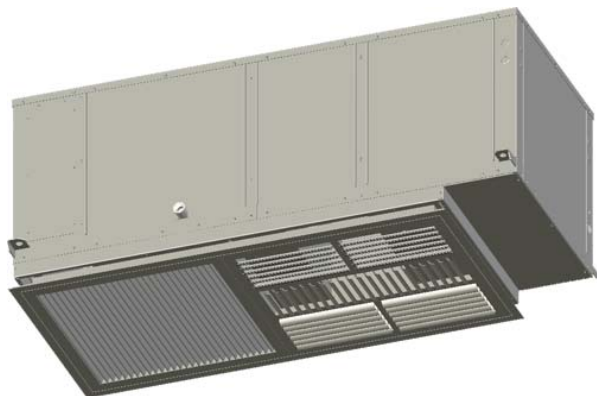
Chilled Water Systems

SPC-()
Chilled Water Air Handling Units

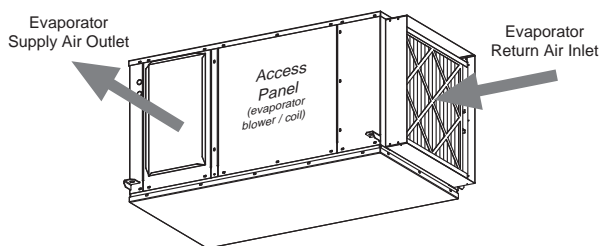


FEATURES & BENEFITS

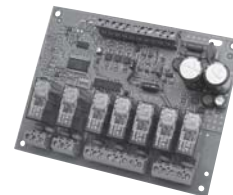
AboveAir[™] Spot Coolers are designed to meet your unique application dependent requirements. Select from a wide range of options and configurations:



Spot Cooler with Integral Return-Filter & 3-Way Supply Grille



Optional Ducted Supply & Return Connections



Select Options:

- Digital Heat/Cool Thermostats
- Temp & Humid Microprocessor Controls with Alarms and Optional BMS Communications
- Steam Canister Humidifier
- Heating Mode with Electric, Hot Water, Steam or Heat Pump Heating
- Dehumidification Mode with Electric, Hot Gas, Hot Water or Steam Reheat
- High Efficiency Air Filtration
- Low Ambient Head Pressure Control
- 2 & 3-way 150 psig or 350 psig Water/ Glycol Cooled Regulating Valves
- Hot Gas Bypass

Select Accessories:

- Condensate Pumps
- Main Power Electrical Disconnects
- Firestats
- Smoke Detectors
- Remote Water Detectors
- Compressor Sound Jackets
- Hanging Vibration Isolators
- Glycol Pump Packages & Drycoolers
- ... and more!



MEA230-06-E

Performance Data (SC™ 2x4) - DX 1 To 3 Tons

	Nominal Size	1.0 Ton	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons	
AIR COOLED DX	Air Cooled Model	SPA, SPE & SPH-012	SPA, SPE & SPH-018	SPA, SPE & SPH-024	SPA, SPE & SPH-030	SPA, SPE & SPH-036	
	80°F DB / 67°F WB, 50% RH						
	Total	BTUH	13,900	20,000	25,300	33,700	37,000
	Sensible	BTUH	10,200	16,200	18,400	23,100	26,200
	75°F DB / 62.5°F WB, 50% RH						
	Total	BTUH	13,100	18,300	22,900	31,000	33,700
	Sensible	BTUH	10,600	15,900	18,400	22,800	25,400
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	12,500	17,400	22,100	29,500	32,100
	Sensible	BTUH	10,400	15,600	19,100	22,500	24,700
	WATER COOLED DX	Water Cooled Model	SPW-012	SPW-018	SPW-024	SPW-030	SPW-036
		80°F DB / 67°F WB, 50% RH					
Total		BTUH	14,700	20,000	26,800	35,900	39,300
Sensible		BTUH	10,200	16,700	19,100	24,400	27,400
75°F DB / 62.5°F WB, 50% RH							
Total		BTUH	13,800	19,400	24,400	33,000	35,900
Sensible		BTUH	10,400	16,400	18,900	24,200	26,600
72°F DB / 60°F WB, 50% RH							
Total		BTUH	13,300	18,400	23,200	31,500	34,200
Sensible		BTUH	10,800	16,000	18,600	23,800	25,900
GLYCOL COOLED DX		Glycol Cooled Model	SPG-012	SPG-018	SPG-024	SPG-030	SPG-036
		80°F DB / 67°F WB, 50% RH					
	Total	BTUH	13,600	19,000	24,000	33,000	35,300
	Sensible	BTUH	10,400	15,800	18,300	23,200	25,400
	75°F DB / 62.5°F WB, 50% RH						
	Total	BTUH	12,500	17,400	23,100	30,300	32,200
	Sensible	BTUH	10,400	15,500	18,400	22,900	24,700
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	11,900	16,600	22,000	28,900	30,400
	Sensible	BTUH	10,100	15,200	19,000	22,500	24,500

GENERAL SHARED DATA

ALL DX MODELS	Electric Reheat / Heat - BTUH includes evaporator motor heat, (Optional)						
	Capacity @ 208V	BTUH (KW)	16,040 (4.7)	16,040 (4.7)	16,610 (4.9)	16,610 (4.9)	17,185 (5.0)
	Capacity @ 230V	BTUH (KW)	17,675 (5.2)	17,675 (5.2)	18,245 (5.3)	18,245 (5.3)	18,820 (5.5)
	Capacity @ 460V	BTUH (KW)	16,960 (5.0)	16,960 (5.0)	17,535 (5.1)	17,535 (5.1)	18,105 (5.3)
	Cap. @ 277/480V	BTUH (KW)	17,675 (5.2)	17,675 (5.2)	18,245 (5.3)	18,245 (5.3)	18,820 (5.5)
	Hot Gas Reheat - (Optional)						
	Capacity	BTUH	12,690	18,210	21,350	26,060	30,125
	Hot Water & Steam Reheat / Heat - (Optional)						
	Capacity	See Page 6 for Complete Hot Water & Steam Heating Coil Performance Data					
	Steam Canister Humidifier - (Optional)						
	Steam Canister	LBS/HR	5	5	5	5	5
	Evaporator Blower / Motor - Direct Drive, DWDI Centrifugal						
	Airflow Rate	CFM	500	750	900	1,000	1,200
	E.S.P.	IN WG	0.3	0.3	0.3	0.3	0.3
	Blower Motor	HP	1/4	1/4	1/2	1/2	3/4
	Evaporator Coil - Aluminum Fin, Copper Tube						
	Rows / Face Area	NO / FT²	3 / 2.0	3 / 2.0	3 / 2.0	3 / 2.5	3 / 2.5
	Filters - 20% Dust Spot Efficient (Spot Cooler Version)						
	Nominal Size	(NO) IN	(1) 20 x 20 x 1	(1) 20 x 20 x 1	(1) 20 x 20 x 1	(1) 20 x 20 x 1	(1) 20 x 20 x 1
	Compressor - Heat Pump Duty Scroll						
	Qty., Horespower	(NO) HP	(1) 1.25	(1) 1.5	(1) 2.0	(1) 2.5	(1) 3.0
	Connection Sizes						
	Condensate Drain	FPT IN	3/4	3/4	3/4	3/4	3/4
	Humidifier Inlet	OD IN	1/4	1/4	1/4	1/4	1/4

Performance Data (SC™ 2x4) - DX 1 To 3 Tons

Heat Rejection Data

Nominal Size	1.0 Ton	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons
Model Size	012	018	024	030	036

DX - AIR COOLED CONDENSER DATA

AIR COOLED DX

Indoor, Integral or Remote Centrifugal Blower Air Cooled Condenser & Condensing Unit Data - (SPA, CCU & CCX Models)						
Integral, Self-Contained Model	SPA-012	SPA-018	SPA-024	SPA-030	SPA-036	
Remote Condensing Unit Model	CCU-012	CCU-018	CCU-024	CCU-030	CCU-036	
Remote Condenser Model	CCX-012	CCX-018	CCX-024	CCX-030	CCX-036	
Airflow Rate	CFM	1,000	1,200	1,400	1,700	1,700
	IN ESP	0.3	0.3	0.3	0.3	0.3
Blower Motor	HP	1/2	1/2	3/4	3/4	3/4
Blower Type	DD - Centrifugal	DD - Centrifugal	DD - Centrifugal	DD - Centrifugal	DD - Centrifugal	DD - Centrifugal
Coil Face Area	FT ²	2.0	2.0	2.0	2.5	2.5
Rows	NO	4	4	4	4	4
Outdoor, Remote Propeller Fan Air Cooled Condensing Units & Condensers - (XPU & XP1 models)						
Remote Condensing Unit Model	XPU-012	XPU-018	XPU-024	XPU-030	XPU-036	
Remote Condenser Model	XP1-012	XP1-018	XP1-024	XP1-030	XP1-036	
Airflow Rate	CFM	1,792	2,218	2,218	2,954	3,167
	IN ESP	Free Discharge	Free Discharge	Free Discharge	Free Discharge	Free Discharge
Fan Motor	(NO) HP	(1) 1/12	(1) 1/10	(1) 1/10	(1) 1/4	(1) 1/5
Fan Type	DD - Propeller	DD - Propeller	DD - Propeller	DD - Propeller	DD - Propeller	DD - Propeller
Coil Face Area	FT ²	8.4	8.4	9.8	13.13	17.25
Rows	NO	1	1	1	1	1

DX - WATER COOLED CONDENSER DATA

WATER COOLED DX

Water Cooled Condenser Data - (SPW & CWU models)						
Model	SPW-012	SPW-018	SPW-024	SPW-030	SPW-036	
Total Heat of Rej.	BTUH	21,575	24,270	32,315	43,100	47,410
Flow @ 85°F EWT	GPM	4.3	4.9	6.5	8.6	9.5
Water Press. Drop	FT WG	7.8	9.8	11.4	14.5	15.2
Water Reg. Valve	2-Way, 150 psig - factory installed, (3-way & High Pressure Optional)					

DX - GLYCOL COOLED CONDENSER DATA

GLYCOL COOLED DX

Glycol Cooled Condenser Data - Based on 40% Ethylene Glycol (SPG & CGU models)						
Model	SPG-012	SPG-018	SPG-024	SPG-030	SPG-036	
Total Heat of Rej.	BTUH	21,345	24,885	31,430	42,100	46,425
Flow @ 110°F EGT	GPM	4.7	5.5	7.0	9.3	10.3
Glycol Press. Drop	FT WG	9.3	12.4	13.1	16.3	17.8
Glycol Reg. Valve	2-Way, 150 psig - factory installed, (3-way & High Pressure Optional)					

Connection Data

Nominal Size	1.0 Ton	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons
Model Size	012	018	024	030	036

DX - AIR COOLED REFRIGERANT (R407C & R410a) CONNECTION DATA

AIR COOLED

DX Split Air Handling Units & Indoor, Centrifugal Blower Remote Air Cooled Condensing Units - (SPH & CCU models)						
Liquid Line	OD IN	(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) 3/4	(1) 3/4	(1) 7/8
DX Split Evaporators & Indoor Remote Centrifugal Air Cooled Condensers - (SPE & CCX models)						
Liquid Line	OD IN	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8
Hot Gas Line	OD IN	(1) 1/2	(1) 1/2	(1) 1/2	(1) 1/2	(1) 1/2
Outdoor, Propeller Fan Remote Air Cooled Condensers & Condensing Units - (XP1 w/ Liquid & Hot Gas Lines and XPU w/ Liquid & Suction Lines)						
Liquid Line	OD IN	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8
Suction or Hot Gas Line	OD IN	(1) 3/4	(1) 3/4	(1) 3/4	(1) 7/8	(1) 7/8

DX - WATER COOLED CONDENSER CONNECTION DATA

WATER / GLYCOL COOLED

Water / Glycol Cooled Condenser Data - (SPW, SPG, CWU & CGU models)						
Water/Glycol IN/OUT	OD IN	5/8	5/8	5/8	7/8	7/8

Performance Data (SC™ 2x4) - Chilled Water 1 To 3 Tons

**CHILLED
WATER
SYSTEMS**

Nominal Size		1.0 Ton	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons
Chilled Water Unit Model		SPC-012	SPC-018	SPC-024	SPC-030	SPC-036
Cooling Capacity - 45°F Entering Chilled Water (0% Glycol)						
80°F DB / 67°F WB, 50% RH						
Total	BTUH	14,400	21,900	26,900	36,600	41,400
Sensible	BTUH	10,800	16,900	20,400	25,400	29,300
75°F DB / 62.5°F WB, 50% RH						
Total	BTUH	11,500	17,600	21,500	28,700	32,600
Sensible	BTUH	10,000	15,800	18,900	23,100	26,700
72°F DB / 60°F WB, 50% RH						
Total	BTUH	10,000	15,400	18,700	24,600	28,000
Sensible	BTUH	9,400	14,900	17,800	21,500	25,000
Chilled Water Coil / Valve - Aluminum Fin, Copper Tube						
Flow Rate / Coil PD	GPM/FT	3.0 / (0.5)	4.5 / (1.0)	6.0 (1.9)	7.3 (11.1)	8.3 / (13.9)
Rows / Face Area	NO / FT ²	4 / 2.0	4 / 2.0	4 / 2.0	4 / 2.5	4 / 2.5
Standard Valve	BTUH	2-Way, 300 psig - factory installed, (3-Way & Higher Pressure Optional)				
Evaporator Blower / Motor - Direct Drive, DWDI Centrifugal						
Airflow Rate @ E.S.P.	CFM / IN WG	500 @ 0.3	750 @ 0.3	900 @ 0.3	1,000 @ 0.3	1,200 @ 0.3
Blower Motor	HP	1/4	1/4	1/2	1/2	3/4
Electric Reheat / Heat - BTUH includes evaporator motor heat, (Optional)						
Capacity @ 208V	BTUH (KW)	16,040 (4.7)	16,040 (4.7)	16,610 (4.9)	16,610 (4.9)	17,185 (5.0)
Capacity @ 230V	BTUH (KW)	17,675 (5.2)	17,675 (5.2)	18,245 (5.3)	18,245 (5.3)	18,820 (5.5)
Capacity @ 460V	BTUH (KW)	16,960 (5.0)	16,960 (5.0)	17,535 (5.1)	17,535 (5.1)	18,105 (5.3)
Capacity @ 277/480V	BTUH (KW)	17,675 (5.2)	17,675 (5.2)	18,245 (5.3)	18,245 (5.3)	18,820 (5.5)
Hot Water & Steam Reheat / Heat - (Optional)						
Capacity	See Below for Complete Hot Water & Steam Heating Coil Performance Data					
Steam Canister Humidifier - (Optional)						
Steam Canister	LBS/HR	5	5	5	5	5
Filters - 20% Dust Spot Efficient (Spot Cooler Version)						
Nominal Size	(NO) IN	(1) 20 x 20 x 1	(1) 20 x 20 x 1	(1) 20 x 20 x 1	(1) 20 x 20 x 1	(1) 20 x 20 x 1
Connection Sizes						
Chilled Water In/Out	OD IN	5/8	5/8	5/8	7/8	7/8
Condensate Drain	FPT IN	3/4	3/4	3/4	3/4	3/4
Humidifier Inlet	OD IN	1/4	1/4	1/4	1/4	1/4

Hot Water & Steam Reheat / Heat Performance Data

**HOT WATER
&
STEAM
HEAT/REHEAT**

Nominal Unit Size		1.0 Ton	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons
Std Airflow Rate	CFM	500	750	900	1,000	1,200
HOT WATER HEATING COIL - (OPTIONAL)						
Hot Water Heating Coil - @ 180°F EWT / 160°F LWT, 70°F DB EAT						
Heating Capacity	BTUH	21,660	30,320	33,880	40,240	45,280
Flow Rate / Fluid PD	GPM / FT H2O	2.3 / (0.4)	3.2 / (0.6)	3.5 / (0.7)	4.2 / (1.3)	4.8 / (1.7)
LAT	°F DB	113.5	106.4	103.8	106.2	103.9
STEAM HEATING COIL - (OPTIONAL)						
Steam Heating Coil - @ 5 PSIG (227.1°F) Supply Steam, 70°F DB EAT						
Heating Capacity	BTUH	33,860	45,980	50,940	52,840	58,390
Condensate	LB/HR	35	48	53	55	61
Steam Pr. Drop	FT H2O	0.1	0.1	0.1	0.1	0.1
LAT	°F DB	140.4	127.3	122.9	119.4	115.5
Hot Water & Steam Heating Coil Physical Data						
Rows / Face Area	NO / FT ²	1 / (2.0)	1 / (2.0)	1 / (2.0)	1 / (2.5)	1 / (2.5)
HW/STM IN/OUT	IN OD	5/8	5/8	5/8	5/8	5/8
Standard Valve	TXT	2-way - field installed (3-way valves are optional)				

Electrical Data (SC™ 2x4) - DX Self-Contained & Split Evap

DX - Air Cooled, Self-Contained

MODEL	SPA-012		SPA-018		SPA-024				SPA-030				SPA-036			
Power Supply	208/1/60	277/1/60	208/1/60	277/1/60	208/1/60	277/1/60	208/3/60	460/3/60	208/1/60	277/1/60	208/3/60	460/3/60	208/1/60	277/1/60	208/3/60	460/3/60
Cooling Only (or Cooling with Hot Gas Reheat, Hot Water or Steam Reheat / Heat)																
FLA	15.2	12.3	15.8	12.9	20.8	17.3	16.3	8.7	23.5	19.3	18.4	9.6	28.7	23.8	24.3	10.4
MCA	17.5	14.1	18.2	14.8	24.0	20.0	18.4	10.0	27.0	22.4	20.7	11.0	33.2	27.8	27.7	11.9
MOP	25	20	25	20	35	30	25	15	40	30	25	15	50	40	40	15
with Electric Heat (No Electric Reheat or Humidifier)																
FLA	26.3	20.1	26.3	20.1	28.1	21.3	17.9	8.7	28.1	21.3	18.4	9.6	29.5	23.8	24.3	10.4
MCA	32.9	25.1	32.9	25.1	35.1	26.6	22.4	10.1	35.1	26.6	22.4	11.0	36.9	27.8	27.7	11.9
MOP	35	30	35	30	35	30	25	15	40	30	25	15	50	40	40	15
with Electric Reheat/Heat (No Humidifier)																
FLA	39.3	30.4	39.9	31.0	44.9	35.4	30.2	15.0	47.6	37.4	32.3	15.9	52.8	41.9	38.2	16.7
MCA	47.6	36.7	48.3	37.4	54.1	42.6	35.8	17.8	57.1	45.0	38.0	18.9	63.3	50.4	45.1	19.8
MOP	50	40	50	40	60	45	40	20	60	50	40	20	70	60	50	20
with Humidifier with or without Hot Gas Reheat, Hot Water/Steam Reheat/Heat (No Electric Reheat/Heat)																
FLA	23.4	18.5	24.0	19.1	29.0	23.5	24.5	12.4	31.7	25.5	26.6	13.3	36.9	30.0	32.5	14.1
MCA	25.7	20.3	26.4	21.0	32.2	26.2	26.6	13.7	35.2	28.6	28.9	14.7	41.4	34.0	35.9	15.6
MOP	30	25	35	25	45	35	30	15	45	40	35	20	45	50	45	20
with Electric Heat (No Electric Reheat) & Humidifier																
FLA	34.5	26.3	34.5	26.3	36.3	27.5	26.1	12.4	36.3	27.5	26.6	13.3	37.7	30.0	32.5	14.1
MCA	41.1	31.3	41.1	31.3	43.3	32.8	30.6	13.8	43.3	32.8	30.6	14.7	45.1	34.0	35.9	15.6
MOP	45	35	45	35	45	35	35	15	45	40	35	20	50	50	45	20
with Electric Reheat/Heat & Humidifier																
FLA	39.3	30.4	39.9	31.0	44.9	35.4	30.2	15.0	47.6	37.4	32.3	15.9	52.8	41.9	38.2	16.7
MCA	47.6	36.7	48.3	37.4	54.1	42.6	35.8	17.8	57.1	45.0	38.0	18.9	63.3	50.4	45.1	19.8
MOP	50	40	50	40	60	45	40	20	60	50	40	20	70	60	50	20

DX - Water/Glycol Cooled Self-Contained & DX Split Evap

MODEL	SPW, SPG & SPE-012		SPW, SPG & SPE-018		SPW, SPG & SPE-024				SPW, SPG & SPE-030				SPW, SPG & SPE-036			
Power Supply	208/1/60	277/1/60	208/1/60	277/1/60	208/1/60	277/1/60	208/3/60	460/3/60	208/1/60	277/1/60	208/3/60	460/3/60	208/1/60	277/1/60	208/3/60	460/3/60
Cooling Only (or Cooling with Hot Gas Reheat, Hot Water or Steam Reheat / Heat)																
FLA	11.2	9.1	11.8	9.7	16.8	14.1	12.3	6.9	18.1	15.4	13.0	7.4	23.3	19.9	18.9	8.2
MCA	13.5	10.9	14.2	11.6	20.0	16.8	14.4	8.2	21.6	18.5	15.3	8.8	27.8	23.9	22.3	9.7
MOP	20	15	20	15	30	25	20	15	35	30	20	15	45	35	35	15
with Electric Heat (No Electric Reheat or Humidifier)																
FLA	26.3	20.1	26.3	20.1	28.1	21.3	17.9	8.1	28.1	21.3	17.9	8.1	29.5	22.0	19.3	8.5
MCA	32.9	25.1	32.9	25.1	35.1	26.6	22.4	10.1	35.1	26.6	22.4	10.1	36.9	27.5	24.1	10.6
MOP	35	30	35	30	40	30	25	15	40	30	25	15	45	35	35	15
with Electric Reheat/Heat (No Humidifier)																
FLA	35.3	27.2	35.9	27.8	40.9	32.2	26.2	13.2	42.2	33.5	26.9	13.7	47.4	38.0	32.8	14.5
MCA	43.6	33.5	44.3	34.2	50.1	39.4	31.8	16.0	51.7	41.1	32.6	16.7	57.9	46.5	39.7	17.6
MOP	45	35	45	35	60	45	35	20	60	45	35	20	60	50	45	20
with Humidifier with or without Hot Gas Reheat, Hot Water/Steam Reheat/Heat (No Electric Reheat/Heat)																
FLA	19.4	15.3	20.0	15.9	25.0	20.3	20.5	10.6	26.3	21.6	21.2	11.1	31.5	26.1	27.1	11.9
MCA	21.7	17.1	22.4	17.8	28.2	23.0	22.6	11.9	29.8	24.7	23.5	12.5	36.0	30.1	30.5	13.4
MOP	30	20	30	25	40	35	30	15	40	35	30	15	50	45	40	15
with Electric Heat (No Electric Reheat) & Humidifier																
FLA	34.5	26.3	34.5	26.3	36.3	27.5	26.1	11.8	36.3	27.5	26.1	11.8	37.7	28.2	27.5	12.2
MCA	41.1	31.3	41.1	31.3	43.3	32.8	30.6	13.8	43.3	32.8	30.6	13.8	45.1	33.7	32.3	14.3
MOP	45	35	45	35	45	35	35	15	45	35	35	15	50	45	40	15
with Electric Reheat/Heat & Humidifier																
FLA	35.3	27.2	35.9	27.8	40.9	32.2	26.2	13.2	42.2	33.5	26.9	13.7	47.4	38.0	32.8	14.5
MCA	43.6	33.5	44.3	34.2	50.1	39.4	31.8	16.0	51.7	41.1	32.6	16.7	57.9	46.5	39.7	17.6
MOP	45	35	45	35	60	45	35	20	60	45	35	20	60	50	45	20

Notes:

- 1) FLA = Full Load Amps; MCA = Min Circuit Amps; MOP = Max Overcurrent Protection (Max Fuse Size)
- 2) 277/1/60 systems may require factory provided field installed step-down transformer.
- 3) - - - - Consult local AboveAir Sales Representative for non-cataloged system power supply information.

Outdoor, Pad Mtd - DX - Air Cooled, Remote Condensing Units & Condensers

**XPU - Outdoor Propeller Fan
Air Cooled Remote Condensing Units**

Power Supply	208/1/60	277/1/60	208/3/60	460/3/60
XPU-012				
FLA	9.5	7.1	----	----
MCA	11.8	8.8		
MOP	20	15		
XPU-018				
FLA	10.4	7.8	----	----
MCA	17.6	13.2		
MOP	30	20		
XPU-024				
FLA	13.6	10.2	9.1	5.2
MCA	16.8	12.6	11.2	6.3
MOP	25	20	20	15
XPU-030				
FLA	15.5	11.6	11.9	6.3
MCA	19.0	14.3	14.5	7.7
MOP	30	25	20	15
XPU-036				
FLA	19.0	14.3	14.6	6.6
MCA	23.5	17.6	18.0	8.1
MOP	40	30	30	15

**XP1 - Outdoor Propeller Fan
Air Cooled Remote Condensers**

Power Supply	208/1/60	277/1/60	460/1/60
XP1-012			
FLA	0.5	0.4	0.6
MCA	0.6	0.5	0.8
MOP	15	15	15
XP1-018			
FLA	0.8	0.6	0.6
MCA	1.0	0.8	0.8
MOP	15	15	15
XP1-024			
FLA	0.8	0.6	0.7
MCA	1.0	0.8	0.9
MOP	15	15	15
XP1-030			
FLA	1.4	1.1	0.7
MCA	1.8	1.3	0.9
MOP	15	15	15
XP1-036			
FLA	1.1	0.8	0.6
MCA	1.4	1.0	0.8
MOP	15	15	15

Indoor, Ceiling Mtd - DX - Air Cooled, Remote Condensing Units & Condensers

**CCU - Indoor (Ceiling Mtd), Centrifugal Blower
Air Cooled Remote Condensing Units**

Power Supply	208/1/60	277/1/60	208/3/60	460/3/60
CCU-012				
FLA	13.0	10.3	----	----
MCA	15.3	12.1		
MOP	20	15		
CCU-018				
FLA	13.6	10.9	----	----
MCA	16.0	12.8		
MOP	25	20		
CCU-024				
FLA	18.2	14.8	13.7	7.3
MCA	21.4	17.5	15.8	8.6
MOP	30	25	20	15
CCU-030				
FLA	19.5	16.1	14.4	7.8
MCA	23.0	19.2	16.7	9.2
MOP	35	30	25	15
CCU-036				
FLA	23.3	19.9	18.9	8.2
MCA	27.8	23.9	22.3	9.7
MOP	45	35	35	15

**CCX - Indoor (Ceiling Mtd), Centrifugal Blower
Air Cooled Remote Condensers**

Power Supply	208/1/60	277/1/60	460/1/60
CCX-012			
FLA	4.0	3.2	1.8
MCA	5.0	4.0	2.3
MOP	15	15	15
CCX-018			
FLA	4.0	3.2	1.8
MCA	5.0	4.0	2.3
MOP	15	15	15
CCX-024			
FLA	5.4	3.9	2.2
MCA	6.8	4.9	2.8
MOP	15	15	15
CCX-030			
FLA	5.4	3.9	2.2
MCA	6.8	4.9	2.8
MOP	15	15	15
CCX-036			
FLA	5.4	3.9	2.2
MCA	6.8	4.9	2.8
MOP	15	15	15

Notes:

- 1) FLA = Full Load Amps; MCA = Min Circuit Amps; MOP = Max Overcurrent Protection (Max Fuse Size)
- 2) 277/1/60 systems may require factory provided field installed step-down transformer.
- 3) ---- Consult local AboveAir Sales Representative for non-cataloged system power supply information.

Indoor - DX - Water / Glycol Cooled, Remote Condensing Units

CWU & CGU - Indoor
Water & Glycol Cooled Remote Condensing Units

Power Supply	208/1/60	277/1/60	208/3/60	460/3/60
CWU & CGU-012				
FLA	9.0	7.1	----	----
MCA	11.3	8.9		
MOP	20	15		
CWU & CGU-018				
FLA	9.6	7.7	----	----
MCA	12.0	9.6		
MOP	20	15		
CWU & CGU-024				
FLA	12.8	10.9	8.3	5.1
MCA	16.0	13.6	10.4	6.4
MOP	25	20	15	15
CWU & CGU-030				
FLA	14.1	12.2	9.0	5.6
MCA	17.6	15.3	11.3	7.0
MOP	30	25	20	15
CWU & CGU-036				
FLA	17.9	16.0	13.5	6.0
MCA	22.4	20.0	16.9	7.5
MOP	40	35	30	15

DX Split and Chilled Water - Air Handling Units

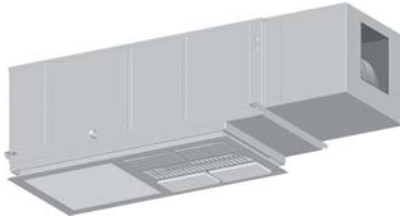
MODEL	SPH & SPC-012 & 018				SPH & SPC-024 & 030				SPH & SPC-036			
	208/1/60	277/1/60	208/3/60	460/3/60	208/1/60	277/1/60	208/3/60	460/3/60	208/1/60	277/1/60	208/3/60	460/3/60
Cooling Only (or Cooling with Hot Water or Steam Heat)												
FLA	2.2	2.0	2.2	1.1	4.0	3.2	4.0	1.8	5.4	3.9	5.4	2.2
MCA	2.8	2.5	2.8	1.4	5.0	4.0	5.0	2.3	6.8	4.9	6.8	2.8
MOP	15	15	15	15	15	15	15	15	15	15	15	15
with Electric Heat or Reheat/Heat (No Humidifier)												
FLA	26.3	20.1	16.1	7.4	28.1	21.3	17.9	8.1	29.5	22.0	19.3	8.5
MCA	32.9	25.1	20.1	9.2	35.1	26.6	22.4	10.1	36.9	27.5	24.1	10.6
MOP	35	30	25	15	40	30	25	15	40	30	25	15
with Humidifier with or without Hot Water/Steam Heat (No Electric Reheat/Heat)												
FLA	10.4	8.2	10.4	4.8	12.2	9.4	12.2	5.5	13.6	10.1	13.6	5.9
MCA	11.0	8.7	11.0	5.1	13.2	10.2	13.2	6.0	15.0	11.1	15.0	6.5
MOP	15	15	15	15	15	15	15	15	20	15	20	15
with Electric Heat or Reheat/Heat & Humidifier												
FLA	34.5	26.3	24.3	11.1	36.3	27.5	26.1	11.8	37.7	28.2	27.5	12.2
MCA	41.1	31.3	28.3	12.9	43.3	32.8	30.6	13.8	45.1	33.7	32.3	14.3
MOP	45	35	30	15	45	35	35	15	50	35	35	15

Notes:

- 1) FLA = Full Load Amps; MCA = Min Circuit Amps; MOP = Max Overcurrent Protection (Max Fuse Size)
- 2) 277/1/60 systems may require factory provided field installed step-down transformer.
- 3) ---- Consult local AboveAir Sales Representative for non-cataloged system power supply information.

1.0 General

☑ 1.1 Summary



These specifications describe the requirements for a horizontal ceiling mounted air conditioner. The system shall be designed to control space temperature and humidity.

The air conditioning manufacturer shall design and furnish all equipment in the quantities and configurations shown on the project plans and specifications.

The system shall be provided by AboveAir Technologies in Frederick, Maryland, USA. The system shall be listed by Intertek (ETL Semko), Inc. to conform with UL Std 1995 and be certified to CAN/CSA Std C22.2 No. 236 (Control No. 3091370). The system shall be NYC MEA230-06-E and Chicago Code approved. The system model number shall be _____.

☑ 1.2 Design Requirements

The system shall be an AboveAir SC™ 2x4 SpotCool brand factory assembled and tested. Evaporator sections shall be designed for above the drop-ceiling installation. Remote condensers and condensing unit sections shall be designed for either outdoor slab or indoor above the drop-ceiling installation.

The system shall have a total cooling capacity of _____ BTU/H, and a sensible cooling capacity of _____ BTU/H, based on an entering air condition of _____ °F DB, and _____ °F WB, _____ % RH.

The evaporator section shall be designed for _____ Volt, _____ Phase, _____ Hertz main power supply. The remote condensing unit section (if applicable) shall be designed for _____ Volt, _____ Phase, _____ Hertz main power supply.

☑ 1.3 Submittals

Submittals shall be provided after manufacturer's receipt of a written purchase order and shall include: Detailed Performance and Electrical Data; Guide Specifications; and Dimensional Drawings.

☑ 1.4 Quality Assurance

The system shall be factory tested prior to

shipment. Testing shall include, but shall not be limited to: system and component operational and functional testing; electrical "HiPot" insulation test; refrigerant and water piping circuit pressuring testing per UL 1995 Safety Standard for Heating and Cooling Equipment. The system shall be designed and manufactured according to world class quality standards.

2.0 Products

☑ 2.1 Standard Features / All Systems

☑ 2.1.1 Cabinet

The cabinet chassis and access panels shall be constructed of heavy gauge galvanized steel. Cabinet access panels shall rest in recessed pockets designed for minimum air leakage. The cabinet and access panels shall be lined with 2 lb/ft² high density sound and thermal insulation and sealed with self-extinguishing gasketing conforming to NFPA 90A and 90B.

☑ 2.1.2 Component Access

The unit shall be serviceable within the ceiling through large side access panels and shall require only 2-side access.

☑ 2.1.3 Electrical System

General:

The electrical system shall conform to National Electric Code (NEC) requirements according to UL 1995. The control circuit shall be a 24 VAC low voltage circuit.

The electrical system shall include, but not be limited to the following factory installed items: 24 VAC control transformer; terminal connections; and motor starters/contactors for blower motor, compressor, humidifier and each electric heater stage (if applicable).

Packaged 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 remote heat rejection sections. The evaporator and remote heat rejection sections shall be electrically interlocked by a field wired 24 volt control signal.

Overflow Safety Float:

The system shall be provided with a factory installed float type condensate pan overflow safety switch. The circuit shall be designed

to shut down all system water producing operations in the event of an overflow condition.

☑ 2.1.4 Air Distribution

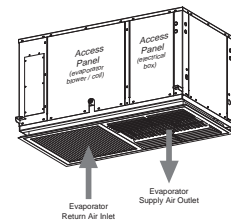
☑ 2.1.4.1 Evaporator Blower/Motor



The evaporator blower assembly shall be designed for _____ CFM @ _____ inches external static pressure (e.s.p.)

The blower shall be the direct-driven centrifugal type, double width double inlet (DWDI), and statically and dynamically balanced to a minimum vibration level.

☑ 2.1.4.2 Air Pattern (Spot-Cooler)



An integral 3-way supply and return-filter grille shall be factory provided for field installation. The grille assemble shall be designed for standard 2'x4' T-Bar ceiling installation.

☑ 2.1.4.3 Air Filtration

The filter shall be 1 inch thick and rated for 20% dust spot efficiency (based on ASHRAE 52.1). The filter shall be serviceable through the bottom return-filter grille without shutting down the unit.

☐ 2.2 Direct Expansion Systems

☐ 2.2.1 DX - Evaporator Coils



The DX evaporator coil shall be constructed of copper tubes and aluminum fins. Coil end-plates shall be hot dipped galvanized. The evaporator coil shall be mounted in an insulated stainless steel condensate drain pan.

□ 2.2.2 Scroll Compressors



The compressor shall be the high efficiency, low sound power scroll type. The compressor shall be mounted on vibration isolators. The compressor shall be complete with reversible positive oil pump, charging and service ports, internal spring isolation, and discharge gas vibration eliminator.

□ 2.2.3 DX - Refrigeration Circuits

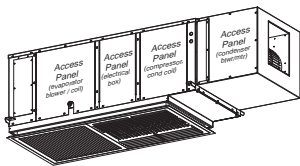


Each refrigeration circuit shall be pre-piped with ACR refrigerant copper tubing. The refrigeration system shall include, but not be limited to: expansion valve with external equalizer; sight glass; refrigerant filter-drier; refrigerant access valves and high & low refrigerant pressure safety switches.

☑ 2.3 Standard Features / Individual Systems

□ 2.3.1 DX - Air Cooled Systems

□ 2.3.1.1 DX - Air Cooled (Self-Contained Systems) SPA-()

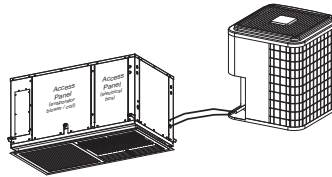


The system shall be a self-contained, ceiling mounted precision air conditioner with factory mounted integral dx air cooled condenser with direct-driven centrifugal blower. The condenser shall be sized for full heat of rejection at 95°F ambient and be capable of operation to ___ °F low ambient air temperature

The system shall ship from the factory as a one-piece unit; no field connection of condenser blower/motor shall be required. The system shall require only single point main power supply and shall ship from the factory with a full operating refrigerant charge.

(Note: Refer to Options section for Low Ambient Head Pressure Control Options.)

□ 2.3.1.2 DX - Air Cooled Split (Air Handling & Outdoor Remote Condensing Units) SPH-() & XPU-()

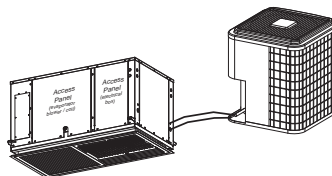


The system shall be a split configuration with indoor ceiling mounted precision dx air handling unit and remote outdoor air cooled propeller fan condensing unit. The compressor shall be located in the condensing unit. The condensing unit shall be sized for full heat of rejection at 95°F ambient and be capable of operation to ___ °F low ambient air temperature.

The system shall factory tested prior to shipment. The air handling and condensing unit sections shall ship separately from the factory with a dry-nitrogen holding charge for field sweat (copper) connection and refrigerant charging.

(Note-1: See 2.4.2 pg 12 Low Amb. Options.)

□ 2.3.1.3 DX - Air Cooled Split (Split Evap & Outdoor Remote Condenser) SPE-() & XP1-()

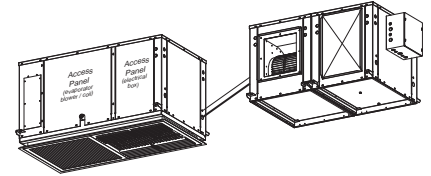


The system shall be a split configuration with indoor ceiling mounted precision dx evaporator and outdoor dx air cooled propeller fan remote condenser. The compressor shall be located in the indoor evaporator section. The condenser shall be sized for full heat of rejection at 95°F ambient and be capable of operation to ___ °F low ambient air temperature.

The system shall be refrigerant charged and run tested at the factory prior to shipment. The evaporator and condenser sections shall ship separately with a dry-nitrogen charge ready for field refrigerant charging.

(Note-1: See 2.4.2 pg 12 Low Amb. Options.)

□ 2.3.1.4 DX - Air Cooled Split (Air Handler & Indoor Remote Condensing Unit) SPH-() & CCU or XCU-()



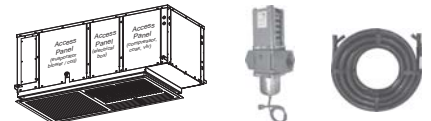
The system shall be a split configuration with indoor ceiling mounted precision dx air handling unit and remote indoor (optional outdoor) air cooled centrifugal blower condensing unit. The compressor shall be located in the condensing unit. The condensing unit shall be sized for full heat of rejection at 95°F ambient and be capable of operation to ___ °F low ambient air temperature.

The system shall factory tested prior to shipment. The air handling and condensing unit sections shall ship separately from the factory with a dry-nitrogen holding charge for field sweat (copper) connection and refrigerant charging.

(Note-1: See 2.4.2 pg 12 Low Amb. Options.)

□ 2.3.2 DX - Water Cooled Systems

□ 2.3.2.1 DX - Water Cooled (Self-Contained Systems) SPW-()



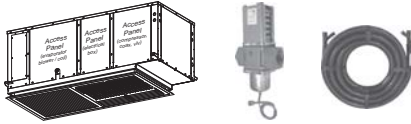
The system shall be a self-contained, ceiling mounted precision air conditioner with integral dx water cooled condensing unit. The system shall include a water cooled tube-in-tube coaxial condenser and factory installed head pressure controlling 2-way water regulating valve rated for 150 psi w.w.p. The water cooled condenser shall be designed to provide the total required system heat of rejection at 85°F entering water temperature and 95°F leaving water temperature. Source water shall be provided by a remote water source (by others).

The system shall require only single point main power supply and shall ship from the factory with a full operating refrigerant charge.

(Note: Higher pressure and 3-way valves are optionally available, see option 2.4.3.)

□ 2.3.3 DX - Glycol Cooled Systems

□ 2.3.3.1 DX - Glycol Cooled (Self-Contained Systems) SPG-()



The system shall be a self-contained, ceiling mounted precision air conditioner with integral dx glycol cooled condensing unit. The system shall include a glycol cooled tube-in-tube coaxial condenser and factory installed head pressure controlling 2-way glycol regulating valve rated for 150 psi w.w.p. The condenser shall be designed to provide the total required system heat of rejection at 110°F entering glycol temperature and 120°F leaving glycol solution. Source glycol shall be provided by a remote glycol drycooler source (see AboveAir Technologies' FluidCool™ drycoolers).

The system shall require only single point main power supply and shall ship from the factory with a full operating refrigerant charge.

(Note: Higher pressure and 3-way valves are optionally available, see option 2.4.3.)

□ 2.3.3.2 Glycol Pump Packages & Drycoolers FC_-() / PA_-()



Glycol condenser source shall be provided by a FluidCool™ brand remote air cooled glycol drycooler and Pump-All™ brand pump package.

The glycol drycooler shall be the outdoor mounted propeller fan type complete with factory installed aquastat fan cycling controls, motor starters with overload protection and non-fused disconnect switch.

The glycol pump package shall be a (single or dual) pump package designed for outdoor installation complete with individual pump motor starters. Dual glycol pump packages shall be provided with manual lead-lag switch and field installed flow switch for automatic switchover to backup pump upon loss of flow.

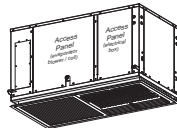
An expansion tank and air purge fitting valve shall be factory provided for field installation.

The drycooler shall provide _____ BTUH total heat rejection at a flow rate of _____ GPM with _____ °F EGT and _____ °F LGT at _____ °F ambient air temperature. Each pump shall be _____ Hp and shall be sized to provide _____ GPM @ _____ Ft. w.g. total system head. The glycol solution shall be _____ % (ethylene or propylene) by volume.

The drycooler and pump package shall be designed for _____ Volt, _____ Phase, _____ Hertz main power supply.

(Note: See AboveAir Technologies' Fluid-Cool™ indoor & outdoor glycol drycooler and PumpAll™ glycol pump packages engineering manuals for more information.)

□ 2.3.4 Chilled Water Systems SPC-()



The system shall be a chilled water precision air handling unit with chilled water cooling coil and chilled water control valve.

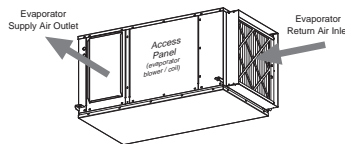
The chilled water cooling coil shall be constructed of copper tubes and aluminum fins. Coil end-plates shall be hot dipped galvanized. The cooling coil shall be mounted in an insulated stainless steel condensate drain pan.

Chilled water flow shall be controlled by a factory installed slowly opening and closing 2-way motorized valve rated for a maximum 300 psig w.w.p.

(Note: 3-way and higher pressure valves are optionally available.)

2.4 Options

☑ 2.4.1 Ducted Evaporator Supply & Return



The system shall be provided with flanged connections for field ducting of evaporator return air inlet and supply air discharge. The filter(s) shall be 1 inch thick and rated for 20% dust spot efficiency (based on ASHRAE 52.1). The filter shall be service-

able via side access and without shutting down the unit.

□ 2.4.2 Air Cooled Condenser - Low Ambient Control

□ 2.4.2.1 0°F Ambient - Fan Cycling (CCX, XP1 & XPU Models)

Fan cycling controls shall be factory installed to the direct drive condenser fan to allow for low ambient operation to 0°F.

□ 2.4.2.2 -20°F Ambient - Variable Speed Fan (XCU, XP1 & XPU Models)

Variable fan speed head pressure controls (JCI P266 or VFD66) shall be factory installed to allow for low ambient operation to -20°F. Compressor cold start time delay relay and crankcase heater shall be factory installed with the -20°F low ambient control feature.

□ 2.4.2.3 -30°F Flooded Condenser (All Condensing/er Models)

A flooded condenser system shall be provided to allow for low ambient condenser operation to -30°F. The flooded system shall include a factory installed liquid refrigerant receiver and modulating head pressure control valve. Compressor cold start time delay relay and crankcase heater shall be factory installed with the -30°F low ambient control feature.

□ 2.4.3 DX - Water/Glycol Cooled Reg. Valves



- 2.4.3.1 2-Way, 150 psig Reg. Valve
- 2.4.3.2 3-Way, 150 psig Reg. Valve
- 2.4.3.3 2-Way, 350 psig Reg. Valve
- 2.4.3.4 3-Way, 350 psig Reg. Valve

System head pressure shall be controlled by a factory provided _____ -way water / glycol regulating valve rated for _____ psig w.w.p.

(Note: 3-way valves shall be field installed.)

2.4.4 CONTROL OPTIONS

□ 2.4.4.1 DT-201™ - Digital H/C Thermostat (7-day programmable)



A 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, AUTO-COOL-OFF-HEAT-EM (emergency heat), SET and PROG/MAN selector switches.

2.4.4.2 MC-1000™ - Micro T/H Controller with Alarms



The system shall be provided with a MC-1000™ microprocessor based Temperature and Humidity controller with Alarms. Centered in the 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
- Sensor Failure
- Common Alarm Failure
- Dirty Filter (optional)
- Loss of Airflow (optional)

The controller shall include the following system operations (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

2.4.4.3 MC-2000™, Advanced Microprocessor T/H Controller w/ Alarms



The system shall be provided with a MC-2000™ 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
- Reheating
- 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
- Sensor Failure
- Summary Failure
- High Head Press
- Smoke Detection
- Firestat
- Leak Detection
- Sensor Failure
- Loss of Power
- Loss of Air Flow
- Dirty Filter

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 MC-2000 Options:

- Multi-Unit N+1 Sequencing

BMS Communications Interface:

- ModBus RS485 Serial Connection
- BACnet over MS/TP (RS485 Serial)
- BACnet Over IP (Ethernet / EIA485)
- LonWorks FTT10 (RS485 Serial)

2.4.5 HEAT / REHEAT OPTIONS

2.4.5.1 Electric Reheat/Heat



An electric heating system shall be factory installed to provide:

- Electric Heat Only during heat mode
- Electric Reheat to offset sensible cooling during the dehumidification mode and to provide heating during heat mode.

Heater elements shall be the low-watt density finned-tubular type. The heater shall be complete with individual heater stage starter/contact and overheat safeties. Systems incorporating factory installed electric heaters shall require only single point power to the main unit power distribution. The electric heat shall have a capacity of _____ BTU/H and a KW rating of ___ KW, controlled in ___ stages.

2.4.5.1.1 SCR Fired Heat/Reheat
(Requires MC-2000™)

The electric heat/reheat shall be controlled through a "zero firing" silicon control rectifier (SCR) with an extruded aluminum heat sink and solid state logic system to provide close dry bulb temperature control of the leaving conditioned air temperature. The electric heat shall have a capacity of _____ BTUH and a KW rating of ___ KW.

2.4.5.2 Hot Gas Reheat

The system shall be provided with a hot gas reheat coil with 3-way heat reclaim control valve and liquid refrigerant storage receiver. The hot gas reheat coil shall be sized to provide free-energy space neutral leaving air temperature by offsetting the sensible cooling during dx compressor operation.

(Note: Hot Gas Reheat is not available on systems with compressor located in remote condensing unit section.)

2.4.5.3 Hot Water Heat

A Hot Water Heating system shall be factory provided. The hot water heating

system shall be complete a factory installed aluminum fin, copper tube hot water coil and field installed 2-way motorized hot water control valve. Hot water shall be provided by a remote source at the specified flow rate and temperature. The hot water heating system shall have a rated capacity of _____ BTUH @ _____ GPM, _____ °F EWT.

2.4.5.4 Steam Heat

A Steam Heating system shall be factory provided. The steam heating system shall be complete a factory installed aluminum fin, copper tube steam coil and field installed 2-way motorized steam rated control valve. Steam piping specialties shall be field provided. Steam shall be provided by a remote source at the specified temperature and pressure. The steam heating system shall have a rated capacity of _____ BTUH @ _____ psig saturated steam.

2.4.6 Steam Humidification



An electrode steam canister type humidification system shall be factory installed within the air conditioning system. The humidifier shall be complete with disposable canister, steam distributor, fill and drain valve, air gap, automatic flush cycle, manual humidity output adjustment and field installed remote wall mounted humidistat. The humidifier shall have a maximum output capacity of _____ lbs/hr.

(Note: Remote wall mounted humidistat is not required with MC-1000™ or MC-2000™ combination temp & humid control option.)

2.5 Accessories

2.5.1 Condensate Pump



A condensate pump shall be factory provided for field installation. The condensate pump shall be provided with dual internal float switches: one for pump operation initiation and the other for pump reservoir overflow safety.

2.5.2 Hot Gas Bypass Systems

2.5.2.1 Hot Gas Bypass To Evaporator Inlet



Each refrigerant circuit shall be provided with a factory installed hot gas (discharge) bypass valve. The hot gas bypass valve shall be designed to supply hot gas to evaporator inlet as required to provide coil freeze-protection and capacity modulation under low load conditions.

2.5.2.2 Hot Gas Bypass To Suction Line with Quench Valve *(SPH/XPU-CCU/CWU-CGU Remote Condensing Units 3rd Line Not Required!)*



Each refrigerant circuit of the Split DX system shall be provided with a factory installed hot gas bypass system to include: hot gas (discharge) bypass; desuperheating quench; and hot gas & quench solenoid valves. The hot gas bypass system shall be designed to supply hot gas and liquid refrigerant to the suction line as required to provide coil freeze-protection and capacity modulation under low load conditions. All hot gas bypass components shall be factory installed and shall not require additional field refrigerant lines on split DX systems.

2.5.3 Suction-Line Accumulator

Each refrigerant circuit shall be provided with a factory installed Suction-Line Accumulator to prevent liquid slugging of the compressor and excessive refrigerant dilution of the compressor oil during low load conditions. The accumulator shall return refrigerant and oil to the compressor at a sufficient rate to maintain both system operating efficiency and proper oil level. The accumulators shall be wrapped with a 1/2" closed-cell neoprene insulation to prevent sweating.

2.5.4 Main Power, Non-Fused Disconnect



A main power non-fused disconnect shall be factory provided for field installation. The disconnect shall be NEMA rated for indoor or outdoor installation as required.

2.5.5 Firestat (Factory Installed)



A Firestat shall be factory installed in the return air stream of the unit and wired to the A/C unit electrical control panel. The Firestat shall shut-down all A/C system operations upon sensing a high return air temperature condition.

2.5.6 Smoke Detector (Factory Installed)

A Smoke Detector shall be factory installed in the return air stream of the unit and wired to the A/C unit electrical control panel. The Smoke Detector shall shut-down all A/C system operations upon activation.

2.5.7 Remote Water-Leak Detector

A remote water-leak detector shall be factory provided for field installation. The remote water-leak detector shall be wired to shut down all A/C unit water producing functions upon sensing a water leak.

2.5.8 Hanging Spring Vibration Isolators

Each horizontal ceiling mounted section shall be provided with spring vibration hanging isolators sized for the total distributive weight of the unit.

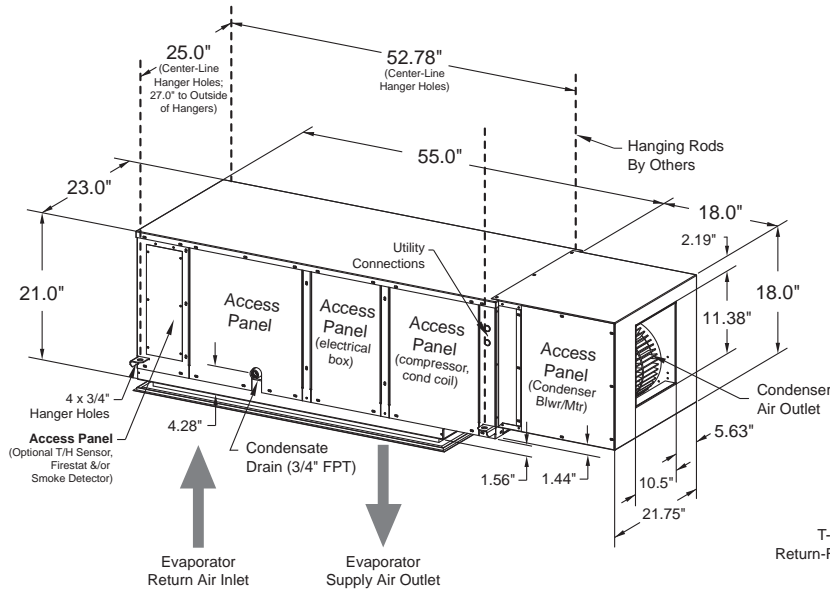
2.5.9 Compressor Acoustic / Sound Jacket

Each compressor shall be provided with a factory installed compressor sound jacket with snap closure system for ease of removal and reinstallation. Sound jackets shall have a noise reduction coefficient (NRC) of 85 per ASTM and C-423 and a sound transmission lost (STC) of 11 per ASTM E-90.

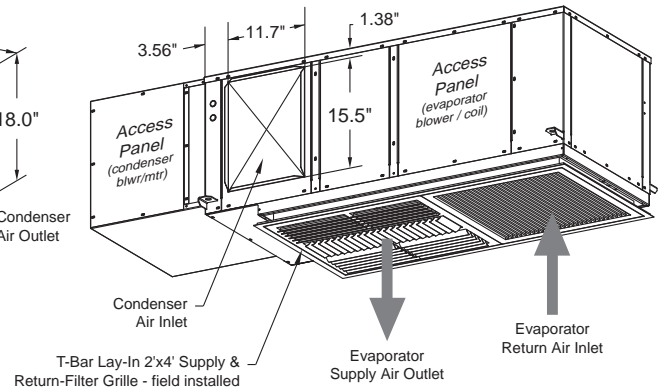
1-2 Tons, Air Cooled, Self-Contained (*Spot Cooler*)

Models: SPA-012, 018 & 024-__

2-Side Access:
18"-24" on Front & Rear Sides!



Front / Right / Top

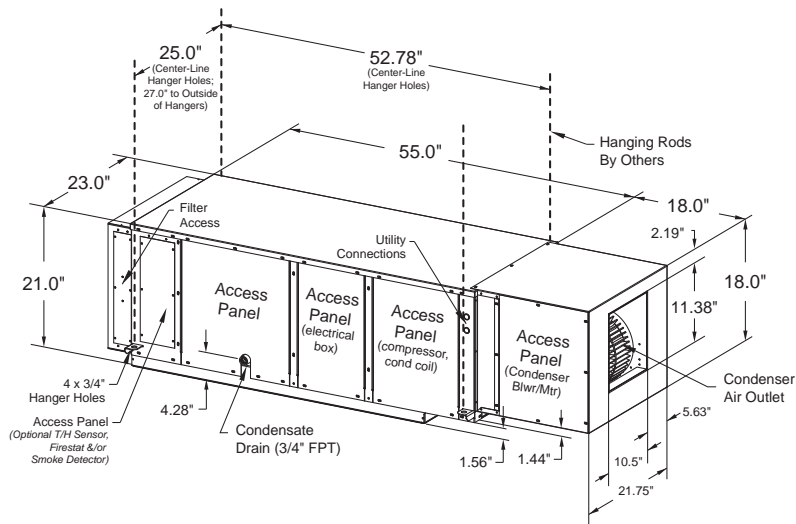


Rear / Left / Bottom

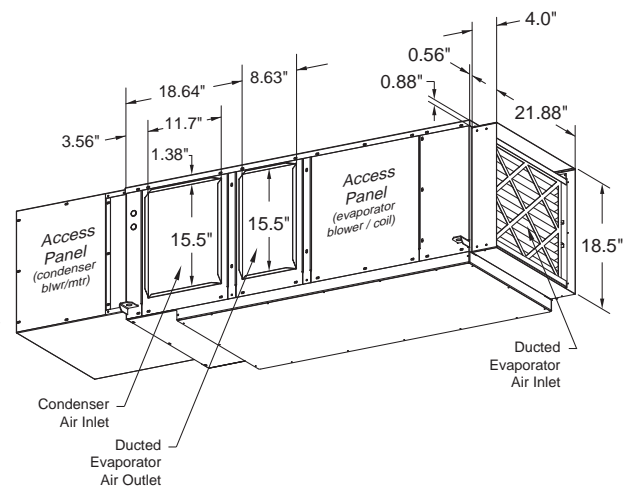
1-2 Tons, Air Cooled, Self-Contained (*Ducted Evap*)

Models: SPA-012, 018 & 024-__

2-Side Access:
18"-24" on Front & Rear Sides!



Front / Right / Top



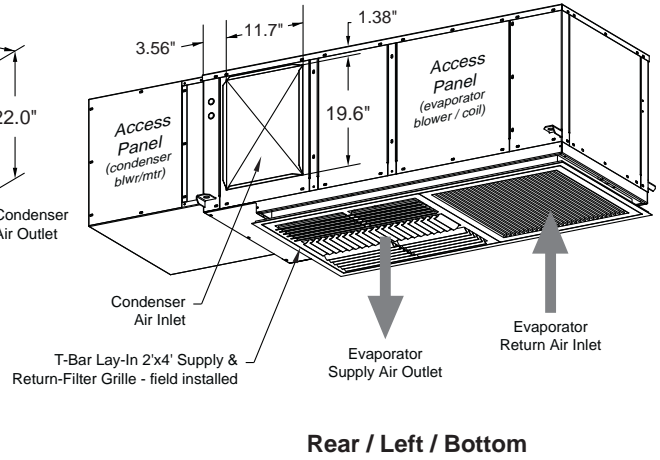
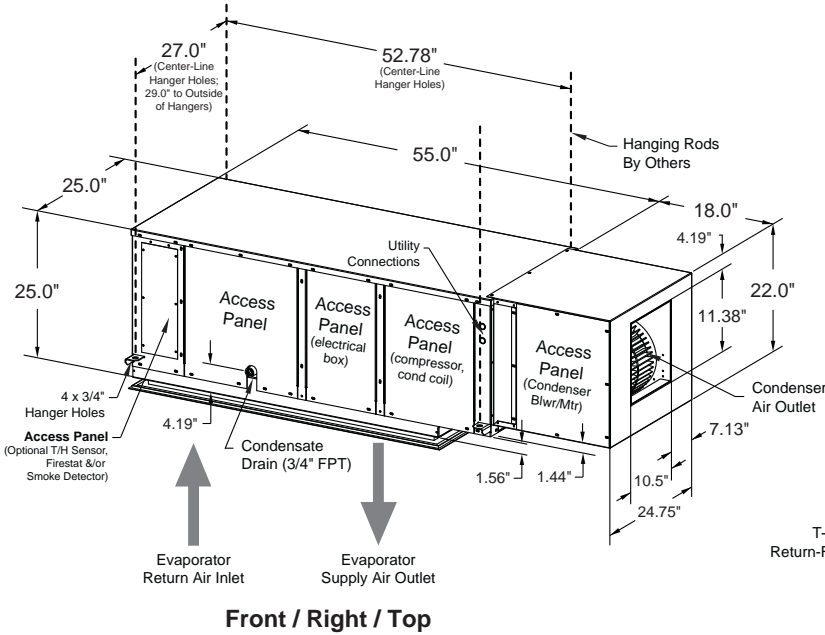
Rear / Left / Bottom

Dimensional Data - DX Air Cooled, Self-Contained (2.5 Tons)

2.5 Tons, Air Cooled, Self-Contained (Spot Cooler)

Models: SPA-030-__

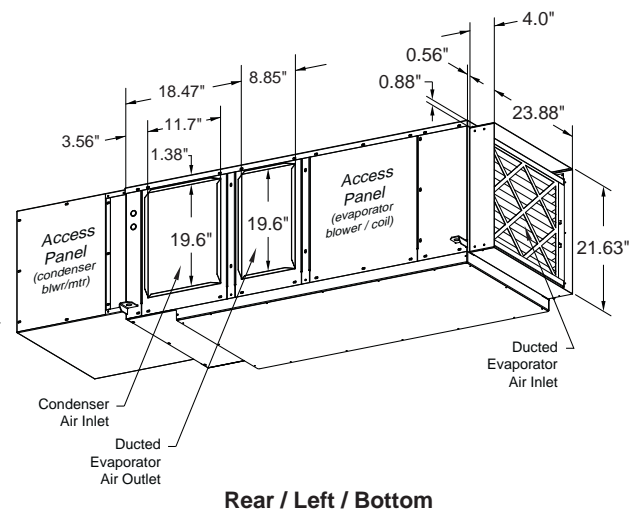
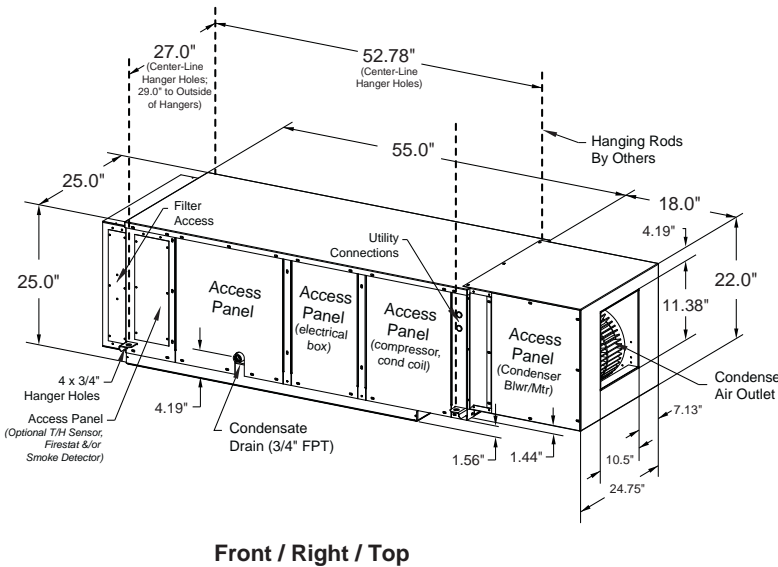
2-Side Access:
18"-24" on Front & Rear Sides!



2.5 Tons, Air Cooled, Self-Contained (Ducted Evap)

Models: SPA-030-__

2-Side Access:
18"-24" on Front & Rear Sides!

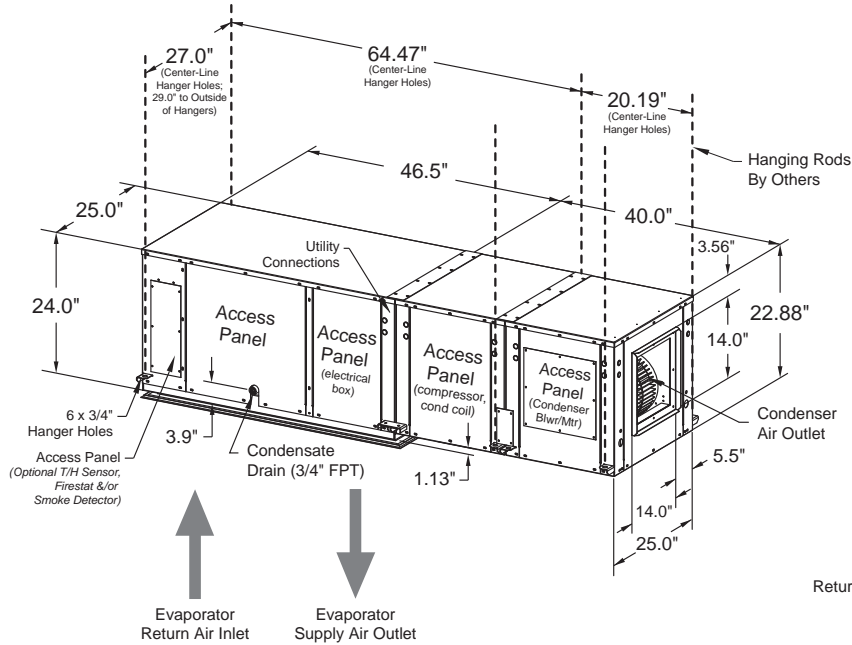


Dimensional Data - DX Air Cooled, Self-Contained (3 Tons)

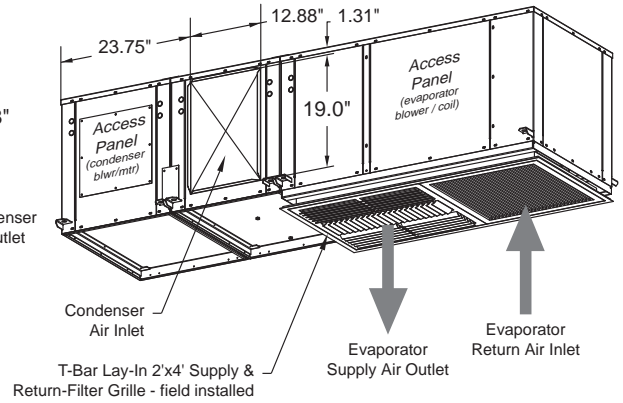
3 Tons, Air Cooled, Self-Contained (Spot Cooler)

Models: SPA-036-__

2-Side Access:
18"-24" on Front & Rear Sides!



Front / Right / Top

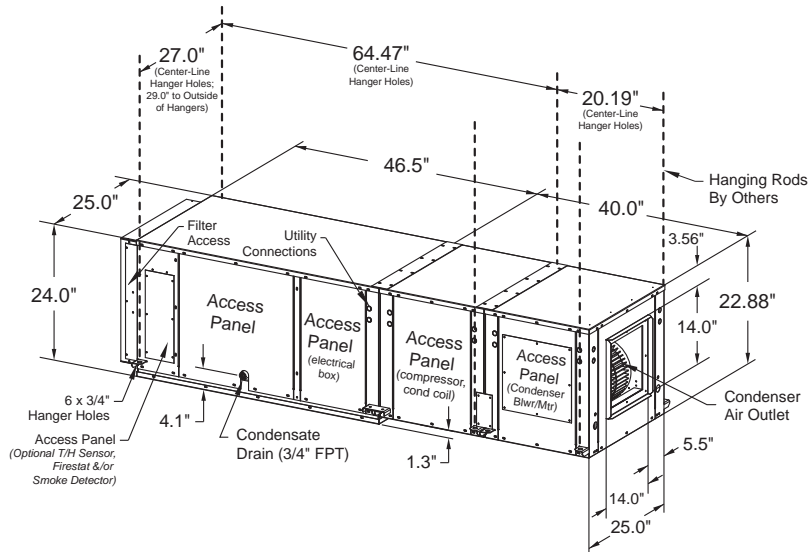


Rear / Left / Bottom

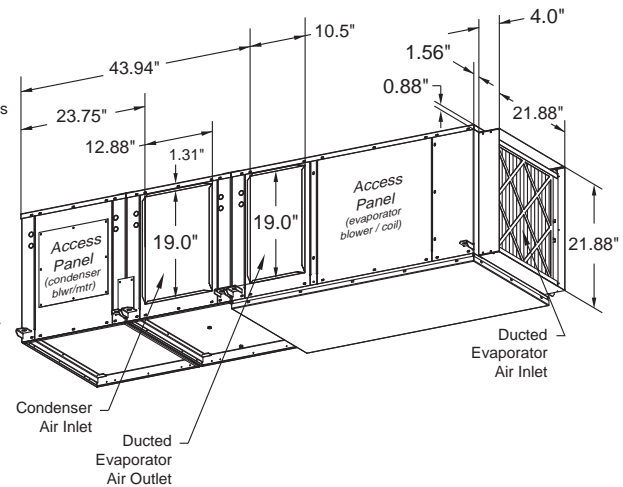
3 Tons, Air Cooled, Self-Contained (Ducted Evap)

Models: SPA-036-__

2-Side Access:
18"-24" on Front & Rear Sides!



Front / Right / Top

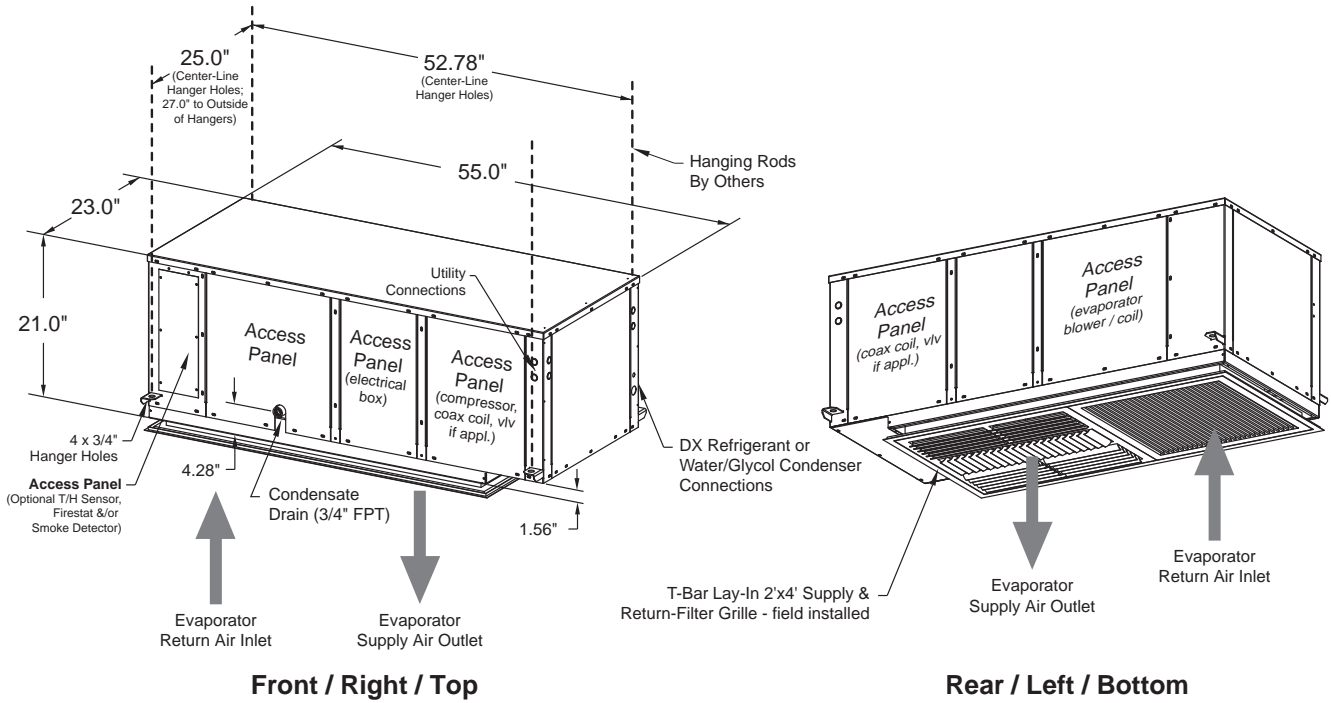


Rear / Left / Bottom

1-2 Tons, Water/Glycol Self-Contained & Split DX Evap (Spot Cooler)

Models: SPW, SPG & SPE-012, 018 & 024-__

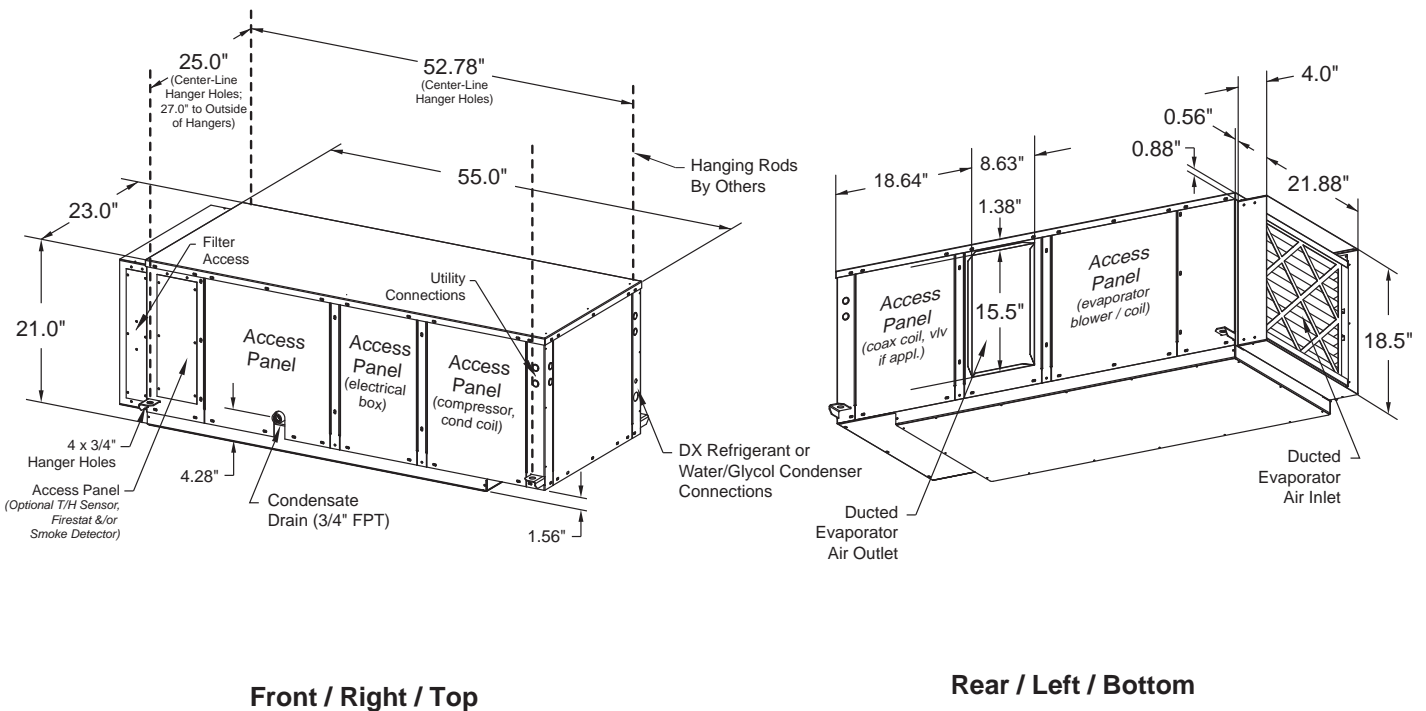
2-Side Access:
18"-24" on Front & Rear Sides!



1-2 Tons, Water/Glycol Self-Contained & Split DX Evap (Ducted Evap)

Models: SPW, SPG & SPE-012, 018 & 024-__

2-Side Access:
18"-24" on Front & Rear Sides!

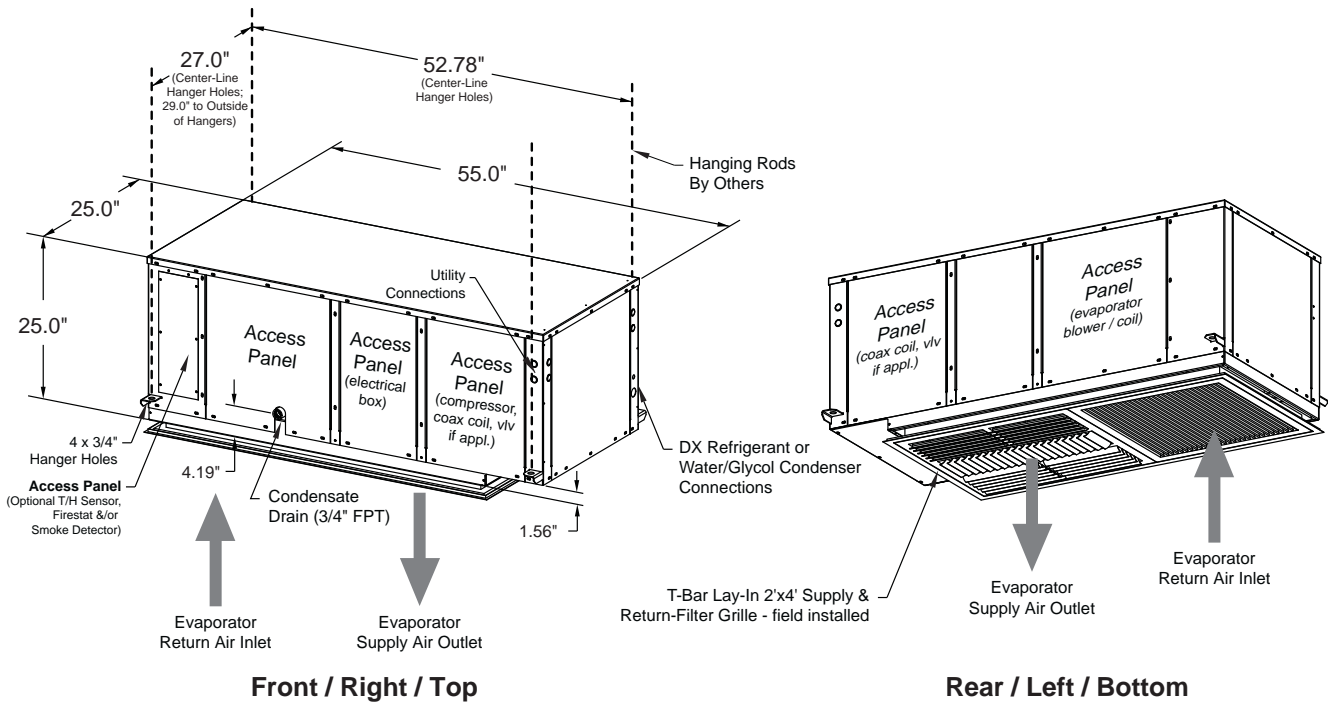


Dimensional Data - Water/Glycol Cooled & DX Air Evap (2.5 Tons)

2.5 Tons, Water/Glycol Self-Contained & Split DX Evap (Spot Cooler)

Models: SPW, SPG & SPE-030-__

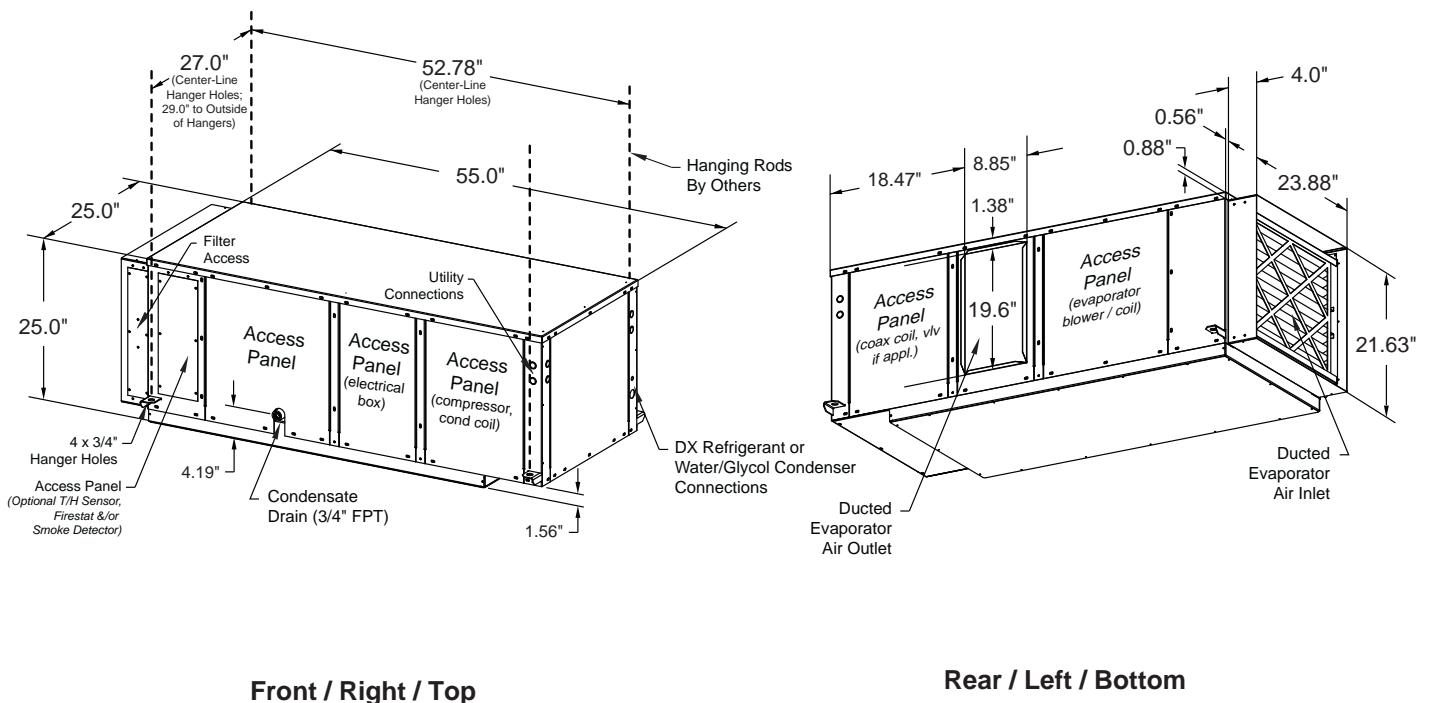
2-Side Access:
18"-24" on Front & Rear Sides!



2.5 Tons, Water/Glycol Self-Contained & Split DX Evap (Ducted Evap)

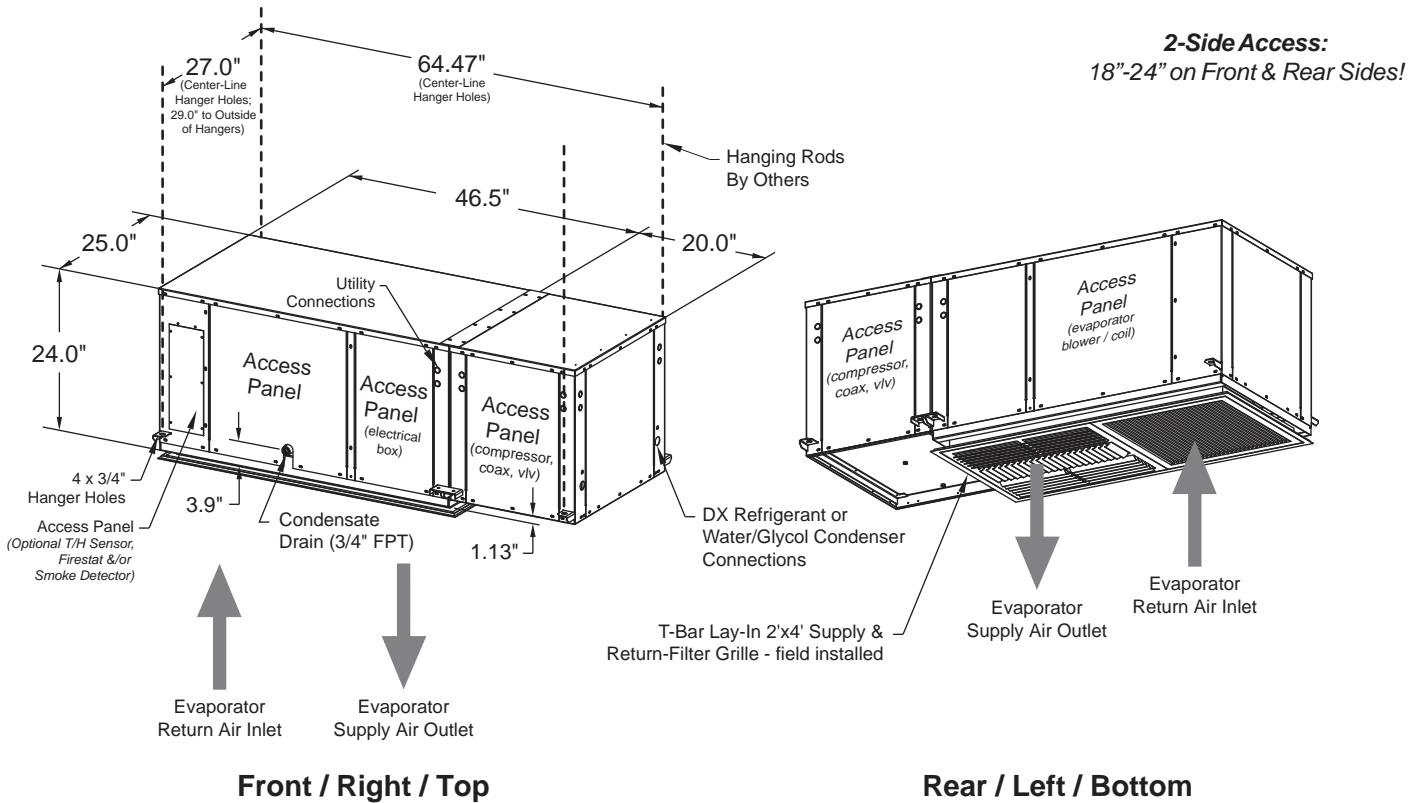
Models: SPW, SPG & SPE-030-__

2-Side Access:
18"-24" on Front & Rear Sides!



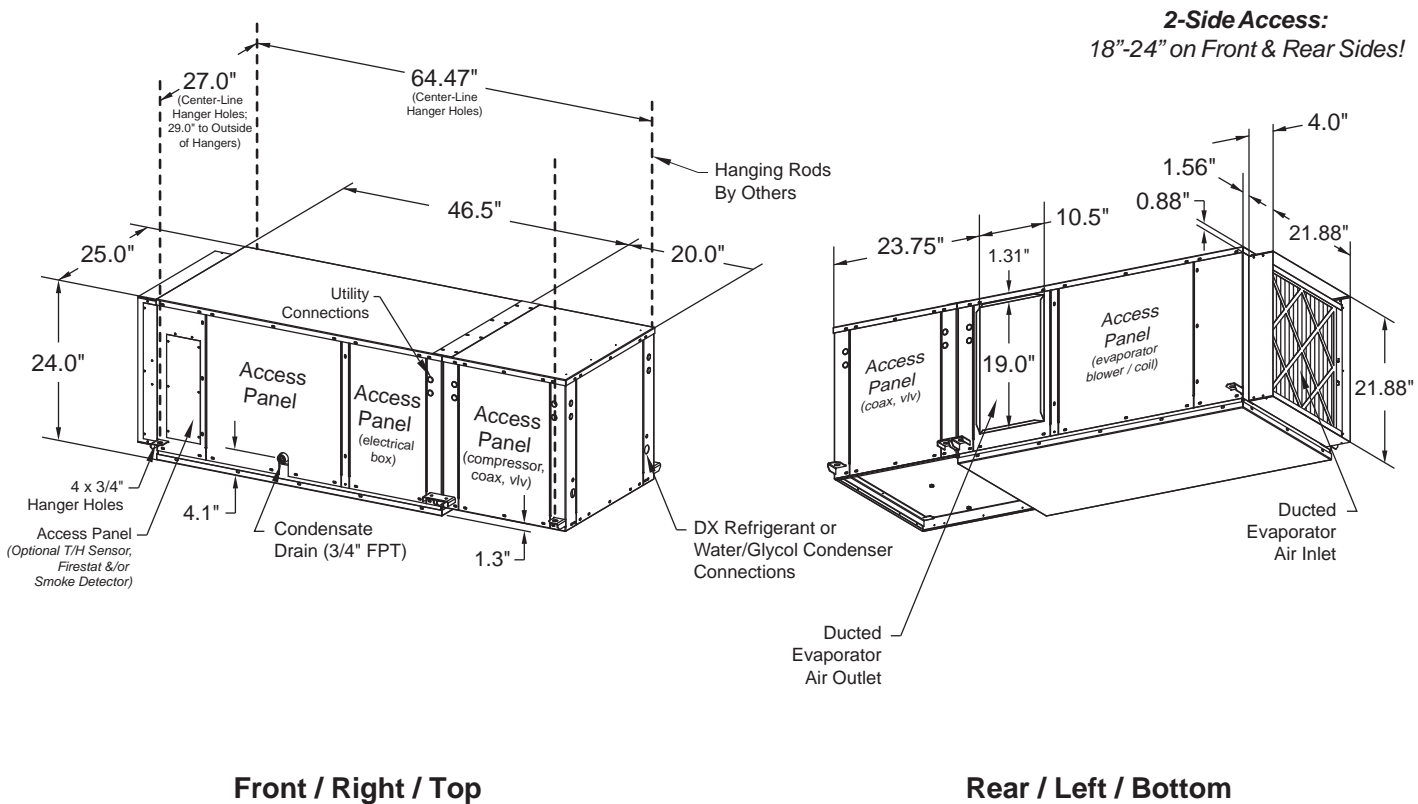
3 Tons, Water/Glycol Self-Contained & Split DX Evap (Spot Cooler)

Models: SPW, SPG & SPE-036-__



3 Tons, Water/Glycol Self-Contained & Split DX Evap (Ducted Evap)

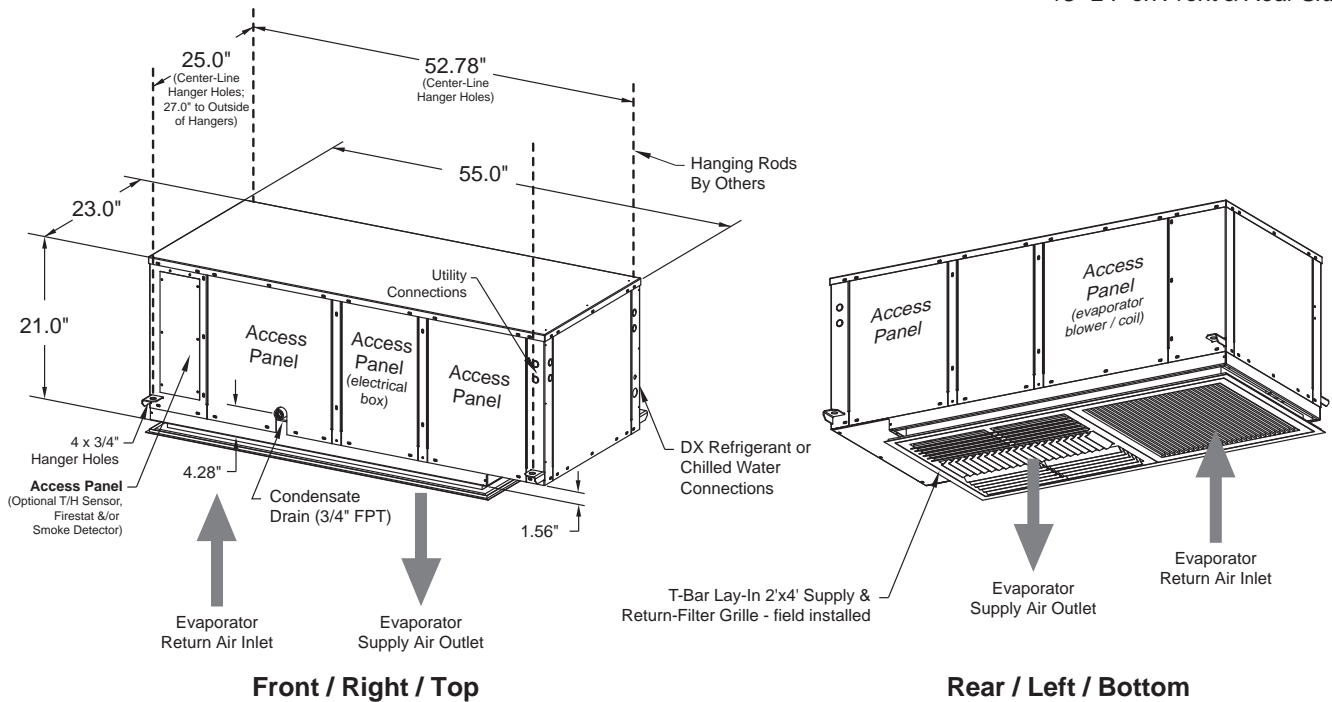
Models: SPW, SPG & SPE-036-__



1-2 Tons, DX Split and Chilled Water, Air Handling Units (*Spot Cooler*)

Models: SPH & SPC-012, 018 & 024-__

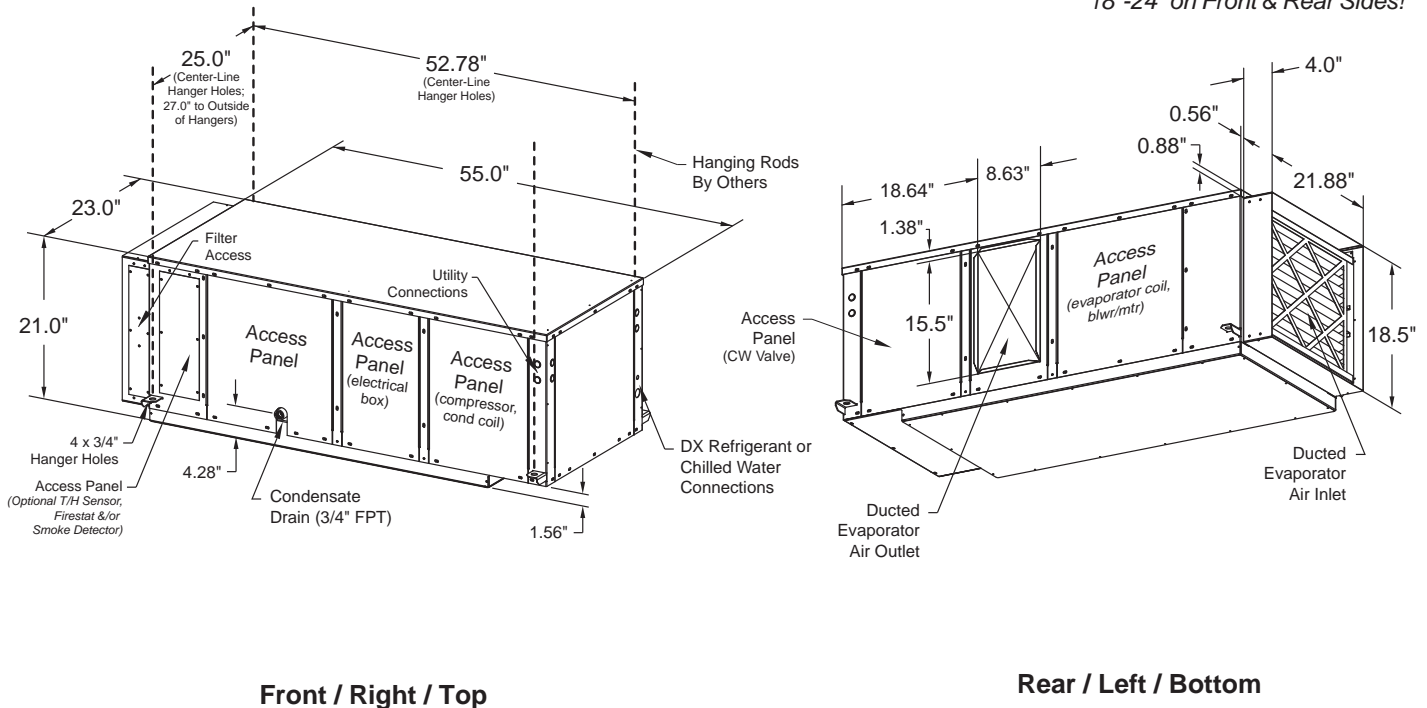
2-Side Access:
18"-24" on Front & Rear Sides!



1-2 Tons, DX Split and Chilled Water, Air Handling Units (*Ducted Evap*)

Models: SPH & SPC-012, 018 & 024-__

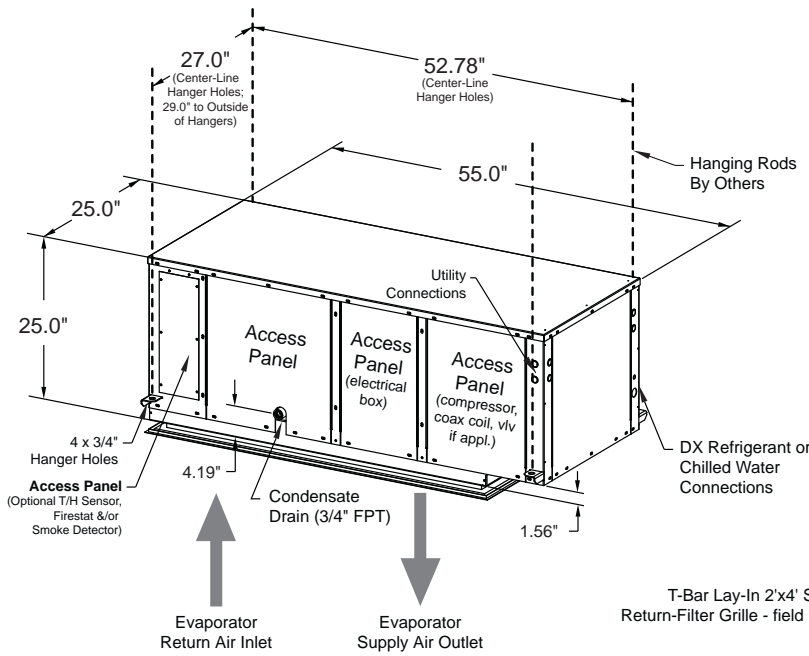
2-Side Access:
18"-24" on Front & Rear Sides!



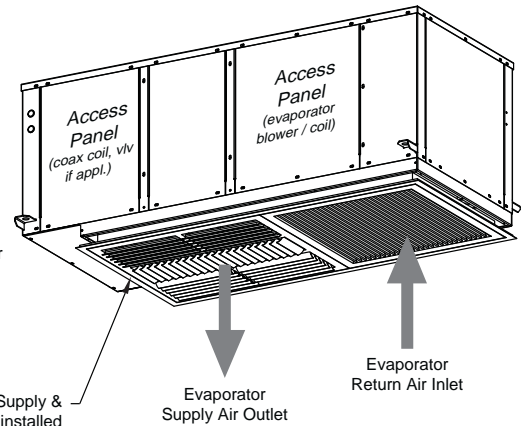
2.5 Tons, DX Split and Chilled Water, Air Handling Units (Spot Cooler)

Models: SPH & SPC-030-__

2-Side Access:
18"-24" on Front & Rear Sides!



Front / Right / Top

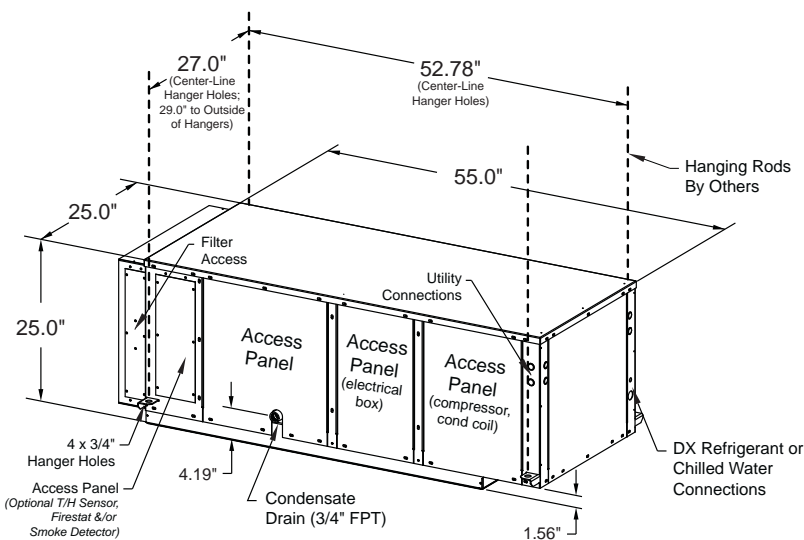


Rear / Left / Bottom

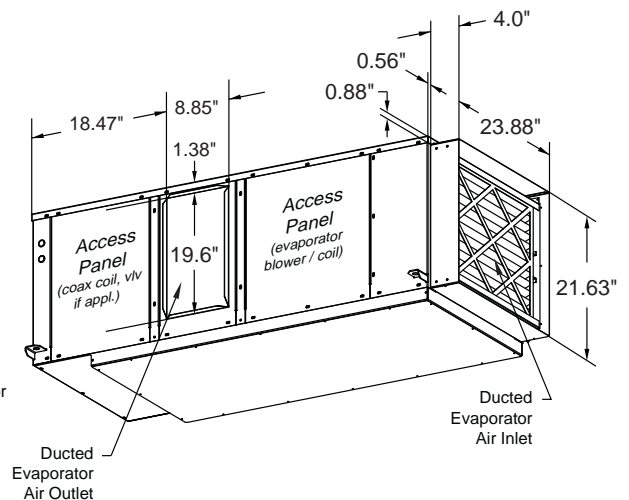
2.5 Tons, DX Split and Chilled Water, Air Handling Units (Ducted Evap)

Models: SPH & SPC-030-__

2-Side Access:
18"-24" on Front & Rear Sides!



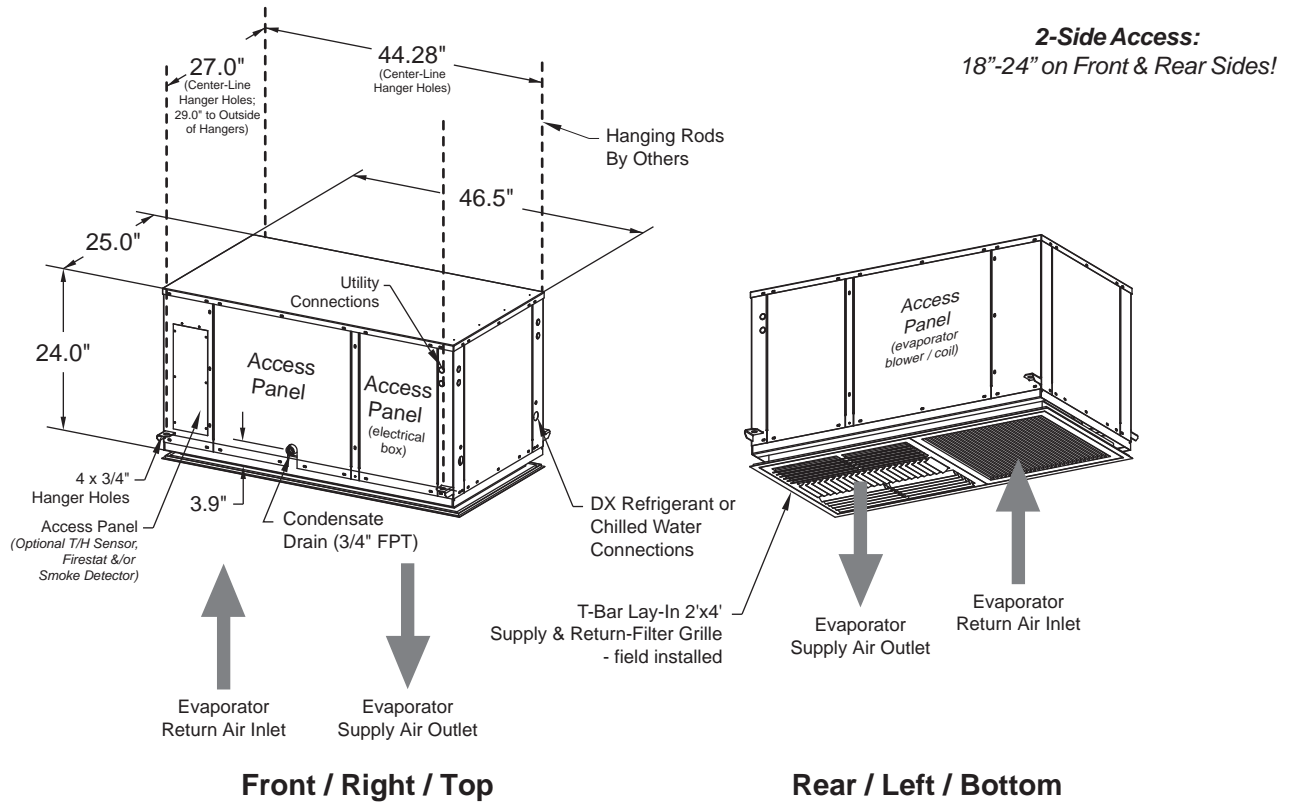
Front / Right / Top



Rear / Left / Bottom

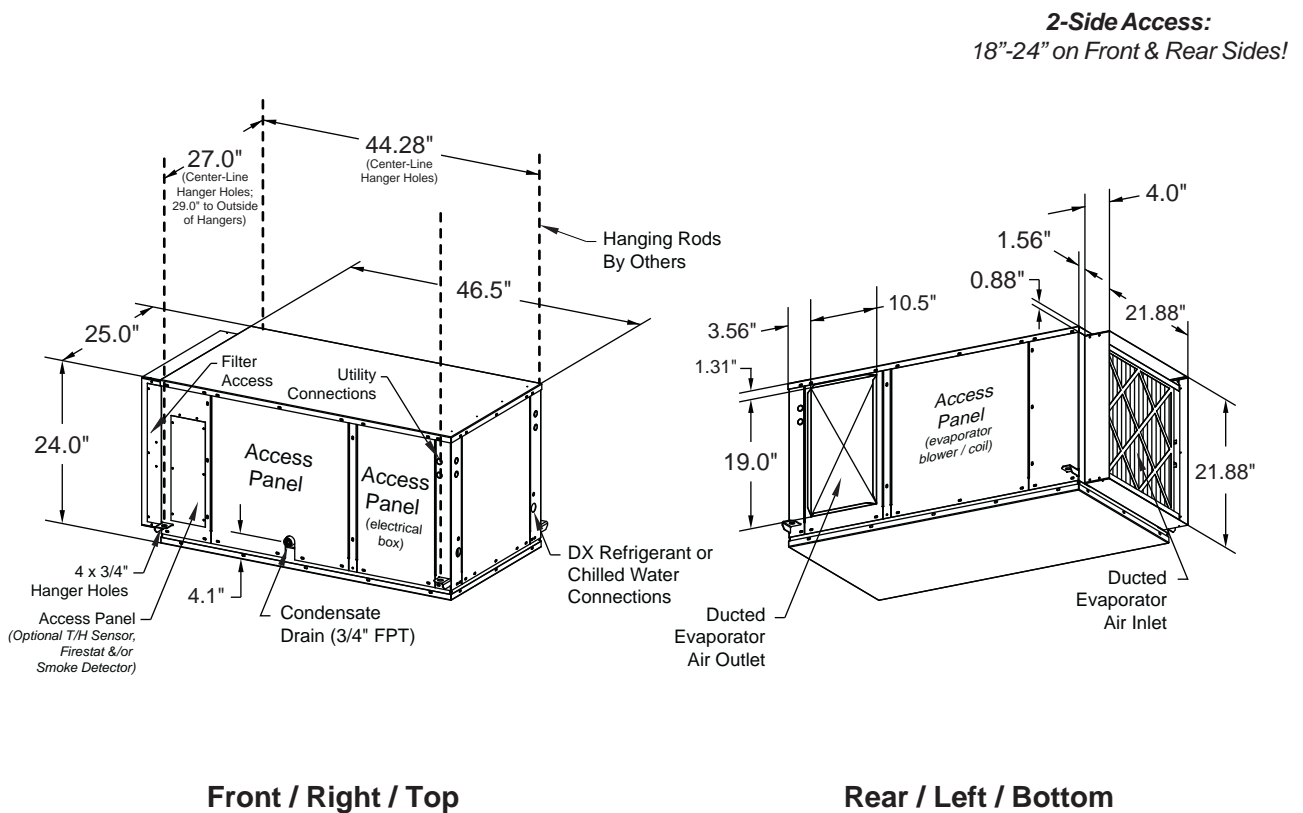
3 Tons, DX Split and Chilled Water, Air Handling Units (Spot Cooler)

Models: SPH & SPC-036-__

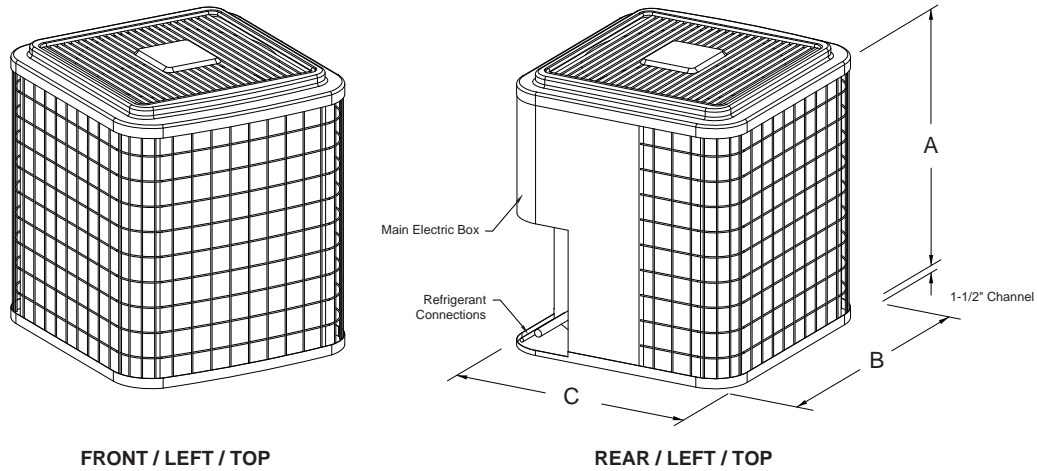


3 Tons, DX Split and Chilled Water, Air Handling Units (Ducted Evap)

Models: SPH & SPC-036-__

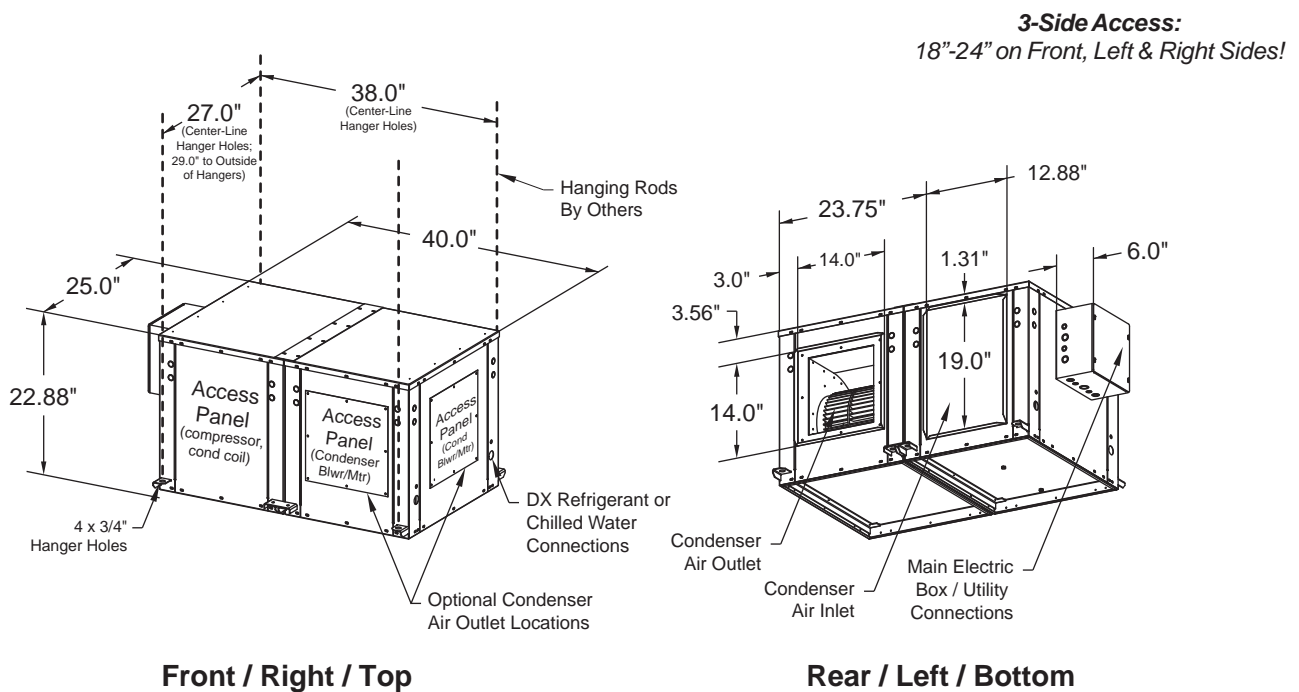


1-3 Tons, Outdoor, DX - Air Cooled Propeller Fan, Remote Condensing Units & Condensers Models: XPU & XP1-012 thru 036



XPU & XP1- () Model Size	Dimensions		
	A	B	C
XPU & XP1-012 & 018	25-5/16"	23-1/8"	23-1/8"
XPU & XP1-024	28-11/16"	23-1/8"	23-1/8"
XPU & XP1-030	31-3/16"	25-3/4"	25-3/4"
XPU & XP1-036	32-5/16"	31-3/16"	31-3/16"

1-3 Tons, Indoor, Remote Centrifugal Blower DX Air Cooled Condensing Units & Condensers “Same-Face (standard) or Optional Straight-Thru & “90° L” Air Patterns” Models: CCU & CCX-012 thru 036

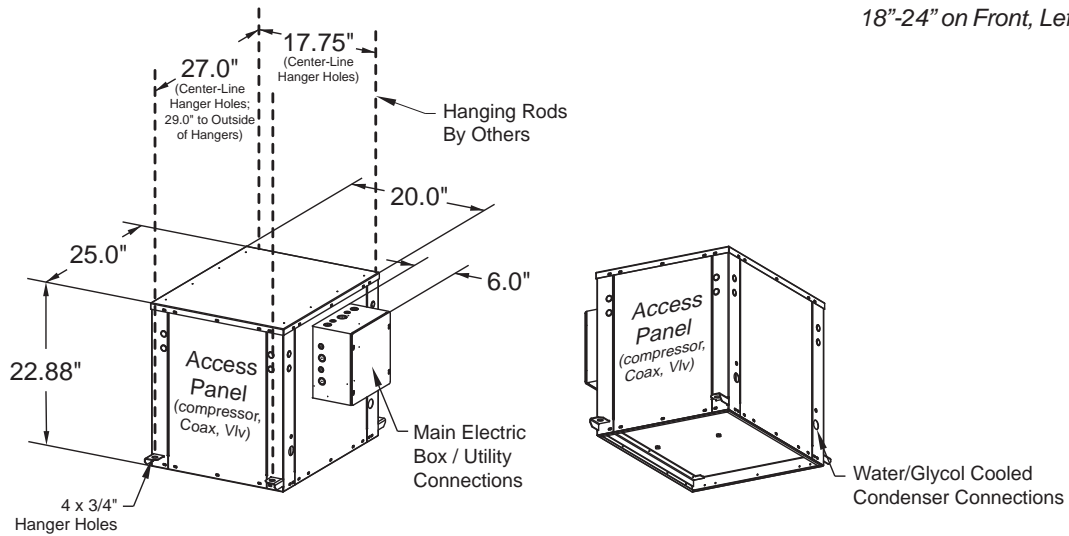


1-3 Tons, Indoor, Remote DX Water/Glycol Cooled Condensing Units

Models: CWU & CGU-012 thru 036

3-Side Access:

18"-24" on Front, Left & Right Sides!



Front / Right / Top

Rear / Left / Bottom

Notes:

Model Nomenclature

Packaged Systems & Split Evaporators

SP	H	-	036	-	3	-	E1	H
a	b	-	c	-	d	-	e	f

- a: SP** - SpotCool™ 2x4 Horizontal Series
- b: A** - DX, Air Cooled
C - Chilled Water
E - DX, Evaporator with Compressor
G - DX, Glycol Cooled
H - DX, Air Handling Unit
W - DX, Water Cooled
- c: 012** = 1 Ton; **018** = 1.5 Tons; **024** = 2.0 Tons; **030** = 2.5 Tons; **036** = 3.0 Tons
- d: 1** - 208-230V / 1 Ph / 60 Hz
3 - 208-230V / 3 Ph / 60 Hz
4 - 460-480V / 3 Ph / 60 Hz
5 - 575V / 3 Ph / 60 Hz
7 - 277V / 1 Ph / 60 Hz
8 - 460-480V / 1 Ph / 60 Hz
- e: 00** - No Heat
E1 - Electric Heat 1-Stage
E2 - Electric Heat 2-Stages
ES - SCR Fired Electric Heat
HE - Heat Pump with Auxiliary Electric Heat
HG - Hot Gas Reheat
HP - Heat Pump w/o Auxiliary Electric Heat
HW - Hot Water Heat
ES - SCR Fired Electric Heat
ST - Steam Heat
- f: 0** - No Humidifier
H - Electrode Canister Humidifier

Heat Rejection Systems

C	C	U	-	036	-	3	-	00
a	b	c	-	d	-	e	-	f

- a: C** - SpotCool Series Remote Heat Exchanger
- b: C** - DX, Air Cooled, Indoor Centrifugal Blower Type
G - DX, Glycol Cooled
P - DX, Air Cooled, Outdoor Propeller Fan Type
W - DX, Water Cooled
- c: U** - DX Condensing Unit
X - DX Condenser
- d: 012** = 1 Ton; **018** = 1.5 Tons; **024** = 2.0 Tons; **030** = 2.5 Tons; **036** = 3.0 Tons
- e: 1** - 208-230V / 1 Ph / 60 Hz
3 - 208-230V / 3 Ph / 60 Hz
4 - 460-480V / 3 Ph / 60 Hz
5 - 575V / 3 Ph / 60 Hz
7 - 277V / 1 Ph / 60 Hz
8 - 460-480V / 1 Ph / 60 Hz
- f: 00** - None
HP - Heat Pump

Approximate Unit Ship Weights (lbs.)

UNIT SIZE	MODEL TYPE									
	SPA	SPH	CCU	SPE	CCX	XPU	XP1	SPW/G	CWU/CGU	SPC
012	315	180	195	225	160	110	65	305	125	185
018	335	180	215	245	160	115	70	325	145	185
024	330	180	215	245	160	120	75	325	145	185
030	375	185	220	250	160	145	95	335	150	190
036	410	190	230	290	160	180	120	335	150	195



Ceiling Air Conditioners

SpotCool™ - 2x4 T-Bar "Spot-Cool & Ducted" Comfort & Precision Ceiling Mounted A/C's

HK™ Horizontal - Hi-Static Ducted Comfort & Precision Ceiling Mounted A/C's

HK-OA™ - Horizontal Up to 100% DOAS High-Percentage Outside Air Ceiling Mounted A/C's

Floor Air Conditioners

MissionCritical™ - Precision Vertical Floor Mounted Computer Room A/C's

VK™ Vertical - SCAV, Vertical Floor Mounted Self-Contained & Split Comfort Constant Air Volume and Variable Air Volume (VAV) A/C's & Heat Pumps

VK-OA™ - Vertical Up to 100% DOAS High-Percentage Outside Air Vertical Floor Mounted A/C's

VK™ Console - Vertical Floor Console Mounted Self-Contained & Split A/C's & Heat Pumps

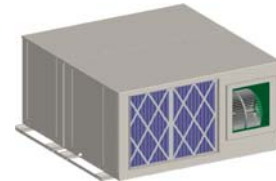
Remote Heat Rejection

FluidCool™ - Indoor & Outdoor Remote Glycol Drycoolers

PumpAll™ - Single, Dual & Triplex Standard & Variable (VFD) Speed Glycol Pump Packages



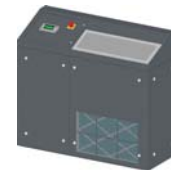
2x4 "Spot-Cool & Ducted" Ceiling Mounted A/C's
(1 to 3 Tons)



High-Static BD "Ducted" Ceiling Mounted A/C's
(1 to 30 Tons)



Comfort - Packaged & Split Vertical Floor Mounted Air Conditioners
(1 to 45 Tons)



Precision - Vertical Floor Console Mounted Air Conditioners
(1 to 30 Tons)

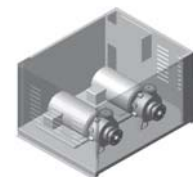


VK-MissionCritical™ - Up-Flow & Down-Flow Vertical Floor Mounted Computer Room Air Conditioners
(1 to 30 Tons)



Remote Air Cooled Condensers, Condensing Units & Glycol Drycoolers
(1 to 180 Tons of THR)

Single, Dual & Triplex Glycol Pump Packages
(1/2 to 50 HP)



www.aboveair.com