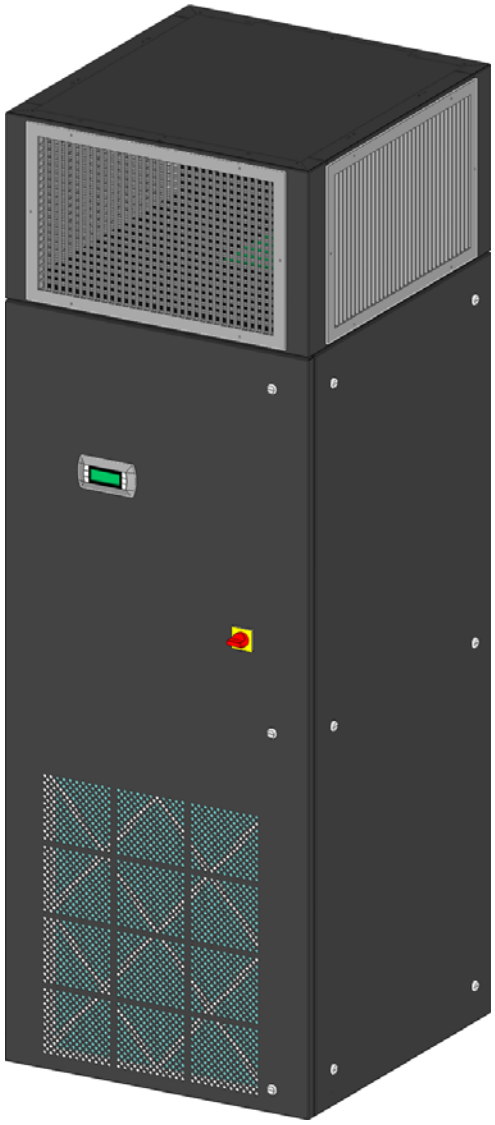

MC-2x2™

MissionCritical

Vertical Floor Mounted A/C's

(Single Circuit DX & CW)

R407C & R410a Data

Features & Benefits

- 1 to 3 Ton Capacities
- *Precision Applications*
  - Computer Rooms
  - Telecom Rooms
  - Server Closets
- Compact Vertical Floor Mounted Upflow & Downflow Configurations
- DX Air, Water & Glycol Cooled, Chilled Water Systems
- Total Temp & Humidity Control
  - Steam Humidifier
  - Reheat/Heat via Electric, Hot Gas, Hot Water or Steam
- Microprocessor Controls & More!

1 to 3 Tons
Compact 24"W x 24"D
"Footprint"

AboveAir Technologies

ETL LISTED
CONFORMS TO
UL STD 1995
3091370
CERTIFIED TO
CAN/CSA STD C22.2 No. 236

MEA229-06-E Approved

AboveAir™ MissionCritical™ vertical floor mounted precision air conditioners are the reliable environmental control solution to your precision cooling needs. Available in a wide variety of cooling methods and cabinet configurations including a full range of options, ***AboveAir™*** Air Conditioners are a step above!

- ☑ **R407c or Optional R410a Refrigerant**
- ☑ **100% Front-Access cabinet design**
- ☑ **Total Temperature & Humidity Control**
- ☑ **Up-Flow & Down-Flow air patterns**
- ☑ **Variety of cooling methods**
- ☑ **Self-contained & split systems**
- ☑ **Flexible options and accessories**
- ☑ **Energy efficient operation**

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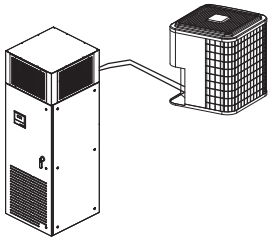
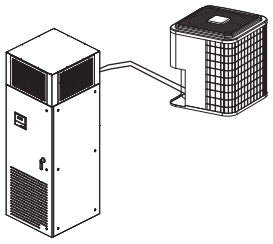
DX - Air Cooled

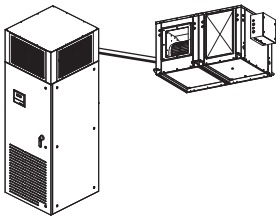
VCH & XPU-( )
DX - Air Cooled Split with Propeller Fan, Outdoor Remote Condensing Unit



VCE & XP1-( )
DX - Air Cooled Split with Propeller Fan, Outdoor Remote Condenser

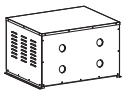


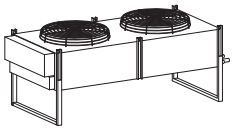
VCH/E & CCU/CCX & XCU/XCX -( )
DX - Air Cooled Split with Centrifugal Blower, indoor Remote Condensing Unit & Condensers



DX - Water/Glycol Cooled

VCW & VCG-( )
DX - Water/Glycol Cooled Self-Contained Plus Glycol Drycoolers & Pump Packages





FC_ & PA_ Models
Remote Indoor & Outdoor Glycol Drycoolers and Pump Packages

Chilled Water Systems

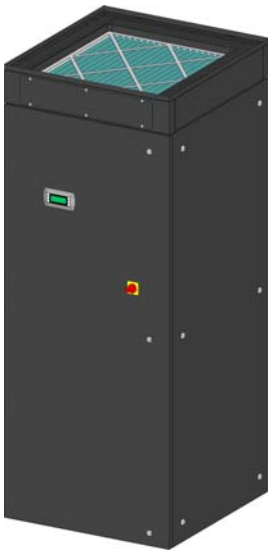
VCC-( )
Chilled Water Air Handling Units

FEATURES & BENEFITS

AboveAir™ VK-MissionCritical™ precision A/C's are designed to meet your unique application dependent requirements. Select from a wide range of options and configurations:

1 to 3 Tons
Single Circuit DX &
Chilled Water

Compact 24"W x 24"D Footprint!



Up-Flow Air Pattern

Down-Flow Air Pattern

Variety of Standard & Optional Features

Standard & Optional Features:

- MC-2000, Advanced Microprocessor Controls
- Electrode Steam Canister Humidifier
- Dehumidification Mode with Electric, Hot Gas, Hot Water or Steam Reheat
- Single Scroll Compressor
- Low Sound Direct-Drive Centrifugal Blowers
- 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

Accessories:

- 2 or 3-Way Plenum Discharge Boxes
- Floor Stands & Turning Vanes
- Condensate Pumps
- Main Power Electrical Disconnects
- Firestats
- Smoke Detectors
- Remote Water-Leak Detectors
- Compressor Sound Jackets
- Glycol Pump Packages & Drycoolers
- ... and more!

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CERTIFIED TO
CAN/CSA STD C22.2 No. 236
3091370

MEA229-06-E

Performance Data (*MC*™ 2x2) - DX - Air Cooled (1-3 Tons)

	Nominal Size		1.0 Tons	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons
	DX - Air Cooled Model		**VCE & VCH-012**	**VCE & VCH-018**	**VCE & VCH-024**	**VCE & VCH-030**	**VCE & VCH-036**
AIR COOLED DX	**75°F DB / 62.5°F WB, 50% RH**						
	Total	BTUH	16,100	21,100	27,700	33,100	40,500
	Sensible	BTUH	11,800	16,000	22,700	27,500	34,300
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	15,300	20,100	26,400	31,500	38,700
	Sensible	BTUH	11,600	15,800	22,500	27,100	34,000
	70°F DB / 58.5°F WB, 50% RH						
	Total	BTUH	14,800	19,500	25,700	30,100	37,600
	Sensible	BTUH	11,400	15,500	22,100	26,400	33,300
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	15,600	20,500	27,300	32,600	39,700
	Sensible	BTUH	12,500	17,000	25,200	30,800	38,800
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	14,900	19,600	26,100	30,500	37,400
	Sensible	BTUH	12,300	17,000	25,300	30,500	35,400
	70°F DB / 57°F WB, 45% RH						
	Total	BTUH	14,400	19,000	25,300	29,600	36,600
	Sensible	BTUH	12,100	16,800	24,800	29,600	36,500

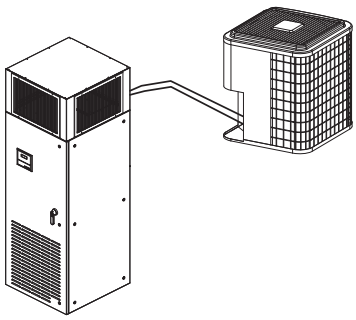
COMPONENT DATA

AIR COOLED DX	**Reheat / Heat** - **(Standard)**						
	Electric Reheat / Heat - BTUH includes evaporator motor heat, **(Standard)**						
	Capacity	BTUH (KW)	17,670 (5.2)	18,245 (5.3)	18,245 (5.3)	18,820 (5.5)	18,820 (5.5)
	Hot Gas Reheat - **(Optional)**						
	Capacity	BTUH	12,320	15,680	19,350	22,160	25,620
	Hot Water Heating Coil - **(Optional)** @ 180°F EWT / 160°F LWT, 70°F DB EAT						
	Capacity	BTUH	21,760	28,080	40,540	46,910	54,640
	Flow Rate / PD	GPM / FT	2.3 / (0.7)	2.9 / (1.0)	4.2 / (0.1)	4.9 / (0.2)	5.7 / (0.2)
	Standard Valve	TXT	2-way - field installed *(3-way valves are optional)*				
	Steam Canister Humidifier - **(Standard)**						
	Steam Canister	LBS/HR	2-5	2-5	2-5	2-5	2-5
	Control	TXT	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)
	Evaporator Blower / Motor - Direct-Drive, DWDI Centrifugal ***(ECM Variable Speed Optionally Available!)***						
	Airflow Rate	CFM	500	750	1,000	1,250	1,600
	Blower Motor	HP	1/4	1/2	1/2	3/4	3/4
	E.S.P.	IN WG	0.3	0.3	0.3	0.3	0.3
	Evaporator Coil - Aluminum Fin, Copper Tube						
	Rows/Face Area	NO / FT^2	3 / 1.61	3 / 1.61	4 / 3.23	4 / 3.23	4 / 3.23
	Face Velocity	FPM	310	465	310	387	495
	Filters - 2", 30% Dust Spot Efficient - *(Down-Flow Unit Filters = (1) 20 x 20 x 2)*						
	Up-Flow Filters	(NO) IN	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2
	Compressor - Heat Pump Duty, SCROLL						
	Qty., Nom. Tons	(NO) Tons	(1) 1.33	(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	FLARE IN	1/4	1/4	1/4	1/4	1/4
	DX Split Evaporators & Indoor Remote Centrifugal Air Cooled Condensers - (VCE & CCX/XCX 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/ Liq. & Hot Gas Lines and XPU w/ Liq. & Suction Lines)						
	Liquid Line	OD IN	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8	(1) 3/8
	Suct. or HG Line	OD IN	(1) 3/4	(1) 3/4	(1) 3/4	(1) 7/8	(1) 7/8
	DX Split Air Handling Units & Indoor, Centrifugal Blower Remote Air Cooled Condensing Units - (VCH & 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

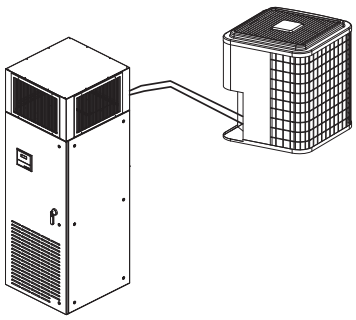
Heat Rejection Data

	Nominal Size / Model Size		1.0 Ton VCH or VCE-012	1.5 Tons VCH or VCE-018	2.0 Tons VCH or VCE-024	2.5 Tons VCH or VCE-030	3.0 Tons VCH or VCE-036
	95°F AMBIENT, DX - AIR COOLED CONDENSING UNIT & CONDENSER DATA						
AIR COOLED DX	**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**
	Summer Amb. Design	°F DB	95	95	95	95	95
	Winter Amb. Design	°F DB	0, -20 or -30	0, -20 or -30	0, -20 or -30	0, -20 or -30	0, -20 or -30
	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
	Coil Face Area	FT^2	8.4	8.4	9.8	13.13	17.25
	Rows	NO	1	1	1	1	1
	Indoor, Remote Centrifugal Blower Air Cooled Condenser & Condensing Unit Data - (CCU/XCU & CCX/XCX Models)						
	Remote Condensing Unit Model		**CCU-012**	**CCU-018**	**CCU-024**	**CCU-030**	**XCU-036**
	Remote Condenser Model		**CCX-012**	**CCX-018**	**CCX-024**	**CCX-030**	**XCX-036**
	Summer Amb. Design	°F DB	95	95	95	95	95
	Winter Amb. Design	°F DB	0, -20 or -30	0, -20 or -30	0, -20 or -30	0, -20 or -30	0, -20 or -30
	Airflow Rate	CFM	1,000	1,200	1,500	2,000	2,200
		IN ESP	0.3	0.3	0.3	0.3	0.75
	Blower Motor	HP	1/2	3/4	3/4	3/4	3/4
	Blower Type		DD - Centrifugal	DD - Centrifugal	DD - Centrifugal	DD - Centrifugal	BD - Centrifugal
	Coil Face Area	FT^2	2.5	2.5	2.5	2.5	4.1
	Rows	NO	4	4	4	4	4

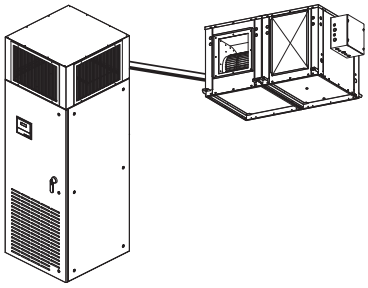
DX - Air Cooled



VCE & XP1 Models
DX - Split with Remote Outdoor Air Cooled Condenser
(compressor located in evaporator)



VCH & XPU Models
DX - Split Air Handling Unit with Remote Outdoor Air Cooled Condensing Unit
(compressor located in condensing unit)



VCH & CCU or XCU Models
DX - Split Air Hanlding Unit with Remote Indoor Air Cooled Condensing Unit
(compressor located in condensing unit)

Performance Data (*MC™ 2x2*) - DX - Water Cooled (1-3 Tons)

	Nominal Size		1.0 Tons	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons
	DX - Water Cooled Model		**VCW-012**	**VCW-018**	**VCW-024**	**VCW-030**	**VCW-036**
WATER COOLED DX	**75°F DB / 62.5°F WB, 50% RH**						
	Total	BTUH	16,900	22,100	29,100	34,700	42,600
	Sensible	BTUH	12,200	16,500	23,300	28,000	34,800
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	16,100	21,100	27,700	33,200	40,000
	Sensible	BTUH	12,000	16,300	22,900	27,700	34,100
	70°F DB / 58.5°F WB, 50% RH						
	Total	BTUH	15,600	20,500	27,000	32,300	39,600
	Sensible	BTUH	11,700	16,000	22,500	27,200	34,000
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	16,400	21,600	28,200	34,200	41,800
	Sensible	BTUH	12,900	17,600	25,300	31,000	39,000
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	15,600	20,500	27,400	32,700	40,000
	Sensible	BTUH	12,700	17,300	25,400	31,100	39,400
	70°F DB / 57°F WB, 45% RH						
	Total	BTUH	15,100	20,000	26,700	31,800	38,900
	Sensible	BTUH	12,400	17,000	25,100	30,800	38,900

COMPONENT DATA

WATER COOLED DX	**Reheat / Heat** - **(Standard)**						
	Electric Reheat / Heat - BTUH includes evaporator motor heat, **(Standard)**						
	Capacity	BTUH (KW)	17,670 (5.2)	18,245 (5.3)	18,245 (5.3)	18,820 (5.5)	18,820 (5.5)
	Hot Gas Reheat - **(Optional)**						
	Capacity	BTUH	10,300	13,070	22,920	26,240	30,330
	Hot Water Heating Coil - **(Optional)** @ 180°F EWT / 160°F LWT, 70°F DB EAT						
	Capacity	BTUH	21,760	28,080	40,540	46,910	54,640
	Flow Rate / PD	GPM / FT	2.3 / (0.7)	2.9 / (1.0)	4.2 / (0.1)	4.9 / (0.2)	5.7 / (0.2)
	Standard Valve	TXT	2-way - field installed *(3-way valves are optional)*				
	Steam Canister Humidifier - **(Standard)**						
	Steam Canister	LBS/HR	2-5	2-5	2-5	2-5	2-5
	Control	TXT	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)
	Evaporator Blower / Motor - Direct-Drive, DWDI Centrifugal ***(ECM Variable Speed Optionally Available!)***						
	Airflow Rate	CFM	500	750	1,000	1,250	1,600
	Blower Motor	HP	1/4	1/2	1/2	3/4	3/4
	E.S.P.	IN WG	0.3	0.3	0.3	0.3	0.3
	Evaporator Coil - Aluminum Fin, Copper Tube						
	Rows/Face Area	NO / FT^2	3 / 1.61	3 / 1.61	4 / 3.23	4 / 3.23	4 / 3.23
	Face Velocity	FPM	310	465	310	387	495
	Filters - 2", 30% Dust Spot Efficient						
	Up-Flow Filters	(NO) IN	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2
	Down-Flow Filters	(NO) IN	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2
	Compressor - Heat Pump Duty, SCROLL						
	Qty., Nom. Tons	(NO) Tons	(1) 1.33	(1) 1.5	(1) 2.0	(1) 2.5	(1) 3.0
	Water Cooled Condenser Data - 85°F EWT / 95°F LWT, 0% Glycol Solution *(rated at 75°F DB/62.5°F WB EAT Cooling Performance)*						
	Total Heat of Rej.	BTUH	21,470	27,585	35,525	42,635	52,655
	Flow 85°F EWT	GPM	4.3	5.5	7.1	8.5	10.5
	Pressure Drop	FT WG	7.8	10.5	12.5	14.5	16.5
	Condenser Type		Coaxial	Coaxial	Coaxial	Coaxial	Coaxial
	Water Reg. Valve		2-Way, 150 psig - factory installed, *(3-way & High Pressure Valves are Optional)*				
	Connection Sizes						
	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	FLARE IN	1/4	1/4	1/4	1/4	1/4

Performance Data (*MC*™ 2x2) - DX - Glycol Cooled (1-3 Tons)

	Nominal Size		1.0 Tons	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons
	DX - Glycol Cooled Model		**VCG-012**	**VCG-018**	**VCG-024**	**VCG-030**	**VCG-036**
GLYCOL COOLED DX	**75°F DB / 62.5°F WB, 50% RH**						
	Total	BTUH	15,100	19,900	26,200	31,300	38,100
	Sensible	BTUH	11,400	15,500	22,300	27,000	33,500
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	14,400	18,900	24,800	29,800	36,400
	Sensible	BTUH	11,200	15,200	21,800	26,700	33,400
	70°F DB / 58.5°F WB, 50% RH						
	Total	BTUH	13,900	18,300	23,700	29,000	35,400
	Sensible	BTUH	11,000	14,900	21,300	26,200	32,800
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	14,700	19,400	25,200	29,900	37,100
	Sensible	BTUH	12,100	16,800	24,600	29,200	36,100
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	14,000	18,500	24,400	29,200	35,400
	Sensible	BTUH	11,900	17,000	23,700	29,000	35,400
	70°F DB / 57°F WB, 45% RH						
	Total	BTUH	13,600	18,000	23,800	28,300	34,500
	Sensible	BTUH	11,700	16,800	23,700	28,300	34,500

COMPONENT DATA

GLYCOL COOLED DX	**Reheat / Heat** - **(Standard)**						
	Electric Reheat / Heat - BTUH includes evaporator motor heat, **(Standard)**						
	Capacity	BTUH (KW)	17,670 (5.2)	18,245 (5.3)	18,245 (5.3)	18,820 (5.5)	18,820 (5.5)
	Hot Gas Reheat - **(Optional)**						
	Capacity	BTUH	13,190	16,800	24,210	27,700	32,000
	Hot Water Heating Coil - **(Optional)** @ 180°F EWT / 160°F LWT, 70°F DB EAT						
	Capacity	BTUH	21,760	28,080	40,540	46,910	54,640
	Flow Rate / PD	GPM / FT	2.3 / (0.7)	2.9 / (1.0)	4.2 / (0.1)	4.9 / (0.2)	5.7 / (0.2)
	Standard Valve	TXT	2-way - field installed *(3-way valves are optional)*				
	Steam Canister Humidifier - **(Standard)**						
	Steam Canister	LBS/HR	2-5	2-5	2-5	2-5	2-5
	Control	TXT	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)
	Evaporator Blower / Motor - Direct-Drive, DWDI Centrifugal ***(ECM Variable Speed Optionally Available!)***						
	Airflow Rate	CFM	500	750	1,000	1,250	1,600
	Blower Motor	HP	1/4	1/2	1/2	3/4	3/4
	E.S.P.	IN WG	0.3	0.3	0.3	0.3	0.3
	Evaporator Coil - Aluminum Fin, Copper Tube						
	Rows/Face Area	NO / FT^2	3 / 1.61	3 / 1.61	4 / 3.23	4 / 3.23	4 / 3.23
	Face Velocity	FPM	310	465	310	387	495
	Filters - 2", 30% Dust Spot Efficient						
	Up-Flow Filters	(NO) IN	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2
	Down-Flow Filters	(NO) IN	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2
	Compressor - Heat Pump Duty, SCROLL						
	Qty., Nom. Tons	(NO) Tons	(1) 1.33	(1) 1.5	(1) 2.0	(1) 2.5	(1) 3.0
	Glycol Cooled Condenser Data - 110°F EGT / 120°F LGT, 40% Ethylene Glycol Solution *(rated at 75°F DB/62.5°F WB EAT Cooling Performance)*						
	Total Heat of Rej.	BTUH	20,935	26,905	34,390	41,325	50,700
	Flow 110°F EGT	GPM	4.6	6.0	7.6	9.1	11.2
	Pressure Drop	FT WG	8.0	11.5	11.8	15.4	17.2
	Condenser Type		Coaxial	Coaxial	Coaxial	Coaxial	Coaxial
	Glycol Reg. Valve		2-Way, 150 psig - factory installed, *(3-way & High Pressure Valves are Optional)*				
	Connection Sizes						
	Glycol 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	FLARE IN	1/4	1/4	1/4	1/4	1/4

Performance Data (*MC*™ 2x2) - Chilled Water Systems (1-3 Tons)

	Nominal Size	1.0 Tons	1.5 Tons	2.0 Tons	2.5 Tons	3.0 Tons
	Chilled Water System Model	**VCC-012**	**VCC-018**	**VCC-024**	**VCC-030**	**VCC-036**
CHILLED WATER SYSTEMS	**75°F DB / 62.5°F WB, 50% RH**					
45°F EWT	Total / Sensible MBH	17.0 / 13.1	23.4 / 18.5	29.0 / 23.5	34.1 / 28.3	40.6 / 34.6
55°F LWT	Flow Rate, (Coil PD) GPM / FT WG	3.4 / 3.2	4.7 / 5.8	5.8 / 8.6	6.8 / 11.4	8.1 / 15.7
	72°F DB / 60°F WB, 50% RH					
50% RH	Total / Sensible MBH	12.5 / 11.2	18.8 / 16.7	23.4 / 21.3	27.6 / 25.7	33.1 / 31.5
	Flow Rate, (Coil PD) GPM / FT WG	2.5 / 1.9	3.8 / 4.0	4.7 / 5.8	5.5 / 7.8	6.6 / 10.8
	70°F DB / 58.5°F WB, 50% RH					
	Total / Sensible MBH	10.8 / 10.4	16.4 / 15.5	20.4 / 19.8	24.3 / 24	29.1 / 29.1
	Flow Rate, (Coil PD) GPM / FT WG	2.2 / 1.5	3.3 / 3.1	4.1 / 4.6	4.9 / 6.3	5.8 / 8.6
CHILLED WATER SYSTEMS	**75°F DB / 61°F WB, 45% RH**					
45°F EWT	Total / Sensible MBH	15.2 / 13.3	21.0 / 18.9	26.4 / 24.3	31.1 / 29.3	37.4 / 36.1
55°F LWT	Flow Rate, (Coil PD) GPM / FT WG	3.1 / 2.7	4.2 / 4.8	5.3 / 7.3	6.2 / 9.7	7.5 / 13.7
	72°F DB / 58.5°F WB, 45% RH					
45% RH	Total / Sensible MBH	11.5 / 11.5	17.3 / 17.3	21.8 / 21.8	26.0 / 26.0	31.5 / 31.5
	Flow Rate, (Coil PD) GPM / FT WG	2.3 / 1.6	3.5 / 3.4	4.4 / 5.2	5.2 / 7.0	6.3 / 9.9
	70°F DB / 57°F WB, 45% RH					
	Total / Sensible MBH	10.2 / 10.2	15.4 / 15.4	19.4 / 19.4	23.3 / 23.3	28.3 / 28.3
	Flow Rate, (Coil PD) GPM / FT WG	2.1 / 1.4	3.1 / 2.7	3.9 / 4.2	4.7 / 5.8	5.7 / 8.3

COMPONENT DATA

CHILLED WATER SYSTEMS	**Reheat / Heat** - **(Standard)**					
	Electric Reheat / Heat - BTUH includes evaporator motor heat, **(Standard)**					
	Capacity BTUH (KW)	17,670 (5.2)	18,245 (5.3)	18,245 (5.3)	18,820 (5.5)	18,820 (5.5)
	Hot Water Heating Coil - **(Optional)** @ 180°F EWT / 160°F LWT, 70°F DB EAT					
	Capacity BTUH	21,760	28,080	40,540	46,910	54,640
	Flow Rate / PD GPM / FT	2.3 / (0.7)	2.9 / (1.0)	4.2 / (0.1)	4.9 / (0.2)	5.7 / (0.2)
	Standard Valve TXT	2-way - field installed *(3-way valves are optional)*				
	Steam Canister Humidifier - **(Standard)**					
	Steam Canister LBS/HR	2-5	2-5	2-5	2-5	2-5
	Control TXT	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)	Mod. (0-10Vdc)
	Evaporator Blower / Motor - Direct-Drive, DWDI Centrifugal ***(ECM Variable Speed Optionally Available!)***					
	Airflow Rate CFM	500	750	1,000	1,250	1,600
	Blower Motor HP	1/4	1/2	1/2	3/4	3/4
	E.S.P. IN WG	0.3	0.3	0.3	0.3	0.3
	Chilled Water Coil - Aluminum Fin, Copper Tube					
	Rows/Face Area NO / FT^2	4 / 3.23	4 / 3.23	4 / 3.23	4 / 3.23	4 / 3.23
	Face Velocity FPM	155	232	310	387	495
	Control Valve					
	Standard Valve	2-Way	2-Way	2-Way	2-Way	2-Way
	Valve Size, (Cv) IN	1/2, (4.0)	1/2, (4.0)	1/2, (4.0)	3/4, (5.0)	3/4, (5.0)
	Optional Valve	2-Way	2-Way	2-Way	2-Way	2-Way
	Valve Size, (Cv) IN	1/2, (4.0)	1/2, (4.0)	1/2, (4.0)	3/4, (5.0)	3/4, (5.0)
	Filters - 2", 30% Dust Spot Efficient					
	Up-Flow Filters (NO) IN	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2	(1) 18 x 24 x 2
	Down-Flow Filters (NO) IN	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2	(1) 20 x 20 x 2
	Connection Sizes					
	Chilled Water In/Out OD IN	7/8	7/8	7/8	7/8	7/8
	Condensate Drain FPT IN	3/4	3/4	3/4	3/4	3/4
	Humidifier Inlet FLARE IN	1/4	1/4	1/4	1/4	1/4

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

MODEL	VCW, VCG & VCE-012		VCW, VCG & VCE-018		VCW, VCG & VCE-024				VCW, VCG & VCE-030				VCW, VCG & VCE-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	13.6	10.9	16.8	14.1	12.3	6.9	19.5	16.1	14.4	7.8	23.3	19.9	18.9	8.2
MCA	13.5	10.9	16.0	12.8	20.0	16.8	14.4	8.2	23.0	19.2	16.7	9.2	27.8	23.9	22.3	9.7
MOP	20	15	25	20	30	25	20	15	35	30	25	15	45	40	35	15
with Electric Heat *(No Electric Reheat or Humidifier)*																
FLA	26.3	20.1	28.1	21.3	28.1	21.3	17.9	8.1	29.5	22.0	19.3	8.5	29.5	22.0	19.3	8.5
MCA	32.9	25.1	35.1	26.6	35.1	26.6	22.4	10.1	36.9	27.5	24.1	10.6	36.9	27.5	24.1	10.6
MOP	35	30	40	30	40	30	25	15	40	30	25	15	45	40	35	15
with Electric Reheat/Heat *(No Humidifier)*																
FLA	35.3	27.2	37.7	29.0	40.9	32.2	26.2	13.2	43.6	34.2	28.3	14.1	47.4	38.0	32.8	14.5
MCA	43.6	33.5	46.1	35.4	50.1	39.4	31.8	16.0	53.1	41.8	34.0	17.1	57.9	46.5	39.7	17.6
MOP	45	35	50	40	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	21.8	17.1	25.0	20.3	20.5	10.6	27.7	22.3	22.6	11.5	31.5	26.1	27.1	11.9
MCA	21.7	17.1	24.2	19.0	28.2	23.0	22.6	11.9	31.2	25.4	24.9	12.9	36.0	30.1	30.5	13.4
MOP	30	20	30	25	40	30	30	15	45	35	30	15	50	45	40	15
with Electric Heat *(No Electric Reheat)* **& Humidifier**																
FLA	34.5	26.3	36.3	27.5	36.3	27.5	26.1	11.8	37.7	28.2	27.5	12.2	37.7	28.2	27.5	12.2
MCA	41.1	31.3	43.3	32.8	43.3	32.8	30.6	13.8	45.1	33.7	32.3	14.3	45.1	33.7	32.3	14.3
MOP	45	35	45	35	45	35	35	15	50	35	35	15	50	45	40	15
with Electric Reheat/Heat & Humidifier																
FLA	35.3	27.2	37.7	29.0	40.9	32.2	26.2	13.2	43.6	34.2	28.3	14.1	47.4	38.0	32.8	14.5
MCA	43.6	33.5	46.1	35.4	50.1	39.4	31.8	16.0	53.1	41.8	34.0	17.1	57.9	46.5	39.7	17.6
MOP	45	35	50	40	60	45	35	20	60	45	35	20	60	50	45	20

DX Split and Chilled Water - Air Handling Units

MODEL	VCH & VCC-012				VCH & VCC-018 & 024				VCH & VCC-030 & 036			
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**	**208/1/60**	**277/1/60**	**208/3/60**	**460/3/60**
Cooling Only *(or Cooling with Hot Water or Steam Reheat/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	40	25	15	40	30	25	15
with Humidifier with or without Hot Water/Steam Reheat/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.

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
XCU-036				
FLA	24.6	21.0	17.3	7.9
MCA	29.1	25.0	20.7	9.4
MOP	45	40	30	15

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

Power Supply	208/1/60	277/1/60	208/3/60	460/1/60	460/3/60
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	
XCX-030					
FLA	5.4	3.9	- - - -	- - - -	2.2
MCA	6.8	4.9			2.8
MOP	15	15			15
XCX-036					
FLA	6.7	5.4	3.8	- - - -	1.9
MCA	8.4	6.8	4.8		2.4
MOP	15	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

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 vertical floor mounted packaged (or split) precision 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 MEA229-06-E and Chicago Code Approved. The system model number shall be _____.

☑ 1.2 Design Requirements

The system shall be an AboveAir Technologies VK-FloorConsole™ brand factory assembled and tested. The system shall be designed for indoor 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 run tested prior to shipment. Testing shall include, but shall not be limited to: "HiPot" Test (2 times rated voltage plus 1000 volts, per UL 1995 testing requirements). 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 powder-coat painted heavy gauge galvanneal steel for decor matching and corrosion resistance. Cabinet access panels shall rest in recessed pockets designed for minimum air leakage. The cabinet and access panels shall be lined with 2 lb/ft^2 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 through front access panels with quick-release quarter-turn fasteners.

☑ 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: main power distribution block; grounding lug; 24 VAC control transformer; terminal connections; and motor controllers with start protection and circuit breakers for blower motors, compressors 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 condensing unit sections. The evaporator and condensing unit sections shall be electrically interlocked by a field wired 24 volt control signal.

Overflow Safety Float Switches:
The system shall be provided with a factory installed float type condensate overflow safety switches. The circuit shall be designed to shut down all system water producing operations in the event of an overflow condition.

☑ 2.1.3.1 Main Power, Non-Fused Disconnect

(VC_ Evap Section)

The indoor evaporator section shall be provided with a factory installed main power non-fused disconnect. The disconnect shall be NEMA rated for indoor or outdoor installation as required.

☑ 2.1.4 Evap 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.

☑ 2.1.5 Air Patterns

Up-Flow (UF)

Down-Flow (DF)

☐ 2.1.5.1 Up-Flow Air Pattern

☐ 2.1.5.1.1 UF: Front-Free Return

The system shall be configured for up-flow evaporator air pattern with front-free return and top discharge. *(Refer to Plenum Discharge Box Options.)*

☐ 2.1.5.1.2 UF: Rear-Ducted Return

The system shall be configured for up-flow evaporator air pattern with rear ducted return and top discharge.

☐ **2.1.5.2 Down-Flow Air Pattern**

The system shall be configured for down-flow evaporator air pattern with top free or ducted return and bottom discharge into raised floor. *(Refer to Floor Stand Options.)*

☑ **2.1.6 Air Filtration**

The filter(s) shall be ___ inch thick pleated and rated for 30% dust spot efficiency (based on ASHRAE 52.1). The filter(s) shall be serviceable through front of the system.

☐ **2.2 Direct Expansion Systems**

☐ **2.2.1 DX - Evaporator Coil**

The DX evaporator coil shall be constructed of copper tubes and aluminum fins. The system shall be designed for a draw-through air pattern for maximum heat transfer. 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 Compressor**

Each compressor shall be the high efficiency, low sound Scroll type mounted on vibration isolators and located in a separate compartment out of the evaporator air stream to facilitate servicing while equipment is operating. Each compressor shall be complete with reversible positive oil pump, charging and service ports, internal spring isolation, and discharge gas vibration eliminator.

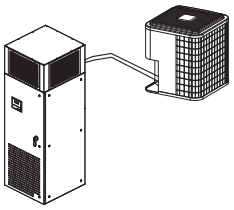
☐ **2.2.3 DX - Refrigeration Circuit**

Each refrigeration circuit shall be pre-piped with type "L" refrigerant copper tubing. The 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 Standard Features / Individual Systems

☐ **2.3.1 DX - Air Cooled Systems**

☐ **2.3.1.1 DX - Air Cooled Split**
(Split Evap & Outdoor Remote Condenser)
VCE-( ) & XP1-( )

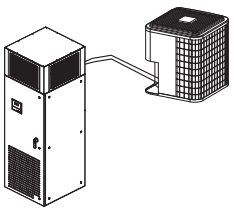


The system shall be a split configuration with compact 24" x 24" maximum foot-print indoor vertical floor mounted dx evaporator precision air conditioner with outdoor dx air cooled propeller fan remote condenser. The compressor shall be located in the indoor evaporator section. The condenser shall be 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 2.4.1 pg 12 Low Amb. Options.)*

☐ **2.3.1.2 DX - Air Cooled Split**
(Air Handling & Outdoor Remote Condensing Units)
VCH-( ) & XPU-( )

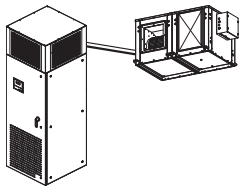


The system shall be a split configuration with compact 24" x 24" maximum foot-print indoor vertical floor mounted precision dx air handling unit with outdoor dx air cooled propeller fan remote condensing unit. The compressor shall be located in the condensing unit. The condensing unit shall be sized for full heat of rejection at 95°F ambient and be capable of operation to ___ °F low ambient air temperature.

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

*(**Note-1:** See 2.4.1 pg 12 Low Amb. Options.)*

☐ **2.3.1.3 DX - Air Cooled Split**
(Air Handler & Indoor Remote Condensing Unit)
VCH-( ) & CCU or XCU-( )

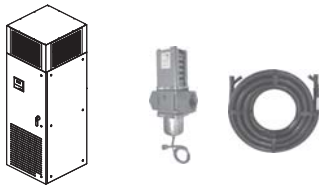


The system shall be a split configuration with compact 24" x 24" maximum foot-print indoor vertical floor mounted precision dx air handling unit with indoor dx - air cooled centrifugal blower remote condensing unit. The compressor shall be located in the condensing unit. The condensing unit shall be 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 2.4.1 pg 12 Low Amb. Options.)*

☐ **2.3.2 DX - Water Cooled**
(Self-Contained Systems)
Models: VCW-( )



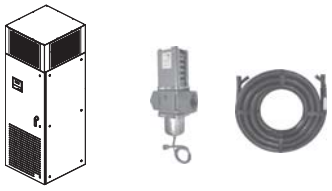
The system shall be a self-contained, compact 24" x 24" maximum foot-print indoor vertical floor mounted dx water cooled precision air conditioner. The system shall include a water cooled tube-in-tube coaxial condenser and factory installed head pressure controlling 2-way water regulating valve rated 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 ship from the factory with a full operating refrigerant charge.

*(**Note:** Higher pressure and 3-way valves are optionally available, see option 2.4.2.)*

☐ 2.3.3 DX - Glycol Cooled Systems

☐ 2.3.3.1 DX - Glycol Cooled
(Self-Contained Systems)
VCG-( )



The system shall be a self-contained, compact 24" x 24" maximum foot-print indoor vertical floor mounted dx glycol cooled precision air conditioner. 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 temperature based on 40% ethylene 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 2.4.2.)*

☐ 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
VCC-( )

The system shall be a compact 24" x 24" maximum foot-print indoor vertical floor mounted chilled water precision air conditioner.

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 2-way (0-10Vdc) modulating control 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 Air Cooled Condenser - Low Ambient Control

☐ 2.4.1.1 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.

☐ 2.4.1.2 -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.

☐ 2.4.1.3 -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.

☐ 2.4.2 DX - Water/Glycol Cooled Reg. Valves

- ☐ **2.4.2.1 2-Way, 150 psig Reg. Valve**
- ☐ **2.4.2.2 3-Way, 150 psig Reg. Valve**
- ☐ **2.4.2.3 2-Way, 350 psig Reg. Valve**
- ☐ **2.4.2.4 3-Way, 350 psig Reg. Valve**

System head pressure shall be controlled by a factory provided 2-way water / glycol regulating valve rated for 350 psig w.w.p.

2.4.3 CONTROL OPTIONS

☐ 2.4.3.2 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.

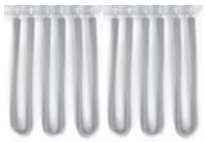
Select MC-2000 Options:

☐ 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)

2.4.4 HEAT OPTIONS

☐ 2.4.4.1 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/contactor 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.

☐ 2.4.4.1.1 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.

☐ 2.4.4.2 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.)*

☐ 2.4.4.3 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.

☐ 2.4.4.4 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.

☐ 2.4.4.5 Heat Pump Option

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

☐ 2.4.5 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.

2.5 Accessories

☐ 2.5.1 Plenum Discharge Box
(UF - Up-Flow Units)

A (2-way, 3-way or ducted) plenum

discharge box shall be provided for field installation to the top of the up-flow unit. The plenum box shall be 18.5 inches high, insulated and powder-coat painted to match the color of the unit.

☐ 2.5.2 Floor Stand

A ____ inch high floor stand shall be factory provided for field installation. The floor stand shall have adjustable legs with vibration isolation.

☐ 2.5.2.1 Turning Vanes

Turning vanes shall be factory provided with the floor stand to direct the discharge air either to the front or rear of the unit.

☐ 2.5.3 Condensate Pump
(Factory Installed)

A condensate pump shall be factory provided and installed within the indoor evaporator section. The condensate pump shall be provided with dual internal float switches: one for pump operation initiation and the other for pump reservoir overflow safety.

☐ 2.5.4 Hot Gas Bypass Systems

☐ 2.5.4.1 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.

☐ 2.5.4.2 Hot Gas Bypass To Suction Line with Quench Valve
(VCH/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 and desuperheating quench. 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.

☐ 2.5.5 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.

☐ 2.5.6 Main Power, Non-Fused Disconnects
(Remote Condenser Section)

The remote condensing unit (or condenser) shall be factory provided with a main power non-fused disconnect for field installation. The disconnect shall be NEMA rated for indoor or outdoor installation as required.

☐ 2.5.7 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.

☐ 2.5.8 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.

☐ 2.5.9 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.

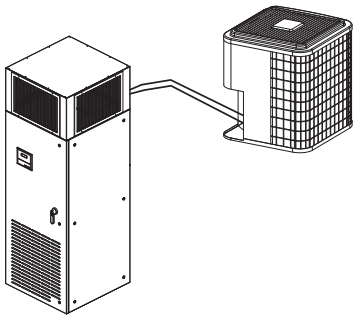
☐ 2.5.10 Flow Switch - Water/Glycol Condenser

A factory installed flow switch shall shut-down / lockout compressor operation prior to the high refrigerant pressure switch alarm upon sensing a loss or low dx condenser water/glycol flow. A flow switch alarm shall be indicated both via MC-2000 microprocessor display and auxililary dry-contact terminal connection.

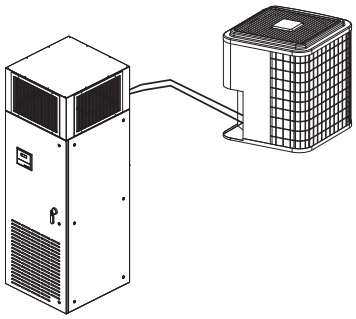
☐ 2.5.11 Compressor Acoustic / Sound Jacket

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.

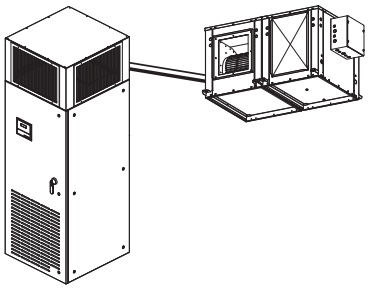
DX - Air Cooled



VCE & XP1 Models
DX - Split with Remote Outdoor Air Cooled Condenser
(compressor located in evaporator)

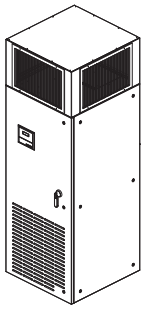


VCH & XPU Models
DX - Split Air Handling Unit with Remote Outdoor Air Cooled Condensing Unit
(compressor located in condensing unit)

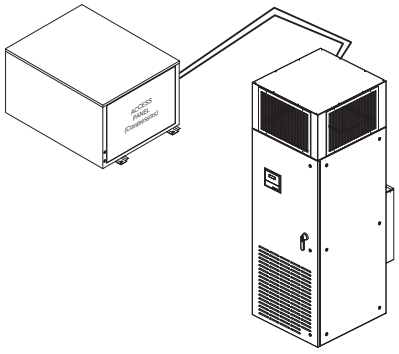


VCH & CCU or XCU Models
DX - Split Air Hanlding Unit with Remote Indoor Air Cooled Condensing Unit
(compressor located in condensing unit)

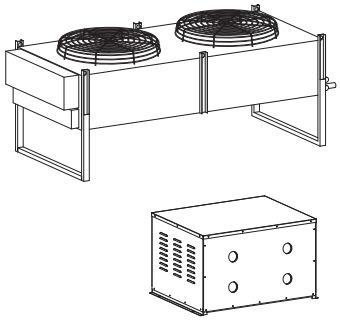
DX - Water/Glycol Cooled



VCW & VCG Models
DX - Self-Contained Water/Glycol Cooled

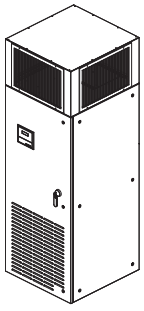


VCH & XWU/XGU Models
DX - Split Air Handling Unit with Remote Water/Glycol Cooled Condensing Unit
(compressor located in condensing unit)



FC_ & PA_ Models
Remote Indoor & Outdoor Glycol Drycoolers and Pump Packages

Chilled Water Systems

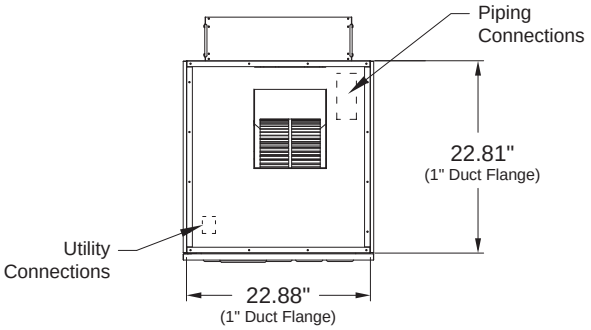


VCC Models
Chilled Water Air Handling Systems

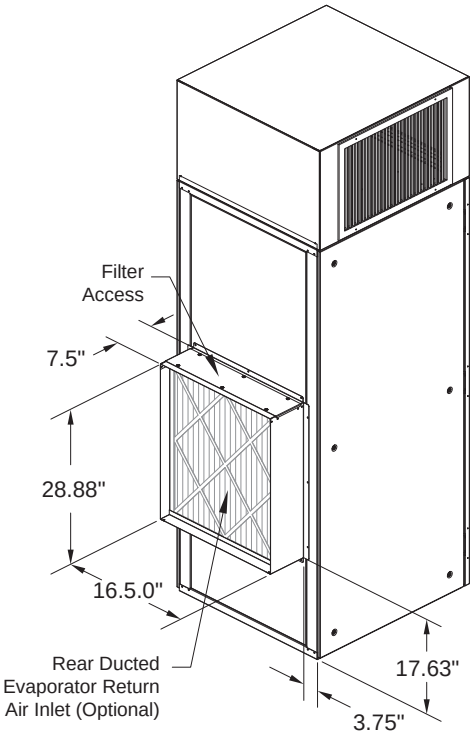
UP-FLOW: 1 thru 3 Tons

(VCE, VCH, VCW, VCG & VCC-012 thru 036-_-___-UF)

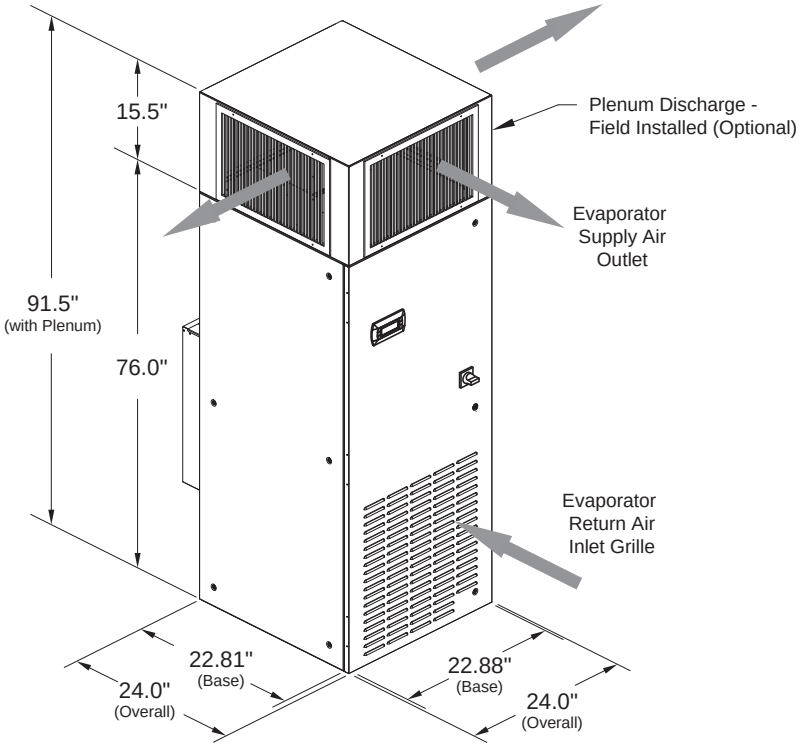
100% Front Access Only
(side panels also removable)



TOP
PLAN VIEW

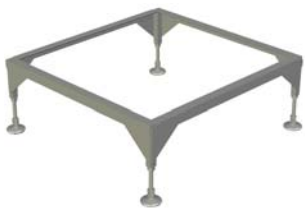


REAR / LEFT / TOP



FRONT / LEFT / TOP

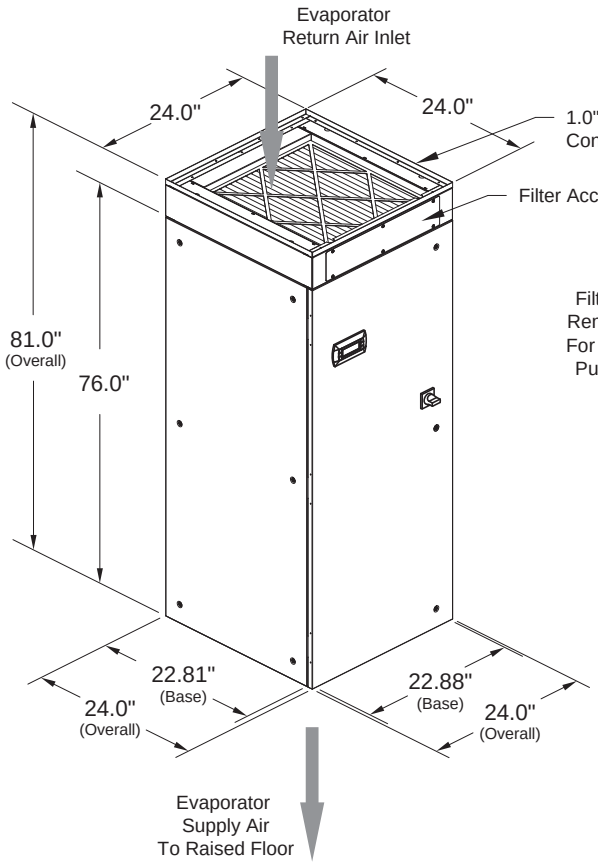
* Floor Stands Available - see page 19



DOWN-FLOW: 1 thru 3 Tons

(VCE, VCH, VCW, VCG & VCC-012 thru 036-_-___-DF)

100% Front Access Only
(side panels also removable)



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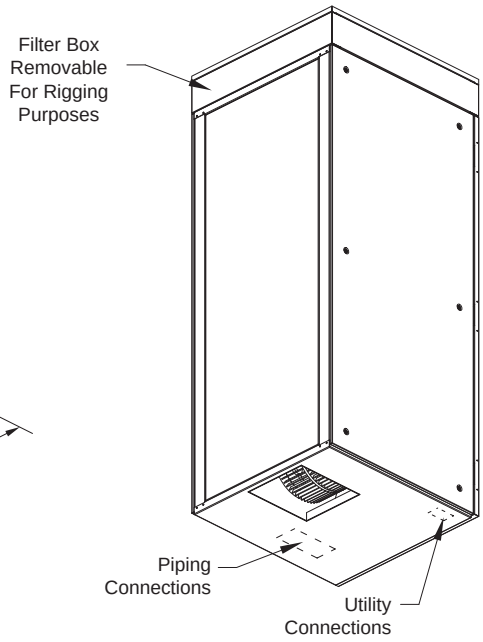

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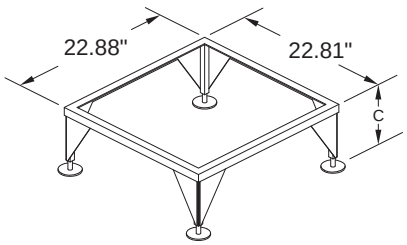
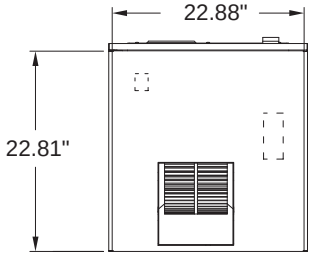


FLOOR STAND (OPTIONAL)

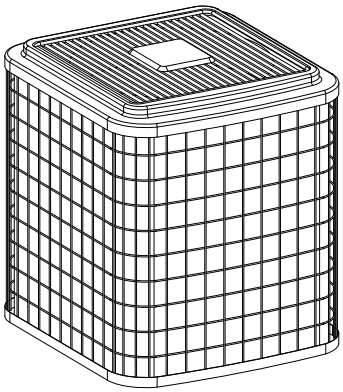


BOTTOM PLAN VIEW

Floor Stand Model	Nominal Height "C"
FS1-12	**12.0"** (9"-14" Adj.)
FS1-18	**18.0"** (15"-20" Adj.)
FS1-24	**24.0"** (21"-26" Adj.)

Note: *Turning Vanes, Seismic Rated and Custom Height Floor Stands are optionally available.*

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



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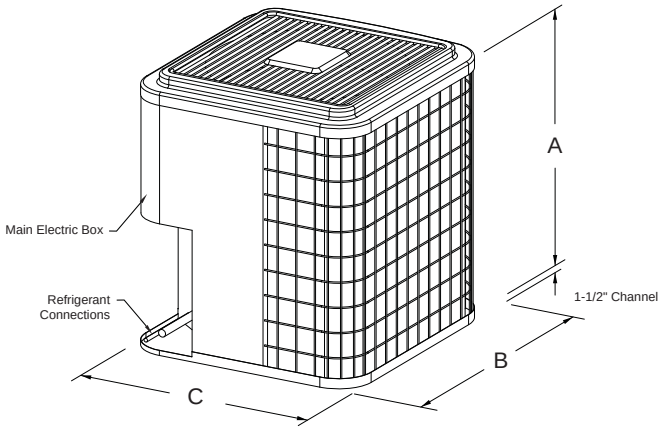
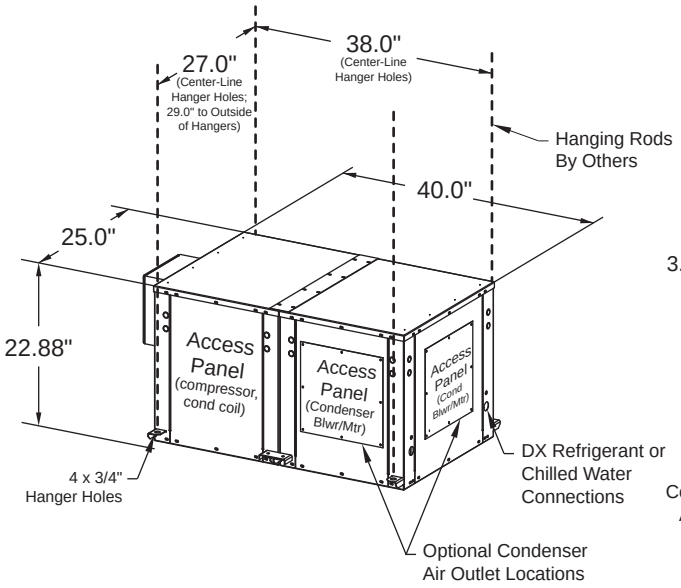


REAR / LEFT / TOP

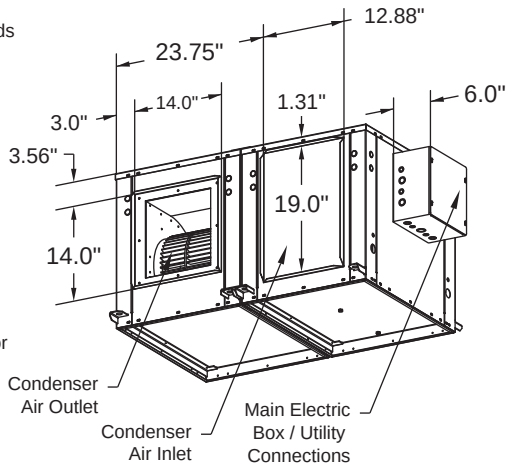
XPU & XP1-( ) Model Size	Dimensions		
	A	B	C
XPU & XP1-012 & 018	25-5/16"	23-1/8"	23-1/8"
XPU & XP1-024	28-11/16"	23-1/8"	23-1/8"
XPU & XP1-030	31-3/16"	25-3/4"	25-3/4"
XPU & XP1-036	32-5/16"	31-3/16"	31-3/16"

1-2.5 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 030

3-Side Access:
18"-24" on Front, Left & Right Sides!



Front / Right / Top

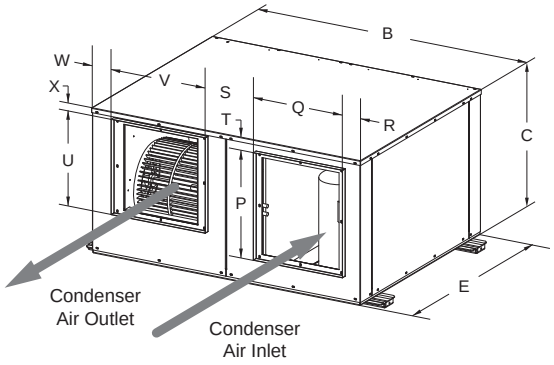


Rear / Left / Bottom

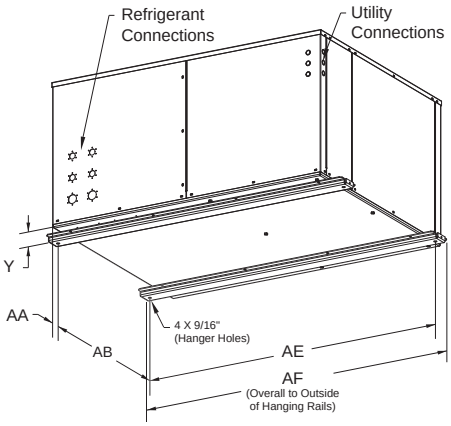
Belt-Driven: 1-3 Tons, Indoor Ceiling Mtd, Centrifugal Blower DX Air Cooled, Remote Condensing Units & Condensers

Models: XCU & XCX-012 thru 036

2-Side Access:
18"-24" on Left & Right Sides!



FRONT / RIGHT / TOP



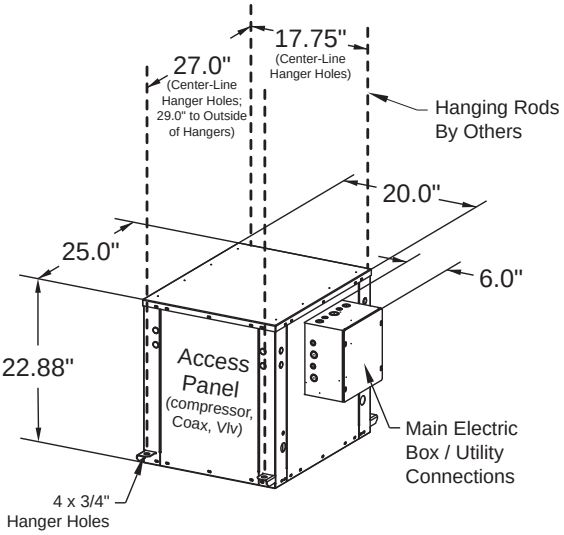
REAR / LEFT / BOTTOM

DIMENSIONS(inches)																	
XCU & XCX-( ) Model No.	**B**	**C**	**E**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**AA**	**AB**	**AE**	**AF**
012, 018, 024, 030 & 036	44	22	34	16	16	2-3/4	6-7/8	2	16	16	2-3/8	1-5/16	1	5	24	47-1/2	50

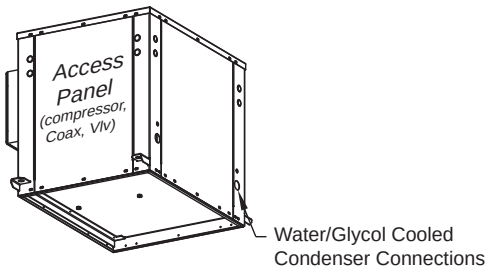
1-3 Tons, Indoor, DX Water/Glycol Cooled, Remote Condensing Units

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

VC	H	-	036	-	3	-	E1	H	-	UF
a	b	-	c	-	d	-	e	f	-	g

a: **VC** - VK-MissionCritical Series

b:
- **C** - Chilled Water, Air Handling Unit
- **E** - Split, DX - Evaporator
- **G** - Packaged, DX - Glycol Cooled
- **H** - Split, DX - Air Handling Unit
- **W** - Packaged, DX - Water Cooled

c: **Nom. Cooling Capacity: 012** = 1.0 Tons; **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

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

g:
- **UF** - Up-Flow Air Pattern
- **DF** - Down-Flow Air Pattern

Heat Rejection Systems

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

a:
- **C** - SC™ Series Remote Heat Exchanger
- **X** - HK™ 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:
- **1** - DX, Single Circuit Remote Outdoor Condenser
- **U** - DX, Remote Condensing Unit
- **X** - DX, Remote Condenser

d: **Nom. Heat Rej. Capacity: 012** = 1.0 Tons; **018** = 1.5 Tons; **024** = 2.0 Tons; **036** = 3.0 Tons & **042** = 3.5 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

f:
- **00** - None
- **HP** - Heat Pump

Approximate Unit Ship Weights (lbs.)

UNIT SIZE	MODEL TYPE										
	VCH	VCE	CCU	CCX	XCU	XCX	XPU	XP1	VCW & VCG	CWU & CGU	VCC
012	345	445	195	160	325	235	110	65	465	125	345
018	345	445	215	160	345	235	115	70	465	145	345
024	355	455	215	160	355	250	120	75	465	145	355
030	355	460	230	160	360	340	145	95	475	150	355
036	355	460	230	N/A	360	340	180	120	475	150	355

AboveAir Technologies

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)

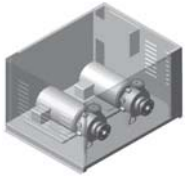
Comfort - Packaged & Split Vertical Floor Mounted Air Conditioners
(1 to 45 Tons)

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)



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Specifications are subject to change without notice.