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

MEA229-06-E Approved

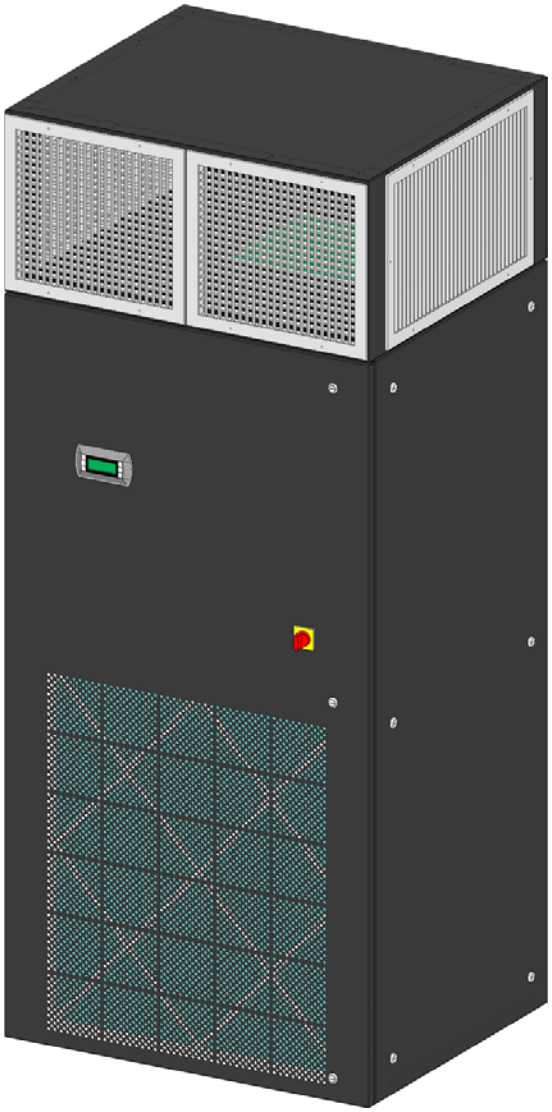
MissionCritical™

7 by 24 Precision

Vertical Floor Mounted A/C's

(Single Circuit DX & CW)

R407C & R410a Data



Features & Benefits

- 3.5 to 10 Ton Capacities (Modular to 20 Tons)
- *Precision Applications*
  - Computer Rooms
  - Telecom Rooms
  - Server Rooms
- Compact Vertical Floor Mounted Upflow & Downflow Configurations
- DX Air, Water & Glycol Cooled, Chilled Water & Free-Cooling
- Total Temp & Humidity Control
  - Steam Humidifier
  - Reheat/Heat via Electric, Hot Gas, Hot Water or Steam
- Microprocessor Controls & More!

AboveAir Technologies

3.5 to 10 Tons
(Modular to 20 Tons)
"Floor Mounted Precision A/C's"

AboveAir™ MissionCritical™ vertical floor mounted precision air conditioners are the reliable 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™*** Air Conditioners are a step above!

- ☑ **R410a or Optional R407c Refrigerant**
- ☑ **100% Front-Access cabinet design**

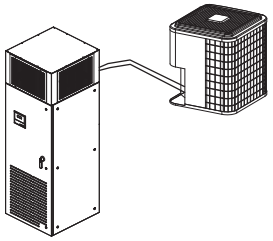
  (Saves Up To 18 Ft² of Valuable Floor Space)
- ☑ **Total Temperature & Humidity Control**
- ☑ **Up-Flow & Down-Flow air patterns**
- ☑ **Variety of cooling methods**
- ☑ **Self-contained & split systems**
- ☑ **Flexible options and accessories**
- ☑ **Energy efficient operation**

Contents

DX - Air Cooled

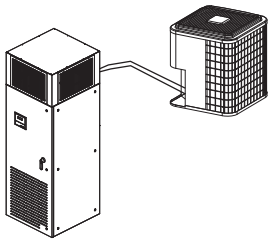
VCH & XPU-( )

DX - Air Cooled Split with Propeller Fan, Outdoor Remote Condensing Unit



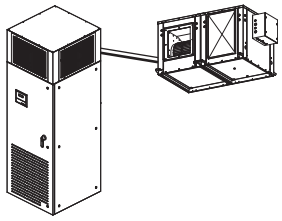
VCE & XP1-( )

DX - Air Cooled Split with Propeller Fan, Outdoor Remote Condenser



VCH/E & XCU/XCX -( )

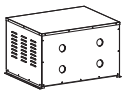
DX - Air Cooled Split with Centrifugal Blower, indoor Remote Condensing Unit & Condensers

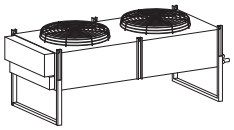


DX - Water/Glycol Cooled

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

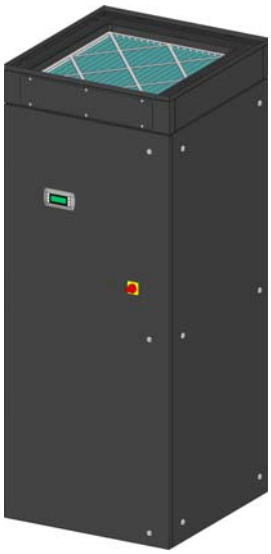
VCC-( )

Chilled Water Air Handling Units

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:

3.5 to 10 Tons
Single Circuit DX &
Chilled Water

Free-Cooling Econo & Dual-Cool!



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 BD High Static 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
- Top or Bottom Piping Connections

Accessories:

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

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MEA229-06-E

DX-Air Cooled Data (*Mission*Critical™) - 3.5 to 10 Tons

	Nominal Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
	Air Cooled Model		**VCE & VCH-042**	**VCE & VCH-060**	**VCE & VCH-072**	**VCE & VCH-096**	**VCE & VCH-120**
AIR COOLED DX STD CFM	**80°F DB / 67°F WB, 50% RH**						
	Total	BTUH	43,000	69,200	82,700	107,400	132,500
	Sensible	BTUH	38,700	59,200	67,400	81,300	98,700
	75°F DB / 62.5°F WB, 50% RH						
	Total	BTUH	39,600	63,500	75,900	98,700	121,300
	Sensible	BTUH	38,000	58,600	66,700	81,500	97,100
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	39,200	62,000	73,700	95,800	118,400
	Sensible	BTUH	38,600	62,000	71,700	87,100	104,200
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	37,800	60,600	72,300	94,100	115,500
	Sensible	BTUH	37,000	57,400	65,400	79,800	95,100
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	37,600	59,800	70,300	91,200	112,800
	Sensible	BTUH	37,300	59,300	69,900	85,500	102,200
AIR COOLED DX OPT CFM	**75°F DB / 62.5°F WB, 50% RH**						
	Total	BTUH	41,100	63,000	75,000	100,400	122,900
	Sensible	BTUH	40,900	60,000	69,700	86,500	101,700
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	41,100	62,300	73,600	97,500	120,100
	Sensible	BTUH	41,100	61,800	73,000	92,700	109,400
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	39,400	60,000	71,400	95,700	118,000
	Sensible	BTUH	39,100	58,600	68,100	84,800	101,100
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	39,300	59,700	70,600	92,900	114,500
	Sensible	BTUH	39,300	59,400	70,100	90,800	107,300

COMPONENT DATA

AIR COOLED DX	**Electric Reheat / Heat** - BTUH includes evaporator motor heat, **(Optional)**						
	Capacity	BTUH	35,920	37,635	55,880	58,175	58,175
		KW	10.5	11.0	16.4	17.0	17.0
	Stages	NO	1	1	2	2	2
	Steam Canister Humidifier - (Optional)						
	Steam Canister	LBS/HR	10	10	15	15	15
	Evaporator Blower / Motor - Adjustable Belt-Drive, DWDI Centrifugal						
	Std Airflow Rate	CFM	1,800	2,800	3,200	3,800	4,400
	Std Blower Motor	HP	3/4	1-1/2	2	3	3
	Opt Airflow Rate	*CFM*	*2,300*	*3,000*	*3,600*	*4,200*	*4,800*
	Opt Blower Motor	*HP*	*1*	*2*	*3*	*3*	*5*
	E.S.P.	IN WG	0.5	0.5	0.5	0.5	0.5
	Blower Diameter	IN	12 X 9	12 X 9	12 X 12	12 X 12	12 X 12
	Evaporator Coil - Aluminum Fin, Copper Tube						
	Rows	NO	4	4	4	4	4
	Face Area	FT^2	6.3	6.3	9.7	9.7	9.7
	Face Velocity	FPM	288	448	330	391	453
	Filters - 4", 30% Dust Spot Efficient						
	Nominal Size	(NO) IN	(1) 25 x 29 x 4	(1) 25 x 29 x 4	(1) 37 x 33 x 4	(1) 37 x 33 x 4	(1) 37 x 33 x 4
	Compressor - Heat Pump Duty, SCROLL						
	Qty., Horsepower	(NO) HP	(1) 3.0	(1) 5.0	(1) 6.0	(1) 8.0	(1) 10.0
	Connection Sizes						
	Condensate Drain	OD 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

Heat Rejection Data - DX Air Cooled

Nominal Size / Model Size		3.5 Tons 042	5.0 Tons 060	6.0 Tons 072	8.0 Tons 096	10.0 Tons 120
DX - AIR COOLED CONDENSER DATA						
AIR COOLED DX						
Outdoor, Remote Propeller Fan Air Cooled Condensing Units & Condensers - (XPU & XP1 models)						
Remote Condensing Unit Model		**XPU-048**	**XPU-060**	**XPU-072**	**XPU-096**	**XPU-120**
Remote Condenser Model		**XP1-048**	**XP1-060**	**XP1-072**	**XP1-096**	**XP1-120**
Airflow Rate	CFM	3,365	3,365	6,000	6,000	6,000
	IN ESP	Free Discharge	Free Discharge	Free Discharge	Free Discharge	Free Discharge
Blower Motor	HP	(1) 1/4	(1) 1/4	(1) 1	(1) 1	(1) 1
Fan Type		DD - Propeller	DD - Propeller	DD - Propeller	DD - Propeller	DD - Propeller
Coil Face Area	FT^2	19.4	15.09	25.0	25.0	25.0
Rows	NO	1	2	2	2	2
Indoor, Remote Centrifugal Blower Air Cooled Condenser & Condensing Unit Data - (XCU & XCX Models)						
Remote Condensing Unit Model		**XCU-042**	**XCU-060**	**XCU-072**	**XCU-096**	**XCU-120**
Remote Condenser Model		**XCX-042**	**XCX-060**	**XCX-072**	**XCX-096**	**XCX-120**
Airflow Rate	CFM	2,500	3,250	3,800	4,500	6,500
	IN ESP	1.0	1.0	1.0	1.0	1.0
Blower Motor	HP	1	1-1/2	2	3	5
Blower Diameter	IN	15 x 10	15 x 10	15 x 15	15 x 15	15 x 15
Blower Type		BD - Centrifugal	BD - Centrifugal	BD - Centrifugal	BD - Centrifugal	BD - Centrifugal
Coil Face Area	FT^2	6.5	6.5	9.7	9.7	9.7
Rows	NO	4	4	6	6	6

Connection Data - DX Air Cooled

Nominal Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
DX - AIR COOLED REFRIGERANT CONNECTION DATA						
DX Air Cooled						
DX Split, Indoor Evaporators - (VCE models)						
Model		**VCE-042**	**VCE-060**	**VCE-072**	**VCE-096**	**VCE-120**
Liquid Line, (Qty.)	OD IN (NO)	3/8, (1)	1/2, (1)	1/2, (1)	1/2, (1)	5/8, (1)
Hot Gas Line, (Qty.)	OD IN (NO)	1/2, (1)	5/8, (1)	5/8, (1)	7/8, (1)	1-1/8, (1)
Outdoor, Propeller Fan Remote Air Cooled Condenser - (XP1 models)						
Model - 95°F Amb Condenser		**XP1-042**	**XP1-060**	**XP1-072**	**XP1-096**	**XP1-120**
Liquid Line, (Qty.)	OD IN (NO)	3/8, (1)	3/8, (1)	5/8, (1)	5/8, (1)	5/8, (1)
Hot Gas Line, (Qty.)	OD IN (NO)	7/8, (1)	1-1/8, (1)	1-1/8, (1)	1-3/8, (1)	1-3/8, (1)
DX Split, Indoor Air Handling Units - (VCH models)						
Model		**VCH-042**	**VCH-060**	**VCH-072**	**VCH-096**	**VCH-120**
Liquid Line, (Qty.)	OD IN (NO)	3/8, (1)	1/2, (1)	1/2, (1)	1/2, (1)	5/8, (1)
Suction Line, (Qty.)	OD IN (NO)	7/8, (1)	7/8, (1)	7/8, (1)	1-1/8, (1)	1-1/8, (1)
Outdoor, Propeller Fan Remote Air Cooled Condensing Units - (XPU models)						
Model - 95°F Amb Cond Unit		**XPU-042**	**XPU-060**	**XPU-072**	**XPU-096**	**XPU-120**
Liquid Line, (Qty.)	ID IN (NO)	3/8, (1)	3/8, (1)	5/8, (1)	5/8, (1)	5/8, (1)
Suction Line, (Qty.)	ID IN (NO)	7/8, (1)	7/8, (1)	1-3/8, (1)	1-3/8, (1)	1-3/8, (1)

DX-Water Cooled Data (*MissionCritical*™) - 3.5 to 10 Tons

	Nominal Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
	Water Cooled Model		**VCW-042**	**VCW-060**	**VCW-072**	**VCW-096**	**VCW-120**
WATER COOLED DX STD CFM	**80°F DB / 67°F WB, 50% RH**						
	Total	BTUH	45,800	74,000	87,900	114,300	141,100
	Sensible	BTUH	39,400	60,800	69,300	84,500	102,400
	75°F DB / 62.5°F WB, 50% RH						
	Total	BTUH	42,200	67,900	80,700	104,700	129,700
	Sensible	BTUH	39,200	60,200	68,500	83,300	100,700
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	41,600	66,100	78,400	102,300	126,200
	Sensible	BTUH	40,600	64,600	73,600	89,800	108,200
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	40,300	64,800	77,000	99,900	123,700
	Sensible	BTUH	38,400	59,100	67,300	81,700	98,700
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	39,900	63,100	74,700	97,600	120,600
	Sensible	BTUH	39,300	63,000	72,300	88,300	106,000
WATER COOLED DX OPT CFM	**75°F DB / 62.5°F WB, 50% RH**						
	Total	BTUH	43,800	67,500	80,000	107,300	131,200
	Sensible	BTUH	42,900	61,700	71,600	89,700	105,500
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	43,600	65,700	77,800	104,200	128,300
	Sensible	BTUH	43,500	65,700	76,800	95,500	113,200
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	42,000	64,300	76,200	102,400	125,300
	Sensible	BTUH	41,400	60,500	70,100	87,800	103,400
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	41,800	63,400	74,200	99,500	122,500
	Sensible	BTUH	41,800	62,900	74,200	93,800	111,000

COMPONENT DATA

WATER COOLED DX	**Electric Reheat / Heat** - BTUH includes evaporator motor heat, **(Optional)**						
	Capacity	BTUH	35,920	37,635	55,880	58,175	58,175
		KW	10.5	11.0	16.4	17.0	17.0
	Stages	NO	1	1	2	2	2
	Steam Canister Humidifier - **(Optional)**						
	Steam Canister	LBS/HR	10	10	15	15	15
	Evaporator Blower / Motor - Adjustable Belt-Drive, DWDI Centrifugal						
	Std Airflow Rate	CFM	1,800	2,800	3,200	3,800	4,400
	Std Blower Motor	HP	3/4	1-1/2	2	3	3
	Opt Airflow Rate	*CFM*	*2,300*	*3,000*	*3,600*	*4,200*	*4,800*
	Opt Blower Motor	*HP*	*1*	*2*	*3*	*3*	*5*
	E.S.P.	IN WG	0.5	0.5	0.5	0.5	0.5
	Blower Diameter	IN	12 X 9	12 X 9	12 X 12	12 X 12	12 X 12
	Evaporator Coil - Aluminum Fin, Copper Tube						
	Rows	NO	4	4	4	4	4
	Face Area	FT^2	6.3	6.3	9.7	9.7	9.7
	Face Velocity	FPM	288	448	330	391	453
	Filters - 4", 30% Dust Spot Efficient						
	Nominal Size	(NO) IN	(1) 25 x 29 x 4	(1) 25 x 29 x 4	(1) 37 x 33 x 4	(1) 37 x 33 x 4	(1) 37 x 33 x 4
	Compressor - Heat Pump Duty, SCROLL						
	Qty., Horsepower	(NO) HP	(1) 3.0	(1) 5.0	(1) 6.0	(1) 8.0	(1) 10.0
	Connection Sizes						
	Condenser Water In/Out	OD IN	7/8	1-1/8	1-3/8	1-3/8	1-3/8
	Condensate Drain	OD 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

Heat Rejection Data - DX Water Cooled

	Nominal Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
DX Water Cooled	**Water Cooled Model**		**VCW-042**	**VCW-060**	**VCW-072**	**VCW-096**	**VCW-120**
	Water Cooled Condenser Data - 85°F EWT / 95°F LWT, 0% Glycol Solution *(rated at 75°F DB/72°F WB EAT, Optional Evap CFM)*						
	Total Heat of Reject.	BTUH	53,960	84,640	103,700	136,050	165,470
	Flow @ 85°F EWT	GPM	10.8	16.9	20.7	27.2	33.1
	Pressure Drop	FT WG	12.5	29.0	16.0	22.0	29.0
	Condenser Type		Coaxial	Coaxial	Brazed-Plate	Brazed-Plate	Brazed-Plate

Optional Free-Cooling Economizer Data DX Water Cooled

	Nominal Unit Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
Free-Cool (45°F EWT) 0% Glycol Std CFM	**FE Free-Cool (0% Glycol) Model:**		**VCW-042-FE**	**VCW-060-FE**	**VCW-072-FE**	**VCW-096-FE**	**VCW-120-FE**
	80°F DB / 67°F WB, 50% RH						
	Total / Sensible	MBH	56.3 / 42.4	84.7 / 63.8	114.5 / 80.9	137.1 / 95.9	156.9 / 109.7
	75°F DB / 62.5°F WB, 50% RH						
	Total / Sensible	MBH	45.1 / 39.3	67.7 / 59.1	90.2 / 73.8	107.6 / 87.3	123.0 / 99.7
	72°F DB / 60°F WB, 50% RH						
	Total / Sensible	MBH	39.3 / 37.1	58.9 / 55.7	77.7 / 68.9	92.4 / 81.4	105.5 / 93.0
	Flow Rate, (PD)	GPM / FT WG	10.3 / 1.1	16.8 / 2.7	20.4 / 4.8	26.7 / 7.7	32.8 / 11.1
Free-Cool (45°F EWT) 0% Glycol OPT CFM	**75°F DB / 62.5°F WB, 50% RH**						
	Total / Sensible	MBH	51.6 / 47.4	70.0 / 62.0	96.4 / 80.5	114.1 / 94.0	128.9 / 106.2
	72°F DB / 60°F WB, 50% RH						
	Total / Sensible	MBH	45.4 / 44.9	61.2 / 58.6	83.4 / 75.5	98.3 / 87.9	111.0 / 99.3
	Flow Rate, (PD)	GPM / FT WG	10.8 / 1.2	16.9 / 2.7	20.7 / 4.9	27.2 / 8.0	33.1 / 11.3

COMPONENT DATA: FREE-COOLING ECONOMIZER SYSTEMS

"FE" Free-Cool Econo Systems	**Evaporator Blower / Motor** - Adjustable Belt-Drive, DWDI Centrifugal						
	Std Airflow Rate	CFM	1,800	2,800	3,200	3,800	4,400
	Std FE Blower Motor	HP	1	2	3	3	5
	Opt Airflow Rate	*CFM*	*2,300*	*3,000*	*3,600*	*4,200*	*4,800*
	Opt FE Blower Motor	*HP*	*1-1/2*	*2*	*3*	*3*	*5*
	E.S.P.	IN WG	0.5	0.5	0.5	0.5	0.5
	Blower Diameter	IN	12 X 9	12 X 9	12 X 12	12 X 12	12 X 12
	FE Free-Cooling Economizer Coil - Aluminum Fin, Copper Tube						
	Rows	NO	4	4	4	4	4
	Face Area / Velocity	FT^2 / FPM	6.1 / 297	6.1 / 461	9.7 / 330	9.7 / 390	9.7 / 453
	Control Valve						
	Standard Valve		2-Way	2-Way	2-Way	2-Way	2-Way
	Valve Size, (Cv)	IN	1, (8.0)	1, (8.0)	1, (11.6)	1, (11.6)	1, (11.6)
	Max Opr Press	PSIG	300	300	400	400	400
	Connection Sizes						
	Water In/Out	OD IN	1-1/8	1-1/8	1-5/8	1-5/8	1-5/8

DX-Glycol Cooled Data (*MissionCritical*™) - 3.5 to 10 Tons

	Nominal Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
	Glycol Cooled Model		**VCG-042**	**VCG-060**	**VCG-072**	**VCG-096**	**VCG-120**
GLYCOL COOLED DX STD CFM	**80°F DB / 67°F WB, 50% RH**						
	Total	BTUH	41,000	65,800	79,000	102,100	126,500
	Sensible	BTUH	38,000	58,100	66,100	79,600	96,000
	75°F DB / 62.5°F WB, 50% RH						
	Total	BTUH	37,700	60,300	72,400	94,000	115,500
	Sensible	BTUH	37,000	57,400	65,400	79,400	94,500
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	37,500	59,600	70,500	91,100	112,700
	Sensible	BTUH	37,200	59,000	70,000	85,200	101,700
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	36,200	57,400	68,900	89,500	110,600
	Sensible	BTUH	35,200	56,000	64,100	77,800	93,800
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	36,000	57,100	67,800	86,700	107,200
	Sensible	BTUH	35,800	56,800	66,900	83,500	99,700
GLYCOL COOLED DX OPT CFM	**75°F DB / 62.5°F WB, 50% RH**						
	Total	BTUH	39,400	59,800	71,400	95,600	117,900
	Sensible	BTUH	39,100	58,500	68,300	84,600	100,400
	75°F DB / 61°F WB, 45% RH						
	Total	BTUH	39,300	59,400	70,700	92,800	114,300
	Sensible	BTUH	39,300	59,200	70,100	90,600	106,900
	72°F DB / 60°F WB, 50% RH						
	Total	BTUH	37,700	56,900	68,000	91,000	112,300
	Sensible	BTUH	37,500	56,800	66,700	82,800	98,200
	72°F DB / 58.5°F WB, 45% RH						
	Total	BTUH	37,700	56,900	67,600	88,400	108,800
	Sensible	BTUH	37,700	56,800	67,400	88,400	104,700

COMPONENT DATA

GLYCOL COOLED DX	**Electric Reheat / Heat** - BTUH includes evaporator motor heat, **(Optional)**						
	Capacity	BTUH	35,920	37,635	55,880	58,175	58,175
		KW	10.5	11.0	16.4	17.0	17.0
	Stages	NO	1	1	2	2	2
	Steam Canister Humidifier - **(Optional)**						
	Steam Canister	LBS/HR	10	10	15	15	15
	Evaporator Blower / Motor - Adjustable Belt-Drive, DWDI Centrifugal						
	Std Airflow Rate	CFM	1,800	2,800	3,200	3,800	4,400
	Std Blower Motor	HP	3/4	1-1/2	2	3	3
	Opt Airflow Rate	*CFM*	*2,300*	*3,000*	*3,600*	*4,200*	*4,800*
	Opt Blower Motor	*HP*	*1*	*2*	*3*	*3*	*5*
	E.S.P.	IN WG	0.5	0.5	0.5	0.5	0.5
	Blower Diameter	IN	12 X 9	12 X 9	12 X 12	12 X 12	12 X 12
	Evaporator Coil - Aluminum Fin, Copper Tube						
	Rows	NO	4	4	4	4	4
	Face Area	FT^2	6.3	6.3	9.7	9.7	9.7
	Face Velocity	FPM	288	448	330	391	453
	Filters - 4", 30% Dust Spot Efficient						
	Nominal Size	(NO) IN	(1) 25 x 29 x 4	(1) 25 x 29 x 4	(1) 37 x 33 x 4	(1) 37 x 33 x 4	(1) 37 x 33 x 4
	Compressor - Heat Pump Duty, SCROLL						
	Qty., Horsepower	(NO) HP	(1) 3.0	(1) 5.0	(1) 6.0	(1) 8.0	(1) 10.0
	Connection Sizes						
	Condenser Glycol In/Out	OD IN	7/8	1-1/8	1-3/8	1-3/8	1-3/8
	Condensate Drain	OD 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

Heat Rejection Data - DX Glycol Cooled

	Nominal Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
DX Glycol Cooled	**Glycol Cooled Model**		**VCG-042**	**VCG-060**	**VCG-072**	**VCG-096**	**VCG-120**
	Glycol Cooled Condenser Data - 110°F EGT / 120°F LGT, 40% Ethylene Glycol Solution, *75°F DB/72°F WB EAT, Optional Evap CFM*						
	Total Heat of Reject.	BTUH	52,490	82,360	100,860	132,195	161,900
	Flow @ 110°F EGT	GPM	11.6	18.2	22.3	29.2	35.8
	Unit Pressure Drop	FT WG	13.0	31.0	18.0	24.0	32.0
	Condenser Type		Coaxial	Coaxial	Brazed-Plate	Brazed-Plate	Brazed-Plate
	Standard (Optional) Valve		*2-Way, 150 PSIG Standard (High Pressure and 3-Way Valves are Optionally Available)*				
	Remote Outdoor Propeller Fan Glycol Drycooler Data - 110°F EGT / 120°F LGT, 40% Ethylene Glycol Solution						
	Drycooler Model - 95°F Amb		**FCP-052-1S**	**FCP-080-2S**	**FCP-100-2S**	**FCP-131-2S**	**FCP-186-2S**
	Flow @ 110°F EGT	GPM	11.6	18.2	22.3	29.2	35.8
	Unit Pressure Drop	FT WG	7.0	7.8	6.2	6.5	9.5
	Air Flow Rate	CFM	3,850	8,550	7,700	15,400	15,000
	Fan Hp, (Qty)	HP, (NO)	1/2, (one)	1/2, (two)	1/2, (two)	1, (two)	1, (two)
	Glycol Pump Package Data - 40% Ethylene Glycol Solution						
	Single Pump Model		**PA1-007**	**PA1-007**	**PA1-010**	**PA1-015**	**PA1-015**
	Motor Horsepower	HP	3/4	3/4	1	1-1/2	1-1/2
	Total Available HD	FT WG	55	55	60	70	70
	Optional Drycoolers & Pumps		*See AboveAir™ FluidCool / PumpAll™ Engineering Manual for Full Drycooler/Pump Offering*				

Optional Free-Cooling Economizer Data

	Nominal Unit Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
	FE Free-Cool (40% Glycol) Model:		**VCG-042-FE**	**VCG-060-FE**	**VCG-072-FE**	**VCG-096-FE**	**VCG-120-FE**
Free-Cool (45°F EGT) 40% Glycol Std CFM	**75°F DB / 62.5°F WB, 50% RH**						
	Total / Sensible	MBH	34.8 / 34.8	48.1 / 48.1	68.1 / 64.8	85.9 / 78.4	101.0 / 90.7
	72°F DB / 60°F WB, 50% RH						
	Total / Sensible	MBH	31.2 / 31.2	43.3 / 43.3	60.1 / 60.1	75.3 / 74.2	88.4 / 85.8
	Flow Rate, (PD)	GPM / FT WG	11.1 / 1.8	18.1 / 4.3	22.0 / 7.6	28.9 / 12.3	35.3 / 17.5
Free-Cool (45°F EGT) 40% Glycol OPT CFM	**75°F DB / 62.5°F WB, 50% RH**						
	Total / Sensible	MBH	39.1 / 39.1	49.8 / 49.8	72.4 / 70.9	90.4 / 84.4	105.7 / 96.7
	72°F DB / 60°F WB, 50% RH						
	Total / Sensible	MBH	35.2 / 35.2	44.9 / 44.9	64.3 / 64.3	79.6 / 79.6	92.9 / 91.7
	Flow Rate, (PD)	GPM / FT WG	11.6 / 2.0	18.2 / 4.3	22.3 / 7.8	29.2 / 12.5	35.8 / 17.9

COMPONENT DATA: FREE-COOLING ECONOMIZER SYSTEMS

"FE" Free-Cool Econo Systems	**Evaporator Blower / Motor** - Adjustable Belt-Drive, DWDI Centrifugal						
	Std Airflow / ESP	CFM / IN WG	1,800 @ 0.5	2,800 @ 0.5	3,200 @ 0.5	3,800 @ 0.5	4,400 @ 0.5
	Std FE Blower Motor	HP	1	2	3	3	5
	Opt Airflow Rate	*CFM / IN WG*	*2,300 @ 0.5*	*3,000 @ 0.5*	*3,600 @ 0.5*	*4,200 @ 0.5*	*4,800 @ 0.5*
	Opt FE Blower Motor	*HP*	*1-1/2*	*2*	*3*	*3*	*5*
	FE Free-Cooling Economizer Coil - Aluminum Fin, Copper Tube						
	Rows	NO	4	4	4	4	4
	Face Area / Velocity	FT^2 / FPM	6.1 / 297	6.1 / 461	9.7 / 330	9.7 / 390	9.7 / 453
	Control Valve						
	Standard Valve	TXT, PSIG	2-Way, 300	2-Way, 300	2-Way, 400	2-Way, 400	2-Way, 400
	Valve Size, (Cv)	IN, (Cv)	1, (8.0)	1, (8.0)	1, (11.6)	1, (11.6)	1, (11.6)
	Connection Sizes						
	Glycol In/Out	OD IN	1-1/8	1-1/8	1-5/8	1-5/8	1-5/8

Chilled Water System Data (*MissionCritical*™) - 3.5 to 10 Tons

	Nominal Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
	Chilled Water System Model		**VCC-042**	**VCC-060**	**VCC-072**	**VCC-096**	**VCC-120**
CHILLED WATER SYSTEMS (45°F EWT) STD CFM	**80°F DB / 67°F WB, 50% RH**						
	Total / Sensible	MBH	60.9 / 44.3	85.6 / 64.1	122.1 / 84.0	139.3 / 96.8	154.4 / 108.7
	Flow Rate, (PD)	GPM / FT WG	12.2 / 1.5	17.2 / 2.8	24.5 / 6.6	28.0 / 8.4	31.0 / 10.0
	75°F DB / 62.5°F WB, 50% RH						
	Total / Sensible	MBH	40.0 / 37.3	58.4 / 55.3	84.7 / 71.5	97.0 / 82.9	108.4 / 93.7
	Flow Rate, (PD)	GPM / FT WG	8.0 / 0.7	11.7 / 1.4	17.0 / 3.5	19.5 / 4.4	21.8 / 5.4
	75°F DB / 61°F WB, 45% RH						
	Total / Sensible	MBH	38.0 / 38.0	56.2 / 56.2	77.9 / 74.5	89.7 / 86.6	100.7 / 98.3
	Flow Rate, (PD)	GPM / FT WG	7.6 / 0.7	11.3 / 1.3	15.6 / 3.0	18.0 / 3.9	20.2 / 4.7
	72°F DB / 60°F WB, 50% RH						
	Total / Sensible	MBH	31.0 / 31.0	47.3 / 47.3	67.8 / 64.8	78.2 / 75.4	87.8 / 85.6
	Flow Rate, (PD)	GPM / FT WG	6.2 / 0.5	9.5 / 1.0	13.6 / 2.4	15.7 / 3.0	17.6 / 3.7
	72°F DB / 58.5°F WB, 45% RH						
	Total / Sensible	MBH	30.9 / 30.9	47.2 / 47.2	64.9 / 64.9	75.3 / 75.3	85.1 / 85.1
	Flow Rate, (PD)	GPM / FT WG	6.2 / 0.5	9.5 / 1.0	13.0 / 2.2	15.1 / 2.8	17.1 / 3.5
CHILLED WATER SYSTEMS (45°F EWT) OPT CFM	**75°F DB / 62.5°F WB, 50% RH**						
	Total / Sensible	MBH	49.9 / 46.6	61.8 / 58.7	93.0 / 79.1	104.6 / 90.1	115.5 / 100.7
	Flow Rate, (PD)	GPM / FT WG	10.0 / 1.1	12.4 / 1.6	18.7 / 4.1	21.0 / 5.1	23.2 / 6.0
	75°F DB / 61°F WB, 45% RH						
	Total / Sensible	MBH	47.4 / 47.4	59.4 / 59.4	85.8 / 82.6	97.2 / 94.5	107.8 / 105.9
	Flow Rate, (PD)	GPM / FT WG	9.5 / 1.0	11.9 / 1.5	17.2 / 3.6	19.5 / 4.4	21.6 / 5.3
	72°F DB / 60°F WB, 50% RH						
	Total / Sensible	MBH	39.5 / 39.5	50.3 / 50.3	74.8 / 71.9	84.7 / 82.2	94.0 / 92.2
	Flow Rate, (PD)	GPM / FT WG	7.9 / 0.7	10.1 / 1.1	15.0 / 2.8	17.0 / 3.5	18.9 / 4.2
	72°F DB / 58.5°F WB, 45% RH						
	Total / Sensible	MBH	39.4 / 39.4	50.0 / 50.0	71.9 / 71.9	81.8 / 81.8	91.1 / 91.1
	Flow Rate, (PD)	GPM / FT WG	7.9 / 0.7	10.0 / 1.1	14.4 / 2.6	16.4 / 3.3	18.3 / 4.0

COMPONENT DATA

CHILLED WATER SYSTEMS	**Electric Reheat / Heat** - BTUH includes evaporator motor heat, **(Optional)**						
	Capacity	BTUH (KW)	35,920 (10.5)	37,635 (11.0)	55,880 (16.4)	58,175 (17.0)	58,175 (17.0)
	Stages	NO	1	1	2	2	2
	Steam Canister Humidifier - (Optional)						
	Steam Canister	LBS/HR	10	10	15	15	15
	Evaporator Blower / Motor - Adjustable Belt-Drive, DWDI Centrifugal						
	Std Airflow, (ESP)	CFM, (IN WG)	1,800 @ 0.5	2,800 @ 0.5	3,200 @ 0.5	3,800 @ 0.5	4,400 @ 0.5
	Std Blower Motor	HP	3/4	1-1/2	2	3	3
	Opt Airflow, (ESP)	*CFM, (IN WG)*	*2,300* @ 0.5	*3,000* @ 0.5	*3,600* @ 0.5	*4,200* @ 0.5	*4,800* @ 0.5
	Opt Blower Motor	*HP*	*1*	*2*	*3*	*3*	*5*
	Blower Diameter	IN	12 X 9	12 X 9	12 X 12	12 X 12	12 X 12
	Chilled Water Coil - Aluminum Fin, Copper Tube						
	Rows	NO	4	4	4	4	4
	Face Area / Velocity	FT^2 / FPM	6.1 / 297	6.1 / 461	9.7 / 330	9.7 / 390	9.7 / 453
	Control Valve						
	Standard Valve		2-Way	2-Way	2-Way	2-Way	2-Way
	Valve Size, (Cv)	IN	1, (8.0)	1, (8.0)	1, (11.6)	1, (11.6)	1, (11.6)
	Max Opr Press	PSIG	300	300	400	400	400
	Optional Valve		*3-Way*	*3-Way*	*3-Way*	*3-Way*	*3-Way*
	Filters - 4", 30% Dust Spot Efficient						
	Nominal Size	(NO) IN	(1) 25 x 29 x 4	(1) 25 x 29 x 4	(1) 37 x 33 x 4	(1) 37 x 33 x 4	(1) 37 x 33 x 4
	Connection Sizes						
	Chilled Water In/Out	OD IN	1-1/8	1-1/8	1-5/8	1-5/8	1-5/8
	Condensate Drain	OD 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

Dual-Cool System Data (*MissionCritical*™) - 3.5 to 10 Tons

	Nominal Size		3.5 Tons	5.0 Tons	6.0 Tons	8.0 Tons	10.0 Tons
	Dual-Cool Chilled Water Model		**VC_-042-DC**	**VC_-060-DC**	**VC_-072-DC**	**VC_-096-DC**	**VC_-120-DC**
DUAL COOL (45°F EWT) STD CFM	**80°F DB / 67°F WB, 50% RH**						
	Total / Sensible	MBH	60.9 / 44.3	85.6 / 64.1	122.1 / 84.0	139.3 / 96.8	154.4 / 108.7
	Flow Rate, (PD)	GPM / FT WG	12.2 / 1.5	17.2 / 2.8	24.5 / 6.6	28.0 / 8.4	31.0 / 10.0
	75°F DB / 62.5°F WB, 50% RH						
	Total / Sensible	MBH	40.0 / 37.3	58.4 / 55.3	84.7 / 71.5	97.0 / 82.9	108.4 / 93.7
	Flow Rate, (PD)	GPM / FT WG	8.0 / 0.7	11.7 / 1.4	17.0 / 3.5	19.5 / 4.4	21.8 / 5.4
	75°F DB / 61°F WB, 45% RH						
	Total / Sensible	MBH	38.0 / 38.0	56.2 / 56.2	77.9 / 74.5	89.7 / 86.6	100.7 / 98.3
	Flow Rate, (PD)	GPM / FT WG	7.6 / 0.7	11.3 / 1.3	15.6 / 3.0	18.0 / 3.9	20.2 / 4.7
	72°F DB / 60°F WB, 50% RH						
	Total / Sensible	MBH	31.0 / 31.0	47.3 / 47.3	67.8 / 64.8	78.2 / 75.4	87.8 / 85.6
	Flow Rate, (PD)	GPM / FT WG	6.2 / 0.5	9.5 / 1.0	13.6 / 2.4	15.7 / 3.0	17.6 / 3.7
	72°F DB / 58.5°F WB, 45% RH						
	Total / Sensible	MBH	30.9 / 30.9	47.2 / 47.2	64.9 / 64.9	75.3 / 75.3	85.1 / 85.1
	Flow Rate, (PD)	GPM / FT WG	6.2 / 0.5	9.5 / 1.0	13.0 / 2.2	15.1 / 2.8	17.1 / 3.5
DUAL COOL (45°F EWT) OPT CFM	**75°F DB / 62.5°F WB, 50% RH**						
	Total / Sensible	MBH	49.9 / 46.6	61.8 / 58.7	93.0 / 79.1	104.6 / 90.1	115.5 / 100.7
	Flow Rate, (PD)	GPM / FT WG	10.0 / 1.1	12.4 / 1.6	18.7 / 4.1	21.0 / 5.1	23.2 / 6.0
	75°F DB / 61°F WB, 45% RH						
	Total / Sensible	MBH	47.4 / 47.4	59.4 / 59.4	85.8 / 82.6	97.2 / 94.5	107.8 / 105.9
	Flow Rate, (PD)	GPM / FT WG	9.5 / 1.0	11.9 / 1.5	17.2 / 3.6	19.5 / 4.4	21.6 / 5.3
	72°F DB / 60°F WB, 50% RH						
	Total / Sensible	MBH	39.5 / 39.5	50.3 / 50.3	74.8 / 71.9	84.7 / 82.2	94.0 / 92.2
	Flow Rate, (PD)	GPM / FT WG	7.9 / 0.7	10.1 / 1.1	15.0 / 2.8	17.0 / 3.5	18.9 / 4.2
	72°F DB / 58.5°F WB, 45% RH						
	Total / Sensible	MBH	39.4 / 39.4	50.0 / 50.0	71.9 / 71.9	81.8 / 81.8	91.1 / 91.1
	Flow Rate, (PD)	GPM / FT WG	7.9 / 0.7	10.0 / 1.1	14.4 / 2.6	16.4 / 3.3	18.3 / 4.0

COMPONENT DATA - DUAL COOL SYSTEMS

DUAL COOL SYSTEMS	**Evaporator Blower / Motor** - Adjustable Belt-Drive, DWDI Centrifugal						
	Std Airflow, (ESP)	CFM, (IN WG)	1,800 @ 0.5	2,800 @ 0.5	3,200 @ 0.5	3,800 @ 0.5	4,400 @ 0.5
	Std Blower Motor	HP	1	2	3	3	5
	Opt Airflow, (ESP)	*CFM, (IN WG)*	*2,300* @ 0.5	*3,000* @ 0.5	*3,600* @ 0.5	*4,200* @ 0.5	*4,800* @ 0.5
	Opt Blower Motor	*HP*	*1-1/2*	*2*	*3*	*3*	*5*
	Blower Diameter	IN	12 X 9	12 X 9	12 X 12	12 X 12	12 X 12
	Dual-Cool Chilled Water Coil - Aluminum Fin, Copper Tube						
	Rows	NO	4	4	4	4	4
	Face Area / Velocity	FT^2 / FPM	6.1 / 297	6.1 / 461	9.7 / 330	9.7 / 390	9.7 / 453
	Control Valve						
	Standard Valve		2-Way	2-Way	2-Way	2-Way	2-Way
	Valve Size, (Cv)	IN	1, (8.0)	1, (8.0)	1, (11.6)	1, (11.6)	1, (11.6)
	Max Opr Press	PSIG	300	300	400	400	400
	Optional Valve		*3-Way*	*3-Way*	*3-Way*	*3-Way*	*3-Way*
	Connection Sizes						
	Chilled Water In/Out	OD IN	1-1/8	1-1/8	1-5/8	1-5/8	1-5/8

STD CFM: *DX - Air Cooled Evaporator & Water/Glycol Cooled Self-Contained*

MODEL	VCE,VCW,VCG-042		VCE,VCW,VCG-060		VCE,VCW,VCG-072		VCE,VCW,VCG-096		VCE,VCW,VCG-120	
Power Supply	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**
Cooling Only see note-2										
FLA	14.9	7.7	25.4	12.6	26.4	12.1	35.9	17.2	40.2	19.4
MCA	17.8	9.1	30.6	15.1	31.5	14.3	42.8	20.4	48.1	23.1
MFS	25	15	50	25	50	20	70	30	70	35
with Electric Heat (No Electric Reheat or Humidifier)										
FLA	31.3	14.6	32.5	15.2	47.8	22.2	50.2	23.4	50.2	23.4
MCA	39.1	18.2	40.6	19.0	59.8	27.7	62.8	29.2	62.8	29.2
MFS	40	20	50	25	60	30	70	30	70	35
with Electric Reheat/Heat (No Humidifier)										
FLA	42.7	20.3	53.2	25.2	68.1	31.0	77.6	36.1	81.9	38.3
MCA	52.5	24.8	65.3	30.8	83.6	37.9	94.9	44.0	100.3	46.7
MFS	60	25	70	35	90	40	100	50	125	50
with Humidifier (No Electric Reheat/Heat) see note-2										
FLA	31.3	15.1	41.8	20.0	40.6	18.5	50.1	23.6	54.4	25.8
MCA	34.2	16.5	47.0	22.5	45.7	20.7	57.0	26.8	62.3	29.5
MFS	45	20	60	30	60	25	80	35	90	40
with Electric Heat (No Electric Reheat) & Humidifier										
FLA	47.7	22.0	48.9	22.6	62.0	28.6	64.4	29.8	64.4	29.8
MCA	59.6	27.5	61.1	28.2	77.5	35.7	80.5	37.2	80.5	37.2
MFS	60	30	70	30	80	40	90	40	90	40
with Electric Reheat/Heat & Humidifier										
FLA	47.7	22.0	53.2	25.2	68.1	31.0	77.6	36.1	81.9	38.3
MCA	59.6	27.5	65.3	30.8	83.6	37.9	94.9	44.0	100.3	46.7
MFS	60	30	70	35	90	40	100	50	125	50

OPT CFM: *DX - Air Cooled Evaporator & Water/Glycol Cooled Self-Contained*

MODEL	VCE,VCW,VCG-042		VCE,VCW,VCG-060		VCE,VCW,VCG-072		VCE,VCW,VCG-096		VCE,VCW,VCG-120	
Power Supply	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**
Cooling Only see note-2										
FLA	15.3	7.9	26.8	13.3	28.8	13.3	35.9	17.2	45.4	22.0
MCA	18.2	9.3	32.0	15.8	33.9	15.5	42.8	20.4	53.3	25.7
MFS	25	15	50	25	50	20	70	30	80	40
with Electric Heat (No Electric Reheat or Humidifier)										
FLA	31.7	14.8	33.9	15.9	50.2	23.4	50.2	23.4	55.4	26.0
MCA	39.6	18.5	42.4	19.8	62.8	29.2	62.8	29.2	69.3	32.5
MFS	40	20	50	25	70	30	70	30	80	40
with Electric Reheat/Heat (No Humidifier)										
FLA	43.1	20.5	54.6	25.9	70.5	32.2	77.6	36.1	87.1	40.9
MCA	52.9	25.0	66.7	31.5	86.0	39.1	94.9	44.0	105.5	49.3
MFS	60	30	80	35	90	40	100	50	125	50
with Humidifier (No Electric Reheat/Heat) see note-2										
FLA	31.7	15.3	43.2	20.7	43.0	19.7	50.1	23.6	59.6	28.4
MCA	34.6	16.7	48.4	23.2	48.1	21.9	57.0	26.8	67.5	32.1
MFS	45	20	60	30	60	30	80	35	90	45
with Electric Heat (No Electric Reheat) & Humidifier										
FLA	48.1	22.2	50.3	23.3	64.4	29.8	64.4	29.8	69.6	32.4
MCA	60.1	27.7	62.9	29.1	80.5	37.2	80.5	37.2	87.0	40.5
MFS	70	30	70	30	90	40	90	40	90	45
with Electric Reheat/Heat & Humidifier										
FLA	48.1	22.2	54.6	25.9	70.5	32.2	77.6	36.1	87.1	40.9
MCA	60.1	27.7	66.7	31.5	86.0	39.1	94.9	44.0	105.5	49.3
MFS	70	30	80	35	90	40	100	50	125	50

Notes:

1) FLA = Full Load Amps; MCA = Min Circuit Amps; MFS = Max Fuse Size

2) Data also applicable for systems with Hot Gas Reheat, Steam or Hot Water Reheat/Heat.

STD CFM: *FE Free-Cooling / DC Dual-Cool Systems*

MODEL	VCE,VCW,VCG-042-DC/FE		VCE,VCW,VCG-060-DC/FE		VCE,VCW,VCG-072-DC/FE		VCE,VCW,VCG096-DC/FE		VCE,VCW,VCG-120-DC/FE	
Power Supply	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**
Cooling Only see note-2										
FLA	15.3	7.9	26.8	13.3	28.8	13.3	35.9	17.2	45.4	22.0
MCA	18.2	9.3	32.0	15.8	33.9	15.5	42.8	20.4	53.3	25.7
MFS	25	15	50	25	50	20	70	30	80	40
with Electric Heat (No Electric Reheat or Humidifier)										
FLA	31.7	14.8	33.9	15.9	50.2	23.4	50.2	23.4	55.4	26.0
MCA	39.6	18.5	42.4	19.8	62.8	29.2	62.8	29.2	69.3	32.5
MFS	40	20	50	25	70	30	70	30	80	40
with Electric Reheat/Heat (No Humidifier)										
FLA	43.1	20.5	54.6	25.9	70.5	32.2	77.6	36.1	87.1	40.9
MCA	52.9	25.0	66.7	31.5	86.0	39.1	94.9	44.0	105.5	49.3
MFS	60	30	80	35	90	40	100	50	125	50
with Humidifier (No Electric Reheat/Heat) see note-2										
FLA	31.7	15.3	43.2	20.7	43.0	19.7	50.1	23.6	59.6	28.4
MCA	34.6	16.7	48.4	23.2	48.1	21.9	57.0	26.8	67.5	32.1
MFS	45	20	60	30	60	30	80	35	90	45
with Electric Heat (No Electric Reheat) & Humidifier										
FLA	48.1	22.2	50.3	23.3	64.4	29.8	64.4	29.8	69.6	32.4
MCA	60.1	27.7	62.9	29.1	80.5	37.2	80.5	37.2	87.0	40.5
MFS	70	30	70	30	90	40	90	40	90	45
with Electric Reheat/Heat & Humidifier										
FLA	48.1	22.2	54.6	25.9	70.5	32.2	77.6	36.1	87.1	40.9
MCA	60.1	27.7	66.7	31.5	86.0	39.1	94.9	44.0	105.5	49.3
MFS	70	30	80	35	90	40	100	50	125	50

OPT CFM: *FE Free-Cooling / DC Dual-Cool Systems*

MODEL	VCE,VCW,VCG-042-DC/FE		VCE,VCW,VCG-060-DC/FE		VCE,VCW,VCG-072-DC/FE		VCE,VCW,VCG096-DC/FE		VCE,VCW,VCG-120-DC/FE	
Power Supply	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**
Cooling Only see note-2										
FLA	16.1	8.3	26.8	13.3	28.8	13.3	35.9	17.2	45.4	22.0
MCA	19.0	9.7	32.0	15.8	33.9	15.5	42.8	20.4	53.3	25.7
MFS	30	15	50	25	50	20	70	30	80	40
with Electric Heat (No Electric Reheat or Humidifier)										
FLA	32.5	15.2	33.9	15.9	50.2	23.4	50.2	23.4	55.4	26.0
MCA	40.6	19.0	42.4	19.8	62.8	29.2	62.8	29.2	69.3	32.5
MFS	45	20	50	25	70	30	70	30	80	40
with Electric Reheat/Heat (No Humidifier)										
FLA	43.9	20.9	54.6	25.9	70.5	32.2	77.6	36.1	87.1	40.9
MCA	53.7	25.4	66.7	31.5	86.0	39.1	94.9	44.0	105.5	49.3
MFS	60	30	80	35	90	40	100	50	125	50
with Humidifier (No Electric Reheat/Heat) see note-2										
FLA	32.5	15.7	43.2	20.7	43.0	19.7	50.1	23.6	59.6	28.4
MCA	35.4	17.1	48.4	23.2	48.1	21.9	57.0	26.8	67.5	32.1
MFS	45	20	60	30	60	30	80	35	90	45
with Electric Heat (No Electric Reheat) & Humidifier										
FLA	48.9	22.6	50.3	23.3	64.4	29.8	64.4	29.8	69.6	32.4
MCA	61.1	28.2	62.9	29.1	80.5	37.2	80.5	37.2	87.0	40.5
MFS	70	30	70	30	90	40	90	40	90	45
with Electric Reheat/Heat & Humidifier										
FLA	48.9	22.6	54.6	25.9	70.5	32.2	77.6	36.1	87.1	40.9
MCA	61.1	28.2	66.7	31.5	86.0	39.1	94.9	44.0	105.5	49.3
MFS	70	30	80	35	90	40	100	50	125	50

Notes:

1) FLA = Full Load Amps; MCA = Min Circuit Amps; MFS = Max Fuse Size
2) Data also applicable for systems with Steam or Hot Water Reheat/Heat.

STD CFM: *DX Split and Chilled Water Air Handling Units*

MODEL	VCH & VCC-042		VCH & VCC-060		VCH & VCC-072		VCH & VCC-096		VCH & VCC-120	
Power Supply	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**
Cooling Only see note-2										
FLA	3.5	2.0	4.7	2.6	6.1	3.3	8.5	4.5	8.5	4.5
MCA	4.4	2.5	5.9	3.3	7.6	4.1	10.6	5.6	10.6	5.6
MFS	15	15	15	15	15	15	15	15	15	15
with Electric Heat (No Electric Reheat or Humidifier)										
FLA	31.3	14.6	32.5	15.2	47.8	22.2	50.2	23.4	50.2	23.4
MCA	39.1	18.2	40.6	19.0	59.8	27.7	62.8	29.2	62.8	29.2
MFS	40	20	45	20	60	30	70	30	70	30
with Electric Reheat/Heat (No Humidifier)										
FLA	31.3	14.6	32.5	15.2	47.8	22.2	50.2	23.4	50.2	23.4
MCA	39.1	18.2	40.6	19.0	59.8	27.7	62.8	29.2	62.8	29.2
MFS	40	20	45	20	60	30	70	30	70	30
with Humidifier (No Electric Reheat/Heat) see note-2										
FLA	19.9	9.4	21.1	10.0	20.3	9.7	22.7	10.9	22.7	10.9
MCA	24.9	11.8	26.4	12.5	25.4	12.1	28.4	13.6	28.4	13.6
MFS	25	15	30	15	30	15	30	15	30	15
with Electric Heat (No Electric Reheat) & Humidifier										
FLA	47.7	22.0	48.9	22.6	62.0	28.6	64.4	29.8	64.4	29.8
MCA	59.6	27.5	61.1	28.2	77.5	35.7	80.5	37.2	80.5	37.2
MFS	60	30	70	30	80	40	90	40	90	40
with Electric Reheat/Heat & Humidifier										
FLA	47.7	22.0	48.9	22.6	62.0	28.6	64.4	29.8	64.4	29.8
MCA	59.6	27.5	61.1	28.2	77.5	35.7	80.5	37.2	80.5	37.2
MFS	60	30	70	30	80	40	90	40	90	40

OPT CFM: *DX Split and Chilled Water Air Handling Units*

MODEL	VCH & VCC-042		VCH & VCC-060		VCH & VCC-072		VCH & VCC-096		VCH & VCC-120	
Power Supply	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**	**208/3/60**	**460/3/60**
Cooling Only see note-2										
FLA	3.9	2.2	6.1	3.3	8.5	4.5	8.5	4.5	13.7	7.1
MCA	4.9	2.8	7.6	4.1	10.6	5.6	10.6	5.6	17.1	8.9
MFS	15	15	15	15	15	15	15	15	30	15
with Electric Heat (No Electric Reheat or Humidifier)										
FLA	31.7	14.8	33.9	15.9	50.2	23.4	50.2	23.4	55.4	26.0
MCA	39.6	18.5	42.4	19.8	62.8	29.2	62.8	29.2	69.3	32.5
MFS	40	20	45	20	70	30	70	30	70	35
with Electric Reheat/Heat (No Humidifier)										
FLA	31.7	14.8	33.9	15.9	50.2	23.4	50.2	23.4	55.4	26.0
MCA	39.6	18.5	42.4	19.8	62.8	29.2	62.8	29.2	69.3	32.5
MFS	40	20	45	20	70	30	70	30	70	35
with Humidifier (No Electric Reheat/Heat) see note-2										
FLA	20.3	9.6	22.5	10.7	22.7	10.9	22.7	10.9	27.9	13.5
MCA	25.4	12.0	28.1	13.4	28.4	13.6	28.4	13.6	34.9	16.9
MFS	30	15	30	15	30	15	30	15	40	20
with Electric Heat (No Electric Reheat) & Humidifier										
FLA	48.1	22.2	50.3	23.3	64.4	29.8	64.4	29.8	69.6	32.4
MCA	60.1	27.7	62.9	29.1	80.5	37.2	80.5	37.2	87.0	40.5
MFS	70	30	70	30	90	40	90	40	90	45
with Electric Reheat/Heat & Humidifier										
FLA	48.1	22.2	50.3	23.3	64.4	29.8	64.4	29.8	69.6	32.4
MCA	60.1	27.7	62.9	29.1	80.5	37.2	80.5	37.2	87.0	40.5
MFS	70	30	70	30	90	40	90	40	90	45

Notes:

1) FLA = Full Load Amps; MCA = Min Circuit Amps; MFS = Max Fuse Size

2) Data also applicable for systems with Steam or Hot Water Reheat/Heat.

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-042				
FLA	21.3	16.0	15.1	7.1
MCA	26.2	19.7	18.4	8.6
MOP	40	35	30	15
XPU-060				
FLA	27.6	20.7	18.0	8.8
MCA	34.2	25.7	22.0	10.8
MOP	50	45	30	15
XPU-072				
FLA	- - - -	- - - -	28.8	14.7
MCA			34.6	17.5
MOP			50	25
XPU-096				
FLA	- - - -	- - - -	30.6	15.7
MCA			36.9	18.9
MOP			60	30
XPU-120				
FLA	- - - -	- - - -	35.7	20.2
MCA			43.2	24.4
MOP			70	40

XP1 - Outdoor Propeller Fan
Air Cooled Remote Condensers

Power Supply	208/1/60	277/1/60	460/1/60
XP1-042			
FLA	2.0	1.5	1.0
MCA	2.5	1.9	1.3
MOP	15	15	15
XP1-060			
FLA	2.0	1.5	1.0
MCA	2.5	1.9	1.3
MOP	15	15	15
XP1-072			
FLA	5.6	4.2	3.5
MCA	7.0	5.3	7.0
MOP	15	15	15
XP1-096			
FLA	5.6	4.2	3.5
MCA	7.0	5.3	7.0
MOP	15	15	15
XP1-120			
FLA	5.6	4.2	3.5
MCA	7.0	5.3	7.0
MOP	15	15	15

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

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

Power Supply	208/1/60	277/1/60	208/3/60	460/3/60
XCU-042				
FLA	- - - -	- - - -	19.7	9.0
MCA			23.7	10.8
MOP			35	15
XCU-060				
FLA	- - - -	- - - -	25.2	12.5
MCA			30.1	14.9
MOP			45	20
XCU-072				
FLA	- - - -	- - - -	30.2	14.7
MCA			36.0	17.5
MOP			50	25
XCU-096				
FLA	- - - -	- - - -	39.8	20.4
MCA			47.6	24.4
MOP			70	40
XCU-120				
FLA	- - - -	- - - -	46.6	23.6
MCA			54.9	27.9
MOP			80	40

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

Power Supply	208/1/60	208/3/60	460/3/60
XCX-048			
FLA	6.7	3.8	1.9
MCA	8.4	4.8	2.4
MOP	15	15	15
XCX-060			
FLA	9.0	5.6	2.8
MCA	11.3	7.0	3.5
MOP	20	15	15
XCX-072			
FLA	- - - -	7.0	3.5
MCA		8.8	4.4
MOP		15	15
XCX-096			
FLA	- - - -	8.8	4.4
MCA		11.0	5.5
MOP		15	15
XCX-120			
FLA	- - - -	13.6	6.6
MCA		17.0	8.3
MOP		30	15

1.0 General

☑ 1.1 Summary

These specifications describe the requirements for a vertical floor mounted 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 VK-MissionCritical™ brand factory assembled and tested. Evaporator sections shall be designed for vertical floor mounted installation. Remote condensers, condensing units and drycoolers shall be designed for either outdoor or indoor installation - refer to specific design requirements for remote heat rejection equipment.

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 heat rejection 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
(Powder-Coat Painted)

The cabinet chassis and access panels shall be constructed of heavy gauge powder-coat painted galvanneal steel. Cabinet access panels shall 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
(100% Front Access)

The unit shall be designed for 100% front only access for all routinely maintained components. The front access panel shall be hinged and removable. Side access panels shall be removable as well if additional access is desired.

☑ 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 motor, compressor, humidifier and each electric heater stage (if applicable).

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

☑ 2.1.3.1 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 Air Distribution

The system air distribution shall be configured for a draw-through air pattern to provide even air distribution and maximum coil performance.

☑ 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 belt-driven centrifugal type, double width double inlet (DWDI), and statically and dynamically balanced to a minimum vibration level. The shaft shall be heavy duty steel with self-aligning ball bearings sized for an average 100,000 hours of service life.

The blower motor shall be ____ Hp at 1725 RPM (or 3450 RPM) and mounted on an adjustable base. Belts shall be sized for 200% of the motor horsepower rating. Motors shall have overload protection and a minimum NEMA service factor of 1.15.

☑ 2.1.5 Air Patterns

Up-Flow

Down-Flow

☐ 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.

☑ **2.1.7 Piping Connection Location**

☐ 2.1.7.1 Top Piping Connections
☐ 2.1.7.2 Bottom Piping Connections

☑ **2.1.4.3 Air Filtration**

The filter shall be 4 inch thick pleated and rated for 30% dust spot efficiency (based on ASHRAE 52.1). The filter shall be serviceable through the hinged front access panel on Up-Flow systems and from the front of the top filter box on Down-Flow Units.

☐ **2.2 Direct Expansion Systems**

☐ **2.2.1 DX - Evaporator Coils**

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**

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.

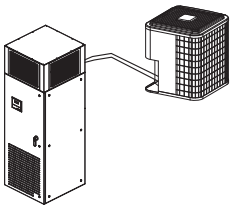
☐ **2.2.3 DX - Refrigeration Circuits**

Each refrigeration circuit shall be pre-piped with 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, service valves 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-( )

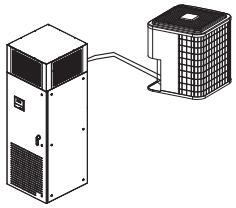


The system shall be a split configuration with indoor vertical floor mounted dx evaporator precision air conditioner with outdoor dx air cooled propeller fan remote condenser. The compressor shall be located in the indoor evaporator section. The condenser shall be sized for full heat of rejection at 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 18 Low Amb. Options.)*

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

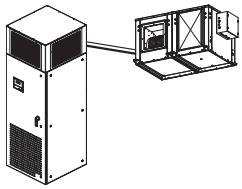


The system shall be a split configuration with indoor vertical floor mounted precision dx air handling unit with outdoor dx air cooled propeller fan remote condensing unit. The compressor shall be located in the condensing unit. The condensing unit shall be sized for full heat of rejection at 95°F ambient 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 18 Low Amb. Options.)*

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



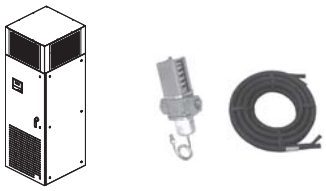
The system shall be a split configuration with indoor vertical floor mounted precision dx air handling unit with indoor dx - air cooled centrifugal blower remote condensing unit. The compressor shall be located in the condensing unit. The condensing unit shall be sized for full heat of rejection at 95°F 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 18 Low Amb. Options.)*

☐ **2.3.2 DX - Water Cooled Systems**

☐ **2.3.2.1 DX - Water Cooled**
(Self-Contained Systems)
VCW-( )



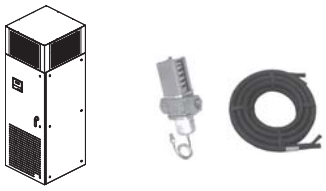
The system shall be a self-contained, indoor vertical floor mounted precision air conditioner with integral dx water cooled condenser. The system shall include a water cooled coaxial or stainless steel brazed-plate condenser and factory installed head pressure controlling 2-way water regulating valve 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 options.)*

☐ **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, indoor vertical floor mounted precision air conditioner with integral dx glycol cooled condenser. The system shall include a glycol cooled coaxial or stainless steel brazed-plate 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 ship from the factory with a full operating refrigerant charge.

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

☐ **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 bleed fitting 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 vertical floor mounted 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**
(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 2-Way, 350 psig Reg. Valve**

☐ **2.4.2.3 3-Way, 150 psig Reg. Valve**
☐ **2.4.2.4 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, unless requested otherwise.)*

2.4.3 CONTROL OPTIONS

☐ **2.4.3.1 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 / REHEAT OPTIONS

☐ **2.4.4.1 Electric Reheat/Heat**

☐ **2.4.4.1.1 Dehumidification with Electric Reheat**

An Electric Reheat/Heat system shall be provided to offset sensible cooling during dehumidification mode and to provide heating during heat mode. Heater elements shall be the low-watt density, nickel plated, 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.

☐ **2.4.4.1.2 SCR Fired Heat/Reheat**

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 _____ BTU/H and a KW rating of ___ KW.

☐ **2.4.4.2 Dehumidification with Hot Gas Reheat**

A free-energy, Hot Gas Reheat system shall be provided to offset sensible cooling during dehumidification mode. On demand, hot compressor discharge gas shall be automatically diverted by a 3-way solenoid valve to an aluminum fin, copper tube hot gas reheat coil located downstream of and directly on the evaporator cooling and then to condenser coil. The hot gas reheat shall have a rated capacity of _____ BTU/H.

*(**Note:** Hot gas reheat is not available with FE Free-Cooling Economizer or DC Dual Cool Options.)*

☐ **2.4.4.3 Dehumidification with Steam Reheat / Heat**

A Steam Reheat/Heat system shall be provided for heating during heat mode and/or offset sensible cooling during dehumidification mode. The steam reheat/heat system shall be complete a factory installed aluminum fin, copper tube steam coil and 2-way motorized steam 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 reheat/heat system shall have a rated capacity of _____ BTU/H @ ____ psig saturated steam.

☐ **2.4.4.4 Dehumidification with Hot Water Reheat / Heat**

A Hot Water Reheat/Heat system shall be provided for heating during heat mode and/or offset sensible cooling during dehumidification mode. The hot water reheat/heat system shall be complete a factory installed aluminum fin, copper tube steam coil and 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 reheat/heat system shall have a rated capacity of _____ BTU/H @ _____ GPM, _____°F EWT.

☐ **2.4.5 Steam Humidification** (Electrode Canister Type)

An electrode steam canister type humidifi-

cation 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. 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-XCU/XWU-XGU 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 Free-Cooling w/ DX Water/Glycol Cooled

VCW & VCG-( )-FE

The system shall include a factory installed water/glycol free cooling cycle complete with economizer cooling coil, 3-way control valve, aquastat and automatic control logic. The FE coil shall be capable of providing rated sensible capacity without compressor operation when entering water/glycol fluid temperatures are 45°F or below (adjustable).

*(**Note:** 2-way free-cool valves are optionally available.)*

☐ 2.5.12 Dual-Cool, Chilled Water Coil & DX Cooling Cycle

VC_-( )-DC

The system shall be a Dual-Cool configuration with primary chilled water coil cooling cycle and back-up DX cooling cycle *(DX Air, Water or Glycol Cooled as specified).* Based on the available chilled water flow rate and temperature (45°F or below typical, adjustable), the unit's control system shall automatically select either chilled water or DX cooling modes. The system shall be provided with a factory installed 2-way chilled water control valve and field installed aquastat and flow switch.

*(**Note:** 3-way dual-cool valves are optionally available.)*

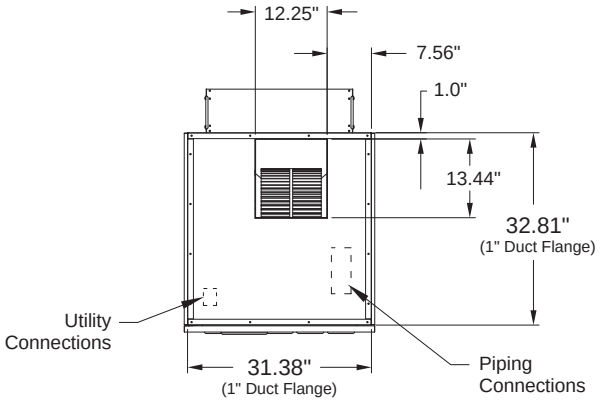
☐ 2.5.13 Compressor Acoustic / Sound Jackets

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.

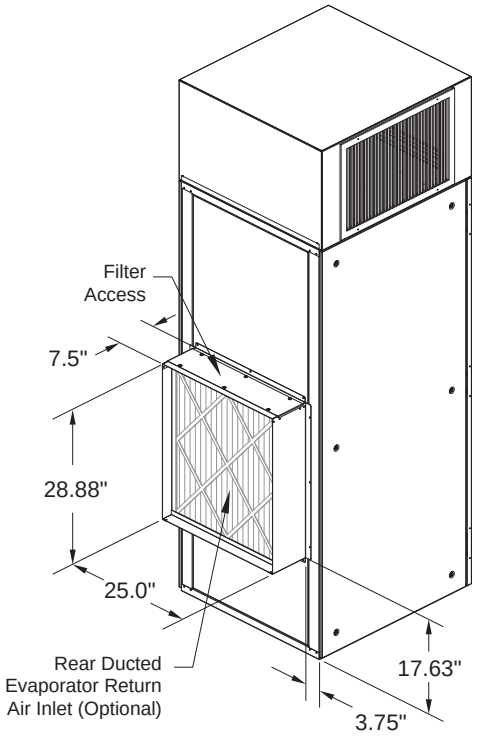
UP-FLOW: 3.5 thru 5 Tons

(VCE, VCH, VCW, VCG & VCC-042 thru 060 plus FE & DC)

100% Front Access Only
(side panels also removable)



TOP
PLAN VIEW



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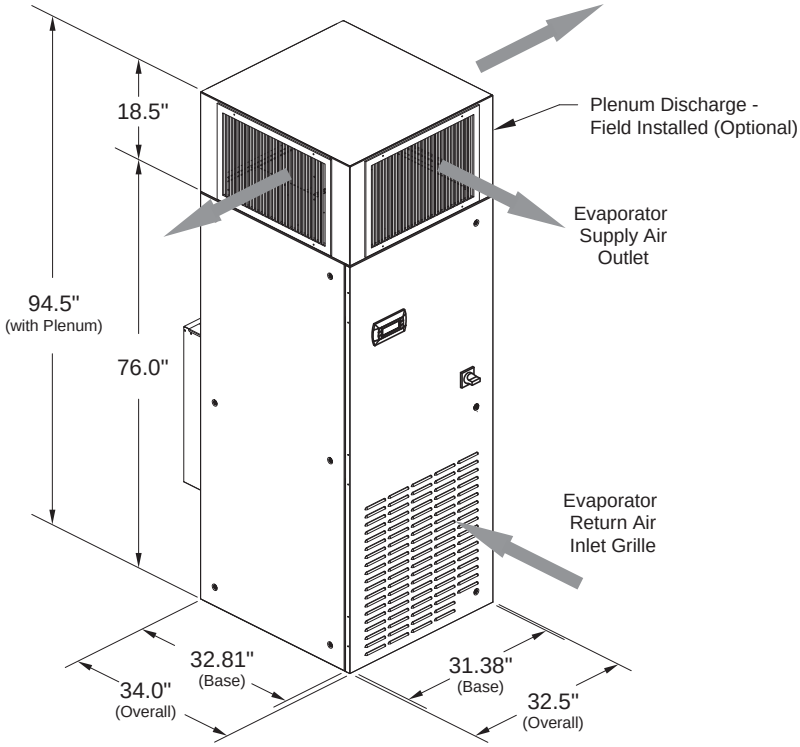

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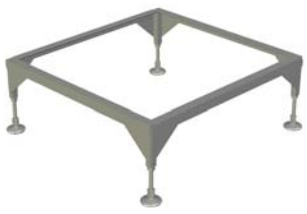
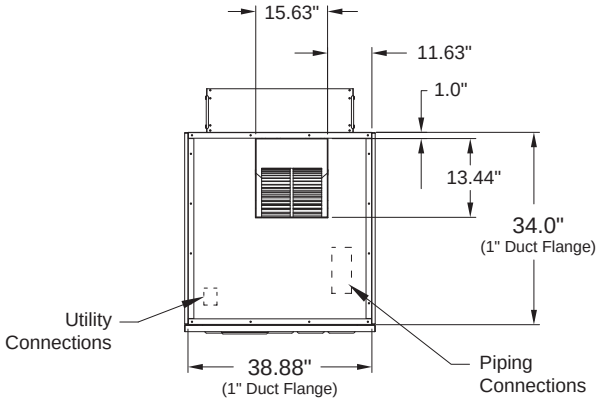
* Floor Stands Available - see page 24



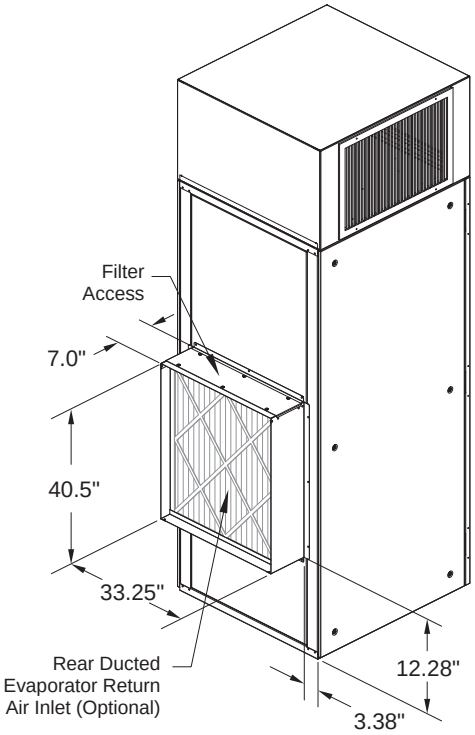
UP-FLOW: 6, 8 & 10 Tons

(VCE, VCH, VCW, VCG & VCC-072, 096 & 120)

100% Front Access Only
(side panels also removable)



TOP
PLAN VIEW



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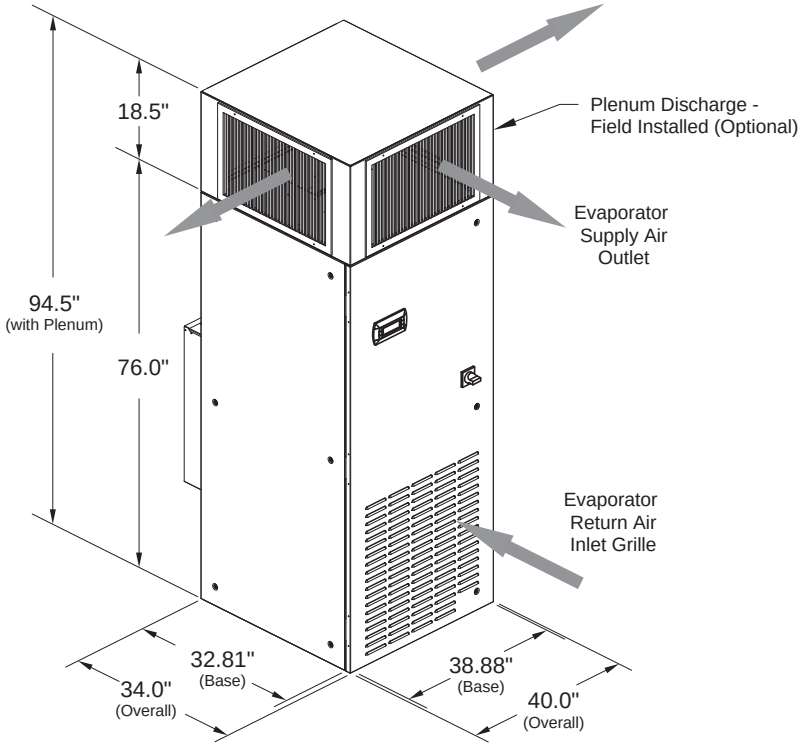

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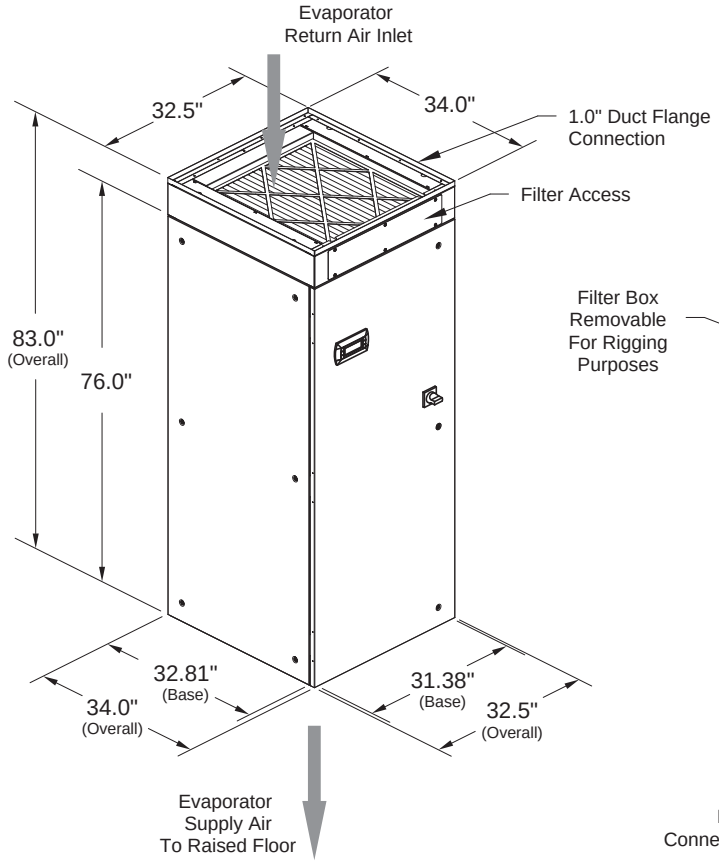
* Floor Stands Available - see page 25

DOWN-FLOW: 3.5 thru 5 Tons

(VCE, VCH, VCW, VCG & VCC-042 thru 060 plus FE & DC)

100% Front Access Only
(side panels also removable)



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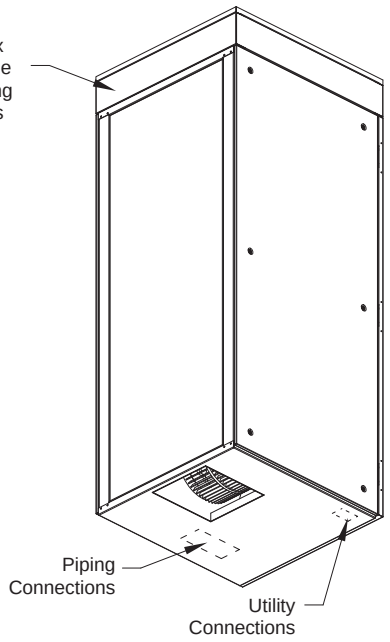

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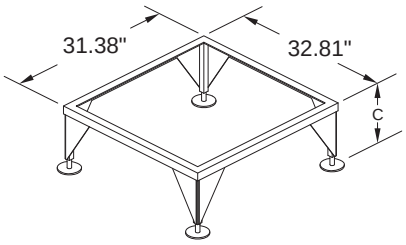
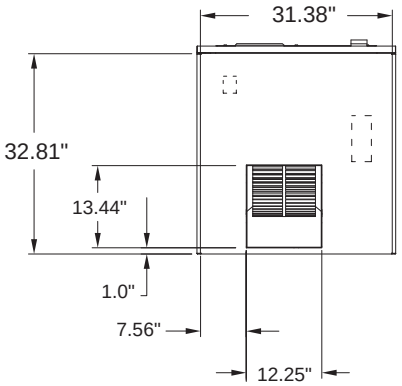


FLOOR STAND (OPTIONAL)



BOTTOM PLAN VIEW

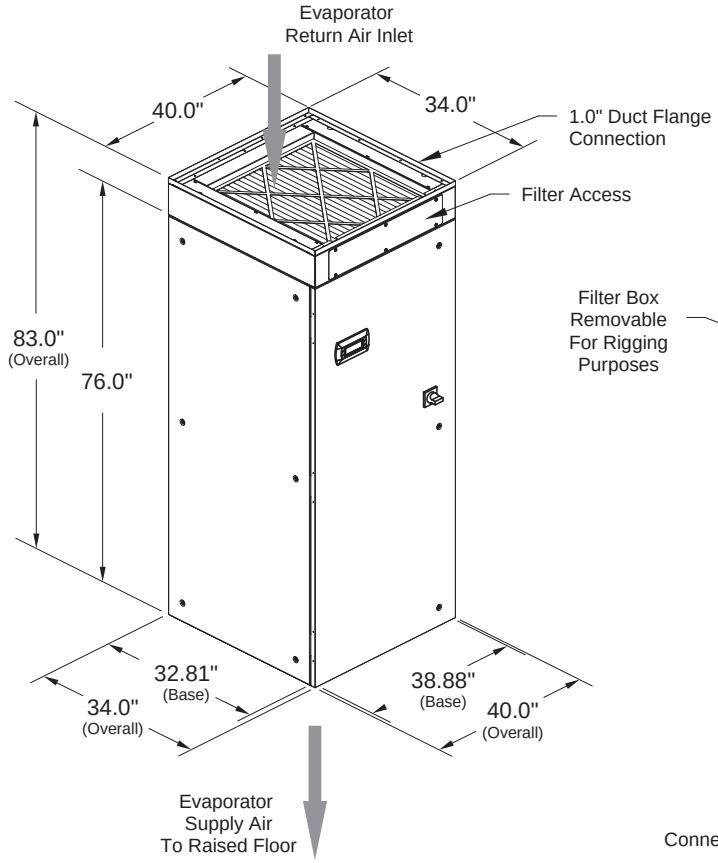
Floor Stand Model	Nominal Height "C"
FS1-05	**5.0"** (4.2"-7" Adj.)
FS1-09	**9.0"** (8.2"-11" Adj.)
FS1-12	**12.0"** (11.2"-14" Adj.)
FS1-15	**15.0"** (14.2"-17" Adj.)
FS1-18	**18.0"** (17.2"-20" Adj.)
FS1-24	**24.0"** (23.2"-26" Adj.)

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

DOWN-FLOW: 6, 8 & 10 Tons

(VCE, VCH, VCW, VCG & VCC-096 & 120)

100% Front Access Only
(side panels also removable)



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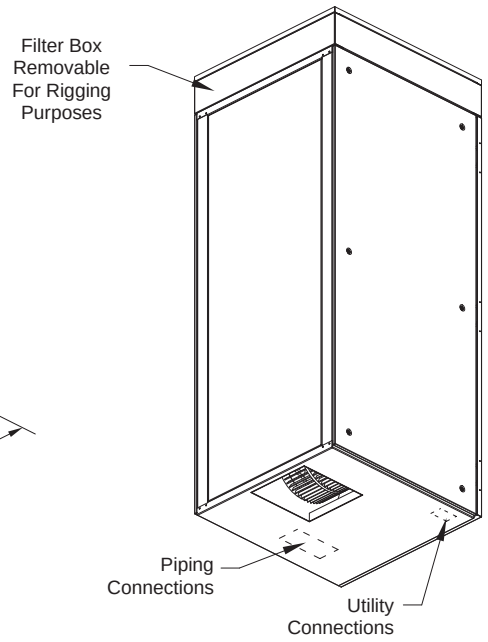

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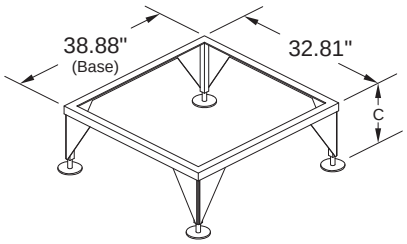
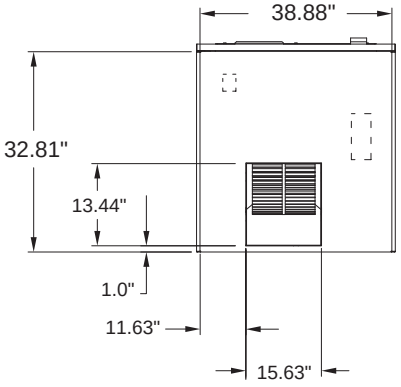


FLOOR STAND (OPTIONAL)



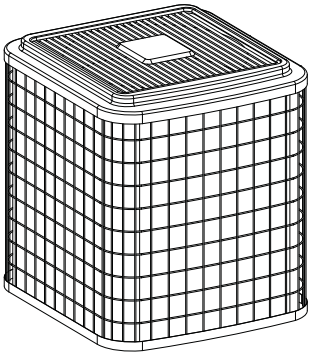
BOTTOM PLAN VIEW

Floor Stand Model	Nominal Height "C"
FS1-05	**5.0"** (4.2"-7" Adj.)
FS1-09	**9.0"** (8.2"-11" Adj.)
FS1-12	**12.0"** (11.2"-14" Adj.)
FS1-15	**15.0"** (14.2"-17" Adj.)
FS1-18	**18.0"** (17.2"-20" Adj.)
FS1-24	**24.0"** (23.2"-26" Adj.)

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

Outdoor Mtd: 3.5 to 10.0 Tons, DX - Air Cooled Propeller Fan, Remote Condensing Units & Condensers

Models: XPU & XP1-042 thru 120



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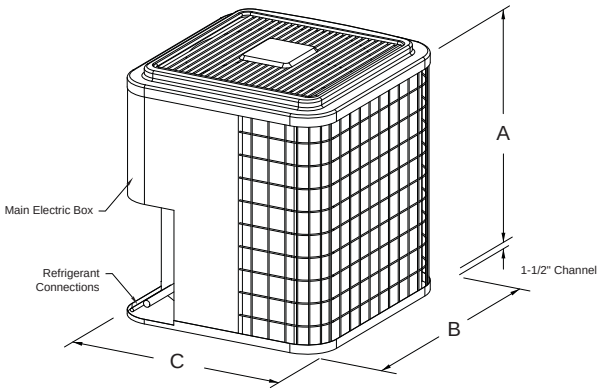

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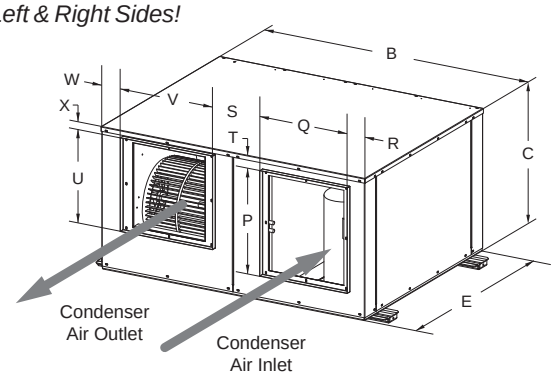
XPU & XP1-( ) Model Size	Dimensions		
	A	B	C
XPU & XP1-042	35-3/4"	31-3/16	31-3/16"
XPU & XP1-060	28-15/16"	31-3/16	31-3/16"
XPU & XP1-072	41-1/2"	35-1/2"	35-1/2"
XPU & XP1-096	41-1/2"	35-1/2"	35-1/2"
XPU & XP1-120	41-1/2"	35-1/2"	35-1/2"

Indoor Ceiling Mtd: 3.5 to 10.0 Tons, DX - Air Cooled Centrifugal Blower, Remote Condensing Units & Condensers

Models: XCU & XCX-042 thru 120

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



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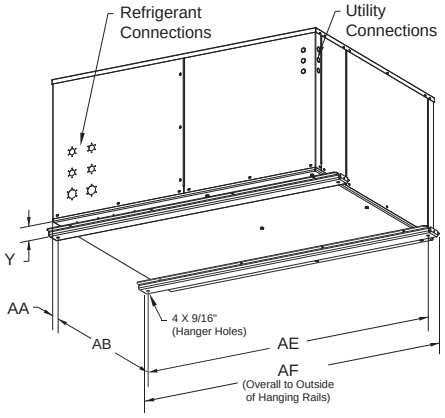

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DIMENSIONS(inches)																	
XCU & XCX-( ) Model No.	B	C	E	P	Q	R	S	T	U	V	W	X	Y	AA	AB	AE	AF
042 & 060	54	27	42	20	18	3	9-5/8	2	17-3/8	19	4-3/8	1-5/16	1	5	32	57-1/2	60
072, 096 & 120	74	29	58	24	30	2-3/4	14-1/8	2	18-1/4	23	4-1/8	2-7/8	1	5	48	77-1/2	80

Model Nomenclature

Packaged Systems & Split Evaporators

VC	H	-	060	-	4	-	E1	H	-	UFFR
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: 042** = 3.5 Tons; **060** = 5.0 Tons; **072** = 6.0 Tons; **096** = 8.0 Tons; **120** = 10.0 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:
- **UFFR** - Up-Flow Front-Free Return / Top Discharge Air Pattern
- **UFRR** - Up-Flow Rear-Ducted Return / Top Discharge Air Pattern
- **DF** - Down-Flow Air Pattern

Heat Rejection Systems

X	P	U	-	060	-	4	-	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	XCU	XCX	XPU	XP1	VCW & VCG	V_-FE/DC	VCC
042	450	575	475	340	185	130	600	700	450
060	450	600	485	350	195	140	625	725	450
072	600	790	875	700	290	200	840	940	600
096	600	800	885	715	290	200	850	950	600
120	600	810	895	725	315	215	860	960	600

Innovative HVAC Solutions

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)

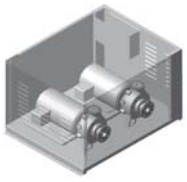
Comfort - Packaged & Split Vertical Floor Mounted Air Conditioners
(1 to 45 Tons)

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)



www.aboveair.com

AboveAir Technologies

5179 Mountville Road
Frederick, Maryland 21703, U.S.A.
Phone: 301-874-1130, Facsimile: 301-874-1131

Email: sales@aboveair.com

Form: MC1-L16

Specifications are subject to change without notice.