

**VCA UNIVERSAL FAN COIL UNIT**  
MDL PROFESSIONAL GRADE HVAC SOLUTIONS



# INVESTING IN QUALITY, RELIABILITY & PERFORMANCE



Management Service



## ISO 9001 QUALITY

### WORLD LEADING DESIGN AND TECHNOLOGY

Equipped with the latest air-conditioning test rooms and manufacturing technology, we produce over 50,000 fan coil units each year, all conforming to the highest international standards of quality and safety.

Every product is manufactured to meet the stringent requirements of the internationally recognized ISO 9001 standard for quality assurance in design, development and production.

## ETL SAFETY STANDARDS

### THE HIGHEST STANDARDS OF MANUFACTURING

In order to guarantee the very highest standards and performance, we manage every stage in the manufacturing of our products. Throughout the production process we maintain strict control, starting with our extensive resources in research and development through to the design and manufacturing of almost every individual component, from molded plastics to unit and controller assembly.

All products conform to UL standard for Safety for Heating and Cooling Equipment UL1995 4th Edition, October 14, 2011.

All products conform to CSA standard with Safety for Heating and Cooling Equipment CSA C22.2 No.236-11, 4th Edition, October 14 2011.

## WEEE MARK

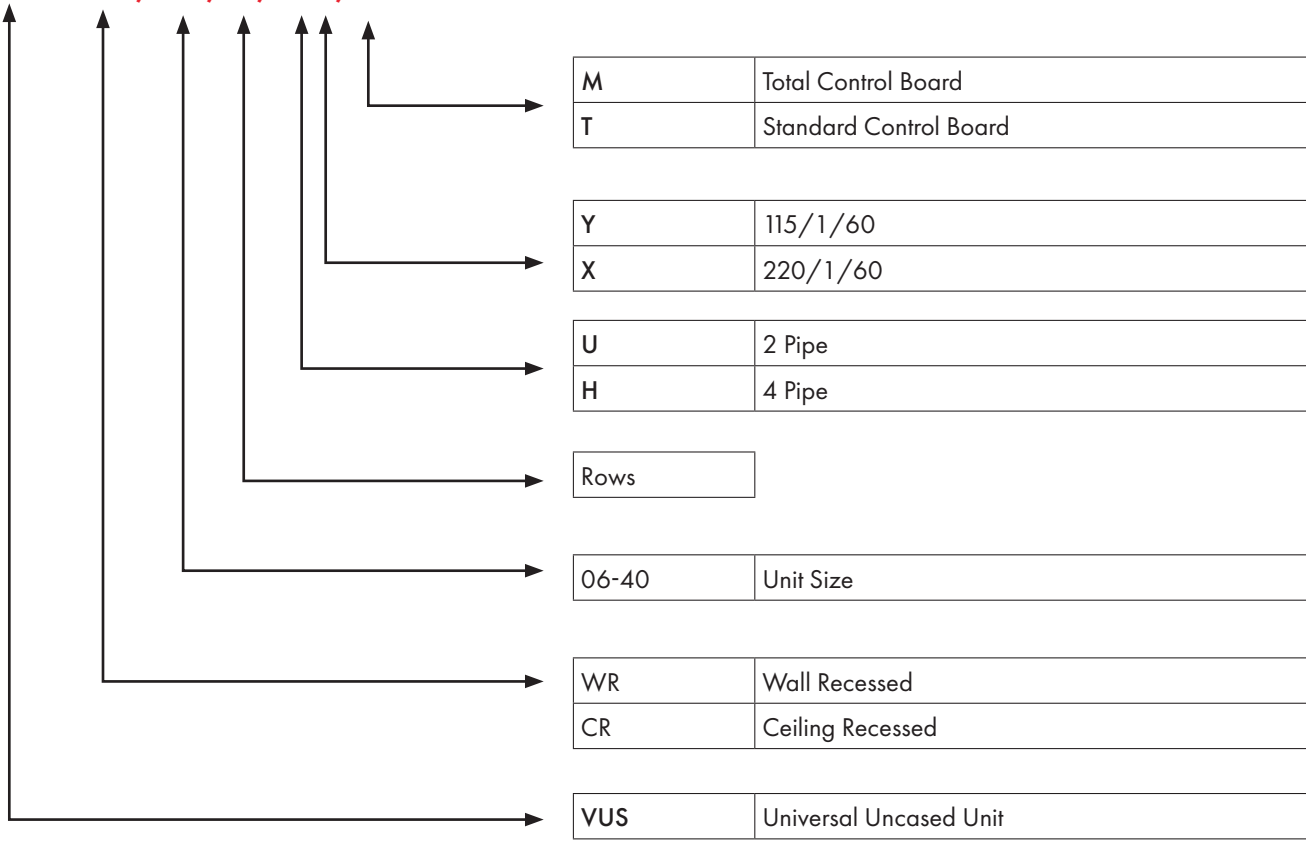
### THE HIGHEST STANDARDS OF MANUFACTURING

Our highly trained staff and strict quality control methods enable us to produce products with an exceptional reputation for reliability and efficiency, maintained over many years. As well as full CE certification and ISO 9001, several products ranges have UL / ETL safety approval in the USA and Canada, Eurovent performance and sound certification as well as ROHS compliance for Europe, giving you the confidence of knowing our company is the right choice when selecting fan coil units.

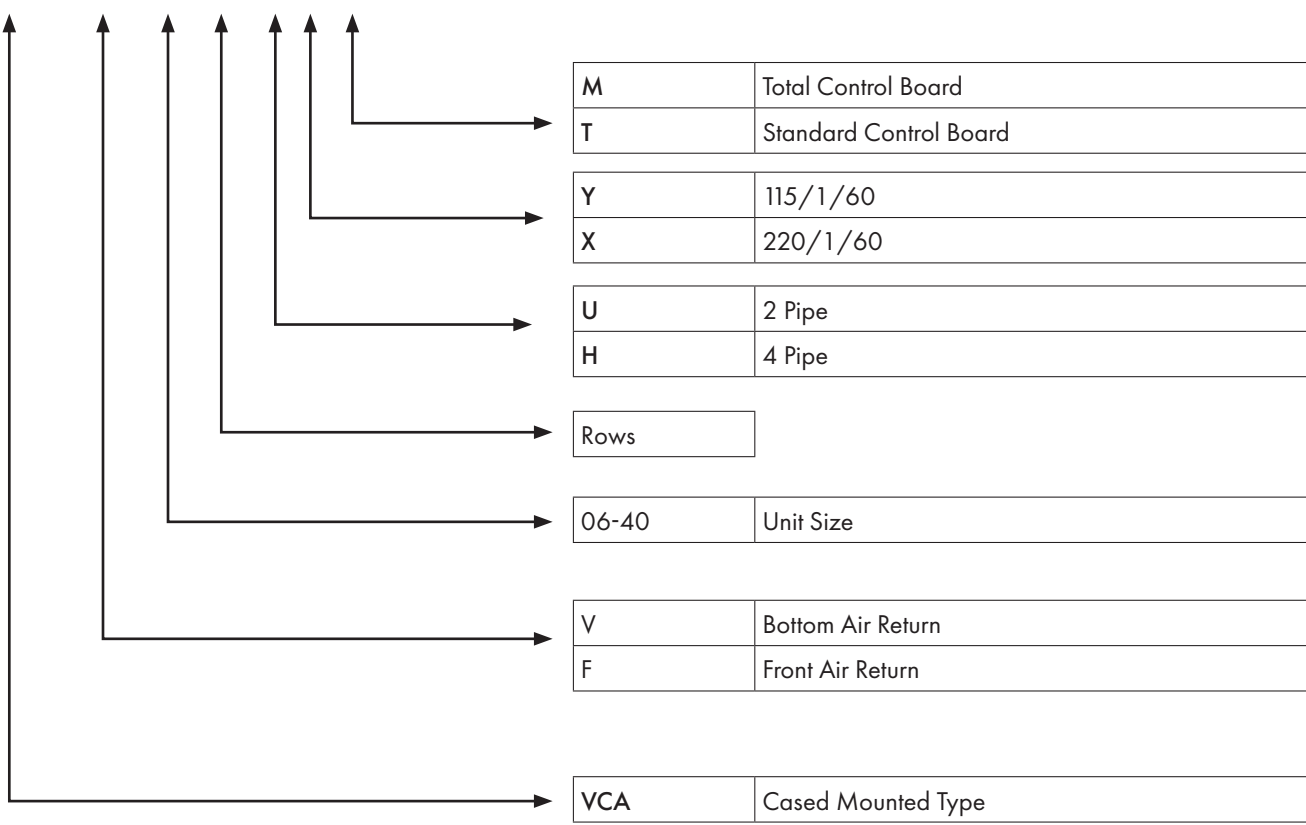
All products conform to the "WEEE" directive to guarantee correct standards of environmental solutions.

# MODEL CODE NOMENCLATURE

## VUS0-WR/15/3/UY/T



## VCA0 -V/24/3/UY/T



# TECHNICAL DATA

## GENERAL DESCRIPTION

The Universal Fan Coil is designed to meet and exceed the demanding requirements for efficiency and quiet operation.

### STRUCTURE

The bearing structure is made of galvanized sheet-steel with openings for attaching the unit to the wall/ceiling. The "V" type drain pan ensures the unit can be installed vertically or horizontally. Fire resistant insulation is fitted internally to provide both thermal and acoustic insulation.

### CABINET

The cabinet is made of galvanized-steel which is resistant to rust, corrosion, chemical agents, solvents, aliphatic compounds and alcohols. The cabinet has thermal acoustic internal insulation and openings to hang the unit from.

### AIR DELIVERY GRILLE

The air delivery grille has fixed fins. Painted with RAL 9010, the steel cabinet has an ABS air discharge grille (only for VCA0) and is supplied with small side doors for easy access to the control panel.

### COIL

Constructed with seamless copper tubes and headers. The tubes are mechanically expanded into corrugated aluminum fin material for a permanent primary to secondary surface bond. Coils are tested at 362 psi and recommended for maximum operating at 232 psi. Coils include manual air vent and water purge valve.

### FAN SECTION

The fan section includes 1 or 2 centrifugal fans consisting of double air inlet blades made of forward curving metal fins that are directly attached to the EC motor. The fan section is statically and dynamically balanced. Wide diameter fans create high air flow and high static pressure while fewer revolutions generate a low noise level.

### EC MOTOR

The unit uses an EC motor with driven controls PCB, a constant torque, permanent magnet, brushless DC motor with preliminary 3-speed setting that allow for precise air balancing.

### AIR FILTER

Reusable wire framed filters are fitted and may be vacuum cleaned. Merv 8 efficiency 3M HAF filter is optional.

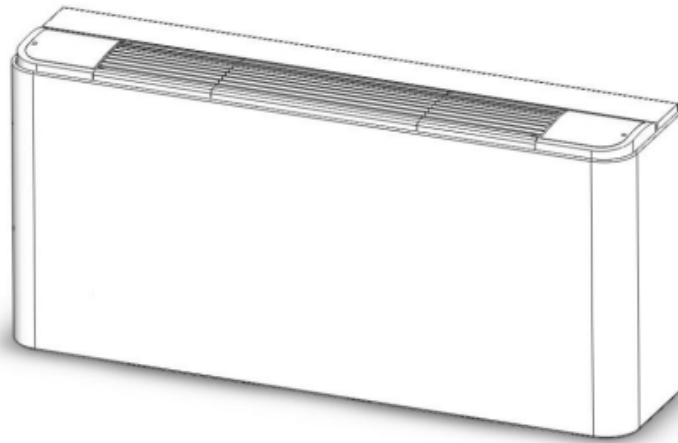
### COMPLETE CONTROL

The PCB (printed circuit board) microprocessor controls functionality of the indoor-fan motor, water valves (ON/OFF or modulating) and electric heater (optional), to maintain room conditions at a user-defined set point. Temperature settings, fan speeds and other control functions can be changed by either infrared handset or wired wall pad (*currently not available in North America*). 2pcs of 40 VA 24 V AC transformer are equipped with unit, which is used to supply 24 V AC power ON/OFF valve or modulating valve.

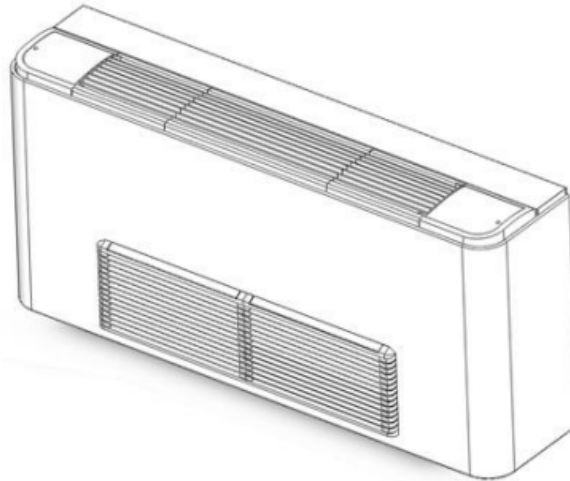
### STANDARD CONTROL

A 24 V AC signal from the thermostat which working power is from R and C. When any of G2/G1/G0 is powered ON or Modulating signal is more than 2.0 V DC, the stepping motor is working and open the louver at maximum position. When all of G2/G1/G0 is powered OFF or modulating valve is less than 2.0 V DC, the stepping motor will close the louver. The condensate pump will run continuously, as long as coil temperature is less than 59°F. Alarm notification and zone control function are available. 40 V AC 24 V AC transformer is equipped with unit, which is used to supply 24 V AC power to thermostat and modulating valve.

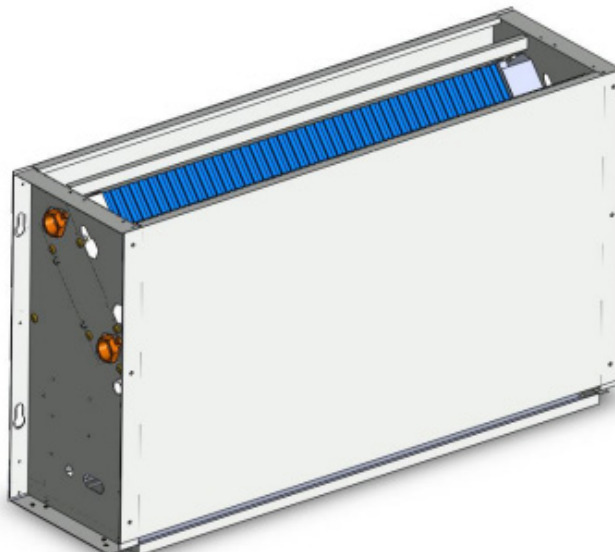
# UNIT APPEARANCE



**VCA0-V - CASED WITH VERTICAL AIR RETURN**



**VCA0-F - CASED WITH HORIZONTAL AIR RETURN**



**VUS0-WR/CR - UNCASD. FOR WALL OR CEILING RECESSED APPLICATION**

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# 2-PIPE SYSTEMS

## VUS/VCA - 2 PIPE UNITS - 3 ROW

VUS/VCA - [SIZE]				6	9	12	15	18	24	30	36	40		
UNIT CONFIGURATION	CONFIGURATION			2-PIPE										
	NUMBER OF FAN BLOWERS			SINGLE	TWIN						FOUR			
	POWER SUPPLY		V/PH/HZ	220/1/60										
	OPERATION CONTROL			~M: Complete Control										
				~T: Standard Control										
PERFORMANCE DATA	AIR	AIR FLOW	H	CFM	194	296	398	494	571	794	926	1138	1296	
			M		165	254	318	410	486	688	847	1006	1196	
			L		116	201	265	357	398	582	720	794	1000	
	COOLING	COOLING CAPACITY	H	BTU/Hr	5543	7991	10375	13189	15183	19974	23529	28632	32446	
			M		4881	7111	8846	11509	13380	17938	21891	25945	30777	
			L		3720	5961	7622	10353	11448	15772	19379	21613	26850	
		SENSIBLE COOLING CAPACITY	H		3771	5440	7126	8998	10286	13850	16218	19674	22230	
			M		3283	4788	5987	7754	8987	12309	14968	17653	21004	
			L		2475	3988	5137	6940	7654	10767	13164	14602	18102	
	HEATING	HEATING CAPACITY	H	BTU/Hr	8618	12422	16129	20503	23602	31050	36576	44510	50438	
			M		7588	11055	13751	17891	20800	27885	34031	40333	47844	
			L		5783	9266	11849	16094	17797	24518	30125	33599	41739	
		MAX. ELECTRIC HEATER CAPACITY@115V			KW	1	1.5	2			3			
	MAX. ELECTRIC HEATER CAPACITY@220V		0.5	0.5		1			1.5					
	ELECTRICAL	FAN MOTOR POWER	H	W	17	26	38	44	52	87	100	128	182	
			M		13	15	23	30	36	60	71	92	147	
			L		8	11	13	22	23	40	51	56	92	
		FAN MOTOR RUNNING CURRENT @ 115V		A	0.30	0.45	0.66	0.77	0.90	1.51	1.74	2.23	3.17	
	FAN MOTOR RUNNING CURRENT @ 220V		A	0.15	0.24	0.35	0.40	0.47	0.79	0.91	1.16	1.65		
	SOUND	SOUND PRESSURE LEVEL	H	dB(A)	41/39/33	43/40/36	46/43/39	51/46/43	51/48/44	51/48/46	55/51/49	57/54/50	60/58/56	
		SOUND POWER LEVEL	M		50/48/42	52/49/45	55/52/48	60/55/52	60/57/53	60/57/55	64/60/58	66/63/59	69/67/65	
	HYDRAULIC	COOLING WATER FLOW RATE	H	GPM	1.1	1.6	2.1	2.6	3	4	4.7	5.7	6.4	
			M		1	1.4	1.8	2.3	2.6	3.5	4.3	5.1	6.1	
			L		0.7	1.2	1.5	2	2.3	3.1	3.8	4.3	5.3	
COOLING PRESSURE DROP		H	PD FT	2.4	4.9	3	5.2	6.9	2.1	3.1	4.7	6.3		
		M		2	4.0	2.3	4.1	5.6	1.8	2.7	4	5.8		
		L		1.2	2.9	1.8	3.4	4.3	1.4	2.2	2.9	4.6		
HEATING WATER FLOW RATE		H	GPM	1.1	1.6	2	2.6	3	3.9	4.7	5.7	6.4		
		M		1	1.4	1.8	2.3	2.6	3.5	4.3	5.1	6.1		
		L		0.7	1.2	1.5	2	2.3	3.1	3.8	4.3	5.3		
HEATING PRESSURE DROP		H	PD FT	2.2	4.4	2.7	4.7	6.2	1.9	2.8	4.3	5.7		
	M	1.8		3.6	2	3.7	5	1.6	2.5	3.6	5.2			
	L	1.1		2.7	1.6	3.1	3.8	1.3	2	2.6	4.1			
WATER CONTENT		GAL	0.17	0.19	0.25	0.31	0.33	0.46	0.52	0.58	0.64			
CONSTRUCTION AND PACKING DATA	WATER		Type	NPT Threaded female										
	CONNECTIONS		In	INCH	3/4									
			Out											
	CONDENSATE DRAINAGE CONNECTION													
	DIMENSIONS	L	INCH	33-3/4	35-3/4	41-5/8	47-9/16	49-1/2	69-3/16	69-3/16	75-1/8	81		
		W		9-13/16										
H		19-7/16												
NET WEIGHT		LBS	49	53	57	66	71	95	104	108	119			

### COOLING MODE (2-PIPE/ 4-PIPE)

- Return air temperature: 80°F DB/ 67°F WB.
- Inlet/ outlet water temperature: 45°F/55°F.

### HEATING MODE (2-PIPE)

- Return air temperature: 70°F.
- Inlet water temperature: 140°F.

(ALL DIMENSIONS ARE APPROXIMATE WITHIN 1/16 OF AN INCH OF THOSE INDICATED)

# VUS/VCA - 2 PIPE UNITS - 4 ROW

VUS/VCA - [SIZE]				6	9	12	15	18	24	30	36	40		
UNIT CONFIGURATION	CONFIGURATION			2-PIPE										
	NUMBER OF FAN BLOWERS			SINGLE	TWIN					FOUR				
	POWER SUPPLY		V/PH/HZ	220/1/60										
				115/1/60										
OPERATION CONTROL			~M: Complete Control ~T: Standard Control											
PERFORMANCE DATA	AIR	AIR FLOW	H	CFM	194	296	398	494	571	794	926	1138	1296	
			M		165	254	318	410	486	688	847	1006	1196	
			L		116	201	265	357	398	582	720	794	1000	
	COOLING	COOLING CAPACITY	H	BTU/Hr	6056	8593	11235	13695	16184	22904	27995	33105	38327	
			M		5333	7647	9579	11950	14262	20570	26048	29998	36356	
			L		4064	6410	8254	10750	12203	18086	23058	24989	31717	
		SENSIBLE COOLING CAPACITY	H	BTU/Hr	3969	5730	7455	9146	10745	15261	18627	21964	25562	
			M		3455	5043	6263	7881	9388	13563	17192	19708	24152	
			L		2605	4201	5373	7054	7996	11865	15119	16302	20815	
	HEATING	HEATING CAPACITY	H	BTU/Hr	9415	13358	17465	21289	25159	35606	43520	51463	59581	
			M		8290	11888	14890	18577	22172	31976	40492	46333	56517	
			L		6317	9964	12831	16711	18971	28116	35844	38847	49305	
		MAX. ELECTRIC HEATER CAPACITY@220V		KW	1	1.5	2	2	2	3	3	3	3	
	MAX. ELECTRIC HEATER CAPACITY@115V		0.5		0.5	1	1	1	1.5	1.5	1.5	1.5		
	ELECTRICAL	FAN MOTOR POWER	H	W	17	26	38	44	52	87	100	128	182	
			M		13	15	23	30	36	60	71	92	147	
			L		8	11	13	22	23	40	51	56	92	
	FAN MOTOR RUNNING CURRENT @ 115V		A	0.30	0.45	0.66	0.77	0.90	1.51	1.74	2.23	3.17		
	FAN MOTOR RUNNING CURRENT @ 220V		A	0.15	0.24	0.35	0.40	0.47	0.79	0.91	1.16	1.65		
	SOUND	SOUND PRESSURE LEVEL		dB(A)	41/39/33	43/40/36	46/43/39	51/46/43	51/48/44	51/48/46	55/51/49	57/54/50	60/58/56	
		SOUND POWER LEVEL			50/48/42	52/49/45	55/52/48	60/55/52	60/57/53	60/57/55	64/60/58	66/63/59	69/67/65	
	HYDRAULIC	COOLING WATER FLOW RATE	H	GPM	1.2	1.7	2.2	2.7	3.2	4.5	5.5	6.5	7.6	
			M		1.1	1.5	1.9	2.4	2.8	4.1	5.1	5.9	7.2	
			L		0.8	1.3	1.6	2.1	2.4	3.6	4.6	4.9	6.3	
COOLING PRESSURE DROP		H	PD FT	25.1	7.4	13.8	7.4	10.3	10.9	16.9	24.7	34.6		
		M		20.2	6	10.5	5.9	8.3	9.1	15	20.9	31.7		
		L		12.8	4.5	8.2	4.9	6.4	7.3	12.2	15.3	25.1		
HEATING WATER FLOW RATE		H	GPM	1.2	7.2	2.22	2.7	3.2	4.52	5.53	6.54	7.57		
		M		1.05	1.51	1.89	2.36	2.82	4.06	5.14	5.92	7.18		
		L		0.8	1.27	1.63	2.12	2.41	3.57	4.55	4.93	6.26		
HEATING PRESSURE DROP		H	PD FT	22.6	6.6	12.4	6.6	9.3	9.8	15.2	22.2	31.2		
		M		18.2	5.4	9.5	5.3	7.5	8.1	13.5	18.8	25.5		
		L		11.5	4	7.3	4.4	5.7	6.5	10.9	13.8	22.6		
WATER CONTENT		GAL	0.23	0.26	0.3	0.42	0.44	0.61	0.69	0.77	0.85			
CONSTRUCTION AND PACKING DATA	WATER		Type	NPT Threaded female										
	CONNECTIONS		In	INCH	3/4									
			Out											
	CONDENSATE DRAINAGE CONNECTION													
	DIMENSIONS	L	INCH	33-3/4	35-3/4	41-5/8	47-9/16	49-1/2	69-3/16	69-3/16	75-1/8	81		
W		9-13/16												
H		19-7/16												
NET WEIGHT		LBS	49	53	57	66	71	95	104	108	119			

## COOLING MODE (2-PIPE)

- Return air temperature: 80°F DB/ 67°F WB.
- Inlet/ outlet water temperature: 45°F/55°F.

## HEATING MODE (2-PIPE)

- Return air temperature: 70°F.
- Inlet water temperature: 140°F.

(ALL DIMENSIONS ARE APPROXIMATE WITHIN 1/16 OF AN INCH OF THOSE INDICATED)

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# 4-PIPE SYSTEMS

## VUS/VCA - 4 PIPE UNITS - 3+1 ROW

VUS/VCA - [SIZE]				6	9	12	15	18	24	30	36	40	
UNIT CONFIGURATION	CONFIGURATION			4-PIPE									
	NUMBER OF FAN BLOWERS			SINGLE	TWIN				FOUR				
	POWER SUPPLY		V/PH/HZ	220/1/60 115/1/60									
	OPERATION CONTROL			~M: Complete Control ~T: Standard Control									
PERFORMANCE DATA	HEATING	HEATING CAPACITY	H	BTU/Hr	6214	8816	11747	14594	16377	22719	26377	31485	35540
			M		5496	7773	9990	12732	14693	20581	24542	28807	33553
			L		4184	6589	8645	11364	12628	17992	21725	24157	29540
	HYDRAULIC	HEATING WATER FLOW RATE	H	GPM	0.3	0.4	0.6	0.7	0.8	1.1	1.3	1.6	1.8
			M		0.3	0.4	0.5	0.6	0.7	1	1.2	1.4	1.7
			L		0.2	0.3	0.4	0.6	0.6	0.9	1.1	1.2	1.5
		HEATING PRESSURE DROP	H	PD FT	0.5	0.9	1.8	3.2	4.1	1.3	2	2.9	3.9
			M		0.4	0.7	1.4	2.5	3.4	1.1	1.7	2.5	3.6
			L		0.2	0.6	1.1	2.1	2.6	0.9	1.4	1.8	2.9
		WATER CONTENT		gal	0.06	0.07	0.08	0.1	0.11	0.15	0.17	0.19	0.21
WATER CONNECTIONS		In	INCH	1/2									

### HEATING MODE (4-PIPE)

- Return air temperature: 70°F.
- Inlet/Outlet Water Temperature - 180/140°F

#### NOTE

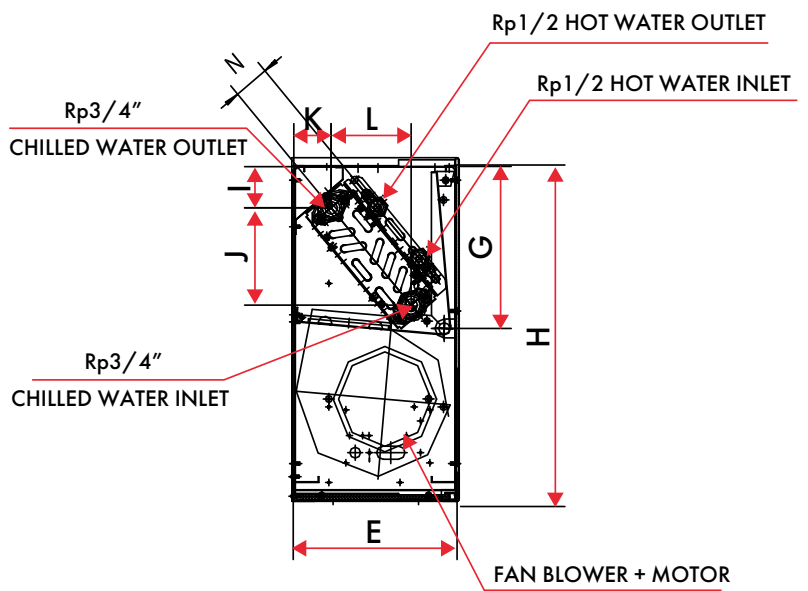
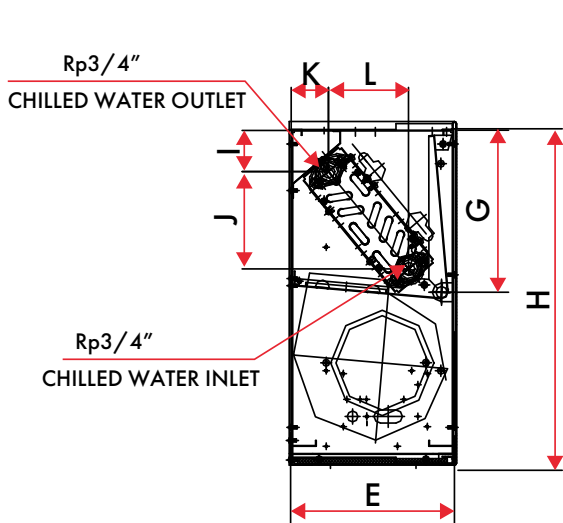
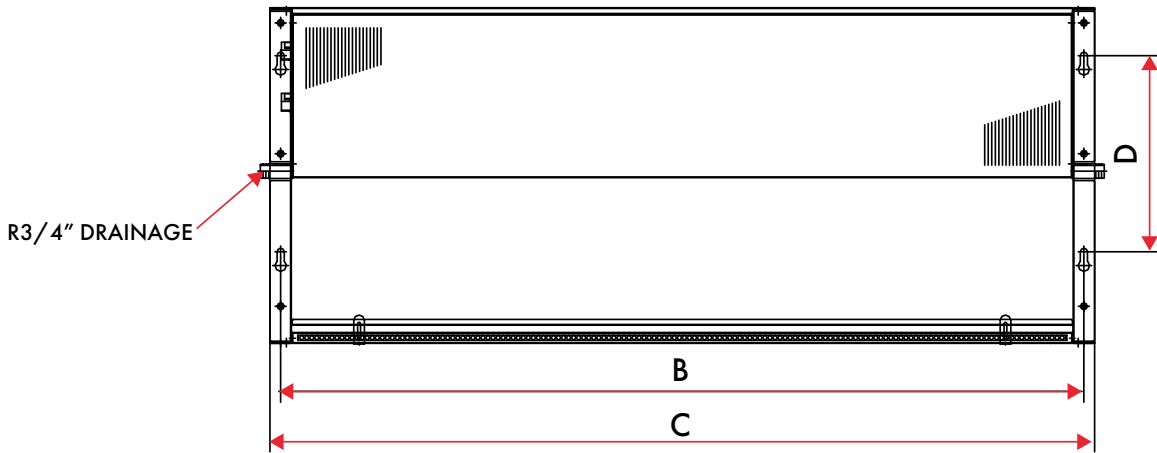
Cooling Performance will be identical to VUS/VCA-2Pipe-3 Row on Page 5.

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# DIMENSIONAL DRAWINGS

## DIMENSIONAL DRAWINGS: VUS SERIES - UNCASSED

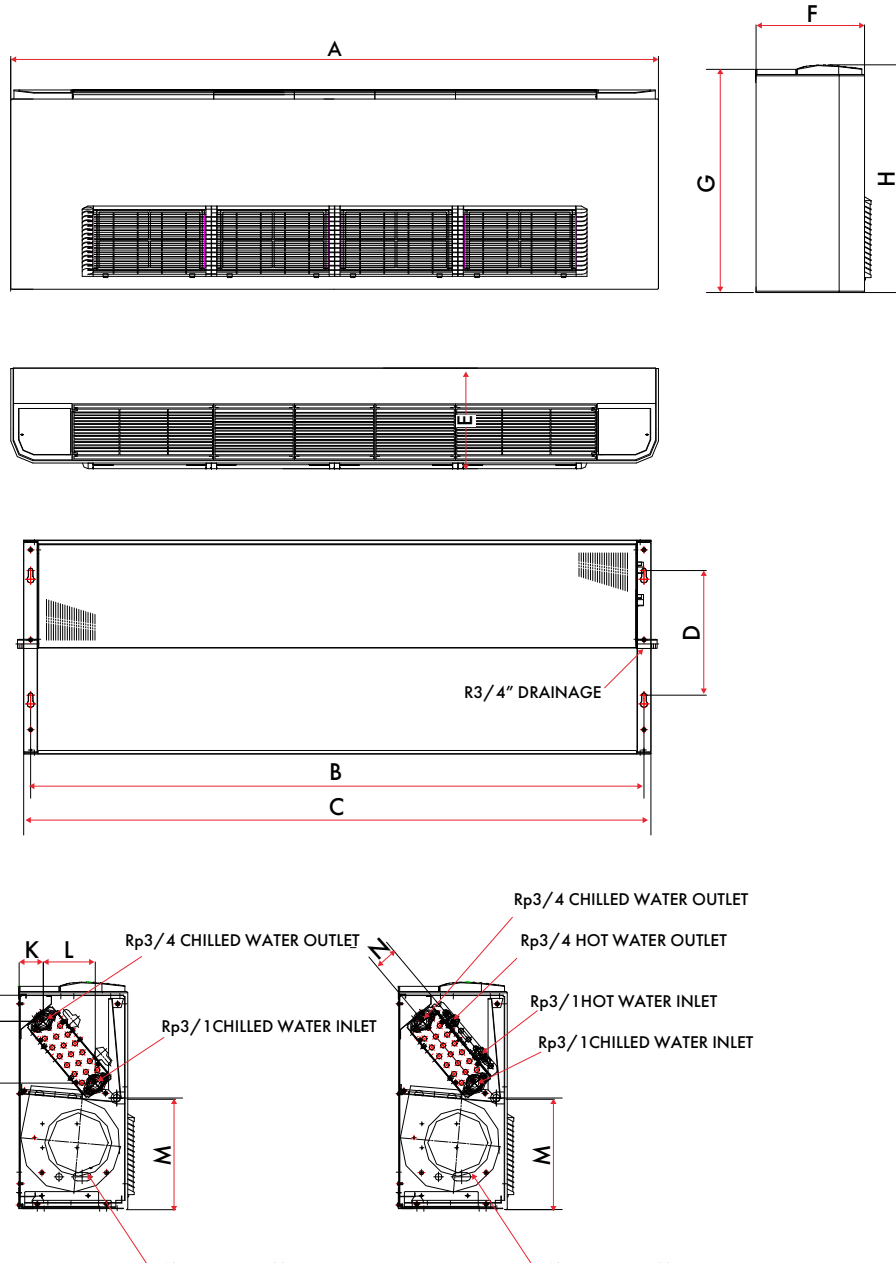


MODEL	B	C	D	E	G	H	I	J	K	L	N
VUS-06	22-3/4	23-15/16	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2
VUS-09	24-3/4	25-15/16	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2
VUS-12	30-5/8	31-13/16	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2
VUS-15	36-9/16	37-3/4	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2
VUS-18	38-1/2	39-11/16	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2
VUS-24	58-3/16	59-3/8	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2
VUS-30	58-3/16	59-3/8	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2
VUS-36	64-1/16	65-1/4	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2
VUS-40	70	71-3/16	10-5/8	9-1/16	8-3/4	18-1/8	2-1/4	5-1/4	2-1/16	4-7/16	2

ALL DIMENSIONS ARE IN INCHES

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# DIMENSIONAL DRAWINGS: VCA SERIES - WITH CASING



MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N
VCA-06	33-3/4	22-3/4	23-15/16	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2
VCA-09	35-3/4	24-3/4	25-15/16	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2
VCA-12	41-5/8	30-5/8	31-13/16	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2
VCA-15	47-9/16	36-9/16	37-3/4	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2
VCA-18	49-1/2	38-1/2	39-11/16	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2
VCA-24	69-3/16	58-3/16	59-3/8	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2
VCA-30	69-3/16	58-3/16	59-3/8	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2
VCA-36	75-1/8	64-1/16	65-1/4	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2
VCA-40	81	70	71-3/16	10-5/8	9-13/16	9-1/4	19-1/16	19-7/16	2-1/4	5-1/4	2-1/16	4-7/16	9-1/2	2

ALL DIMENSIONS ARE IN INCHES

The manufacturer reserves the right to make changes to the design, colour and specifications of the product shown. All images are for illustrative purposes only and some features such as grilles are optional accessories and not considered as standard equipment.

# ACCESSORIES

## CONTROL ACCESSORIES



### INFRA-RED HANDSET CONTROLLER + WALL HOLDER AVAILABLE WITH COMPLETE CONTROL BOARD

With global control functionality for main and secondary unit groups (*Currently not available in North America*).



### ABS EXTERNAL LED RECEIVER

IR receiver in ABS housing with up to 70in length prewiring, which can be connected with S type controls only. LED lights show working mode or error code (*Currently not available in North America*).



### DIPS SWITCH CONFIGURATION SERVICE AVAILABLE WITH COMPLETE CONTROL BOARD

Preset DIP switches for master/slave option, 2/4-pipe, preheat temperature, operation mode settings.



### UNIVERSAL EC THERMOSTAT

#### AVAILABLE WITH STANDARD CONTROL BOARD

Main functions 2-pipe, 4-pipe, 2-pipe + floor heating mode, floor heating, cooling. AC/EC motor 3-speed control.



### UNLIMITED WIRED WALL PAD CONTROLLER

#### AVAILABLE WITH COMPLETE CONTROL BOARD

Features 7 day on/off timer program. Addressable main and secondary units allowing control of up to 32 secondary units via a single main unit with set or check of each unit parameters individually. Error display with addressable error diagnostic(main unit wall pad displays secondary unit address and error type). One Touch Global Control(Global Control Main Unit Wall Pad controls all units in the group). Complete with Onboard Room Air Temperature Sensor (*Currently not available in North America*).

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# ACCESSORIES

## UNIT ACCESSORIES



### AUXILIARY HEATING COILS

Easy to install heating coil for 4 pipe application



### ELECTRICAL HEATERS

The electric heater is supplied for winter heating as an alternative to the auxiliary hot water coil. We offer a complete range of PTC (Positive Thermal Coefficient) electric heaters kits, easy to connect to control box, with mounting fixture. The electric heater configuration is selectable by DIP switch on the internal control board to all electric heater options of the same design.



### VALVES + ACTUATOR

2-way or 3-way valve with motorized 24V on/off or modulation actuator. 0.3W power consumption on actuator. 350 psi body rating with 75 psi close-off pressure for valves.



### AUXILIARY DRAIN PANS FOR VERTICAL OR HORIZONTAL INSTALLATIONS

Painted steel drain pans for suspended ceiling, built-in horizontal or floor standing fixed wall installation with right or left side coil connections



### PLASTIC FEET FOR FLOOR STANDING UNIT FOR DECORATIVE CABINET APPLICATIONS ONLY

See technical manual for further information.

# VERANO<sup>®</sup>

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