

# VCL/VUL UNIVERSAL SLIM FAN COIL

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 for Safety for Heating and Cooling Equipment CSA C22.2 No.236-11, 4th Edition, October 14 2011.



## WEEE MARK

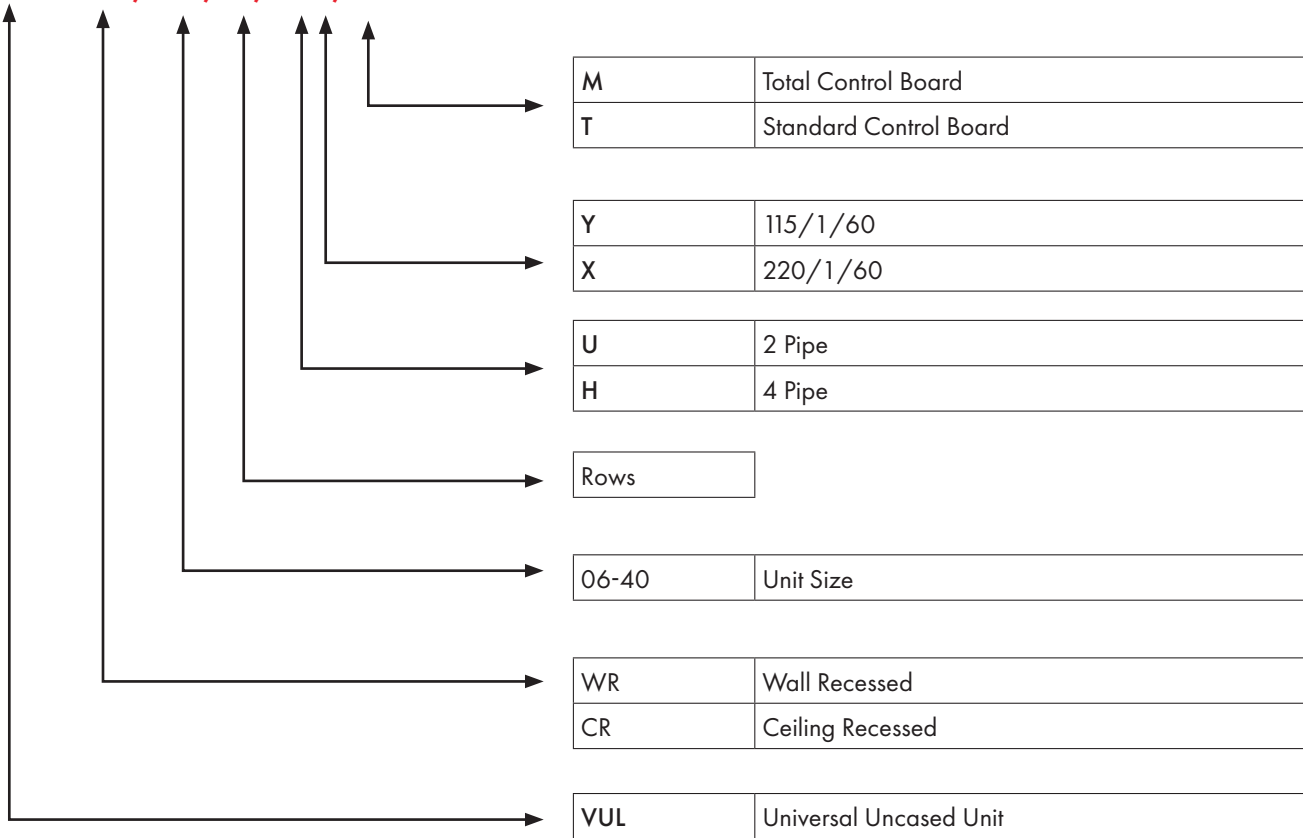
### THE HIGHEST STANDARDS OF MANUFACTURING

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.

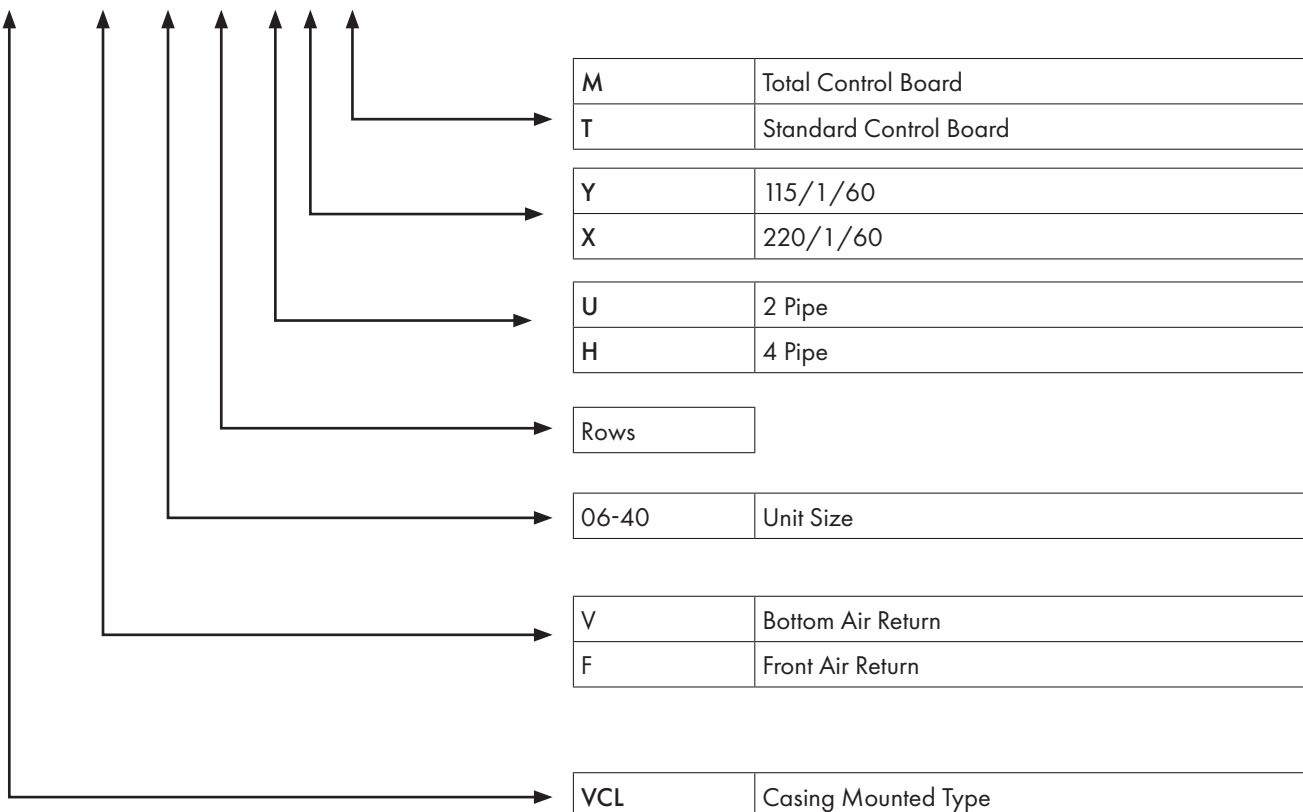
All products conform to the "WEEE" directive to guarantee correct standards of environmental solutions.

# MODEL CODE NOMENCLATURE

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



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



# TECHNICAL DATA

## GENERAL DESCRIPTION

The product represents an all-in-one solution for cooling, heating and dehumidification. It achieves high energy savings as it can be combined with low-temperature heat generators such as heat pumps, condensing boilers and solar collectors. With its sophisticated temperature regulator, it guarantees thermal comfort in every season. It heats and cools extremely quickly and once the desired temperature is reached, it is maintained accurately and silently.

### STRUCTURE

The bearing structure is made of galvanized sheet-steel with openings to attach the structure 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.

### CASING

The RAL9010 casing is made of sheet-steel with electrostatic coating, which is resistant to rust, corrosion, chemical agents, solvents, aliphatic compounds and alcohols.

### AIR DELIVERY GRILLE

The air delivery grille is made from aluminum.

### CHILLED WATER 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.

### BLOWER AND MOTOR

The unit incorporates specially designed and tested EC motors, allowing the blower wheel to provide optimum performance in airflow-efficiency and quiet operation.

### AIR FILTER

The air filter is made of ABS with a Nylon filter. It is easy to remove and clean, which can be done by rinsing with water or by gently vacuuming.

### COMPLETE CONTROL

The PCB (printed circuit board) microprocessor board relays control the operation of the indoor-fan motor, water valves (ON/OFF or modulating) and electric heater, to maintain room conditions at a user-defined set point. Temperature settings, fan speeds and other control functions can be changed by the infrared handset or wired wall pad.

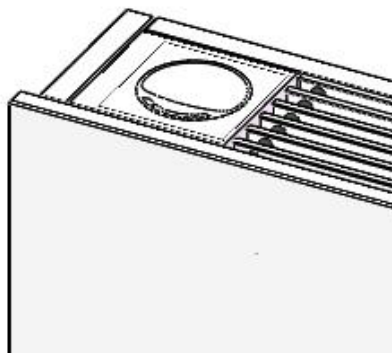
### STANDARD CONTROL

A 24 V AC signal from the thermostat from Rand C. When the G2/G1/G0 is powered of G2 ON or the Modulating signal is less than 2.0 V DC, the stepping motor is working and opens the louver to maximum position. When all of G2/G1/G0 is powered of G2 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.

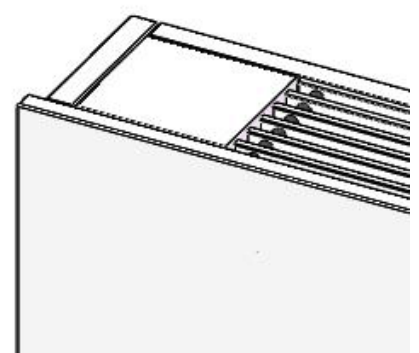
Complete Control



Standard Control



Thermostat-(optional)



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.

# GENERAL SPECIFICATION

## VCL - UNIVERSAL SLIM FAN COIL- 2-PIPE SYSTEMS

		VCL - 2 ROW - [SIZE]			1	2	3	4	5
UNIT CONFIGURATION	CONFIGURATION			2-PIPE					
	NUMBER OF FAN BLOWERS			1			2		
	POWER SUPPLY		V/PH/Hz	115/1/60					
	OPERATION CONTROL			~M: Complete Control					
			~T: Standard Control						
PERFORMANCE DATA	AIR	AIR FLOW	H	CFM	108	176	247	308	347
			M		86	135	196	242	265
			L		54	84	134	198	231
	COOLING	COOLING CAPACITY	H	BTU/Hr	3249	5552	7992	9880	11480
			M		2718	4535	6738	8243	9379
			L		1898	3103	5010	7094	8452
		SENSIBLE COOLING CAPACITY	H		2227	3738	5328	6618	7635
			M		1839	3015	4439	5455	6159
			L		1257	2018	3244	4672	5532
	HEATING	HEATING CAPACITY	H	BTU/Hr	5051	8630	12424	15358	17846
			M		4225	7051	10474	12815	14580
			L		2951	4824	7789	11028	13139
	MAX. ELECTRIC HEATER CAPACITY@115V			kW	0.75	1	1.5		
	SOUND	SOUND PRESSURE LEVEL			39/33/28	43/37/31	45/41/34	47/41/35	49/45/38
		SOUND POWER LEVEL			48/42/37	52/46/40	54/50/43	56/50/44	58/54/47
	ELECTRICAL	FAN MOTOR POWER	H	W	14	17	22	22	24
			M		10	12	15	14	16.3
	L		6		8	9	10	11	
	FAN MOTOR RUNNING CURRENT @ H 115V			A	0.24	0.30	0.38	0.38	0.42
	HYDRAULIC	COOLING WATER FLOW RATE	H	GPM	0.64	1.1	1.58	1.95	2.27
M			0.54		0.9	1.33	1.63	1.85	
L			0.37		0.61	0.99	1.4	1.67	
COOLING PRESSURE DROP		H	FT.WG	0.8	2.6	6	3.4	5.2	
		M		0.6	1.9	4.5	2.5	3.7	
		L		0.3	1	2.7	2	3.1	
HEATING WATER FLOW RATE		H	GPM	0.64	1.1	1.58	1.95	2.27	
		M		0.54	0.9	1.33	1.63	1.85	
		L		0.37	0.61	0.99	1.4	1.67	
HEATING PRESSURE DROP		H	FT.WG	0.7	2.4	5.4	3.1	4.7	
	M	0.5		1.7	4.1	2.3	3.3		
	L	0.3		0.9	2.5	1.8	2.8		
WATER CONTENT			GALLONS	0.116	0.193	0.272	0.349	0.425	
CONSTRUCTION AND PACKING DATA	WATER CONNECTIONS	Type		Socket (Female Threaded)					
		In	INCH	NPT 3/4					
	Out	5/8							
	CONDENSATE DRAINAGE CONNECTION			5/8					
	DIMENSIONS	L	INCH	29 1/8	37	44 7/8	52 3/4	60 5/8	
		W		5 1/8					
H		22 13/16							
NET WEIGHT			LBS	41.9	48.5	55.2	61.8	68.4	

### COOLING MODE (2-PIPE)

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

### HEATING MODE (2-PIPE)

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

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

# VCL - UNIVERSAL SLIM FAN COIL - 4-PIPE SYSTEMS

		VCL - 2+1 ROW - [SIZE]		1	2	3	4	5	
<b>UNIT CONFIGURATION</b>	<b>CONFIGURATION</b>		<b>4-PIPE</b>						
	NUMBER OF FAN BLOWERS		1			2			
	POWER SUPPLY	V/PH/HZ	115/1/60						
	OPERATION CONTROL		~M: Complete Control						
				~T: Standard Control					
<b>PERFORMANCE DATA</b>	<b>AIR</b>	AIR FLOW	H	CFM	108	176	247	308	347
			M		86	135	196	242	265
			L		54	84	134	198	231
	<b>COOLING</b>	COOLING CAPACITY	H	BTU/Hr	3228	5400	7685	9607	11143
			M		2700	4411	6479	8016	9103
			L		1886	3018	4818	6898	8204
		SENSIBLE COOLING CAPACITY	H		2182	3588	5124	6410	7415
			M		1802	2894	4269	5284	5982
			L		1231	1937	3119	4525	5373
	<b>HEATING</b>	HEATING CAPACITY	H	BTU/Hr	4123	6746	9522	11836	13722
			M		3422	5496	7968	9878	11115
			L		2383	3801	5937	8440	9963
	<b>SOUND</b>	SOUND PRESSURE LEVEL		dB(A)	39/33/28	43/37/31	45/41/34	47/41/35	49/45/38
		SOUND POWER LEVEL			48/42/37	52/46/40	54/50/43	56/50/44	58/54/47
	<b>ELECTRICAL</b>	FAN MOTOR POWER	H	W	14	17	22	22	24
			M		10	12	15	14	16.3
			L		6	8	9	10	11
	FAN MOTOR RUNNING CURRENT @ H 115V			A	0.24	0.30	0.38	0.38	0.42
	<b>HYDRAULIC</b>	COOLING WATER FLOW RATE	H	GPM	0.64	1.07	1.52	1.9	2.2
			M		0.53	0.87	1.28	1.58	1.8
L			0.37		0.6	0.95	1.36	1.62	
COOLING PRESSURE DROP		H	FT.WG	2.5	8.1	6.2	5	7.6	
		M		1.9	5.8	4.7	3.7	5.4	
		L		1	3	2.8	2.9	4.5	
HEATING WATER FLOW RATE		H	GPM	0.21	0.34	0.47	0.59	0.68	
		M		0.17	0.27	0.4	0.49	0.55	
		L		0.12	0.19	0.3	0.42	0.5	
HEATING PRESSURE DROP		H	FT.WG	0.9	3	7.1	1.8	2.7	
	M	0.7		2.1	5.2	1.3	1.9		
	L	0.4		1.1	3.2	1	1.6		
WATER CONTENT (CHILLED COIL)			GALLONS	0.06	0.1	0.14	0.18	0.22	
WATER CONTENT (HOT COIL)			GALLONS	0.030	0.050	0.070	0.090	0.110	
<b>CONSTRUCTION AND PACKING DATA</b>	WATER CONNECTIONS	Type	Socket (Female Threaded)						
		In Out	NPT: 1/2						
	CONDENSATE DRAINAGE CONNECTION		INCH	5/8					
	DIMENSIONS	L		29 1/8	37	44 7/8	52 3/4	60 5/8	
		W	5 1/8						
		H	22 13/16						
Net Weight			LBS	41.9	48.5	55.2	61.8	68.4	

## COOLING MODE (4-PIPE)

- Return air temperature: 80.0F DB/ 67.0F WB.
- Inlet/ outlet water temperature: 45F/55F.

## HEATING MODE (4-PIPE)

- Return air temperature: 70F.
- Inlet water temperature: 180F.
- Outlet water temperature: 140F.

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

# OPTIONAL ACCESSORIES

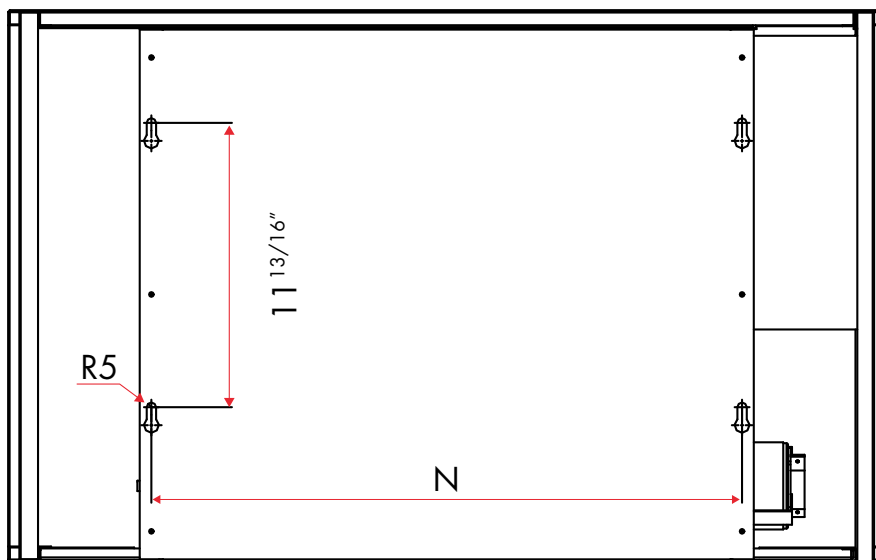
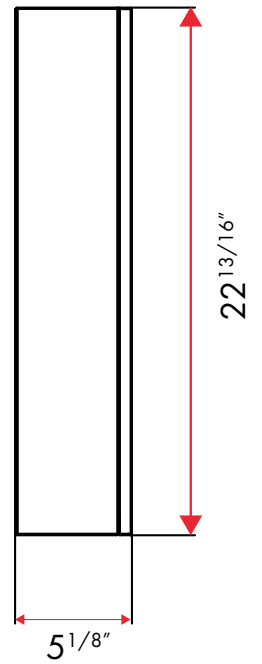
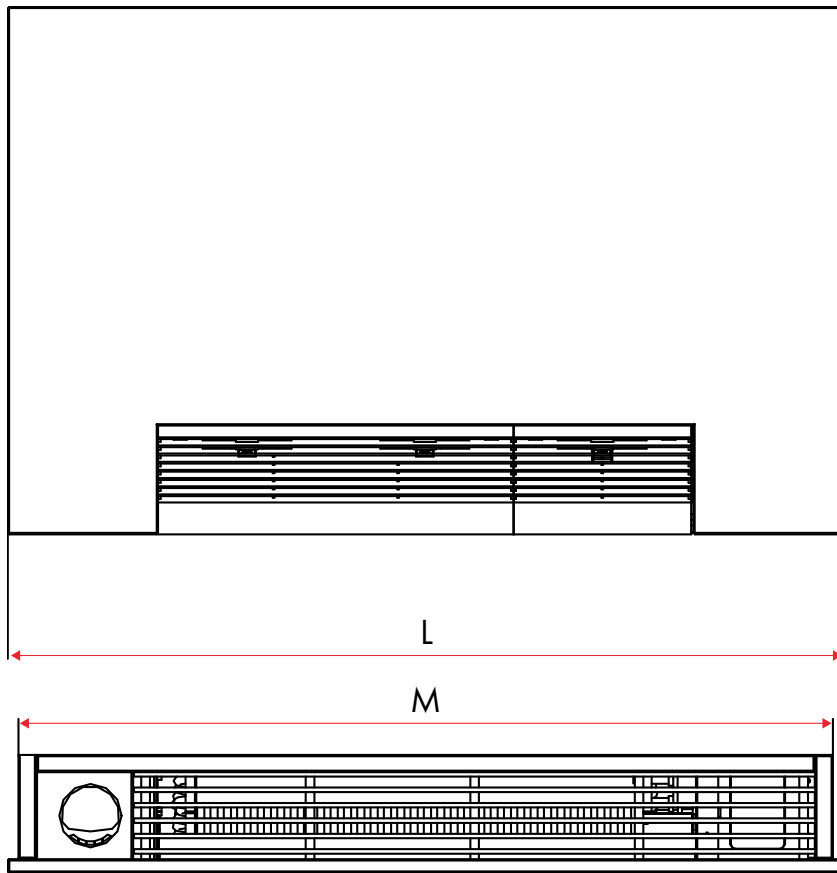
## UNIT ACCESSORIES

- Electrical Heaters
  - The electric heater module is supplied for winter heating as an alternative to the auxiliary hot water coil. We offer a complete range of electric heater kits, which are easy to connect to the control box with a mounting fixture. The electric heater configuration is selectable by DIP switch on the internal control board.
- Auxiliary heating coils
  - Factory or on-site installation heating coil for 4-pipe application.
- Valves & Actuator
  - 2-way or 3-way valve with motorized 24V on/off or modulating actuator integrated with SS hose and copper piping connection kits
- Auxiliary Drain Pans for Vertical or Horizontal Installations
  - Painted steel drain pans for ceiling suspension, built in horizontal or floor standing fixed wall installations with right/left sided coil connections
- Metal Feet for floor standing
  - For VCL Models Only

## CONTROL ACCESSORIES

- Complete Control Board
  - Infra-Red Handset Controller & Wall Holder (*Not currently available in North America*)
    - With Global Control functionality for Main and Secondary unit groups.
- Unlimited Wired Wall Pad Controller (*Not currently available in North America*)
  - **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.
- DIP Switch Configuration Service
  - Pre-set DIP switches for master/slave option, 2/4-pipe, Preheat temperature, Operation mode settings.
- ABS External LED Receiver (*Not currently available in North America*)
  - IR receiver in ABS housing with up to 70in length prewiring. LED lights show working mode or error code.
- Standard Control Board
  - Universal EC Thermostat
    - **Main functions:** 2-pipe, 4-pipe, 2-pipe+floor heating mode, floor heating, and cooling. AC/EC motor 3-speed control. Motorized valve control. 0-10 V DC Modulating valve. EC motor RPM control. Low temperature protection. Remote ON/OFF function. Power supply: 24 V AC or V DC. Working environment: 32-122, 5-95%RH (no condensate). Self-power consumption: <2W. Protection class: IP30.
- STCD Series Thermostats

# DIMENSIONS



MODEL	VCL-01	VCL-02	VCL-03	VCL-04	VCL-05
L	$29\frac{1}{8}"$	$37"$	$44\frac{7}{8}"$	$52\frac{3}{4}"$	$60\frac{5}{8}"$
M	$28\frac{3}{16}"$	$36\frac{1}{16}"$	$43\frac{15}{16}"$	$51\frac{13}{16}"$	$59\frac{11}{16}"$
N	$17\frac{1}{16}"$	$24\frac{15}{16}"$	$32\frac{13}{16}"$	$40\frac{11}{16}"$	$48\frac{9}{16}"$

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



# VERANO<sup>®</sup>

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