

# VKS CASSETTE FANCOILS

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

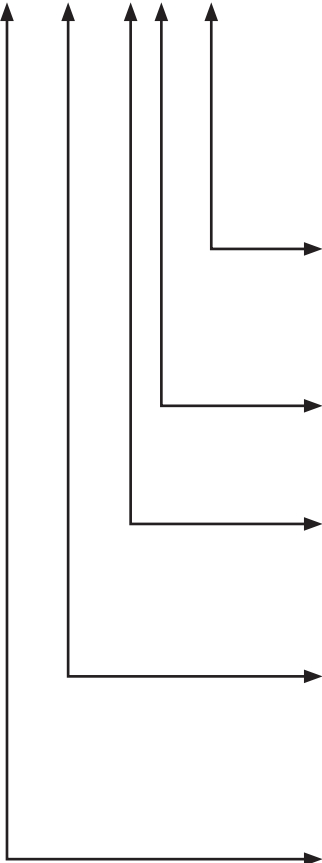
### THE HIGHEST STANDARDS OF MANUFACTURING

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

VKS1-04/UY/T



M	Complete control
T	Standard control
0	No control included

X	220V EC motor
Y	115V EC MOTOR

U	2 Pipe
H	4 Pipe

04 TO 16 (FOR VKS1)	Unit sizes. See general specification section A for cooling and heating capacities.
12 & 20 (FOR VKS2)	

VKS1	VKS Series 1
VKS2	VKS Series 2

# TECHNICAL DATA

## GENERAL DESCRIPTION

The Ceiling cassette units make each served area an independent controlled temperature zone providing effective decoupled heating and cooling.

### CONSTRUCTION

Cases are constructed of galvanized steel with integrated fan mounting rails for added strength. Fire-resistant insulation is fitted internally to provide both thermal and acoustic insulation. The RAL9010 fascia is constructed of high-impact polystyrene.

### COILS

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 operating at 232 psi. Coils include manual air vent and water purge valve.

### FAN

The backward-curved centrifugal fan is statically and dynamically balanced for quiet operation. Fan impellers are made from fire-retardant plastic for lightweight and corrosion-resistant operation.

### EC MOTOR

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

### FILTRATION

Reusable wire framed filters are fitted and may be vacuum cleaned.

### CONDENSATE PUMP

A condensate pump is fitted to carry water out of the unit. The pump is fixed to a mounting bracket. The pump can be withdrawn from the bottom after removing the front panel. A float switch is fitted to stop the cooling action, should the pump become blocked or fail.

### LOUVER

Louver blades are manufactured from ABS to prevent condensation from forming, automatic adjustment and driven by stepping motors on unit.

### FRESH AIR

The fresh air system for cassette units allow up to 15% of airflow (maximum air flow per connection is 60 CFM) as fresh air intake (per connection). A maximum of two fresh air connections per unit are allowed.

### COMPLETE CONTROL (M-TYPE)

The PCB (printed circuit board) Modbus microprocessor controls functionality of the indoor fan motor, water valves (ON/OFF) 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 controller.

### STANDARD CONTROL (T-TYPE)

The unit allows operation with a 24 V AC thermostat. When any motor speed terminals are powered ON or modulating signal is more than 2.0 V DC, the stepping motor activates and opens the louver to its maximum position. When all motor speed terminals are 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.

2-PIPE SYSTEMS

PRODUCT RANGE: VKS HYDRONIC CASSETTE WITH EC MOTOR

VKS [SERIES] - [SIZE]					VKS1-04R	VKS1-08	VKS1-08R	VKS1-09	
UNIT CONFIGURATION		CONFIGURATION			2-PIPE				
		NUMBER OF FAN BLOWERS			SINGLE			TWIN	
		POWER SUPPLY		V/PH/HZ	115/1/60 220/1/60				
		OPERATION CONTROL - VKS			~ M: Complete Control with integrated group control functionality ~ T: Standard control with drain pump, louver and zone control functionality ~ O: No control box pre-installed				
PERFORMANCE DATA	AIR	AIR FLOW	H	CFM	338	476	476	600	
			M		224	306	306	318	
			L		118	118	118	212	
	COOLING	COOLING CAPACITY	H	BTU/Hr	10732	15342	16563	20314	
			M		7885	10457	11530	12029	
			L		4579	4912	5141	8963	
		SENSIBLE COOLING CAPACITY	H		7479	10239	12734	13662	
			M		5391	6837	8685	7847	
			L		3094	3197	3841	5732	
	HEATING	HEATING CAPACITY	H	BTU/Hr	16684	23849	25748	31578	
			M		12257	16255	17923	18700	
			L		7118	7636	7992	13934	
		MAX. ELECTRIC HEATER CAPACITY@115V			1700	3400		5100	
		MAX. ELECTRIC HEATER CAPACITY@220V			3400	6800		10200	
	SOUND	SOUND PRESSURE LEVEL		dB(A)	43/39/27	50/40/26	50/40/26	45/42/30	
		SOUND POWER LEVEL			52/48/36	59/49/35	59/49/35	54/51/39	
	ELECTRICAL	POWER INPUT IN COOLING MODE	H	W	21	47	47	38	
			M		14.8	18	18	27	
			L		11	11	11	18	
		POWER INPUT IN HEATING MODE	H		16	42	42	33	
			M		9.8	13	13	22	
			L		6	6	6	13	
		FAN MOTOR RUNNING CURRENT @ 115V	H	A	0.37	0.82	0.82	0.66	
		FAN MOTOR RUNNING CURRENT @ 220V	H		0.19	0.43	0.43	0.35	
	HYDRAULIC	COOLING WATER FLOW RATE	H	GPM	2.1	3	3.3	4	
			M		1.6	2.1	2.3	2.4	
			L		0.9	1	1	1.8	
		COOLING PRESSURE DROP	H	FT/Head	5	10.6	14.4	10.8	
			M		2.9	5.5	7.8	4.4	
			L		1.2	1.5	2	2.7	
		HEATING WATER FLOW RATE	H	GPM	2.1	3	3.3	4	
			M		1.6	2.1	2.3	2.4	
			L		0.9	1	1	1.8	
		HEATING PRESSURE DROP	H	FT/Head	4.5	9.5	13	9.7	
			M		2.7	5	7	4	
			L		1.1	1.4	1.8	2.4	
WATER CONTENT			GAL	0.33	0.41	0.36	0.59		
CONSTRUCTION AND PACKING DATA		WATER CONNECTIONS	Type		Socket (Threaded Female NPT)				
			IN	INCH	3/4				
		OUT	Outside diameter: 1 Inside diameter: 13/16						
		CONDENSATE DRAINAGE CONNECTION		INCH	22-5/8				44-7/8
					22-5/8				22-13/16
		DIMENSIONS	L		9-13/16	11-7/16		9-13/16	
			W <td colspan="4">26-3/4 x 26-3/4 x 1-1/8</td> <td>26-3/4 x 48-13/16 x 1-1/8</td>		26-3/4 x 26-3/4 x 1-1/8				26-3/4 x 48-13/16 x 1-1/8
		PANEL DIMENSIONS		H					
NET WEIGHT			LBS	61.7	66.1	72.8	110		

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)

PRODUCT RANGE: VKS HYDRONIC CASSETTE WITH EC MOTOR

VKS [SERIES] - [SIZE]				VKS1-16	VKS2-12	VKS2-20		
UNIT CONFIGURATION	CONFIGURATION			2-PIPE				
	NUMBER OF FAN BLOWERS			TWIN	SINGLE			
	POWER SUPPLY		V/PH/HZ	115/1/60 220/1/60				
	OPERATION CONTROL - VKS			~ M: Complete Control with integrated group control functionality ~ T: Standard control with drain pump, louver and zone control functionality ~ 0: No control box pre-installed				
PERFORMANCE DATA	AIR	AIR FLOW	H	CFM	853	765	1300	
			M		535	482	812	
			L		212	212	482	
	COOLING	COOLING CAPACITY	H	BTU/Hr	28497	23358	32423	
			M		19515	16170	26552	
			L		8841	8295	18233	
		SENSIBLE COOLING CAPACITY	H		19128	15899	23166	
			M		12809	10746	18776	
			L		5761	5445	12609	
			HEATING		HEATING CAPACITY	H	BTU/Hr	44300
	M	30337		25137		41276		
	L	13744		12895		28343		
	MAX. ELECTRIC HEATER CAPACITY@115V			5100		6800		
	MAX. ELECTRIC HEATER CAPACITY@220V			10200		13600		
	SOUND	SOUND PRESSURE LEVEL		dB(A)	54/42/30	56/45/32	58/50/37	
		SOUND POWER LEVEL			63/51/39	65/54/41	67/59/46	
	ELECTRICAL	POWER INPUT IN COOLING MODE	H	W	89	82	224	
			M		34	37	79	
			L		18	16	27	
			POWER INPUT IN HEATING MODE		H	84	77	219
					M	29	32	74
					L	13	11	22
		FAN MOTOR RUNNING CURRENT @ 115V	H	A	1.55	1.43	3.90	
			FAN MOTOR RUNNING CURRENT @ 220V		H	0.81	0.75	2.04
	HYDRAULIC	COOLING WATER FLOW RATE	H	GPM	5.6	4.6	6.4	
			M		3.9	3.2	5.2	
			L		1.8	1.6	3.6	
		COOLING PRESSURE DROP	H	FT/Head	12.8	11.3	8.8	
			M		6.7	6	6.3	
			L		1.7	1.9	3.3	
		HEATING WATER FLOW RATE	H	GPM	5.6	4.6	6.4	
			M		3.9	3.2	5.2	
			L		1.8	1.6	3.6	
		HEATING PRESSURE DROP	H	FT/Head	11.5	10.1	7.9	
M			6		5.4	5.6		
L			1.6		1.7	3		
WATER CONTENT			GAL	0.73	0.47	0.64		
CONSTRUCTION AND PACKING DATA	WATER CONNECTIONS	Type		Socket (Threaded Female NPT)				
		IN	INCH	3/4				
	OUT	INCH		Outside diameter: 1 Inside diameter: 13/16				
	DIMENSIONS	L	INCH	44-7/8	28-3/4	32-11/16		
		W		22-13/16	28-3/4	32-11/16		
		H		11-7/16	10-1/4	11-7/16		
	PANEL DIMENSIONS			26-3/4 x 48-13/16 x 1-1/8	32-11/16 x 32-11/16 x 1-1/8	38-9/16 x 38-9/16 x 1-1/8		
	NET WEIGHT			LBS	115	79.4	110	

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)

The manufacturer reserves the right to make changes to the design, colour and specification of the products shown. Illustrations may include optional accessories.



4-PIPE SYSTEMS

PRODUCT RANGE: VKS HYDRONIC CASSETTE WITH EC MOTOR

VKS [SERIES] - [SIZE]					VKS1-08	VKS1-09	VKS1-16	VKS2-12	VKS2-20	
UNIT CONFIGURATION		CONFIGURATION			4-PIPE					
		NUMBER OF FAN BLOWERS			SINGLE	TWIN		SINGLE		
		POWER SUPPLY	V/PH/HZ	115/1/60 220/1/60						
		OPERATION CONTROL - VKS			~ M: Complete Control with integrated group control functionality ~ T: Standard control with drain pump, louver and zone control functionality ~ O: No control box pre-installed					
PERFORMANCE DATA	AIR	AIR FLOW	H	CFM	476	600	853	765	1235	
			M		306	318	535	482	812	
			L		118	212	212	212	482	
	COOLING	COOLING CAPACITY	H	BTU/Hr	12852	13298	16078	19609	22318	
			M		9129	8200	11783	13823	17245	
			L		4305	6000	5740	7165	13585	
		SENSIBLE COOLING CAPACITY	H		8794	9407	11280	13408	15307	
			M		6129	5621	8140	9265	11660	
			L		2873	4102	3946	4790	9018	
	HEATING	HEATING CAPACITY	H	BTU/Hr	14857	20246	25172	15851	31509	
			M		10642	12451	17819	11250	22839	
			L		4878	9148	8530	5789	15118	
		MAX. ELECTRIC HEATER CAPACITY@115V			3400	5100			6800	
		MAX. ELECTRIC HEATER CAPACITY@220V			6800	10200			13600	
	SOUND	SOUND PRESSURE LEVEL			dB(A)	50/40/26	45/42/30	54/42/30	56/45/32	58/50/37
		SOUND POWER LEVEL				59/49/35	54/51/39	63/51/39	65/54/41	67/59/46
	ELECTRICAL	POWER INPUT IN COOLING MODE	H	W	47	38	89	82	224	
			M		18	27	34	37	79	
			L		11	18	18	16	27	
			POWER INPUT IN HEATING MODE		H	42	33	84	77	219
					M	13	22	29	32	74
					L	6	13	13	11	22
		FAN MOTOR RUNNING CURRENT @ 115V		H	A	0.82	0.66	1.55	1.43	3.90
		FAN MOTOR RUNNING CURRENT @ 220V		H		0.43	0.35	0.81	0.75	2.04
		HYDRAULIC	COOLING WATER FLOW RATE	H	GPM	2.5	2.6	3.2	3.9	4.4
				M		1.8	1.6	2.3	2.7	3.4
	L			0.9		1.2	1.1	1.4	2.7	
	COOLING PRESSURE DROP		H	FT/Head	5.6	15.5	4.6	2.3	6.9	
			M		3.2	6.8	2.7	1.3	4.5	
			L		0.9	4	0.8	0.4	3	
	HEATING WATER FLOW RATE		H	GPM	0.7	1	1.3	0.8	1.6	
			M		0.5	0.6	0.9	0.6	1.1	
			L		0.2	0.5	0.4	0.3	0.8	
	HEATING PRESSURE DROP		H	FT/Head	0.4	0.4	0.6	0.4	0.9	
			M		0.2	0.2	0.4	0.2	0.5	
			L		0.1	0.1	0.1	0.1	0.2	
	WATER CONTENT		CHILLED WATER	GAL	0.28	0.36	0.51	0.36	0.44	
			HOT WATER		0.13	0.23	0.23	0.11	0.2	
CONSTRUCTION AND PACKING DATA		WATER CONNECTIONS	Type		Socket (Threaded Female NPT)					
			In	INCH	3/4					
		Out	Outside diameter: 1 Inside diameter: 13/16							
		CONDENSATE DRAINAGE CONNECTION		INCH	22-5/8					
		DIMENSIONS	L		44-7/8		28-3/4		32-11/16	
			W		22-13/16		28-3/4		32-11/16	
			H	11-7/16		10-1/4		11-7/16		
		PANEL DIMENSIONS		INCH	26-3/4 x 26-3/4 x 1-1/8		26-3/4 x 48-13/16 x 1-1/8		32-11/16 x 32-11/16 x 1-1/8	38-9/16 x 38-9/16 x 1-1/8
NET WEIGHT		LBS	66.1		110	115	79.4	110		

COOLING MODE (4-PIPE)

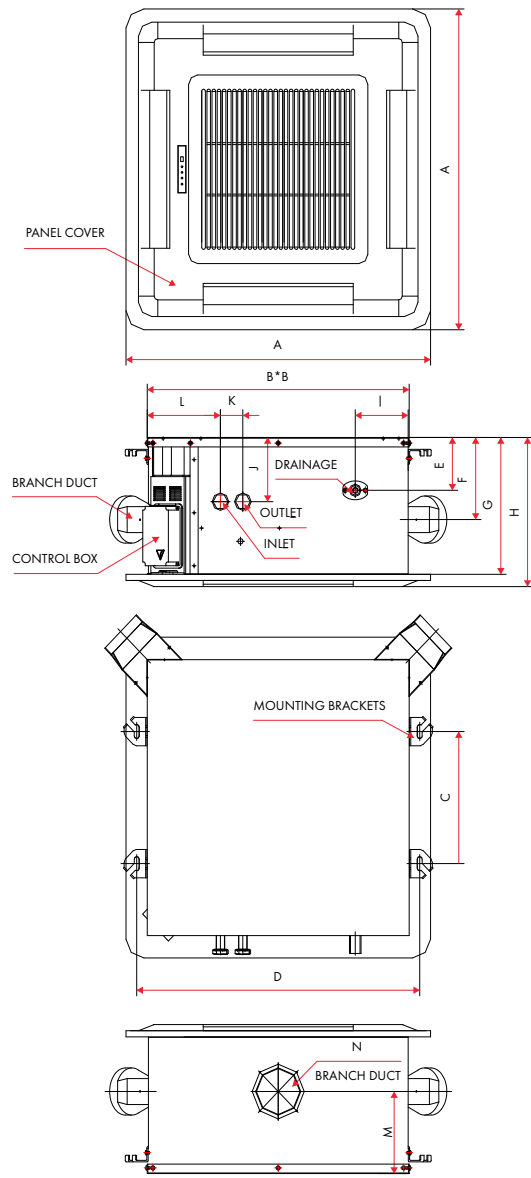
- Return air temperature: 80°F DB/ 67°F WB.
- Inlet/ outlet water temperature: 45F/55°F.

HEATING MODE (4-PIPE)

- Return air temperature: 70°F.
- Inlet/ outlet water temperature: 180°F/140°F.

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

DIMENSIONAL DRAWINGS OF 2-PIPE UNIT



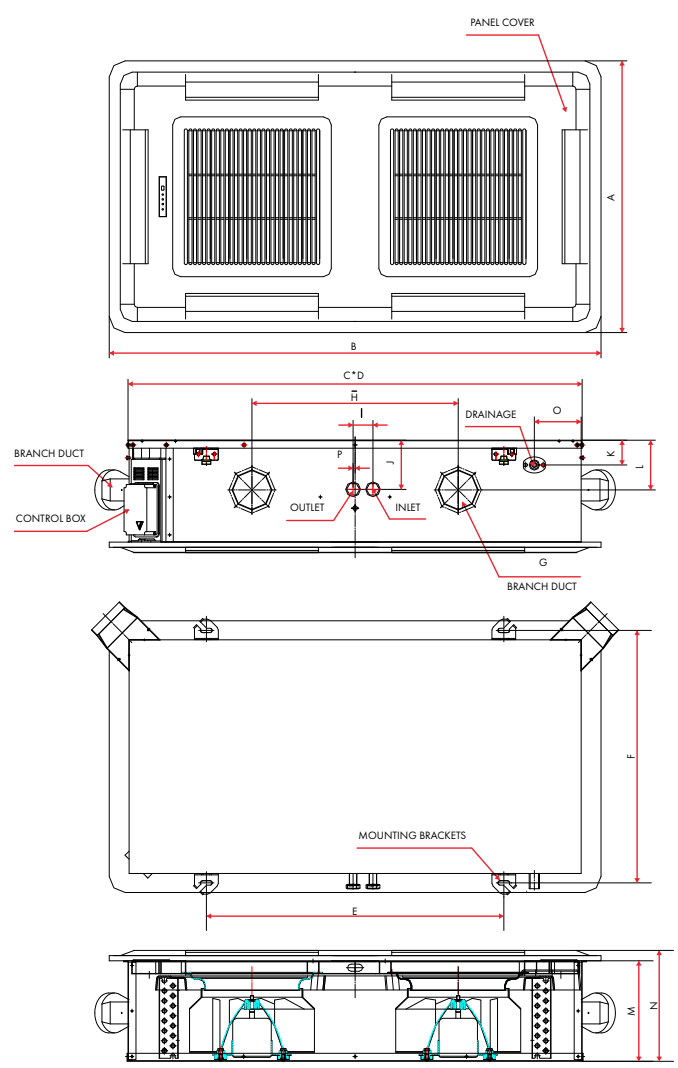
MODEL	A	B	C	D	E	F	G
VKS1-04R	26-3/4	22-15/16	11	24-11/16	2-7/16	4-7/8	10-1/16
VKS1-08.08R	26-3/4	22-15/16	11	24-11/16	4-7/16	6-7/8	11-7/16
VKS2-12	32-11/16	28-3/4	13-9/16	30-1/2	3-5/16	5-7/8	10-1/4
VKS2-20	38-9/16	32-11/16	19-3/16	34-7/16	4-3/16	7	11-7/16

MODEL	H	I	J	K	L	M	N
VKS1-04R	11-1/8	4-5/8	4-5/16	2	6-3/8	4-7/8	3-15/16
VKS1-08.08R	12-1/2	4-5/8	5-3/8	2	6-3/8	6-7/8	3-15/16
VKS2-12	11-5/16	4-15/16	6-7/16	2	6-3/8	5-3/16	3-15/16
VKS2-20	12-1/2	4-5/8	5-3/4	2	6-1/8	5-3/4	3-15/16

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

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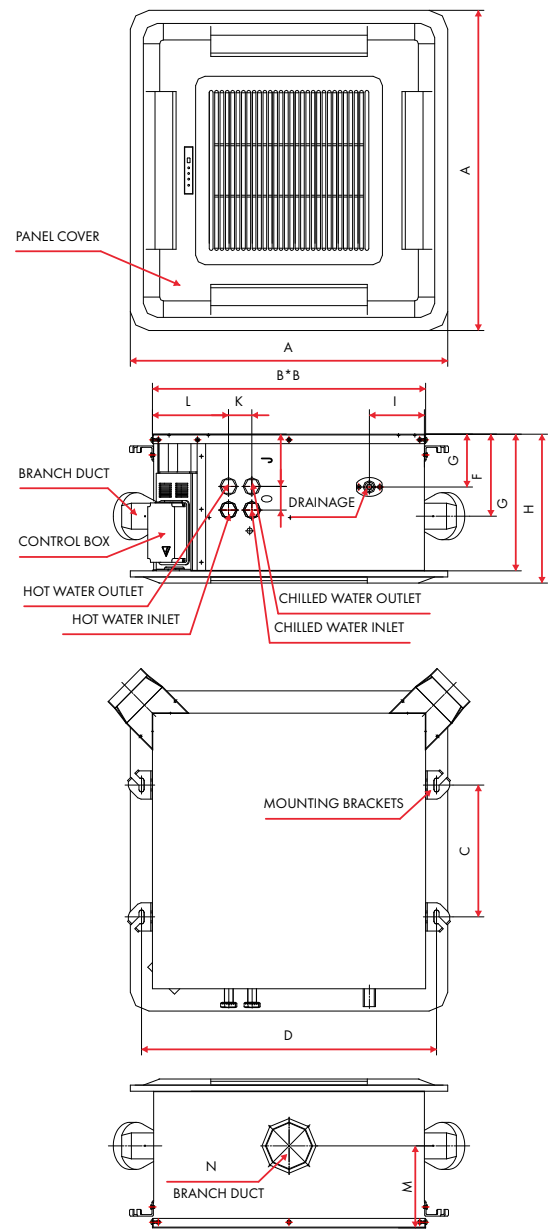


MODEL	A	B	C	D	E	F	G	H
VKS1-09	26-3/4	48-13/16	45-1/16	23	29-1/2	24-13/16	3-15/16	20-1/2
VKS1-16	26-3/4	48-13/16	45-1/16	23	29-1/2	24-13/16	3-15/16	20-1/2

MODEL	I	J	K	L	M	N	O
VKS1-09	2	4-13/16	2-7/16	4-7/8	10-1/16	11-1/8	4-5/8
VKS1-16	2	5-5/16	4-7/16	6-7/8	11-7/16	12-1/2	4-5/8

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

DIMENSIONAL DRAWINGS OF 4-PIPE UNIT

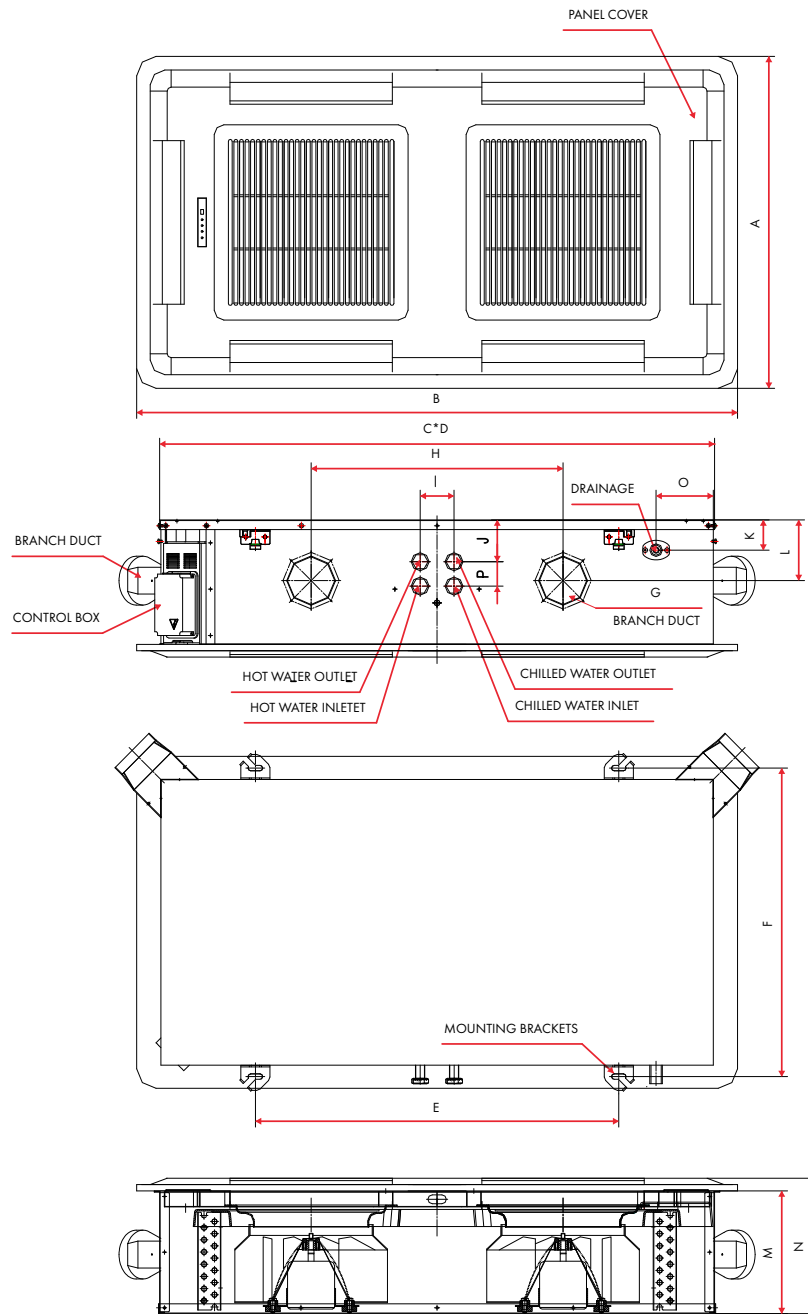


MODEL	A	B	C	D	E	F	G	H
VKS1-08	26-3/4	22-15/16	11	24-11/16	4-7/16	6-7/8	11-7/16	12-1/2
VKS2-12	32-11/16	28-3/4	13-9/16	30-1/2	3-5/16	5-7/8	10-1/4	11-5/16
VKS2-20	38-9/16	32-11/16	19-3/16	34-7/16	4-3/16	7	11-7/16	12-1/2

MODEL	I	J	K	L	M	N	O
VKS1-08	4-5/8	4-5/16	2	6-3/8	6-7/8	3-15/16	2
VKS2-12	4-15/16	4-7/16	2	6-3/8	5-3/16	3-15/16	2
VKS2-20	4-5/8	4-5/16	2	6-1/8	5-3/4	3-15/16	2

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

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MODEL	A	B	C	D	E	F	G	H
VKS1-09	26-3/4	48-13/16	45-1/16	23	29-1/2	24-13/16	3-15/16	20-1/2
VKS1-16	26-3/4	48-13/16	45-1/16	23	29-1/2	24-13/16	3-15/16	20-1/2

MODEL	I	J	K	L	M	N	O	P
VKS1-09	2-3/4	3-3/8	2-7/16	4-7/8	10-1/16	11-1/8	4-5/8	2
VKS1-16	2-3/4	4-5/16	4-7/16	6-7/8	11-7/16	12-1/2	4-5/8	2

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

# OPTIONAL ACCESSORIES

## UNIT ACCESSORIES

- Electrical Heaters
  - With 2-stage safety cut out and can be configured as booster or primary heaters. Can be easily installed on site or in stock via plug and play wiring and brackets. Onboard electric heater controller can be configured using easily set dip switches
- Valves & Actuator
  - 2-way or 3-way valve with motorized 24 V on/off or modulating actuator integrated with SS hose and copper piping connection kits
- Plastic Fresh Air Flanges
  - Cassette comes with punch-out fresh air connection holes. ABS Plastic Flanges use only 2 screws for fixture to unit
- Plastic Brand Duct Flanges
  - For delivery of treated air to adjacent spaces with 2 connections per single fan model

## CONTROL ACCESSORIES

- Complete Control Board
  - Infra-Red Handset Controller & Wall Holder (*currently not available in North America*)
  - With Global Control functionality for Main and Secondary unit groups.
- Unlimited Wired Wall Pad Controller (*currently not 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.
- 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

# VERANO<sup>®</sup>

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