SUBMITTAL DATA - OUTDOOR UNIT
VPD010C6M-5Y
Chiller Heat Pump

Job:		**Engineer:**	
Location:		**Architect:**	
Schedule No.:		**Location:**	
System Designation:		**Date:**	

For: ☐ Reference ☐ Approval ☐ Review ☐ Construction

Chiller Heat Pump

FEATURES

Construction
The unit shall be EGI (electronic galvanized steel) with a baked on powder coated finish. Some brackets shall be GI (hot-dipped galvanized steel)

Air Side Heat Exchanger
The heat exchanger shall be mechanically bonded fin to copper tube.

The aluminum fins of the heat exchanger shall have a protective coating.

Salt spray test method: ASTM B117-18 - the heat exchanger showed no unusual rust or corrosion development to 2,280 hours.

Water Side Heat Exchanger
The heat exchanger shall be brazed plate type (2)

Controls
The unit shall be operated via NASA Protocol with controls provided by Lennox Powered by Samsung

Can connect up to 16 X Chillers to a single Chiller module controller (VCTRL03P-1 to provide various system operation configuration, setup, monitoring, status, and error notification (VCTRL03P-1is required for operation).

The outdoor unit shall have a removable EEPROM that stores unit serial number, startup information, system settings, system tag/name, and other information.

Optional FCU Kit (fan coil unit) available to control and integrate fan coil units to Samsung central and local controls (FCU Kit: VCTRL04P-1; FCU Kit Central Control Interface Module: VCTRL05P-1).

Controls shall integrate with a BMS system without additional interface modules

Control wiring shall be 16 AWG X 2 shielded wire (for communicating controls connections).

Refrigerant System
The compressors shall be Lennox Powered by Samsung hermetically sealed, inverter driven, direct flash injected, DC scroll type with soft-start capability.

The refrigerant system capacity shall modulate based on demand.

Flash injected compressors provide advanced low ambient heating performance.

Refrigerant flow shall be controlled by EEV (electronic expansion valve).

Other Features
Asymmetrical scroll design with rotating compressor operation/priority.

Optional night quiet modes to reduce outdoor unit sound (default mode and levels 1-3) with automatic or manual activation.

Advanced intelligent defrost logic to significantly reduce defrost cycle frequency by monitoring air resistance across the condenser coil during heating operation to determine defrost operation initiation to prevent unnecessary defrost cycles. In applications where 2-16 modules are configured and controlled as one system, only 30% or less of the total nominal capacity will enter defrost operation at a time (ex: 6 module system - only one module will defrost at a time; 8 module system - two modules may enter defrost at a time).

Optional snow blowing logic to prevent snow accumulation on idle units (enabled by default, can be disabled at any time)

Error reset with dry input at outdoor unit

Three operation patterns can be selected: Standard, Rotation, and Efficiency

Operation patterns can be adjusted at Chiller unit or at controllers

Energy savings options to reduce system energy consumption by configuring Water Law control to automatically adjust leaving water set temperature based on ambient temperature or room temperature. Room temperature (heating and cooling, two points each), outdoor temperature (heating and cooling, two points each), and water temperature (heating and cooling, two points each) settings can be configured when using Water Law control. Water Law can be based on outdoor temperature or indoor temperature. Water Law based on room temperature requires installation of PT1000 temperature sensor (field provided) in the space to monitor room temperature.

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SPECIFICATIONS

Performance	US Ton (nominal)			10
	Rated Capacity (Btu/h)	Cooling	95°F Ambient, Entering Temperature: 54°F, Leaving Temperature: 44°F	120,000
		Heating (Dry/Wet Bulb: 47/43°F)	Leaving Temperature: 105°F	128,000
			Leaving Temperature: 120°F	120,000
		Heating (Dry/Wet Bulb: 17/15°F)	Leaving Temperature: 105°F	84,000
			Leaving Temperature: 120°F	80,000
	Power Input (A)	Cooling	95°F Ambient, Entering Temperature: 54°F, Leaving Temperature: 44°F	29.59
		Heating (Dry/Wet Bulb: 47/43°F)	Leaving Temperature: 105°F	26.99
			Leaving Temperature: 120°F	31.88
		Heating (Dry/Wet Bulb: 17/15°F)	Leaving Temperature: 105°F	30.94
			Leaving Temperature: 120°F	35.08
	Cooling EER			11.20
	Heating COP	Heating (Dry/Wet Bulb: 47/43°F)	Leaving Temperature: 105°F	3.84
			Leaving Temperature: 120°F	3.05
		Heating (Dry/Wet Bulb: 17/15°F)	Leaving Temperature: 105°F	2.20
			Leaving Temperature: 120°F	1.85
	IPLV			20.50
Power	Voltage		(ø/V/Hz)	3 / 208 - 230 / 60
	Maximum Circuit Breaker (MCCB/ELB/ELCB)			70
	Minimum Circuit Ampacity (MCA)			52
	SCCR		kA	5
Compressor	Type			Inverter Driven Scroll X 2
	RLA		A	19.5
Refrigerant	R410A Factory Charge		Lbs.	40
Water Side Heat Exchanger	Connection Type			50A Cut Groove
	Quantity			2
	Water Flow (GPM)		Minimum (cooling / heating)	15.8 / 15.8
			Nominal (cooling / heating)	24 / 24
			Maximum (cooling / heating)	48 / 48
	Minimum Water System Volume		Gallons	72
Condenser Fan	Fan	Type		Propeller X 2
		Output (max.)	CFM	12,855
	Motor	Type		BLDC
		Output	W	630 X 2
		FLA	A	4.0
	Max. External Static Pressure		"WC	0.32
Dimensions	W X H X D		Inches	70 11/16 X 66 3/4 X 30 1/8
	Weight	Net	Lbs.	959
		Shipping	Lbs.	1,008
Sound Level	Sound Pressure		dB (A)	60
Operating Water Temperature Range	Cooling	Standard	°F (°C)	41 ~ 77°F (5 ~ 25°C)
		When Using Brine	°F (°C)	14 ~ 77°F (-10 ~ 25°C)
	Heating		°F (°C)	77 ~ 131°F (25 ~ 55°C)
Operating Ambient Temperature Range	Cooling		°F (°C)	5 ~ 118°F (-15 ~ 48°C)
	Heating		°F (°C)	-13 ~ 109°F (-25 ~ 43°C)
Safety Certifications				ETL (UL1995)
Protection Devices	Intelligent logic to ensure proper operation within unit design limitations and operational parameters			
	High pressure sensor, low pressure sensor, over-voltage protection, compressor over- current protection, current transformer, fan motor voltage protection, fan motor thermal protection, overheat protection, phase detection protection, high voltage fuses, water pressure sensors			
	Inverter PCB cooling done with liquid refrigerant to maintain optimal and safe operating temperatures			

Performance is certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Heat Pump Water-Heating unit is certified when operating in cooling. Certified units may be found in the AHRI Directory at www.ahridirectory.org. Combined performance of multiple chillers are not AHRI Certified.

Accessories

Qty.	Model Number	Description
	V1GARD12-4P	VP Chiller Top (Hood) Wind/Hail Guard
	V1GARD10-4P	VP Chiller Left Side Wind/Hail Guard
	V1GARD11-4P	VP Chiller Right Side Wind/Hail Guard
	V1GARD09-4P	VP Chiller Rear Wind/Hail Guard - 2 RQ
	VCTRL03P-1	VCTRL03P-1 Chiller Module Control
	VSTAT10P-1	VSTAT10P-1 External Contact Control (operation and error output, night silent mode manual activation)

Control Points

Below Chiller control points are adjustable at the controllers/point of control noted below.

Control option	Point of Control (X = supported)				
	Chiller module controller	Central control gateway			DVM Chiller dry contact
	VCTRL03P-1	DMS2.5 (VCTRL09P-1)	BACnet (VCTRL02P-1)		
Operation ON/OFF	X	X	X		X
Mode: cool, heat, cool storage, hot water	X	X	X		X
Operation pattern: standard, rotation, efficiency	X	X			
Enable/disable Water Law (adjustable temperature settings of Water Law)	X [1]	X	X		X [2]
Enable/disable quiet mode (default mode and quiet mode levels 1-3 are selected during system commissioning)	X [1]	X	X		X [2]
Forced fan mode	X	X	X		X
Demand/maximum current control of module chiller(s): limit current 50% - 100% of design current	X [1]	X	X		X [2]

[1] The setting value is adjustable on VCTRL03P-1 service mode.

[2] Adjust the setting value on Hydro controller option setting on Chiller unit

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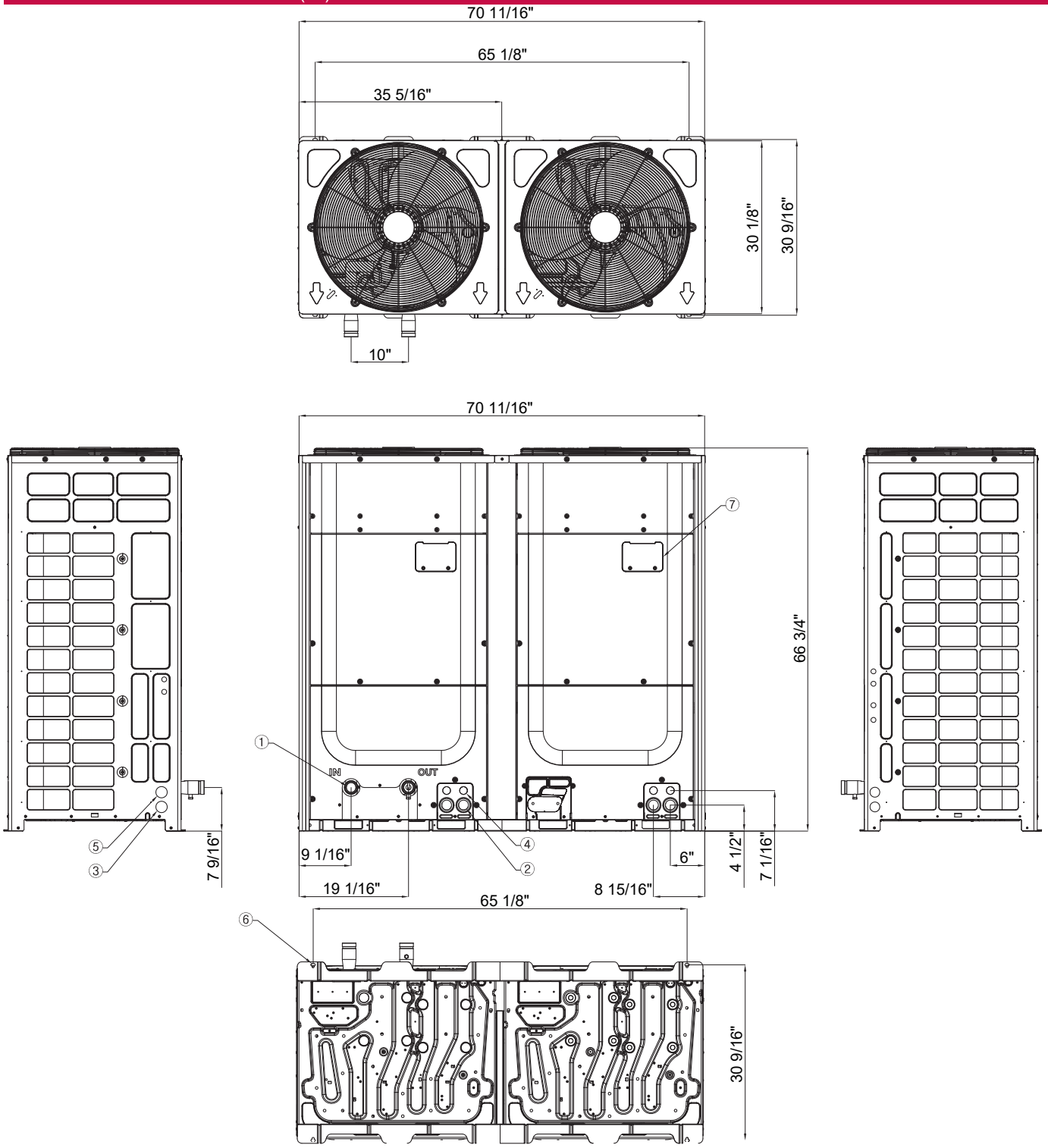
DIMENSIONAL DRAWINGS - MM (IN)



No.	Description	No.	Description
1	Water connections	5	Communication wiring conduit opening (side)
2	Power wiring conduit opening (front)	6	Anchor bolt hole
3	Power wiring conduit opening (side)	7	PCB monitoring window
4	Communication wiring conduit opening (front)		

NOTE − Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.
Installation and service must be performed by a qualified installer and servicing agency.