SUBMITTAL DATA

TVR Smart – Outdoor Unit - Heat Pump

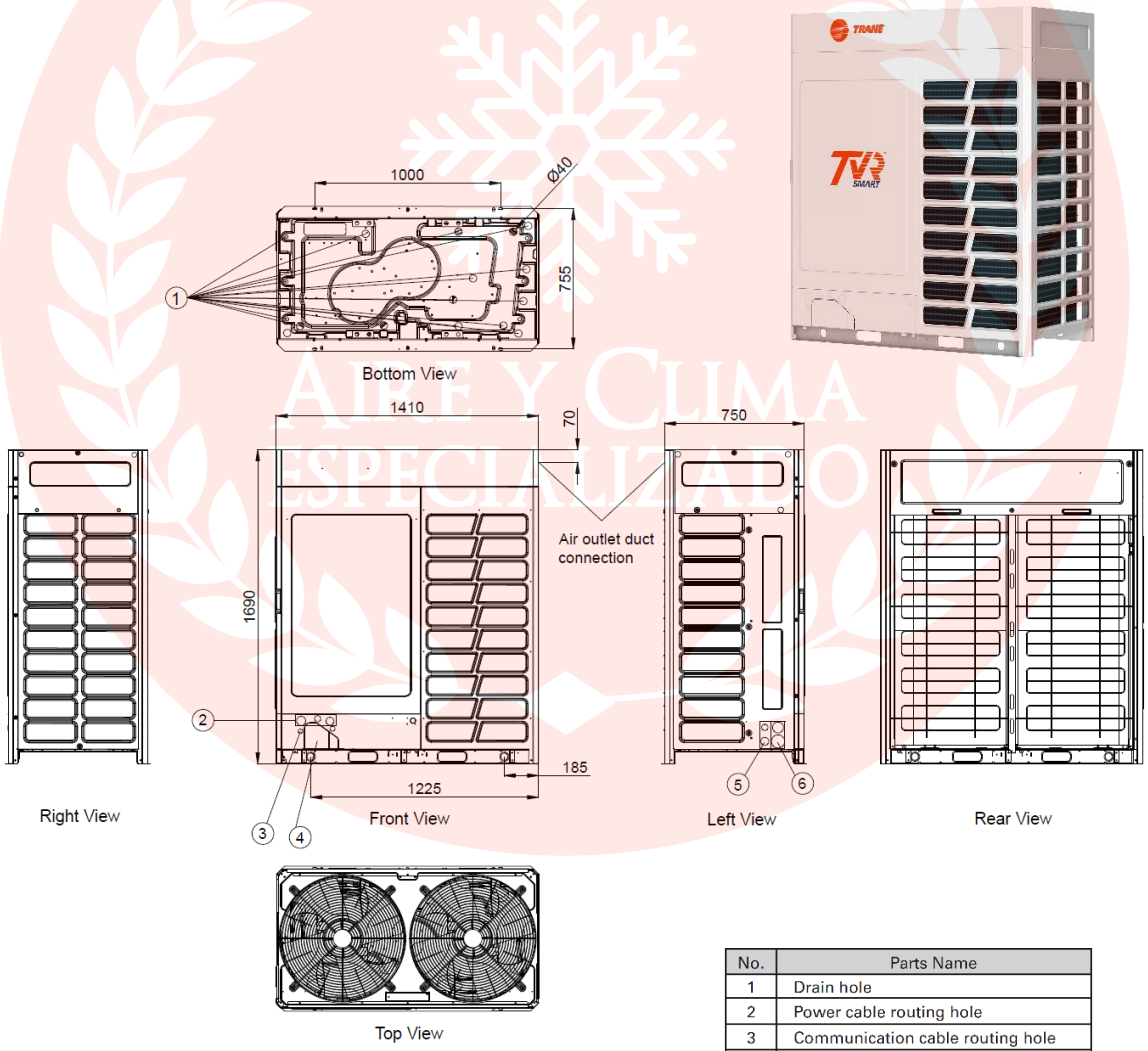
22HP – 220V/3Ph/50-60Hz DC Motor

Model: 4TVH0210R8000AA

Job Name:		Date:	
Reference:		Location:	

Commercial Air Conditioner > TVR Smart > Outdoor Unit

- **Overall Dimensions**



No.	Parts Name
1	Drain hole
2	Power cable routing hole
3	Communication cable routing hole
4	Pipe routing hole
5	Power cable and communication cable routing hole
6	Pipe routing hole

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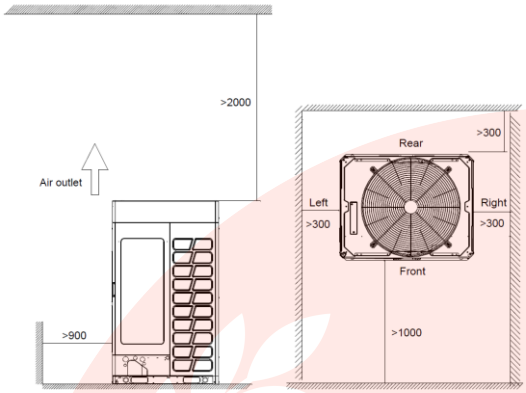
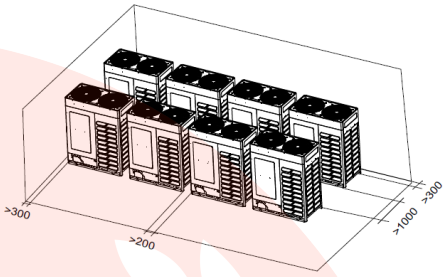
- **Installation Space Requirements**

Single Unit Installation



Multiple Units Installation

Units can be installed in the same or opposite direction.

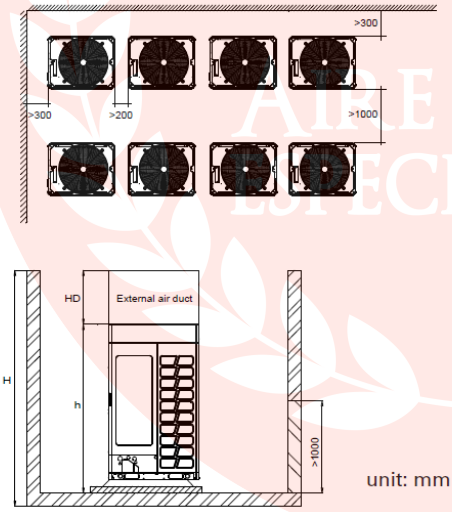


Multiple Units Installation with Wall Higher than Outdoor Heat Exchanger

Place with air inlet hole

a. Fan speed Vs at air inlet is 1.5m/s or below.

b. Air outlet height HD=H-h and below 1m.

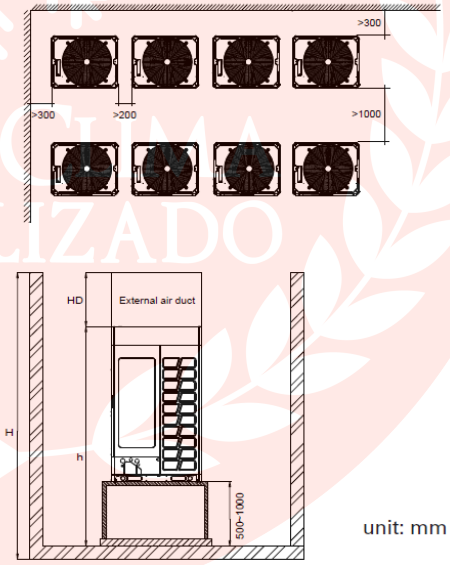


unit: mm

Place without air inlet hole

a. Set a 500~1000mm support.

b. Air outlet height HD=H-h and below 1m.



unit: mm

When installing the outdoor unit, consider the effects of seasonal wind direction. Avoid placing the unit where wind blows directly into the return air inlet, as this can affect functions like defrosting.

The air outlet duct installation must follow these principles:

- Remove the fan grille from the unit before installing the air outlet duct. Failure to do so will affect unit output, reduce performance, and may cause malfunctions.
- Adding louvers affects unit airflow and reduces performance, so they are not recommended. If louvers must be used, keep the louver angle below 15 degrees and spacing above 80 millimeters.
- The air outlet duct is limited to one bend only, as additional bends will cause poor unit operation.
- Install flexible connections between the unit and ductwork to prevent vibration and noise.
- Each unit must have its own independent air outlet duct. Never connect multiple units' ducts in parallel, as this may cause unit failure.

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- **Specifications**

Product Data		Unit	4TVH0210R8000AA
HP		**HP**	22
Connectable Indoor Units Ratio ※1		%	50≤x≤130
Cooling	Rated Capacity	kW	61,5
	Rated Power Input	kW	14,61
	Maximum Power Input	kW	25,81
	EER *1	W/W	4,21
Heating	Rated Capacity	kW	69,0
	Rated Power Input	kW	16,08
	Maximum Power Input	kW	23,00
	COP *1	W/W	4,29
Electrical Characteristics	Power Supply	Ph/V/Hz	3/220/50/60
	Communication Cable ※3	mm^2	3*25
	Power Cable	mm^2	1*16
	Earth Wire	mm^2	≥2*0.75
	Min. Circuit Amps (MCA)	A	100
	Max. Fuse Amps (MFA)	A	49,45
Maximum Outdoor Air Flow		m^3/h	18000
Maximum External Static Pressure		Pa	110
Maximum Outdoor Sound Power Level		dB	76
Maximum Outdoor Sound Pressure Level *3		dB(A)	62
Design Pressure		MPa	4,15
Safety Devices		-	High pressure switch; Fan driver PCB overload protection; Overcurrent fuse; Inverter PCB overload protection
Defrost Method		-	Reverse defrosting
Defrost Control		-	Sensor for outdoor Heat Exchanger temperature + Current detect
Casing	Color	-	Light grey
	Material	-	Galvanized steel plate
Compressor	Brand	-	MITSUBISHI ELECTRIC
	Model	-	ANB66FZPMT*2
	Type	-	DC INV. SCROLL
	Compressor Quantity	-	2
	Capacity (Test Under 60RPS)	W	21000*2
	Power Input (Test Under 60RPS)	W	6450*2
	Rated Load Amps. (RLA)	A	20.20*2
	Crankcase Heater	W	66*2
	Compressor Oil Brand	-	IDEMITSUKOSAN
	Compressor Oil Type	-	FVC68D
	Compressor Oil Charge	ml	(2300+2700)*2
	Starting Method	-	Soft start
Fan Motor	Brand	-	SHANGQI
	Model	-	ZWF-920C*2
	IP Class	-	IP55
	Type	-	DC
	Quantity	-	2
	Insulation Class	-	B
	Safe Class	-	I
	Full Load Amps (FLA)	A	2.00*2
	Rated Power Input	W	2100
	Rated Motor Output	W	1840
	Max. Speed	rpm	1100
Fan	Brand	-	Shun Wei
	Material	-	ABS+20%GF
	Type	-	Axial
	Diameter	mm	Ø642
	Height	mm	198
	Quantity	-	2

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22HP – 220V/3Ph/50-60Hz DC Motor

Model: 4TVH0210R8000AA

Product Data		Unit	4TVH0210R8000AA
Heat Exchanger	Number of Rows	-	2
	Tube Pitch	mm	21
	Row Pitch	mm	18,186
	Fin Spacing	mm	1,6
	Fin Material	-	Hydrophilic aluminum
	Fin Coating Type	Optional	Clear lacquer
	Salt Spray Test Duration	hour	168
	Tube OD. Diameter	mm	Ø7
	Tube Type		Inner grooved
	Heat Exchanger Dimension (W*D*H)	mm	(2864*18.186*1260+ 2779*18.186*1260)
	Number of Circuits	-	22
Electronic Expansion Valve (LEVA1)	Brand	-	SAN HUA
	Diameter	Standard	φ3.0
	Model	-	DPF-TS1030-056-RK
Electronic Expansion Valve (LEVA2)	Brand	-	SAN HUA
	Diameter	mm	φ3.0
	Model	-	DPF-TS1030-056-RK
Electronic Expansion Valve (LEVB)	Brand	-	SAN HUA
	Diameter	mm	φ2.5
	Model	-	DPF-TS1025-042-RK
Four Way Valve	Brand	-	SAN HUA
	Model	-	SHF-H35672-009-RK
	Quantity	-	1
Cabinet Coating	Coating Type	-	Zinc aluminum magnesium
	Salt Spray Test Duration	hour	72
	Sheet Metal Material	-	Galvanized steel plate
	Sheet Metal Thickness	mm	1
Electrical Control Box IP Class		Standard	IPX4
Dimension	Net Dimensions (W*D*H)	mm	1410*750*1690
	Packing Dimensions (W*D*H)	mm	1475*850*1858
Weight	Net Weight	kg	359
	Gross Weight	kg	388
Refrigerant	Type	-	R410A
	Default Refrigerant Charge	kg	13,00
	Refrigerant Control	-	Electronic expansion valve
Refrigerant Piping	Liquid Pipe OD. Diameter*4	mm	Ø15.88
	Gas Pipe OD. Diameter*4	mm	Ø28.58
	Total Single Way Pipe Length	m	1000
	Max. Single Way Pipe Length (Equivalent/Actual)	m	260/220
	Max. Height Difference Between Indoor and Outdoor Units	m	90(Outdoor higher than indoor) 110(Indoor higher than outdoor)
	Standard Height Difference Between Indoor and Outdoor Units	m	50(Outdoor higher than indoor) 40(Indoor higher than outdoor)
	Max. Height Difference Between Indoor Units	m	30
	Standard Height Difference Between Indoor Units	m	18
	Pipe Connection Method	-	Gas pipe: Brazing Liquid pipe: Flared joint
Max. Communication Cable Length Between Indoor and Outdoor Unit		m	1000
Connectable Indoor Units Ratio *5		%	50~130 (200 with limitation)
Maximum Number of Connectable Indoor Units		Piece	41(63)
Working Temperature	Cooling (Min.~Max.)	°C DB	-10~55
	Heating (Min.~Max.)	°C DB	-25~27

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Notes:

1. Nominal condition:
Indoor temperature (cooling): 27°C DB/19°C WB, indoor temperature (heating): 20°CDB/14.5°CWB.
Outdoor temperature(cooling): 35°CDB/24°CWB, outdoor temperature(heating): 7°CDB/6°CWB
2. When applying the "Power off PMV control" function: Use a 2-core x 1.5mm² shielded wire. The communication cable resistance should be < 1.33Ω/100m.
When not applying the "Power off PMV control" function: Use a ≥2-core x 0.75mm² shielded wire.
For the "Power off PMV control" function, one refrigerant system can control up to 10 indoor units, with a maximum communication line length of 200 meters. For longer distances, repeaters are needed. Each repeater can extend the connection by 200 meters or add 10 indoor units. One refrigerant system can accommodate up to 2 repeaters, supporting a maximum communication line length of 600 meters or communication with 30 indoor units.
3. The data is measured with 7.5m equivalent pipe and 0 m height difference.
The noise level will be measured in the third octave band limited values in the semi-anechoic chamber, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.
4. When piping sizes differ, use the reducer provided in the accessory kit for the specified pipe diameter. Refer to the Installation and Operation Manual for dimensions.
Gas pipe connection method: From the outdoor unit to the indoor unit side: Brazed → Brazed
Liquid pipe connection method: From the outdoor unit to the indoor unit side: Flared → Brazed
5. When the system combination ratio exceeds 100%, it is advisable to operate only a portion of the indoor units simultaneously to keep the ratio within 100%. Alternatively, you can run the indoor units that exceed the 100% capacity at a low fan speed to minimize the impact on system performance.

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