



**thermoscreens®**

**Heat Pump Range**

in cooperation with





thermoscreens®



# thermoscreens®

Pioneers of air curtains across Europe, Thermoscreens are market leading manufacturers of high quality air curtain solutions with an established and well respected worldwide reputation for our products.

Thermoscreens produce a comprehensive range of heated, ambient and cold store air curtains both surface and recessed mounted for any application including retail, commercial, public sector, architectural, industrial and refrigerated environments.

Our products are exported to over 50 countries worldwide and are backed by our proven brand reputation offering outstanding design, service, quality, reliability and availability.

Thermoscreens operate a Quality Management System assessed to BS EN ISO 9001:2008 and an Environmental Management System to BS EN ISO14001:2004.



Known the world over, Mitsubishi is a trusted global leader associated with a variety of products and services. Founded in 1921, the company known today as Mitsubishi Electric, quickly rose to the forefront of the heating and cooling industry, a position they still enjoy today.

As a leading manufacturer of energy efficient heat pump systems, they constantly strive to meet and exceed the increasing demands placed on the industry. The drive to reduce energy consumption and the impact its use has on the environment is crucial and increasingly important to us all. Energy efficiency, has long driven Mitsubishi Electric to spend millions of pounds and huge amounts of resource on researching and developing the solutions of the future.

## **Responsible Manufacturing**

Mitsubishi Electric boasts an explicit commitment to sustainable business practices such as energy and resource efficiency, minimising ecological impacts of their products and reducing greenhouse gas emissions. They are the only manufacturer in the industry recognised by Portfolio 21 as one of the top five companies in the world for their sustainable environmental policy. All of their factories are also ISO 14001 registered, the international standard that specifies a process for controlling and improving a company's environmental performance and with the advent of the Green Gateway Initiative, they strive to constantly promote best practice.

# WHY FIT AN AIR CURTAIN

## ■ Comfort:

Air curtains help promote the perfect environment whether warm, cool or ambient - creating a comfortable climate for customers and employees.

## ■ Open Door Policy:

Air curtains promote open door trading in retail outlets by providing uninterrupted access for passing trade.

## ■ Energy Saving:

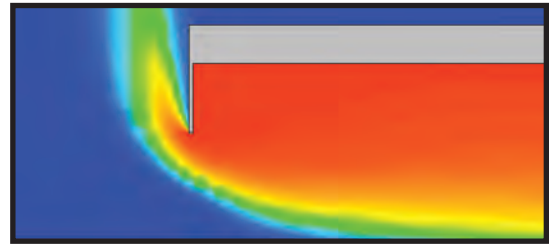
Air curtains over open doors promote significant energy savings compared to those without air curtains.

## ■ Protection:

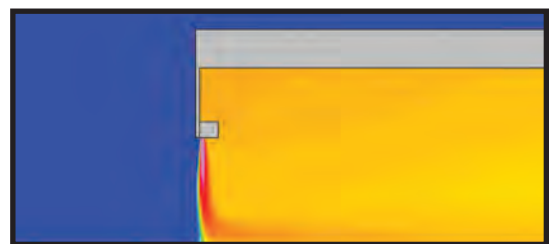
Air curtains help ensure a clean environment - protecting from dust, fumes, insects and general outdoor pollution.

## ■ Ease of Installation:

Air curtains are not only easy to install but also easy to maintain throughout their serviceable life. A simple and cost-effective solution for a comfortable environment.



Typically warm air escapes and cold air enters.

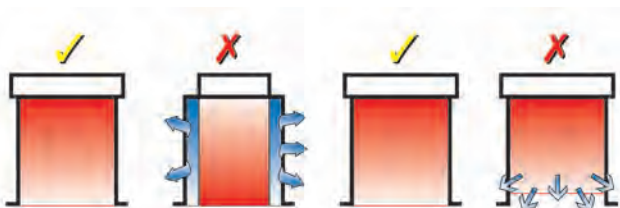


With an air curtain warm air is retained and cold air is heated.

## ■ Installation:

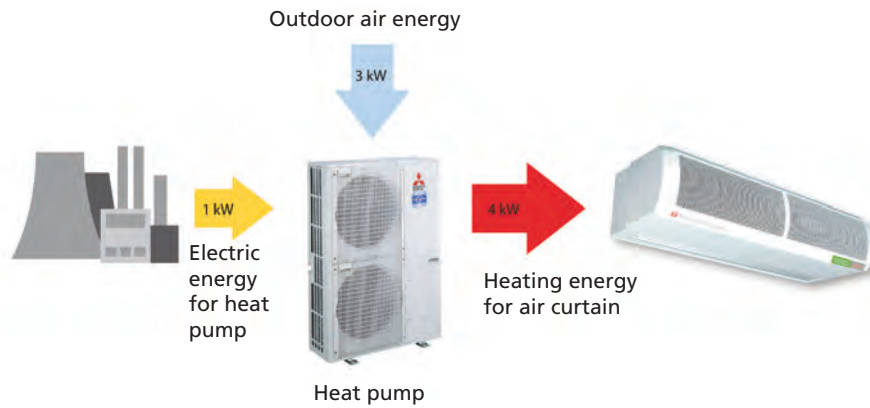
It is important to ensure that the width of the air curtain is wider than the width of the door on which it is to be fitted. Overlapping the full opening, the air curtain controls the ingress of air and other pollutants along the sides of the barrier and so maintains the perfect environment.

If an air curtain is to operate to maximum effectiveness, it is essential that the air curtain has sufficient air velocity to discharge over the whole height and width of the doorway. Consequently the barrier will act to prevent uncomfortable draughts.



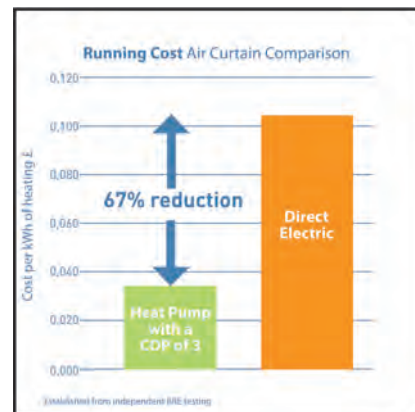
# HEAT PUMP TECHNOLOGY

Heat Pumps upgrade naturally occurring low temperature heat into useful high temperature heat and vice versa to provide cooling. This technology is already well known in the air conditioning market and has proved highly efficient. Heat pump technology is very flexible, with excellent energy efficiency and CO2 reduction potential, making it ideal for connection to an air curtain.



## Running Costs

As with the benefits of reduced CO2 emissions, heat pumps offer significant running cost savings when compared to direct electric heating. As heat pumps require a third of the power of the equivalent direct electric heated air curtain, they are considerably cheaper to run.



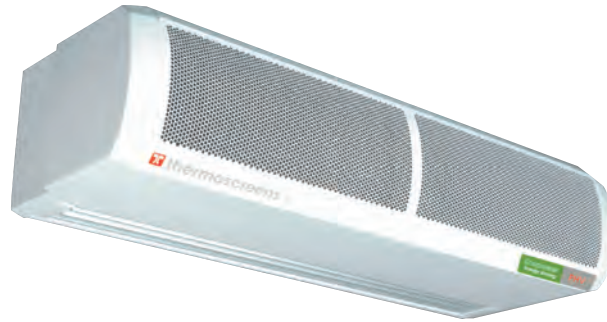
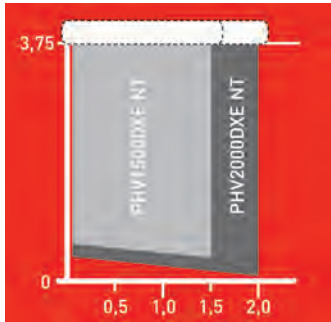
# CITY MULTI VRF AIR CURTAINS

Mitsubishi Electric also provide air curtains that are connectable to the City Multi VRF (Variable Refrigerant Flow) systems. This enables an air curtain to work in combination with many other types of indoor units, all on one system. The possibilities for energy saving using VRF are vast and Mitsubishi Electric offer a range of options, from Heat Pumps through to Water Cooled Ground Source Heat Recovery systems.

The City Multi VRF Air Curtains can be switched into cooling mode and effectively act as another indoor unit on the system. This could be the case where a closed door policy was in operation for example. All the VRF Air Curtains have drip trays built in to them to deal with any condensation associated with cooling.



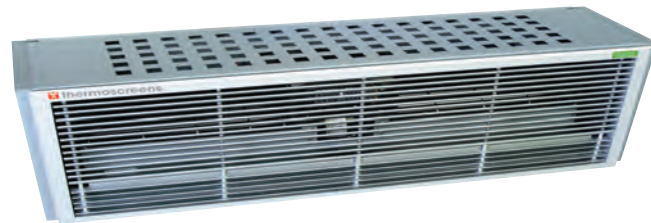
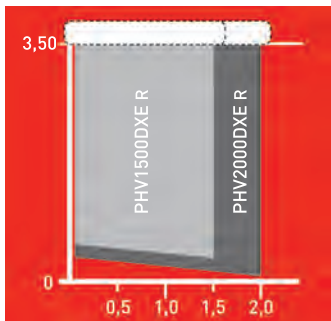
# TECHNICAL SPECIFICATION - MR. SLIM RANGE



## Mr. Slim PHV DXE Heat Pump Range - Surface Mounted

Model	Dimensions (mm) (l X d X h)	Electrical Supply (50Hz)**	Max Output (kW) <sup>+</sup>	Loading (A) *per phase	Max. Velocity (m/s)	Max. Air Volume (m <sup>3</sup> /h)	Weight (kg)	Max. dB(A) @3m	Max. Mounting Height (m)
PHV1000 DXE HO	1196 x 377 x 255	400V~3P+N+E	8.6	7.8 (1.3)	9.0	1400	39	56	3.75
PHV1500 DXE LO	1746 x 377 x 255	400V~3P+N+E	10.1	12.7 (1.8)	9.0	2500	59	58	3.75
PHV1500 DXE HO	1746 x 377 x 255	400V~3P+N+E	14.4	12.7 (1.8)	9.0	2600	60	58	3.75
PHV2000 DXE LO	2296 x 377 x 255	400V~3P+N+E	14.1	15.7 (2.7)	9.5	3300	78	59	3.75
PHV2000 DXE HO	2296 x 377 x 255	400V~3P+N+E	21.3	15.7 (2.7)	9.0	3130	80	59	3.75

For use with a Mitsubishi Electric R410A Mr. Slim outdoor unit <sup>+</sup>DX Max. Output at 7/6°C outdoor condition, 20°C indoor temp. \* (Amps) if defrost electric heaters are disabled during commissioning. \*\* electrical supply could then be 230V~1P+N+E. Cooling available on request.



## Mr. Slim PHV DXE Heat Pump Range - Recessed

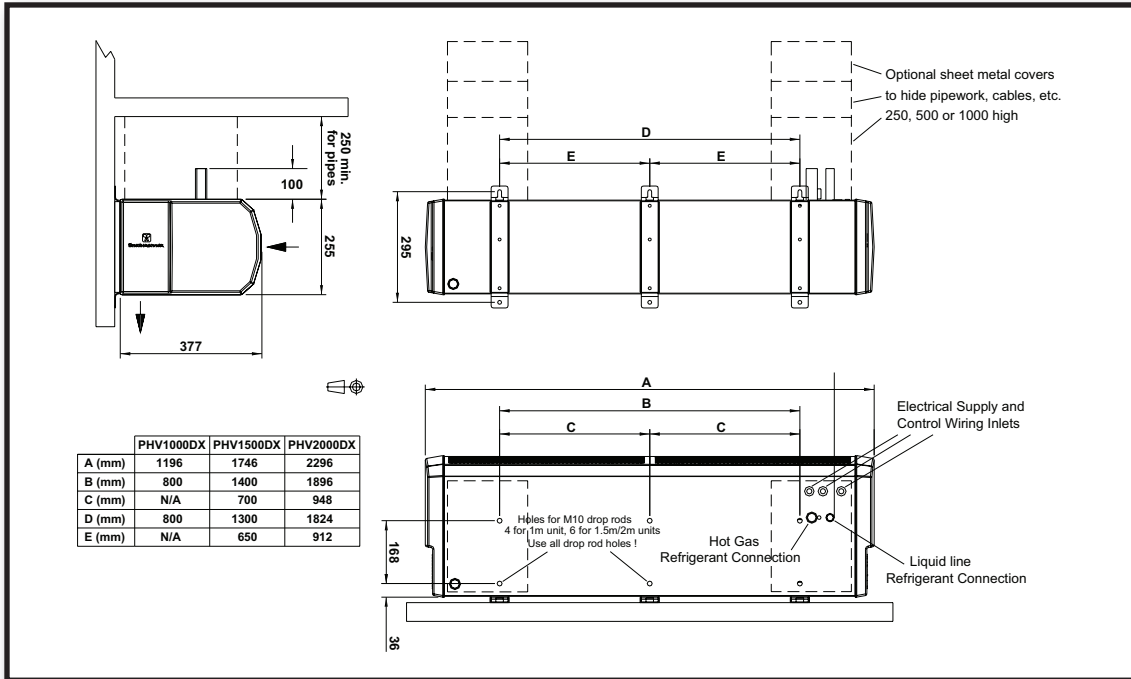
Model	Dimensions (mm) (l X d X h)	Electrical Supply (50Hz)**	Max Output (kW) <sup>+</sup>	Loading (A) *per phase	Max. Velocity (m/s)	Max. Air Volume (m <sup>3</sup> /h)	Weight (kg)	Max. dB(A) @3m	Max. Mounting Height (m)
PHV1000R DXE HO	1150 x 436 x 296	400V~3P+N+E	8.6	7.8 (1.3)	9.0	1400	45	56	3.50
PHV1500R DXE LO	1650 x 436 x 296	400V~3P+N+E	10.1	12.7 (1.8)	9.0	2500	66	58	3.50
PHV1500R DXE HO	1650 x 436 x 296	400V~3P+N+E	14.4	12.7 (1.8)	9.0	2600	67	58	3.50
PHV2000R DXE LO	2240 x 436 x 296	400V~3P+N+E	14.1	15.7 (2.7)	9.5	3300	85	59	3.50
PHV2000R DXE HO	2240 x 436 x 296	400V~3P+N+E	21.3	15.7 (2.7)	9.0	3130	88	59	3.50

For use with a Mitsubishi Electric R410A Mr. Slim outdoor unit <sup>+</sup>DX Max. Output at 7/6°C outdoor condition, 20°C indoor temp. \* (Amps) if defrost electric heaters are disabled during commissioning. \*\* electrical supply could then be 230V~1P+N+E. Cooling available on request.

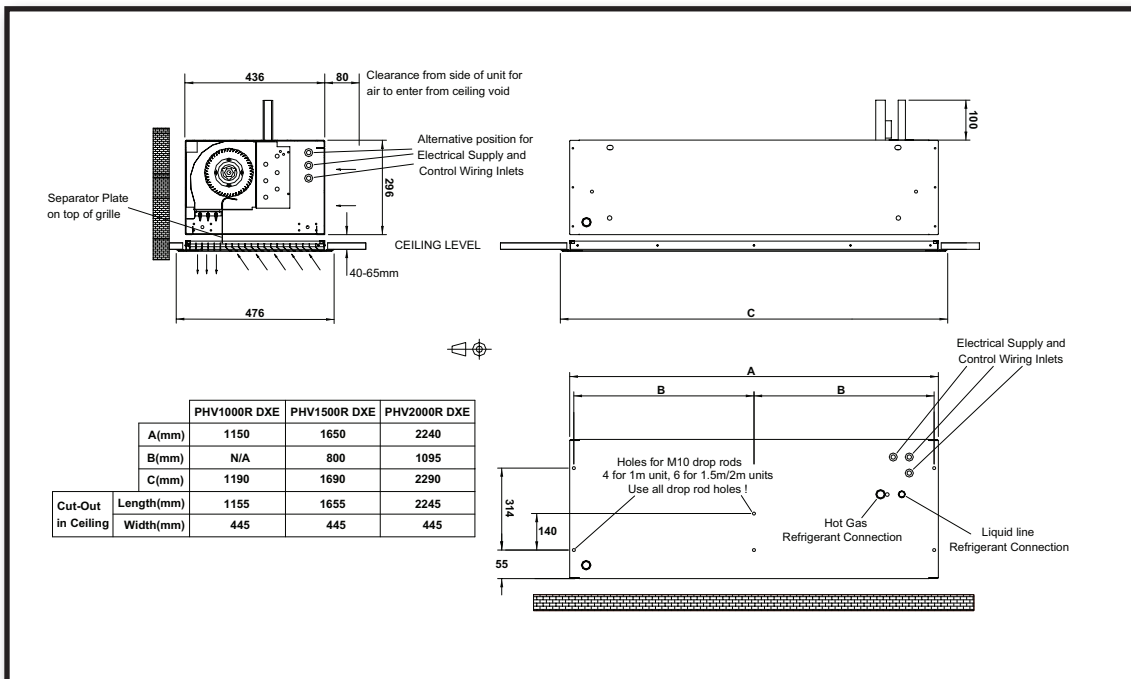


# GA DRAWINGS MR. SLIM RANGE

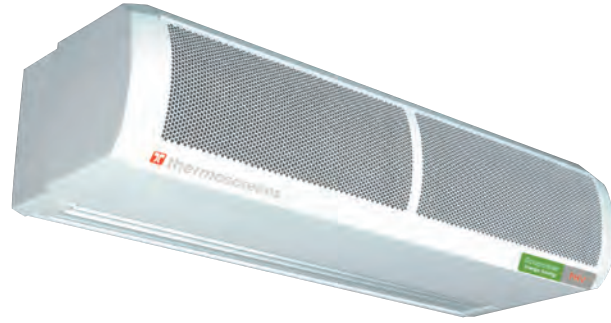
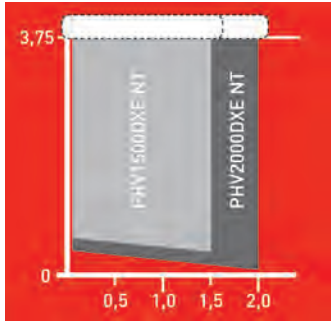
## Mr. Slim PHV Surface Mounted



## Mr. Slim PHV Recessed Range



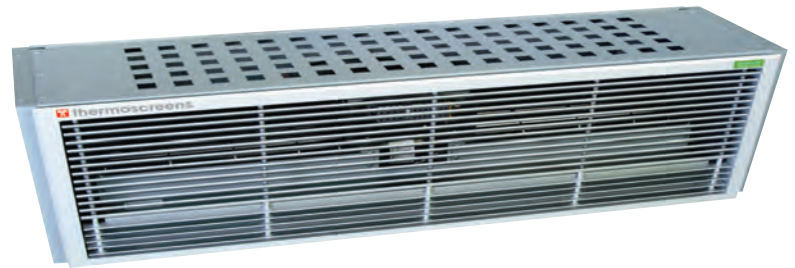
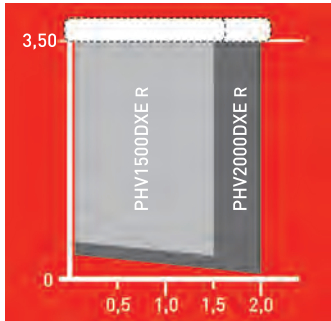
# TECHNICAL SPECIFICATION - VRF CITY MULTI RANGE



## VRF City Multi PHV DXE Heat Pump Range - Surface Mounted

Model	Dimensions (mm) (l X d X h)	Electrical Supply (50Hz)**	Max. Output (kW) <sup>+</sup>	Loading (A) *per phase	Max. Velocity (m/s)	Max. Air Volume (m <sup>3</sup> /h)	Weight (kg)	Max. dB(A) @3m	Max. Mounting Height (m)
VRF PHV1000 DXE HO	1196 x 377 x 255	400V~3P+N+E	9.0	7.8 (1.3)	9.0	1400	39	56	3.75
VRF PHV1500 DXE LO	1746 x 377 x 255	400V~3P+N+E	10.6	12.7 (1.8)	9.0	2500	59	58	3.75
VRF PHV1500 DXE HO	1746 x 377 x 255	400V~3P+N+E	15.1	12.7 (1.8)	9.0	2600	60	58	3.75
VRF PHV2000 DXE LO	2296 x 377 x 255	400V~3P+N+E	16.4	15.7 (2.7)	9.5	3300	78	59	3.75
VRF PHV2000 DXE HO	2296 x 377 x 255	400V~3P+N+E	21.4	15.7 (2.7)	9.0	3130	80	59	3.75

For use with Mitsubishi Electric R410A City Multi systems. \*DX Max. Output at 7/6°C outdoor condition. 20°C indoor temp. \*(Amps) if defrost heaters are disabled during commissioning - \*\*electrical supply could then be 230V~1P+N+E. Standard City Multi Air Curtains can also cool if set up during installation and commissioning.



## VRF City Multi PHV DXE Heat Pump Range - Recessed

Model	Dimensions (mm) (l X d X h)	Electrical Supply (50Hz)**	Heat Output (kW) <sup>+</sup>	Loading (A) *per phase	Max. Velocity (m/s)	Max. Air Volume (m <sup>3</sup> /h)	Weight (kg)	Max. dB(A) @3m	Max. Mounting Height (m)
VRF PHV1000R DXE HO	1150 x 436 x 296	400V~3P+N+E	9.0	7.8 (1.3)	9.0	1400	45	56	3.50
VRF PHV1500R DXE LO	1650 x 436 x 296	400V~3P+N+E	10.6	12.7 (1.8)	9.0	2500	66	58	3.50
VRF PHV1500R DXE HO	1650 x 436 x 296	400V~3P+N+E	15.1	12.7 (1.8)	9.0	2600	67	58	3.50
VRF PHV2000R DXE LO	2240 x 436 x 296	400V~3P+N+E	16.4	15.7 (2.7)	9.5	3300	85	59	3.50
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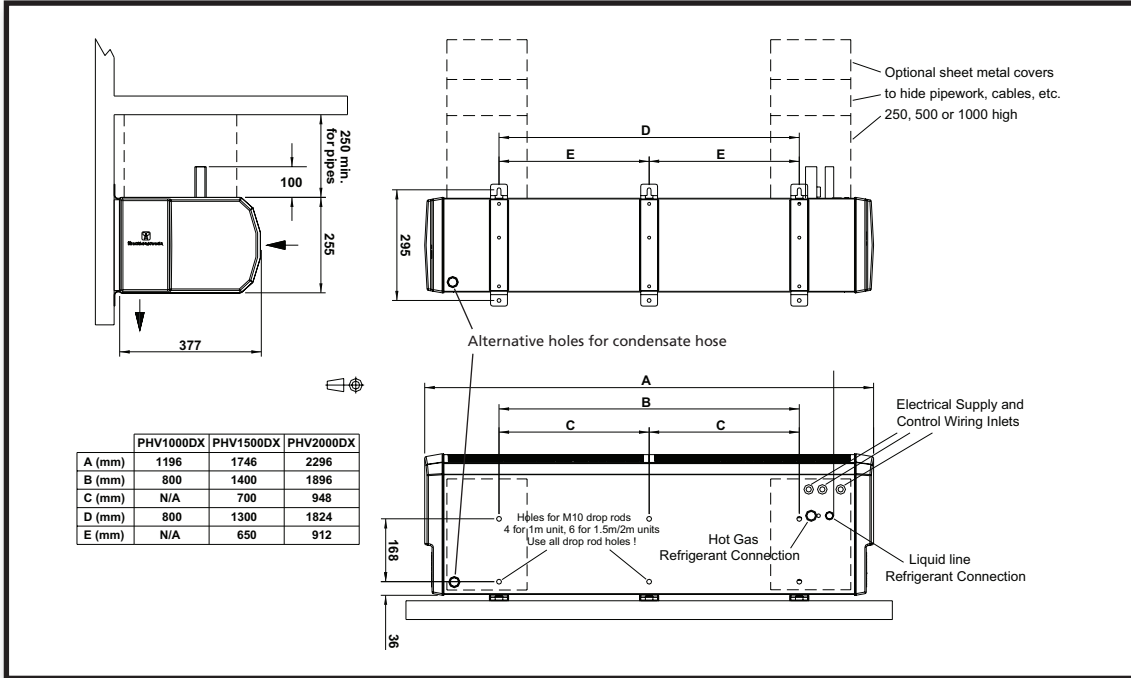
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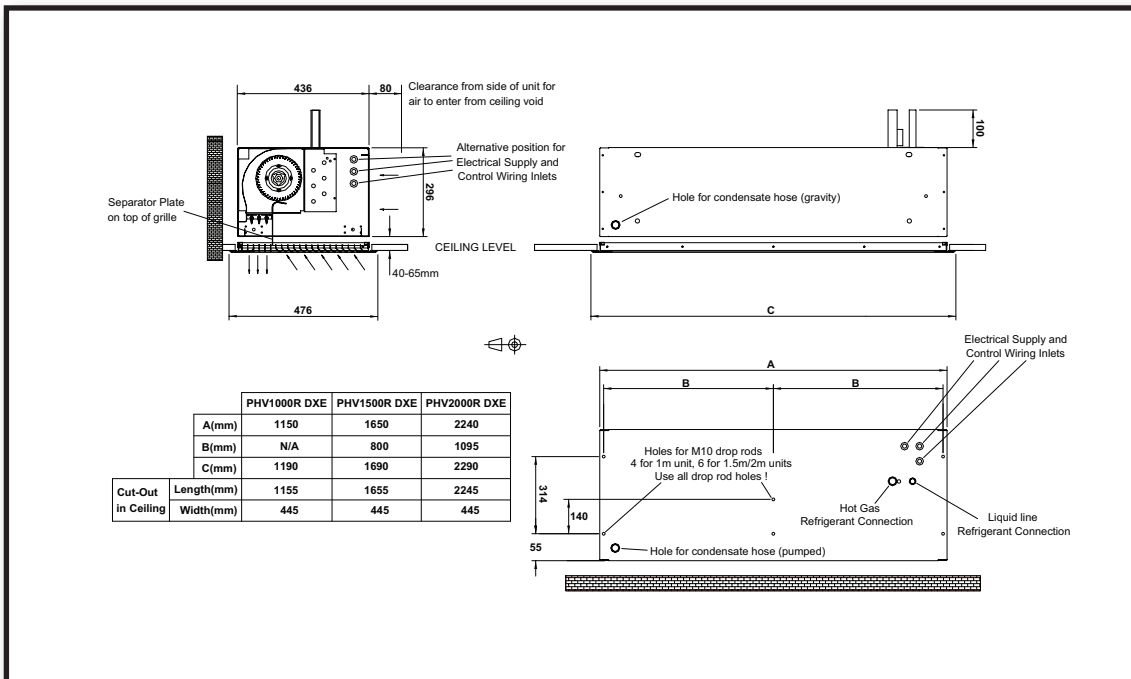


# GA DRAWINGS VRF CITY MULTI RANGE

## VRF City Multi Surface Mounted



## VRF City Multi Recessed Range



# OUTDOOR UNIT SELECTION

The Mitsubishi Electric Outdoor unit is selected to match its refrigerant heat output to the size of the Air Curtain. See tables below for size of the outdoor units to be used with technical data for the Air Curtain.

## Mr. Slim Surface Mounted and Recessed Units

Air Curtain	Mr Slim Outdoor Unit	Discharge Line (Gas)	Liquid Line	Maximum Pipe Run	
				Length (m)	Height (m)
PHV1000 DXE HO	PUHZ-RP71VHA4	5/8 in.	3/8 in.	50	30
PHV1500 DXE LO	PUHZ-RP71VHA4	5/8 in.	3/8 in.	50	30
PHV1500 DXE HO	PUHZ-RP140VKA/YKA	5/8 in.	3/8 in.	50	30
PHV2000 DXE LO	PUHZ-RP100VKA/YKA	5/8 in.	3/8 in.	50	30
PHV2000 DXE HO	PUHZ-RP200YKA	1 1/8 in.	3/8 in.	100	30

Indoor Air Temperature = 20°C

Performance figures derived from independent testing by UK test houses BRE and BSRIA in accordance with test standard EN 14511. The air curtain normally operates under automatic temperature control and can also run at part load.

## City Multi Surface Mounted and Recessed Units

Air Curtain	City Multi Outdoor Unit	PAC AH MG Controller	LEV(s) No. Off	Discharge Line (Gas)	Liquid Line	Index Size
VRF PHV1000 DXE HO	PUMY/PUHY/PURY/PQHY/PQRY	PAC-AH125 M-G	Type P632411X01 1 off	5/8 in.	3/8 in.	p100
VRF PHV1500 DXE LO	PUMY/PUHY/PURY/PQHY/PQRY	PAC-AH125 M-G	Type P632411X01 1 off	5/8 in.	3/8 in.	p125
VRF PHV1500 DXE HO	PUMY/PUHY/PURY/PQHY/PQRY	PAC-AH140M-G	Type P632414X01 1 off	5/8 in.	3/8 in.	p140
VRF PHV2000 DXE LO	PUMY/PUHY/PURY/PQHY/PQRY	PAC-AH140M-G	Type P632414X01 1 off	5/8 in.	3/8 in.	p140
VRF PHV2000 DXE HO	PUHY/PURY/PQHY/PQRY	PAC-AH250M-G	Type P632411X01 2 off	3/4 in.	3/8 in.	p200

Maximum heat pump output refers to the heating or cooling output from the air curtain air stream. Figures are derived from laboratory testing with reference to test standard EN14511. They are with the air curtain operating at high fan speed, outdoor air temperature 7/6°C db/wb indoor air temperature 20°C db for heating; outdoor air temperature 35/27°C db/wb indoor air temperature 27°C db for cooling. Contact Mitsubishi Electric for performance at other outdoor and indoor conditions. The air curtain normally operates under automatic temperature control set on the PAR-21MAA remote controller and can run at part load.



# ACCESSORIES

## Standard Equipment Supplied With All Units

All heat pump air curtains are supplied with the following:

- Wall Brackets and Fixing Bolts
- End Caps
- Dirty Filter Indicator

### Thermoscreens Dirty filter indicator.

Air curtains are fitted with a dirty filter indicator. It is located at the left-hand end of the outlet grille and signals when the air curtain inlet grille/filters should be vacuum cleaned or the air curtain requires servicing.



## Controllers

### Mr. Slim Air Curtains



Mr. Slim air curtain is provided with the above manual controller. BMS control can also be used.

### City Multi Air Curtains



Mitsubishi PAR-21 MAA Remote controller is used for manual control



Remote 3 speed fan controller



The Mitsubishi H PAC - AH MG controller is provided with the unit.

## Optional Extras



Sheet Metal Covers to hide services



Fan Speed Controller for low speeds



# thermoscreens®



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Kuwait Latvia Lithuania Malta Oman Poland Portugal Qatar Rep.of Ireland Romania Russia Slovenia Spain  
The Netherlands Turkey UAE UK

All Thermoscreens products are certified in accordance with CE regulations  
and where applicable comply with the following standards:

EN 60335-2-30, 2004/108/EC Electromagnetic Compatibility (EMC),  
Machinery Directive 2006/42/EC

Low Voltage Directive, (72/23/EEC as amended by 93/68/EEC)

Pressure Equipment Directive (97/23/EC)

IP21 Rating CSA - Standard 22.2 UL 2021 / UL 1995, GOST R 23511-79, GOST R 50033-92



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Products are manufactured under a continuous improvement process and details may change.

Issue 1

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