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Hanger Cooling Unit

Factory & Warehouse Hanger Cooling Solutions

HVAC & Power Solutions

Application

Industry Office Warehouse Hospital School Hotel Home Mosque

Thank you for choosing Windmason air conditioning equipment.

Traditional cooling systems for hanger buildings (factories, workshops, or warehouses) typically rely on packaged air conditioning with ducts and heavy base frames. However, these ducts and base frames increase both initial installation costs and long-term operational expenses.

Additionally, the heavy base frame must usually be installed on one side of the hanger, requiring significant space. In some cases, due to restrictions imposed by government or property management authorities, this space may not be available, forcing installation onto the roof. This can pose structural risks, as the combined weight of the equipment, base frame, and ducting may exceed the building's load-bearing capacity.

At Windmason, we strive to deliver HVAC solutions that comply with building codes and weight limitations. Our ductless DX system is the ideal choice for hanger cooling, offering:

- Lightweight design – Minimized body panels and components reduce overall weight.
- Optimized weight distribution – A larger surface area for the AC units decreases weight per unit area, spreading the load more evenly across the hanger roof.
- Ductless flexibility – No ductwork is required for open spaces (single hall without partitions). If partitions exist, optional air distribution ducts can be added.
- Two-stage cooling (25 TR units) – Operates at 50% capacity in milder weather, improving efficiency.
- No heavy base frames – Simplifies roof installation and maintenance while eliminating structural concerns.
- Easy relocation – Unlike traditional packaged central systems (where ducts, grilles, and frames incur additional costs upon relocation), our system can be moved without significant losses.
- Smart control – A microprocessor touchscreen controller optimizes performance, ensuring energy efficiency across all weather conditions.

Windmason's ductless DX system provides a cost-effective, adaptable, and structurally compliant cooling solution for large spaces.

How It Works

Windmason's Ductless DX System is a lightweight, high-efficiency direct expansion (DX) air conditioning solution designed for steel-structure buildings such as hangars, factories, and warehouses where roof weight limitations are a concern.

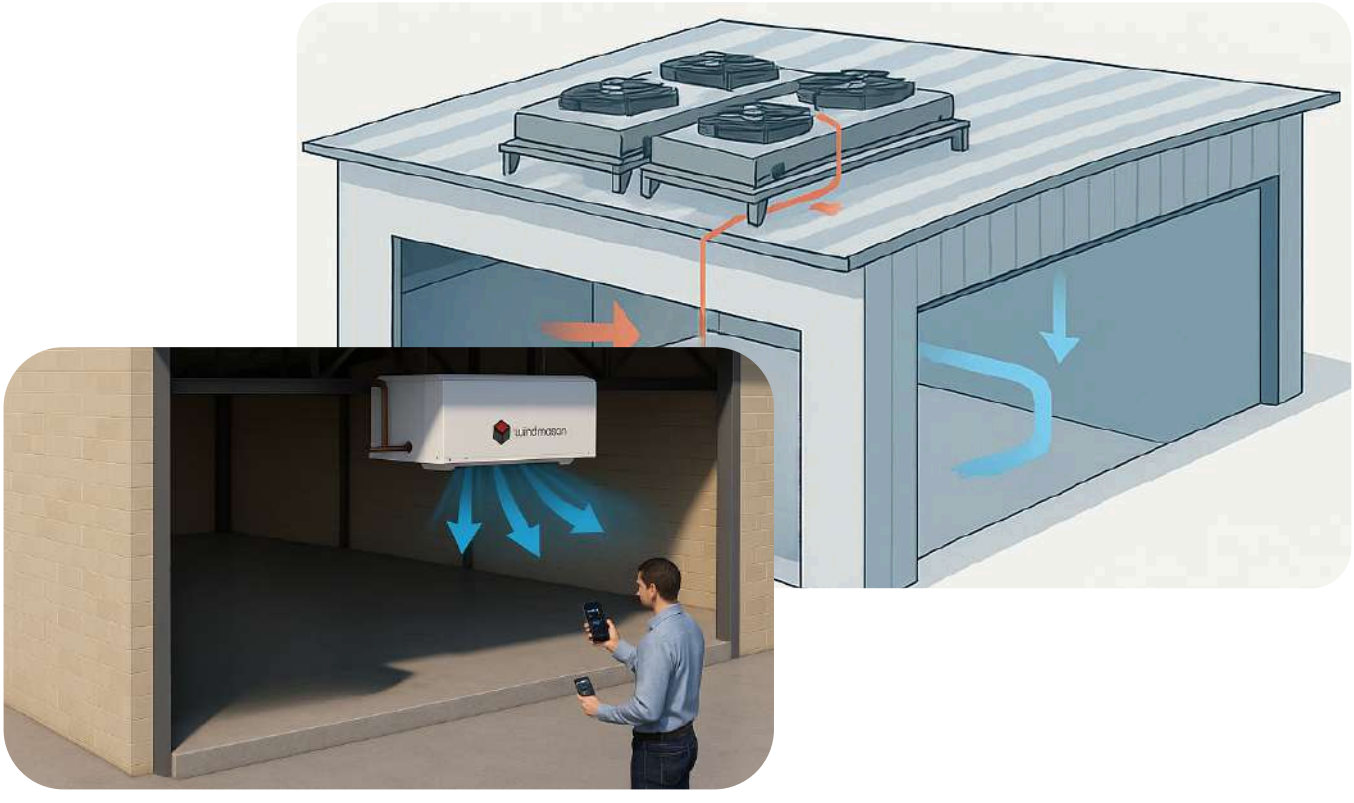
System Components & Operation

- **Outdoor Unit** (Condenser) – Located on the roof, it releases heat absorbed from indoors.
- **Indoor Unit** (Evaporator) – Installed inside the hangar, it cools the air by absorbing heat.
- **Refrigerant Lines** – Copper piping connects both units, circulating refrigerant for efficient heat transfer.

Key Advantages

- **No Ductwork Needed** – Eliminates air leakage and energy losses associated with traditional ducted systems.
- **Two-Stage Cooling (25 TR Units)** – Runs at 50% capacity in low-load conditions, saving energy.
- **Microprocessor Control** – Optimizes performance for different weather conditions, maximizing efficiency.
- **Easy Installation & Relocation** – No heavy base frames required, reducing structural stress.

By distributing cooling directly where needed, this system ensures reliable, cost-effective temperature control without overloading the building structure.



Advantages & Features of Windmason's Ductless DX System Optimal Performance for Large Spaces

1. **Ideal for Large Halls**
   Perfect for cooling warehouses, factories, and hangers with open layouts.

2. **Energy-Efficient Operation**
   7–10% power savings compared to traditional systems.

3. **Multi-Stage Cooling**
   Adjustable 50% capacity step for efficient low-load operation. Cost & Installation Benefits

4. **Lower Initial Cost**
   20–30% savings on installation vs. conventional ducted systems.

5. **No Heavy Base Frame Needed**
   Reduces structural load and simplifies setup.

6. **Easy Relocation**
   Low-cost migration and reinstallation for flexible use in different locations.

7. **Lightweight Design**
   Engineered for roof weight limitations of steel-structure buildings. Smart Control & Monitoring

8. **Centralized & Remote Control**
   Manage multiple units via WiFi, BMS (BACnet/Modbus), or touchscreen.

9. **User-Friendly Interface**
   Touchscreen display shows:
   - Room & ambient temperature
   - Humidity levels
   - Set temperature

10. **BMS Integration**
    Compatible with BACnet & Modbus protocols for seamless building automation.
    Flexible Installation Options

11. **Ducted or Ductless**
    Adaptable to open spaces or partitioned areas.

12. **Versatile Mounting**
    Supports:
    - Wall-mounted
    - Tilted roof
    - Horizontal roof condenser setups

13. **Customization Available**
    Standard & tailor-made units to meet specific cooling needs.

Model Numbers with detail

Outdoor Unit

Cooling Capacity	Type	Model No. WM-ACC-	Weight
6.25 TR	Top discharge	TDPH-75-1 WM-ACC-	160 KG
12.5 TR	Top discharge	TDPH-150-1 WM-ACC-	300 KG
25.0 TR	Top discharge	TDPH-300-2	600 KG

Indoor unit (Ceiling suspended type down throw)

Type	Cooling capacity	Model No. WM-	Weight
Ceiling suspended	6.25 TR	EVC-D-75-1 WM-	80 KG
Ceiling suspended	12.5 TR	EVC-D-150-1 WM-	120 KG
Ceiling suspended	25.0 TR	EVC-D-300-1	240 KG

Ceiling suspended type side throw ducted or non ducted

Type	Cooling capacity	Model No.	Weight
Ceiling suspended	6.25 TR	WM-EVC-S-75-1	80 KG
Ceiling suspended	12.5 TR	WM-EVC-S-150-1	120 KG
Ceiling suspended	25.0 TR	WM-EVC-S-300-1	240 KG

Floor standing type

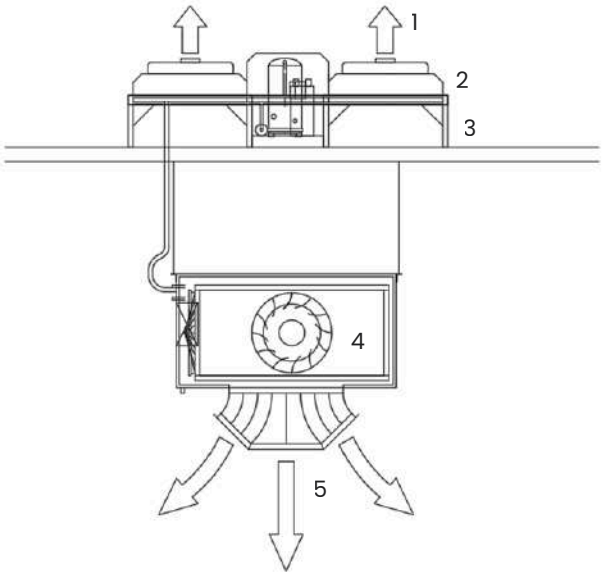
Type	Cooling capacity	Model No.	Weight
Floor standing	6.25 TR	WM-EV-FS-75-1	80 KG
Floor standing	12.5 TR	WM-EV-FS-150-1	120 KG
Floor standing	25.0 TR	WM-EV-FS-300-1	240 KG

Portable Indoor and Outdoor unit combined system

Type	Cooling capacity	Model No.	Weight
Wall side mounted	6.25 TR	WM-PAC-STD-75-1	240 KG
Wall side mounted	12.5 TR	WM-PAC-STD-150-1	420 KG
Wall side mounted	25.0 TR	WM-PAC-STD-300-2	540 KG

Unit Installation & configuration

The system can be configured in many ways, with different outdoor and indoor units as per application and selection for different type of structures and architectural design.



Configuration A

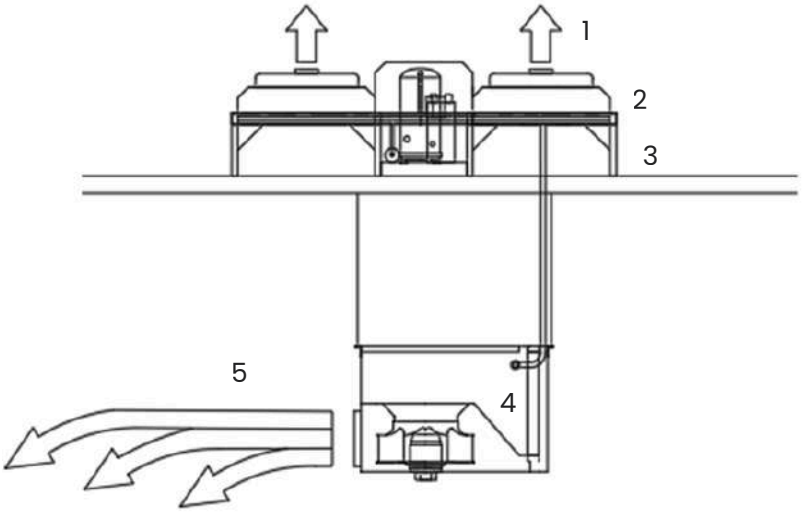
Suitable for large open halls, hangers, factories and similar type buildings
The top discharge air cooled outdoor unit on the roof of building with indoor unit with hanging type (ceiling suspended type) inside the cooling area (Hall) for open throw of air with down air throw duct or non ducted system.

1. Condenser air Top discharge
2. Condenser unit (Outdoor unit)
3. Roof level
4. Evaporator unit (Indoor unit)
5. Cooling air flow Down throw

Configuration B

Suitable for large open halls, hangers, factories and similar type buildings with wall side mount ducted or non ducted.
The top discharge air cooled outdoor unit on the roof of building with indoor unit with hanging type (ceiling suspended type) inside the cooling area (Hall) for open throw of air with side air throw duct or non ducted system.

1. Condenser air Top discharge
2. Condenser unit (Outdoor unit)
3. Roof level
4. Evaporator unit (Indoor unit)
5. Cooling air flow Down throw

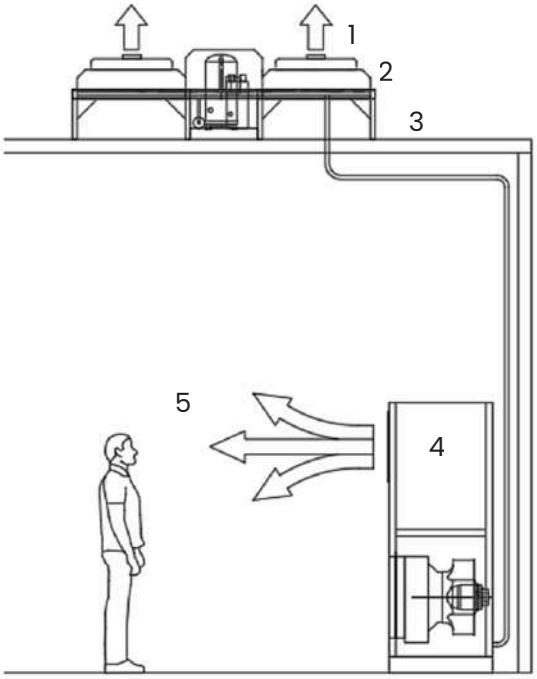


Unit Installation & configuration

Configuration C

Suitable for large open halls, hangers, factories and similar type buildings with large size of industrial floor standing unit.

The top discharge air cooled outdoor unit on the roof of building with indoor unit floor standing type inside the cooling area (Hall) for open throw of air with side air throw non ducted system.



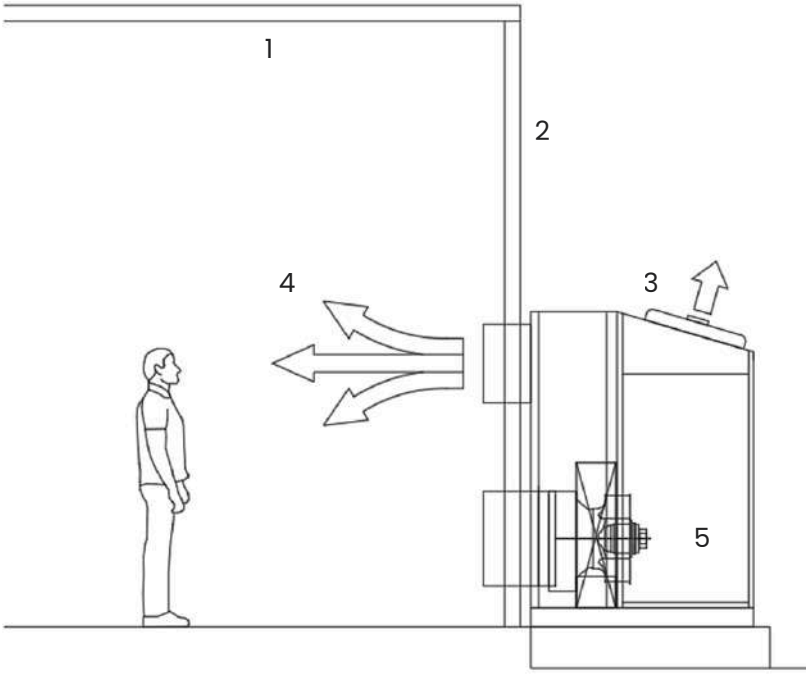
1. Condenser air Top discharge
2. Condenser unit (Outdoor unit)
3. Roof level
4. Evaporator unit (Indoor unit)
5. Cooling air flow Down throw

Configuration D

Suitable for large open halls, hangers, factories, Tent and similar type of buildings. Slab on ground installation.

The unit is contain totally enclosed packaged side tilted discharge condenser unit with it evaporator unit fitted along on one base frame. This configuration provide flexibility of migration and temporary use of DX units for special cooling of exhibition halls, tents which can be easily installed and dismantle after the end of the function and gathering.

No required duct, can be installed above the floor on the ground or if required base frame can be used as per application.



1. Building Roof
2. Building wall
3. Condenser air
4. Cooling air flow Side throw
5. Combined unit of indoor and outdoor

Unit Installation & configuration

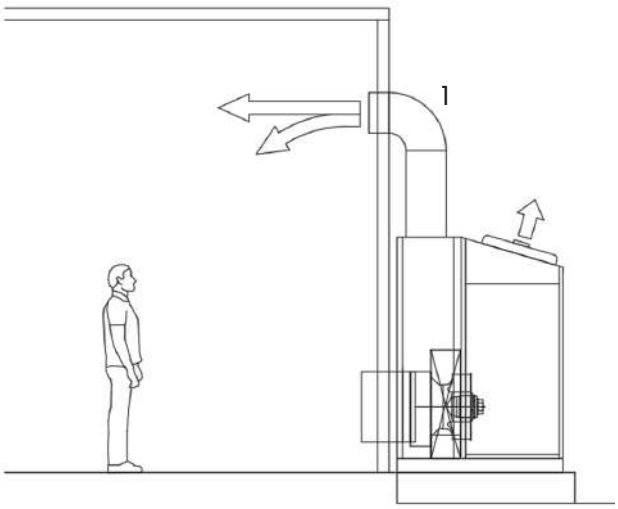
Configuration E

Suitable for large open halls, hangers, factories, Tent and similar type of buildings. Slab on ground installation.

The unit is contain totally enclosed packaged side tilted discharge condenser unit with it evaporator unit fitted along on one base frame. This configuration provide flexibility of migration and temporary use of the DX units for the special cooling of exhibitions halls, tents which can be easily installed and dismantle after the end of the function and gathering.

Duct mouth for high wall flow can be installed with a single supply and return air grilles.

1. Short duct



Controller functions
Smart touch screen controller

The unit is equipped with latest IoT controller with many functions and user friendly controller touch screen.
The temperature controller is smart touch screen, with WiFi connectivity. Can be monitored and control from remote by mobile application.
The controller showing the set point temperature, room humidity, room temperature, working status and any fault which might happen.
It can show these data on the screen and remotely by internet application.

Smart touch screen

Remote online controller screen

Smart touch screen functions

All the buttons are available as smart touch screen buttons and values, general status of the system.

Wired wall mounted remote controller

Wal mounted remote controller with LED smart touch screen display.

Online Wi-Fi controller and status display

The system can be monitored and control by Tuya application online with Wi-Ficonnectivity.
BMS interface.
The system is compatible with BMS system and can be monitored and control by BMS interface cable connection by bacnet and modbus protocols.

Group Controller

All the units installed in one area or nearby can be connected by wire with each other and can be control and monitored with a central controller.

Technical Data

Condenser Unit (outdoor unit)			
Nominal Cooling capacity	6.25 TR	12.5 TR	25.0 TR
Model No.	WM-ACC-TDPH-75-1	WM-ACC-TDPH-150-1	WM-ACC-TDPH-300-2
Condenser type	Air cooled top discharge fan		
Refrigerant	R410A		
Electrical Data			
Power supply			
Max. Circuit Current	14.25 A	28.5 A	57.0 A
Max. Power input	6.5 kW	13.3 kW	26.6 kW
COP (W/W)	3.19	3.25	3.25
EER (Btu/Wh)	10.9	11.1	11.1
Sound rating (outdoor)	70 db		
Heat exchanger coil			
Type	fins and tubes / Alu fins - Cu tubes		
Air flow	5500	5500 x 2	5500 x 4
Fan type	Axial Fan - 1 x 630 mm dia.	Axial Fan - 2 x 630 mm dia.	Axial Fan - 4 x 630 mm dia.
Motor capacity	680 watt x 1	680 watt x 2	680 watt x 4
Compressor			
Brand / Type	Copeland by Emerson USA / Scroll		
Model No.	ZP76KCE	ZP154KCE	ZP154KCE
Capacity	6.3 HP	12.8 HP	12.8 HP x 2
Quantity	1	1	2
Physical Dimensions			
Outdoor	2220 x 1570 x 660 mm	2220 x 1570 x 660 mm	2220 x 1570 x 660 mm (2 units)
Weight (Operation)			
Outdoor	160 KG	300 KG	300 KG x 2
Notes : Weather Conditions - Ambient - 45 C / 20 C, Indoor set point Temp. 26 C			

Since continuous development and innovation are ongoing, some specifications and data may change without notification.
Please contact our sales department before finalizing the project.

Evaporator Unit (Indoor Unit)			
Nominal Cooling capacity	6.25 TR	12.5 TR	25.0 TR
Refrigerant	R410A		
Model			
Indoor - Hanging down throw	WM-EVC-D-75-1	WM-EVC-D-150-1	WM-EVC-D-300-2
Indoor - Hanging side throw	WM-EVC-S-75-1	WM-EVC-S-150-1	WM-EVC-S-300-2
Indoor - Floor standing	WM-EV-FS-75-1	WM-EV-FS-150-1	WM-EV-FS-300-2
Electrical Data			
Power supply	380v/3ph/60hz		
Max. Circuit Current	1.5 A	2.9 A	5.8 A
Max. Power input	1.0 kW	2.5 kW	5.0 kW
Sound rating	50 db	48 db	48 db
Heat Exchanger coil			
Type	Alu fins, Cu tubes		
Structure	Dia. 3/8 tube, 16 FPI		
Air flow	2500 cfm	5000 cfm	10000 cfm
Fan type	Centrifugal backward curve direct drive fan		
Fan Quantity	1	1	2
Motor capacity	1000 watt	2500 watt	2500 x 2 watt
Physical Dimensions			
Indoor - Hanging down throw	1060 x 720 x 1220 mm	1850 x 860 x 1230 mm	1830 x 1480 x 1360 mm
Indoor - Hanging side throw	1050 x 1060 x 830 mm	1840 x 1110 x 940 mm	1830 x 1480 x 930 mm
Indoor - Floor standing	970 x 600 x 1700 mm	1440 x 660 x 2000 mm	1450 x 1000 x 2120 mm
Weight (Operation)			
Indoor - Hanging down throw	80 kg	120 kg	240 kg
Indoor - Hanging side throw	80 kg	120 kg	240 kg
Indoor - Floor standing	80 kg	120 kg	240 kg
Notes : Weather Conditions - Ambient - 45 C / 20 C, Indoor set point Temp. 26 C			

Since continuous development and innovations is ongoing, some specifications and data may change without notification.
Please contact our sales department before finalizing the project.

Technical Data

Nominal Cooling capacity	6.25 TR	12.5 TR	25.0 TR
Model No.	WM-PAC-STD-75-1	WM-PAC-STD-150-1	WM-PAC-STD-300-2
Condenser type	Air cooled top discharge fan		
Refrigerant	R410A		
Power supply			
Max. Circuit Current	15.7 A	31.4 A	62.8 A
Max. Power input	7.3 kW	14.8 kW	29.6 kW
COP (W/W)	3.19	3.25	3.25
EER (Btu/Wh)	10.9	11.1	11.1
Sound rating (outdoor)	70 db		
Type	fins and tubes / Alu fins - Cu tubes		
Air flow	5500	5500 x 2	5500 x 4
Fan type	Axial Fan - 1 x 630 mm dia.	Axial Fan - 2 x 630 mm dia.	Axial Fan - 4 x 630 mm dia.
Motor capacity	680 watt x 1	680 watt x 2	680 watt x 4
Brand / Type	Copeland by Emerson USA / Scroll		
Model No.	ZP76KCE	ZP154KCE	ZP154KCE
Capacity	6.3 HP	12.8 HP	12.8 HP x 2
Quantity	1	1	2
Type	Alu fins, Cu tubes		
Structure	Dia. 3/8 tube, 16 FPI		
Air flow	2500 cfm	5000 cfm	10000 cfm
Fan type	Centrifugal backward curve direct drive fan		
Fan Quantity	1	1	2
Motor capacity	1000 watt	2500 watt	2500 x 2 watt
Physical Dimensions	1100 x 1400 x 1700 mm	1600 x 1400 x 2000 mm	2200 x 1700 x 2300 mm
Weight (Operation)	240 kg	420 kg	540 kg
Notes : Weather Conditions - Ambient - 45 C / 20 C, Indoor set point Temp. 26 C			

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Please contact our sales department before finalizing the project.

Selection procedures

How to select suitable air conditioner unit for your application / Project
Based on the project heat load calculations total heat (sensible + latent) select the required tonnage and quantity as per unit technical data table.
Select the outdoor unit base on above procedure
For indoor unit select base on your building type and application

Example

Open halls with congested space inside

- Open halls where the area is congested hanging type indoor units are suitable.

Open halls with no congestion space inside

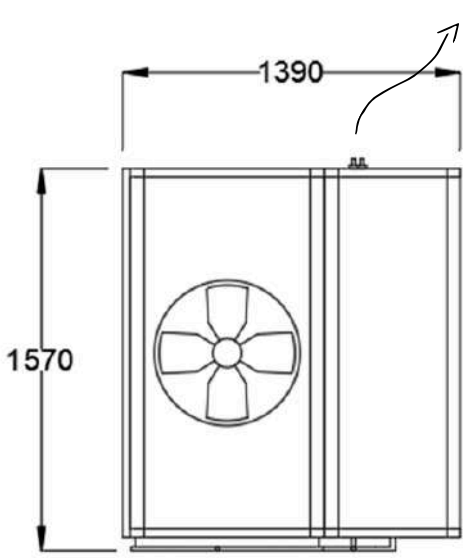
- Open halls where the area is not congested floor standing unit will be more suitable.

Open halls required temporary cooling units or tents, and exhibitions hall with cooling recruitments for some days.

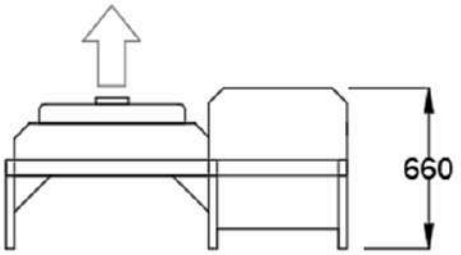
- For the halls where the building is temporary for exhibitions or temporary tents, or required temporary cooling for some days, combine package units are suitable for the cooling.
- Hanger (steel building) factories, warehouse other halls
- Outdoor unit shall be selected as per tonnage of project heat load.
- Indoor unit shall be hanging type or floor standing with matching capacity.

Physical dimensions and drawings

Outdoor unit of 6.25 TR
Model No. WM-CD-CS-T-75-1-R1

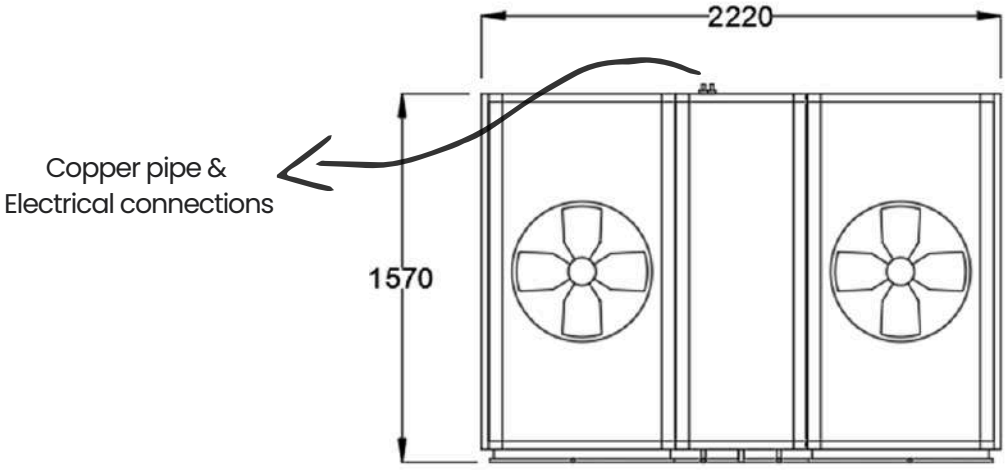


Top view

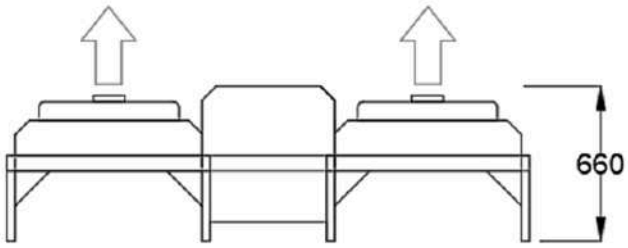


Side view

Outdoor unit of 12.50 TR
Model No. WM-CD-CS-T-150-1-R1



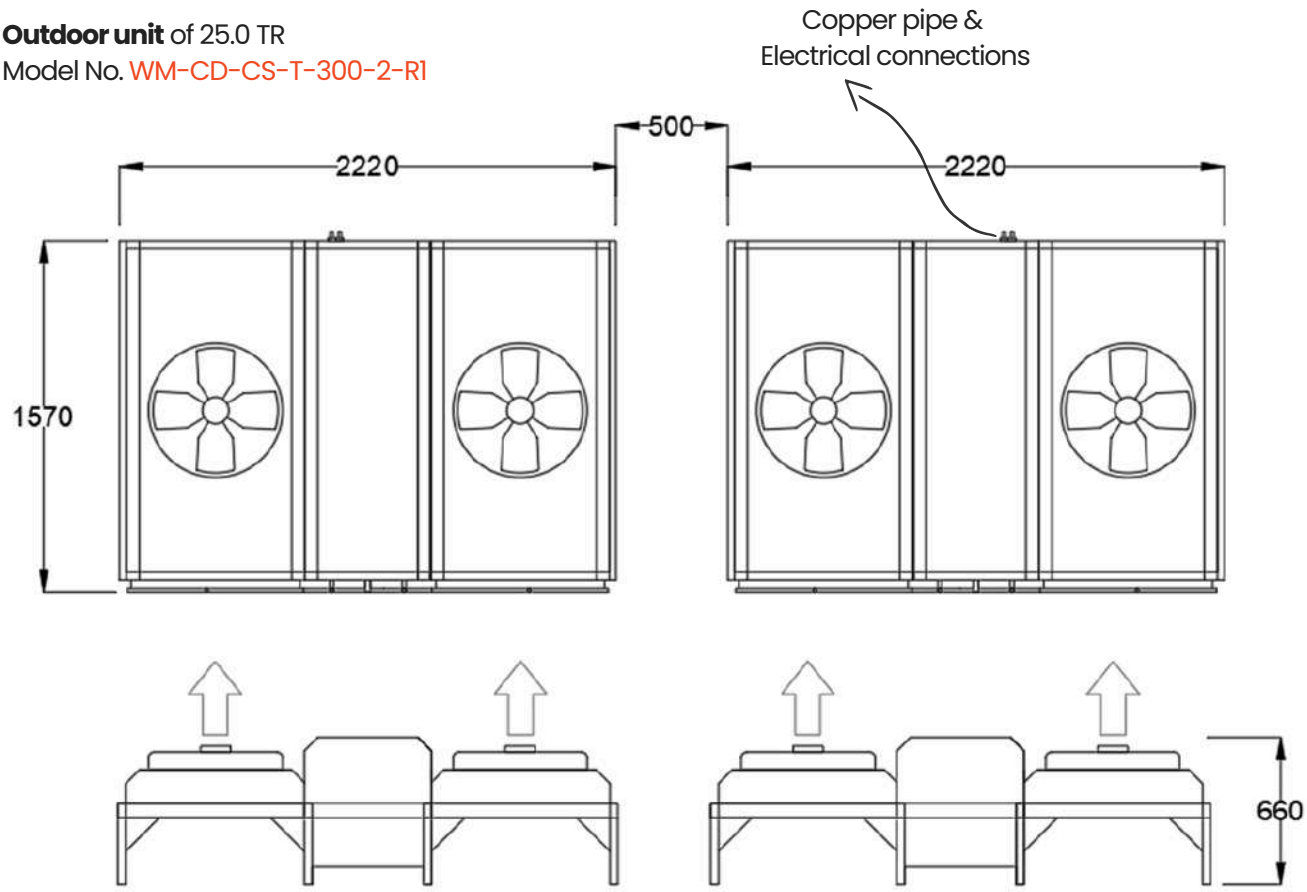
Top view



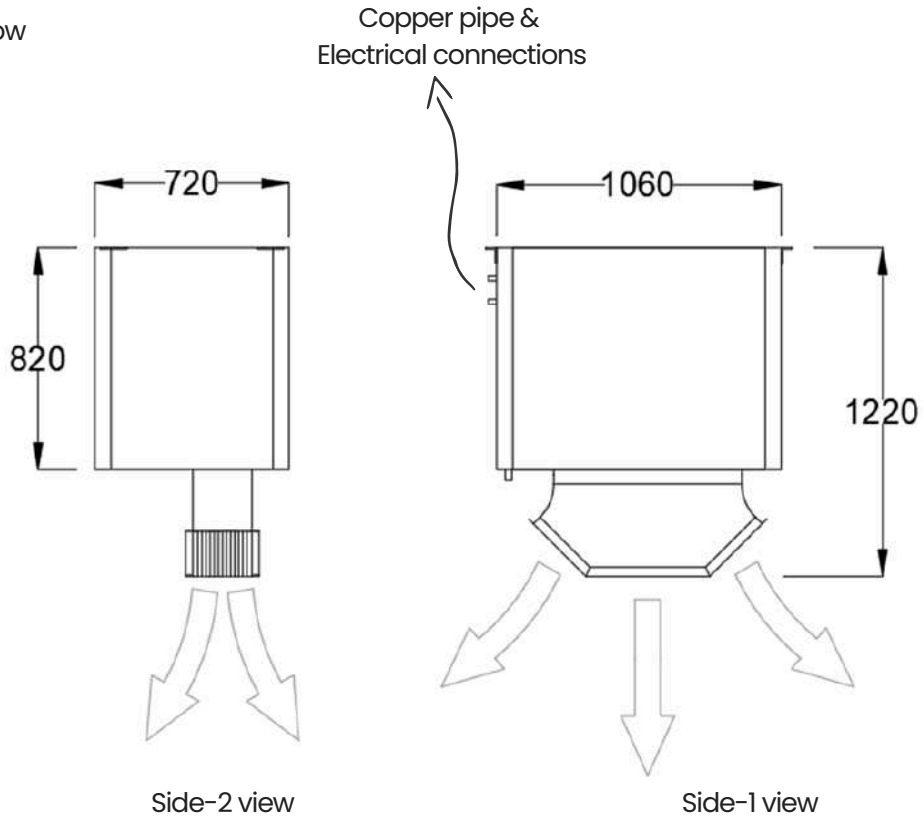
Side view

Physical dimensions and drawings

Outdoor unit of 25.0 TR
Model No. WM-CD-CS-T-300-2-R1

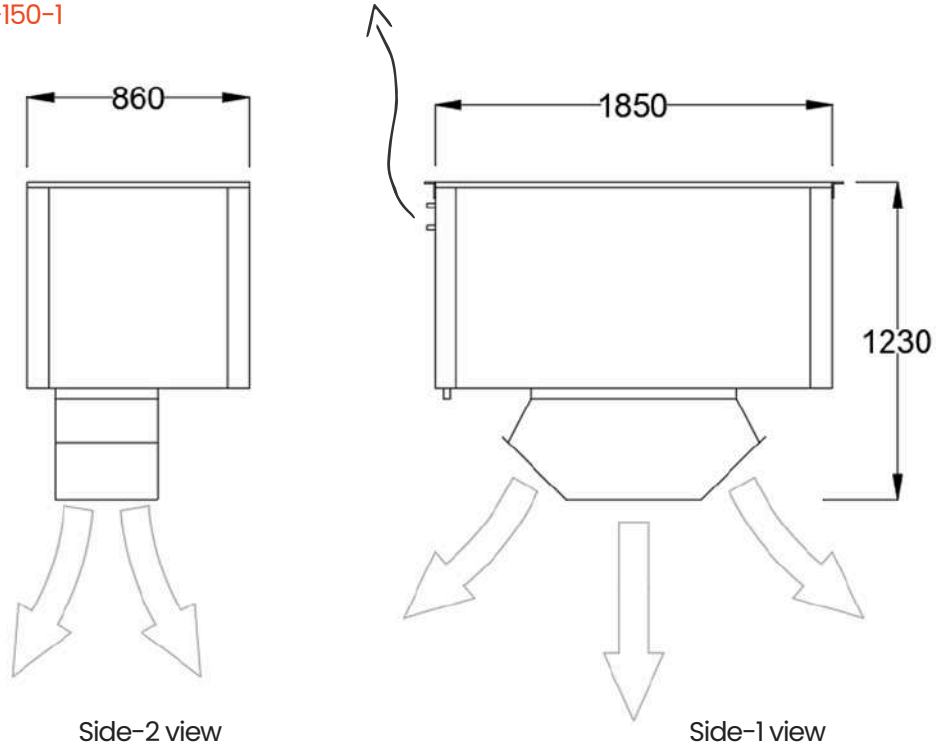


Indoor unit
Ceiling suspended type down throw
Capacity : 6.25 TR
Model No. : WM-EVC-D-75-1



Physical dimensions and drawings

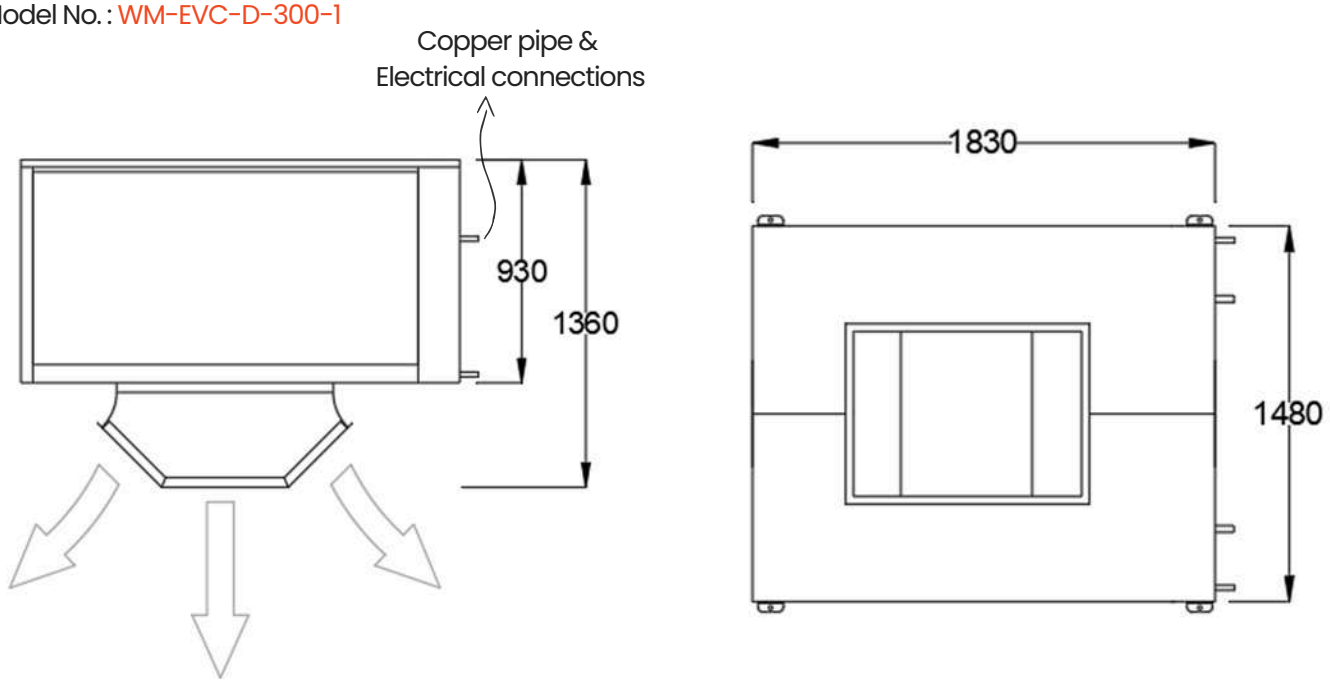
Indoor unit
Ceiling suspended type down throw
Capacity : 12.5 TR
Model No. : WM-EVC-D-150-1



Side-2 view

Side-1 view

Indoor unit
Ceiling suspended type down throw
Capacity : 25.0 TR
Model No. : WM-EVC-D-300-1

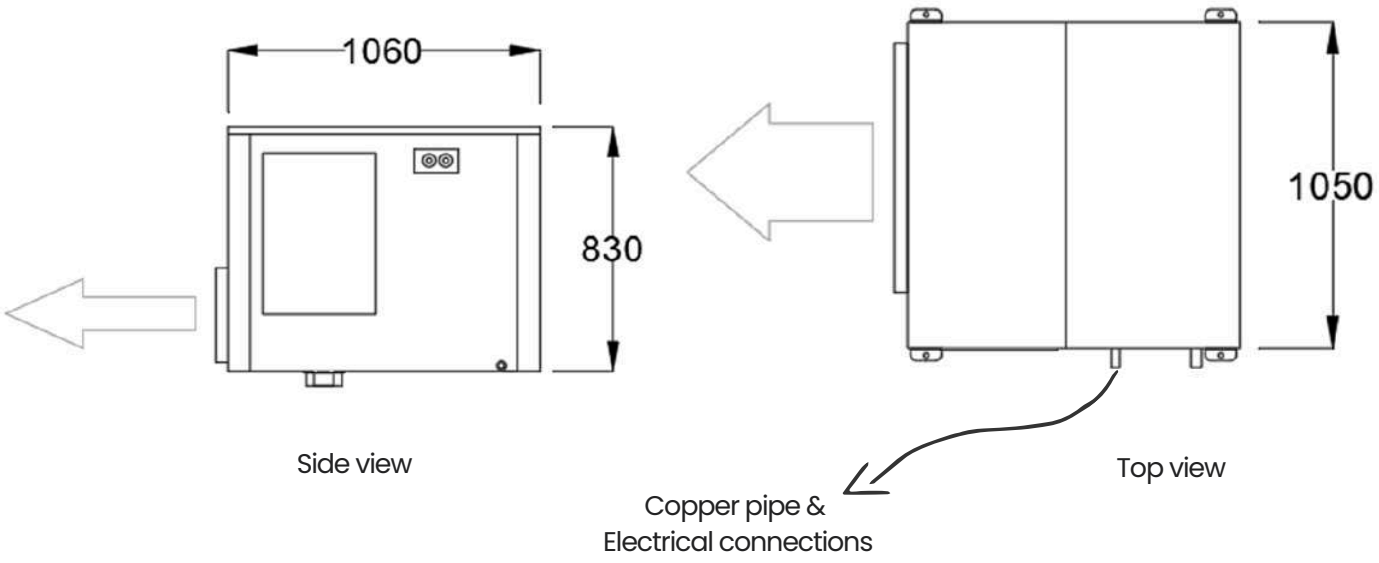


Side view

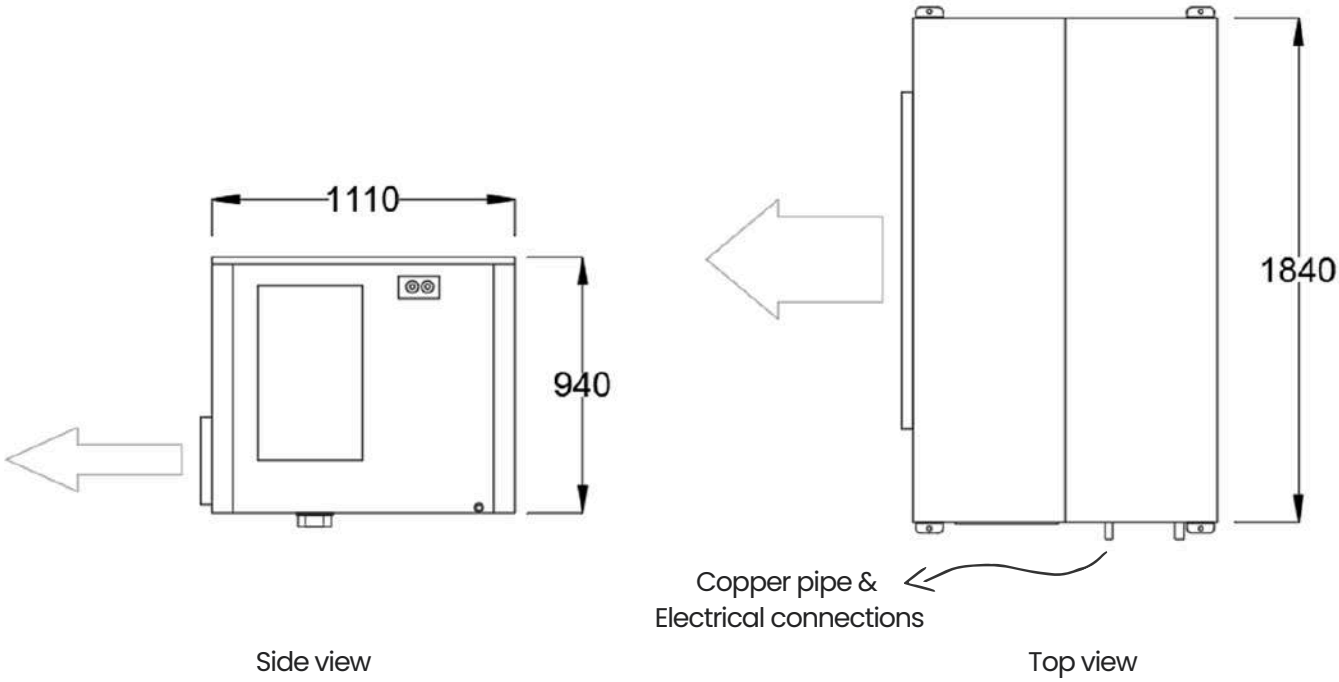
Top view

Physical dimensions and drawings

Indoor unit
Ceiling suspended type side throw
Capacity : 6.25 TR
Model No. : WM-EVC-S-75-1

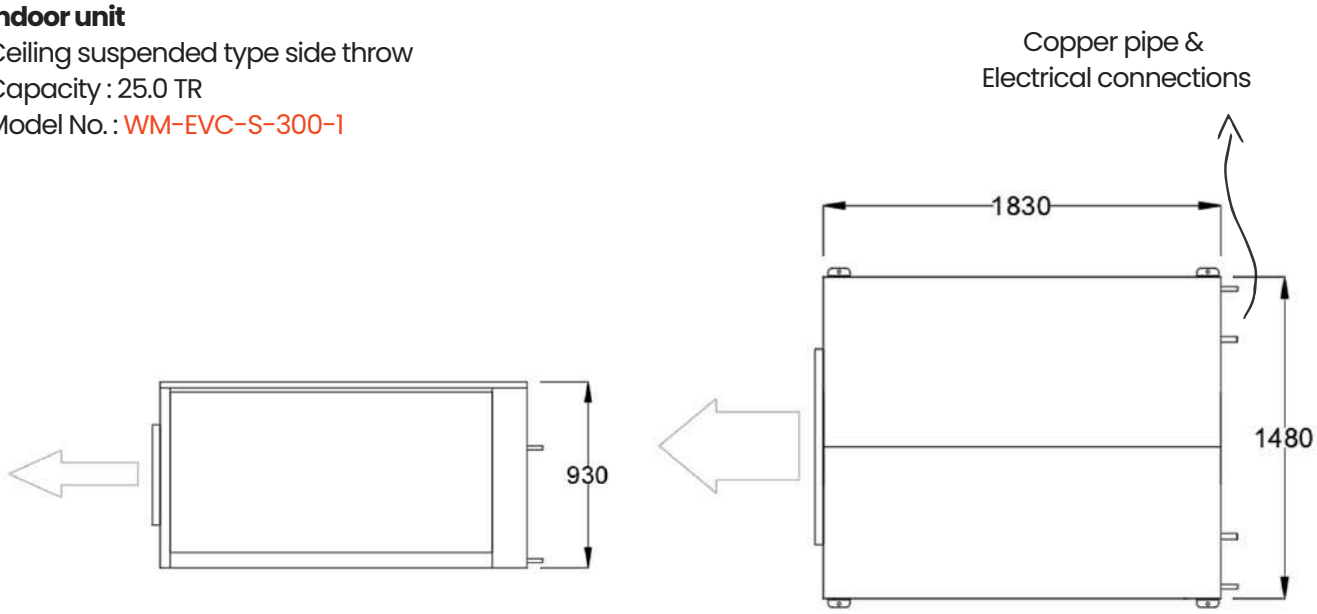


Indoor unit
Ceiling suspended type side throw
Capacity : 12.5 TR
Model No. : WM-EVC-S-150-1



Physical dimensions and drawings

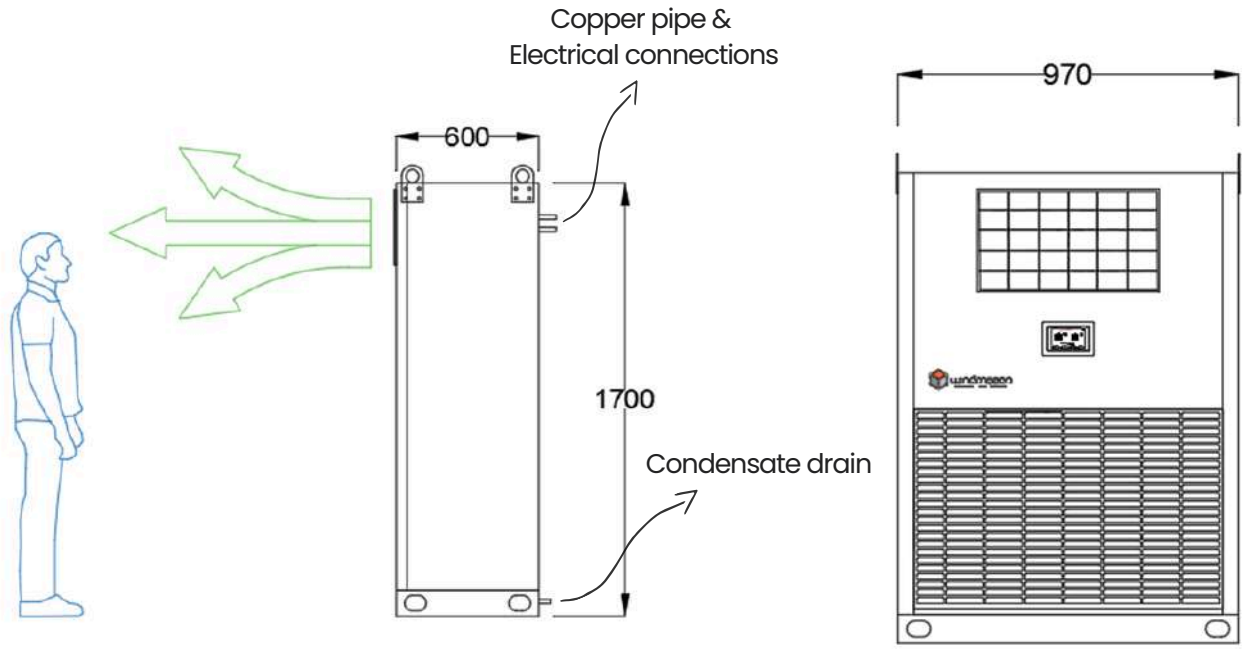
Indoor unit
Ceiling suspended type side throw
Capacity : 25.0 TR
Model No. : WM-EVC-S-300-1



Side view

Top view

Indoor unit
Floor standing type side throw / top throw optional
Capacity : 6.25 TR
Model No. : WM-EV-FS-75-1

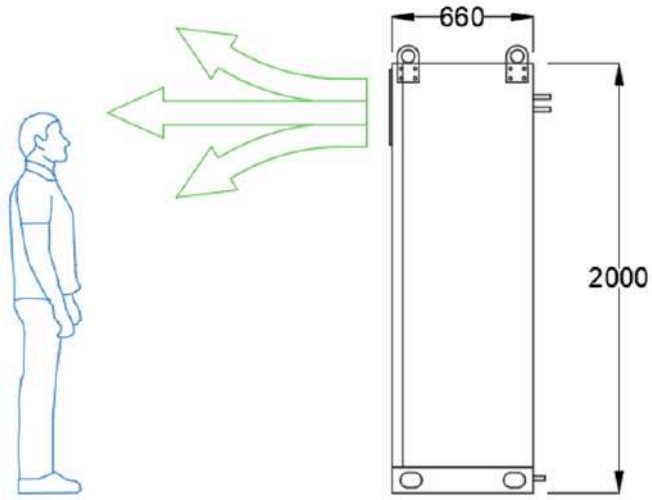


Side view

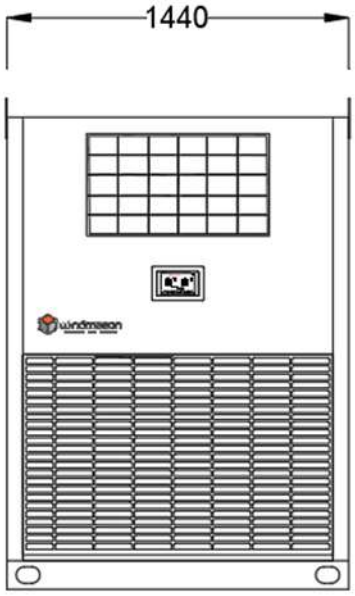
Fron View

Physical dimensions and drawings

Indoor unit
Floor standing type side throw / top throw optional
Capacity : 12.5 TR
Model No. : WM-EV-FS-150-1

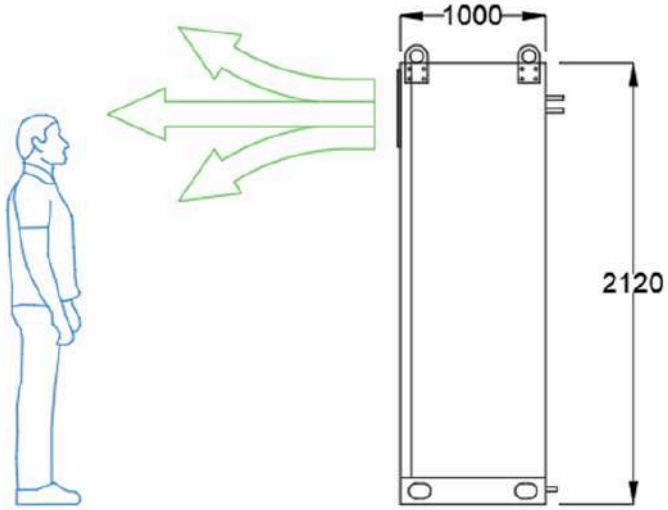


Side view

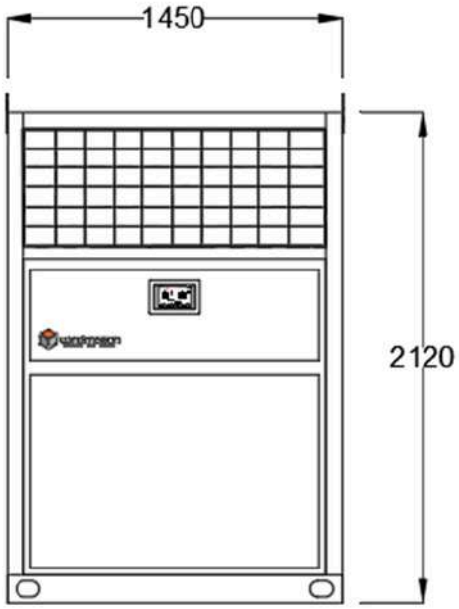


Top view

Indoor unit
Floor standing type side throw / top throw optional
Capacity : 25.0 TR
Model No. : WM-EV-FS-300-1

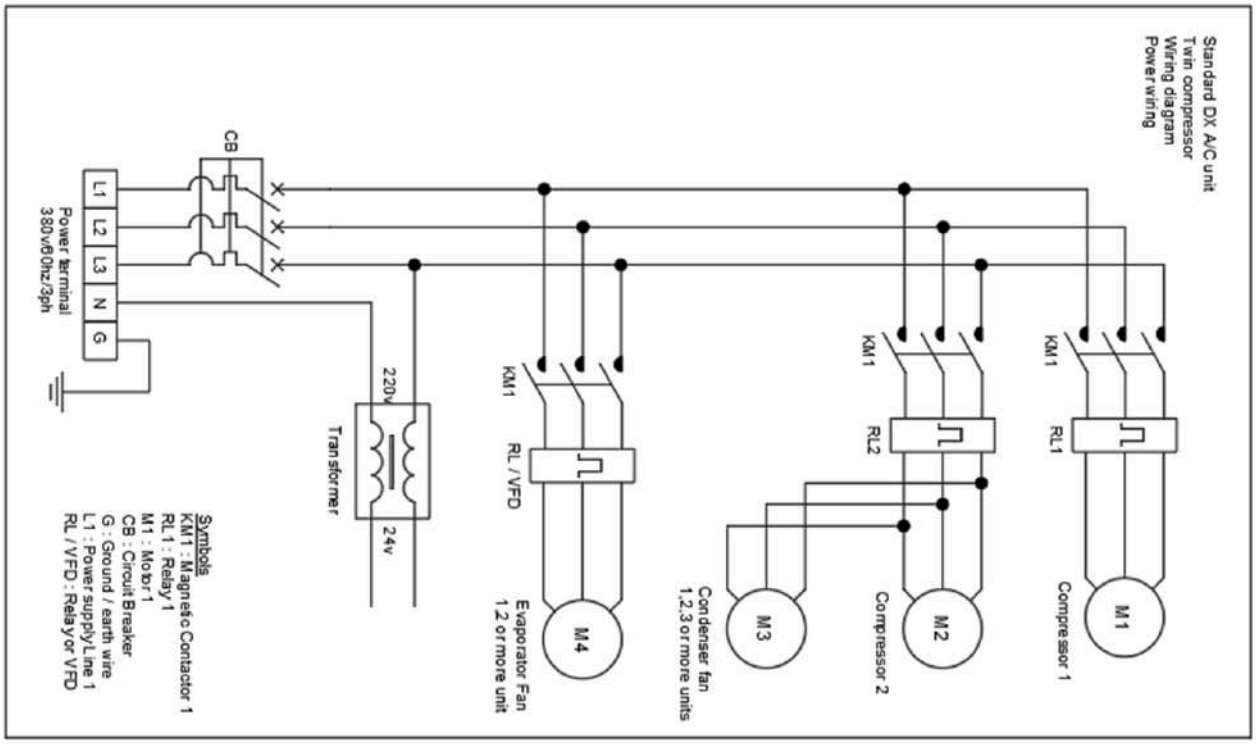


Side view

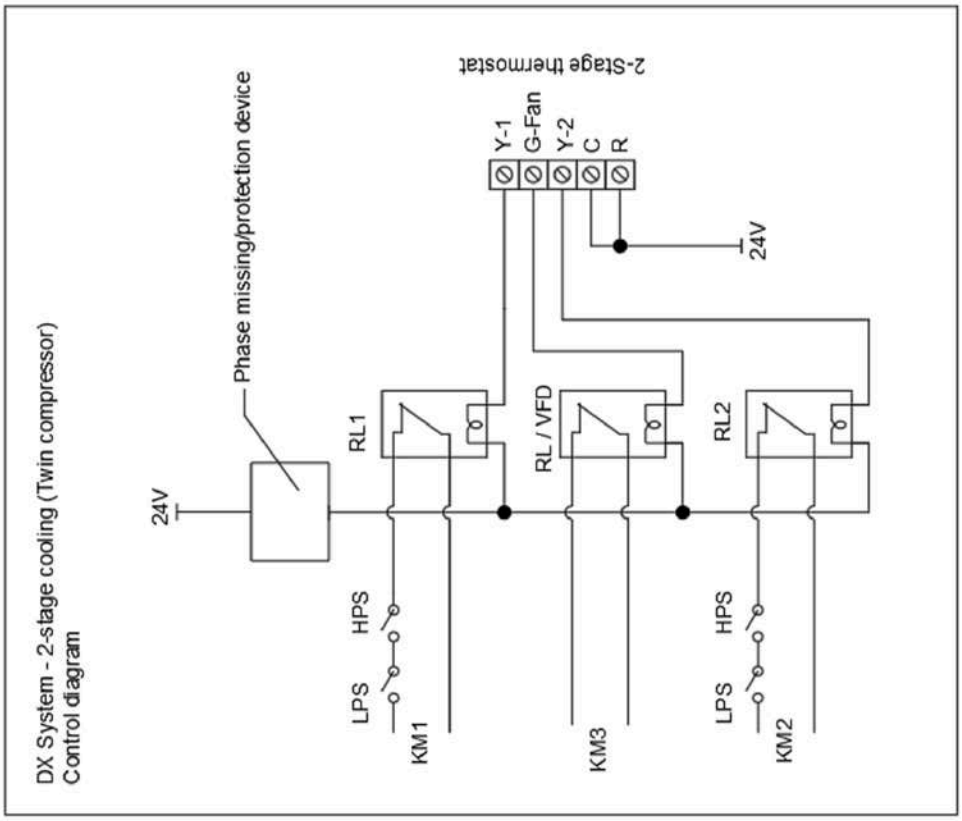


Fron View

Electrical Wiring diagram / Power circuit wiring

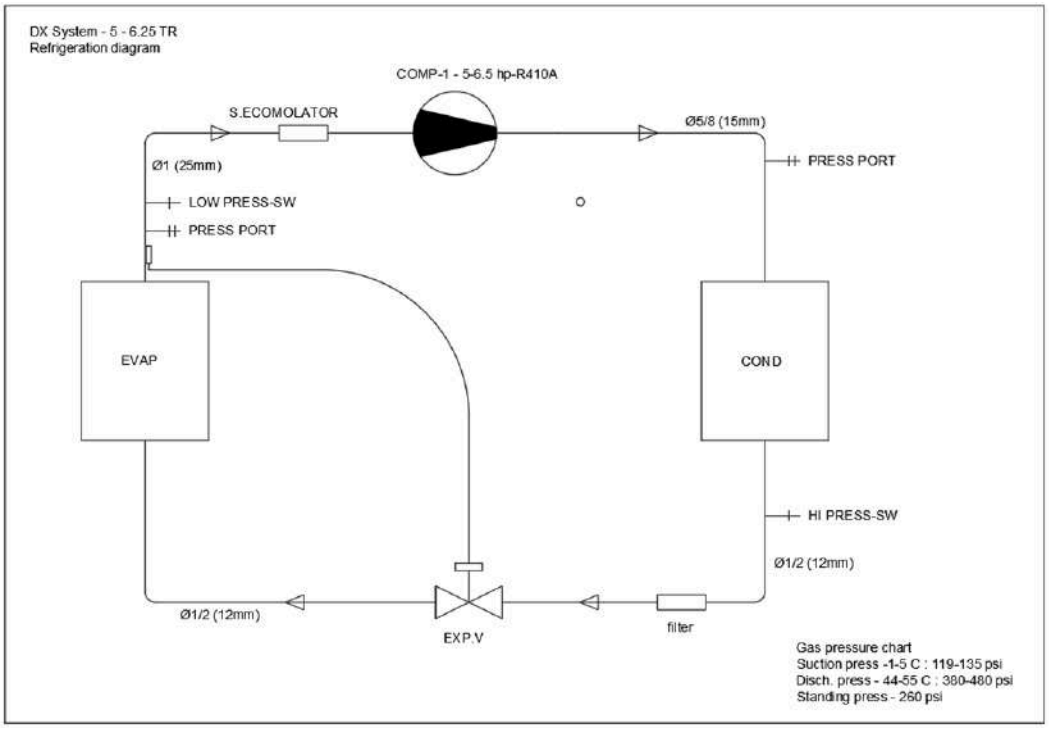


Electrical Wiring diagram / Control circuit wiring



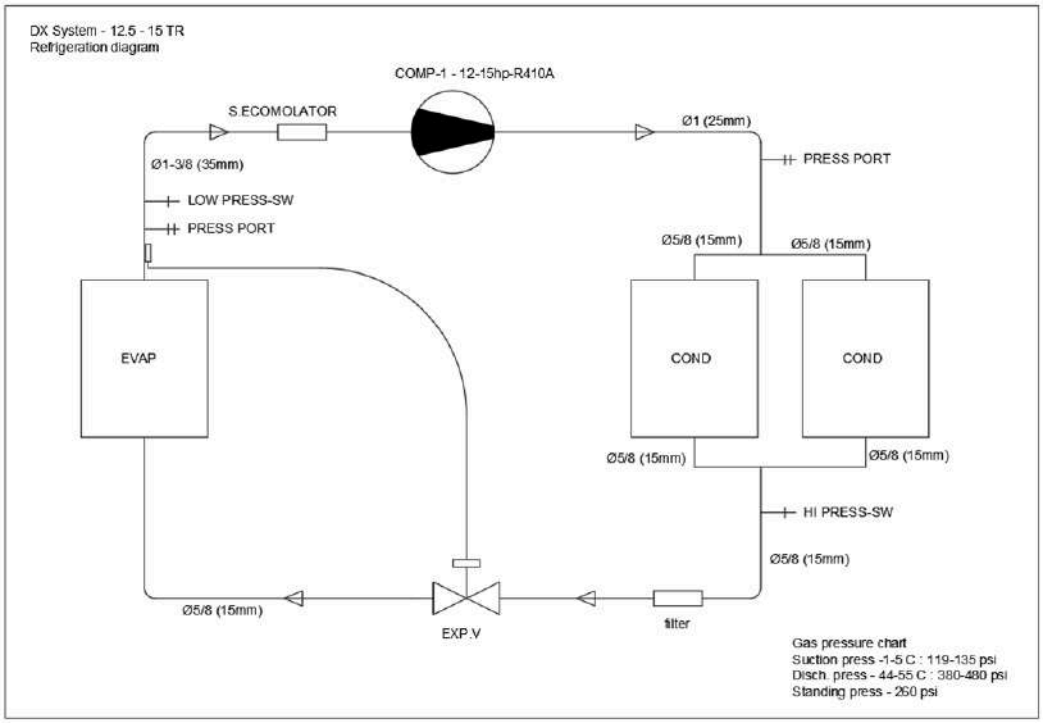
Refrigerant cycle

12.5, 25.0 TR



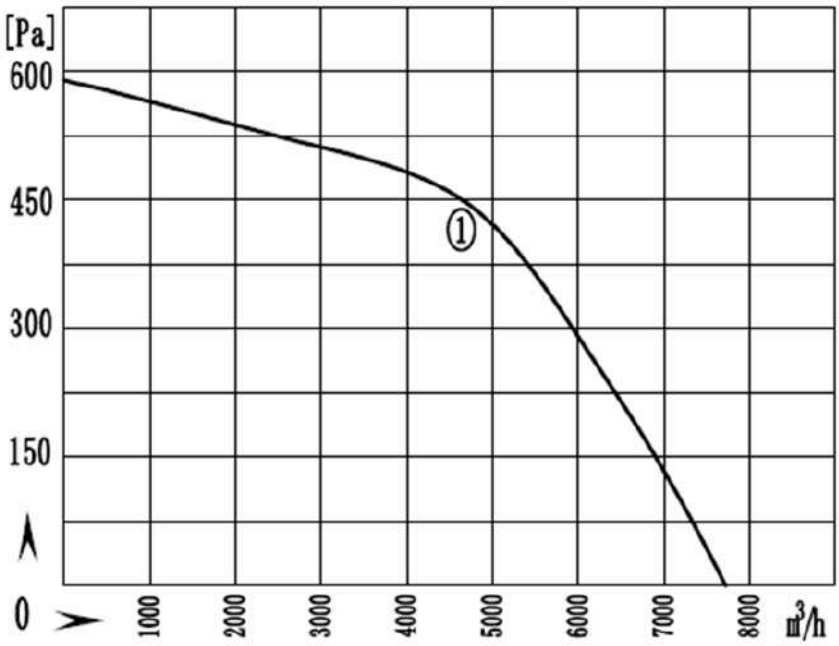
Refrigerant cycle

12.5, 25.0 TR



Evaporator fan data

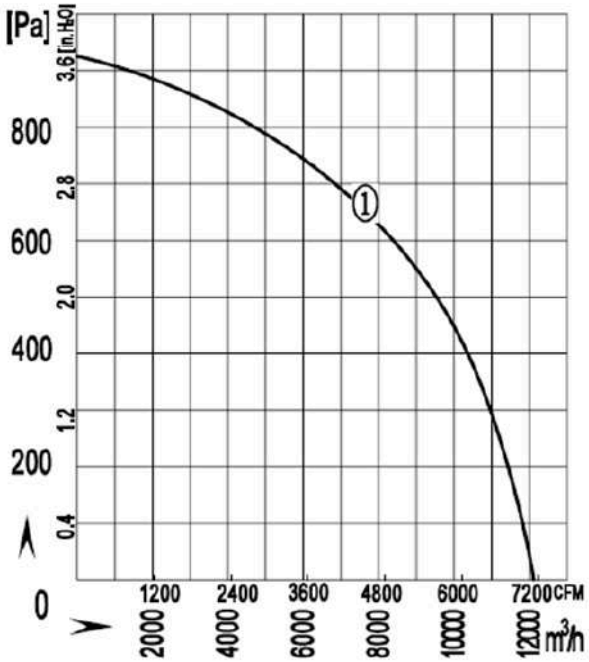
Fan type : Centrifugal backward curve direct drive EC fan
Unit capacity : 5 to 6.25 TR
Fan dia. 500 mm,Motor power : 1000 watt
Max. air flow : 2500 cfm



Fan curve

Evaporator fan data

Fan type : Centrifugal backward curve direct drive EC fan
Unit capacity : 10 to 25 TR
Fan dia. 560 mm,Motor power : 2500 watt
Max. air flow : 5000 cfm



Compressor data and performance

Copeland Scroll Compressor ZP Series
R410A Refrigerant Applicable

Technical Data **380v/3ph/60hz** **R410A**

Model	Power HP	Cooling capacity kW	Power input kW	Max. Current A	COP (W/W)	EER (Btu/Wh)
ZP76KCE	6.3	22.6	7.06	12.4	3.19	10.9
ZP154KCE	12.8	45.5	14	24.4	3.25	11.1

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