

# Passive Displacement Ventilation



# Passive Displacement Ventilation System

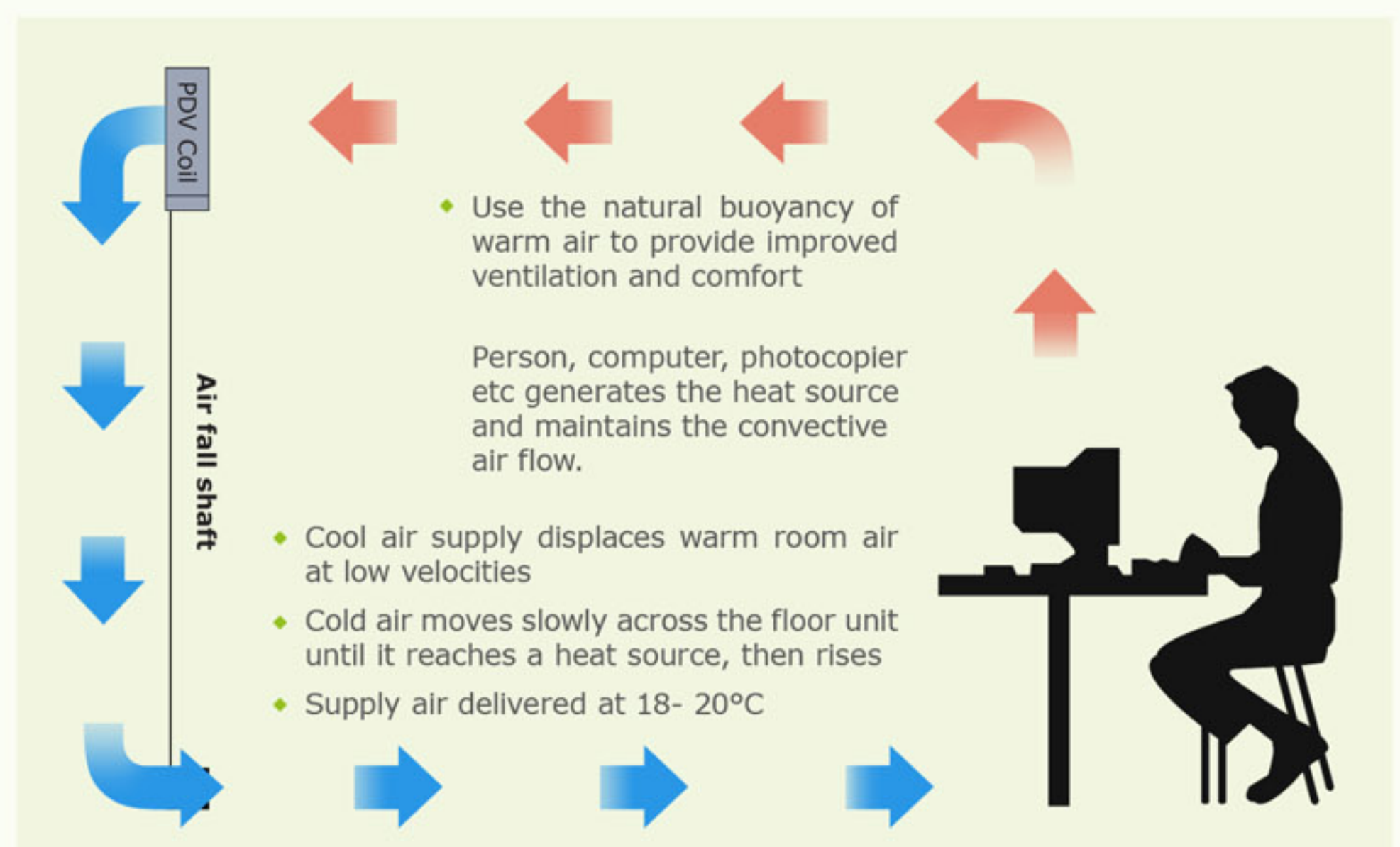
The Passive Displacement Ventilation System or PDV is an innovative air distribution system that provides a cost effective way to cool your buildings. A key feature of the PDV system is the absence of a fan. The system relies on the natural convection of heat transfer to deliver the chilled air to the end user, providing a comfortable indoor environment.

PDV system extracts warm air at the ceiling level and discharges cold air at the floor level.

- ◆ Due to the low velocity of the supply air, undesirable draft or uneven coldness is eliminated, leading to greater occupant comfort
- ◆ Acoustics wise, un-matched by conventional systems with mechanical fans.
- ◆ Substantial reduction in maintenance costs due to absence of mechanical fans
- ◆ Less structural consideration due to reduced ductwork

This zero energy airside cooling system or passive displacement ventilation system (PDV) presents an innovative technology for building owner to cool their building at substantially reduced electricity cost without the hefty re-construction and capital costs for ducting, diffusers and electrical cables. It also allows building owner to integrate the cooling system easily into the building interior design.

## How It Works



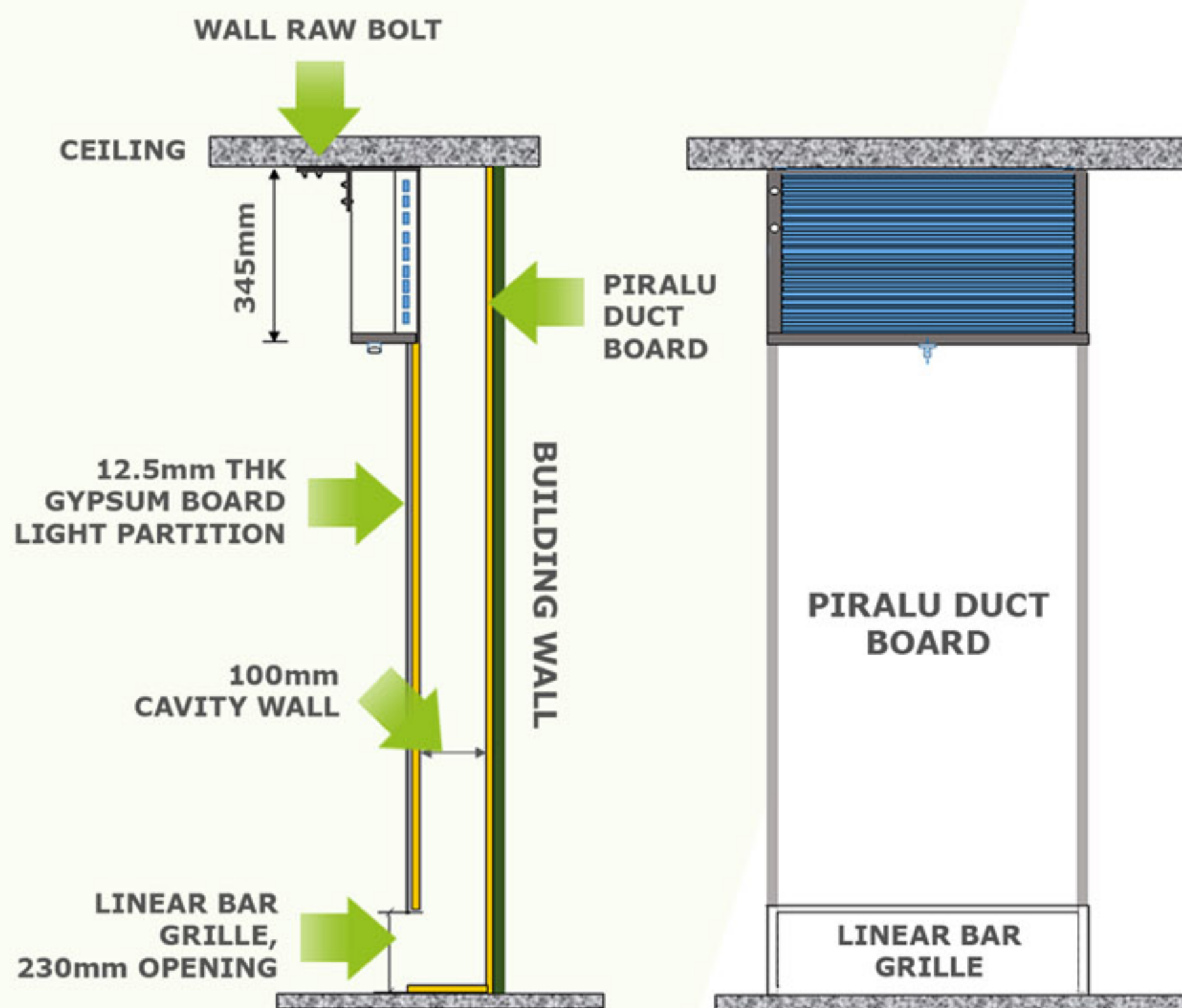
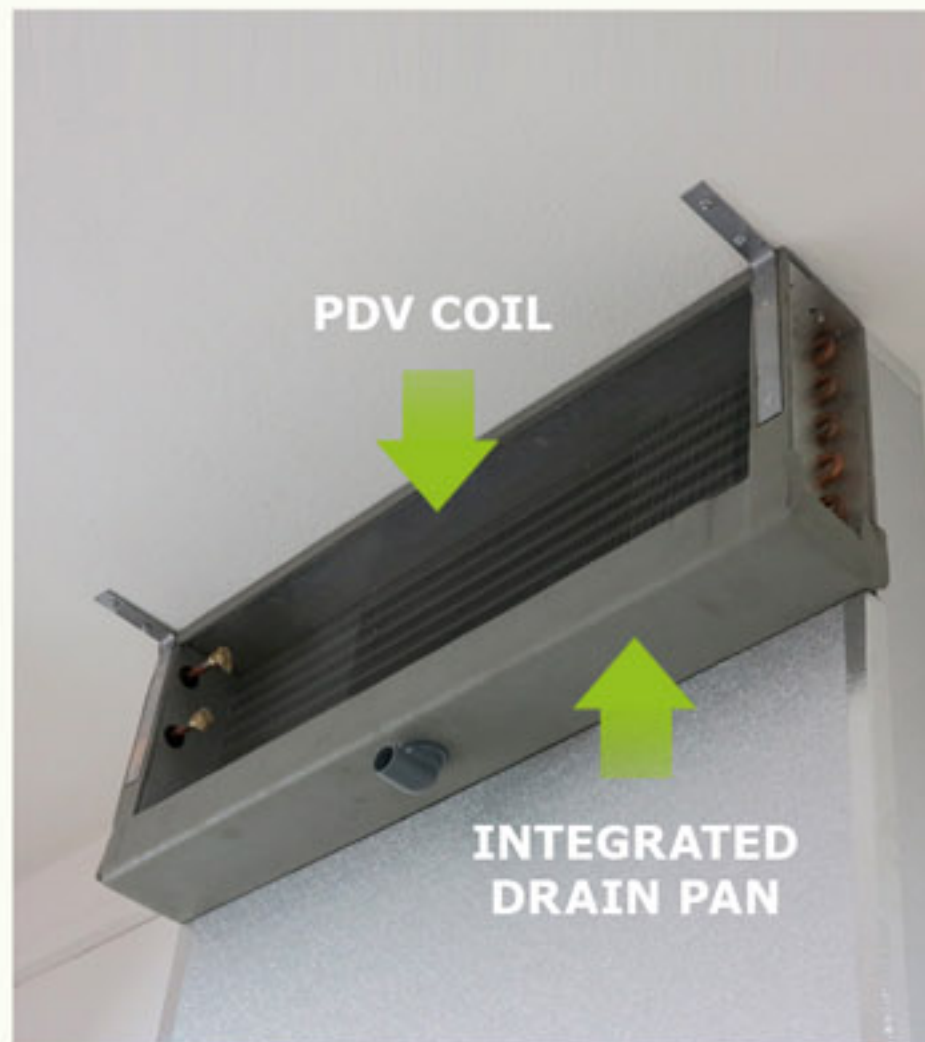
As the warm air in the room passes through the PDV coil, the air is cooled and the cold denser air drops down a vertical PIRALU Pre-Insulated air duct and gets discharged through a linear bar grille near the floor level. The cold air is diffused into the room space at very low air velocity causing a stratified layer of cold air reservoir of about 18°C to form at the floor level. This causes the air within the room to stratify. As heat is removed by this volume of cold air, the air becomes warmer and lighter. The buoyant warm air naturally rises up towards the ceiling whereby forming a hot air reservoir. The warm air will gravitates towards the colder PDV coils whereby the convective cooling process repeats itself again.

As the cooling process takes place the coils also helps to dehumidify the air within the room. Condensate is collected within the built-in drain pan and discharged via gravity feed to nearest discharge point.

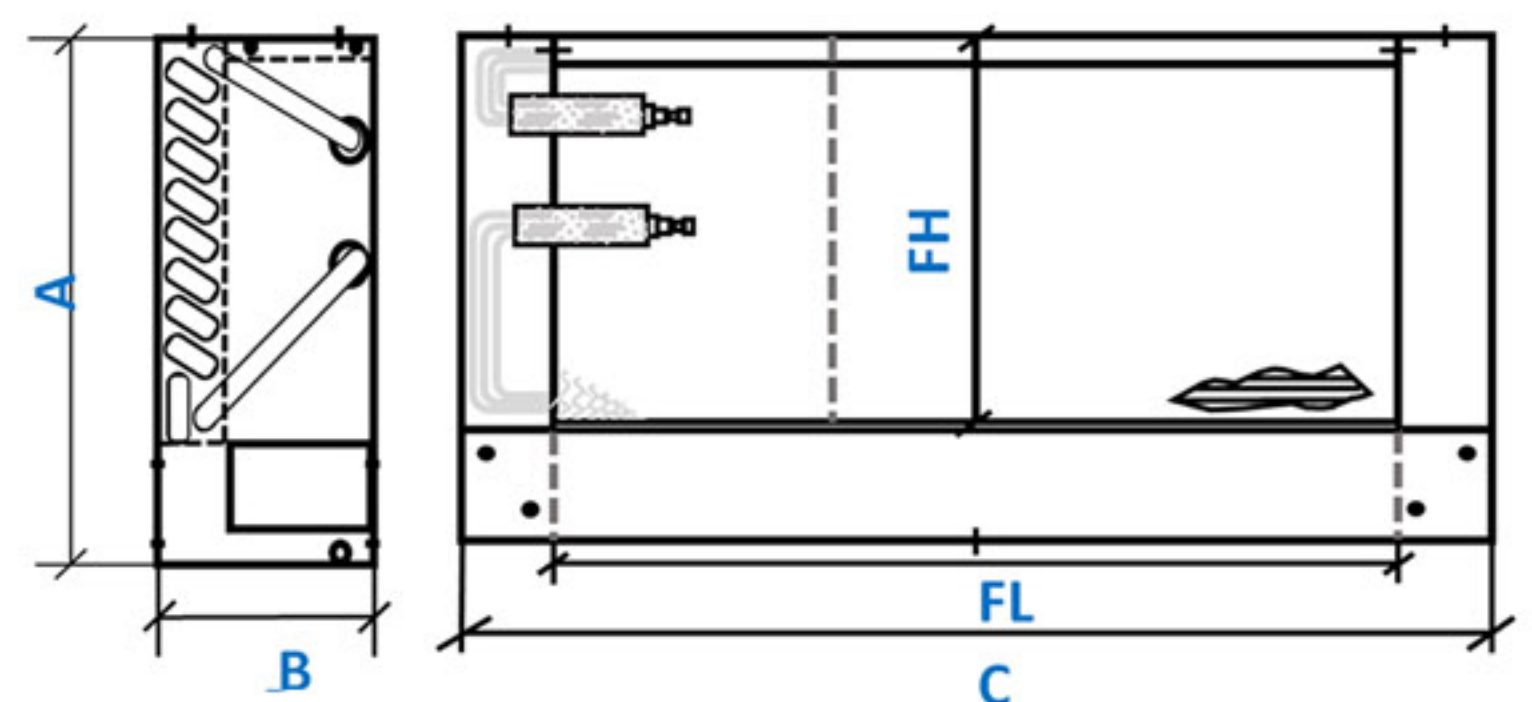


## Coil Features

- ◆ Coil is specially designed for convective cooling
- ◆ Copper tubes with aluminum frame
- ◆ Factory insulated coil frame
- ◆ Factory built-in and insulated drain pan with self draining features.



The 20mm thick PIRALU Pre-Insulated air duct serves as the thermal insulator between the cold air draft and the final architecture wall. This prevents any condensation from happening at the finished wall surface. This Pre-Insulated Duct System conforms to class 0 fire rating to protect the surface from the spread of flames and limits the amount of heat released from the surface during a fire.



COIL MODEL	COIL DIMENSION	NO. OF ROWS	FH	FL	A	B	C	COIL OPERATING WEIGHT (KG)	COIL CAPACITY (KW)	COIL OPERATING HEIGHT
PDV-WC171299-2R(CW)	1200(L) x 164(W) x 394(H)	2	318	1100	414	184	1220	10.0	2.04	3m to 4m
PDV-WC162415-2R(CW)	1400(L) x 164(W) x 394(H)	2	318	1300	414	184	1420	11.8	2.42	3m to 4m
PDV-WC170471-2R(CW)	1600(L) x 164(W) x 394(H)	2	318	1500	414	184	1620	13.8	2.74	3m to 4m
PDV-WC170055-2R(CW)	1800(L) x 164(W) x 394(H)	2	318	1700	414	184	1820	15.2	3.12	3m to 4m
PDV-WC163191-2R(CW)	2000(L) x 164(W) x 394(H)	2	318	1900	414	184	2020	16.6	3.46	3m to 4m
PDV-WC171298-2R(CW)	2400(L) x 164(W) x 394(H)	2	318	2300	414	184	2420	19.5	4.32	3m to 4m





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