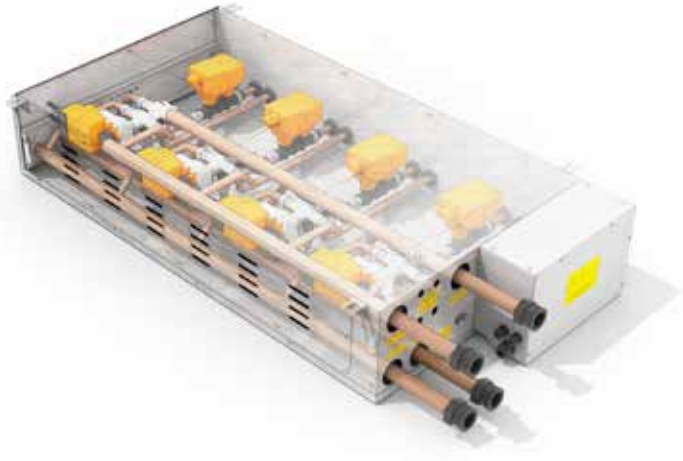
COR & COR SYNERGY



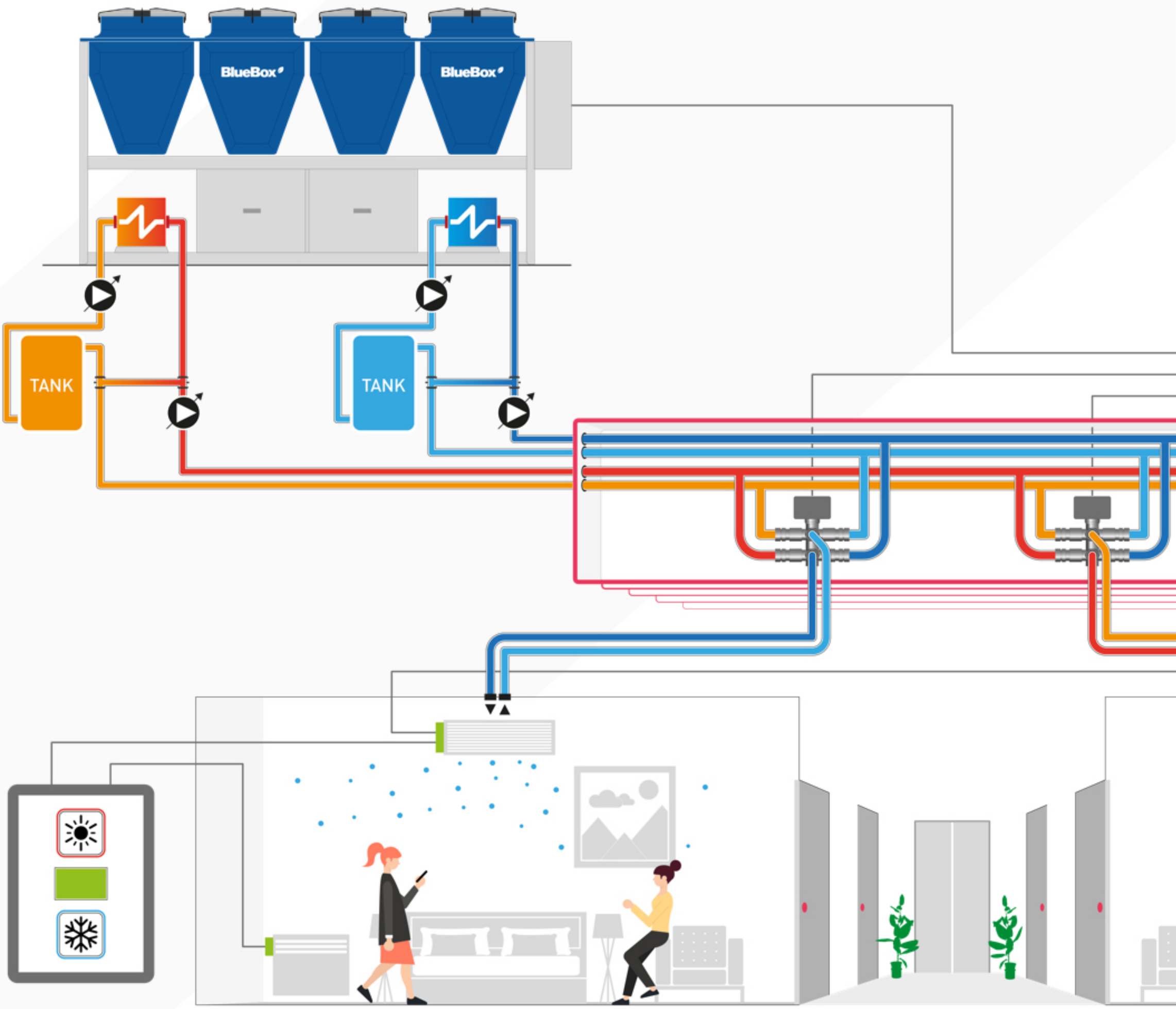
# COR & COR SYNERGY

**V**ariable **W**ater **V**alve **K**it
for heating and cooling systems

Swegon

## Cor Synergy – A Hydronic Heat Recovery HVAC System.

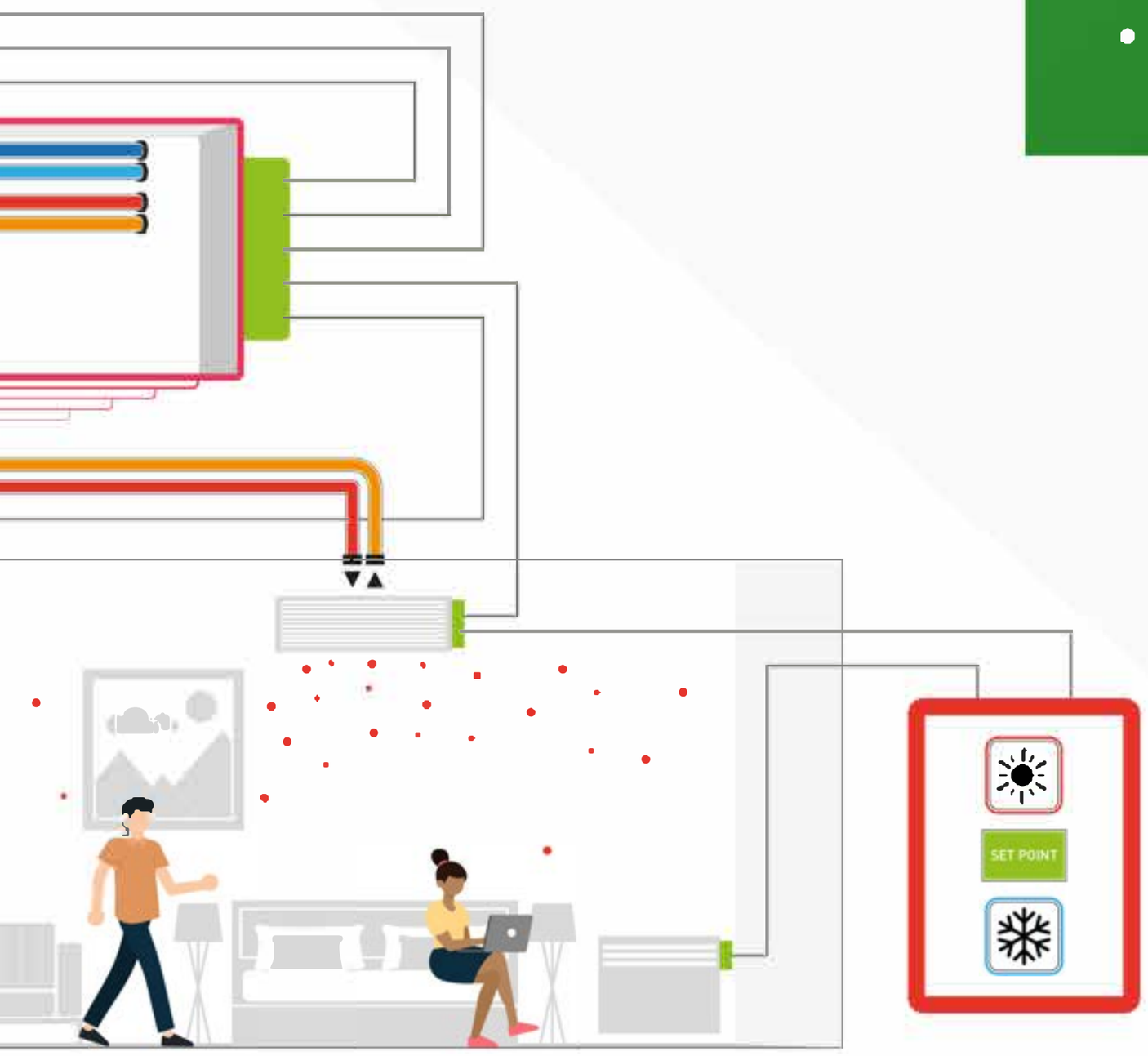
# Welcome to COR & COR Synergy



Cor and Cor Synergy, the true alternative to traditional water and VRF systems. The last few decades have seen the growth of VRF and the demise of traditional chilled water systems. With buildings facing tough new legislation, the use of VRF Systems and traditional HVAC plant has meant new designs and solutions have become a necessity.

## The Concept

Combining VRF's simplicity, chiller comfort contro! and renewable heating technology, SWEGON have developed the Cor and Cor Synergy, offering the best of each technology, with many additional features and benefits.




## Key Advantages of COR Synergy

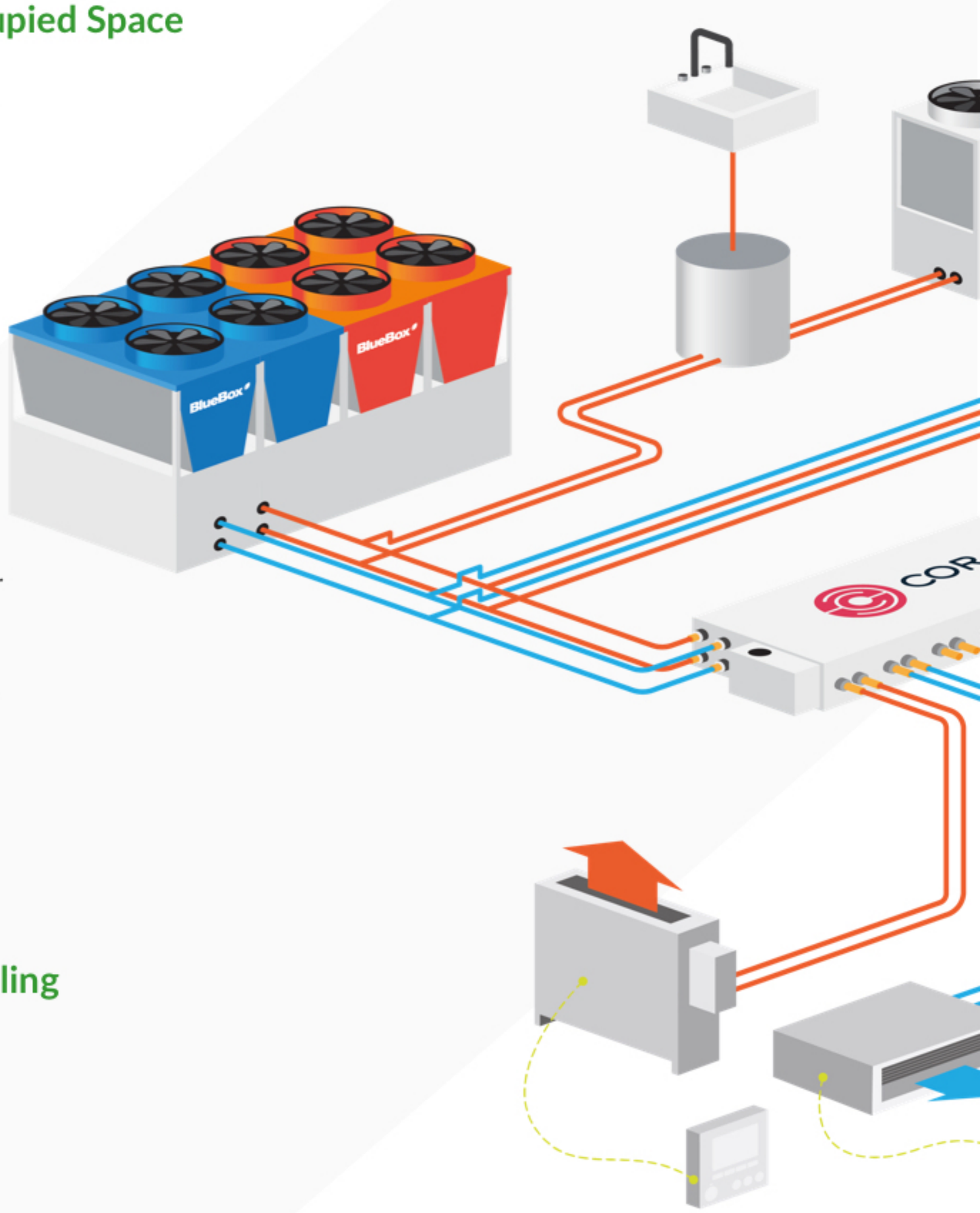
- No refrigerant within occupied spaces, BSEN378.
- Reduced refrigerant quantities over VRF systems.
- Reduced carbon emissions.
- Removes the requirement for gas boilers.
- Full heat recovery across the entire building.
- Energy efficient hot water production.
- Reduced materials and installation costs.
- Single point of supply and responsibility.
- District heating ready.
- Simple integrations with BMS systems via BACnet protocol.

# COR Synergy

## Features & Benefits

### No Refrigerant within the Occupied Space

- Avoiding expensive leak detection systems in accordance with BSEN378.
- Reducing overall refrigerant charge.
- Reducing the risk of fire within the occupied space.




### Hot Water Production

- Capable of producing the buildings hot water requirements.
- Free hot water during any cooling operation.
- No gas requirement for heating purposes.

### Simultaneous Heating & Cooling with Heat Recovery

- Total heat recovery on the entire building.
- Optimising control, efficiency and flexibility.

### Reduced carbon Emissions

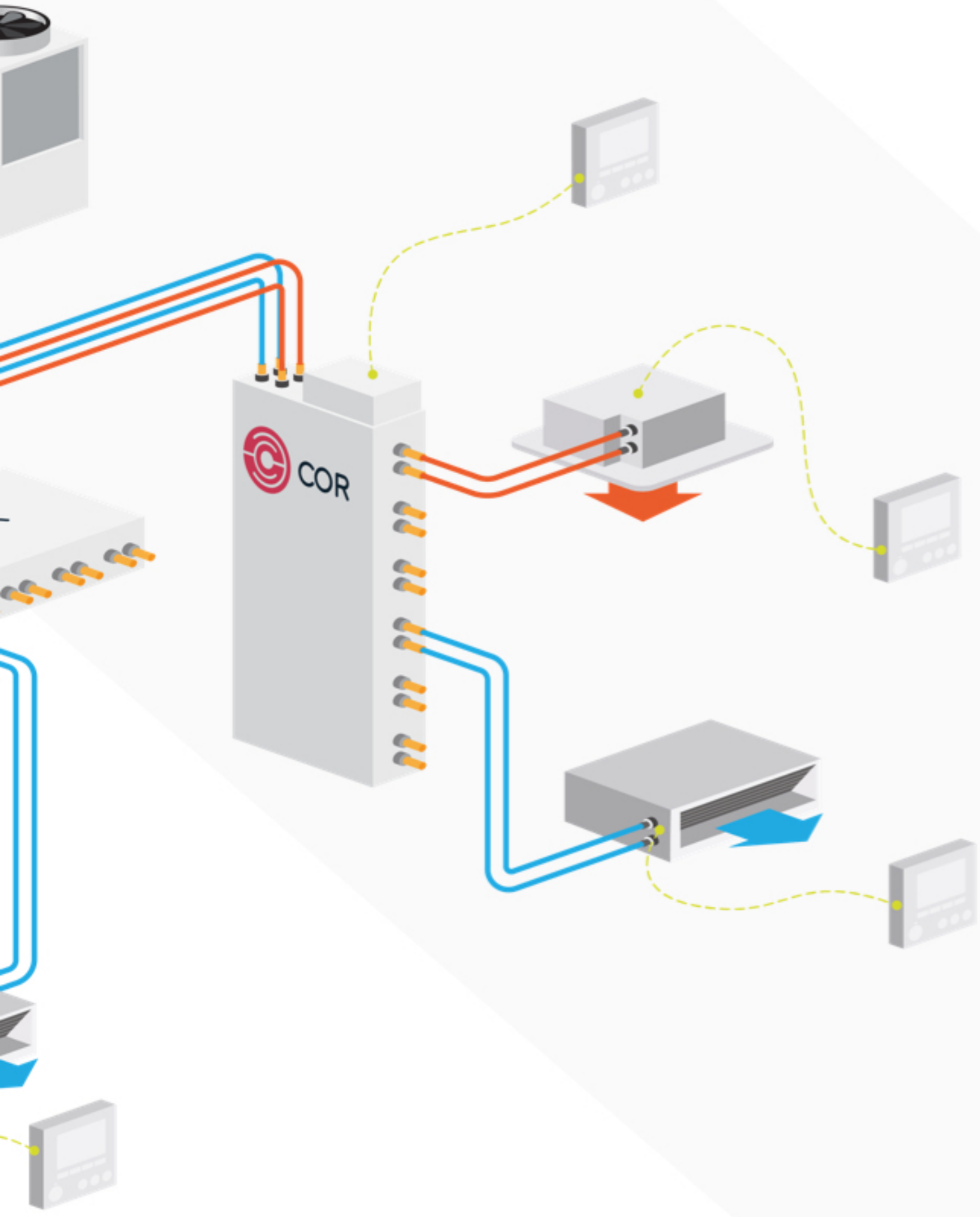
- Significantly reduces building carbon emissions for space heating and hot water.
- Upto 25% reduction on the target emission rate.
- Reduced risk of carbon offset payment.

### Low Noise

- Indoor units sized to meet project specific acoustic requirements.
- Acoustic packages for outdoor units.
- Multiple fan speeds from EC fan coil units.

Swegon

# Features & Benefits




## Room Control Stability

- Terminal units sized to meet room sensible and total cooling loads.
- No leaving air temperature issues associated with VRF systems.
- Rapid changeover between Cooling & Heating operation (less than 30 seconds).

## Flexibility

- Ideal for Cat A and B fit outs.
- Add additional units without effecting the system.
- Change over boxes suitable for Horizontal and Vertical installation.

## Extended Operational Range

- Low temperature operation down to -20c.
- Patented quick defrost cycle.
- Continual heating whilst defrosting, avoiding cold drafts.

## Simple Design

- Converts a 4-pipe cooling and heating system to a simple 2-pipe system.
- No pipework limitations.
- All controls and valves external to fan coils, for neat installations on exposed service designs.

## Simple Installation & Maintenance

- Simple network wiring.
- All control components centralised.
- BACnet set up for remote commissioning.
- Complete packaged system.

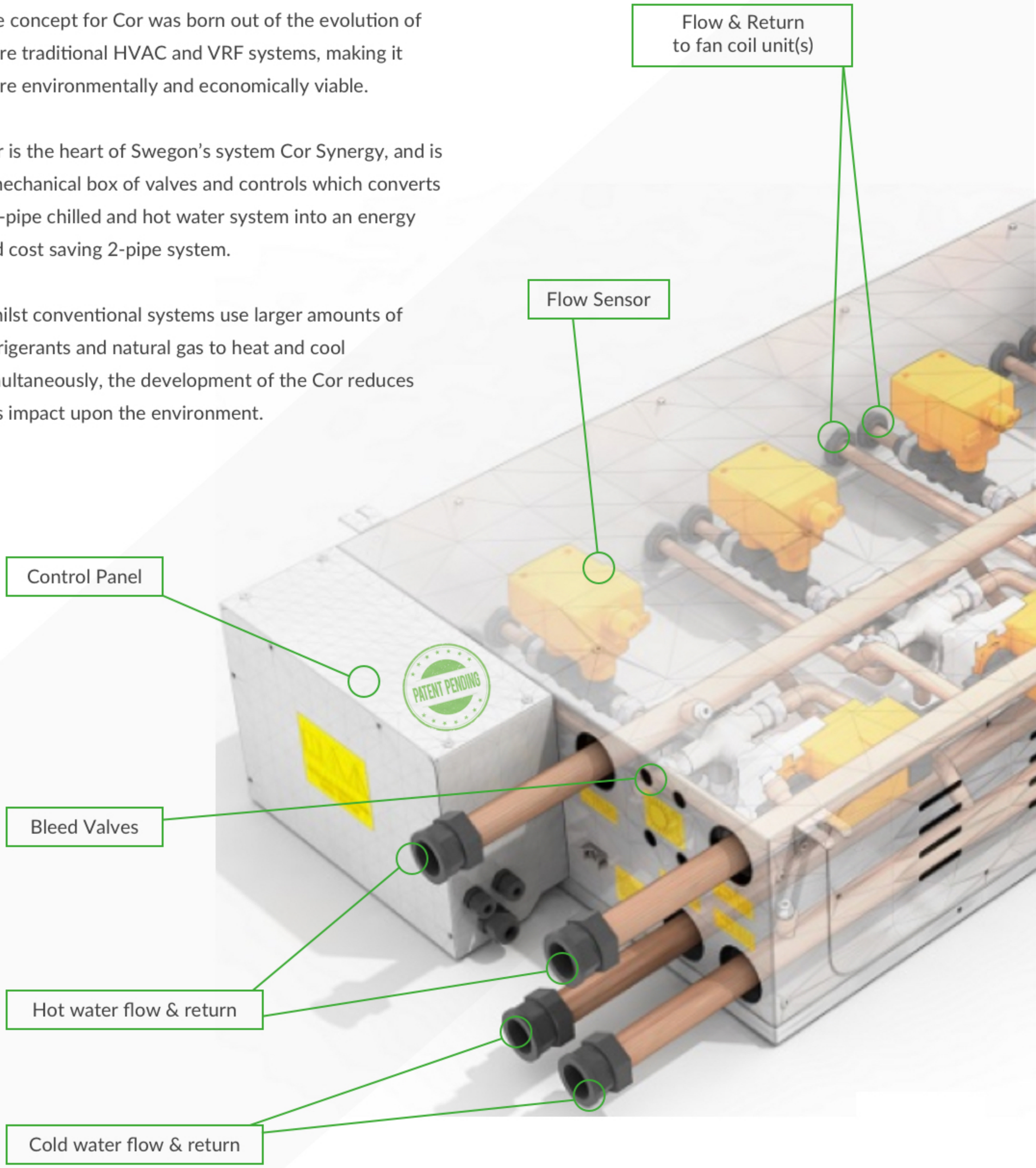
# The COR

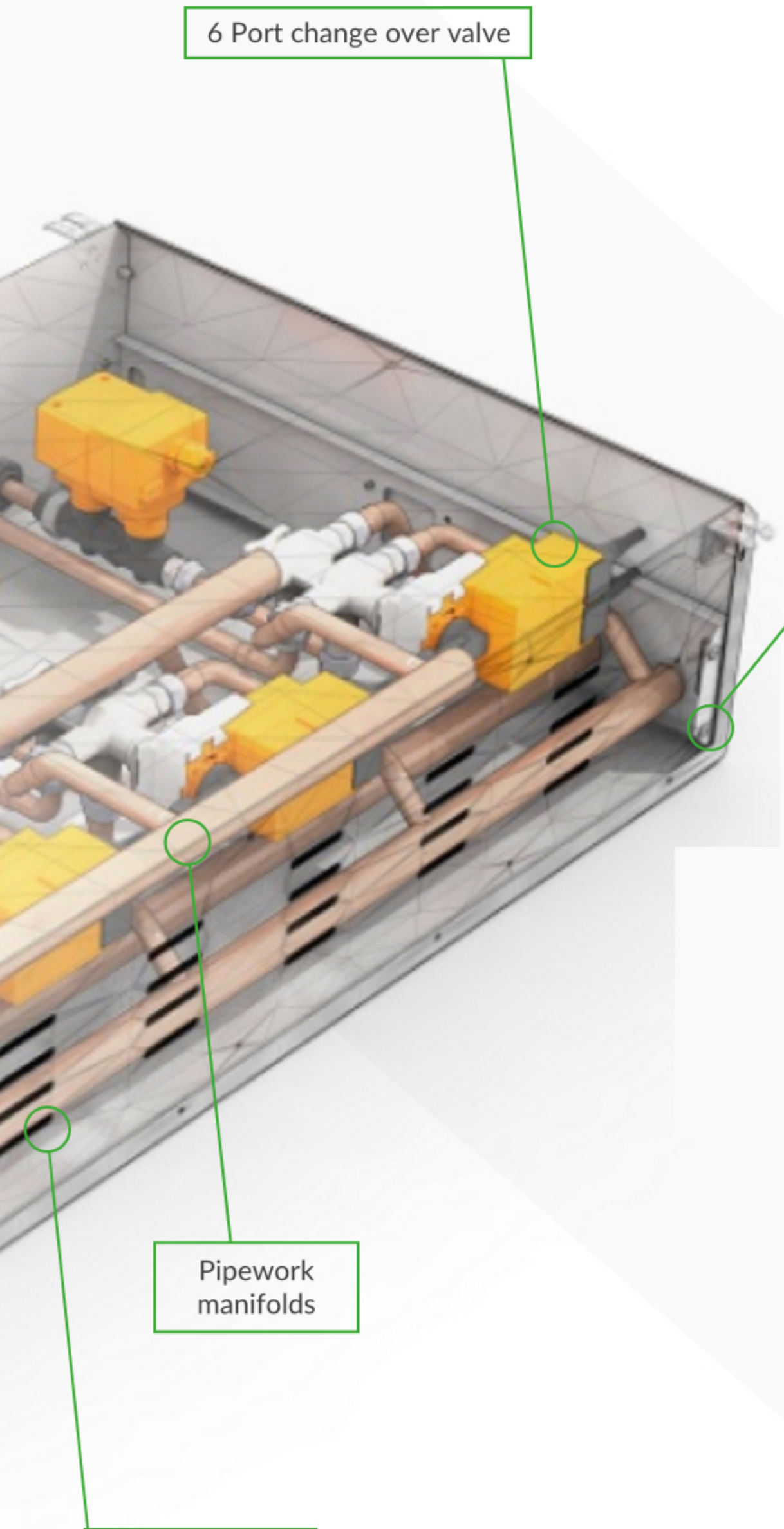
## Introduction

The concept for Cor was born out of the evolution of more traditional HVAC and VRF systems, making it more environmentally and economically viable.

Cor is the heart of Swegon's system Cor Synergy, and is a mechanical box of valves and controls which converts a 4-pipe chilled and hot water system into an energy and cost saving 2-pipe system.

Whilst conventional systems use larger amounts of refrigerants and natural gas to heat and cool simultaneously, the development of the Cor reduces this impact upon the environment.






## Key Advantages of The COR

- Converts a 4-pipe system to a 2-pipe, allowing for simultaneous heating & cooling.
- Contains all controls and valves in a single entity.
- Controls flow rate to individual fan coils based on actual demand.
- Flexible installation options, allowing for it to be installed vertically or horizontally.
- Simplified control and wiring.
- Installation material and labour cost savings.
- Easy maintenance as all main valves and controls are external to the fan coils.
- Only requires 2 pipe fan coils, saving on space and cost.

# The COR

## Technical Information

### Design Features

- 3 model sizes
- Left or right handing
- Horizontal or vertical
- LCD controller and display
- Simple installation

| MODEL NUMBER | | VWVK4-15 | VWVK6-15 | VWVK4-20 |
|---|---|---|---|---|
| Nominal Cor cooling / heating capacity | kw | 23.408 | 35.112 | 45.144 |
| Minimum Cor cooling / heating capacity | kw | 5.016 | 5.016 | 16.72 |
| Nominal cooling / heating capacity per port | kw | 5.85 | 5.85 | 11.29 |
| Minimum cooling / heating capacity per port | kw | 1.25 | 1.25 | 4.18 |
| Nominal flow rate cooling /heating | l/s | 0.933 | 1.398 | 1.8 |
| Nominal flow rate per port | l/s | 0.233 | 0.233 | 0.45 |
| Minimum flow rate per port | l/s | 0.05 | 0.05 | 0.167 |
| Nominal pressure drop | kpa | 63.5 | 66 | 63 |
| Minimum pressure drop | kpa | 3 | 3.5 | 10 |
| Number of ports | | 4 | 6 | 4 |
| Maximum number of fan coils | | 16 | 16 | 16 |
| Main chilled & hot water flow and return connections | mm | 28 | 28 | 35 |
| Flow & return connections to fan coil units | mm | 15 | 15 | 22 |
| Condensate drain connection | mm | 15 | 15 | 15 |
| Height | mm | 201 | 201 | 252.5 |
| Width | mm | 590 | 590 | 734 |
| Length (including pipe connections) | mm | 1175 | 1655 | 1571 |
| Weight (dry) | kg | 45 | 60 | 48 |
| Weight ( operating) | kg | 48 | 65 | 51 |
| Power Supply | v/hz/ph | 240/1/50 | 240/1/50 | 240/1/50 |
| Valve sequence Cooling | v | 2-4.7 | 2-4.7 | 2-4.7 |
| Valve sequence Heating | v | 7.3- 10 | 7.3- 10 | 7.3- 10 |
| Fuse rating | Amps | 5 | 5 | 5 |

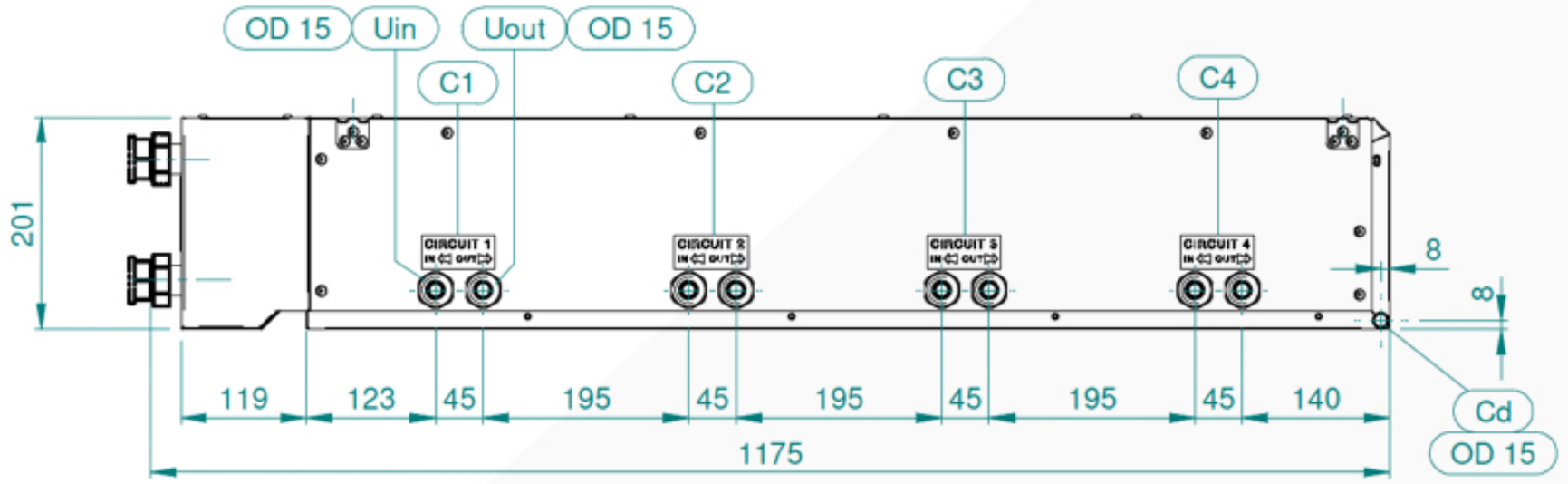
### Conditions

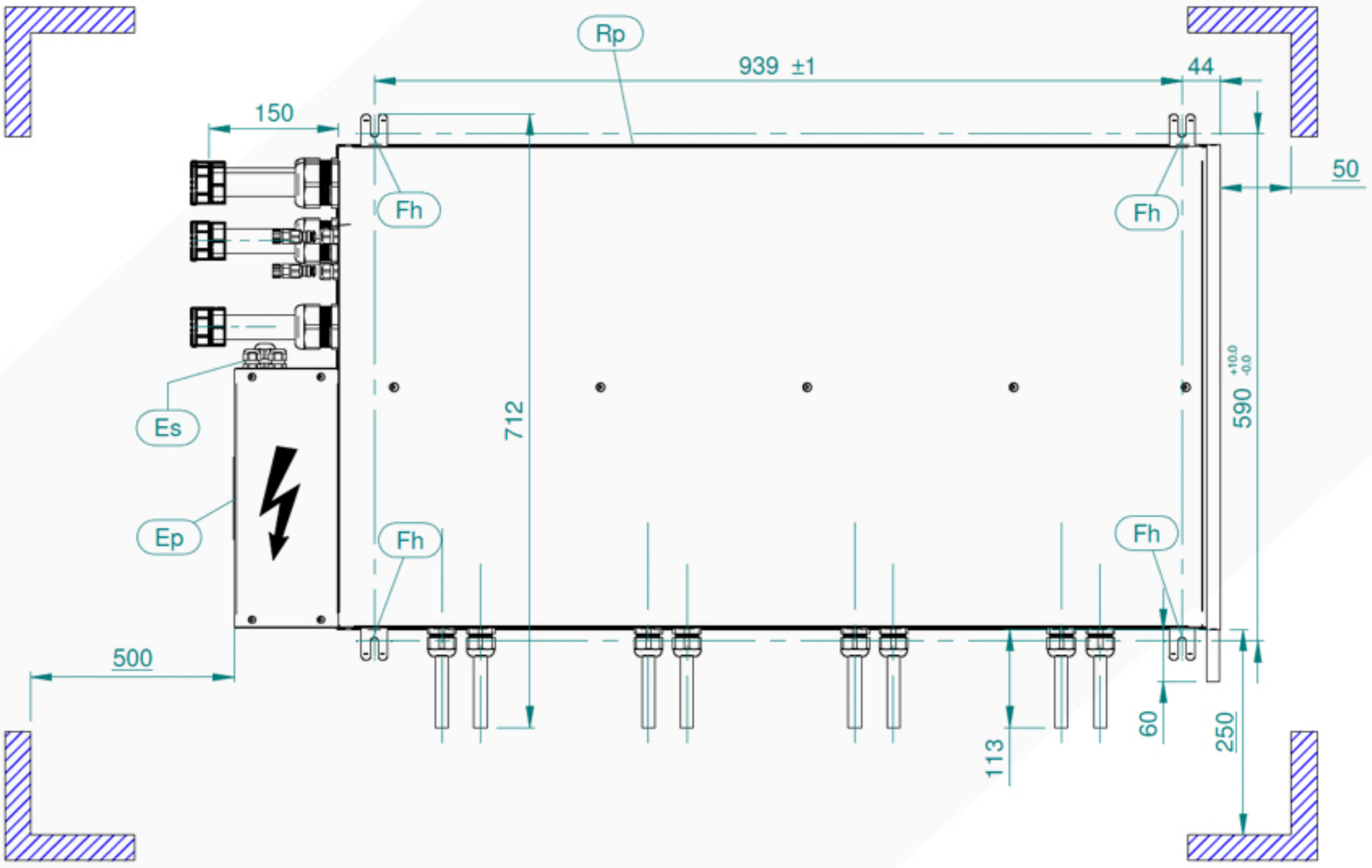
- Capacities based on 5°C Temperature difference between flow and return temperatures.
- Nominal capacities based on manufacturers recommended low noise valve rated maximum flow rate.
- Dimensions and weights may be adjusted with design.
- Cooling capacities are based on clean water at 14/17°C, room conditions 23/16°C
- Heating capacities based on clean water 40/30°C room conditions 21/14°C

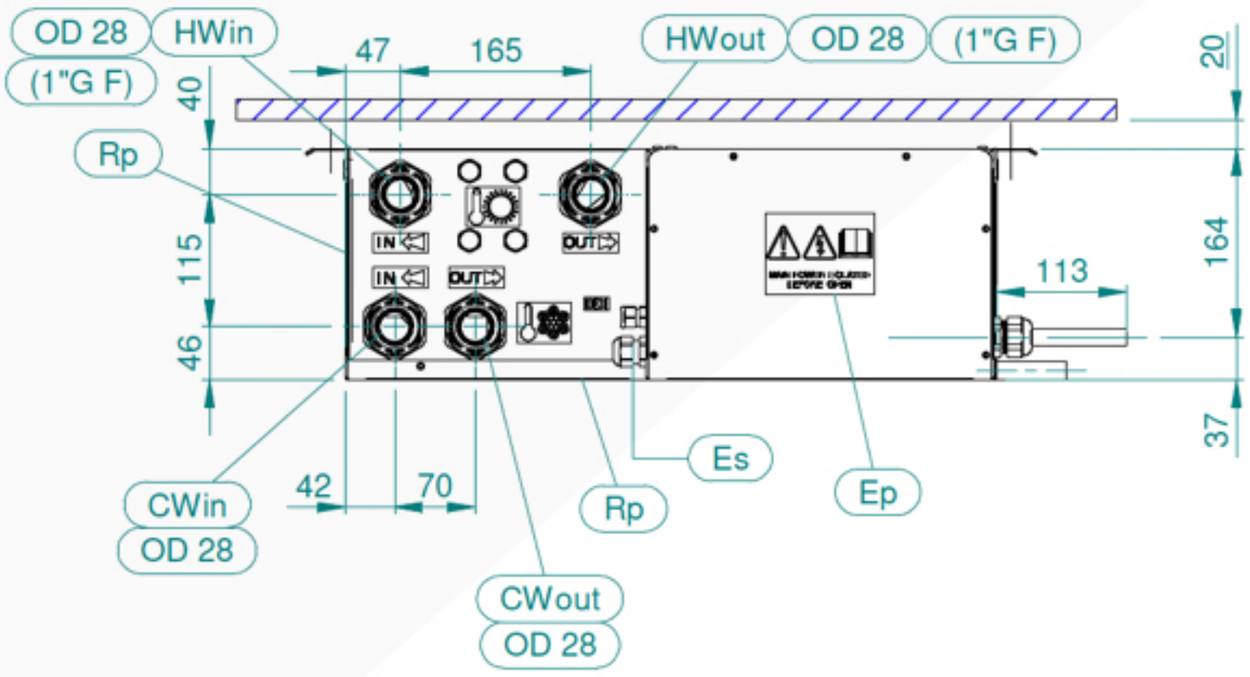
# The COR

## Technical Drawing VWVK 15.4

### Horizontal & Vertical Installation



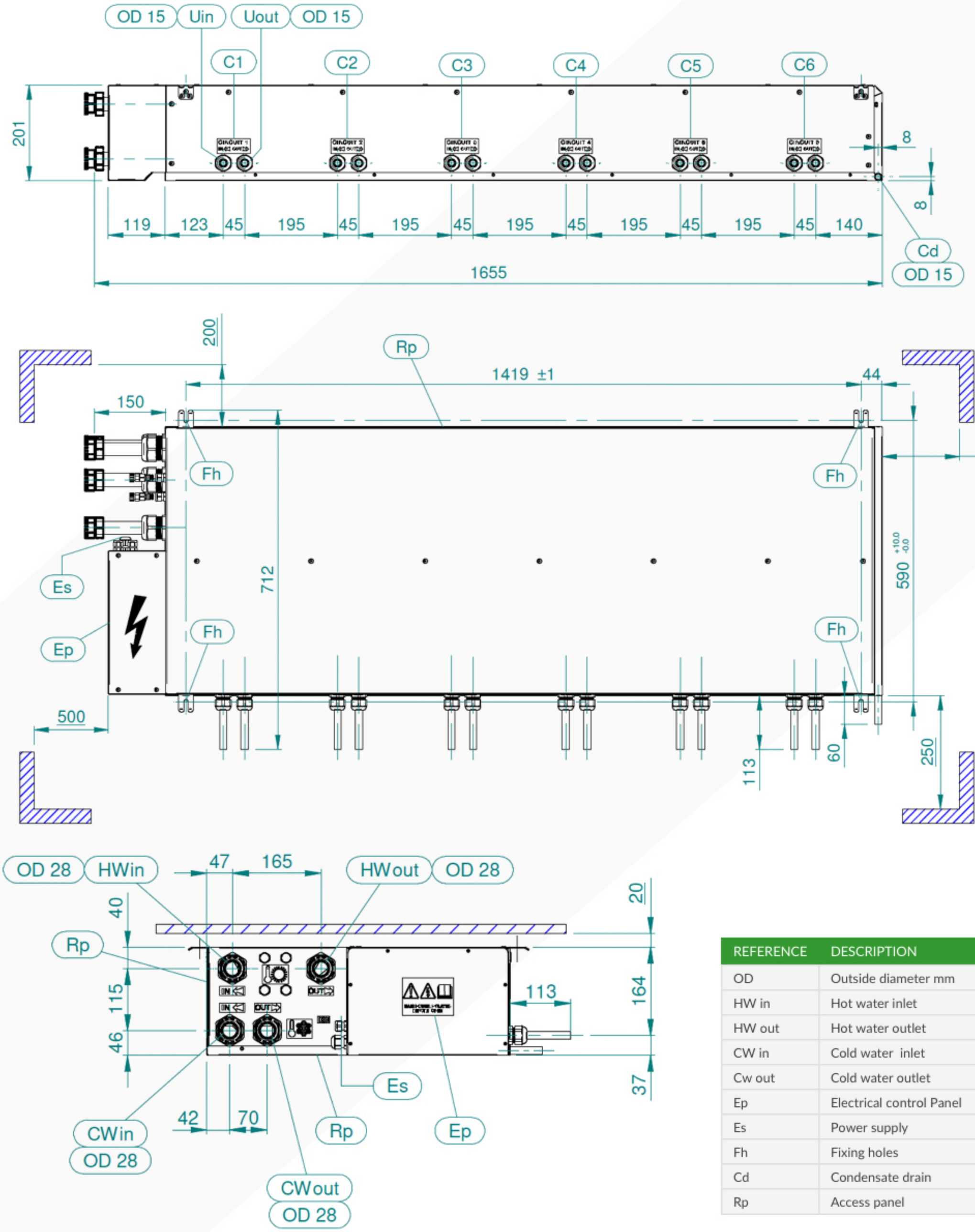




| REFERENCE | DESCRIPTION |
|---|---|
| OD | Outside diameter mm |
| HW in | Hot water inlet |
| HW out | Hot water outlet |
| CW in | Cold water inlet |
| Cw out | Cold water outlet |
| Ep | Electrical control Panel |
| Es | Power supply |
| Fh | Fixing holes |
| Cd | Condensate drain |
| Rp | Access panel |

# The COR

## Technical Drawing VWVK 15.6

### Horizontal & Vertical Installation

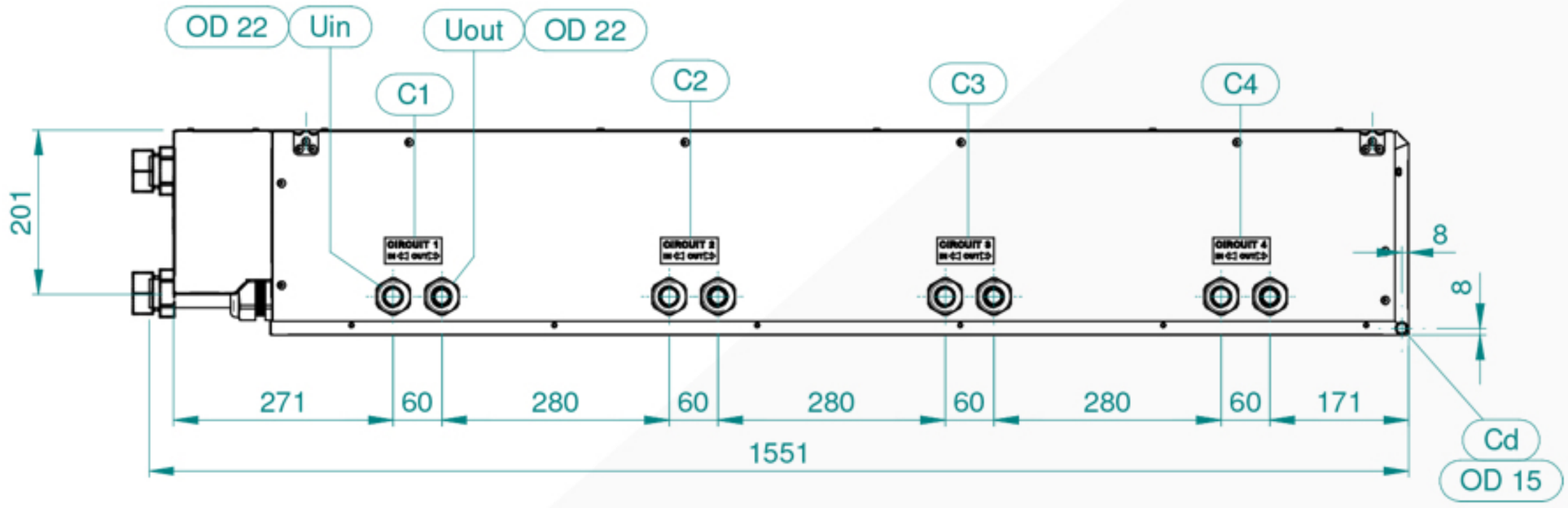


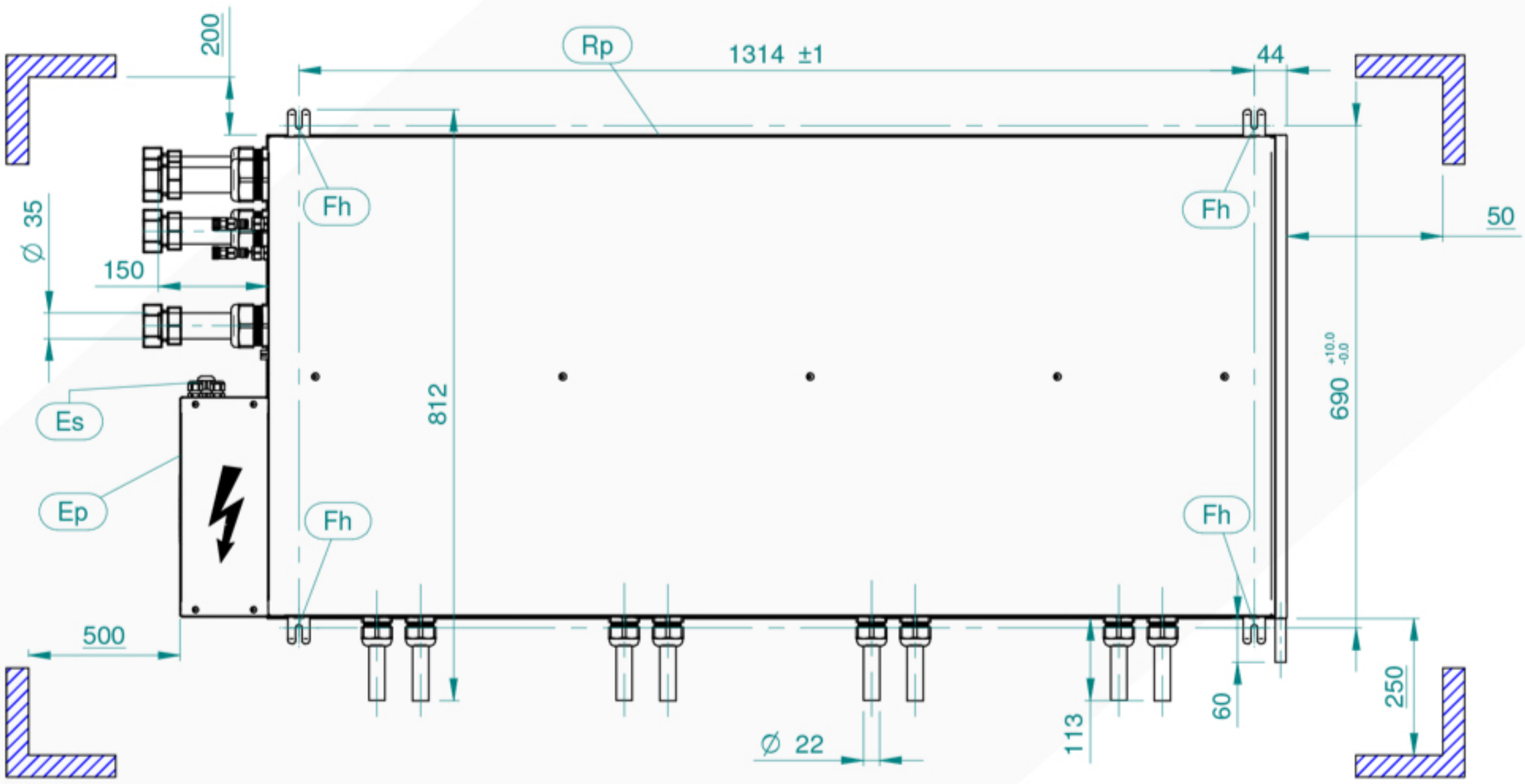

| REFERENCE | DESCRIPTION |
|---|---|
| OD | Outside diameter mm |
| HW in | Hot water inlet |
| HW out | Hot water outlet |
| CW in | Cold water inlet |
| Cw out | Cold water outlet |
| Ep | Electrical control Panel |
| Es | Power supply |
| Fh | Fixing holes |
| Cd | Condensate drain |
| Rp | Access panel |

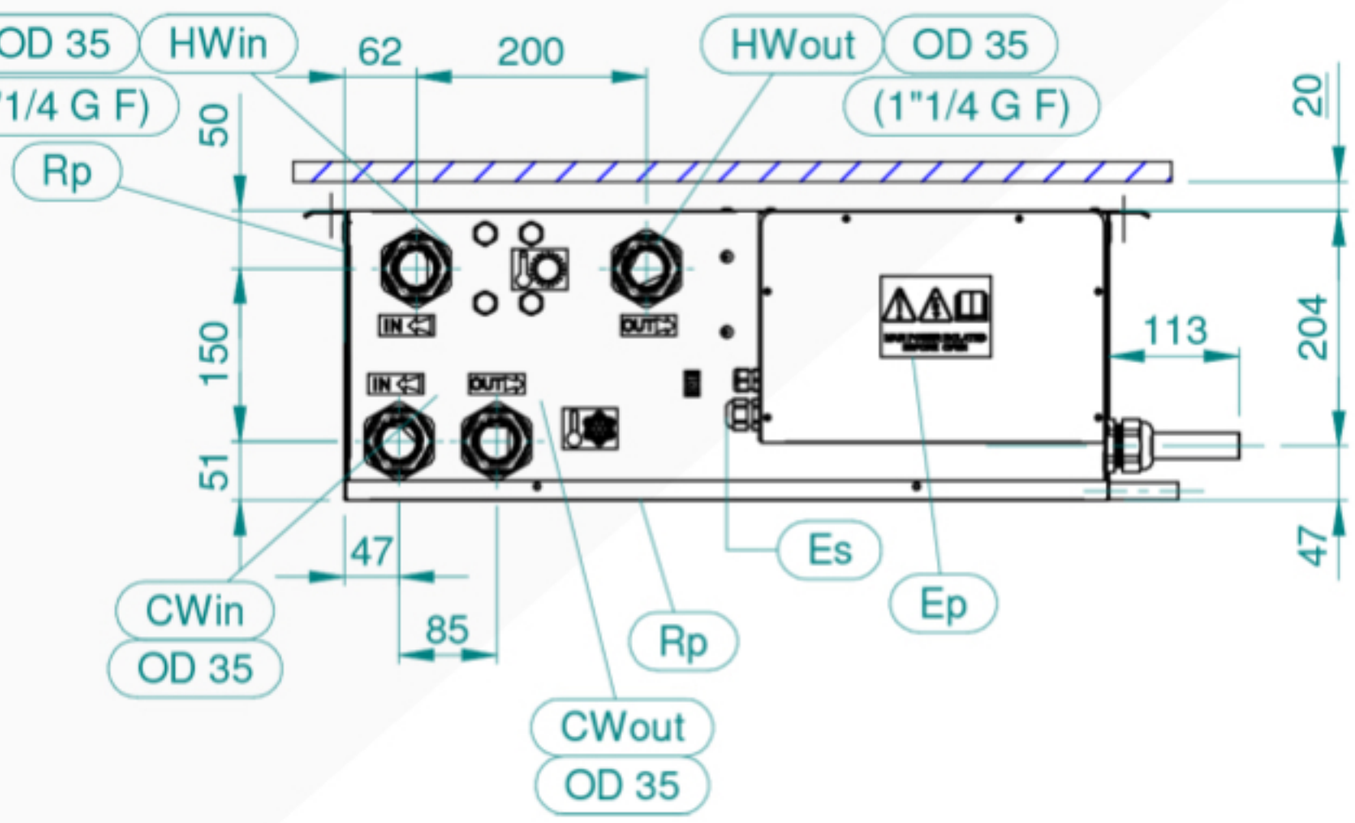
# The COR

## Technical Drawing VWVK 20.4

### Horizontal & Vertical Installation

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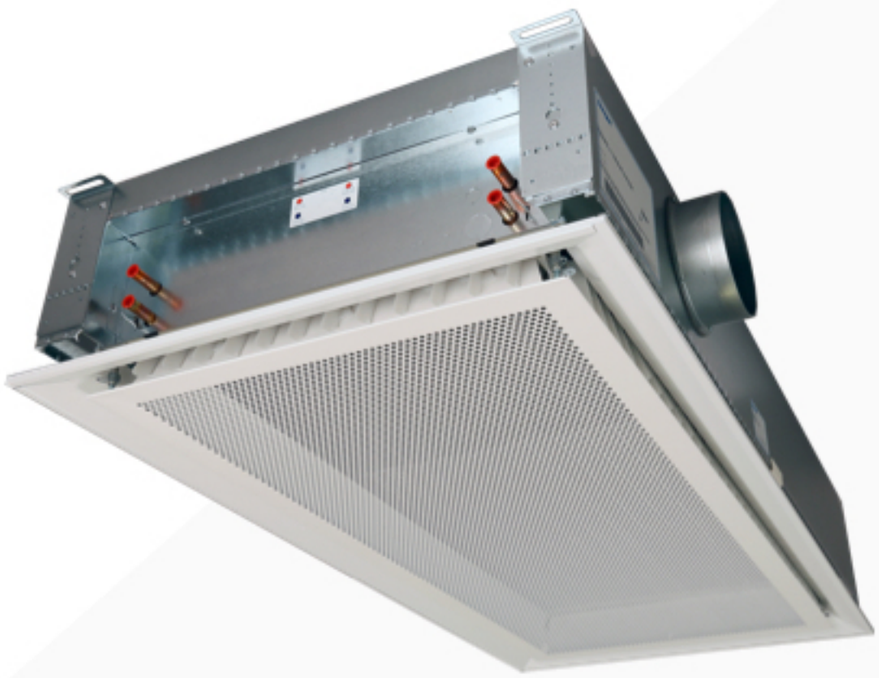
# CHILLED BEAMS

# Chilled Beams

## Introduction



## Chilled Beams

Swegon's range of chilled beams have been designed for the purpose of creating the optimal indoor climates. A strong focus has been directed on a high degree of comfort, as well as, low running costs.

Furthermore, since they are driven by a central air handling unit, there are no built-in fans, reducing noise levels and maintenance costs. The range comes in 3 types; in-ceiling ducted, cassettes and linear type for total flexibility for all applications

# SWEGON GOLD
# RXHC RANGE

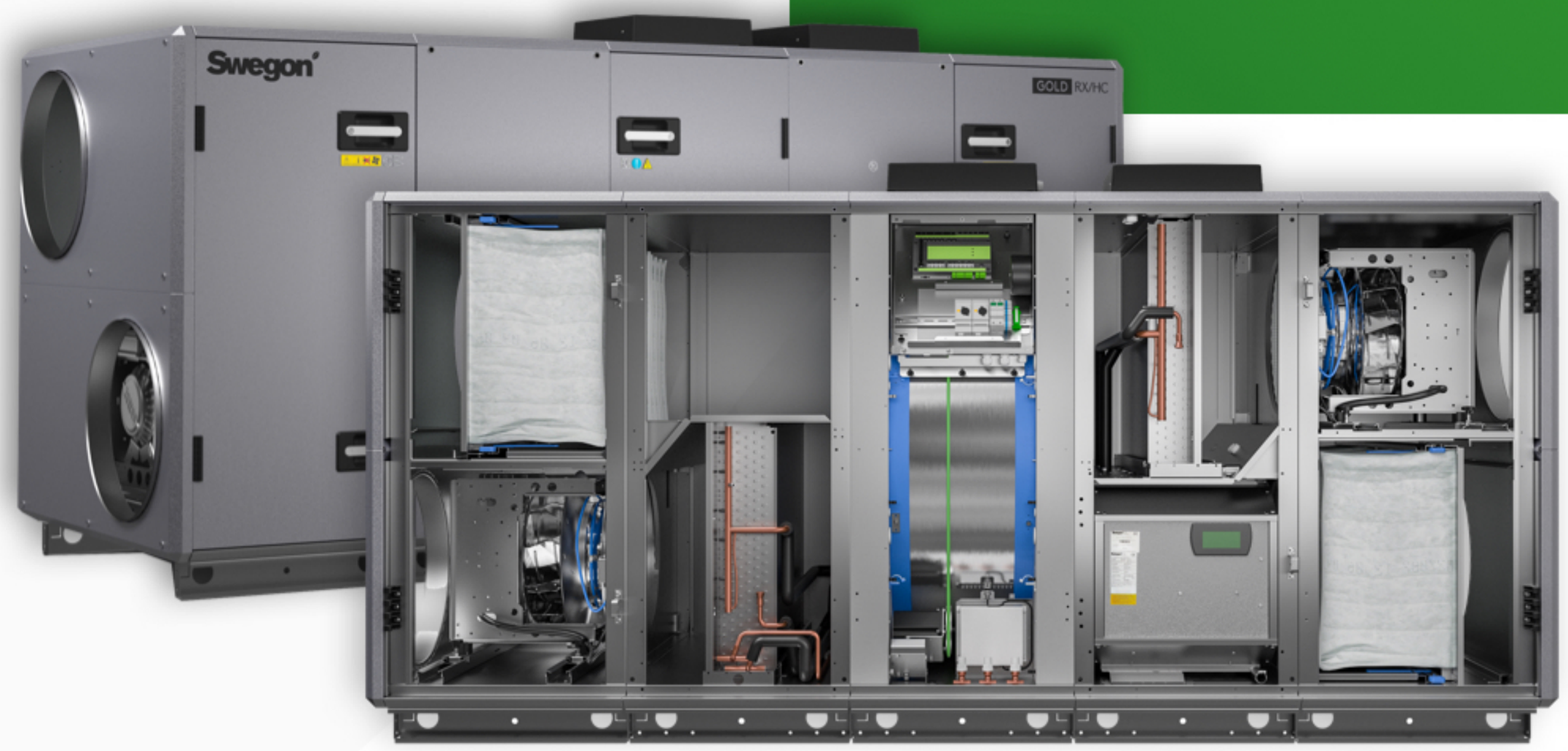
# Packaged Heat Pump AHU

## Introduction

## A solution with energy and simplicity in mind.

Any occupied space requires the correct quantity of outside air to displace any stale air and create a fresh environment.

By utilizing heat pump technology and heat recovery, Swegon's fresh air systems provides a cost-effective and energy efficient way of installing a 100% fresh air system with a balanced extract.



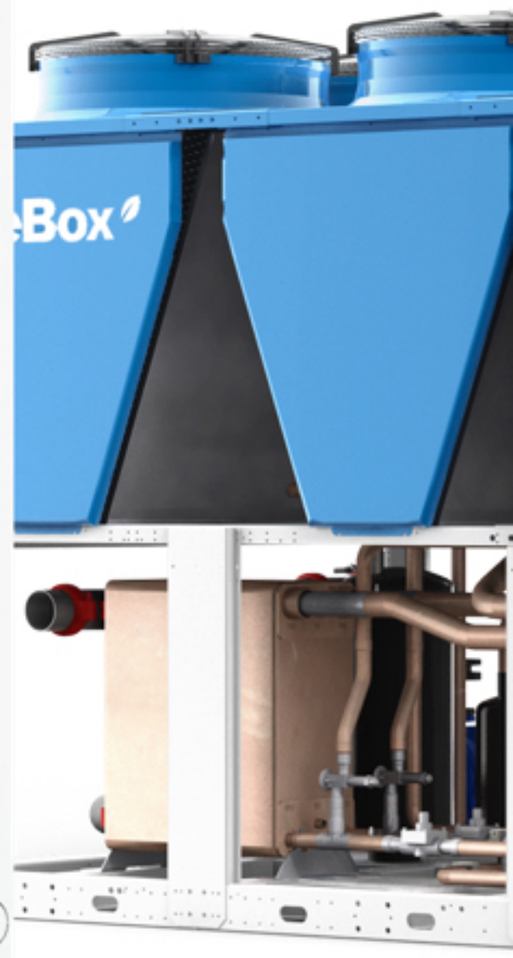
# Omicron

## Introduction

## Omicron Multi-functional Heat pump Water Chiller

Omicron is a Multi-functional unit designed for use in all applications where there is a simultaneous, or independent, demand for hot and cold-water production. Ideally suited for systems that use 4-pipe terminals, such as dual aspect buildings, buildings with large glazed surfaces or hotels.

The 4-pipe multi-functional unit is able to meet simultaneous and independent heating and cooling loads, with the advantage of working in heat recovery operation.

# Omicron

## Introduction

## Key Advantages of Omicron

- 4-Pipe system for simultaneous cooling & heating.
- Heat recovery mode.
- Free hot water function in cooling mode.
- Smart defrost system.
- Increased operating range.
- High efficiency.
- Large capacity range 40 - 900 kw.
- Integrated inverter pumps and controls (optional).

Swegon Operations S.r.l. • Via Valletta, 5 - 30010 Cantarana di Cona (VE) Italy • www.swegon.com