

# GOLD RX/HC

*The air handling unit with a reversible heat pump*



Ventilation, heating  
and cooling – all in one

**Swegon**

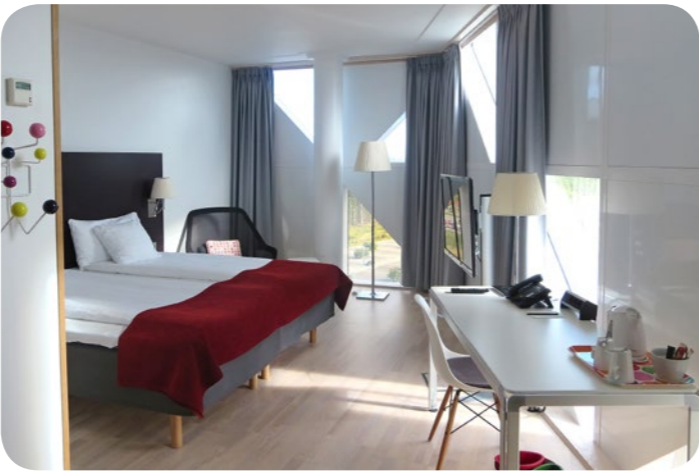
# All in one

## Ventilation, heating and cooling in a single package

There are many different solutions for supplying premises with ventilation, heating and cooling. The GOLD RX/HC is a ventilation unit with an integrated reversible heat pump to meet those needs all in one. It is also our latest offering to simplify your construction process and ensure that you achieve an energy-efficient and comfortable indoor climate.

## One unit, many benefits

With the GOLD RX/HC, you gain ventilation, heating and cooling in one and the same unit. This facilitates unit plannability, installation and commissioning. Compared with a conventional setup with a separate chiller or heat pump, the Swegon all-in-one unit saves time and effort throughout your construction process. Instead of needing to coordinate the work with different contracting services for piping, ventilation, control, cooling and electricity, to get multiple components operating in sync, Swegon supplies you with a pre-prepped package that is ready to connect to the rest of your system. With the GOLD RX/HC, you also get heating ‘into the bargain’ when you might otherwise only have been connecting a chiller. The GOLD RX/HC can be installed both indoors and outdoors, with one point access for servicing all of these functions.



- All in one
- 1

Ventilation, heating and cooling in a single package
- 2

Reduced contract boundaries, streamlined construction process
- 3

One service point
- 4

Excellent product as standard – without costly extras
- 5

Ideal for premises such as offices, business premises and hotels

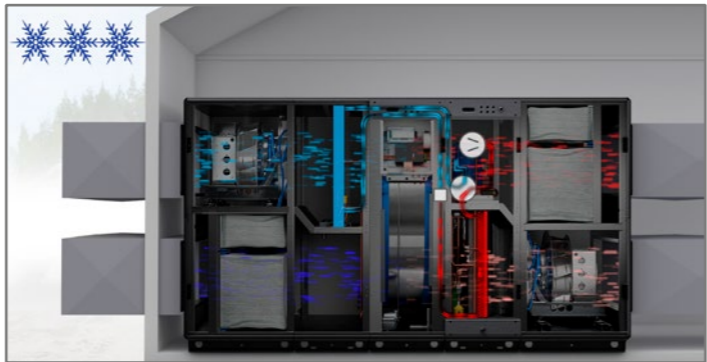
# Superior usability

## Energy efficiency and comfort in any mode

In operating modes where the supply air requires a slight boost in heating or cooling, the GOLD RX/HC starts by utilising the rotary heat exchanger. This maximises the efficiency of energy recovery from the extract air. In many climate zones, this covers most of the annual requirement!

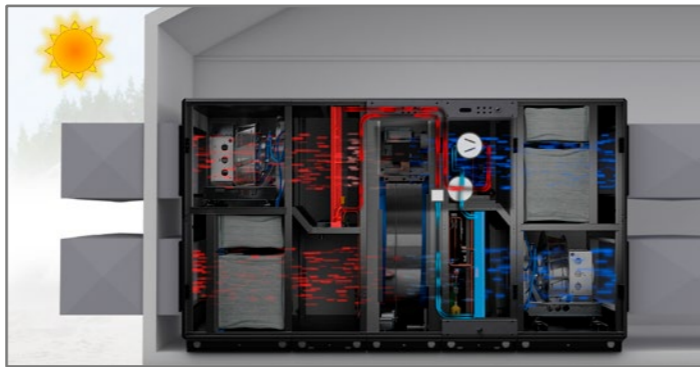


When the need for supplemental heating increases, the GOLD RX/HC starts the integrated heat pump. The heat pump components are built into the unit, which boosts operating efficiency further. The heat pump coils take up heating energy not recovered by the rotary heat exchanger. The GOLD RX/HC also has an exceptionally wide working range, and continues to generate heating even at an outdoor temperature as low as -25°C.



The GOLD RX/HC boasts a unique control feature that continuously adjusts the rotary heat exchanger's speed to the heat pump's output in the lower speed range. Without this feature, there is a risk of an abrupt increase or decrease in supply air temperature whenever only small energy boosts are needed.

When the heating requirement is replaced by a cooling requirement, the GOLD RX/HC reverses the heat pump's circuit so it runs as a chiller. The unit is capable of providing cooling even under the effect of an outdoor temperature of +35°C.



Since the heat pump's two coils are located on either side of the rotary heat exchanger, there is also the option of recovering cooling energy from the extract air, which further boosts its efficiency.



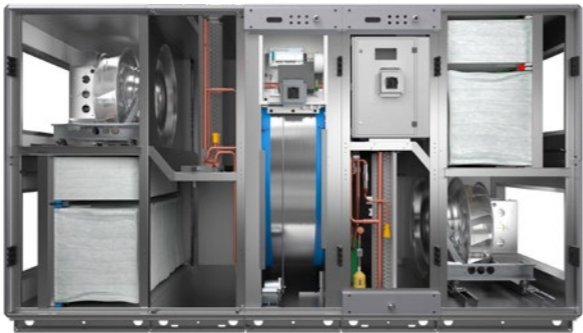
### Superior usability

- 1 Capable of generating heating in ambient temperatures as low as -25°C and cooling in temperatures of +35°C
- 2 Energy efficiency and comfort in any mode
- 3 Unique control functions
- 4 Reversible heat pump
- 5 Ideal positioning of coils maximises energy efficiency

# Plannability

What makes a product client-friendly? This was a key question for us in developing the GOLD RX/HC. The answer was to base the GOLD RX/HC on our tried-and-tested GOLD platform for creating an energy-efficient and user-friendly product. In the following, we highlight some of the main features that make the GOLD RX/HC unbeatably client-friendly from the design and planning stage to full-scale operation.

**Swegon's single unit – the GOLD RX/HC** combines ventilation, heating and cooling in one and the same unit from a single supplier, which streamlines your construction process from the outset. The technical solution also radically reduces contract boundaries, making it easier to get a seamless solution up and running in no time.



**One point access** – all you need, all in the same hand-held terminal! Not only have we combined ventilation, heating and cooling in the same physical housing, we have also ensured that the features are integrated in the GOLD control system. This streamlines workflows right from the design and planning stage, and saves time both during commissioning and over many years of operation.

**Versatile and installer-friendly** – with ingeniously positioned components, the GOLD RX/HC is also very compact in size with no bulky compressor modules stealing valuable space. The GOLD RX/HC is factory pre-filled, for ease and speed of installation. Our non-assembled units also come with a pre-filled compressor, supply air coil and exhaust air coil. The unit can be disassembled into 600 mm sections, to facilitate on-site transport in small spaces. Our accessories are naturally compatible with the rest of the GOLD range, for a huge number of combination options for optimising performance.



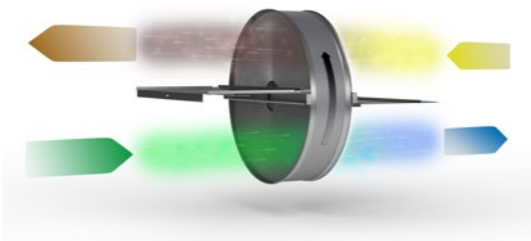
## Plannability

- 1 AHU Design product selection software to facilitate rapid sizing and configuration
- 2 Single supplier – and Swegon's operational guarantee
- 3 One point access
- 4 Compact dimensions save valuable space
- 5 Installability

# Optimised energy recovery

## Optimised recovery with sorption heat exchangers

The basis for the high energy efficiency is to maximise heating and cooling energy recovery. The GOLD RX/HC includes a sorption-treated rotary heat exchanger for superb energy recovery between air flows. The sorption treatment also ensures high moisture recovery. In this way, you avoid drying out the air in your premises in winter, and keep the moisture content down in summer. The benefits are both comfort and energy savings.

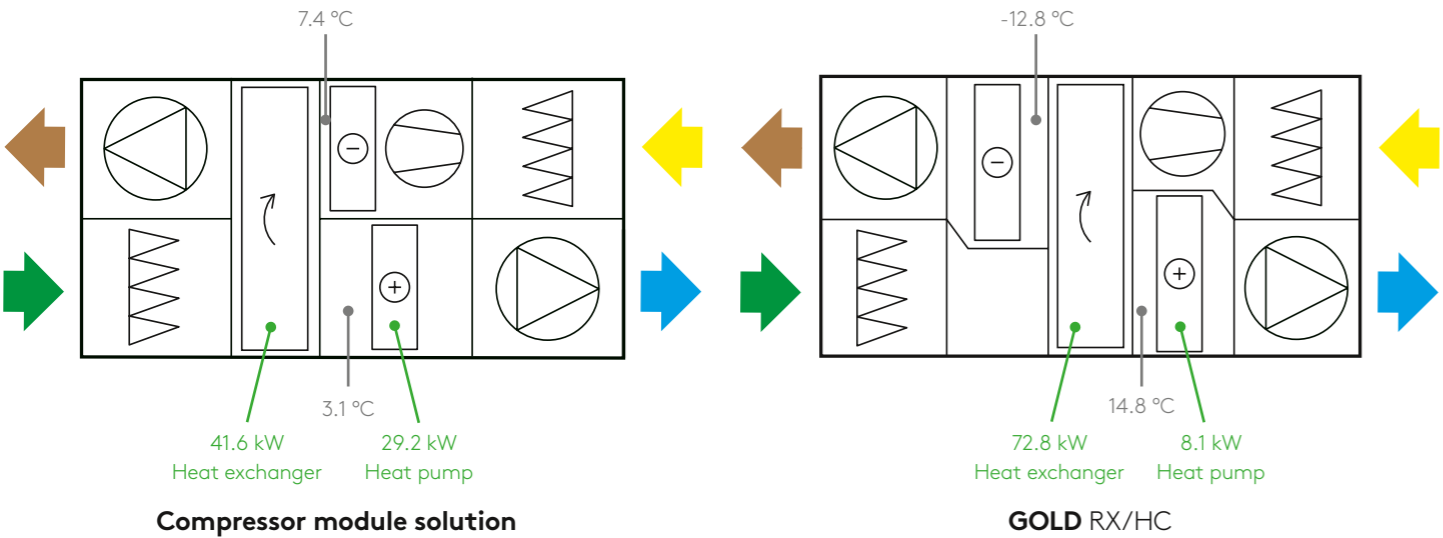


## Heat exchanger before heat pump

Energy recovery via a rotary heat exchanger is significantly more efficient than “making” heating and cooling by means of a heat pump. This means that it is especially important in the case of an air handling unit with a built-in heat pump how its two coils are positioned in relation to the heat exchanger. By positioning the coils on either side of the heat exchanger, the GOLD RX/HC can recover both cooling and heating energy efficiently, and the heat exchanger can be used as the primary, and then let the heat pump supplement the system as and when needed. This is how we optimise the energy efficiency of the solution.

In other solutions offered on the market, with the heat pump's coils assembled in a compressor module on one side of the heat exchanger, the heat pump has to work harder and the heat exchanger is not worked to the full. This type of solution also requires oversizing of the cooling/heating capacity, and does not permit cooling energy to be recovered. A simple sample calculation demonstrates the difference:

Sample calculation for heating operation:  
Outdoor temperature -20°C, Supply air temperature +20°C,  
Extract air temperature, +22°C



Compressor module solution

GOLD RX/HC

This shows that compressor module solutions largely have to heat the supply air via the heat pump. In the GOLD RX/HC, however, the rotary heat exchanger meets a higher proportion of the power requirement by recovering heating energy from the extract air, which is basically cost-free electrical energy. The heat pump can then top up the remaining proportion of the heating requirement.



## Optimised energy recovery

- 1 Sorption-treated rotor for optimum energy and moisture recovery
- 2 Guaranteed year-round comfort
- 3 Heating and cooling energy recovery via rotary heat exchangers
- 4 Efficient reversible heat pump
- 5 First the heat exchanger, then the heat pump - unbeatable efficiency

# Smart solutions

## Efficient defrosting

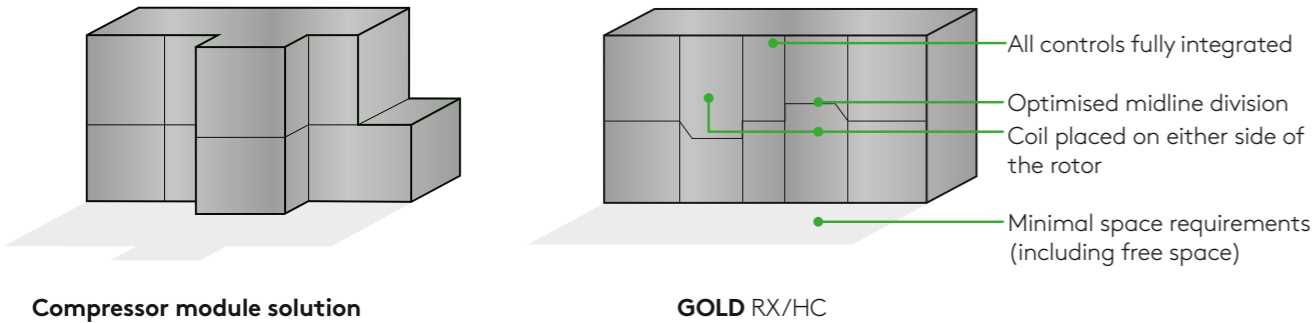
Because the rotary heat exchanger recovers so much of the energy in the extract air, in some operating modes, the heat pump's exhaust coil will need to be defrosted. This arises on those few days of the year when the outdoor temperature is at its coldest.

To cater for this situation, the GOLD RX/HC is equipped with a patent-pending adaptive defrosting feature, which utilises the uniquely well-integrated control system and all the data available via the unit's sensors for measuring air pressure and temperature. Instead of the defrosting process being run according to a fixed schedule, it adapts dynamically to the prevailing conditions in order to start up as rapidly and energy-efficiently as possible without wasting energy needlessly. A special feature also ensures that the lower section of the coil, which is most exposed to ice formation, is kept heated at all times. In this way, we prolong the interval between defrosting cycles.

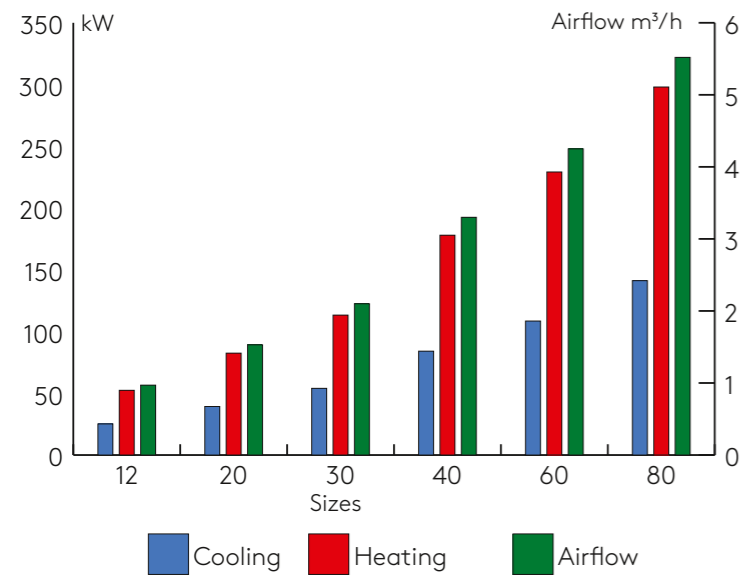
In order to have a feature that is optimised for any given climate zone, the GOLD RX/HC also has three different defrosting setups simply selectable on the climate data of the unit.

## Maximum efficiency, minimum space

Another smart feature of the GOLD RX/HC is the sectional midline division, where we were able to increase the size of the filter and coils. This minimises the pressure drop and saves fan energy, while enabling optimisation of the capacity output from the air flows. In addition, this makes the unit as a whole extremely compact and saves valuable space! Thanks to the flexibility of the GOLD RX/HC when it comes to positioning options, it can be installed indoors as well as outdoors, which provides great freedom in the design of the building.



## Overview airflow, cooling -and heating



## Unbeatable smart design

A common problem in terms of comfort is down to fluctuations in supply air temperature. One root cause is that the heat pump's (or chiller's) compressor runs at minimal rotation speed (often just 25% of the max speed). When it starts, a kind of 'ketchup-bottle' effect arises – if, for example, the need is for heated supply air, there is no heating at all to start with, but then suddenly far too much all at once. With a standard solution, this means that the supply air starts out too cold, and then gets too hot. GOLD RX/HC has a unique comfort feature (always enabled at the time of delivery), which solves this. Reducing the speed of the rotary heat exchanger allows it to compensate for the heat pump's abrupt increase in performance. The result is full control of the supply air temperature and optimum comfort in your premises. All to ensure the satisfaction of the property's occupants and owners!



## Smart solutions

- 1 Energy saving adaptive defrosting
- 2 Great comfort all year round
- 3 Even supply air temperature
- 4 Compact units
- 5 Low pressure drop

We make every breath count.

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