

 AIR COMFORT


AIR TREATMENT

# ReCOOLER HP

» INTEGRATED COOLING/HEATING  
IN EQ AIR HANDLING UNIT







## SAVE ENERGY, ECONOMY AND ENVIRONMENT WITH FLÄKT WOODS

Energy optimization is an important aspect of ventilation solutions and an area in which Fläkt Woods have acclaimed expertise.

We use the symbol e<sup>3</sup> to highlight products and solutions that are particularly effective.

They serve a dual purpose of saving both your long-term economy and our environment.

[flaktwoods.com/energy](https://flaktwoods.com/energy)

## A SIMPLE AND INNOVATIVE SOLUTION FOR THE BEST POSSIBLE INDOOR CLIMATE **WITH THE LEAST POSSIBLE ENVIRONMENTAL IMPACT**

In our urbanized civilization, people spend most of their time indoor and they deserve the best possible environment. We can help you achieve that! At Fläkt Woods we are committed to providing energy efficient Air Climate Solutions to combine the best indoor climate with the best cost and energy efficiency thus reducing the environmental impact, for us it is in our DNA. Our research and long experience has helped us identify the key parameters to designing optimal cooling and heating systems in buildings:

**Energy Efficiency, Reliability and a small Environmental Footprint.** As a direct result of this knowledge and a natural step in our e<sup>3</sup> strategy we are proud to introduce our new ReCooler Heat Pump (HP) as an integrated part of the eQ Air Handling Unit range.





# Integrated cooling/heating in the eQ air handling unit with impressive installation simplicity

An integrated part of the eQ family of air handling units, the new and innovative ReCooler HP from Fläkt Woods is **the combination of a reversible heatpump unit and an energy recovery wheel** in one unit – bringing true benefits from design to operations. eQ with ReCooler HP is a complete plug-and-play air handling unit for ventilation, heating and cooling. Everything is included and factory tested for a simple and reliable installation. A traditional installation would include a condensing unit or a chiller, both of those solutions require many hours of preparation and construction work on site (piping, concrete slab, etc). Often, a refrigeration specialist would be required and with multiple suppliers with differing responsibilities more sources of failure are introduced. With our innovative ReCooler HP this will be avoided!



Since the ReCooler HP is designed from the outset to be fitted as an integral part in eQ AHUs, the installation is very quick with no need for any plumbing work. The overall footprint is also very small with no need for a chiller or heater.

Read more about our range of energy efficient air handling units:  
[flaktwoods.com](https://flaktwoods.com)



## ReCOOLER HP – A COMPACT AND INTEGRAL PART OF THE eQ AIR HANDLING UNITS RANGE

Compared with a standard unit with rotary heat exchanger, the ReCooler HP adds just 900–1100 mm to the length of the eQ air handling unit since the rotor is already integrated in the ReCooler. For ease of installation it can be delivered in a split version. The ReCooler HP is an important addition to the already great flexibility of the eQ air handling units range, to achieve the functionality required.



# The ReCooler HP gives you exceptional energy efficiency – all year round

Being a part of the eQ range of air handling units, the ReCooler HP offers total energy recovery with integrated DX cooling and heating. The unit comprises a SEMCO sorption rotary heat exchanger offering Best-in-Class energy recovery.

During summer the rotor recovers both sensible and latent energy in order to

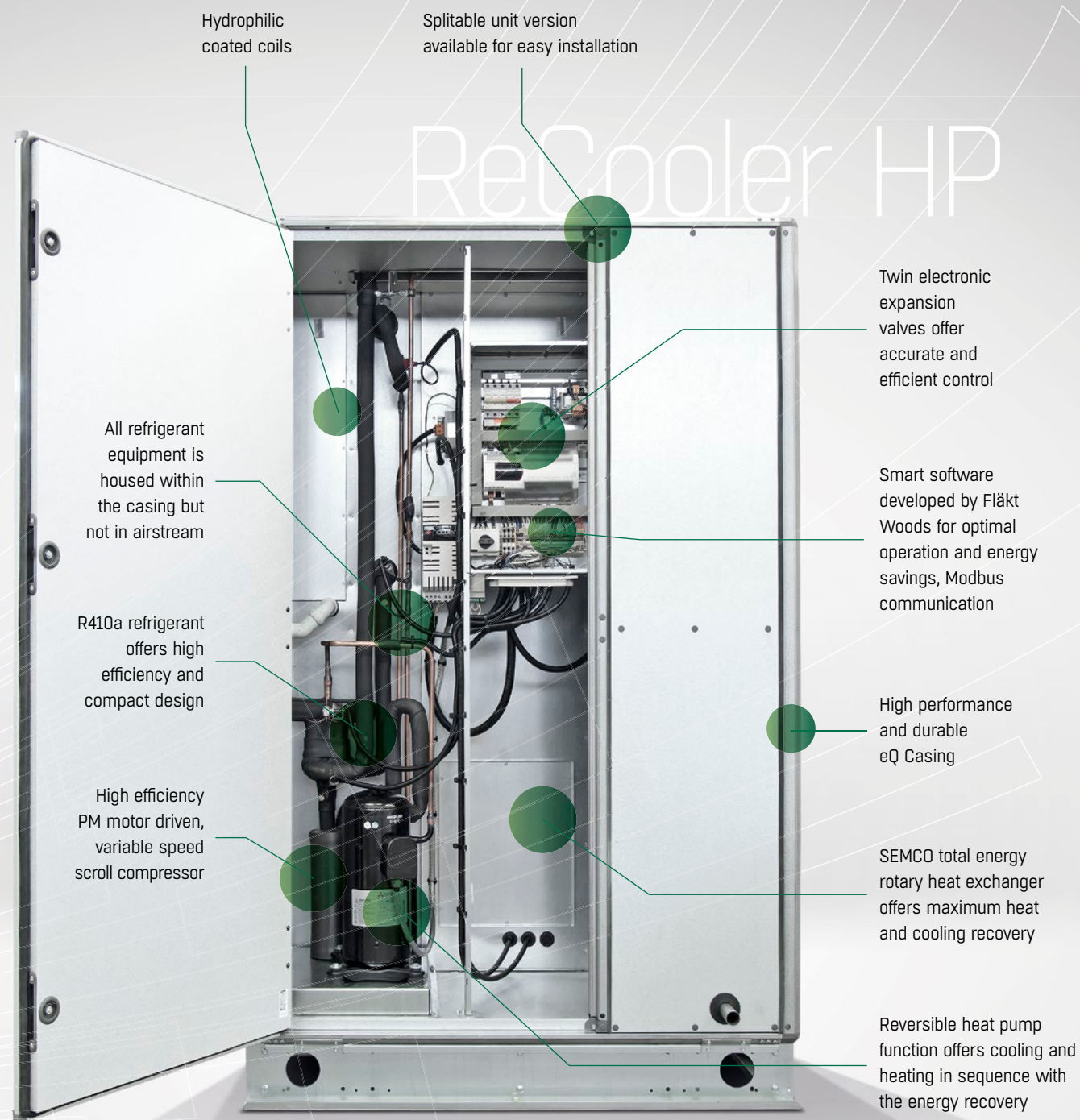
minimize the cost of the additional cooling required to meet specified comfort conditions. During the winter the rotor offers excellent heat and humidity recovery to ensure maximum energy efficiency and comfort. The unique design of the SEMCO rotor makes it much less susceptible to freezing compared to traditional rotors.

While the rotary heat exchanger recovers much of the energy required, depending on weather conditions additional heating can be needed during the winter. To provide that heating, the ReCooler HP uniquely has a built-in heatpump to take full advantage of energy efficient heating and reduce the carbon foot print.



\* at 27 °C outdoor temperature / EER=3,85  
\*\*at 0 °C outdoor temperature / COP=6,62





# ReCooler HP



## SEMCO RECOVERY WHEEL

Energy recovery is always more efficient than other methods for cooling and heating. The SEMCO energy recovery wheel is located between the supply and exhaust coil, and maximizes savings and comfort. Our rotor is best-in-class in latent energy recovery:

- More energy recovery in summer mode (latent recovery)
- Better comfort in winter mode, less humidity will be exhausted.
- Rotor will operate down to lower temperatures without freezing.



## COMPRESSOR TECHNOLOGY

The ReCooler HP is fitted with PM motor Scroll compressors powered by a DC inverter drive:

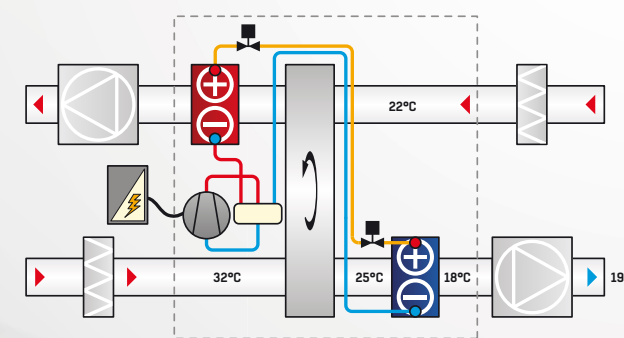
- Scroll design is among the most reliable and efficient design and makes reciprocal compression obsolete.
- Inverter drive allows the compressor to operate at part load providing the best efficiency while traditional solutions are wasting energy.



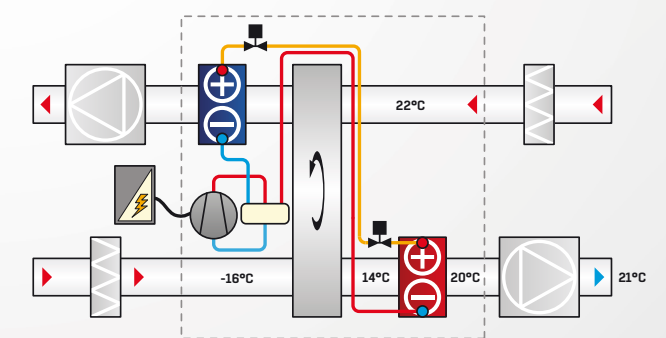
## SMART CONTROL

ReCooler HP includes a very flexible control that includes:

- Two electronic expansion valves to fully control cooling mode, heating mode and refrigerant charge.
- Electronic temperature and pressure sensors maximizes reliability and efficiency
- Intelligent software, developed by Fläkt Woods, allows the DC inverter to optimize compressor load
- Fläkt Woods provides complete system optimization control for ventilation, cooling and heating.



Summer case



Winter case

## AIR FLOW DESIGN

- 1 Coils are placed after the rotor in both air streams. This optimises heat recovery and minimises energy to the compressor. In the examples above:
  - 50% of cooling and 83% of heating is done by the recovery wheel
  - Remaining part is done by heat pump
  - The SEMCO rotor transfers humidity which means smaller cooling need in summer case

- 2 Exhaust air coil benefits from room return temperatures instead of external conditions:
  - Lower condenser temperature in summer means less energy to compressor
  - Higher evaporating temperature in winter also means less energy to compressor



## SIZE CHART

Unit size	8	11	18	23	32	41	50	72
Air flow, m³/s	0,8	1,3	1,9	2,5	3,0	4,3	5,1	6,5

## FAST AND EASY SELECTION WITH ACON

ACON is a powerful and easy web-based product selection tool. It offers rapid product selection to specific project requirements and provides you with all the information you need, such as: Energy Efficiency, Life Cycle Cost, Noise Data, DXF and DWG files. [acon.flaktwoods.com](http://acon.flaktwoods.com)



# New levels of comfort, efficiency and reliability for a wide range of applications

The ReCooler HP can be used in most public, commercial and light industrial applications where a rotary heat exchanger would normally be considered. In regions with cold climate the ReCooler heatpump offers a range of different defrosting systems and we can tailor and optimise the system for the application. The eQ air handling unit with ReCooler HP provides independant ventilation at the right temperature so the terminal cooling and heating systems can be optimised to reduce both the initial investment and running costs.

## ► ENERGY SAVINGS & REDUCED LIFE CYCLE COST

- High energy recovery efficiency (winter/summer)
- More efficient than chillers and condensing units

## ► INCREASED WELL-BEING & INDOOR COMFORT

- Correct temperature
- High efficiency humidity recovery
- Good control over the system

## ► REDUCED INSTALLATION COST & FACTORY TESTED

- Embedded in AHU
- Cooling and heating supply air
- Aesthetic solution
- No condenser on the roof

**ReCooler HP** is a perfect partner to Fläkt Woods' wide range of energy efficient products for Air Comfort and Fire Safety

### AIR DIFFUSION

Air diffusers and chilled beams are designed to ensure high quality indoor climate whilst providing advanced functionalities: draughts free, VAV, air distribution adjustment and flexible construction.

### AIR TREATMENT

Air handling units integrate components for highly efficient and reliable solutions: energy recovery system, SEMCO® wheels, EC and PM motors, integrated controls and reversible heat pump.

### AIR DISTRIBUTION

Veloduct® is a complete system of round ducting for best-in-class tightness. Veloduct® is CE Marked certified (600°C, 2 hours) for fire safety application.

### AIR MOVEMENT

All fans from Fläkt Woods are designed for general air movement, but we also offer special applications that protect against events such as emergency high temperature smoke extraction, pressurisation, and explosive atmospheres.

### AIR MANAGEMENT

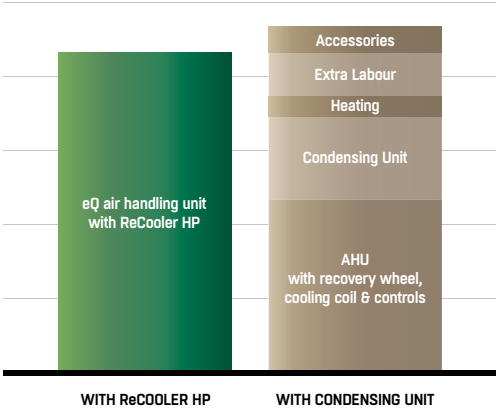
IRIS Original enables easy air management for commissioning and balancing, whereas Optivent® products offer the Demand Controlled Ventilation feature. CE marked dampers for fire application complete the range.



# How the ReCooler HP compares to traditional systems

Take advantage of our integrated approach when looking at your next project for easy installation, reduced number of stake holders and impressive energy efficiency – all year around.

- The eQ air handling unit with ReCooler HP is delivered in one block, and factory tested. No need for extra accessories and piping, cabling, installation – equals cost and time saving on site.
- A traditional condensing unit requires specific location for installation, as well as extra labour for cabling and piping with a refrigeration engineer.
- Compared to a condensing unit the ReCooler HP does not require accessories such as control box, expansion valves kits, pipes, etc.
- **The benefits of lower energy consumption with the ReCooler HP brings immediate cost savings and reduces the environmental impact.**



# Part load efficiency is what really counts

On a yearly operation, heat-pump units are required to operate for less than 3% of its time in full load in cooling and heating mode. That is why part load efficiency is really what matters. This is where the ReCooler HP is not only a step forward – it’s a breakthrough!

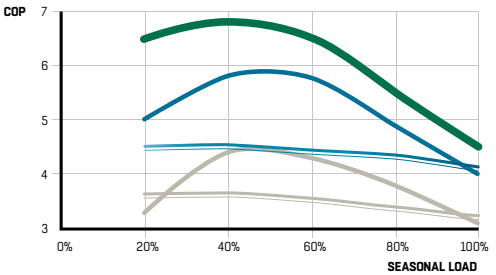
## TRADITIONAL FIXED SPEED SOLUTION

In traditional on/off compressor solutions, operation is only possible in full compressor speed. As a result the indoor comfort was limited, the energy efficiency is constantly less favourable and the on/off process had a strong negative impact on the compressor life-span.

## FLÄKT WOODS PM MOTOR SOLUTION

- Variable speed scroll compressor with PM motor and DC inverter drive delivers better full load efficiency than other solutions.
- At reduced speeds the PM motor compressor greatly increases efficiency compared to traditional solutions.
- Increased system reliability due to less stress on the compressors.
- The modulated compressor speed makes the ReCooler HP deliver exactly the required temperature for maximized comfort.

Other products on the market may already use inverter drive on piston compressors, although these are less reliable and with poor efficiency.



# ReCooler HP at a glance



## PROPERTY OWNERS/END USERS

- High performance – low running costs
- Part of eQ air handling unit – low installation costs
- Compact design – commercial area saving
- Factory tested – best performance
- Flexible operation – comfort indoors
- Easy maintenance – low maintenance costs
- Low refrigerant charge – reduced environmental footprint



## DESIGNERS/CONSULTANTS

- Dependable and reliable operation even in extreme conditions
- Heat pump mode – no need for additional heating
- Permanent Magnet Scroll compressor – best efficiency at all loads
- Inverter drive – best part load efficiency
- Best rotor on the market – maximum savings, very hygienic
- Discreet and silent – can be located indoors
- Quick and easy selection in ACON – full information at your fingertips right when you need it



## INSTALLATION/MAINTENANCE ENGINEERS

- High performance – system downsizing, more profit
- Quick and simple installation – no refrigeration work, only power supply needed
- Plug and play – Modbus or analogue communication with AHU
- Inverter drive and recovery wheel – low starting and running current, fuse and cabling downsizing
- Easy maintenance – low maintenance costs
- Split version available – ideal for renovation

# WE BRING **BETTER AIR**<sup>™</sup> TO LIFE

With over a century of innovation and expertise to share with our customers, Fläkt Woods is a global leader in Air Technology products and solutions. We specialize in the design and manufacturing of a wide range of products and solutions for Air Movement, Air Treatment, Air Distribution, Air Management and Air Diffusion with focus on two major benefits – **Air Comfort** and **Fire Safety**. With market presence in 65 countries we are in a unique position to be a local supplier and an international partner in our customer's projects.

Our product brands such as SEMCO®, eQ®, eQ Prime®, JM Aerofoil®, Econet®, Veloduct®, Optivent®, Optimix®, Econovent® and Cleanvent® are well-known and trusted by customers all over the world to deliver high quality and energy efficient solutions.

» To learn more about our offering and get in contact with your nearest sales representative please visit [www.flaktwoods.com](http://www.flaktwoods.com)

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