

## ReCOOLER<sup>®</sup> HP

» INTEGRATED COOLING/HEATING FUNCTION WITH  
REVERSIBLE HEAT PUMP IN THE eQ AIR HANDLING UNIT

 AIR TREATMENT



# Energy efficiency – the essence of our solutions

All our research, development and testing activities are singularly focused to provide our customers with the best and most efficient solutions possible to their ventilation and indoor climate challenges.

From new and innovative concepts, smart material choices and manufacturing processes to advanced controls, minimised running cost and easy maintenance, FläktGroup always strive to deliver the best for your long-term economy and our environment.







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

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ReCOOLER HP  
by FLÄKTGROUP

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 FläktGroup 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 strategy we are proud to introduce the ReCooler Heat Pump (HP) as an integrated part of the eQ Air Handling Unit range.

## The problems with a traditional HVAC solution with separate heating and cooling

On rooftops all across our cities we find complex installations for cooling and heating. Not only do they look ugly and take up lots of space unnecessarily but they also have several concrete drawbacks:

- Time consuming, expensive and complex to install with many different contractors needed
- Noise pollution to the surrounding areas
- Less environmentally friendly



With FläktGroup ReCooler Heat Pump, thankfully, there is a simpler way



*Easy*

The plug-and-play ReCooler HP heating/cooling unit is fully integrated in the eQ air handling unit. Designed from the outset with this integration in mind, it gives a number of benefits, from product selection throughout the units life cycle. ReCooler HP is the efficient and easy choice for your building.



EASY TO SELECT  
AND DIMENSION



EASY TO POSITION  
AND INSTALL



EASY TO ACHIEVE  
LOW ENERGY COSTS



EASY TO MANAGE  
ENVIRONMENTAL  
REGULATIONS



EASY TO OWN  
AND MAINTAIN



# ONLY ONE UNIT, ONE SUPPLIER, ONE CONTRACTOR AND NO WORRIES

With the fully integrated and true plug-and-play functionality of ReCooler HP, installation could not be easier. The large number of components and operations involved in a traditional installation introduces many fault sources. With the ReCooler HP, there is no need for refrigeration and plumbing installers or any other specialist trades, simply perform the electrical connection to the AHU and the unit is ready to go.



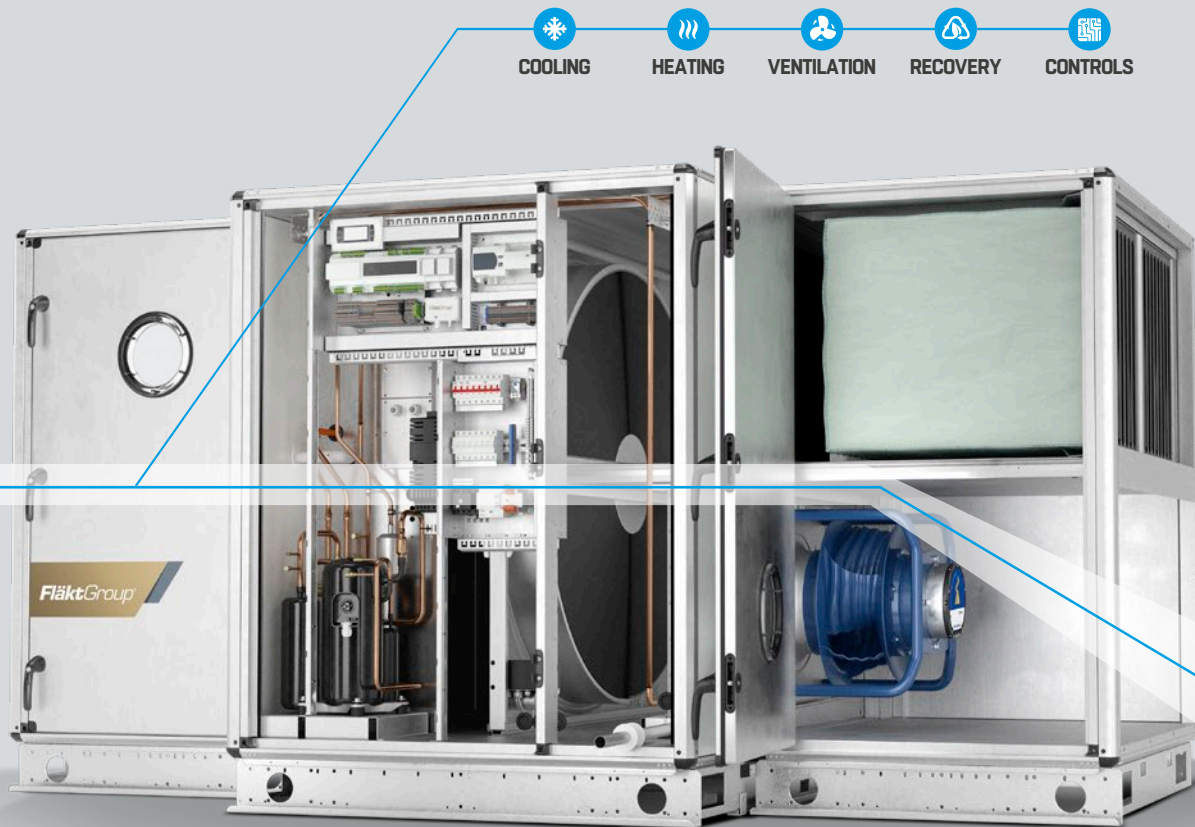
## TRADITIONAL AHU WITH SEPARATE DX COOLING AND HEATING

- AIR HANDLING UNIT.....
- CONDENSING UNIT.....
- COOLING PIPES + LABOUR.....
- SHUNT.....
- PLUMBING.....
- ROOF ADAPTION.....
- BUILDING PERMIT + CONSULTANT.....
- ELECTRICAL CONNECTION AHU.....
- CONNECTION CONDENSING UNIT ELECTRICAL/CONTROL.....
- CONNECTION SHUNT ELECTRICAL/CONTROL.....
- ADDITIONAL COST ELECTRICAL CONSULTANT.....
- ADDITIONAL COST VENTILATION/PLUMBING CONSULTANT.....
- COORDINATION OF CONTRACTORS.....

## FLÄKTGROUP eQ WITH ReCOOLER HEAT PUMP

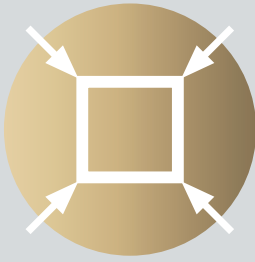
- eQ AIR HANDLING UNIT + ReCOOLER HP.....
- ELECTRICAL CONNECTION AHU.....

ReCOOLER HP  
by FLÄKTGROUP



## 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 Heat Pump from FläktGroup is **the combination of a reversible heatpump unit and an energy recovery wheel** in one unit – bringing true benefits from design to operation. eQ with ReCooler Heat Pump 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 Heat Pump this will be avoided!



## 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 Heat Pump adds just 900–1100 mm to the length of the eQ air handling unit since the rotor is already integrated in the ReCooler. The overall footprint is also very small with no need for a chiller or heater. For ease of installation it can be delivered in a split version. The ReCooler Heat Pump is an important addition to the already great flexibility of the eQ air handling units range.

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



eQ Prime

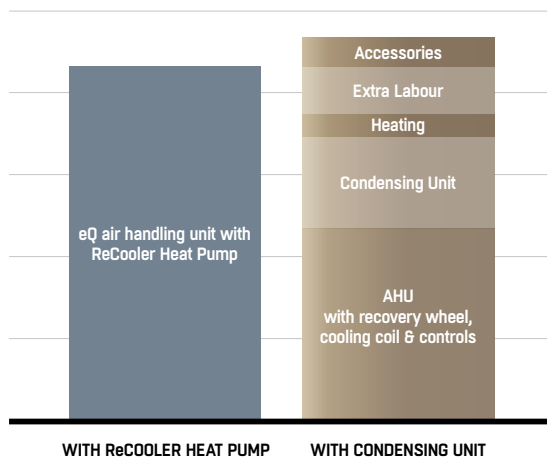


eQ Master

## How the ReCooler Heat Pump 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 Heat Pump 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 Heat Pump does not require accessories such as control box, expansion valves kits, pipes, etc.
- **The benefits of lower energy consumption with the ReCooler Heat Pump brings immediate cost savings and reduces the environmental impact.**

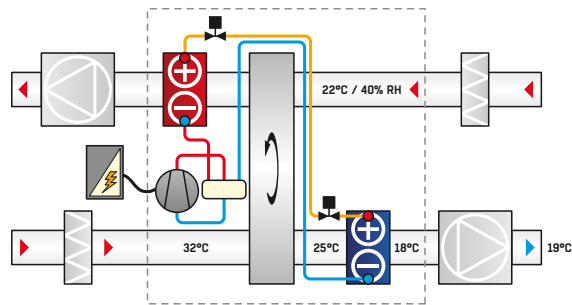


# The ReCooler HP gives you exceptional energy efficiency – all year round

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

During the winter the rotor offers excellent heat and humidity recovery to ensure maximum energy efficiency and comfort. The unique design of the RegAsorp 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 Heat Pump uniquely has a built-in heatpump to take full advantage of energy efficient heating and reduce the carbon foot print.



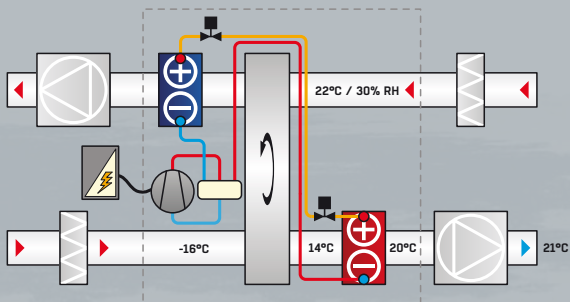
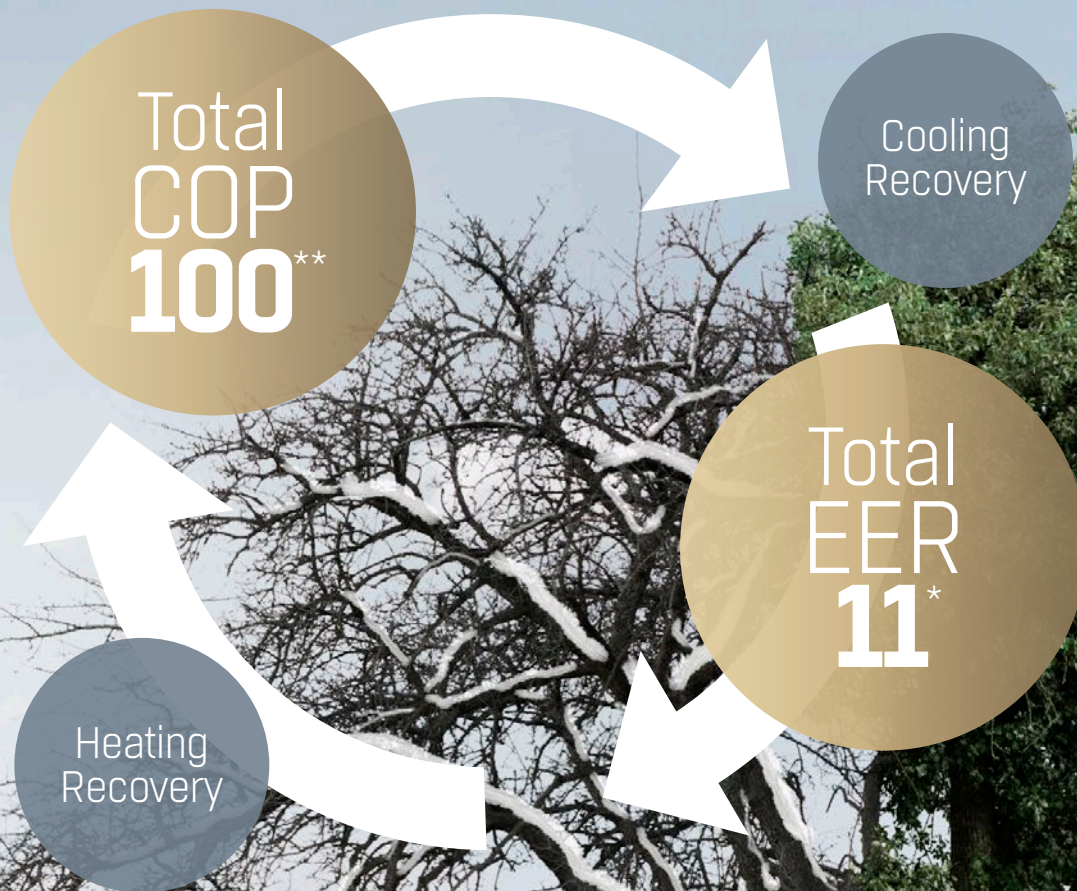
## AIR FLOW DESIGN – SUMMER CASE

Coils are placed after the rotor in both air streams. This optimises heat recovery and minimises energy to the compressor. In the examples above:

- 78% of cooling and 89% of heating is done by the recovery wheel.
- Remaining part is done by heat pump.







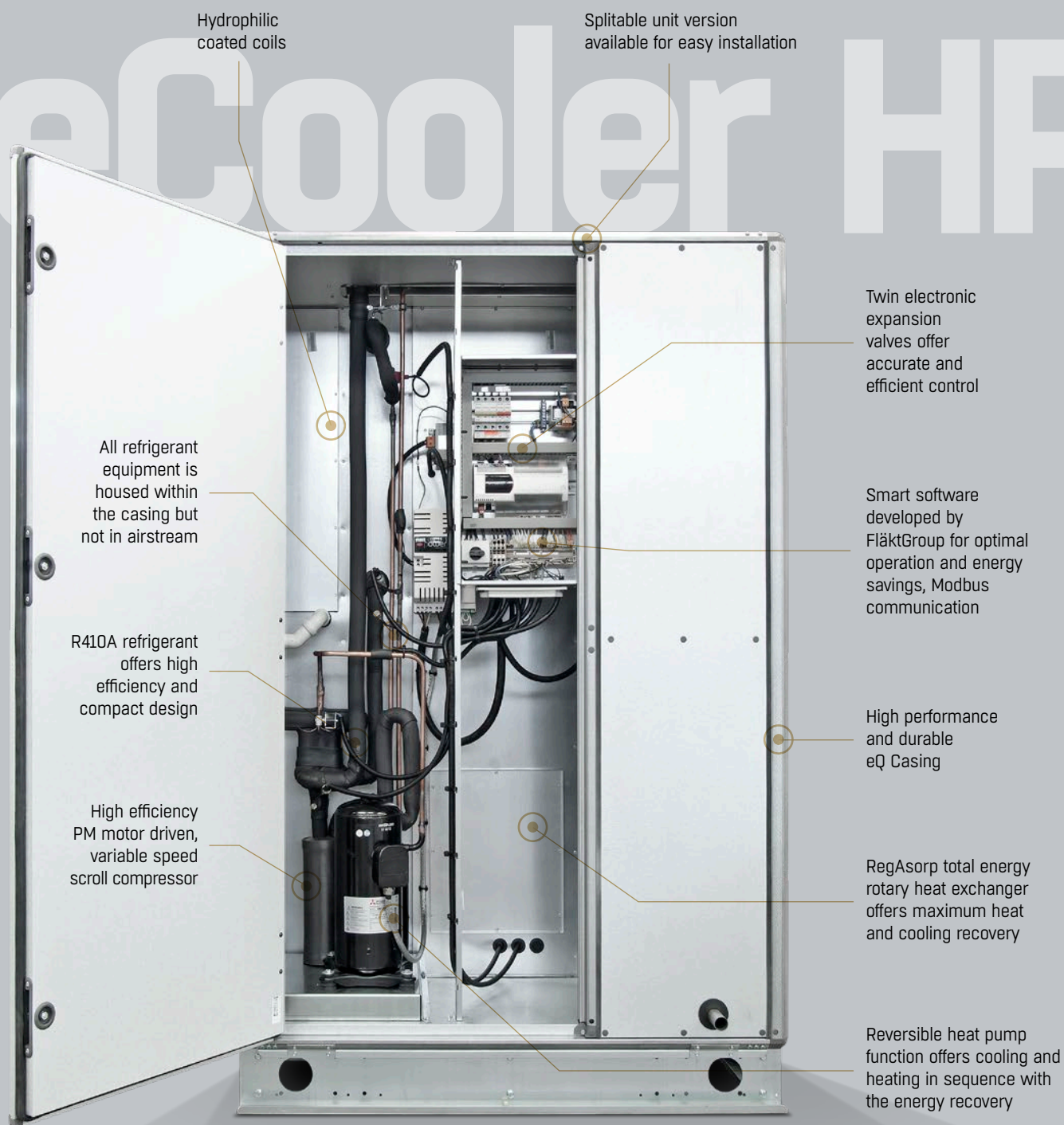
#### AIR FLOW DESIGN – WINTER CASE

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.

\* at 27 °C outdoor temperature  
\*\*at 0 °C outdoor temperature  
For a unit coil velocity of 2 m/s  
Winter & summer supply temperature of 20 °C  
Exhaust temperatures 22 °C/30% RH winter,  
24 °C/55% RH summer

# ReCooler HP

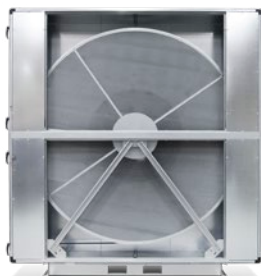


This product contains fluorinated greenhouse gas, R410A, with a GWP-factor of 2088.  
Refrigerant quantity: 3,8–11,8 kg, corresponding to 7,9–24,6 tonnes of CO<sub>2</sub> equivalent per circuit.

## SIZE CHART

Unit size	8	11	18	23	32	41	50	72
Air flow, m <sup>3</sup> /s	0.8	1.3	1.9	2.5	3.0	4.3	5.1	6.5





### REGASORP RECOVERY WHEEL

Energy recovery is always more efficient than other methods for cooling and heating. The RegAsorp energy recovery wheel is located between the supply and exhaust coil, and maximizes savings and comfort:

- Better comfort in winter mode, less humidity will be exhausted.
- Rotor will operate down to lower temperatures without freezing.



### COMPRESSOR TECHNOLOGY

The ReCooler Heat Pump 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 Heat Pump 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 FläktGroup, allows the DC inverter to optimize compressor load.
- FläktGroup provides complete system optimization control for ventilation, cooling and heating.



### EASY TO SERVICE

Because the ReCooler HP is fully integrated in the eQ AHU, the entire installation is serviceable by one company.

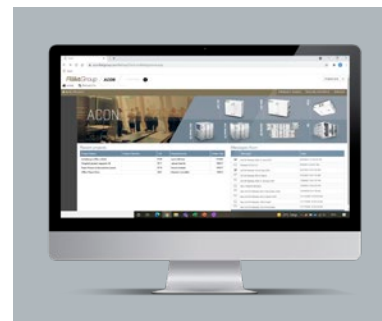
- All components are placed outside the air stream.
- All service takes place indoors.
- One service supplier that understands and takes responsibility for the entire cooling, heating and ventilation installation.



### REFRIGERANT DETECTOR

Electronic system for monitoring of refrigerant charge leakage:

- 24 months between leakage checks instead of 12.
- Contributes to reducing greenhouse gas emissions.



### 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.

» [www.flaktgroup.com](http://www.flaktgroup.com)



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

## ► 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

### AIR TREATMENT



- Modular Air Handling Units
- Compact Air Handling Units
- Low Airflow Compact Units
- Top Connected Air Handling Units
- Residential Air Handling Units
- Energy Recovery Solutions
- Integrated Heating & Cooling
- Swimming Pool Dehumidification



### AIR DIFFUSION



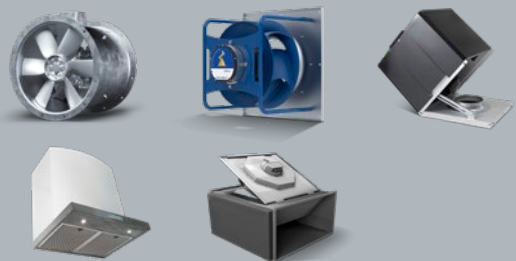
- Chilled Beams
- Fan Coils
- Air Curtains
- Air Heaters



### AIR MOVEMENT



- Ventilation Fans
- Fire Safety Fans
- Cooker Hoods



### AIR MANAGEMENT & ATD's



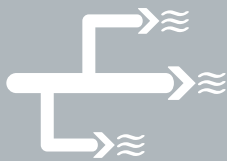
- Air Valves
- Diffusers
- Grilles
- External Louvres & Cows
- Air Distribution Systems
- Dampers
- Air Volume Dampers
- Fire Dampers
- Smoke Dampers & Ducts



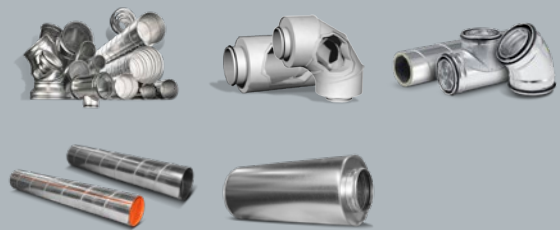
The ReCooler Heat Pump can be used in most public, commercial and light industrial applications where a rotary heat exchanger would normally be considered. In regions with cold climate the ReCooler heatpump offers a range of different defrosting systems and we can tailor and optimise the system for the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

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

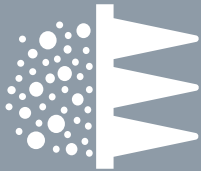
#### AIR DISTRIBUTION



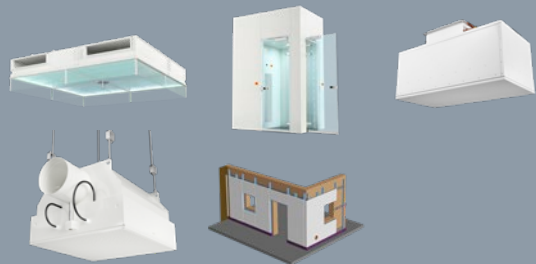
- Fittings
- Ducts
- Silencers



#### AIR FILTRATION



- Clean Room Filtration units
- Clean Room building elements



#### AIR CONDITIONING & HEATING



- Chillers and Heat Pumps
- Data Centre & IT Cooling
- Air Conditioning



#### CONTROLS



- ISYteq Controls for AHU and FCU
- ISYteq FICO Fire Safety Control System



# 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

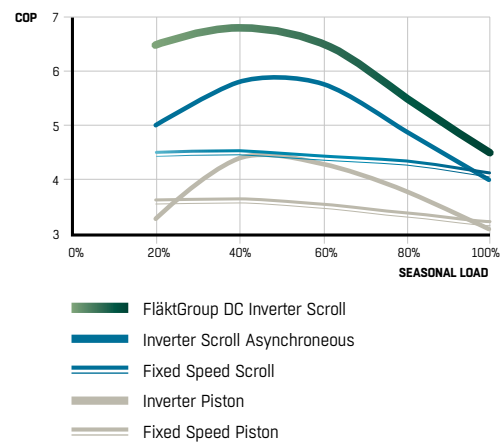
In traditional on/off compressor solutions, operation is only possible in full compressor speed. As a result the indoor comfort was limited, the energy efficiency is constantly less favourable and the on/off process had a strong negative impact on the compressor life-span.

## FLÄKTGROUP PM MOTOR SOLUTION

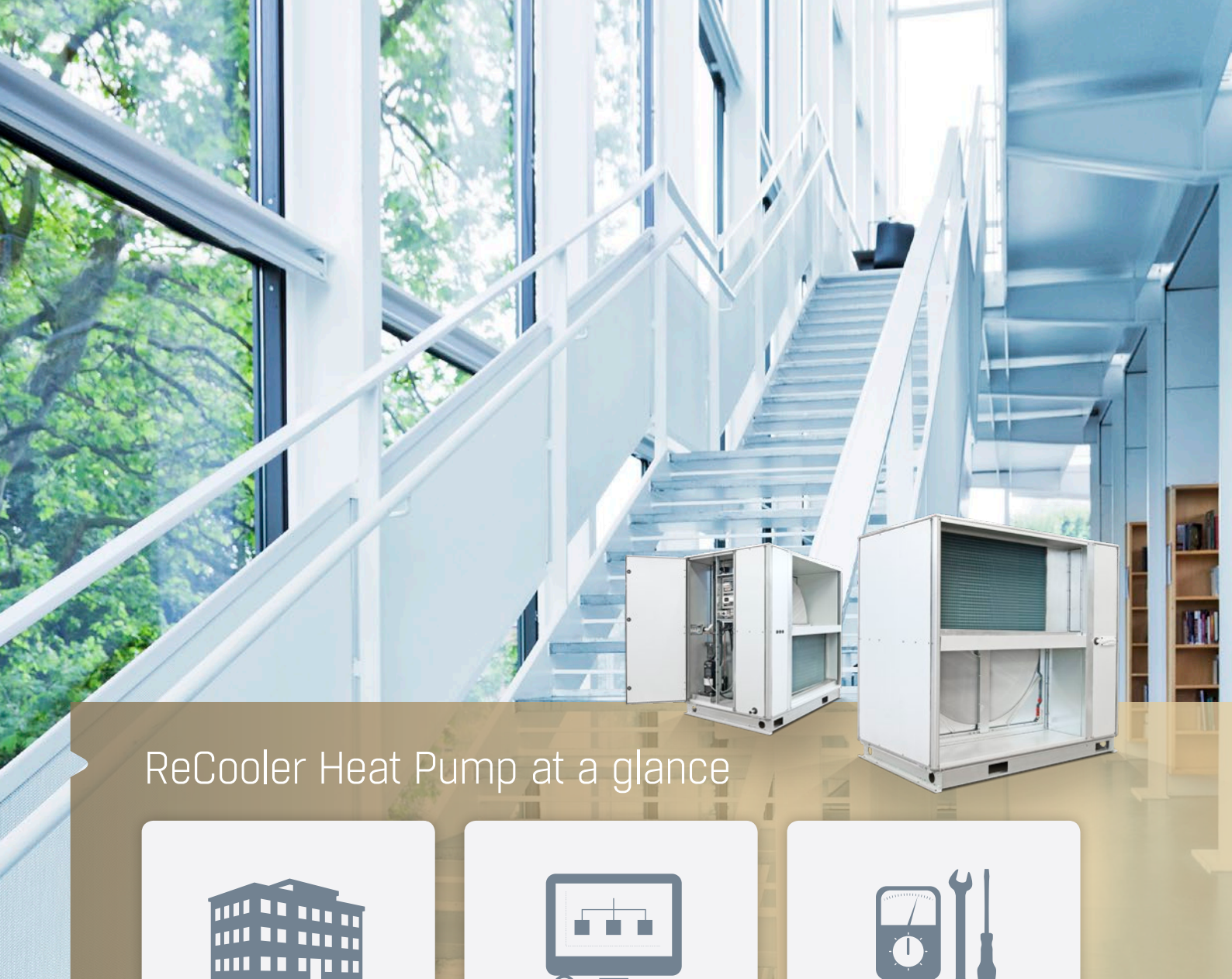
- Variable speed scroll compressor with PM motor and DC inverter drive delivers better full load efficiency than other solutions.

- 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 Heat Pump 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.





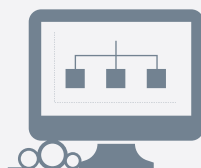


## ReCooler Heat Pump at a glance



### 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

## EXCELLENCE IN SOLUTIONS

WWW.FLAKTGROUP.COM

ReCOOLER HP 9356GB

FläktGroup is the European market leader for smart and energy efficient Indoor Air and Critical Air solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported by more than a century of accumulated industry experience. The widest product range in the market, and strong market presence in 65 countries worldwide, guarantee that we are always by your side, ready to deliver Excellence in Solutions.

### PRODUCT FUNCTIONS BY FLÄKTGROUP

Air Treatment | Air Movement | Air Diffusion  
Air Distribution | Air Filtration | Air Management & ATD's  
Air Conditioning & Heating | Controls | Service

» Learn more on [www.flaktgroup.com](http://www.flaktgroup.com)  
or contact one of our offices