

***komfovent***<sup>®</sup>

# RHP

Air handling units  
with integrated  
heat pump





# Complete indoor climate control



## Why to choose Komfovent RHP?

### TOTAL COMFORT ALL YEAR LONG:

reversible heating and cooling operation of heat pump ensures comfort indoor climate

### EXTREMELY ENERGY EFFICIENT AND RESOURCE SAVING:

two step efficiency is provided by rotary heat exchanger recovery and post heating / cooling operated by heat pump

### ADDED VALUE TO INDOOR CLIMATE:

heating and humidity recovery in winter, cooling and dehumidifying in summer

### "ALL INCLUSIVE" SOLUTION:

no need for condensing unit, chiller, piping or additional work providing

### CONVENIENCE AND SAFETY:

factory charged by refrigerant, no refrigeration knowledge is needed

### ECO-FRIENDLY AND PROTECTED:

Non ozone depleting refrigerants – R134A and R410A are used in RHP units and one circuit charge limits are applied.

### FACTORY TESTED:

reliable and convenient PLUG & PLAY installation, commissioning and exploitation

### INTELLIGENT CONTROL:

clever automatics control algorithms and reliable components ensure safe and efficient equipment operation

### SEASONAL EFFICIENCY:

RHP Pro and RHP 1600 U C5 units are equipped with PM motor scroll and rotary compressors controlled by DC inverter driver allowing efficiency operation in part load conditions



# All HVAC systems in one unit



## VENTILATION

RHP units supply the premises with fresh air with minimal energy consumption



## HEATING

RHP units can efficiently heat the premises especially during a transitional period



## COOLING

RHP units provide the most efficient cooling during the summer



## AIR FILTRATION

Fresh air supplying into room is cleaned from dust



## HUMIDITY CONTROL

RHP units in summer perform dehumidification and in winter – regeneration of humidity

### Two-stage heat / cool recovery

To reach the maximum efficiency Komfovent RHP units are designed to recover the energy in two steps:

**1<sup>st</sup> step** | **recovery up to 80%**  
by enthalpy rotary heat exchanger

**2<sup>nd</sup> step** | **recovery up to 60%**  
by reversible heat pump

### Operation range:



### Wide possibilities with RHP:

- Unit monitoring and management through the Internet and BMS.
- Extremely high energy efficiency.
- Simple designing, installing, operation and maintenance.
- Shortest payback time.
- Unified smart control, simplified management.
- No outdoor unit, no refrigeration specialists required.

### Integrated control system C5

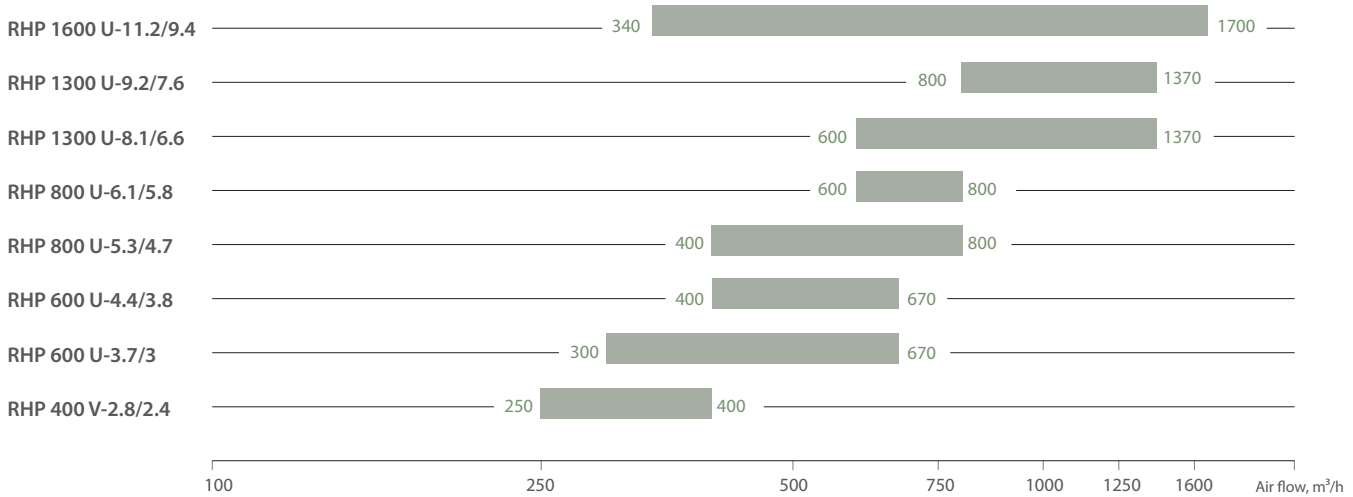
Automatic system designed for professionals, controls thermodynamic processes and saves energy. The user is given detailed information about the operation of the unit. Variety of modes and functions allows the user to choose the optimal operating mode that maximizes energy saving.

# Wide application possibilities of RHP solution. Residential, public, commercial, industrial

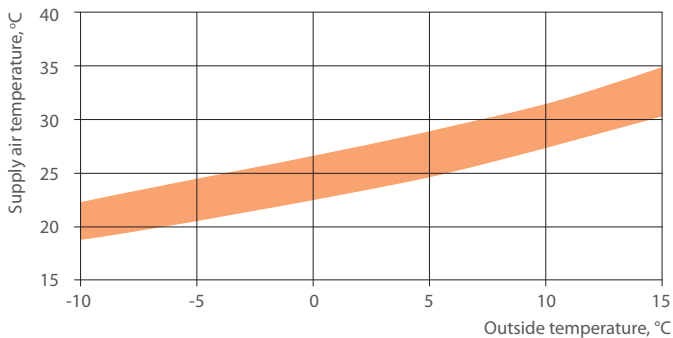
## RHP Standard

for smaller area premises and required air flows from 250 m<sup>3</sup>/h to 1700 m<sup>3</sup>/h

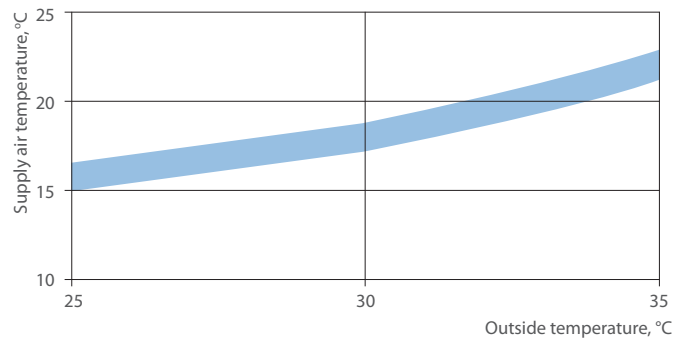
Air flow



### Heating mode



### Cooling mode



Outdoor	Indoor	Size	RHP 400 V C5	RHP 600 U C5	RHP 800 U C5	RHP 1300 U C5	RHP 1600 U C5
Conditions according to EN 14511		Nominal air flow, m <sup>3</sup> /h	400	670	800	1370	1700

#### Heating mode

T <sup>i</sup> , °C	7	20	Total heating capacity, kW	2,8	3,7	4,4	5,3	6,1	8,1	9,2	11,2
RH <sup>i</sup> , %	86	50	Supply temperature, °C	28,6	25	28	26,7	29,6	25,4	27,3	26,3
			Nominal compressor power consumption, kW	0,42	0,4	0,62	0,54	0,75	0,78	1,13	0,88
			System COP*, kW/kW	3,94	4,21	3,78	4,68	4,65	4,59	4,02	5,26
			System SCOP*, Average climate	7,2	13,3	9,7	12,82	9,54	13,11	9,83	11,9

#### Cooling mode

T <sup>i</sup> , °C	35	27	Total cooling capacity, kW	2,4	3	3,8	4,7	5,8	6,6	7,6	9,4
RH <sup>i</sup> , %	40	40	Supply temperature, °C	20,6	20,7	18,6	18,9	17,1	20,2	18,9	18,9
			Nominal compressor power consumption, kW	0,51	0,43	0,68	0,68	0,98	0,91	1,32	1,42
			System EER*, kW/kW	3,22	4,21	3,46	4,86	3,41	4,32	3,62	4,04
			System SEER*	3,45	4,52	4,7	4,76	4,71	4,82	4,8	4,1

\* - L rotary heat exchanger + heat pump

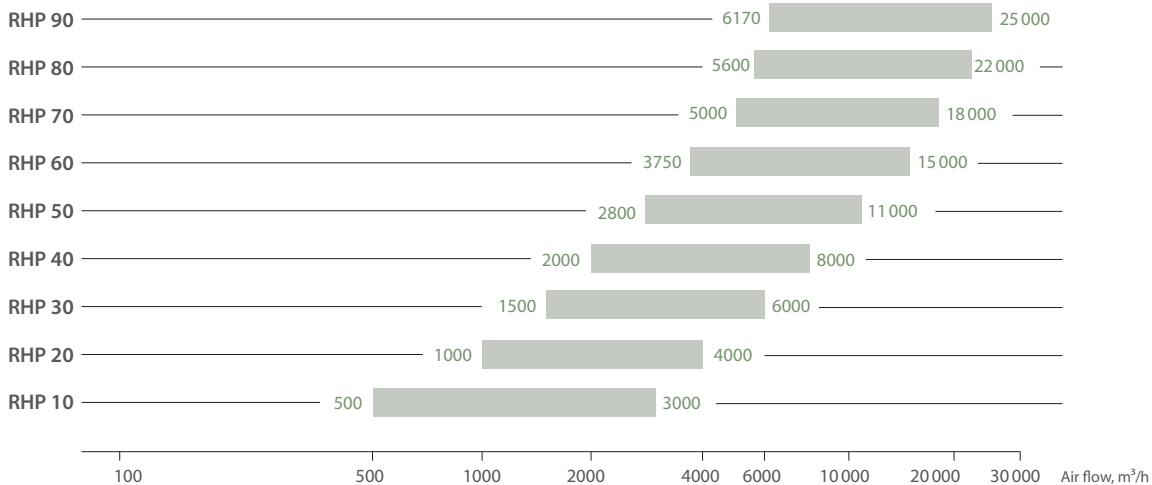


# Wide application possibilities of RHP solution. Residential, public, commercial, industrial

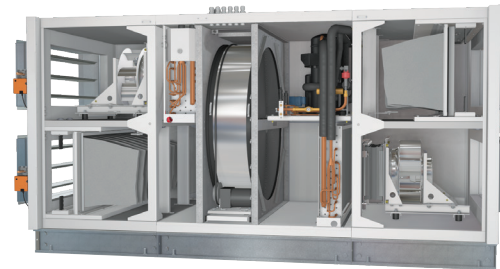
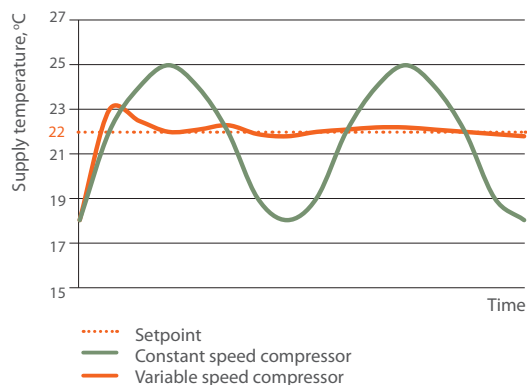
## RHP Pro

for larger area premises and required air flows from 500 m<sup>3</sup>/h to 25 000 m<sup>3</sup>/h

Air flow



## Device management schedule



Variable speed compressors are designed in RHP Pro units. The major benefit of this type of compressor is its flexibility. The rotation speed of the compressor varies, as the result less energy is used and the minor temperature changes occur in the premises.

Outdoor Indoor	Size	RHP 10	RHP 20	RHP 30	RHP 40	RHP 50	RHP 60	RHP 70	RHP 80	RHP 90
Conditions according to EN 14511	Max air flow, m <sup>3</sup> /h	3000	4000	6000	8000	11000	15000	18000	22000	25000
	Min air flow, m <sup>3</sup> /h	500	1000	1500	2000	2800	3750	5000	5600	6170

### Heating mode

T, °C	-7	20	Total heating capacity, kW								34	48	68	96	123	161	197	234	277
RH, %	90	40	Supply temperature, °C								24,0								
			Nominal compressor power consumption, kW								2,8	3,9	4,6	8,2	7,4	7,7	10,5	13,3	16,2
			System COP*, kW/kW								9,7	10,4	12,8	10,8	15,1	19,2	17,4	16,7	16,3

### Cooling mode

T, °C	35	27	Total cooling capacity, kW								18	26	50	54	73	93	115	127	154
RH, %	40	50	Supply temperature, °C								20								
			Nominal compressor power consumption, kW								2,7	3,9	7,2	8,8	11,4	12,1	16,2	18,2	23,3
			System EER*, kW/kW								5,3	5,5	6,3	5,6	6,0	7,2	6,8	6,7	6,4

\* - L rotary heat exchanger + heat pump



# Control system C5 for RHP units



## Various operating modes

- 5 different operation modes: *Comfort1*, *Comfort2*, *Economy1*, *Economy2*, and *Special*. User may set supply and extract air volumes as well as air temperature for each of mode separately.
- Temperature control modes: Supply air / Extract air / Room / Balance. Possibility to select which temperature to maintain.
- Flow control modes: Constant Air Volume (CAV), Variable Air Volume (VAV), Directly Controlled Volume (DCV).
- Universal operating schedule with up to 20 events, for each of them the user can assign weekday(s) and one of five operating modes.
- Holliday scheduling allows the user to change operating mode or switch off the air handling unit on some dates of the year. Up to 10 events are possible.



## "Komfovent C5" app

Application is designed to control air handling units with integrated C5 control system. User-friendly interface is intuitive for both experienced and less experienced users.

As the application fully replicates a control panel functions, you will have an access to all monitoring and control possibilities available in the control panel.

The application is available on Google Play and App Store.

## Detailed information for the user

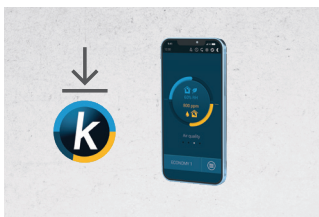
- Air flow indication ( $\text{m}^3/\text{h}$ ,  $\text{m}^3/\text{s}$ ,  $\text{l/s}$ ).
- Thermal efficiency of the heat exchanger (%).
- Heat exchanger energy recovery (kW).
- Thermal energy savings indicator (%).
- Air heater energy consumption (kWh).
- Heat exchanger recovered energy counter (kWh).
- Fan's energy consumption (kWh).
- SFP factor of PM fans.
- Clogging level of filters (%).

## Extended control possibilities

- Controlling up to 30 units connected into a network from one panel.
- Ability to connect the controller to the Internet network and manage it via a standard internet browser without any accessories.
- Possibility to control air handling unit by Smartphone via Android OS or iOS application software.
- Ability to control the unit not only by a control panel or a computer, but also by different external devices (switch, timer, etc.) and systems (e.g. the smart house system).

## Control options

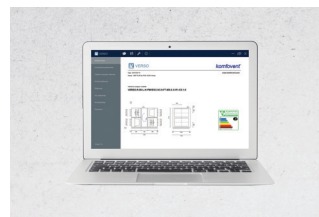
App "Komfovent C5"



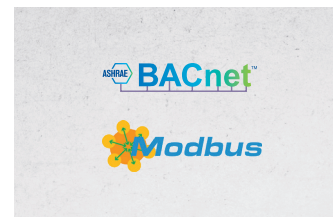
Control panel



Webserver



Connectivity & Protocols



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