

komfovent

RHP



Air handling units
with integrated
heat pump

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 – R1234yf and R454C 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.

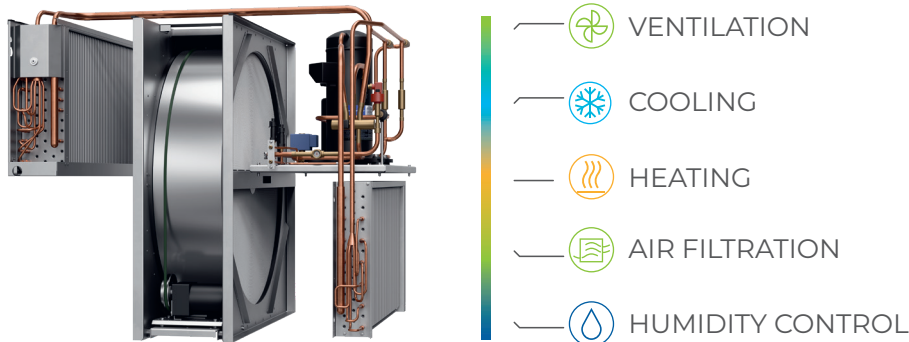
HIGH SEASONAL EFFICIENCY

scroll and double-rotor inverter compressors with PM motors and frequency converters used in RHP units ensure high seasonal efficiency in both warm and cold periods of the year.

Integrated heat pump solutions

RHP double heat recovery – triple the benefits

RHP ventilation unit is a complex solution that integrates all indoor climate support systems into one unit: ventilation, air heating and conditioning, humidity recovery and dehumidification, air quality control and air filtering. The heat pump is completely integrated into the casing of the unit, making it simple to install and easy to operate.



Advanced Technologies

The latest and most advanced engineering and technological solutions developed and refined in the fields of heating, ventilation, and air conditioning are included in RHP air handling units.

Operating principle

The heat pump and rotary heat exchanger work together as a perfect recuperation tandem. The main energy saving component – the rotary heat exchanger works efficiently for almost the whole year, except for the times when the outside and indoor temperatures are almost equal. When higher heating or cooling demand is needed, a second recovery step (heat pump) starts supplying warm or cold air to maintain the desired temperature. The "heart" of the heat pump, high-efficiency inverter compressor complements and extends the capabilities of the air handling unit – it effectively provides heat even when the outside air

temperature is as low as -20 °C or operates as the central air conditioner during hot summer. Intelligent automation algorithms control all processes, maintaining optimal indoor climate with minimal energy use. Besides that, all ventilation and heating/cooling parameters are at the touch of a button on the control panel display.

Advantages of the RHP solution

- Double recovery – rotary heat exchanger + heat pump, return 100 % heat to the premises during winter.
- The heat pump works in the summer as an air conditioner.
- An integrated control system manages all indoor climate processes from the single user interface.
- Faster and easier installation and maintenance compared to individual heating, ventilation, and air conditioning systems.
- No external unit is needed to be mounted outside of the building.

Wide possibilities with RHP:

- Unit monitoring and management through the local network or 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.

RHP Standard

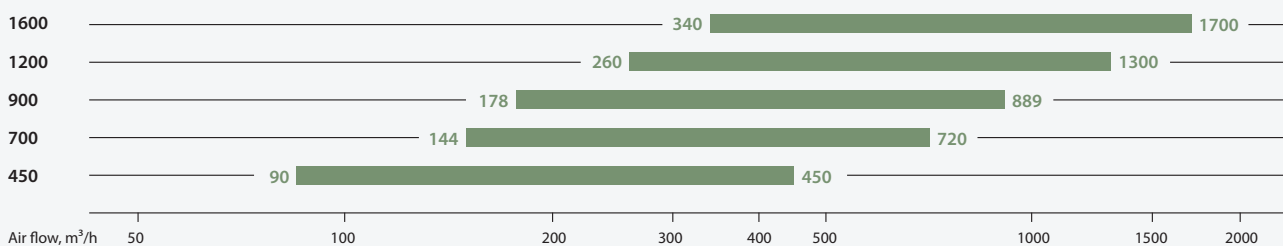
For smaller area premises

Series of compact air handling units with integrated air-to-air heat pumps, providing an efficient solution that saves installation space while ensuring a comfortable indoor climate. These units feature a reliable and convenient "Plug and Play" design, with factory-charged Eco-friendly refrigerants (R1234yf and R134A), eliminating the need for refrigeration expertise during installation or startup. This makes installation, commissioning, and operation straightforward and hassle-free.

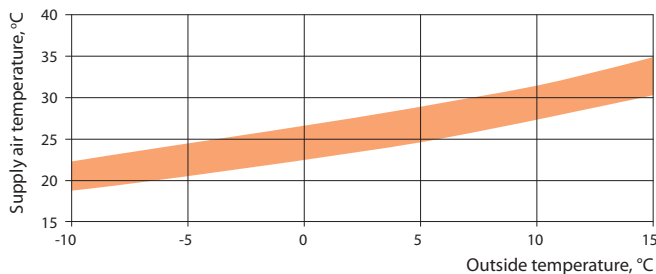


Airflow:
250–1700 m³/h

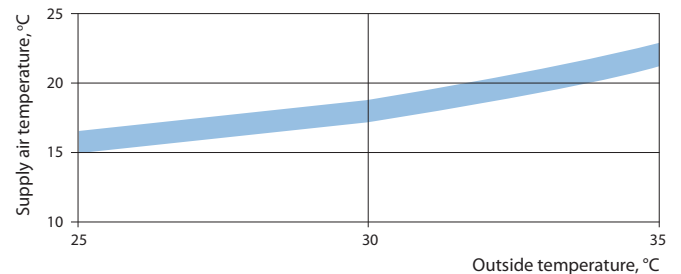
Air flow



Heating mode



Cooling mode




Outdoor	Indoor	Size	RHP 450 V C5	RHP 700 V C5	RHP 900 V C5	RHP 1200 U C5	RHP 1600 U C5	
Conditions according to EN 14511		Nominal air flow, m³/h	450	720	889	1300	1700	
Heating mode*								
T ⁱ , °C	7	20	Total heating capacity, kW	3,6	5,6	6,0	9,3	11,2
RH ⁱ , %	86	50	Supply temperature, °C	30,6	29,7	27,6	29	26,3
			Nominal compressor power consumption, kW	0,51	0,54	0,49	0,93	0,84
			System COP, kW/kW	3,91	5,46	6,12	5,32	6
			System SCOP, Average climate	8,15	9,18	9,61	10,45	11,9
Cooling mode*								
T ⁱ , °C	35	27	Total cooling capacity, kW	3,0	4,7	5,0	7,9	9,4
RH ⁱ , %	40	40	Supply temperature, °C	17,3	16,2	17,5	17	18,9
			Nominal compressor power consumption, kW	0,66	0,82	0,75	1,48	1,41
			System EER, kW/kW	2,89	3,74	4,38	3,53	3,99
			System SEER*	3,97	4,95	5,47	4,08	4,1

* ML rotary heat exchanger + heat pump

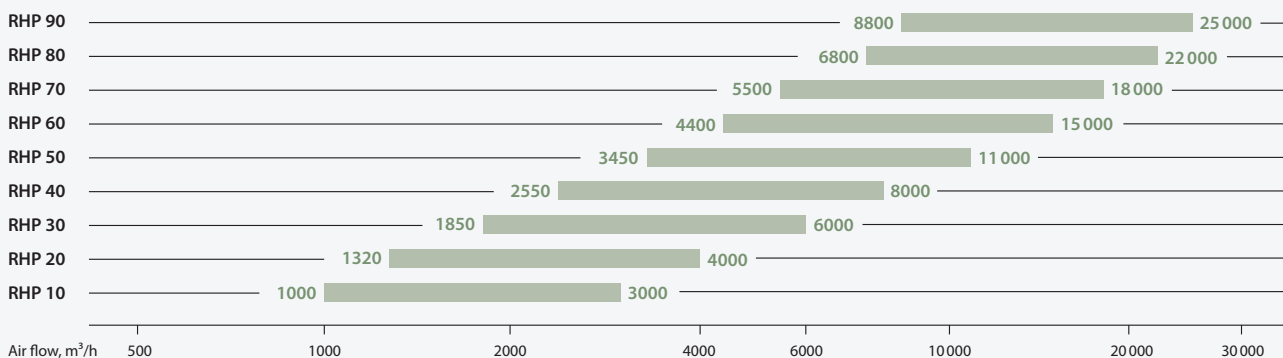
RHP Pro

For larger area premises

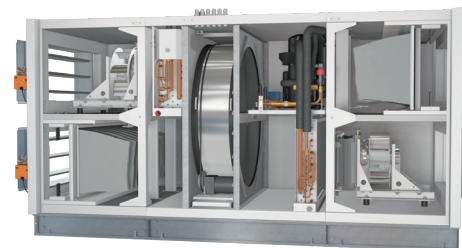
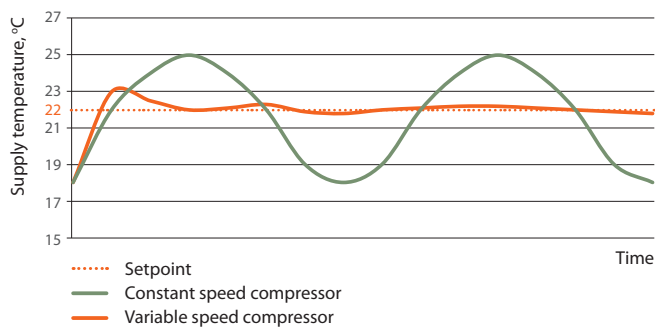
The RHP Pro series are designed for demanding applications, offering modular ventilation units with integrated heat pumps available in various sizes and capacities. These units are versatile, making them suitable for a wide range of applications, from commercial buildings to large-scale industrial projects. Their flexibility is further enhanced by the ability to connect a variety of additional devices, such as heaters, coolers, recirculation sections, and humidifiers, ensuring they can meet diverse operational requirements.

 Airflow:
1000–25 000 m³/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, m³/h	3000	4000	6000	8000	11000	15000	18000	22000	25000
			Min air flow, m³/h	1000	1320	1850	2550	3450	4400	5500	6800	8800
Heating mode*			Total heating capacity, kW	34	48	68	96	123	161	197	234	277
T, °C	-7	20	Supply temperature, °C	24	24	24	24	24	24	24	24	24
RH, %	90	40	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*			Total cooling capacity, kW	18	26	50	54	73	93	115	127	154
T, °C	35	27	Supply temperature, °C	20	20	20	20	20	20	20	20	20
RH, %	40	50	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

* ML rotary heat exchanger + heat pump

RHP Pro2

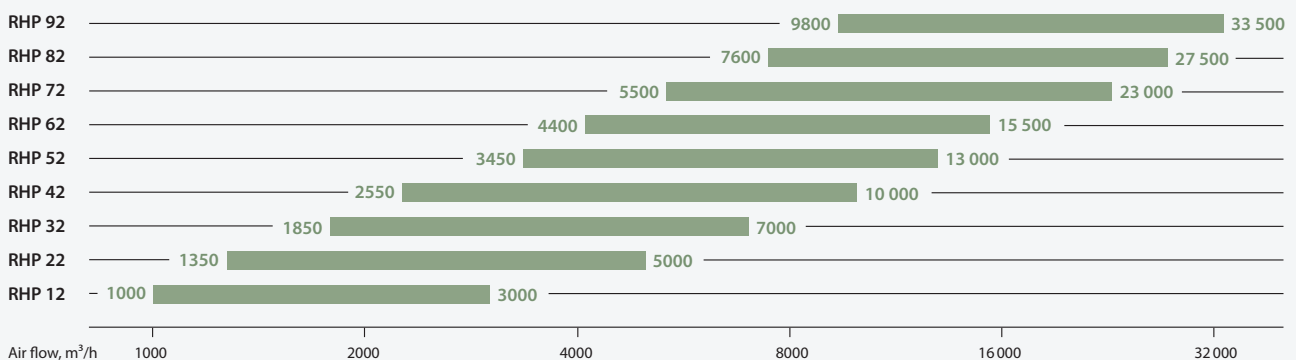
For larger area premises and higher heating / cooling

The RHP Pro2 series are designed for demanding applications, offering modular ventilation units with integrated heat pumps available in various sizes and capacities. These units are versatile, making them suitable for a wide range of applications, from commercial buildings to large-scale industrial projects. Their flexibility is further enhanced by the ability to connect a variety of additional devices, such as heaters, coolers, recirculation sections, and humidifiers, ensuring they can meet diverse operational requirements.



Airflow:
1000–33 500 m³/h

Air flow



TB1

Thermal bridging
(sizes from 12 to 72)

T1

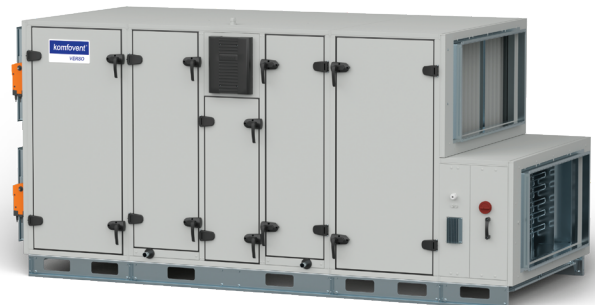
Thermal transmittance
(sizes from 12 to 72)

L1

Leakage

D1

Mechanical
strength



Outdoor Indoor		Size	RHP 12	RHP 22	RHP 32	RHP 42	RHP 52	RHP 62	RHP 72	RHP 82	RHP 92
Conditions according to EN 14511		Max air flow, m³/h	3000	5000	7000	10000	13000	15500	23000	27500	33500
		Min air flow, m³/h	1000	1350	1850	2550	3450	4400	5500	7600	9800
Heating mode*											
T, °C	-7	20	Total heating capacity, kW	36	59	80	118	149	178	258	375
RH, %	90	40	Supply temperature, °C	24	21,8	20,7	21,8	20,7	20,8	20	21,2
			Nominal compressor power consumption, kW	2,4	3,8	4,5	7,7	8,3	9,1	14,2	21,2
			System COP, kW/kW	11,7	12,9	15,2	14,0	16,4	18,0	17,6	14,2
Cooling mode*											
T, °C	35	27	Total cooling capacity, kW	21	36	50	72	93	110	166	260
RH, %	40	50	Supply temperature, °C	20	20	20,1	20	20	20,2	20	19,8
			Nominal compressor power consumption, kW	2,4	4,2	7,2	8,8	11,8	13,3	22,6	30,5
			System EER, kW/kW	7,3	7,2	6,3	7,6	7,4	7,9	7,2	8,26

* ML rotary heat exchanger + heat pump

Control system C5 for RHP units



Extended control possibilities

- Controlling up to 30 units connected into a network from one panel.
- Ability to connect the controller to the building network and manage it via 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 control panel or computer, but also by different external devices (switch, timer, etc.) and systems (e.g. the smart house system).

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.
- Holiday 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.

Detailed information for the user

- Air flow indication (m^3/h , m^3/s , 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 (%).

"Komfovent C5" app

Application is designed to control air handling units with the integrated C5 control system within local network of the building. User-friendly interface is intuitive for both experienced and less experienced users. As the application fully replicates control panel functions, you will have access to all monitoring and control possibilities available in the control panel. The application is available on Google Play and App Store.

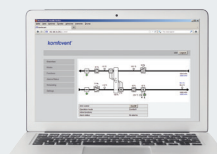
Control options



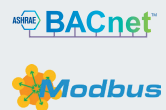
App "Komfovent C5"



Control panel



Web Server



Connectivity & Protocols

KOMFOVENT selection software

KOMFOVENT SELECT is a newly developed tool designed for seamless selection of the air handling unit. The software enables intuitive customization of modular units to meet specific project requirements. Once a unit is selected, the program generates a detailed BIM model, allowing it to be integrated into your project for seamless execution.

- Cloud-based selection software.
- For VERSO units with capacity from 250 to 40 000 m³/h.
- EUROVENT and RLT certificates guarantee the accuracy of the parameters.
- Detailed technical data report including fan curves.
- Generating VERSO Pro 3D models for the REVIT program.
- Convenient and friendly user interface.
- Ability to share.



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