komfovent

RHP

Air handling units with integrated heat pump

Why to choose RHP?

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.

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.

"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.

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

Operating principle

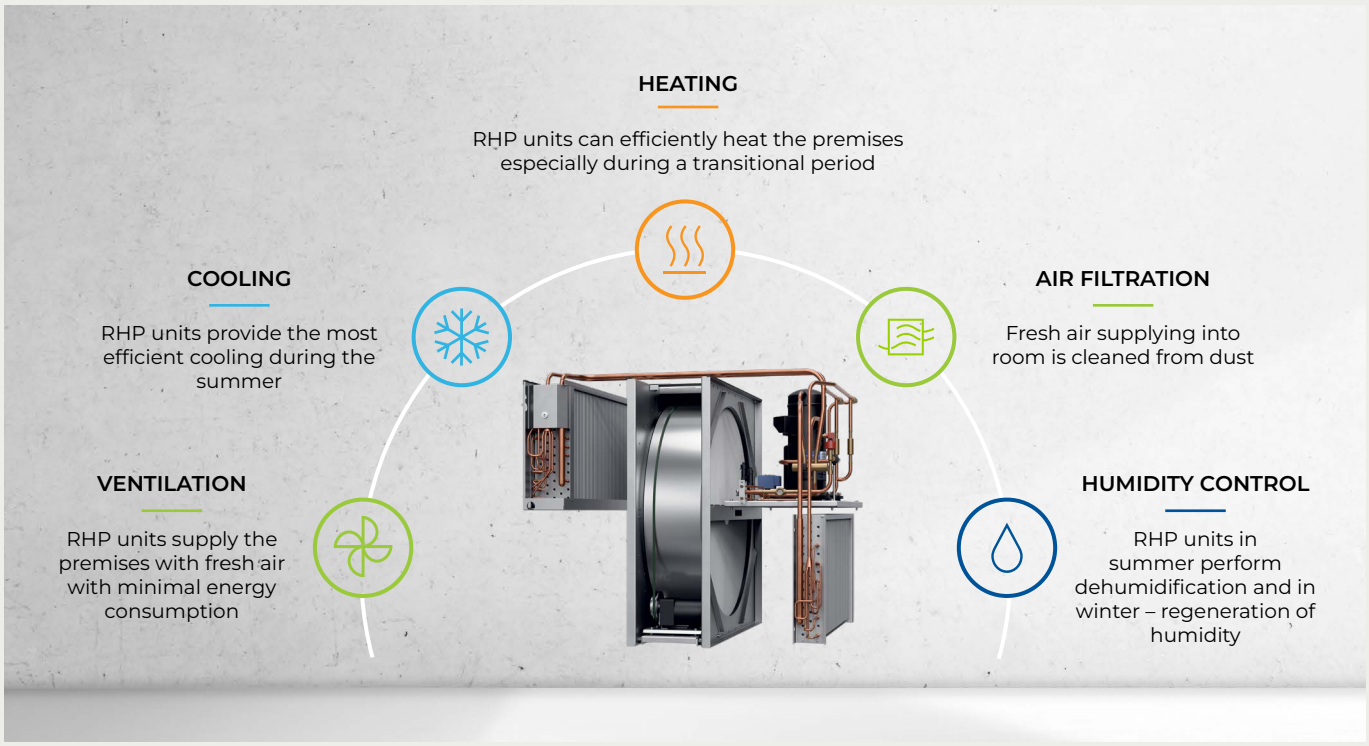
The heat pump and rotary heat exchanger work together as a perfect recuperation tandem. The main energy saving component – the rotary heat exchanger works efficiently for almost the whole year, except for the times when the outside and indoor temperatures are almost equal. When higher heating or cooling 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.

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.

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

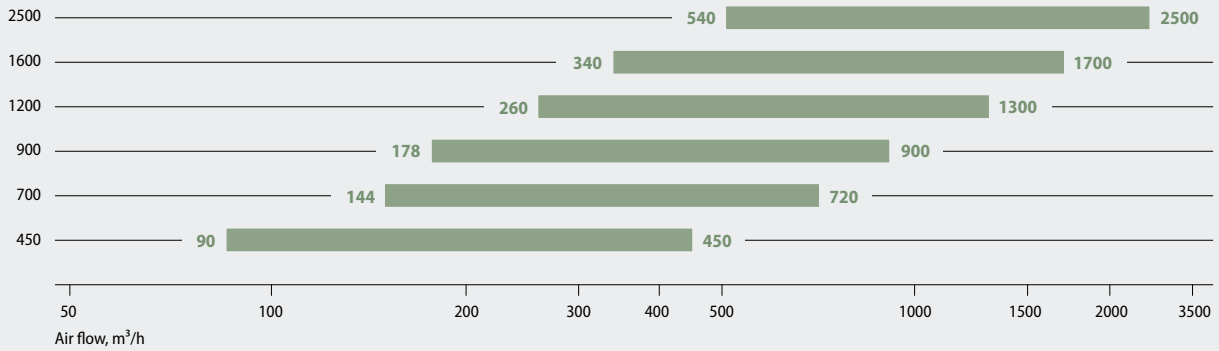
Automatic system designed for professionals, controls thermodynamic processes and saves energy.
The user is given detailed information about the operation of the unit. Variety of modes and functions allows the user to choose the optimal operating mode that maximizes energy saving.

RHP Standard

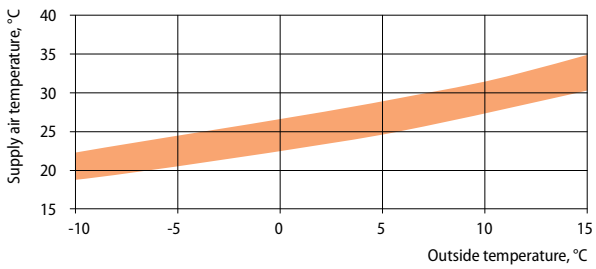
For smaller area and domestic premises

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 R454C), eliminating the need for refrigeration expertise during installation or startup. This makes installation, commissioning, and operation straightforward and hassle-free.

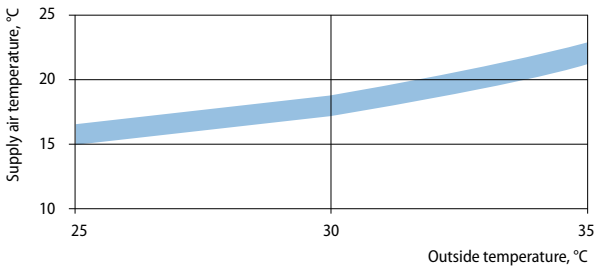
Air flow: 250–2500 m³/h



Heating mode



Cooling mode



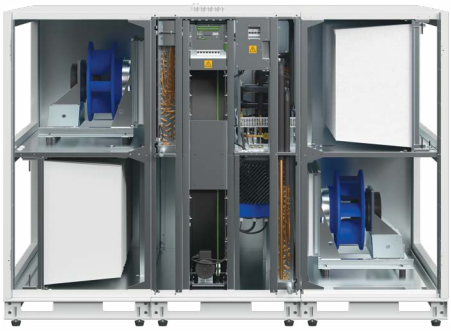
Outdoor		Indoor	Size	RHP 450 V C5	RHP 700 V C5	RHP 900 V C5	RHP 900 H C5	RHP 1200 U C5	RHP 1600 U C5	RHP 2500 V C5
Conditions according to EN 14511			**Nominal air flow, m³/h**	450	720	889	900	1300	1700	2500
Heating mode*										
T[1], °C	7	20	**Total heating capacity, kW**	3,6	5,6	6,0	6,0	10,4	12,5	19,6
RH[1], %	86	50	**Supply temperature, °C**	30,6	29,7	27,6	27,6	29	26,3	27,4
			Nominal compressor power consumption, kW	0,51	0,54	0,49	0,5	0,93	0,84	1,41
			System COP, kW/kW	3,91	5,46	6,12	6,1	5,32	6	5,79
			System SCOP, Average climate	8,15	9,18	9,61	9,61	10,45	11,9	9,83
Cooling mode*										
T[1], °C	35	27	**Total cooling capacity, kW**	3,0	4,7	5,0	5,0	8,1	10,5	17,1
RH[1], %	40	40	**Supply temperature, °C**	17,3	16,2	17,5	17,8	17	18,9	19,1
			Nominal compressor power consumption, kW	0,66	0,82	0,75	0,76	1,48	1,41	2,04
			System EER, kW/kW	2,89	3,74	4,38	4,32	3,53	3,99	4,02
			System SEER*	3,97	4,95	5,47	5,47	4,08	4,1	5,18

* ML rotary heat exchanger + heat pump.

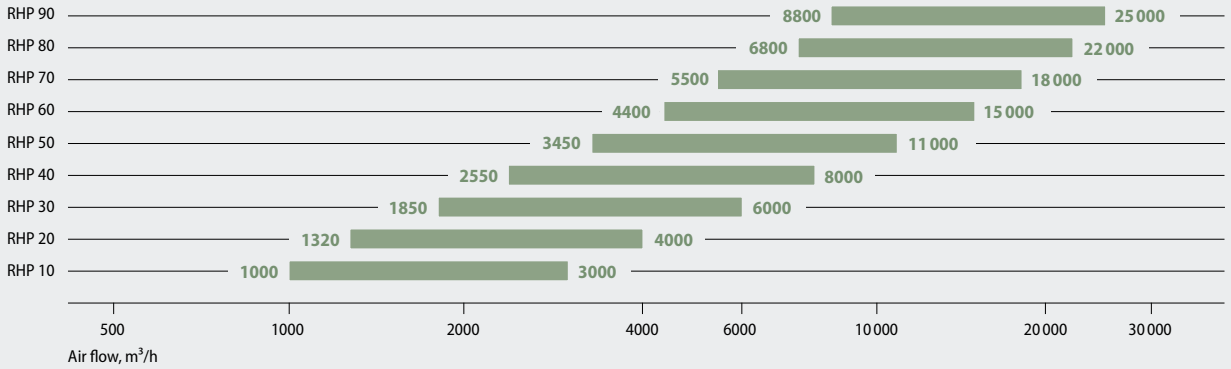
RHP Pro

For larger area premises

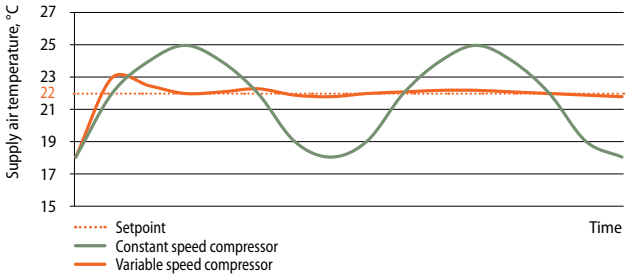
The RHP Pro series are designed for demanding applications, offering modular ventilation units with integrated heat pumps available in various sizes and capacities. These units are versatile, making them suitable for a wide range of applications, from commercial buildings to large-scale industrial projects. 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.



Air flow: 1000–25 000 m³/h



Device management schedule



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

Size	RHP 10	RHP 20	RHP 30	RHP 40	RHP 50	RHP 60	RHP 70	RHP 80	RHP 90
Heating mode[1]									
Total heating capacity, kW	34	48	68	96	123	161	197	234	277
Supply temperature, °C	24	24	24	24	24	24	24	24	24
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[2]									
Total cooling capacity, kW	18	26	50	54	73	93	115	127	154
Supply temperature, °C	20	20	20	20	20	20	20	20	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

[1] L rotary heat exchanger+heatpump. Conditions according EN 14511: Outdoor -7 °C/ 90 %RH, Indoor 20 °C/40 %RH.

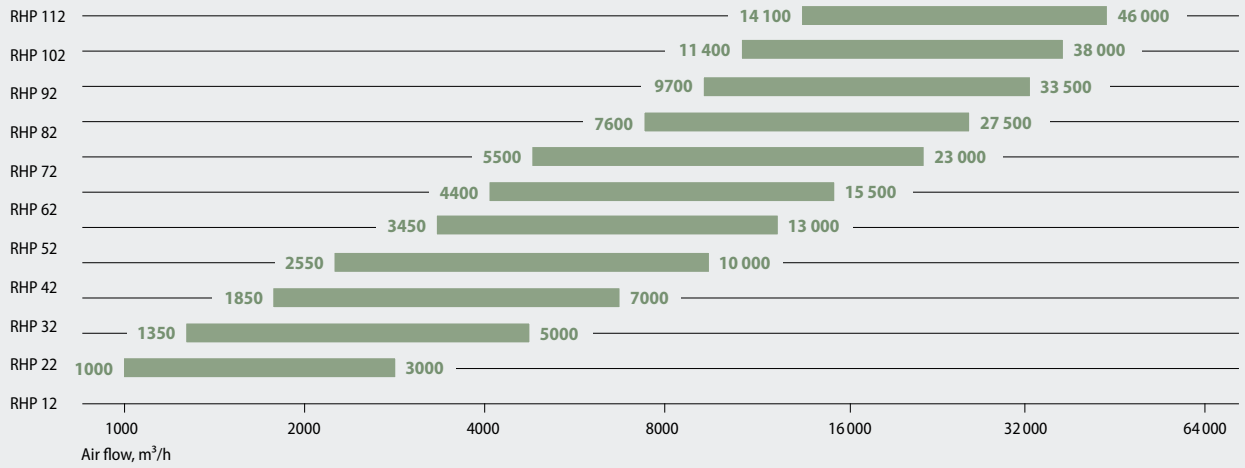
[2] L rotary heat exchanger+heatpump. Conditions according EN 14511: Outdoor 35 °C/ 40 %RH, Indoor 27 °C/50 %RH.

RHP Pro2

For larger area premises with higher heating / cooling demands

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.

Air flow: 1000–46 000 m³/h



TB1 Thermal bridging

L1 Leakage

T1 Thermal transmittance

D1 Mechanical strength

Casing sound insulation

Size	RHP 12		RHP 22		RHP 32		RHP 42		RHP 52		RHP 62		RHP 72		RHP 82		RHP 92		RHP 102			RHP 112
HP type	11/11	16/15	18/17	20/19	25/23	38/34	28/26	41/40	29/27	45/45	47/47	59/58	49/49	83/84	52/52	89/90	54/54	104/102	56/56	90/90	124/122	126/126
Heating mode[1]																						
Total heating capacity, kW	34	38	56	62	82	90	110	118	138	147	170	175	235	259	277	311	333	373	376	395	434	509
Supply temperature, °C	20,1	23,9	19,9	22	21,4	24,4	19,2	21,5	18	20,1	18,8	19,8	16,7	19,9	16,3	20,1	16,1	19,4	15,9	18,5	20,3	19
Nominal compressor power consumption, kW	1,1	2,2	1,9	3,5	3,9	7,4	3,4	6,6	3,1	6,4	6,9	8,7	6,3	12,6	6,2	13,2	6,1	15,0	6,0	12,5	19,1	18,5
System COP, kW/kW	6,23	4,76	6,17	4,74	5,13	3,64	6,37	4,40	7,12	4,92	4,31	4,02	4,94	4,44	5,33	5,13	5,45	4,70	5,73	4,24	4,86	5,05
Cooling mode[2]																						
Total cooling capacity, kW	21	25	35	38	53	59	68	76	81	91	97	118	128	162	147	199	172	237	191	233	272	304
Supply temperature, °C	20	18,5	20,3	19,3	19,8	18,9	20,5	19,8	21,7	20,4	22,9	20	23,9	21	24,3	20,6	25	20,4	25,4	22,4	19,8	21
Nominal compressor power consumption, kW	1,97	3,90	3,38	5,39	6,75	11,48	6,02	10,31	5,66	9,71	10,47	14,80	9,53	19,44	9,18	23,01	8,86	24,80	8,74	19,09	29,03	28,50
System EER, kW/kW	4,92	3,48	4,81	3,57	3,96	2,88	5,07	3,74	5,80	4,37	3,70	4,06	4,48	3,96	4,95	4,25	5,33	4,51	5,57	4,73	4,46	4,60

[1] ML rotary heat exchanger+heatpump. Conditions according EN 14511: Outdoor -7 °C/ 90 %RH, Indoor 20 °C/40 %RH.

[2] ML rotary heat exchanger+heatpump. Conditions according EN 14511: Outdoor 35 °C/ 40 %RH, Indoor 27 °C/50 %RH.

Control system C5 for RHP units

Extended control possibilities

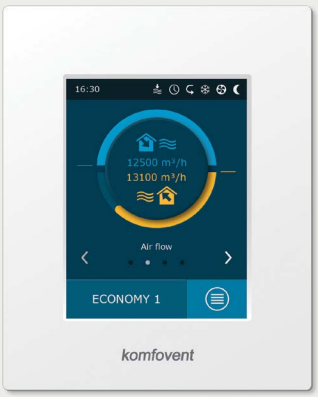
- Controlling up to 30 units connected into a network from one panel.
- Ability to connect the controller to the local network and manage it via standard internet browser without any accessories.
- Possibility to control air handling unit by smartphone via Android OS or iOS application software.
- Ability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

Download on the App Store

ANDROID APP ON Google play

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 RHP units with capacity from 250 to 46 000 m^3/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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