

komfovent[®]



RHP

Air handling units
with heat pump

VENTILATION | HEATING | COOLING | HUMIDIFICATION | FILTRATION

Air handling units with integrated heat pump – complete indoor microclimate 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:
R410A and R134A refrigerant and one circuit charge limits <10 kg



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

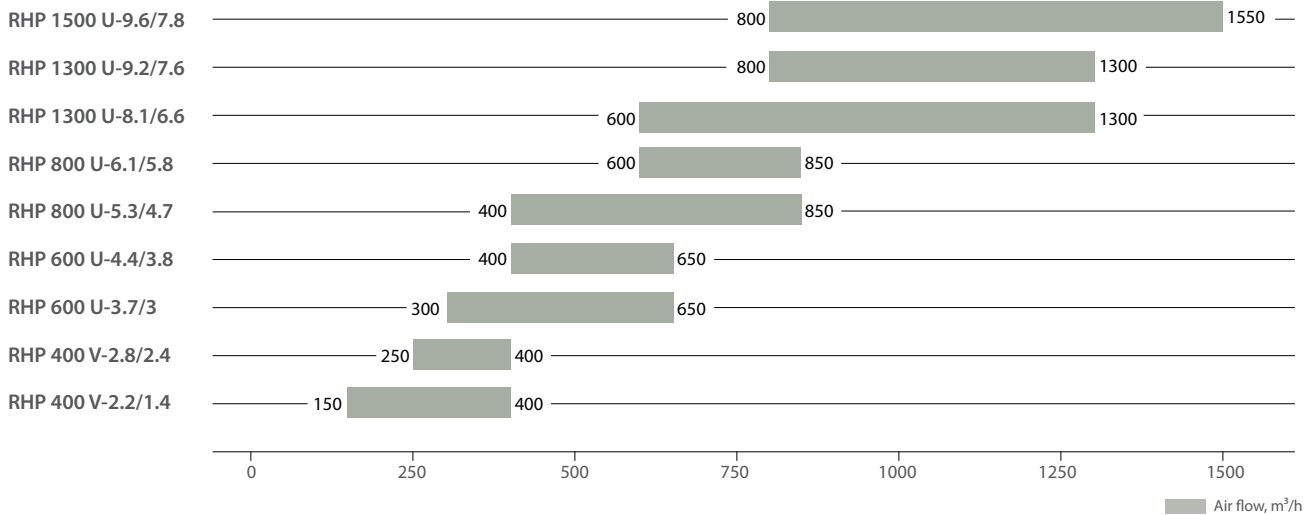
Wide range of Komfovent RHP application possibilities.

Residential, public, commercial, industrial application solution

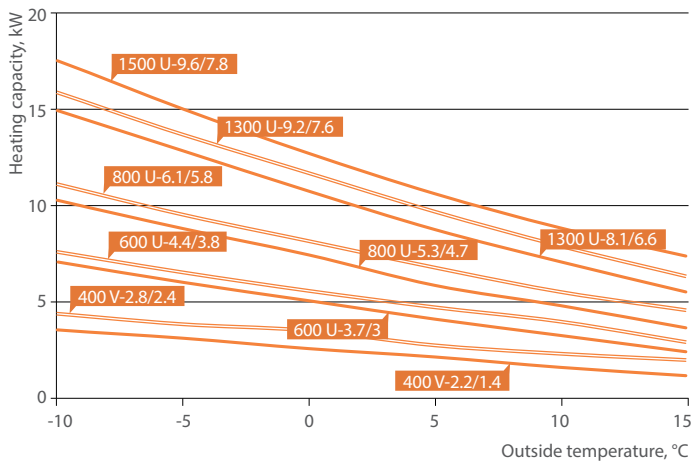
RHP Standard

for smaller area premises and required air flows from 150 m³/h to 1500 m³/h

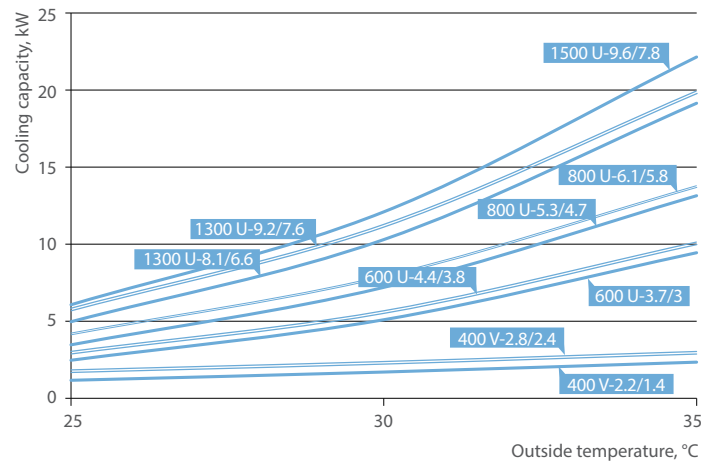
Air flow



Heating mode



Cooling mode



Outdoor	Indoor	Size	RHP 400 V	RHP 600 U	RHP 800 U	RHP 1300 U	RHP 1500 U
		Nominal air flow, m ³ /h	400	650	850	1300	1500

Heating mode

T ¹ , °C	7	20	Total heating capacity, kW	2,2	2,8	3,7	4,4	5,3	6,1	8,1	9,2	9,6
RH ¹ , %	90	40	Supply temperature, °C	23	28	25	28	26	29	25,6	28	27,2
			Nominal compressor power consumption, kW	0,18	0,42	0,34	0,52	0,49	0,73	0,36	1,04	1
			System COP ^{2,3} , kW/kW	9,6	3,6	9,5	7,7	9,8	7,8	10,9	8,4	9,1
			System SCOP ^{2,3,4} , Average climate	13,4	7,2	13,3	9,7	12,7	9,4	12,9	9,6	10,6
			System SCOP ^{2,3,4} , Warm climate	8,9	5,1	9,2	7,1	8,9	6,9	9,1	6,8	7,5
			System SCOP ^{2,3,4} , Cold climate	16,8	8,6	16,2	11,3	15,2	11,1	15,4	11,5	12,8

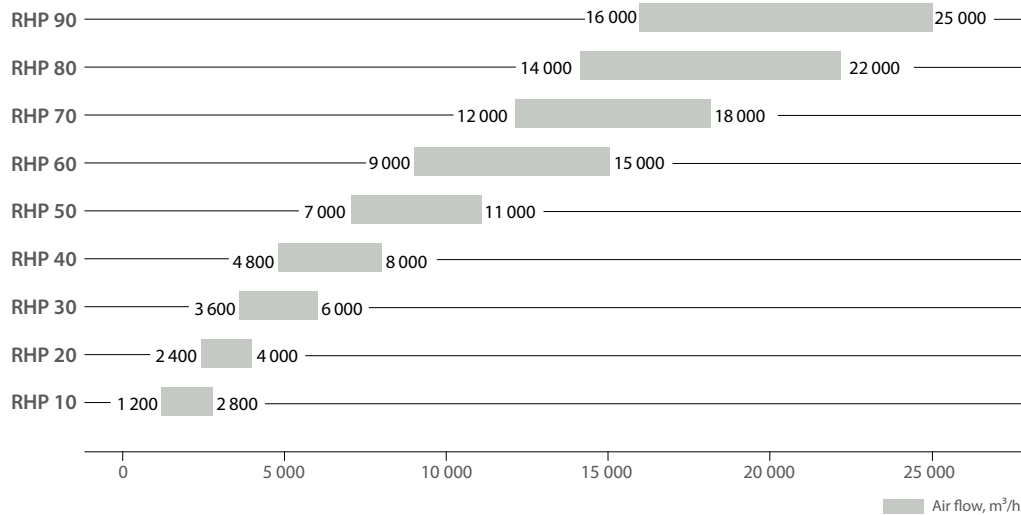
Cooling mode

T ¹ , °C	35	27	Total cooling capacity, kW	1,4	2,4	3	3,8	4,7	5,8	6,6	7,6	7,8
RH ¹ , %	40	50	Supply temperature, °C	20	19	20	19	19	17	22,5	21,7	20
			Nominal compressor power consumption, kW	0,19	0,45	0,42	0,68	0,65	0,99	0,88	1,28	1,3
			System EER ^{2,3} , kW/kW	5,8	3,4	6,4	5,2	6,7	5,6	7,1	5,7	5,8
			System SEER ^{2,3,4}	4	3,45	4,52	4,7	4,65	4,6	4,65	4,62	3,9

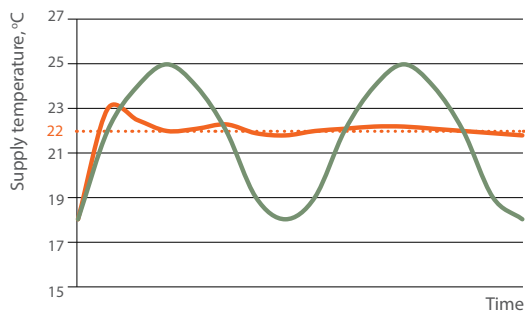
RHP Pro

for larger area premises and required air flows from 1 000 m³/h to 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.

- Setpoint
- Constant speed compressor
- Variable speed compressor

Outdoor	Indoor	Size	RHP 10	RHP 20	RHP 30	RHP 40	RHP 50	RHP 60	RHP 70	RHP 80	RHP 90
		Max air flow, m ³ /h	2800	4000	6000	8000	11000	15000	18000	22000	25000

Heating mode

T ¹ , °C	-7	20	Total heating capacity, kW	34	48	68	96	123	161	197	234	277
RH ¹ , %	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 ^{2,3} , kW/kW	9,7	10,4	12,8	10,8	15,1	19,2	17,4	16,7	16,3

Cooling mode

T ¹ , °C	35	27	Total cooling capacity, kW	18	26	50	54	73	93	115	127	154
RH ¹ , %	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 ^{2,3} , kW/kW	5,3	5,5	6,3	5,6	6,0	7,2	6,8	6,7	6,4

¹ – Conditions according to EN14511

² – Rotary heat exchanger wave size "L"

³ – Rotary heat exchanger + heat pump

⁴ – According to EN 14825 standard

T – temperature, °C

RH – relative humidity, %

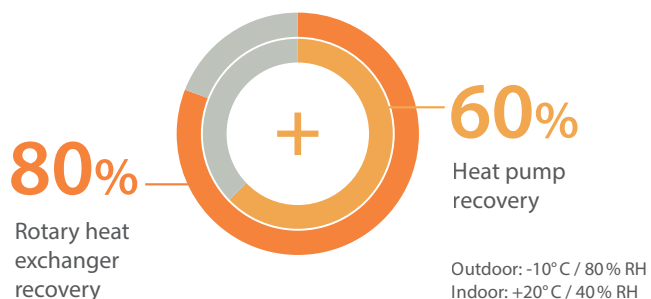
All HVAC systems in one unit



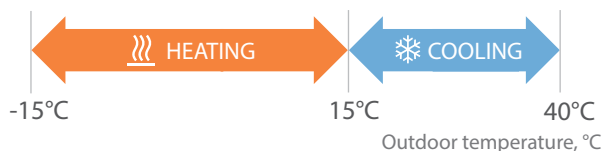
Thermal efficiency over 140%

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

- 1st step recovery by enthalpy rotary heat exchanger
- 2nd step recovery by reversible heat pump



Operation range

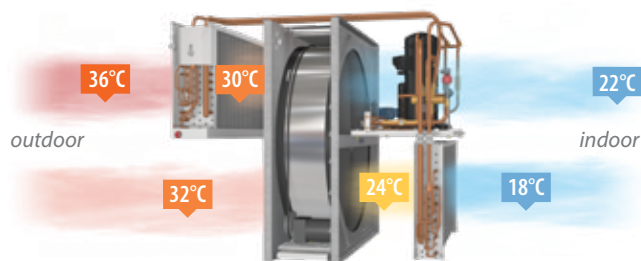


Optimised and efficient operation principles



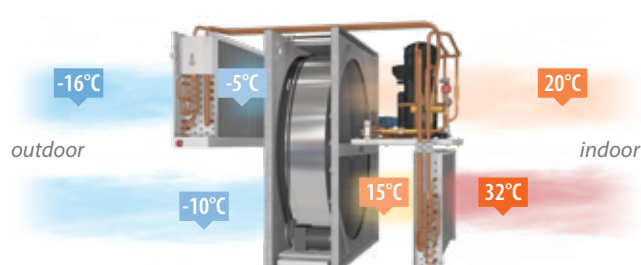
Cooling mode

Due to cooling recovery by rotary heat exchanger, air temperature after rotor is lower than outside air temperature. Condensation temperature in this case is lower, what results in reduced compressor electricity consumption comparing with outdoor condensing unit.



Heating mode

Highly efficient rotary heat exchanger is used for first stage heat recovery, recovering the biggest part of the heat of extracted air. For second stage heat recovery and supply air temperature control, heat pump is used.



Control system C5

Detailed information for the user

- Air flow indication (m³/h, m³/s, l/s)
- Thermal efficiency of the heat exchanger (%)
- Heat exchanger energy recovery (kW)
- Thermal energy saving indicator (%)
- Heat exchanger recovered energy counter (kWh)
- Air heater energy consumption* (kWh)
- Fans energy consumption* (kWh)
- SFP factor of the fans*
- Clogging level of filters* (%)

* Available in RHP Pro units only

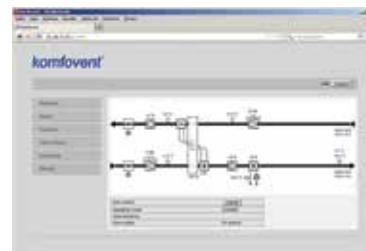


Various operating modes

- 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 be maintained.
- Flow control modes: Constant Air Volume, Variable Air Volume or Directly Controlled Volume.
- Universal operating schedule with up to 20 events, for which of them user can assign weekday(s) and one of five operation modes.
- Holliday scheduling allows the user to change operation mode or switch off the air handling unit at some dates of the year. Up to 10 events are possible.

Integrated web server

Air handling unit operation can be monitored and controlled via web browser. Implemented Modbus and BACnet protocols allow easy integration of air handling units to any desired Building Management Systems.



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.
- 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).

Android application

Application software for Android smartphones or tablets is specially developed for more convenient control. User-friendly interface enables clear and easy monitoring of air handling unit operation. Scan the QR codes below and download mobile applications:



“Komfovent” application for units with integrated C5 control system.