

## Suspended heat recovery air handling units

# KOMFORT Roto EC S

# KOMFORT Roto EC SE

Air capacity – up to 670 m<sup>3</sup>/h.  
Heat recovery efficiency – up to 85 %



### Description

Air handling units KOMFORT Roto EC S(E) are the ready-to-use ventilation units that provide air filtering, supply of fresh air to the premises and removal of stale air. Heat recovery from the exhaust air to the supply air is provided by the rotary heat exchanger. The units are used in ventilation systems installed in various premises that require reasonable energy saving solutions and controllable ventilation systems. The use of EC-motors allows to reduce the electricity consumption in 1,5-3 times while providing the high capacity and low noise level. All models are designed for connection to ø125, 160 and 200 mm round air ducts.

### Modifications

KOMFORT Roto EC S – model without electric heater.  
KOMFORT Roto EC SE – model with electric heater.

### Casing

The fan casing is made of galvanized steel soundproofed on the inside with mineral wool. The insulation of KOMFORT Roto EC SE200 is 20 mm, for KOMFORT Roto EC SE400 and 600 - 40 mm.

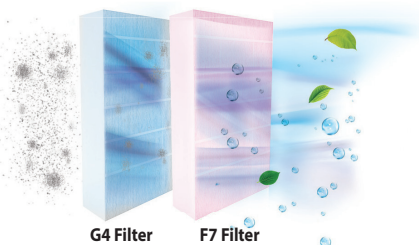
### Kitchen hood

All units are equipped with a 5 m spigot for kitchen hood air duct connection (see "Application example").  
The distinctive feature of KOMFORT Roto EC S(E) is the possibility to connect the kitchen hood DAH 251-13 (ordered separately) directly to the unit.



### Filter

The two built-in filters G4 and F7 are used for intake air filtration. The built-in filter G4 is used for extract air filtration.



### Motor

The unit is equipped with high-efficient EC-motors with an external rotor and a centrifugal impeller. These motors currently are the most cutting-edge solution in the field of energy conservation. The EC-motors are featured with high performance and totally controllable speed range. The high efficiency (up to 90%) is a definite advantage of the EC-motors.

### Heater

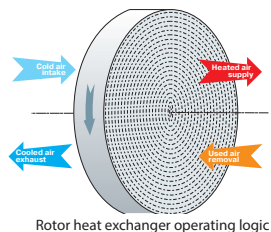
The KOMFORT Roto EC SE units are equipped with the electric heater. If the necessary temperature level of the supply air cannot be achieved through heat recovery, the heater turns on automatically and heats the air supplied to the premise. The heaters incorporate protective measures securing the safe unit operation.

### Designation key

Series	Heat exchanger type	Motor type	Mounting type	Heater type	Rated air capacity [m <sup>3</sup> /h]	Control panel
KOMFORT	R - rotary	EC – synchronous electronically commutated motor	S - vertical	- without heater E - electric heater	200; 400; 600	S17 - thTune S18 - pGD1

### Rotary heat exchanger

The rotary heat exchanger is a short rotating cylinder filled with aluminium band layered in such a way that both supply and exhaust air flows pass through it. The band the heat exchanger is made of first contacts the supply air flow and then the exhaust air flow. As a result it is heated and cooled in turns transferring heat and moisture from the warm air flow to the cold one. The advantages of the rotary heat exchanger compared to plate heat exchangers are the absence of condensate, comfortable humidity level maintenance and low freezing danger.



Rotor heat exchanger operating logic

### Automatics

The KOMFORT Roto EC S(E) S17 units are equipped with the thTune control panel with an LCD display.



The KOMFORT Roto EC S(E) S18 units are equipped with the pGD1 control panel with an LCD display.



The thTune and pGD1 panels are interchangeable.  
The standard delivery set includes a 10 m cable for connection to the control panel.

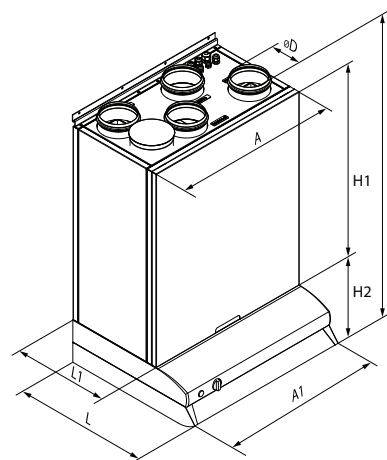
### Automatics functions

- Turning the unit on/off.
- Turning on the operation modes: Automatic mode, Ventilation mode (can be enabled only from the pGD1 control panel).
- Maintaining a pre-set room temperature by activating/deactivating the rotary heat exchanger.
  - Automatic reduction of the supply and exhaust ventilation air flow rate to obtain the user-defined minimum allowable supply air temperature.
  - Supply and exhaust fan control.
  - Unit operation according to a pre-programmed schedule.
  - Controlling the electric actuators of the supply and exhaust air dampers.
  - System shutdown on signal from fire fighting system.
  - When connecting external electrical heating elements and/or CCU to the unit the activation signal controls their operation if cooling/heating is required.
  - Filter contamination control by the number of operating hours.

### Mounting

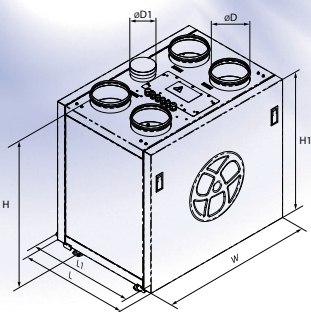
The air handling unit is designed for wall and floor mounting.  
The access for unit maintenance and filter replacement is available from the front panel.  
The front and the rear panels can switch places. This allows left or right-handed use of the unit.

### Overall dimensions, mm



Model	L	L1	H	H1	H2	A	A1	Ø D
KOMFORT Roto EC S2 200	510	347	901	700	135	598	600	124

### Overall dimensions, mm



Model	W	L	L1	H	H1	øD	øD1
KOMFORT Roto EC S400	780	528	543	755	675	159	99
KOMFORT Roto EC S600	819	628	643	852	772	199	124

### Technical data

Parameters	KOMFORT Roto EC S200	KOMFORT Roto EC S2E200	KOMFORT Roto EC S200	KOMFORT Roto EC S2E200	KOMFORT Roto EC S400	KOMFORT Roto EC SE400	KOMFORT Roto EC S600	KOMFORT Roto EC SE600
Voltage [V / 50-60 Hz]	1~230							
Max. unit power without electric heater [W]	80		80		175		380	
Max. unit power with electric heater [W]	-	780	-	780	-	1600	-	3200
Max. unit current without electric heater [A]	0.6		0.6		1.3		2.5	
Max. unit current with electric heater [A]	-	3.4	-	3.4	-	6.9	-	13.9
Max air flow [m³/h]	200		200		440		670	
RPM [min⁻¹]	1800		1800		3200		3230	
Sound pressure level at 3 m distance [dBA]	27		25		33		35	
Max. operating temperature [°C]	from -25 up to +60							
Case material	polymer coated steel							
Insulation	20 mm. mineral wool			20 mm. mineral wool				
Filter	Extract	G4		G4		G4		G4
	Supply	G4, F7		G4, F7		G4, F7		G4, F7
Connected air duct diameter [mm]	125				160		200	
Weight [kg]	47	48	48	49	81	82	90	92
Heat recovery efficiency [%]	up to 76 to 92				up to 76 to 85		up to 81 to 89	
Heat exchanger type	rotary							
Heat exchanger material	aluminum							
SEC class	A		A		A		A	

\*Heat recovery efficiency is specified in compliance with EN 13141-7.

Calculation of air temperature downstream of the heat exchanger:

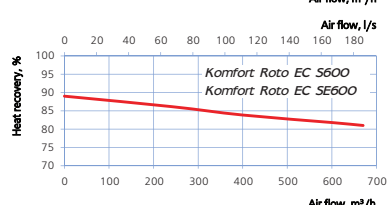
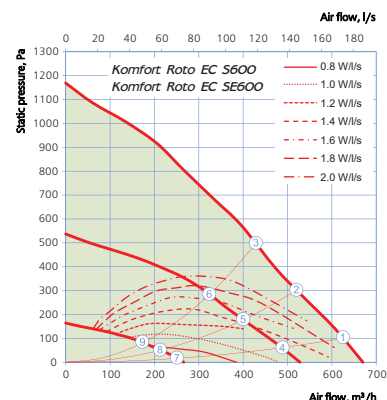
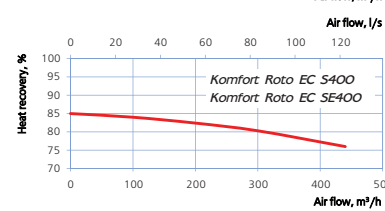
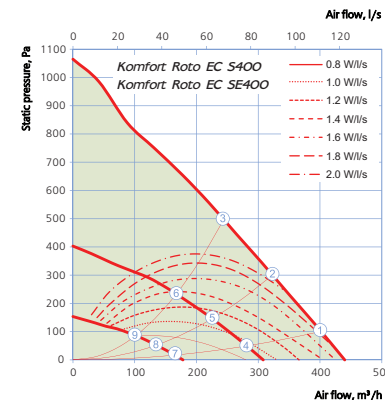
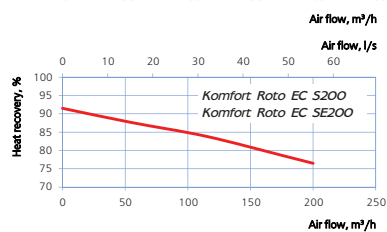
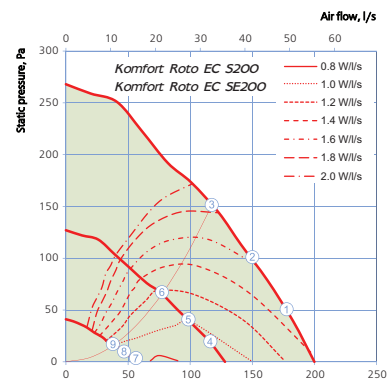
$$t_{out} = t_{out} + k_{he} * (t_{exh} - t_{out}) / 100,$$

where

$t_{out}$  – outdoor air temperature °C,

$t_{exh}$  – exhaust air temperature °C,

$k_{he}$  – heat recovery efficiency (according to the diagram), %.



KOMFORT Roto EC S200, KOMFORT Roto EC S200, KOMFORT Roto EC S2E200, KOMFORT Roto EC SE200

Sound-power level, A-weighted	Octave frequency band, Hz								LpA, 3m	LpA, 1m
	Gen	63	125	250	500	1000	2000	4000		
$L_{pA}$ to supply inlet, dB(A)	74	53	59	69	71	66	63	54	45	
$L_{pA}$ to supply outlet, dB(A)	61	46	45	59	56	46	38	25	13	
$L_{pA}$ to exhaust inlet, dB(A)	66	48	59	67	66	65	60	53	53	
$L_{pA}$ to exhaust outlet, dB(A)	60	42	53	58	55	44	34	26	24	
$L_{pA}$ to environment, dB(A)	47	26	37	45	42	34	34	28	20	27

Sound-power level, A-weighted	Octave frequency band, Hz								LpA, 3m	LpA, 1m
	Gen	63	125	250	500	1000	2000	4000		
$L_{pA}$ to supply inlet, dB(A)	71	50	56	66	68	63	60	51	43	
$L_{pA}$ to supply outlet, dB(A)	59	44	43	56	53	44	36	24	12	
$L_{pA}$ to exhaust inlet, dB(A)	68	46	56	64	63	62	57	50	50	
$L_{pA}$ to exhaust outlet, dB(A)	58	40	50	55	52	42	33	25	23	
$L_{pA}$ to environment, dB(A)	46	25	35	43	40	33	33	27	19	25

KOMFORT Roto EC S400, KOMFORT Roto EC SE400

Sound-power level, A-weighted	Octave frequency band, Hz								LpA, 3m	LpA, 1m
	Gen	63	125	250	500	1000	2000	4000		
$L_{pA}$ to supply inlet, dB(A)	59	27	46	54	55	53	48	44	35	
$L_{pA}$ to supply outlet, dB(A)	60	27	46	54	55	53	49	44	35	
$L_{pA}$ to exhaust inlet, dB(A)	55	25	41	50	51	44	42	39	30	
$L_{pA}$ to exhaust outlet, dB(A)	55	26	41	51	51	44	42	39	31	
$L_{pA}$ to environment, dB(A)	54	18	36	47	49	48	43	37	33	43

KOMFORT Roto EC S600, KOMFORT Roto EC SE600

Sound-power level, A-weighted	Octave frequency band, Hz								LpA, 3m	LpA, 1m
	Gen	63	125	250	500	1000	2000	4000		
$L_{pA}$ to supply inlet, dB(A)	82	65	63	65	80	74	74	68	64	
$L_{pA}$ to supply outlet, dB(A)	66	60	56	55	63	58	49	40	33	
$L_{pA}$ to exhaust inlet, dB(A)	82	64	67	71	81	77	79	75	67	
$L_{pA}$ to exhaust outlet, dB(A)	70	51	64	62	68	60	60	50	42	
$L_{pA}$ to environment, dB(A)	56	39	47	46	54	46	46	44	40	35

■ Accessories

		KOMFORT Roto EC S2 200	KOMFORT Roto EC S2E200	KOMFORT Roto EC S200	KOMFORT Roto EC SE200	KOMFORT Roto EC S400	KOMFORT Roto EC SE400	KOMFORT Roto EC S600	KOMFORT Roto EC SE600
G4 cassette filter		FP 103x284x60 G4			FP 196x436x40 G4		FP 220x536x40 G4		
F7 cassette filter		FP 103x284x60 F7			FP 196x436x40 F7		FP 220x536x40 F7		
External VOC sensor (0-10V)		DPWQ30600							
External CO <sub>2</sub> sensor (0-10V)		DPWQ40200							
External humidity sensor (0-10V)		DPWC11200							
External humidity sensor (NO)		Regin HR-S							
Internal humidity sensor (0-10V)		FS2							
Kitchen hood		DAH 251-13							
Silencers		SD 125			SD 160		SD 200		
		SDF 125			SDF 160		SDF 200		
Backdraft dampers		VRV 125			VRV 160		VRV 200		
Air dampers		VKA 125			VKA 160		VKA 200		
Electric actuator		LF230							
		TF230							

■ Application example

