

KOMFORT EC S(B)(-E) S11

Heat and humidity recovery air handling units

Features

- Air handling units for efficient energy saving supply and exhaust ventilation in flats, houses, cottages and other premises.
- Heat and humidity recovery minimizes ventilation heat losses during cold season and reduces air conditioner load during hot season.
- Controllable air exchange for creating the best suitable indoor microclimate.
- Compatible with round Ø 125, 160 or 200 mm air ducts.



Air flow:
up to 750 m³/h
208 l/s



Heat recovery efficiency:
up to 98 %



Design

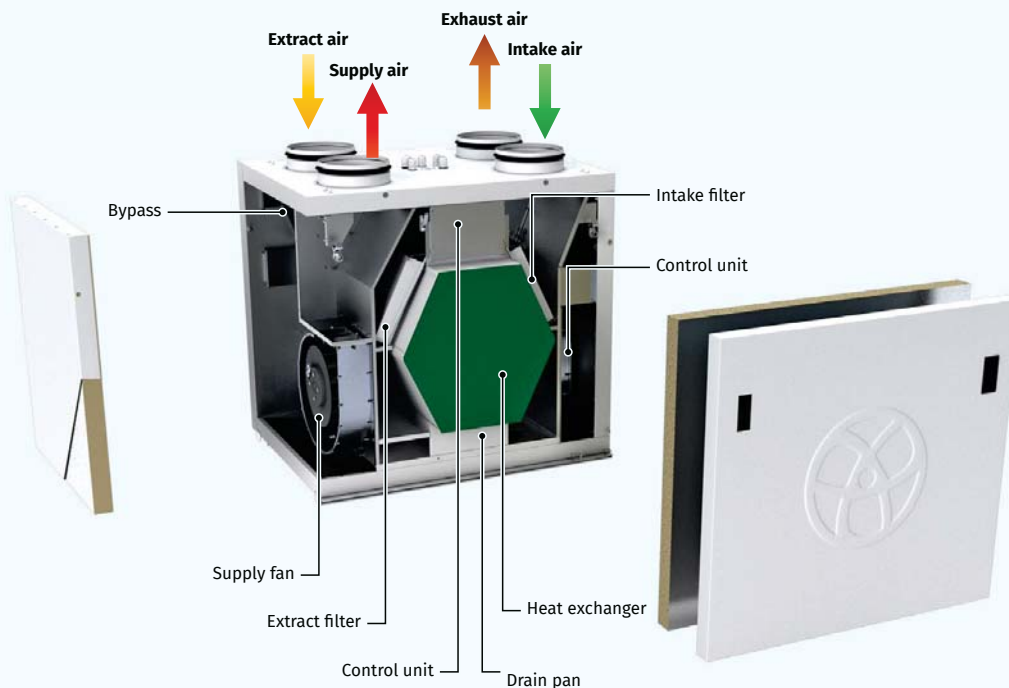
- The casing is made of double-skinned polymer-coated steel panels, internally filled with mineral wool layer.
- The spigots are located at the top of the unit and are rubber sealed for airtight connection to the air ducts.
- Depending on the unit model, the units may be equipped either with a hinged service panel to enable convenient access for maintenance operations or with a separate door for quick access to filters **KOMFORT EC S(B)250(-E) S11**.

Air filtration

- Two built-in G4 and F7 filters provide efficient supply air filtration. The G4 filter is used for extract air filtration.
- Supply air in the **KOMFORT EC S(B)250** units is purified by the G4 and F7 filters. The G4 filter is used for extract air cleaning.

Fans

- The units are equipped with high-efficient EC motors with an external rotor and a centrifugal impeller with backward curved blades.
- EC motors have the best power consumption to air capacity ratio and meet the latest demands concerning energy saving and high-efficient ventilation.
- EC motors are featured with high performance, low noise level and optimum control across the entire speed range.
- The impellers are dynamically balanced.



Heat recovery

The **KOMFORT EC S(B) ... S11** unit is equipped with a plate counter-flow polystyrene heat exchanger for heat recovery. In the unit condensate is collected and drained to the drain pan under the heat exchanger.



The **KOMFORT EC S(B)-E ... S11** unit is equipped with an enthalpy plate counter-flow heat exchanger for energy (heat and humidity) recovery. Due to humidity recovery condensate is not generated in the enthalpy heat exchanger.



- The air flows are completely separated in the heat exchanger. Thus smells and contaminants are not transferred from the extract air to the supply air.
- Heat recovery is based on heat and/or humidity transfer through the heat exchanger plates. In the cold season supply air is heated in the heat exchanger by transferring the heat energy of warm and humid extract air to the cold fresh air. Heat recovery minimizes ventilation heat losses and heating costs respectively.
- In the warm season the heat exchanger performs reverse and intake air is cooled in the heat exchanger by the cool extract air. That reduces operation load on air conditioners and saves electricity.
- When the indoor and outdoor temperature difference is insignificant, heat recovery is not reasonable. In this case the heat exchanger can be temporarily replaced with a summer block for the warm season (available as a specially ordered accessory).

FREEZE PROTECTION

- The integrated automatic freeze protection is used to prevent freezing of the heat exchanger in the cold season. The supply fan turns off according to the temperature sensor to get the heat exchanger warmed up with extract air. After that the supply fan turns on and the unit continues to run in the standard mode.

Bypass

- The **KOMFORT EC SB ... (-E) S11** units are equipped with a 100 % bypass for summer ventilation (air cooling by the cool air from outside).

Control and automation

- The units incorporate an integrated control system with the S11 wall-mounted control panel with an LCD display.
- S11 automation functions:**
 - Activating / deactivating the unit.
 - Setting required supply and extract fan speed for the unit air flow control. Each speed is individually adjusted during set-up.
 - Bypass damper opening / closing for summer ventilation.
 - Setting and maintaining room or duct air temperature.
 - Timer turning on/off and timer operation adjustment.
 - Setting day- and week-scheduled operation of the unit.
 - Operation control on feedback from FS1 duct humidity sensor (to be ordered separately) or from the humidity sensor in the control panel.
 - Filter clogging indication by motor meter.
 - System shutdown on signal from a fire alarm panel.
 - Controlling supply and exhaust air dampers (to be ordered separately).
 - Alarm indication with an error code indication.
 - Cooler control (to be ordered separately).



Mounting

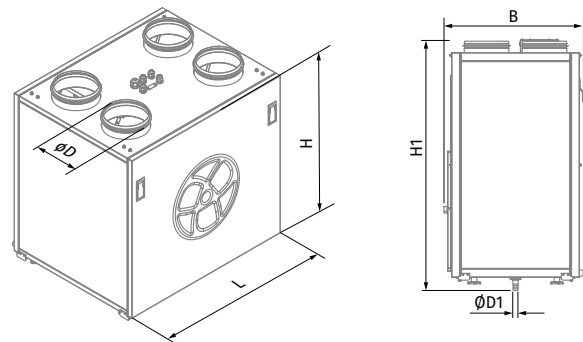
- The units can be fixed to the wall or mounted on the floor using the mounting brackets.
- While mounting provide free access to the service panel for filter replacement and servicing.
- Due to universal casing design both left and right mounting is possible. It requires swapping the service and the back panel.

Designation key

Series	Motor type	Spigot modification	Casing modification	Bypass	Nominal air flow [m³/h]	Heat exchanger type	Control
KOMFORT	EC: electronically commutated motor	S: vertically oriented spigots	-: standard	-: without a bypass B: integrated bypass	160; 250; 300; 350; 550	-: heat recovery -E: energy recovery	S11: sensor LCD control panel

Overall dimensions [mm]

Model	D	D1	B	H	H1	L
KOMFORT EC S160(-E) S11	125	18	348	550	650	600
KOMFORT EC SB160(-E) S11	125	18	348	580	690	600
KOMFORT EC S(B)250(-E) S11	160	18	489	788	881	567
KOMFORT EC SB350(-E) S11	160	18	610	675	758	730
KOMFORT EC SB550(-E) S11	200	18	741	675	758	828



Technical data

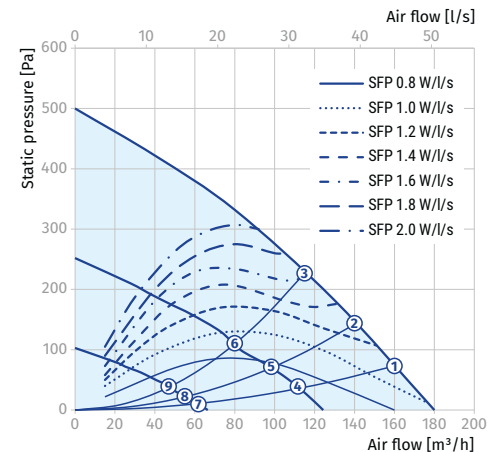
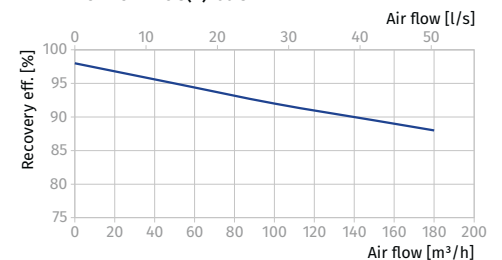
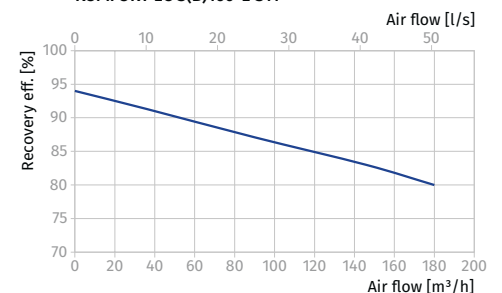
Parameters	KOMFORT EC S160 S11	KOMFORT EC S160-E S11	KOMFORT EC SB160 S11	KOMFORT EC SB160-E S11
Supply voltage [V / 50 (60) Hz]	230	230	230	230
Power [W]	51	51	51	51
Current [A]	0.4	0.4	0.4	0.4
Maximum air flow [m ³ /h (l/s)]	180 (50)	180 (50)	180 (50)	180 (50)
RPM [min ⁻¹]	3770	3770	3770	3770
Sound pressure level at a distance of 3 m [dBA]	24	24	24	24
Transported air temperature [°C]	-25...+40	-25...+40	-25...+40	-25...+40
Casing material	polymer-coated steel	polymer-coated steel	polymer-coated steel	polymer-coated steel
Insulation	20 mm mineral wool	20 mm mineral wool	20 mm mineral wool	20 mm mineral wool
Extract filter	G4	G4	G4	G4
Supply filter	F7 (option: G4)	F7 (option: G4)	F7 (option: G4)	F7 (option: G4)
Connected air duct diameter [mm]	125	125	125	125
Weight [kg]	42	42	44	44
Heat recovery efficiency [%]	88–98	80–94	88–98	80–94
Heat exchanger type	counter-flow	counter-flow	counter-flow	counter-flow
Heat exchanger material	polystyrene	enthalpy	polystyrene	enthalpy
SEC class	A	A	A	A
ErP	2016, 2018	2016, 2018	2016, 2018	2016, 2018

KOMFORT EC S(B)160(-E) S11

Sound power level, A-weighted	Total	Octave frequency band [Hz]								LpA 3 m [dBA]	LpA 1 m [dBA]
		63	125	250	500	1000	2000	4000	8000		
L _{WA} to supply inlet [dBA]	52	28	46	49	41	35	33	36	29		
L _{WA} to supply outlet [dBA]	60	32	52	58	47	37	36	41	35		
L _{WA} to exhaust inlet [dBA]	51	27	45	49	41	36	32	35	29		
L _{WA} to exhaust outlet [dBA]	60	31	50	59	48	36	36	41	32		
L _{WA} to environment [dBA]	45	25	41	42	34	31	28	27	22	24	34

Data provided for point 1 of the air flow diagram

Point	Total power of the unit [W]	Sound pressure level at 3 m (1 m) [dBA]
1	50	24 (34)
2	51	23 (33)
3	50	23 (33)
4	22	20 (30)
5	22	20 (30)
6	21	20 (30)
7	9	13 (23)
8	9	13 (23)
9	9	13 (23)


KOMFORT EC S(B)160 S11

KOMFORT EC S(B)160-E S11

Calculation of air temperature downstream of the heat exchanger:

$$t = t_{\text{outd}} + k_{\text{hr}} \times (t_{\text{extr}} - t_{\text{outd}}) / 100,$$

where
 t_{outd} – outdoor air temperature [°C]

 t_{extr} – extract air temperature [°C]

 k_{hr} – heat exchanger efficiency (according to the diagram) [%]

Parameters	KOMFORT EC S250 S11	KOMFORT EC S250-E S11	KOMFORT EC SB250 S11	KOMFORT EC SB250-E S11
Supply voltage [V / 50 (60) Hz]	230	230	230	230
Power [W]	115	115	115	115
Current [A]	0.9	0.9	0.9	0.9
Maximum air flow [m³/h (l/s)]	290 (81)	290 (81)	290 (81)	290 (81)
RPM [min⁻¹]	2050	2050	2050	2050
Sound pressure level at a distance of 3 m [dBA]	25	25	25	25
Transported air temperature [°C]	-25...+40	-25...+40	-25...+40	-25...+40
Casing material	polymer-coated steel	polymer-coated steel	polymer-coated steel	polymer-coated steel
Insulation	30 mm mineral wool	30 mm mineral wool	30 mm mineral wool	30 mm mineral wool
Extract filter	G4	G4	G4	G4
Supply filter	G4, F7	G4, F7	G4, F7	G4, F7
Connected air duct diameter [mm]	160	160	160	160
Weight [kg]	51	51	51	51
Heat recovery efficiency [%]	85-94	78-90	85-94	78-90
Heat exchanger type	counter-flow	counter-flow	counter-flow	counter-flow
Heat exchanger material	polystyrene	enthalpy	polystyrene	enthalpy
SEC class	A	A	A	A
ErP	2016, 2018	2016, 2018	2016, 2018	2016, 2018

KOMFORT EC S(B)250 (-E) S11

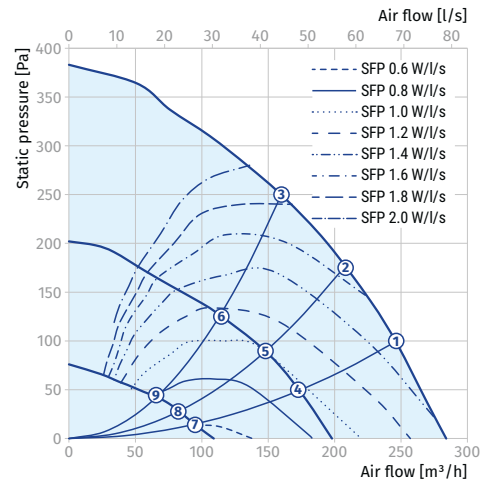
Sound power level, A-weighted	Total	Octave frequency band [Hz]								LpA 3 m [dBA]	LpA 1 m [dBA]
		63	125	250	500	1000	2000	4000	8000		
LWA to supply inlet [dBA]	52	28	46	50	41	36	33	36	29		
LWA to supply outlet [dBA]	61	33	53	60	48	38	37	43	36		
LWA to exhaust inlet [dBA]	52	28	46	50	42	36	33	35	30		
LWA to exhaust outlet [dBA]	62	32	51	61	49	37	37	42	33		
LWA to environment [dBA]	45	25	41	42	35	32	28	27	22	25	35

Data provided for point 1 of the air flow diagram

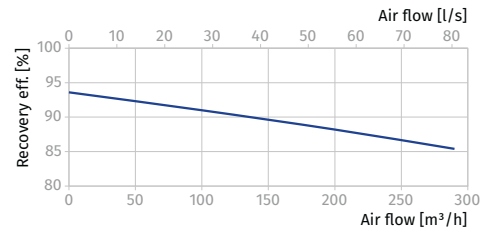
Point	Total power of the unit [W]	Sound pressure level at 3 m (1 m) [dBA]
1	106	25 (35)
2	95	24 (34)
3	82	24 (34)
4	44	20 (30)
5	40	19 (29)
6	36	19 (29)
7	16	13 (23)
8	15	12 (22)
9	15	12 (22)

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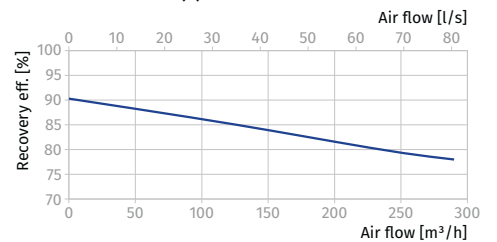
Exhaust spigot configuration	Air flow [l/s]	Specific fan power input [W/l/s]	Heat exchange efficiency [%]
Kitchen + 1 additional room with high level of humidity	21	0.65	92
Kitchen + 2 additional rooms with high levels of humidity	29	0.68	91
Kitchen + 3 additional rooms with high levels of humidity	37	0.77	90
Kitchen + 4 additional rooms with high levels of humidity	45	0.94	89
Kitchen + 5 additional rooms with high levels of humidity	53	1.12	88
Kitchen + 6 additional rooms with high levels of humidity	61	1.35	87
Kitchen + 7 additional rooms with high levels of humidity	69	1.70	86



KOMFORT EC S(B)250 S11



KOMFORT EC S(B)250-E S11



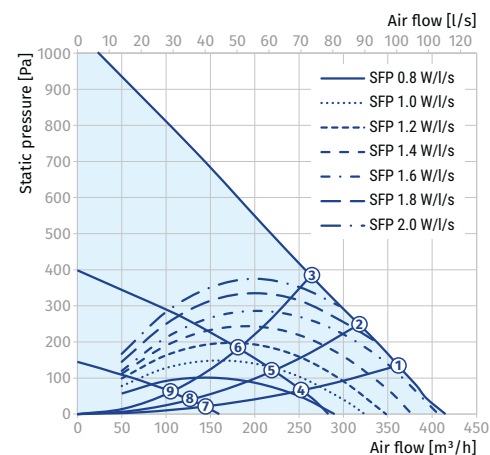
Parameters	KOMFORT EC SB350 S11	KOMFORT EC SB350-E S11
Supply voltage [V / 50 (60) Hz]	230	230
Power [W]	170	170
Current [A]	1.3	1.3
Maximum air flow [m ³ /h (l/s)]	415 (115)	415 (115)
RPM [min ⁻¹]	3200	3200
Sound pressure level at a distance of 3 m [dBA]	28	28
Transported air temperature [°C]	-25...+40	-25...+40
Casing material	polymer-coated steel	polymer-coated steel
Insulation	40 mm mineral wool	40 mm mineral wool
Extract filter	G4	G4
Supply filter	F7 (option: G4)	F7 (option: G4)
Connected air duct diameter [mm]	160	160
Weight [kg]	66	66
Heat recovery efficiency [%]	80-89	76-89
Heat exchanger type	counter-flow	counter-flow
Heat exchanger material	polystyrene	enthalpy
SEC class	A	A
ErP	2016, 2018	2016, 2018

KOMFORT EC SB350(-E) S11

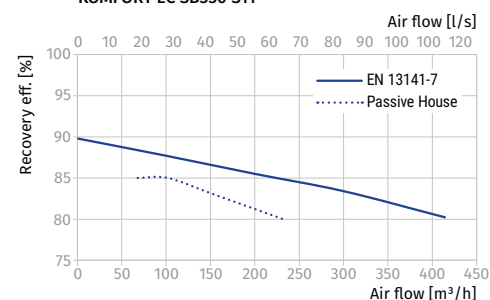
Sound power level, A-weighted	Total	Octave frequency band [Hz]								LpA 3 m [dBA]	LpA 1 m [dBA]
		63	125	250	500	1000	2000	4000	8000		
L _{WA} to supply inlet [dBA]	56	50	46	53	45	39	34	36	32		
L _{WA} to supply outlet [dBA]	64	56	52	63	52	39	38	43	35		
L _{WA} to exhaust inlet [dBA]	56	52	46	53	45	38	34	36	31		
L _{WA} to exhaust outlet [dBA]	64	58	53	62	51	40	38	42	33		
L _{WA} to environment [dBA]	49	45	40	44	38	33	29	27	22	28	38

Data provided for point 1 of the air flow diagram

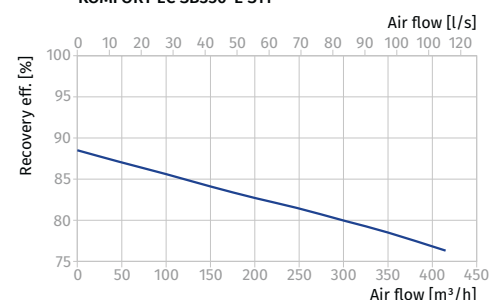
Point	Total power of the unit [W]	Sound pressure level at 3 m (1 m) [dBA]
1	165	28 (38)
2	165	27 (37)
3	165	27 (37)
4	63	23 (33)
5	62	22 (32)
6	60	22 (32)
7	21	15 (25)
8	20	14 (24)
9	20	14 (24)



KOMFORT EC SB350 S11



KOMFORT EC SB350-E S11



KOMFORT EC SB350 S11

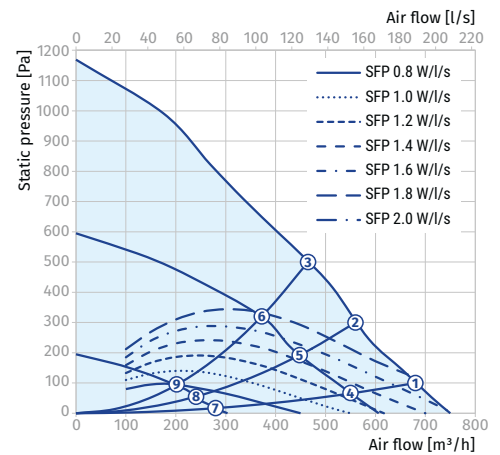
Parameters	KOMFORT EC SB550 S11	KOMFORT EC SB550-E S11
Supply voltage [V / 50 (60) Hz]	230	230
Power [W]	333	333
Current [A]	2.3	2.3
Maximum air flow [m³/h (l/s)]	750 (208)	750 (208)
RPM [min⁻¹]	3230	3230
Sound pressure level at a distance of 3 m [dBA]	26	26
Transported air temperature [°C]	-25...+40	-25...+40
Casing material	polymer-coated steel	polymer-coated steel
Insulation	40 mm mineral wool	40 mm mineral wool
Extract filter	G4	G4
Supply filter	F7 (option: G4)	F7 (option: G4)
Connected air duct diameter [mm]	200	200
Weight [kg]	83	83
Heat recovery efficiency [%]	85-88	72-92
Heat exchanger type	counter-flow	counter-flow
Heat exchanger material	polystyrene	enthalpy
SEC class	A	A
ErP	2016, 2018	2016, 2018

KOMFORT EC SB550(-E) S11

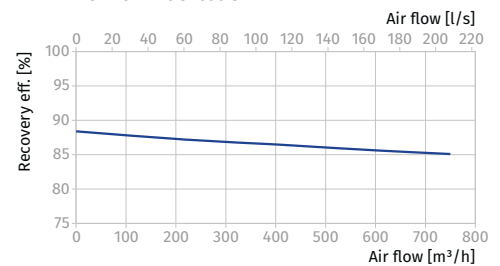
Sound power level, A-weighted	Total	Octave frequency band [Hz]								LpA 3 m [dBA]	LpA 1 m [dBA]
		63	125	250	500	1000	2000	4000	8000		
LWA to supply inlet [dBA]	54	47	42	50	44	41	39	39	31		
LWA to supply outlet [dBA]	69	63	56	65	59	55	50	52	46		
LWA to exhaust inlet [dBA]	54	47	41	51	43	33	31	34	30		
LWA to exhaust outlet [dBA]	65	61	50	61	55	46	43	46	40		
LWA to environment [dBA]	47	42	37	43	36	31	28	26	21	26	36

Data provided for point 1 of the air flow diagram

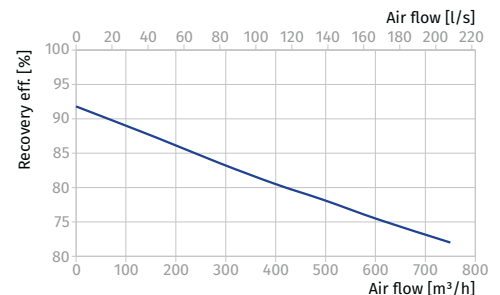
Point	Total power of the unit [W]	Sound pressure level at 3 m (1 m) [dBA]
1	332	26 (36)
2	331	26 (36)
3	332	25 (35)
4	133	24 (34)
5	129	24 (34)
6	126	22 (32)
7	32	15 (25)
8	31	14 (24)
9	30	13 (23)










KOMFORT EC SB550 S11










KOMFORT EC SB550-E S11



Accessories

		KOMFORT EC S160(-E) S11	KOMFORT EC SB160(-E) S11	KOMFORT EC S250(-E) S11	KOMFORT EC SB250(-E) S11
G4 panel filter		FP 285x195x10 G4	FP 285x195x10 G4	FP 417x200x18 G4	FP 417x200x18 G4
F7 panel filter		FP 285x195x10 F7	FP 285x195x10 F7	FP 417x184x18 F7	FP 417x184x18 F7
Internal humidity sensor		FS1	FS1	FS1	FS1
Electric preheater		EVH 125	EVH 125	EVH 160	EVH 160
Syphon kit (for the units without an enthalpy heat exchanger)		SFK 20x32	SFK 20x32	SFK 20x32	SFK 20x32
Air damper		VKA 125	VKA 125	VKA 160	VKA 160
Electric actuator		LF230	LF230	LF230	LF230
Summer block		SB C6 366/285	SB C6 366/285	SB C6 366/384	–

		KOMFORT EC SB350(-E) S11	KOMFORT EC SB550(-E) S11
G4 panel filter		FP 500x196x40 G4	FP 630x198x40 G4
F7 panel filter		FP 500x196x40 F7	FP 630x198x40 F7
Internal humidity sensor		FS1	FS1
Electric preheater		EVH 160	EVH 200
Syphon kit (for the units without an enthalpy heat exchanger)		SFK 20x32	SFK 20x32
Air damper		VKA 160	VKA 200
Electric actuator		LF230	LF230
Summer block		-	-