

# Box EC

## Centrifugal fans with EC motor

### Use

- Supply and extract ventilation systems installed in various premises.
- For arranging energy-saving and controllable ventilation systems.
- Compatible with 300x150 up to 1000x500 mm rectangular air ducts.



**Air flow:**  
up to 11190 m<sup>3</sup>/h  
3109 l/s



**Power:**  
from 91 W



**Noise level:**  
from 43 dBA



### Design

- Atmospheric resistant galvanized steel casing and impeller.
- The fan is rated for continuous operation always connected to power mains.
- Fitted with standard 20 mm connecting flanges for connection to rectangular air ducts.
- Access cover on the casing for inspection and maintenance operations.

### Motor

- High-efficient direct current EC motor with external rotor and backward curved blades.
- EC technology meets the up-to-date requirements to energy-saving and controllable ventilation and provides up to 35 % energy saving as compared to asynchronous motors.
- EC motor ensures totally controllable speed range for the fan and has integrated overheating protection with automatic restart.
- The turbine is dynamically balanced.
- The fan is compatible with 50 Hz and 60 Hz power mains and the maximum speed does not depend on power mains frequency.

### Speed control

- The fan is controlled with a 0-10 V external control signal, e.g. CDT E/0-10 speed controller for EC motors.
- The fan air capacity is regulated by various parameters, including temperature level, pressure, smoke, etc.
- When a control parameter changes the EC motor changes its rotation speed to provide the best suitable air flow.
- Data exchange between PC and fan for setting and control of operating parameters.
- The fans with EC motors can be integrated into a unified decentralized computerized network to adjust ventilation system with respect to specific user's demands.

### Mounting

- The fan is designed for mounting inside rectangular air ducts and can be installed in any position.
- The fan flanges are connected to the air ducts through the bolts inserted into the flange holes.
- Suitable for mounting into round duct on intake flange with a round flange reducer (available upon separate order).
- If flexible vibration-absorbing connectors are used to connect the fan to the air ducts provide their fixation to mounting structures with supports or brackets.
- While mounting provide enough space for accessing the cover for service operations.

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### Designation key

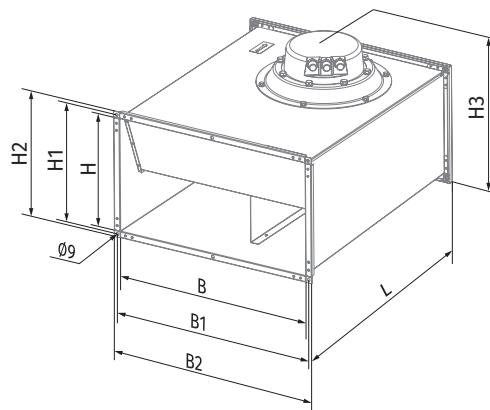
Series	Motor type	Flange size (width x height) [cm]	Phase	Motor modifications
Box	EC: electronically commutated motor	30x15; 40x20; 50x25; 50x30; 60x30; 60x35; 70x40; 80x50; 90x50; 100x50	1: single-phase 3: three-phase	_: standard type max: high-powered motor;

### Accessories

Silencer	Filter box	Filter box with pocket filter	Electric heater	Water heater	Air damper	Gravity damper	Flexible antivibration connector	Speed controller
SD	KFBK	KFBT	EKH	WKH	SL	VG	EVA	CDT E/0-10

**Overall dimensions [mm]**

Type	B	B1	B2	H	H1	H2	H3	L	Weight [kg]
Box EC 30x15-1	300	320	340	150	170	190	228	350	5.5
Box EC 30x15-1 max	300	320	340	150	170	190	228	350	6.0
Box EC 40x20-1	400	420	440	200	220	240	278	440	8.3
Box EC 40x20-1 max	400	420	440	200	220	240	286	440	10.0
Box EC 50x25-1	500	520	540	250	270	290	328	530	15.7
Box EC 50x25-1 max	500	520	540	250	270	290	360	530	17.9
Box EC 50x30-1 max	500	520	540	300	320	340	410	530	18.7
Box EC 60x30-1	600	620	640	300	320	340	407	650	24.1
Box EC 60x35-3 max	600	620	640	350	370	390	512	650	36.0
Box EC 60x35-1	600	620	640	350	370	390	457	650	25.2
Box EC 70x40-3 max	700	720	740	400	420	440	555	750	43.0
Box EC 70x40-1	700	720	740	400	420	440	496	750	42.2
Box EC 80x50-3 max	800	820	840	500	520	540	670	850	54.3
Box EC 80x50-3	800	820	840	500	520	540	614	850	62.3
Box EC 90x50-3 max	900	920	940	500	520	540	656	950	72.0
Box EC 100x50-3 max	1000	1020	1040	500	520	540	656	950	77.0



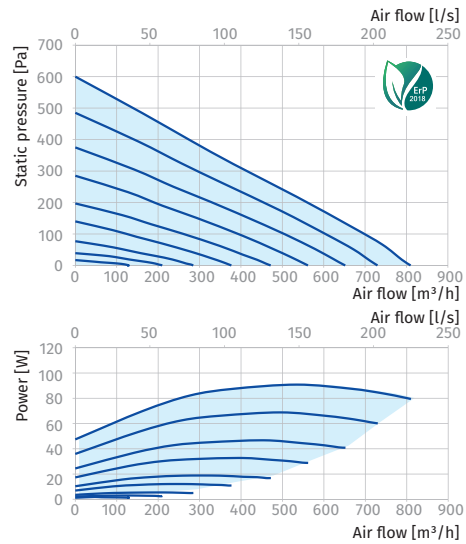
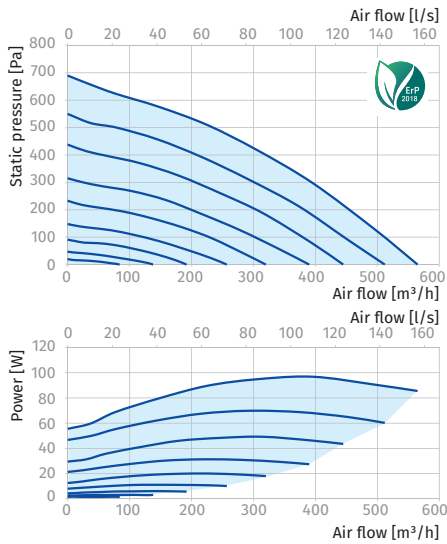
Parameters	Box EC 30x15-1	Box EC 30x15-1 max	Box EC 40x20-1	Box EC 40x20-1 max
Voltage [V / 50 (60) Hz]	1~200-277	1~200-277	1~200-277	1~200-277
Power [W]	97	101	91	192
Current [A]	0.73	0.80	0.69	1.43
Maximum air flow [m³/h (l/s)]	565 (157)	665 (185)	810 (225)	1190 (331)
RPM [min <sup>-1</sup> ]	3300	3500	2470	3010
Sound pressure at 3 m [dBA]	44	46	43	47
Transported air temperature [°C]	-25...+50	-25...+50	-25...+50	-25...+50
SEC class	B	B	B	-
Ingress protection rating	IPX4	IPX4	IPX4	IPX4
Motor IP rating	IP55	IP54	IP55	IP54
ErP	2018	2018	2018	2018

**BOX EC 30x15-1**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
L <sub>WA</sub> to inlet [dBA]	75	53	63	69	72	63	62	63	55	54	64
L <sub>WA</sub> to outlet [dBA]	78	57	63	70	73	69	71	68	60	57	67
L <sub>WA</sub> to environment [dBA]	64	35	51	53	62	58	54	48	40	44	54

**BOX EC 40x20-1**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
L <sub>WA</sub> to inlet [dBA]	76	40	55	72	65	69	67	65	60	55	65
L <sub>WA</sub> to outlet [dBA]	78	37	52	70	71	69	73	68	61	57	67
L <sub>WA</sub> to environment [dBA]	63	39	47	61	57	52	51	46	39	43	53

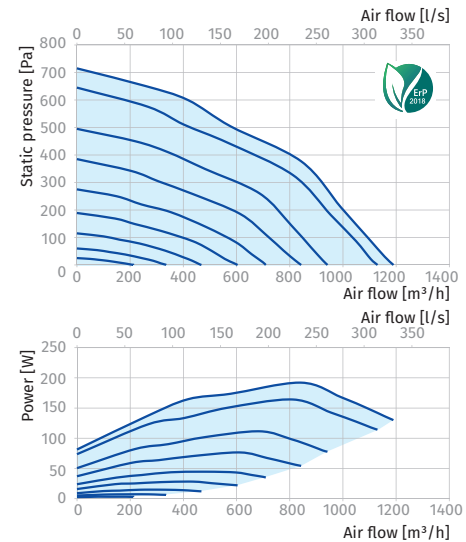
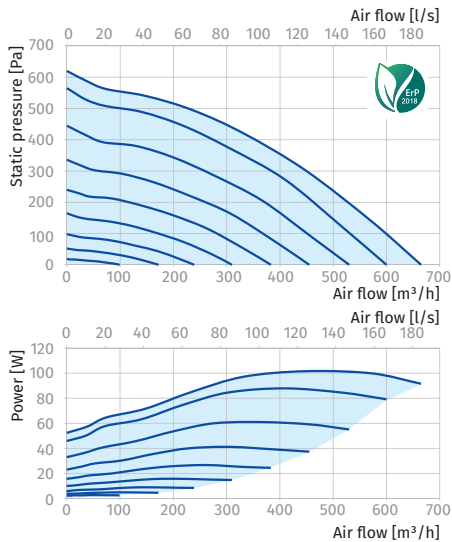


**BOX EC 30x15-1 MAX**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
L <sub>WA</sub> to inlet [dBA]	76	54	64	70	73	64	63	64	56	56	66
L <sub>WA</sub> to outlet [dBA]	80	59	65	73	75	72	74	71	62	60	70
L <sub>WA</sub> to environment [dBA]	67	37	53	55	64	60	56	50	42	46	56

**BOX EC 40x20-1 MAX**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
L <sub>WA</sub> to inlet [dBA]	83	50	79	75	76	76	72	66	65	62	72
L <sub>WA</sub> to outlet [dBA]	82	47	75	74	76	77	69	63	60	61	71
L <sub>WA</sub> to environment [dBA]	68	48	65	61	58	58	51	44	40	47	57



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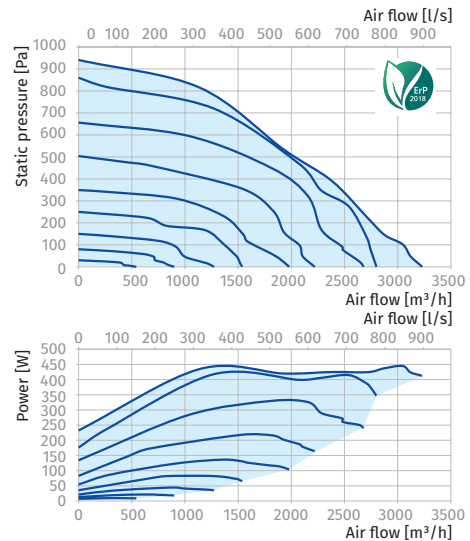
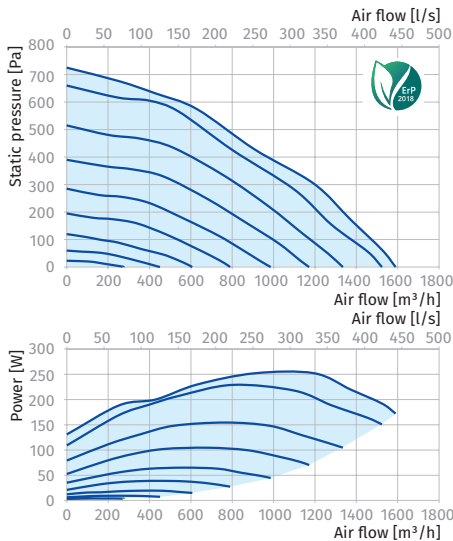
Parameters	Box EC 50x25-1	Box EC 50x25-1 max	Box EC 50x30-1 max	Box EC 60x30-1
Voltage [V/50 (60) Hz]	1~200-277	1~200-277	1~200-277	1~200-277
Power [W]	252	444	445	326
Current [A]	1.85	3.35	3.33	2.45
Maximum air flow [m³/h (l/s)]	1590 (442)	2870 (797)	3230 (897)	2545 (707)
RPM [min⁻¹]	2500	3100	3100	2000
Sound pressure at 3 m [dBA]	45	51	51	48
Transported air temperature [°C]	-25...+50	-25...+50	-25...+50	-25...+50
SEC class	-	-	-	-
Ingress protection rating	IPX4	IPX4	IPX4	IPX4
Motor IP rating	IP54	IP54	IP54	IP54
ErP	2018	2018	2018	2018

**BOX EC 50x25-1**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
LWA to inlet [dBA]	78	41	57	75	67	71	69	67	62	57	67
LWA to outlet [dBA]	80	38	54	72	73	71	75	70	63	59	69
LWA to environment [dBA]	65	40	48	63	59	54	53	47	40	45	55

**BOX EC 50x30-1 MAX**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
LWA to inlet [dBA]	85	50	80	78	78	78	75	69	67	65	75
LWA to outlet [dBA]	85	48	79	76	78	79	72	66	62	64	74
LWA to environment [dBA]	72	49	70	65	60	60	54	46	40	51	61

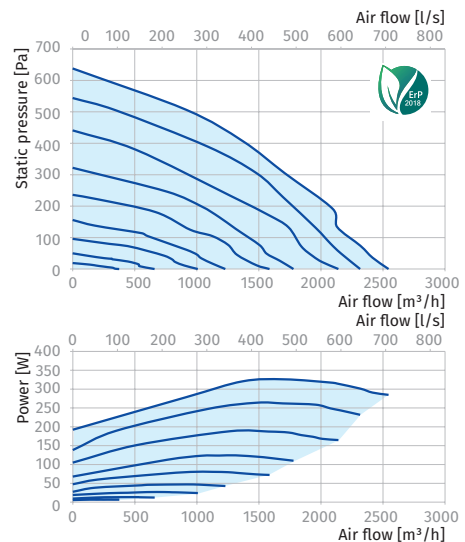
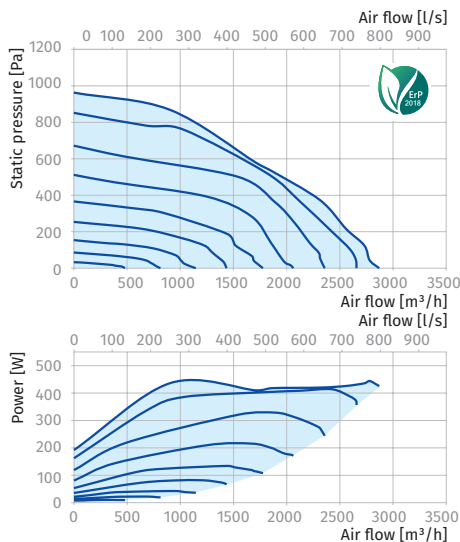


**BOX EC 50x25-1 MAX**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
LWA to inlet [dBA]	86	53	82	78	79	79	75	69	68	66	76
LWA to outlet [dBA]	85	48	78	77	79	80	72	66	63	64	74
LWA to environment [dBA]	72	50	69	65	62	62	55	46	42	51	61

**BOX EC 60x30-1**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
LWA to inlet [dBA]	80	42	58	77	69	73	71	69	64	60	70
LWA to outlet [dBA]	83	40	56	76	77	75	79	73	66	63	73
LWA to environment [dBA]	68	42	51	66	62	56	55	50	42	48	58



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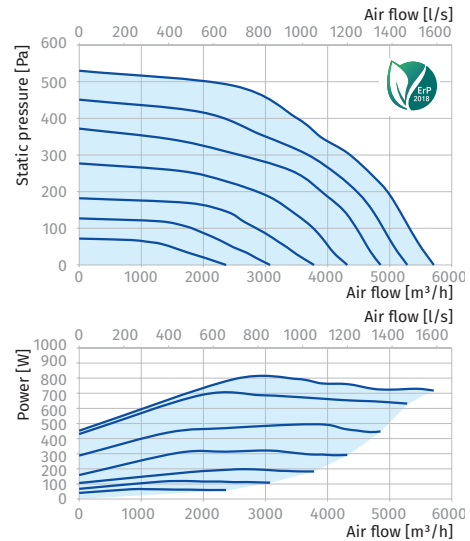
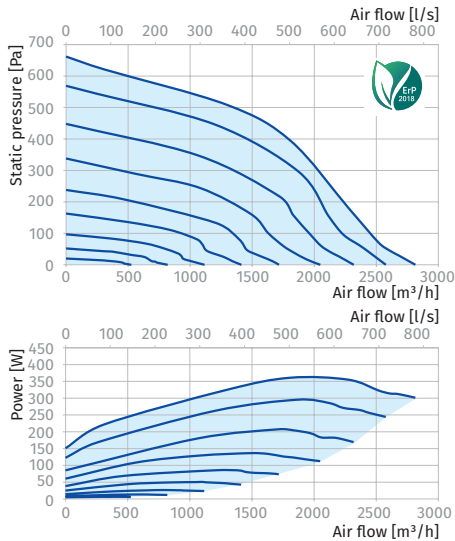
Parameters	Box EC 60x35-1	Box EC 60x35-3 max	Box EC 70x40-1	Box EC 70x40-3 max
Voltage [V/50 (60) Hz]	1~200-277	3~380-480	1~200-277	3~380-480
Power [W]	361	1308	795	2748
Current [A]	2.62	2.35	3.48	2.80
Maximum air flow [m³/h (l/s)]	2815 (782)	4290 (1192)	5710 (1586)	6810 (1892)
RPM [min <sup>-1</sup> ]	2000	3160	1400	2530
Sound pressure at 3 m [dBA]	49	55	53	57
Transported air temperature [°C]	-25...+50	-25...+50	-25...+50	-25...+50
SEC class	-	-	-	-
Ingress protection rating	IPX4	IPX4	IPX4	IPX4
Motor IP rating	IP54	IP54	IP54	IP54
ErP	2018	2018	2018	2018

**BOX EC 60x35-1**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen. 63	125	250	500	1000	2000	4000	8000			
LwA to inlet [dBA]	81	43	59	78	70	75	73	70	65	61	71
LwA to outlet [dBA]	85	41	57	77	78	76	80	75	67	64	74
LwA to environment [dBA]	69	43	52	67	63	57	56	50	43	49	59

**BOX EC 70x40-1**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen. 63	125	250	500	1000	2000	4000	8000			
LwA to inlet [dBA]	85	45	62	82	74	78	76	74	68	64	74
LwA to outlet [dBA]	88	43	60	81	82	79	84	78	70	68	78
LwA to environment [dBA]	74	46	55	72	67	61	60	54	46	53	63

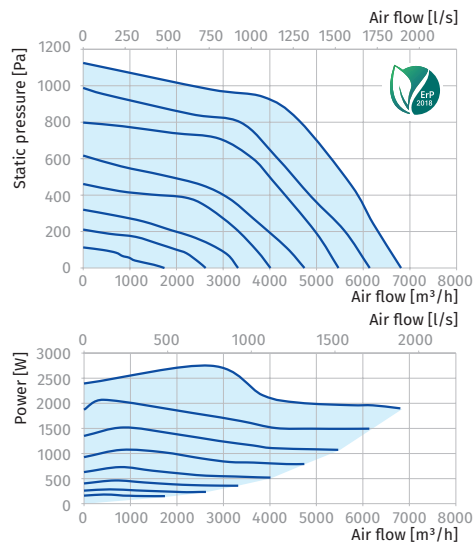
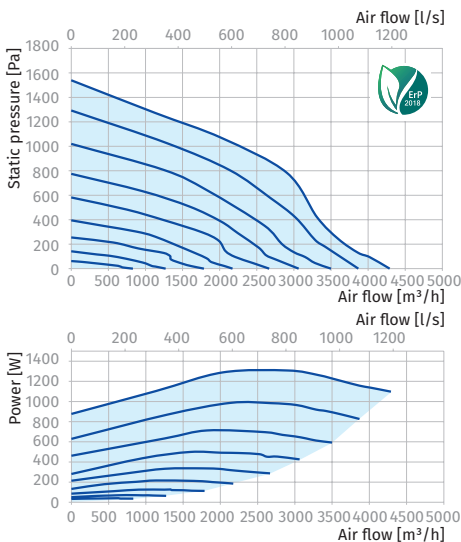


**BOX EC 60x35-3 MAX**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen. 63	125	250	500	1000	2000	4000	8000			
LwA to inlet [dBA]	89	53	84	82	82	79	72	70	69	79	
LwA to outlet [dBA]	88	50	83	80	82	83	76	69	65	68	78
LwA to environment [dBA]	76	52	74	68	63	63	57	49	43	55	65

**BOX EC 70x40-3 MAX**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen. 63	125	250	500	1000	2000	4000	8000			
LwA to inlet [dBA]	88	57	81	79	82	81	78	74	75	67	77
LwA to outlet [dBA]	92	56	82	85	85	86	81	75	75	71	81
LwA to environment [dBA]	77	55	75	71	67	65	60	55	52	57	67



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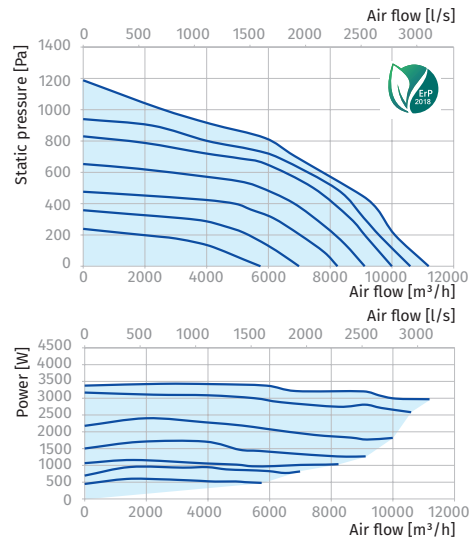
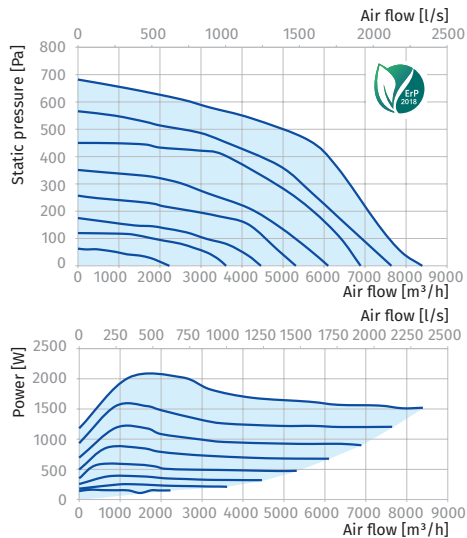
Parameters	Box EC 80x50-3	Box EC 80x50-3 max	Box EC 90x50-3 max	Box EC 100x50-3 max
Voltage [V/50 (60) Hz]	3~380-480	3~380-480	3~380-480	3~380-480
Power [W]	2025	2925	3429	3429
Current [A]	2.01	3.05	5.00	5.00
Maximum air flow [m³/h (l/s)]	8395 (2332)	8535 (2371)	11190 (3109)	11190 (3109)
RPM [min⁻¹]	1470	2400	1800	1800
Sound pressure at 3 m [dBA]	60	63	66	66
Transported air temperature [°C]	-25...+50	-25...+50	-25...+50	-25...+50
SEC class	-	-	-	-
Ingress protection rating	IPX4	IPX4	IPX4	IPX4
Motor IP rating	IP54	IP54	IP54	IP54
ErP	2018	2018	2018	2018

**BOX EC 80x50-3**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
L <sub>WA</sub> to inlet [dBA]	89	47	65	86	77	82	80	77	71	68	78
L <sub>WA</sub> to outlet [dBA]	92	44	62	84	85	83	88	82	73	71	81
L <sub>WA</sub> to environment [dBA]	81	50	61	79	74	67	66	59	50	60	70

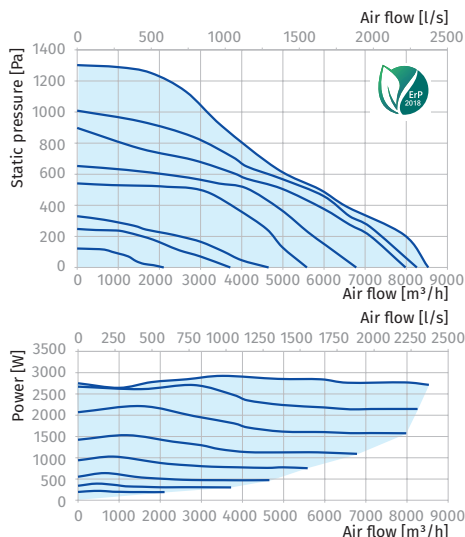
**BOX EC 90x50-3 MAX, BOX EC 100x50-3 MAX**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
L <sub>WA</sub> to inlet [dBA]	92	60	85	83	87	85	82	78	79	71	81
L <sub>WA</sub> to outlet [dBA]	94	58	85	88	88	89	84	77	77	74	84
L <sub>WA</sub> to environment [dBA]	86	62	84	80	75	73	67	62	58	66	76



**BOX EC 80x50-3 MAX**

Sound power level, A-weighted	Octave frequency bands [Hz]								LpA, 3 m [dBA]	LpA, 1 m [dBA]	
	Gen.	63	125	250	500	1000	2000	4000			8000
L <sub>WA</sub> to inlet [dBA]	90	59	83	81	85	83	80	76	77	70	80
L <sub>WA</sub> to outlet [dBA]	93	57	84	87	87	88	83	76	76	73	83
L <sub>WA</sub> to environment [dBA]	83	59	81	77	72	70	65	59	56	63	73



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