

# Box-I EC

## Centrifugal fans in sound-insulated casing 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



### Design

- Atmospheric resistant galvanized steel casing.
- The casing is heat- and sound-insulated with the mineral wool.
- 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.
- EC motor has no friction and wearing parts as capacitor and brushes. Instead a maintenance-free EC controller electronic circuit board is used.
- The impeller 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 speed is controlled with a 0–10 V control signal from the following sources:
  - integrated or external speed controller
  - controller with sensors
  - central BMS system.
- The control signal value changes depending on air temperature, pressure, smoke concentration and other parameters.
- During signal value change the fan with EC motor correspondingly changes the rotations speed and delivers required air volume to the ventilation system.
- The computer central building management systems (BMS) enable integration of several EC motors in network and precise individual operation control for each fan.

### 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).
- When connecting the fans to the air ducts through the flexible anti-vibration connectors, as well as for sizes 600x300 and above, the fan must be secured to a mounting surface with supports, hanger brackets or brackets.
- While mounting provide enough space for accessing the cover for service operations.

INLINE FANS FOR RECTANGULAR DUCTS

### Designation key

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

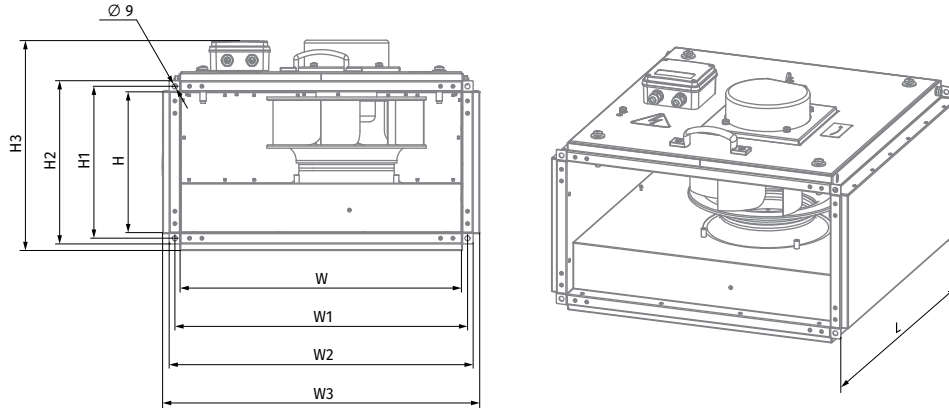
### Accessories

Silencers	Filter boxes	Electric heaters	Water heaters	Air dampers	Gravity dampers	Flexible antivibration connectors	Speed controllers	
								
SD	KFBK	KFBT	EKH	WKH	SL	VG	EVA	CDT E/0-10

**Dimensions [mm]**

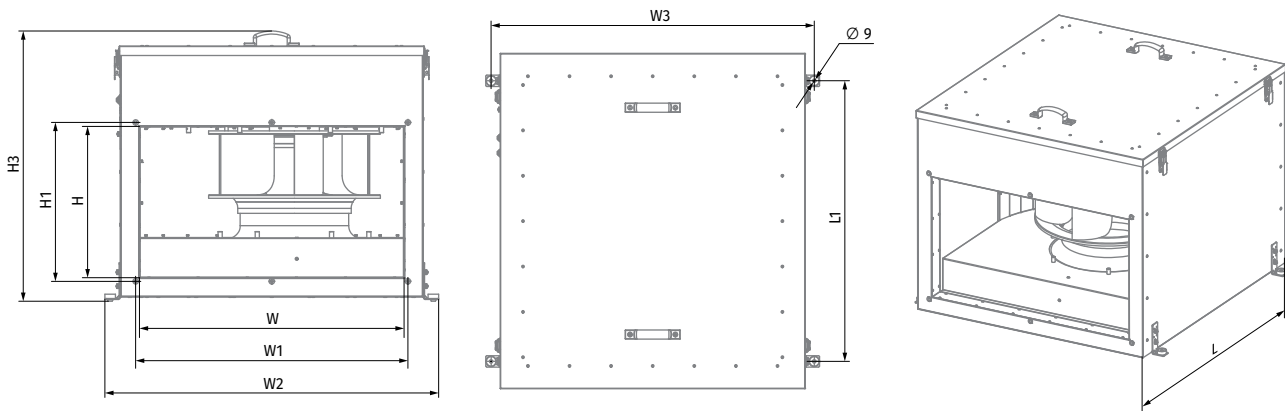
**BOX-I EC 30X15 – BOX-I EC 50X30**

Type	H	H1	H2	H3	L	W	W1	W2	W3	Weight [kg]
Box-I EC 30x15-1	150	170	190	271	370	300	320	340	364	10.3
Box-I EC 30x15-1 max	150	170	190	271	370	300	320	340	364	10.8
Box-I EC 40x20-1	200	220	240	322	460	400	420	440	464	15.1
Box-I EC 40x20-1 max	200	220	240	322	460	400	420	440	464	16.8
Box-I EC 50x25-1	250	270	290	373	560	500	520	540	564	25.5
Box-I EC 50x25-1 max	250	270	290	373	560	500	520	540	564	27.7
Box-I EC 50x30-1 max	300	320	340	424	560	500	520	540	564	29



**BOX-I EC 60X30 – BOX-I EC 100X50**

Type	H	H1	H3	L	L1	W	W1	W2	W3	Weight [kg]
Box-I EC 60x30-1	300	320	574	752	450	600	620	783	755	52.9
Box-I EC 60x30-1 max	300	320	574	787	450	600	620	783	755	54.4
Box-I EC 60x35-1	350	370	664	752	450	600	620	783	755	56.6
Box-I EC 60x35-3 max	350	370	664	752	450	600	620	783	750	59.3
Box-I EC 70x40-1	400	420	714	882	742	700	720	883	855	82.6
Box-I EC 70x40-3 max	400	420	714	882	742	700	720	883	855	83.4
Box-I EC 80x50-3	500	520	814	937	797	800	820	983	955	108.4
Box-I EC 80x50-3 max	500	520	814	937	797	800	820	983	955	99.8
Box-I EC 90x50-3 max	500	520	814	1037	800	900	920	1083	1055	125.0
Box-I EC 100x50-3 max	500	520	814	1037	800	1000	1020	1183	1155	132.0



**Technical data**

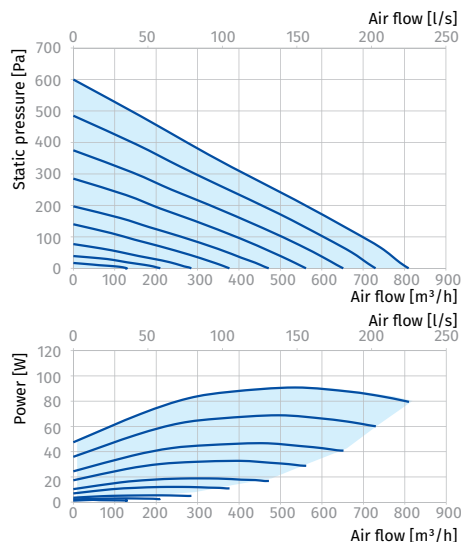
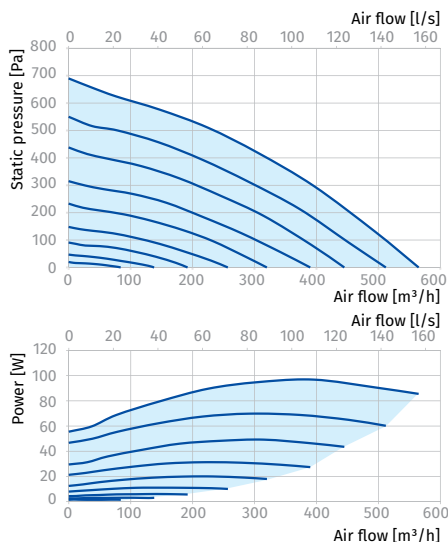
Parameters	Box-I EC 30x15-1	Box-I EC 30x15-1 max	Box-I EC 40x20-1	Box-I EC 40x20-1 max
Voltage [V / 50 (60) Hz]	1 ~ 230	1 ~ 230	1 ~ 230	1 ~ 230
Power [W]	97	101	91	192
Current [A]	0.73	0.80	0.69	1.43
Maximum air flow [m <sup>3</sup> /h (l/s)]	565 (157)	665 (185)	810 (225)	1190 (331)
RPM [min <sup>-1</sup> ]	3300	3500	2470	3010
Sound pressure at 3 m [dBA]	29	30	33	30
Transported air temperature [°C]	-25...+50	-25...+50	-25...+50	-25...+50
SEC class	B	B	B	-
IP rating	IPX4	IPX4	IPX4	IPX4
Motor IP rating	IP55	IP54	IP55	IP54
ErP	2018	2018	2018	2018

**BOX-I EC 30x15-1**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	57	39	46	51	53	46	46	46	41	36	46
LWA to outlet [dBA]	61	44	48	54	56	53	54	52	46	41	51
LWA to environment [dBA]	50	27	38	40	46	43	40	36	30	29	39

**BOX-I EC 40x20-1**

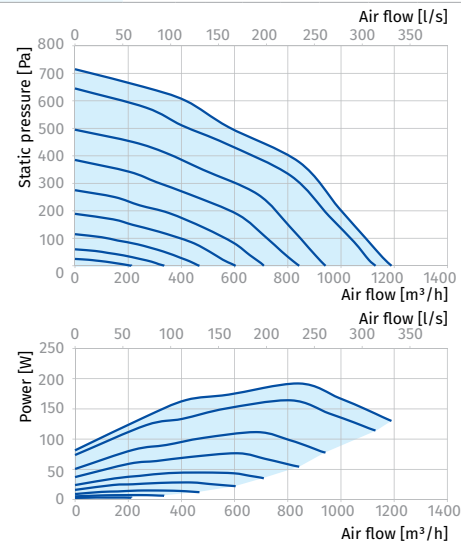
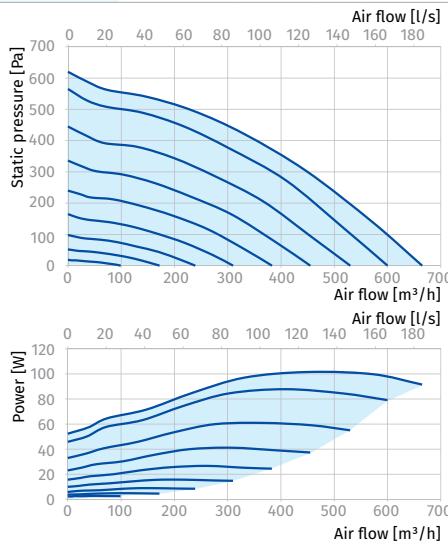
Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	63	33	45	59	54	57	55	54	49	43	53
LWA to outlet [dBA]	65	30	43	57	58	57	60	56	50	44	54
LWA to environment [dBA]	53	32	39	50	47	43	42	38	32	33	43


**BOX-I EC 30x15-1 MAX**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	57	40	47	51	53	47	46	47	41	37	47
LWA to outlet [dBA]	62	44	49	54	57	54	55	53	46	42	52
LWA to environment [dBA]	51	27	39	40	47	44	41	37	31	30	40

**BOX-I EC 40x20-1 MAX**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	62	36	57	54	54	54	52	47	47	41	51
LWA to outlet [dBA]	63	35	56	55	57	57	52	47	45	42	52
LWA to environment [dBA]	51	35	47	44	42	42	37	32	29	30	40



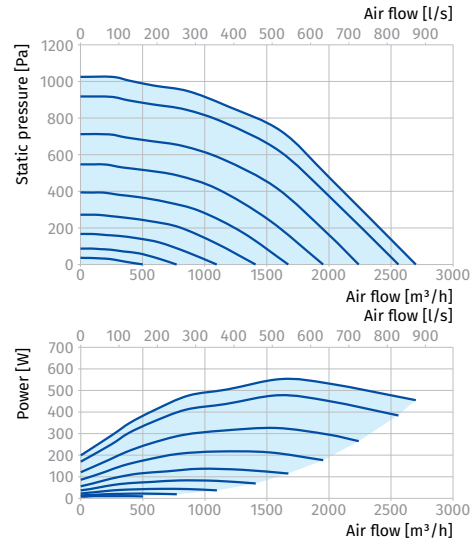
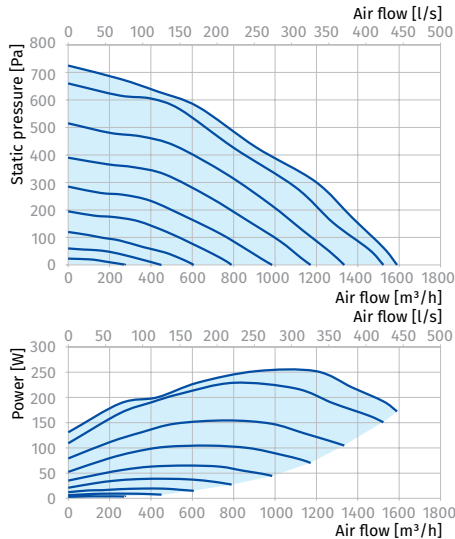
Parameters	Box-I EC 50x25-1	Box-I EC 50x25-1 max	Box-I EC 50x30-1 max	Box-I EC 60x30-1
Voltage [V/50 (60) Hz]	1 ~ 230	1 ~ 230	1 ~ 230	1 ~ 230
Power [W]	252	555	553	326
Current [A]	1.85	4.10	4.20	2.45
Maximum air flow [m³/h (l/s)]	1590 (442)	2480 (689)	2700 (750)	2545 (707)
RPM [min⁻¹]	2500	3100	3100	2000
Sound pressure at 3 m [dBA]	34	51	43	34
Transported air temperature [°C]	-25...+50	-25...+50	-25...+50	-25...+50
SEC class	-	-	-	-
IP rating	IPX4	IPX4	IPX4	IPX4
Motor IP rating	IP54	IP54	IP54	IP54
ErP	2018	2018	2018	2018

**BOX-I EC 50x25-1**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	64	38	59	56	57	57	54	49	49	44	54
LWA to outlet [dBA]	64	35	57	56	58	58	52	48	46	43	53
LWA to environment [dBA]	54	37	51	48	45	45	40	34	31	34	44

**BOX-I EC 50x30-1 MAX**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	75	45	70	67	68	68	64	59	58	54	64
LWA to outlet [dBA]	75	42	68	67	69	69	62	57	54	54	64
LWA to environment [dBA]	64	44	61	57	55	55	48	40	37	43	53

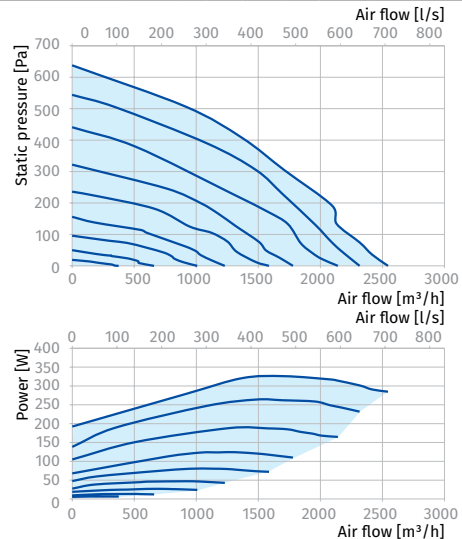
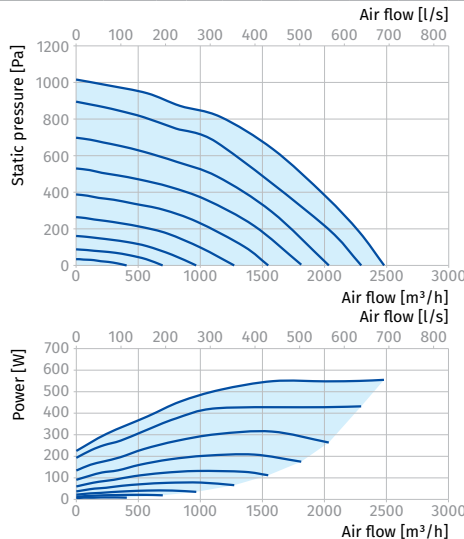


**BOX-I EC 50x25-1 MAX**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	74	45	70	66	67	67	64	58	58	54	64
LWA to outlet [dBA]	72	41	65	64	66	67	60	55	53	52	62
LWA to environment [dBA]	62	43	59	55	53	53	47	39	36	41	51

**BOX-I EC 60x30-1**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	63	32	45	59	53	57	55	53	49	43	53
LWA to outlet [dBA]	64	30	42	57	58	56	59	55	49	44	54
LWA to environment [dBA]	54	33	40	51	48	44	43	39	33	34	44



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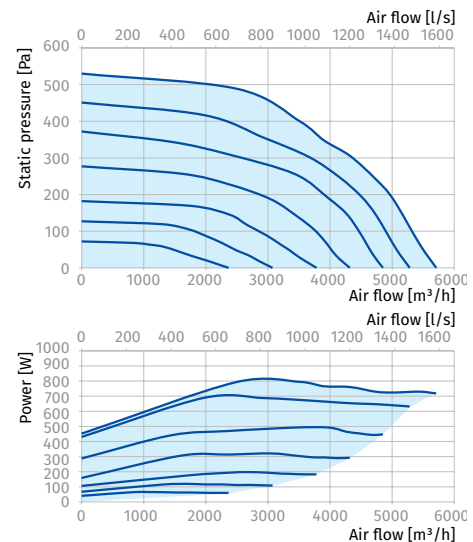
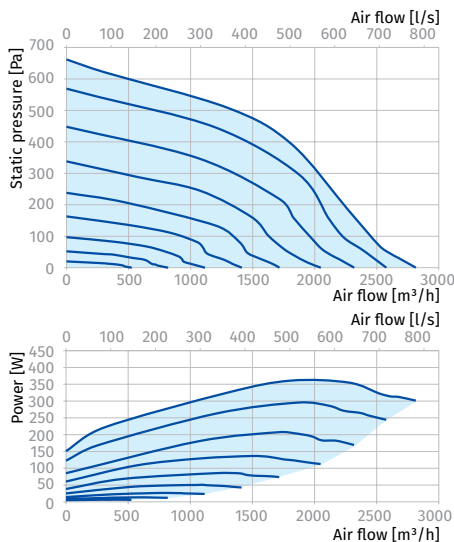
Parameters	Box-I EC 60x35-1	Box-I EC 60x35-3 max	Box-I EC 70x40-1	Box-I EC 70x40-3 max
Voltage [V/50 (60) Hz]	1 ~ 230	3 ~ 400	1 ~ 230	3 ~ 400
Power [W]	361	1308	795	2748
Current [A]	2.62	2.35	3.48	2.80
Maximum air flow [m <sup>3</sup> /h (l/s)]	2815 (782)	4290 (1192)	5710 (1586)	6810 (1892)
RPM [min <sup>-1</sup> ]	2000	3160	1400	2530
Sound pressure at 3 m [dBA]	38	40	37	43
Transported air temperature [°C]	-25...+50	-25...+50	-25...+50	-25...+50
SEC class	-	-	-	-
IP rating	IPX4	IPX4	IPX4	IPX4
Motor IP rating	IP54	IP54	IP54	IP54
ErP	2018	2018	2018	2018

**BOX-I EC 60x35-1**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	69	36	49	65	58	62	60	58	54	48	58
LWA to outlet [dBA]	76	36	50	68	69	67	71	66	59	55	65
LWA to environment [dBA]	59	36	44	56	53	48	47	42	36	38	48

**BOX-I EC 70x40-1**

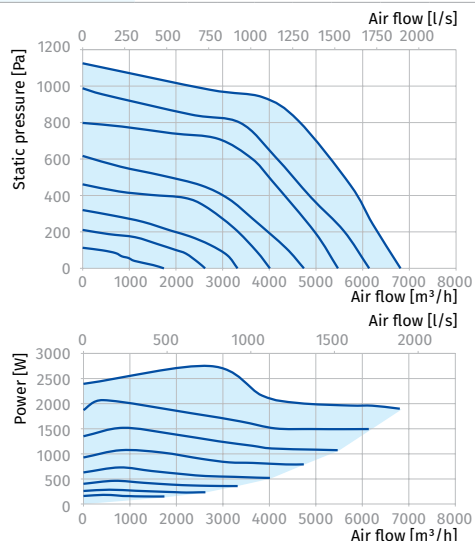
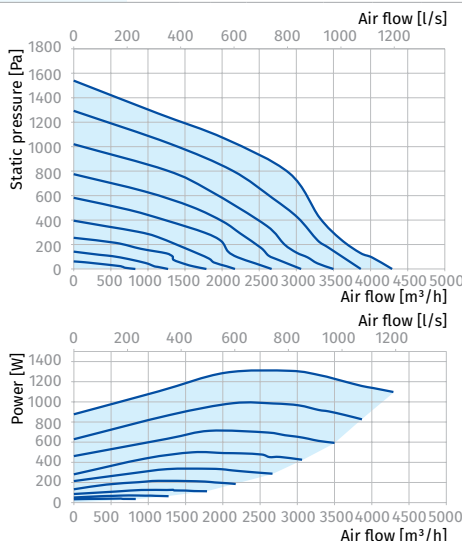
Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	66	38	60	59	59	59	57	52	51	46	56
LWA to outlet [dBA]	69	38	63	61	62	63	57	53	49	48	58
LWA to environment [dBA]	57	38	55	50	47	47	42	36	32	37	47


**BOX-I EC 60x35-3 MAX**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	72	41	66	64	64	64	62	56	55	51	61
LWA to outlet [dBA]	70	39	64	62	64	64	59	54	51	50	60
LWA to environment [dBA]	60	40	58	53	49	49	45	38	33	40	50

**BOX-I EC 70x40-3 MAX**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to inlet [dBA]	72	46	64	63	66	64	62	59	60	51	61
LWA to outlet [dBA]	73	44	64	67	67	67	64	58	58	53	63
LWA to environment [dBA]	63	44	60	57	54	52	48	44	42	43	53



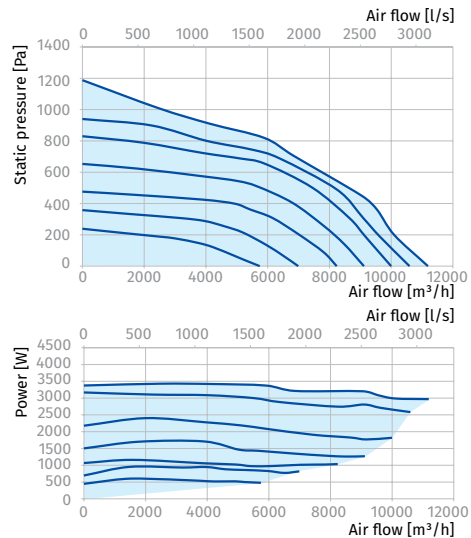
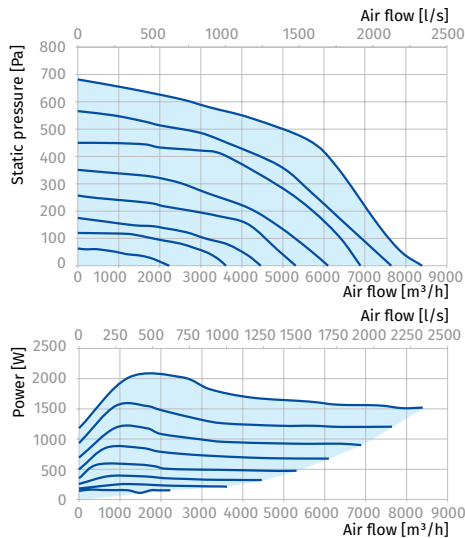
Parameters	Box-I EC 80x50-3	Box-I EC 80x50-3 max	Box-I EC 90x50-3 max	Box-I EC 100x50-3 max
Voltage [V/50 (60) Hz]	3 ~ 400	3 ~ 400	3 ~ 400	3 ~ 400
Power [W]	2025	2925	3429	3429
Current [A]	2.01	3.05	5.00	5.00
Maximum air flow [m³/h (l/s)]	8395 (2332)	8535 (2371)	11190 (3109)	11190 (3109)
RPM [min⁻¹]	1470	2400	1800	1800
Sound pressure at 3 m [dBA]	43	42	47	47
Transported air temperature [°C]	-25...+50	-25...+50	-25...+50	-25...+50
SEC class	-	-	-	-
IP rating	IPX4	IPX4	IPX4	IPX4
Motor IP rating	IP54	IP54	IP54	IP54
ErP	2018	2018	2018	2018

**BOX-I EC 80x50-3**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
L <sub>WA</sub> to inlet [dBA]	70	36	50	66	60	63	61	60	55	49	59
L <sub>WA</sub> to outlet [dBA]	73	35	49	66	66	65	68	64	57	53	63
L <sub>WA</sub> to environment [dBA]	63	39	47	61	57	52	51	45	39	43	53

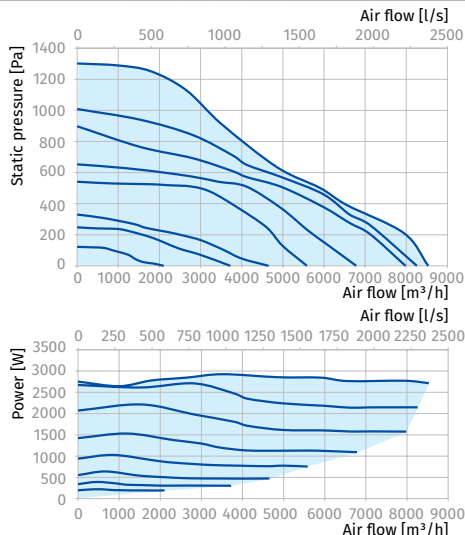
**BOX-I EC 90x50-3 MAX, BOX-I EC 100x50-3 MAX**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
L <sub>WA</sub> to inlet [dBA]	73	46	65	64	67	65	63	60	60	52	62
L <sub>WA</sub> to outlet [dBA]	74	44	65	67	67	68	64	59	59	53	63
L <sub>WA</sub> to environment [dBA]	68	48	65	62	58	56	52	48	45	47	57



**BOX-I EC 80x50-3 MAX**

Sound power level, A-weighted	Total	Octave frequency bands [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
L <sub>WA</sub> to inlet [dBA]	69	44	61	60	63	61	59	56	57	48	58
L <sub>WA</sub> to outlet [dBA]	72	43	63	65	65	66	62	57	57	51	61
L <sub>WA</sub> to environment [dBA]	62	43	59	56	53	51	47	43	41	42	52



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