

EC-fans

Energy efficient and environmentally friendly



Energy efficient & environmentally friendly fans

The products in this leaflet are equipped with EC-motors. EC-technology is intelligent technology, using integral electronic control to ensure that the motor always runs at optimal load.

What can EC achieve?

EC-fans are favoured for their economical use of energy and simplification of control. EC-fans are driven by energy-saving motors with electronic control (commutation unit) ensuring optimal operating efficiency.

According to their design principle, these are synchronous motors, which run without slip and therefore no slippage losses occur.

An excellent solution for demand responsive ventilation systems. Another pro-environmental aspect relevant to air supply and air conditioning equipment in particular is noise level. Here too, the advantage is with EC-motors, which run silently in controlled operating conditions. EC-motors have longer service life due to lower winding temperatures resulting in lower wear and tare.

EC-motors with integrated electronic control can easily be varied in speed to match airflow demand. For the same air volume, they consume distinctly less energy than AC motors.

EC-Vent control

Energy efficient ventilation is about designing a system in a smart way, using a fan that has a high efficiency and adjusting the ventilation rate to the actual need, instead of always operating at full capacity, while maintaining good indoor air quality.

Today Systemair probably has the widest range of EC fans on the ventilation market, and are happy to introduce a control system that will make it easy for the contractor, installer and end user to achieve Demand Control Ventilation (DCV).

The system contains a central control and a room controller that are connected with SELV. (Safety Extra Low Voltage).

EC-motors have high energy-saving potential not only at full load, but especially at part-load, where the loss of efficiency is very much lower than with an asynchronous motor of equivalent output.

Advantages with EC motors:

- Up to 90 % higher efficiency than conventional systems
- Long service life due to small heat losses in the motor
- Easy to control with 0-10V DC or PWM signal
- Low sound level throughout the entire fan performance
- All control and protection electronics are integrated in the motor, easy connection
- Ventilation on demand – easy to adjust ventilation rate to actual need.

The following is included when selecting an EC motor:

- Overheat protection
- Overload protection
- Protection against locked rotor
- Control electronics
- Softstart, starts slowly and gradually increases to full speed over a predefined time.



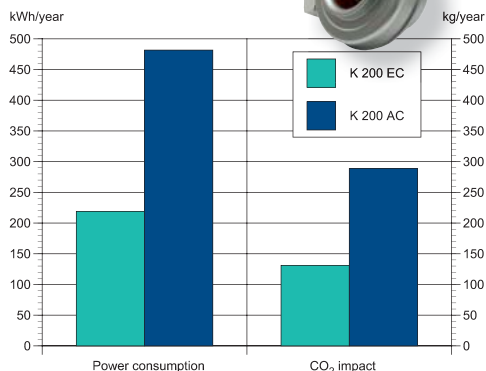
EC-Vent room unit

- Built in transformer
- 24V supply to dampers
- Built in humidity and temperature sensor in the room controller
- Ability to connect CO₂ sensor, presence sensor, humidity sensor etc.
- Possibility to create a week schedule.

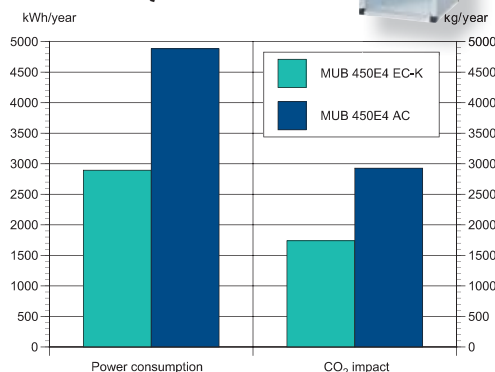
By using energy efficient EC-fans with intelligent control, your system will meet the ventilation requirements of both new building and refurbishment projects.

Comparison with conventional technology

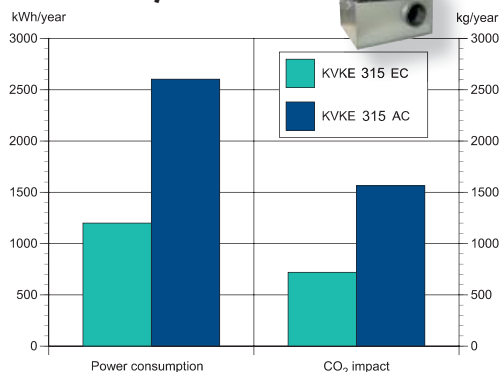
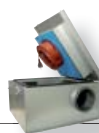
K EC/AC 200



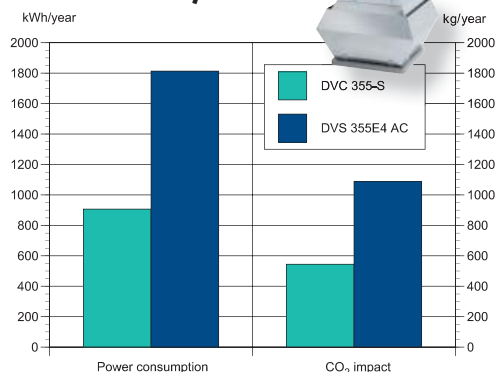
MUB EC/AC 450E4



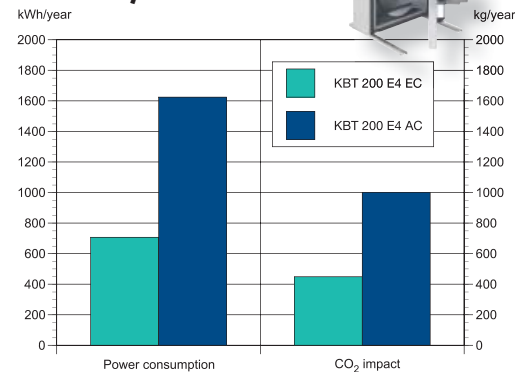
KVKE EC/AC 315



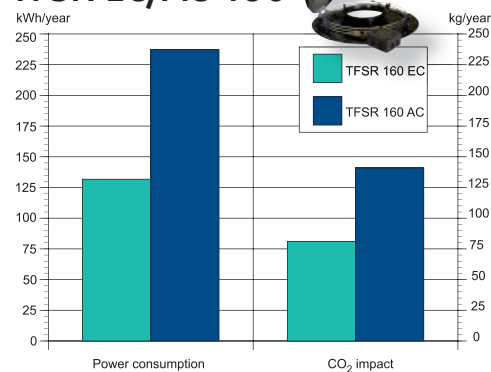
DVC 355-S/DVS 355E4 AC



KBT EC/AC 200E4



TFSR EC/AC 160



Power consumption per year is based on an installation running continuously. The CO₂ impact based on as an average of the CO₂ emission to produce continuously electricity for the European countries. Source: Umwelt-Bundes-Amt Germany. Factor 0.6 kg CO₂/kWh

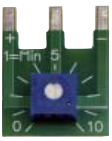
K EC, circular duct fans



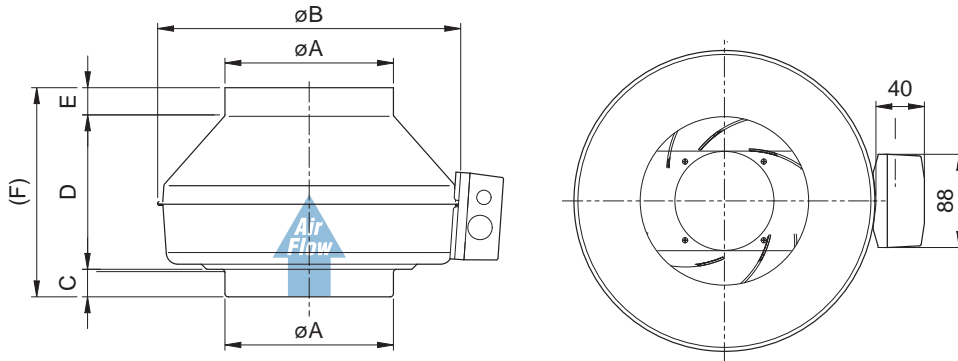
- High efficiency in all areas of the fan curve
- 100 % speed controllable by 0-10V or PWM signal
- Easy adjustment of ventilation rate by installed potentiometer
- Electronic motor protection
- Supplied with mounting bracket.

The K-EC series is designed for installation in ducts. All the K-fans have minimum 25 mm long spigot connections. The fans have backward-curved blades and external rotor motors (EC). The FK mounting clamp facilitates easy installation and removal, and prevents the transfer of vibration to the duct. The fans are delivered with a pre-wired potentiometer (0-10V), set at 10V (factory default). This can easily be adjusted should the installation require at a lower duty.

To protect the motor from overheating the fan has integral thermal contacts with electrical reset. Motor protection is integrated in the electronics of the motor. The casing is manufactured from galvanised sheet steel with the seams folded to give the fan a close to air tight casing. Outdoor mounting and wet room applications are possible due to the fans air tight casing and IP 55 rated terminal box with IP 68 rated M20 cable gland.



Potentiometer 0-10V located in the electrical terminal box



K EC	A	B	C	D	E	(F)
160	159	286	25	147	26	198
200	199	336	30	148	27	205
250	249	336	30.5	144.5	27	202
315 M	314	408	32.5	160.5	27	220
315 L	314	408	37.5	160.5	27	225

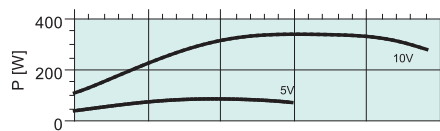
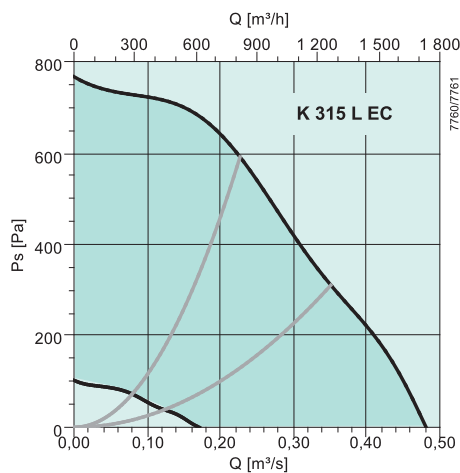
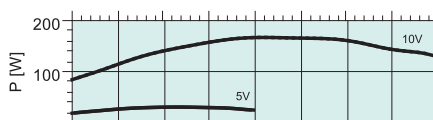
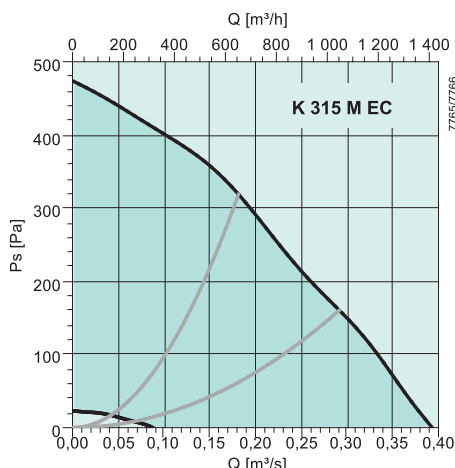
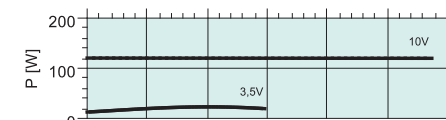
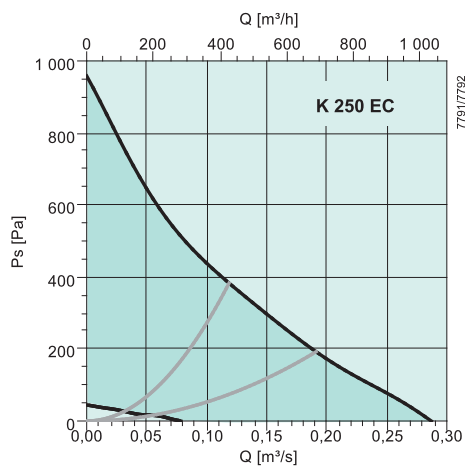
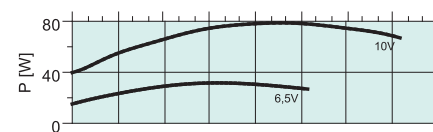
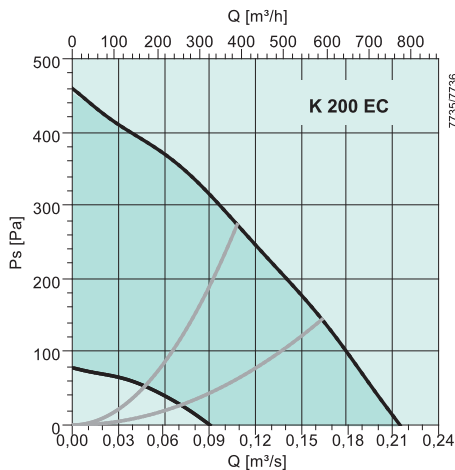
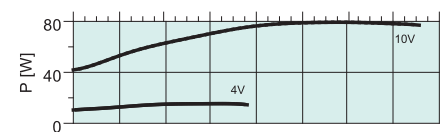
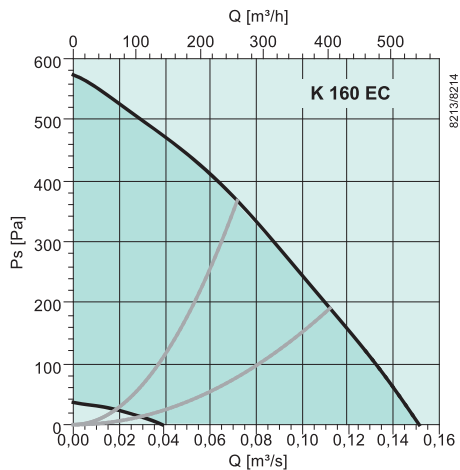
All dimension in mm.

Accessories



K EC		160	200	250	315 M	315 L
Voltage/Frequency	V/50 Hz	230 1~	230 1~	230 1~	230 1~	230 1~
Power	W	74,4	78,6	119	166	340
Current	A	0,63	0,63	0,92	1,14	2,08
Max air flow	m³/h	544	774	1033	1415	1732
R.p.m.		3105	2468	2628	2113	2719
*) Sound pressure level, 3 m	dB(A)	47	51	46	50	57
Weight	kg	3	3,8	3,5	7	7
Insulations class, motor		B	B	B	B	B
Enclosure class, motor	IP	44	44	44	44	44

*) Sound pressure level at 20 m² Sabine, equivalent to 1 m free field.



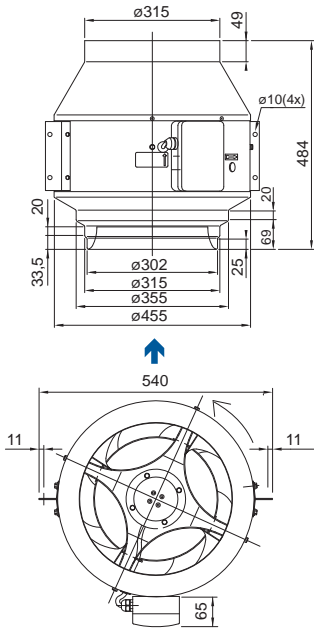
KD EC, circular duct fans



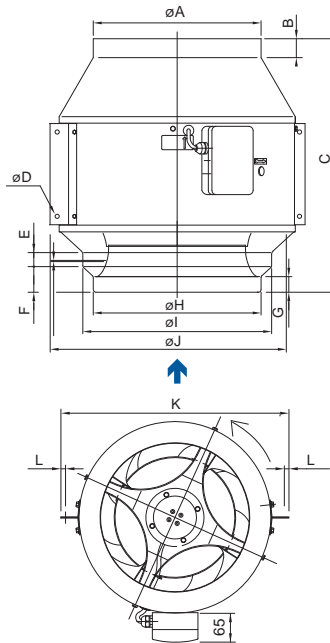
- High efficiency in all areas of the fan curve
- 100% speed controllable
- Integrated electronic motor protection
- Supplied with mounting bracket
- Easy adjustment of ventilation rate by installed potentiometer

The KD-EC series have external rotor motors (EC) with mixed flow impellers which reduce the external dimensions of the fans. The casing is manufactured from galvanised steel. These fans produce high capacity in relation to their compact design. Brackets are supplied with the fans to simplify installation. The FK mounting clamp facilitates easy installation and removal, and prevents the transfer of vibration to the duct. The fans are delivered with a pre-wired potentiometer(0-10V) set to 10V (factory default). This can easily be adjusted should the installation requires a lower duty. Motor protection is integrated in the electronics of the motor.

KD EC 315E



KD EC 355E/400D/400E/450D/500D



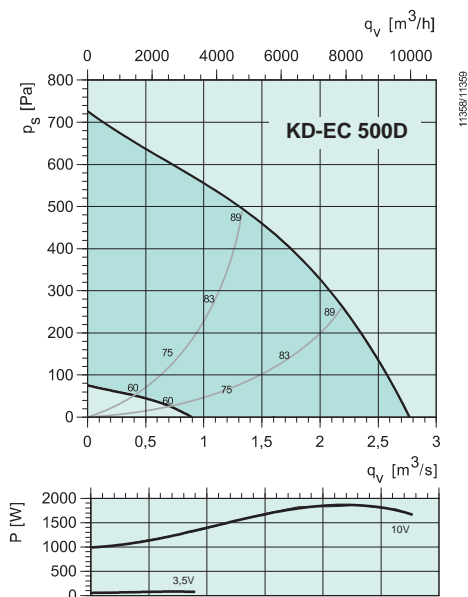
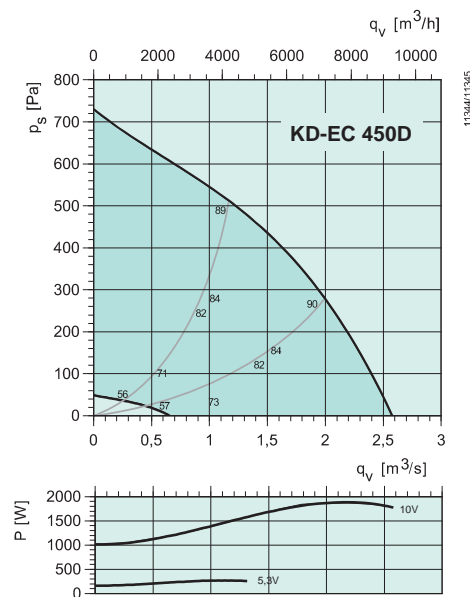
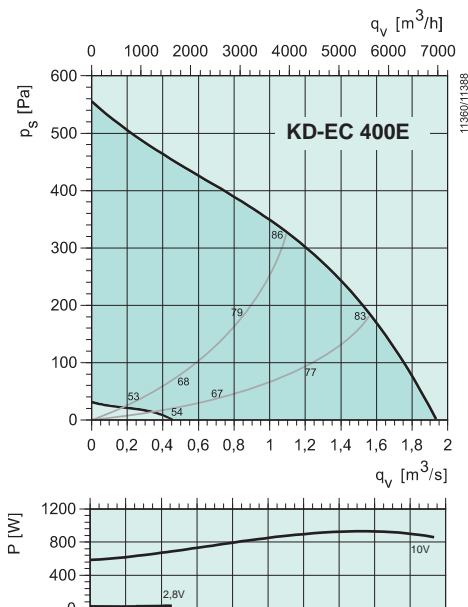
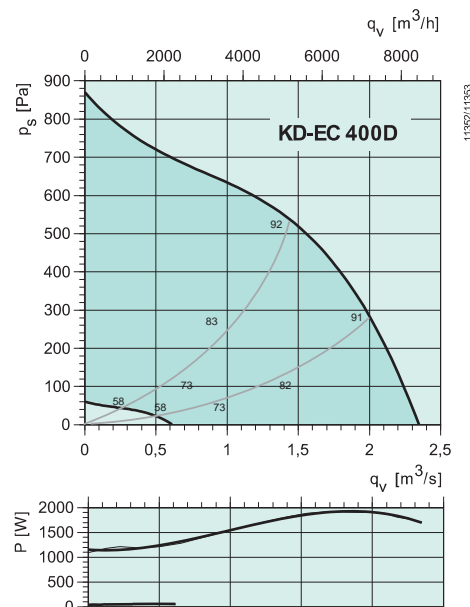
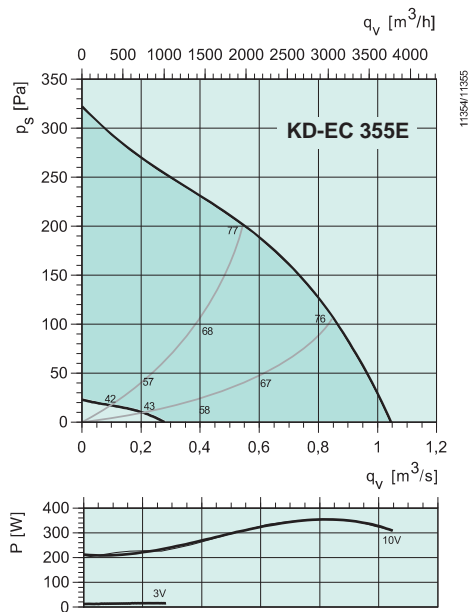
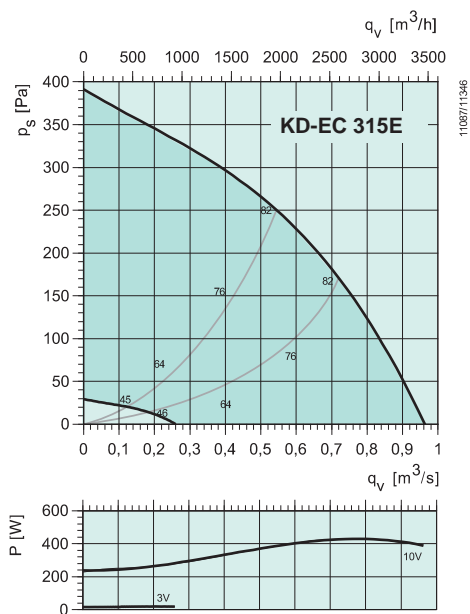
Accessories



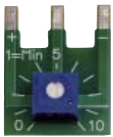
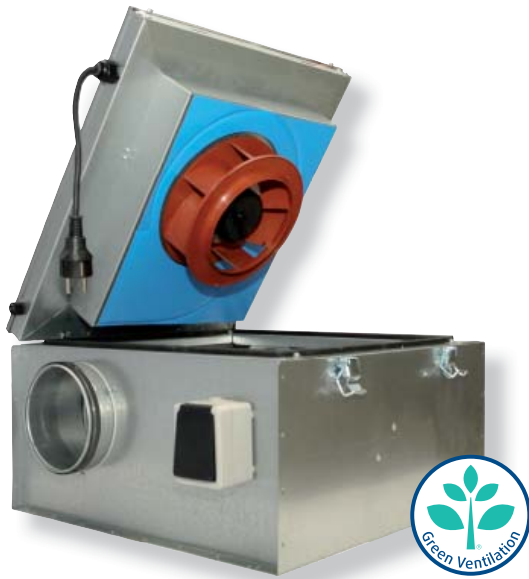
KD EC	øA	B	C	øD	E	F	G	øH	øI	øJ	K	L
355E	355	40	516	10(4x)	38	59	38	355	400	503	590	11
400D/400E	400	44	602	12(4x)	33	61	37	400	450	560	662	18,5
450D	450	46	686	12(4x)	45	76	50	450	500	660	812	18,5
500D	500	46	643	12(4x)	45	76	50	450	500	660	812	18,5

All dimension in mm.

KD EC		315E	355E	400D	400E	450D	500D
Voltage/Frequency	V/50 Hz	230 1~	230 1~	400 3~	230 1~	400 3~	400 3~
Power	W	428	355	1937	926	1872	1848
Current	A	1.98	1.69	2.99	4.08	2.91	2.83
Max air flow	m³/s	0.963	1.05	2.35	1.93	2.57	2.77
R.p.m.		1723	1295	1906	1452	1607	1605
Soundpressure level at 3 m	dB(A)	71.8	53.4	73.9	62	69.3	68.1
Weight	kg	14,2	18.6	24	26.5	32.5	32
Insulations class, motor	F	F	F	F	F	F	F
Enclosure class, motor	IP 54	54	54	54	54	54	54



KVKE EC, circular duct fans



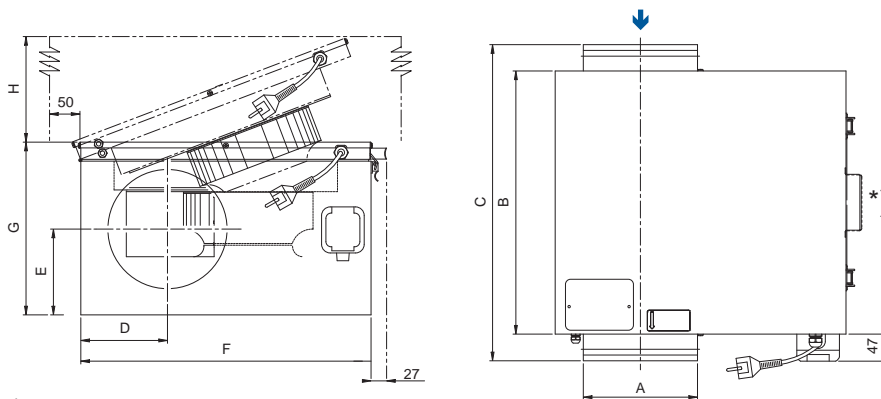
Potentiometer 0-10V located in the lid

- High efficiency in all areas of the fan curve
- 100% speed controllable
- Integrated electronic motor protection
- Easy adjustment of ventilation rate by installed potentiometer
- Low noise level

The KVKE EC models have impellers with backward-curved blades and maintenance-free external rotor motor (EC). These fans develop relatively high static pressure and produce very high efficiency. The fans are delivered with a pre-wired potentiometer (0-10V). The potentiometer is pre-set to 10V (factory default). This can be adjusted should the installation require a lower duty.

The KVKE motor and impeller are mounted on the access cover for easy maintenance. The service cover can be easily removed by withdrawing the hinge pin. Motor protection is integrated in the electronics of the motor. The fans can be installed in any position and are easy to connect to spiral ducts using FK mounting clamps. The KVKE casings are manufactured from galvanised sheet steel and are thermally and acoustically insulated with a 50 mm layer of rockwool with a surface liner which prevents the migration of fibres into the airstream.

The plug and socket contact between lid and casing ensures that when opening the fan casing the fan is separated from the mains supply. No need for on/off switches for maintenance.



*) Handle on KVKE 315 EC

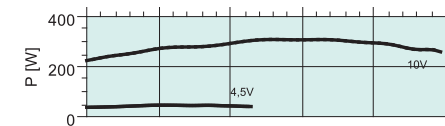
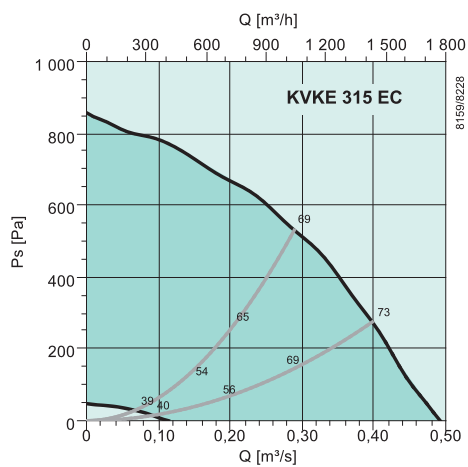
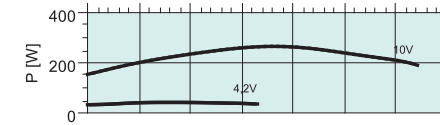
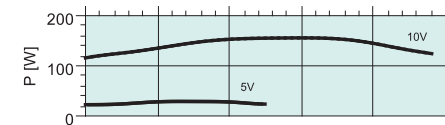
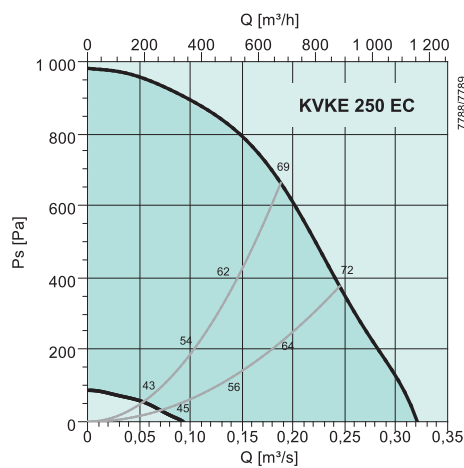
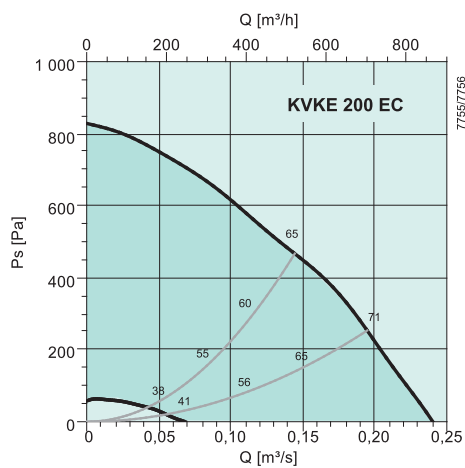
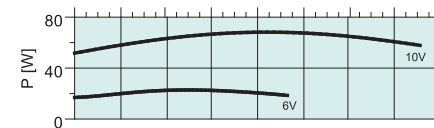
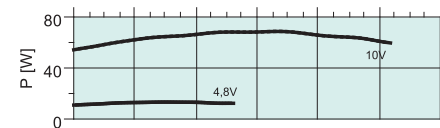
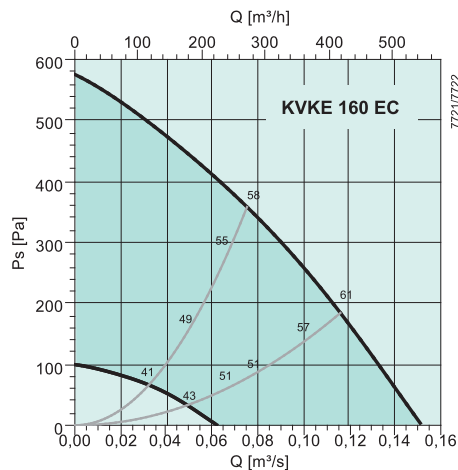
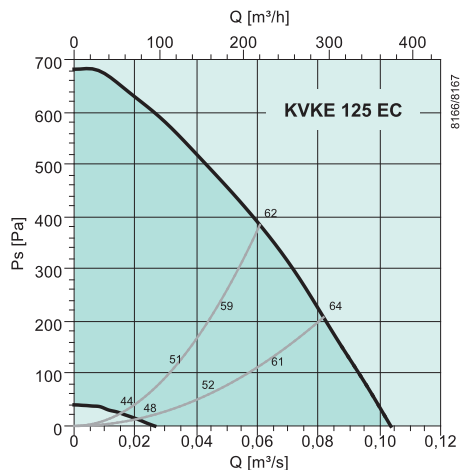
KVKE EC	A	B	C	D	E	F	G	H
125	125	433	479	125	128.5	442	246	470
160	160	482	528	145.5	132.5	505	266	530
200	200	482	534	150.5	149	505	303	530
250	250	578	700	176	174	596	359	620
315	315	680	802	208.5	207.5	705.5	430	730

Accessories



KVKE EC		125	160	200	250	315
Voltage/Frequency	V/50 Hz	230~	230~	230~	230~	230~
Power	W	68.7	67.8	156	265	395
Current	A	0,54	0,53	1,10	1,64	2,38
Max air flow	m³/h	374	544	864	1156	1865
R.p.m.		3339	2592	3033	2821	2380
*)Sound pressure level, 3 m	dB(A)	41	39	46	49	50
Weight	kg	13	17,5	19	28,1	38,8
Insulation class, motor	B	B	B	B	B	B
Enclosure class, motor	IP 44	44	44	44	44	44

*) Sound pressure level at 20 m² Sabine (equivalent to 1 m free field)

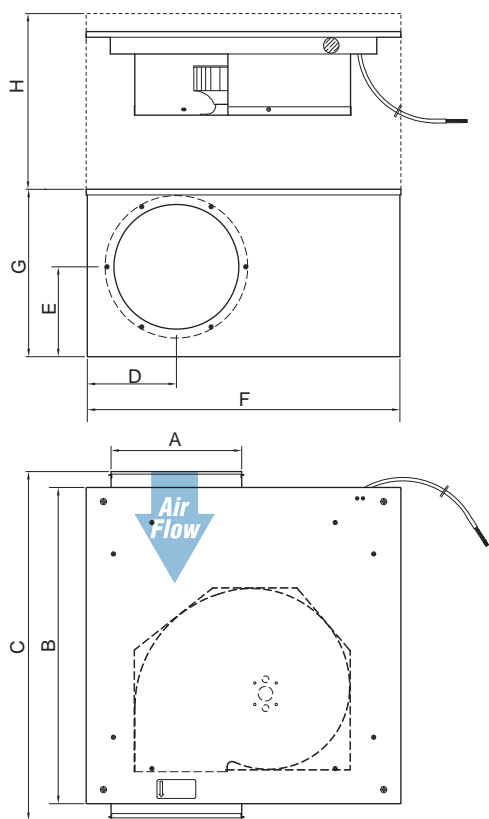


KVO EC, insulated circular duct fans



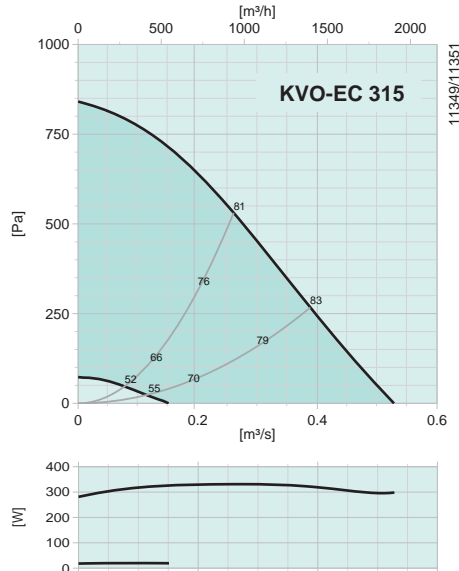
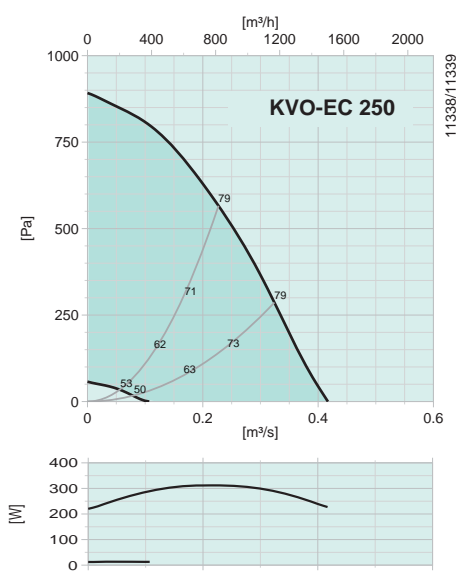
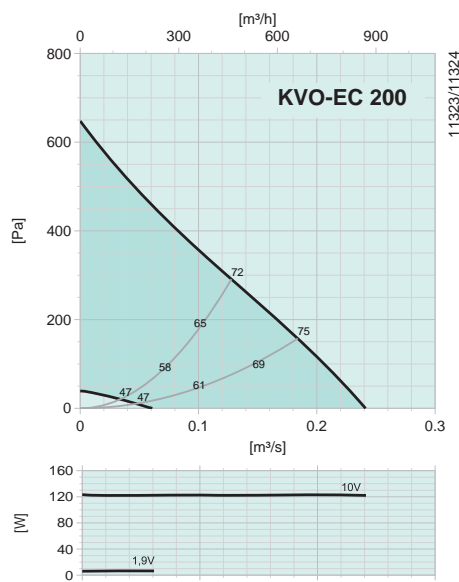
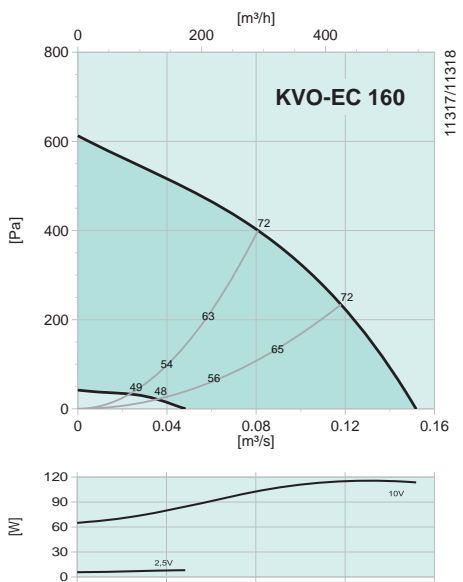
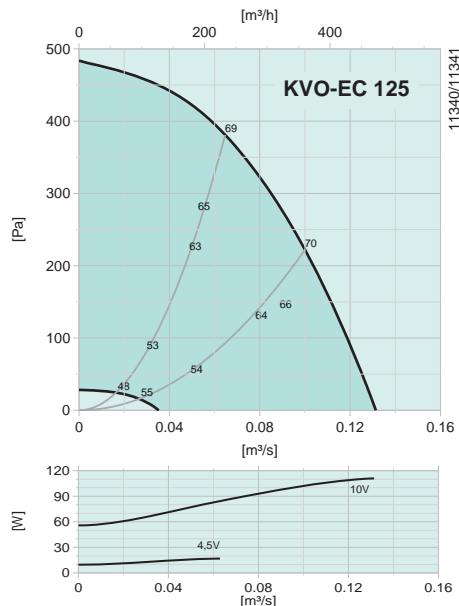
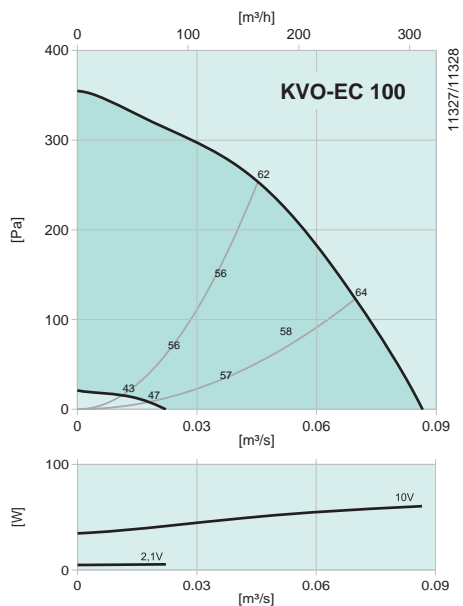
- High efficiency in all areas of the fan curve
- 100% speed controllable
- Integrated electronic motor protection
- Easy adjustment of ventilation rate by installed potentiometer
- Low noise level

The KVO-EC motor and impeller are mounted on the access cover for ease of maintenance. The service cover can be easily removed by withdrawing the hinge pin. Motor protection is integrated in the electronics of the motor. The fans can be installed in any position and are easy to connect to spiral ducts using FK mounting clamps. The KVO-EC models are manufactured from galvanised sheet steel and the lid is insulated with 40mm rockwool. The fans are delivered with a pre-wired potentiometer (0-10V) that allows you to easily select the desired working point.



KVO	A	B	C	D	E	F	G	H
100	100	329	367	69	76	300	150	150
125	125	329	367	84	72	300	150	150
160	160	329	367	99	90	300	185	185
200	200	419	466	123	109	435	220	220
250	250	527.5	568	151	133	558	270	270
315	315	535.5	580	186	166	580	340	550
355	355	572	661	209	231	640	425	600
400	400	572	653	221	209	640	425	600

KVO EC		100	125	160	200	250	315
Voltage/Frequency	V/50 Hz	230 1~	230 1~	230 1~	230 1~	230 1~	400 3~
Power	W	60	111	116	123	312	331
Current	A	0.48	0.86	0.89	0.96	1.91	2.04
Max air flow	m³/s	0.09	0.13	0.15	0.24	0.47	0.53
R.p.m.		2499	2724	2411	2577	2799	2264
Sound pressure level at 3 m	dB(A)	43.2	47.6	48.4	50.7	57.4	55.4
Weight	kg	5.6	5.6	6	10.3	20.4	25.6
Insulation class, motor		B	B	F	B	F	F
Enclosure class, motor	IP	44	44	44	44	44	44



MUB EC, square duct fans

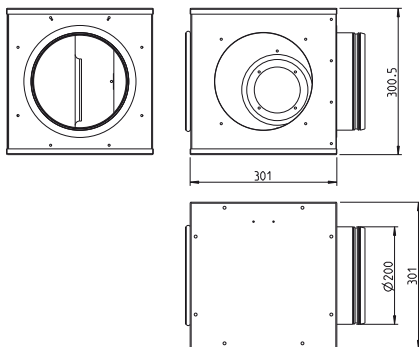


- High efficiency in all areas of the fan curve
- 100 % speed controllable
- Integrated electronic motor protection
- Low noise level
- Flexible air flow direction due to removable panels
- Installation in any mounting position
- Safe and maintenance free operation

MUB-EC fans are driven by EC-external rotor motors. All motors are suitable for 50/60Hz. The input voltage for single phase units can vary between 200 and 277V, for three phase units between 380 and 480V. Speed control by a 0-10V signal (MTP/MTV controller or EC-Vent).

All models are equipped with impellers with backward curved blades, manufactured from aluminium. The casing consists of an aluminium frame with fibreglass reinforced plastic corners of PA6; and are shock-resistant. The double skin panels are manufactured from galvanized steel with 20 mm mineral wool insulation. The panels are removable, any outlet side can be used, allowing flexible ventilation solutions. Installation in any mounting position is possible.

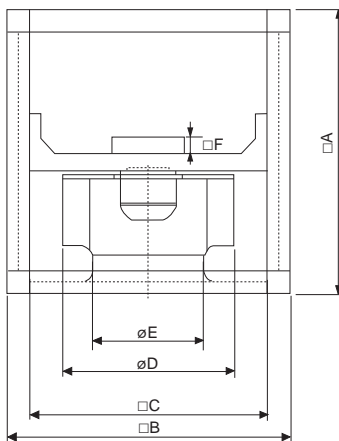
Mini MUB 200



The Mini-MUB model has an insulated casing (20 mm Armaflex), manufactured from galvanised steel, and PA6 25GV impellers.



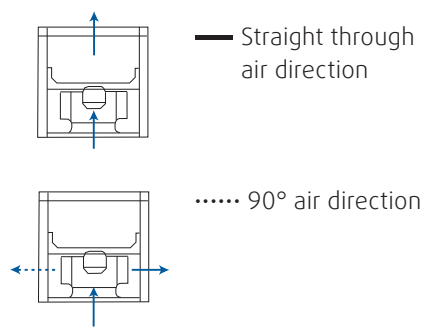
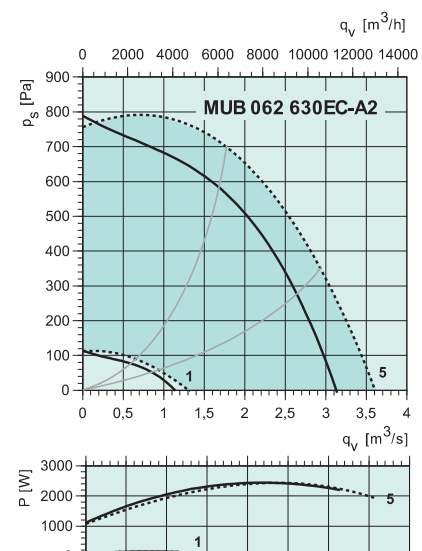
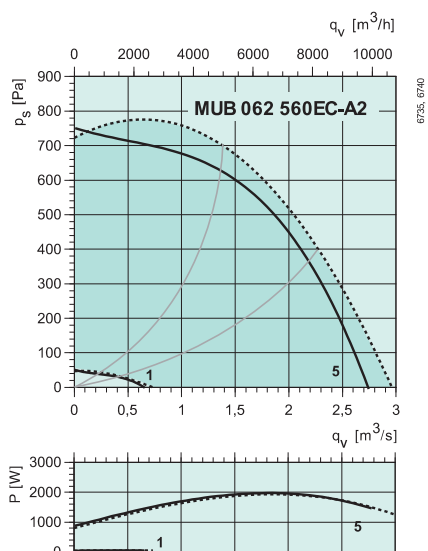
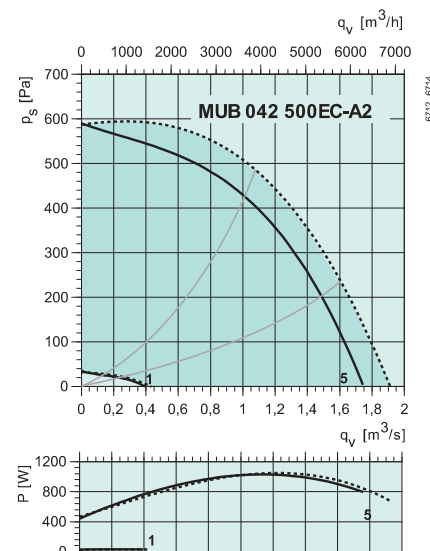
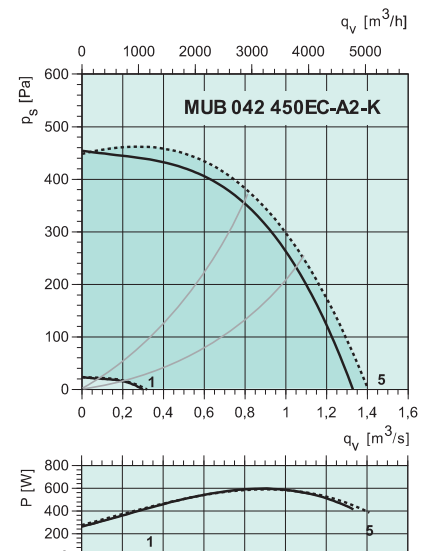
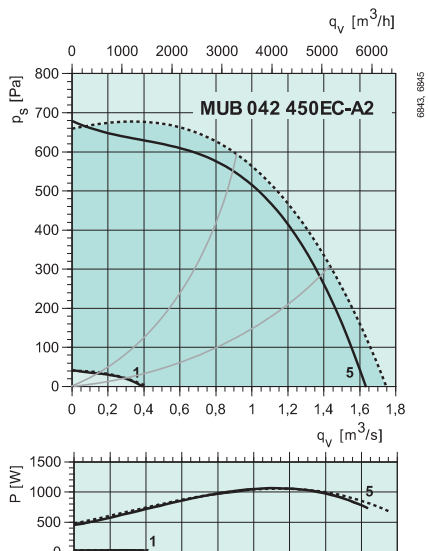
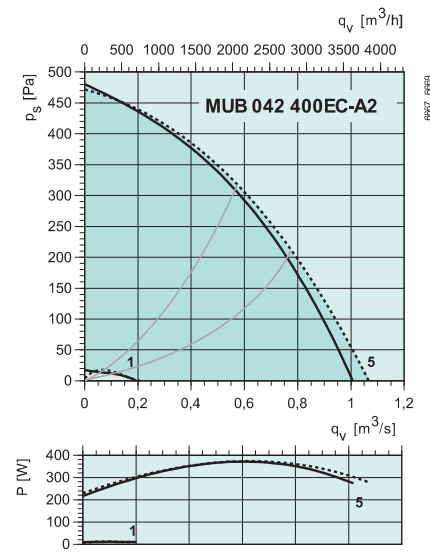
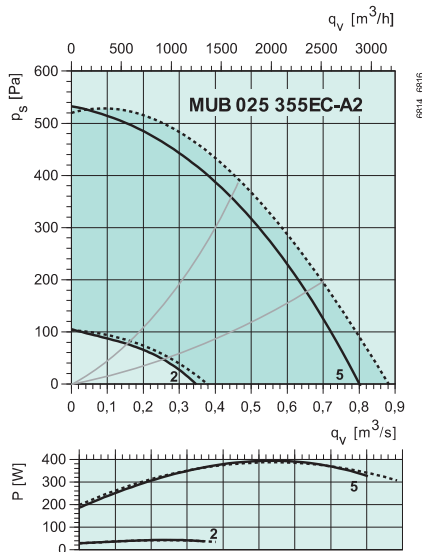
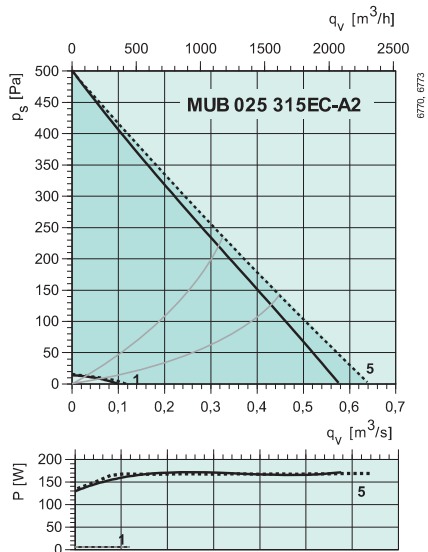
Coming soon: MUB-EC with integrated potentiometer for easy adjustment of the ventilation rate.



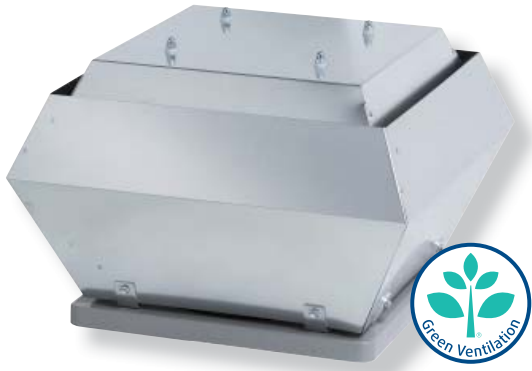
MUB EC	□A	□B	□C	∅D	∅E	□F
025 315	500	500	420	315	200	40
025 355	500	500	420	355	224	40
042 400	670	670	590	400	253	40
042 450	670	670	590	454	286	70
042 450 K	670	670	590	450	286	70
042 500	670	670	590	504	321	70
062 560	800	800	720	560	360	70
062 630	800	800	720	630	407	70

MUB EC		025 315 A2	025 355 A2	042 400 A2	042 450 A2-K	042 450 A2	042 500 A2	062 560 A2	062 630 A2
Voltage/Frequency	V/50 Hz	230~	230~	230~	400 3~	230~	400 3~	400 3~	400 3~
Power	W	180	430	378	1170	580	1100	2000	2560
Current	A	1,40	2,70	2,26	1,95	2,40	2,18	3,10	3,90
Max air flow	m³/h	2466	3000	3881	6300	5100	7440	10789	13050
R.p.m.		1870	1660	1339	1560	1250	1340	1360	1210
*) Sound pressure level, 3 m	dB(A)	44	48	48	56	52	56	57	67
Weight	kg	30	37	58	62	62	70	135	130
Insulation class, motor	B	B	B	B	B	B	B	F	F
Enclosure class, motor	IP	44	44	44	54	54	54	54	54

*) Sound pressure level at 20 m² Sabine (equivalent to 1 m free field)



DVC/DVCI, roof fans

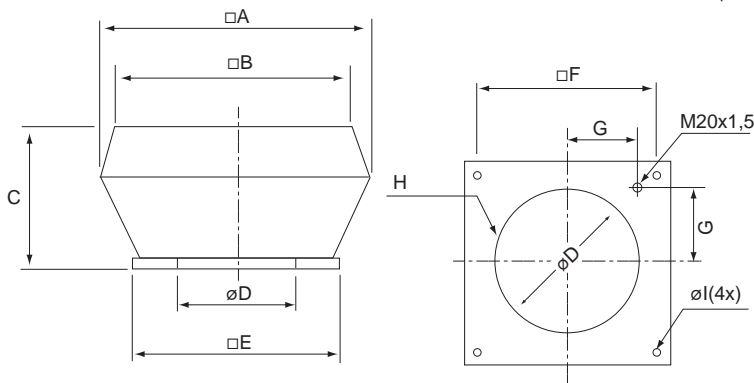


- High efficiency in all areas of the fan curve
- 100 % speed controllable
- Integrated electronic motor protection
- Low noise level
- Safe and maintenance free operation

The DVC roof fans are driven by EC-external rotor motors, energy saving motors with high efficiency. The input voltage for single phase units can vary between 200 and 277V, for three phase units between 380 and 480V. All motors are compatible with 50 and 60Hz supply.

Motor protection is integrated in the electronics of the motor, no additional external motor protection device is required. Casing from seawater-resistant aluminum. Backward curved impellers manufactured from polyamide PA 6 for size 190 and 315. From 355 up to 630 impellers manufactured from seawater resistant aluminium. DVC-S suitable for speed control with potentiometer. DVC-P with integrated pressure sensor, the electronics in the motor are programmed for a constant pressure operation.

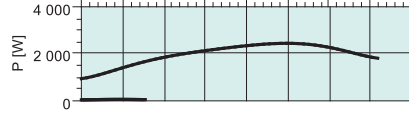
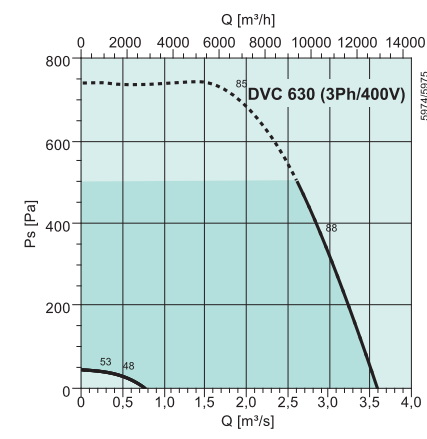
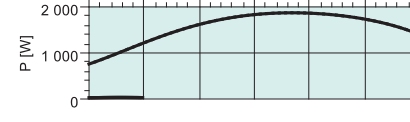
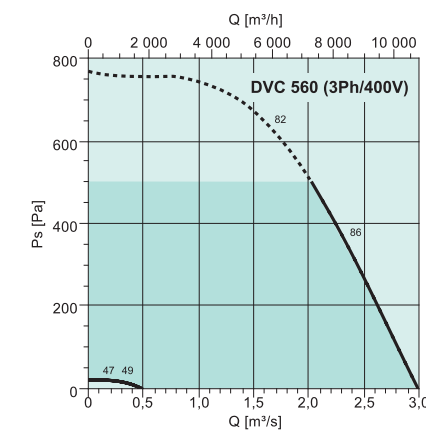
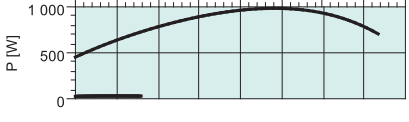
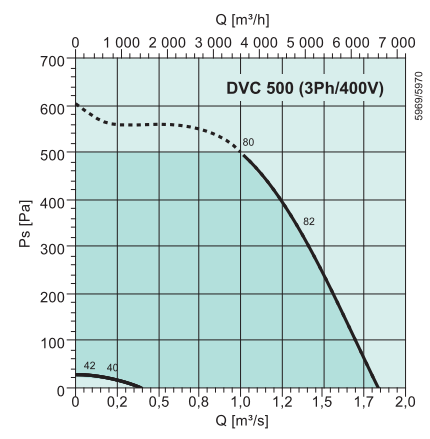
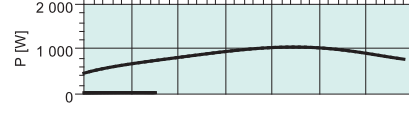
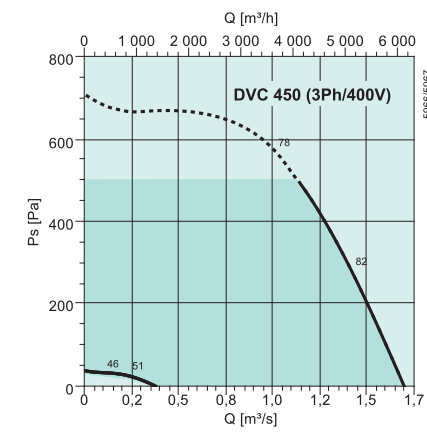
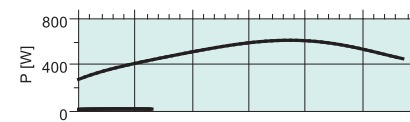
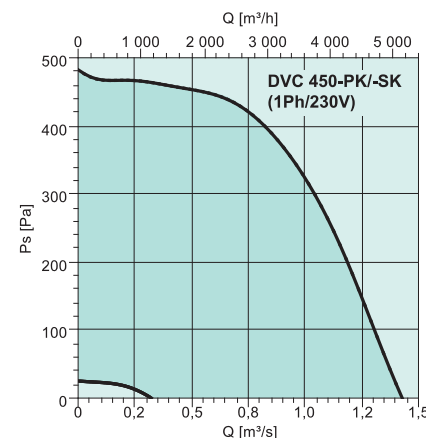
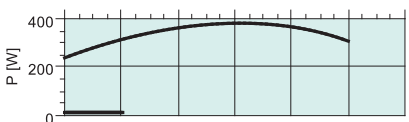
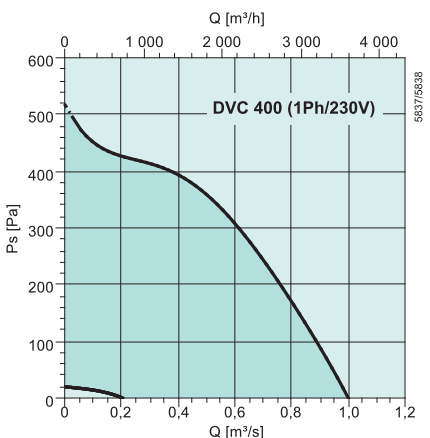
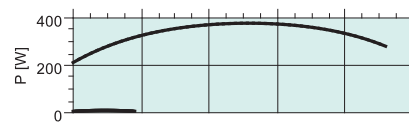
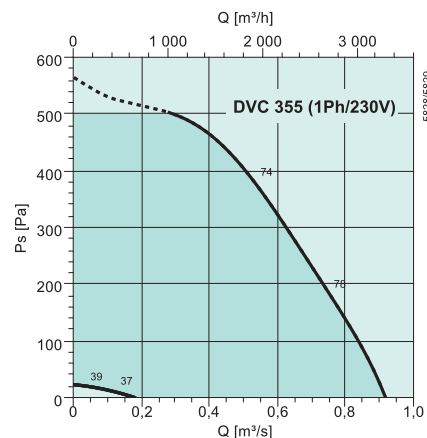
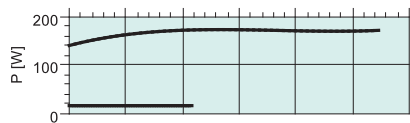
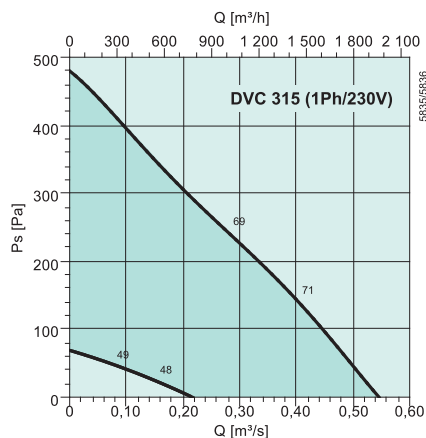
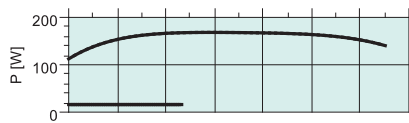
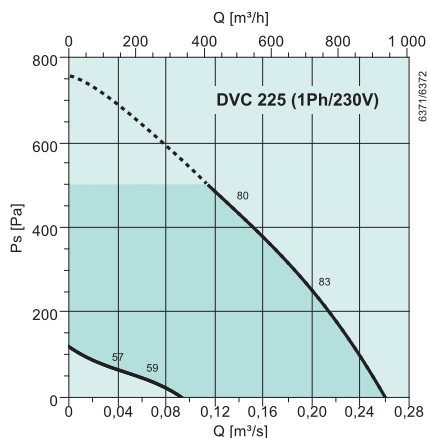
Coming soon: DVC-S with integrated potentiometer for easy adjustment of ventilation rate.



DVC/DVCI	□A	□B	C	øD	□E
190-225	370/497	295	170/179	213	335
315	560/690	470	330	285	435
355-400	720/874	618	390/439	438	595
450-500	900/968	730/748	465/479	438	665
560-630 (DVC)	1150/1315	955/1035	560/600	605	939
	□F	G	H	øl	
	245	105	6xM6	10(4x)	
	330	146	6xM6	10(4x)	
	450	200	6xM8	12(4x)	
	535	237	6xM8	12(4x)	
	750	293	8xM8	14(4x)	

DVC/DVCI		225-P/225-S	315-P/315-S	355-P/355-S	400-P/400-S	450-PK/450-SK
Voltage/Frequency	V/50/60 Hz	230 1~	230 1~	230 1~	230 1~	230 1~
Power (P1)	W	166	173	378	381	614
Current	A	1.17	1.18	2.31	2.30	2.79
Max air flow	m³/s	0.261	0.546	0.918	1.00	1.43
R.p.m.	min-1	3278	1867	1657	1348	1300
Max temp. of transported air	°C	60	60	60	60	60
" when speed controlled	°C	60	60	60	60	60
Sound pressure level, 4 m/10 m, DVC	dB(A)	58/51	47/39	50/42	49/41	53/45
Sound pressure level, 4 m/10 m, DVCI	dB(A)	53/45	41/33	46/38	43/35	40/32
Weight, DVC/DVCI	kg	8/13	11/16	25/30	29/34	45/38
Insulation class, motor		B	B	B	B	B
Enclosure class, motor	IP	44	44	44	44	54

DVC/DVCI		450-P/450-S	500-P/500-S	560-P/560-S	630-P/630-S
Voltage/Frequency	V/50/60 Hz	400 3~	400 3~	400 3~	400 3~
Power	W	1048	984	1873	2444
Current	A	1.79	1.66	2.88	3.72
Max air flow	m³/s	1.70	1.84	2.99	3.59
R.p.m.	min-1	1558	1339	1359	1209
Max temp. of transported air	°C	60	60	60	60
" when speed controlled	°C	60	60	60	60
Sound pressure level, 4 m/10 m, DVC	dB(A)	51/48	55/47	63/55	64/56
Sound pressure level, 4 m/10 m, DVCI	dB(A)	50/42	51/43	55/47	57/49
Weight, DVC/DVCI	kg	45/43	49/57	DVC 60/60 DVCI 70/70	DVC 80/80 DVCI 90/90
Insulation class, motor		B	B	F	F
Enclosure class, motor	IP	54	54	54	54



DVC POC + FTG, roof fan

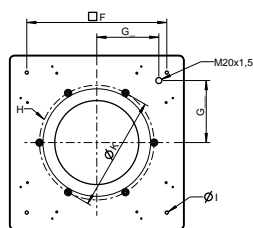
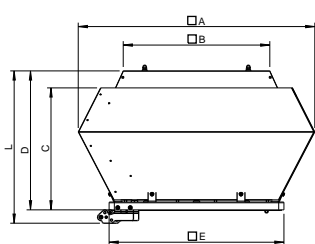


- Integrated pressure sensor, no power supply required
- Temperature sensor for outdoor temperature compensation
- 100 % speed controllable
- Integrated motor protection
- Safe and maintenance free operation
- Sizes 315 up to 500 include a tilting device for service options

The DVC-POC roof fans are driven by EC- external rotor motors, energy saving motors with high efficiency. The input voltage for single phase units can vary between 200 and 277V, for three phase units between 380 and 480V. All motors are compatible with 50 and 60Hz supply and from size 355 up to 630 are suspended on effective vibration mountings. Motor protection is integrated in the electronics of the motor, no additional external motor protection device is needed.

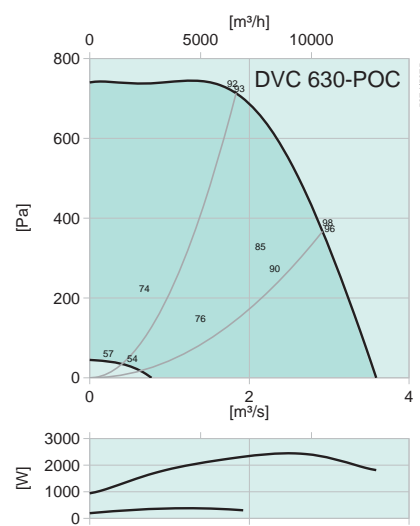
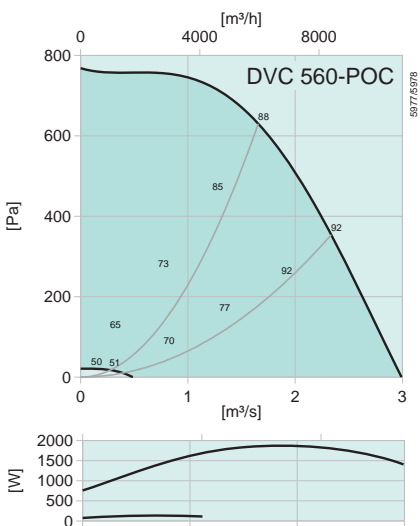
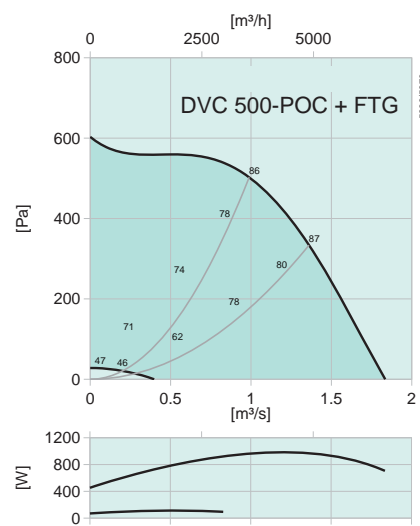
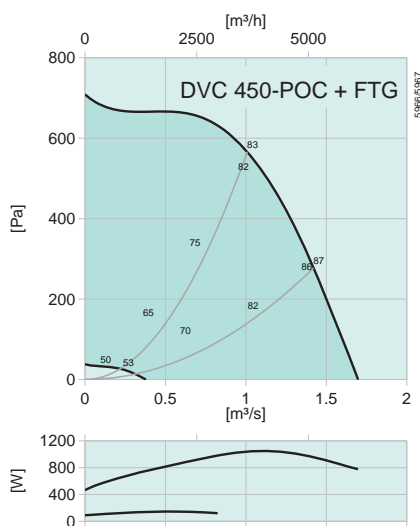
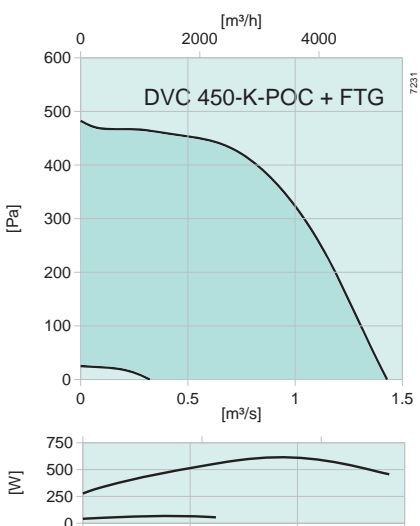
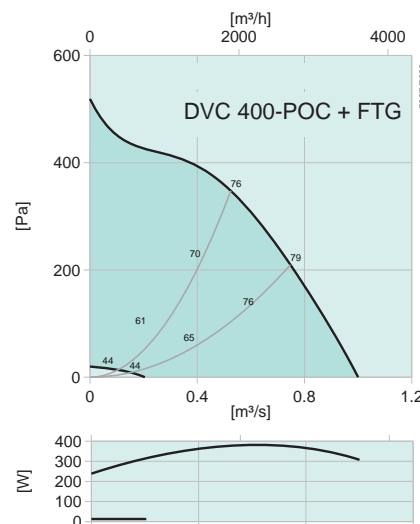
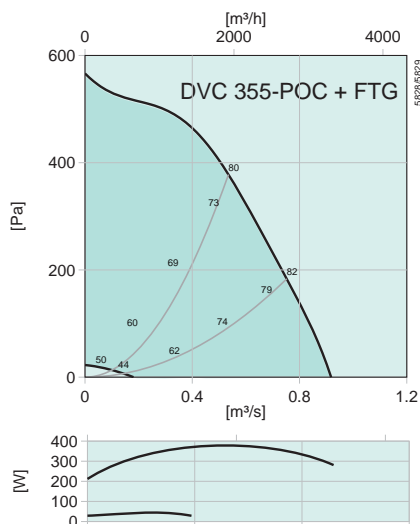
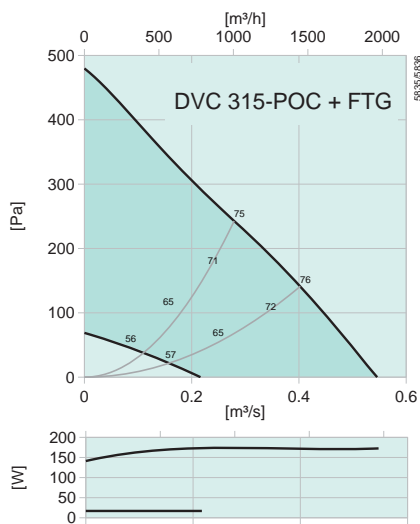
The DVC-POC versions have integrated pressure sensors and temperature sensor for outdoor temperature compensation. The electronics can be programmed for pressure constant operation or pressure constant operation combined with outdoor temperature compensation. The factory setting is pressure constant operation with outdoor temperature compensation.

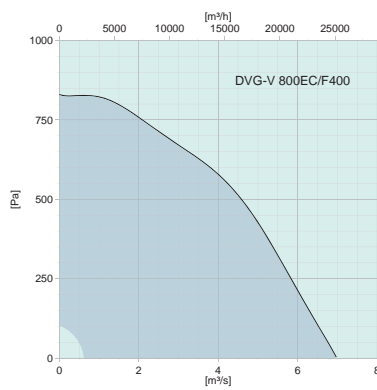
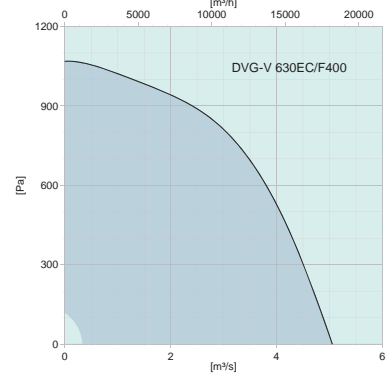
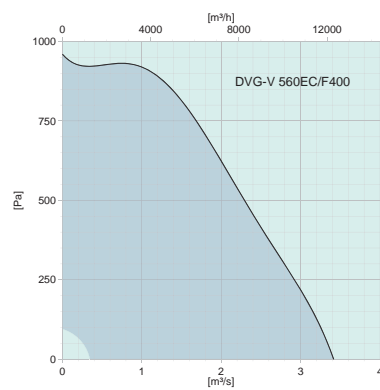
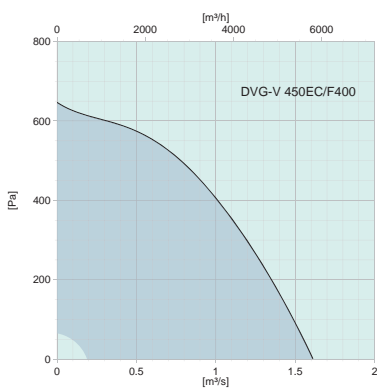
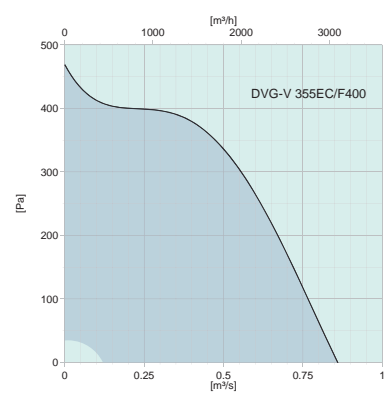
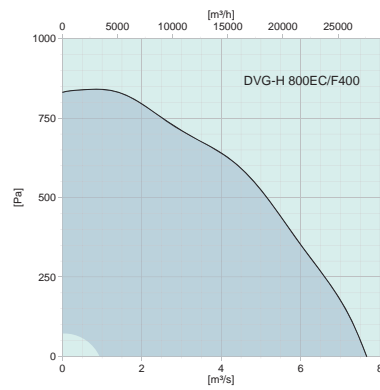
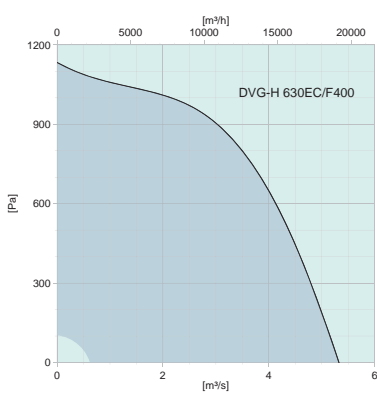
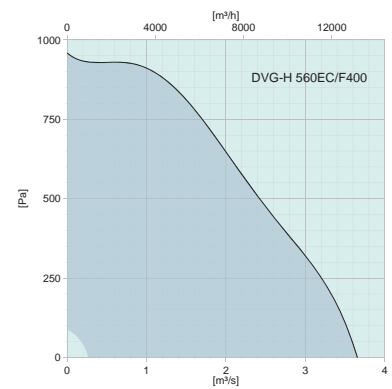
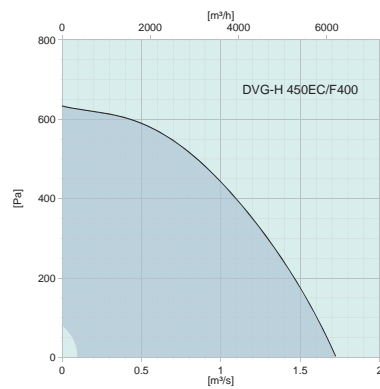
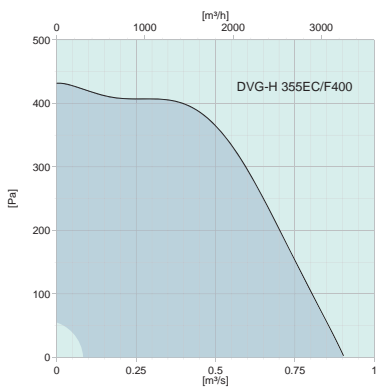
Casing from seawater-resistant aluminum. Backward curved impellers manufactured from polyamide PA 6 for size 315. From 355 up to 630 impellers manufactured from seawater resistant aluminium.



DVC POC	A	B	C	D	E	F	G	H	øI	øK	L
315	560	470	330	393	435	330	146	6xM6	10(4x)	285	443
355	720	618	390	454	595	450	200	6xM6	12(4x)	438	504
400	720	618	390	475	595	450	200	6xM8	12(4x)	438	525
450K/450/500	900	730	465	530	665	535	237	6xM8	12(4x)	438	580
560/630	1150	955	560	600	939	750	293	8xM8	14(4x)	605	-

DVC POC+FTG		315	355	400	450-K	450	500		
DVC POC								560	630
Voltage/Frequency	V/50/60 Hz	230 1~	230 1~	230 1~	230 1~	400 3~	400 3~	400 3~	400 3~
Power	W	173	378	381	580	1048	984	1873	2444
Current	A	1,18	2,31	2,3	2,79	1,79	1,66	2,88	3,72
Max air flow	m³/s	0,546	0,918	1	1,83	1,7	1,84	2,99	3,59
R.p.m.		1867	1657	1348	1250	1558	1339	1359	1209
Max temp. of transported air	°C	60	60	60	60	60	60	60	60
“when speed controlled	°C	60	60	60	60	60	60	60	60
Sound pressure level, 4 m	dB(A)	47	52	49	53	56	55	63	64
Sound pressure level, 10 m	dB(A)	39	42	41	45	48	47	55	56
Weight	kg	25	25	29	45	45	49	58	85
Insulation class, motor		B	B	B	B	B	B	B	F
Enclosure class, motor	IP	44	44	44	54	44	54	54	54





TFSR/TFSK EC, roof fan

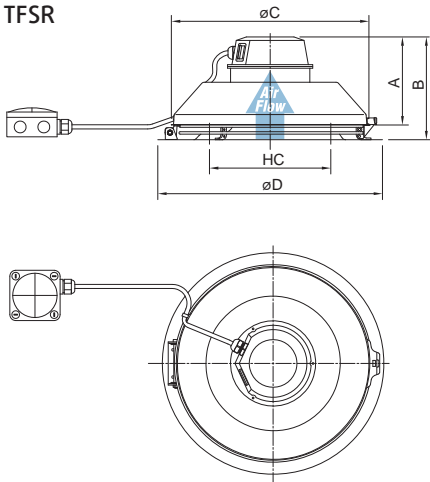


- High efficiency EC-motors
- 100 % speed controllable
- Potentiometer included
- Swing-out

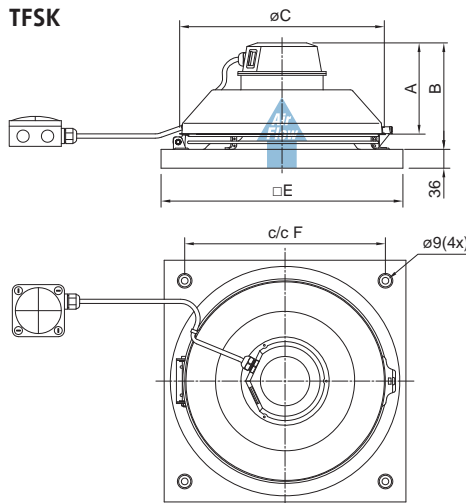
The TFSR-EC and TFSK-EC roof mounted fans are driven by EC motors and intended for use as extract fans in smaller premises such as self contained flats and apartments as well as storage areas, small work-rooms etc. EC-technology is intelligent technology, using integral electronic control to ensure that the motor always runs at optimal load.

The fans are delivered with a pre-wired potentiometer(0-10V) that allows you to easily select the desired working point. The isolation switch is integrated and there are several alternative roof curbs available as accessories. The tilting mechanism simplifies cleaning and maintenance. Includes electronic motor protection. The horizontal discharge creates smaller internal pressure losses and prevents accumulation of ice on the roof. The protection guard prevents unintentional contact with the impeller.

TFSR



TFSK



TFSR EC	A	B	C	D	HC
160	147	172	334	380	205
200	150	187	364	439	250

TFSK EC	A	B	øC	□E	c/cF
160	147	172	334	421	330
200	150	187	364	421	330

HC = Hole diameter for fixing, ø6x4

TFSR/TFSK EC		160	200			
Voltage/Frequency	V/50/60 Hz	230 1~	230 1~			
Power	W	81.5	74.6			
Current	A	0.64	0.587			
Max. air flow	m³/s	0.161	0.216			
R.p.m.	min-1	3162	2501			
Max temp. of transported air	°C	45	45			
" when speed controlled	°C	45	45			
Sound pressure level, 3m	dB(A)	43	43			
Weight	kg	4.2/4.6	5.4/6.2			
Insulation class, motor		B	B			
Enclosure class, motor		IP 44	IP 44			

