

BOX BD PLUS EEC



CENTRIFUGAL FAN IN SOUNDPROOF BOX WITH SANDWICH PANELS AND ELECTRONIC MOTOR

MANUFACTURING FEATURES

- Impellers made of polyamide reinforced with fibreglass (models 7/7, 9/9, 10/10 and 12/12). Other models made of galvanised steel sheet.
- BD EEC range fans assembled in soundproof cabinets.
- Ventilation box with 30 mm aluminum profile structure, nylon corners, galvanized sandwich panels with internal insulation rockwool (25mm thickness) class A1 (non-combustible) of 90kg/m³ density. All panels are equipped with "fastening system" for the quick assembly and disassembly whenever required, either for cleaning, maintenance or exchanging of panels.
- Connection gland included.
- Easy access through lateral panel.
- Fan can be placed in any position by exchanging panels.
- Motor fixing with an exclusive system designed by Casals through flexible arms and silent blocks to avoid vibration. Flexible arms in compliance with the ROHS 2002/95/EC Directive (Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipments).
- PM brushless motor (permanent magnets), synchronous, electronically commutated, high efficiency and low sound level. Specially designed for fans with electronic operation and control in deported box IP65.

Working range: from 400 to 1200-2000rpm (depending on the models)

Motor with IP54 protection and class F insulation. IP 65 drive case

Power: 220V $\pm$ 10% single phase

Power frequency: 50 / 60Hz

Operating temperature range: -20°C to 50°C

Speed control through signal 0-10V or PWM

Accessories



**BOX
FILTER**



CFGF



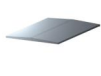
CHEF



INT



REGC



TEJ



TIAC



VISC

APPLICATIONS

Designed for inline installation, indoor or outdoor assembly, they are suitable for:

- Air renewal in buildings and industries.
- Maximum working temperature: 50°C.

UNDER REQUEST

- Position LG0
- Impeller made of galvanized sheet.

Technical data

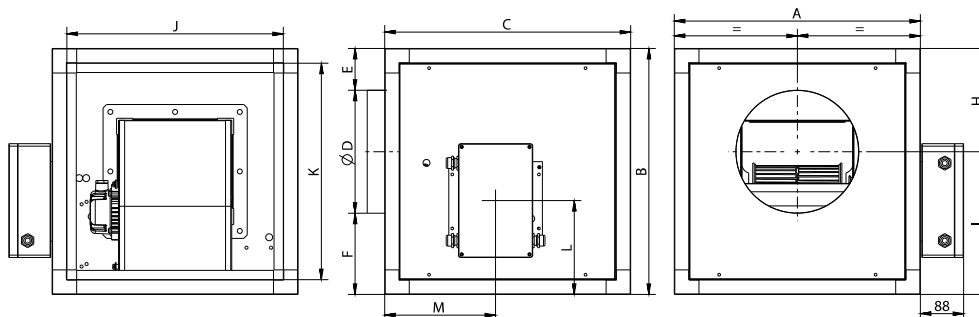
Single-phase motor

Code	Model	R.P.M.	Rated I. A 230V	Rated power kW	Max. Airflow m ³ /h	Sound db (A)**	Weight kg	Connect. diagram
251169454EC	BOX BD PLUS 7/7 EEC	2000	5,00	0,37	2.870	39	24	1
251269454ECV2	BOX BD PLUS 9/7 EEC	2000	5,8	0,75	3.940	42	30,50	1
251289454ECV2	BOX BD PLUS 9/9 EEC	2000	5,8	0,75	4.280	44	35	1
251339454EC	BOX BD PLUS 10/8 EEC	1800	10,00	1,50	5.960	48	36	1
251379454EC	BOX BD PLUS 10/10 EEC	1800	10,00	1,50	5.820	45	39	1
251609454EC	BOX BD PLUS 12/9 EEC	1200	10,00	1,50	6.440	46	53	1
251529454EC	BOX BD PLUS 12/12 EEC	1200	10,00	1,50	7.420	45	59	1

Notes:

** Total sound pressure level at the point of maximum flow measured in dB(A) in the suction measured in free field at a distance of 6m from the source

Dimensions



Model	A	B	C	E	F	H	I	J	K
BOX BD PLUS 7/7 EEC	500	500	500	85	165	210	290	440	440
BOX BD PLUS 9/7 EEC	550	550	550	87.5	147.5	245	305	490	490
BOX BD PLUS 9/9 EEC	550	550	550	57.5	137.5	235	315	490	490
BOX BD PLUS 10/8 EEC	600	600	600	82.5	162.5	260	340	540	540
BOX BD PLUS 10/10 EEC	600	600	600	50	150	250	350	540	540
BOX BD PLUS 12/9 EEC	700	700	700	105	195	305	395	640	640
BOX BD PLUS 12/12 EEC	700	700	700	80	170	305	395	640	640

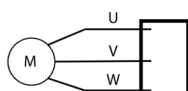
Model	L	M	ØD
BOX BD PLUS 7/7 EEC	190.7	225.4	250
BOX BD PLUS 9/7 EEC	215.7	250.4	315
BOX BD PLUS 9/9 EEC	215.7	250.4	355
BOX BD PLUS 10/8 EEC	240.7	275.4	355
BOX BD PLUS 10/10 EEC	240.7	275.4	400
BOX BD PLUS 12/9 EEC	290.7	325.4	400
BOX BD PLUS 12/12 EEC	290.7	325.4	450

Wiring diagram

Wiring diagram Nº 1

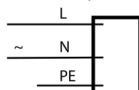
MOTOR OUTPUT SALIDA MOTOR

The EC motor is three phase and the output of three phases is connected in this connection terminal.
El motor EC es trifásico y la salida de las 3 fases del mismo se conectan a este terminal de conexión.



POWER INPUT (230V) ENTRADA DE ALIMENTACIÓN (230V)

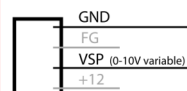
In this other terminal, the power input must be connected with the L (line), N (neutral) and single phase PE (ground).
En este otro terminal se debe conectar la entrada de alimentación con la L (línea), N (neutro) y PE (tierra) monofásica.



CONTROL: 0-10 INPUT CONTROL: 0-10 ENTRADA

The fan is adjustable in rpm and has a variable input from 0 to 10V.
You can connect any accessory or external device that gives this variable signal (for example: temperature sensor, inverter, etc.). In case you want to operate the fan at maximum revolutions, you should connect VSP (0-10V) and +12 directly.

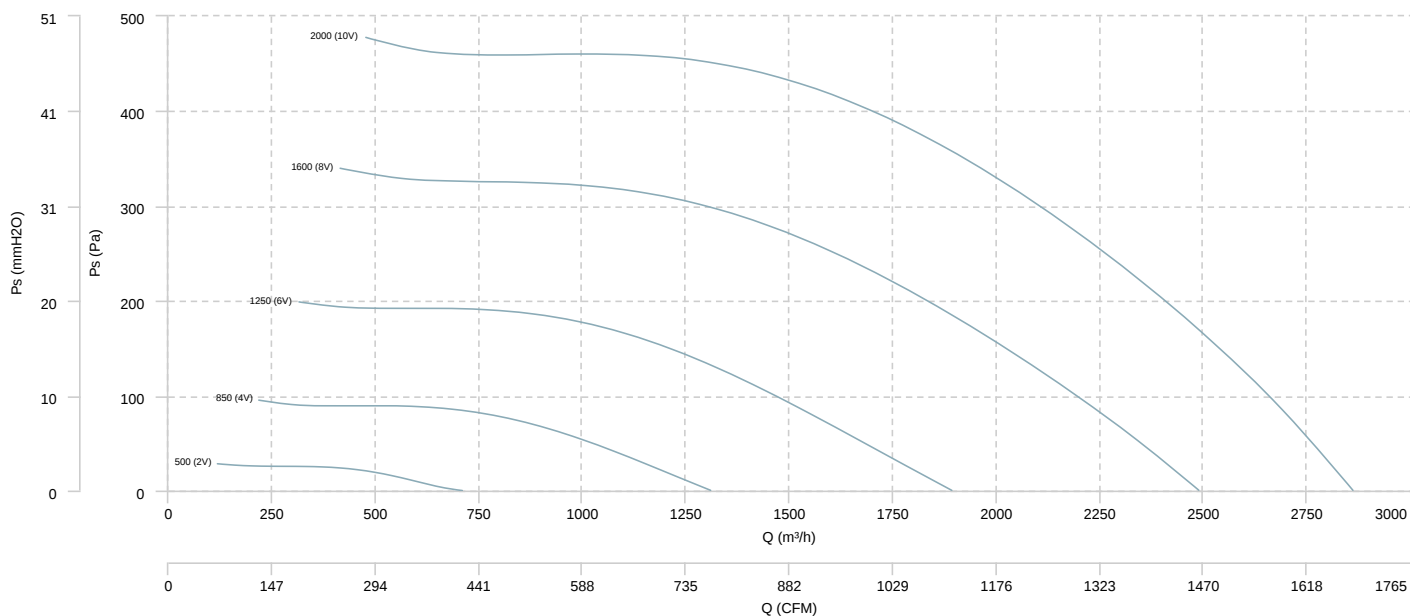
El ventilador es regulable en RPM y tiene una entrada variable de 0 a 10V.
Se puede conectar algún accesorio o dispositivo externo que dé esta señal variable (por ejemplo, sensor de temperatura, variador, etc.). En caso de que se quiera hacer funcionar el ventilador a máximas revoluciones se debe conectar directamente VSP (0-10V) y +12.



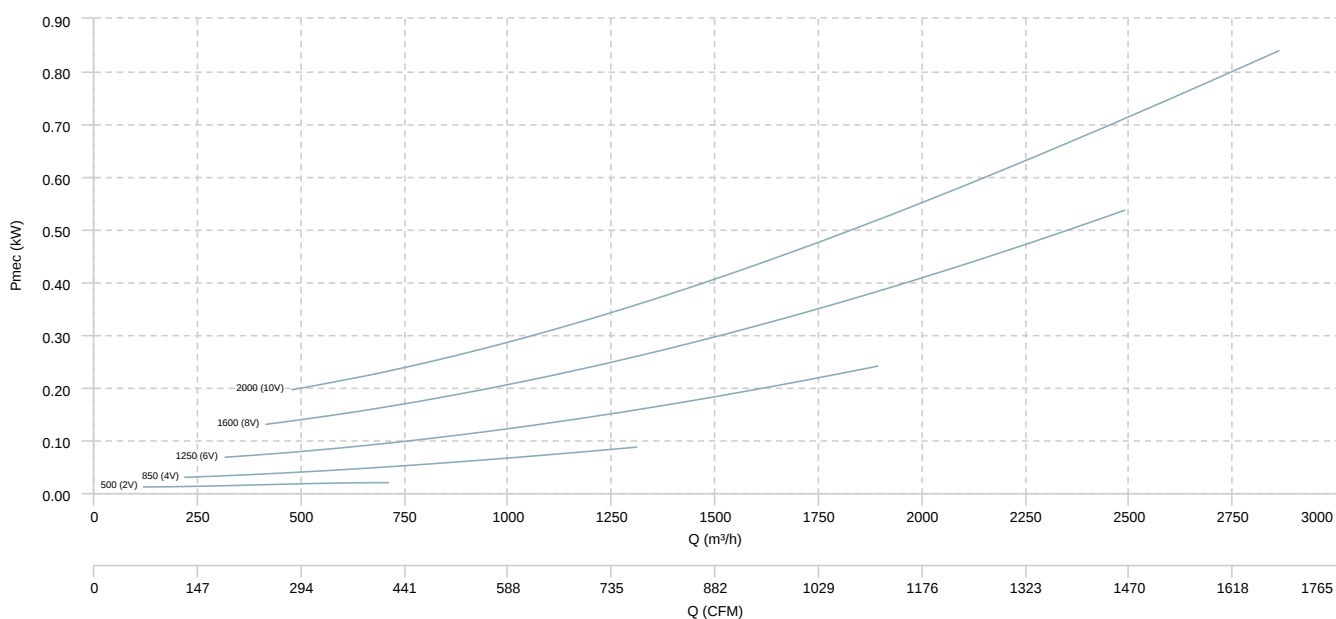
CHARACTERISCTIC CURVE

BOX BD PLUS 7/7 EEC

AIR FLOW - PRESSURE

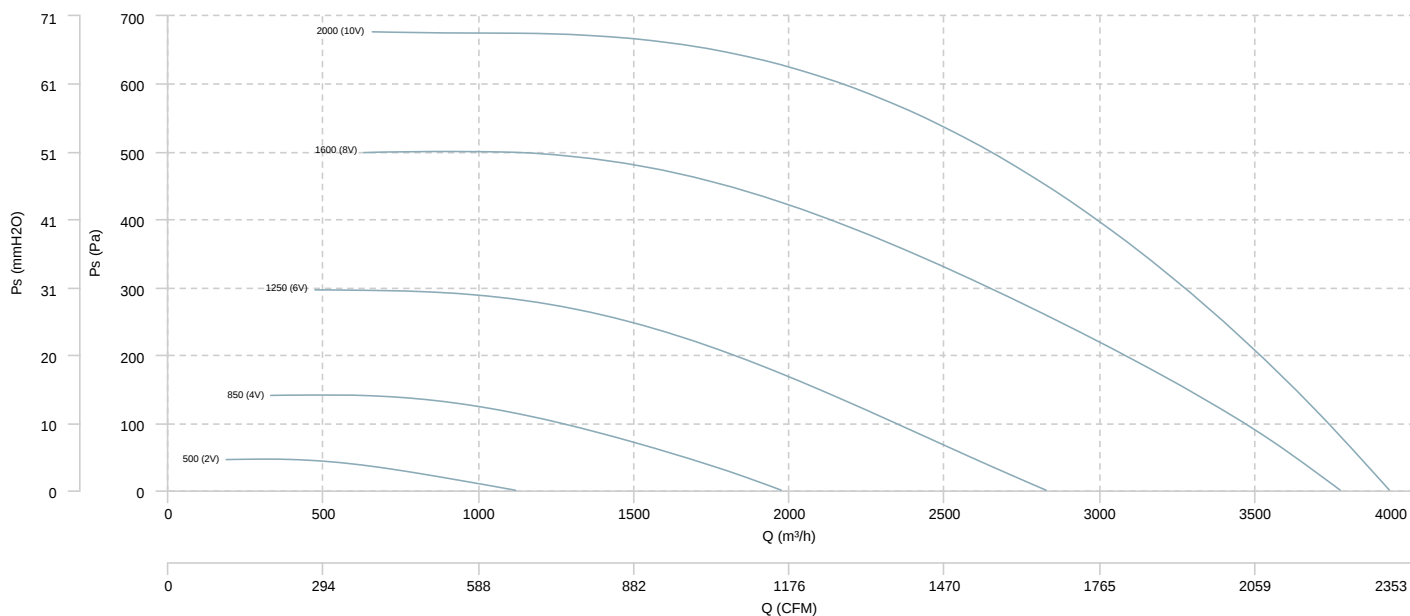


AIR FLOW - MECHANICAL POWER

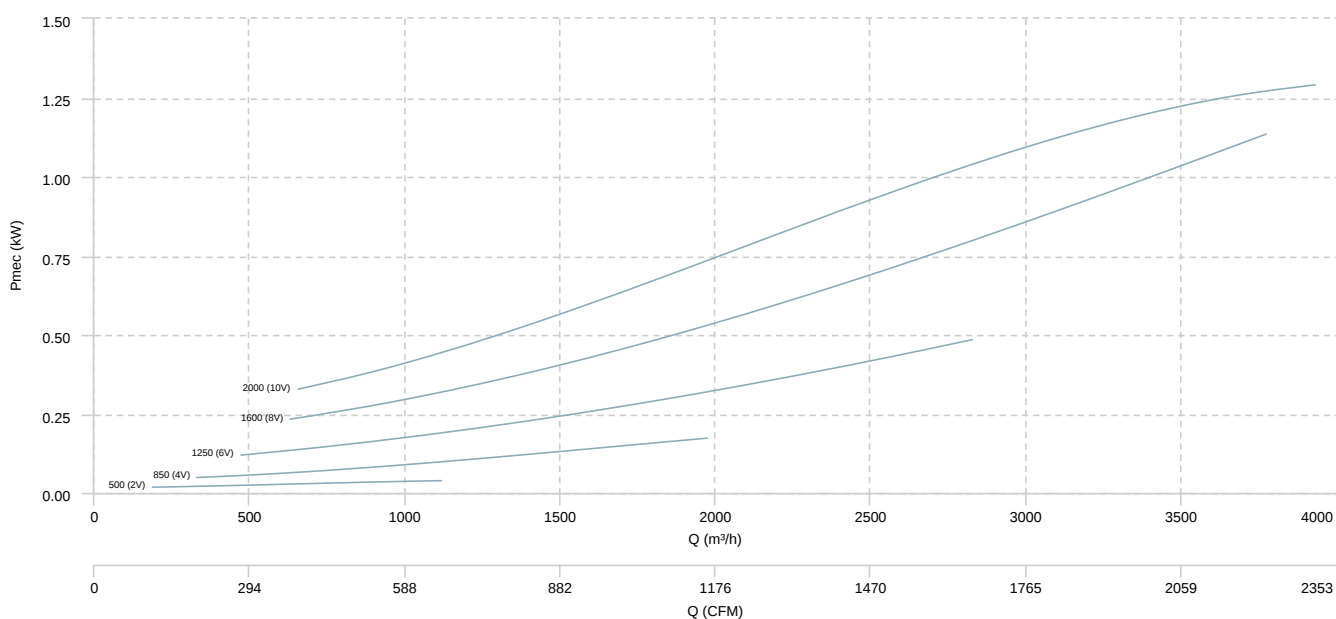


BOX BD PLUS 9/7 EEC

AIR FLOW - PRESSURE

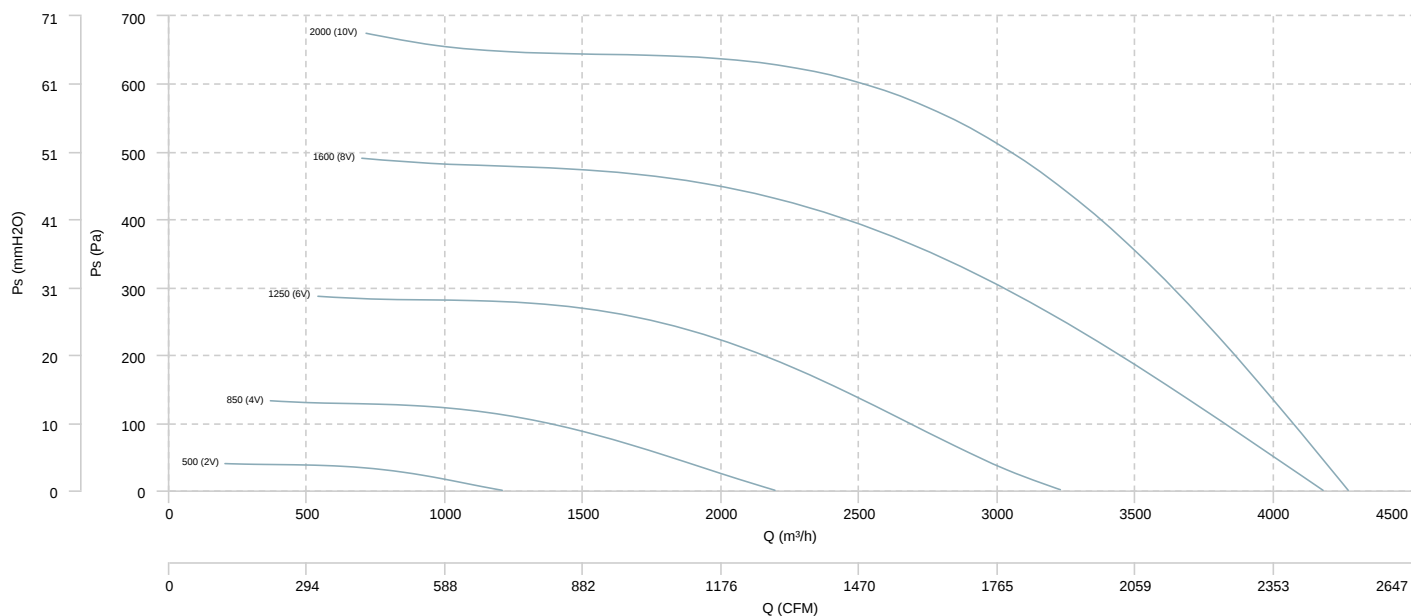


AIR FLOW - MECHANICAL POWER

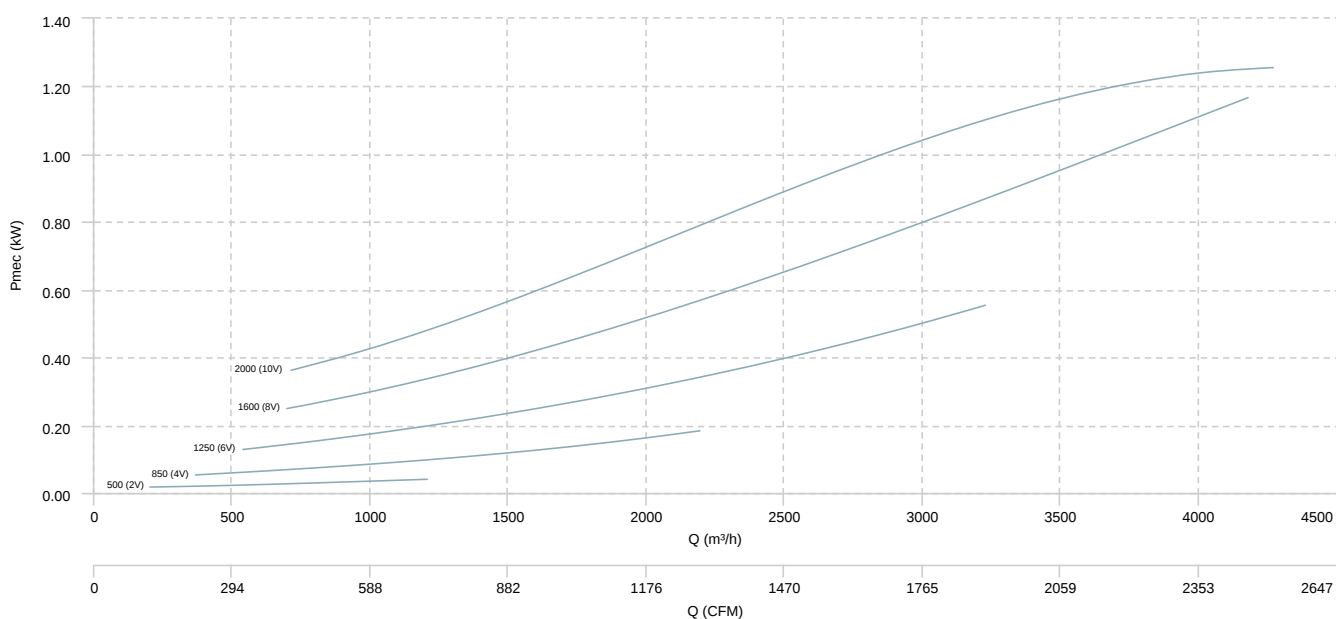


BOX BD PLUS 9/9 EEC

AIR FLOW - PRESSURE

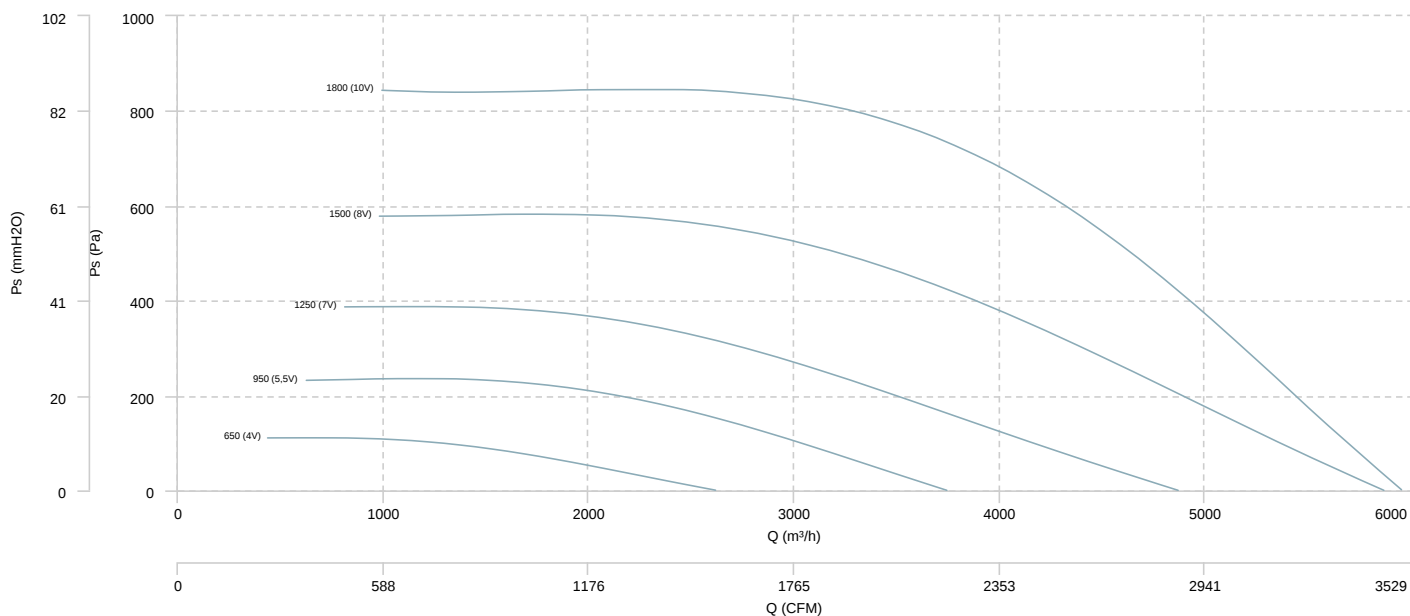


AIR FLOW - MECHANICAL POWER

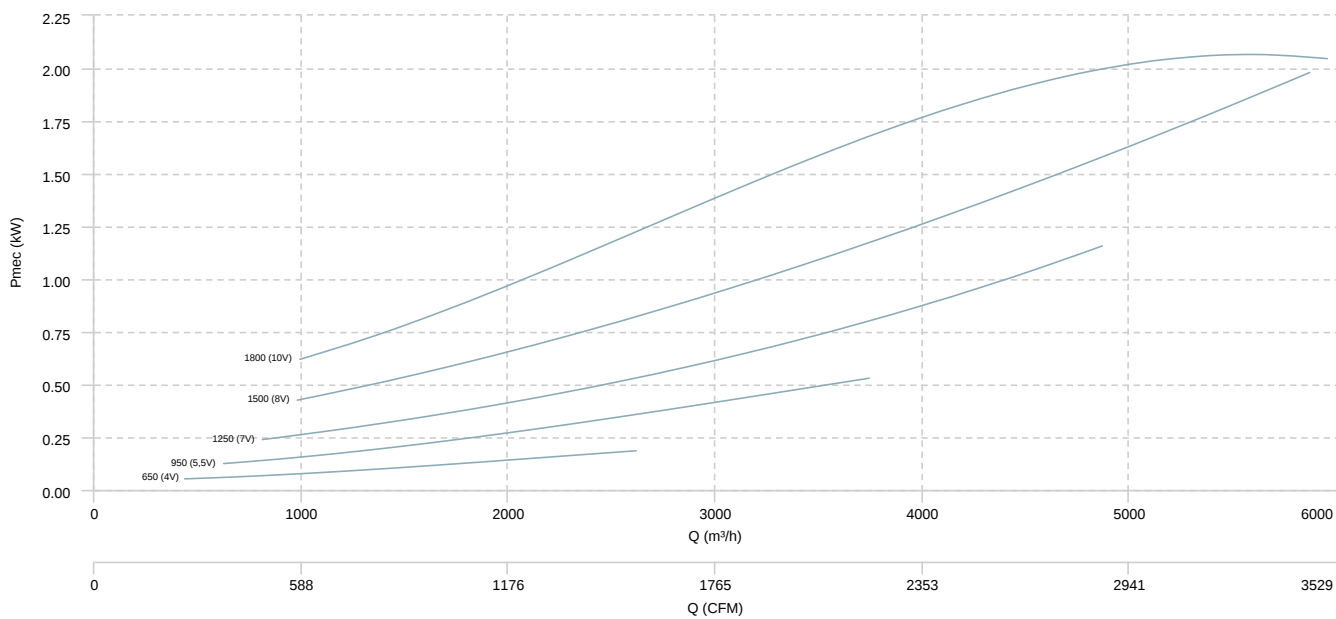


BOX BD PLUS 10/8 EEC

AIR FLOW - PRESSURE

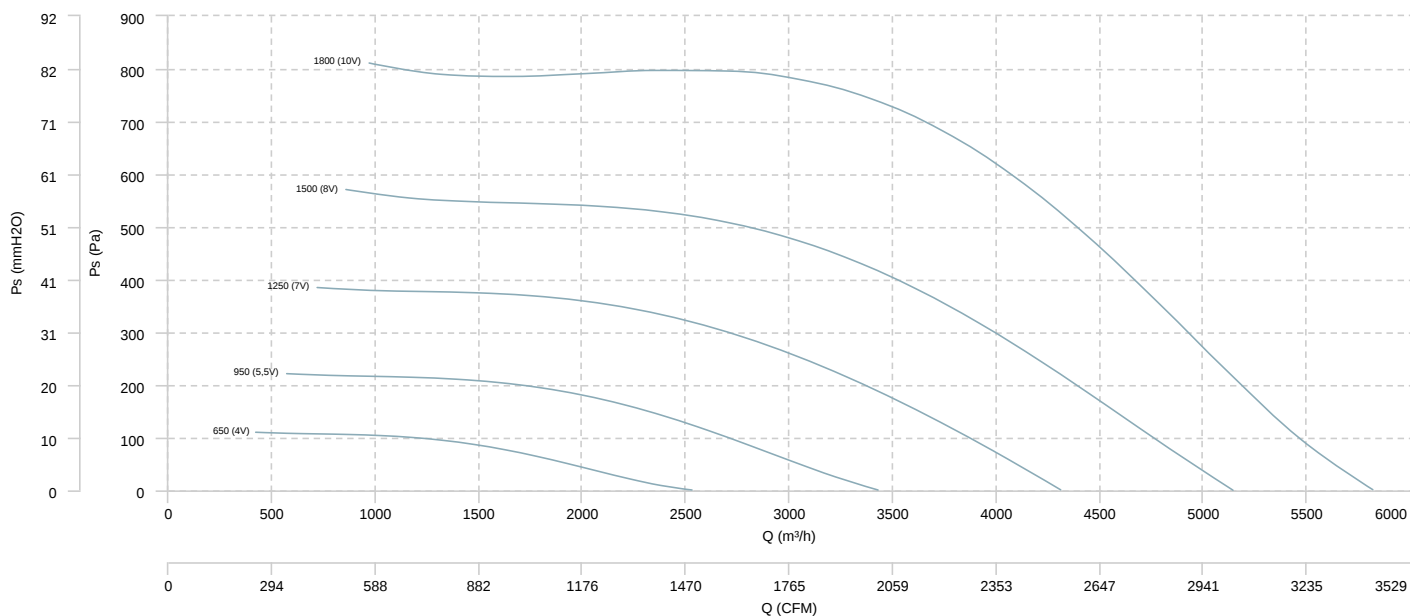


AIR FLOW - MECHANICAL POWER

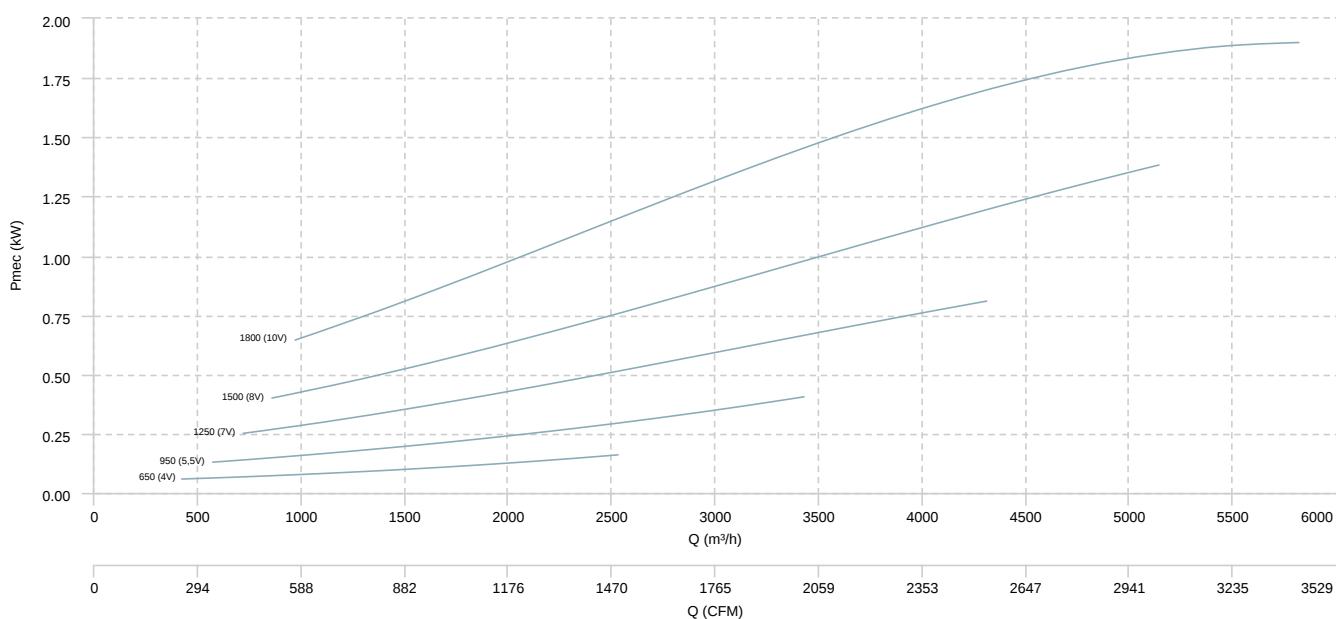


BOX BD PLUS 10/10 EEC

AIR FLOW - PRESSURE

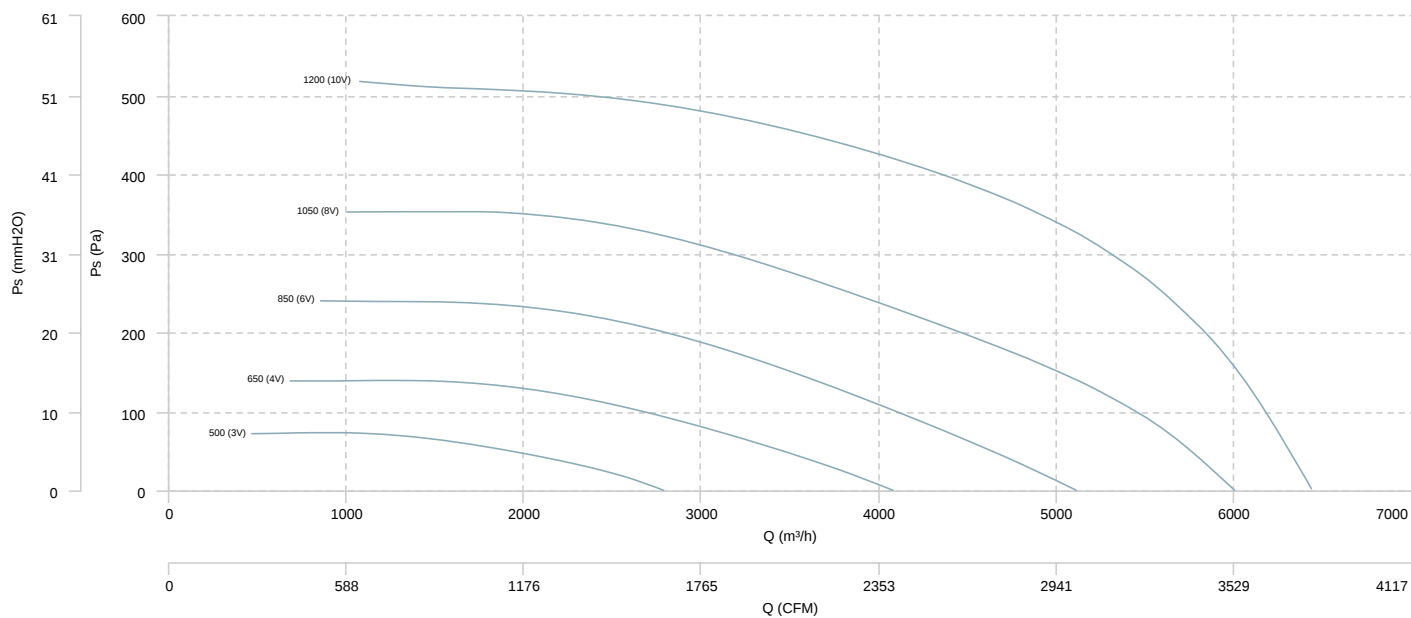


AIR FLOW - MECHANICAL POWER

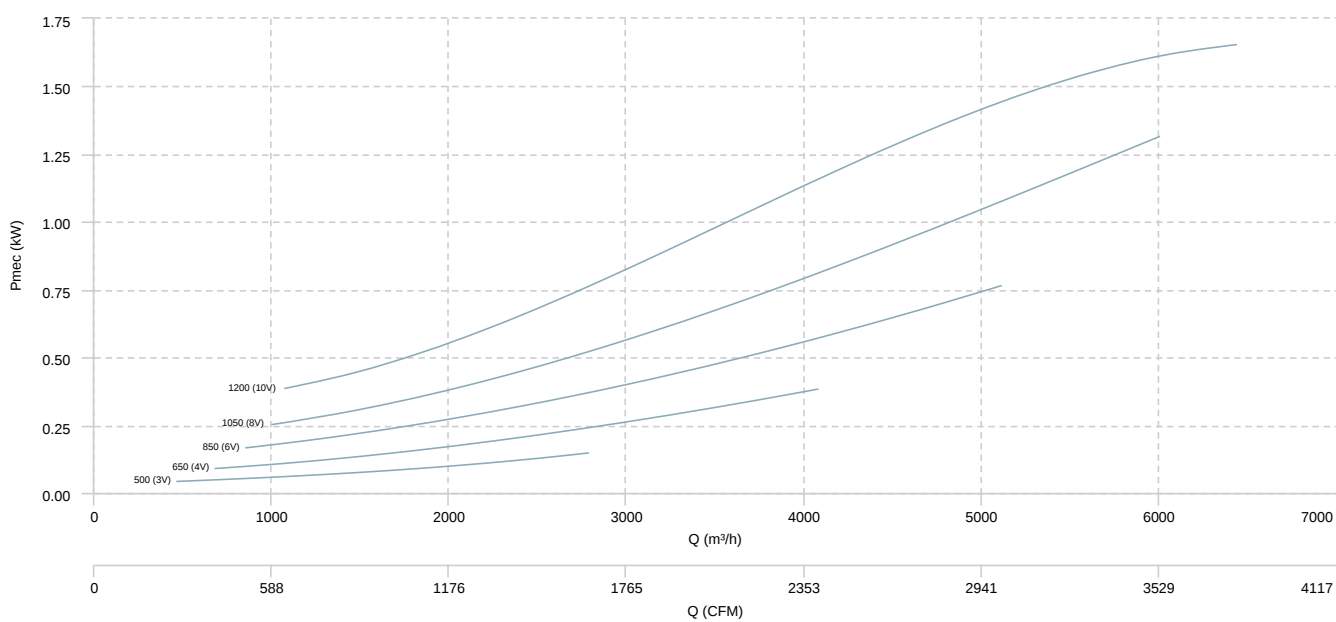


BOX BD PLUS 12/9 EEC

AIR FLOW - PRESSURE

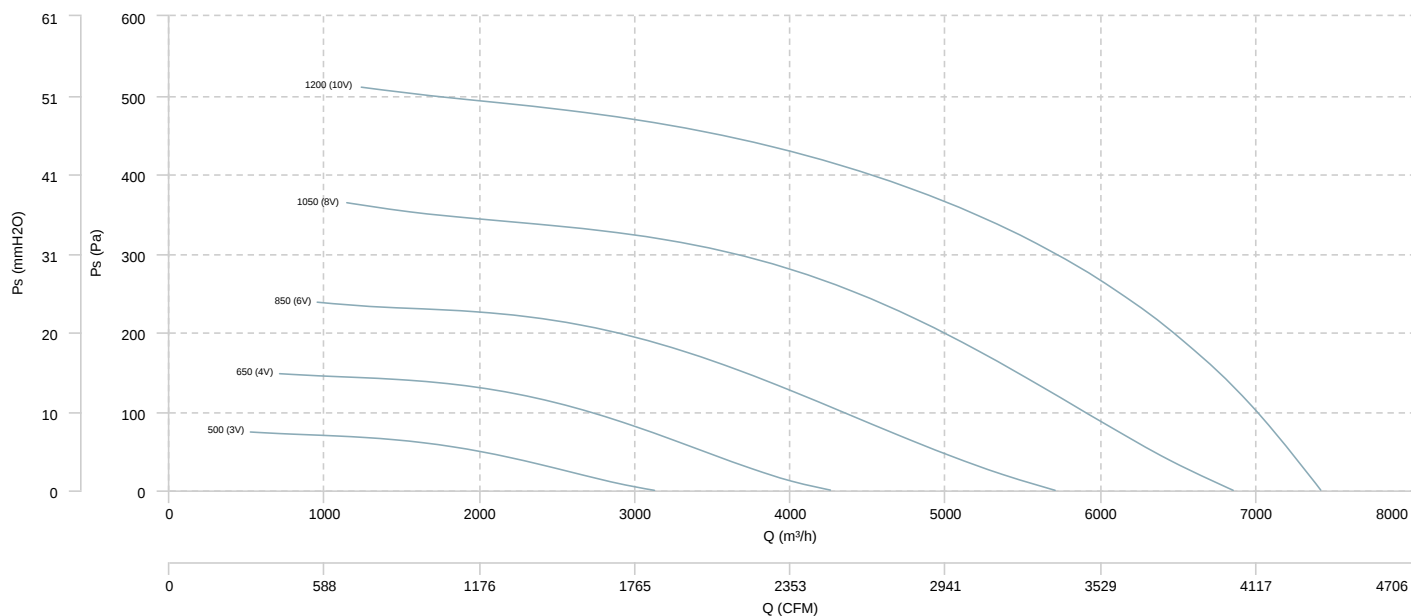


AIR FLOW - MECHANICAL POWER

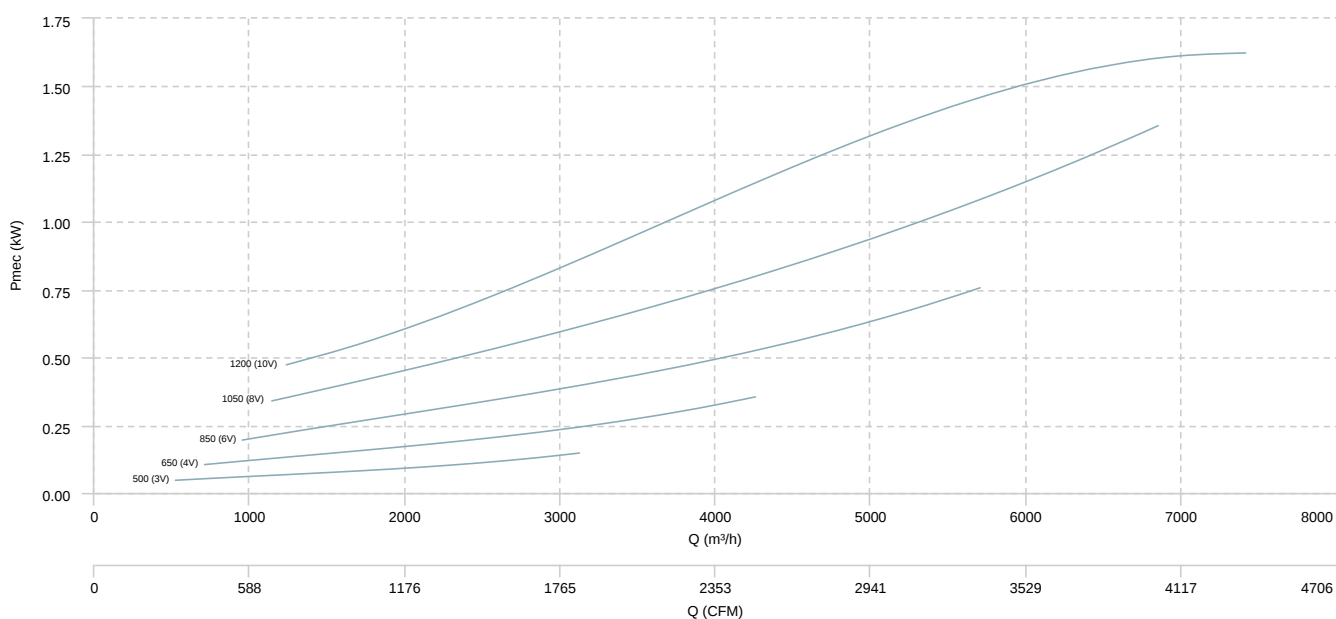


BOX BD PLUS 12/12 EEC

AIR FLOW - PRESSURE



AIR FLOW - MECHANICAL POWER



Sound data

Sound power Lw dB (A)										
Model		63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Total
BOX BD PLUS 7/7 EEC (500 (2V))	Inlet	18	24	24	25	27	26	22	18	33
BOX BD PLUS 9/7 EEC (500 (2V))	Inlet	23	29	28	29	32	30	27	22	37
BOX BD PLUS 9/9 EEC (500 (2V))	Inlet	24	30	29	30	33	31	28	23	38
BOX BD PLUS 10/8 EEC (650 (4V))	Inlet	34	40	39	41	43	41	38	33	49
BOX BD PLUS 10/10 EEC (650 (4V))	Inlet	32	38	37	38	41	39	36	31	46
BOX BD PLUS 12/9 EEC (500 (3V))	Inlet	34	40	40	41	43	42	38	33	49
BOX BD PLUS 12/12 EEC (500 (3V))	Inlet	30	36	36	37	39	38	34	30	45

Notes:

* To calculate the sound power level at different rpm from those indicated above, use the following formula:

$$Lw \text{ dB(A)}_{rpmA} = Lw \text{ dB(A)}_{rpmB} + 52.5 \cdot \log_{10} \frac{rpmA}{rpmB}$$

erp data

ERP	
Fan type	Unit for non-residential ventilation (LOT 6)
Typology	Unidirectional
Others	None
Type of driver	-

Model	Motor power (kW)	Maximum efficiency point data						
		Eff.Heat recovery (%)	Max. efficiency (%)	Pabs (kW)	Air Flow (m³/h)	Ps (Pa)	Speed (m/s)	SFP (W/m³/s)
BOX BD PLUS 7/7 EEC (1600 (8V))	0,37	-	43,30	0,21	1.052,97	319,81	6.11	989,73
BOX BD PLUS 7/7 EEC (2000 (10V))	0,37	-	45,75	0,34	1.222,32	456,43	7.1	989,73
BOX BD PLUS 9/7 EEC (1250 (6V))	0,75	-	46,14	0,19	1.105,22	282,90	5.07	1.347,89
BOX BD PLUS 9/7 EEC (1600 (8V))	0,75	-	49,57	0,39	1.427,99	485,85	6.55	1.347,89
BOX BD PLUS 9/7 EEC (2000 (10V))	0,75	-	49,87	0,62	1.645,48	658,88	7.55	1.347,89
BOX BD PLUS 9/9 EEC (1250 (6V))	0,75	-	48,07	0,21	1.280,64	277,16	4.55	1.308,75
BOX BD PLUS 9/9 EEC (1600 (8V))	0,75	-	50,68	0,43	1.645,96	468,69	5.84	1.308,75
BOX BD PLUS 9/9 EEC (2000 (10V))	0,75	-	51,08	0,71	1.959,62	638,44	6.96	1.308,75
BOX BD PLUS 10/8 EEC (950 (5,5V))	1,50	-	46,61	0,21	1.501,22	232,42	5.41	1.683,53
BOX BD PLUS 10/8 EEC (1250 (7V))	1,50	-	49,49	0,38	1.797,38	377,30	6.47	1.683,53
BOX BD PLUS 10/8 EEC (1500 (8V))	1,50	-	50,32	0,72	2.241,65	575,76	8.07	1.683,53
BOX BD PLUS 10/8 EEC (1800 (10V))	1,50	-	51,88	1,23	2.634,94	841,58	9.49	1.683,53
BOX BD PLUS 10/10 EEC (950 (5,5V))	1,50	-	43,78	0,20	1.524,74	207,23	4.42	1.619,15
BOX BD PLUS 10/10 EEC (1250 (7V))	1,50	-	47,08	0,42	1.945,95	362,35	5.65	1.619,15
BOX BD PLUS 10/10 EEC (1500 (8V))	1,50	-	48,89	0,70	2.281,97	533,21	6.62	1.619,15
BOX BD PLUS 10/10 EEC (1800 (10V))	1,50	-	49,67	1,22	2.711,36	795,93	7.87	1.619,15
BOX BD PLUS 12/9 EEC (650 (4V))	1,50	-	43,10	0,15	1.656,35	136,50	4.32	985,42
BOX BD PLUS 12/9 EEC (850 (6V))	1,50	-	47,59	0,27	1.952,81	233,29	5.09	985,42
BOX BD PLUS 12/9 EEC (1050 (8V))	1,50	-	51,21	0,42	2.263,20	343,89	5.9	985,42
BOX BD PLUS 12/9 EEC (1200 (10V))	1,50	-	51,82	0,76	2.790,44	487,83	7.28	985,42
BOX BD PLUS 12/12 EEC (650 (4V))	1,50	-	41,93	0,16	1.750,81	135,91	3.58	986,73
BOX BD PLUS 12/12 EEC (850 (6V))	1,50	-	44,21	0,31	2.193,44	222,25	4.48	986,73
BOX BD PLUS 12/12 EEC (1050 (8V))	1,50	-	46,59	0,56	2.737,34	329,67	5.59	986,73
BOX BD PLUS 12/12 EEC (1200 (10V))	1,50	-	49,19	0,90	3.298,74	459,41	6.74	986,73