



Wolter High Efficiency Plug Fans.

- PFE Series
- EC Motor
- Wall Fan



Air in Motion.
Wolter Fans.

P13. EC

wolter 



PFE with EC Motor

Fan type code

PFE 400 P EC D 1

Motor Version	1, 2, 3...
Motor Type	E = Single-phase D = Three-phase
Electronically Commutation	
Impeller material	P = plastic M = metal
Fan Size Number	355...630
Plug Fan	



Impeller

The centrifugal plug fan impellers are made of sheet metal or plastic material with backward curve blades. The impeller is aerodynamically designed for high efficiency and low power consumption. The maximum tip speed of the impeller is 70m/s. The impellers are optimized for stable performance and low noise and balanced according to G2.5 to ISO 21940-11:2016(E).

Inlet cone

The inlet cone is made of sheet metal with powder coated or plastic material. The inlet cone allows a uniform and stable airflow into the impeller assuring cataloged performance.

Overlap

The overlap distance is determined by empirical and airflow tests which take into account the aerodynamic characteristics of the impeller.

Motor

The EC (Electronically Commutation) Motors with die cast aluminium enclosure have maintenance free ball bearings & are capable of continuous operation (S1). The EC fan motor is capable of variable speed control. The motor speed can be pre-set by the user to operate at a certain maximum fan speed and the fan speed can also be adjusted automatically according to the cooling demand of the room to provide energy savings during period of partial load. A minimum fan speed can be preset by the user to avoid lower fan speeds than the requirement which is required in order to maintain sufficient airflow in the room. The fan motor is variable speed and totally enclosed fan cooled type with Class F insulation, IP54 standard. Motor assembly conforms to standards: EN60034-1, EN60335-1 & EN62233.

Fan performance curves

The performance curves for these fan types have been established as per installation type A (free inlet, free outlet) according to AMCA 210 and show the static pressure rise ΔP_{st} in reference to the volume air flow. The given velocity c refers to the outlet area of the impeller.

Sound levels

The ascertaining of the sound level follows the reverberant room method according to AMCA 300.

The data on the fan curve show the A-weighted sound power level L_{WA6} at the outlet side, unducted, in decibel figures.

The A-weighted sound power level at the inlet side L_{WA5} according to DIN 45 635, part 38, is obtained as follows:

$$L_{WA5} = L_{WA6} - 3 \text{ dB(A)}$$

The octave sound power level is important for the choice of suitable sound attenuators. It is obtained as follows.

$$L_{WA0kt} = L_{WA6} + L_{WArel}$$

The relative octave sound power level L_{WArel} at octave medium frequency can be taken from the tables at respective fan. These levels has been established at $0.5 \times V_{max}$.

The A-weighted sound pressure level L_{PA} at a distance of 1 metre is obtained approximately by deducting 7 dB(A) from the A-weighted sound power level L_{WA} .

It is important to note that reflexion and room characteristics as well as natural frequencies differently influence the sound pressure levels.

Summation of several congenic sound levels:

$$L_z = L_1 + 10 \cdot \lg(z)$$

where: z = number of sources, L_1 = sound level of a single source,

L_z = resulting summation sound level

Supply Options

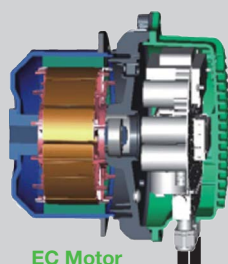
There are 2 different options:

- Motorised Fan Impeller
- Motorised Fan Impeller with fan cabinet c/w inlet cone

Accessories

The following accessories are available:

- Elastic Flexible connectors
- Anti-Vibration Mountings



EC Motor

Power Input:

- Single-phase: AC 220V, 230V (200 ~ 277V)
- Three-phase: AC 380V, 440V (380 ~ 480V)

1 ~ 230V	L	Black
	N	Blue
	PE	Yellow/green

	NO	Orange
	COM	Gray
	NC	Red
3 ~ 380V	R	Brown
	S	Blue
	T	Black
	PE	Yellow/green

Relay fault output

Control:

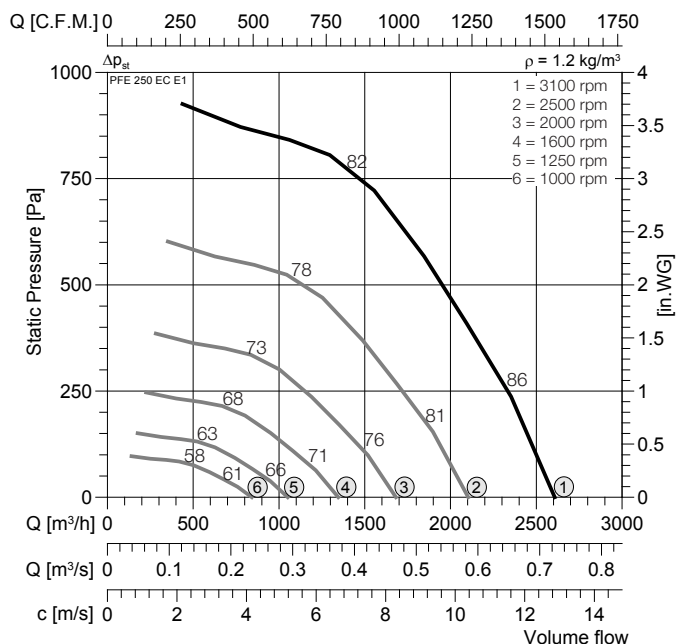
- 485A --- Brown
- 485B --- Black
- 485GND --- Green
- FG --- White
- Output 10V --- Red
- VSP / PWM --- Yellow
- GND --- Blue

High Efficiency Plug Fan

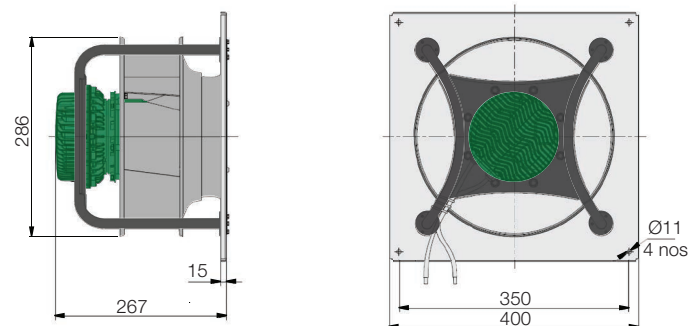
Wolter PFE with EC Motor



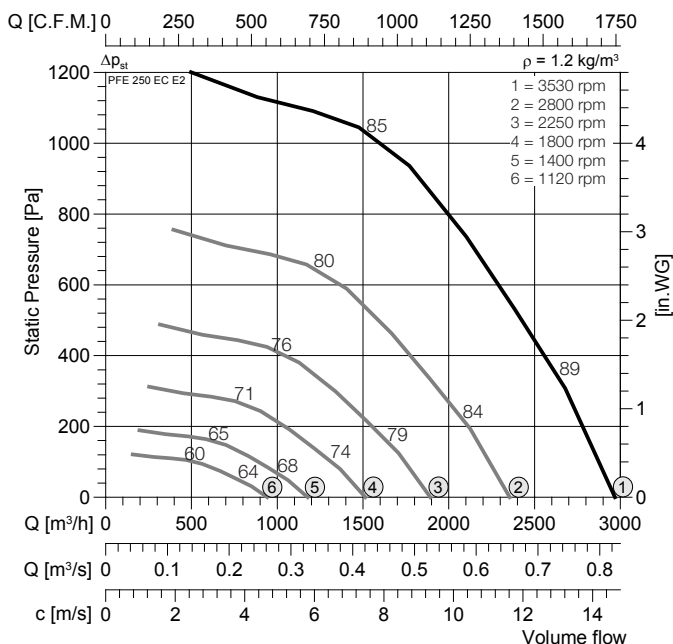
PFE 250 EC E1



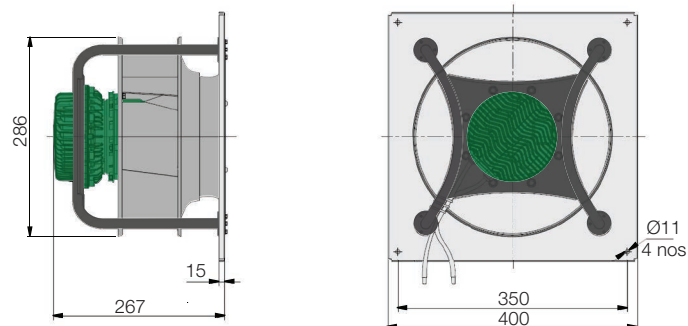
Typ : PFE 250 EC E1	⚠	IP 54
ArtNr : -	★	E11
■ : 9,7 kg	□	GS 1
U : 230 V 50/60 Hz	⚡	-
P ₁ : 0,54 kW	⚡	-
I _N : 2,38 A		
n _{motor} : 3100 min ⁻¹		
max n _{fan} : 3100 min ⁻¹		
t _R : 40 °C		



PFE 250 EC E2



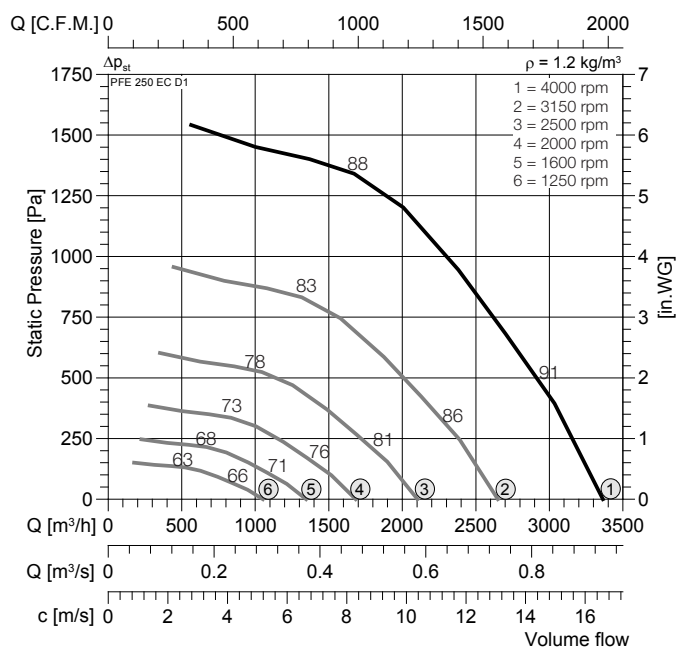
Typ : PFE 250 EC E2	⚠	IP 54
ArtNr : -	★	E11
■ : 10,3 kg	□	GS 1
U : 230 V 50/60 Hz	⚡	-
P ₁ : 0,803 kW	⚡	-
I _N : 3,47 A		
n _{motor} : 3530 min ⁻¹		
max n _{fan} : 3530 min ⁻¹		
t _R : 40 °C		



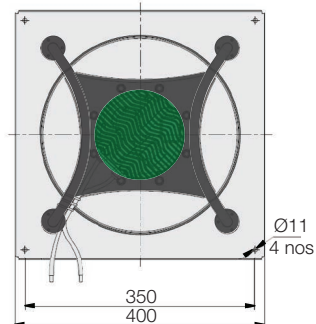
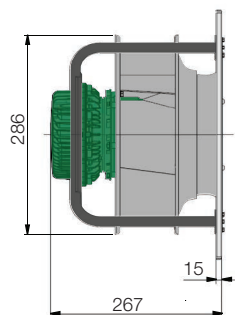


PFE with EC Motor

PFE 250 EC D1



Typ : PFE 250 EC D1	IP 54
ArtNr : -	DD0
: 11 kg	GS 1
U : 400 V 50/60 Hz	-
P ₁ : 1,14 kW	-
I _N : 1,8 A	
n _{motor} : 4000 min ⁻¹	
max n _{fan} : 4000 min ⁻¹	
t _R : 40 °C	

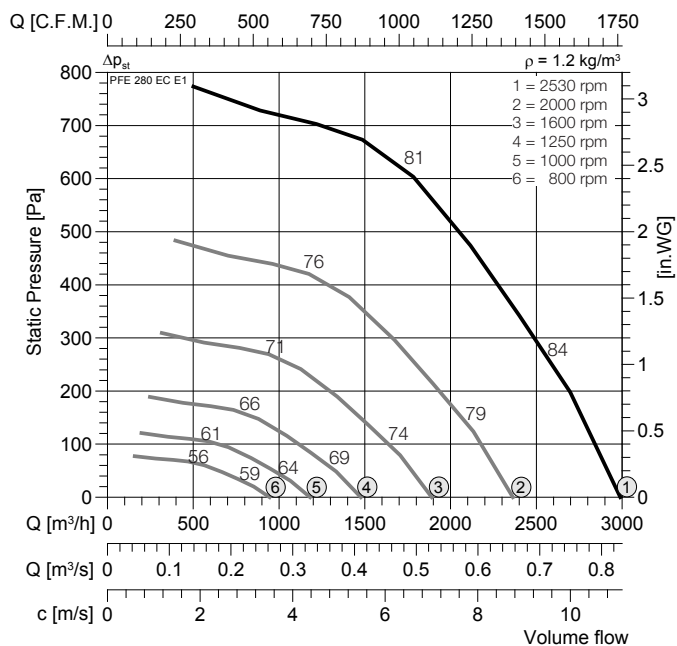


High Efficiency Plug Fan

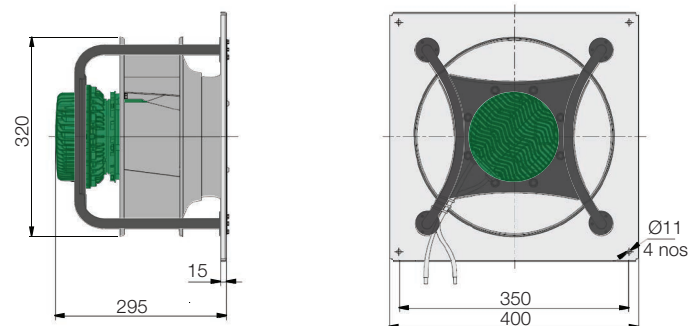
Wolter PFE with EC Motor



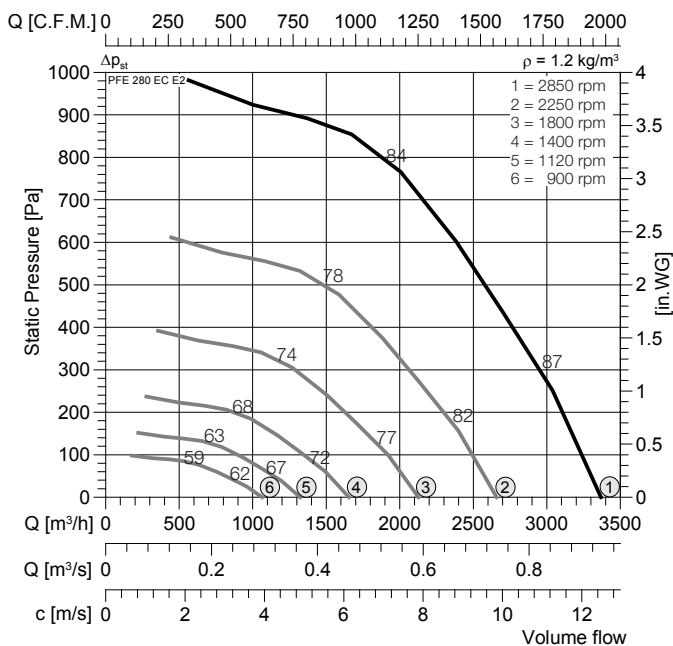
PFE 280 EC E1



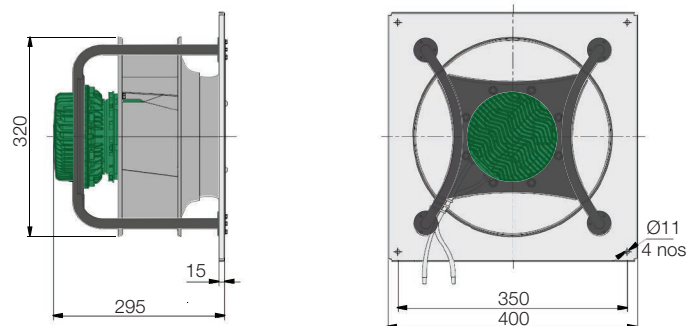
Typ : PFE 280 EC E1	⚠	IP 54
ArtNr : -	★	E11
■ : 11,8 kg	□	GS 1
U : 230 V 50/60 Hz	⚡	-
P ₁ : 0,54 kW	⚡	-
I _N : 2,4 A		
n _{motor} : 2530 min ⁻¹		
max n _{fan} : 2530 min ⁻¹		
t _R : 40 °C		



PFE 280 EC E2



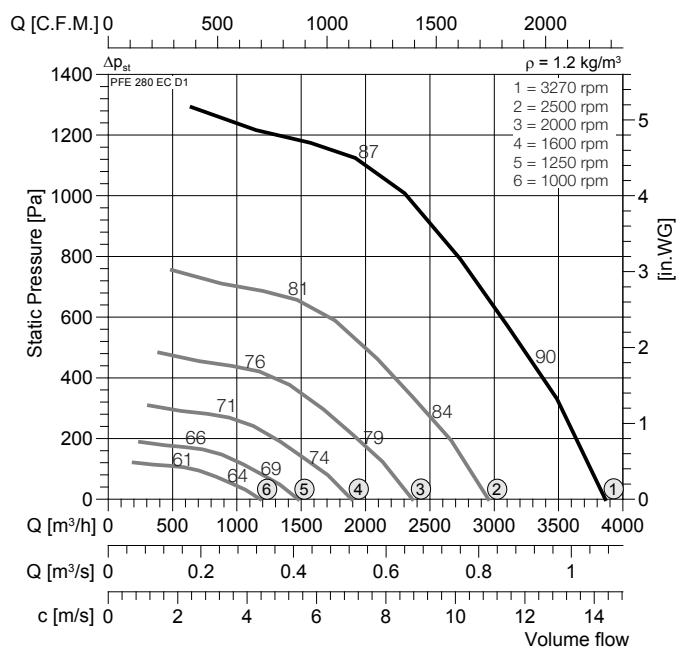
Typ : PFE 280 EC E2	⚠	IP 54
ArtNr : -	★	DD0
■ : 11,8 kg	□	GS 1
U : 230 V 50/60 Hz	⚡	-
P ₁ : 0,73 kW	⚡	-
I _N : 3,20 A		
n _{motor} : 2850 min ⁻¹		
max n _{fan} : 2850 min ⁻¹		
t _R : 40 °C		



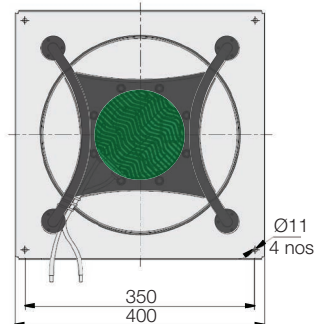
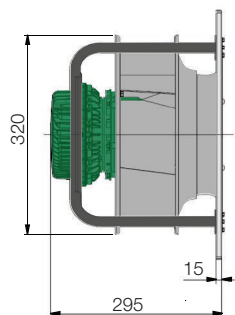


PFE with EC Motor

PFE 280 EC D1



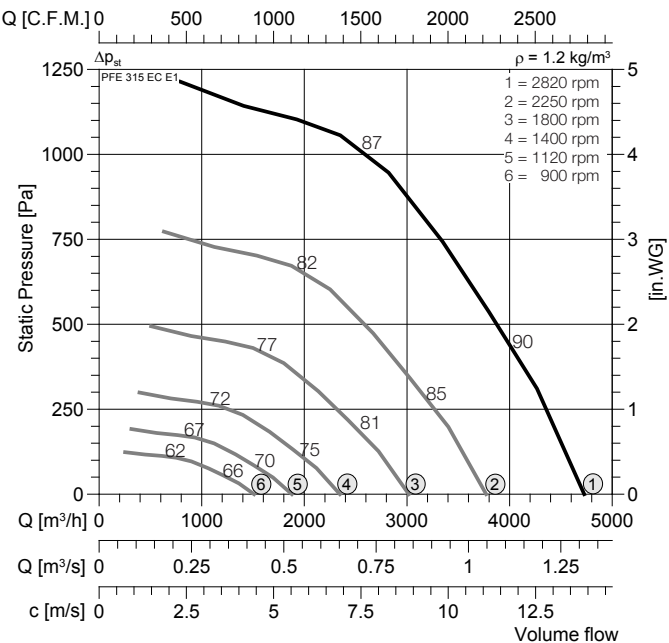
Typ : PFE 280 EC D1	⚠	IP 54
ArtNr : -	★	DD0
■ : 11,8 kg	📏	GS 1
U : 400 V 50/60 Hz	🔌	-
P ₁ : 1,14 kW	🔄	-
I _N : 1,86 A		
n _{motor} : 3270 min ⁻¹		
max n _{fan} : 3270 min ⁻¹		
t _R : 40 °C		



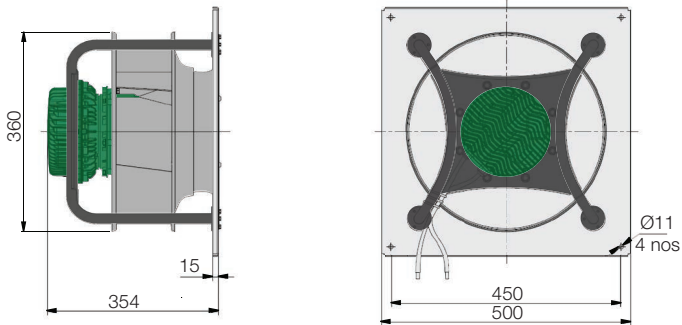
High Efficiency
Plug Fan



PFE 315 EC E1



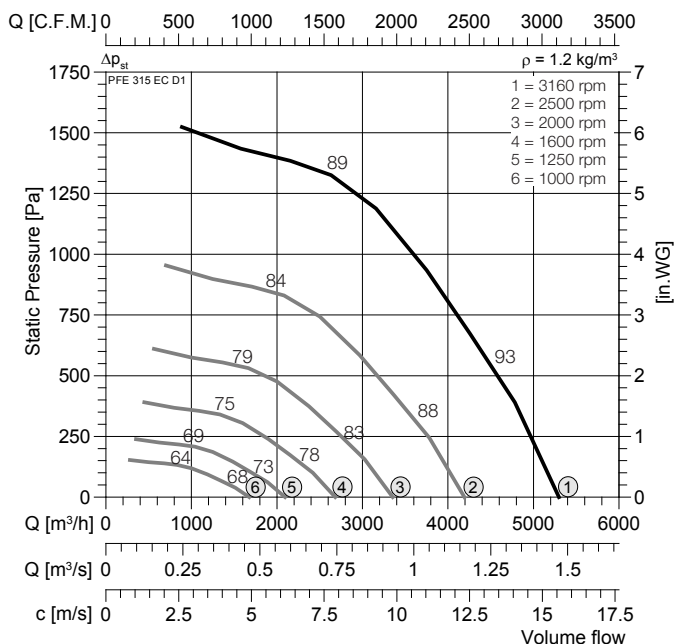
Typ : PFE 315 EC E1	⚠ IP 54
ArtNr : -	★ E11
13 kg	GS 1
U : 230 V 50/60 Hz	-
P ₁ : 1,375 kW	-
I _N : 9,3 A	
n _{motor} : 2820 min ⁻¹	
max n _{fan} : 2820 min ⁻¹	
t _R : 40 °C	



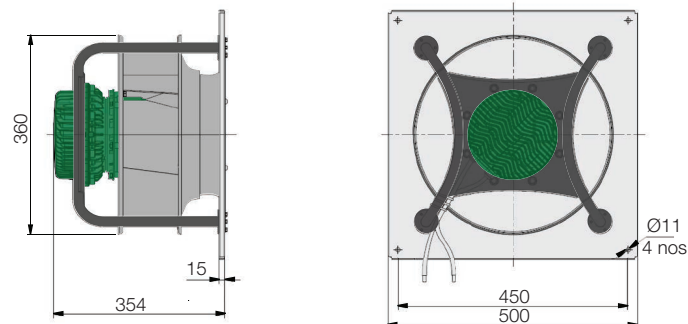


PFE with EC Motor

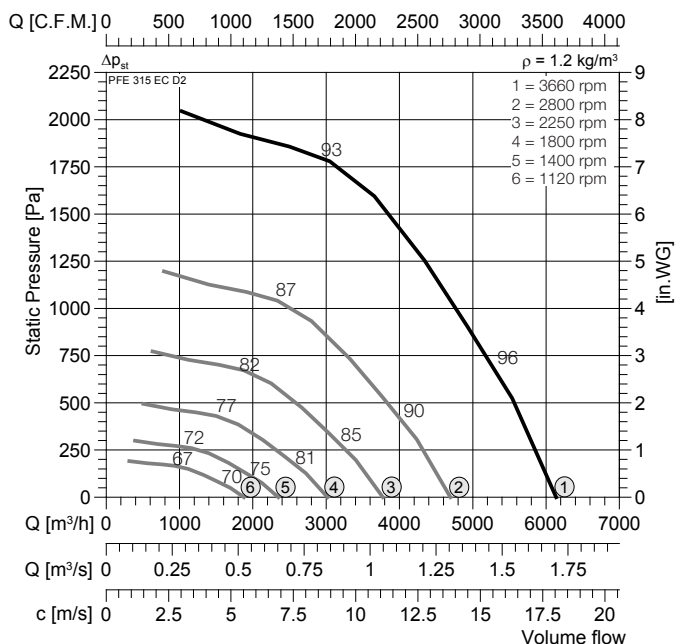
PFE 315 EC D1



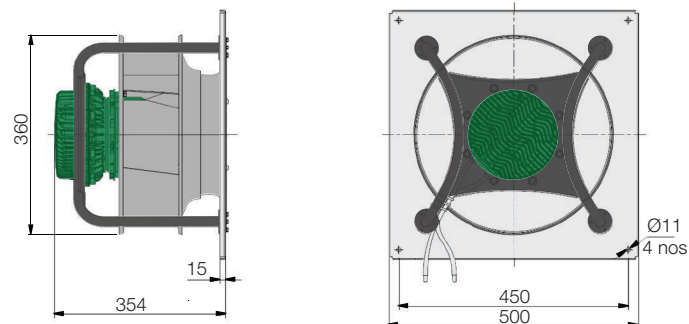
Typ : PFE 315 EC D1	△	IP 54
ArtNr : -	★	DD0
: 13 kg	: GS 1	
U : 400 V 50/60 Hz	: -	
P ₁ : 1,65 kW	: -	
I _N : 2,8 A		
n _{motor} : 3160 min ⁻¹		
max n _{fan} : 3160 min ⁻¹		
t _R : 40 °C		



PFE 315 EC D2



Typ : PFE 315 EC D2	△	IP 54
ArtNr : -	★	DD0
: 13 kg	: GS 1	
U : 400 V 50/60 Hz	: -	
P ₁ : 3,03 kW	: -	
I _N : 5,3 A		
n _{motor} : 3660 min ⁻¹		
max n _{fan} : 3660 min ⁻¹		
t _R : 40 °C		

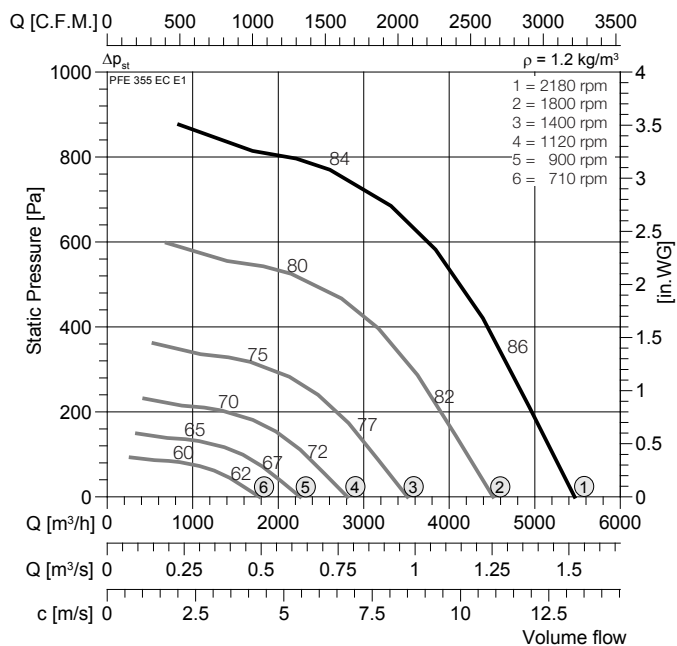


High Efficiency Plug Fan

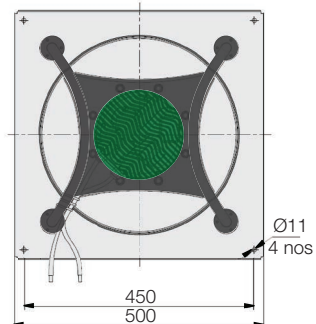
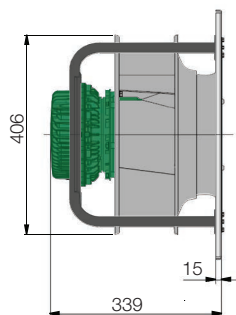
Wolter PFE with EC Motor



PFE 355 EC E1



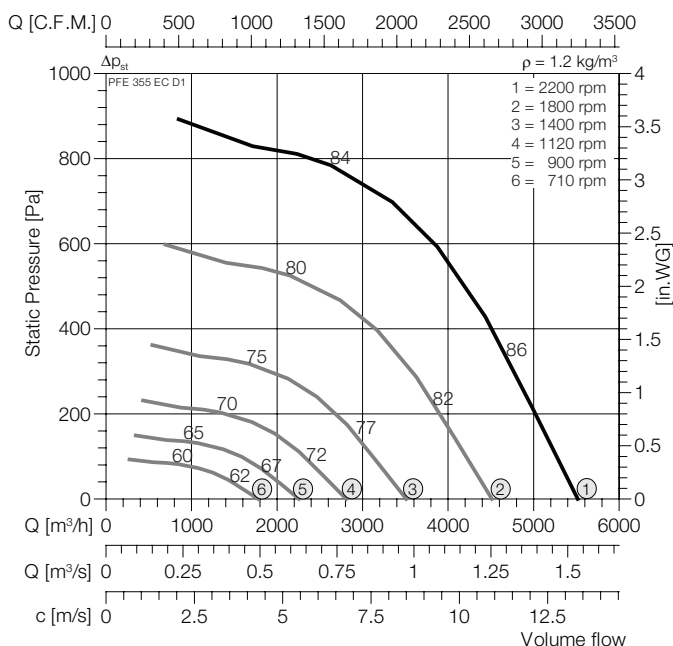
Typ : PFE 355 EC E1	⚠ IP 54
ArtNr : -	★ E11
■ : 19 kg	□ GS 1
U : 230 V 50/60 Hz	⚡ -
P ₁ : 1,04 kW	⚡ -
I _N : 7,4 A	
n _{motor} : 2180 min ⁻¹	
max n _{fan} : 2180 min ⁻¹	
t _R : 40 °C	



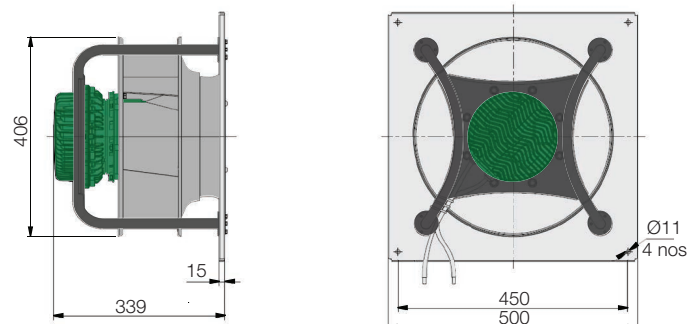


PFE with EC Motor

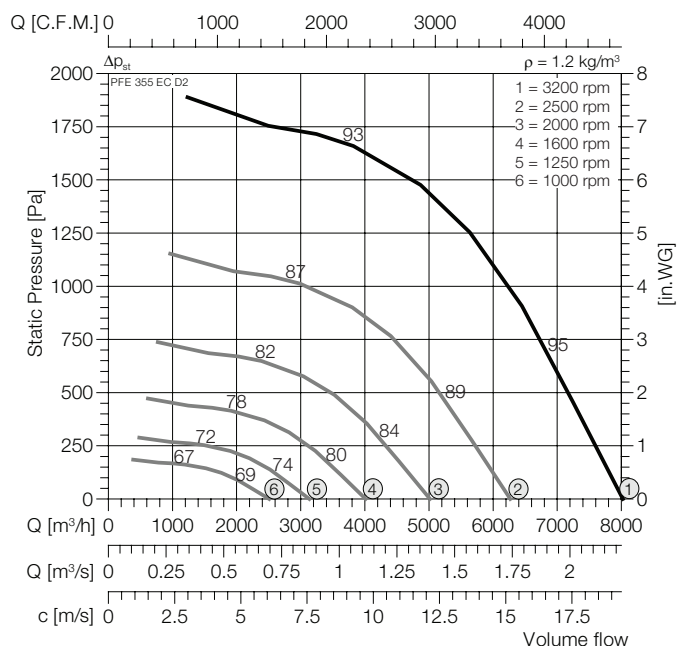
PFE 355 EC D1



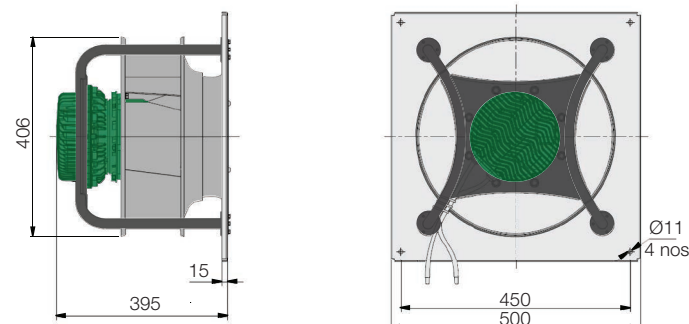
Typ : PFE 355 EC D1	IP 54
ArtNr : -	DD0
: 19 kg	GS 1
U : 400 V 50/60 Hz	-
P ₁ : 1,1 kW	-
I _N : 1,8 A	
n _{motor} : 2200 min ⁻¹	
max n _{fan} : 2200 min ⁻¹	
t _R : 40 °C	



PFE 355 EC D2



Typ : PFE 355 EC D2	IP 54
ArtNr : -	DD0
: 24 kg	GS 1
U : 400 V 50/60 Hz	-
P ₁ : 3,25 kW	-
I _N : 5,1 A	
n _{motor} : 3200 min ⁻¹	
max n _{fan} : 3200 min ⁻¹	
t _R : 40 °C	

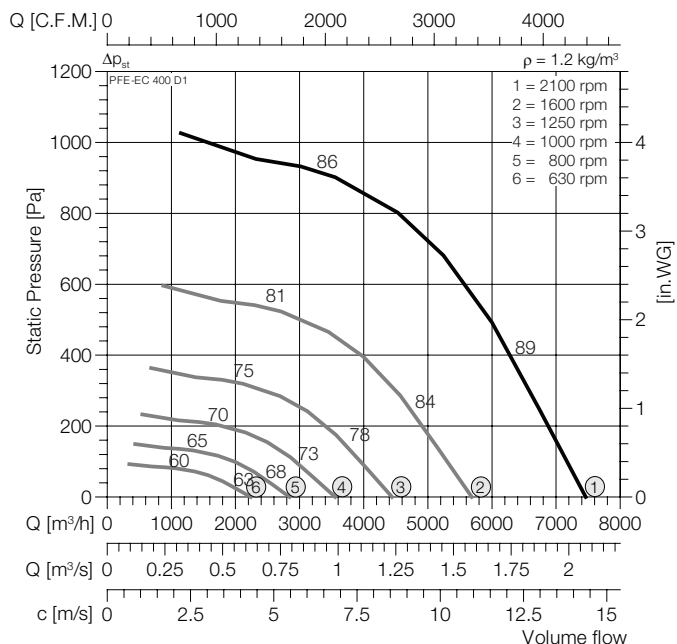


High Efficiency Plug Fan

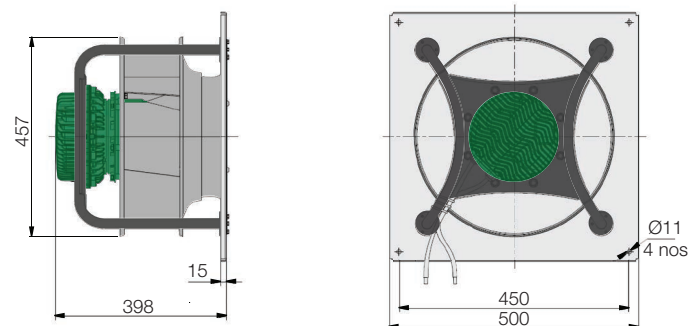
Wolter PFE with EC Motor



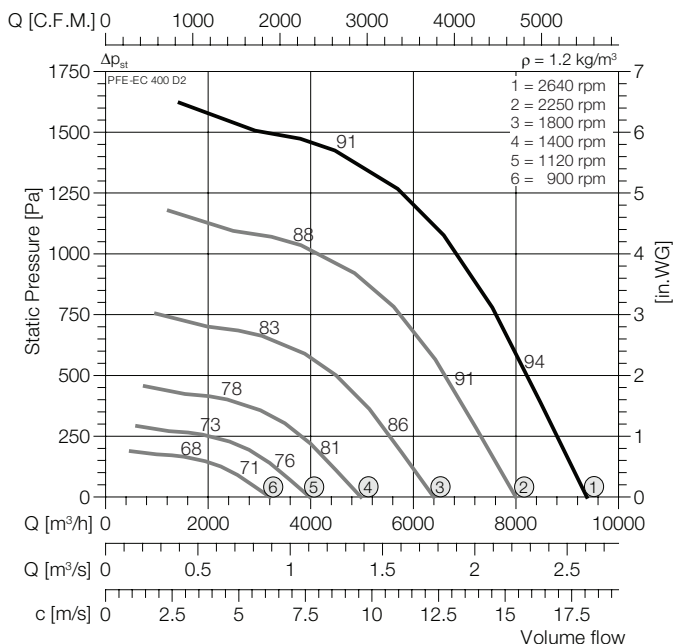
PFE 400 EC D1



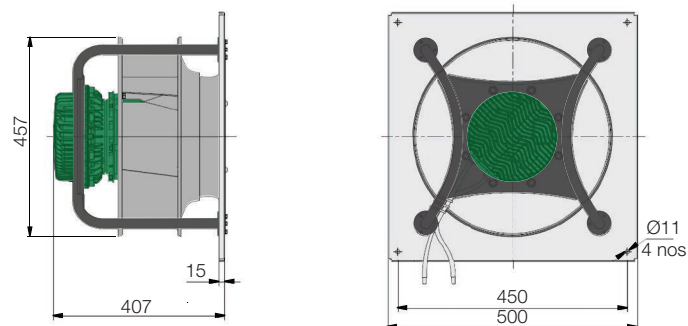
Typ : PFE 400 EC D1	⚠	IP54
ArtNr : -	★	DD0
■ : 25 kg	□	GS 1
U : 400 V 50/60 Hz	⚡	-
P ₁ : 1,58 kW	⚡	-
I _N : 2,5 A		
n _{motor} : 2100 min ⁻¹		
max n _{fan} : 2100 min ⁻¹		
t _R : 40 °C		



PFE 400 EC D2



Typ : PFE 400 EC D2	⚠	IP54
ArtNr : -	★	DD0
■ : 26 kg	□	GS 1
U : 400 V 50/60 Hz	⚡	-
P ₁ : 3,35 kW	⚡	-
I _N : 5,0 A		
n _{motor} : 2640 min ⁻¹		
max n _{fan} : 2640 min ⁻¹		
t _R : 40 °C		

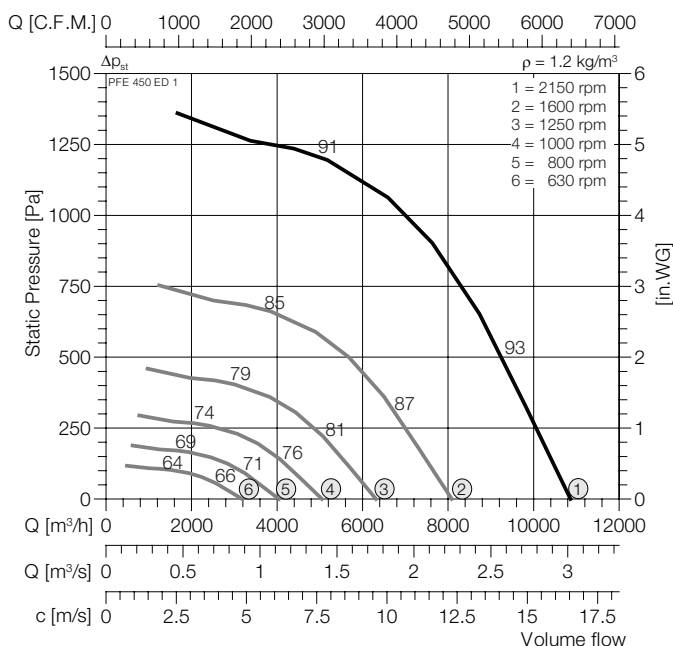




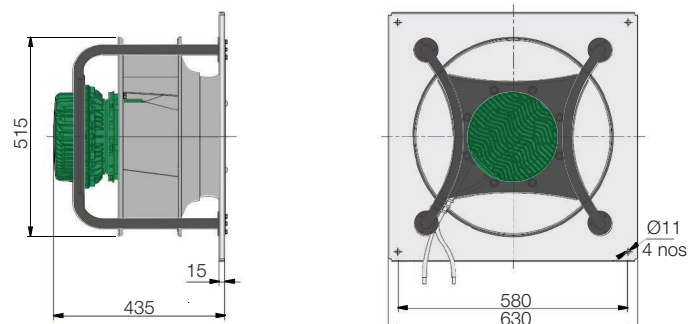
PFE with EC Motor



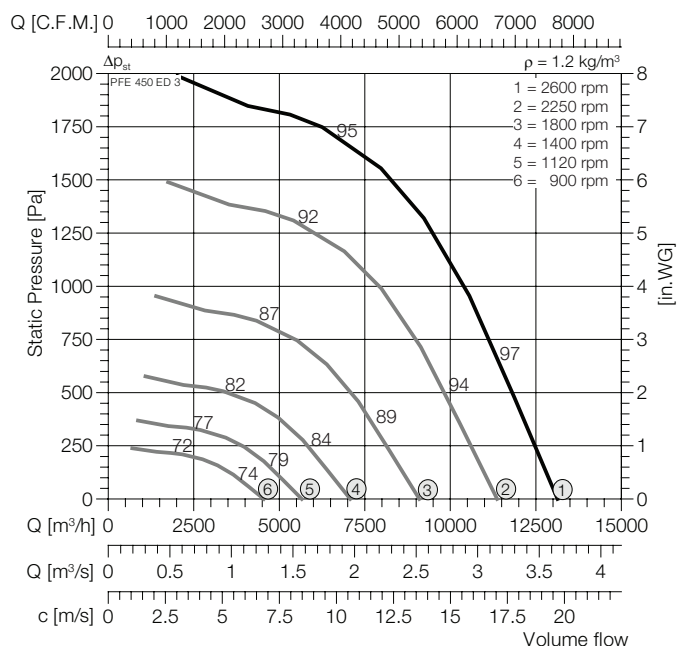
PFE 450 EC D1



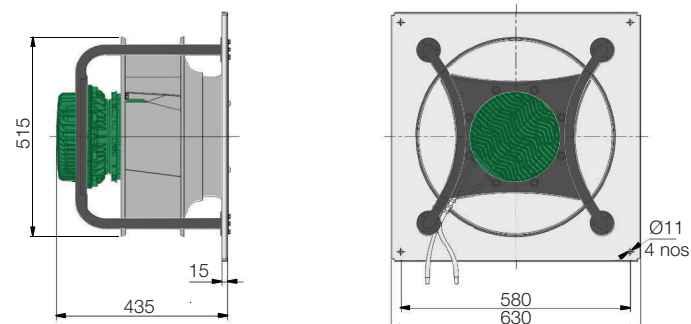
Typ : PFE 450 EC D1	△	IP 54
ArtNr : -	★	DD0
: 31 kg		GS 1
U : 400 V 50/60 Hz		-
P ₁ : 2,95 kW		-
I _N : 4,5 A		
n _{motor} : 2150 min ⁻¹		
max n _{fan} : 2150 min ⁻¹		
t _R : 40 °C		



PFE 450 EC D2



Typ : PFE 450 EC D2	△	IP 54
ArtNr : -	★	DD0
: 37 kg		GS 1
U : 400 V 50/60 Hz		-
P ₁ : 5,5 kW		-
I _N : 9,0 A		
n _{motor} : 2600 min ⁻¹		
max n _{fan} : 2600 min ⁻¹		
t _R : 40 °C		

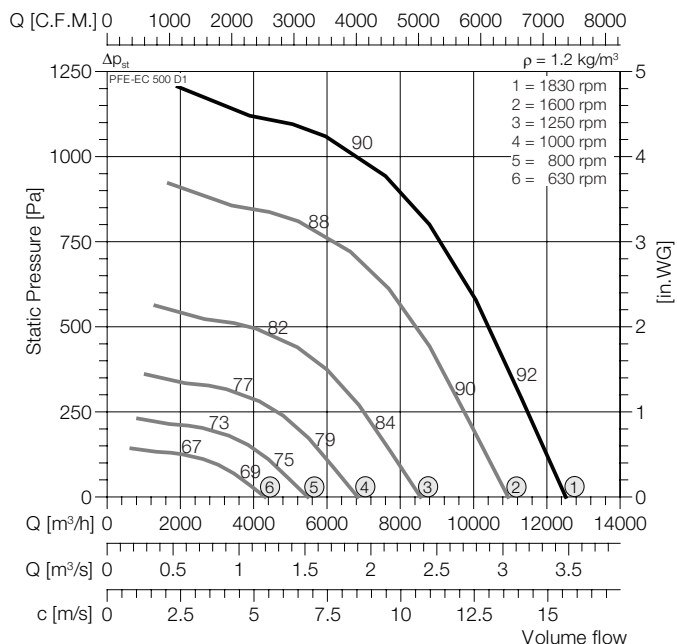


High Efficiency Plug Fan

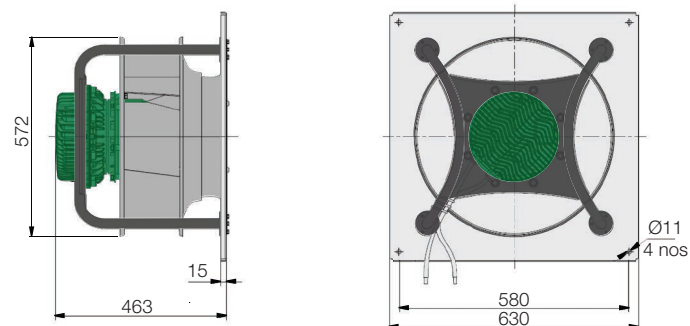
Wolter PFE with EC Motor



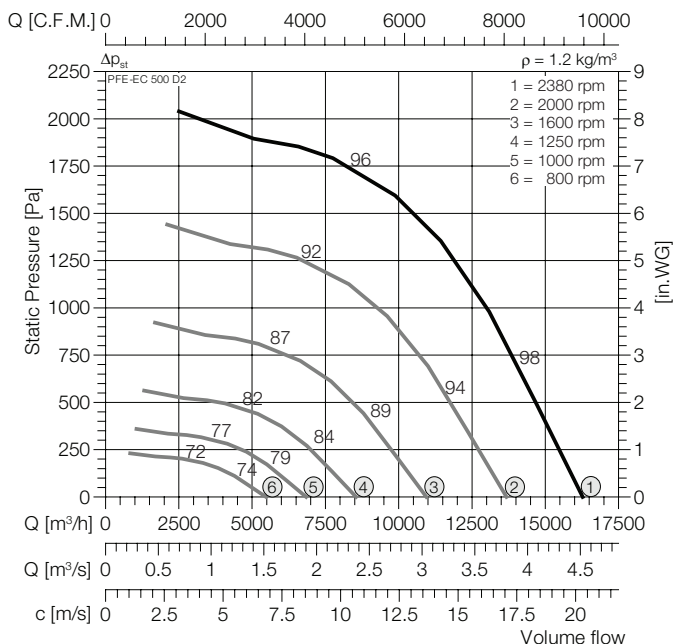
PFE 500 EC D1



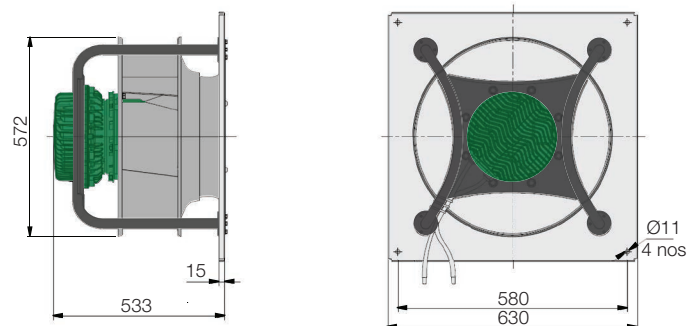
Typ : PFE 500 EC D1	⚠	IP54
ArtNr : -	★	DD0
■ : 33 kg	□	GS 1
U : 400 V 50/60 Hz	⚡	-
P ₁ : 3,46 kW	⚡	-
I _N : 5,75 A		
n _{motor} : 1830 min ⁻¹		
max n _{fan} : 1830 min ⁻¹		
t _R : 40 °C		



PFE 500 EC D2



Typ : PFE 500 EC D2	⚠	IP54
ArtNr : -	★	DD0
■ : 39 kg	□	GS 1
U : 400 V 50/60 Hz	⚡	-
P ₁ : 6,7 kW	⚡	-
I _N : 10,5 A		
n _{motor} : 2400 min ⁻¹		
max n _{fan} : 2380 min ⁻¹		
t _R : 40 °C		

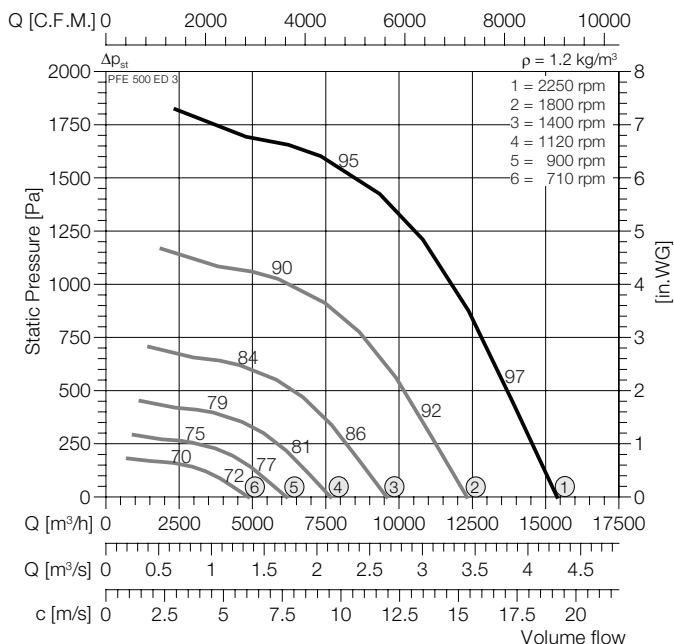




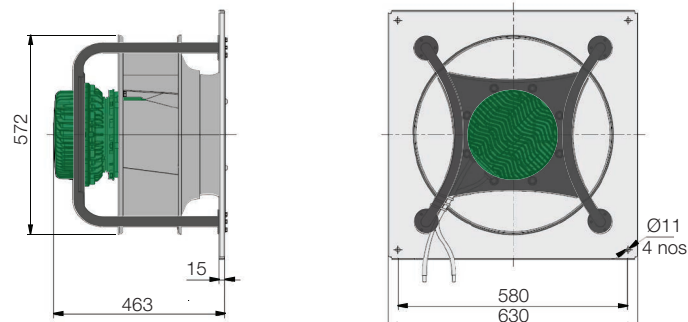
PFE with EC Motor



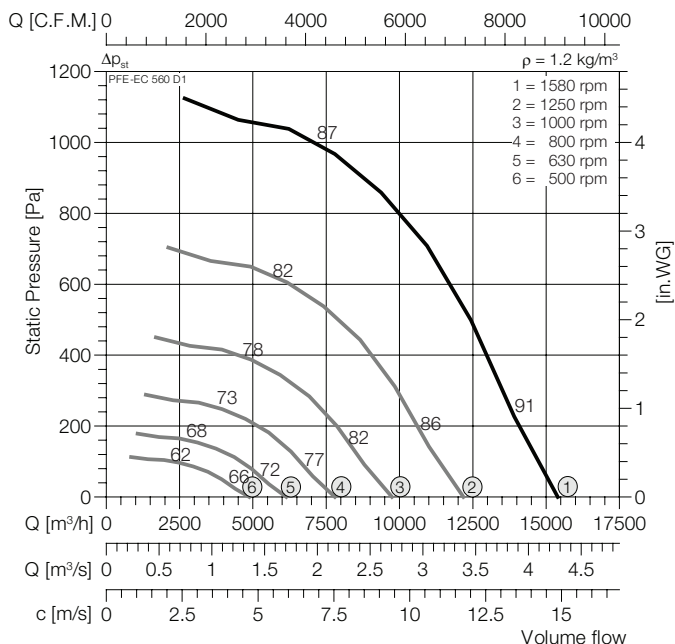
PFE 500 EC D3



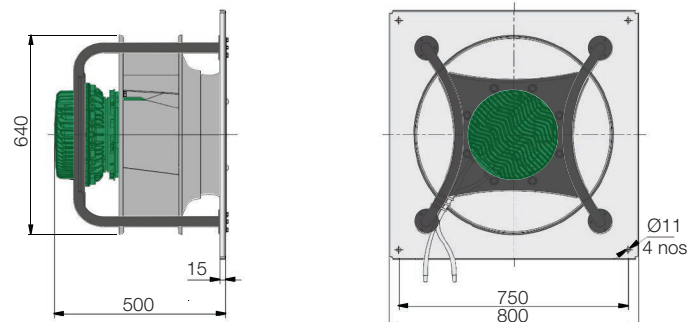
Typ : PFE 500 EC D3	△	IP54
ArtNr : -	★	DD0
■ : 39 kg	□	GS 1
U : 400 V 50/60 Hz	■	-
P ₁ : 5,5 kW	▽	-
I _N : 8,5 A		
n _{motor} : 2250 min ⁻¹		
max n _{fan} : 2250 min ⁻¹		
t _R : 40 °C		



PFE 560 EC D1



Typ : PFE 560 EC D1	△	IP 54
ArtNr : -	★	DD0
■ : 46 kg	□	GS 1
U : 400 V 50/60 Hz	■	-
P ₁ : 3,53 kW	▽	-
I _N : 5,5 A		
n _{motor} : 1830 min ⁻¹		
max n _{fan} : 1580 min ⁻¹		
t _R : 40 °C		

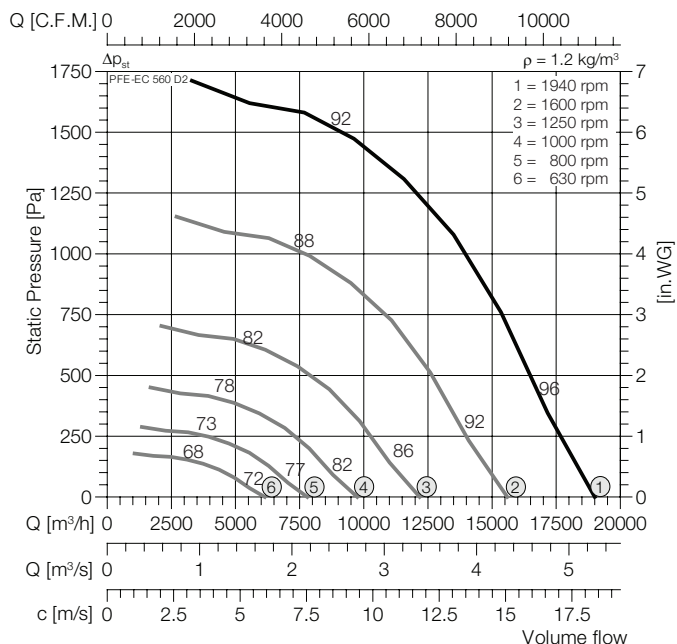


High Efficiency Plug Fan

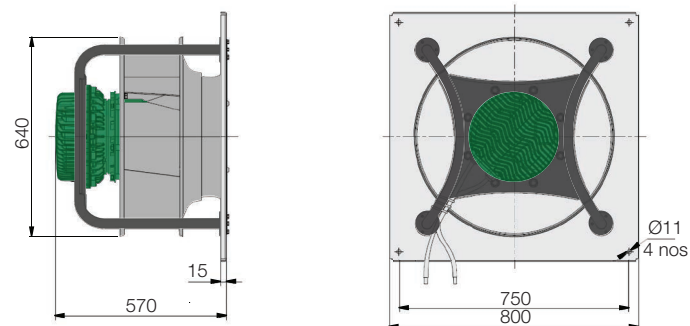
Wolter PFE with EC Motor



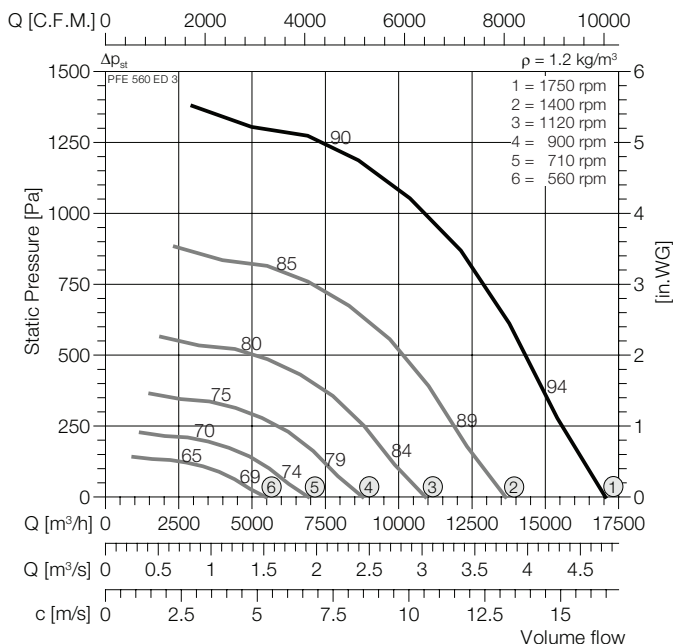
PFE 560 EC D2



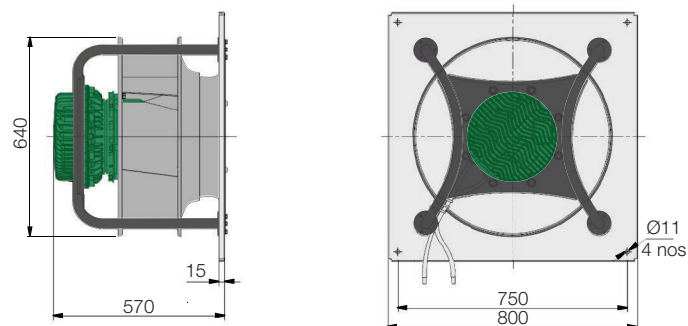
Typ : PFE 560 EC D2	⚠	IP 54
ArtNr : -	★	DD0
■ : 52 kg	□	GS 1
U : 400 V 50/60 Hz	⚡	-
P ₁ : 6,7 kW	⚡	-
I _N : 10,8 A		
n _{motor} : 1940 min ⁻¹		
max n _{fan} : 1940 min ⁻¹		
t _R : 40 °C		



PFE 560 EC D3



Typ : PFE 560 EC D3	⚠	IP 54
ArtNr : -	★	DD0
■ : 52 kg	□	GS 1
U : 400 V 50/60 Hz	⚡	-
P ₁ : 5,6 kW	⚡	-
I _N : 8,9 A		
n _{motor} : 1750 min ⁻¹		
max n _{fan} : 1750 min ⁻¹		
t _R : 40 °C		

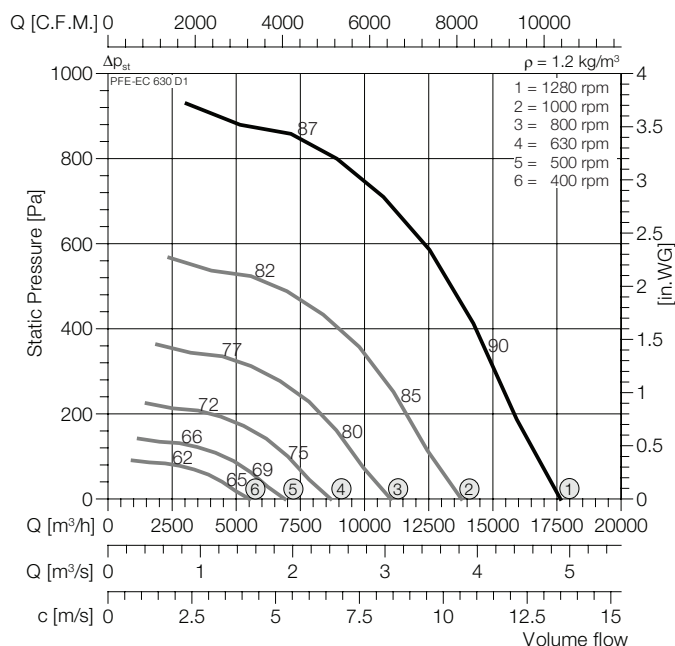




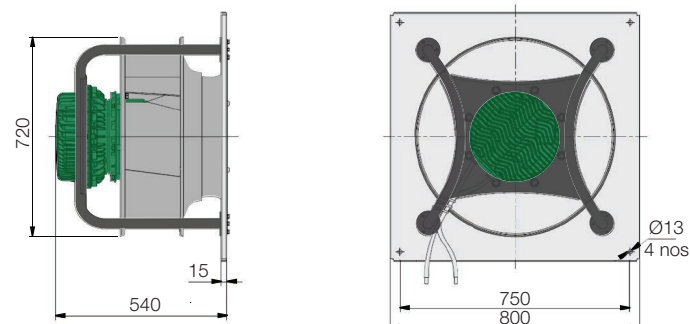
PFE with EC Motor



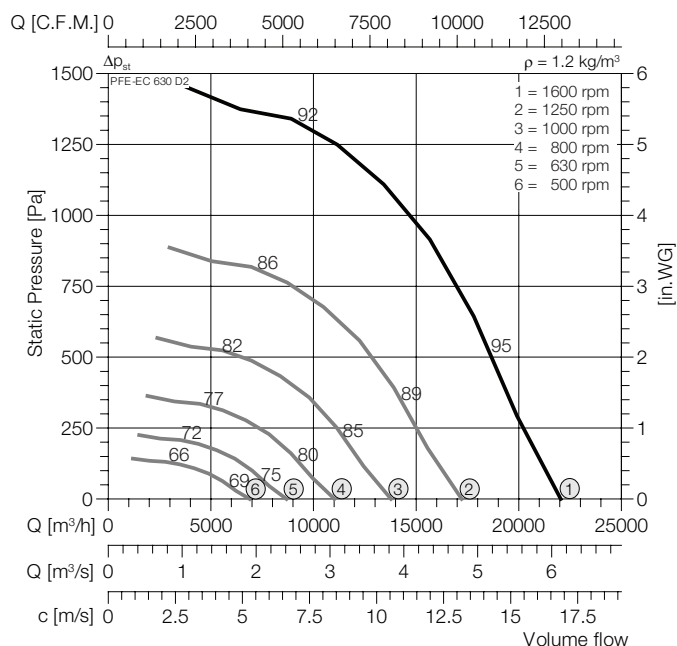
PFE 630 EC D1



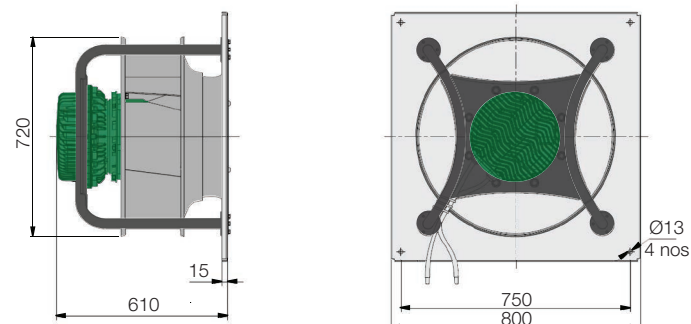
Typ : PFE 630 EC D1	IP 54
ArtNr : -	DD0
: 64 kg	GS 1
U : 400 V 50/60 Hz	-
P ₁ : 3,5 kW	-
I _N : 5,7 A	
n _{motor} : 1330 min ⁻¹	
max n _{fan} : 1280 min ⁻¹	
t _R : 40 °C	



PFE 630 EC D2



Typ : PFE 630 EC D2	IP 54
ArtNr : -	DD0
: 64 kg	GS 1
U : 400 V 50/60 Hz	-
P ₁ : 6,7 kW	-
I _N : 11,5 A	
n _{motor} : 1600 min ⁻¹	
max n _{fan} : 1600 min ⁻¹	
t _R : 40 °C	

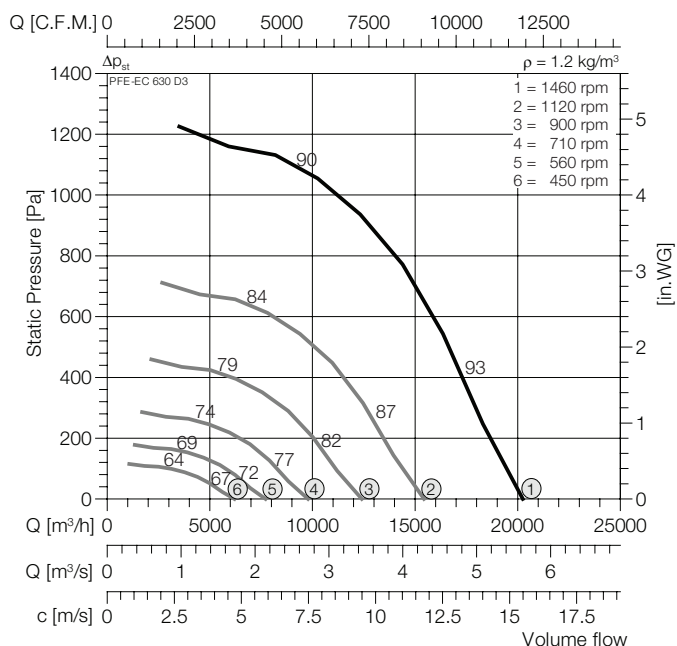


High Efficiency Plug Fan

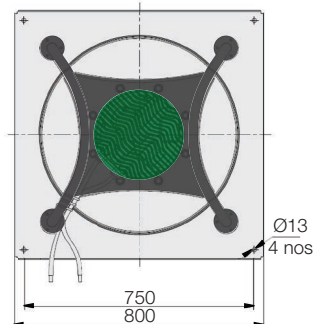
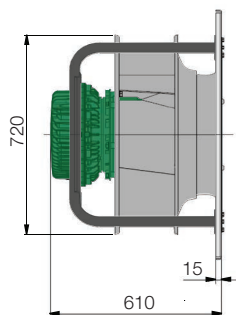
Wolter PFE with EC Motor



PFE 630 EC D3



Typ : PFE 630 EC D3	⚠	IP 54
ArtNr : -	★	DD0
■ : 64 kg	□	GS 1
U : 400 V 50/60 Hz	⚡	-
P ₁ : 5,1 kW	⚙	-
I _N : 8,1 A		
n _{motor} : 1460 min ⁻¹		
max n _{fan} : 1460 min ⁻¹		
t _R : 40 °C		

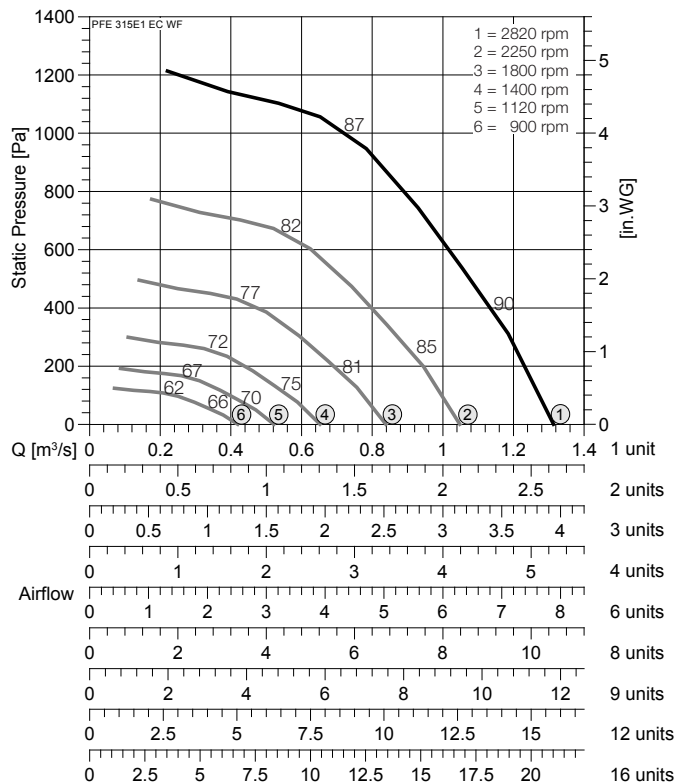




PFE with EC Motor

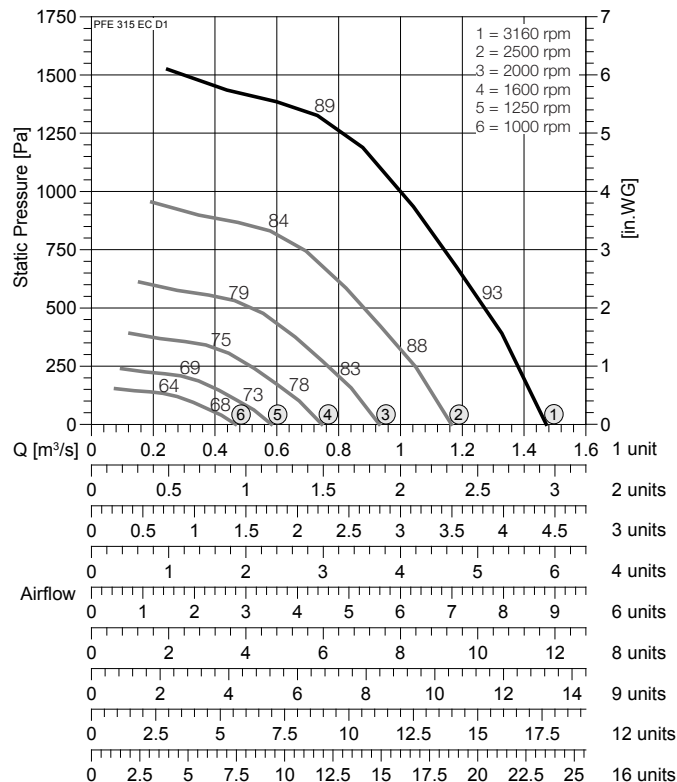
Wall Fan (WF) Performance curves

PFE 315 EC E1 WF



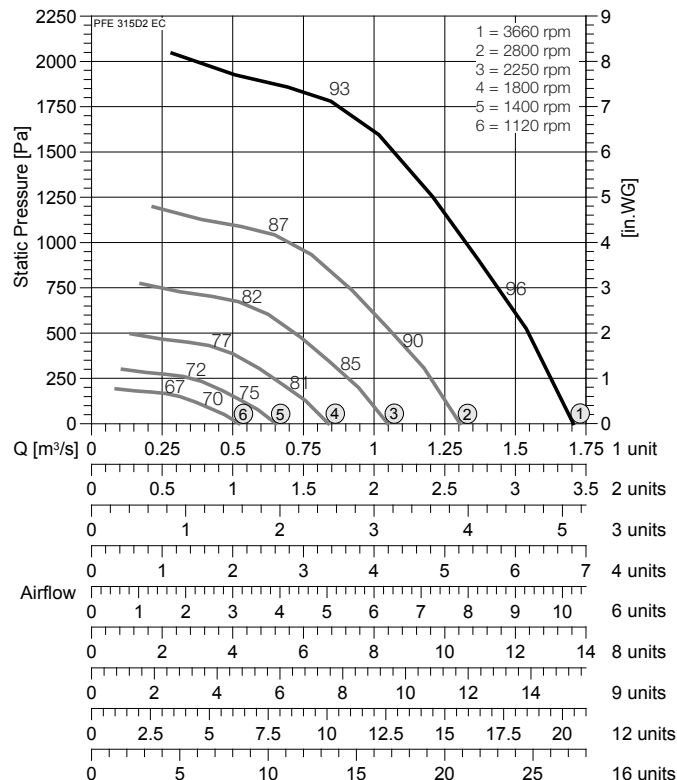
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	230	50/60	1,375	9,3	2820

PFE 315 EC D1 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	1,65	2,8	3160

PFE 315 EC D2 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	3,03	5,3	3660

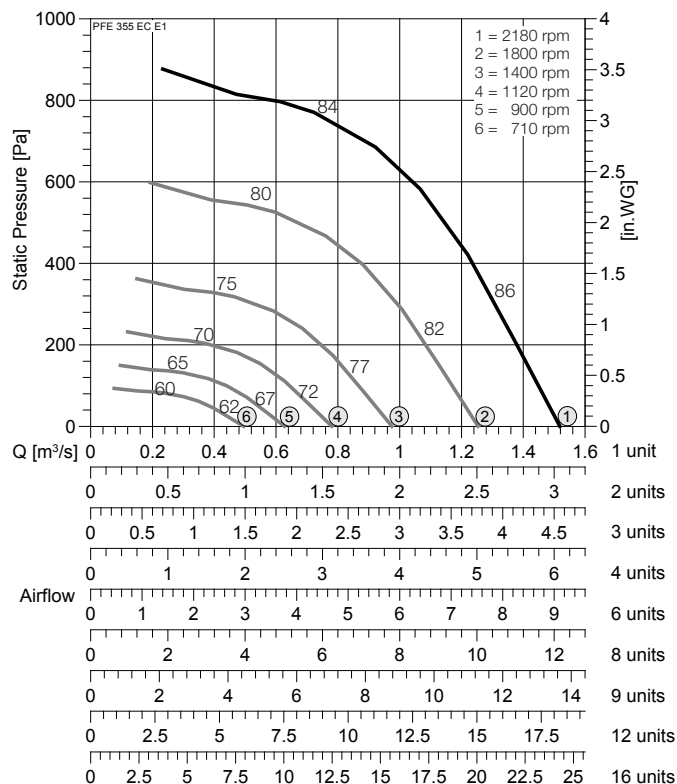
Note: The data on the above fan curves show the A-weighted sound power level for one fan unit at the outlet side, unducted.

High Efficiency Plug Fan

Wolter PFE with EC Motor

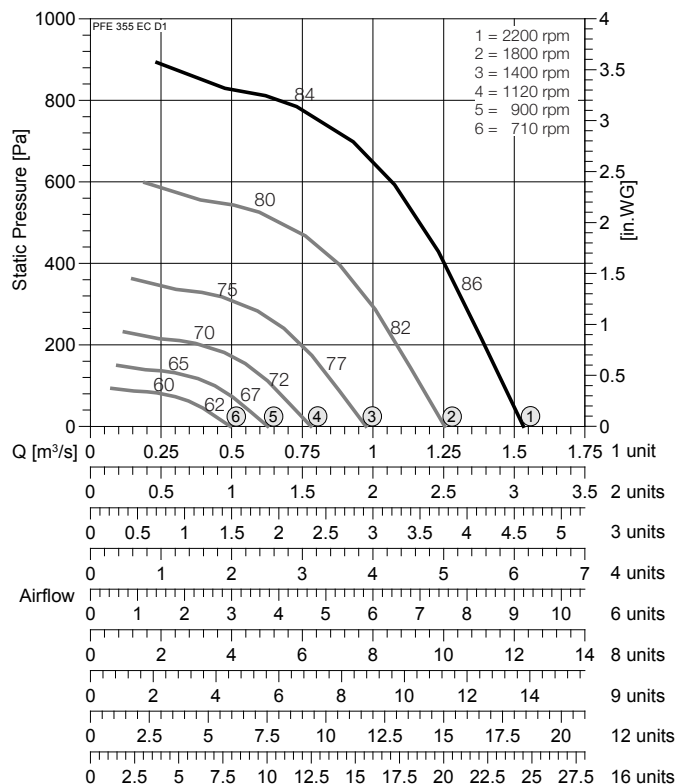


PFE 355 EC E1 WF



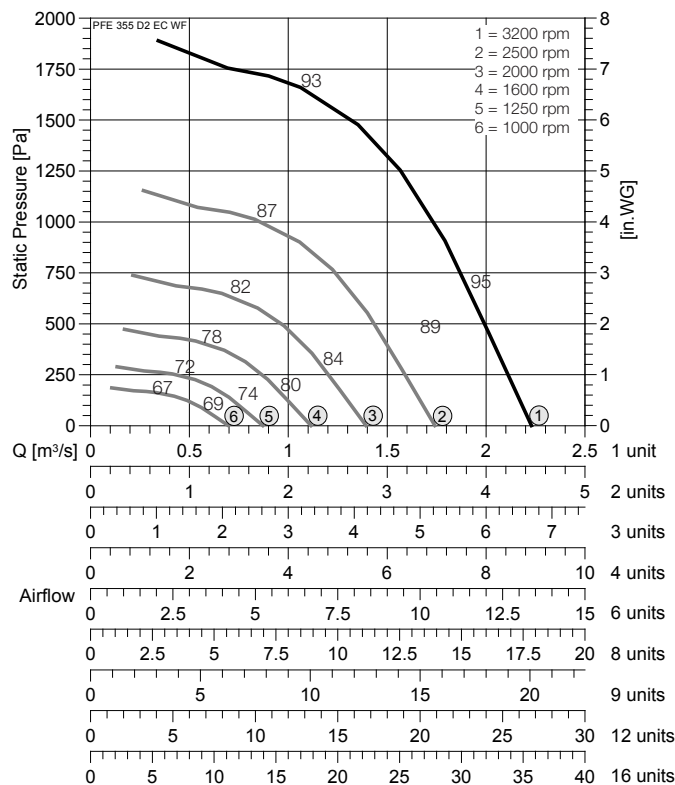
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	230	50/60	1,04	7,4	2180

PFE 355 EC D1 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	1,1	1,8	2200

PFE 355 EC D2 WF



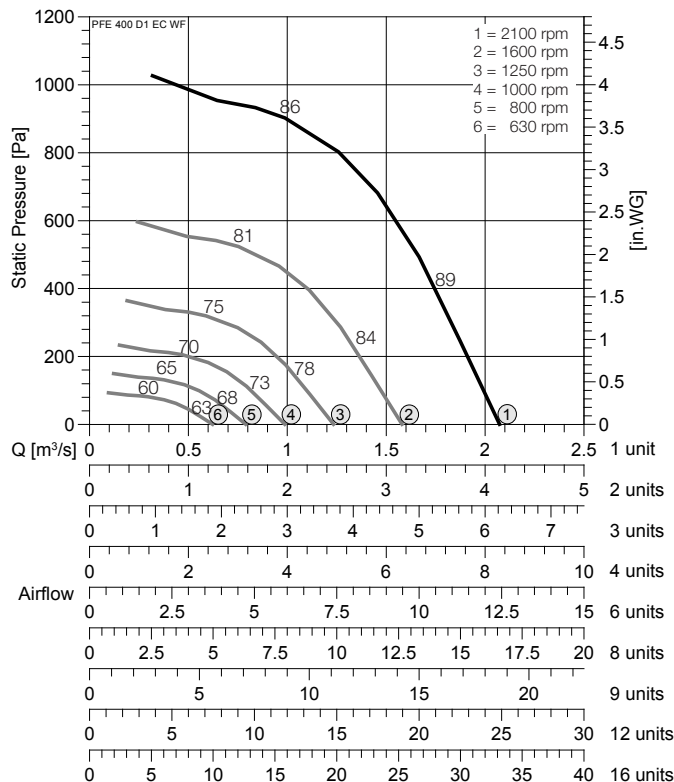
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	3,25	5,1	3200

Note: The data on the above fan curves show the A-weighted sound power level for one fan unit at the outlet side, unducted.



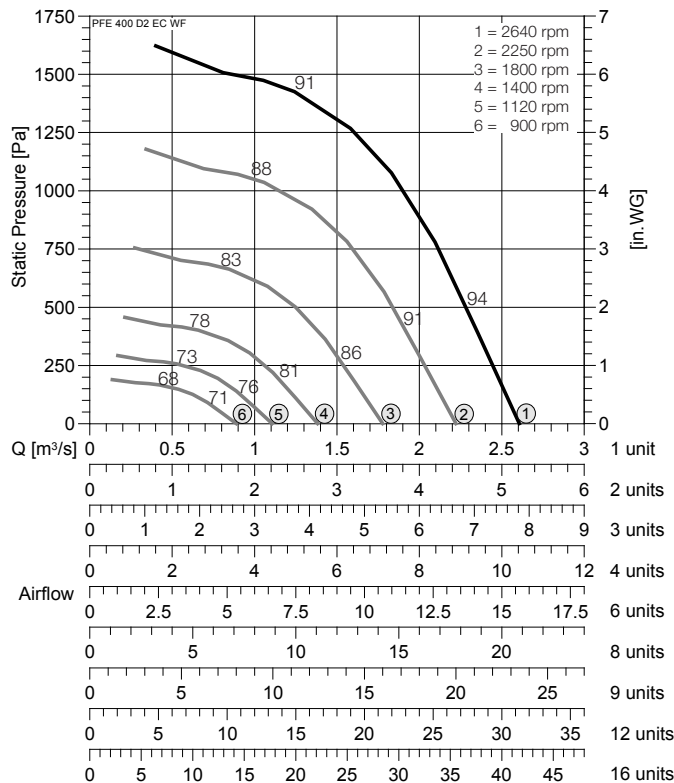
PFE with EC Motor

PFE 400 EC D1 WF



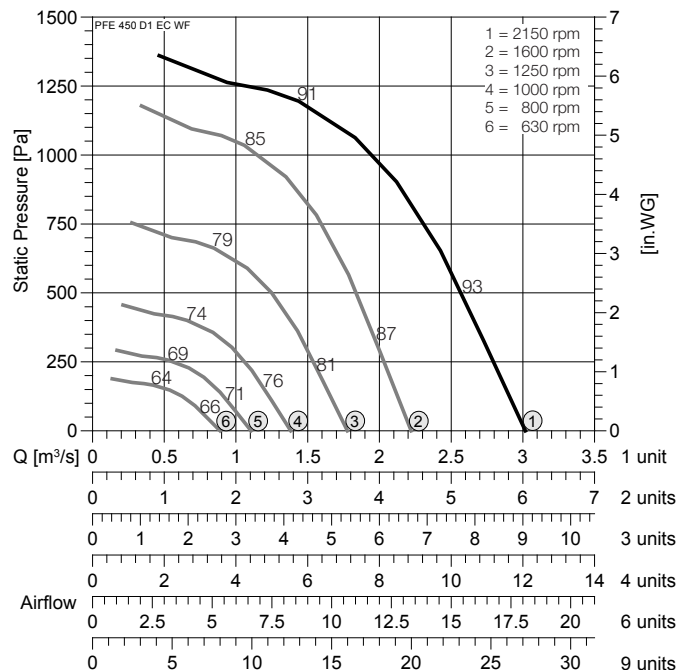
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	1,58	2,5	2100

PFE 400 EC D2 WF



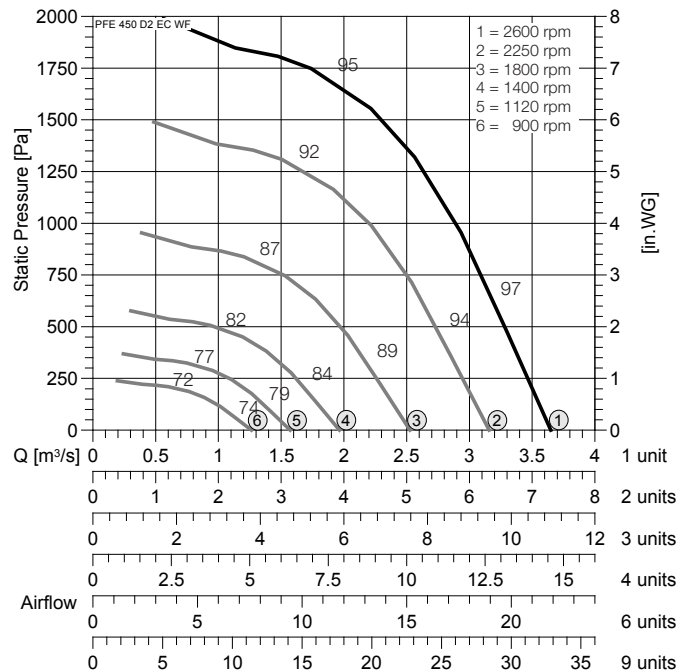
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	3,35	5,0	2640

PFE 450 EC D1 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	2,95	4,5	2150

PFE 450 EC D2 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	5,5	9,0	2600

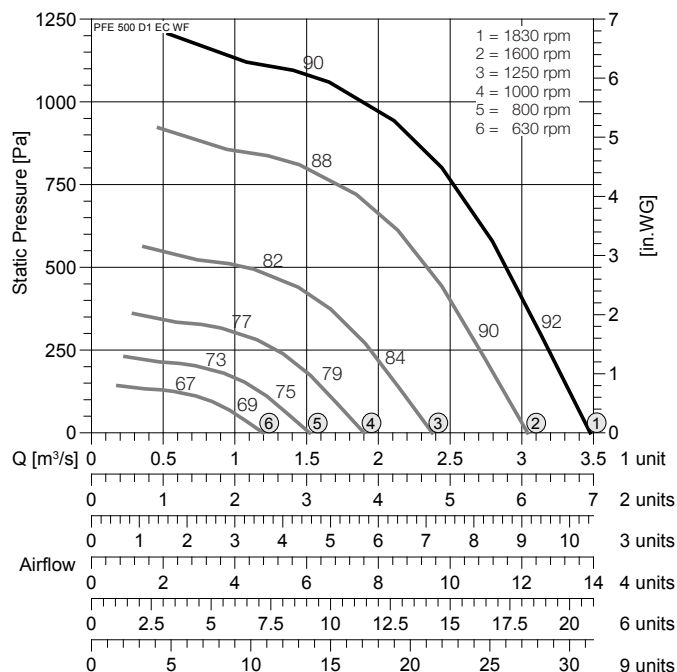
Note: The data on the above fan curves show the A-weighted sound power level for one fan unit at the outlet side, unducted.

High Efficiency Plug Fan

Wolter PFE with EC Motor

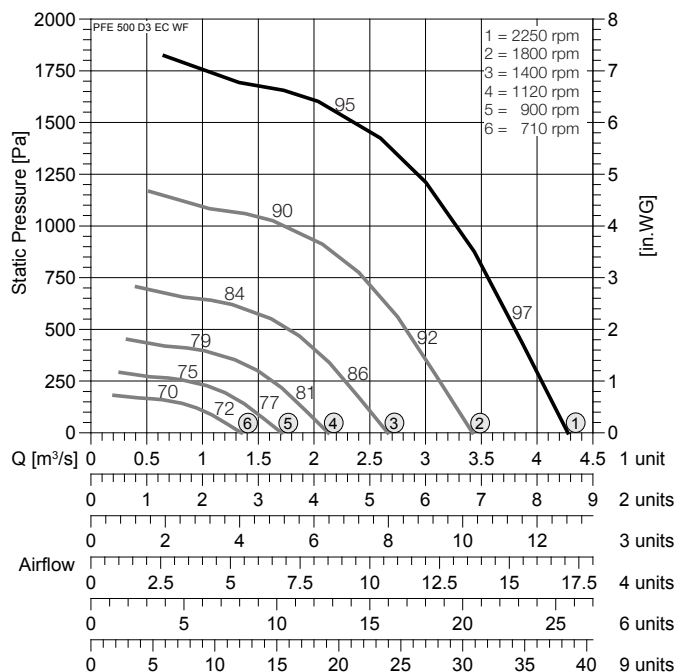


PFE 500 EC D1 WF



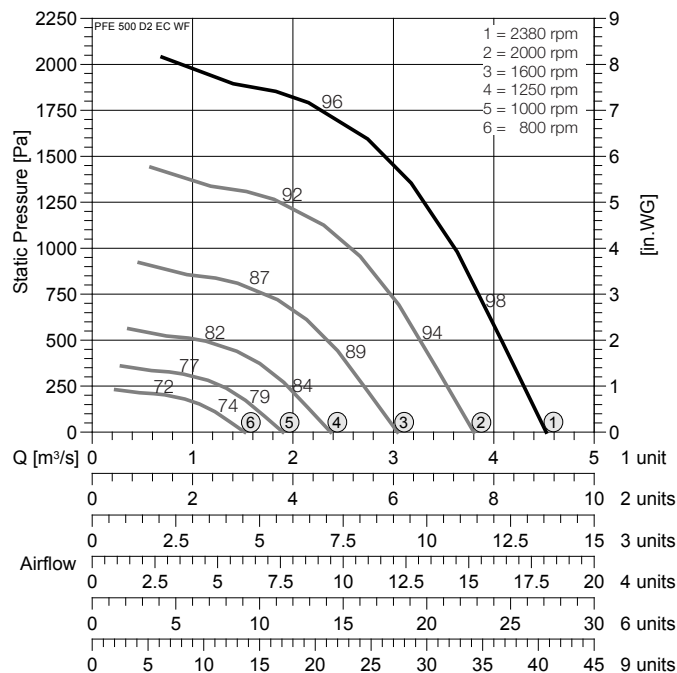
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	3,46	5,75	1830

PFE 500 EC D3 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	5,5	8,5	2250

PFE 500 EC D2 WF



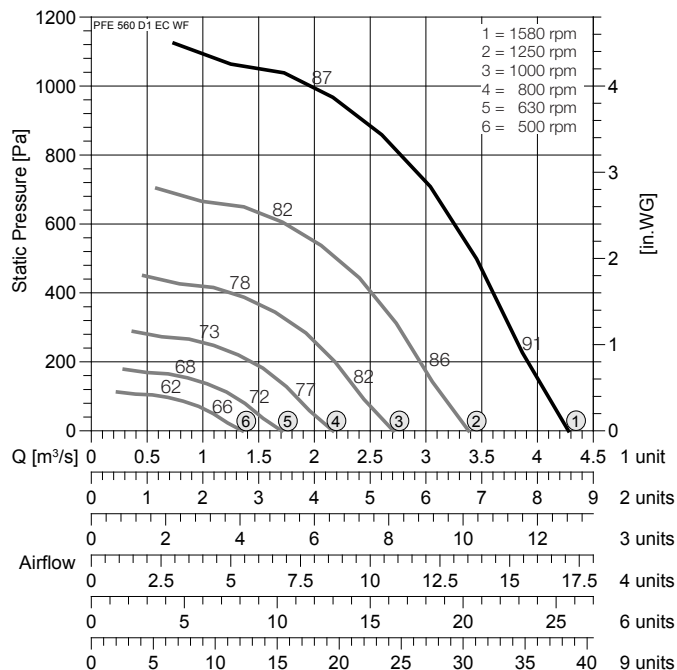
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	6,7	10,5	2400

Note: The data on the above fan curves show the A-weighted sound power level for one fan unit at the outlet side, unducted.



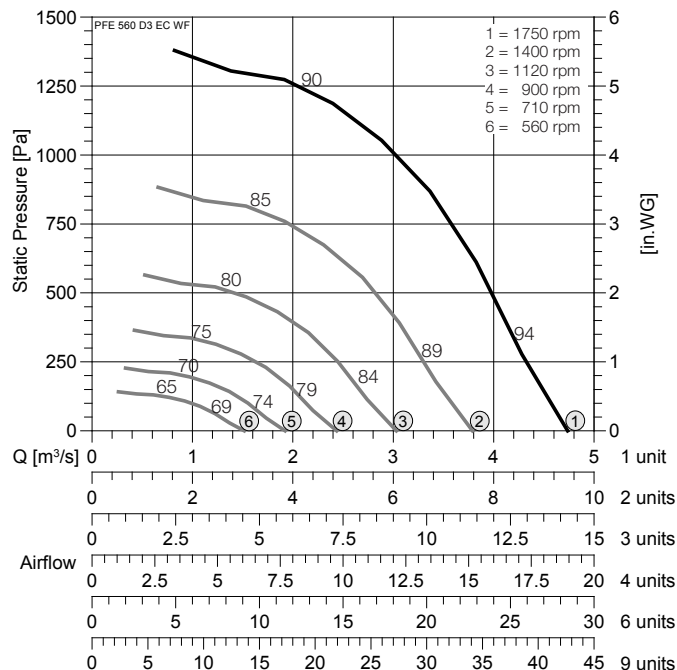
PFE with EC Motor

PFE 560 EC D1 WF



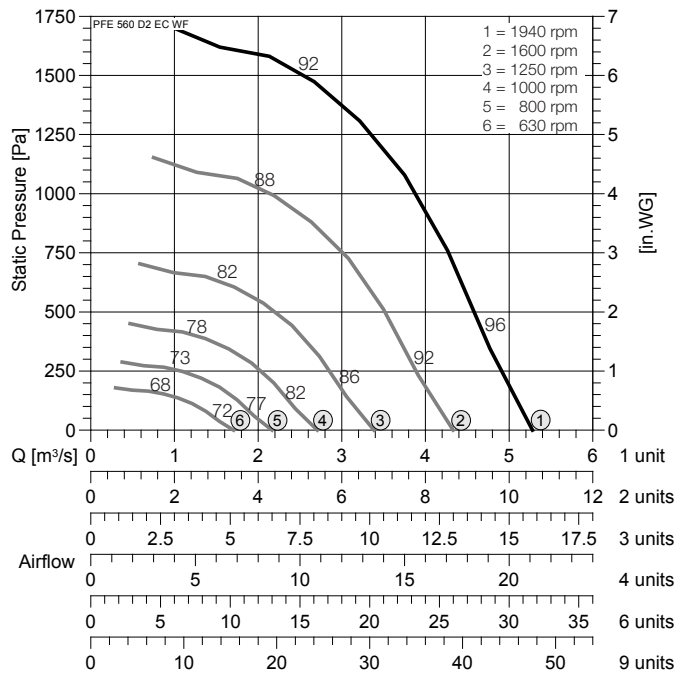
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	3,53	5,5	1580

PFE 560 EC D3 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	5,6	8,9	1750

PFE 560 EC D2 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	6,7	10,8	1940

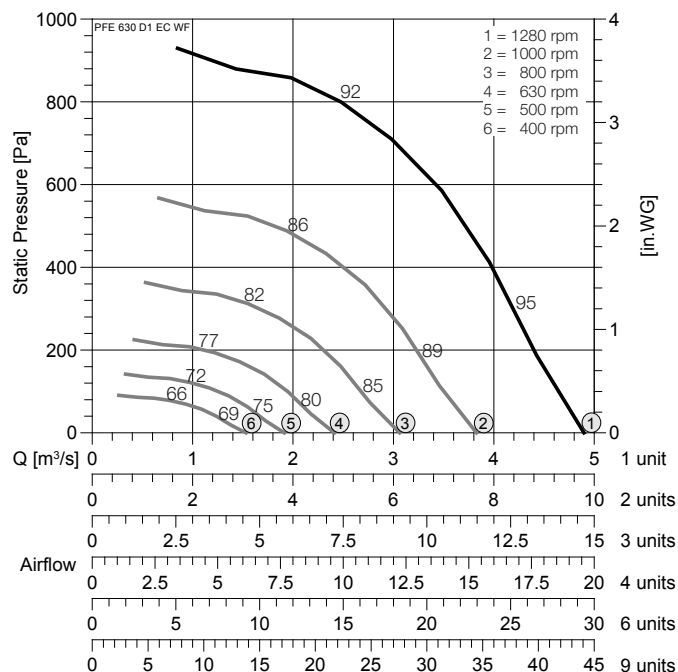
Note: The data on the above fan curves show the A-weighted sound power level for one fan unit at the outlet side, unducted.

High Efficiency Plug Fan

Wolter PFE with EC Motor

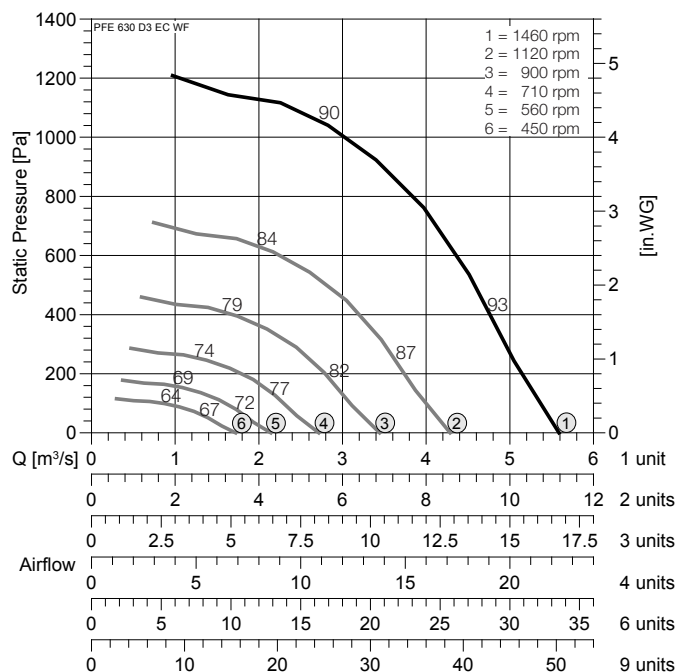


PFE 630 EC D1 WF



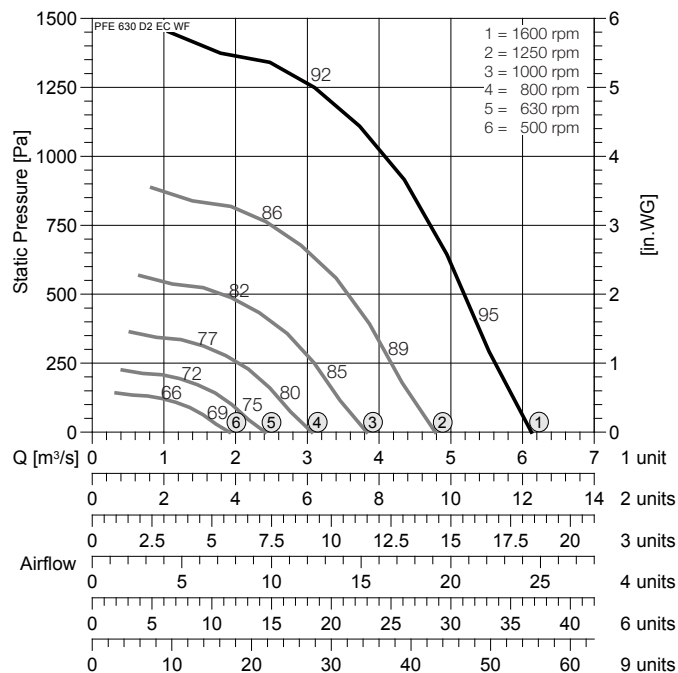
1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	3,5	5,7	1280

PFE 630 EC D3 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	5,1	8,1	1460

PFE 630 EC D2 WF



1 unit	Voltage	Frequency	Power	Current	Speed
	[V]	[Hz]	[kW]	[A]	[1/min]
	400	50/60	6,7	11,5	1600

Note: The data on the above fan curves show the A-weighted sound power level for one fan unit at the outlet side, unducted.



PFE with EC Motor

Wall Fan (WF)

Design with a combination of high efficiency centrifugal plug fans to achieve high volume of air

WF Model Size	Acoustic Panel -	Standard Length mm	Width				Height			
			1C mm	2C mm	3C mm	4C mm	1R mm	2R mm	3R mm	4R mm
315 to 400	WF1	470	570	1080	1590	2100	570	1080	1590	2100
	WF25	470	570	1080	1590	2100	570	1080	1590	2100
	WF50	520	620	1130	1640	2150	620	1130	1640	2150
	WF75	570	670	1180	1690	2200	670	1180	1690	2200
450 to 500	WF1	670	700	1340	1980	-	700	1340	1980	-
	WF25	670	700	1340	1980	-	700	1340	1980	-
	WF50	720	750	1390	2030	-	750	1390	2030	-
	WF75	770	800	1440	2080	-	800	1440	2080	-
560 to 630	WF1	720	870	1680	2490	-	870	1680	2490	-
	WF25	720	870	1680	2490	-	870	1680	2490	-
	WF50	770	920	1730	2540	-	920	1730	2540	-
	WF75	820	970	1780	2590	-	970	1780	2590	-

Note: 1. WF 1 = Single skin, WF 25 = 25 mm acoustic, WF 50 = 50 mm Acoustic and WF 75 = 75 mm acoustic.

2. For Single Row: T-Box is on TOP position. For Double Row and above: T-BOX is on SIDE position

3. ** Removable Panel as Optional. RP-L as single Removable Panel on LEFT. RP-R/L as double panel on both side.

4. All Removable Panel can be on available at bottom row only. All Right or left position are view from Drive Side

5. We reserve the right to alter measurements without notice in case of technical improvements.

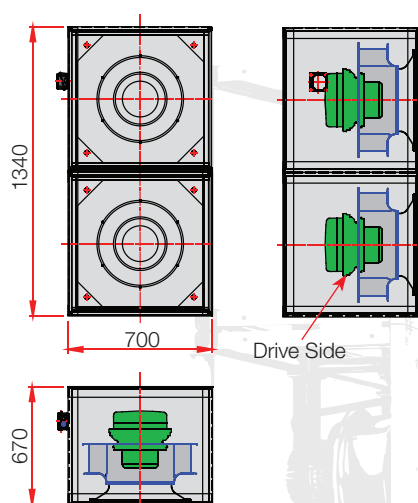


Fig.1 PFE 500 WF25 EC 1C/2R, TR

Fig.1: ie. Model PFE 500 with 25 mm acoustic cabinet of standard, 670 length x 700 Width x 1340 Height. EC motor, T-Box at Right.

Removable Panel not required as Standard.

Fig.2: ie Model PFE 500 of Single Skin cabinet with double Removable Panel of 670 length x 1980 Width x 700 Height. EC motor. TOP T-Box at Left.

** RP-R/L = Double Removable Panel as Optional on requested on the Right & Left side are required.

Fig.3: ie Model PFE 500 with 50 mm acoustic cabinet, 720 length x 1390 Width x 1390 Height. EC motor, T-Box at Right.

** RP-R = Single Removable Panel as Optional on requested on the RIGHT side only

Note: T- Box and Removable Panel Right or left position, always view from Drive Side.

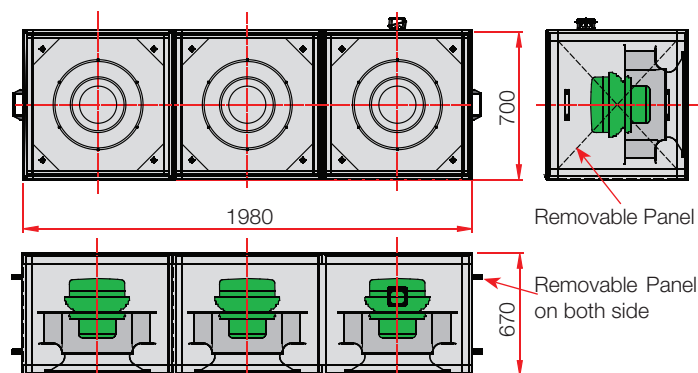


Fig.2 PFE 500 WF1 EC 3C/1R, RP-L/R, TL

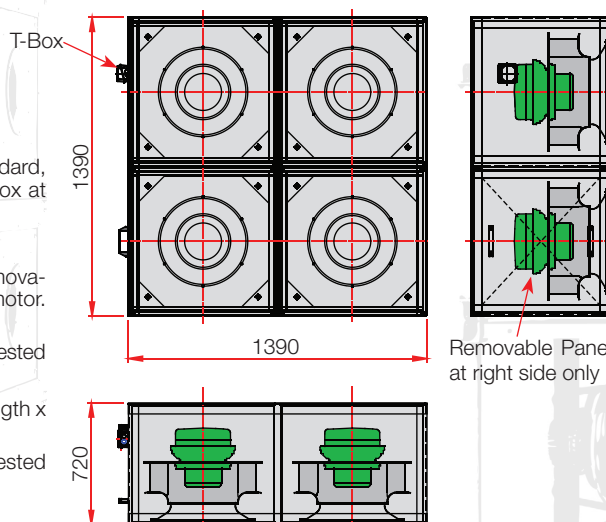


Fig.3 PFE 500 WF50 EC 2C/2R, RP-R, TR



Acoustic data

Sound power levels

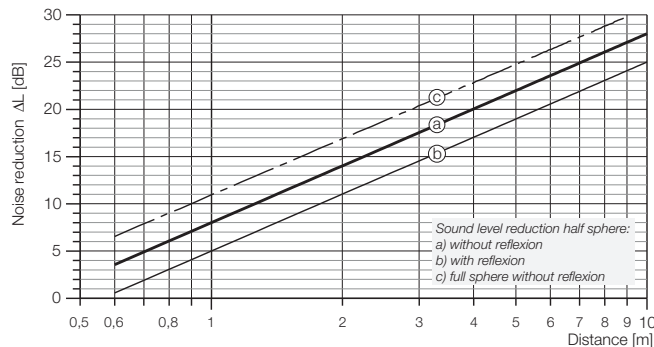
This term refers to the power which a source radiates as sound. Sound power levels are expressed in decibels with a reference level of 1 pWatt. The sound power level of a source remains the same regardless of its environment and the distance to the listener.

If the sound power frequency spectrum is needed, for as follows: example, the design of sound attenuators, the A- rated sound power levels at particular octave band frequency LWA can be calculated by subtracting the relative sound Lwrel.

$$L_{WA} = L_{wi} + L_{wrel}$$

Sound pressure level

These are pressure fluctuations generated by a source expressed in decibels with a reference level of 20 µPa. The sound pressure level varies with the distance of a sound source to the listener and its environment.



Frequencies

Sound is split into different frequencies. Frequencies of human hearing range from about 20 cycles per second (Hz) to 20.000 cycles per second (Hz). For practical purposes, WOLTER publishes noise data in eight octave bands with the centre frequencies of (63,) 125, 250, 500, 1000, 2000, 4000 and 8000 Hz.

Each fan has its own specific correction factor which is to be deducted from sound power according to the octave band and is shown on the bottom line of each performance curve.

A-weighted sound pressure level in dB (A)

The human ear is more sensitive to sound in some frequencies than in others. The A-weighting is an attempt to reflect this natural perception of sound. The A-weighting is a set of figures which are applied to the sound pressure levels. The levels in each of the octave bands are added logarithmically to give a single figure. The A-weighting over the octave band is as follows:

Frequency [Hz]	63	125	250	500	1000	2000	4000	8000
A-weighting [dB]	-26,2	-16,1	-8,6	-3,2	0	+1,2	+1,0	-1,1

Table 1

Difference between two sound levels [dB]	Add to the higher level [dB]
0 - 1	3
2 - 3	2
4 - 9	1
≥10	0

Table 2

Summation of several congenic sound levels

$$L_{\Sigma} = L_1 + 10 \cdot \lg(z)$$

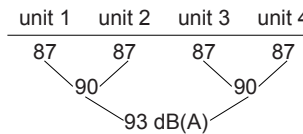
where:

z = number of sources

L1 = sound level of a single source

LΣ = resulting summation sound level

can also be estimated based on table 2 as per below:



..... number of sound source

..... sound power level of each unit

..... logarithmic addition of sound levels

Relative Sound Power Frequency Spectrum (L_{wrel}) in ΔdB

Fan Model	63	125	250	500	1000	2000	4000	8000
Size	[Hz]	[Hz]	[Hz]	[Hz]	[Hz]	[Hz]	[Hz]	[Hz]
PFE 250	-1.5	-17.6	-11.6	-12.5	-12.6	-14.5	-13.7	-18.0
PFE 280	-1.5	-17.6	-11.6	-12.5	-12.6	-14.5	-13.7	-18.0
PFE 315	-1.5	-17.6	-11.6	-12.5	-12.6	-14.5	-13.7	-18.0
PFE 355	-8.2	-11.3	-5.3	-8.4	-8.3	-12.1	-11.8	-12.6
PFE 400	-8.2	-11.3	-5.3	-8.4	-8.3	-12.1	-11.8	-12.6
PFE 450	-8.2	-11.3	-5.3	-8.4	-8.3	-12.1	-11.8	-12.6
PFE 500	-8.2	-11.3	-5.3	-8.4	-8.3	-12.1	-11.8	-12.6
PFE 560	-12.7	-3.9	-8.5	-9.3	-8.5	-11.5	-13.0	-19.0
PFE 630	-12.7	-3.9	-8.5	-9.3	-8.5	-11.5	-13.0	-19.0

Note: The relative sound power frequency spectrum above are only used for the estimated calculation for the 8 bands sound level of fan unit. please need more accuracy sound data, please contact Wolter staff at your local sale & support service.

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