

**Axial flow fan with  
adjustable blade angle**

# **Axipal BZi**



**ABB Solyvent-Ventec**



# The Axipal fan range

The Axipal range of aerofoil axial flow fans with adjustable pitch angle blade, low and medium pressure is suitable for all air-movement applications with clean, dusty or humid air at temperatures of between  $-20^{\circ}\text{C}$  and  $+200^{\circ}\text{C}$ .

Axipal characteristics:

- Volumes up to 300,000 m<sup>3</sup>/h
- Pressures up to 1400 Pa
- Efficiency up to 77 %
- Low noise levels

## Guaranteed performances

Axipal gives the exact duty required. The following enable fine adjustments to be made:

- Adjustable blade angle when stationary.
- Possibility of fitting motors of various frame sizes.
- Hub bore diameter easily changed to suit requirements.

The Axipal BZi fan permits an operation at a duty point on the extreme left hand side of the curve, where a conventional fan would stall at such operating points.

## An extensive range

The Axipal fan range includes:

- 14 impeller diameters (350 to 1,600 mm)
- Up to 4 number of blades
- 4 direct-drive speeds
- 1 V-belt arrangement
- 4 standard arrangements
- 1 complete range of standardized accessories

## Reliability

The Axipal fan is made from mass-produced components of straight forward technological design:

- Die cast aluminium blades
- Pressed carbon steel hubs
- Die cast aluminium centre boss
- Taper lock bush
- Electric motors from reputable manufacturers in compliance with European standards



## Low initial cost

The specific blade profile design of Axipal enables a smaller diameter fan than the conventional design to achieve the same performance, therefore reducing cost.

The Axipal fan exhibits the best efficiency in its category. Hence, smaller motors can be used: thus reducing purchase and operational cost.

The Axipal production is more than 10,000 units per year, which has led to a high level of industrial automation and semi-automation processes.

## Short delivery time

The Axipal can be delivered in an extremely short time thanks to:

- computerized production administration
- rationalization of the components

## An extensive number of applications

The technical department and the sales agencies of ABB Solyvent-Ventec are equipped with computer selection programmes in order to respond very quickly on all specific demands:

### processes in industry

- Refrigeration (condensers, evaporators)
- Cooling of motors or heat exchangers
- Exhausts through chimneys
- Paint spray booth extraction
- etc.

### the building industry

- smoke extraction applications
- car park ventilation
- road or rail tunnel ventilation
- pressurisation of stair wells and air locks
- general or factory ventilation
- the Axipal fan range is certified for smoke removal.

# Guaranteed results

## Adjustment of the fan performances

The Axipal axial flow fan with an adjustable blade pitch angle can be selected and set to match the customer duty requirements. It also allows modifications of the fan performance and fine tuning of the characteristics to suit a ventilation installation.

The Axipal is a true axial flow fan with adjustable blade pitch angle. Apart from changing the impeller's blade angle, it is also possible to adapt a motor with a larger frame size to suit the newly defined characteristics, by simply using a standard tool.

The Axipal flexibility is based upon its bolted construction.\*

The Axipal allows a precise adjustment of fan performance to the needs of the installation without effect on acoustical properties.

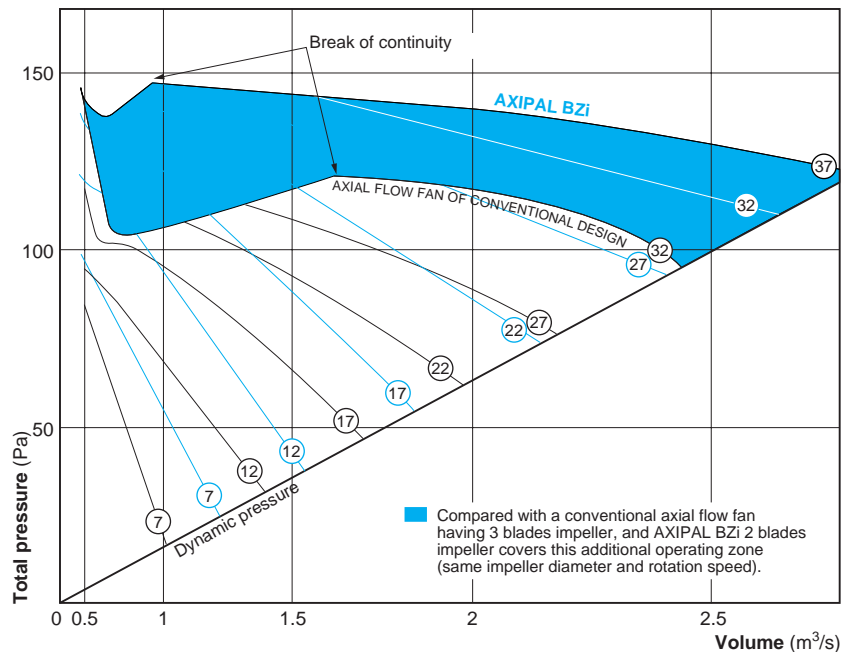


In fact, changing the Axipal impeller blade angle has negligible influence on the sound level emitted by the fan.

## Stable and quiet running

Axipal BZi has specific aerodynamic feature (break point at low volumes) assuring satisfactory operation in the case of sudden increase of pressure losses (e.g. filter clogging).

The Axipal noise level is very low, resulting in important savings in insulation equipment.



## Minimum energy consumption

Due to their blade design, Axipal BZi fans give the best possible efficiency for low and medium pressure axial flow fans in their category.

The Axipal BZi is definitely the axial flow fan which consumes the less energy.

\* NOTE: When the fan performances are to be increased, it is imperative to determine the additional absorbed power resulting from the modification of the blades angle. The newly determined value will indicate whether to keep the existing motor or change it to a larger frame size.

# Extensive range

## Arrangements

These fans can be operated vertically or horizontally.

These arrangements are with direct drive; the impeller is directly fitted onto motor shaft. They can be used in standard construction for all applications where the supplied air is clean, non dusty and has a temperature between  $-20$  to  $+40$  °C.



**MA Wall mounting**

**VR Short casing**

**VA Long casing**

The wall mounting is used for supply or extraction of fresh or foul air. Air inlet can be either motor side or impeller side.

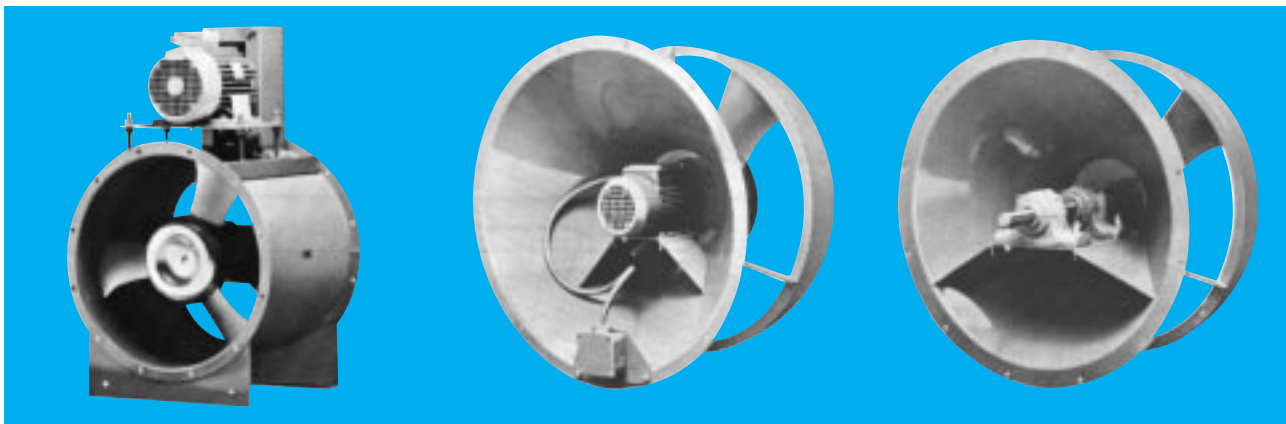
Some specific applications:

MAT\*: for transformer radiators

BZF\* : for exchangers

The short casing VR and long casing VA arrangements can be used for similar applications and for the duct mounting.

For temperatures over  $40$  °C, their use is possible with specially adapted motors, in particular for the smoke removal applications VRD\* and VAD\*.



**VP Long casing V-belt drive**

**SA\* Cone mounted - Direct drive**

**SP\* Cone mounted - V-bely drive**

3 bladed impeller driven via V-belts with the motor fitted to the outside of the casing standardized up to size 1250. Use is recommended where air or gas is humid, hot or explosive etc, making direct drive unsuitable between  $-20$  °C and  $+90$  °C. Can be used at up to  $+150$  °C in special version (consult us for details).

Impeller fitted directly to motor shaft, motor protected from handled gas by sheet metal cone. Can be used at temperatures of up to  $+200$  °C in the special construction version (consult us for details).

3-bladed impeller fitted on end of shaft. Recommended where the arrangement SA does not meet the operation conditions.

\* Special arrangements  
(Consult us for exact type selection).

# Industrialized production

The Axipal BZi fans are flexible enough to meet all requirements:

- 14 impeller diameters
- Up to 4 number of blades
- 4 direct coupled speeds
- 1 V-belt drive arrangement

Due to the 4 standard arrangements and their accessories, the fan can easily be adapted to the installation and operating conditions.

## Blades

The blades are made of die-cast aluminium alloy. The blade angle is set at manufacture but can be modified later.

Depending upon the performance required it can vary from 7° to 37°.

## Hubs

The impeller's hub is composed of 2 halves of pressed carbon steel, incorporating recesses to house the blade root. Each blade being fixed by 2 bolts situated at each side of the root to lock the blade pitch angle.

## Centre Boss

The tapered centre boss ensures that any radial or axial movement of the impeller is prevented.

The center boss is a standard component and can be readily interchangeable to adapt to various motor shaft sizes.

## Hub cap

The hub cap is formed from aluminium alloy sheet.

Its shape is designed to ensure optimum air entry conditions and efficiency.

## Motor support arms

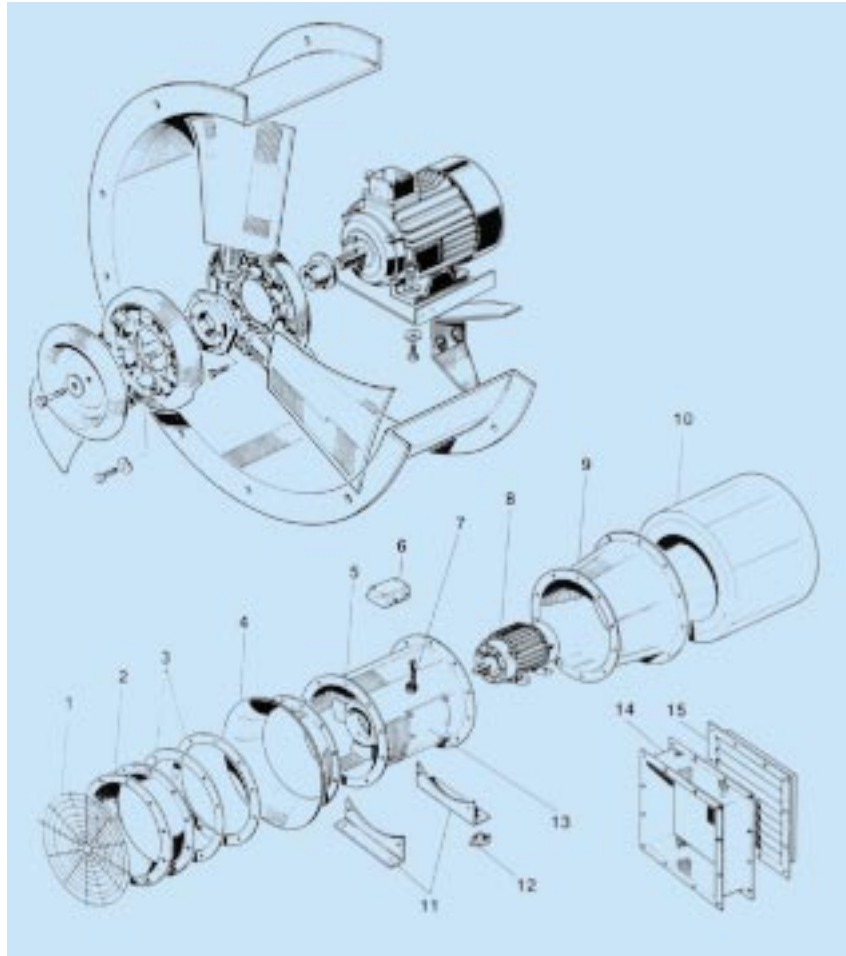
Made of carbon steel components. Their shape and position have been designed to minimise air turbulence. The bolted construction of the static components has been specially tested in order to insure its resistance against vibrations.

Available in welded construction for some particular applications.

## Casing

The cylindrical casing is made from welded carbon steel sheet formed with special automatic machines.

It includes flanges for connection to the duct work, and for the fixing of standard accessories.



1. Inlet wire guard as per standard  
NF E 51.190

2. Flexible connection sleeve:  
- 1 flanged side  
- 2 flanged sides

3. Counter-flanges

4. Inlet cone (with or without wire guard)

5. Special coatings on request:  
- Zinc galvanized  
- Hot dip galvanization  
- Rubber lining  
- Epoxy, etc.

6. Motor terminal box (mounted externally)

7. Motor cable gland

8. Electric drive motor\*:

- 1 speed
- 2 speeds
- Explosion proof
- High temperature
- Energy saving
- Smoke removal

9. Outlet diffuser (non standard)

10. Cylindrical silencer

11. Mounting feet

12. Anti-vibration pad

13. Access-door

14. Connection for square louvre damper

15. Square louvre damper

Other accessories can be recommended:

- Inlet guide vanes
- Frequency converters

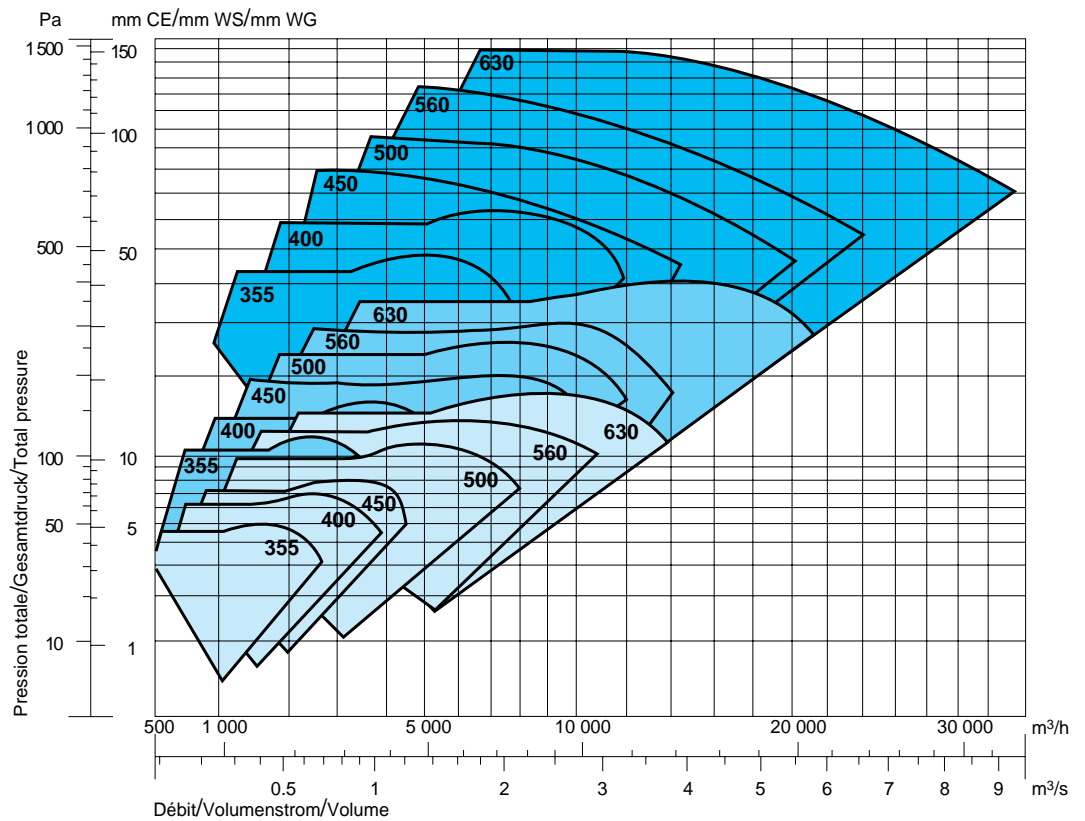
\*Assembly according to technological and aerodynamic limits

## preselection charts (50 Hz)

By using these charts, a preselection of the fan size can be done.  
 For more precise information, refer to the corresponding fan curve.  
 Contact the sales department of ABB Solyvent-Ventec for operating with 60 Hz.

### Sizes 355 to 630

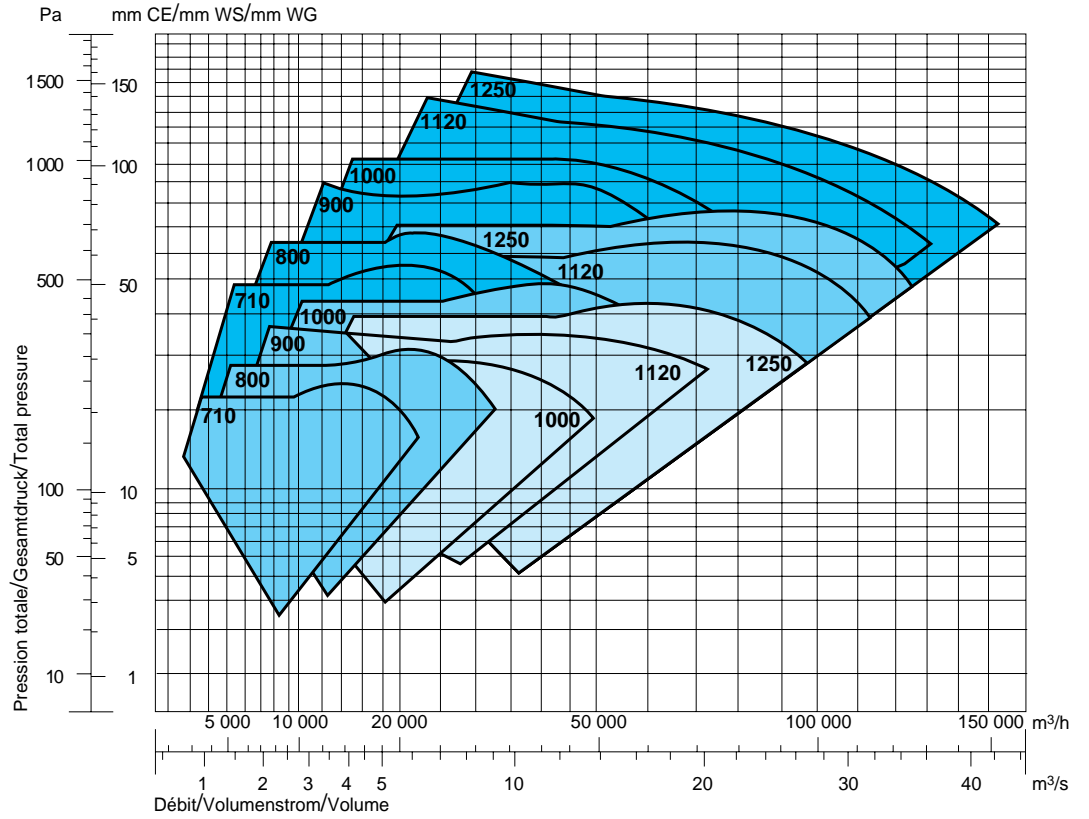
- 2 900 tr/mn/Upm/R.P.M.
- 1 450 tr/mn/Upm/R.P.M.
- 950 tr/mn/Upm/R.P.M.



# Axipal BZi

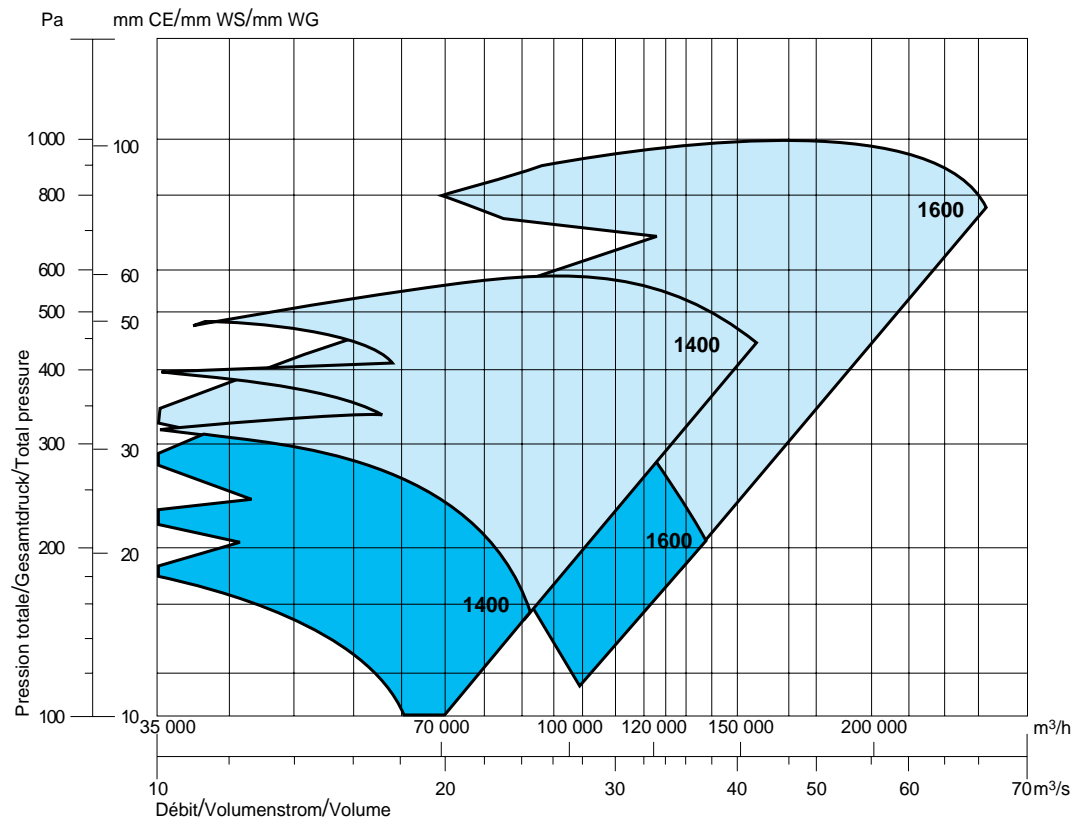
## Sizes 710 to 1250

- 1 450 tr/mn/Uprm/R.P.M.
- 950 tr/mn/Uprm/R.P.M.
- 720 tr/mn/Uprm/R.P.M.



## Sizes 1400 - 1600

- 720 tr/mn/Uprm/R.P.M.
- 950 tr/mn/Uprm/R.P.M.



# Acoustics

The sound pressure levels have been determined from test measurements in compliance with the French standard NF S 31-021.

## Sound power level

The Standard NF S 31-021 defines the fan sound Power level, rated on the A scale.

To do so, we measure the sound Pressure level  $L_p$  rated on the A scale, as well as its spectrum composition, at 3 points as indicated in the sketch here-after.

These measurements are done in a test laboratory where the fan is connected to a reduced tunnel duct system.

The sound Power level  $L_w$  is calculated using the following formula:

$L_w = L_p + 10 \log 2\pi r_s^2$   
 $2\pi r_s^2$  is the hemispherical surface at which the measurements are taken, in compliance with the French Standard. The value of  $10 \log 2\pi r_s^2$  is relevant to the fan size, it is given in **table 1**.

The total  $L_p$  of the 3 measured sound pressure levels at points 3-5 and 6, is given on the fan curve.

## Sound power spectrum

For an accurate calculation of noise reduction in a duct system, it is necessary to have the sound power level by octave band rated on the A scale.

The spectrum is obtained by adding to the total sound power level the constants given in **table 2**.

## Average level of sound pressure

The French Standard NF S 31-021 does not determine a contractual total sound pressure level.

However, we may consider the total sound pressure level, rated on the A scale, the one measured at the 3 hemispheric points 3-5 and 6 according to the standard. The total sound pressure level is indicated on the fan curve.

## Sound pressure spectrum

The sound pressure level by octave band is obtained by adding to the total sound pressure level the constants in **table 2**.

## Tolerances

The indicated total sound power and pressure levels are given with a tolerance of 3 dB, and 5 dB per octave band.

**Table 1**

Sizes	355-400-450-500	560-630-710	800-900-1000	1120-1250-1400	1600
Corrections	10	11	12	13	14

**Table 2**

N r.p.m.	Nbr of blades	Octave Band Mid-frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
720	2								
	3								
	4	-26	-17	-10	-5	-5	-8	-12	-20
	6								
950	2								
	3	-26							
	4	-27	-18	-12	-6	-4	-7	-11	-18
	6	-28							
1450	2								
	3	-26							
	4	-28	-19	-13	-6	-4	-7	-11	-17
	6	-30							
2900	2								
	3	-36	-18						
	4	-38	-20	-14	-8	-5	-5	-9	-14
	6	-39	-22						

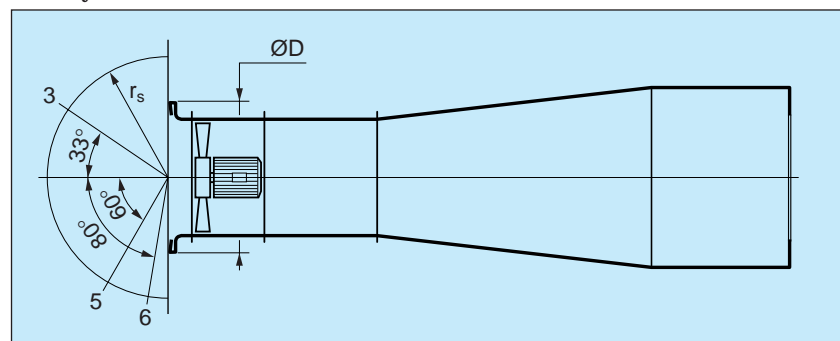
Where the sound power level can only take a physical value, the sound pressure level on the contrary, will be affected by the surrounding surface, type, size and shape. Because the CETIAT rules do not make the same allowance for surface conditions as the NF S 31-021 Standard, this will lead

to sound pressure levels which are approximately 3 dB lower. The BS 848 which calls for measurements at different distances of that of the NF S 31-021 Standard, can lead to lower noise pressure levels between 4 to 11 dB, depending on the fan diameter (see the corrections in **table 3**).

**Table 3**

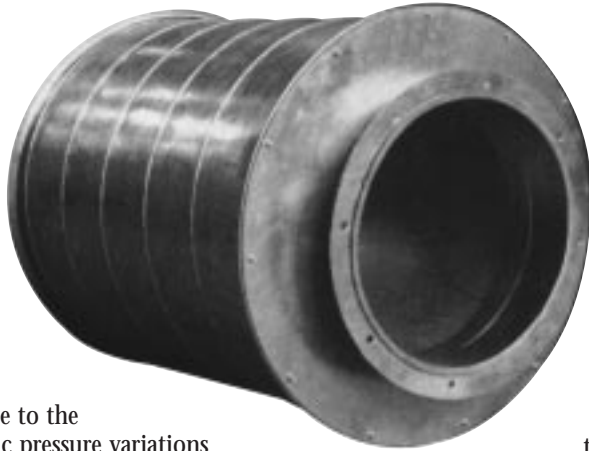
Sizes	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
Corrections	-2	-3	-3	-4	-4	-5	-6	-7	-7	-8	-8	-9	-10	-11

## Bird's eye view of the test bed



$r_s$ : hemispheric radius (m) -  $D$ : inlet diameter (m) -  $r_s$ :  $1 + 0.5 D$

# Cylindrical silencers



The ear is sensitive to the air static pressure variations which are transmitted to the ear drum and are perceived only when they are not too slow nor too rapid. In a given area, the nuisance caused by noise is a function of the sound pressure level existing in this area. Sound pressure level calculations provide the values of pressure levels on each of the 8 octave bands. It is therefore practical to define the maximum levels acceptable in each octave band.

ISO limits have been accepted by the different standard bodies; they are given as function of the noise frequency.

On each curve, a figure indicates the maximum sound pressure at 1000 Hz.

The spectrum to be compared with ISO curves is linear and is found by adding to the sound pressure spectrum the corrections of **table 3**.

When the maximum values imposed by the technical specifications are less than the fan sound pressure level, an attenuator will be needed to reach the required characteristics.

## Standard construction

The cylindrical silencers have external casings made of hot-dipped galvanised carbon steel. The insulation material (mineral fibre) has a layer of impervious material to prevent the migration of fibres into the air stream and lined with a perforated galvanised metal sheet.

The connecting flanges are drilled to permit direct connection onto the Axipal BZi fan.

## Selection

The attenuation achieved by the cylindrical silencers are given in **table 4**. These values represent the difference between the sound power level of the fan alone and that of the complete system fan-silencer. The silencer performances can vary with the air velocity.

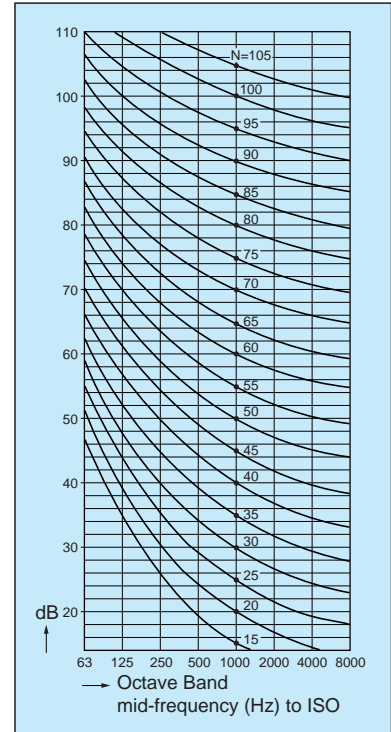
For velocities higher than 20 m/s, please consult us (maximum air velocity 30 m/s).

The pressure losses introduced by these silencers are considered to be negligible.

## Installation

The silencers must be fitted in the air stream between the fan and the area where the attenuation is required.

When the fan inlet is not ducted, an inlet cone must be used in order to achieve the performances listed in **table 4**.



**Table 3**

Mid-frequency (Hz)	Scale A	Scale C
63	-26.2	-0.8
125	-16.1	-0.2
250	- 8.6	0
500	- 3.2	0
1000	0	0.2
2000	+ 1.2	-0.2
4000	+ 1	-0.8
8000	- 1.1	-3

**Table 4**

Sizes	Total	Octave Band Mid-frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
355 400 450 500	11	4	5	6	9	11	9	11	11
560 630 710	11	2	4	6	11	12	11	12	12
800 900 1000	9	1	3	5	10	11	10	10	10
1120 1250 1400 1600	8	1	3	7	10	6	8	8	5

NOTE: The silencers are not designed to support the weight of the fan or of any other ducting components. The standard Axipal BZi fan supports can be used. The silencer dimensions are given on page 12.

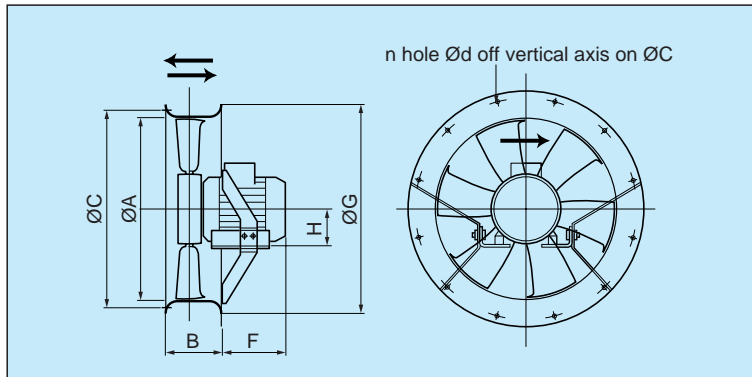
# Overall dimensions of arrangements

## MA arrangement

### Operating conditions:

Not suitable for air carrying abrasive particles or corrosive substances.

For temperatures of less than  $-20\text{ }^{\circ}\text{C}$  or between  $+40\text{ }^{\circ}\text{C}$  and  $+120\text{ }^{\circ}\text{C}$ , consult us for details (special motors).



Fans	400	450	500	560	630	710	800	900	1000*	1120*	1250*
ØA	400	450	500	560	630	710	800	900	1000	1120	1250
B	165	180	195	215	255	290	325	335	385	440	485
ØC	466	520	574	642	716	808	905	1020	1130	1262	1408
F	TO SUIT MOTOR										
ØG	489	545	600	667	740	833	933	1050	1160	1293	1438
Mot. H max.	100	112	112	112	132	132	132	180	180	225	225
n	8	8	12	12	12	16	16	16	16	20	20
Ød	12	12	12	12	12	12	12	16	16	16	16
Weight (1)	12	15	19	22	32	39	54	84	125	154	180

(1) Approximate weight without motor and accessories.

\*Only welded construction

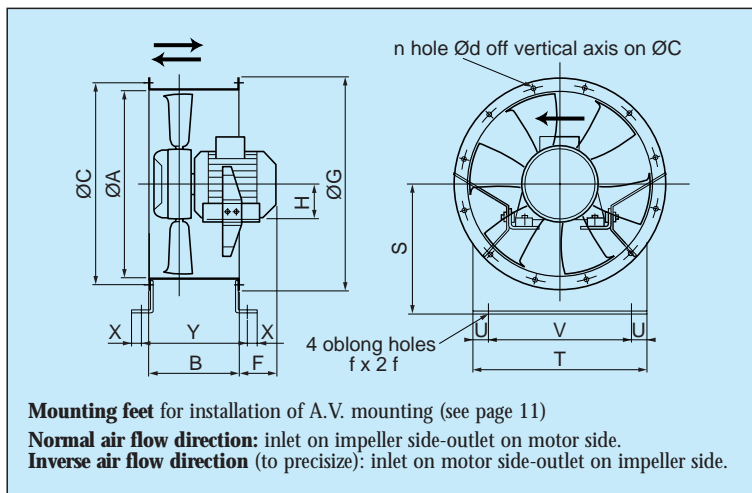
The dimensions are in mm and weights in kg.

## VR arrangement

### Operating conditions:

Not suitable for air carrying abrasive particles or corrosive substances.

For temperatures of less than  $-20\text{ }^{\circ}\text{C}$  or between  $+40\text{ }^{\circ}\text{C}$  and  $+120\text{ }^{\circ}\text{C}$ , consult us for details (special motors).



Sizes	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
ØA	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
B	200	215	245	250	255	305	340	370	500	545	615	620	650	650
ØC	395	450	500	560	620	690	770	860	970	1070	1190	1320	1470	1680
F	TO SUIT MOTOR													
ØG	420	480	530	590	650	720	800	910	1010	1130	1250	1380	1530	1730
Mot. H max.	90	100	112	112	112	132	132	132	180	180	225	225	280	280
n	8	8	8	12	12	12	16	16	16	16	20	20	20	24
Ød	10	12	12	12	12	12	12	12	16	16	16	16	16	20
S	310	345	345	385	385	430	480	540	600	665	790	790	950	950
T	390	450	490	470	470	525	595	575	690	690	790	790	910	910
U	25	25	25	25	25	25	45	45	45	45	45	45	50	50
V	340	400	440	420	420	475	505	485	600	600	700	700	810	810
X	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Y	247	262	292	296	301	351	394	422	560	603	677	682	726	718
f	12	12	12	12	12	12	12	12	16	16	16	16	16	16
Weight (1)	11	13	16	21	24	34	40	58	99	150	184	207	283	383

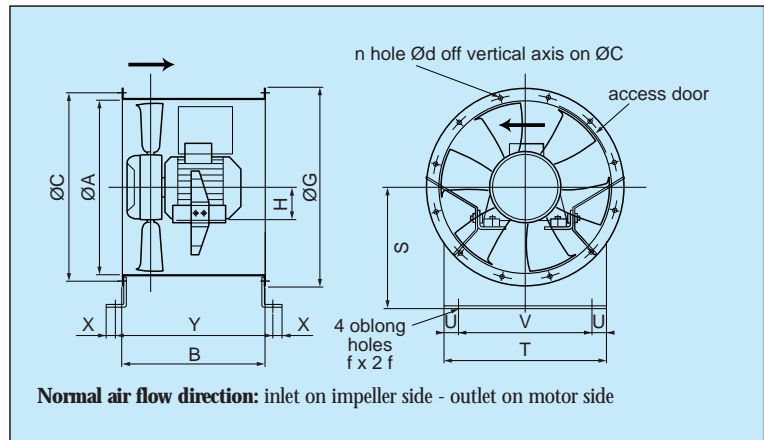
(1) Approximate weight without motor and accessories.

# VA arrangement

## Operating conditions:

Not suitable for air carrying abrasive particles or corrosive substances.

For temperatures of less than  $-20\text{ }^{\circ}\text{C}$  or between  $+40\text{ }^{\circ}\text{C}$  and  $+120\text{ }^{\circ}\text{C}$ , consult us for details (special motors).



Sizes	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
ØA	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
B	420	435	460	470	525	560	605	650	830	850	965	970	1200	1200
ØC	395	450	500	560	620	690	770	860	970	1070	1190	1320	1470	1680
ØG	420	480	530	590	650	720	800	910	1010	1130	1250	1380	1530	1730
Mot. H max.	90	100	112	112	112	132	132	132	180	180	225	225	280	280
n	8	8	8	12	12	12	16	16	16	16	20	20	20	24
Ød	10	12	12	12	12	12	12	12	16	16	16	16	16	20
S	310	345	345	385	385	430	480	540	600	665	790	790	950	950
T	390	450	490	470	470	525	595	575	690	690	790	790	910	910
U	25	25	25	25	25	25	45	45	45	45	45	45	50	50
V	340	400	440	420	420	475	505	485	600	600	700	700	810	810
X	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Y	467	482	507	516	571	606	659	702	890	908	1027	1032	1276	1268
f	12	12	12	12	12	12	12	12	16	16	16	16	16	16
Weight (1)	15	17	21	28	34	44	53	78	133	193	241	271	375	526

(1) Approximate weight without motor and accessories.

The dimensions are in mm and weights in kg.

# VP arrangement

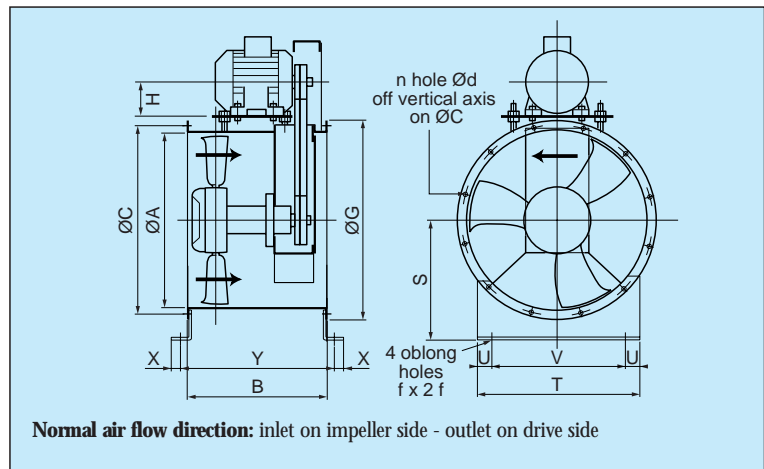
## Operating conditions:

Not suitable for air carrying abrasive particles or corrosive substances.

Standard construction: from  $-20\text{ }^{\circ}\text{C}$  to  $+90\text{ }^{\circ}\text{C}$ .

High temperature construction: from  $+90\text{ }^{\circ}\text{C}$  to  $150\text{ }^{\circ}\text{C}$ .

Over  $+150\text{ }^{\circ}\text{C}$ : consult us.



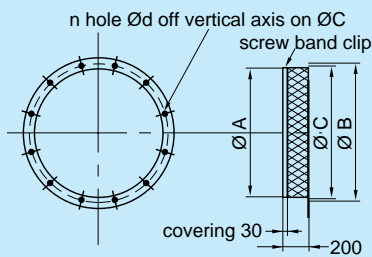
Sizes	400	450	500	560	630	710	800	900	1000	1120	1250
ØA	400	450	500	560	630	710	800	900	1000	1120	1250
B	435	470	470	565	600	600	650	670	670	700	700
ØC	450	500	560	620	690	770	860	970	1070	1190	1320
ØG	480	530	590	650	720	800	910	1010	1130	1250	1380
Mot. H max.	100	100	132	132	132	132	160	180	180	200	200
n	8	8	12	12	12	16	16	16	16	20	20
Ød	12	12	12	12	12	12	12	16	16	16	16
S	345	345	385	385	430	480	540	600	665	790	790
T	450	490	470	470	525	595	575	690	690	790	790
U	25	25	25	25	25	45	45	45	45	45	45
V	400	440	420	420	475	505	485	600	600	700	700
X	30	30	30	30	30	30	30	30	30	30	30
Y	482	517	516	611	646	654	702	730	728	762	762
f	12	12	12	12	12	12	12	16	16	16	16
Weight (1)	35	39	45	57	68	75	114	142	178	243	268

(1) Approximate weight without motor and accessories.

# Overall dimensions of accessories

## Flexible connection sleeve

Flexible sleeve, 1 flanged side



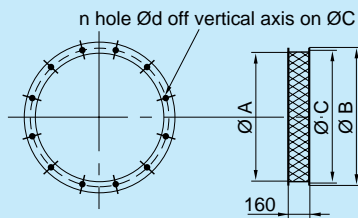
Sizes	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
∅ A	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
∅ B	420	480	530	590	650	720	800	910	1010	1130	1250	1380	1530	1730
∅ C	395	450	500	560	620	690	770	860	970	1070	1190	1320	1470	1680
n	8	8	8	12	12	12	16	16	16	16	20	20	20	24
d	10	12	12	12	12	12	12	12	16	16	16	16	16	20

\*NOTA :

- Thickness of flexible connection sleeve for T<70° : 0.50 mm
- Thickness of flexible connection sleeve for smoke removal 200° : 0.70 mm

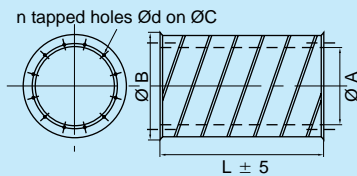
General tolerance limits: ±3 mm

Double flanged flexible connection sleeve



## Cylindrical silencers

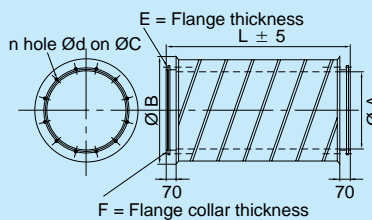
Non flanged silencer



Non flanged silencer

Sizes	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
∅ A	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
∅ B	595	665	665	745	745	835	935	1055	1175	1305	1555	1555	1855	1855
n	8	8	8	12	12	12	16	16	16	16	20	20	20	24
∅ d	M8	M10	M10	M10	M10	M10	M10	M10	M12	M12	M12	M12	M12	M12
∅ C	395	450	500	560	620	690	770	860	970	1070	1190	1320	1470	1680
L	640	720	820	900	1000	1130	1250	1370	1440	1600	1790	2000	2240	2560
Md	19	24	26	32	35	49	61	81	95	117	176	191	288	296

Flanged silencer



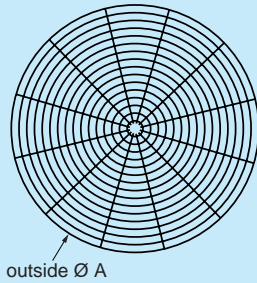
Flanged silencer

Sizes	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
∅ A	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
∅ B	595	665	665	745	745	835	935	1055	1175	1305	1555	1555	1855	1855
n	8	8	8	12	12	12	16	16	16	16	20	20	20	24
∅ d	10	12	12	12	12	12	12	12	16	16	16	16	16	16
∅ C	395	450	500	560	620	690	770	860	970	1070	1190	1320	1470	1680
L	780	860	960	1040	1140	1270	1390	1510	1580	1740	1930	2140	2380	2700
Md	23	28	32	38	42	58	70	91	107	131	195	214	321	332
E	5	5	5	5	5	5	5	5	5	5	5	5	5	5
F	0.6	0.8	0.8	0.8	0.8	0.8	0.8	1	1	1	1	1	1	1

Md : weight of the flanged silencer in kg.

# Wire guards, bolded construction

## Wire guard



### Flat wire guard for inlet cone (impeller side)

Fans	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
A	360	420	500	540	600	680	780	880	980	1080	1240	1380	1540	1760
Div.	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Ø fix	410	466	520	574	642	716	808	905	1020	1130	1262	1408	1580	1800

### Flat wire guard for MA casing (impeller side)

Fans	400	450	500	560	630	710	800	900	1000	1120	1250
A	420	500	540	600	680	760	860	980	1080	1220	1380
Div.	10	10	10	10	10	10	10	10	10	10	10
Ø fix	466	520	574	642	716	808	905	1020	1130	1262	1408

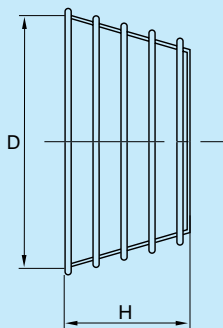
### Flat wire guard for VA - VR - VP casing (impeller side)

Fans	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
A	360	400	480	540	600	640	720	820	940	1020	1160	1280	1420	1640
Div.	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Ø fix	395	450	500	560	620	690	770	860	970	1070	1190	1320	1470	1680

### Flat wire guard for VA - VP casing (motor side)

Fans	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
A	360	400	460	520	600	640	720	820	940	1020	1140	1280	1420	1640
Div.	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Ø fix	395	450	500	560	620	690	770	860	970	1070	1190	1320	1470	1680

## "Basket type" wire guard



General tolerance limits : ± 2 mm

### "Basket type" wire guard for MA arrangement

Fans	400	450	500	560	630	710	800	900	1000	1120	1250
H	167	181	173	162	201	182	169	360	332	342	315
D	448	503	559	625	703	790	890	1004	1114	1248	1392

### "Basket type" wire guard for VR arrangement

Fans	355	400	450	500	560	630	710	800	900	1000	1120	1250	1400	1600
H	122	119	114	114	114	142	116	102	175	150	146	146	238	238
D	356	396	456	516	576	630	716	816	916	1016	1136	1276	1426	1636

# Axipal BZi

## How to read direct drive axipal fans

performance curves 50 Hz For 60 Hz ask for specific broshure

# VA arrangement

## VR

## MA

### Conditions

Air at 20 °C  
 Relative humidity : 65 %  
 Absolute atmosphere pressure : 760 mm Hg  
 Air density : 1.2 kg/m<sup>3</sup>

### Tolerances

According to French SCIMA (Manufacturers Association rules for ventilation products):

Volume : ±5 % of the nominal volume  
 Efficiency : -6 % of the guaranteed efficiency  
 Noise level : see technical manuals

### Guaranteed performance

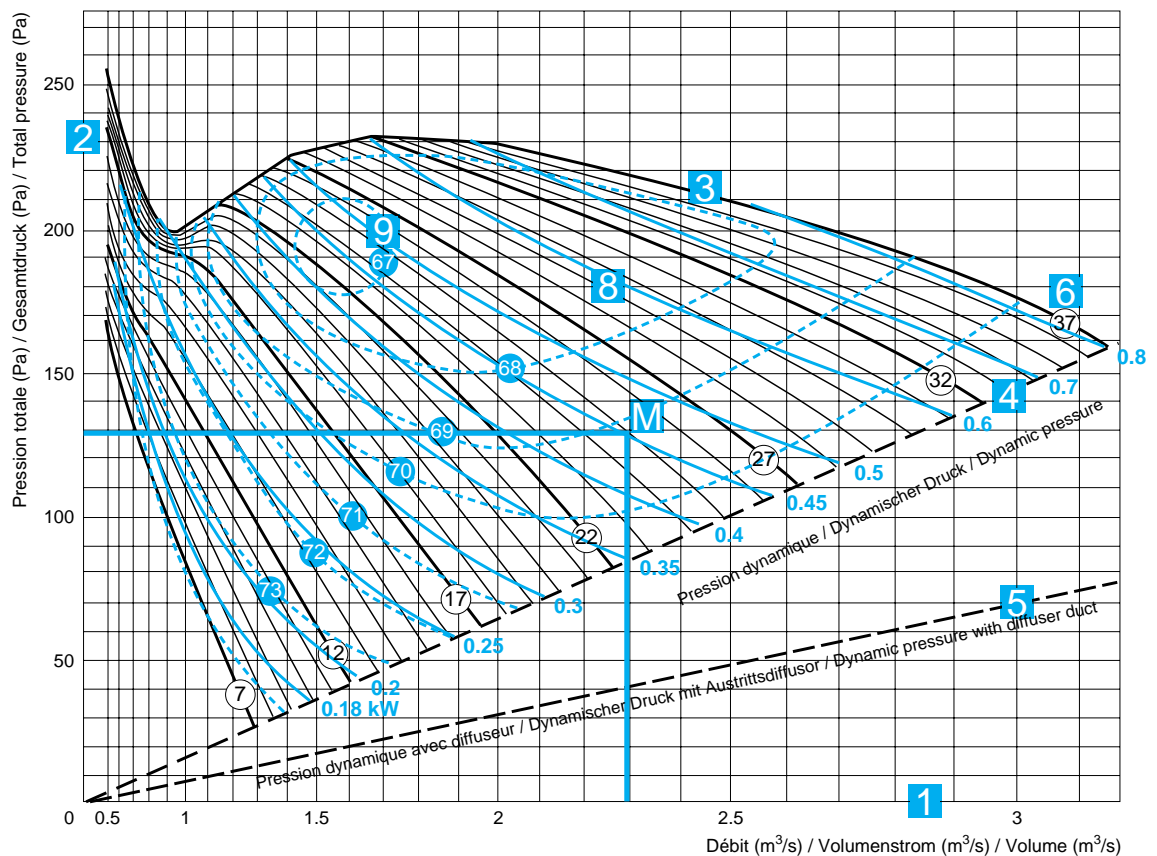
- With normal air-flow direction: inlet on impeller side, outlet on drive side.
- With inlet cone (without wire guard) when the inlet is free or when connected at inlet and outlet to ducts. Without an inlet cone, performances are lower and sound level increases.

### pales schaufeln blades

4

Calage maxi  
 Max. Schaufelstellung:  
 Max. pitch angle:  
 37°

7



1 Volume in m<sup>3</sup>/s

2 Pressure in Pa

3 Performance curve

4 Dynamic pressure curve **without** diffuser (read values on scale 2)

5 Dynamic pressure curve **with** diffuser

6 Blade angle in °

7 Maximum pitch angle in °

8 Absorbed power curve in kW

9 Average sound pressure level in dB(A)

### EXAMPLE

An AXIPAL BZi 500 fan with 4 blades operating at 1,450 r.p.m. at the nominal point **M** corresponding

to a volume of 2.3 m<sup>3</sup>/s and a total pressure of 130 Pa.

One reads off:

Volume (q): 2.3 m<sup>3</sup>/s

Total pressure (Pt): 130 Pa

Blade angle: 25°

Absorbed power (Pabs): 0.46 kW

Dynamic pressure (Pd): 80 Pa

Dynamic pressure **with** diffuser: 40 Pa

Average sound pressure level: 69 dB(A)

# Axipal BZi

## How to read V-belt driven axipal fans performance curves 50 Hz and 60 Hz

# VP arrangement

3 pales  
schaufeln  
blades

### Conditions

Air at 20 °C  
Relative humidity : 65 %  
Absolute atmosphere pressure : 760 mm Hg  
Air density : 1.2 kg/m<sup>3</sup>

### Tolerances

According to French SCIMA (Manufacturers Association rules for ventilation products):

Volume : ±5 % of the nominal volume  
Efficiency : -6 % of the guaranteed efficiency  
Noise level : see technical manuals

### Guaranteed performance

- With normal air-flow direction: inlet on impeller side, outlet on drive side.
- With inlet cone (without wire guard) when the inlet is free or when connected at inlet and outlet to ducts. Without an inlet cone, performances are lower and sound level increases.

### taille

500

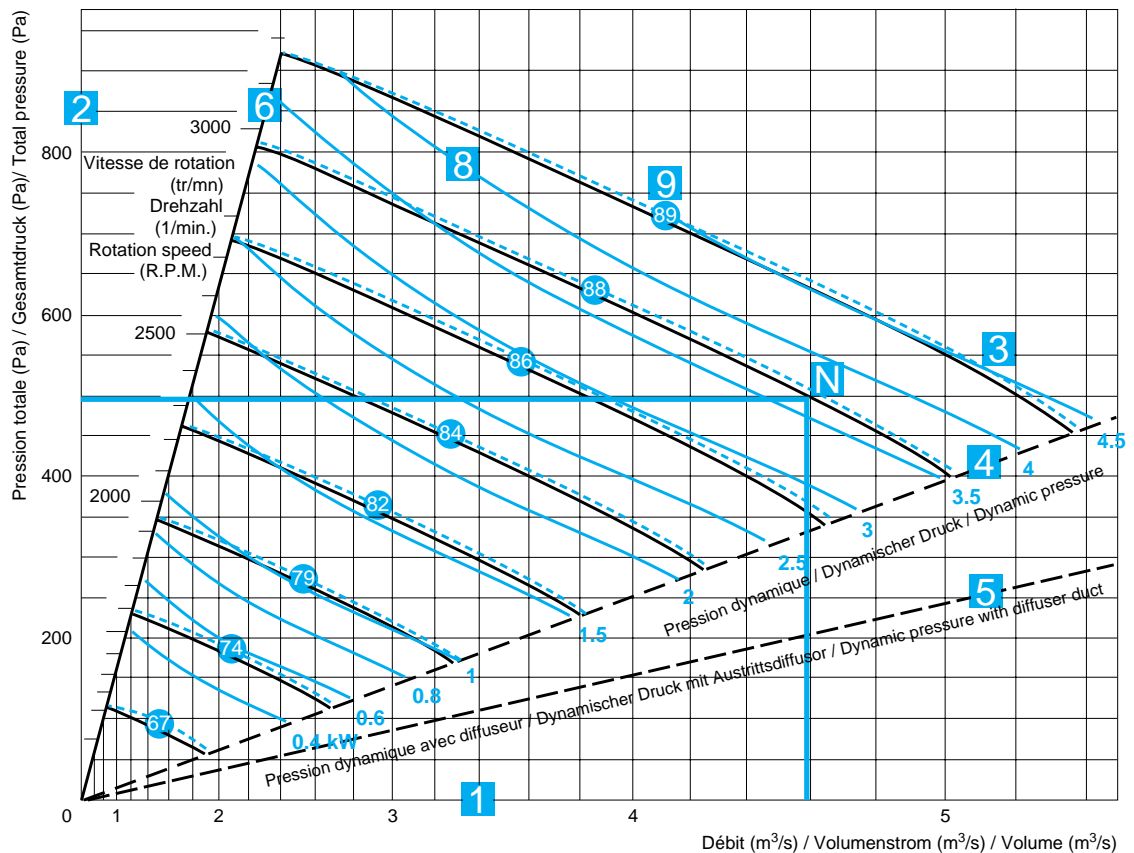
Calage  
Schaufelstellung:  
Pitch angle:  
27°

Vitesse maxi (tr/mn)  
Max. Drehzahl (Upm)  
Max. speed (R.P.M.)  
3160

7

Acoustique  
Equivalence avec norme  
British Standard  
Correction: -4dB

Sound levels  
Equivalence  
to British Standard  
Correction: -4dB



1 Volume in m<sup>3</sup>/s

2 Pressure in Pa

3 Performance curve

4 Dynamic pressure curve **without** diffuser (read values on scale 2)

5 Dynamic pressure curve **with** diffuser

6 Scale of rotation speed r.p.m.

7 Speed limit r.p.m.

8 Absorbed power curve in kW

9 Average sound pressure level in dB(A)

### EXAMPLE

An AXIPAL BZi 500 fan arrangement VP operating at the nominal point **N**

One reads off:

Volume (q): 4.6 m<sup>3</sup>/s

Total pressure (Pt): 500 Pa.

Rotation speed: 2,950 r.p.m.

Absorbed power (Pabs): 3.7 kW

Dynamic pressure (Pd): 340 Pa.

Dynamic pressure **with** diffuser: 210 Pa.

Average sound pressure level: 88 dB(A)