



AXC-EX



AXCBF-EX

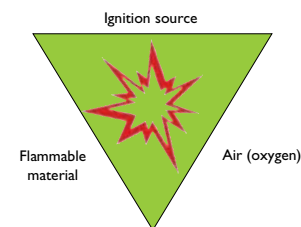
AXC-EX / AXCBF-EX Explosion Proof Axial Fans

Explosion proof axial fans with ATEX certification in accordance with EN 14986

Standard features:

- Stock range, short delivery time
- Aerofoil impeller with adjustable pitch angle
- Die cast aluminium hub and blades
- Casing, hot dip galvanized steel, to EN ISO 1461
- Aluminium anti-spark ring
- Spun flanges for high rigidity, to DIN 24154 series 3
- Single and three phase motors, IP55, insulation class F, in accordance with EN 60034, IEC 85. Supplied with terminal box Exe mounted at the outer side of the casing. Admissible ambient temperatures from -20° to +40°C, other temperatures on request
- AXC-EX: Inspection hole to verify correct direction of rotation
- AXCBF-EX with motor outside the airstream

Explosion protection

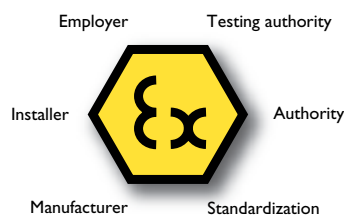


Three factors needed for an explosion

Gases, vapours and mists which occur during storage, production or processing of flammable substances, together with the oxygen in the air, form an explosive atmosphere. In case this atmosphere is ignited, explosions take place which can be harmful to human beings and damage property. Ignition sources can be for example hot temperatures on surfaces, mechanically generated sparks, static electricity or electrical installations.

Protective standards have been developed in many countries to ensure a high level of safety. In the European Union regulations have been harmonized in EC-directives

94/9/EC (ATEX 95, equipment directive, manufacturers or importers) and 99/92/EC (ATEX 137, workplace directive: operation of installations, users).



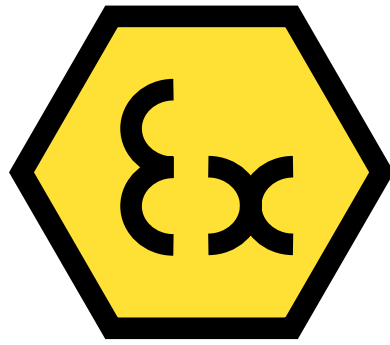
In short, those directives define the measures to be taken to avoid the ignition of potentially explosive atmospheres, i.e. atmospheres which could become explosive due to local and operational conditions. The required safety level depends on the danger potential in the very installation.

In the EC-directives hazardous areas are divided into zones, defining the probability of an explosive atmosphere (in accordance with IEC 60079-10).



	Zone	Duration of the occurrence of an explosive atmosphere	Equipment category
Gases, vapours, mists	0	continuously, for a long period, frequently	1G
	1	occasionally	2G
	2	rarely and for a short period	3G

The NEC (National Electrical Code) of USA and the CEC (Canadian Electrical Code) of Canada divide into Classes and Divisions, which might deviate from the EC directives. Gases, vapours or mists are classified in Class 1, then divided into Divisions 1 or 2, then into Gas Groups. Please pay attention which standard has been applied (EC-directives or NEC/CEC).



Manufacturers of equipment with a potential ignition source (like electric motors, rotating parts) have to ensure that the equipment fulfils the safety requirements given in the relevant directives and codes (grouping and category).

The EC-directives then divide the equipment into Groups. Equipment group I covers mining systems, where a very high or high degree of safety is required.

Equipment group II covers other explosive areas and is divided into categories from category I (very high degree of safety, even for independently occurring faults), category 2 (high degree of safety, even for occurrence of a fault) and category 3 (normal degree of safety – in normal operation conditions).

Electrical equipment of category 2 must undergo an EC type examination, carried out by a notified body. For electrical equipment of category 3 and non-electrical equipment the manufacturer is authorized to document conformity with the requirements of the EC-directive. CE-marking of the equipment confirms that it has been manufactured in compliance with all relevant EC-directives.

Equipment group II is further classified into 3 explosion groups or gas groups. The IEC system is applied in Europe, where IIA is the lowest hazardous gas group, IIB medium and IIC the most volatile gas group. The NEC directives of North America define it the opposite way, where Group A is the most hazardous gas group.

Temperature classes

Temperature classes determine the maximum surface temperature of a product at an ambient temperature of max. 40°C, for example an electrical apparatus, which should always be lower than the ignition temperature of the gas/air or vapour/air mixture in which it is used. The ignition temperature is the lowest temperature at which a hot surface

can ignite a respective explosive atmosphere. Flammable gases and vapours are classified into temperature classes according to their inflammability. Temperature classes range from T1 to T6.

Temperature class	Temperature in °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Gas groups and temperature classes, some examples:

Material	Explosive limit (Vol. %, LEL-UEL)*	Temperature class	Explosion/gas group (IEC)
Propane	1,7 - 10,8	T1	IIA
Ethanol	3,3 - 19	T2	IIB
Hydrogen	4 - 77	T1	IIC
Acetylene	2,3 - 100	T2	IIC
Methane	4,4 - 17	T1	IIA

* extract from the table flammable liquids and gases by E.Brandes and W. Möller, LEL - UEL (lower explosive limit, upper explosive limit)

Systemair offers the following types of ignition protection (for electrical apparatus in explosive gas atmosphere):

Type of ignition protection	Nomenclature	Region	Installation location	Principle	Standard applied
Non sparking apparatus "nA"	Ex nA (EEx nA)	IEC, EU	Zone 2	Prevent occurrence of sparks	IEC/EN 60079-15
Increased safety "e"	Ex e (EEx e)	IEC, EU	Zone 1	Prevent excessive temperatures and the occurrence of sparks	IEC/EN 60079-7
Flameproof enclosure "d"	Ex d (EEx d)	IEC, EU	Zone 1	Enclosure withstanding an explosion from within the apparatus	IEC/EN 60079-1



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Marking of an explosion protected fan

In Europe the label must show as a minimum:

- the CE-mark
- the code no. of the certifying body
- the Ex mark, group, category and indication relating to gases (G) or dust (D)
- temperature range of ambient air

Quality

Systemair is ISO 9001: 2000 approved.

Prototype testing institute:

SIRA Test and certification Ltd.
Rake Lane, Ecclestone
Chester; CH4 9JN; England
Registration no. 0518

Inspection certificate no. of EC-
prototype testing
(SIRA 07ATEX6341X)

Monitoring institute

ZELM Ex e. K.
Prüf- und Zertifizierungsstelle
Siekgraben 56

D – 38124 Braunschweig

Registration no. 0820

Warranty

Systemair offers a three year warranty. The Systemair warranty conditions apply.

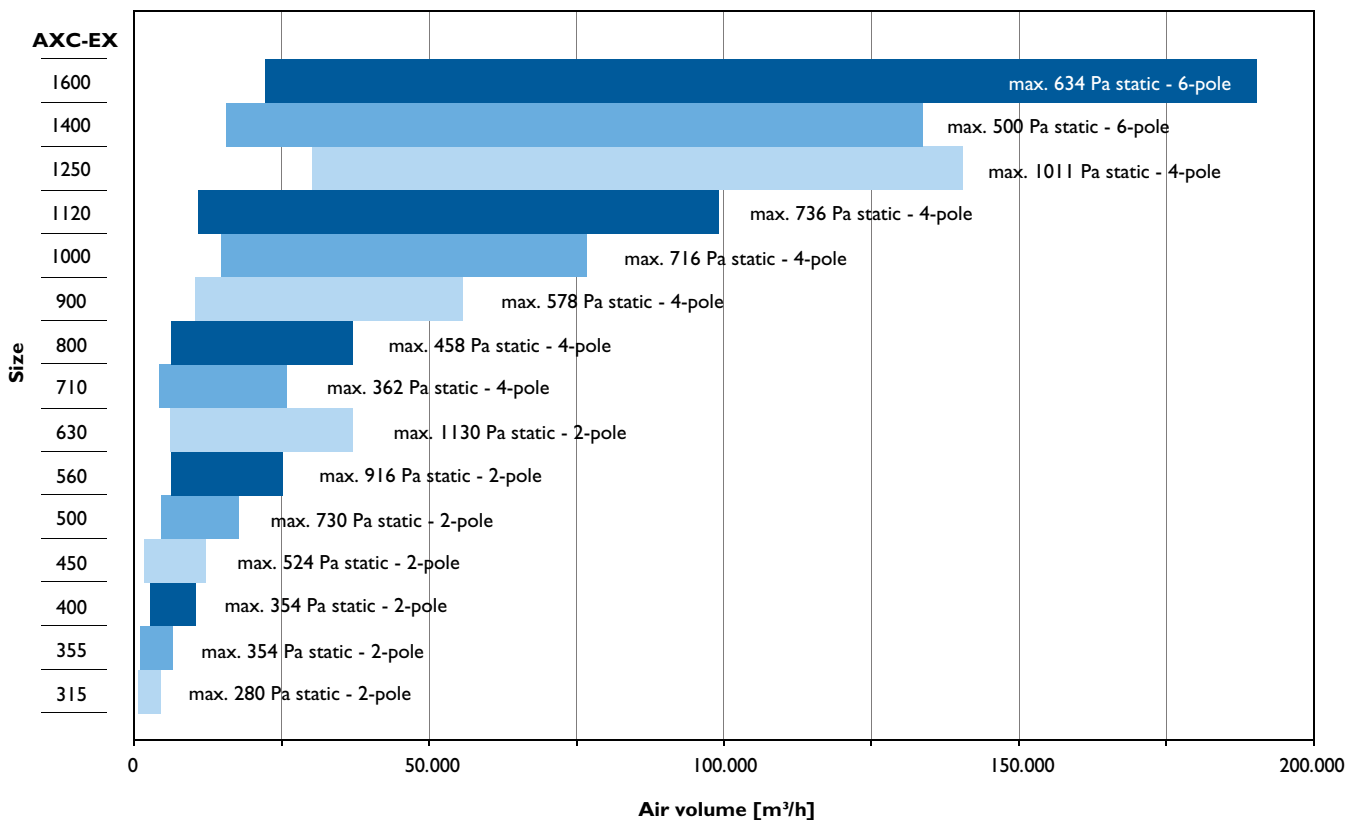
Stock range AXC-EX (400V / 50Hz) Ex d

Size	Pole	Pitch angle	Motor kW
450	2	24°	3
500	2	16°	3
500	2	26°	5,5
560	2	18°	5,5
560	2	24°	7,5
630	2	16°	7,5
355	4	32°	0,37
400	4	32°	0,37
450	4	32°	0,55
500	4	22°	0,55
500	4	28°	0,75
560	4	20°	0,75
560	4	26°	1,1
630	4	22°	1,1
630	4	30°	3
710	4	30°	4
800	4	18°	4
800	4	28°	7,5
900	4	18°	7,5
900	4	26°	11

Stock range AXCBF-EX (400V / 50Hz) Ex d

Size	Pole	Pitch angle	Motor kW
250	2	32°	0,37
315	2	30°	0,75
400	2	22°	2,2
500	2	20°	4
250	4	32°	0,25
315	4	32°	0,25
400	4	32°	0,55
500	4	30°	1,1
630	4	26°	2,2
800	4	18°	4

Performance guide AXC-EX explosion proof



Ordering code

AXCBF - EX

AXC - EX 560 - 9 / 22° - 4 (D/E/NA)

- D = flameproof (Ex d)
- E = increased safety (Ex e)
- NA = non sparking (Ex nA)
- 4-pole motor
- Pitch angle
- Number of blades
- Impeller diameter
- Explosion proof axial fan