

Explosion Proof Fans

The extra for your safety



Explosion Proof Fans

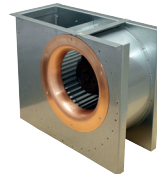
In March 1994 the new ATEX directive 94/9/EC (ATEX = Atmosphères Explosibles) became effective. Since June 30th, 2003 may only equipment, components and protection systems are introduced, who is conform to the ATEX Directive 94/9/EC, on April 20th, 2016 these directive was replaced by RL 2014/34/EU. This directive is valid in all EC countries for operational installations in explosion hazardous zones. Examples are petrol stations, battery rooms, painting cabins and the chemical industry.

Other than for standard fans, there are guidelines for explosion proof fans:

- Usage of non sparking materials
- Motor temperature must not exceed the specified temperature classification
- Traceability of the manufacturing process
- Overall considerably higher quality demands



Rectangular duct fan KTEX
1.680 – 4.950 m³/h



Centrifugal fan DKEX
1.500 – 5.000 m³/h



Roof fan DVEX
1.500 – 7.900 m³/h



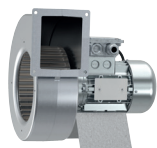
Roof fan DVV-EX
4.850 – 44.800 m³/h



Circular duct fan RVK-EX
Up to 1.120 m³/h



Axial fan AW-EX
2.500 – 10.940 m³/h



Centrifugal fan EX
555 – 1.180 m³/h



Axial fan AXC-EX
2.250 – 190.000 m³/h

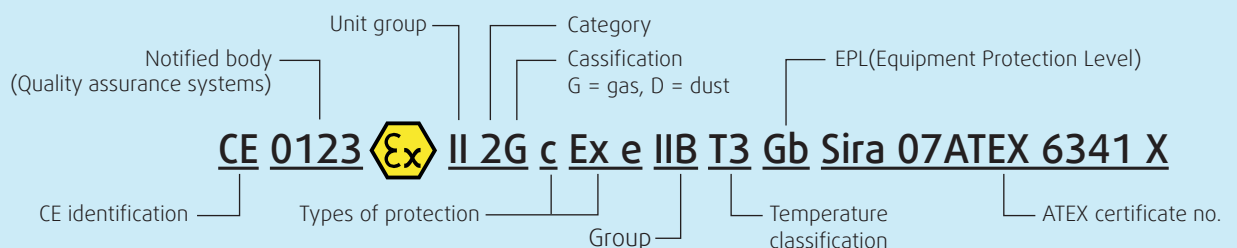


Plastic centrifugal fan PRF-EX
680 – 3.800 m³/h



Axial fan AXCBF-EX
800 – 21.100 m³/h

Identification of a fan tested by ATEX:



Selection of an Explosion Proof Fan

The system user is responsible for the correct system design for a proper operation. Manufacturers are responsible only for the appearance and workmanship of the supplied components.

In the industry explosion hazardous areas are classified in zones. ATEX classifies the fans in categories, corresponding to the zones. Categories are independent from the substance causing the explosion hazard. The classification in categories (or zones) is related to the temporal appearance (frequency of occurrence) of explosion hazardous atmosphere. Basically the correct zone or category can only be given by the user of the system, after having conducted an analyse regarding the occurrence of explosion hazardous gases or mixtures in the project. The categories or zones do not define the concentration.

Categorie 1 (zone 0) covers areas, where there is a permanent or long lasting occurrence of explosion hazardous atmosphere. Example: inside a fuel tank.

Categorie 2 (zone 1) covers areas, where there is a regular occurrence of explosion hazardous atmosphere. Example: filling machine.

Categorie 3 (zone 2) covers areas, where there is a non-regular or short time appearance of explosion hazardous atmosphere. Example: defective gas pipe, accidents.

All Systemair explosion proof fans correspond with category II, allowing an application in zone I and zone 2.

Pre-selection depends on the medium to be transported. Each medium has an individual ignition temperature. Systemair explosion proof fans comply with temperature classification T3, some units can also be used in T4. The following table shows possible temperature classifications.

Temperature classification	Ignition temp. of different gas mixtures	Max. surface temp. of electrical equipment
T1	> 450 °C	450 °C
T2	> 300 - > 450 °C	300 °C
T3	> 200 - > 300 °C	200 °C
T4	> 135 - > 200 °C	135 °C
T5	> 100 - > 135 °C	100 °C
T6	> 85 - > 100 °C	85 °C

The ignition temperature of the medium, but also the classification in groups is important. Explosion proof fans from Systemair are approved (according to type) for the transportation of substances correspond to group IIA, IIB and IIC. A good example is hydrogen. Hydrogen is classified in temperature class T1, but in IIC. Therefore hydrogen can only be extracted with an EX, AXC-EX, AXC-BF-EX, KTEX or DKEX fan.

The last decision has to be made regarding the types of protection.

Explosion proof fans from Systemair correspond to types of protection Ex e (except DVV-EX, AXC-EX and AX-CBF-EX, these are related to types of protection Ex d = pressure resistant capsulation). The types of protection always refer to the installed explosion proof motor (except c, it refers to the mechanic construction). The following types of protection may be requested:

Group	Gases and vapours of substances
IIA	acetone, ammonia, ethyl alcohol, fuel, benzene, methane, propane, carbon dioxide
IIB	ethylene, town gas, diethyl ether
IIC	hydrogen, carbon disulphide, acetylene

- i** intrinsic safety
- c*** constructional safety
- d*** flameproof enclosure
- e*** increased safety
- p** pressurisation
- o** oil immersion
- m** encapsulation
- q** powder filling
- nA*** non sparking

* in the Systemair range

Ex d IIC T4

Systemair Range

RVK-EX

Circular duct fan with casing manufactured from conducting plastic. Type of protection Ex e. Speed controllable.

Air volume up to 1.120 m³/h.

EX

Centrifugal fan with casing manufactured from silumin. Type of protection Ex de. Compact design. Available in 230 V and 400 V execution.

Air volume up to 1.180 m³/h.

PRF-EX

Plastic centrifugal fan with casing manufactured from conducting plastic. Type of protection Ex e or Ex d. Ex d version is speed controllable by frequency converter.

Air volume up to 3.800 m³/h.

KTEX

Rectangular duct fan with casing manufactured from galvanised sheet steel with a brass inlet cone. Type of protection Ex e. Speed controllable.

Air volume up to 4.950 m³/h.

DKEX

Centrifugal fan with casing manufactured from galvanised sheet steel with a brass inlet cone. Type of protection Ex e. Speed controllable.

Air volume up to 5.000 m³/h.

DVEX

Roof fan with casing manufactured from sea water resistant aluminium. Type of protection Ex e. Speed controllable.

Air volume up to 7.900 m³/h.

DVV-EX

Roof fan with casing manufactured from sea water resistant aluminium. Type of protection Ex d. Speed controllable by frequency converter. Delivery with mounted terminal box.

Air volume up to 44.800 m³/h.

AW-EX

Axial fan with a square plate for wall mounting and an impeller manufactured from galvanised powder coated sheet steel. Type of protection Ex e. Speed controllable.

Air volume up to 10.940 m³/h.

AXC-EX

Axial fan with casing manufactured from hot dip galvanised steel. Type of protection Ex d. Speed controllable by frequency converter.

Air volume up to 190.000 m³/h.

AXCBF-EX

Axial fan with casing manufactured from hot dip galvanised steel. Type of protection Ex d. Speed controllable by frequency converter.

Air volume up to 21.100 m³/h.

Systemair explosion proof fans:

- Certified according to ATEX guideline 94/9/EC as well as EN60079-0, EN1127-1 and 13463-1
- Applicable in categorie 2, zone 1 and 2
- Ex e increased safety respectively Ex d = flame-proof enclosure
- All fans applicable for group IIA and IIB, AXC-EX, AXCBF-EX and PRF-EX (Ex d) fans for group IIA, IIB and IIC. EX, DKEX and KTEX also additional usable for hydrogen.
- Motor protection by cold conductor. Only certified when connected with a motor protection device





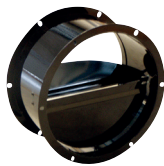
Reference: Choren Industries in Freiberg

Selection of Accessories



EX connection box

usable for the complete EX range



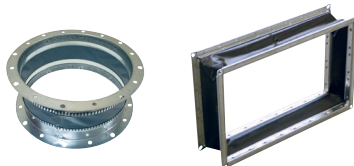
Automatic shutter

VKS-EX used for DVEX



Motor protection relay

UEK-EX used for DVEX and KTEX



Flexible connection

ASS-EX/DS-EX used for DVEX and KTEX



Motor protection switch

usable for the complete EX range
