

EX Fans

Installation and Operating Instructions

(Fans for use in area in explosion-capable areas)



Stand: / Issue:

DE

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GB

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The data stated in these operating instructions are merely for the purpose of describing the product. Information about a certain property or suitability for a certain purpose of use cannot be derived from our information. The information does not release the user from his own assessments and examinations.

Please consider the fact that our products are subject to a natural wear and ageing process.

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An exemplary configuration has been shown on the title page. The product supplied can therefore deviate from the illustration. The original operating instructions have been written in the German language.

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1 General information

1.1 Portrayal of the information



HAZARD

Direct hazard

Failure to comply with this warning leads directly to death or serious bodily harm..



WARNING

Possible hazard

Failure to comply with this warning possibly leads to death or serious bodily harm..



CARE

Hazard with low risk

Failure to comply with this warning leads to slight to moderate bodily harm.

CARE

Hazard with risk of property damage

Failure to comply with this warning leads to property damage..



NOTE

Useful information and notes

1.1.1 Specific safety warnings



WARNING

Hazard from electrical current!

This warning identifies situations with a danger for life from electrical current. Failure to comply with this warning leads to the risk of death or serious injuries.



HAZARD

Explosion-protection!

This warning identifies contents and instructions in these operating instructions which apply when using the appliance in explosion-capable areas. Failure to comply with these contents and instructions leads to a loss of explosion protection and can lead to serious injuries and death..

1.1.2 Portrayal of instructions for action

Instruction for action

- ☞ Carry out this action.
- ☞ (if applicable, further actions)

Instruction for action with fixed order

1. Carry out this action.
2. (if applicable, further actions)

1.2 Notes on the documentation



WARNING

Hazard due to improper handling of the EX fans

These operating instructions describe safe use of the EX fans.

- › Read the operating instructions precisely!
- › Keep the operating instructions with the fan. They must permanently be available at the place of use.

2 Important safety information

This chapter contains important safety information for protection of staff and for safe, risk-free operation.



NOTE

We have held a risk assessment for the EX fans. However, it can only apply to the fans themselves. After integration and installation of the fans, we recommend holding a risk assessment for the entire system. In this way, you have the guarantee that no potential risk results from the system.

Compliance with EMC Directive 89/336/EEC only relates to these products when they have been connected directly to the customary energy supply mains.

2.1 Proper use



NOTE

The EX fans are intended for integration into ventilation systems. They may not be operated alone!

The EX fans are not ready-for-use products, but have been designed as components for ventilation equipment, machines and systems. They may only be operated when they have been installed in accordance with their use and safety has been ensured by protective devices pursuant to DIN EN 294 (DIN EN ISO 12100-1) and the explosion protection measures necessary according to standard DIN EN 13980.

For the rotating part, a safety distance to the admission nozzle is guaranteed.

The system builder is responsible for the selection of materials for the stationary peripheral parts for fan designs without a protective grid. Only combinations of materials according to DIN EN 14986 may be used.

The fans are only intended for conveying air or explosion-capable atmospheres of Zone 1, Category 2G, and Zone 2, Category 3G.

The statement of the temperature class on the EX name plate (motor) must match the temperature class of the combustible gas which will possibly occur or the motor must have a higher temperature class.

The maximum admissible operating data on the name plate apply to an air density of $\rho=1.2 \text{ kg/m}^3$ and a maximum air humidity of 80%. The fans are suited to the following maximum ambient and material temperatures:

- AW-EX; RVK-EX und DVEX: 40°C
- AXC-EX, AXCBF-EX: max. 60°C.

Ex fans are in Category 2G according to Directive 94/9/EC. For intake of aggressive atmosphere, an additional acid protection for the fan parts subjected to it is necessary.

If fans are controlled with engines of the „d“ ignition protection class with frequency converter, thermal protection by a posistor (PTC) in the motor is necessary.

2.2 Improper use

Improper use is above all when you use the EX fans in a way other than that described. The following points are incorrect and hazardous:

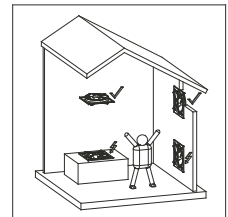
- conveying solids or shares of solids in the conveying medium
- intake of media containing dust or with a such a dust content that depositing on the blades and on the housing of the fan may influence the operation and the explosion protection of the fan. If there is the risk of such deposits, matching waste air cleaning must be carried out.

- conveying media which attack the materials in the fan (materials used: varnish-based polyacrylate, polyisocyanate, EN 1706 AC-ALSi12 (FE) DF, steel wire DIN EN 10016-2 quality C4D, steel EN 10142-DX54D+Z275-N-A).
- operation of the fans with motors in „e“ ignition protection class with frequency converter.

2.3 General safety information

Planners, plant builders and operators are responsible for the proper assembly and intended use.

- For examination and maintenance of the fans, EN 60079-17 (IEC 60079-17) is decisive.
- Only use the EX fans in a flawless condition.
- Provide generally prescribed electrical and mechanical protective devices.
- If intake or falling of foreign bodies cannot be prevented as a result of appliance or system construction or if there is the risk of the explosion of an explosion-capable gas/air atmosphere, additional measures are to be taken by the operator in order to prevent this, e.g. by attachment of an additional protective grid with a small mesh width. In the installation examples marked with a flash of lightning in the following picture, an increased risk with a view to foreign bodies falling in must be expected.



- Regularly check the functionality of the protective devices.
- The protective devices may not be circumvented or put out of function.
- In EX fans, the blade angle may not be subsequently altered!
- Keep all warnings on the fans complete and in a legible condition.
- Adhere to the maintenance intervals stated in these instructions.
- Obey the industrial safety directives.
 - Regulate responsibility for the various activities unambiguously.
 - Make sure that employees dealing with the EX fan read and understand these operating instructions before their activity.
 - Regularly instruct these employees in safety-conscious conduct.
- Rule out any risk from unintentional switching the fan on or unintentional access to the rotor during any work!
- Install proper lightning protection according to DIN VDE 0185 part 1.
- The systems must be at a sufficient safety distance from transmitters or protected by suitable screening.
- Certain operating points/speeds may not be reached if inherent resonances are reached as a result of added parts. Examination for inherent resonance is to be carried out by the plant builder in commissioning.
- The control devices may not be assembled and installed in the explosion-capable area.

2.4 Requirements of personnel

2.4.1 Assembly personnel

Assembly may only be carried out by trained and qualified personnel.

2.4.2 Work on the electrical equipment

Work on the electrical equipment of the fan may only be done by a trained electrician or a person given instruction in electrical engineering. This person must know the relevant safety directives in order to recognise or to avoid possible risks.

2.4.3 Personnel for operation, use, maintenance and cleaning

Operation, use, maintenance and cleaning may only be done by trained personnel with the authorisation to do so. The operating personnel must possess knowledge of how to use the fans. In the event of a disturbance or an emergency, they must be able to react correctly and suitably.

2.4.4 Unauthorised persons



WARNING

Hazard for unauthorised persons!

Unauthorised persons do not know the risks in the work area.

For this reason:

- › Keep unauthorised persons away from the work area.
- › If in doubt, address the person and eject him/her from the work area.
- › Interrupt work as long as unauthorised persons are still in the work area..

2.4.5 Personal protective equipment



WARNING

Health risks!

In order to rule out risks for the employees' health, protective clothing must be worn in explosion-capable areas.

- › For all work, wear a helmet, safety shoes, ear protection and work protection clothing.
- › Pay attention to the information shown in the work area concerning personal protective equipment.
- › Wear protective gloves in work to which specific reference is made in these instructions.

2.5 Safety devices

An internal thermo-contact with finished lines for connection to a motor protection device has been installed as an overheating protection for the motors of the EX fans.



CARE

Property damage from overheating of the motor

- » The motor can overheat and be destroyed if the thermo-contacts have not been connected.
- » Always connect the thermo-contacts to a motor protection device!

3 Warranty

Warranty for our products shall be based on the contractual stipulations, our quotations and also as a supplement our General Terms and Conditions of Business. Warranty claims shall presuppose that the products are connected properly, operated and used in accordance with the data sheets and are also maintained as required.

4 Delivery, transport, storage

4.1 Delivery

Each device leaves our factory in an electrically and mechanically flawless condition. The EX fans are supplied on pallets.

We recommend transporting them to the place of assembly in the original packaging.



CARE

Hazard from cutting!

- › Wear protective gloves when unpacking.

Check delivery

- ☞ Check the Ex fans for obvious defects or other defects which can impair safe operation.
- ☞ Above all pay attention to the connection wire, terminal boxes, rotor, cracks in the housing, missing rivets, screws or covering caps.

4.2 Transport



HAZARD

Loss of explosion protection!

Transport damage can lead to a loss of explosion protection.

- › If transport damage can be seen, do not put the device into operation.
- › Contact the manufacturer.



WARNING

Risk from hovering loads!

- » Do not walk under hovering loads.
- » Only move loads under supervision.
- » Lower the load when leaving the workplace.



WARNING

Electrical hazard from damaged connection wire or connections

- » Do not transport by the connection wire, terminal boxes, rotor or the admission nozzle.

- ☞ Transport the EX fan carefully and with suitable lifting equipment.
- ☞ Transport the EX fan either in the original packaging or the transport attachments provided for this purpose (e.g. ring screws; bores in carrying arms, wall ring panels).
- ☞ Only lift the EX fan by the transport attachment when unpacking it.
- ☞ DVEX: Screw the ring screws in. Transport the fan with them.
- ☞ When transporting by hand, pay attention to reasonable human lifting and carrying powers (weight information, see name plate).
- ☞ Avoid blows and impacts and distortion of the housing parts.

4.3 Storage



CARE

Hazard due to loss of function of the motor bearings

- » Avoid storing for too long (recommendation: max. 1 year).
- » Turn the rotor manually every three months, wear gloves.
- » Before installation, check proper function of the motor bearings.

- ☞ Store the EX fan in the original packaging dustproof, dry and protected against weather.
- ☞ Avoid extreme effects of heat or cold.

5 Description

With a view to the selection of materials, the EX fans fulfil the requirements of Standard DIN EN 14986 (Construction of fans for use in explosion-capable areas) as a result of specific protective measures in the area of possible contact surfaces between rotating and stationary components (rotor/admission nozzle)

5.1 Identification

Example



CE 0820  II 2G c Ex e IIB T3 Gb Sira 07ATEX6341X	
CE	CE sign
0820	Notified office (quality assurance system)
	Device certified for Ex area
II	Device group (here: use above ground)
2G	Device category and classification (G = gas, D = dust)
c	Kind of ignition protection „c“ = constructive safety (not electric)
Ex e	Kind of ignition protection („d“ = pressure-proof encapsulation, „e“ increased safety, „nA“ = not sparking)
IIB	Groups
T3	Temperature class
Gb	EPL (Equipment Protection Level)
Sira 07ATEX6341X	EC type test certificate number

Table 1: Identification

Designation			
Device group	II		All areas with explosive atmosphere except mining industrie underground and on the surface at mine gases.
Device category/ classification	„2G“	2	Category 2 / zone 1 / high safety Devices of this category are intended for use in areas in which it can be expected that an explosion-capable atmosphere of gases, vapours, mists occasionally occurs.
	„3G“	3	Category 3 / zone 2 / normal safety / Devices of this category are intended for use in areas in which it cannot be expected that an explosion-capable atmosphere occurs as a result of gases, vapours, mists, but if it does occur, then in all probability only rarely and for a short period of time.
		G	Gases/vapours/mists
Kind of ignition protection	„c“	Constructive safety	DIN EN 13463-5
	„d“	Pessureproof encapsulation Ex d	DIN EN 60079-1
	„e“	increased safety Ex e	DIN EN 60079-7 Production of sparks, light arcs or inadmissible temperatures which could act as a source of ignition is prevented by additional measures and an increased degree of safety.
		Non-sparking equipment Ex nA	DIN EN 60079-15 Explosion-capable mixtures can penetrate into the housing of the operating equipment, but may not be ignited. Sparks and ignition-capable temperatures must be avoided.

Table 2: Identification

Designation			
Group	Group II	IIA IIB IIC	z. B. Propane ... z. B. Ethylene ... z. B. Hydrogen ...
Temperature class	T1	450 °C	I: Methane IIA: Acetone, Ammoniac, Methane, Methanol, Propane, Toluene IIB: Town gas IIC: Hydrogen
	T2	300 °C	IIA: Ethyl alcohol, n-Butane IIB: Ethylene IIC: Acetylene
	T3	200 °C	IIA: Otto fuels, Diesel fuels, fuel oils IIB: Hydrogen sulphide
	T4	135 °C	IIA: Acetaldehyde, ethyl ether

Table 2: Identification

5.2 Certification according to ATEX directive 94/9/EG

EC type test certification			
Types	Certification number	Identification	Kind of ignition protection
AW-EX	ZELM 05 ATEX0279X	II 2G c Ex e IIB T4	c, Ex e
AXCBF-EX	Sira 07 ATEX 6341X	II 2G c T* Tu = -20°C ... max. 60°C (T* is equal to temperature classification of the motor)	c, Ex e, Ex d, Ex nA
AXC-EX			
RVK-EX	ZELM 03 ATEX0198X	II 2G c Ex e IIB T3	c, Ex e
DVEX	SP07ATEX31..X	II 2G c Ex e IIB T3	c, Ex e

Table 3: EX identification

5.3 Technical data

	AW-EX	AXCBF-EX	AXC-EX	RVK-EX	DVEX
Temperature range [°C] ambient and material	-20 °C ... +40 °C	-20 °C ... max. 60 °C	-20 °C ... max. 60 °C	-20 °C ... +40 °C	-20 °C ... +40 °C
Voltage / current strength	see name plate				
Protection class	see name plate				
Sound pressure at [dB(A)]	3 m 62 ... 72	3 m 44 ... 82	3 m 47 ... 99	3 m 41	4 m/10 m 44...57/36...49
Dimensions	see data sheet				
Weight	see name plate				
Rotor diameter	see name plate				
Integrated posistor (PTC ¹⁾)	yes				

Table 4: Technical data of the EX fans

¹⁾ Positive temperature coefficient



NOTE

Further technical data can be found in the data sheet of your EX fan.

5.4 AW-EX axial fan series

5.4.1 Types

AW 355 D4-2-EX
AW 420 D4-2-EX
AW 550 D6-2-EX
AW 650 D6-2-EX



5.4.2 Description

- Ignition protection class „Ex e“ (increased safety)
- Motor protection by posistor in combination with a suitable motor protection device with EC test type certification
- 2-phased operation thanks to D/Y switching

Fans of the AW-EX series have a voltage-variable external rotor motor with finished wire (65 cm). To make wall fitting possible, they have been attached to a square wall panel.

Housing and axial rotor are made of galvanised and powder-coated sheet steel (RAL9005).

The fans of the AW-EX series can be used for temperature classes T1, T2 and T3 AW-EX355 and 420 also T4). They convey explosion-capable gases in Zone 1 and Zone 2 as well as groups IIA and IIB.

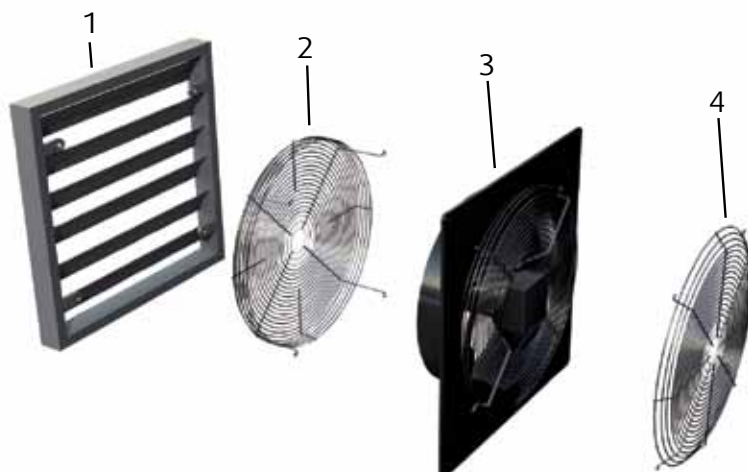


Fig. 1: Fan of the AW-E series with accessories

Legend

1	VK	Self-acting covering cap	3	Fan
2	SG-AW	Contact-protection grid	4	Contact-protection grid

5.4.3 Type designation

Example	AW 355 D4-2-EX	
AW	Axial fan	
355	Size/rotor diameter 355 ... 650	
D	Kind of motor	D: Three-phased current
4	Number of poles	4 V: 4/4-poled variable motor, S: 6/6- poled variable motor, 4: 4/4-poled 6: 6/6-poled
2	Mechanical version	
EX	Explosion-protected fan	

Table 5: Type key of the AW-EX series

5.4.4 Name plate (example)


1	 systemair	97944 D-Windischbuch	11070621
2	3~ 400V ±10% Δ/Y 50Hz P1 0,14/0,12kW		
3	0,27/0,20A Δ I=12% 1420/1230min ⁻¹ cosφ 0,75		
4	IP20 THCL155 II 2 G c Ex e IIB T4		
5	ZELM 05 ATEX 0279 X		
6	L-BAL-002 L-TI-0547 DIN EN 14986		
7	5969 / AW 355D4-2-EX		
		11 kg	CE
		11/20	0820
		Made in Germany	

Fig. 2: Name plate of the AW-EX series

Legend

1	Manufacturer's information	5	EC type test certificate number
2	Electrical data	6	Code of the technical documentation (internal)
3	Current / current difference / speed	7	Article no./article designation
4	Protection class / ATEX identification		

5.5 AXCBF-EX series / AXC-EX axial fans

5.5.1 Types

AXCBF-EX 250	AXCBF-EX 400
AXCBF-EX 315	AXCBF-EX 500



AXCBF-EX 630	AXCBF-EX 800
--------------	--------------



AXCBF-EX 355 ... AXCBF-EX 1600



5.5.2 Description

- Aerodynamic rotor
- Hub and blades of aluminium die cast
- Housing hot-galvanised steel to DIN EN ISO 1461
- Aluminium slip ring
- Seamed flanges to Eurovent standard ½ for high rigidity
- Three-phase motors, IP55, insulation class F, according to EN 60034, IEC 85.
- Admissible ambient temperatures from -20°C to max. 60°C, see Table 6.
- AXC-EX: supplied with Ex e connection box on the outside of the housing
- AXCBF-EX: motor outside the air flow

The divided medium-pressure axial fans of the AXCBF-EX / AXC-EX series are available with rotor diameters from 250 to 1600 mm.

They can be used for temperature classes T1, T2, T3 and T4. They convey explosion-capable gases in Zone 1 and Zone 2 as well as groups IIA, IIB and IIC.

Ex d: The motor has motor protection through an integrated posistor (PTC) and is speed-variable through a frequency converter.

For temperatures above +40 °C, the maximum motor load according to the following table is to be considered:

Temperature	Max. input power in proportion to nominal power in %
40 °C	100 °C
45 °C	95 °C
50 °C	90 °C
55 °C	85 °C
60 °C	80 °C

Table 6: Motor load

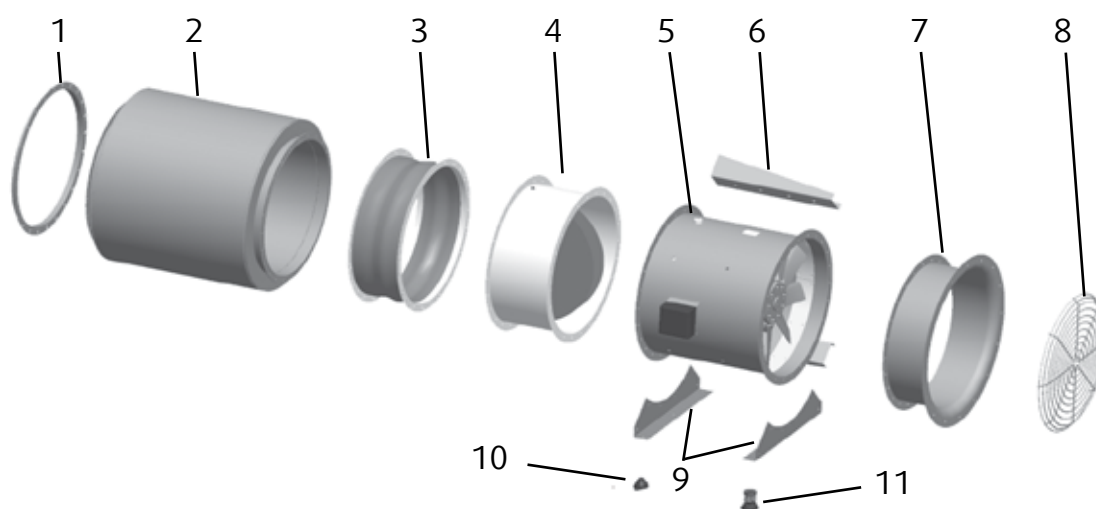


Fig. 3: Fans of the AXCBF-EX / AXC-EX series with accessories

Legende

1	GFL	Counterflange	7	ESD-F	Input air connection
2	RSA	Silencer	8	SG	Protective grid
3	EV-AXC-EX	Flexible connection	9	MFA	Assembly feet
4	LRK-EX	Flap trap	10	SD (4x) AV	Rubber absorber
5		Fan	11	FSD (4x) AV	Spring absorber
6	MP (4x angle 90°)	Assembly bracket			

5.5.3 Type designation

Examples		AXCBF-EX 250-6/28°-2 AXC-EX 355-7/32°-4
AXCBF	AXC	Axial fan
EX	EX	Explosion-protected fan
250	355	Size/rotor diameter 250 ... 1.600
6	7	Number of blades
28°	32°	Blade angle
2	4	Number of poles

Table 7: Type key of the AXCBF-EX / AXC-EX series

5.5.4 Name plate (example)

1 Manufacturer's information

2 Product order number

3 Type no. / blade angle

4 Motor output / year of manufacture

5 - / frequency

6 Max. output / voltage

7 - / phases

8 Current / revs./minute

9 Identification to ATEX

10 EC test type certification number

11 Ambient temperature

systemair

Systemair GmbH, 97944 Boxberg - Windischbuch Deutschland
Tel: +49 (0) 7930-92720 Fax: +49(0) 7930-927293

Ref Nr Pa. Nummer einfügen

Typ Nr AXC-EX-500-9/26°-2 26° Winkel

P2 kW 5,50 2011 Baujahr

P2 kW 50 Hz

Höchst kW 5,10 400 Volt

Höchst kW 3 Phase

Ampere 12 2890 U/min

Ampere U/min

CE 0820 Ex II 2G c

Ex d(e) IIC T4

Sira 07ATEX6341X

ta = -20°- +60°C

Fig. 4: Name plate of the AXCBF-EX / AXC-EX series

5.6 RVK-EX series duct fans

5.6.1 Type

RVK 315Y4



5.6.2 Description

- Ignition protection class „Ex e“ (increased safety)
- Motor protection by posistor (PTC), in combination with a suitable motor protection device with EC test type certification
- Voltage-variable external rotor with finished wire

Fans of the RVK-EX series have been designed for assembly in ducts. The housing comprises conductive plastic, the radial rotor has backward-bent blades.

The speed of the RVK 315Y4 can be varied via a 5-phase voltage regulator.

The fans can be used for temperature classes T1, T2 and T3. They convey explosion-capable gases in Zone 1 and Zone 2 as well as groups IIA and IIB.

The motor of the fans of the RVK series must be connected to a separate motor-protection device.

They may be operated in the part voltage area. Use of electronic or transforming control appliances, with the exception of frequency inverters, is admissible. Use of control devices from Systemair GmbH is recommended. Control devices from other manufacturers must have the same or better quality!

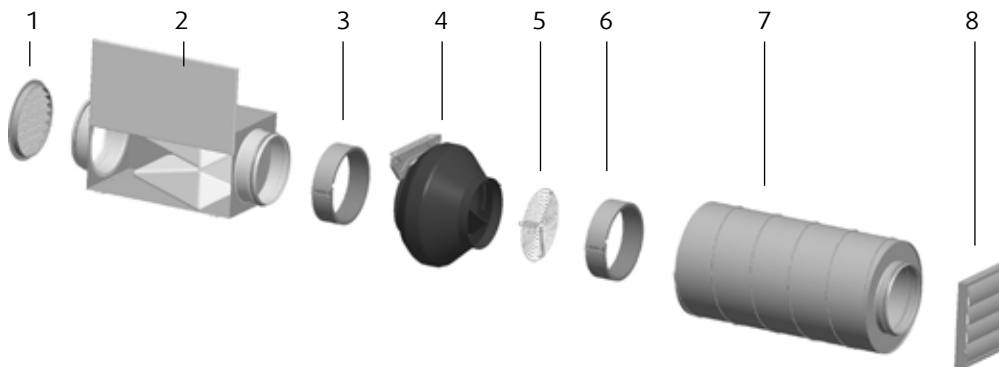


Fig. 5: Fan of the RVK-EX series with accessories

Legend

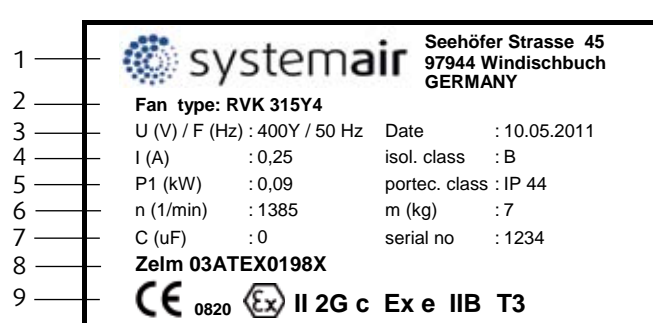
1	IGC	Intake filter	5	SG	Duct protection grid
2	FFR	Filter box	6	FK	Connecting sleeve
3	FK	Connecting sleeve	7	LDC	Sound absorber
4	RVK-EX	Duct fan	8	VK	Covering cap

5.6.3 Type designation

Example	RVK 315Y4 (ATEX)	
RVK	Duct fan	
315	Size / rotor diameter	
Y	Variable	
4	Number of poles	4: 4-4poled
2	Mechanical version	
ATEX	ATEX registration	

Table 8: Type key of the RVK-EX series

5.6.4 Name plate (example)



- 1 Manufacturer's information
- 2 Type designation
- 3 Voltage / frequency current / date
- 4 Current / motor insulation class
- 5 Output / protection class
- 6 Speed / weight
- 7 Capacitor output / serial number
- 8 EC type test certification number
- 9 Identification to ATEX

Fig 6: Name plate of the RVK-EX series

5.7 DVEX roof fans series

5.7.1 Types

DVEX 315D4	DVEX 500D6
DVEX 355D4	DVEX 560D6
DVEX 400D4	DVEX 630D6
DVEX 450D4	



5.7.2 Description

- Integrated thermo-contacts (PTC)
- Ignition protection class "Ex e" (increased safety)
- Motor protection by posistor in combination with a suitable motor protection device with EC test type certification
- Voltage-variable external rotor with finished wire
- Installation of sound absorbers possible.

The radial rotor of the vertical blow-out DVEX roof fans has backward-bent rotor blades. Its housing comprises saltwater-proof aluminium. The base frame and an integrated bird-protection grid are on powder-coated, galvanised sheet steel, the admission nozzle of copper.

The fans can be used for temperature classes T1, T2 and T3. They convey explosion-capable gases in Zone 1 and Zone 2 as well as groups IIA and IIB.

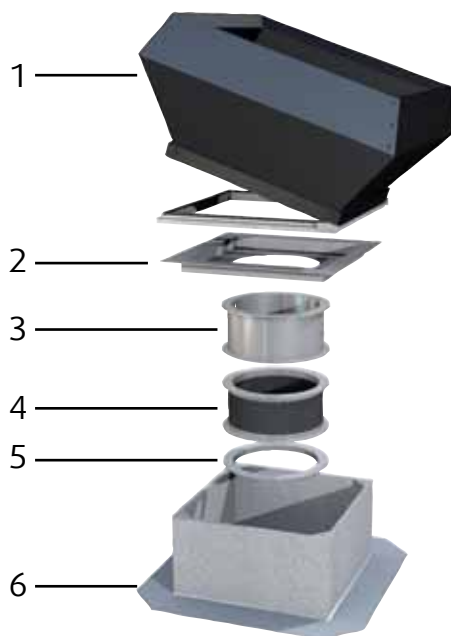


Fig. 7: Fans of the DVEX series with accessories

Legend

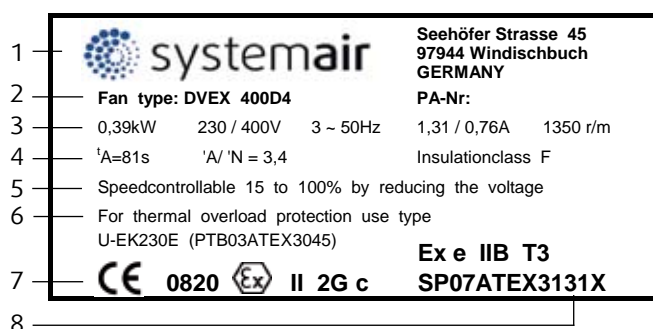
1	FTG	Hinged frame	4	ASS-EX	Flexible connection
2	TDA	Adapter frame	5	ASF	Intake connection
3	VKS-EX	Self-acting covering cap	6	FDS	Flat roof base

5.7.3 Type designation

Example	DVEX 315D4 400V	
DVEX	Roof fan, explosion-protected	
315	Size / rotor diameter 315 ... 630	
D	Motor class	D: three-phased current
4	Number of poles	V: 4/4-poled variable motor, S: 6/6- poled variable motor, 4: 4/4-poled 6: 6/6-poled
400V	400V	

Table 9: Type key of the DVEX series

5.7.4 Name plate (example)



- 1 Manufacturer's information
- 2 Type designation
- 3 Output / voltage / frequency / current / speed
- 4 Trigger time / starting/nominal current / insulation class, motor
- 5 Speed variation
- 6 Type test certification for U-EK230E motor protection device
- 7 Identification to ATEX
- 8 EC type test certification number

Fig. 8: Name plate of the DVEX series

6 Assembly



NOTE

The safety information in Section 6 applies to all the fans described in these operating instructions.

6.1 Safety information

Keep to the following order in order to rule out the risk of injuries from rotating parts:

Assemble

Connect to energy



HAZARD

Hazard of explosion of an ignition-capable atmosphere!

On the intake side, a protective grid has been attached in order to rule out the risk from foreign bodies. It guarantees a protection class of IP20.

On the pressure side, protection class IP 20 must be guaranteed by assembly of the fan in a duct/channel system or by fitting a protective grid.

- Seal the system carefully.
- Install accessory parts correctly.

Upstream or downstream components or those located directly in the air flow may not manifest any unprotected aluminium or steel surfaces. Varnishing or a plastic coating fulfilling at least grid section characteristic 2 according to DIN EN ISO 2409 is necessary, in order to prevent an alumino-thermal reaction.

- Assembly may only be done by trained qualified personnel paying attention to the relevant directives.
- Comply with the system-related conditions and the requirements of the system manufacturer or plant builder.
- Only install the fan when and if
 - the fan has not been damaged,
 - the fan wheel runs freely when turned by hand.
- The fan housing may not be deformed during assembly.
- Safety components, e.g. protective grids, may not be dismantled or circumvented or put out of function.
- Install the fan with protection against dust, moisture and the influences of the weather.
- Do not distort the fan housing in installation. Surfaces must be flat.
- Pay attention to the direction of flow (arrows).
- For maintenance and repair, ensure secure access to the fan.
- Provide for contact, intake protection and safety distances according to DIN EN 294 and DIN 24167-1.
- Ensure uninhibited and even admission into the device and free blow-out.
- In EX fans, the blade angle may not be amended subsequently.
- In installation, guarantee that no vibrations are transferred to the duct/channel system or the housing frame of the fan in operation. For this purpose, use connecting sleeves and flanges from the accessories.

6.2 Axial fans AW-EX, AXC-EX and AXCBF-EX

6.2.1 Preconditions

AW-EX	Only install the fan if the distance between the fan wheel and the housing is constant.
AXC-EX and AXCBF-EX	Only install the fan if the minimum air gap between the blade tip and the housing matches the value of your fan in Table 11.

6.2.2 Assembly



WARNING

Danger from falling parts!

- › Check the underground (ceiling/wall) for strength before assembly,
- › when selecting the fitting material, pay attention to the weight, vibration tendency and shearing forces (weight, see name plate).

- ☞ Fit the fan on a firm base with suitable fitting material at all the fitting points.
- ☞ Secure the screw connections with Loctite.
- ☞ Fit the air channels and the accessories.

6.2.3 AW-EX series: minimum air gap

Size	Minimum air gap in mm
355	3,50
420	4,20
550	5,50
650	6,45

Table 10: Minimum air gap of various construction sizes

When complying with the material combinations, the aforementioned minimum gaps must also be complied with: between rotating and stationary parts, the minimum gap may not be smaller than 1 % of the decisive contact diameter, but no less than 2 mm in an axial or radial direction and may not be more than 20 mm.



NOTE on the condensation opening of the AW-EX series

Pay attention in installation:

- In installation in a vertical motor shaft position, condensation cannot escape.
- Installation and operation only admissible in a horizontal shaft position



NOTE for an optimised characteristic

To ensure achievement of the characteristic, it is necessary for a constant and twist-free flow to exist at the inlet. In free intake, this is achieved by the addition of an admission nozzle or a channel line with a length of no less than $2.5 \times D$. If this is not possible for construction reasons, a deflection piece with baffles fitted in front of the fan must be optimised in its fluidics in such a way that a constant speed distribution at the fan inlet is achieved.

On the pressure side, a channel or duct element with a length of no less than $2.5 \times D$ is also to be provided for achievement of the characteristic.

6.2.4 AXC-EX und AXCBF-EX series: minimum air gap

Size	Minimum air gap in mm	Size	Minimum air gap in mm
250	2,5	710	5,0
315	2,5	800	5,0
355/400	3,0	900/1000	7,0
450/500	3,5	1250	8,0
560	3,5	1400/1600	10,0
630	4,5		

Table 11: Minimum air gap of various construction sizes

6.3 RVK-EX duct fans

6.3.1 Preconditions

- The RTRD control devices and UEK motor protection devices supplied by RTRD must be fitted outside the explosion-capable area.
- When complying with the material combinations, the following minimum gaps must also be complied with:
 - between rotating and stationary parts, the minimum gap may not be smaller than 1 % of the decisive contact diameter, but no less than 2 mm in an axial or radial direction and may not be more than 20 mm.
- Fans without wire grid or without admission nozzle:
 - To fit on the stationary motor flange, uses screws of strength class 8.8 and secure with Loctite.
 - Admissible tightening torques: M6 = 9.5 Nm; M8 = 23 Nm.
- To avoid disturbances and to protect the motor, the latter must be disconnected from the mains by the installed posistors (DIN 44082-M130) in the event of a disturbance of operation (e.g. inadmissibly high medium temperature) in combination with a triggering device (identification II (2) G cf. Directive 94/9/EC).
 - Current-dependent protection is not admissible and also not possible as secondary protection.

6.3.2 Assembly

- ☞ Use the enclosed holding clamps.
- ☞ Screw the holding clamps tight by hand.



NOTE

If the cable gland is loosened this has to be locked properly again (Admissible tightening torques max. 3,8 Nm!).



WARNING

Danger from falling parts!

- › Check the underground (ceiling/wall) for strength before assembly,
- › when selecting the fitting material, pay attention to the weight, vibration tendency and shearing forces (weight, see name plate).

- ☞ Fit the fan on a firm base with suitable fitting material.
- ☞ Fit the air connection lines and the accessories.
- ☞ Make sure that no movable parts are accessible any more after installation (EN 294).



NOTE on the condensation opening of the RVK-EX series

Pay attention in installation:

With a vertical motor axis, the condensation opening at the bottom must be open.

6.4 DVEX roof fans

6.4.1 Preconditions

- Only install the fan if the minimum air gap between the rotor and the nozzle is 4 ... 8 mm.
- Installation position optional if not stated to the contrary.
- Protective accessories must have been examined with a view to strength and material.

6.4.2 Assembly



WARNING

Danger from falling parts!

- › Check the underground (ceiling/wall) for strength before assembly,
- › when selecting the fitting material, pay attention to the weight, vibration tendency and shearing forces (weight, see name plate).

- ☞ Fit the fan on a firm base with suitable fitting material
- ☞ Prepare the fan with hinged frame for connection and secure (see Fig. 9 A, B, C)
 - Close the fan carefully, do not drop it.
 - Secure it with an M 6x10 screw (2 screws from size 450 upwards).
 - Secure the two flaps by means of an M 8x16 screw. They also act as protection against shutting.
- ☞ Fit the air connection lines and the accessories.



NOTE

The channel installation must be such that protection class IP 20 (contact distance rotating part < 12 mm) is fulfilled on the admission side and protection class IP 10 (contact distance rotating part < 50 mm) can be guaranteed on the blow-out side.

6.4.2.1 Securing the hinged frame

- ☞ If a hinged frame is used, secure the DVEX fan as shown in Fig. 9.

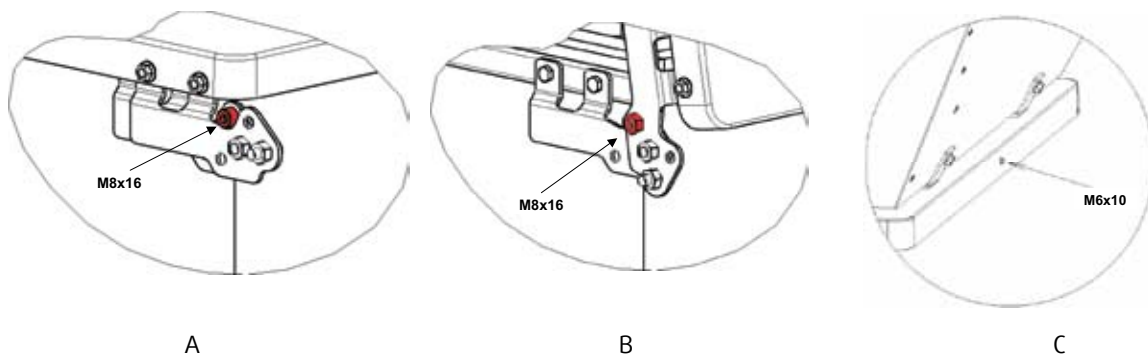


Fig. 9: Secure DVEX fan

7 Electrical connection



NOTE

- › The safety information in Section 7.1 applies to all the fans described in these operating instructions.
- › The fans may only be installed if the explosion-protected area has been classified according to DIN EN 60079-10 and the Operational Safety Ordinance.

7.1 Safety notes



HAZARD

Hazard of explosion of an ignition-capable gas/air atmosphere!

If the wire ends which have not been connected are fitted to the external current circuits within the explosion-capable area, a connection box selected to match this area with its own certification and explosion-protection identification must be used.

The electrical data, information on temperature monitoring and on admissible operation with part voltage, if applicable, can be seen from the data sheet in question.

The control devices and motor protection devices must be installed outside the explosion-capable area!

Operation on frequency inverters is only admissible for devices with the „Pressure-proof encapsulation Ex d“ ignition protection class.



WARNING

Risk from electrical voltage!

- › Electrical connection only by a trained electrician or trained and instructed qualified personnel!
- › Electrical connection in harmony with the valid directives.
- › Avoid penetration of water into the terminal box.
- › Pay attention to the 5 rules of electrical engineering:
 - clear (all-pole separation of an electrical system from live parts),
 - secure against switching on again
 - establish freedom from voltage,
 - earth and short-circuit,
 - cover or fence off neighbouring live parts.

- ☞ Do not use gland bolt connections of metal if the terminal boxes are of plastic.
- ☞ Always connect the thermo-contacts to a motor protection device!
 - The motors contain triple posistors. More than two posistor chains may not be switched in series. Maximum test voltage of the posistors 2.5 V.
 - The motor can overheat and be destroyed if the thermo-contacts have not been connected.
- ☞ Ground all conductive added and accessory parts.

7.2 AW-EX, AXC-EX and AXCBF-EX axial fans

- ☞ Connect the lines according to the connection diagram in the lid of the connection box. The electrical data can be seen from the name plate or the enclosed data sheet.
- Ex motors additionally have a marked external posistor connection.
- ☞ Earth the fan on the earth conductor connection.
- ☞ AW-EX: If the operational leakage current of 3.5 mA is exceeded, the conditions with a view to grounding pursuant to DIN VDE 0160/5.88 Art.6.5.2.1 are to be fulfilled.
- ☞ Connect the thermo-contacts/posistor connections to a motor protection device.

For the AW-EX series, please remember

- ☞ Seal the screw connections on lids of plastic terminal boxes with sealing putty.
- ☞ Depending on the kind of cable insert, provide water discharge bends or use sealing putty.
- ☞ Fit the fan connection wire with cable binders on the contact protection grid or the motor struts.

7.3 RVK-EX duct fans

- ☞ Connect the lines according to the connection diagram on the stator or fan housing. The electrical data can be seen from the name plate or the enclosed data sheet.

Ex motors additionally have a marked external earth conductor connection.

- ☞ Earth the fan on the earth conductor connection.
- ☞ Connect the thermo-contacts/posistor (DIN 44082-M130) connections to a motor protection device.
- ☞ In cases of higher strain (e.g. moist rooms), provide for a cable insert with water discharge bends.
- ☞ Additionally seal the compression gland screw connection.
- ☞ Fit the motor connection wire with cable binders or cable clamps.

7.4 DVEX roof fans

The wire ends of the fan must be installed such that they are mechanically protected and are suited for use outdoors. In the event of external connection of the earthing wire, connect it securely to the house earthing device between two metal panels.

Installation must be done according to Directive EN 60079-14 in harmony with the high voltage directives.

- ☞ Connect the lines according to the connection diagram in the lid of the terminal box. The electrical data can be seen from the name plate or the enclosed data sheet.

Ex motors additionally have a marked external earth conductor connection.

- ☞ Earth the fan on the earth conductor connection.
- ☞ If there is an increased risk of static charge, a separate earthing should be connected to the housing.
- ☞ Connect the thermo-contacts/posistor connections to a motor protection device.

7.5 Cut-out time of the motor protection device

- Determine the cut-out time of the motor protection device. It is the ratio of start current and nominal current (I_A/I_N). The ratio must be between 2.9 and 8 at an ambient temperature of 20°C.
- In selection, the admissible chosen current limitation may not deviate by more than 20%.
- The motor protection switches must be designed such that the start current does not trigger the protection switches.
- Connect a motor protection switch (e.g. U-EK230E). It has been fitted with a light-emitting diode which lights up when the motor protection is triggered.



NOTE

The motor protection device must be installed such that it protects the motor against overheating and cuts out within 15 sec. if the rotor blocks.

7.6 Secure 3-phased motors

Avoiding two-phased runs:

For 3-phased motors, use an effective motor protection, we recommend an all-pole C automatic cut-out.

7.7 Connect temperature monitor

If a temperature monitor is used, it must be connected to a motor protection device.

8 Commissioning



NOTE

The safety information in Section 8.1 applies to all the fans described in these operating instructions.

8.1 Preconditions



HAZARD

Hazard of explosion of an ignition-capable gas/air atmosphere!

When commissioning the EX fan, the fundamental information from BGR 104 (explosion protection rules of the employers' insurance schemes) and BGR 132 (avoidance of risk of ignition as a result of electrostatic charges) must be known.

- Fitting and electrical installation have been completed properly.
- Residues from assembly and foreign bodies have been removed from the fan area.
- The intake and blow-out openings are free.
- The fan wheel runs freely.
- The safety devices have been fitted (contact protection).
- The protective conductors and external earth conductor have been connected.
- The thermo-contacts (temperature monitors) have been properly connected to the motor protection switch.
- The motor protection switch is functioning.
- The temperature monitor is functioning.
- The wire inlet is tight.
- The connection data match the data on the name plate.
- Nominal power consumption (name plate) is not exceeded.
- All conductive added and accessory parts have been earthed.

8.2 Series-specific precondition

AW-EX and RVK-EX series

- Installation position and arrangement of the condensation bores match.

DVEX series

- Voltage tolerances according to IEC 38 with a maximum of 6 % or -10 % are complied with.
- Nominal current does not exceed the nominal voltage.

8.3 Precondition for speed-variable fans

- If there is a reduction in voltage in a speed-variable fan, the fan must be operated with a current between 15 and 100 % above nominal current. Make absolutely sure whether a minimum pressure has been stated for the fan.
- Operate the fan with the voltages and frequencies stated on the name plate of the fan (adhesive plate). Operation with the voltages / circuits stated on the name plate (motor) is admissible, but not sensible. Exceeding the stamped nominal current in speed variation by reduction of voltage by the value (...%) stated in the EC type test certification is admissible.
- Motor protection is by a DIN 44082-M posistor in combination with a triggered device with identification (EX II (2) G see Directive 94/9/EC). The posistor covers all disturbances such as inadmissible material temperature or operation in an inadmissible area of the fan characteristics.
- The name plate contains the electrical values approved in the EC type test certificate for optimally cooled motors. The design voltage stated in it for the speed-variable motor can be larger than the assessment voltage of the fan (adhesive plate) in order to achieve a favourable variation behaviour of the fan.

8.4 Commissioning



WARNING

Risk from electrical voltage!

› Electrical connection only by trained and instructed qualified personnel!

8.4.1 Check air gap

- ☞ AW-EX/AXC-EX/AXCBF-EX: Check the minimum air gap between blade tip and housing once again (see Table 11).
- ☞ DVEX: Check the distance between rotor and nozzle, it must be between 4 mm and 8 mm.
- ☞ Only put the fan into operation if the minimum air gap matches your fan's value.

8.4.2 Check direction of rotation



WARNING

Risk from bursting parts

› Wear goggles when checking the direction of rotation of the rotor.

- ☞ Briefly switch the fan on and off.
- ☞ Check the direction of rotation / direction of conveying. The direction of rotation looking at the rotor always applies.
- ☞ AW-EX: In fans with intake on both sides, the direction of rotation applies looking at the side opposite the connection wire.
- ☞ RVK-EX see Fig. 10
- ☞ If the direction is wrong, exchange two phases in order to set the direction of rotation.

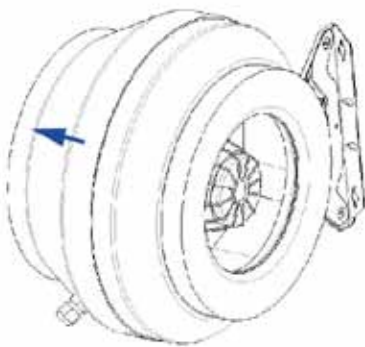


Fig. 10: RVK-EX fan, throughflow direction

8.4.3 Switching on

- ☞ Switch the fan on.
- ☞ Check flawless function (smooth running)
- ☞ Check tight fitting of the safety components and protective grid.

9 Operation

9.1 Safety information



HAZARD

Hazard of explosion of an ignition-capable gas/air atmosphere!

When commissioning the EX fan, the fundamental information from BGR 104 (explosion protection rules of the employers' insurance schemes) and BGR 132 (avoidance of risk of ignition as a result of electrostatic charges) must be known.

Do not open or tip the fan if an explosive atmosphere exists.



WARNING

Risk from electrical voltage!

- › The device may only be operated by people who have been instructed about function and risks, have understood them and are in a position to act accordingly.
- › Make sure that children do not operate the device without supervision or play with it.
- › Make sure that only people who are in a position to operate the device safely have access to it.

9.2 Operating conditions

- During operation, touching the rotor must be impossible.
- Safety components may not be circumvented or put out of function.
- Only operate the EX fan within the limits stated on the name plate.
- Intake of foreign bodies can destroy the fan.
- Switching frequency:
 - The EX fan has been admitted for S1 continuous operation.
 - Controls may not permit any external switching operations!
- Sound development can be reduced by the use of a noise filter.

Fans in the external area:

In long periods of standstill of the fans, condensation may form in the motor.

☞ Therefore ensure a regular switch-on time of 2 hours per week.

9.3 Operation/use

- ☞ Switching on, see Commissioning
- ☞ Only operate the EX fans in compliance with these operating instructions and the instructions for use of the motor.
- ☞ Monitor the EX fans for correct function during operation.
- ☞ Switch the EX fans off as planned.



WARNING

Risk from electrical voltage or risk of bursting!

Faults occurring can lead to personal and/or property damage.

Switch the EX fan off immediately:

- › in untypical running noises, oscillations, fluctuations in pressure,
- › if the figures for current, voltage and temperature are exceeded (name plate).

10 Maintenance/troubleshooting



HAZARD

Hazard of explosion of an ignition-capable gas/air atmosphere!

- › In maintenance work and troubleshooting, the following order must be complied with!
 1. There may not be any explosion-capable atmosphere.
 2. Switch the fan off.
 3. Open or tip the fan.



WARNING

Risk from electrical voltage!

- › Troubleshooting and maintenance only by a trained electrician or trained and instructed qualified personnel!
- › Obey industrial protection directives in troubleshooting.
- › Pay attention to the 5 rules of electrical engineering:
 - clear (all-pole separation of an electrical system from live parts),
 - secure against switching on again
 - establish freedom from voltage,
 - earth and short-circuit,
 - cover or fence off neighbouring live parts..

10.1 Maintenance intervals

- ☞ Carry out maintenance at least twice a year. We recommend more frequent maintenance in higher degrees of contamination or wear.

10.2 Cleaning



NOTE

Regular cleaning of the EX fans prevents imbalance!



WARNING

Risk from electrical voltage!

- › Cleaning the inside of the EX fan only by a trained electrician or trained and instructed qualified personnel!
- › Only clean the inside of the EX fan dry.
- › Pay attention to the 5 rules of electrical engineering:
 - clear (all-pole separation of an electrical system from live parts),
 - secure against switching on again
 - establish freedom from voltage,
 - earth and short-circuit,
 - cover or fence off neighbouring live parts.



CARE

Risk from hot surface!

- › Wear protective gloves in maintenance and cleaning work!

- ☞ Do not bend the blades of the fan when cleaning them.
- ☞ Keep the air paths of the EX fans clear and clean them with a cleaning brush if necessary.
- ☞ Do not use steel brushes.
- ☞ **Never use a high-pressure cleaner („vapour cleaner“).**
- ☞ Do not use any cleaning agents to clean the inside.

10.3 Maintenance, repairs



HAZARD

Loss of explosion protection.

As a matter of principle, repairs are always to be done by the manufacturer.

Exceptions are non-relevant components. They can be done on site or by qualified personnel of the operator.

Failure to comply results in loss of ATEX admission (always contact the manufacturer)!

As ball bearings with „lifetime lubrication“ have been used, the EX fans are maintenance-free to a great extent. After the end of the period of use for the grease (about 30,000 to 40,000 h in standard applications), replacement of the bearings is necessary.



WARNING

Risk from electrical voltage!

In all installation and maintenance work:

- › the fan rotor must be stationary,
- › the electric circuit must have been interrupted and secured against switching on again,
- › industrial protection directives must be obeyed..

For examination and maintenance of the fans, EN 60079-17 (IEC 60079-17) is decisive.

- ☞ Pay attention to untypical running noises.
- ☞ Check the imbalance of the bearings.
- ☞ Check whether the rotor has been bent.

10.3.1 Bearing replacement

- ☞ Replace the bearings after the end of the period of use for the grease or in cases of damage. For this, request our maintenance instructions or get in touch with our repair department (special tool).
- ☞ When changing the ball bearings, only use original replacement parts (special greasing) from the firm of Systemair.

10.3.2 Damage to the fan



HAZARD

Hazard of explosion of an ignition-capable gas/air atmosphere!

- › Repair or replacement of the fan parts is expressly not allowed with EX-examined products.

- ☞ In all cases of damage (e.g. coil damage), get in touch with our service department. Defective EX fans must be completely replaced. Repairs may only be done on the manufacturer's premises and by the manufacturer. You will find the address on the back of these operating instructions.
Failure to comply means a loss of ATEX admission.

10.4 Accessories

When ordering accessories, state the type designation of your EX fan. You will find it on the name plate.

Accessories

10.5 Faults and troubleshooting

Fault	Possible causes	Remedy
EX fan does not run smoothly	Rotor imbalance	Re-balancing by specialist company
	Adhesions to the rotor	Clean carefully, rebalance if necessary
	Material decomposition on the rotor due to aggressive material conveyed	Contact the manufacturer
	Deformation of rotor due to excessive temperature	Contact manufacturer, install new rotor, check bearings
Output of X fan too low	Wrong direction of rotation of rotor	Change direction of rotation
	Loss of pressure in lines too high	Different line guidance
	Throttle organs not or only partly open	Check opening position on site
	Intake or pressure paths blocked	Remove obstacles
Grinding sounds in operation or start of the Ex fan	Intake line installed twisted.	Loosen intake line and realign.
Thermo-contacts have reacted	Minimum pressure does not exist	Check whether the minimum pressure on the name plate can be reached by the system
	Capacitor not or not correctly connected	Connect capacitor
	One or more phases not connected	Connect all three phases on fan.
	Motor blocked	Contact manufacturer
Ex fan does not reach nominal speed	Electrical switching devices set wrongly	Check and possibly reset setting of switching device
	Motor coil defective	Contact manufacturer
	Drive motor has been designed wrongly	Contact manufacturer for check of start torque
Current or consumption too high	Minimum pressure does not exist	Check whether the minimum pressure on the name plate can be reached by the system
	Rotor is mechanically decelerated	Check and remedy fault
	Y or D switching dependent on the voltage stated on the motor	Check circuitry with the circuit diagram

Table 12: Troubleshooting

11 De-installation / dismantling



HAZARD

Hazard of explosion of an ignition-capable gas/air atmosphere!
Do not open or tip the fan if an explosive atmosphere exists.



WARNING

Risk from electrical voltage!

- › Switching off and de-installation only by a trained electrician or trained and instructed qualified personnel!
- › Pay attention to the 5 rules of electrical engineering:
 - clear (all-pole separation of an electrical system from live parts),
 - secure against switching on again
 - establish freedom from voltage,
 - earth and short-circuit,
 - cover or fence off neighbouring live parts..

- ☞ Carefully disconnect all electric lines.
- ☞ Disconnect the EX fan from the supply connections.



CARE

Risk from impacts and cutting!

- › Wear protective gloves when dismantling!
- › Dismantle carefully.

- ☞ Remove the fitting material carefully.
- ☞ Place the EX fan on the floor.

12 Disposal

Both the device and the matching transport packaging comprise recycling-capable raw materials to a very great extent.

12.1 Disposing of the EX fan

If the EX fan is to be finally dismantled and disposed of, proceed as follows:

- ☞ Switch the EX fan free of voltage.
- ☞ Disconnect the EX fan from the supply connections.
- ☞ Dismantle the EX fan into its component parts.
- ☞ Separate the parts resulting from this according to
 - reusable components
 - material groups to be disposed of (metal, plastic, electrical part etc.)
- ☞ Ensure that the parts are recycled again. Pay attention to the national directives.

12.2 Disposing of packaging

- ☞ Ensure that the parts are recycled again. Pay attention to the national directives.

13 Declaration of conformity

13.1 AW-EX low-pressure axial fans

EG-Konformitätserklärung EC Declaration of Conformity



Im Sinne der Maschinenrichtlinie RL 2006/42/EG, EMV-Richtlinie 2004/108/EG und Richtlinie 94/9/EG
As defined by the Machinery Directive RL 2006/42/EG, EMV-Directive 2004/108/EC and Directive 94/9/EC

Der Hersteller: Systemair GmbH
The Manufacturer: Seehöfer Str. 45
D-97944 Windischbuch
Tel.: +49-79 30 / 92 72-0

erklärt hiermit, dass bei folgendem Produkt: / certified herewith that the following product:

- Axialventilator für Explosionsgefährdeten Bereiche die Ex-Schutzart erhöhte Sicherheit "e", Zone 1 und 2, Kategorie 2G, Explosionsgruppe IIB der Baureihe **AW-EX (e)**;
- Axial fans for explosion-hazardous areas, type of protection increased safety "e", zone 1 and 2, category 2G of explosion group IIB of range **AW-EX (e)**;

die oben erwähnten Richtlinien einschließlich der Änderungen, die zu der Zeit der Erklärung wirkungsvoll waren, angewandt wurden. / comply with the regulations of the above mentioned directives including the modifications which were effective at the time of the declaration.

Baujahr
year of manufacture:

Name, Adresse und Nummer des Prüfinstituts:
Name, address and identification no. of the technical institute (for prototype testing):

ZELM Ex e. K. Prüf- und Zertifizierungsstelle
Siekgraben 56
D-38124 Braunschweig
Nummer des Prüfinstituts: 0820 / Registration-no.: 0820
Zertifikat Nr. der EG Baumusterprüfbescheinigung / Inspection certificate no. of EC-prototype testing
(ZELM 05 ATEX 0279X)

Folgende harmonisierten Normen finden Anwendung: / The following harmonized standards were applied:

DIN EN 14986:2007	Konstruktion von Ventilatoren für den Einsatz in explosionsgefährdeten Bereichen / Design of fans working in potentially explosive atmospheres
DIN EN 13463-1:2009	Nicht-elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen - Teil 1: Grundlagen und Anforderungen Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements
DIN EN 13463-5:2004	Nichtelektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen Teil 5: Schutz durch Konstruktive Sicherheit „c“ Non-electrical equipment intended for use in potentially explosive atmospheres - Part 5: Protection by constructional safety „c“
DIN EN 1127-1:2008	Explosionsfähige Atmosphären - Explosionsschutz - Teil 1: Grundlagen und Methodik Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology
DIN EN 60079-0:2010	Explosionsfähige Atmosphäre - Teil 0: Geräte - Allgemeine Anforderungen Explosive atmospheres - Part 0: Equipment - General requirements
DIN EN 60079-7:2007	Explosionsfähige Atmosphäre - Teil 7: Geräteschutz durch erhöhte Sicherheit „e“ / Explosive atmospheres - Part 7: Equipment protection by increased safety „e“
DIN EN 60204-1:2007	Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine Anforderungen Safety of machinery - Electrical equipment of machines - Part 1: General requirements
DIN EN ISO 12100:2009	Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risiko- minderung Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology

Boxberg,
30.12.2011
Datum/date



ppa. Harald Rudelgass, Technischer Leiter / ppa. Harald Rudelgass, Technical director

13.2 AXC-EX and AXCBF-EX axial fans

EG-Konformitätserklärung EC Declaration of Conformity



Im Sinne der Maschinenrichtlinie RL 2006/42/EG, EMV-Richtlinie 2004/108/EG und Richtlinie 94/9/EG
As defined by the Machinery Directive RL 2006/42/EG, EMV-Directive 2004/108/EC and Directive 94/9/EC

Der Hersteller:
The Manufacturer
Systemair GmbH
Seehöfer Str. 45
D-97944 Windischbuch
Tel.: +49-79 30 / 92 72-0

erklärt hiermit, dass bei folgenden Produkten: / certified herewith that the following products:

- Axialventilatoren für Explosionsgefährdete Bereiche, die Ex-Schutzart nicht Funkend "nA", Zone 2, Kategorie 3G, Explosionsgruppe IIB der Baureihe **AXC-EX (nA); AXCBF-EX (nA)**;
- For explosion-hazardous areas, type of protection increased safety "nA", zone 2, category 3G of explosion group IIB of range **AXC-EX (nA); AXCBF-EX (nA)**
- Axialventilatoren für Explosionsgefährdete Bereiche die Ex-Schutzart erhöhte Sicherheit "e", Zone 1 und 2, Kategorie 2G, Explosionsgruppe IIB der Baureihe **AXC-EX (e); AXCBF-EX (e)**
- Axial fans for explosion-hazardous areas, type of protection increased safety "e", zone 1 and 2, category 2G of explosion group IIB of range **AXC-EX (e); AXCBF-EX (e)**
- Axialventilatoren für Explosionsgefährdete Bereiche, die Ex-Schutzart druckfeste Kapselung "d", Zone 1 und 2, Kategorie 2G, Explosionsgruppe II B und II C der Baureihe **AXC-EX (d); AXCBF-EX (d)**
- Axial fans for explosion-hazardous areas type of protection pressure-resistant casing "d" motors, zone 1 and 2, category 2G of explosion group II B and II C of range **AXC-EX (d); AXCBF-EX (d)**

die oben erwähnten Richtlinien einschließlich der Änderungen, die zu der Zeit der Erklärung wirkungsvoll waren, angewandt wurden. / comply with the regulations of the above mentioned directives including the modifications which were effective at the time of the declaration.

Baujahr/year of manufacture:

Name, Adresse und Nummer des Prüfinstituts: / Name, address and identification no. of the technical institute (for prototype testing):
SIRA Test and certification Ltd.
Rake Lane, Ecclestone Chester; CH4 9JN; England
Nummer des Prüfinstituts: 0518 / Registration no: 0518
Zertifikat Nr. der EG Baumusterprüfbescheinigung / Inspection certificate no. of EC-prototype testing
(SIRA 07ATEX6341X)

Folgende harmonisierten Normen finden Anwendung: / The following harmonized standards were applied:

DIN EN 14986:2007	Konstruktion von Ventilatoren für den Einsatz in explosionsgefährdeten Bereichen / Design of fans working in potentially explosive atmospheres
DIN EN 13463-1:2009	Nicht-elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen - Teil 1: Grundlagen und Anforderungen / Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements
DIN EN 13463-5:2004	Nichtelektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen Teil 5: Schutz durch Konstruktive Sicherheit „c“ Non-electrical equipment intended for use in potentially explosive atmospheres - Part 5: Protection by constructional safety „c“
DIN EN 1127-1:2008	Explosionsfähige Atmosphären - Explosionsschutz - Teil 1: Grundlagen und Methodik / Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology
DIN EN 60079-0:2010	Explosionsfähige Atmosphäre - Teil 0: Geräte - Allgemeine Anforderungen / Explosive atmospheres - Part 0: Equipment - General requirements
DIN EN 60079-1:2010	Explosionsfähige Atmosphäre - Teil 1: Geräteschutz durch druckfeste Kapselung „d“ / Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures „d“ (IEC 60079-1:2007)
DIN EN 60079-7:2007	Explosionsfähige Atmosphäre - Teil 7: Geräteschutz durch erhöhte Sicherheit „e“ / Explosive atmospheres - Part 7: Equipment protection by increased safety „e“
DIN EN 60079-15:2011	Elektrische Betriebsmittel für gasexplosionsgefährdete Bereiche - Teil 15: Zündschutzart „n“ / Explosive atmospheres - Part 15: Equipment protection by type of protection „n“ (IEC 60079-15:2010)
DIN EN 60204-1:2007	Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine Anforderungen / Safety of machinery - Electrical equipment of machines - Part 1: General requirements
DIN EN ISO 12100:2009	Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risikominderung / Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology

Boxberg,
30.12.2011
Datum/date


ppa. Harald Rudelgass, Technischer Leiter / ppa. Harald Rudelgass, Technical director

13.3 DVEX roof fans

EG-Konformitätserklärung EC Declaration of Conformity



Im Sinne der Maschinenrichtlinie RL 2006/42/EG, EMV-Richtlinie 2004/108/EG und Richtlinie 94/9/EG
As defined by the Machinery Directive RL 2006/42/EG, EMV-Directive 2004/108/EC and Directive 94/9/EC

Der Hersteller:
The Manufacturer
Systemair GmbH
Seehöfer Str. 45
D-97944 Windischbuch
Tel.: +49-79 30 / 92 72-0

erklärt hiermit, dass bei folgendem Produkt: / certified herewith that the following product:

- Dachventilatoren für Explosionsgefährdeten Bereiche die Ex-Schutzart erhöhte Sicherheit "e", Zone 1 und 2, Kategorie 2G, Explosionsgruppe IIB der Baureihe **DVEX (e)**;
- Roof fans for explosion-hazardous areas, type of protection increased safety "e", zone 1 and 2, category 2G of explosion group IIB of range **DVEX (e)**

die oben erwähnten Richtlinien einschließlich der Änderungen, die zu der Zeit der Erklärung wirkungsvoll waren, angewandt wurden. / comply with the regulations of the above mentioned directives including the modifications which were effective at the time of the declaration.

Baujahr
year of manufacture:

Name, Adresse und Nummer des Prüfinstituts:
Name, address and identification no. of the technical institute (for prototype testing):

SP Technical Research Institute of Sweden
Box 857, SE-501 15 Borås, Sweden
Nummer des Prüfinstituts: 0402 / Registration no: 0402
Zertifikat Nr. der EG Baumusterprüfbescheinigung / Inspection certificate no. of EC-prototype testing
(SP 07 ATEX 3129X) / (SP 07 ATEX 3130X) / (SP 07 ATEX 3131X) / (SP 07 ATEX 3132X) /
(SP 07 ATEX 3133X) / (SP 07 ATEX 3134X) / (SP 07 ATEX 3135X)

Folgende harmonisierten Normen finden Anwendung: / The following harmonized standards were applied:

DIN EN 14986:2007	Konstruktion von Ventilatoren für den Einsatz in explosionsgefährdeten Bereichen / Design of fans working in potentially explosive atmospheres
DIN EN 13463-1:2009	Nicht-elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen - Teil 1: Grundlagen und Anforderungen Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements
DIN EN 13463-5:2004	Nichtelektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen Teil 5: Schutz durch Konstruktive Sicherheit „c“ Non-electrical equipment intended for use in potentially explosive atmospheres - Part 5: Protection by constructional safety „c“
DIN EN 1127-1:2008	Explosionsfähige Atmosphären - Explosionsschutz - Teil 1: Grundlagen und Methodik Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology
DIN EN 60079-0:2010	Explosionsfähige Atmosphäre - Teil 0: Geräte - Allgemeine Anforderungen Explosive atmospheres - Part 0: Equipment - General requirements
DIN EN 60079-7:2007	Explosionsfähige Atmosphäre - Teil 7: Geräteschutz durch erhöhte Sicherheit „e“ / Explosive atmospheres - Part 7: Equipment protection by increased safety „e“
DIN EN 60204-1:2007	Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine Anforderungen Safety of machinery - Electrical equipment of machines - Part 1: General requirements
DIN EN ISO 12100:2009	Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risikominderung Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology

Boxberg,
30.12.2011
Datum/date


ppa. Harald Rudelgass, Technischer Leiter / ppa. Harald Rudelgass, Technical director

13.4 RVK-EX duct fans

EG-Konformitätserklärung EC Declaration of Conformity



Im Sinne der Maschinenrichtlinie RL 2006/42/EG, EMV-Richtlinie 2004/108/EG und Richtlinie 94/9/EG
As defined by the Machinery Directive RL 2006/42/EG, EMV-Directive 2004/108/EC and Directive 94/9/EC

Der Hersteller:
The Manufacturer
Systemair GmbH
Seehöfer Str. 45
D-97944 Windischbuch
Tel.: +49-79 30 / 92 72-0

erklärt hiermit, dass bei folgendem Produkt:/certified herewith that the following product:

- Rohrventilator für Explosionsgefährdeten Bereiche die Ex-Schutzart erhöhte Sicherheit "e", Zone 1 und 2, Kategorie 2G, Explosionsgruppe IIB der Baureihe **RVK-EX (e)**;
- Circular duct fans for explosion-hazardous areas, type of protection increased safety "e", zone 1 and 2, category 2G of explosion group IIB of range **RVK-EX (e)**;

die oben erwähnten Richtlinien einschließlich der Änderungen, die zu der Zeit der Erklärung wirkungsvoll waren, angewandt wurden. / comply with the regulations of the above mentioned directives including the modifications which were effective at the time of the declaration.

Baujahr
year of manufacture:

Name, Adresse und Nummer des Prüfinstituts:
Name, address and identification no. of the technical institute (for prototype testing):

ZELM Ex e. K. Prüf- und Zertifizierungsstelle
Siekgraben 56
D-38124 Braunschweig
Nummer des Prüfinstituts: 0820 / Registration-no.: 0820
Zertifikat Nr. der EG Baumusterprüfbescheinigung / Inspection certificate no. of EC-prototype testing
(ZELM 03 ATEX 0198X)

Folgende harmonisierten Normen finden Anwendung: / The following harmonized standards were applied:

DIN EN 14986:2007	Konstruktion von Ventilatoren für den Einsatz in explosionsgefährdeten Bereichen / Design of fans working in potentially explosive atmospheres
DIN EN 13463-1:2009	Nicht-elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen - Teil 1: Grundlagen und Anforderungen Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements
DIN EN 13463-5:2004	Nichtelektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen Teil 5: Schutz durch Konstruktive Sicherheit „c“ Non-electrical equipment intended for use in potentially explosive atmospheres - Part 5: Protection by constructional safety „c“
DIN EN 1127-1:2008	Explosionsfähige Atmosphären - Explosionsschutz - Teil 1: Grundlagen und Methodik Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology
DIN EN 60079-0:2010	Explosionsfähige Atmosphäre - Teil 0: Geräte - Allgemeine Anforderungen Explosive atmospheres - Part 0: Equipment - General requirements
DIN EN 60079-7:2007	Explosionsfähige Atmosphäre - Teil 7: Geräteschutz durch erhöhte Sicherheit „e“ / Explosive atmospheres - Part 7: Equipment protection by increased safety „e“
DIN EN 60204-1:2007	Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine Anforderungen Safety of machinery - Electrical equipment of machines - Part 1: General requirements
DIN EN ISO 12100:2009	Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risiko- minderung Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology

Boxberg,
30.12.2011
Datum/date


ppa. Harald Rudelgass, Technischer Leiter / ppa. Harald Rudelgass, Technical director

Systemair GmbH • Seehöfer Str. 45 • D-97944 Windischbuch
Tel.: +49 (0)7930/9272-0 • Fax: +49 (0)7930/9273-92

