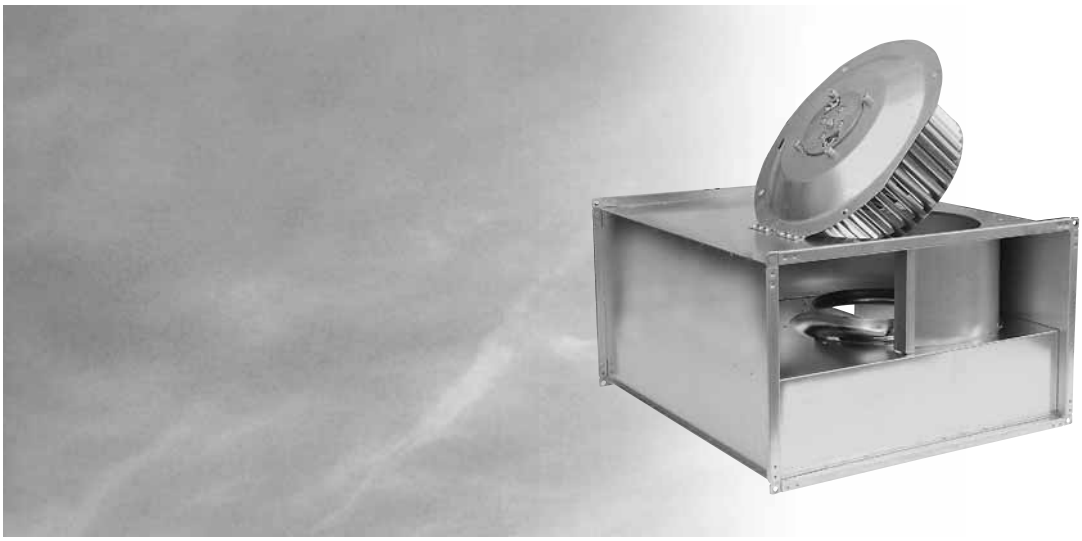
DE WIT
ventilatoren

Directions for use

RKX 500x250, RKX 500x300, RKX 600x300, RKX 600x350, RKX 700x400



ENGLISH VERSION

Fresh air from
ÖSTBERG
THE FAN COMPANY

ENGLISH

This directions for use contains following products:
RKX 500x250 D3, RKX 500x300 B3, RKX 600x300 F3,
RKX 600x350 E3 and RKX 700x400 B3.

SECURITY AND APPLICATION

- The fans are certified according to ATEX 94/9/EEC and comply with ISO 14694, category BV-2, BV-3 and ISO 1940 quality factor G 6.3.
- Standards: SS-EN 50014:1997, SS-EN 50019, EN 13463-1 and parts of prEN 14986:2006.
- There are two versions of fan motors that have different rate data. See table 1.
- The fans are adapted to transport gas in explosion environment.
- The fans must not be connected to a flue gas duct.
- The fans are powered by short-circuit 3-phase motor.
- The fans are adapted for continuously operation S1.
- The fans must not be installed outside.
- The fans can only be used in zone 1 and are not zone separating, i.e. transported air and ambient air of the fan must be in the same zone.
- The environmental temperature of the fan and the temperature of the media that is transported must be in the interval of –20°C to +40°C.
- The fans must not be used to transport media (compact or running) that can establish sediments or corrosiveness on the impeller, motor or casing.
- Rust particles are not to occur in the airflow.
- The fan can be installed vertically or horizontally.
- At speed regulation the fans can be run by a transformer with a voltage of 25% up to 100% of the rated voltage. See table 2. If the transformer is installed in the same zone as the fan, it must have the similar ATEX classification.
- The fans cannot be electronic regulated or regulated with a frequency converter.
- The fans must be connected electrically via a resetting proof vertical discharge with a contact clearance of at least 3 mm/pole.

Table 1

Fan type	**Art.no**	**Motor type**	**Rated voltage** (V)	**Rated current** (A)	**Rated power** (kW)	t_A (s)	I_A/I_N
RKX 500x250 D3	7730008	DD 106-35-4	400V3~	0,92	0,53	70	3,2
RKX 500x250 D3	7730016	MK 106-4DK.07.Y	400V3~	0,85	0,49	81	3,4
RKX 500x300 B3	7730010	DD 106-50-4	400V3~	1,54	0,77	100	2,8
RKX 500x300 B3	7730017	MK 106-4DK.14.Y	400V3~	1,80	0,90	50	4,1
RKX 600x300 F3	7730011	DD 137-50-4	230V3~/400V3~ D/Y	5,28/3,05	1,50	57	4,0
RKX 600x300 F3	7730018	MK 137-4DK.10.Y	230V3~/400V3~ D/Y	3,80/2,20	1,30	85	4,1
RKX 600x350 E3	7730013	DD 137-75-4	230V3~/400V3~ D/Y	6,93/4,00	2,00	36	5,0
RKX 600x350 E3	7730019	MK 137-4DK.20.Y	230V3~/400V3~ D/Y	6,75/3,90	2,10	60	5,7
RKX 700x400 B3	7730015	DD 137-75-6	230V3~/400V3~ D/Y	4,30/2,50	1,40	130	3,0
RKX 700x400 B3	7730020	MK 137-6DK.20.Y	230V3~/400V3~ D/Y	6,40/3,70	1,80	160	3,2

Table 2

Fan type	Art.no	I_{max} at regulation (A)	Minimum static pressure (Pa) 60 V	100 V	145 V	185 V	240 V	400 V
RKX 500x250 D3	7730008	0,92	*x	0	0	0	20	30
RKX 500x250 D3	7730016	0,95	0	0	0	0	40	110
RKX 500x300 B3	7730010	1,54	*x	0	0	0	0	20
RKX 500x300 B3	7730017	1,90	*x	0	0	0	10	40
RKX 600x300 F3	7730011	5,28/3,05	*x	0	0	30	80	170
RKX 600x300 F3	7730018	4,14/2,40	0	0	0	40	150	240
RKX 600x350 E3	7730013	6,93/4,00	*x	0	70	170	200	355
RKX 600x350 E3	7730019	7,90/4,56	0	0	0	80	90	250
RKX 700x400 B3	7730015	4,30/2,50	*x	0	0	0	0	135
RKX 700x400 B3	7730020	6,40/3,70	0	0	0	0	0	0

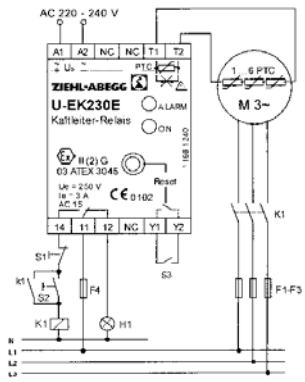
The stated current on the marking sign must not be exceeded. If the fans are speed regulated by a transformer the current can be exceeded for some of the fans, but only if the rated power is not exceeded.

*x = Not allowed voltage level.

INSTALLATION

- Installation and maintenance according to the applicable national rules. For members of CENELEC in European countries should the national standards based on EN 60079-14 and EN 60079-17 be take into consideration.
- For the electrical connection see table 1 and wiring diagram in fig. 1 to 3.
- Check possible transport damages of the fan. A damage fan must not be installed in any circumstances.
- Check the distance between the impeller and inlet cone and the distance between the impeller and the casing. These distances must be a minimum of 4 mm.
- Installation and starting must be made by an authorised electrician according to directions and requirements. Electrical installation must be made according to EN 60079-14 that complies with the safety requirements of high tension current.
- Installation according to appended wiring diagram.
- The fan must be grounded.
- An external motor protection must be installed (is an accessorie, see fig. 4). If the motor protection is installed in the same zone as the fan, it must have the similar ATEX classification.
- Before starting the fans must be connected to duct or equipped with a safety grill to preclude contact of moving parts (EN 294).
- The fans are only intended for firm installation.
- The fans should be installed in a safe way, not risking to fall off, to be expose for or cause vibrations.
- If installation cause vibrations, the fans must be connected to duct via a flange.
- Precautions must be taken to prevent material to be sucked or fall into the fan, when vertically mounted. Minimum IP 20 ≤ Ø12,5 mm at the inlet side and IP 10 ≤ Ø 50 mm at the outlet side.
- The fan must be installed according to the air direction label.
- The fan should be installed in a way that makes service and maintenance easy and safe.

Fig. 4
Thermistor motor protector U-EK 230 E



WIRING DIAGRAMS

Fig. 1
4040003
3-phase, 400V

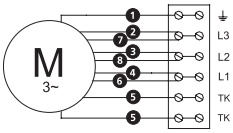


Fig. 2
4040004
3-phase, Y 400 V

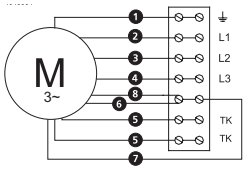
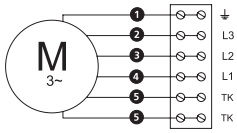


Fig. 3
4040115
3-phase, Y 400 V



OPERATION

Before starting, make sure that:

- the fan is installed and electrically connected in the correct way with ground and a motor-protection.
- no foreign objects are in the fan and no noise appears when starting the fan.
- the rotation direction are according to the label. If the fan rotates in wrong direction, change place of 2 phases and rotation direction will be right.
- the current does not exceed what is stated on the label.

HOW TO HANDLE

- The fans must be stored in a dry place.
- If the fans have been stored for a long time, the ball-bearings of the fan must be checked before starting so it operates properly.
- Avoid storage longer than one year.
- The fan must be transported in its packing until installation. This prevents transport damages, scratches and the fan from getting dirty.
- Use an adequate cable lift when handling the fans to avoid damages of fans and people.
- The fans must not be lifted in the motor cable, impeller or inlet cone.
- Attention, look out for sharp edges and corners.

MAINTENANCE

- Before service, maintenance or repair begins, the fan must be tension free and the impeller must have stopped.
- Consider the weight of the fan when removing or opening larger fans to avoid jamming and contusions.
- The fan must be cleaned when needed, at least once per year to maintain the capacity and to avoid unbalance, which may cause unnecessary damages on the bearings.
- When cleaning the fan, also check if the fan has any damages in a way that can cause a change of the distance between impeller and inlet cone or the distance of impeller and the casing. If so, the fan needs to be exchange.
- The fan bearings are maintenance-free and have a lifetime of about 30.000-40.000 operation hours or 5 years. Contact the fan supplier to renew the bearings.
- When cleaning the fan, high-pressure cleaning or strong dissolvent must not be used. Cleaning should be done without dislodging or damaging the impeller.
- Make sure that there is no noise from the fan.
- The screws tightening capacity of the service lid: M6=9,8 Nm; M10=45 Nm.
- Components in ATEX-approved products **must not** be repaired or change.

FAULT DETECTION

If the fan has stopped or do not start.

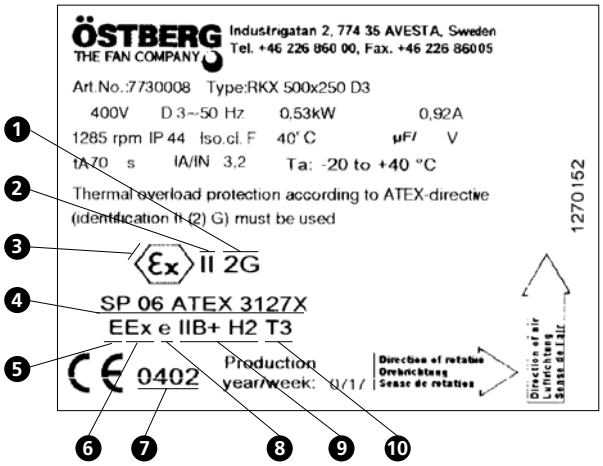
1. Make sure that there is tension to the fan.
2. Cut the tension and verify that the impeller is not blocked.
3. Check the motor protector. If it is disconnected the cause of overheating must be taken care of, not to be repeated.
4. If nothing of this works, contact your fan supplier.
5. At possible complaint, the fan must be cleaned, the motor cable undamaged and a detailed nonconformity report enclosed.

CONDITIONS ACCORDING TO CERTIFICATE SP06ATEX3127X

1. The thermal PTC-circuit of the motor must be connected to a thermo-contact relay, (Certified according to directive 94/9/EC) which cut the motor-supply when motor tempe-rature is to high.
2. Connected fan to duct system must be installed with requirements of rate IP 20 on inlet side and IP 10 on outlet side. The parts that are included in these IP-protections must be constructed in an appropriate way, in strength and material.
3. To avoid explosion hazard, the connection cable of the fan must be rigid connected, mechanically protected and protected from other environmental influence. To protect from explosion the free cable end must be connected according to installation requirement.
4. The stated current on the marking sign must not be exceeded. If the fans are speed regulated by a transformer the current can be exceeded for some of the fans according to the table in the certificate. But only if the rated power is not exceeded.

MARKING SIGNS

1. Category **2** = zone **1**, **G** = gas. Danger zone where explosive gas can occur temporary during normal operation.
2. Equipment group **II** (not for mines).
3. Symbol for explosion proof material.
4. Certified number..
5. Certified with European standards (CENELEC standard).
6. Explosion proof material.
7. SP notified body number.
8. Increased security = Sparks do not appear in the equipment.
9. Explosion group: **IIA** (propane gas), **IIB** (ethylene gas) + **H2** (hydrogen gas).
10. Temperature class **T3**. Can be used in gases with an ignition temperature ≥200°C.



EC DECLARATION OF CONFORMITY

We hereby confirm that our products comply with with the requirements in the ATEX-directive 94/9/EEC and harmonised standards as well as other EU-directives as below.

Manufacturer: **AB C.A. ÖSTBERG**
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info@ca-ostberg.se
VAT. No. SE556043269101

Products:
RKX 500x250 D3 art.nr 7730008
RKX 500x300 B3 art.nr 7730010
RKX 600x300 F3 art.nr 7730011
RKX 600x350 E3 art.nr 7730013
RKX 700x400 B3 art.nr 7730015

ATEX-directive (ATEX) 94/9/EEC
Certificate No.: SP 06 ATEX 3127X
Harmonised standards:
- EN 50014:1997 " Electrical apparatus for potentially explosive atmospheres - General principles"
- EN 50019:2000 "Electrical apparatus for potentially explosive atmospheres - Increased safety [e]"

Machinery Directive (MD) 98/37/EEC as defined in appendix 2A
Harmonised standards:
- EN 292-1 " Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology"
- EN 292-2 " Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles and specifications"
- EN 294 " Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs"

Installation must be done in accordance with the attached "Directions for use".

Low Voltage Directive (LVD) 73/23/EEC and changes 93/68/EEC
Harmonised standards:
- EN 60 335-1 " Safety of household and similar electrical appliances - Part 1: General requirements"
- EN 60 335-2-80 " Safety of household and similar electrical appliances - Part 2: Particular requirements for fans".

EN 60 204-1 " Safety of machinery - Electrical equipment of machines - Part 1: General requirements" is valid for fans including motor with automatic thermo protector.

Directive for Electromagnetic Compatibility (EMC) 89/336/EEC and changes 92/31/EEC and 93/68/EEC
Harmonised standards:
- EN 50 081-1 "Electromagnetic compatibility - Generic emission standard - Part 1: Residential, commercial and light industry"
- EN 50 081-2 "Electromagnetic compatibility - Generic emission standard - Part 2: Industrial environment"
- EN 50 082-1 "Electromagnetic compatibility - Generic immunity standard - Part 1: Residential, commercial and light industry"
- EN 50 082-2 "Electromagnetic compatibility - Generic immunity standard - Part 2: Industrial environment"

Avesta 2007-06-05

Jirry Svedlund
Design Manager

CERTIFIKAT

[1] **EC-TYPE EXAMINATION CERTIFICATE**

[2] **Equipment or Protective Systems intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

[3] Certificate Number:
SP06ATEX3127X

[4] Equipment: Fans of types RKX500x250D3, RKX500x300B3, RKX600x300F3, RKX600x350E3 and RKX700x400B3

[5] Applicant (manufacturer): AB C.A Östberg

[6] Address: Industrigatan 2, SE-774 35 Avesta, Sweden

[7] This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] SP, Notified Body No. 0402 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in a confidential report No. P602494:A

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- EN 50014:1997 + A1…A2 (SS-EN 50014 ed 4 + A1…A2)
- EN 50019:2000 (SS-EN 50019 ed 6)

See also item 18 below.

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. This certificate does not cover these requirements.

[12] The marking of the equipment or protective system shall include the following:

II 2G EEx e IIB+H_2 T3

Borås 10th May 2007

SP Technical Research Institute of Sweden
Certification

Lennart Månsson
Certification Manager

Åke Månsson
Certification Officer

SP internal number: 471001

SP Technical Research Institute of Sweden

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