OPERATION AND ASSEMBLY MANUAL

OF ROOF FAN

ERF/4-250T II 2G c IIB T3
ERF/4-315T II 2G c IIB T3
ERF/4-355T II 2G c IIB T3
ERF/4-400T II 2G c IIB T3
ERF/4-450T II 2G c IIB T3
ERF/6-450T II 2G c IIB T3
ERF/6-500T II 2G c IIB T3
ERF/6-560T II 2G c IIB T3

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This instruction covers the fan listed on the front page. It is source of information necessary for safe and proper use. Read this manual carefully before any use of the device, comply with it requirements and keep it in place with easy access for users and service. If case of any doubts about use of the fan, please contact with manufacturer.

After reciveing the device - check:

- If the device is in compliance with order,
- If parameters from nameplate are in compliance with order
- is the fan ATEX classification in compliance with the requirements
- is the following documentation (which is integral part of this manual) attached to the device

1) Electric motor documentation (declarations, manuals)
2) Quality Control documents (impeller balancing certificate, fan balance and vibration certificate, certificate with fan vibration measurement)
3) Drawing with fan part list
4) Drawings with fan dimensions (general and dimensions between rotating and static parts)
5) Drawing with fan marking
6) Fan declaration of conformity (ATEX)

In case of any irregularities (eg. damage or lack of documentation), contact with your dealer or Venture Industries Sp. z o.o. service.

1. GENERAL INFORMATION

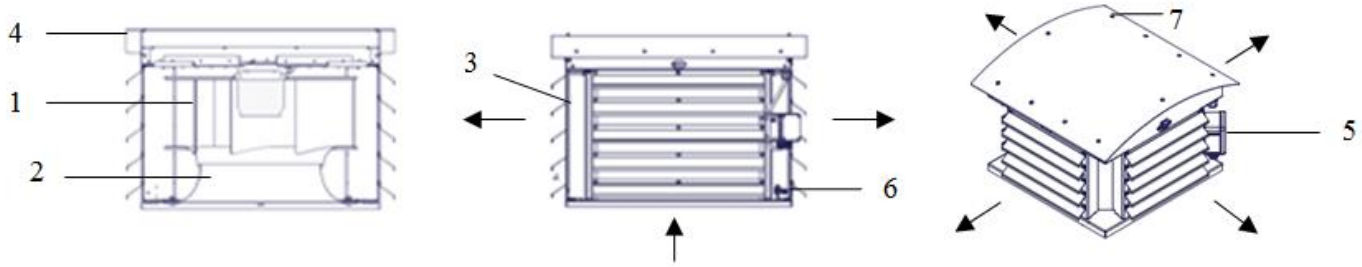
1.1 Information about device

- The fan is partly completed machinery (as defined by Directive 2006/42/EC – see Section 10 - Declaration of Manufacturer)
- The fan is made in ATEX form:

	II	**2G**	**c**	**IIB**	**T3**
1	2	3	4	5	6

where:

1 - ATEX equipment mark
2 - ATEX group (II - product designed for use outside the methane pits, mining)
3 - Fan category (G - fan for use with gas medium)
4 - Type of protection (c - construction protection according to EN 13463-5).
5 - gas subdivision
6 - Fan temperature class



1 - Impeller with integrated motor – RH type
2 - Inlet
3 - Housing
4 - Removable cover
5 - Junction box
6 - Additional grounding
7 - Fastening elements

• The fan is designed for use by properly trained and qualified adults.
• The device is designed for the transport and work in area of clean air and explosive atmospheres in accordance with it ATEX form (see 1.1). It is forbidden to transport and work of fan in area contaning liquids, viscous substances, substances with high humidity, substances causing abrasion, solids and chemically reactive compounds. The maximum temperature of transported medium is 40°C, minimum -20° C.
• Fan is designed for outdoor use in accordance with it ATEX form (see 1.1). It must be protected from effects of lightning. The fan surroundings cannot contain substances causing abrasion, chemically aggressive substances, viscous substances. The maximum ambient temeprature is 40°C, minimum -20° C.
• The fan is adapted for speed regulation by changes (reducing) of voltage, using autotransformer regulator

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1.2 General risks and guidelines

During the entire life cycle of fan it is necessary to pay particular attention to **the risks and guidelines** presented below:

1.2.1 Mechanical risk and guidelines

• The fan has moving elements (e.g. Impeller). Do not use the fan without installed proper protection structures (eg. guards on inlet and outlet) protecting from contact with moving elements. Prevent from opening the fan by unauthorized persons (for example, using a padlock in units with lock).

• The fan has high suction power. Clothing, hair, assembly elements, items, and even body elements can be easily sucked in. Make sure that before start and during operation of the fan there is no person and items which can by sucked near the fan inlet. It is forbidden to approach the fan in "loose" clothing or reaching toward inlet of working fan. Use appropriate inlet covers and if necessary – use relevant protective clothing (eg. headgears).

(Warning: Risk of serious injury.).

• The air at the outlet of the fan has high energy. Elements sucked or placed inside the fan can be thrown with a high speed. In case of damage or improper operation, parts (with high kinetic energy) can be thrown out from fan. It is forbidden to look into the fan reaching toward inlet and outlet of the working fan. Make sure that before start and during operation of the fan there is no person on inlet side and in stream of transported medium.

• During manufacturing the fan sharp edges was grinded. However the fan may have edges touching which may cause injury. We recommend the use of relevant protective gloves.

• Conveying equipments and fan support structures must by selected proper to the fan weight and ensure that fan would not move. Do not approach the hanging load during transport.

• The fan has a high inertness. In case of no permanent fix turning on the fan will lead to it uncontrolled movement. The unit can work only after proper installation.

• Uncontrolled start of the fan can create hazard situation. Prevent against unexpected start of the fan – see also 1.2.6.

1.2.2 risk and guidelines related with noise

• The sound pressure level is not the same over the fan whole range. We recommend to check the sound pressure level and if necessary use the silencer and relevant sound protection.

1.2.3 risk and guidelines related with environment

• The fan can make over and under pressure. In areas where a specified air pressure and the quantity of air are required (eg. in places with combustion) make sure that there would be no deficit/excess of air. Ensure that the installation to which the fan is connected withstand the under/over pressure which can be made by fan (including work with forbidden parameters).

1.2.4 risk and guidelines related with temperature

• The housing and fan elements are not insulated and take the temperature of the transported medium. During transport the temperature of medium and fan components may increase.

• Electric motor may heat up to high temperatures (especially when overloaded/overheated – cased by eg. blocking the impeller, too low supply voltage, too high medium temperature). The appropriate steps should be made to prevent from fire and burns caused of high temperatures.

In case of fire – to extinguish a fire use fire extinguisher approved for electrical equipment and follow recommendation of fire department.

1.2.5 risk and guidelines related with electricity

• Do not perform any work on the fan (eg. installation, use, maintenance and inspection, dissambly) with exposed parts that may be under voltage. Capacitor (only in units with single phase supply) has accumulated charge even after disconnecting the unit. The appropriate steps should be made to prevent from electric shock. Protect from getting access to the electric elements by unauthorized person.

1.2.6 risk and guidelines related with unexpected start / connecting power supply

• Fan is not equipped with control system – the connecting of power supply cause in immediate start.

• Before any work on the fan (e.g.: installation, maintenance and review, dismantling) the power supply must be completely disconnected (all poles, check there is no voltage, disconnecting switch with minimum 3mm insulation gap). Make sure that power supply won't by connected during the work on the unit, and that the moving parts do not move.

• Unit is not equipped in system that turn it off permanently after power failure. Make sure that there won't be any dangerous and forbidden situation in case of temporary power supply failure.

• The motor thermal sensor after turning on (caused by motor temperature overload) turn back to their normal state after temperature fall. Make sure that there won't be any dangerous and forbidden situation after cooling down motor temperature

• In case of blocking the impeller –release of impeller can provide to sudden movement. Take appropriate steps to prevent form blocking impeller, and if case of blocking impeller completely turn off power supply and review the fan (see section 5).

• After disconnecting power supply the fan rotating parts are still rotating for period of time under the accumulated energy. Take it into account when using the fan.

1.2.7 risk and guidelines related with use

•Improper installation and use may lead to damage of the device and to the dangerous situation. The unit can by installed, maintained, dismantled and used only by qualified and authorized personnel, in accordance to safety rules and current regulations in the country of use (including proper electrical authorization). Personnel need to be familiar with reactions of the fan.

• The device must not be exposed to radiation (such as microwave, UV, laser, x-ray).

• The unit is not totally leakproof. Water might appear inside of fan e.g. during rain.

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1.2.8 risks and guidelines related to the presence of explosive atmospheres

• Follow guidelines set out in sections 1.21-1.2.7. Non- compliance with formulated rules in case of an explosive atmosphere might cause ignition.
• Transport of inappropriate medium(improper, gas type, temperature…) in case of an explosive atmosphere might cause ignition. Fan operation in enclosure of or direct transport of medium different than specified in the design is forbidden (see general information).
• Różny potencjał pomiędzy elementami urządzenia oraz elementami urządzenia, a elementami obcymi (np. narzędzia) może doprowadzić do powstania iskry elektrostatycznej. Nie wolno użytkować urządzenia bez podłączonego, skutecznego uziemienia.
• A potential difference between different parts of the device or between parts of the device and foreign bodies (eg. tools) might cause electrostatic discharge. It is forbidden to use the device without effectively connected grounding.
• During assembly, maintenance or disassembly, potentially explosive area must be safe - cannot contain explosive gasses or powders. Before turning off the device, make sure that there is no explosive atmosphere.
• The device might be installed, maintained, disassembled and operated only by qualified and trained personnel – according to guidelines set out in Directive 99/92 / EC ATEX137 so-called "ATEX USERS".
• Presence of foreign bodies inside the fan may lead to explosion directly (eg. impact of foreign element on the impeller) or indirectly (impeller damage). Fan operation with foreign elements (including dirt) inside the fan is forbidden. Use effective protection against pulling foreign elements to the fan.
• Distance between moving and not moving elements has to comply with documentation. Operation of the fan with not keeping proper distance between moving and not moving elements is forbidden.
• Do not remove any protection devices installed in the unit. Operation of the fan without protection devices (eg. safety net, cover, junction box cover) is forbidden.
• Occurrence of explosive atmosphere near exposed live part will lead to ignition.
• Contact of moving element with corroded body or dirt may lead to ignition. Contact of dirt with hot surfaces may lead to ignition. Operation of the fan with parts corroded and/or dirty to dangerous level is forbidden
• If lightning strikes in an explosive atmosphere, ignition will always occur. Moreover, there is also a possibility of ignition due to the high temperature reached by lightning conductors. The device must be protected against lightning.
• Ensure protection against RF waves, EMR, ionizing radiation, ultrasound, adiabatic compression, shockwaves
• Contact of the impeller with aluminium or steel elements may cause aluminothermic reaction – cannot be allowed
• Exotermic reaction can act as a source of ignition when heat generation rate is higher than the evacuaction outwards, which is why, as far as possible, substances with high tendency to autoignition should be avoided. The operator must carefully check if gasses or dirts transported by the fan do not contain mixtures that could cause exothermic reactions and temperatures higher than intended
• Proper safety distance between the unit and input device should be kept

2. TRANSPORT AND STORAGE

During transport and storage follow the guidelines contained in Section 1 and **transport and storage guidelines.**

2.1 transport and storage guidelines

• Fan mount on a pallet and secure against mechanical damage. Transport the fan without exposure to excessive shock. The device must be protected from weather conditions, transported and stored in dry, well ventilated, and free from substances harmful to the device areas - The device cannot by transported and stored in areas with fertilizers, chlorinated lime, acids and other aggressive chemicals. Fan need to be protected against foreign body entrance.
• Protect the fan against damage (including crush).
• The unit should be lifted by the base. Do not lift the unit by wires, connection box, motor, motor ears, protection elements, impeller, inlet.
• It is recommended that the storage of fans was not longer than one year. After a long period of storage, the device should be reviewed and maintenance

3. INSTALLATION

During installation follow the guidelines contained in Section 1 **and installation guidelines.**

3.1 installation guidelines

• Fan and it installation must be made in accordance with ISO 12100, ISO 13857 and EN 60079-14
• Before installation remove temporary items that protect fan during transport and storage (e.g. box, foil, caps – do not remove any guards) – Starting the device with those items could lead to it damage. Make sure that the device is not damaged.
• If during installation it is necessary to open/remove security elements, elements of the fan close/mount it as soon as the installation is completed.
• The device must be mounted in the horizontal orientation with cover on top, in accordance with Fig. A.

Fig. A

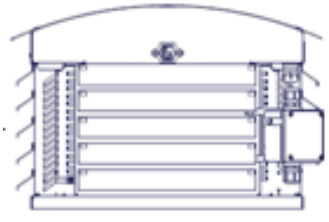
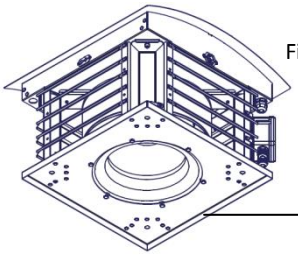


Fig. B



Roof stand – galvanized steel sheet (in special version - painted)
Fasteners – stainless steel
Inlet - copper

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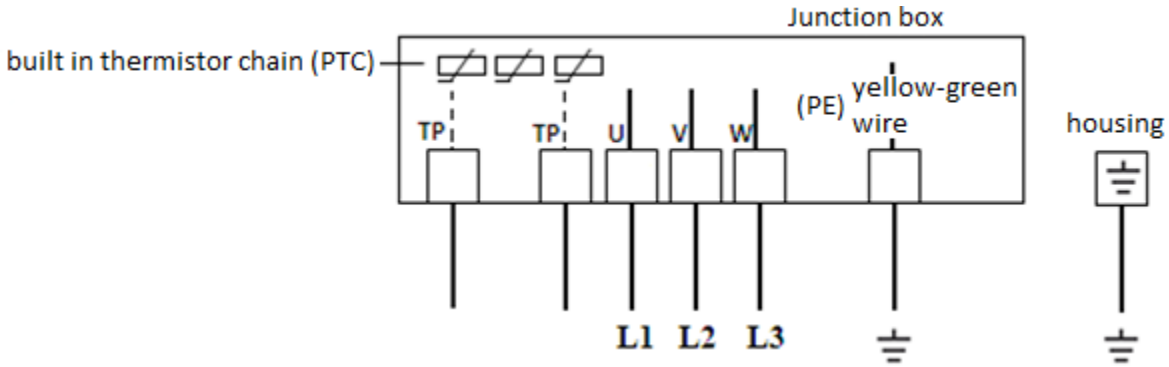
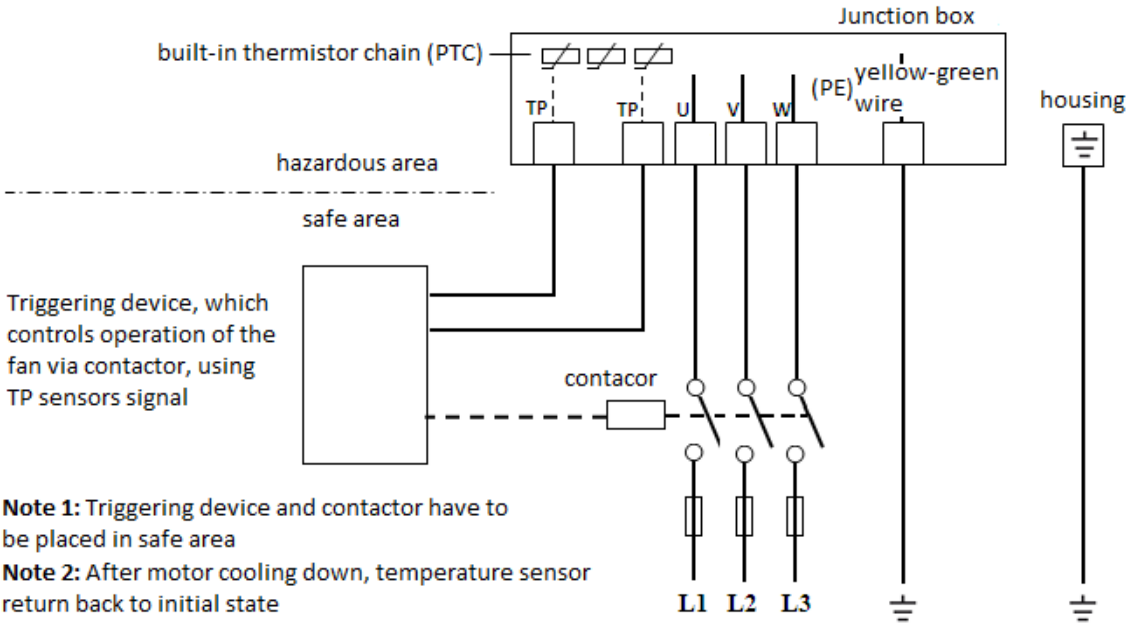
Fan need to be installed to stable construction with use of all 4 mounting holes placed on the corners of mounting shelf. The construction and fasteners have to be compatible with fan material. Screws and washers protected against self-loosening should be applied:
M8 DIN 933 kl.8.8., M8 DIN 127, M8 DIN 9021 (ERF 250 – 315) – or equivalent
M10 DIN 933 kl.8.8., M10 DIN 127, M10 DIN 9021 (ERF 355 – 560) – or equivalent
Because of outdoor use, proper sealing between roof stand and mounting structure is recommended.
• The fan support construction must be able to support the fan working with the full power (start-up, breakdown, improper use should be also considered)
• It is recommend to provide the distance of 3 inlet dimensions of clearance between inlet and any obstructions (such as filters, bends, wall) and distance guaranteeing free air movement.
• Fan need to be protected against getting foreign objects inside with security level at least IP20 (according to EN 60529) If there is risk of getting foreign objects inside the fan, additional covers/filters need to be applied to prevent from it.
• After fan mechanical installation make all electircal connections and check the impeller direction of rotation in accordance with points 3.2 and 3.3.
• Ensure that there are no foregin bodies (eg. mounting elements, tools) inside and near of the unit, that impeller is not blocked, the fan is properly secured after installation (the cover is closed and secured, the terminal box/service switch is closed, the connecting elements are properly tightened).

3.2 electircal connection guidelines
• The fan and its power supply need to be secured in accordance to regulations valid in country of use. Use appropriate protection against electric shock - it is required to connect fan grounding terminal placed inside connection box to proper grounding system.
• The electrical installation must be made in accordance with data contained in the electric motor and electric motor documentation. Electrical parameters can be found on the fan name plate. Additional information can be found further in this manual.
• The fan may be connected only to electrical circuits, that can be switched off by switch, that disconnects all poles.
• The fan should be connected according to following wiring diagram:



Attention: Depending on used terminal box, position of terminals (TP, U, V, W, PE) may vary than this shown on the diagram - connection must be done according to labels inside the terminal box.

• Motor must be disconnected from mains by built-in line of thermistors PTC (terminals TP) connected to dedicated protection device (certificated Ex II (2) G according with 94/9/EU i.eg. U-EK230E) and separate contactor. Overload protection of fan being depending only on current is forbidden and ineffective. Maximal measure voltage for thermistors PTC is 2,5 V. It is forbidden to connect more than single line of thermistors, because it could lead to fault fan stop.
The schematic diagram of fan protection by triggering device



Attention: Depending on used terminal box, position of terminals (TP, U, V, W, PE) may vary than this shown on the diagram - connection must be done according to labels inside the terminal box.

• Use electrical wires made in proper insulation and adequate size. The wires must be placed in such way that would not touch moving parts, and the liquid (eg. condensation) does not run over them in the junction box. The wires need to be connected to junction box through cable glands and properly tightened.
• During electrical connection please follow guidelines included in junction box operating manual

3.3 rotor rotation direction
Make sure that after end of installation and when using the fan the impeller would rotate in correct direction. After mounting fan to the proper construction turn on fan for 1 sec. and check impeller rotation direction.
NOTE: The checking motor direction should be made in accordance with section 1 and 4 and with caution.
The work with impeller rotating in the wrong direction reduces fan parameters and may damage it. To change motor direction of rotation disconnect power supply, wait until the impeller stops and swap two supply wires

4. USE
During fan use follow the guidelines contained in 1 section of this instruction and **use guidelines**. Before first fan start of fan follow guidelines from section 5.

4.1 use guidelines
• Make sure that turning on of the device does not make any risk for personnel and property.
• Fan cannot work with voltage, frequency, current higher than shown on the fan nameplate.
• The fan is designed for continuous operations (S1) – too high frequency of turning may lead to motor overheat and damage.
• The fan is designed to work in a specified characteristic area. In some units too low volume of transported medium may lead to motor damage (insufficient motor cooling); -too high volume of transported medium, start/ work with completely opened inlet may lead to the motor overload cause by too high fan current (the fan current rise when installation resistance low).
• In case of activation of any electrical protection, detection of damage, working with current greater than specified on the fan nameplate – unit must by immediately turn off and put out of service (see Section 5)
• Do not use fan in disassembled /incomplete state, not secured cover.
• During fan regulation – follow regulation guidelines.

4.2 Guidelines for regulation
• Regulation of rotation speed can be made by change of supply voltage using autotransformator.
• **Supply voltage cannot exceed value specified on the fan nameplate and cannot be lower than 135 V (ERF/4-400T II 2G c IIB T3) / 115V (other models)**
• **During regulation current value may increase only by ΔI (in %) specified on the nameplate**
• **Regulation of rotation speed by supply frequency change is forbidden**
• Make sure that the fan speed will not lead to a dangerous situation, damage to equipment, increase of vibrations.
• Please ensure that the device will be able to start on the minimum speed, while cold motor state.

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5. MAINTENANCE, REVIEW

During maintenance and review follow the guidelines contained in Section 1 of this instruction and maintenance guidelines.

5.1 maintenance guidelines

• The fan must be subject of regular review and maintenance (point 5.2).. In the case of irregularities the device must be turn off and subjected to review, maintenance and possible repairs. The set between routine checks and maintenance should be determined by user, based on the observation of unit and specific conditions of use. The user is obliged to keep a review and repairs log, which includes all measurements, maintenance works etc. **Review and maintenance must be often than 6 months.**

• **In case of non-typical weather condition, able to damage the device (eg. hail), it is necessary to review and maintenance the unit.**

• During maintenance and review do not damage the device and do not make any changes (eg. loose of protective and connecting elements, lose of rotor balance, break the rotor weights).

• If during maintenance and reviews it is necessary to open/remove safety devices, fan elements, users must be cautioned about the potential danger. The components must be assembled and secured after maintenance and revision.

• To clean fan use slightly damp delicate material. It is prohibited to use detergents, liquids under pressure and tools that may scratch the unit surface. After fan cleaning (after end of maintenance) tur on the fan for 30 min with full speed).

• Prevent the accumulation of dust/dirt on and inside the fan. Dirt accumulated on: grids – may reduce the fan parameters; impeller – may lose it balance; housing and motor – can reduce the cooling; hot surfaces – in extreme situations may ignite. If the device is secured by filter - filter should by regularly inspected and replaced if it pollution is too high. The dirt accumulated on the filter reduces the fan parameters.

• Ensure that there are no foreign bodies near and inside the fan, the impeller is not blocked, the unit is clean, dry and secured after maintenance and review.

• **Works, which require removal of motor, should be done in manufacturers service**

• Review and maintenance of ATEX components should be done according to included documentation (assembly manual of impeller with integrated motor – RH type, junction box operation manual, cable gland operation manual), but guidelines introduced in following document must be followed as well. Change of bearings should be done before the end of their service life

5.2 unit maintenance and review

During review and before first use of the unit or after long time period of storage attention to the following should be paid:

• accumulation of the dirt on the unit and filter (if used), state of grid / covers
• is the device stable, not damaged, the structure is complete, moving elements can move freely
• if there are any foreign bodies or loose elements inside the fan
• are bearings damaged and not cause in heavy/noisy work
• are connecting elements tightened, is fan surface without corrosion, are electrical wires not damaged
• if paint is not damaged
• is the safety equipment working and property set, is shock protection effective,
• if wires are properly mounted, not damaged and will not touch moving parts
• if proper distance between moving and not moving parts is kept
• the motor insulation resistance (see RH operation manual)
• the unit is not corroded
• if junction box and wires are undamaged

During operations, especially after first start pay attention to:

• correct operation
• the unit and installation are tight
• there are no unusual noises and vibrations, leaks from the motor, unusual temperatures and vibrations, smoke from motor, slow down or stop of motor operation.
• the fan current is not higher than show on nameplate.

5.3. malfunction / threats and possible causes

Signs	Possible cause
Excessive vibration or noise	• Damaged, used impeller • Loss of impeller balance caused by dirt • Friction between fan elements • Damage of bearings • Loss of impeller balance or motor failure • Damage of measuring system which control signalization of abnormal vibrations
Motor overload	• Friction between impeller and the housing; • Damage of bearings • Damage of motor windings (eg. damage of insulation, overheating); • Damage of switch or protection system; • Phase failure; • Exceed of the maximum motor speed; • Too low fan load, too low fan under/over pressure

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Fan does not start	• Friction between impeller and housing. Foreign body inside the fan (eg. tool accidentally left during installation); • Phase failure; • Failure of fan start-up system, • The protection systems was not reset after failure.
Activation of protection systems during fan work	• Incorrect settings of switch time delay circuit or/and incorrect setting of protection relays • Motor overload • Too high time of start-up • Incorrect size of wirings (too high voltage lose)

6. REPAIR, WARRANTY

Use only original spare parts. Repairs can be made only by manufacturer (or after manufacturer permission). When ordering spare parts, specify fan size and part time according to attached drawing with spare parts list. Information about each repair or change of part, according to ATEX Directive, should be included on additional plate placed on the fan or in documentation of the device, which is available in workplace (repairs log, etc.). It is the responsibility of the user.

Warranty conditions:

• The warranty covers (during warranty period) latent defects or damage caused by the fault of the manufacturer (e.g. material defect, fan assembly defect)

• Warranty is valid for 12 months from date of purchase. In case of warranty repair this period would by prolonged by the time from starting repair until the information about it end.

• The warranty not concerns activities mentioned in the instructions, and belonging to the normal operation (eg. installation, cleaning, maintenance)

• Warranty not concerns wear of consumable parts in the normal mode of work.

• Lose of warranty is due to improper installation and use of the device (not compliant with the fan specification and instructions), making repairs and changes in device without manufacturer acceptation, damages resulting from external causes (e.g. mechanical damages, chemical damages, pouring water) and if there is no clear manufacturers name plate on the device.

• **Complains are taken only after delivering the device, information describing the reason of complaint and copy of invoice.**

• In the case of damage of essential components of the fan (eg. motor, rotor) or accessories the delivery of spare parts can take up to 6 weeks.

7. DISMANTLING AND RECYCLING

Disconnect unit from electrical supply, and dismount according to the guidelines from section 1 of this instruction. Therefore, please deposit all left-over material and packaging in their corresponding recycling containers and hand in the replaced machines to the nearest handler of this type of waste product.

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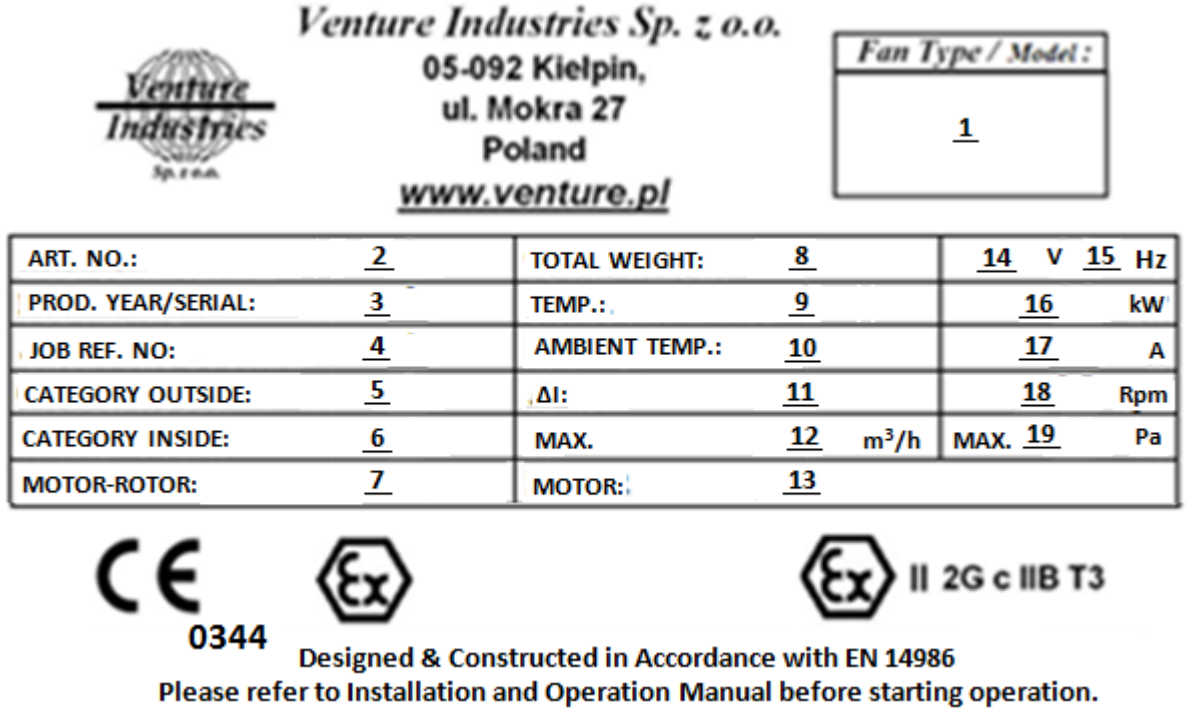
8. FAN NAMEPLATE



1	Fan type and model	**12**	Maxiumum permissible air volume (in m^3/h)
2	Article number	**13**	Name of motor
3	Year of production / serial number	**14**	Supply voltage (in V)
4	Number of production order	**15**	Supply frequency (in Hz)
5	ATEX category outside the fan	**16**	Rated motor power
6	ATEX category inside the fan	**17**	Rated current
7	Name of impeller with integrated motor	**18**	Rated motor speed
8	Total weight (in kg)	**19**	Maximum pressure generated by the fan
9	Temperature range of medium (in °C)		
10	Ambient temperature range (in °C)		
11	Acceptable current increase with voltage reduced (in %)		

Note: Nameplate data are valid for air density equal 1,2 kg/m^3
Parameters from position 12 and 19 should be read from the certificate (chapter 11).

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9. TECHNICAL DATA OF USED MOTORS

Rater parameters of motors used in ERF fans are included in table below. In case to regulate fan operation optimally, rated voltage of used motors is higher than typical. Therefore electrical parameters of the fan (like supply voltage, rated current, current during regulation) and the motor may be different

Despite motor electrical parameters – supply voltage of all ETF fans equals 400 V (50 Hz) and current (rated and during regulation) must comply with data on the nameplate (introduced in sector 8).

ERF/4-250T II 2G c IIB T3 Motor used: *MK085-4DK.07.Y* Motor rated parameters: *3~500V 50Hz ; 0,39kW ; 0,51A ; Maximal current with voltage reduced – 0,51A ; IA/IN 2,0 ; tA 190s*
ERF/4-315T II 2G c IIB T3 Motor used*: MK106-4DK.07.Y* Motor rated parameters*: 3~500V ; 0,5kW ; 0,71A ; Maximal current with voltage reduced – 0,80A ; IA/IN 3,4 ; tA 81s*
ERF/4-355T II 2G c IIB T3 Motor used*: MK106-4DK.07.Y* Motor rated parameters*: 3~400V ; 0,5kW ; 0,88A ; Maximal current with voltage reduced – 0,95A ; IA/IN 3,4 ; tA 81s*
ERF/4-400T II 2G c IIB T3 Motor used*: MK106-4DK.14.Y* Motor rated parameters*: 3~500V ; 0,92kW ; 1,49A ; Maximal current with voltage reduced – 1,58A ; IA/IN 4,1; tA 50s*
ERF/4-450T II 2G c IIB T3 Motor used*: MK137-4DK.10.Y* Motor rated parameters*: 3~480V ; 1,3kW ; 1,96A ; Maximal current with voltage reduced – 2,15A ; IA/IN 4,1 ; tA 85s*
ERF/6-450T II 2G c IIB T3 Motor used*: MK106-6DK.10.Y* Motor rated parameters*: 3~415V ; 0,47kW ; 0,95A ; Maximal current with voltage reduced – 0,95A ; IA/IN 2,3 ; tA 170s*
ERF/6-500T II 2G c IIB T3 Motor used: *MK106-6DK.14.Y* Motor rated parameters*: 3~415V ; 0,9 kW ; 1,5A ; Maximal current with voltage reduced – 1,55A ; IA/IN 3,1 ; tA 100s*
ERF/6-560T II 2G c IIB T3 Motor used*: MK137-6DK.20.Y* Motor rated parameters*: 3~500V ; 1,85kW ; 3,1A ; Maximal current with voltage reduced – 3,1A IA/IN 3,2 ; tA 160s*

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10. DECLARATION OF MANUFACTURER

EU Declaration of Conformity in accordance with: 2014/34/EU, 2014/30/EU
EC Declaration of Incorporation in accordance with: 2006/42/EC (Appendix II 1B)

(*doc. no. Ex4.1.02012019._EN)*

Manufacturer: Venture Industries Sp. z o.o.
ul. Mokra 27
05-092 Łomianki-Kiełpin
Polska

declares that the object of the declaration described below:

Name:	*CENTRIFUGAL FAN Ex, DIRECT DRIVE*
Article number:	.....
Type:	*ERF*
Model:	.....
Fan serial number:	.....
(RH) motor-rotor model:	.....
(RH) motor-rotor serial number:	.....
Motor model:	.....
Motor serial number:	.....
Use/Function:	*transport of specified medium after incorporation into machinery (as defined by 2006/42/WE Directive)*

is in conformity with the relevant union harmonisation legislation:
- 2014/34/EU Directive
- 2006/42/EC Directive - Annex I, item: 1.3.4, 1.5.1, 1.7.1
- 2014/30/EU Directive

Compliance with 2014/30/EU Directive applies to the single product. When product is incorporated into machinery, used with other components the installer is responsible for compliance with the provisions of 2014/30/EU Directive.

complies with the requirements of following harmonized standards:

EN 14986:2007 EN 13463-1:2009 EN 13463-5:2011

is made and marked in accordance with the following:

.....

Furthermore
- Quality system is in accordance with ISO 9001:2015 standard.
- This declaration is issued under the sole responsibility of the manufacturer.
- CE Marking date:..... . CE mark affixed in accordance with 2014/34/EU, 2014/30/EU Directives.
- Product is partly completed machinery (as defined by Directive 2006/42/EC), and it must not be put into service until the machinery in which it is incorporated has been declared in conformity with the provisions of 2006/42/EC Directive (and its amendments).
- In accordance with 2006/42/EC Directive requirements: The technical documentation for above mentioned product has been prepared in accordance with Directive 2006/42/EC, Annex VII, Part B, and is located in the manufacturer office: *Lotnicza 21A, 86-300, Grudziądz, Poland*. The person authorized to comply the relevant technical documentation: *Piotr Pakowski (Lotnicza 21A, 86-300, Grudziądz, Poland)*. Relevant information about the product will be provided in electronic or paper form in response to a reasonable request of national authorities.
- Requirements of standards EN ISO 12100:2010 and EN 60204-1:2006 has been partly applied. Requirements of standard EN ISO 13857:2008 has been applied only according to safety devices supplied and installed in the product by manufacturer. According to EMC Directive requirements - EN 61000-6-2:2005, EN 61000-6-3:2007 standards has been applied.

Grudziądz,
Place, date of issue

Piotr Pakowski - Dyrektor
Name, function, signature, (Acc. Authorization no. 20181219)

tel. (0-22) 7519550; 7512031, fax (0-22) 7512259; 7511202, e-mail: venture@venture.pl

11. CERTIFICATE OF NOTIFIED BODY THAT SUPERVISE ATEX QUALITY CONTROL

GIG

PCA Polskie Centrum Akredytacji – Certyfikacja Wyrobów
AC 038

INTERNATIONAL ACCREDITATION FORUM IAF

ATEX

[1] **TYPE EXAMINATION CERTIFICATE**

[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[3] Type examination certificate:

KDB 13ATEX0073X

[4] Equipment :

Centrifugal fans type

ERF/4-250T II 2G c IIB T3 ERF/4-315T II 2G c IIB T3
ERF/4-355T II 2G c IIB T3 ERF/4-400T II 2G c IIB T3
ERF/4-450T II 2G c IIB T3 ERF/6-450T II 2G c IIB T3
ERF/6-500T II 2G c IIB T3 ERF/6-560T II 2G c IIB T3

[5] Manufacturer:

VENTURE Industries Sp. z o.o. POLAND

[6] Address:

ul. Mokra 27 05-092 Łomianki - Kiełpin

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

[8] Główny Instytut Górnictwa, Notified Body number 1453 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment and 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 confidential report KDB No. 13.094 [T-7048]

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 14986:2007; EN 13463-1:2009; EN 13463-5:2011

[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 type examination certificate relates only to the design and construction of the specified equipment and protective system in accordance with Directive 94/9/EC.
Further requirements of the Directive may apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

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

Ex **II 2G c IIB T3**

Specjalista ds. Certyfikacji Urządzeń Przeciwwybuchowych
dr inż. Michał Górny

Główny Instytut Górnictwa w Katowicach – Jednostka Certyfikująca

GŁÓWNY INSTYTUT GÓRNICTWA
KIEROWNIK
Jednostki Certyfikującej
dr inż. Dariusz Stefaniak

Główny Instytut Górnictwa
Jednostka Certyfikująca
Zespół Certyfikacji Wyrobów
KD „Barbara"
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Date of issue: 28.06.2013
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Główny Instytut Górnictwa
Jednostka Certyfikująca
Zespół Certyfikacji Wyrobów KD „Barbara"

13 **SCHEDULE**

14 **Type Examination Certificate KDB 13ATEX0073X**

[15] **Description:**

The ERF... fans are centrifugal fans, designed for mounting on the roof, for circulating air containing gases or flammable liquids vaporous and installation within the explosive hazardous zones endangered by gases and vapors of flammable liquids.

In the fans construction, the rotor-motor units of type RH...M and inlet cones are used, for which manufacturer declares explosion protection in accordance with marking II 2G c IIB T3. Above mentioned units are powered by increased safety motors, II 2G Ex e II T1,T2, T3 or T4 certified.

The body of the fan is made of zinc galvanizing steel. The outlet openings of the fan are protected with the mesh made of stainless steel.

The terminal box of type 8118/..., by STAHL (Ex design in accordance with the marking II 2G Ex e II T6/T5; certificate PTB 99ATEX3103) is used for connection the motor to the installation.

The MK... motors are equipped with thermal protection of the windings (PTC sensors), and in accordance to their certificates, may work in conditions of decreased voltage. The nominal technical data of the motor used in specific fan (nominal voltage, power and rotation sped) are placed on the nominal plate of the fan, and may be different than the nominal motor data.

Only voltage alteration (within the limits determined in manufacturers instruction) is permitted for rotation speed regulation.

Technical parameters:

The nominal voltage for all fans is 400V (50Hz)
The detailed data and flow characteristics for all fans are in the manufacturer catalog.

Fan type	ERF/4-250T II 2G c IIB T3
Rotor-motor assembly type	RH31M-4DK.2Y.1R
Flow capacity	up to 2000 m^3/h
Compression	up to 320 Pa
Motor type	MK085-4DK.07.Y
Nominal data of the motor	P_N=0,39 kW U_N=500 V, I_N=0,51 A, n_N=990 1/min

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Główny Instytut Górnictwa
Jednostka Certyfikująca
Zespół Certyfikacji Wyrobów KD „Barbara"

13 **SCHEDULE**

14 **Type Examination Certificate KDB 13ATEX0073X**

Fan type	ERF/4-315T II 2G c IIB T3
Rotor-motor assembly type	RH35M-4DK.4Y.1R
Flow capacity	up to 3000 m^3/h
Compression	up to 420 Pa
Motor type	MK106-4DK.07.Y
Nominal data of the motor	P_N=0,50 kW U_N=500, V I_N=0,71 A n_N=1300 1/min

Fan type	ERF/4-355T II 2G c IIB T3
Rotor-motor assembly type	RH40M-4DK.4Y.1R
Flow capacity	up to 4500 m^3/h
Compression	up to 500 Pa
Motor type	MK106-4DK.07.Y
Nominal data of the motor	P_N=0,50 kW U_N=400, V I_N=0,88 A n_N=1300 1/min

Fan type	ERF/4-400T II 2G c IIB T3
Rotor-motor assembly type	RH45M-4DK.4Y.1R
Flow capacity	up to 6500 m^3/h
Compression	up to 620 Pa
Motor type	MK106-4DK.14.Y
Nominal data of the motor	P_N=0,92 kW U_N=500, V I_N=1,49 A n_N=1370 1/min

Fan type	ERF/4-450T II 2G c IIB T3
Rotor-motor assembly type	RH50M-4DK.6Y.1R
Flow capacity	up to 8500 m^3/h
Compression	up to 680 Pa
Motor type	MK137-4DK.10.Y
Nominal data of the motor	P_N=1,3 kW U_N=480, V I_N=1,96 A n_N=1330 1/min

Fan type	ERF/6-450T II 2G c IIB T3
Rotor-motor assembly type	RH50M-6DK.4Y.1R
Flow capacity	up to 6000 m3/h
Compression	up to 380 Pa
Motor type	MK106-6DK.10.Y
Nominal data of the motor	P_N=0,47 kW U_N=415, V I_N=0,95 A n_N=820 1/min

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Główny Instytut Górnictwa
Jednostka Certyfikująca
Zespół Certyfikacji Wyrobów KD „Barbara"

13 **SCHEDULE**

14 **Type Examination Certificate KDB 13ATEX0073X**

Fan type	ERF/6-500T II 2G c IIB T3
Rotor-motor assembly type	RH56M-6DK.4Y.1R
Flow capacity	up to 8500 m3/h
Compression	up to 450 Pa
Motor type	MK106-6DK.14.Y
Nominal data of the motor	P_N=0,9 kW U_N=415, V I_N=1,5 A n_N=840 1/min

Fan type	ERF/6-560T II 2G c IIB T3
Rotor-motor assembly type	RH63M-6DK.6Y.1R
Flow capacity	up to 12000 m^3/h
Compression	up to 600 Pa
Motor type	MK137-6DK.20.Y
Nominal data of the motor	P_N=1,85 kW U_N=500, V I_N=3,1 A n_N=840 1/min

[16] **Test report:**

Sprawozdanie KDB Nr 13.094

[17] **Special condition for save use:**

- The motor has to be switched off when anyone of PTC sensor of thermal winding protection is activated. Only relay designed for PTC sensors, which is certified as protective device in accordance with ATEX Directive may be used.
- The motor speed regulation using frequency converter is forbidden.
- The motor speed regulation, in the range specified in manual instruction, using electronic voltage controller or transformer is only permitted.

- Where necessary, where the foreign matter can be sucked into the fan, the inlet of the fan should be protected with a grille with a mesh no larger than 12,5 x 12,5 mm.

[18] **Essentials health and safety requirements:**

Met by compliance with standards:

EN 14986:2007; *(PN-EN 14986:2009);*
EN 13463-1:2009; *(PN-EN 13463-1:2010);*
EN 13463-5:2011; *(PN-EN 13463-5:2012).*