FABRYKA URZĄDZEŃ WENTYLACYJNYCH OD 1973r.

Oryginal manual Tyczyn 01-03-2022

Roof fans operating and installation manual type:

WDS EC, WDSV EC, RUFINO SB, RUFINO SP, PFD, DWR, WOD, WPD, WZD, WPV

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1. INTRODUCTION

Please read the manual carefully before proceeding with the installation and use of the device. The instructions should be kept in a place accessible to the operating personnel. In case of doubts regarding use, please contact the manufacturer or its representative.

2. TECHNICAL DESCRIPTION

The fan consists of a casing, mesh, impeller, motor and fasteners. Casings are made of powder-coated steel sheet (on request, they can be made of various materials such as: hot-dip galvanized steel, aluminum, plastic, stainless steel). Depending on the type, impellers are made of plastic, aluminum or steel. The rotors are dynamically balanced in G 6.3 class. Motors with IP protection and voltages according to the motor nameplate.

Technical data such as flow characteristics, dimensions, construction, electrical parameters, noise emission level, etc. are contained in data sheets available on the website www.tywent.pl. In the case of non-standard products, detailed information is provided by the technical department of the TYWENT company.

3. DESTINATION

Roof fans are part of the general purpose ventilation system in industry and construction, adapted to pump clean or minimally dusty medium (not sticking to the impeller) with a temperature of -15°C to + 40°C (otherwise, an appropriate provision in the warranty card is used). Roof fans are adapted for installation outside the building, but they should be protected against the effects of atmospheric discharges. The fans listed on the title page cannot be used in explosion hazard zones and are not adapted to transport explosive mixtures, sticky substances, substances with high humidity, chemically aggressive substances.

Roof fans can be put into operation only when the protection against accidental contact with the impeller complies with PN-EN ISO 13857:2010. Roof fans should be installed at a height of at least 2.5 m from the ground. Otherwise, or when the devices operate in a zone where people are present, the access of unauthorized persons to the device should be additionally limited by e.g.:

- use of protective nets at the ends of the ventilation system,
- separation of a dangerous zone to which people do not have access when the fan is operating,
- additional protective casing for the fan.

In addition, the fan should be used in accordance with the intended use described in the fan's catalog card, design guidelines and the chemical resistance card of the materials from which the fans are made. Data sheets of individual fans are available on our website www.tywent.pl

4. RISKS AND RECOMMENDATIONS

Rotating elements

The fan is equipped with an impeller, which, in the event of contact, poses a serious health risk to the operator. The fan must not be used if protection against contact with rotating elements has not been applied in accordance with PN-EN ISO 13857

After disconnecting the power supply, the fan wheel continues to rotate for some time. Before starting any work, wait until the rotor stops.

An air inlet

It is forbidden to cover the inlet with your hand while the device is turned on. Air flowing at high speed can snatch the hand of the operator, which will cause a serious health hazard, because the fan wheel is operating near the inlet.

Air outlet

On the outlet side of the fan, the air is expelled at high speed. The elements sucked in by the inlet will be thrown out with high energy, which is a threat. Before starting the fan and during its operation, make sure that there are no elements that can be sucked in near the inlet.

Sharp edges

At the production stage, the sharp edges of individual elements of the fan have been replaced, however, it may still have edges that may be dangerous to touch. It is recommended to use appropriate protective gloves during assembly.

Inertia

Starting a fan that is not permanently attached to the ground may cause its uncontrolled movement due to the inertia force. Do not operate a fan that has not been properly installed.

Noise

The sound pressure level depends on the performance of the fan. If the sound pressure level is too high, use appropriate silencers or equip the personnel with individual noise protection equipment.

Pressure

The running fan creates negative/overpressure in the room. Provide access to fresh air to allow pressure equalization. Especially in rooms where combustion occurs.

Temperature

The flowing medium may have an increased temperature and the fan elements assume the temperature of the flowing medium. The electric motor becomes very hot, especially when overloaded. The heated parts of the fan are still dangerous for some time after the fan has been turned off. Be especially careful.

Electric power

Before starting any work on the fan, including inspection and repair, the fan should be disconnected from the power source in a way that eliminates the possibility of accidental switching on.

Fans with single-phase motors are equipped with a capacitor that has an accumulated electric charge. It must be ensured that unauthorized persons do not have access to the fan's electrical components.

Accidental (unexpected) startup

Connecting the fan to the power supply causes it to start immediately. The fan is not equipped with a device that turns it off permanently in the event of a temporary power failure. The fan will restart when power is restored. Electric motors can be equipped with temperature sensors (PTC, bimetal). They cause the motor power supply to be disconnected when the permissible temperature is exceeded (overheating). After cooling down, power to the motor returns and the fan restarts.

If the rotor is locked, unlocking will cause movement. Measures must be taken to prevent start-up in the event of power return, temperature sensor tripping, or tripping.

Usage

A fan forcing even slightly polluted air causes the deposition of impurities on the impeller and its elements. Deposition of dirt causes deterioration of the fan's parameters, impeller vibrations and impairs the possibility of cooling the electric motor. Long-term operation with excessive vibrations may cause, for example, damage to the bearing unit in the motor, damage to the housing or damage to the impeller. Periodic inspections of the fan should be provided.

ATTENTION:

Regardless of the application of the fan and the method of installation, there is a probability of the fan blade detaching or loosening and falling out of the impeller (failure, improper operation of the fan). The manufacturer is not responsible for any damages related to poor protection or lack of protection of the installation in such situations.

5. TRANSPORT

The fans should be transported in cardboard boxes, on pallets, etc. During transport and storage, the fans should be protected against mechanical damage and moisture. The load should be stable and secured against shifting while the vehicle is in motion.

6. STORAGE

Fans, especially due to electric motors, should be stored in dry rooms, away from corrosive and harmful substances such as caustic vapours, dusts, gases, etc. Storage temperature from -15° C to + 40° C, humidity up to 80%. During the whole period of storage, the fan must be protected against foreign objects getting inside.

7. ASSEMBLY AND INSTALLATION

Before starting the installation, remove temporary protective elements such as cardboard, foil and then check if the fan is not damaged or contaminated during transport or storage. The fan should be mounted on the original assembly structures according to the recommendations of the installation designer and the technical department of TYWENT. It is the installer's responsibility to ensure adequate rigidity of the structure, damping of vibrations on the installation and safety of use. Fans should be mounted on flat bases, plinth bases and vertical plinths. There are mounting holes in the fan flange or its base, through which it should be connected to the roof or plinth base. It is allowed to install intermediate elements, such as roof silencers. If it is necessary to maintain high airtightness of the ventilation system, sealants should be used in the connections and the installation endings should be equipped with elements that drain or store condensate (roofing, drip trays, condensate drainage systems).

8. ELECTRICAL CONNECTION

The installation and connection of the fan should be performed by a specialized company or a qualified person familiar with current safety and operation regulations and holding valid SEP qualifications. Electrical connection of the fan should be made in accordance with applicable regulations and the attached diagram. The motor connection diagram is on the motor connection box. In the case of devices where there is no access to the motor, the fan has a power cord led out in accordance with current regulations. Before starting work, check:

- whether the rated voltage on the rating plate of the motor and fan corresponds to the mains voltage,
- whether the resistance (resistance) of the insulation between the windings and the housing is correct

In addition:

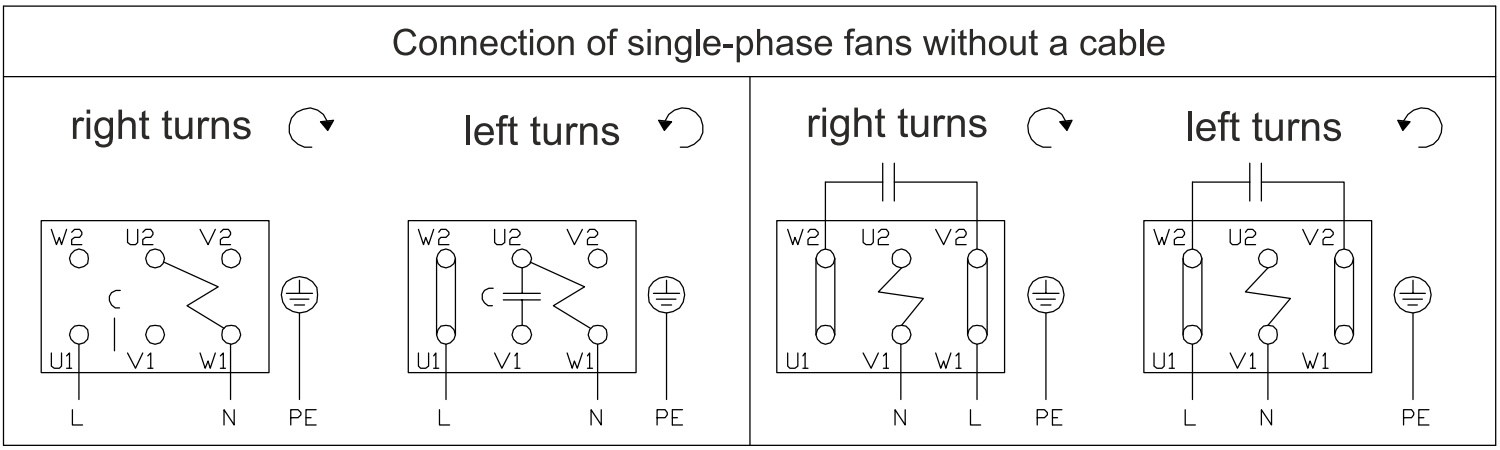
- the fan should be protected against the effects of short circuits, overloads and power failure according to current regulations and guidelines of the TYWENT technical department,
- connection of the protective conductor is obligatory, unless another means of protection against electric shock is used,
- motors with built-in temperature sensors (PTC, bimetal) should be connected in a way that ensures disconnection of the motor power supply after exceeding the permissible temperature.

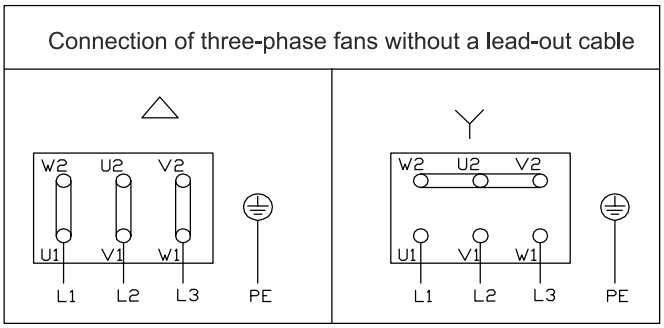
ATTENTION:

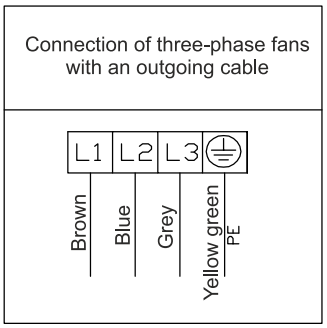
It must be ensured that the electrical connection of the device cannot start unexpectedly after a power failure or after the temperature sensor (PTC, bimetal) has tripped.

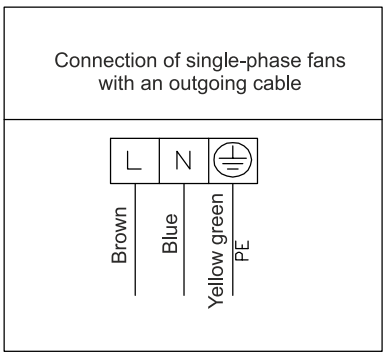
The fans can work with speed regulators or controllers as described in the catalog card and recommendations of the TYWENT technical department. Incorrect configuration of the controller or incorrectly selected regulator may be the cause of fan damage. The operation of the fan at too low speed leads to deterioration of engine cooling, which may lead to its overheating.

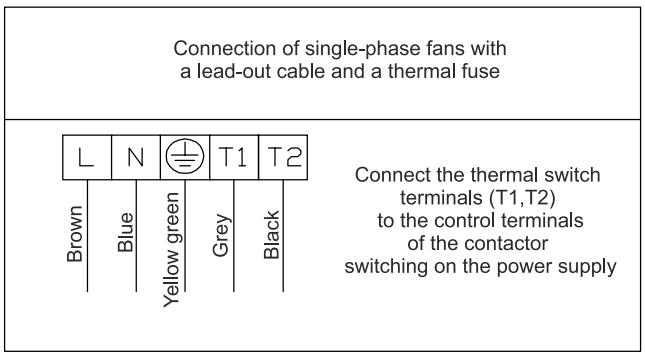
To connect the fan, use electric wires with appropriate cross-section and insulation in a way that prevents accidental contact with the moving parts of the fan. The fan may only be started after it has been properly installed and connected to the mains with the use of appropriate safeguards.











9. COMMISSIONING AND OPERATION

The first start-up (start-up) should be performed by an authorized electrician.

Before first start-up:

- clean the fan and pipelines and check if the impeller does not rub against the housing,
- carefully check the screw connections and their protection,
- check whether the start-up will not pose a threat to the safety of the operator and third parties,
- check whether the protection against electric shock is effective,
- check if the connection to the mains is correct (in accordance with the markings on the rating plate),
- check whether the applied protections are correct.

During start-up, check whether the direction of rotation of the impeller is in accordance with the direction of the arrow on the fan housing. After reaching the rated speed, perform electrical measurements of the motor and complete tables 1.

ATTENTION:

It is forbidden to turn the fan on and off multiple times in a short time, as this may damage the motor.

Immediate shutdown must occur in the event of an accident, breakdown, or:

- the appearance of strong engine or rotor vibrations,
- the appearance of cracks on the housing or fan guards,
- the appearance of smoke from the engine,
- decrease in turnover,
- exceeding the rated current of the fan by more than 10% or significant overheating of the motor,
- damage to the electrical system.

If no irregularities were found during the start-up of the fan, the installer may commission the device.

ATTENTION:

When the device is put into operation, the installer should prepare an acceptance report containing electrical measurements of the device (Table 1) and develop a workplace health and safety manual for the device adapted to the local operating conditions.

	Current [A]	Voltage [V]	Data	Signature
L1				
L2				
L3				

Tables 1

10. INSPECTIONS AND REPAIRS

Industrial fans are subject to periodic inspections and repairs. Any work on the device may only be carried out when the device is immobilized, i.e. the fan impeller is not rotating and the motor is disconnected from the power supply in a way that eliminates the possibility of accidental switching on. Work on the device should be carried out with extreme caution and with the use of personal protective equipment.

During operation, impurities will accumulate on the impeller and housing. This leads to reduced efficiency, impeller unbalance and motor damage.

The frequency of inspections is determined by the user individually for each fan, depending on the intensity of use of the installation and operating conditions. However, it is recommended to carry out a review at least once a year.

During fan operation, pay special attention to:

- whether the device is working properly,
- that the impeller does not rub against the housing,
- that there is no unusual noise coming from the device,
- whether the device does not cause too much vibration,
- that the current consumed by the motor does not exceed the rated current.

When parked, pay special attention to:

- that the impeller and the motor are not contaminated,
- whether the bearings in the motor do not have excessive play,
- whether the fasteners are properly tightened,
- whether the fan's coatings are not damaged,
- that the electric wires are not damaged,

Due to the electric motor, it must be ensured that the fan is started at least once every three months for at least one hour. The replacement of bearings and other repairs must be carried out by a competent specialist or workshop. If the repair falls within the warranty period, it is performed by the manufacturer at the user's expense. During the warranty period, the user is not allowed to make repairs or modifications without the manufacturer's knowledge. This will void the warranty.

After reassembling the fan, follow the instructions in section 9 of the Manual.

11. FINAL REMARKS

Technical data and dimensions of the fan may change in the course of production, for which T.F.U.W. TYWENT Sp. z o. o. reserves the right. In the event of technical problems during the start-up or operation of the fans, follow the warranty card. Before making a decision about a possible shipment to the manufacturer, it should be consulted with the complaint department. "TYWENT". The device under complaint must have complete documentation (warranty card, copy of proof of purchase, completed complaint application). Complaint notification can be downloaded from www.tywent.pl.

The installer and the user are responsible for the installation and use in accordance with the safety regulations.

ATTENTION!

Parcels sent at the expense of "TYWENT" without prior agreement will not be collected.

12. DISASSEMBLY AND DISPOSAL

The device must be disconnected from the mains and then dismantled. The protective elements, such as cardboard boxes, foils, should be returned to the appropriate recycling containers. The used fan should be handed over to a waste disposal company.

TYWENT

FABRYKA URZĄDZEŃ WENTYLACYJNYCH OD 1973r.

Declaration of Conformity WE/UE

Producer: **Tyczyńska Fabryka Urządzeń Wentylacyjnych „TYWENT" Sp. z o. o.**

Address: **36-020 Tyczyn, ul. Orkana 1, Polska**

Declares that the product described below:

Product: **ROOF FAN**

Typ / Model: **WDS EC, WDSV EC, RUFINO SB, RUFINO SP, PFD, DWR, WOD, WPD, WZD, WPV**

meets the requirements of the following EU regulations:

Dyrektywa maszynowa 2006/42/WE.

Dyrektywa kompatybilności elektromagnetycznej 2014/30/UE.

Deklarowany produkt spełnia wymagania Dyrektywy Maszynowej 2006/42/WE pod warunkiem użytkowania zgodnie z przeznaczeniem.

In addition, the requirements of harmonized standards have been taken into account in the design and manufacture of the products:

PN-EN ISO 12100:2012 Bezpieczeństwo maszyn. Ogólne zasady projektowania Ocena ryzyka i zmniejszanie ryzyka.

PN-EN 60204-1:2018-12 Bezpieczeństwo maszyn. Wyposażenie elektryczne maszyn Część 1: Wymagania ogólne.

PN-EN ISO 13857:2010 Bezpieczeństwo maszyn. Odległości bezpieczeństwa uniemożliwiające sięganie kończynami górnymi i dolnymi do stref niebezpiecznych.

and technical standards (in part or in full):

PN-ISO 5801:2002 Wentylatory przemysłowe. Badanie charakterystyk pracy na stanowiskach znormalizowanych.

PN-N-01359:1993 Drgania mechaniczne. Wyważanie wirników sztywnych. Wyznaczanie dopuszczalnego niewyważenia resztkowego.

Dyrektor Zakładu
inż. Michał Mucha

Tyczyn, 10-05-2023

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(Place and date of issue)