

Use and Maintenance Manual



Stationary radial fan WPA-14-S-N

801W15 WPA-14-S-3-N 04.06.2019/EN

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1. Introductory Remarks

The purpose of the present User's Manual is to supply User with directions within the range of application, installation, start-up and the operational use of the WPA-14-S-N **stationary radial fan**.

Installing, start up and operational use are exclusively admissible after getting acquainted with the contents of the Use and Maintenance Manual.

With regard to continuity of work carried on improvement of our products, we reserve for ourselves the revision possibility of the draft and technological changes improving their functional features and safety.

The construction of the **WPA-14-S-N stationary radial fans** meets the requirements of the current state of technology as well as the safety and health assurances included in:

- **2006/42/EC Machinery Directive** of the European Parliament and of the Council of May 17th, 2006 on machinery – amending the 95/16/EC (recast) */Journal of Laws EC L157 of 09.06.2006, page 24/*
- **2014/35/EC Directive** of the European Parliament and of the Council of February 26th, 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.
/Journal of Laws EC L96 of 29.03.2014/

The appliance meets the requirements included in:

- **2009/125/EC (ErP) Directive** of the European Parliament and of the Council of October 21th, 2009 establishing a framework for the setting of ecodesign requirements for energy-related products */Journal of Laws L285 of 31.10.2009/*
- **327/2011 (EU) Commission Regulation** of March 30th, 2011 on implementing the **2009/125/EC Directive** of the European Parliament and of the Council with regard to ecodesign requirements for fans driven by motors with an electric input power between 125W and 500 kW */Journal of Laws L90 of 06.04.2011/*

The device has been constructed and produced on the basis of following harmonized standards:

- | | |
|--------------------------------------|--|
| • EN ISO-12100:2012 | - "Safety of machinery – Basic concepts, general principles for design. Risk assessment and risk reduction". |
| • EN 60204-1:2018-12 | - "Safety of machinery – Electrical equipment of machines. Part 1: General requirements". |
| • EN 60034-1:2011 | - "Rotating electrical machines – Part 1: Rating data and parameters". |
| • EN ISO 5802:2008/A1:2015-07 | - "Industrial Fans – Performance testing in situ of installing" |
| • EN ISO 13857:2010 | - "Safety of machinery – Safe distances to prevent hazard zones being reached by upper and lower limbs". |

2. Application

WPA-14-S-N stationary fan has been constructed for air-supply ventilation or extraction ventilation of rooms and workplaces. Especially, the solution is efficient for application with a system of local exhausts. Designed for stationary installing in ventilation rooms or other technical rooms. Mainly, the fan is designed for conveying the air, of dustiness not exceeding $0,3 \text{ g/m}^3$, without viscous impurities, aggressive contamination or compounds creating hazard of explosion.

3. Reservations of Producer

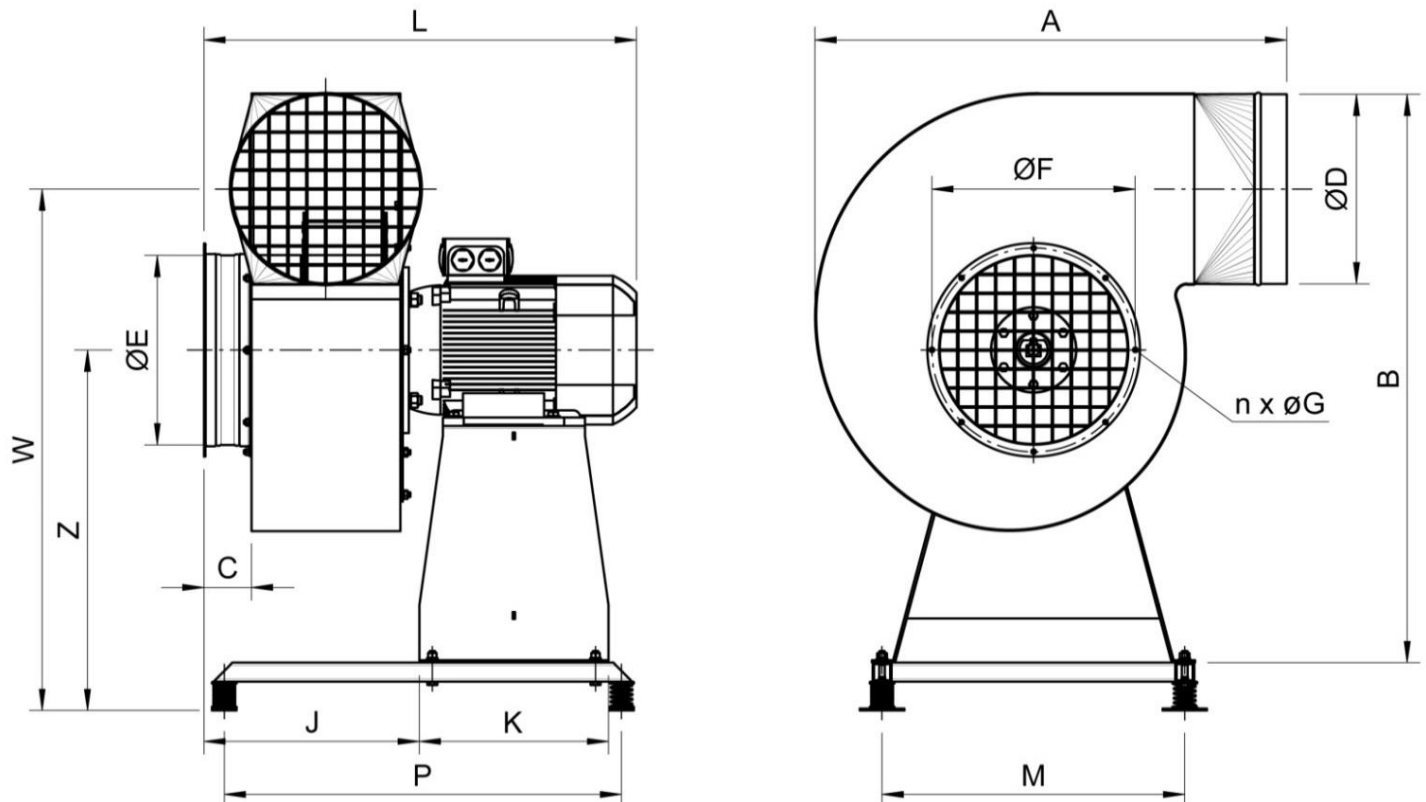
- A. Manufacturer accepts no liability for any consequences following from the operational use that is in contradiction to the purpose of application.
- B. It is unacceptable to install on the device structure any additional elements not belonging to its normal construction or accessory set.
- C. Any structural changes or modification of the device, carried out by User on one's own are not permitted.
- D. Protect the housing from mechanical damage.
- E. **The fan cannot be used for conveying the air contaminated with a mixture of flammable substances in a form of gas, vapour, mist and dust that in connection with the air create the explosive atmosphere.**
- F. Do not use the fan for conveying the air containing viscous impurities that could accumulate on the device surface, especially on the impeller.
- G. Neither use it for forwarding the air with aggressive pollutants which will destructively effect the device structure.
- H. During operation, the maximum impeller rotations should not exceed the nominal rotations.
- I. Manufacturer is not responsible for wounds, injuries, body laceration experienced by User or personnel during the improper operational use.

4. Technical Data

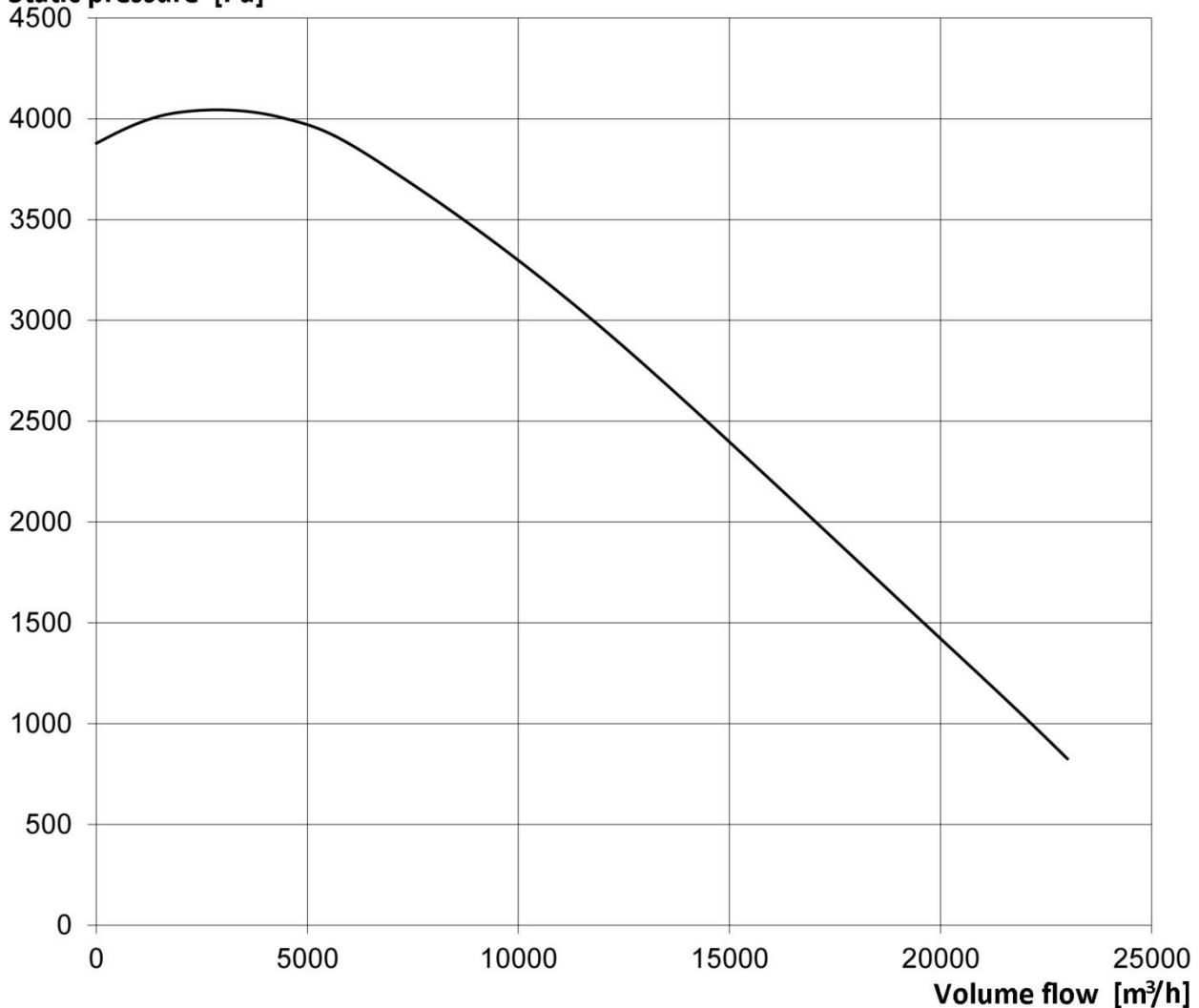
Table No.1

Type of the fan	Synchronous rotations	Supply voltage	Motor rate	Ingress protection	Acoustic pressure level [dB(A)] from distance		Maximum volume flow	Maximum vacuum	Weight
					1m	5m			
	[r.p.m.]	[V]	[kW]	IP			[m ³ /h]	[Pa]	[kg]
WPA-14-S-3-N	3000	3x400	15	54	100	91	23100	4000	182

1. Maximum temperature of the conveyed air is +60°C; whereas maximum temperature within the work zone +40°C.
2. Maximum dustiness of the conveyed air should not exceed 0,3 g/m³.


Fig. No.1 – WPA-14-S-N – Structure, dimensions
Table No.2 – Dimensions of the fan type WPA-14-S-N

Type of the fan	A	B	C	W	Z	D	E	F	n	G	M	P	K	J	L
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[pcs]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
WPA-14-S-N	1000	1200	100	1100	760	400	400	430	8	10	640	840	400	455	915

Static pressure [Pa]**Fig. No.2 – Flow chart – Stationary radial fan type WPA-14-S-N****4.1 Information on energetic efficiency of fans according to Guidelines of European Commission EU No. 327/2011**

1. Overall efficiency (η) – see flowcharts and Table No.3
2. Measurement category – **D**
3. Efficiency category – **total**
4. Efficiency coefficient – **N = 64** (according to the Regulation)
5. Rotational speed governor – was not applied
6. Product name, serial number, place of production, year of production – on the nominal data plate
7. Rated power consumption of the motor [kW] – see Table No.1; flow efficiency and pressure in the energy efficiency optimization point – see Table No.3,
8. Rotations per minute – see Table No.1,
9. After the period of operational use, follow steps according to the regulations on waste disposal.
10. The fans are equipped with silencers, therefore their influence on the environment is reduced.
11. Measurement has been carried out according to PN-EN ISO 5801:2008E “Industrial fans – Performance testing using standardized airways”

Table No.3 – Parameters in the energy efficiency optimization point

Type of the Fan	Overall efficiency [%]	Flow rate [m³/h]	Fan pressure [Pa]
WPA-14-S-N	66	12650	2710

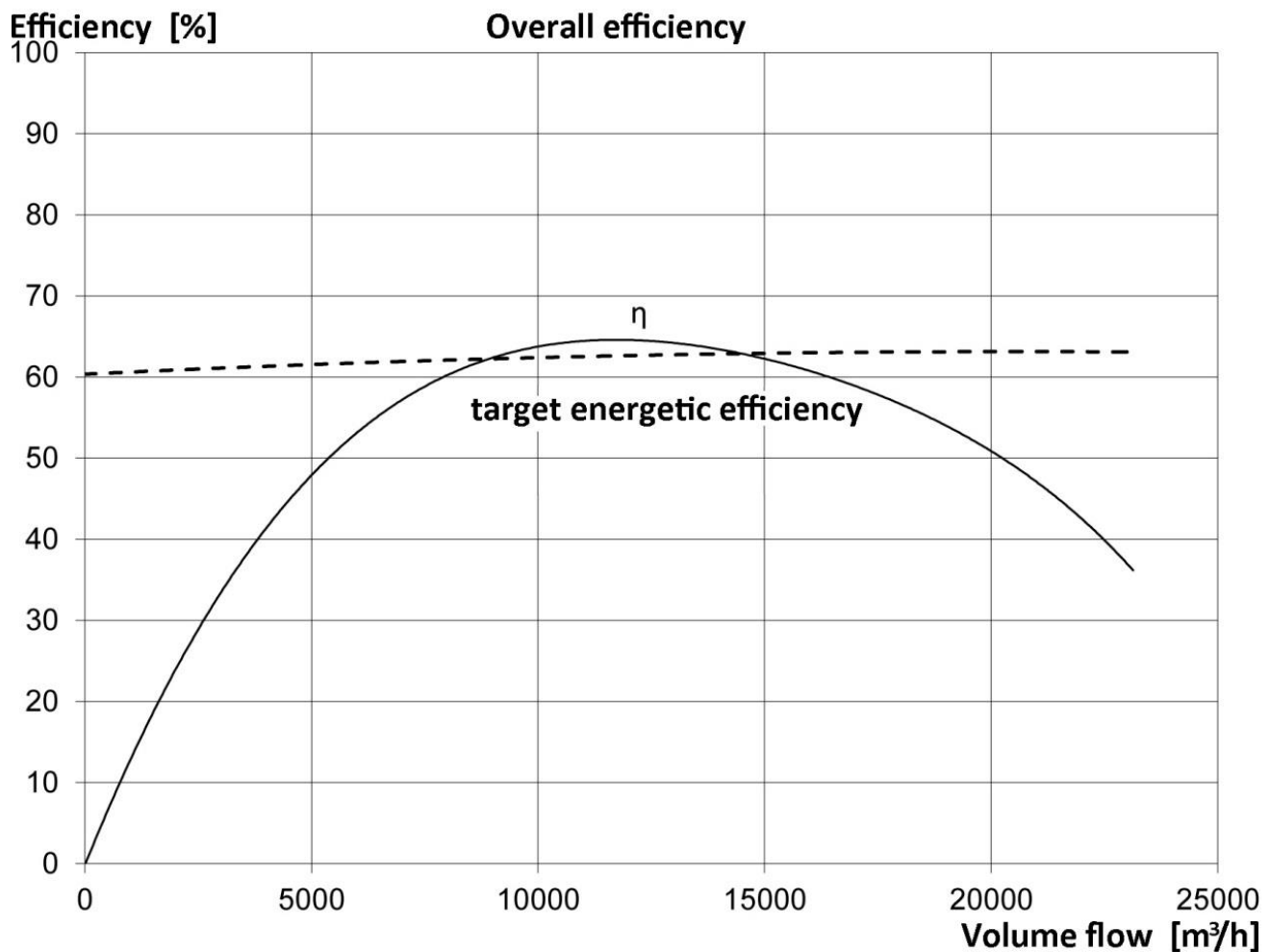


Fig. No.3 – Flow chart – Stationary radial fan type WPA-14-S-N

5. Structure and Function

The fan consists of a steel spiral housing, motor and an aluminium radial impeller which is directly mounted at the motor pivot (direct drive). Impeller with radial blades provides low acoustic pressure level of the fan.

The appliance is mounted on a stand which is placed on vibro-absorbing base frame (see Fig. No.1). The vibro-absorbing frame damps the vibrations of the fan and their transmission onto the building structure. Vibro-absorbers are selected adequately to the total weight of the set: "fan + stand + frame".

The fan inlet is equipped with a flange, whereas, the fan outlet is ended with a round connection fitting piece, to provide a safe fastening to the spiral-seam duct (rigid conduit), or for flexible couplings.

For safety reasons, the inlet and outlet are equipped with protective grills. It is recommended to install TK silencers at the fan inlet and outlet (for details see acoustic performances in the Table No.1). All the subsequent parts of the fan should be assembled together.

ADDITIONAL EQUIPMENT – delivery on separate order:

- motor protective switches ZE
- safety switches (isolating switches)
- silencers

6. Assembly and Start-up

The appliance is designed for function inside the industrial rooms (indoor application). The stationary fan WPA-14-S-N fan is delivered in an assembled state. The vibro-absorbing frame has to be fastened to the floor in a target place of use.

Before connection to the power supply, make sure whether the parameters of the existing electrical installation are corresponding the data on the nominal plate. In case of inconsistency, the connection cannot be executed.

Connection to the electrical power system has to be executed by User on one's own. It is important to select the right type and section of the supply cable, and choose the appropriate short-circuit- and overload protection, according to the local conditions.

WARNING Connection to the power supply system ought to be carried out by an authorized person with electrical qualifications, and according to valid regulations and the Connection Diagram in the Fig. No.4.

Prior to the start-up, check the connection between the motor and the PE protective cable, and the correctness of the electrical connections **(the impeller rotation sense should be according to the arrow on the housing – if this is not the case, change the phase connection sequence)**.

WARNING Approaching with loose clothes or putting the hand near the open inlet of the running fan, can cause hazard of accident and disability. Absolutely, do not look into the working fan as this could cause the face injury of the operator.

In case of any activities carried out on the fan, it is important to disconnect the device from the power supply system.

7. Operational Use

Construction of the device guarantees its reliable function, without continuous technical routine supervision after the start-up. If the place of operational use is changed, repeat the steps mentioned in Section 6, according to the installing and adapting the ventilation system to the new conditions / another place of use. In case when any defective function of the unit occurs (e.g. annoying noises or the outlook of the device) follow steps as in Section 8.

Caution:

1. Insulation class I
2. Ingress protection **IP54**
3. Setting of the motor switch **Q1**:

$$I_t = 1,1 \times I_n$$

where **I_n** means rated current of the motor.

- * **S1** – isolating switch (safety switch)
It is suggested to install it near the fan
Purchase and installing ought to be carried out by the investor.

Connect the motor windings according to the Connection diagram on the terminal box cover.

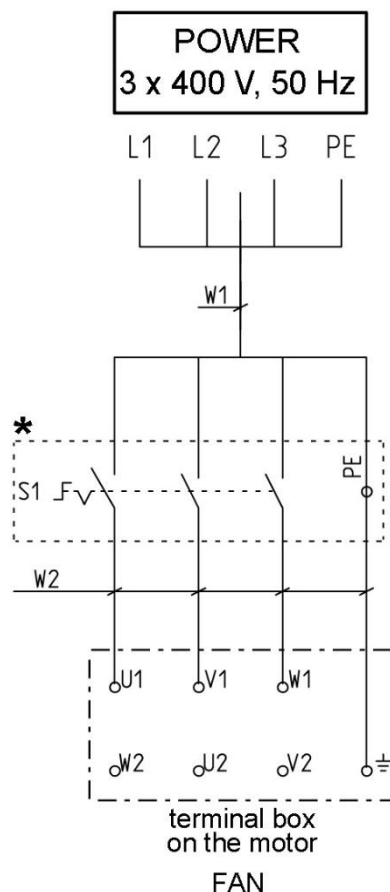


Fig. No.4 – Connection Diagram of the fans type WPA-14-S-N

8. Troubleshooting Guide

Table No.4

	Problem	Possible reason	Corrective action
1.	Sudden and significant drop in intake volume flow.	Pollutants, foreign objects (being obstacle / barrier do the air flow) have deposited at the inlet grill.	Remove the pollutants; clean the inlet grill.
2.	Sudden vibrations of the fan are occurring.	Obstacle objects reducing the air flow got stuck at the impeller.	Disconnect the fan from the power supply system and remove the obstacle.
		The impeller is defective.	Replace the impeller with motor for a new one.
3.	Noisy work of the fan along with small volume flow.	Incorrect impeller rotation sense.	Change the impeller rotation sense by changing the phase connection sequence

9. Maintenance and Control

In the aspect of operational use, the fan construction guarantees its efficient function without continuous routine technical supervision. Nevertheless, to obtain proper function of the device and to follow the safety rules, **manufacturer suggests executing technical revisions on regular basis**. During the inspection check the function of the fan and the technical state of its elements.

WARNING Any maintenance activities should be executed exclusively by an authorized person with electrical qualifications and after disconnection from the power supply system. (The exemption from this are activities carried out on the running fan, under strict observing the Occupational and Health Safety rules – e.g. vibration measurement).

Before the maintenance, necessarily disconnect the fan from the power supply system and wait until the impeller stops rotating.

Within the scope of inspection execute following activities:

- check and tighten up the mechanical and electrical connections,
- examine the mountings of the motor and the fan, whereby important is the clearance between the inlet and the impeller within the whole circumference.
- remove the impurities accumulated inside the fan, eventually clean it from pollutants originating from the conveyed medium.

During the maintenance activities follow strictly the rules of Occupational Health and Safety, in order not to cause hazard to workers/personnel.

10. Occupational Health and Safety

Start up and the operational use are only admissible exclusively after getting acquainted with the contents of the present Use and Maintenance Manual.

Connect the fan to the electrical power system, strictly according to the enclosed Connection Diagram and the guidelines shown in Section 6 of the present Use and Maintenance Manual. **This ought to be carried out exclusively by a qualified person, and in accordance with the valid regulations.**

During the operational use, examine the connection between the fan and the PE protective cable.

WARNING Any activities connected with technical revisions and repair have to be executed necessarily after the device is disconnected from the power supply system. Approaching with loose clothes or putting the hand towards the open inlet of the running fan, can cause hazard of accident and disability. Absolutely, do not look into the opening of the working fan as this could cause face injury of the operator.

11. Transport and Storage

The fans shall be transported fixed to the pallet to avoid its displacement, dropping and damage. During the loading and transport the appliance should not be thrown neither knocked down, overturned. Do not put any load on top of the fan (no stacking). Protect the fan against atmospheric factors / weather conditions during the transport.

The device ought to be stored in dry and well ventilated rooms.

12. Terms of warranty

The period of warranty for the purchased device is indicated in the “Card of Warranty”. The warranty does not comprise:

- mechanical damage and dysfunctions caused by User,
- device failures caused during use which was in contradiction with the purpose of the operational use and the present Use and Maintenance Manual,
- damages / malfunctions being caused during improper transport, storage or incorrect maintenance,

Infringement of the Section 3 “Reservations of Producer” of the Use and Maintenance Manual and especially modifications undertaken by User on one’s own shall cause the loss of warranty validity.

13. Sample of Declaration of Conformity

Declaration of Conformity EC No.

Manufacturer (eventually the authorized representative / importer):

name: **KLIMAWENT S.A.**

address: **81-571 Gdynia, ul. Chwaszczyńska 194**

A person, authorized for issuing the technical documentation: Teodor Świrbutowicz, KLIMAWENT S.A.

hereby declares that the appliance:

name: **stationary radial fan**

type/model: **WPA-14-S-N**

serial number: year of production:

meets the requirements of the subsequent European Directives:

- **2006/42/EC Machinery Directive** of the European Parliament and of the Council of 17 May, 2006 on machinery – amending the 95/16/EC (recast) /*Journal of Laws EC L157 of 09.06.2006, page 24*/
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place, date

KLIMAWENT S.A.

Supported Employment Enterprise

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signature of authorised person

District Court Gdańsk-Północ

in Gdańsk, VII Wydział Gospodarczy

of the National Register of Court

KRS 0000308902 company stock

13.779.200 zł paid in total

.....
name, surname, function
of the signatory

NIP: 958 159 21 35

REGON: 220631262

Bank Account: **Santander Bank Polska S.A.**

56 1500 1025 1210 2007 8845 0000

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