

Use and Maintenance Manual



Portable radial fans WPA-P-N

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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-P-N portable radial fans**.

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-P-N portable 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 17 May, 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 26 February, 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-P-N fans have been designed both, for air-supply ventilation and extraction ventilation of rooms and workplaces. They can be applied for general ventilation and for local exhausts. Additionally, WPA-P-N fans can be used for drying the humid rooms by forcing the multiple air exchanges.

Do not use the fan for conveying the aggressive gases or substances creating explosive atmospheres with the air. In general, the fan is designed for transporting 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 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

| Table No.1 Type of the fan | Synchronous rotations | Supply voltage | Motor rate | Ingress pro- tection | Acoustic pressure level [dB(A)] from distance | | Maximum volume flow | Maximum vacuum | Weight |
|-------------------------------|--------------------------|-------------------|---------------|----------------------------|--|----|---------------------------|-------------------|--------|
| | | | | | 1m | 5m | | | |
| | [r.p.m.] | [V] | [kW] | IP | 1m | 5m | [m ³ /h] | [Pa] | [kg] |
| WPA-3-P-1-N | 3000 | 230 | 0,25 | 54 | 69 | 55 | 1160 | 940 | 12 |
| WPA-5-P-1-N | 3000 | 230 | 0,37 | 54 | 76 | 62 | 1900 | 1250 | 18 |
| WPA-5-P-3-N | | 3x400 | | | | | | | |
| WPA-6-P-1-N | 3000 | 230 | 0,75 | 54 | 83 | 69 | 2500 | 1700 | 24 |
| WPA-6-P-3-N | | 3x400 | | | | | | | |
| WPA-7-P-1-N | 3000 | 230 | 1,1 | 54 | 86 | 72 | 3100 | 1800 | 26 |
| WPA-7-P-3-N | | 3x400 | | | | | | | |
| WPA-8-P-3-N | 3000 | 3x400 | 1,5 | 54 | 88 | 74 | 3900 | 2050 | 35 |
| WPA-9-P-3-N | 3000 | 3x400 | 2,2 | 54 | 91 | 77 | 4500 | 2400 | 44 |
| WPA-10-P-3-N | 3000 | 3x400 | 3,0 | 54 | 91 | 77 | 6200 | 2450 | 55 |

1. Maximum temperature of the conveyed air is $+60^{\circ}\text{C}$, whereas maximum temperature within the work zone $+40^{\circ}\text{C}$.
2. Maximum dustiness of the conveyed air should not exceed $0,3 \text{ g/m}^3$.

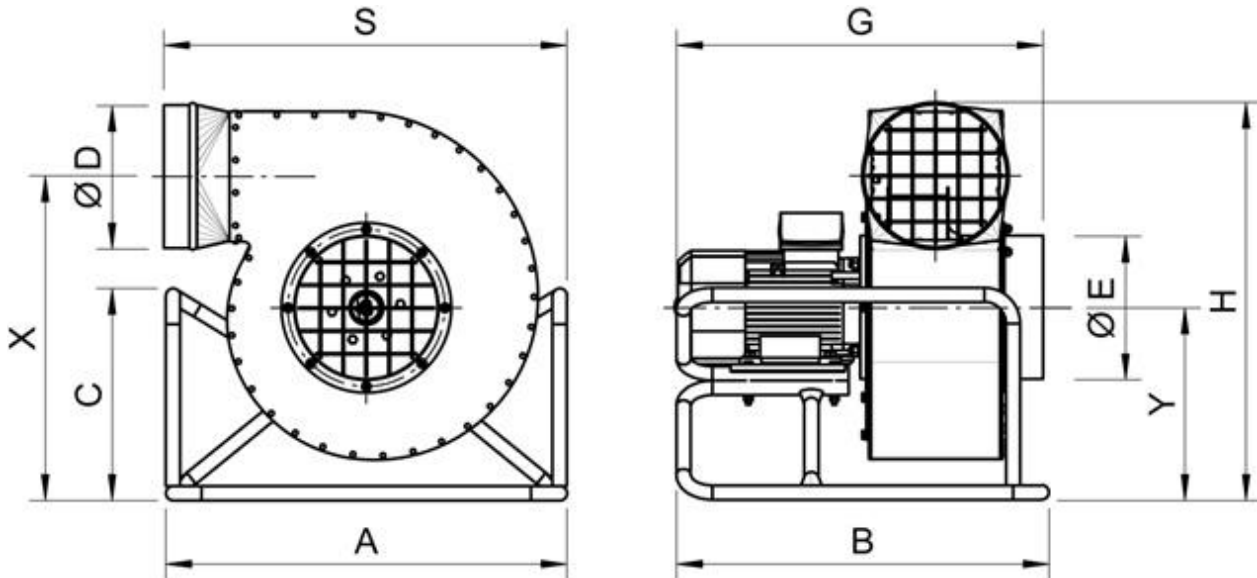


Fig. No.1 – Portable radial fans of series WPA-P-N – Structure and Dimensions

Table No.2 – Dimensions of fans

| Type of the fan | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | S ²⁾ [mm] | G ²⁾ [mm] | X [mm] | Y [pcs] | H ²⁾ [mm] |
|-----------------|-----------|-----------|-----------------|-----------|-----------|-------------------------|-------------------------|-----------|------------|-------------------------|
| WPA-3-P-1-N | 465 | 425 | - ¹⁾ | 125 | 125 | 475 | 420 | 360 | 205 | 425 |
| WPA-5-P-1-N | 475 | 440 | - ¹⁾ | 160 | 160 | 520 | 440 | 425 | 235 | 500 |
| WPA-5-P-3-N | | | | | | | | | | |
| WPA-6-P-1-N | 475 | 440 | - ¹⁾ | 160 | 160 | 500 | 450 | 450 | 245 | 525 |
| WPA-6-P-3-N | | | | | | | | | | |
| WPA-7-P-1-N | 615 | 515 | 355 | 200 | 160 | 615 | 515 | 480 | 285 | 585 |
| WPA-7-P-3-N | | | | | | | | | | |
| WPA-8-P-3-N | 615 | 515 | 355 | 200 | 200 | 625 | 515 | 500 | 300 | 605 |
| WPA-9-P-3-N | 670 | 565 | 415 | 200 | 200 | 670 | 565 | 560 | 320 | 665 |
| WPA-10-P-3-N | 700 | 650 | 370 | 250 | 250 | 705 | 650 | 565 | 335 | 695 |

1) The construction of the framework is not equipped with a branching upwards

2) Dimension between the most distant points of the device

Fan pressure [Pa]

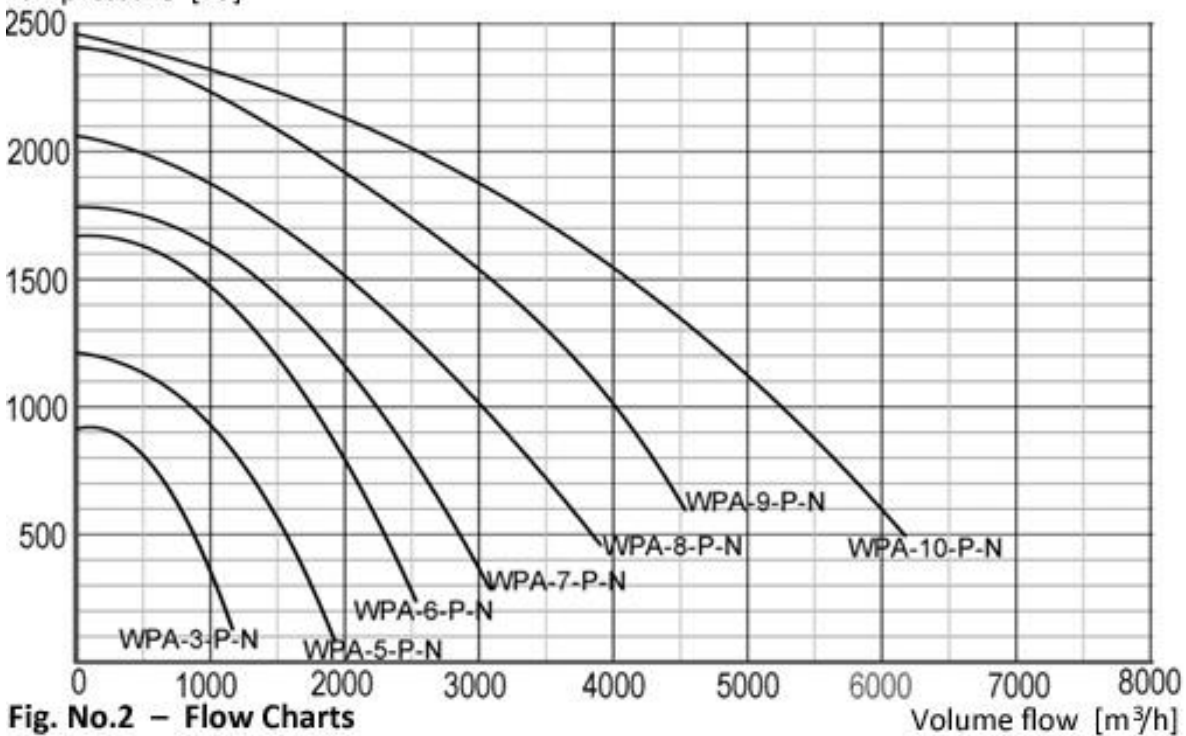


Fig. No.2 – Flow Charts

4.1 Information pertaining to energetic efficiency for fans – according to Regulation of Committee (EU) No. 327/2011

Table No.3

| Product information requirements | WPA-3-1 | WPA-5-1 | WPA-5-3 | WPA-6-1 | WPA-6-3 | WPA-7-1 | WPA-7-3 | WPA-8-3 | WPA-9-3 | WPA-10-3 |
|--|---|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 1 Overall efficiency (%) | 51 | 67,6 | 70 | 54,1 | 61,1 | 65,1 | 65,6 | 62,2 | 67 | 66,1 |
| 2 Measurement category (A-D) | C | | | | | | | | | |
| 3 Efficiency category | static | | | | | | | | | |
| 4 Efficiency grade at optimum energy efficiency point (%) | 43,9 | 47,9 | 48,1 | 50,6 | 48,7 | 50,5 | 51,4 | 52,2 | 53,3 | 55,9 |
| 5 Did the efficiency calculation use VSD? | no | | | | | | | | | |
| 6 Year of manufacture | see nominal data plate | | | | | | | | | |
| 7a Manufacturer's name | see nominal data plate | | | | | | | | | |
| 7b Commercial registration number | see nominal data plate | | | | | | | | | |
| 7c Place of manufacturing | see nominal data plate | | | | | | | | | |
| 8 Model number | see nominal data plate | | | | | | | | | |
| 9a Rated motor power input (kW) | 0,25 | 0,37 | 0,37 | 0,75 | 0,75 | 1,1 | 1,1 | 1,5 | 2,2 | 3,0 |
| 9b Flow rate at the optimum Energy efficiency (m ³ /h) | 700 | 1430 | 1180 | 1580 | 1250 | 2000 | 1870 | 2030 | 2230 | 3750 |
| 9c Pressure at the optimum Energy efficiency (Pa) | 620 | 970 | 1000 | 1270 | 1360 | 1400 | 1400 | 1595 | 2000 | 1700 |
| 10 Rotations per minute at the optimum efficiency point (r.p.m.) | 2760 | 2770 | 2790 | 2800 | 2870 | 2770 | 2870 | 2880 | 2880 | 2880 |
| 11 Specific ratio | 1,007 | | | | | | | | | |
| 12 Fan disassembly, recycling and disposal at the end of operational life | see the sections concerning the maintenance and recycling | | | | | | | | | |
| 13 To minimize the environmental impact and ensure the optimal live expectancy of the fan | follow maintenance instructions of the fan | | | | | | | | | |
| 14 Description of additional items applied for determining the energetic efficiency of the fan | not supplied with the fan | | | | | | | | | |

5. Structure and Function

The fan consists of a steel spiral housing and a motor and a radial impeller which is directly mounted on the motor shaft (direct drive). The structure rests on a base frame structure. The inlet and outlet are adapted for connection of the flexible hoses, which are clamped with hose clamps. For safety reasons, the inlet and outlet are equipped with a protective grill. The impeller with profiled radial blades provides low acoustic pressure of the fan.

As standard, the fan is equipped with a motor protective switch. Each fan is energized through a five metre long power supply cable with a plug.

6. Assembly and Start-up

The portable WPA-P-N fans can work in closed rooms (indoor application) and outside the buildings. In case of outdoor application (especially for a longer time of operation) it is important to protect the device against atmospheric factors.

The appliance does not require special preparatory activities before start-up. Depending on the purpose of application, it is important to provide suitable hoses (see Section 7 of the present Use and Maintenance Manual).

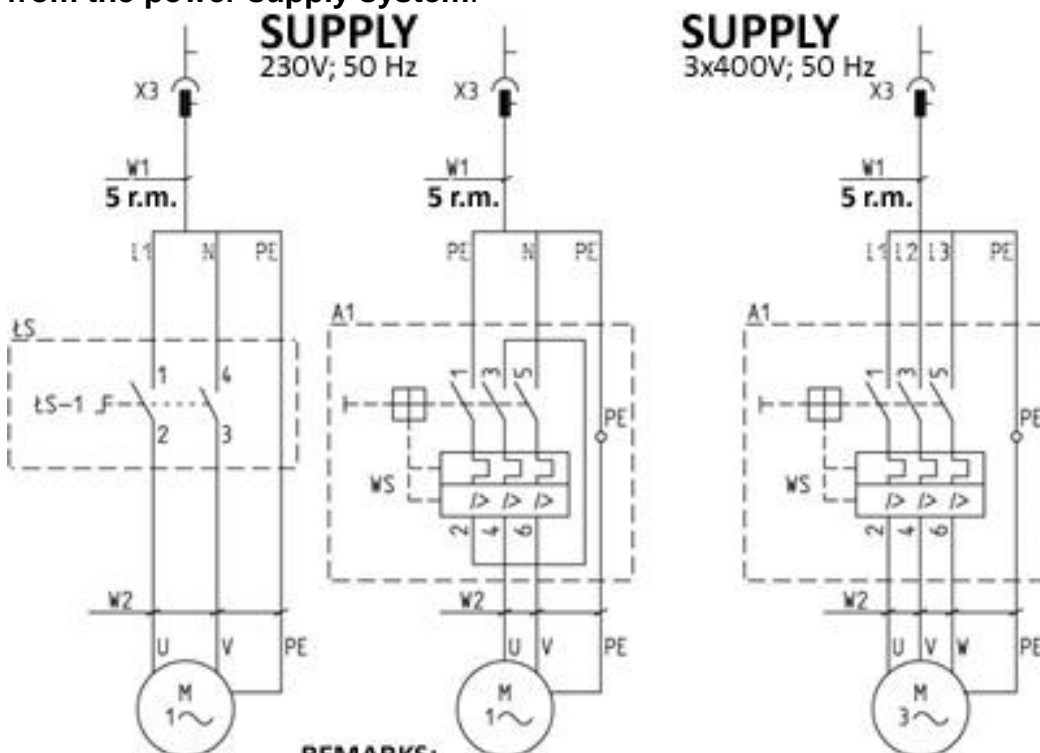
The device is energised through a motor protective switch (or by a motor starter). Appropriate Connection Diagrams are shown in Fig. No.3.

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 ought to be according to the arrow on the housing, if this is the opposite, 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.

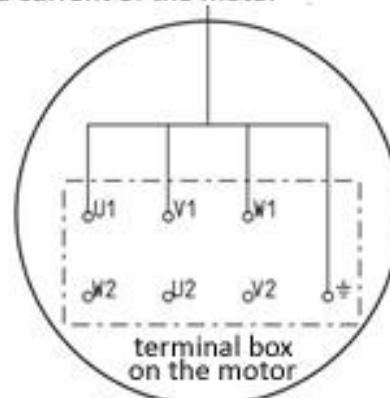
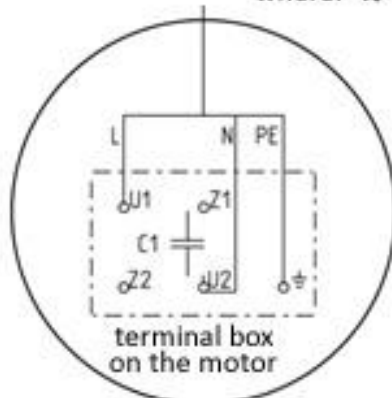


REMARKS:

- 1. Insulation class I
- 2. Ingress protection IP54
- 3. Setting of the motor protective switch WS:

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

where: I_t means rated current of the motor



The windings ought to be connected according to the Connection Diagram on the terminal box cover Fig. No.3 – Connection Diagram of the fans type WPA-P-N

7. Operational Use

In case when the portable fan is applied for local exhaust (technological extraction), connect a hose (of adequate diameter) to the suction ferrule. Additionally, the hose must be tipped with a suitable suction nozzle. Example application with a magnetic suction hood is illustrated in the Photo No.1a below.



Photo 1a

Portable fan working with a magnetic hood during the welding



Photo 1b

Portable fan used for drying a humid wall

Photo 1 – Examples of application along with the hoods

When the portable fan is applied for general ventilation, it is important to introduce a hose (into the ventilated room), whereby the hose ought to be connected to the suction ferrule or to the outlet fitting piece of the fan.

In case of application for drying the humid walls of a room, simply put the fan into the room and direct the air discharge onto the humid wall. The discharge hose must be conducted outside the room.

As another option, the portable fan can be placed outside the building (the drying air has to be forced through an air supply hose into the humid room). Here, it is important to protect the fan from atmospheric factors by a hood / cover. In this application, the suction nozzle can be equipped with a suction stand with a directing spout nozzle (see Photo No.1b).

In case when any defective function of the device occurs (e.g. improper noises or the faulty outlook of the device) follow steps as in Section 8.

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 ventilation conduits. |
| 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 (three-phase fans only). |

9. Maintenance and Control

In the aspect of operational use, the fan construction guarantees its efficient function without continuous everyday 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 activities related to connection to the power supply system ought to be executed by an authorized person with electrical qualifications.

The appliance should be disconnected from the power mains (exemption from this are activities carried out on the running fan, under strict observing the Occupational and Health Safety rules – e.g. vibration measurement).

Prior to the maintenance on the fan, necessarily disconnect it from the power supply system and wait until the impeller stops rotating.

Within the scope of inspection execute following activities:

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

10. Occupational Health and Safety

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

Connect the fan to the electrical wiring 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, check 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.

11. Transport and Storage

The fans shall be transported on pallets and protected with foil. During the loading and transport the package should not be thrown neither knocked down (overturned) or charged with a load on the top.

Do not place one package on top of another (no stacking) and, during the transport protect the device from atmospheric factors and from damage, indents. 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: **portable radial fan**

type/model: **WPA-P-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/*
- **2014/35/EC Directive** of the European Parliament and of the Council of 26 February, 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/*

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- **327/2011 (EU) Guideline** 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 L No. 90 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”. |
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| • 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”. |

.....
place, date

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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

**Producer:****KLIMAWENT S.A.****81-571 Gdynia, ul. Chwaszczyńska 194****tel. 058 629 64 80****fax 058 629 64 19****e-mail: klimawent@klimawent.com.pl****www.klimawent.com.pl**

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|---------------|---------------------|----------------------|
| 805W10 | WPA-3-P-1-N | 04.06.2019/EN |
| 805W21 | WPA-3-P-3-N | 04.06.2019/EN |
| 805W11 | WPA-5-P-1-N | 04.06.2019/EN |
| 805W12 | WPA-5-P-3-N | 04.06.2019/EN |
| 805W13 | WPA-6-P-1-N | 04.06.2019/EN |
| 805W14 | WPA-6-P-3-N | 04.06.2019/EN |
| 805W15 | WPA-7-P-3-N | 04.06.2019/EN |
| 805W16 | WPA-7-P-3-N | 04.06.2019/EN |
| 805W17 | WPA-8-P-3-N | 04.06.2019/EN |
| 805W18 | WPA-9-P-3-N | 04.06.2019/EN |
| 805W20 | WPA-10-P-3-N | 04.06.2019/EN |