Use and Maintenance Manual

Roof radial fans WPA-D-N

Contents:

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-D-N roof 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-D-N roof 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-D-N roof fans have been designed for general ventilation and for local ventilation applications. They are installed outside the rooms (outdoor application) on roof bases or wall brackets. As they feature increased fan pressure, they are efficient in application in installations with local exhausts.
They fans are designed for conveying the air of dustiness not exceeding 0,3 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. Prior to installing check the load capacity of the building structure where the device will be mounted. Unsure mounting could cause risk to personnel / people in vicinity and effect in damage of the device.

F. **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**.

G. Do not use the fan for conveying the air containing viscous impurities that could accumulate on the device surface, especially on the impeller.

H. Neither use it for forwarding the air with aggressive pollutants which will destructively effect the device structure.

I. During operation, the maximum impeller rotations should not exceed the nominal rotations.

J. 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 IP	Acoustic pressure level from distance		Maximum volume flow	Maximum vacuum	Weight
					1m	5m			
	[1/min]	[V]	[kW]		[dB (A)]		[m³/h]	[Pa]	[kg]
WPA-5-D-1-N	3000	230	**0,37**	54	73/67*	59/53*	1900	1250	23
WPA-5-D-3-N		3x400							
WPA-6-D-1-N	3000	230	**0,75**	54	78/75*	64/61*	2500	1700	28
WPA-6-D-3-N		3x400							
WPA-7-D-1-N	3000	230	**1,1**	54	81/74*	67/60*	3100	1800	30
WPA-7-D-3-N		3x400							
WPA-8-D-3-N	3000	3x400	**1,5**	54	82/78*	68/64*	3900	2050	36
WPA-9-D-3-N	3000	3x400	**2,2**	54	86/82*	72/68*	4500	2400	45
WPA-10-D-3-N	3000	3x400	**3,0**	54	87/81*	73/67*	6200	2450	58
WPA-11-D-3-N	3000	3x400	**5,5**	54	91/88*	77/74*	8050	2950	77
WPA-13-D-3-N	3000	3x400	**7,5**	54	95/90*	81/76*	10800	3300	98

***** Noise measurement has been carried out – with the additional **TK** L=500 mm silencer installed at the fan inlet.

1. Maximum temperature of the conveyed air is +60ºC, whereas maximum temperature within the work zone +40ºC.

2. Maximum dustiness of the forwarded air should not exceed 0,3 g/m^3.

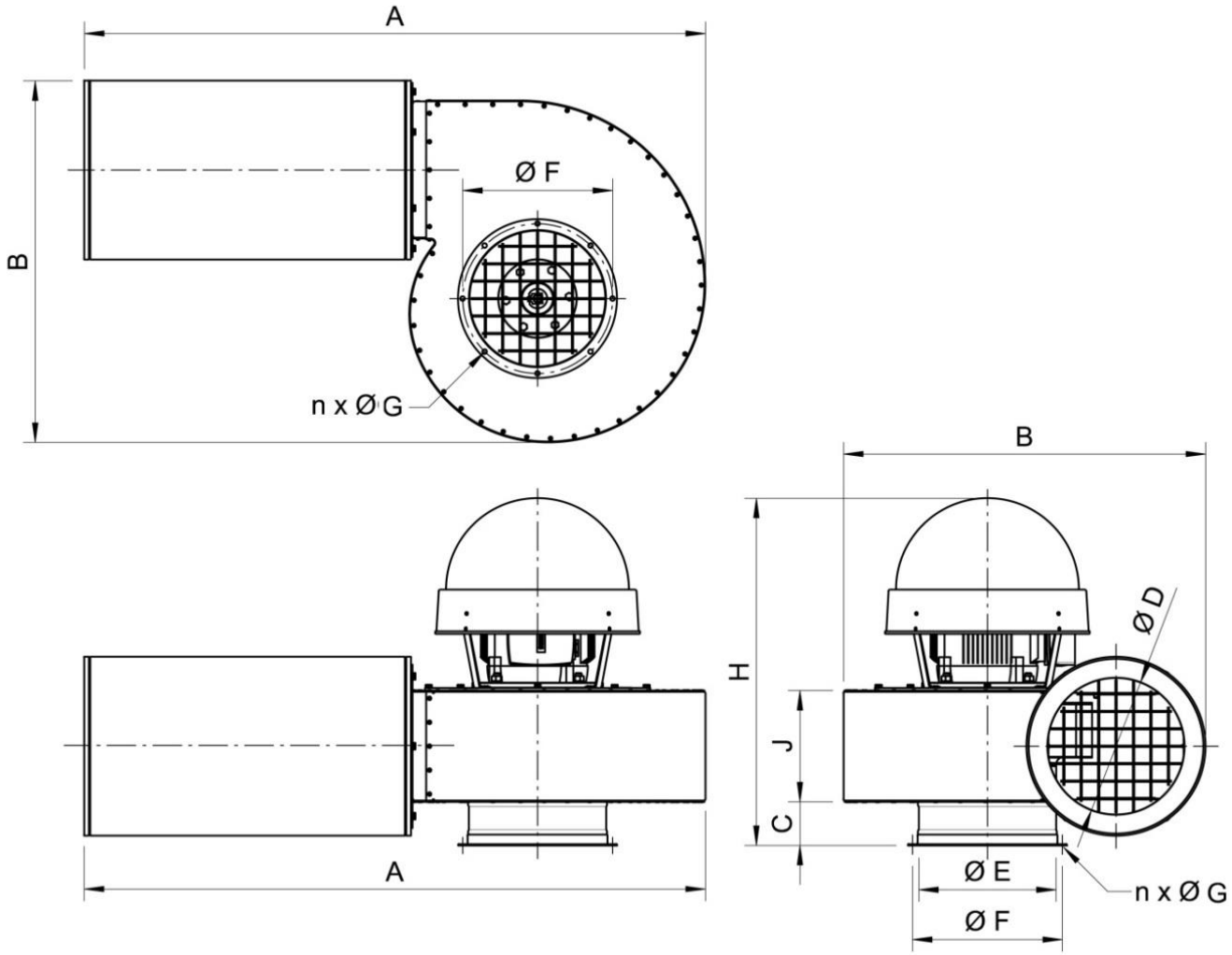

Fig. No.1 – Fans of series WPA-D-N with a horizontal silencer – Structure, dimensions

Table No. 2 – Dimensions of the WPA-D-N fans with horizontal silencer

Typ	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**F** [mm]	**n** [pcs]	**G** [mm]	**H** [mm]	**J** [mm]
WPA-5-D-1-N	905	525	60	160	160	194	6	7,0	495	140
WPA-5-D-3-N										
WPA-6-D-1-N	915	550	60	160	160	194	6	7,0	495	140
WPA-6-D-3-N										
WPA-7-D-1-N	965	570	60	200	160	194	6	7,0	535	155
WPA-7-D-3-N										
WPA-8-D-3-N	990	600	60	200	200	224 234 246	8 6 8	9,0 7,0 9,0	540	155
WPA-9-D-3-N	1030	665	60	200	200	224 234 246	8 6 8	9,0 7,0 9,0	620	155
WPA-10-D-3-N	1045	675	80	250	250	274	8	9,0	700	232
WPA-11-D-3-N	1065	695	80	250	250	274	8	9,0	750	232
WPA-13-D-3-N	1430	830	90	315	315	344	8	9,0	790	258

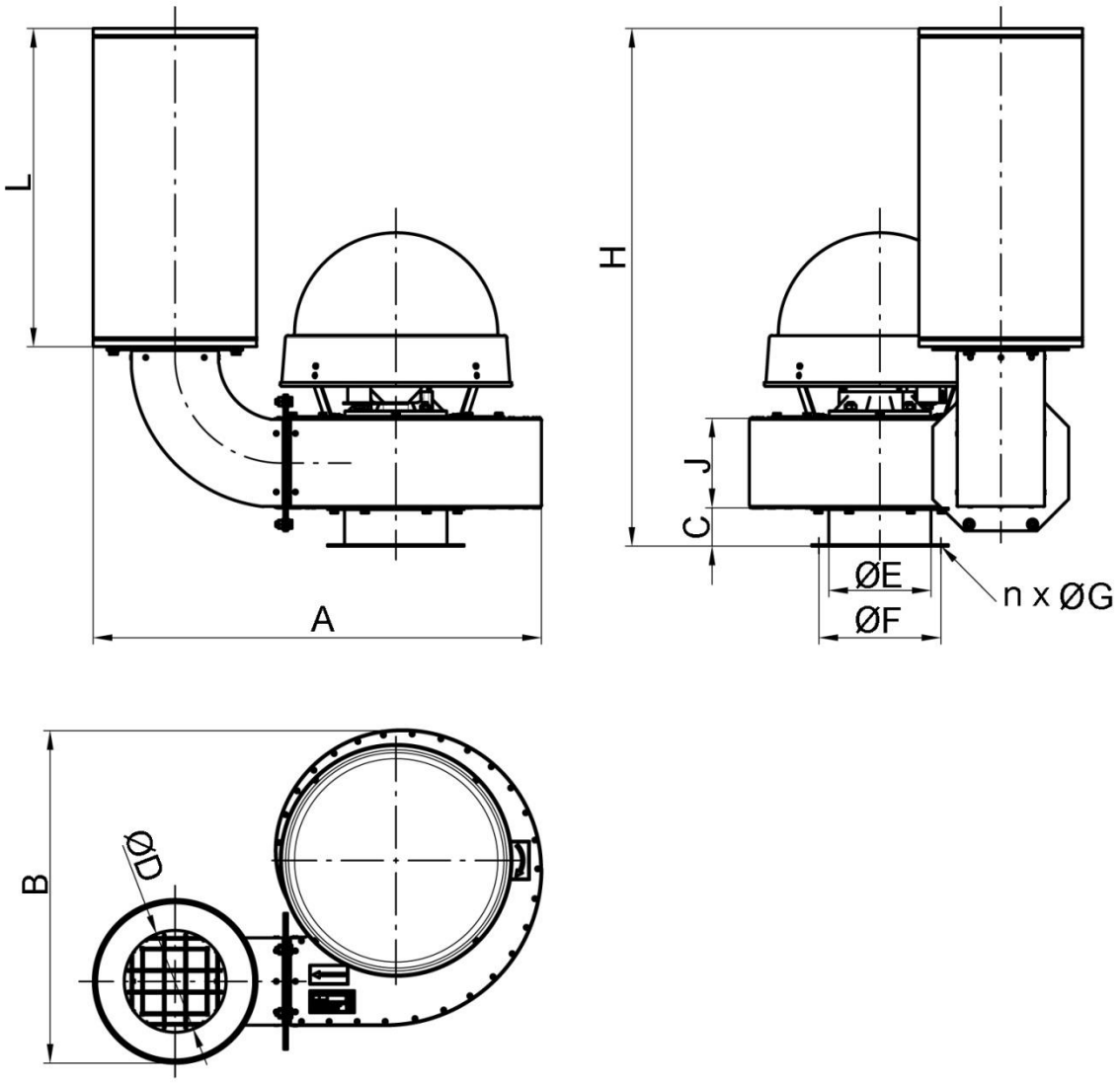

Fig. No.2 – Fans of series WPA-D-N with a vertical silencer – Structure, dimensions

Table No. 3 – Dimensions of the WPA-D-N fans with vertical silencer

Type of the fan	**A** [mm]	**B** [mm]	**C** [mm]	**D** [mm]	**E** [mm]	**F** [mm]	**n** [pcs]	**G** [mm]	**H** [mm]	**J** [mm]	**L** [mm]
WPA-5-D-1-N	705	525	60	160	160	194	6	7,0	815	140	500
WPA-5-D-3-N											
WPA-6-D-1-N	715	550	60	160	160	194	6	7,0	815	140	500
WPA-6-D-3-N											
WPA-7-D-1-N	815	570	60	200	160	194	6	7,0	840	155	500
WPA-7-D-3-N											
WPA-8-D-3-N	840	600	60	200	200	224 234 246	8 6 8	9,0 7,0 9,0	840	155	500
WPA-9-D-3-N	880	665	60	200	200	224 234 246	8 6 8	9,0 7,0 8,0	840	155	500
WPA-10-D-3-N	960	675	80	250	250	274	8	9,0	940	232	500
WPA-11-D-3-N	980	695	80	250	250	274	8	9,0	940	232	500
WPA-13-D-3-N	1225	830	90	315	315	344	8	9,0	1300	258	500

Table No.4 – Specification of types of elbows for fans with vertical outlet

Type of the fan	Elbow	
	Type of the elbow	Weight [kg]
WPA-5-D-N	**KL-160-WPA**	1,8
WPA-6-D-N	**KL-160-WPA**	1,8
WPA-7-D-N	**KL-200-WPA**	2,4
WPA-8-D-N	**KL-200-WPA**	2,4
WPA-9-D-N	**KL-200-WPA**	2,4
WPA-10-D-N	**KL-250-WPA**	7,5
WPA-11-D-N	**KL-250-WPA**	7,5
WPA-13-D-N	**KL-315-WPA**	12,6

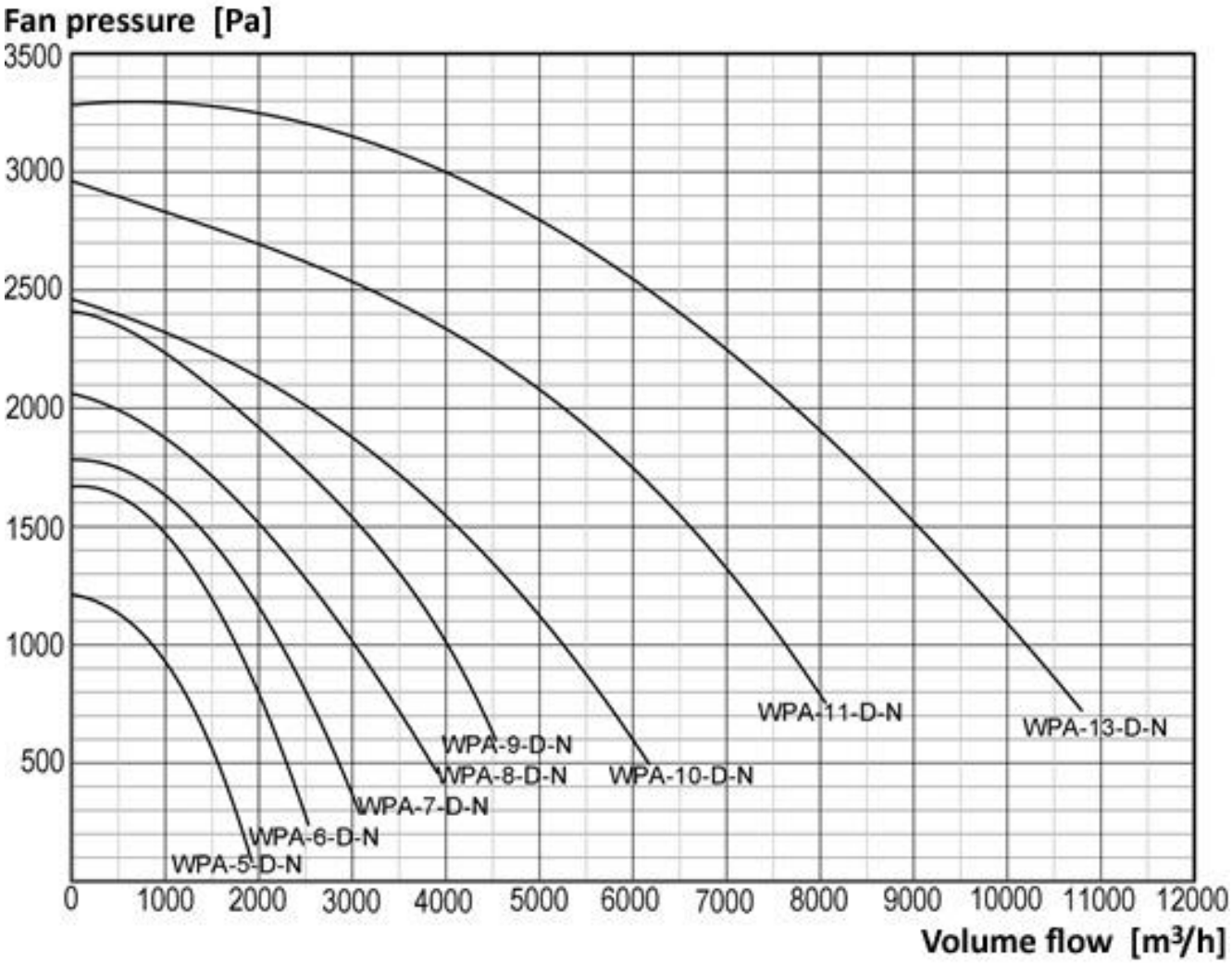

Fig. No.3 – Flow Charts

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

Table No.5

Product information requirements		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	WPA-11-3	WPA-13-3
1	Overall efficiency (%)	67,6	70	54,1	61,1	65,1	65,6	62,2	67	66,1	67,1	65,3
2	Measurement category (A-D)	C										
3	Efficiency category	static										
4	Efficiency grade at optimum energy efficiency point (%)	47,9	48,1	50,6	48,7	50,5	51,4	52,2	53,3	55,9	56,9	59,4
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)	0,37	0,37	0,75	0,75	1,1	1,1	1,5	2,2	3,0	5,5	7,5
9b	Flow rate at the optimum Energy efficiency (m^3/h)	1430	1180	1580	1250	2000	1870	2030	2230	3750	4250	6800
9c	Pressure at the optimum Energy efficiency (Pa)	970	1000	1270	1360	1400	1400	1595	2000	1700	2376	2440
10	Rotations per minute at the optimum efficiency point (r.p.m.)	2770	2790	2800	2870	2770	2870	2880	2880	2880	2900	2930
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 minimalize 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 energe-tic efficiency of the fan	not supplied with the fan										

5. Structure and Function

The fan consists of a steel spiral housing, motor and an aluminium radial impeller (directly installed at the motor pivot). The profiled impeller blades provide low acoustic performance of the fan.

The inlet is equipped with a flange to install the fan on a roof base or on a wall bracket. Typical feature of the fan is a silencer fastened at the fan outlet of the spiral housing. It is possible to install the silencer horizontally or vertically (see Fig. No.1, No.2). The version with the vertical silencer must have introduced an additional elbow at the outlet and then the silencer (see Fig. No.2).

For safety reasons, the inlet and outlet are equipped with protective grills. It recommended to install TK silencers at the fan inlet (for details see acoustic data in the Table No.1).
On demand, we deliver isolating switches (safety switches) to cut off the power supply before starting the installing and servicing activities.

ADDITIONAL EQUIPMENT – delivery on separate order:

- motor protective switches WS – with short-circuit- and overload protection,
- isolating switches (safety switches),
- wall brackets,
- silencers.

6. Assembly and Start-up

The appliance can work outside the industrial rooms (outdoor application). Manufacturer suggests installing the fan on the roof base or on a wall bracket (delivery on separate order).

Before the connection to the power supply system, make sure if 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 by selecting the right type and section of the supply cable, and choosing the appropriate short-circuit- and overload protection, according to the local conditions.

WARNING **Connection to the power supply has to be carried out by an authorized person with qualifications, according to the valid regulations and information placed in Fig. No.4**.

Before 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, in case of incompatibility change the phase connection sequence**.

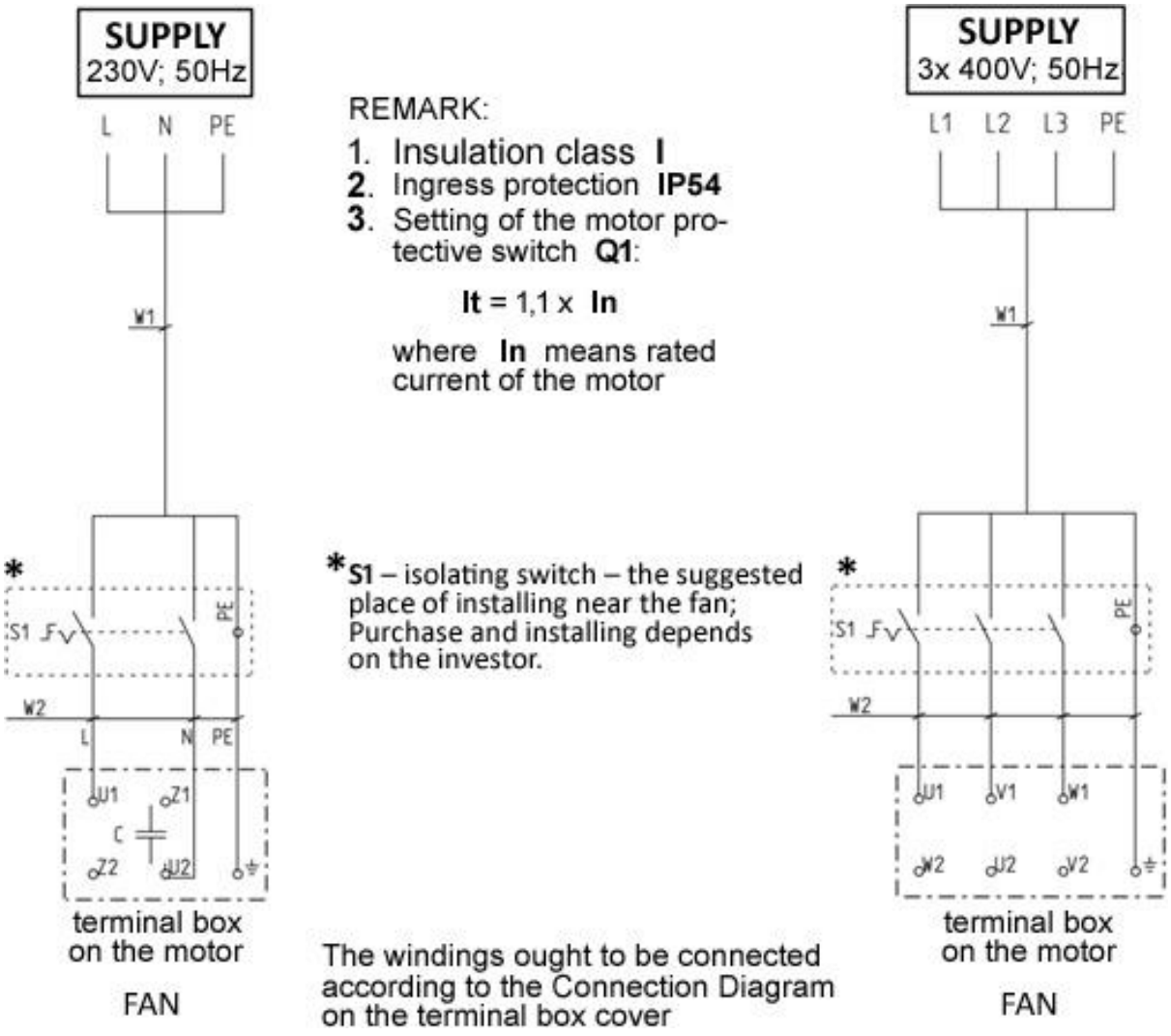

Fig. No.4 – Connection Diagram – WPA-D-N

7. Operational Use

Construction of the device guarantees a reliable function without continuous technical 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 application and conditions.

8. Troubleshooting Guide

Table No.6

	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 stack 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 course of operational use, the fan construction guarantees its efficient function without continuous routine technical supervision. Nevertheless, remember to carry out systematic maintenance steps.

Once a year, submit the fan and the motor to technical revision – the electrical motor ought to be examined according to the instructions of the motor manufacturer.

Every several years, examine the mechanical and electrical connections. The electrical installation system ought to be checked according to the standard PN-HD 60364-6 “Low-voltage electrical installations – Part 6: Verification”.

Moreover, if any defective function of the unit or failure is noticed – undertake its additional control. Constantly, keep the inlet grills in clean conditions.

WARNING **Any maintenance activities should be executed exclusively by an authorised person with qualifications, and necessarily after disconnection from the power system**.

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. The fan will not cause hazard under the condition that it is firmly mounted to the supporting structure or to the ventilation system. Connect the fan to the electrical wiring system, strictly according to the enclosed connection diagram and to the guidelines shown in Section 6 of the present Use and Maintenance Manual. **This ought to be carried out exclusively by an authorized person with qualifications, and in accordance with the valid regulations**.
During the operational use, check the connection between the fan and the PE protective cable.

WARNING **Any technical revisions and repair have to be executed, necessarily after disconnection from the power supply system** (**isolating switch**).

11. Transport and Storage

Fans type: WPA-5-D-N, WPA-6-D-N, WPA-7-D-N, WPA-8-D-N, WPA-9-D-N are placed in cardboard (weight is written on the surface), whereas large fans WPA-10-D-N, WPA-11-D-N and WPA-13-D-N are wrapped in foil and placed on a palette. Silencers and bends are transported in separate cardboard packages.

During the loading and transport the package should not be thrown neither overturned, knocked down 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 the device from atmospheric factors, weather conditions 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 specified 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: **roof radial fan**

type/model: **WPA-D-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.
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  / *Journal of Laws L 285 of 31.10.2009* /
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• **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".

……	……	……
place, date	signature of authorised person	name, surname, function of the signatory

KLIMAWENT S.A.
Supported Employment Enterprise
81-571 Gdynia, ul. Chwaszczyńska 194
phone: +49 58 829 64 80
email: klimawent@klimawent.com.pl
www.klimawent.com.pl

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

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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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

807W11	**WPA-5-D-1-N**	**04.06.2019/EN**
807W12	**WPA-5-D-3-N**	**04.06.2019/EN**
807W13	**WPA-6-D-1-N**	**04.06.2019/EN**
807W14	**WPA-6-D-3-N**	**04.06.2019/EN**
807W15	**WPA-7-D-3-N**	**04.06.2019/EN**
807W16	**WPA-7-D-3-N**	**04.06.2019/EN**
807W17	**WPA-8-D-3-N**	**04.06.2019/EN**
807W18	**WPA-9-D-3-N**	**04.06.2019/EN**
807W19	**WPA-10-D-3-N**	**04.06.2019/EN**
807W20	**WPA-11-D-3-N**	**04.06.2019/EN**
807W22	**WPA-13-D-3-N**	**04.06.2019/EN**