

# Use and Maintenance Manual



## Stationary radial fans WPA-S-N

801W01	WPA-3-S-1-N	04.06.2019/EN
801W13	WPA-3-S-3-N	04.06.2019/EN
801W02	WPA-5-S-1-N	04.06.2019/EN
801W03	WPA-5-S-3-N	04.06.2019/EN
801W04	WPA-6-S-1-N	04.06.2019/EN
801W05	WPA-6-S-3-N	04.06.2019/EN
801W06	WPA-7-S-3-N	04.06.2019/EN
801W07	WPA-7-S-3-N	04.06.2019/EN
801W08	WPA-8-S-3-N	04.06.2019/EN
801W09	WPA-9-S-3-N	04.06.2019/EN
801W10	WPA-10-S-3-N	04.06.2019/EN
801W11	WPA-11-S-3-N	04.06.2019/EN
801W12	WPA-13-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-S-N stationary 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-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 17<sup>th</sup>, 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 26<sup>th</sup>, 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 21<sup>th</sup>, 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 30<sup>th</sup>, 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:

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

## 2. Application

WPA-S-N stationary fans have 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	Synchron- ous 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			[m <sup>3</sup> /h]	[Pa]	[kg]
WPA-3-S-1-N	3000	230	0,25	54	78/70*	64/56*	1160	940	22
WPA-3-S-3-N		3x400							
WPA-5-S-1-N	3000	230	0,37	54	76/67*	62/53*	1900	1250	27
WPA-5-S-3-N		3x400							
WPA-6-S-1-N	3000	230	0,75	54	83/75*	69/61*	2500	1700	32
WPA-6-S-3-N		3x400							
WPA-7-S-1-N	3000	230	1,1	54	86/74*	72/60*	3100	1800	34
WPA-7-S-3-N		3x400							
WPA-8-S-3-N	3000	3x400	1,5	54	88/78*	74/64*	3900	2050	44
WPA-9-S-3-N	3000	3x400	2,2	54	91/82*	77/68*	4500	2400	52
WPA-10-S-3-N	3000	3x400	3,0	54	91/81*	77/67*	6200	2450	65,5
WPA-11-S-3-N	3000	3x400	5,5	54	97/88*	83/74*	8050	2950	82
WPA-13-S-3-N	3000	3x400	7,5	54	99/90*	85/76*	10800	3300	104

\* Measurement has been carried out with the TK L=500 silencer, installed at the fan inlet and outlet (for WPA-3-S-N is applied the TK L=370 silencer).

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/m<sup>3</sup>.

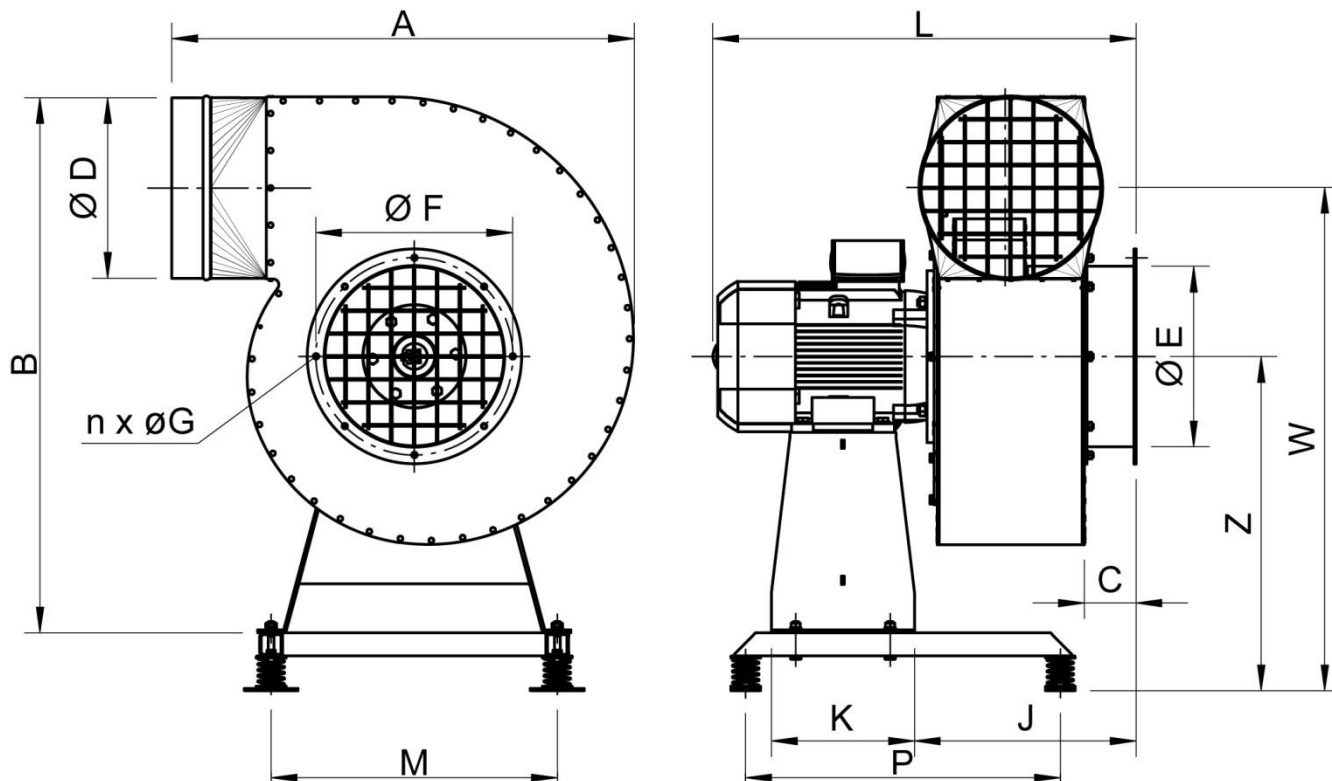
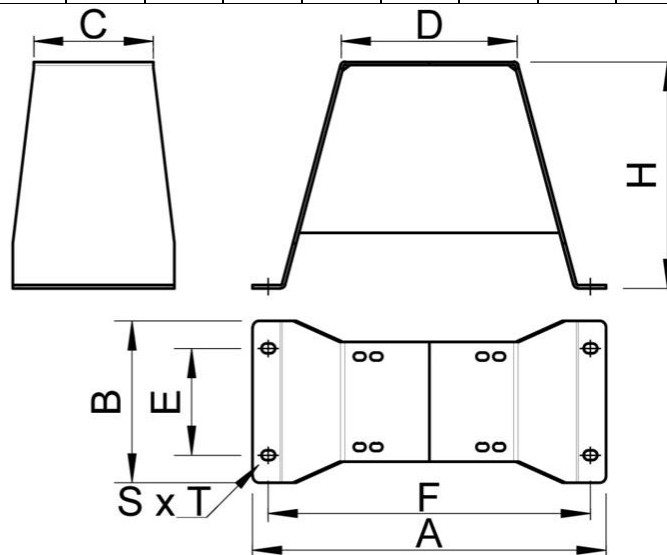


Fig. No.1 – Fan of the WPA-S-N series – Structure, dimensions

Remark: Vibro-absorbing elements are selected accordingly to the total weight of the set “fan + stand + frame”.

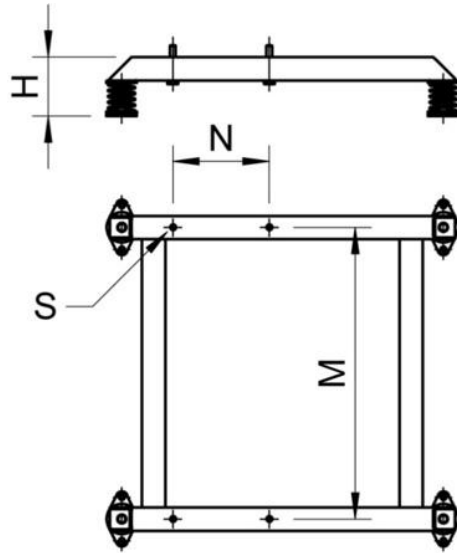
**Table No.2 – Dimensions of fans**

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-3-S-1-N	415	515	50	550	400	125	125	155	6	7,0	345	400	200	170	370
WPA-3-S-3-N															
WPA-5-S-1-N	485	575	60	590	400	160	160	194	6	7,0	345	400	200	195	420
WPA-5-S-3-N															
WPA-6-S-1-N	500	600	60	620	410	160	160	194	6	7,0	345	400	200	205	445
WPA-6-S-3-N															
WPA-7-S-1-N	550	605	60	605	410	200	160	194	6	7,0	345	400	200	220	460
WPA-7-S-3-N															
WPA-8-S-3-N	570	685	60	685	480	200	200	224	8	9,0	425	450	220	215	490
								234	6	7,0					
								246	8	9,0					
WPA-9-S-3-N	615	730	60	725	480	200	200	224	8	9,0	425	450	220	215	510
								234	6	7,0					
								246	8	9,0					
WPA-10-S-3-N	655	810	80	780	550	250	250	274	8	9,0	500	550	250	325	650
WPA-11-S-3-N	675	830	80	805	565	250	250	274	8	9,0	500	550	250	335	665
WPA-13-S-3-N	805	940	90	880	585	315	315	344	8	9,0	500	550	250	390	735



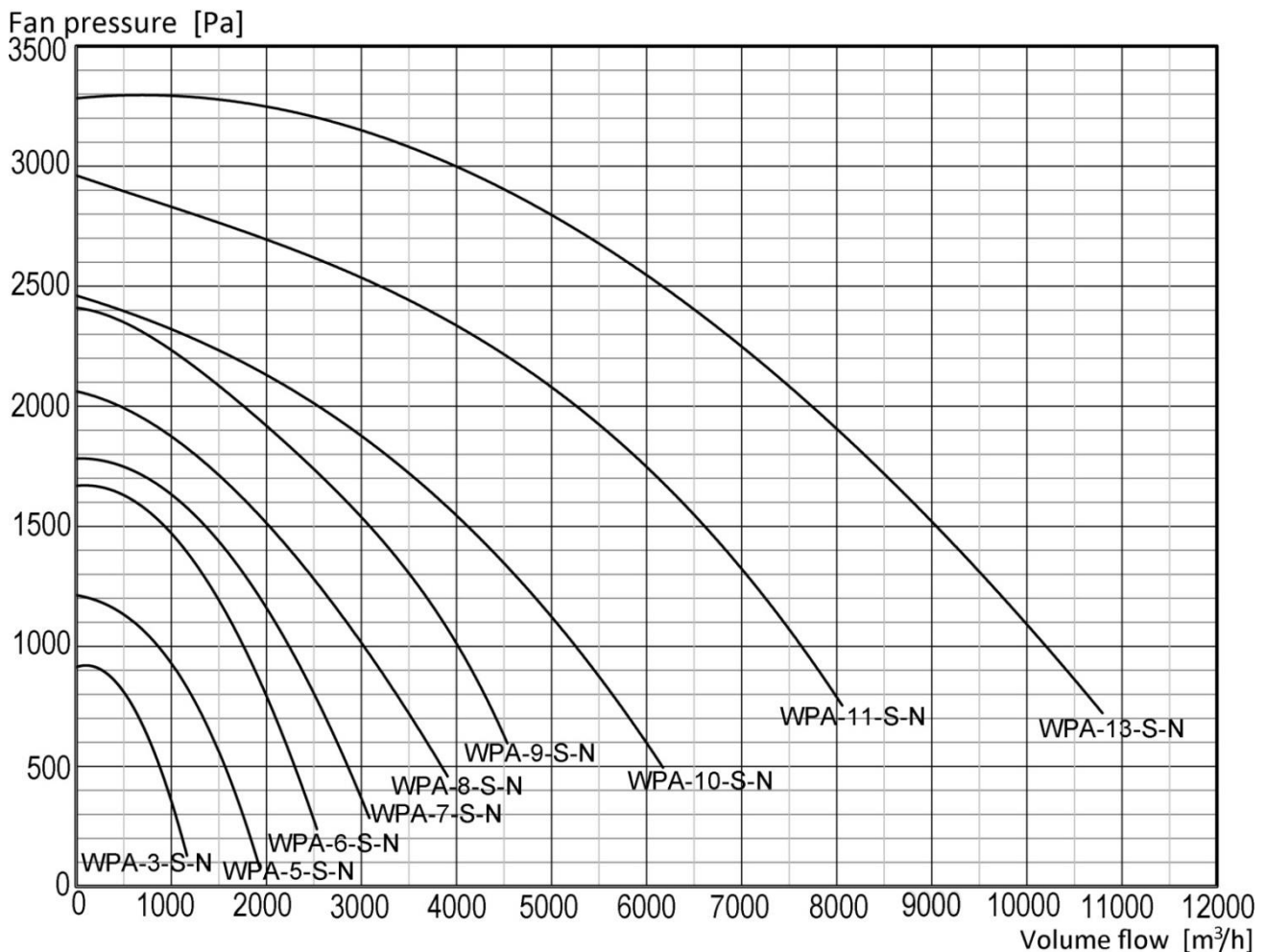
Type of the stand	A	B	E	F	S x T	H	C	D	Weight	Type of the fan
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	
S-WPAN-1	375	200	165	345	11 x 15	230	184	135	5,0	WPA-3,5,6,7-S-N
S-WPAN-2	470	220	165	420	15 x 21	290	228	165	8,5	WPA-8,9-S-N
S-WPAN-3	550	250	165	500	15 x 21	350	272	185	12,0	WPA-10,11,13-S-N
S-WPAN-4	685	400	345	640	15 x 21	500	328	300	25,0	WPA-14-S-N

**Fig. No.2 – S-WPAN – Stand for the fans type WPA-S-N – Structure, dimensions**



Type of the vibro-isolating frame	N [mm]	M [mm]	H [mm]	S [mm]	Weight [kg]	Suitable types of fans
VF-WPAN-1	165	365	100	M8	5,0	WPA-3,5,6,7-E-N
VF-WPAN-2	165	420	100	M10	5,8	WPA-8,9-E-N
VF-WPAN-3	165	500	100	M10	7,5	WPA-10,11,13-E-N
VF-WPAN-4	345	640	100	M12	12,5	WPA-14-S-N

**Fig. No.3 – VF-WPAN – Vibro-absorbing frame for the fans type WPA-S-N**  
 – Structure, dimensions



**Fig. No.4 – Flow charts of the fans type WPA-S-N**



#### 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-3-3	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 (%)	51	50	67,6	70	54,1	61,1	65,1	65,6	62,2	67	66,1	67,1	65,3
2 Measuring category (A-D)	C												
3 Efficiency category	static												
4 Efficiency grade at optimum energy efficiency point (%)	43,9	44,5	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)	0,25	0,25	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 <sup>3</sup> /h)	700	600	1430	1180	1580	1250	2000	1870	2030	2230	3750	4250	6800
9c Pressure at the optimum Energy efficiency (Pa)	620	770	970	1000	1270	1360	1400	1400	1595	2000	1700	2376	2440
10 Rotations per minute at the optimum efficiency point (r.p.m.)	2760	2800	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 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, 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. The fan inlet is equipped with a flange, whereas, the fan outlet is ended with a round connection ferrule, to provide a safe fastening to the spiral-seam duct (rigid conduit), or for flexible connections.

For safety reasons, the inlet and outlet are equipped with protective grills. It recommended to install TK silencers at the fan inlet and outlet (for details see acoustic data in the Table No.1).

#### **ADDITIONAL EQUIPMENT – delivery on separate order:**

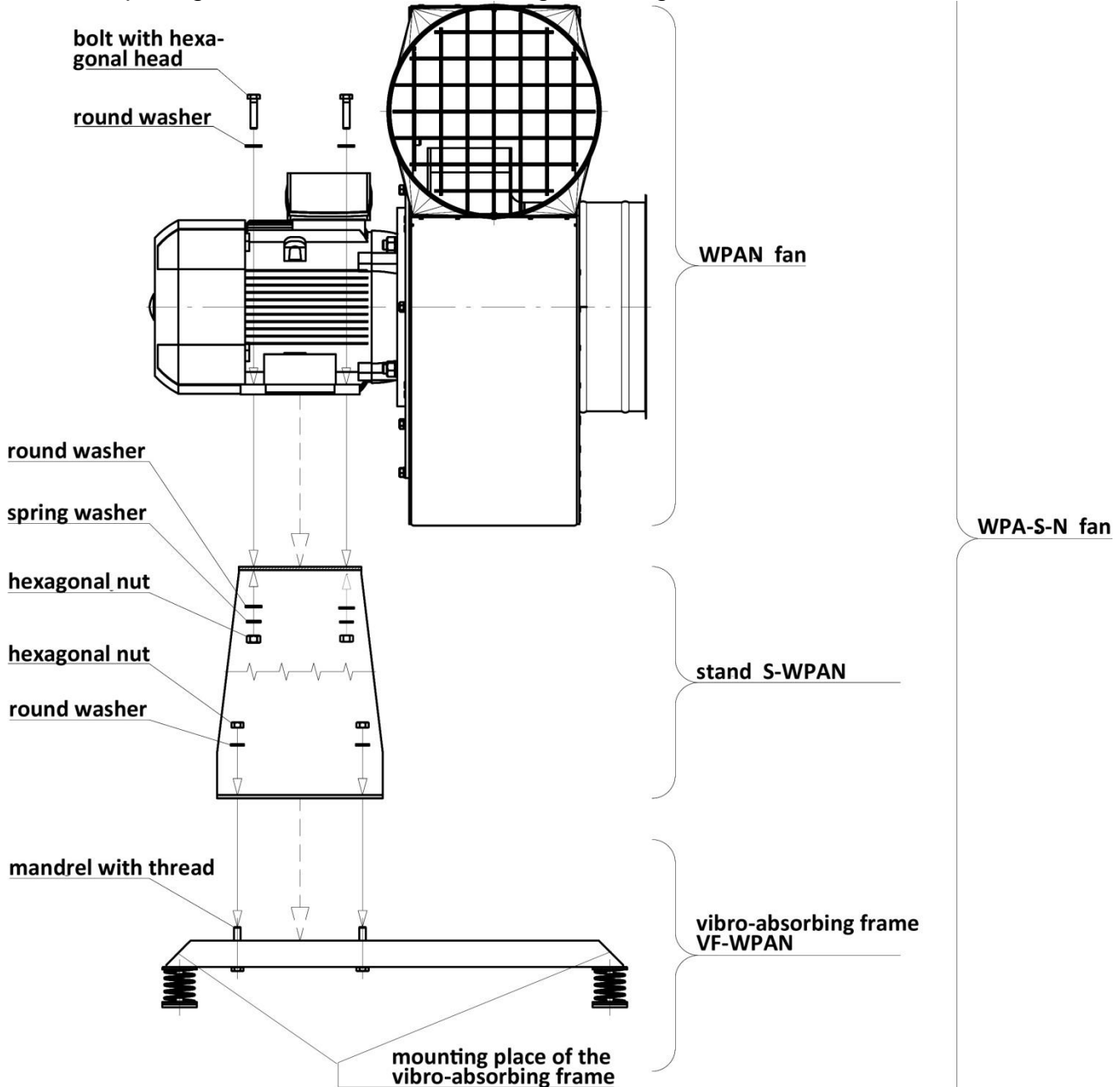
- motor protective switches WS – with short-circuit- and overload protection
- safety switches (isolating switches)
- silencers

## 6. Assembly and Start-up

The appliance is designed for function inside the industrial rooms (indoor application). The place of installing should be selected by User. As the WPA-S-N fans are delivered in a disassembled state (separately: the fan, stand, vibro-absorbing frame), it is important to assemble all the elements of the device according to the instruction below.

### 6.1 Assembly instruction

These steps ought to be carried out according to the Fig. No.5



**Fig. No.5 – Assembly of the fan WPA-S-N**

1. The vibro-absorbing frame should be fastened to the floor in the target place of use.
2. Put the fan on its inlet fitting piece and secure it from overturn. **Caution: Do not put the fan on the back guard of its motor!**  
Subsequently, screw up the stand to the motor feet, using the enclosed set of elements: hexagonal bolt and round washer put at the side of the motor, whereas the round washer, spring washer and the nut – at the side of the stand.
3. The fan with the stand should be mounted on the vibro-absorbing frame which was earlier placed on the target site of use.



**Caution:** The elements for mounting the fan are delivered by manufacturer.

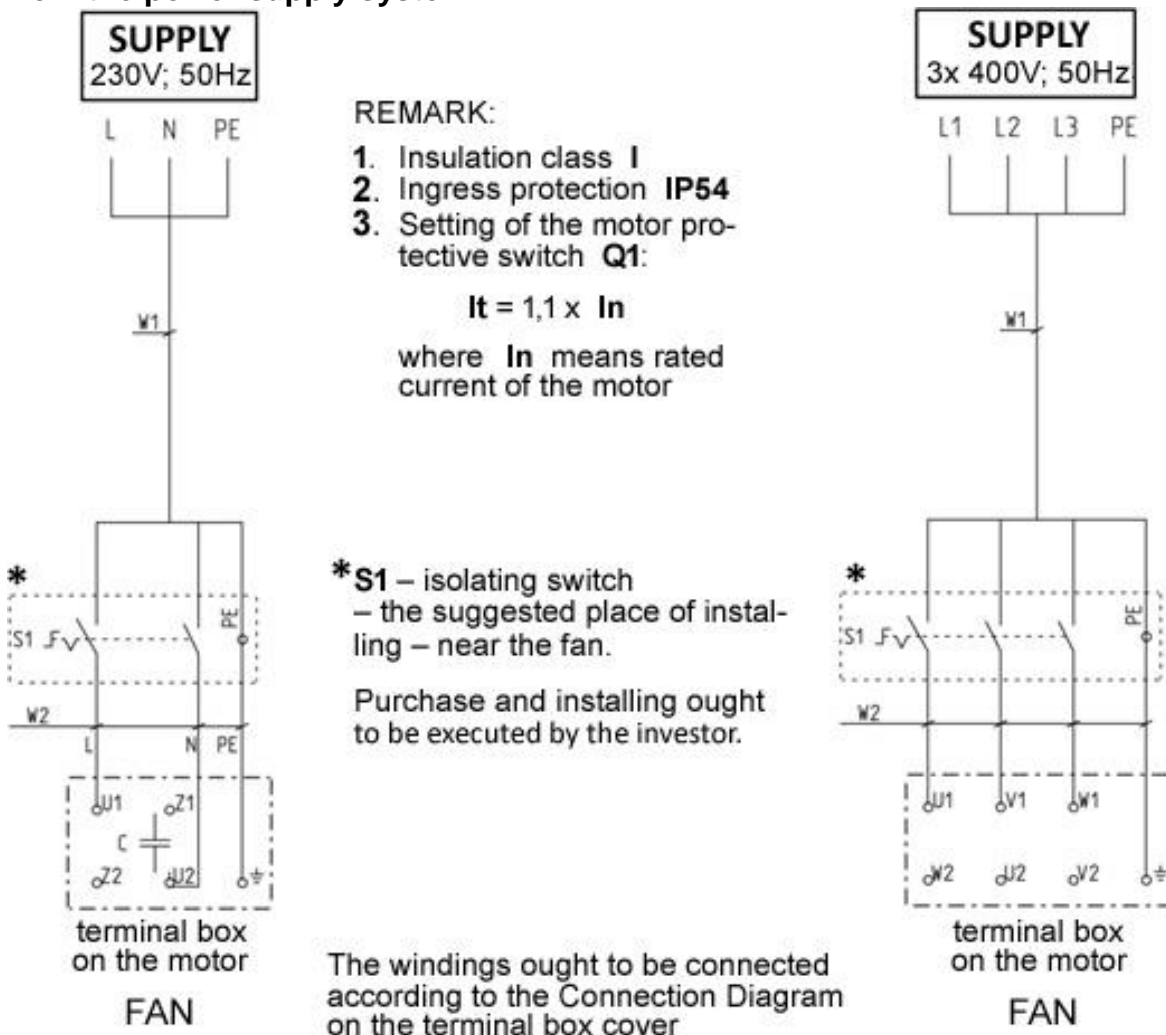
**Before connection to the power supply, make sure whether the parameters of the existing electrical installation are corresponding the data on the nominal plate. In case of inconsistency, the connection cannot be executed.**

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.6.

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.



**Fig. No.6 – Connection Diagram of the fans type WPA-S-N**

## 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. 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.

## 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 (three-phase fans only).

## 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 are transported in assemblies: fan, stand, vibro-absorbing frame. All these parts have to be assembled together, according to the assembly instruction (see Section 6).

**WPA-3-S-N, WPA-5-S-N, WPA-6-S-N, WPA-7-S-N, WPA-8-S-N** and **WPA-9-S-N** are placed in cardboard package, on the surface of which is written their weight.

Large fans: **WPA-10-S-N, WPA-11-S-N** and **WPA-13-S-N** are placed on pallets, (wrapped with foil to protect them from damage and atmospheric factors / weather conditions).

The other elements (stands, vibro-absorbing frames) are transported in separate cardboard boxes.

During the loading and transport, the package should not be thrown neither 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 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: **stationary radial fan**

type/model: **WPA-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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- **327/2011 (EU) Guideline** of March 30<sup>th</sup>, 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*/

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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