Use and Maintenance Manual

Radial duct fans WP-N

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1. Introductory Remarks

The purpose of the present Use and Maintenance Manual is to supply User with directions within the range of application, installation, start-up and the operational use of the **WP-N radial duct 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 **WP-N radial duct 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 L 285 of 31.10.2009* /

– **327/2011** (**EU**) **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 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"
• **EN 60034-1:2011**	– "Rotating electrical machines – Part 1: Rating data and parameters"
• **EN ISO 5802:2008**	– "Industrial Fans – Performance testing in situ of installing

2. Application

Duct fans are developed for general ventilation. They are applied for forwarding the dry air of dustiness not exceeding 0,3 g/m^3 without viscous impurities, aggressive compounds or substances creating explosion hazard.
The appliances are adapted for installing inside the rooms, directly within the system constructed of round ventilation ducts.

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. Do not introduce any structural changes or modification of the appliance on one's own.

D. Protect the housing from mechanical damage.

E. Prior to installing check the load capacity of the constructional elements where the device shall be mounted. Unsure mounting could cause risk to personnel / people in vicinity and effect in damage of the device.

F. **WP-N duct 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 could 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. Producer 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	Supply voltage	Rotations	Motor rate	Acoustic pressure level [dB(A)] from distance			Maximum volume flow	Maximum vacuum	Weight
	[V]	[r.p.m.]	[W]	1m	5m		[m³/h]	[Pa]	[kg]
WP-3-N	230	2220	54	66	59	44	350	290	3
WP-5-N	230	2220	54	62	57	44	470	290	4
WP-7-N	230	2670	124	71	66	44	1020	500	5
WP-9-N	230	2600	160	72	66	44	1420	610	6
WP-11-N	230	2480	242	86	74	44	1840	730	6

CAUTION:

***** Measurements have been carried out outside the ventilation duct.

1. Maximum temperature of the conveyed air is +60ºC. Maximum temperature in the work area +40ºC.

2. Maximum dustiness of the conveyed air must not exceed 0,3 g/m³.

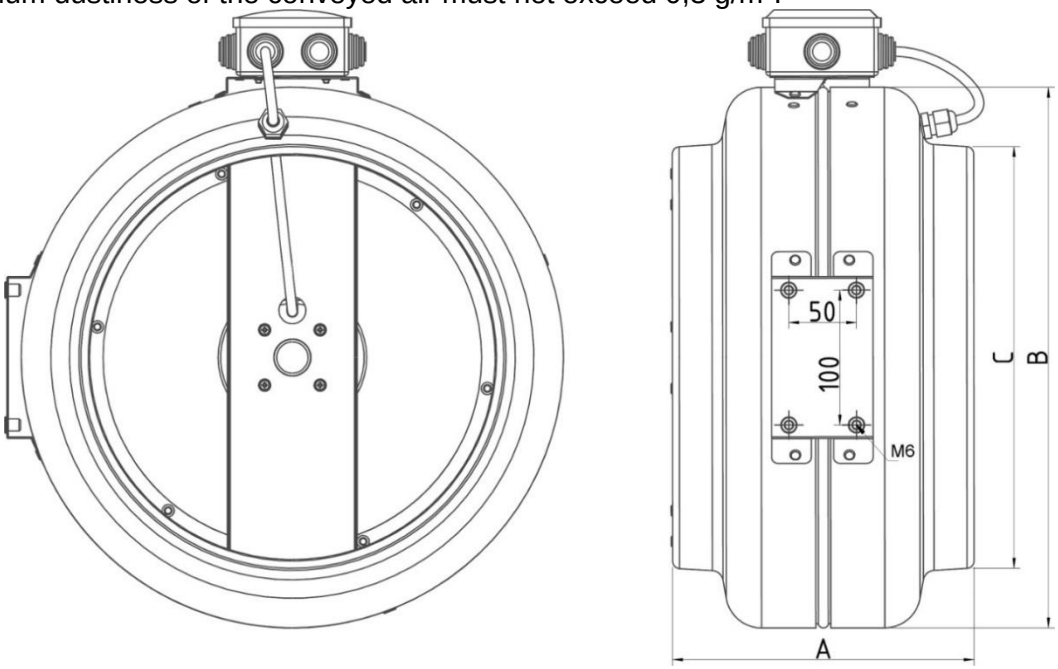
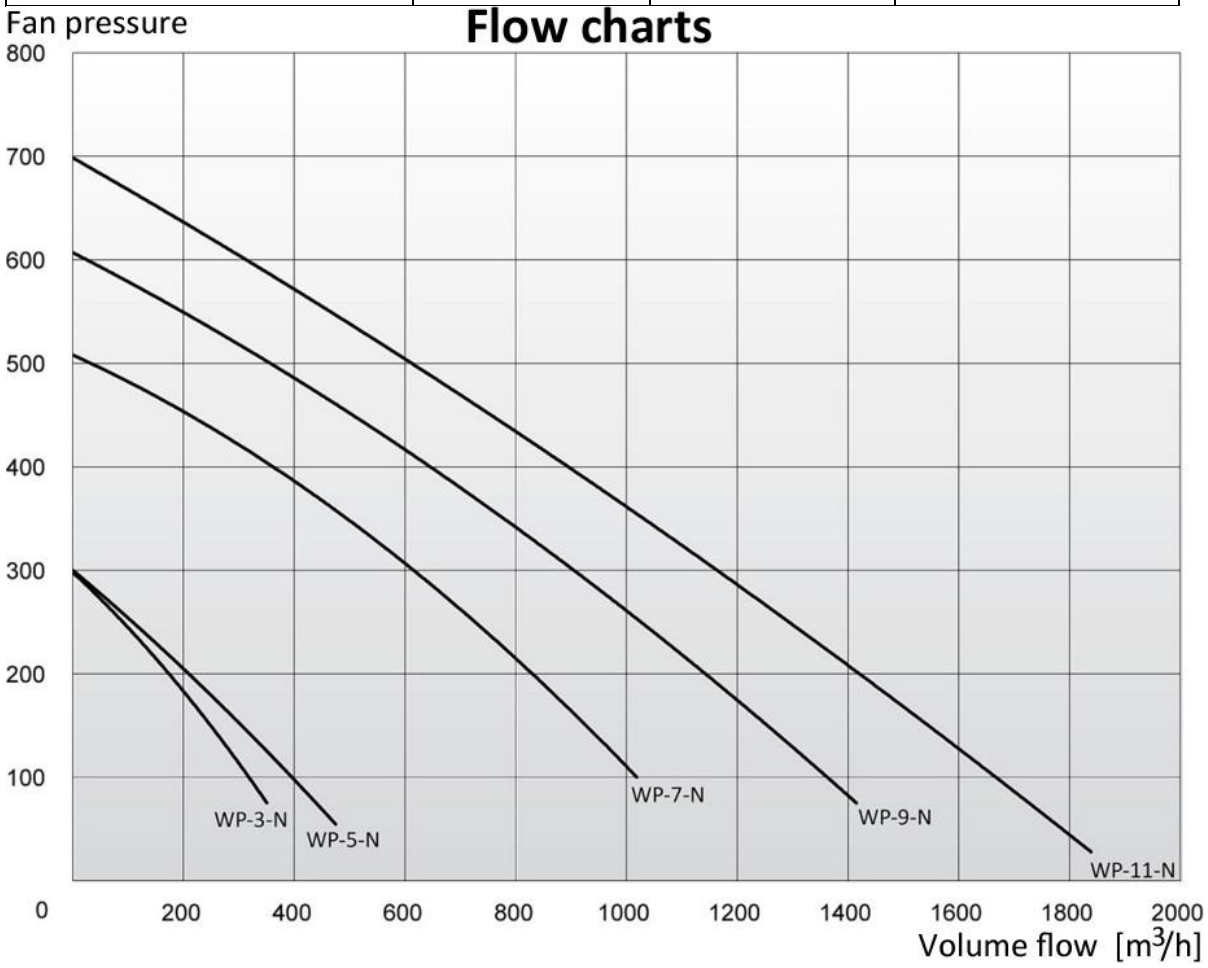


Fig. No.1 – WP-N – Structure and dimensions

Table No. 2 – Dimensions of the fans

Type of the fan	A [mm]	ØB [mm]	C [mm]
WP-3-N	217	287	125
WP-5-N	240	342	160
WP-7-N	200	342	200
WP-9-N	231	370	250
WP-11-N	223	400	315



5. Structure and Function

Housing: two bell-shaped deep extruded drawpieces of plastic ABS. These drawpieces are, at larger perimeter, connected together forming space for the motor with a rotary stator on which is fastened a radial impeller.

The free housing endings are perimertrally suitable to the standard diameters of the round rigid ventilation ducts.

Outside the housing is located a connection box with terminal strip and condenser, as a point of supply connection – 230V.

For installing serves the square mounting plate with holes adapted to fasten the fan (by means of 4 bolts M6), on the supporting structure.

After the start of the fan, the air stream is drawn in through the inlet (at one side of the housing), and forced further to the pressure side of the fan, as indicated with the arrow on the housing. Both, inlet and outlet are to be mounted in the round-section ventilation ducts of suitable diameter.

Basic advantages of the fan are small dimensions, silent work and easy installing. On demand we deliver isolating switches to cut off the power supply during the assembly activities and servicing.

ADDITIONAL EQUIPMENT – delivered upon separate order
1. motor switches
2. isolating switches

6. Assembly and Start-up

Directly, after the fan is taken out of the package, it is important to check the state of the fan and search for damages that occurred during the transport.
WP-N duct fans are installed inside the rooms, in vertical and horizontal ductlines, made of rigid spiral-seam ducts of round section, and diameters: **125**, **160**, **200**, **250**, **315 mm** respectively (see table "Dimensions of the fans"). On the housing is placed an arrow indicating the air flow. It is important to install the fan adequately within the ventilation duct, with reference to this arrow. The fan housing should be fixed to the ventilation ducts by means of rivets or steel sheet screws.
Additionally, the connection fan-duct ought to be sealed with "silicone" or with adhesive tape. Moreover, the fan must be installed on a supporting structure (4 bolts M6), by User on one's own, with reference to local conditions. Hole pattern (spacing) is illustrated in Fig. No.1.
Before connection to the power supply, make sure if the parameters of the existing supply system are according to the nominal data plate. In case of difference, connection cannot be executed.

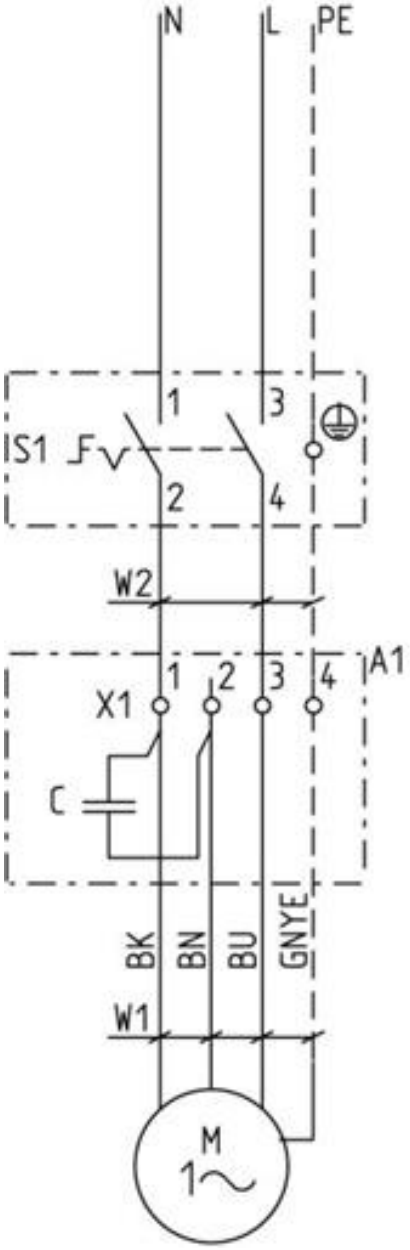
The device has to be connected to the power supply by User on one's own. It is essential to select the appropriate sort and section of the supply cable, and, additionally, choose the appropriate short-circuit- and overload protection – according to the local conditions.

Connection to the power supply system has to be carried out by an authorized person with adequate qualifications, according to the valid regulations of Occupational Health and Safety and information in Fig. No.2.

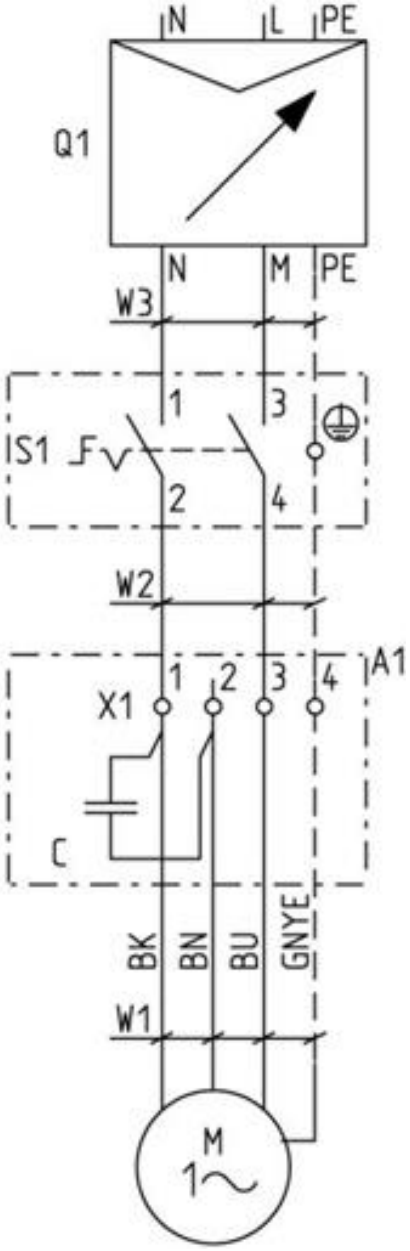
7. Operational Use

Construction of the device guarantees its operational use and reliable function without the continuous everyday technical supervision.
If failures or incorrect function are by noise or visually spotted (i.e. increased noise, vibrations of the ventilation system) – disconnect the fan from the power system, examine it and remove the failure reason.
Most typical operational malfunctions, and their reasons are listed in the Section 8 of the present Use and Maintenance Manual.

System without the speed governor



System with the electronic RP-5-K speed governor



CAUTION:

1. Overload protection has to be selected by the investor
2. Suggested installing place of the isolating switch – near the fan
3. Insulation class **I**
4. Ingress protection **IP44**

Table No.3

Fan	**Motor rate** [W]	**Condenser** [µF]	**Terminal box A1**	**Speed governor**
WP-3-N	66	2,5	FA 20003 IP44 PAWBOL	SLM-0-60-AT SENTERA CONTROLS
WP-5-N	66	2,5		
WP-7-N	130	4		
WP-9-N	168	6		
WP-11-N	240	8		

Cables: W1-300/500 4G1; W2-YdYzo 3G1; W3YDYzo 3G1

Fig. No.2 – Connection Diagram – for the power supply of the WP-N fan

8. Trouble Shooting Guide

Table No.4

	Problem	Possible reason	Corrective action
1.	Sudden and significant decrease in the intake volume flow	Hindrance objects, pollutants reducing the air flow got stack in the duct or in the inlet	Spot the barrier object / pollutant and remove it
2.	Sudden vibrations of the fan are occurring	Foreign object/pollutant jammed within the impeller	Disconnect the fan from the supply line, remove the fan out of the system and remove the obstacle
		The impeller is defective	Replace the impeller for a new
		The bolts or screws between the fan mounting and the ventilation duct got loose	Tighten up the bolts/screws of the fan mounting

9. Maintenance

To obtain correct function of the fan and to observe the principles of Occupational Health and Safety, it is recommended to carry out the technical revisions of the fan in regular periods (e.g. once a year).

WARNING **Any maintenance activities ought to be executed exclusively after disconnection from the power supply system by means of the isolating switch**.

After the technical revision, it is important to pay attention to functioning and the technical state of the fan, and additionally, to the state of the mechanical connections between the ventilation ducts and the connection between the fan and the ventilation ducts as well to examine the electrical connections (among others the connection of the PE protective cable.

WARNING **All the activities connected with technical revisions on the fan have to be carried out by an authorised person with adequate qualifications and necessarily after disconnection from the power supply system.**

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. The fan will not cause any hazard to User / personnel, if it is stably installed to the supporting structure or fastened within the ventilation system. Connect the fan to the power supply 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 use, examine the state of the PE protective cable.

WARNING **Any technical revisions and activities connected with repair, have to be executed, necessarily after disconnection from the power supply system**.

11. Transport and Storage

The fans are wrapped in foil and placed in a cardboard package, on the surface of which is written their weight. During the loading, re-loading and transport, it is not acceptable to throw (or knock down) the packets and to put any load on them.

Do not place one package on top of another, and protect them from atmospheric factors and damage. The device ought to be stored in dry rooms of efficient ventilation.

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 operational use and the present Use and Maintenance Manual,
- damages being effected during the improper transport, storage or incorrect maintenance.

Infringement of the Section 3 "Reservations of producer" of the User's Manual and especially modifications undertaken by User on one's own or operational use that is in contradiction with its purpose shall cause the loss of warranty validity.

13. Sample of the Declaration of Conformity

Declaration of conformity EC No. ……..

Manufacturer (eventually the authorized representative / importer):
name: **KLIMAWENT S.A.**
address: **81-571 Gdynia, Chwaszczyńska 194**

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

hereby declares that the appliance:
name: **Radial Duct Fan**
type/model: **WP-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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• **EN ISO 5802:2008**	– "Industrial Fans – Performance testing in situ of installing

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

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