Use and Maintenance Manual

Chem-proof stationary fans WPA-CHEM

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802W06 WPA-CHEM-160/3000 04.06.2019/EN
802W07 WPA-CHEM-200/3000 04.06.2019/EN
802W08 WPA-CHEM-250/1500 04.06.2019/EN
802W09 WPA-CHEM-300/1500 04.06.2019/EN
802W10 WPA-CHEM-400/1000 04.06.2019/EN
802W11 WPA-CHEM-500/1000 04.06.2019/EN

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 use of the **WPA-CHEM chem-proof stationary 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-CHEM chem-proof stationary 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* /

Additionally, the appliance meets following harmonized standard:

● **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-CHEM chemically resistant stationary fans have been constructed for conveying the air, contaminated with chemically aggressive media (see Table, pages 9-12) of maximum dustiness 0,3 g/m^3 and maximum temperature up to 40ºC. On demand, are available fans of maximum temperature of the forwarded air: up to +60ºC.
These fans cannot convey explosive mixtures. They are designed for general ventilation of rooms and are applied in ventilation systems in industry, agriculture, building construction, as well as in public facilities such as: laboratories, store houses, hospitals, schools, canteens, swimming pools, sewage treatment plants, etc.
The fans carry hygienic certificates issued by National Institute of Public Health of the Department of Communal Hygiene.

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. Installing of any additional elements not belonging to the normal device structure (or accessory set) is not acceptable.

C. Do not undertake any structural changes or constructional modifications on the device on one's own.

D. Protect the appliance's housing from mechanical damage.

E. Prior to installing check the load carrying capacity of the building structure where the device will be mounted. Unsure mounting could cause hazard 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 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. During operation, the maximum impeller rotations should not exceed the nominal rotations.

I. 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 of the fan	Synchronous rotations	Supply voltage	Motor rate	Maximum Volume flow	Maximum vacuum	Acoustic pressure level from distance		Weight
						1m	5m	
	[r.p.m.]	[V]	[kW]	[m³/h]	[Pa]	[dB (A)]		[kg]
WPA-CHEM-160/3000	3000	3x400	**0,37**	1100	950	71	62	14
WPA-CHEM-200/1500	3000??	3x400	**0,55**	2000	900	72	63	25
WPA-CHEM-250/1500	1500	3x400	**0,25**	2000	350	64	56	30
WPA-CHEM-300/1500	1500	3x400	**0,55**	3500	530	68	59	36
WPA-CHEM-400/1000	1000	3x400	**0,55**	5500	400	68	59	60
WPA-CHEM-500/1000	1000	3x400	**2,2**	12200	720	75	66	107

1. Ingress protection IP 55
2. Maximum temperature of the conveyed air is +40ºC. Fans of special execution are adapted for function in temperature +60ºC.
3. Maximum dustiness of the conveyed air is 0,3 g/m^3.
4. On demand are available fans of special execution for supply voltage 1 x 230V.

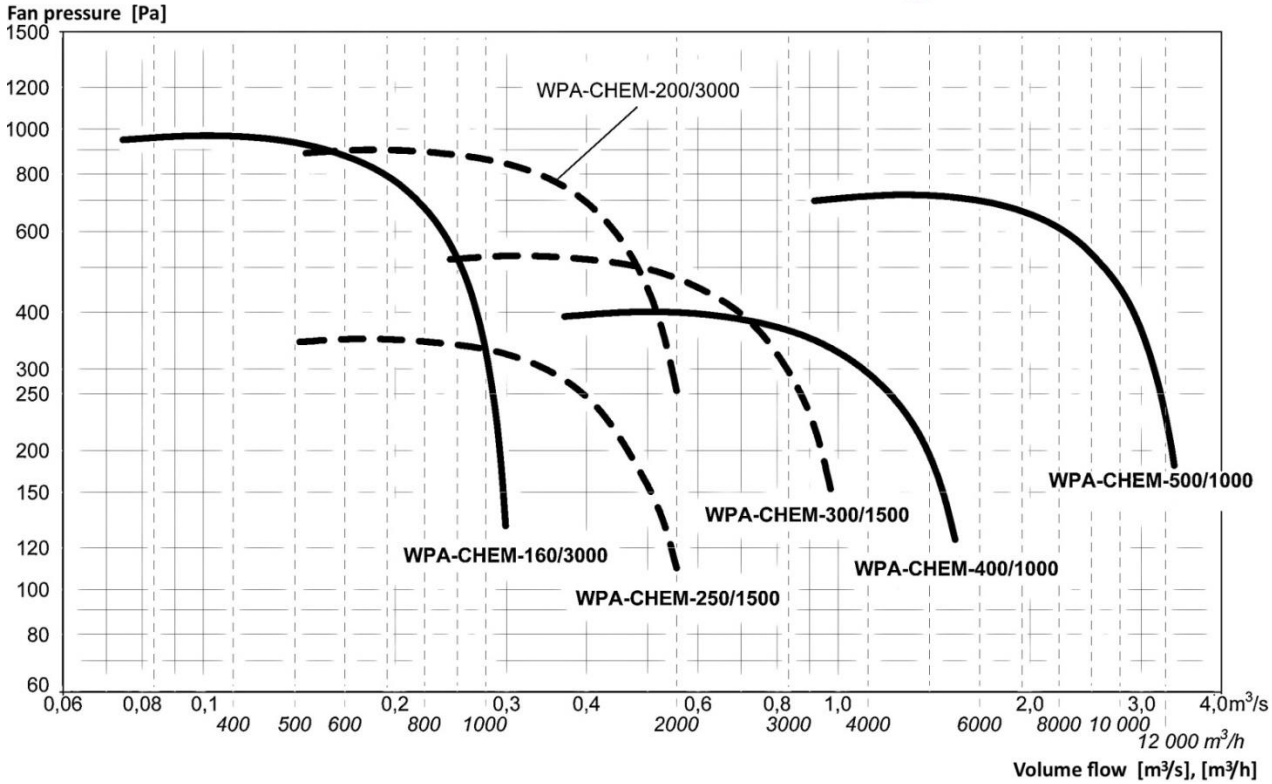

Fig. No.1 – Flow charts of the fans type WPA-CHEM

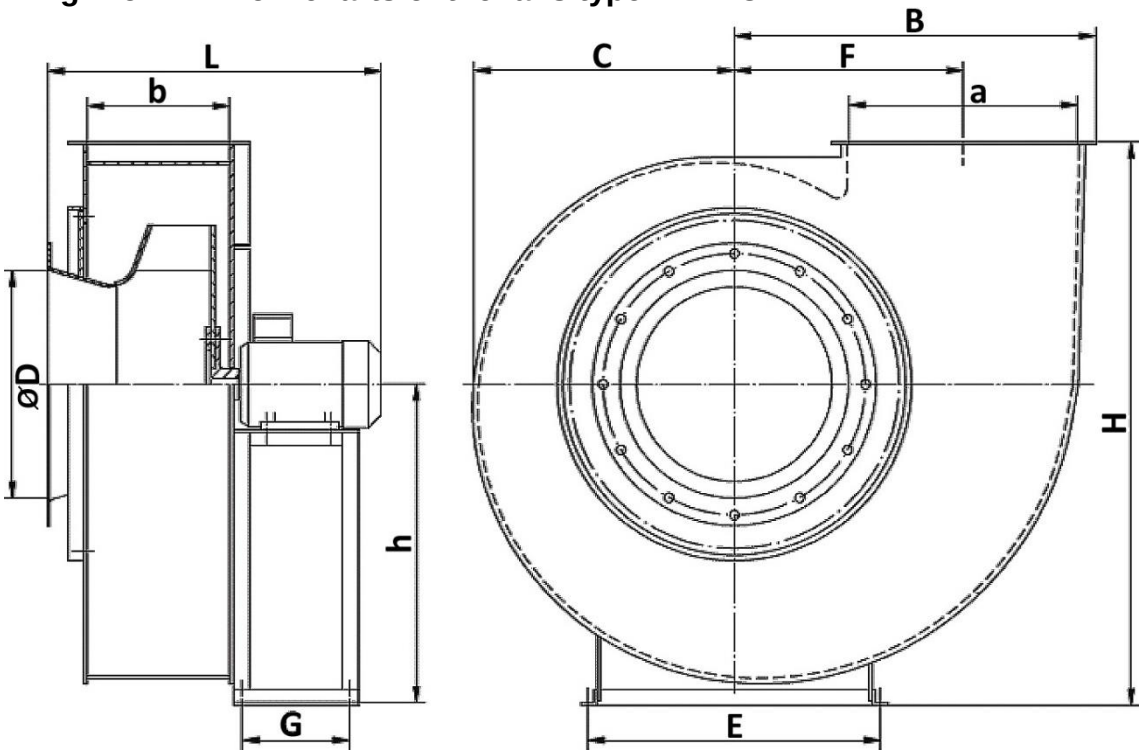

Fig. No.2 – WPA-CHEM – Dimensions

Table No.2 – Dimensions of the fans type WPA-CHEM [dimensions in mm]

Type of the fan	D	a	b	h/RD 0	F	C	G	E	L	H	B
WPA-CHEM-160/3000	160	162	118	263	188	202	150	218	385	501	310
WPA-CHEM-200/3000	200	237	133	326	224	240	370	278	510	568	381
WPA-CHEM-250/1500	250	297	166	398	280	297	405	308	545	698	473
WPA-CHEM-300/1500	300	356	199	482	336	358	440	414	620	848	557
WPA-CHEM-400/1000	400	474	265	617	447	470	580	514	680	1080	728
WPA-CHEM-500/1000	500	500	315	715	500	570	640	640	730	1235	788

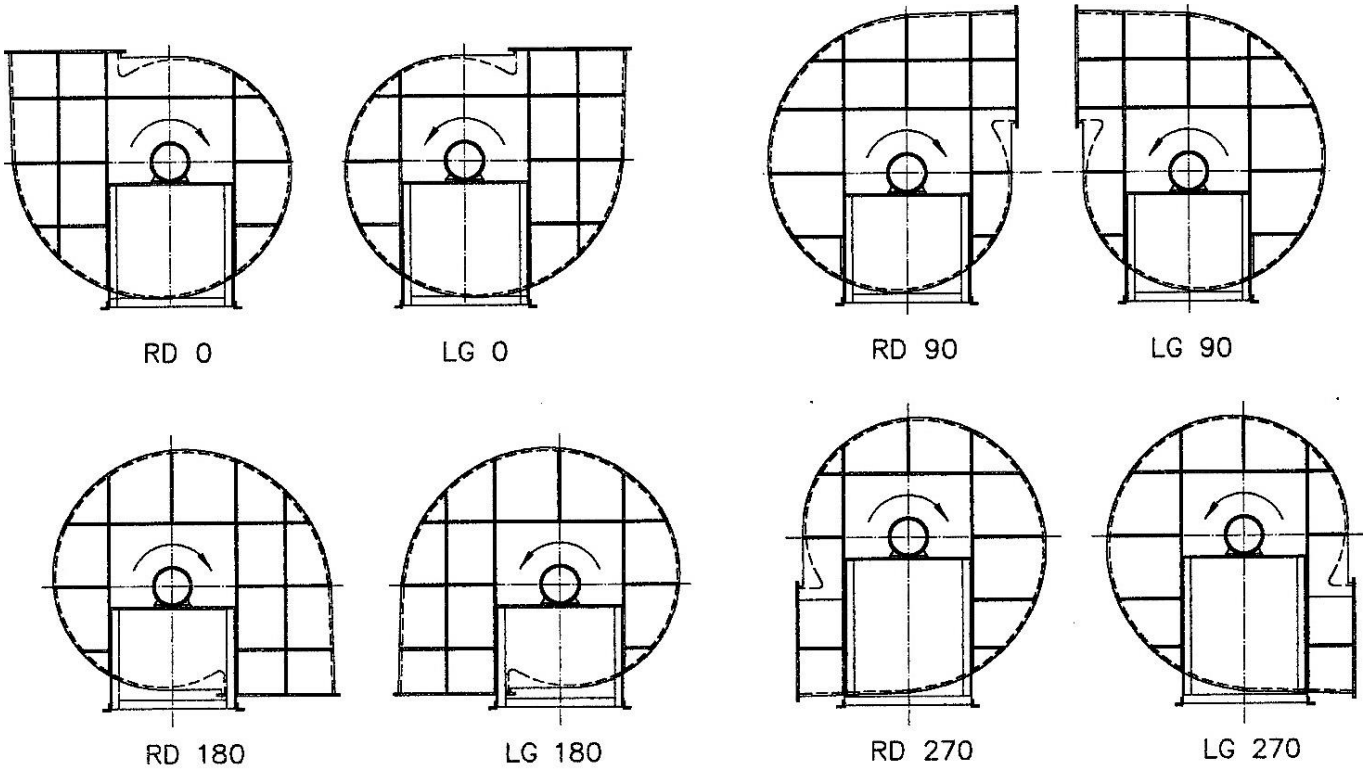

Fig. No.3 – Outlet configurations in fans type WPA-CHEM

5. Structure and Function

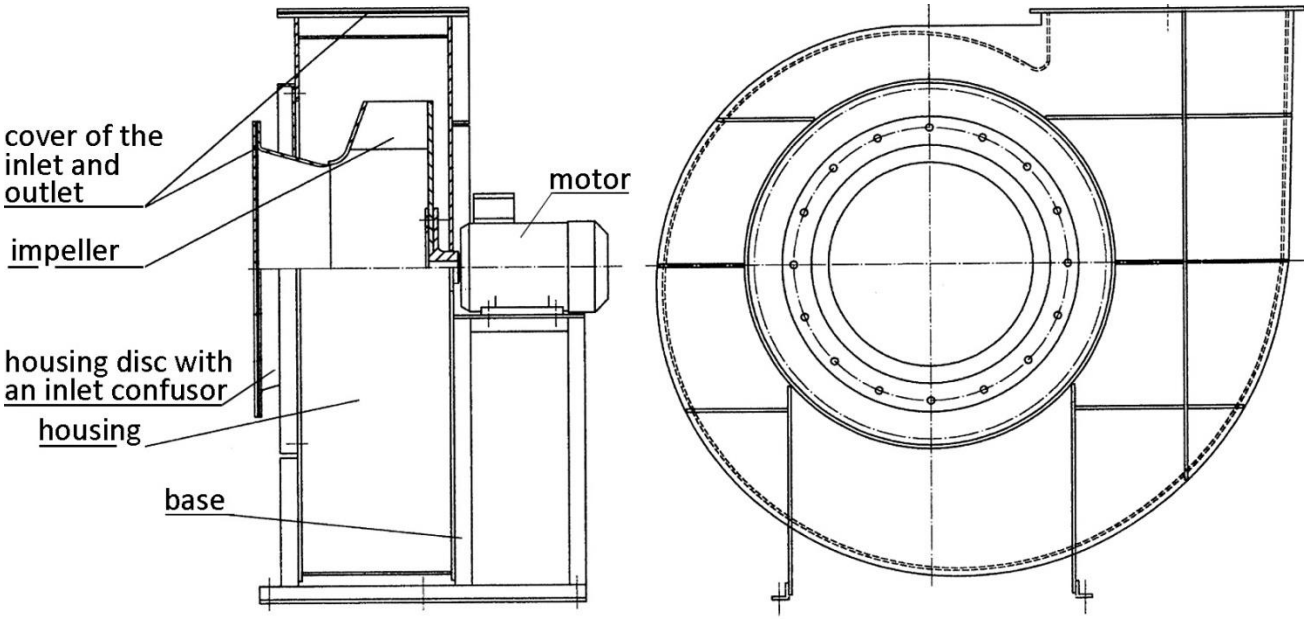

Fig. No.4 – WPA-CHEM – Structure

Impeller is a welded construction, of non-plasticised plates of polyvinylchloride. To the fan impeller is fastened an aluminium hub that (along with the impeller) is connected with the motor pivot. The housing is a welded construction of two parallel walls strengthened with ribs. Between the walls is located a spiral element of the housing.

The housing is made of plates of non-plasticised polyvinylchloride. To the housing disk is welded an inlet confusor. The housing disk is fastened disconnectably, at the front wall of the housing (its easy dismantling provides free access to the impeller).
The inlet confusor is also extruded of a plate of non-plasticised polyvinylchloride. Induction motors on feet are applied as a drive element of the fan, whereby the motor housing is of aluminium alloy.

The fan is efficient in horizontal application and in ambient temperature +40ºC. On demand are delivered motors adapted for operation in ambient temperature up to +60ºC.
Both, the fan housing and motor are installed on the base. The base is a welded construction of steel angle bars.
The plate underneath the motor is made of strengthened steel sheet. In the lower part of the base are located mounting holes to install the fan on a foundation.
The cover of the inlet and outlet protects User from accidental contact with the rotary fan element. Covers (guards) are prepared of steel wire in a form of grill.

On demand, are delivered isolating switches, to cut off the power supply during the installing, servicing (see catalogue card “Electrical Accessories”).

6. Assembly and Start-up

The fan is delivered in a completely assembled state. Prior to installing, examine if the delivered fan was not damaged or polluted during the transport.
The hole pattern of the foundation ought to be strictly according to the distribution of suitable holes in the fan base. Additionally, the holes placement of the inlet and outlet should be suitable with adequate holes of the ventilation ducts. The fan must be placed strictly horizontally (if the device is not levelled, use washers to obtain appropriate positioning).
Moreover, it is important to tighten up evenly the foundation screws. Ventilation ducts must be connected in such a way, that they do not charge the inlet- and outlet flange (of the fan) with excessive load. Therefore, use flexible connections.

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

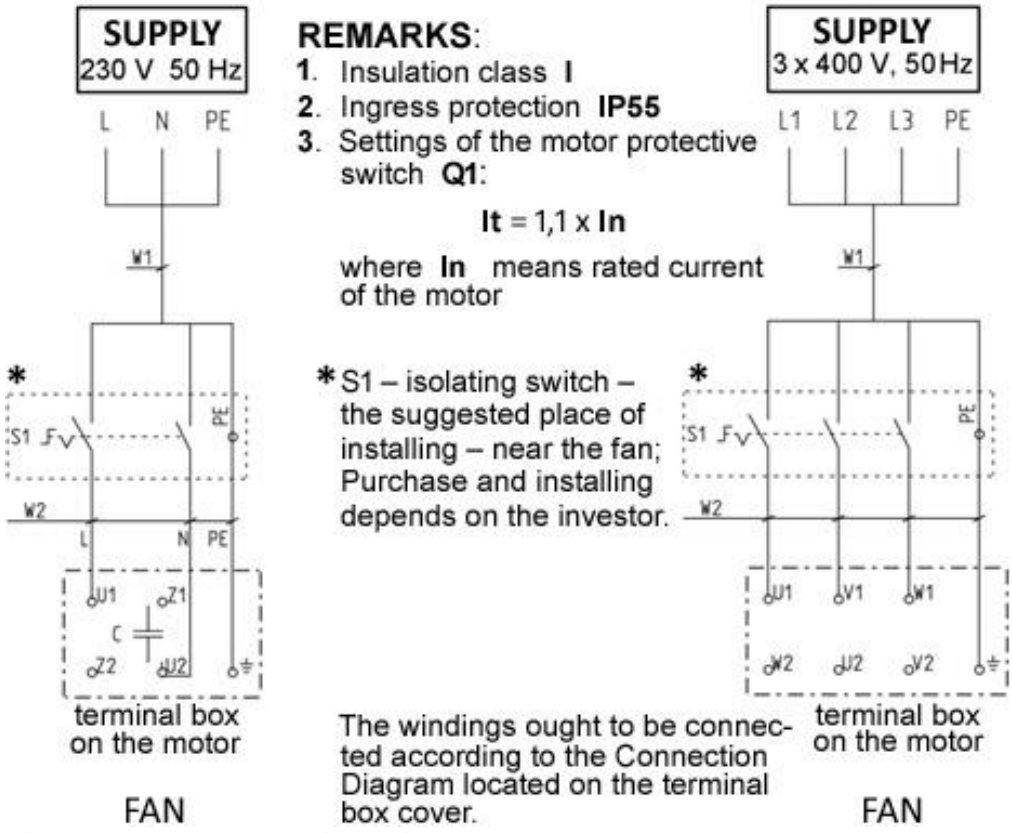

Fig. No.5 – Connection Diagram – WPA-CHEM

Connection to the electrical power system has to be executed by User on one’s own by selecting the right type and the 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 system ought to be carried out aby an authorised person with qualifications, according to the valid regulations and indications in Fig. No.5**.
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, in case of incompatibility change the phase con-nection sequence (3-phase motors only).

Before the first start-up, check the correctness of the connections between the fan and the ventilation dust. Additionally, check if there are some pollutants / foreign objects (solids) in the fan or ventilation ducting.

7. Operational Use

The construction do not require any additional maintenance after the start-up. If the place of operational use is changed – repeat the steps according to installing and adapting the ventilation system to the new application and conditions (see Section 6 of the present Use and Maintenance Manual).
In case when any symptoms of incorrect work of the device are noticed, (not typical noises or visually), follow steps as in Section 8.

8. Troubleshooting Guide

Table No.3

	Problem	Possible reason	Corrective action
1.	Significant and sudden decrease of the intake air occurs.	Obstacle objects reducing the air flow got stack at the inlet grill.	Clean the ventilation ducts.
2.	Sudden vibrations of the fan are occurring.	Obstacle objects reducing the air flow got stack within the impeller.	Disconnect the fan from the power supply system, and remove the hindrance.
		The impeller is defective.	Replace the impeller with a motor for a new one.
3.	Noisy work of the fan along with decreased flow efficiency.	Incorrect impeller rotation sense.	Change the impeller rotation sense by changing the phase connection sequence (three-phase fans only).

9. Maintenance

In the aspect of operational use, the fan construction guarantees its efficient function without continuous routine technical supervision. Nevertheless, during the operation carry out the routine maintenance steps.
Once a year submit the fan to technical revision – the electrical motor ought to be examined according to the instructions of the motor manufacturer.

Every several years, check the mechanical and electrical connections. The electrical installation 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.

WARNING Any maintenance activities ought to be performed exclusively by an authorised person with qualifications and 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 constitute any hazard, under the condition that it is correctly installed to the supporting structure or ventilation system.
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**.
The fan motor must be protected against the short-circuit- and overload effects. During the operational use, check the connection between the fan and the PE protective cable.

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

11. Transport and Storage

For the transport time, the fan should be protected against damage (indentation, crack, etc.). Smaller fans can be forwarded in cardboard packages, whereas the larger ones – should be placed on a pallet, protected with foil.
Use special transporting lines (ropes) attached at the pallet base or at the fan base, in order to displace or lift the device.
The device ought to be stored in dry rooms and in areas of efficient ventilation. Do not put one device on top of another (no stacking).

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 damages and malfunctions caused by User,
- device failures caused during use which was in contradiction with the purpose of application and with the present Use and Maintenance Manual,
- any damages being caused during improper transport, storage or incorrect maintenance.

Infringement of the Clause G Section 3 “Reservations of Producer” of the present Use and Maintenance Manual and especially modifications undertaken by User on one’s own or use in contradiction with the purpose of application – shall result in the loss of warranty validity.

13. Table of resistance of PVC against various substances

Environment	Concentration %	40^{0}C	60^{0}C
Acetone	10	– –	– –
Pure amyl alcohol		+ +	o
Ethyl alcohol (ethanol)	10	+ +	+
Non-fermentative isopropyl alcohol	70 - 99	+	
Methyl alcohol (methanol)	96	+ +	–
Methyl alcohol (aqueous solution)	100	+ +	+
Ammonia, aqueous solution	50	+ +	+
Potassium nitrate, aqueous solution	saturated	+ +	+ +
Sodium nitrate, aqueous solution	saturated	+ +	+ +
Calcium nitrate, aqueous solution	saturated	+ +	+ +
Benzene	100	– –	– –
Painter's naphtha, mineral spirit		+ +	+
Liquid butane	100	+ +	
n-butanol (butyl alcohol)	100	+ +	o
Liquid chlorine	100	– –	
Dry gaseous chlorine	100	– –	
Potassium chlorate	7,3	+ +	o
Sodium chlorate, aqueous solution	25	+ +	+ +
Ammonium chloride, aqueous solution	all	+ +	+ +
Zinc chloride		+ +	+ +
Ethylene chloride	100	– –	– –
Methyl chloride	100	– –	– –
Potassium chloride, aqueous solution	saturated	+ +	+ +
Sodium chloride, (domestic salt) aqueous solution	saturated	+ +	+ +
Sodium chloride, aqueous solution	5	+ +	+ +
Chlorobenzene	100	– –	– –
Cadmium cyanide		+	+
Copper cyanide		+	+
Potassium cyanide		+	+
Mercuric cyanide		+	+
Sodium cyanide		+	+
Silver cyanide		+	+
Cyclohexane	100	+ +	o
Cyclohexanol	100	+ +	–
Cyclohexanon	100	– –	– –
Carbon tetrachloride	100	– –	– –
1,4-dioxane	100	– –	– –
Carbon disulphide	100	– –	– –
Sulphur dioxide	saturated	+ +	+ +
Ethyl ether	100	– –	
Petroleum ether	100	+ +	+
2-etylohexanole	100	+ +	+
Phenol, aqueous solution	approx. 9	o	– –
Formaldehyde	40	+ +	
Formalin	10	+ +	

Environment	Concentration %	40°C	60°C
Ammonia phosphate	all	+ +	+ +
Glycerine	100	+ +	+ +
Glycol	100	+ +	+ +
Heptane	100	+ +	
Izopropanol	100	+ +	
Chromium bath, technical		+ +	o
Methyl-ethyl ketone	100	– –	– –
Cresols	100	– –	– –
Accumulator acid (H_2SO_4)		+ +	+ +
Nitric acid	10 / 50	+ + / + +	+ +/ +
Boric acid	100	+ +	+ +
Hydrocyanic acid		+	
Citric acid	saturated	+ +	+ +
Hydrofluoric acid	8 - 50	+	– –
Phosphoric acid	50 / 85	+ + / + +	+ + / + +
Lactic acid, aqueous solution	90	+ +	+ +
Formic acid	10 / 50	+ + / + +	+ / +
Formic acid	98	+	
Acetic acid, icy	100	o	– –
Acetic acid, aqueous solution	50	+ +	–
Oleic acid	100	+ +	o
Sulphuric acid	3–50 / 96	+ / o	+ / – –
Sulphuric acid	50 /10	+ + /+ +	+ + / + +
Hydrochloric acid	35	+ +	+
Stearic acid	100	+ +	+
Oxalic acid	saturated	+ +	+ +
Acidic sodium carbonate, aqueous solution	saturated	+ +	+ +
Acidic sodium sulphate, aqueous solution	saturated	+ +	+ +
Nail lacquer		o	
Lysol		–	– –
White liquor (12,5% of the active chlorine)		+ +	o
Potassium lye	10 / 50	+ + / + +	+ + / + +
Potassium permanganate, aqueous solution	saturated	+ +	+
Hydrogen peroxide	30	+ +	
Naphthalene	100	o	- -
Nitrobenzene	25 / 100	+ + / - -	+ + / - -
Table vinegar		+ +	+ +
Butyl acetate	100	– –	– –
Ethyl acetate	100	– –	– –
2-butoxyetyl acetate		+	
Edible vegetable oil		+ +	+ +
Edible animal oil		+ +	+ +
Coconut oil		+ +	+ +
Linseed oil		+ +	+
Olive oil		+ +	+ +
Paraffin oil	100	+ +	+ +

Environment	Concentration %	40°C	60°C
Soybean oil		+ +	+ +
Turpentine oil		+ +	o
Transformer oil		+ +	
Mineral oils (without aromatic hydrocarbons)		+ +	+
Furnace oils		+ +	o
Silicone oils		+ +	
Engine oils, car oils		+ +	+
Pine oil	100	+ +	
Vapours of ethoxyl amines		– –	– –
Vapours of chlorides		+	
Vapours of ferrous chloride $FeCl_2$	20	+	
Vapours of acetic acid		+ +	
Vapours of hydrochloric acid	30	+	
Vapours of oxy-oxygen fatty alcohols		+	
Vapours of orange oils		– –	– –
Vapours of poly-glycols		+	
Vapours of ammonia soda (soda ash) and of caustic soda		+ +	
Vapours of tio-urea		+	
Vapours of aliphatic hydrocarbons		+	
Gaseous ozone		+ +	
Automotive fuel (normal petrol)		+ +	+
Automotive fuel (petrol super)		–	– –
Automotive fuel (diesel oil)		+ +	+
Paraffin	100	+ +	- -
Beer		+ +	+ +
Brake fluid		+ +	+ +
Anti-freeze fluid (di-ethylene glycol)		+ +	+ +
Sodium hypochlorite, aqueous solution	5	+ +	
Liquid propane	100	+ +	
Cresol solution		–	– –
Soap solution	saturated	+ +	+ +
Mercury	100	+ +	+ +
Rum	40	+ +	+ +
Potassium sulphate, aqueous solution	saturated	+ +	+ +
Sodium sulphate, aqueous solution	saturated	+ +	+ +
Sodium sulphide, aqueous solution	saturated	+ +	+ +
Sodium sulphite, aqueous solution	saturated	+ +	+ +
Hydrogen sulphide	saturated	+ +	+ +
Pitch (tar)		+ +	+ +
Lemon juice		+ +	+ +
Brine (leach)	saturated	+ +	+ +
Dry salt		+ +	+ +
Agent for dishwashing, liquid		+ +	+ +
Tetra-chlor-ethane	100	– –	– –
Tetra-chlorethylene (per-chlorethylene)	100	– –	– –
Tetra-hydrofurane	100	– –	– –

Environment	Concentration %	40°C	60°C
Sodium tio-sulphate (fixative)	saturated	+ +	+ +
Toluene	100	– –	– –
Chlorinated lime		+	
Potassium carbonate, aqueous solution	saturated	+ +	
Sodium carbonate, aqueous solution	saturated	+ +	+ +
Water	100	+ +	+ +
Chlorinated water	saturated	+	
Aqua regia (nitro-hydrochloric acid)		+	
Seawater		+ +	+ +
Sodium hydroxide	50	+	+
Sodium hydroxide (caustic soda)	100	+ +	+ +

+ +	resistant
+	conditionally resistant with the occurrence hazard of tensioning stress cracks
0	conditionally resistant
–	low resistant
– –	not resistant

14. 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: **chem-proof stationary fans**

type/model: **WPA-CHEM**
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 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 po-wer between 125W and 500 kW /*Journal of Laws L No. 90 of 06.04.2011*/

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● **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".

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

KLIMAWENT S.A.
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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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