

Use and Maintenance Manual



Extraction rail ERGO-KOS-AL

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804K08 KOS-AL 30.01.2019/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 **ERGO-KOS-AL extraction rail**.

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.

Construction of the **ERGO-KOS-AL** extraction rail 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*/

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”

2. Application

ERGO-KOS-AL is designed for extraction of welding fumes at mobile workplaces – for linear welding of elements of length up to several metres. The system can work with one or two extraction fans, depending on the quantity of extraction arms (one extraction arm is subordinated to one fan).

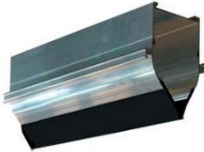
3. Reservations of Producer

- 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 flexible elements and the suction ducts from mechanical damage.
- E. Prior to installing, check the load carrying capability of the building structure where the system will be mounted. Unstable installing can result in uncontrolled device detachment and hazard to personnel / people in the vicinity.


4. Technical Data

Table No.1


Self-tightening suction duct

	Type	Part. No	Segment length [m]	Cross-section [cm ²]	Unit weight [kg/m]
	KOS-AL	804K08	2 or 4	290	9,7


Trolley

	Type	Part. No	Weight [kg]
	OP-ERGO-L	851W10	9



ERGO extraction arms

	Type	Part. No	Weight [kg]	Exact dimensions of the ERGO-LUX and ERGO-Flex LUX extraction arms are specified in separate user's manuals and catalogue cards.
	ERGO-LUX-2	811R54	16,2	
	ERGO-LUX-3	811R55	18,3	
	ERGO-Flex LUX-2	811R82	6	
	ERGO-Flex LUX-3	811R83	8	


Axial connection

Sort of the connection	Type	Part. No	Diameter	Remarks
 for axial connection	KPC	804K20	160	To connect the suction duct to the extraction installation

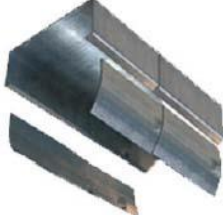
Duct hanger

Sort of the hanger	Type	Part. No	Remarks
 for roof installing	Z	804K29	The hangers should be fastened to the duct by bolting. Distances between the hangers should not be larger than 3 metres.
 for wall installing	L	804K27	


Terminal stopper

	Typ	Nr kat.	Uwagi
	STK	804K30	Serves to stop the suction trolley at the end of the duct.

Duct segment joint

	Type	Part. No
	KSG	804K21

Duct end closing

	Type	Part. No	Remarks
	PZC	804K22	To be installed at the beginning of the first and at the end of the last segment of the duct.

5. Structure and Function

ERGO-KOS-AL system consists of subsequent assemblies:

- self-tightening suction duct – KOS-AL – constructed of segments of lengths 2 or 4 metres,
- trolley – displacing along the suction duct,
- ERGO LUX or ERGO FLEX LUX extraction arms – suspended under the suction trolley,
- fitting pieces and supporting elements – according to the Tab. No.1 “Technical Data”,

During welding the operator displaces the ERGO extraction arm with the trolley along the suction duct. The suction hood ought to be adjusted at a distance at least ca. 30 cm from the welding point.

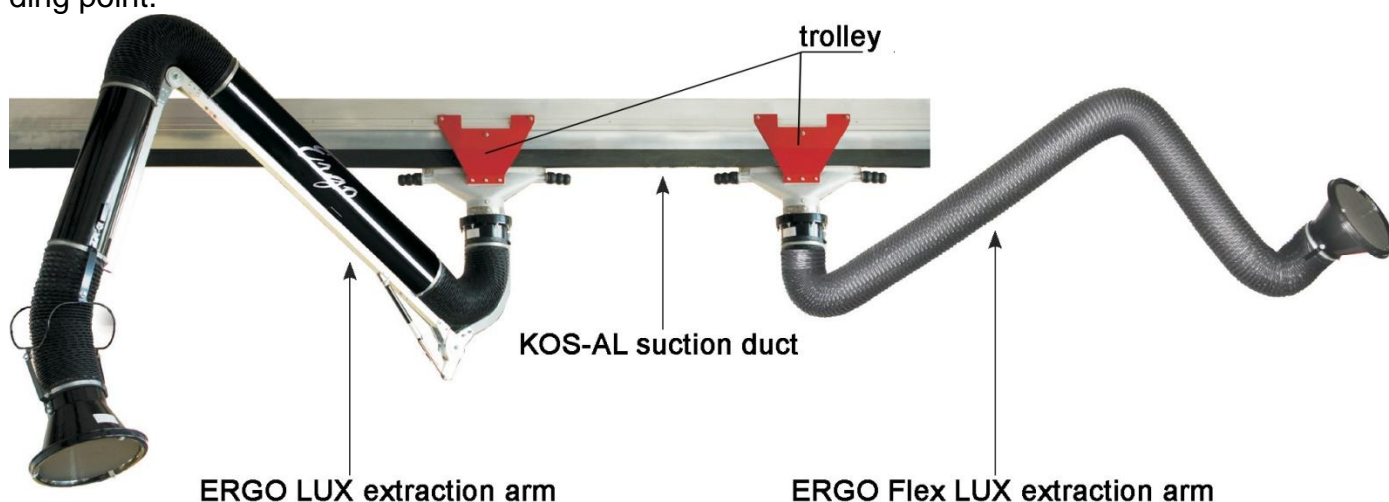


Fig. No.1 – ERGO-KOS-AL rail system for contamination extraction

6. Assembly and Start-up

All the constructional elements of the KOS-AL duct are listed in Table No.1 “Technical Data”. Installing of the duct ought to be executed in definite height, according to the particular requirements. On the other hand, the installing height must provide sufficient space for convenient manoeuvring with the ERGO extraction arm above the workplace.

In case of a high ceiling of the process hall, the duct should be installed to the roof trusses through an intermediate beam (see Fig. No.2).

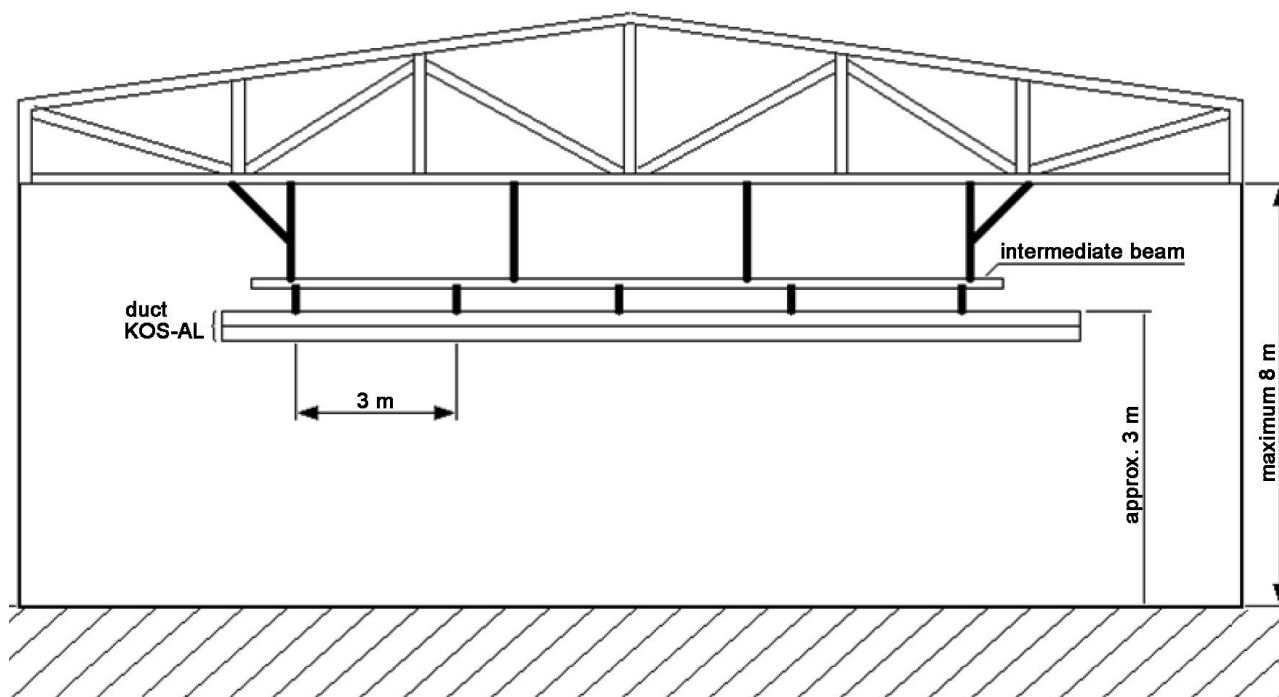


Fig. No.2 – Installing example of the suction duct – through an intermediate beam to the roof truss in a high ceiling process hall

Because of the high requirements for the installing of the system – these works should be executed exclusively by an installing team of the manufacturer or under supervision of an authorized person. There are special guidelines in the Assembly Instructions of the KOS-AL suction duct and in for the extraction arms.

Installing the trolley on the suction duct:

Slide the OP-ERGO-L trolley into the KOS-AL suction duct – in such a way that:

- the trolley rollers are displacing on the side guide-rails of the duct profile,
- two straps of the rubber apron should hold the suction fitting of the trolley from both sides.

Installing of the ERGO extraction arms:

Extraction trolley is equipped with a flange that is identical with the one at the mounting swivel of the ERGO LUX and ERGO-FLEX LUX extraction arm. The swivel ought to be fixed through M6 bolts (6 pieces) to the trolley flange.

NOTE: The extraction arms themselves ought to be assembled according to their manual / assembly instruction for extraction arms. Extraction arms are delivered in a partly assembled state.

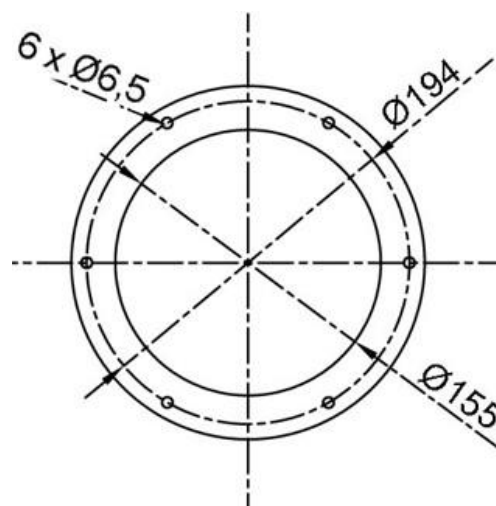


Fig. No 3

Execution of the complete extraction system based on the KOS-AL self-tightening suction duct and ERGO extraction arms

According to the chosen extraction fan, the complete extraction system consists of subsequent elements:

- Extraction system with a roof fan:
 - a/ assembly of the **KOS-AL** self-tightening suction duct and trolley along with the **ERGO LUX** or **ERGO-FLEX LUX** extraction arm,
 - b/ elements of the extraction system at the suction side of the fan – connecting the self-tightening duct with the fan,
 - c/ roof fan.
- Extraction system with a fan for indoor installing:
 - a/ assembly of the **KOS-AL** self-tightening suction duct and trolley along with the **ERGO LUX** or **ERGO-FLEX LUX** extraction arm,
 - b/ elements of the extraction system at the suction side of the fan – connecting the self-tightening duct with the fan,
 - c/ fan,
 - d/ elements of the extraction installation at the outlet side of the fan – connecting the fan with the air discharge outlet.

In order to select the fan, carry out the flow resistance calculation for all the elements of the designed installation.

Flow charts of the extraction arms:

Flow resistances [Pa]

ERGO LUX-L

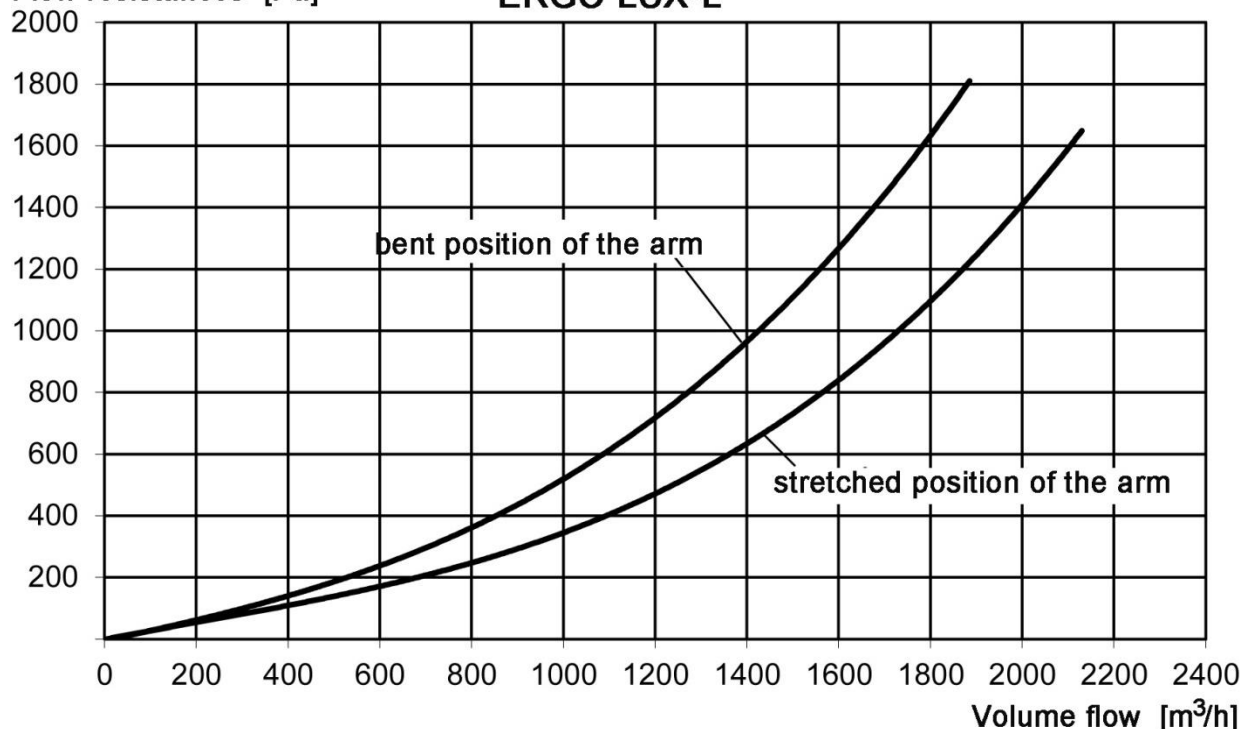


Fig. No.4

ERGO-FLEX LUX-2

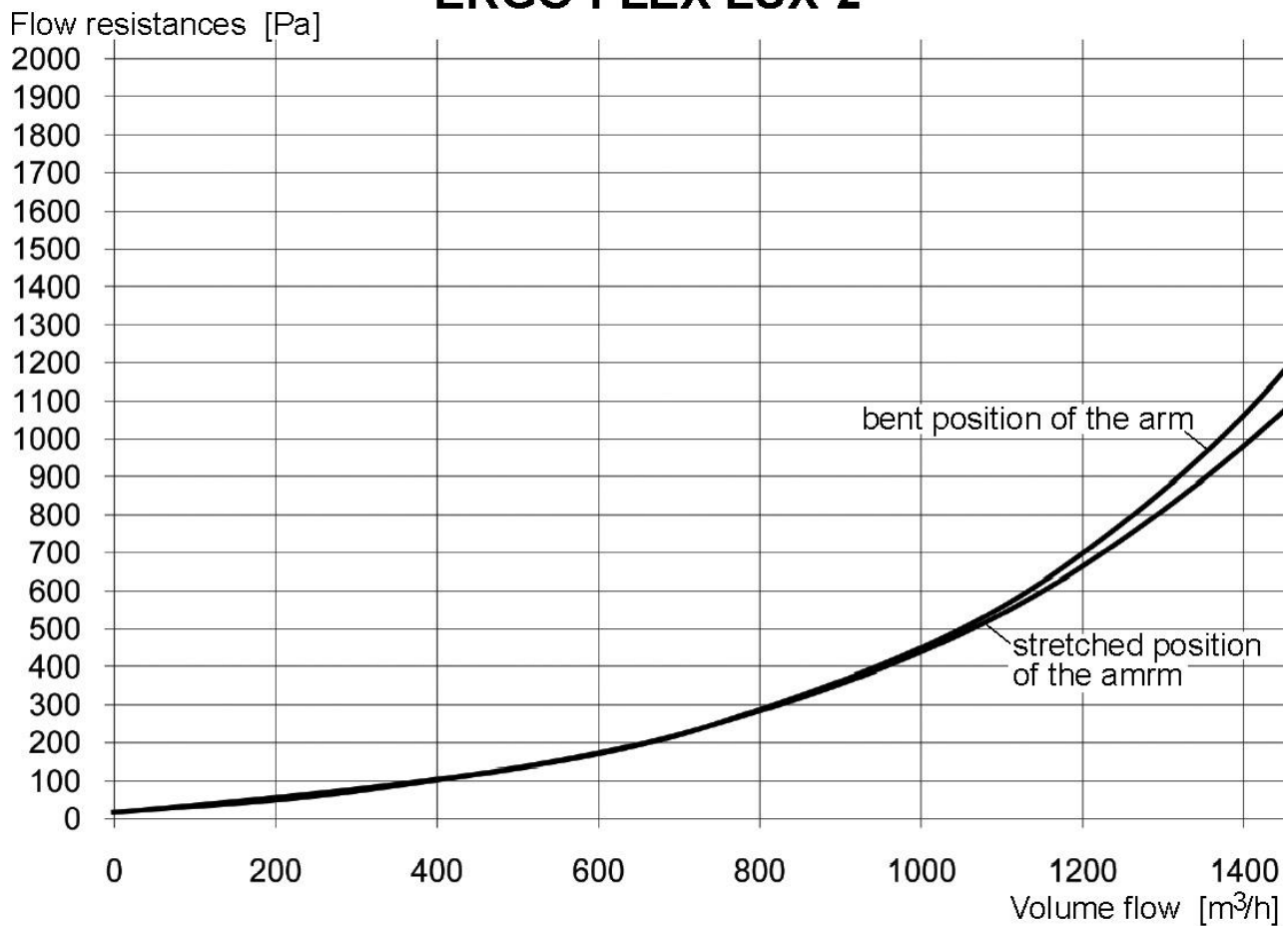


Fig. No.5

ERGO-FLEX LUX-3

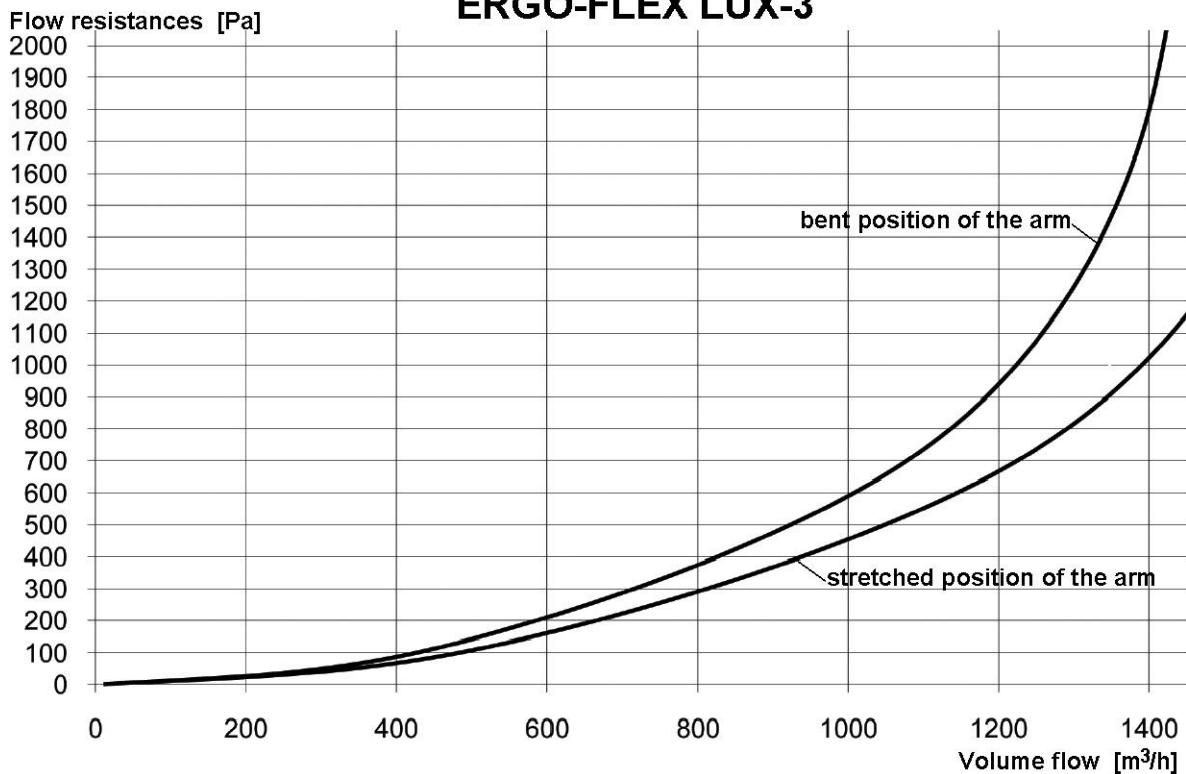


Fig. No.6

Connection between the suction duct and the extraction fan:

The **KPC** connection (of the **KOS-AL** duct) ought to be connected with the fan inlet by means of conduits and fitting pieces type **SPIRO** spiral-seam duct. The diameters of these elements should match the assumed duct connections.

It is recommended:

- to install a silencer type **T** before the fan inlet – the silencer length ought to be not less than 500 mm,
- to connect the inlet and outlet of the fan with the installations by means with a flexible joint.

Flexible joints do not convey vibrations from the fan to the installation. Depending on the type, the fan has to be installed on the roof on a fan pedestal or on a roof base, in case of indoor application – on wall brackets.

Selection of a fan:

- a/ For applications with an indoor fan we suggest using the fan **WPA-E-N** series of fans of KLIMAWENT S.A. production.

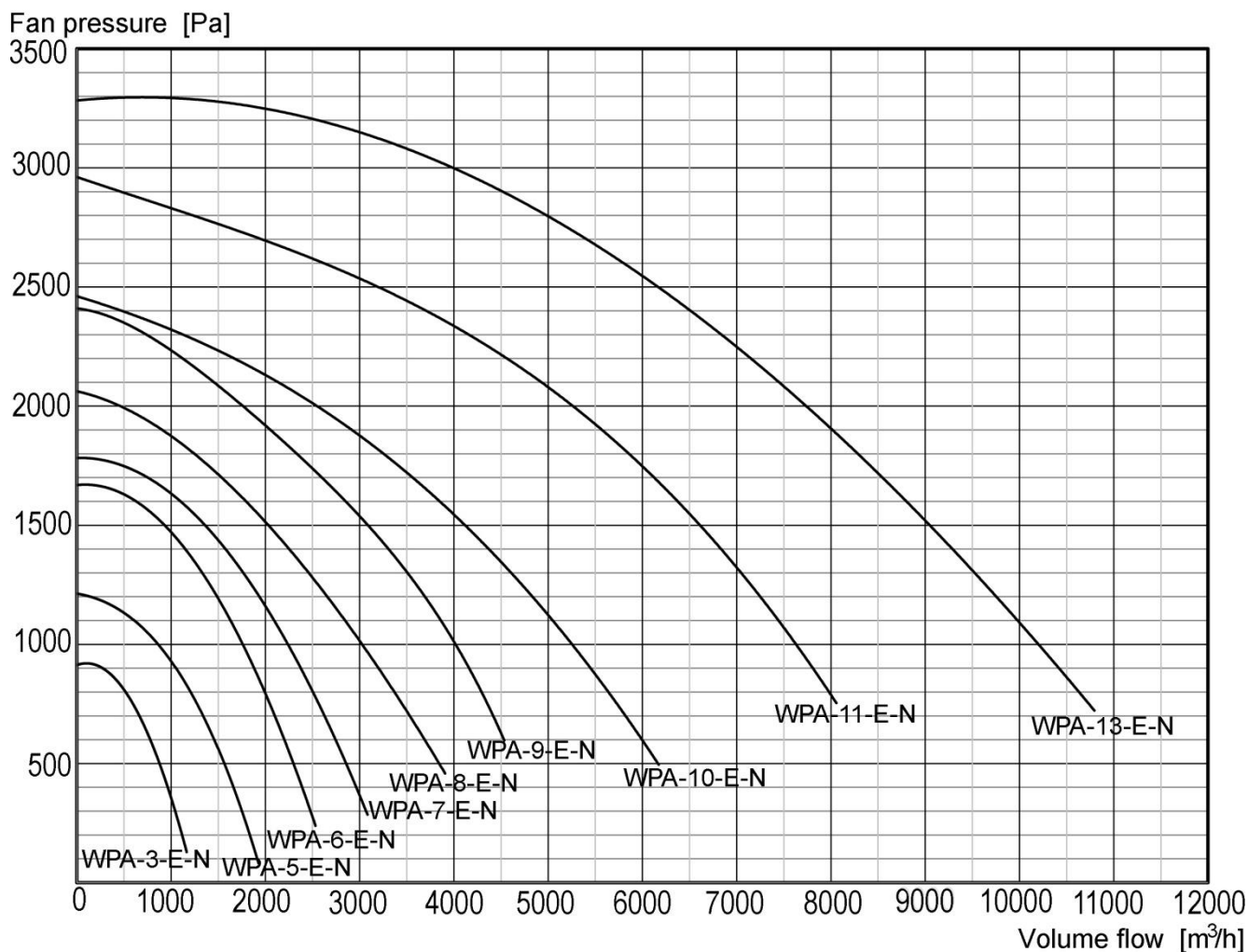


Fig. No.7 – WPA-E-N – Flow charts

Tab No. 2 – WPA-E-N – Technical Data:

Type of the fan	Synchronous rotations [r.p.m.]	Supply voltage [V]	Motor rate [kW]	Ingress protection IP	Acoustic pressure level [dB(A)] from distance		Maximum volume flow [m³/h]	Maximum vacuum [Pa]	Weight [kg]
					1m	5m			
WPA-3-E-1-N	3000	230	0,25	54	78/70*	64/56*	1160	940	12
WPA-3-E-3-N		3 x 400							
WPA-5-E-1-N	3000	230	0,37	54	76/67*	62/53*	1900	1250	16,5
WPA-5-E-3-N	3000	3 x 400	0,37	54	76/67*	62/53*	1900	1250	
WPA-6-E-1-N	3000	230	0,75	54	83/75*	69/61*	2500	1700	21
WPA-6-E-3-N	3000	3 x 400	0,75	54	83/75*	69/61*	2500	1700	
WPA-7-E-1-N	3000	230	1,1	54	86/74*	72/60*	3100	1800	23
WPA-7-E-3-N	3000	3 x 400	1,1	54	86/74*	72/60*	3100	1800	
WPA-8-E-3-N	3000	3 x 400	1,5	54	88/78*	74/64*	3900	2050	29
WPA-9-E-3-N	3000	3 x 400	2,2	54	91/82*	77/68*	4500	2400	36
WPA-10-E-3-N	3000	3 x 400	3,0	54	91/81*	77/67*	6200	2450	50
WPA-11-E-3-N	3000	3 x 400	5,5	54	97/88*	83/74*	8050	2950	64
WPA-13-E-3-N	3000	3 x 400	7,5	54	99/90*	85/76*	10800	3300	85

a/ For applications with a fan located on the roof we suggest using the fan **WPA-D-N** series of fans of KLI-MAWENT S.A. production.

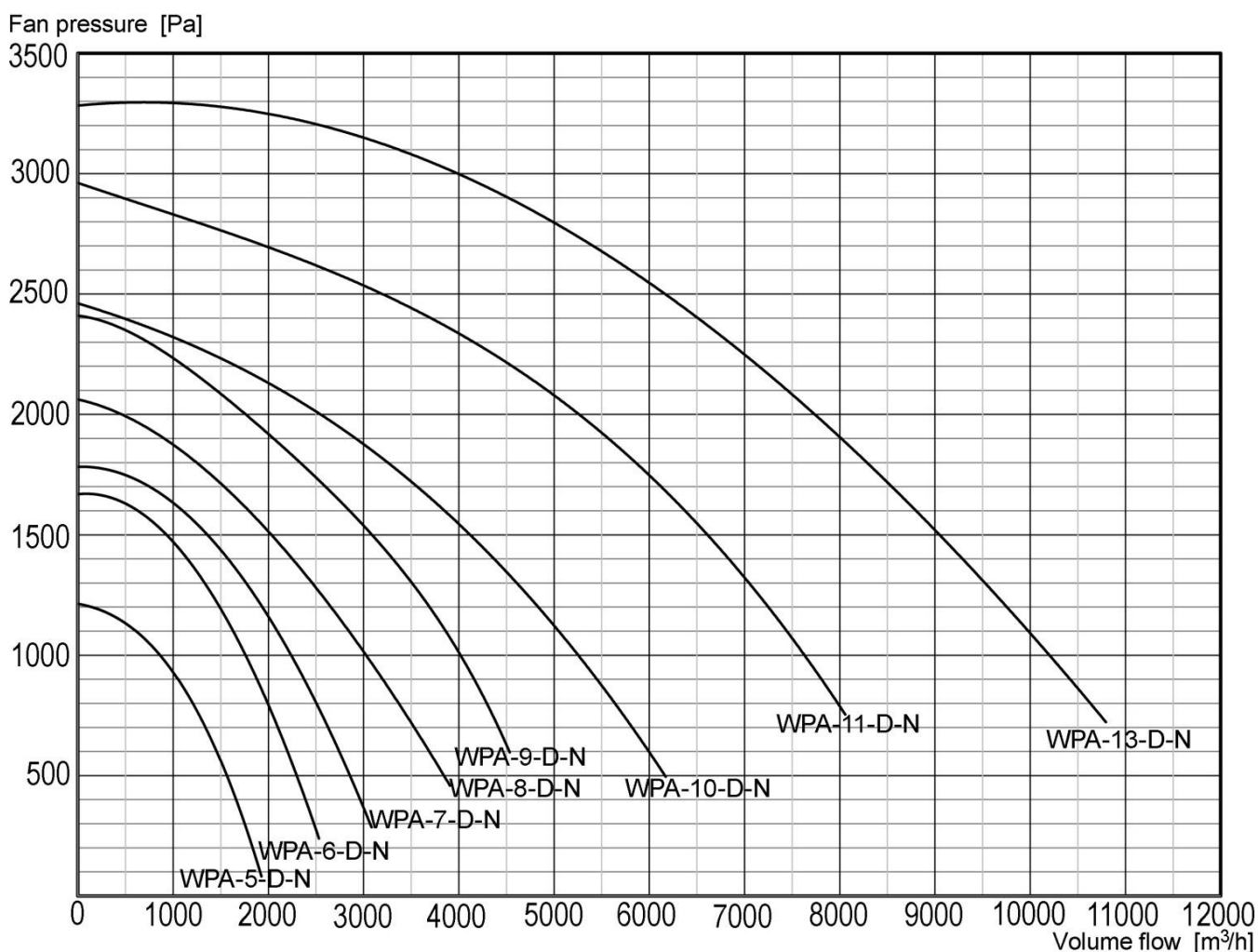

Fig. No.8 – WPA-D-N – Flow charts

Table No.3

Type of the fan	Synchronous rotations [r.p.m.]	Supply voltage [V]	Motor rate [kW]	Ingress protection IP	Acoustic pressure level [dB(A)] from distance		Maximum volume flow [m³/h]	Maximum vacuum [Pa]	Weight [kg]
					1m	5m			
WPA-5-D-1-N	3000	230	0,37	54	73/67*	59/53*	1900	1250	23
WPA-5-D-3-N		3 x 400							
WPA-6-D-1-N	3000	230	0,75	54	78/75*	64/61*	2500	1700	28
WPA-6-D-3-N		3 x 400							
WPA-7-D-1-N	3000	230	1,1	54	81/74*	67/60*	3100	1800	30
WPA-7-D-3-N		3 x 400							
WPA-8-D-3-N	3000	3 x 400	1,5	54	82/78*	68/64*	3900	2050	36
WPA-9-D-3-N	3000	3 x 400	2,2	54	86/82*	72/68*	4500	2400	45
WPA-10-D-3-N	3000	3 x 400	3,0	54	87/81*	73/67*	6200	2450	58
WPA-11-D-3-N	3000	3 x 400	5,5	54	91/88*	77/74*	8050	2950	77
WPA-13-D-3-N	3000	3 x 400	7,5	54	95/90*	81/76*	10800	3300	98

Prior to operational use switch on the extraction fan and make sure that the installation is functioning properly.

7. Operational Use

Low displacement resistance of the suction trolley and easy manoeuvring with the extraction arm provide a convenient use of the whole extraction system. By means of the shut-off damper lever, adjust the volume flow of the extracted air, in a way that efficiently eliminates the fume and dustiness, not causing excessive draft.

During the operational use, the position of the extraction arm and of the shut-off lever can be changed several times adapting the system to the current needs of User.

Having completed the work close the shut-off damper (in the suction hood), as this will improve the suction capacity in the second extraction arm.

One suction duct provides operational space for simultaneous function of two extraction arms. Adjustment of the brakes (in the arm joints), ought to be performed according to the individual instructions of the subsequent extraction arms.

8. Troubleshooting Guide

Table No.4

	Problem	Possible reason	Remedial measure
1.	The extraction arm is falling. falling	Improperly adjusted frictional brake in the joint	Increase the tension upon frictional disks of the brake in the joint by tightening the adjustment nuts
2.	Drop in the air suction rate along with the increased noise level of the extraction installation and arm	Improper impeller rotation sense of the extraction fan	Change the phase connection sequence
		The mesh holes of the inlet net are clogged	Clean them using a wire brush
	Suddenly occurring vibrations of the fan	Foreign matter / object got stuck within the impeller	Disconnect the motor and remove the object
		Impeller failure	Replace the impeller for a new

9. Maintenance

The maintenance consists in following steps:

- In order to obtain appropriate capture efficiency of the suction hood, clean its surface and the inlet wire-mesh net from the deposited dusts and impurities.
In case of welding dusts, additionally – sprinkle the hood with an anti-spattering liquid to avoid adhering / clinging the welding chippings.
- In case when the extraction arm is losing its self-supporting properties – undertake adjustment of its frictional brakes (to regain self-locking function of the joints).
- Lubricate the swivel every 3 months, using solid grease (lubrication nipple is located in the swivel flange).
- After 1 operational year, submit the device to a technical revision and repair or replace the faulty element.
- Clean the internal surfaces of the extraction conduits (segment ducts) from the deposited impurities. Revision frequency depends on the operational intensity.

Every three months, it is recommended to examine the pollution state of the discharge conduits and clean them when relevant.

10. Occupational Health and Safety

The ERGO extraction arms will not cause any risk provided that they are firmly and correctly mounted to the wall or another structural element of the building.



Unsure installing could cause uncontrolled detachment of the device and cause severe hazard to personnel / people in the vicinity.

Start-up and maintenance are exclusively possible after getting acquainted with the contents of the present Use and Maintenance Manual.

For the safety reasons, connect the device to the power supply system according to the being in force regulations within the range of personal protection against the electrical shock and the short-circuit- and overload effects.



Any activities related to device connection to the power supply system should to be performed by an authorised person with qualifications.
Maintenance and repairs should be executed after the appliance is switched off and disconnected from the power supply system.

It is important to control the impeller rotation sense of the fan, it should be according to the arrow on the housing (for 230/400V; 50Hz only). Having completed the work, leave the extraction arm in the ultimate operational position, in case when it constitutes barrier to User / personnel in the vicinity, set the arm into home position.

11. Transport and Storage

For the time of transport the duct segments are in packages to protect them from mechanical damage.

Extraction arms are conveyed in a partly assembled state, in special packages. The devices ought to be stored in dry rooms and areas of efficient ventilation.

The transport / reloading ought to eliminate the hazard of damage, scratching, indents of the elements of the system.

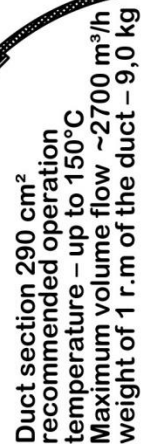
Pay attention that the packages would not get damaged, and the markings on the surface would not get obliterated or detached.

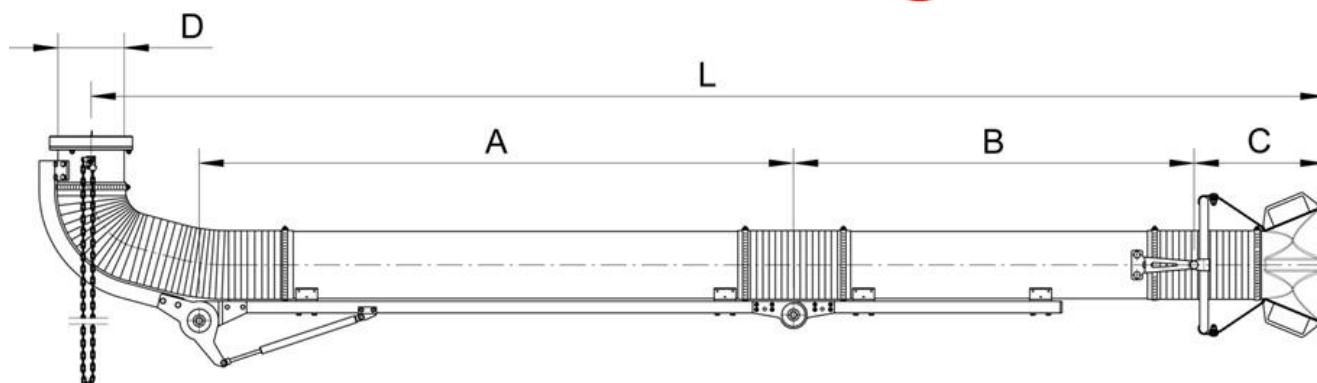
12. Terms of warranty

The period of warranty for the purchased device is indicated in the “Card of Warranty”. The warranty does not comprise:

- device failures caused during the use which is in contradiction with the purpose of application and with the present Use and Maintenance Manual,
- mechanical damages and malfunctions caused by User,
- changes / modifications introduced by User on one's own,
- malfunction resulting from the normal operational wear.

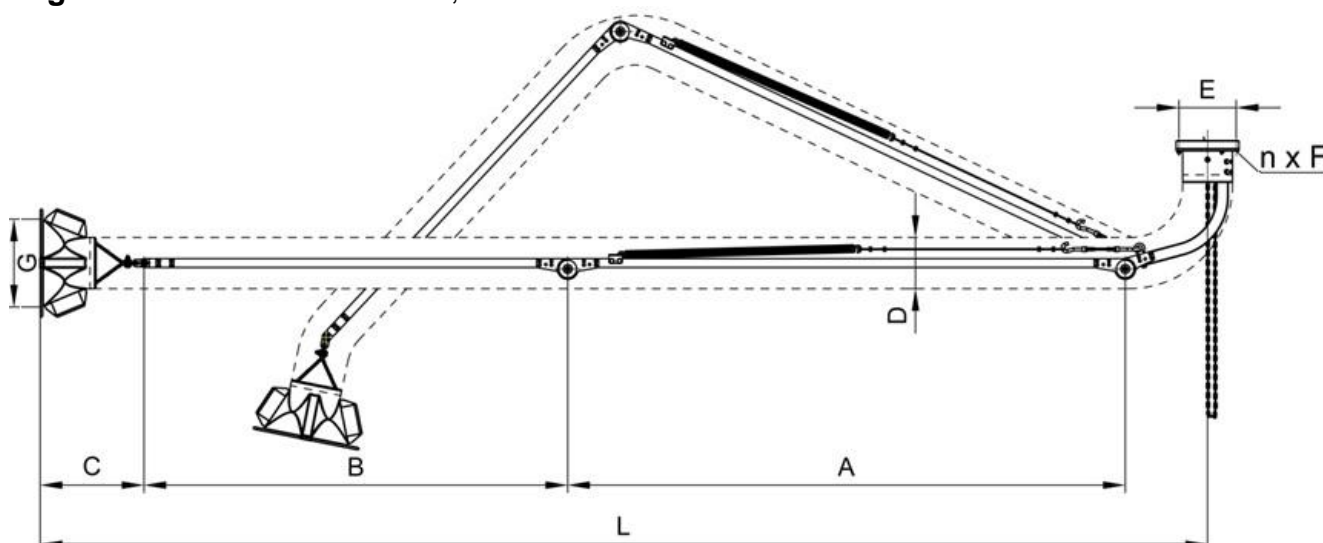
Infringement of the Section 3 “Reservations of Producer” of the present Use and Maintenance Manual and especially modifications undertaken by User on one's own or use in contradiction with the purpose of application – shall result in the loss of warranty validity.





Type	L [m]	A [mm]	B [mm]	C [mm]	D [mm]
ERGO LUX-L/2	2,3	905	790	335	160
ERGO LUX-L/3	3,15	1530	1030	335	160

Fig. No.10 – ERGO LUX-L-2; ERGO LUX-L-3 extraction arms



Type	L [m]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	n x F [mm]	G [mm]
ERGO-FLEX LUX-2	2,0	930	435	355	160	Ø194	6xØ6,5	Ø295
ERGO-FLEX LUX-3	3,0	1510	846	355	160	Ø194	6xØ6,5	Ø295

Fig. No.11 – ERGO FLEX-L-2; ERGO FLEX-L-3 extraction arms

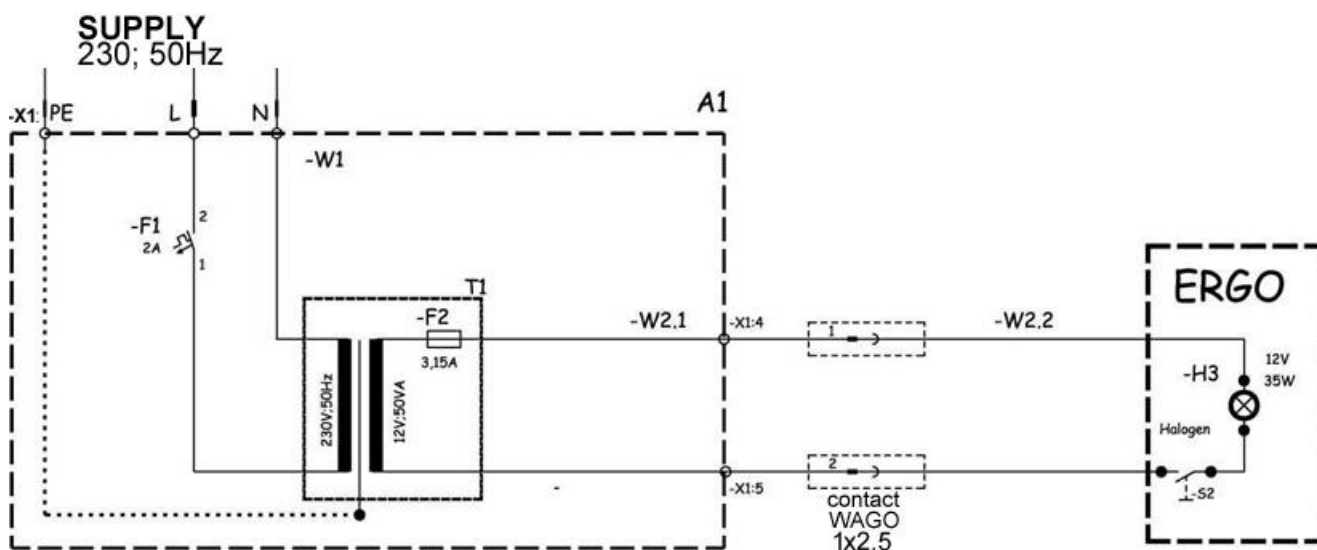


Fig. No.12 – Connection Diagram – lighting for the extraction arms

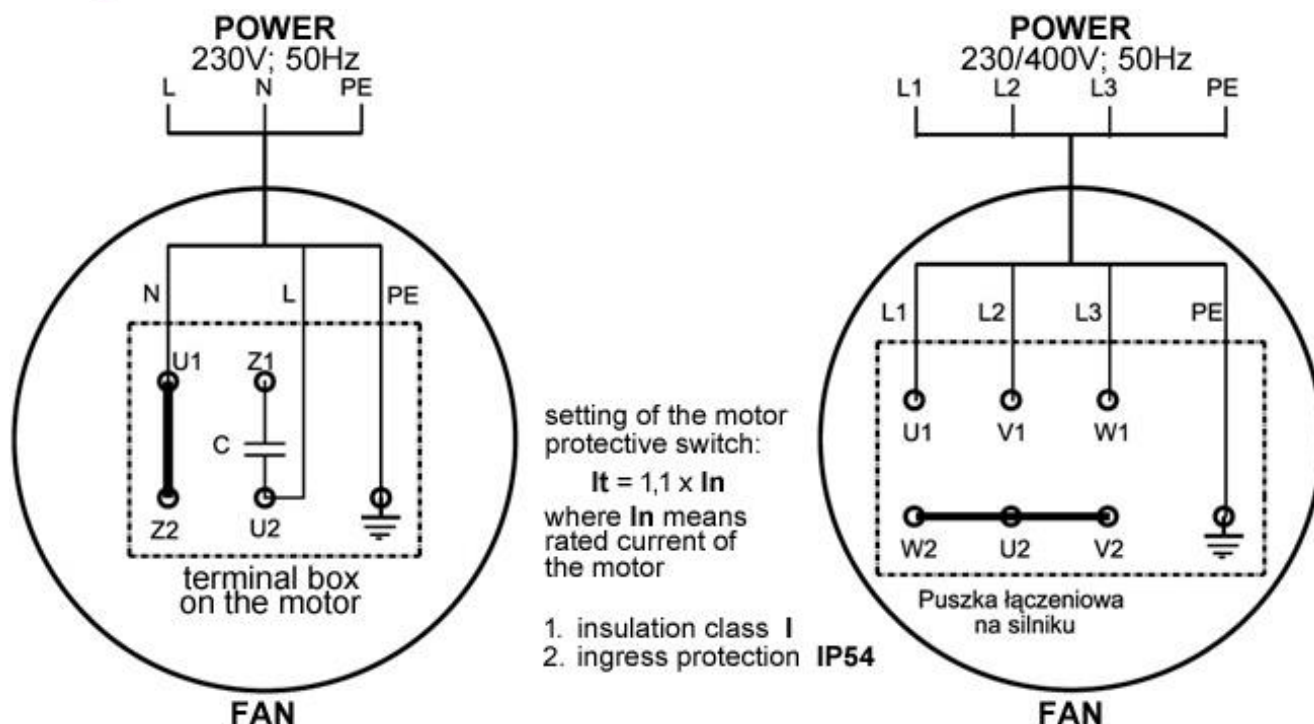


Fig. No.13 – Diagram of connections of the fans

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: **extraction system**

type/model: **ERGO/KOS-AL**

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 May 17th, 2006 on machinery – amending the 95/16/EC (recast) /Journal of Laws EC L157 of 09.06.2006, page 24/

The appliance meets following harmonized standard:

- **EN ISO-12100:2012** – “Safety of machinery – Basic concepts, general principles for design. Risk assessment and risk reduction”

.....
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

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name, surname, function
of the signatory
NIP: 958 159 21 35
REGON: 220631262
Bank Account: **Santander Bank Polska S.A.**
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