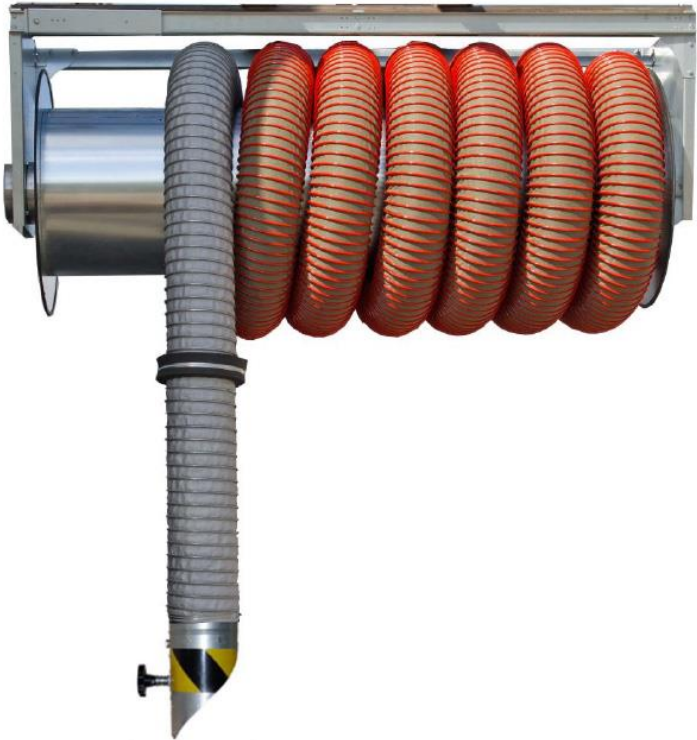


USE AND MAINTENANCE MANUAL



Reel Exhaust Extractor ALAN-U/C-HD-N (spring drive)

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1. INTRODUCTION

The purpose of the present Use and Maintenance Manual is to supply User with directions within the range of application, assembly, start-up and operational use of the **ALAN-U/C-HD-N** Reel Exhaust Extractor.



Prior to assembly at the place of operation and use, it is important to get thoroughly acquainted with the contents of the present instruction.



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 **ALAN-U/C-HD-N** meets the requirements of the current state of technology as well as the safety and health assurances included in:

2006/42/EC Directive of the European Parliament and of the Council of the 17 May, 2006 on machinery, amending the 95/16/EC Directive (recast) / Official Journal EC L157 of the 09.06.2006, page 24);

Additionally, it is in accordance with the subsequent harmonised standards:

EN ISO-12100:2012 Safety of machinery – General principles of design – Assessment and reduction of hazard

2. PURPOSE

ALAN-U/C-HD-N Reel Exhaust Extractors with a spring drive are designed for effective removal of noxious and hazardous chemical compounds emitted in exhaust gases of vehicles during diagnostics, adjustment, and engine tests and similar. They eliminate health hazards and risk of life of the operating personnel, provide clean air at the workplace, thereby providing more safety and comfort. They are used in bus depots, garages and service stations for trucks, building construction vehicles, special vehicles.

Along with the optimum air extraction and simple use – they provide a discharge of the whole exhaust volume outside the premises.

The extractor can be installed under the ceiling or to the walls / columns by means of wall brackets. The system works with following fans manufactured by KLIMAWENT S.A.:

- built-on fans **FA** – installed directly at the exhaust reel,
- flange-type fans **WPA-E-N** – installed independently on a separate bracket,
- roof fans **WPA-D-N**.

3. RESERVATIONS OF MANUFACTURER

- Manufacturer accepts no liability for any consequences following from the operational use that is in contradiction to the purpose of application.
- Operational use with cooperation with an inefficiently functioning extraction fan, as this would result in overheating and damage of the exhaust hose.
- Protect the exhaust hose from mechanical damage and pollution with oils and solid lubricating grease.
- Maintenance and any repair can be executed exclusively by an authorised person.
- **During the use, the vehicle engine can work at maximum rotations for not longer time than 60 seconds.**
- During hose winding – observe that the hose is distributing on the reel evenly, regularly to avoid clenching.
- Prior to installing – check the load carrying capacity of the ceiling / wall, in a place where the unit shall be installed; unsure setting of mounting bolts could result in uncontrolled device detachment, its damage and risk to the operator / people in the vicinity.
- Installing of any additional elements that are not belonging to the normal device structure (or accessory set) is not acceptable.
- Do not introduce any structural or constructional modifications on the device on one's own.
- Manufacturer is not responsible for body lacerations, injuries, wounds – experienced by operator due to careless use or negligence.

4. TECHNICAL DATA

Table No.1

Extractor type	Equipped with a shut-off damper	Maximum torque	Maximum length of the exhaust hose	Diameter of the exhaust hose	Weight
		[Nm]	[m]	[mm]	[kg]
ALAN-U/C-8-HD-N	no	50	8	Ø200	44,5
ALAN-U/C-12-HD-N	no	100	12	Ø200	68

CAUTION:

1. upon selection of the extractor size – contact KLIMAWENT S.A.
2. weight of the extractor is specified without the installed hose

Table No.2 – Technical Data – FA fans mounted directly to the exhaust reel

Type	Supply voltage [V]	Diameter inlet / outlet [mm]	Motor rate [kW]	Acoustic pressure level [dB(A)]*	Weight [kg]
FA-7-1/HD	230	200 / 200	1,1	72	24
FA-7-3/HD	3 x 400				
FA-8-3/HD	3 x 400	200 / 200	1,5	74	31

* Measurements have been carried out from distance of 5 metres

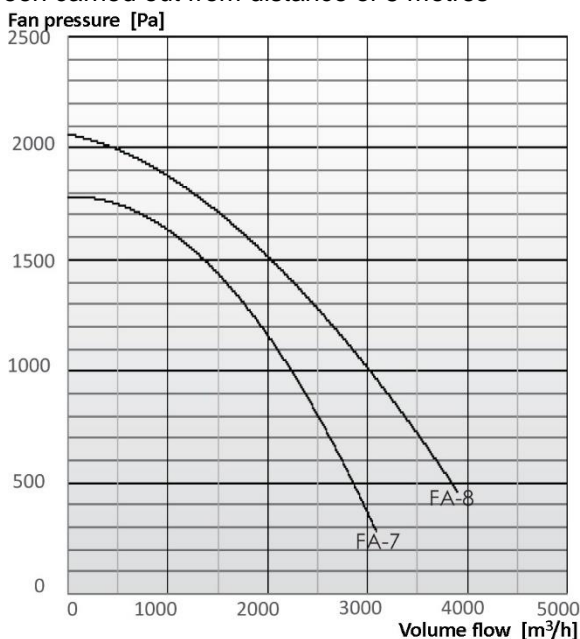


Fig. No.1 – FA – Flow charts

For other extraction fans: i.e. WPA-E-N or WPA-D-N – see KLIMAWENT catalogue, Section “FANS”

Table No.3 – Performances of the hose assemblies for the ALAN-HD-N reel extractor (standard equipment)

Type of the hose assembly	Hose diameter [mm]	Weight [kg]	Hose length [m]	Recommended volume flow [m³/h]	Flow resistances ¹⁾ [Pa]	Thermal resistance [°C]	Cooperating fans
ZW-8/200	200	10,4	8	2000	1000	150 ²⁾	FA-7/HD WPA-7-E-N WPA-7-D-N
ZW-12/200	200	15,3	12	2000	1500	150 ²⁾	FA-8/HD WPA-8-E-N WPA-8-D-N

¹⁾ Flow resistances are given for the hose completely wound onto the reel.

²⁾ Hose of thermal resistance 150°C (short duration 200°C).

CAUTION: On demand we deliver hose assemblies equipped with hoses of increased thermal resistance.
To install the reel extractor to the wall or column apply a wall bracket, delivered on separate demand of Customer.

5. STRUCTURE AND FUNCTION

The Reel Exhaust Extractor consists of a winding reel installed in a framework (adapted for mounting under the ceiling or on a wall). Onto the reel is wound a hose with a nozzle. Nozzles are adapted to the diameter of the hoses (and selected to the Customer’s requirements) and are delivered upon separate order. Specification of the nozzles is in the KLIMAWENT S.A. catalogue.

The nozzle draws in the air from the environment (false air) and mixes it with the exhaust fumes, reducing their temperature. Reel extractors are adapted to wind on hoses of diameter Ø200 mm. All extractors are constructed in such a way that the free hose overhang is 1,5 up to 2 metres, after it is completely coiled onto the reel.

The hose is being wound down manually to the requested operational length, whereas hose coiling onto the reel is operated by a spring mechanism which is located on the right side of the reel. On the hose is fastened a rubber stopper which limits the hose recoiling while it is completely wound onto the reel.

The reel is mounted in slide bearings in the side support walls of the framework. A lubricating grease nipple is located on the right framework wall, whereas on the left wall is installed the outlet of the extractor. To the outlet can be installed a built-on FA-type radial fan (delivery on separate order). The extractor outlet, or fan outlet ought to be connected to the rigid ventilation ducting, to discharge the exhaust volume out of the premises.

Section and duct length (suitable to the fan outlet diameter) should be selected to meet the minimum volume flow measured at the suction terminal is not lower than the value specified in Section 4 – Technical Data – Recommended volume flow. To control the extraction fan function apply electrical equipment specified in Section FANS of the KLIMAWENT S.A. catalogue.

As standard, the hose reel is equipped with:

- band brake – to slow down the rotations of the reel during recoiling,
- ratchet gear (locking pawl) – to block the hose assembly in the requested convenient position.

Reel extractors ALAN-U/C-HD-N are adapted for coiling hoses of Ø200 mm diameter and length 8m and 12m respectively.

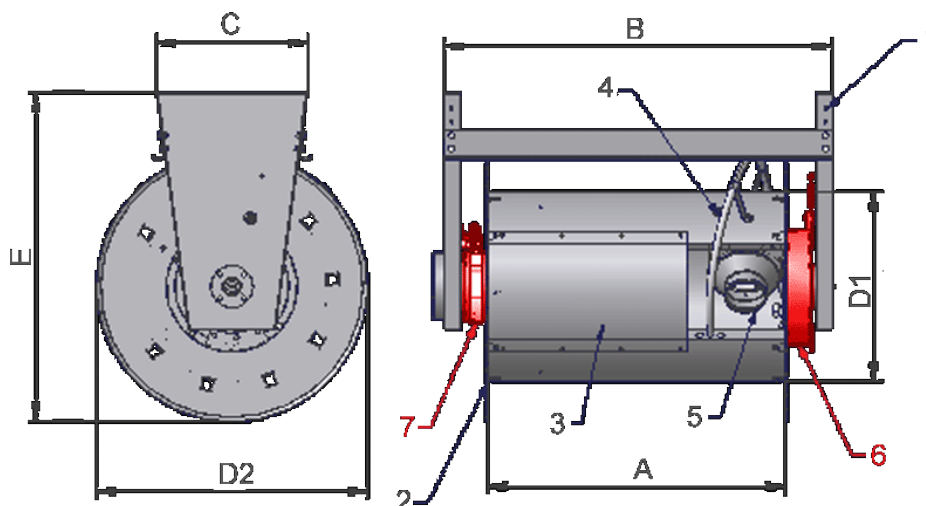


Table No.4

Extractor type	Dimensions [mm]					
	A	B	C	D1	D2	E
ALAN-U/C-8-HD-N	775	1000	455	550	820	965
ALAN-U/C-12-HD-N	1200	1465	455	550	820	965

1. framework
2. hose reel
3. reel cover
4. hose guiding spiral
5. connection fitting piece
6. spring mechanism
7. band brake

Fig. No.2 – ALAN-U/C-HD-N – Description and dimensions of the exhaust reel

6. ASSEMBLY AND STARTUP

ALAN-U/C-HD-N-type extractor is being supplied in following assemblies:

- hose reel – along with the frame structure (including the spring mechanism and the brake),
- hose assembly – lengths 8 or 12 metres; diameters Ø100, Ø125, Ø150 or Ø200 mm. The hose assembly consists of: hose, hose clamps, rubber clamp covers for the hose clamps,
- rubber stopper,
- nozzle.

Additionally, **extraction fans** of various types i.e. can be delivered upon separate order:

- built-on fans type **FA/HD** – installed directly to the extractor reel;
- flange-type fans **WPA-E-N** or roof fans **WPA-D-N** – mentioned in Section 4; as well as ventilation conduits (flexible or rigid), wall brackets, roof bases and similar ventilation accessories.

INSTALLING OF THE FAN TYPE FA/HD:

The fan has to be installed to the left wall of the framework. Following steps of installing:

1. put a sealing ring on the outlet connection of the reel extractor
2. in the bottom part, screw up 2 mounting bolts to fasten the solid bush to the left wall; put the fan support and screw it up with these bolts, along with the solid bush and the framework wall;
3. put the fan (with the motor) onto the connection in such a way – that the hangers holes (in the upper part of the fan) are matching the holes in the left framework wall, and the hole in the support is suitable to the hole in the fan housing. The fan inlet opening ought to be installed evenly onto the sealing ring.
4. screw up the fan with the extractor to the hangers (by means of 4 bolts) and additionally to the support (1 bolt); altogether 5 bolts M8x20.

FASTENING OF THE HOSE ASSEMBLY TO THE REEL

1. Turn by hand the hose reel to the left (when viewing onto the spring housing):
 - at least 3 rotations for the hose assembly of 8 metres length
 - at least 4 rotations for the hose assembly of 12 metres length (until the tensioning springs get stretched)

2. Protect the hose reel from uncontrolled back reeling and set it in such a position, as convenient for installing the hose assembly.
3. Put the hose assembly inside the reel – screw up the reducer to the reducer body with 2 screws (Fig. No.3).
4. Put (sleeve on) the rubber stopper on the hose and secure it with a hose clamp – in a distance of 2 metres from free end.
5. Install the nozzle at the hose end, fasten it with a hose clamp and secure it with a rubber clamp cover.
6. Pull gently the hose to release the reel blockade, so it is easy to turn slowly the reel and the hose assembly is winding smoothly onto the reel – finally the rubber stopper ends the winding.

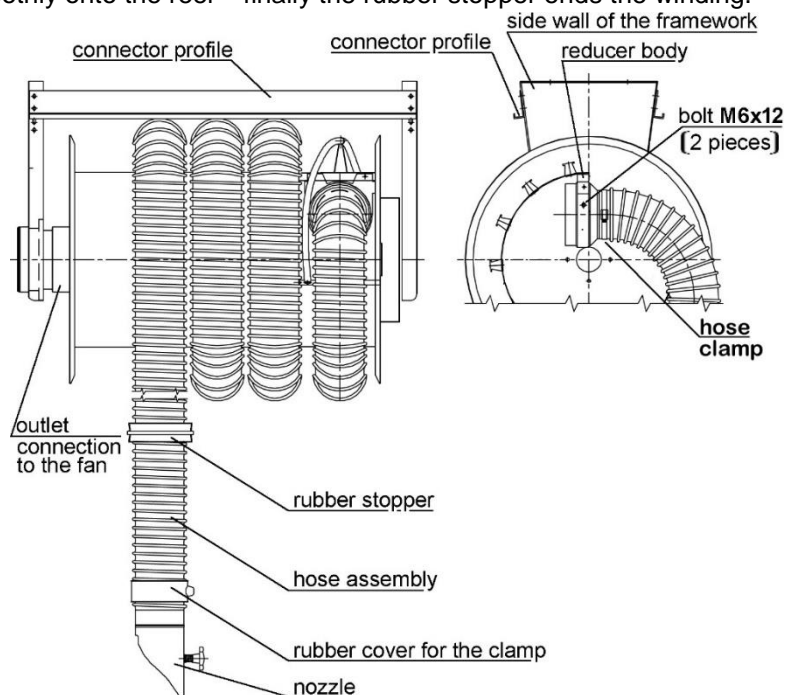


Fig. No.3 – Hose assembly – installing

HOW TO INSTALL THE EXTRACTOR AT THE WORKPLACE

Reel Exhaust Extractor can be mounted under the ceiling or to the wall/column, by means of wall brackets. **It is important that the reel axle is levelled horizontally.** For installing use bolts M12 class 5,6. Prior to installing check the load carrying capacity of the building structure and the strength of floors. The optimum installing height of the extractor is 3,0 up to 3,5 metres.

Installing the Reel Exhaust Extractor at the workplace:

1. Lift the completely assembled extractor to appropriate height and fasten it to the ceiling or wall in a prepared place (CAUTION: weight of the extractor can reach above 100 kg).
2. Several times: check reeling / unreeling of the hose assembly and pay attention that the hose is evenly wound (distributed) onto to reel.
3. In case when necessary, slide up or down the rubber stopper on the hose or adjust the reeling speed. These adjustments are described in the next section.

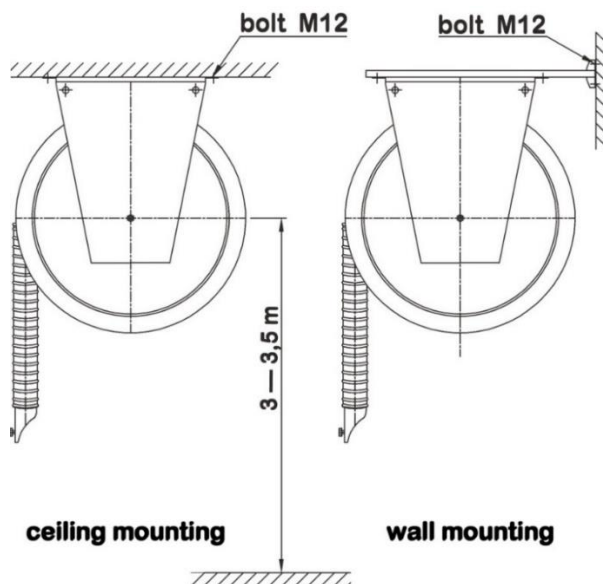


Fig. No.4 – Mounting positions of the reel extractor at the operational place

Having installed the extractor under the ceiling or to the wall, fasten the connection fitting piece of the reel (application without the fan) with the ventilation conduit, discharging the exhaust volume outside the building. When the extractor is equipped with a fan type FA, connect the fan outlet with the ventilation discharging ductwork, using a short section of flexible hose. Depending on the diameter of the fan connection, the ventilation conduit must have diameter $\varnothing 160$ mm or $\varnothing 200$ mm.

After all the connections are carried out and the fan is started up with the three phase motor – necessarily check the fan impeller rotation sense with reference to the arrow on the housing.

7. OPERATIONAL USE

For safety reasons, in order to use the Reel Exhaust Extractor correctly – follow subsequent steps:

1. **Operate the extraction fan with a pushbutton “START”.**
2. Pull the nozzle with hose to the requested operational length and connect the nozzle at the exhaust pipe of the serviced vehicle. **Start the vehicle engine.** In application with a non-typical exhaust pipe construction, use the nozzle with a suction stand.
3. After the completed service, **stop the vehicle engine** and disconnect the nozzle from the exhaust pipe.
4. To wind up the hose, pull it gently – the spring mechanism shall recoil the hose onto the reel. Pay attention that the hose is being wound evenly on the reel.
5. Having recoiled the hose, **switch off the extraction fan with a button “STOP”.**

ADJUSTMENT OF THE LIFT HEIGHT OF THE NOZZLE:

1. Having installed the extractor under the ceiling or at the wall, turn the reel and block it with the ratchet gear so that the suction nozzle is in the level of the floor.
2. Release the clamp of the rubber stopper and choose its appropriate fixing position on the hose – according to the installing height of the extractor.
3. After the rubber stopper is fastened in a new fixing point (i.e. clamp tightening), pull slightly the hose to start the spring retracting mechanism and check the reeling operation.

ADJUSTMENT OF THE BAND BRAKE:

- To increase the braking force turn the adjustment screw to the right.
- To reduce the braking force turn the adjustment screw to the left.
- Remember to lock the above mentioned screw with a counter-nut.

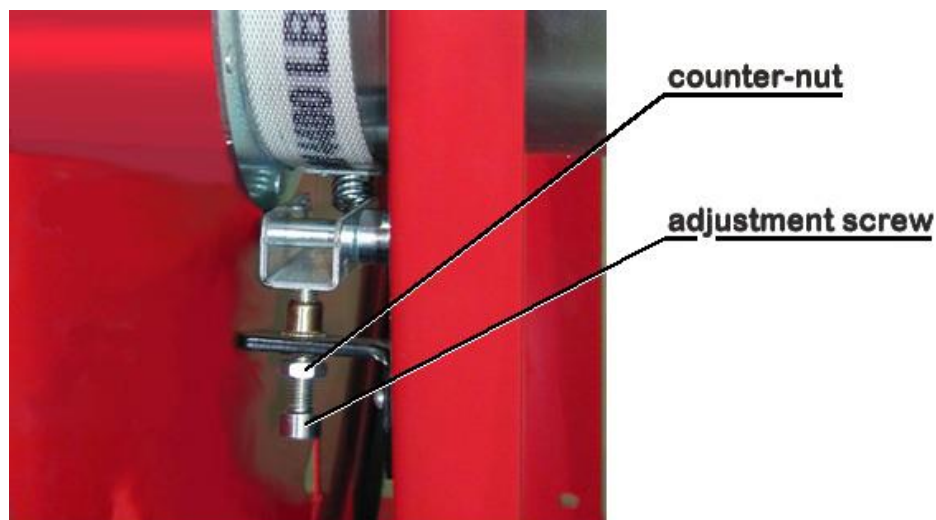


Fig. No.5 – Band brake

REMARKS REGARDING THE OPERATIONAL USE

- Any use of the extractor with the improperly functioning extraction fan is not acceptable. This could contribute to overheating and damage of the hose assembly.
- Any servicing, repairs and adjustment ought to be executed by an authorized person only.
- For safety reason, during winding the hose onto the reel, operator has to guide the hose end with hand.
- Protect the hose from mechanical damage and from getting polluted with oil and solid lubricants.

8. TROUBLESHOOTING GUIDE

Table No.5

	Problem	Possible reason	Corrective action
1.	Abrupt and significant drop in the intake air volume	Solid element, foreign object being obstacle / barrier for the flow got stuck in the suction nozzle or in the exhaust hose	Localise the obstacle object and remove it
2.	The exhaust hose got overheated and damaged	The engine of the serviced vehicle is running at full rotations for too long time, or the engine cubic capacity is too high	Do not exceed 60 seconds of continuous work at maximum rotations; Replace the damaged exhaust hose for new
3.	Sudden vibrations of the fan are occurring	Solid element, foreign object being obstacle / barrier for the flow got stuck in the impeller;	Disconnect the extraction fan and remove the barrier object
		Impeller is defective	Replace the impeller along with the motor for new
4.	Extraction fan runs at too high noise level and the flow efficiency is too low	Improper impeller rotation sense	Change the phase connection sense

9. MAINTENANCE

Any revisions and repair are admissible to be executed by an authorized person. Construction of the Reel Exhaust Extractor and of the extraction fan provides their operational use without the continuous routine technical supervision. In case when any defective function or failure is visually or by noise noticed, undertake technical revision. During the maintenance check the mechanical and electrical connections.

Any repair or revisions of the extraction fan ought to be carried out at the device disconnected from the power supply system (isolating switch). Once a year, examine the extraction fan motor. Additionally, inspect the bearings (slackness), measure the resistance of the motor insulation and the resistance of the protective circuit. Protect the hose from getting polluted with oil and lubricating grease and from mechanical damage, especially from squeezing with the vehicle wheels.

Use of the Reel Exhaust Extractor in application with an inefficiently functioning extraction fan is not acceptable as this could cause overheating and damage of the hose.

10. OCCUPATIONAL HEALTH AND SAFETY

Start up and the operational use of the Reel Exhaust Extractor are admissible after getting acquainted with the contents of the present User's Manual. Connection to the power system ought to be carried out according to the enclosed connection diagram and in compliance with the instructions represented in the section 6 of the Use and Maintenance Manual. **Connection to the power system ought to be executed by a person of electrical qualifications and in compliance with the valid safety regulations.**

Necessarily check the impeller rotation sense, it has to be with reference to the arrow on the fan housing (three-phase motor only). Prior to installing the Reel Exhaust Extractor check the load carrying capacity of the building structure where the device shall be mounted. Unsure mounting could result in an uncontrolled device detachment from the wall or ceiling and cause risk to User or personnel / people in the vicinity. **Any activities related to electricity ought to be carried out after the fan motor is disconnected from the power system.** For safety reasons, while the hose is recoiled onto the reel, User should hold the nozzle by hand until it is completely wound on the reel. Therefore, the hose is winding evenly and not getting jammed.

11. TRANSPORT AND STORAGE

The device ought to be stored in a dry and well ventilated room. It should be placed in horizontal position, with the winding reel upwards, on 2 wooden beams 60x60x500 mm. It is not acceptable to store one reel extractor on top of another (stacking). For the time of transport it has to be placed in a way described above, in foil and placed in a cardboard package as well as protected from an uncontrolled displacement and overturn. During transporting and storage, the accessories of the Reel Exhaust Extractor (e.g. hose assembly) ought to be in foil and placed in cardboard package.

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

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.

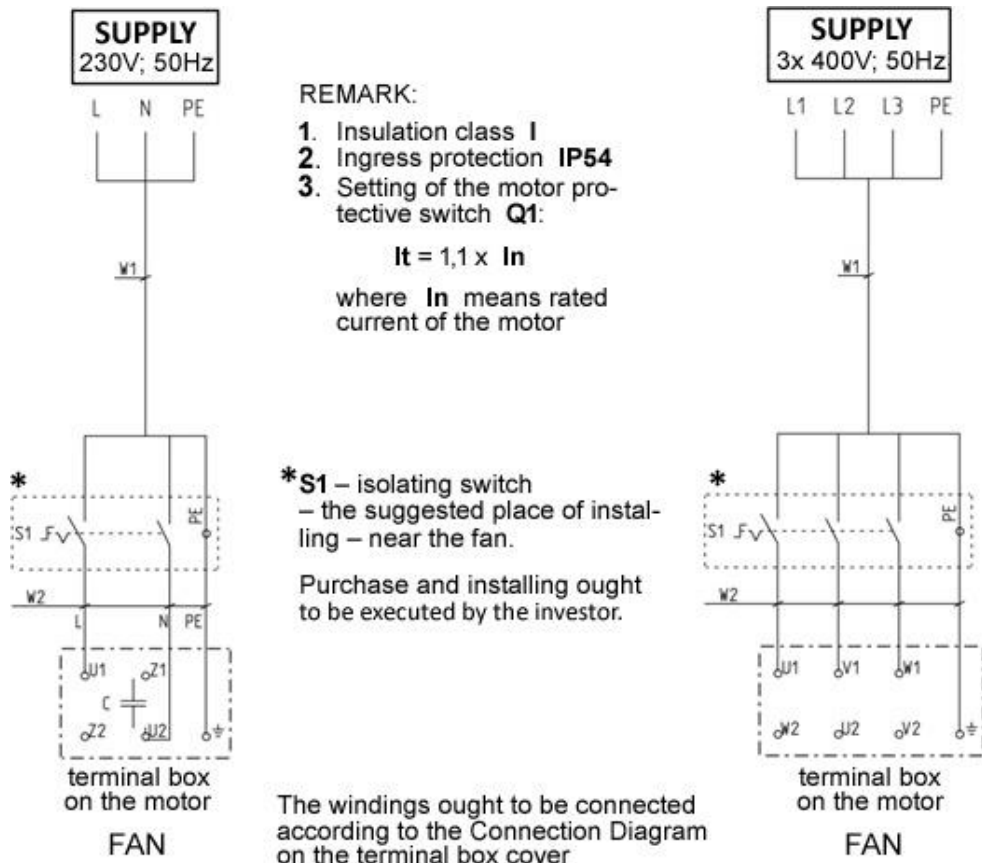


Fig. No.6 – Connection Diagram of the fans

13. DECLARATION OF CONFORMITY



DECLARATION OF CONFORMITY EC No.

Manufacturer (eventually also the authorised representative / importer):

name: KLIMAWENT S.A.

address: 81-571 GDYNIA, ul. Chwaszczyńska 194

A person, authorised for issuing the technical documentation:

name and address: Teodor Świrbutowicz, KLIMAWENT S.A.

hereby declares that the product: **Reel Exhaust Extractor**

type / model: **ALAN-U/C-HD-N**

serial number: _____

year of production: _____

Meets the requirements of the European Directive:

2006/42/EC Directive of the European Parliament and of the Council of the 17 May, 2006 on machinery, amending the 95/16/EC Directive (recast) / Official Journal EC L157 of the 09.06.2006, page 24);

is in accordance with the requirements of the following harmonised standard:

EN ISO-12100:2012 Safety of machinery – General principles of design – Assessment and reduction of hazard

place, date

signature of the authorised person

name, surname, function of the signatory