

USE AND MAINTENANCE MANUAL



Rail Extraction System KOS-L-ALAN-N Contents:

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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 **KOS-L-ALAN-N** Rail Extraction System.



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 **KOS-L-ALAN-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

KOS-L-ALAN-N rail extraction system has been engineered for efficient 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 guaranteeing more safety and comfort. They are used in bus depots, garages and car service stations. Simple use, ergonomic and economic solution as well as high capture efficiency – are their basic advantages.

At the self-tightening suction duct displaces a mobile reel extractor with a hose reel. At the suction duct can move several trolleys integrated with the ALAN-U/C-N Reel Exhaust Extractor. Gas springs (on both sides of the trolley) slow down the trolley movement and prevent from bumping into another trolley. It is important to provide sufficient rigidity of the duct suspension and of the duct itself (appropriate quantity of hangers).

The appliance works with following extraction fans manufactured by KLIMAWENT S.A.:

- 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.
- 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 system one's own.
- Protect the system from mechanical damage.
- Operational use with cooperation with an inefficiently functioning extraction fan is forbidden, 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.

4. TECHNICAL DATA

Table No.1 – Self-tightening return suction duct KOS-L



	Type	Cross-sectional dimension	Cross-sectional area	Unit weight	Segment length
		[mm]	[cm ²]	[kg/m]	[m]
KOS-L		160 x 240	384	14,2	1,25
					2,5

Table No.3 – Mobile balancing extractors

	Type	Maximum torque [Nm]	Exhaust hose	Weight [kg]
	OP-ALAN-U/C-8-N	50	Each hose reel is adapted for hose of diameters: Ø100, Ø125, Ø150 mm and of lengths: 8 or 12 metres.	61,7**
OP-ALAN/P-U/C-8-N*				
OP-ALAN-U/C-12-N	63,7**			
OP-ALAN/P-U/C-12-N*				

* equipped with a shut-off damper

** the weight does not include the hose

Inlet diameter of the suction fitting piece:

Prior to selection of the extractor – contact KLIMAWENT S.A.

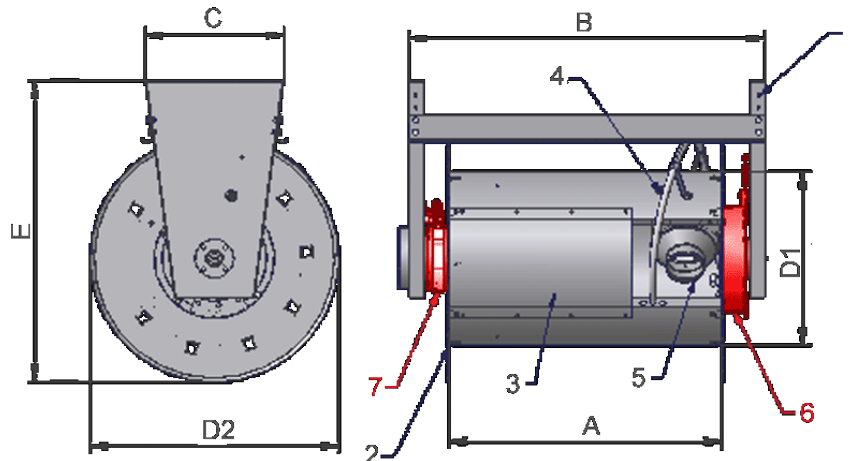


Table No.4

Extractor type	Dimensions [mm]					
	A	B	C	D1	D2	E
ALAN-U/C-8-N	775	1000	355	450	645	780
ALAN-U/C-12-N	1000	1225	355	450	645	780

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

Fig. No.1 – ALAN-U/C-N – Structure and dimensions

5. STRUCTURE AND FUNCTION

KOS-L-ALAN-N rail extraction system consists of subsequent assemblies:

- a. self-tightening suction duct **KOS-L** – constructed of steel segments to obtain total requested operational length
- b. mobile reel extractor **OP-ALAN-U/C-N** – consisting of:
 - suction fitting piece
 - trolley of the suction fitting piece
 - flexible connection – between the suction fitting piece and the ALAN-U/C-N reel extractor
 - trolley of the reel extractor ALAN-U/C-N
 - spring driven reel extractor ALAN-U/C-N
- c. exhaust hose with a nozzle

The system consists of a suction fitting piece connected by a hose section with the ALAN-U/C-N reel extractor, whereby the suction fitting piece displaces along the KOS-L duct on a trolley (see Fig. No.2). On both sides of the “suction fitting piece + ALAN-U/C-N” extraction assembly are installed gas springs that gently slow down the movement of the mobile extractor. On one KOS-L duct can displace several extractors.

Duct suspension should be selected in such a way to meet the carrying capacity of the weight of the attached extraction units.

ALAN-U/C-N are adapted for hoses of diameters Ø100, Ø125, Ø150 mm and lengths 8 or 12 metres.

As standard, the reel extractor 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 needed position.

The extractors can be equipped with a shut-off damper, that opens and closes automatically while winding down / recoiling the hose onto the reel. Therefore, it is possible to apply a smaller extraction fan, while the extractors are connected to the main collecting ductwork, whereby the use coincidence factor is lower than 1. In each version the free hose overhang, (in a state when the hose is fully recoiled on the reel), should be from 1,5 to 2 metres.

The exhaust hose is ended with a nozzle. Selection of nozzles can be found in the KLIMAWENT S.A. catalogue. The connection “duct-extraction fan” consists of a KO fitting piece or an universal connector KTSU-200 that has to be connected to the fan inlet by means of rigid seam-spiral ducts. It is recommended to apply our KLIMAWENT S.A. roof fans **WPA-D-N** or flange-type fans **WPA-E-N**.

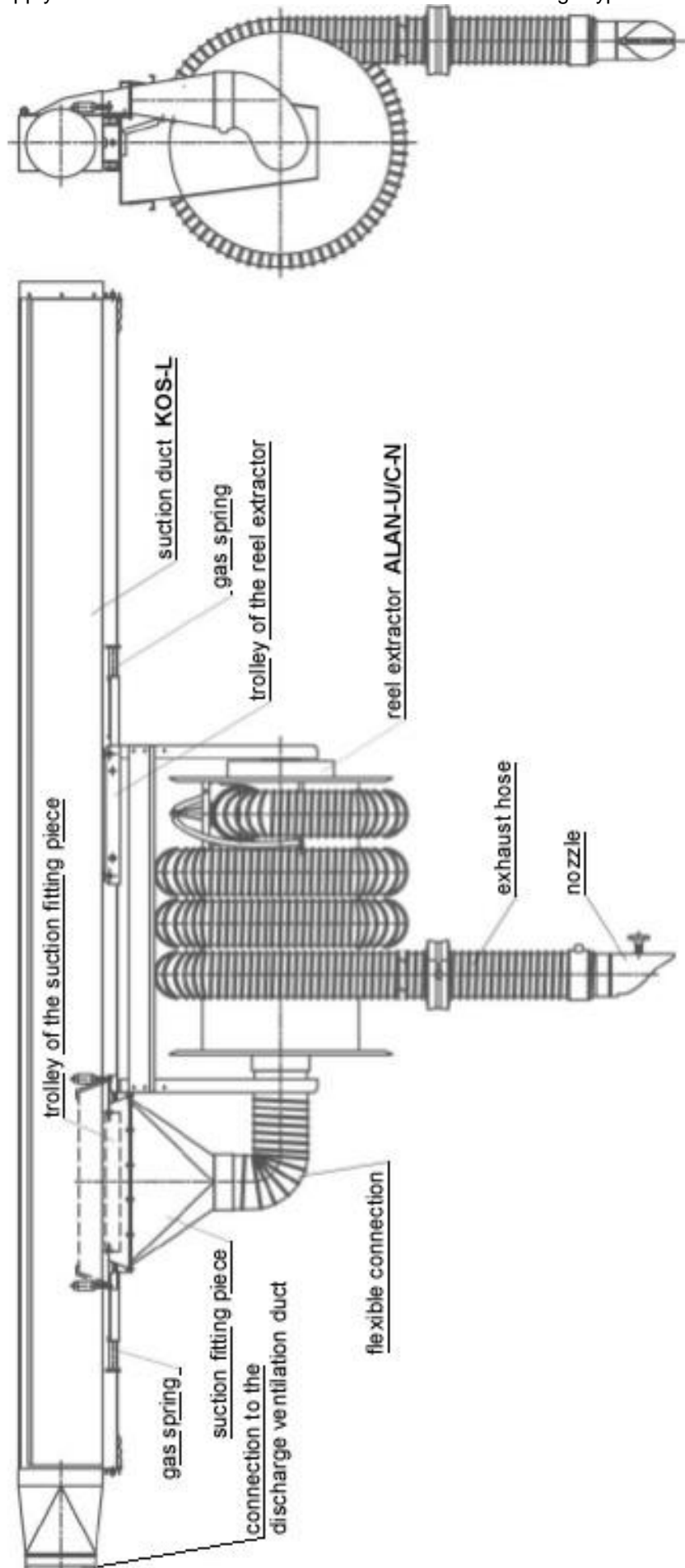


Fig. No.2 – Structure of the KOS-L rail extraction system with the ALAN-N reel extractor

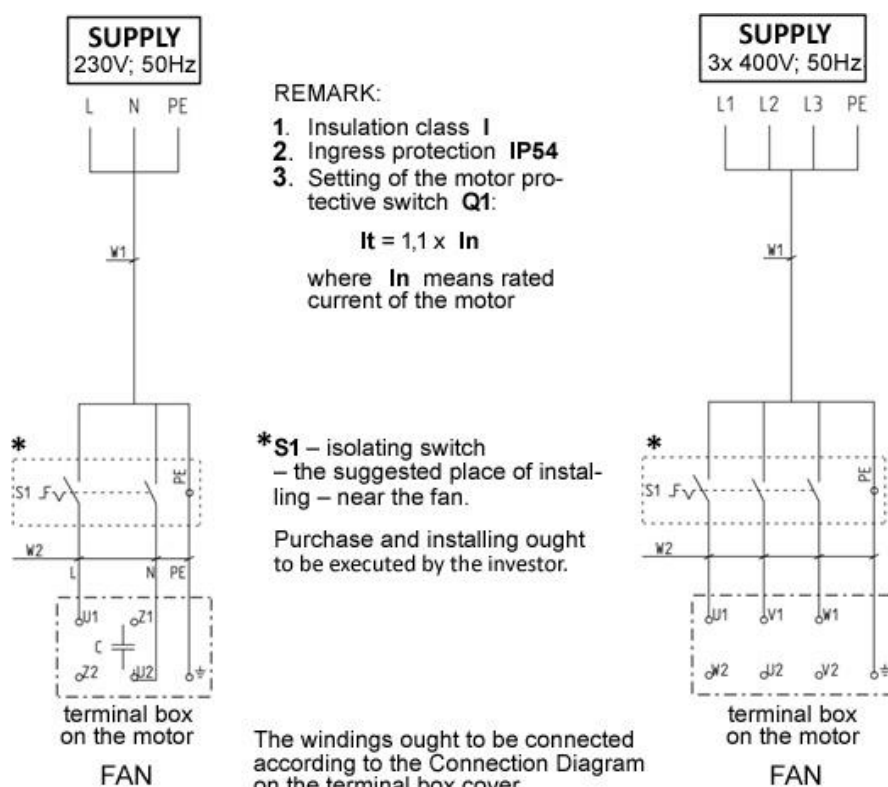


Fig. No.3 – Connection Diagram of the fans

6. ASSEMBLY AND STARTUP

As there are strict requirements for the installing precision of the KOS-L-ALAN-N system, its assembly must be carried out by the authorised assembly team of manufacturer. It is recommended to install the system in a height 4,3 metres measured from the upper surface of the duct.

Start-up of the system:

- switch on the extraction fan;
- pull down the exhaust hose – to the requested operational length;
- connect the nozzle to the exhaust pipe by means of a lever clamp

After the completed extraction

- disconnect the nozzle from the exhaust pipe;
- pull gently the hose – until it gets unblocked – the hose starts lifting until it gets limited by a rubber stopper;
- guide the extractor trolley to its starting position;
- switch off the extraction fan.

Installing of the hose at the extractor reel and any adjustments (shut-off damper, rubber stopper, band brake) are described in the Use and Maintenance Manual of ALAN-U/C-N.

7. OPERATIONAL USE

The system does not require any additional routine technical supervision after its startup. In case when the place of application is changed – repeat the steps from Section 6 referring the assembly and adaptation of the ventilation system to new configuration.

OPERATIONAL REMARKS

- it is not admissible to use the system when the extraction fan is functioning inefficiently – this could result in overheating and damage of the hose assembly;
- maintenance and any repair should be executed by an authorised person;
- For safety reason, during winding the hose onto the reel, operator has to guide manually the hose and nozzle
- Protect the hose from mechanical damage and from getting polluted with oil and solid lubricants.

If any unusual symptoms of malfunction (not typical noise or visually) are observed – proceed as in Section 8.

8. TROUBLESHOOTING GUIDE

Table No.3

	Problem	Possible reason	Corrective action
1.	Decrease 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.	Decrease in the intake air volume along with the increased noise	Improper fan impeller rotation sense	Change the phase connection sequence (three-phase motors only)
3.	Sudden vibrations of the fan are occurring	Solid element, foreign object being obstacle / barrier for the flow got stuck in the impeller; The fan impeller is faulty	Disconnect the extraction fan and remove the barrier object Replace the impeller for new
4.	The exhaust hose got overheated and damaged	The nozzle was connected at the exhaust pipe of the running vehicle engine, when the fan has not been switched on The engine of the serviced vehicle is running at full rotations for too long time, or the engine cubic capacity is too high	Replace the damaged exhaust hose section for new. Do not connect the nozzle before the fan is switched on Do not exceed 60 seconds of continuous work at maximum rotations; Replace the damaged exhaust hose for new
5.	The hose cannot be pulled down smoothly	The worm gear got damaged or its rope got clenched	Contact the manufacturer

9. MAINTENANCE

Maintenance and any repair ought to be executed by an authorised person. Construction of the system and the extraction fan provides its operational use without the routine continuous technical supervision. In case when not typical symptoms of malfunction of the system are observed (by noise or visually) – undertake technical revision. During the maintenance check mechanical- and electrical connections.

Protect the exhaust hose from getting polluted with oils or lubricating grease and, first of all, from squeezing by vehicle wheels. **Technical revisions of the extraction fan should be performed after disconnection from the power supply system.** For requirements referring the extraction fans see individual Use and Maintenance Manual of the given fan. **Use of the system in cooperation with inefficiently functioning extraction fan is not admissible, as this could result in overheating and damage of the exhaust hose.**

10. OCCUPATIONAL HEALTH AND SAFETY

Start up and the operational use of the rail extraction system are admissible after getting acquainted with the contents of the present Use and Maintenance Manual. For safety reasons, connection of the fan to the power supply system ought to be executed according to the enclosed Connection Diagram and in compliance with the indications in Section 6 of the present Use and Maintenance Manual.

Any activities referring the connection to the power supply system, must be performed by an authorized person with electrical qualifications, according to the valid regulations and after the fan is disconnected from the supply system. Prior to installing, necessarily check the load carrying capacity of the constructional elements of the building, in points where the system shall be installed. Unsure mounting could result in uncontrolled device detachment, system damage or hazard to personnel / people in the vicinity.

CAUTION!

1. Protect the exhaust hose from squeezing;
2. The vehicle engine can be started after the extraction fan is switched on. Otherwise (at the engaged nozzle) the hose might get overheated and damaged;
3. In the course of operational use, strictly proceed the rule: the vehicle engine should not run at maximum rotations for longer time than 60 seconds;
4. For safety reasons, while the exhaust hose is lifted – the operator should guide the hose and nozzle manually – i.e. hold the hose end until it gets completely lifted to its homes position.

11. TRANSPORT AND STORAGE

For the time of transport, the elements of the system are placed in packages and protected from damage. Exhaust extractor should be placed on 2 wooden beams 60x60x500 mm. It is not acceptable to store one device on top of another (stacking). For the time of transport the extractor has to be placed in a way vertical position, in foil and in a cardboard package as well as protected from an uncontrolled displacement / slide and overturn. During transporting and storage, the accessories of the extractor (e.g. hose assembly) ought to be in foil and placed in cardboard package. Store the elements of the system in a dry room and in areas 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 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.

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: **Rail Extraction System**

type / model: **KOS-L-ALAN-N**

serial number: _____

year of production: _____

Meets the requirements of the subsequent European Directives:

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 standards:

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*