VACUUM GLASS LIFTERS

AVGLP2-AR, AVGLP4-MR-250, AVGLP4, AVGLP8

OWNER'S MANUAL

Get The AArdwolf AAdvantage

EN

CONTENTS

1. DESCRIPTION OF LIFTER

The Aardwolf Vacuum Glass Lifters AVGLP are suitable for lifting glass sheets. Powered by compressed air, they feature rugged construction with the added ability to lift and then tilt the glass sheet.

2. SPECIFICATIONS

2.1 SPECIFICATION

Do not to exceed the load capacity of lifter.

Auto Rotate Vacuum Glass Lifter 2-200

PRODUCT CODE	AVGLP2-AR
VACUUM PAD CONFIGURATION	TWO PADS
PADS DIAMETER	SEAL TO SEAL 280MM (11")
LOAD CAPACITY	200 KG (441 LB)
NET WEIGHT	60 KG (132.3 LB)

Vacuum Glass Lifter MR-250

PRODUCT CODE	AVGLP4-MR-250
VACUUM PAD CONFIGURATION	FOUR PADS
PADS DIAMETER	280MM (11")
LOAD CAPACITY	250 KG (551 LB)
NET WEIGHT	81 KG (178.6 LB)

Vacuum Glass Lifter 500kg

PRODUCT CODE	AVGLP4
VACUUM PAD CONFIGURATION	FOUR PADS
PADS DIAMETER	280MM (11")
LOAD CAPACITY	VERTICAL: 400 KGS (882 LB) HORIZONTAL: 500KG (1102 LB)
NET WEIGHT	79 KG (174 LB)

Vacuum Glass Lifter 1000kg

PRODUCT CODE	AVGLP8
VACUUM PAD CONFIGURATION	EIGHT PADS
PADS DIAMETER	300MM (11 4/5")
LOAD CAPACITY	VERTICAL: 800 KG (1763 LB) HORIZONTAL:1000 KG (2205 LB)
NET WEIGHT	108 KG (238 LB)

2.2 MARKINGS

Markings are useful information that helps the operator to handle the load in a safe and secure manner. Do not carry out the operation if such markings are worn or disappeared.

AARDWOLF© CE

Model No. AVGLP2-AR
W.L.L 200 kg
Net weight 60 kg
Serial No.

AARDWOLF© CE

Model No. AVGLP4-MR-250
W.L.L 250 kg
Net weight 81 kg
Serial No. 000010

AARDWOLF© CE

Model No. AVGLP4
W.L.L Vertical: 400 kg
Horizontal: 500 kg
Net weight 60 kgs
Serial No. 000101

AARDWOLF© CE

Model No. AVGLP8
W.L.L Vertical: 800 kg
Horizontal:1000 kg
Net weight 109 kgs
Serial No. 1000101

OFF — ON CENTER LIFTER ON LOAD

2.1 GLOSSARY AND TERMINOLOGY

A few terms that are widely used in the manual are described below to better explain their meaning.

- Skilled Operator

A person who is authorized and selected among those matching all the requirements, skills and information needed to operate the equipment and to carry out the routine maintenance.

- Routine Maintenance

All the operations needed to ensure the adequate operation and efficiency of the equipment. As a rule, these operations are planned by the manufacturer who defines the necessary skills and intervention procedures.

- Special Maintenance

All the operations needed to ensure the adequate operation and efficiency of the equipment. These operations are not planned by the manufacturer; they must be carried out by the authorized main tenance man.

- Skilled Maintenance Man

A technician who is selected and authorized by the manufacturer among those matching all the requirements, the skills and the infor mation needed to carry out repair and special maintenance operations on the equipment.

- Procedure to Request Technical Assistance

In case of need, please apply to the manufacturer's Technical Assistance Service. Please state the data contained in the identification plate, the approximate hours of operation and the type of defect detected in every request for technical assistance.

2.4 WARNING SIGNS

DANGER!

This sign informs the user of a risk that will result in death or serious injury if it is not avoided.

CAUTION!

This sign informs the user of a correct behavior that should be taken to avoid any risk to people's health and safety as well as to negate any commercial damage.

INFORMATION!

This sign informs the user of some very important pieces of technical information which should not be neglected.

OBSERVE THE INSTRUCTION!

This sign recommends the user to strictly comply with the instructions for a safe and secure lifting operation.

3.1 GENERAL DESCRIPTION OF THE EQUIPMENT

The vacuum lifting device, hereinafter referred to as the 'equipment', has been designed and manufactured to be applied, both in handicraft and industrial settings, to hook-lifting systems to facilitate the handling of marble (or other stone) slabs, metal sheets, panels, concrete mixes, prefabricated and other materials with a flat, not porous or transpiring surface.

This equipment can be supplied in different models and configurations to meet any operational requirement. Check the configuration of the purchased equipment in the specification paragraph.

3.2 DESCRIPTION OF THE MAIN UNITS

A. Pre-vacuum tank: to contain the vacuum that is necessary to assure operation even in case of any sudden lack of power supply.

B. Vacuum supply system: the equipment can be equipped with a vacuum pump or a 'Venturi meter'.

C. Vacuum suction pad: to stick to the material to be handled by means of a vacuum tap (H); the vacuum is created to allow the lifting operation.

D. Pneumatic actuator (if provided for): to rotate the material; it starts up by means of lever (L). It can be equipped with one or two cylinders.

E. Handle: it facilitates any manual operation.

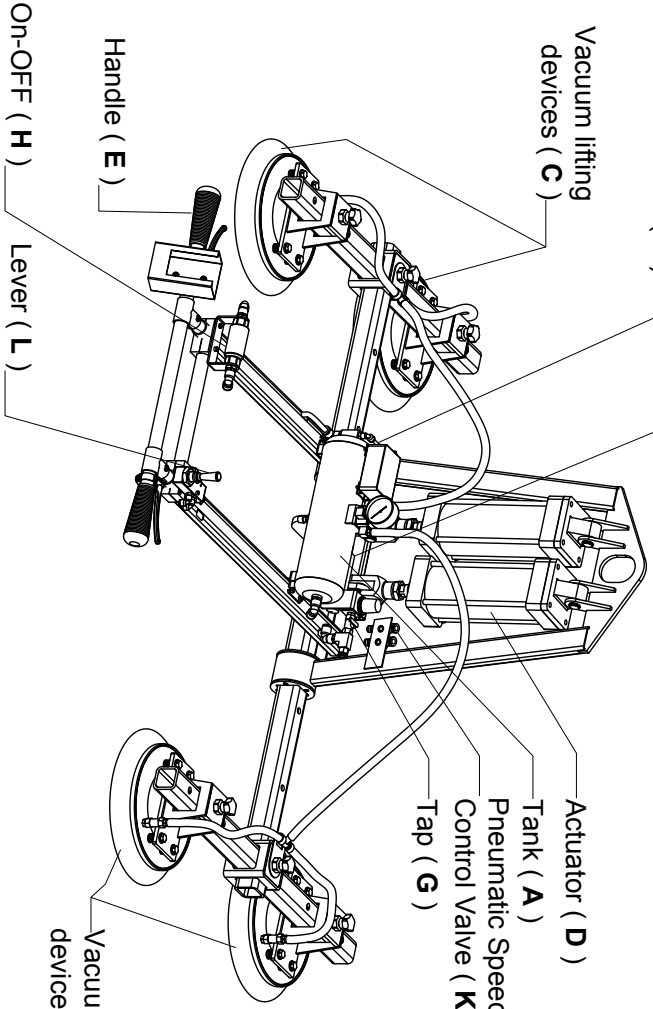
F. Air cleaner: to retain any impurities.

G. Tap

H. ON - OFF Slide Valve: Controls pick-up and material detachment.

K. Pneumatic speed control valve: is used to adjust the increasing or decreasing speed of the Actuator.

AVGLP4 - 500KG - VACUUM GLASS LIFTER



AARDWOLF VACUUM LEAKAGE DELECTOR

Aardwolf Vacuum Leakage Detector is a battery powered unit consisting of a pressure sensor, an audible warning horn, red warning light and test switch, all controlled by a solid state microchip. It is equipped with a rechargeable Lipo 1-cell battery with a capacity of 3.7v - 2000mAh and the working mode up to 20 operating hours.

The Aardwolf Vacuum Leakage Detector is designed to be a warning device for vacuum leakage detection. The operator will be warned of a slow vacuum leakage and should have adequate time to safely lower the attached load. If the alarm signal is ignored and the lifting operation is continued, the vacuum loss may adversely affect the vacuum “hold”, possibly resulting in serious injury to the operator.

This vacuum leakage warning device will not provide timely warning to the operator that a reduction in vacuum has occurred due to incorrect use of the vacuum lifter, such as overloading, lifting oversized loads, unbalanced lifting or improper operation of any kind.

- How it works

During operation, it signals the operating conditions. When the alarm buzzer is switched off and with the power light on, it indicates that the equipment is ready for use because the compressed air tank has reached the expected vacuum capacity.

When the alarm buzzer is switched on and the alarm red light flashes, indicating that the equipment is not ready for use because the compressed air tank has not reached yet the expected vacuum capacity. It is advised to stop lifting operation until the vacuum tank reaches the expected level.

In event that the battery red light turn on this indicaties that the battery is required to be recharged. Do not operate the lifter once connect the power supply to the charging output. It turns on green after fully 7-8 hours charging time.

• Lipo battery charge

The lifter is equipped with a rechargeable Lipo 1-cell battery with a capacity of 2000 mAh and nominal voltage of 3.7 v. In a working mode, the battery life lasts up to 20 hours between charges.

It is strongly recommended to recharge the battery as the red is on. It turns green once the battery is fully charged. Time required for fully charge is about 7-8 hours.

• Requirements of charging Lipo 1-cell battery

- The output of charger must be 5v and 1A

- Most Lipo batteries are designed to be charged at a 1C maximum rate. This means that the charge rate (milliamps) must not exceed the capacity (mah) of the Lipo: 2200 mAh.

- The maximum temperature of a charger must not exceed to 1150F (460C). If possible, employ a charger with a temperature monitoring function that automatically stop charging if the temperature exceeds such a temperature.

• Dos and Don'ts for charging Lipo 1-cell battery

- Do not use a NiCd or NiMH charger on LiPo batteries.

- Do not allow a LiPo cell to exceed 4.20V maximum at any time.

- Do not allow LiPo cell to exceed 140°F (60°C) during charge, as they can and usually will become damaged and possibly catch FIRE!

- Do not expose battery packs to direct sunlight for extended periods of time or place in direct contact with any liquids. If the batteries are wet with water, immediately dry them with a clean towel.

- Do not allow a LiPo to continue charging if the battery begins to swell or the smoke begins to emit from the pack, as this is an indication the pack is damaged and a catastrophic failure could occur soon. Disconnect the battery and leave it in a safe, fireproof location for approximately 1 hour.

- Do not allow a LiPo to continue with the charge process if the charger fails to recognize full charge. Disconnect the battery immediately, as pack failure could result.

- Do not leave the room where the battery is being discharged.

- Do not enter a discharge cutoff voltage value into the discharger or ESC that is lower than the value specified for the battery! Failure to follow this warning can cause permanent damage to the battery and might result in a FIRE when attempting to recharge the battery afterwards!

- Do not discharge LiPo batteries at currents that exceed the maximum rating of the pack, as overheating could occur.

- Do not attempt to charge a battery that has previously overheated, discharged below 2.50V, or which has been damaged in any other way. Dispose of the battery in accompany with the regulations stipulated by local authorizes.

- Do not allow a battery's positive and negative leads to accidentally touch each other as a short-circuit condition will result and permanently damage the battery and/or charger. Disconnect the battery and remove input power from the charger immediately if the battery begins to swell or becomes hot!! Be sure to wear protective gloves when moving the battery in case it has become hot.

- Do not store LiPo batteries near an open flame or heater.

- Do not allow the battery's internal electrolyte to get in the eyes or on skin. Wash affected areas with soap and water immediately if they come in contact with the electrolyte. If electrolyte makes contact with the eyes, flush with large amounts of water for 15 minutes and seek medical attention immediately! If a battery leaks electrolyte or gas vapors, do not inhale leaked material. Leave the area and allow the batteries to cool and the vapors to dissipate. Remove spilled liquid with an absorbent material and dispose of the battery in accompany with the regulations stipulated by local authorizes.

- Make sure that metallic objects, such as wristwatches, bracelets are removed from your hands when handling LiPo pack. Accidentally touching battery terminals to any such objects could create a short-circuit condition and possibly cause severe personal injury.

- Keep out of reach of children.

- LiPo batteries should be stored with about 30%-50% of capacity.

- It is strongly recommended to charge LiPo batteries in an isolated, fireproof area.

- Use a LiPo compatible charger that includes balancing capabilities.

- All plugs / connectors on the LiPo battery are covered, to prevent an accidental short. Small sections of fuel tubing make good insulators.

Ignore these, it result in damage of battery or burning or explosion.

5.1 SAFETY INFORMATION

- General Safety Rules

- The purpose of this information is to make users aware of the need to pay the utmost attention to prevent any risk. Caution is, however, imperative. Safety also depends on all the safety compliance of all operators who interact with the equipment.

- Read the instructions contained in the manual supplied carefully and also read those applied onto the equipment. In particular, follow that advice concerning safety. Spend time reading the instructions to avoid unpleasant accidents.

- Pay attention to the meaning of the symbols on the applied plates; their shape and color have a specific meaning related to safety. Keep them visible and follow the stated information precisely.

- Do not tamper with, remove, or by- pass, the installed safety devices. Any failure to comply with this safety advice may cause serious risks for people's safety and health.

- The staff carrying out any type of intervention throughout the life of the machine should have pertinent technical skills, specific abilities, and the experience required in this sector. The lack of these requirements may cause damages to people's safety and health.

- Carry out the lifting and handling operations in compliance with the infor mation supplied by the manufacturer and stated directly on the packaging, on the equipment, and in the operating instructions.

- The operator should have the skill and experience required in this sector.

- Before carrying out its transfer by any means of transport, make sure the equipment and its components are properly secured.

- It is strongly recommended to the operator to observe safety regulations stipulated by local authorities and manufacturer. Any failure to safe regu lations may lead to injury to the operators. Aardwolf Industries LLC denies any claims due to such failures.

Before carrying out its transfer by any means of transport, make sure the equipment and its components are properly secured.

- Operation Rules

- While applying the devices onto the material, make sure the grip is properly executed. Carry out the handling without lifting the equipment too high from the ground; avoid any abrupt movement and keep yourself at a safe distance.

- During operation, always use the individual protection clothing and/or devices indicated in the operating instructions supplied by the manufacturer and those provided by the applicable legislation concerning safety at the workplace.

- If appropriate, before using the machine for the first time, even after gathering all the necessary information, simulate a few trial maneuvers to identify the controls, especially in the start-up and stop operations, and their main functions.

- Use the equipment only for the tasks authorized by the manufacturer. Any unintended use can put people's safety and health at risk and threaten commercial damage.

- Do not use the equipment if the safety devices are not perfectly installed and working efficiently. Any failure to comply with this requirement can seriously endanger people's safety and health and cause commercial damage.

- Prevent outsiders from staying too close to the operating area while the equipment is being used. If necessary, stop the equipment use immediately and keep everybody away from the area at risk.

- Adjustment & Maintenance Rules

- Keep the equipment in an efficient working condition and carry out the scheduled maintenance operations recommended by the manufacturer. A good maintenance will ensure the highest performance, a longer operating life, and a constant compliance with safety requirements.

- All maintenance and adjustment operations to be carried out by operators should take place in suitable environments under all necessary safety conditions and in compliance with the procedures described in this manual.

- Replace any worn parts with original spare parts. Use the oils and greases stated in the manual.

- All this will ensure the good operation of the equipment and the expected safety level.

- Do not throw away any polluting materials into the environment. Carry out their disposal in compliance with the relevant legislation in force

5.2 HANDLING AND INSTALLATION INFORMATION

• Recommendations for Handling and Installation

Carry out the handling and loading in compliance with the information supplied by the manufacturer, and as stated on the equipment and in the operating instructions. The operator should ensure all necessary conditions to guarantee their own safety and that of the other people directly and indirectly involved.

• Packaging and Unpacking

The packaging is also made according to the type of transport chosen to keep sizes as small as possible. In order to make transport easier, the equipment can be shipped with a few disassembled and properly protected and packaged components. Some parts, such as the electric ones, are protected with anti-dampness nylon. The packaging contains all the information needed to carry out the loading and unloading operations. While unpacking, make sure the components are intact and their quantity is correct.

The packaging material should be suitably eliminated in compliance with the applicable legislation.

- Loading and Transport

Loading and transport can be carried out with different means, depending on the destination. The drawing shows the most widely used solutions. During transport, make sure the load is properly secured to the means of transport to avoid unexpected displacements.

Do not place the equipment vertically and pay attention to the integrity of the vacuum lifting devices.

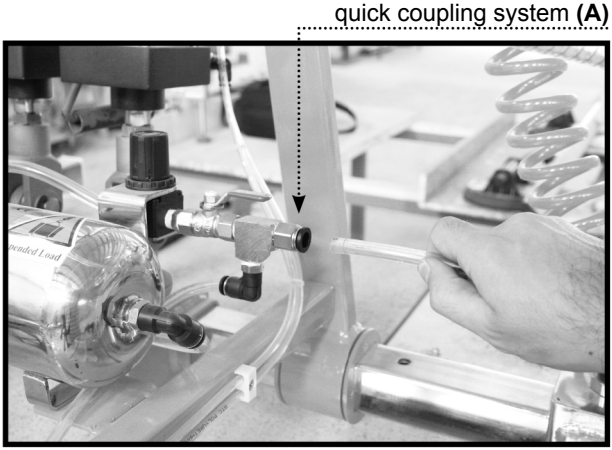
5.3 STORAGE PROCEDURES

1. Avoid any environment exposed to dampness or to inclement weather.

2. Place the equipment onto a parking station to avoid any direct contact with the ground.

3. Coat all moving parts with grease such as cylinder rams etc, to avoid seizure of moving parts in the future.

5.4 EQUIPMENT CONNECTION



The connections have to be carried out according to the instructions given by the manufacturer in the attached diagrams. When the connection has been carried out and before starting up the equipment, it is necessary to check if the aforesaid requirements have been complied with, by means of a general control. According to equipment configuration, carry out the following checks.

- Equipment with Electric Vacuum Pump
  Before carrying out the electric connection, make sure that the installation is suitable for and corresponding to the indicated technical features.

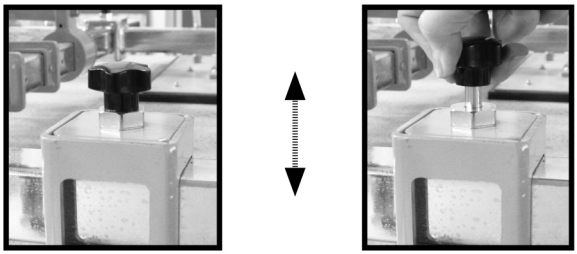
- Equipment with Venturi Meter
  Before operation of the pneumatic vacuum lifter, make sure the pneumatic line is connected by means of quick coupling system (A), and that it keeps operating in a constant way.

- Equipment Testing
  The equipment is previously tested by the manufacturer, therefore no specific intervention should be carried out by the operator.

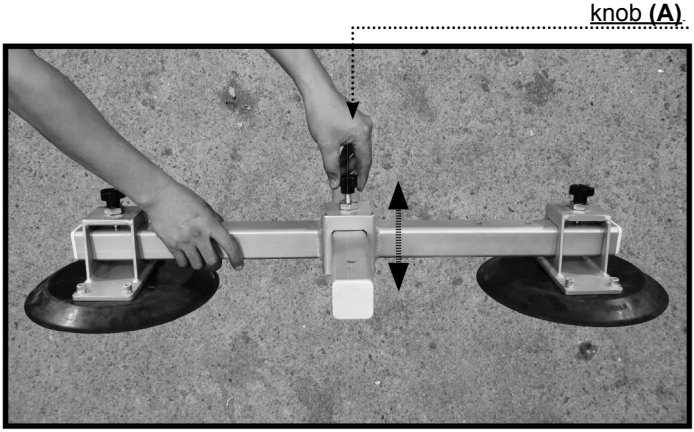
- Equipment with independent Vacuum Pump
  Make sure that the vacuum pump installation, to be connected by means of quick coupling system (A), keeps operating in a constant way.

The electric connection operations should be carried out by experienced staff in compliance with the applicable legislation concerning safety at the workplace.

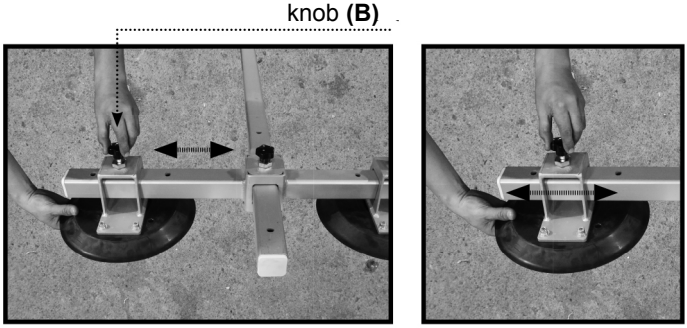
- Recommendations for Adjustments
  Before carrying out any type of adjustment, start up all safety devices provided and evaluate if it is necessary to properly inform the operating personnel and the personnel nearby.



- Arm adjustment (4 suction pads)
  Follow the procedure below.
  1. Raise knob (A)
  2. Place the vacuum suction pad in the desired position
  3. Lower knob (A)



- Adjustment of vacuum lifting devices (2, 3, 4 vacuum suction pads)
  Follow the procedure below.
  1. Raise knob (B).
  2. Place the vacuum suction pad in the desired position.
  3. Lower knob (B).



VERSION WITH 4
VACUUM SUCTION PADS

VERSION WITH 2-3
VACUUM SUCTION PADS

Rotating speed adjustment of Actuators

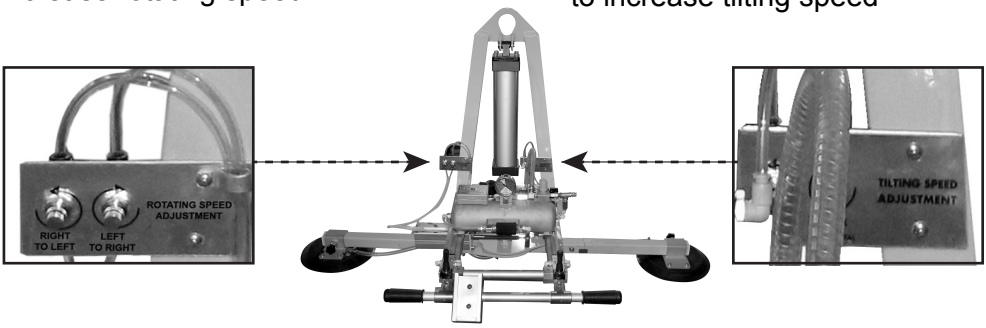
Use your hand to adjust the nut in clockwise direction to decrease rotating speed.

Use your hand to adjust the nut in counter-clockwise direction to increase rotating speed.

Tilting speed adjustment of Actuators

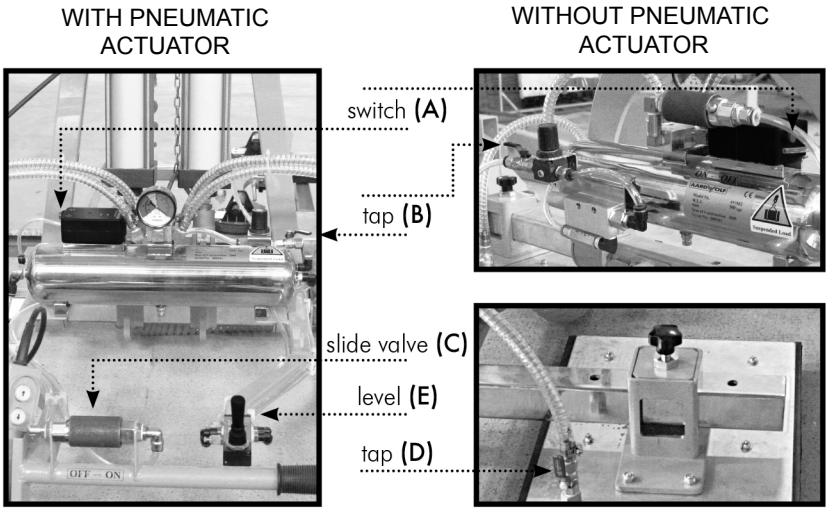
Use your hand to adjust the nut in clockwise direction to decrease tilting speed

Use your hand to adjust the nut in counter-clockwise direction to increase tilting speed



NOTE: Before adjusting the nut, the operator needs to tighten the nut and then adjust slowly the nut to increase or decrease tilting/rotating speed to avoid shock loading for the lifter.

5.5 INSTRUCTIONS FOR USE



- Control description

1. Alarm buzzer switch: to activate and deactivate it.
2. Compressed-air tap: to open and close the inflow of compressed air into the Venturi meter.
3. Material release Slide Valve: to remove the vacuum from the vacuum lifting devices when releasing the material.
4. Tap of vacuum suction pad: to enable and disable the corresponding vacuum lifting device.
5. Actuator lever: to start-up the pneumatic tilting of the plane of the vacuum lifting device.

- Overhang Table

The following Load Overhang Tables are designed for all types of vacuum lifters to determine the numbers of vacuum pads required to handle glass or metal sheet and plate.

For Aardwolf Vacuum Glass Lifter, the tables can also be referred as determining the overhang of material.

Overhang is defined as the distance from the center of a vacuum pad to the edge of the load. To prevent the load from “peeling away” from the pad, overhang rates for 120 mm deflection should never be exceeded as using Vacuum Glass Lifters. For maximum safety, we recommend that the Overhang rates for 50 mm deflection should be followed for all vacuum lifters.

The lifter you select must have both a sufficient capacity to handle your heaviest load as well as an adequate number of pads to support your thinnest material and prevent the load from peeling away from the vacuum pads as the load defects during lifting. Lifting thin pickled, oiled, or magnetized sheet with a single pad or single row of pads can create a bond or vacuum between the sheets. This can pucker or deform the top sheet and scratch the sheet bellow it. This bonding can also occur with thicker sheets if the surface texture is very smooth. Lifters with row of multiple pads placed near the edges of such sheet allows lifting from the outside edges of the sheet which immediately breaks the bond and permits safe lifting of one sheet at a time.

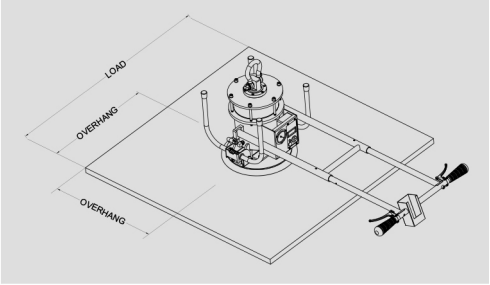
Heavy thick plate has sufficient structural rigidity such that defection and peeling away from overhang is generally not a problem. However, it can be difficult to center a single pad on large sheet.

GLASS SHEET		
Thickness (mm)	Weight (kg/m^2)	Overhang ‘L’ (cm)
4	8	50
5	10	65
7	20	75
8	20	80
10	25	90
13	30	100
16	40	120
20	50	130
23	60	140
26	70	150

STEEL SHEET & PLATE GAUGE			
Standard Steel Thickness (mm)	Weight (kg/m^2)	Overhang 'L'	
		50mm deflection (cm)	125mm deflection (cm)
0.5	4	35	50
0.6	5	40	55
0.8	6	45	60
1.0	8	55	70
1.2	9	60	75
1.5	12	65	85
1.8	14	70	90
2.0	16	75	95
2.5	20	85	100
3.0	24	95	120
4.0	31	100	130
5.0	39	120	150
6.0	47	140	170
8.0	63	150	190
9.0	71	160	220
10.0	79	175	225
11.0	86	185	230
12.0	94	195	245
15.0	118	200	255
16.0	126	220	275
18.0	141	230	290
19.0	149	240	300
22.0	173	260	325
25.0	196	280	350

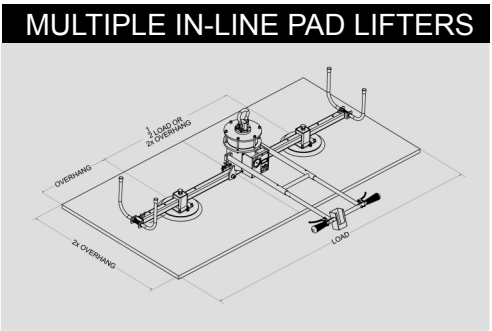
- Load Overhang Calculation

SINGLE PAD LIFTERS



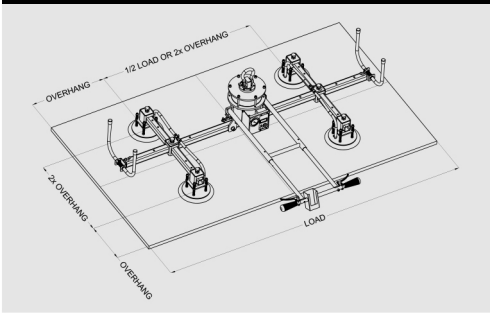
Single pad vacuum lifters are normally used to lift and transport single sheets of manageable dimensions. These dimensions vary greatly depending upon the material and application, and must be decided by the end user. AARDWOLF recommends the use of single pad lifters only on rigid or fairly rigid materials and where the operator can conveniently place the lifter in the center of the load. Even if the material is thick and light, such as foam core aluminum panels, a single pad lifter is difficult to center over a six foot or greater edge-to-edge load distance. A multiple pad lifter should be selected.

MULTIPLE IN-LINE PAD LIFTERS



Large loads, or a load with a length dimension of two or three times its width, are best handled with a multiple-pad lifter. When possible, a center-cup to center-cup distance of one half, but not less than one third, of the length of the load should be chosen. When lifting a load with three pad, in-line lifter, the center-cup to center-cup dimension must be one third the length of the load to obtain correct load distribution.

MULTIPLE PAD LIFTER
WITH CROSS-ARMS



Large or flexible loads are best handled with two or more rows of pads suspended from two or more cross-arms. For best balance and safety, each cup must carry the same share of the load. The cups must be evenly spaced along the width and length of the load for equal loading of the pads.

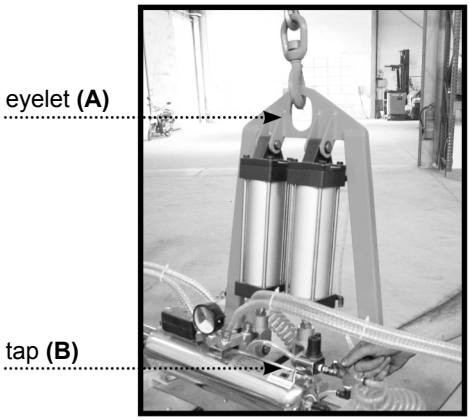
A 50 mm deflection or sag is the maximum we recommend for safe load handling. Equal loading of pads should be determined for the longest, widest load to be handled. Some limp or flexible materials require more support points to ensure level load handling. For every flexible materials, the overhang must be less than shown on the chart. Though we recommend near level load handling, the end user must determine the acceptable overhang for their application.

- Operating procedures

Before operating any lifting devices, it is strongly recommended to read attentively the manual and check the integrity of lifter for a safe and secure operation.

1. Hook the lifting device into the eyelet (A) of the equipment.
2. Adjust the position of the equipment.
3. Adjust the position of the vacuum lifting devices (see ‘Arm adjustment’ (with 4 vacuum lifting devices), page 16).
4. Ensure slide valve is in the on position.
5. Open the tap (B).

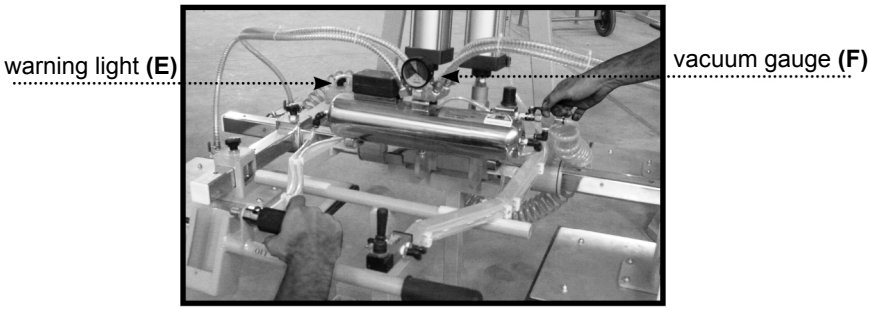
6. Apply the surface of the vacuum lifting devices in the center of the material to be lifted. Press the vacuum lifting devices to ensure an effective grip.



If the load is always in a vertical position, place the vacuum lifting devices at the highest part. Clean and, if necessary dry the part of the sheet where the vacuum lifting devices will be applied to ensure a suitable grip, especially for vertically positioned loads.

In order to lift blocks, apply the vacuum lifting devices only horizontally.

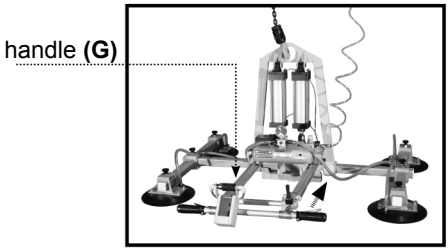
7. Wait until the green warning light (E) turns on and the audible alarm shuts down.
8. Check that the “vacuum gauge” (F) signals tank vacuum (at least - 0,7 bars). Slowly apply voltage to the hook device.



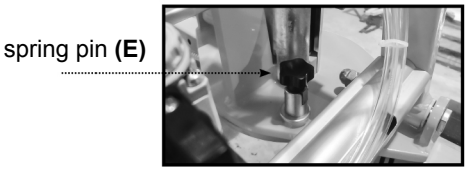
When applying the equipment, do not raise the hook device too quickly to avoid abrupt movements during the initial lifting phase.

9. Lift the load by a few centimeters to check stability and the grip of the vacuum lifting devices.
10. Move the load through the handle (G). Avoid any abrupt manoeuvre.

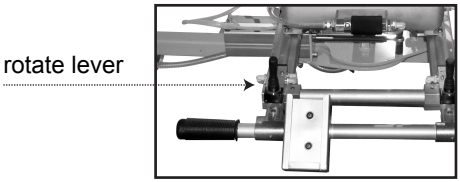
During the handling phase push the load using the handle provided. Do not pull it towards yourself. This precaution should be adopted to avoid any injury, especially to one's legs, if a sudden fall occurs.



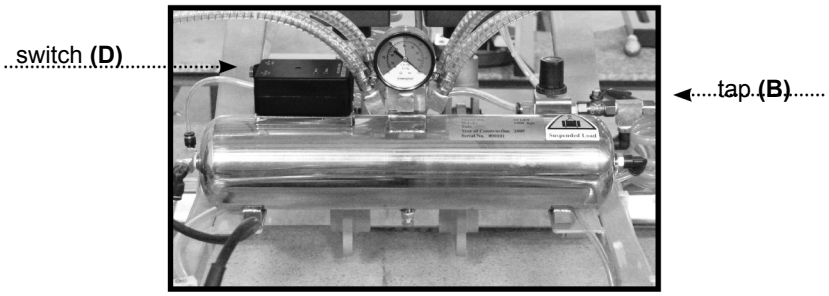
For model AVGLP4 MR 250, to enable its 360-degree rotation, lift up the spring pin (E), then manually rotate the suction pads in the expected degree.



For model AVGLP2-AR, the operator uses the Rotate Lever is located on the handle bar to rotate the load from 0 to 90 degree by compressed air.



12. Turn tap (B) to OFF position.
13. Move slide valve to the OFF position to release the load.
14. Switch off the Aardwolf Vacuum Leakage Detector to save battery life.



- End of Work Recommendations

After every use, store the equipment properly to keep it in a suitable condition for the next use. Adopt the precautions listed below:

- Leave the equipment hanging (without the load) in order to guarantee people's safety, or place it on supports (e.g. stands) to protect and safeguard the vacuum lifting devices.
- Clean the vacuum lifting devices and the whole equipment from any residue.
- Make sure the vacuum lifting devices are intact and, if necessary, replace them to guarantee their proper operation.
- Disconnect the electric and/or pneumatic power supply.

- Erroneous Use

- Do not handle loads with a shape, size, mass and temperature, etc. that are incompatible with the features of the equipment.
- Do not handle loads with an adherence surface which is not able to uphold the grip pressure of the equipment.
- Do not handle unknown materials unless you have carried out specific capacity and resistance tests.
- Do not use the equipment in explosive and inflammable environ ments.

- Recommendations for Maintenance

Replace the worn parts with original spare parts. These operations will ensure the good operation of the equipment and the expected safety level.

- Maintenance Interval Table

Keep the equipment in an efficient condition and carry out the scheduled maintenance operations established by the manufacturer. Good maintenance will ensure the highest performance, a longer operating life, and a constant compliance with safety requirements.

Before carrying out these operations, always remove the equipment from the lifting device and disconnect the pneumatic power supply.

FREQUENCY	COMPONENT	TYPE OF INTERVENTION	ACTION
EVERYDAY	Three-way valve	Efficiency control	
	Vacuum gauge	Efficiency control	
	Vacuum gauge	Battery efficiency control / Efficiency control	Replace or recharge of battery
	Warning lights	Condensation discharge	
	Vacuum tank	Wear & tear control	Remove any residue
	Gaskets	Visual control	
	Equipment		Check the integrity of structure
EVERY WEEK	Joints for vacuum lifting devices	Efficiency control	Clean and lubricate
	Anti-slips counterplate	Wear & tear control	Replace if appropriate
EVERY MONTH	Gasket of vacuum lifting devices	Wear & tear control	Replace if appropriate
	Vacuum pipes	Efficiency control	
	Check valves	Efficiency control	
EVERY 3 MONTHS	Equipment	Efficiency control	General overhaul

- Checklist

Regularly write notes on the specific control log (see example below), about maintenance and replacement operations that are carried out in the equipment.

CHECKLIST NOTES

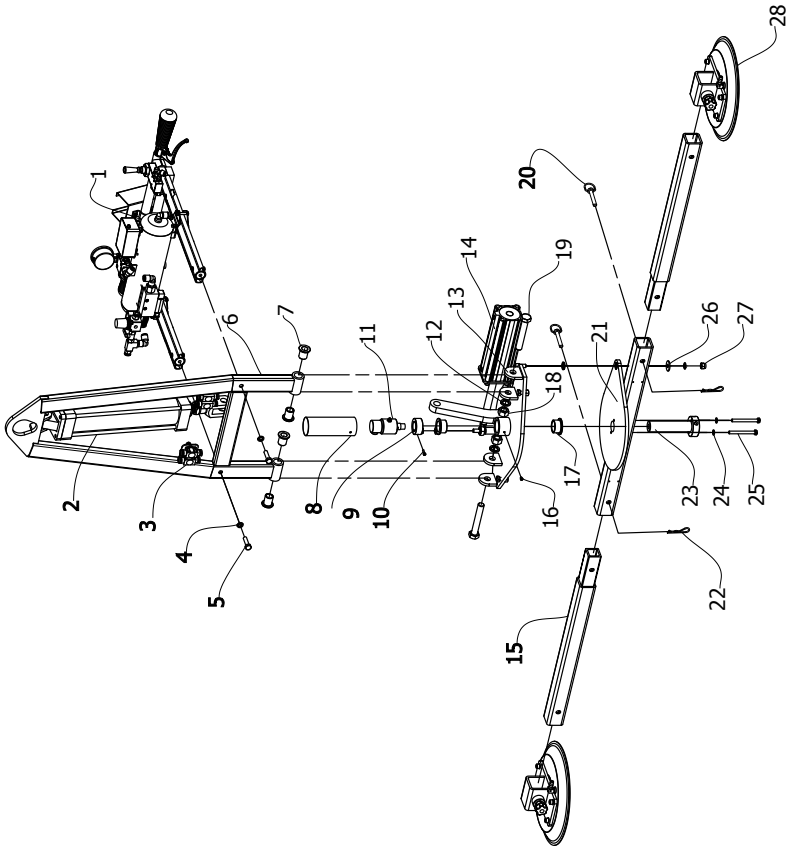
DATE	OPERATION CARRIED OUT	RESULT	OPERATOR'S SIGNATURE	REMARK

- Trouble Shooting

Even though the equipment has been previously tested by the manufacturer, the information provided below can facilitate troubleshooting.

PROBLEM	CAUSES	REMEDY
The vacuum lifting devices do not creat any vacuum	Air supply is insufficient	Check air supply
		Control filters
	Leaks from the gaskets and system	Replace any damaged component
	Porous	Impossible to lift
The vacuum lifting devices do not hold the load	Corrugated grip surface	Impossible to lift
	Wet or oily grip surface	Clean properly
	Off center load grip	Change the grip position
	Excessive load	Reduce the load
The warning lights and the audible signal of the central flat battery power unit do not work	Flat battery	Recharge or replace battery
The value of the "vacuum gauge" is not correct	Air supply is insufficient	Check air supply
		Control filters
	The "vacuum gauge" is broken	Adjust or replace

Auto Rotate Vacuum Glass Lifter 2-200
Product Code: AVGLP2-AR
(ASSEMBLY DIAGRAM)

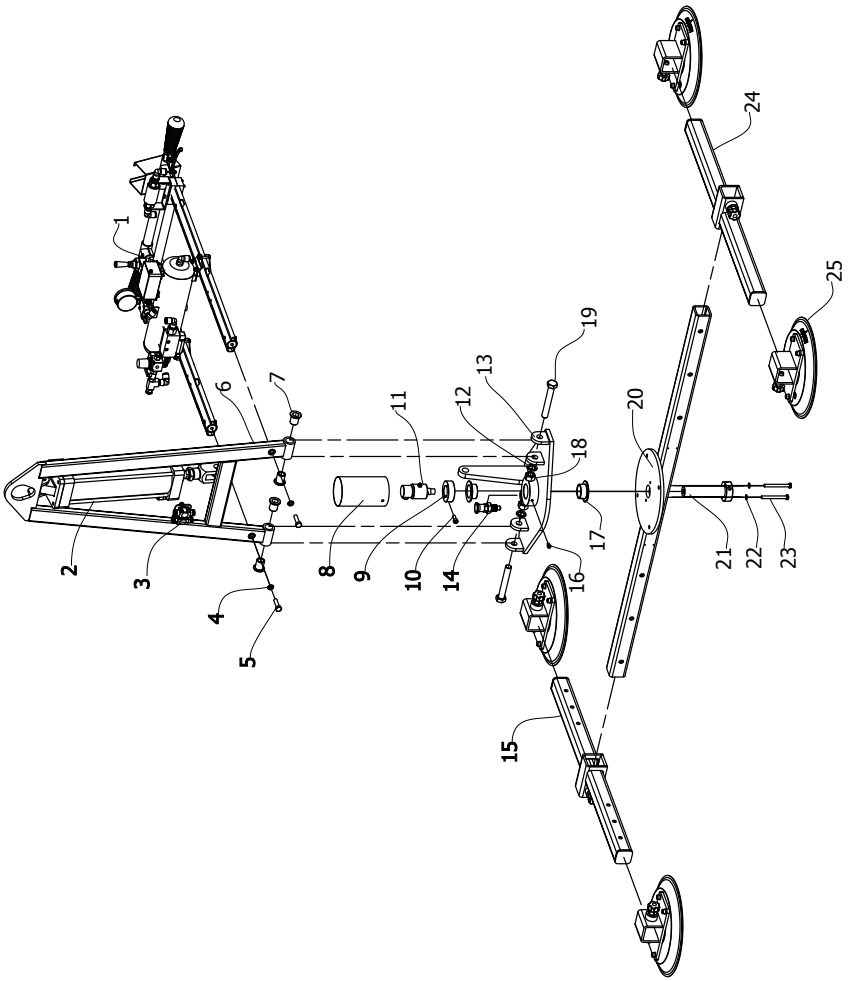


Auto Rotate Vacuum Glass Lifter 2-200
Product Code: AVGLP2-AR
(ASSEMBLY DIAGRAM)

PARTS LIST

No.	Code	Name	Qty.
1	AVGLP2-AR-01	Handle - Vacuum (AVLP1-250Kg) Subassembly	01
2	AVGLP2-AR-02	Cylinder SC 100 x 300	01
3	AVGLP2-AR-03	Pneumatic Speed Control Valve	04
4	AVGLP2AR-04	Spring Washer M10	03
5	AVGLP2-AR-05	Hexagon Socket Head Cap Screw M10x40	02
6	AVGLP2-AR-06	Body	01
7	AVGLP2-AR-07	Horizontal Plain Bearing	04
8	AVGLP2-AR-08	Cover	01
9	AVGLP2-AR-09	Blocking Nut	01
10	AVGLP2-AR-10	Hexagon Socket Head Cap Screw M8x20	01
11	AVGLP2-AR-11	Coupling Joint 3/8"	01
12	AVGLP2-AR-12	Spring Washer ϕ18	02
13	AVGLP2-AR-13	Bearing Support	01
14	AVGLP2-AR-14	Cylinder SC 80 x 175	01
15	AVGLP2-AR-15	Extension Bar	02
16	AVGLP2-AR-16	Bolt M6x10	01
17	AVGLP2-AR-17	Plain Bearing	02
18	AVGLP2-AR-18	Hexagon Nut M18	01
19	AVGLP2-AR-19	Hexagon Socket Head Cap Screw M18x120	02
20	AVGLP2-AR-20	Pin	03
21	AVGLP2-AR-21	Horizontal Hanging Bar	02
22	AVGLP2-AR-22	Cotter Pin	02
23	AVGLP2-AR-23	Shaft	01
24	AVGLP2-AR-24	Spring Washer ϕ8	02
25	AVGLP2-AR-25	Hexagon Bolt M8x80	02
26	AVGLP2-AR-26	Washer ϕ10	02
27	AVGLP2-AR-27	Hexagon Nut M10	01
28	AVGLP2-AR-28	Vacuum cup ϕ300	02

Vacuum Glass Lifter MR-250
Product Code: AVGLP4-MR-250
(ASSEMBLY DIAGRAM)

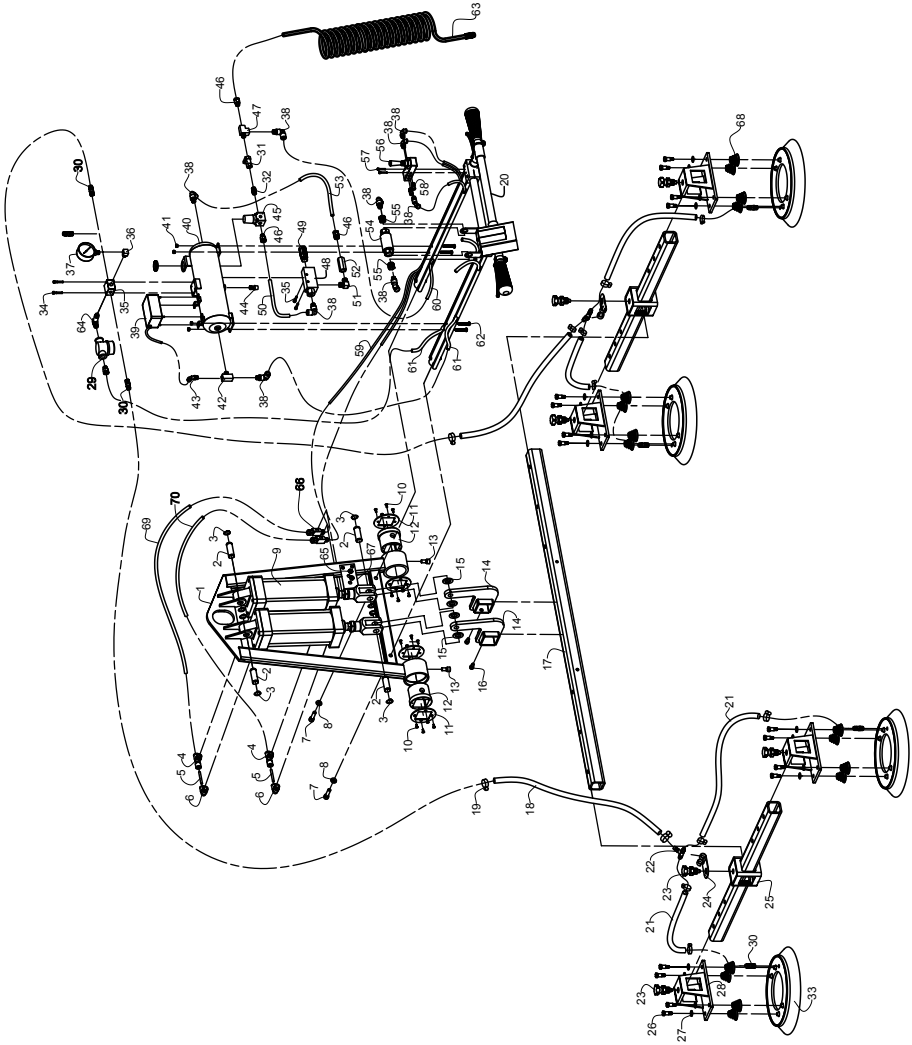


Vacuum Glass Lifter MR-250
Product Code: AVGLP4-MR-250
(ASSEMBLY DIAGRAM)

PARTS LIST

No.	Code	Name	Qty.
1	AVGLP4-MR-250-01	Handle - Vacuum (AVLP1-250Kg) Subassembly	01
2	AVGLP4-MR-250-02	Cylinder SC 100 x 300	01
3	AVGLP4-MR-250-03	Pneumatic Speed Control Valve	04
4	AVGLP4-MR-250-04	Spring Washer M10	03
5	AVGLP4-MR-250-05	Hexagon Socket Head Cap Screw M10x40	02
6	AVGLP4-MR-250-06	Body	01
7	AVGLP4-MR-250-07	Horizontal Plain Bearing	04
8	AVGLP4-MR-250-08	Cover	01
9	AVGLP4-MR-250-09	Blocking Nut	01
10	AVGLP4-MR-250-10	Hexagon Socket Head Cap Screw M8x20	01
11	AVGLP4-MR-250-11	Coupling Joint 3/8"	01
12	AVGLP4-MR-250-12	Spring Washer ϕ18	02
13	AVGLP4-MR-250-13	Bearing Support	01
14	AVGLP4-MR-250-14	Rotate Locking	01
15	AVGLP4-MR-250-15	Left Stringer Beam	01
16	AVGLP4-MR-250-16	Bolt M6x10	01
17	AVGLP4-MR-250-17	Plain Bearing	02
18	AVGLP4-MR-250-18	Hexagon Nut M18	01
19	AVGLP4-MR-250-19	Hexagon Socket Head Cap Screw M18x120	02
20	AVGLP4-MR-250-20	Horizontal Hanging Bar	01
21	AVGLP4-MR-250-21	Shaft	01
22	AVGLP4-MR-250-22	Spring Washer ϕ8	02
23	AVGLP4-MR-250-23	Hexagon Bolt M8x80	02
24	AVGLP4-MR-250-24	Right Stringer Beam	01
25	AVGLP4-MR-250-25	Vacuum cup ϕ300	04

AVGLP4-500KG - VACUUM GLASS LIFTER
ASSEMBLY DIAGRAM



AVGLP4-500KG - VACUUM GLASS LIFTER ASSEMBLY DIAGRAM

PARTS LIST

No.	Code	Name Part	Qty.
01	AVGLP4-001	Body	01
02	AVGLP4-002	Pin Ø20x55	04
03	AVGLP4-003	Circlip Ø20	08
04	AVGLP4-004	Branch Tees - Tube x Thread Ø10 x 3/8	02
05	AVGLP4-005	Air Hose Ø10 - 100	02
06	AVGLP4-006	Elbow male tube Ø10 x 3/8	02
07	AVGLP4-007	Hexagon socket head cap screw M10x40	02
08	AVGLP4-008	Washer Ø10	02
09	AVGLP4-009	Cylinder SC 80 x 200	02
10	AVGLP4-010	Countersunk screw M4x12	16
11	AVGLP4-011	Flange	04
12	AVGLP4-012	Plastic Bush	02
13	AVGLP4-013	Hexagon socket head cap screw M10x20	02
14	AVGLP4-014	Arm	02
15	AVGLP4-015	Washer Ø20 x 3.5	04
16	AVGLP4-016	Hexagon socket head cap screw M8x16	02
17	AVGLP4-017	Cross bar	01
18	AVGLP4-018	Air Hose Ø16 (3/8) -1000	02
19	AVGLP4-019	Worm drive clamp Ø16 (3/8)	12
20	AVGLP4-020	Handle assembly (AVLP1-031)	01
21	AVGLP4-021	Air Hose Ø16 (3/8) -600	04
22	AVGLP4-022	Tees - Hose - Jamec-Pem	02
23	AVGLP4-023	Latch Locking	6
24	AVGLP4-024	Hose Clip	02

AVGLP4-500KG - VACUUM GLASS LIFTER ASSEMBLY DIAGRAM

PARTS LIST

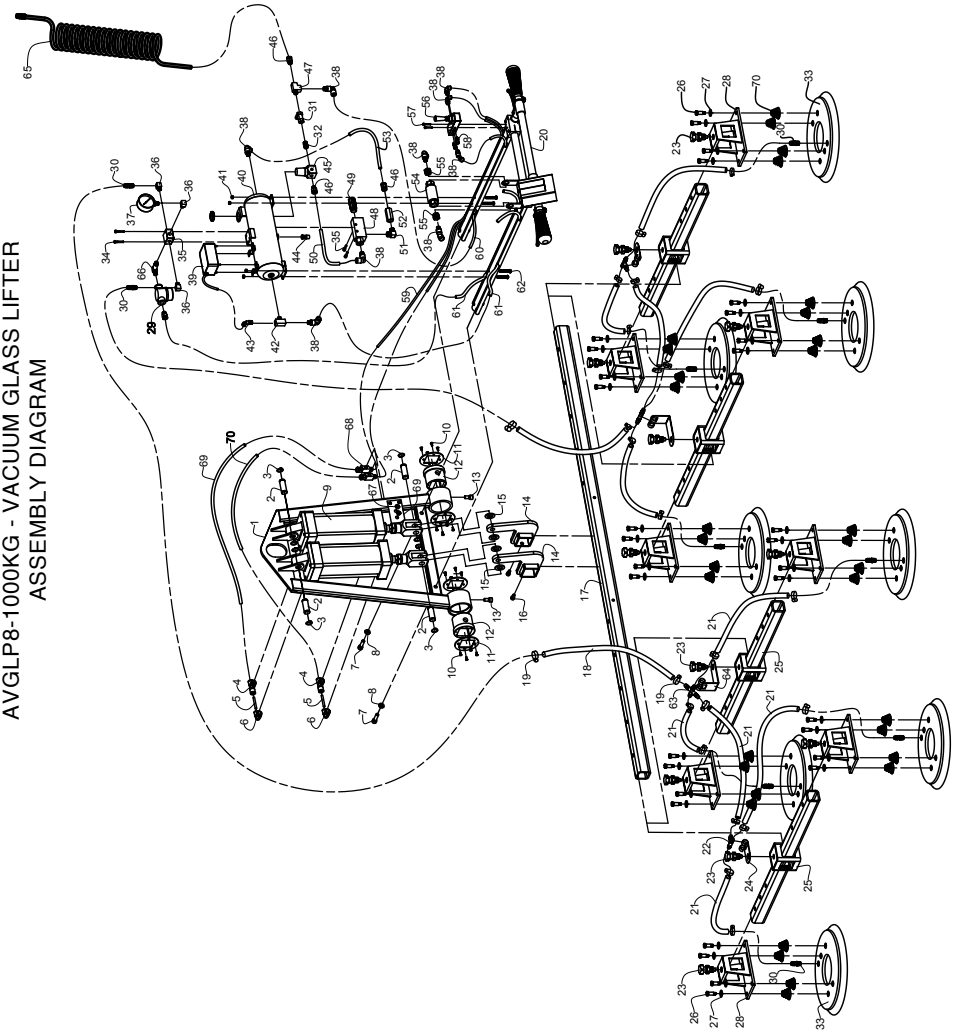
No.	Code	Name Part	Qty.
25	AVGLP4-025	Vertically Bar	04
26	AVGLP4-026	Hexagon head shoulder screw M8 x16	02
27	AVGLP4-027	Washer Ø12	32
28	AVGLP4-028	Bracket	08
29	AVGLP4-029	Filter	01
30	AVGLP4-030	Tailpiece - Male - Jamec-Pem	10
31	AVGLP4-031	Ball Valves 1/4	01
32	AVGLP4-032	Nipples Hexagon long brass tubefit 1/4 x 1/4	01
33	AVGLP4-033	Suction cup 300	08
34	AVGLP4-034	Hexagon socket head cap screw M5x30	04
35	AVGLP4-035	Crosses - Tubefit	01
36	AVGLP4-036	Elbow 90° Brass male x female t 1/4 x 1/4	01
37	AVGLP4-037	Vacuum Gauge	01
38	AVGLP4-038	Elbow male tube Ø10 x 1/4	10
39	AVGLP4-039	Warning Horn	01
40	AVGLP4-040	Vacuum tank	01
41	AVGLP4-041	Nut M6	04
42	AVGLP4-042	Tees - Brass - Female/Male/Female - Tubefit 1/4	01
43	AVGLP4-043	Elbow male tube Ø6 x 1/4	01
44	AVGLP4-044	Air Outlet valve 1/4	01
45	AVGLP4-045	Pressure Controller (MAR 200 - 8A)	01
46	AVGLP4-046	Connector Male Tube Ø10 x 1/4	03
47	AVGLP4-047	Tees-Brass-1 Male - 2 Female - Tubefit 1/4	01

AVGLP4-500KG - VACUUM GLASS LIFTER ASSEMBLY DIAGRAM

PARTS LIST

No.	Code	Name Part	Qty.
48	AVGLP4-048	Vacuum Pump EV-20	01
49	AVGLP4-049	Plastic Silencer (PSL-04)	01
50	AVGLP4-050	Air Hose Ø10 - 100	01
51	AVGLP4-051	Elbow 90° Brass male x male t 3/8 x 3/8	01
52	AVGLP4-052	Check Valve 3/8 (MJBV-03)	01
53	AVGLP4-053	Air Hose Ø10 - 120	01
54	AVGLP4-054	Slide Valve 3/8	01
55	AVGLP4-055	Bushes Reducing Brass 1/2 x 3/8	02
56	AVGLP4-056	Hand vale (TG 3521B-08C)	01
57	AVGLP4-057	Hexagon socket head cap screw M4x25	02
58	AVGLP4-058	Ragulate Silencer - 1/8PT (RSL-01)	02
59	AVGLP4-059	Air Hose Ø10 - 1400	02
60	AVGLP4-060	Air Hose Ø10 - 1000	01
61	AVGLP4-061	Air Hose Ø10 - 1100	02
62	AVGLP4-062	Hexagon socket head cap screw M6x40	04
63	AVGLP4-063	Compressed air hose Ø10 - 8m	01
64	AVGLP4-064	L-connector - Male x Male 1/4	01
65	AVGLP4-065	Hexagon nut M14	02
66	AVGLP4-066	Pneumatic speed control valve	02
67	AVGLP4-067	Valve bracket	01
68	AVGLP4-068	Spring (Ø17.4 - 30)	16
69	AVGLP4-069	Air Hose Ø10 - 520	01
70	AVGLP4-070	Air Hose Ø10 - 240	01

AVGLP8-1000KG - VACUUM GLASS LIFTER
ASSEMBLY DIAGRAM



AVGLP8-1000KG - VACUUM GLASS LIFTER ASSEMBLY DIAGRAM

PARTS LIST

No.	Code	Name Part	Qty.
01	AVGLP8-001	Body	01
02	AVGLP8-002	Pin Ø20x55	04
03	AVGLP8-003	Circlip Ø20	08
04	AVGLP8-004	Branch Tees - Tube x Thread Ø10 x 3/8	02
05	AVGLP8-005	Air Hose Ø10 - 100	02
06	AVGLP8-006	Elbow male tube Ø10 x 3/8	02
07	AVGLP8-007	Hexagon socket head cap screw M10x40	02
08	AVGLP8-008	Washer Ø10	02
09	AVGLP8-009	Cylinder SC 100 x 200	02
10	AVGLP8-010	Countersunk screw M4x12	16
11	AVGLP8-011	Flange	04
12	AVGLP8-012	Plastic Bush	02
13	AVGLP8-013	Hexagon socket head cap screw M10x20	02
14	AVGLP8-014	Arm	02
15	AVGLP8-015	Washer Ø20 x 3.5	04
16	AVGLP8-016	Hexagon socket head cap screw M8x16	02
17	AVGLP8-017	Cross bar	01
18	AVGLP8-018	Air Hose Ø16 (3/8) -1000	02
19	AVGLP8-019	Worm drive clamp Ø16 (3/8)	24
20	AVGLP8-020	Handle assembly (AVLP1-031)	01
21	AVGLP8-021	Air Hose Ø16 (3/8) -600	10
22	AVGLP8-022	Tees - Hose - Jamec-Pem	02
23	AVGLP8-023	Latch Locking	12
24	AVGLP8-024	Hose Clip	02

AVGLP8-1000KG - VACUUM GLASS LIFTER ASSEMBLY DIAGRAM

PARTS LIST

No.	Code	Name Part	Qty.
25	AVGLP8-025	Vertically Bar	04
26	AVGLP8-026	Hexagon head shoulder screw M8 x16	02
27	AVGLP8-027	Washer Ø12	32
28	AVGLP8-028	Bracket	08
29	AVGLP8-029	Filter	01
30	AVGLP8-030	Tailpiece - Male - Jamec-Pem	10
33	AVGLP8-033	Vacuum cup 300	08
34	AVGLP8-034	Hexagon socket head cap screw M5x30	04
35	AVGLP8-035	Crosses - Tubefit	01
36	AVGLP8-036	Elbow 90° Brass male x female t 1/4 x 1/4	03
37	AVGLP8-037	Vacuum Gauge	01
38	AVGLP8-038	Elbow male tube Ø10 x 1/4	09
39	AVGLP8-039	Warning Horn	01
40	AVGLP8-040	Vacuum tank	01
41	AVGLP8-041	Nut M6	04
42	AVGLP8-042	Tees - Brass - Female/Male/Female - Tubefit 1/4	01
43	AVGLP8-043	Elbow male tube Ø6 x 1/4	01
44	AVGLP8-044	Air Outlet valve 1/4	01
45	AVGLP8-045	Pressure Controller (MAR 200 - 8A)	01
46	AVGLP8-046	Connector Male Tube Ø10 x 1/4	04
47	AVGLP8-047	Tees-Brass-1 Male - 2 Female - Tubefit 1/4	01
48	AVGLP8-048	Vacuum Pump EV-20	01
49	AVGLP8-049	Plastic Silencer (PSL-04)	01

AVGLP8-1000KG - VACUUM GLASS LIFTER ASSEMBLY DIAGRAM

PARTS LIST

No.	Code	Name Part	Qty.
50	AVGLP8-050	Air Hose Ø10 - 100	01
51	AVGLP8-051	Elbow 90° Brass male x male t 3/8 x 3/8	01
52	AVGLP8-052	Check Valve 3/8 (MJBV-03)	01
53	AVGLP8-053	Air Hose Ø10 - 120	01
54	AVGLP8-054	Slide Valve 3/8	01
55	AVGLP8-055	Bushes Reducing Brass 1/2 x 3/8	02
56	AVGLP8-056	Hand vale (TG 3521B-08C)	01
57	AVGLP8-057	Hexagon socket head cap screw M4x25	02
58	AVGLP8-058	Ragulate Silencer - 1/8PT (RSL-01)	02
59	AVGLP8-059	Air Hose Ø10 - 1400	02
60	AVGLP8-060	Air Hose Ø10 - 1000	01
61	AVGLP8-061	Air Hose Ø10 - 1100	02
62	AVGLP8-062	Hexagon socket head cap screw M6x40	04
63	AVGLP8-063	" + " Piece - Hose - Jamec-Pem	02
64	AVGLP8-064	Hose Clip " L "	02
65	AVGLP8-065	Compressed air hose	01
66	AVGLP8-066	L-connector - Male x Male 1/4	01
67	AVGLP8-067	Hexagon nut M14	02
68	AVGLP8-068	Pneumatic speed control valve	02
69	AVGLP8-069	Valve bracket	01
70	AVGLP8-070	Spring (Ø17.4 - 30)	32
70	AVGLP8-070	Air Hose Ø10 - 520	01
70	AVGLP8-070	Air Hose Ø10 - 240	01

When ordering spare parts, please show the codes of parts and quantities on your purchase order. For example:

- Part code: AVGLP4 - 027, QTY: 05
- Part code: AVGLP8 - 042, QTY: 15

8.1 WARRANTY

After receiving the goods, it is strongly recommended to the buyer to check for sure, based on the spare part list and spare drawing attached with the goods, that the spare parts has not been damaged or lost during shipment. Any damages or losses must be officially claimed to Aardwolf Industries LLC's within 8 days since the date of goods receipts.

This lifter is granted a 12-month warranty based on Aardwolf Industries LLC's warranty policy since the date of purchase.

The warranty coverage is not applicable.....

Whenever the clamp is handled incorrectly during manoeuvring.

Whenever the operator fails to comply with the instructions in this booklet.

Whenever the clamp's maximum permissible capacity is exceeded.

Whenever the specifications for glass thickness are not followed.

When damages are due to inadequate maintenance and inspections.

When damage is due to improper storage.

Whenever repairs were performed by the user without our permission.

Whenever non-original spare parts were used.

8.2 DISCLAIMER

Aardwolf Industries LLC's warranty does not cover the incorrect assembly and misuse of lifter, the lack of maintenance and repair of lifter as scheduled by the manufacturer, the operation carried out by non-competent or non-permission operator or non-original spare parts used or installed.

VIETNAM

AARDWOLF VIETNAM
- 1B, An Phu, Thuan An, Binh Duong, Vietnam.
- +84 274 371 2840
- sales@aardwolf.com.au
- www.aardwolf.com.au

KOREA

AARDWOLF KOREA
- 284-2 Yatap -Dong, Bundang-Ku, Seongnam-Shi, Kyuongki-Do, Korea
- +82 6487 3949
- sales@aardwolf.kr
- www.aardwolf.kr

AUSTRALIA

AARDWOLF AUSTRALIA
- 2/106 Magowar Rd, Girraween NSW 2145, Australia.
- +0422 916 907
- enquiries@aardwolfaustralia.com
- www.aardwolfaustralia.com

GERMANY

STONE GLASS EQUIPMENT UG
- Am Gutsteich 11, 08451 Crimmitschau/ Blankenhain, Germany.
- +49 366 0811 9236
- sales@aardwolf.com.de
- www.aardwolf.com.de

INDIA

AARDWOLF KISHANGARH
- Harmara Road, Industrial Area, Madanganj, Kishangarh, Rajasthan India / Pin no. 305801
- Tel: +91 9785016771
- Email: sales@aardwolf.co.in
- Web: www.aardwolf.co.in

AARDWOLF BENGALURU
- No: 6, Sharma Complex, 3rd Cross, Ganesha Block, Dinnur Main Road, R. T. Nagar P.O Bengaluru-560032
- +91 98451 62959/ 91 9901724600
- bengaluru@aardwolf.co.in
- www.aardwolf.co.in

Get The AArdwolf AAdvantage