



# HAND PUMP VACUUM LIFTER

AVLHP240/480



**OWNER'S MANUAL**

**Get The AArDwolf AAdvantage**

**01/2017**



Welcome Onboard!

*Thank you so much for your selection of Aardwolf Hand Pump Vacuum Lifter! You and your new Aardwolf Hand Pump Vacuum Lifter are companions. Please read this manual to understand your companion.*

*This Manual of Aardwolf Hand Pump Vacuum Lifter is designed to provide important information regarding the purposes, uses and maintenances of the lifter. It is compulsory for the operator to carefully read over the manual before operating the lifter and keep it available for reference at any time in the workplace.*

*In the manual, you will find operating instructions, safety precautions, product specifications, drawing and spare parts list as well as maintenance and inspection guides.*

**Aardwolf Industries LLC**

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## 1 INTRODUCTION

AVLHP240/480 is equipped with hand pump or compressed air. It is specially suitable for horizontal or vertical transportation of non-porous shit materials such as stil plate, glass, aluminum plate and polished marble or granite.

## 2 SPECIFICATION

### 2.1 Specification

Section				Unit	Metric (mm-kg)	Imperial (inch-lbs)
Work Load Limit	Hand Pump	ø 300	Horizontal	240	529	
			Vertical	140	265	
		520 x 320	Horizontal	450	992	
			Vertical	225	496	
		ø 350	Horizontal	280	617	
			Vertical	140	309	
	Compressed Air	520 x 320	Horizontal	480	1058	
			Vertical	240	529	
Number of Pad				1		
Net Weight				14.8	32.6	

#### Battery Information for alarm system

- Power supply: 3.7V Lipo battery
- Battery capacity: 2000mAh x 1
- Adapter: DC 5V-1A
- Standby time: 5000h
- Charging cycle: 1000 times
- Charging time: 2h
- Non-stop working time: 7h

## 2.2 Features:

- Dust and fire resistance.
- Attach/ release material by GRIP - RELEASE Slide valve
- Audio/ Visual alarm system.
- Adjustable suction pads.

## 2.3 Description of the Main Units:

- A.** Vacuum Reserve Tank: Contain the vacuum that is necessary to assure operation even in case of any sudden lack of power supply.
- B.** Hand Vacuum Pump
- C.** Vacuum suction pad: Enables the material to be handled by means of a vacuum.
- D.** Visual Alarm: Vacuum Gauge.
- E.** Audio Alarm: Aardwolf Vacuum Leakage Detector
- F.** Handle: Facilitates any manual operation.
- G.** GRIP - RELEASE Slide valve: Controls pick-up and material detachment.

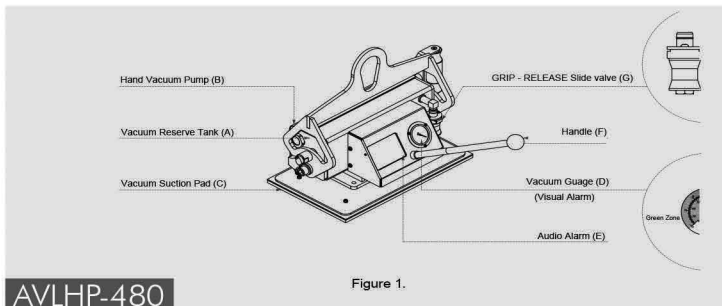
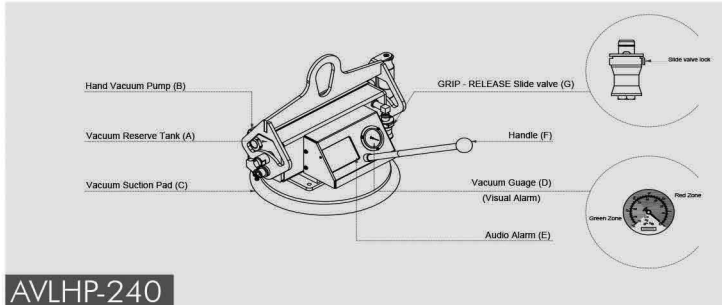


Figure 1.

## 3 OPERATING INSTRUCTIONS

### 3.1 Aardwolf Vacuum Leakage Detector:



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.

#### **WARNING:**

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, indicating that the battery is required to be recharged. Do not operate the lifter and connect the power supply to the charging output. It turns on green after fully 7-8 hour charging time.

- Lipo battery charge:

The lifter is equipped with a rechargeable Lipo 1-cell battery with a capacity of 2000mAh and nominal voltage of 3.7V. 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 light flashes. 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: 2200mAh.
- The maximum temperature of a charger must not exceed to 115°F (46°C). 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.

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

### 3.2 Safety Instructions:

- The operator must be trained in all relevant industry and regulatory standards for the operation of the vacuum lifter in its geographical location. The operator must read and understand this manual, including all warnings, before using the lifter.
- The operator must wear any personal protective equipment and take any other precautions required to handle the load safely. Consult appropriate trade association guidelines to determine what precautions are necessary for each type of load material.
- Besides complying with the relevant legislation in force, the operator needs to pay the utmost attention to prevent any risk. Caution is imperative.
- 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 bypass, 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.

### 3.3 Operating Instructions:

- General rules:

- The operator must determine whether the lifter is capable of performing each intended task, in accordance with the specifications and use sections of this instructions manual. If the lifter has been in storage, always conduct a vacuum test before placing it in service.

- Operators should have specific abilities and skills for the type of work to be carried out and the equipment should be in suitable conditions to avoid any risk to people's safety and health, as well as to avoid any commercial damage.
- 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 those related with startup 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.
- 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.

- Attaching handle to vacuum lifter:

To firmly lock the handle to the vacuum lifter, push the handle in against the spring, then make a clockwise movement.

To unlock the handle, simply push the handle in against the spring, then make an anti-clockwise movement.

- Changing the different vacuum pad:

Each Hand Pump Vacuum Lifter is equipped with two different pad sizes which are respective to different load capacities. The operator can easily change the vacuum pad size depending on the handling needs.

To determine the minimum length and width of load as well as the maximum thickness of load, please refer to the Overhang table (page...)

- Turn off the lifter and disconnect the air hose out of the fitting.
- Lift up the hand lock and slide the body in the left direction to release the lifter body out of the vacuum plate.



- The operator now can easily change the vacuum pad with the size which is suitable for the load capacity.

### **NOTE:**

In event that the operator would like to change the vacuum seal since it is worn, follow the three abovementioned steps and continue to unscrew six bolts on the vacuum plates to separate the vacuum seal from the vacuum plate and replace with a new vacuum seal.

The manufacturer cannot be held responsible for any personal or material damage resulting from the use of non-original spare parts and unscheduled operations capable of modifying the safety requirements without the manufacturer's authorization.

- 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 Hand Pump Vacuum 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 120mm deflection should never be exceeded as using mechanical vacuum lifters. For maximum safety, we recommend that the Overhang rates for 50mm 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

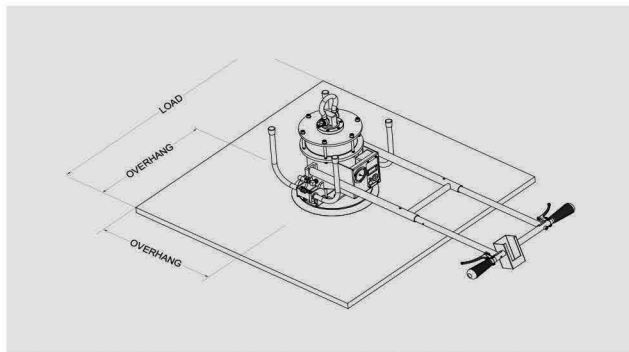
or single row of pads can create a bond or vacuum between the sheets. This can pucker or deform the top sheet and scratch the sheet bellow it. This bonding can also occur with thicker sheets if the surface texture is very smooth. Lifters with row of multiple pads placed near the edges of such sheet allows 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.

STEEL SHEET & PLATE GAUGE			
Standard Steel Thickness (mm)	Weight (kg/m²)	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

GLASS SHEET		
Thickness (mm)	Weight (kg/m <sup>2</sup> )	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

• 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.

A 50.8mm 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.

- **Positioning the Lifter on the Load:**

Make certain that the contact surfaces of the load and all vacuum pads are free of any contaminants that could prevent the pads from sealing against the load. Center the lifter's Pad to within 5 cm of the load center, since off-center loading can cause the load to rotate or tilt unexpectedly and it may also damage the lifter. Make sure that all vacuum pads will fit entirely on the load's contact surface. Then apply the lifter to the load by moving the slider valve to the "ON" position.

This energizes the vacuum pump, causing vacuum to be drawn at the pads immediately. The red low vacuum warning light also turns on and remains illuminated until the lifter attains the sufficient vacuum to lift the maximum load weight. The slide valve must remain in the "ON" position throughout the entire lift.

**NOTE:** If the vacuum pad has been lying against a hard object (as during shipping), it may be slightly distorted. Although initially it may be difficult to apply the pad to a load, this condition should correct itself with continued use.

- **Reading the Vacuum Gauge:**

The vacuum gauge indicates the current vacuum level in the lifter's vacuum system. The green range indicates vacuum levels sufficient for lifting the maximum load weight, whereas the red range indicates vacuum levels that are not sufficient for lifting the maximum load weight. The gauge needle should show a sudden surge in vacuum as the vacuum pads seal against the load.

### **- Vacuum Level on Optimal Surfaces:**

When the lifter is attached to clean, smooth, nonporous load surfaces, it should be able to maintain a vacuum level in the green range on the vacuum gauge. If not, determine whether there is a deficiency in the vacuum generating system.

### **- Vacuum Level on Other Surfaces:**

When the lifter is attached to contaminated, rough or porous load surfaces, it may not be able to maintain a vacuum level in the green range on the vacuum gauge, due to leakage in the seal between the vacuum pads and the load surface. In the case of contamination, thoroughly clean the contact surfaces of the load and the vacuum pads, and reapply the lifter to the load. If the load has rough or porous surfaces, the operator must conduct a test to determine whether the lifter is designed to lift the load, as follows:

1. Make sure the lifter's vacuum generating system is functioning correctly.
2. Apply the vacuum pads to the load as previously directed.
3. After the vacuum level reaches the green zone on the vacuum gauge, turn the vacuum tap off.
4. Raise the load a minimal distance, to assure that it is supported by the lifter.
5. Monitor the vacuum gauge while the load is suspended for 5 minutes: The lifter must maintain a minimum vacuum level of 25 Cm Hg during this time. If not, the load does not possess the characteristics required for using this lifter.

### **• How to lift and move the load:**

- Place the lifter at the center of load. Make sure vacuum pads are evenly spaced over the length and width of the load. Observe the load overhang tables in this manual.

- Switch Slide valve to “**GRIP**” position
- Employ a hand pump to generate vacuum to attach vacuum pads to the load until the vacuum gauge reads 60 cm Hg
- Turn on an alarm system to ensure the vacuum is sufficient for a lift. During operation, if the dial of vacuum gauge travels to 50 cm Hg, the alarm sounds and the warning light flashes, lower down the load on a ground or table support and employ a hand pump to generate the vacuum until it reads 60 cm Hg.
- Hand Pump Vacuum Lifter is now ready for a lift.

### **WARNING:**

- Load Capacity:

Never attempt to lift a load that is greater than a W.L.L of lifter or the vacuum level is in the yellow or red zone; such an attempt could result in a load release and possible injury to the operator.

- Monitoring Vacuum Indicators:

The vacuum gauge must remain completely visible to the operator, so that it can be monitored throughout the entire lift. Never attempt to lift a load in event that the alarm sounds and the low vacuum warning light flashes. Discontinue lifter use until the cause of the vacuum loss can be determined. If the vacuum loss cannot be remedied immediately, perform inspection and maintenance as needed to identify and correct any deficiency before resuming normal operation of the lifter.

- In Case of Power Failure:

The lifter is equipped with a vacuum reserve tank, designed to maintain vacuum temporarily in case of a failure at the lifter's power source. Stay clear of any suspended load in the event of a power failure. Although the lifter is designed to support the load for at least 5 minutes without power, this depends on many factors, including the condition of the load and the lifter's vacuum system. If a power failure occurs, keep all personnel clear of the

suspended load until it can safely be placed on the ground or a stable support. Correct any deficiency before resuming normal operation of the lifter.

• **How to release the pads from the load:**

Load must be fully supported before releasing vacuum pads. When the load is at rest and fully supported, depress lock on slide valve and slide the valve to the off position to disengage the vacuum pads completely from the load.

**CAUTION:** Do not set the lifter against any surfaces which could soil or damage the vacuum pads. Use the hoisting equipment to gently lower the lifter onto a stable support; then detach the hoisting equipment hook from the lift bail.

• **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 device is intact and, if necessary, replace them to guarantee their proper operation.
- Disconnect the 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 environments.
- Do not leave the equipment in unsuitable environmental conditions.

## **4 MAINTENANCE INFORMATION:**

### • **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	
	Audible alarm	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 Note**

	OPERATION CARRIED OUT		OPERATOR'S SIGNATURE	

## • Troubleshooting:

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
The vacuum lifting devices do not hold the load	Porous material	Impossible to lift
	Corrugated grip surface	Impossible to lift
	Wet or oily grip surface	Clean properly
	Off center load grip	Change the grip position
The warning lights and the audible signal of the central flat battery power unit do not work	Excessive load	Reduce the load
	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

## 5 WARRANTY:

### 5.1 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.

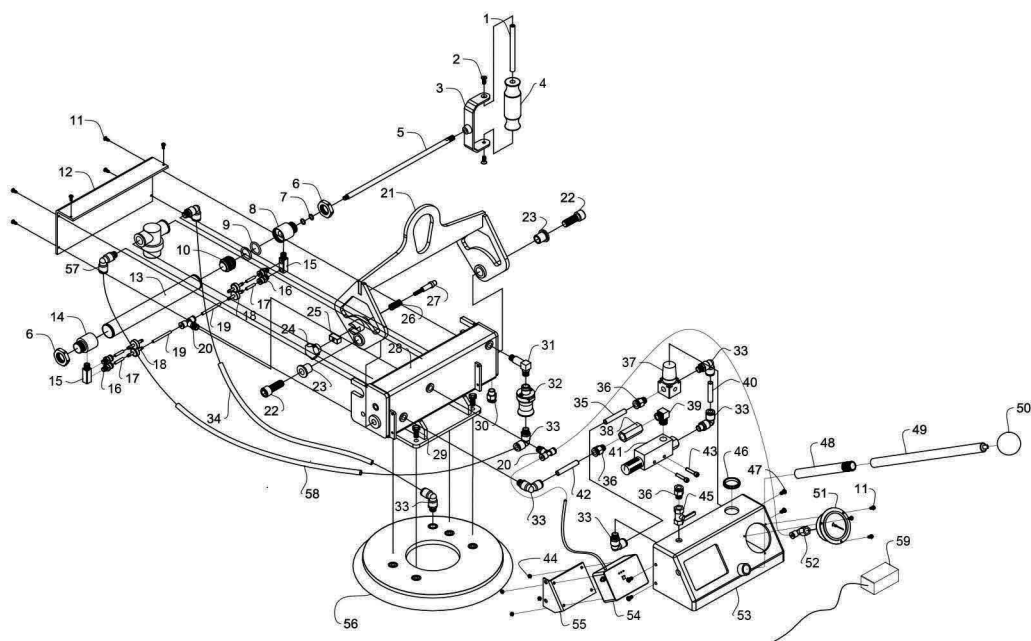
The warranty coverage is not applicable:

- 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 slab 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.

## **5.2 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.

## AARDWOLF HAND PUMP VACUUM LIFTER Model: AVLHP 240 \_DIAGRAM ASSEMBLY\_



# AARDWOLF HAND PUMP VACUUM LIFTER

**Model: AVLHP 240**

## \_SPARE PART LIST\_

No.	Code	Name Part	Qty.
01	AVLHP240-01	Pin Ø10 x 130	01
02	AVLHP240-02	Hex. Socket Countersunk Head Screw M6x16	02
03	AVLHP240-03	Holder	01
04	AVLHP240-04	Handle Bar	01
05	AVLHP240-05	Piston Connecting Rod	01
06	AVLHP240-06	Hex. Nut M24	02
07	AVLHP240-07	Seal Ø12.4 - 2	02
08	AVLHP240-08	Cylinder Cover B	01
09	AVLHP240-09	Seal Ø29 - 3.5	02
10	AVLHP240-10	Piston	01
11	AVLHP240-11	Recessed Pan Head Screw - M4 X 10	09
12	AVLHP240-12	Cover	01
13	AVLHP240-13	Cylinder	01
14	AVLHP240-14	Cylinder Cover A	01
15	AVLHP240-15	I-Brass-1 Male-2 Female-Tubefit 1/4	02
16	AVLHP240-16	Connector Male Tube Ø6 - 1/4"	04
17	AVLHP240-17	Air Hose Ø06 - 15	04
18	AVLHP240-18	Check Valve (plastic)	04
19	AVLHP240-19	Air Hose Ø06 - 100	02
20	AVLHP240-20	Branch Tee - Male Tube Ø6 - 1/4	02
21	AVLHP240-21	Lug Links	01
22	AVLHP240-22	Hex. Socket Head Cap Screw M14x40	02
23	AVLHP240-23	Spacing	02
24	AVLHP240-24	Hand Knob M6 (Female Thread)	01
25	AVLHP240-25	Stop Guide	01
26	AVLHP240-26	Compression Spring Ø12-26	01
27	AVLHP240-27	Locking Pin	01
28	AVLHP240-28	Vacuum Tank	01
29	AVLHP240-29	Bolt M8x20	04
30	AVLHP240-30	Air Outlet Valve 1/4	01

# AARDWOLF HAND PUMP VACUUM LIFTER

Model: AVLHP 240

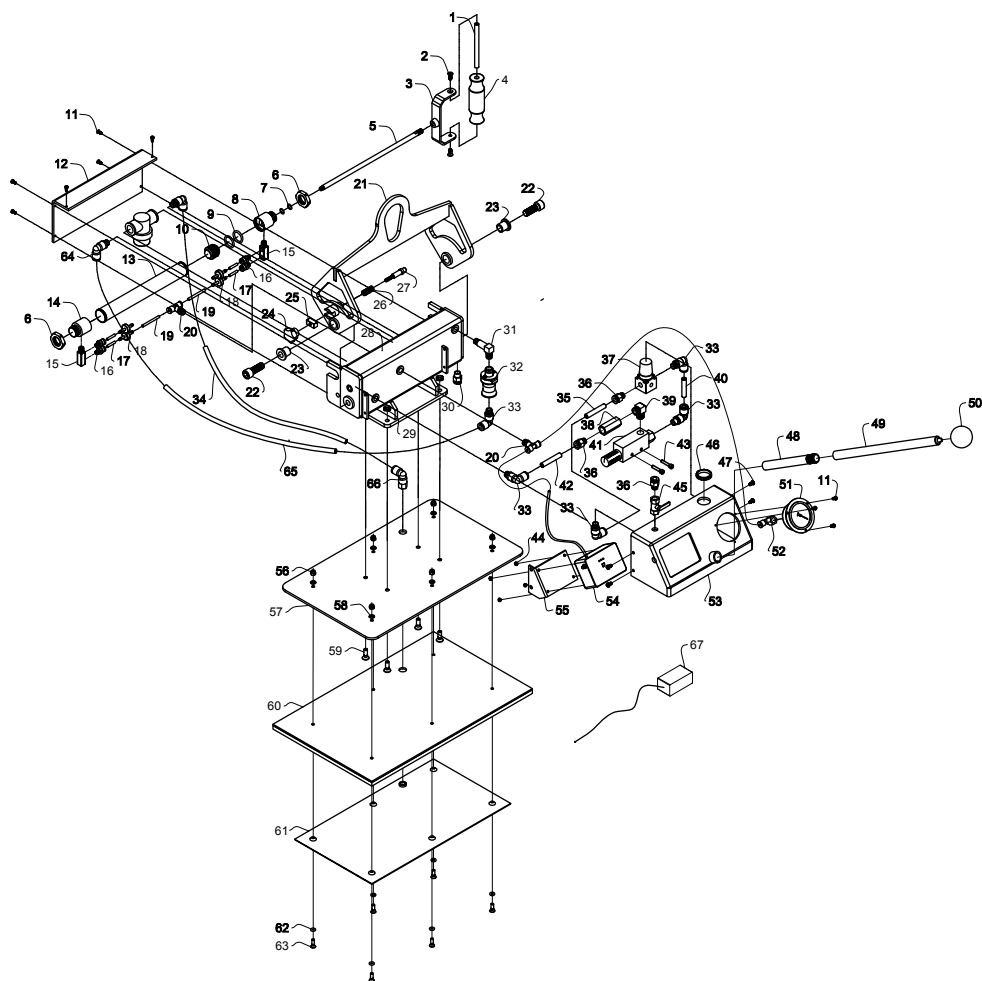
## \_SPARE PART LIST\_

No.	Code	Name Part	Qty.
31	AVLHP240-31	L-Connector - Male 1/4	01
32	AVLHP240-32	Slide Valve 1/4 ( HSV08 )	01
33	AVLHP240-33	Elbow Male Tube Ø10 x 1/4 (PL10-G02)	06
34	AVLHP240-34	Air Hose Ø10 - 200	01
35	AVLHP240-35	Air Hose Ø10 - 100	01
36	AVLHP240-36	Connector Male Tube Ø10 x 1/4	03
37	AVLHP240-37	Pressure Controller	01
38	AVLHP240-38	Check Valve	01
39	AVLHP240-39	Elbow 90° Brass Male x Male 3/8	01
40	AVLHP240-40	Air Hose Ø6 - 50	01
41	AVLHP240-41	Vacuum Pump EV - 20	01
42	AVLHP240-42	Air Hose Ø10 - 80	01
43	AVLHP240-43	Hexagon Socket Head Cap Screw M6x30	02
44	AVLHP240-44	Hex. Nut M4	04
45	AVLHP240-45	Ball Valves 1/4	01
46	AVLHP240-46	Nut of Pressure Controller	01
47	AVLHP240-47	Recessed Pan Head Screw - M5 X 10	04
48	AVLHP240-48	Bottom Handle	01
49	AVLHP240-49	Top Handle	01
50	AVLHP240-50	Rubber Handle	01
51	AVLHP240-51	Vacuum Gauge Male 1/4	01
52	AVLHP240-52	Elbow - female tube Ø6 x 1/4	01
53	AVLHP240-53	Mask	01
54	AVLHP240-54	Warning Horn	01
55	AVLHP240-55	Warning Horn Stand	01
56	AVLHP240-56	Vacuum Cup 300	01
57	AVLHP240-57	Elbow Male Tube Ø10 x 1/4	02
58	AVLHP240-58	Air Hose Ø10 - 250	01
59	AVLHP240-59	Adaptor	01

# AARDWOLF HAND PUMP VACUUM LIFTER

## Model: AVLHP 480

### \_DIAGRAM ASSEMBLY\_





**AARDWOLF HAND PUMP VACUUM LIFTER**  
**Model: AVLHP 480**  
**\_SPARE PART LIST\_**

No.	Code	Name Part	Qty.
01	AVLHP240-01	Pin Ø10 x 130	01
02	AVLHP240-02	Hex. Socket Countersunk Head Crew M6x16	02
03	AVLHP240-03	Holder	01
04	AVLHP240-04	Handle Bar	01
05	AVLHP240-05	Piston Connecting Rod	01
06	AVLHP240-06	Hex. Nut M24	02
07	AVLHP240-07	Seal Ø12.4 - 2	02
08	AVLHP240-08	Cylinder Cover B	01
09	AVLHP240-09	Seal Ø29 - 3.5	02
10	AVLHP240-10	Piston	01
11	AVLHP240-11	Recessed Pan Head Screw - M4 X 10	09
12	AVLHP240-12	Cover	01
13	AVLHP240-13	Cylinder	01
14	AVLHP240-14	Cylinder Cover A	01
15	AVLHP240-15	I-Brass-1 Male-2 Female-Tubefit 1/4	02
16	AVLHP240-16	Connector Male Tube Ø6 - 1/4"	04
17	AVLHP240-17	Air Hose Ø06 - 15	04
18	AVLHP240-18	Check Valve (Plastic)	04
19	AVLHP240-19	Air Hose Ø06 - 100	02
20	AVLHP240-20	Branch Tee - Male Tube Ø6 - 1/4	02
21	AVLHP240-21	Lug Links	01
22	AVLHP240-22	Hex. Socket Head Cap Screw M14x40	02
23	AVLHP240-23	Spacing	02

## AARDWOLF HAND PUMP VACUUM LIFTER

Model: AVLHP 480

\_SPARE PART LIST\_

No.	Code	Name Part	Qty.
24	AVLHP240-24	Hand Knob M6 (Female Thread)	01
25	AVLHP240-25	Stop Guide	01
26	AVLHP240-26	Compression Spring Ø12-26	01
27	AVLHP240-27	Locking Pin	01
28	AVLHP240-28	Vacuum Tank	01
29	AVLHP240-29	Nut M8	04
30	AVLHP240-30	Air Outlet Valve 1/4	01
31	AVLHP240-31	L-Connector - Male 1/4	01
32	AVLHP240-32	Slide Valve 1/4 ( HSV08 )	01
33	AVLHP240-33	Elbow Male Tube Ø10 x 1/4 (PL10-G02)	05
34	AVLHP240-34	Air Hose Ø10 - 200	01
35	AVLHP240-35	Air Hose Ø10 - 100	01
36	AVLHP240-36	Connector Male Tube Ø10 x 1/4	03
37	AVLHP240-37	Pressure Controller	01
38	AVLHP240-38	Check Valve	01
39	AVLHP240-39	Elbow 90° Brass Male x Male 3/8	01
40	AVLHP240-40	Air Hose Ø6 - 50	01
41	AVLHP240-41	Vacuum Pump EV - 20	01
42	AVLHP240-42	Air Hose Ø10 - 80	01
43	AVLHP240-43	Hexagon Socket Head Cap Screw M6x30	02
44	AVLHP240-44	Hex. Nut M4	04
45	AVLHP240-45	Ball Valves 1/4	01

# AARDWOLF HAND PUMP VACUUM LIFTER

## Model: AVLHP 480

### \_SPARE PART LIST\_

No.	Code	Name Part	Qty.
46	AVLHP240-46	Nut of Pressure Controller	01
47	AVLHP240-47	Recessed Pan Head Screw - M5 X 10	04
48	AVLHP240-48	Bottom Handle	01
49	AVLHP240-49	Top Handle	01
50	AVLHP240-50	Rubber Handle	01
51	AVLHP240-51	Vacuum Gauge Male 1/4	01
52	AVLHP240-52	Elbow - Female Tube Ø6 x 1/4	01
53	AVLHP240-53	Mask	01
54	AVLHP240-54	Warning Horn	01
55	AVLHP240-55	Warning Horn Stand	01
56	AVLHP480-56	Nylon Nut M6	06
57	AVLHP480-57	Vacuum Base	01
58	AVLHP480-58	Washer Ø6	06
59	AVLHP480-59	Countersunk Screw M8 x 30	04
60	AVLHP480-60	Vacuum Pad	01
61	AVLHP480-61	Plate Limit	01
62	AVLHP480-62	O Ring Seal	06
63	AVLHP480-63	Countersunk Screw M6 x 20	06
64	AVLHP240-64	Elbow Male Tube Ø10 x 3/8	02
65	AVLHP240-65	Air Hose Ø10 - 250	01
66	AVLHP480-66	Elbow Female Tube Ø10 x 3/8	01
67	AVLHP240-67	Adaptor	01

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

For example:

- Part code: AVLHP280 - 27, QTY: 05
- Part code: AVLHP400 - 42, QTY: 15

