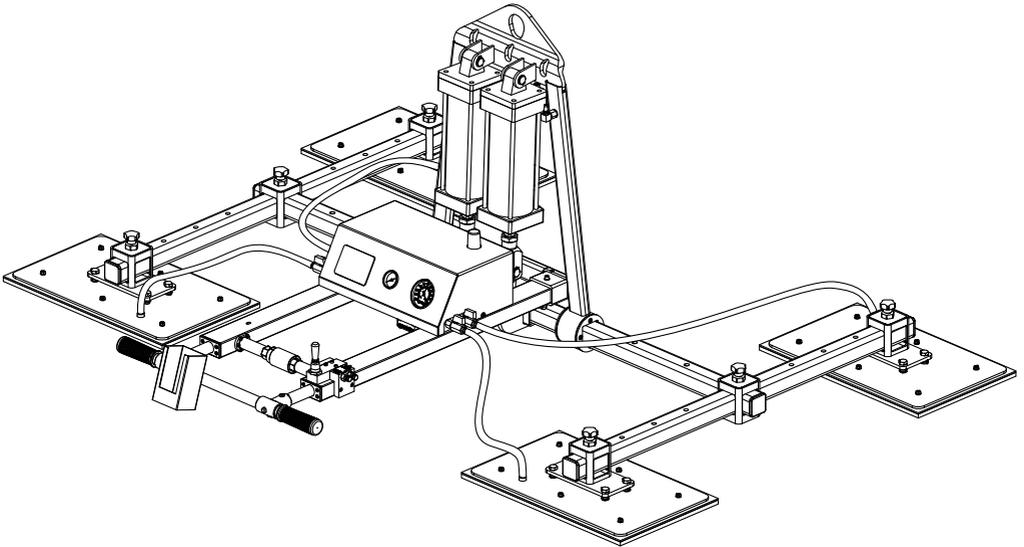




VACUUM LIFTER

OWNER'S MANUAL

PRODUCT CODE: AVLP4-1000



This vacuum lifter is designed to lift smooth or rough marble and granite slabs. Featuring rugged construction with the ability to lift and tilt materials. Powered by compressed air.

1. SAFETY AND HAZARD INSTRUCTIONS

The following symbols and terms are used in this operator's manual for safety and hazard instructions:



CAUTION !

Non-compliance, either in part or full, with operating instructions with this symbol can result in serious personal injury or fatal accidents. Warning information must be strictly adhered to.



CAUTION !

Non-compliance, either in part or full, with operating instructions with this symbol can result in major damage to machinery, property or material. Instructions in the category "Caution" need to be adhered to exactly.



NOTE

Following the instructions marked with this symbol will lead to more effective and straight forward operation "Note" directions make work easier.

2. GENERAL SAFETY REGULATIONS AND ORGANISATIONAL MEASURES

The operator's manual for the vacuum lifter must always be available at the operation site. The instructions mentioned in this manual must be strictly adhered to. Furthermore, supplementary to the instruction manual, the statutory regulations governing general accident prevention and environmental protection are to be enforced.

Operating and maintenance personnel must have read and understood the operator's manual, in particular the safety instructions, before starting work. Protective equipment must be made available for operating and maintenance personnel and worn at all times. The operator or his representative is responsible for supervising operating personnel and ensuring they are aware of the hazards and safety implications of working with the vacuum lifter.

GENERAL SAFETY INSTRUCTIONS

CAUTION !

Operating manuals for lifting units or trolleys must be observed imperatively.

Warning paint/markings/danger signs:

- Caution - Suspended load..... Figure 01
- Caution - The load must not be lifted higher than 1.8 m.....Figure 02
- CE sign.....Figure 03
- Electric voltage.....Figure 04



Figure 01



Figure 02



Figure 03

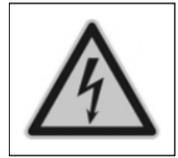


Figure 04

3. PARTICULAR SAFETY INSTRUCTIONS

Transport/assembly:

Vacuum lifter, single parts and larger assemblies should be carefully affixed to suitable and technically acceptable hoisting apparatus / load lifting members with sufficient load capacity.

Connection:

Connection work is only to be performed by personnel specifically designated and trained for the job.

Start-up/operation:

- Before initial start-up, as well as daily start-up, carry out a visual check and carry out the predefined user-checks routine.
- Only operate the vacuum lifter if the protective and safety equipment provided is ready and working.
- Damage to the vacuum lifter and changes in its operational behaviour must be reported immediately to the person responsible.
- After use, or when in a non-operational mode, the vacuum lifter should be secured against unauthorized and unintentional use.
- Refrain from hazardous mode of operation.

Cleaning/service/repair/maintenance/refitting:

- Use the working platforms and ladders provided for assembly work above body height.
- Ensure any oils or other agents used are discharged, collected and disposed of safely and in an environmentally sound manner.
- Mount and check safety installations that have been disassembled for servicing or repairing after service and repair work has been completed.
- Adhere to predefined testing and service intervals specified in the operator's manual.
- Operating personnel should be informed before starting special or refitting work.
- Secure the repair working area.
- Prevent the vacuum lifter from being unexpectedly switched on during maintenance or repair work.
- Attach warning signs.
- Switch off the mains connection switch and secure against unauthorized switch on.
- Retighten screw connections that have been loosened for maintenance and repair work.
- Replace non-reusable fixing elements and sealings (e.g. self-locking nuts, washers, cotter pins, O rings and sealings).

Shut down/storage:

- Clean and preserve (lubricate/grease) the vacuum lifter before long periods of inactivity or storage.
- Longer-term storage can lead to loss of program data in the internal control memory. Consultation with the manufacturer is recommended.

4. INSTRUCTIONS FOR HAZARD PROTECTION

Hazardous areas must be clearly marked by warning signs and safety fences. It must be ensured that warnings regarding hazardous areas are given due attention.

Hazards can stem from:

- Incorrect application.
- Not following safety directions properly.
- Not carrying out test and maintenance work thoroughly.

5. TECHNICAL STATUS

According to the following EC Directives:

- Machinery Directive: 2006/42/EC

For the most specific risks of this machine, safety and compliance with the essential requirements of the Directive has been based on elements of:

- EN ISO 12100:2010/ Safety of machinery – General principles for design – Risk assessment and risk reduction (ISO 12100:2010).
- EN 13155:2003+A2:2009/ Cranes – Safety – Non-fixed load lifting attachments.

Recurring checks

Each device/unit operator should adequately note all checks, service and revision works performed in the log book. These should con-firmed by the competent person in charge.

Incorrect or missing entries will lead to forfeiture of the manufacturer's warranty.



CAUTION !

Equipment and cranes are to be checked periodically by a specialist. Primarily visual and functional checks are to be carried out, whereby the condition of components with respect to damage, wear, corrosion or any other changes are determined. In addition, safety equipment is assessed for completeness and efficiency. It may be necessary to disassemble the equipment to correctly assess wear parts.



CAUTION !

Suspension means must be inspected over their entire length, including covered or hidden parts.



CAUTION !

All periodical checks should be arranged by the operator.

6. INTENDED USE

The vacuum lifter AVL4-1000 is vacuum lifting device for different payloads. It can be installed as stationary or mobile units. The vacuum lifter is manufactured in accordance with the latest technical developments and approved safety standards. It is tested for safe operation by the manufacturer.

The vacuum lifter may only be used when in an acceptable technical condition and when in accordance with their in-tended use. It may only be used by trained personnel in a safe and responsible manner.

Using the vacuum lifter as intended also includes the adherence to the operating and maintenance requirements prescribed by the manufacturer.

The vacuum lifter AVL4-1000 is not used as intended if:

- The defined maximum load is exceeded.
- The position of the vacuum surfaces to the lifting goods is changed.
- The load is pulled diagonally (see Figure 05 on page 6) .
- The loads break away, are pulled or dragged.
- The lifting good is dropped before the load is unloaded.
- Persons are transported.
- Loads are transported when personnel are underneath.
- Standing under suspended loads (see Figure 06 on page 7) .
- Excessive loads are transported.
- Loads are not observed constantly.
- Allowing the load to fall due to a slack chain.
- The lifter is used at temperatures below -15°C or above $+50^{\circ}\text{C}$.
- The lifter is used in an potentially explosive environment.

GENERAL SAFETY INSTRUCTIONS



CAUTION !

The operator always needs to be able to have an eye on the manometer and to monitor it.



CAUTION !

Lifting goods higher than 1.8 m is prohibited. (see Figure 07 on page 7)



CAUTION !

Sucking in and transporting of lifting goods with soiled and uneven surfaces is prohibited.



CAUTION !

The operating panel can only be actuated when the operator has full view at the complete panel and if an incorrect use can be ruled out.

Inching operations should be avoided. The manufacturer accepts no liability for damage to equipment and third parties ensuing from such action:

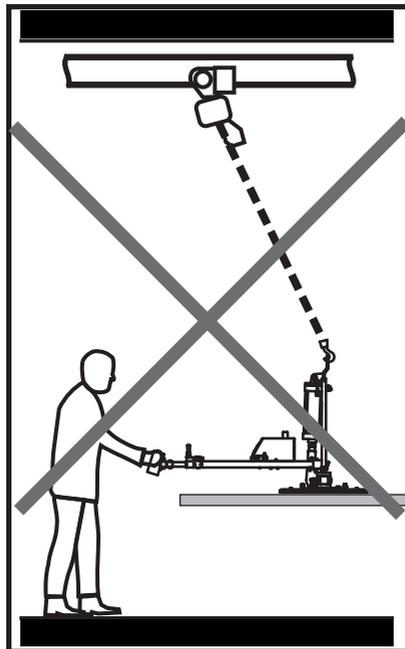


Figure 05

GENERAL SAFETY INSTRUCTIONS

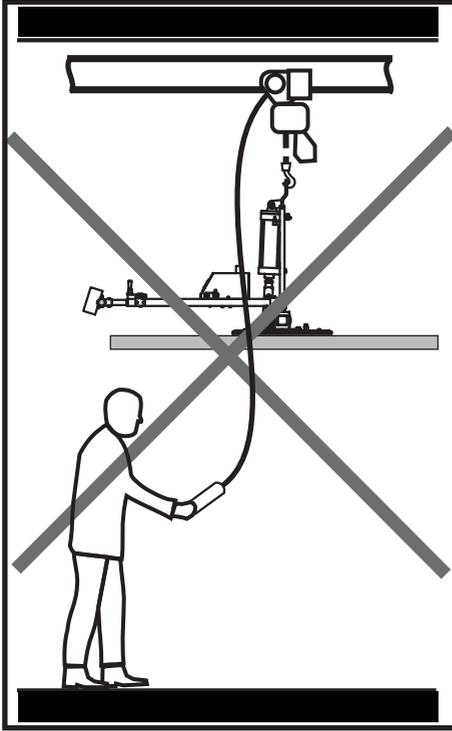


Figure 06

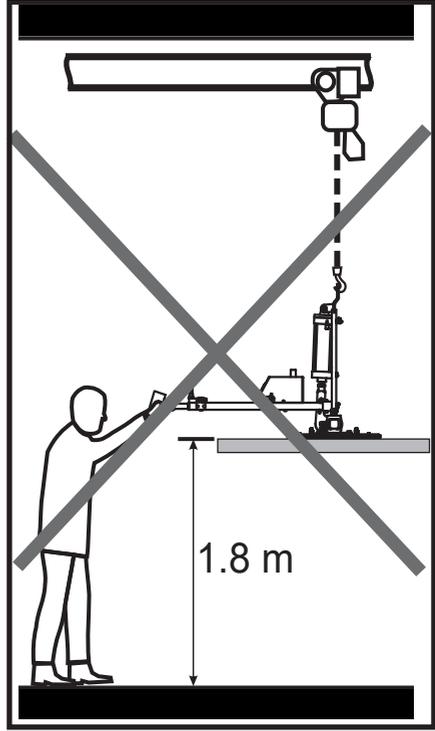


Figure 07

OPERATING INSTRUCTIONS

1. BEFORE OPERATING THE LIFTER

- Attaching the lifter to hoisting equipment.
- Determine whether the capacity of the crane, hoist, sling and other attachments is suitable for combining with the AVLP4-1000 and max. load weight as well.
- Perform a load test for the lifter before handling the load.

2. MORE SAFETY INSTRUCTIONS

- Carefully read the user manual before operating.
- Only competent and authorised personnel can operate the lifter.
- Ensure that the manual is available during operation.
- Always wear appropriate protective equipment.

OPERATING INSTRUCTIONS

- Avoid operating the lifter in rain.
- Make sure that the vacuum pad surface is clean and free from dirt and oil.
- Make sure that there are no obstructions during working process.
- Perform a load test and check warning light and vacuum gauge before commencing operation to ensure safety.
- The load must not exceed the maximum allowable weight specified.
- The load must be a single sheet with a smooth and non-porous surface.
- Always place the vacuum pads correctly and make sure it is balanced.
- Never lift a load when any vacuum indicator shows an inadequate vacuum (lower than 53 kPa (40 CmHg) or if the red warning light is on.
- Never leave suspended loads unattended.
- Always charge the battery before and after use.
- When the battery for alarm system is low, the operator must recharge it before commencing operation.
- To avoid injury, no one is allowed to stand under the load.
- Do not carry out any lifting operations if any issue is found.
- Never lift a load when the vacuum indicator shows inadequate vacuum pressure.
- Never operate the lifter if it is damaged, malfunctioning or has missing parts.
- Never operate the lifter if the edges of the vacuum pad are cut or damaged.
- Never operate a lifter if the labels for load capacity or any other warnings are missing, obscure or unclear.
- Never slide the slide valve to the OFF position (on the handle control) during the lifting process. This will result in loss of vacuum and unexpected release of the load.
- Never lift a load over people.
- Never use the lifter in dangerous environments .
- All inspections and tests must be carried out before lifting.

NOTE: Aacken Company denies any claims due to failure of unexpected load release or human and/or material losses in event of employing non-original pads.

3. INSTRUCTIONS FOR USE

Step 1: Connect the AVLP4-1000 to a crane or other hoisting equipment to start.

Step 2: Carefully connect the air hose into the ball valve of lifter before lifting.

OPERATING INSTRUCTIONS

- Step 3: Place the lifter in the center of the slab for balancing to ensure safety during the lifting process.
- Step 4: Open the ball valve to create the vacuum.
- Step 5: Turn on the slide valve to supply the vacuum into the vacuum pads.
- Step 6: Press the button of the alarm system and observe:
- If the sound alert in case of vacuum leakage: **DO NOT** lift the material.
 - If the vacuum is fully pumping:
 - + Alert sound is off.
 - + Needle of vacuum gauge is in the green zone. It means that the lifter can lift the material.
 - + The Power Switch stayed on the alarm system:
 - For using audio alarm: You press the Power Switch on the left
 - For using an energy saver alarm: You press the Power Switch on the right.
- Step 7: Lift and move the material:
- For lifting the material in the vertical direction, pull the the Tilting Button outside to perform action.
 - For the material lifting in the horizontal direction, push the Tilting Button inside to perform action.
- Step 8: When the material is placed down to the desired location, press the Safety Button and slide the slider valve to the OFF position to stop the vacuum pumping and release material.
- Step 9: Carefully take disconnect the air hose to finish the lifting process.

NOTE: Depending on the dimensions of the material, the user can adjust the length of the guide rod by pressing the Push-Button.

AIR REGULATOR GAUGE

The Air Regulator Gauge is used to indicate the pressure levels which are supplied to the system. The pressure can be adjusted by a pressure controller.

NOTE: The Vacuum Lifter is already adjusted for pressure optimization. It is recommended that the operator **DOES NOT** adjust the pressure level unless the lifter be adjusted to the pressure level to suit the environment regulations in your country. And here is the way to adjust the pressure level:

- Lift the pressure controller up which is located on the cover to adjust:
 - Adjust the pressure in clockwise direction to increase the pressure level which reaches 0.8 MPa (116 Psi).

AIR REGULATOR GAUGE

- Adjust the pressure in anti-clockwise direction to decrease the pressure level which reaches 0.5 MPa (72.5 Psi).
- After the required pressure is achieved, push the pressure controller down to lock it tightly.

INSPECTIONS, MAINTENANCE

How to protect and increase life expectancy for the lifter? The following will be the best ways that you need:

INSPECTIONS

Check the AVLP4-1000 carefully and regularly to avoid the following faults:

- Contamination or debris on vacuum pads and load surfaces.
- Visual damages of the lifter's structure and vacuum system.
- Listen for unusual vibration or noise while operating the lifter.
- Cracks, cuts, corrosion or any deficiency affected entire lifter.
- Missing parts.
- Damaged edges of the device while sealing.
- Repair all faults before using the lifter.

MAINTENANCE

A good maintenance planning will bring benefits for your lifter. It not only increases safety and using values, but also reduces maintenance cost:

- Perform simple maintenance tasks for the lifter such as repairing, replacing grease so that the lifter runs smoothly.
- Check the rubber pads to ensure that they are free from dirt and damages
- You must clean the air filter to eliminate dust or contamination.
- Release the water in the vacuum tank is located on the bottom by screwing the air outlet valve.
- If the lifter is used for less than one day in a two-week period, you should perform an inspection and maintenance to ensure that the lifter is safe and does not have any faults.
- The lifter may experience normal wear and tear and ageing. You should replace any reduced quality parts with new original parts.
- The lifter and hoisting accessories must be stored in a place where they are protected against weather conditions and aggressive substances.

NOTE: It is the responsibility of the user to adapt to state or local laws. The end-user is responsible to use the equipment safely in a manner that it is designed for and within the rated capacity of the unit.

WARRANTY

At the time of delivery, it is necessary to check that the Vacuum Lifter has not been damaged during shipment. Any claims must be presented within 8 days of the date of delivery of the product. We grant you 12 months warranty on the Aacken Vacuum Lifter countered from the day of purchase. The warranty coverage is not applicable when:

- The lifter is handled incorrectly during maneuvering.
- The operator fails to comply with the instructions in this booklet.
- The lifter’s maximum permissible capacity is exceeded.
- The specifications for pipe size are not followed.
- Damages are due to inadequate maintenance and inspections.
- Damage is due to improper storage.
- Repairs were performed by the user without our permission.
- Non-original spare parts were used.

Specifications

AVLP4-1000	Metric (mm-kg)	Imperial (inch-lb)
Number of pad	4	-
Pad sizes	520X320	20.5"X12.6"
Working load limit	Vertical: 500 Horizontal: 1000	1102 2204
Net weight	124	273
Gross weight	164	361
Packaging dimension	1680X430X960	66"X16.9"X37.7"

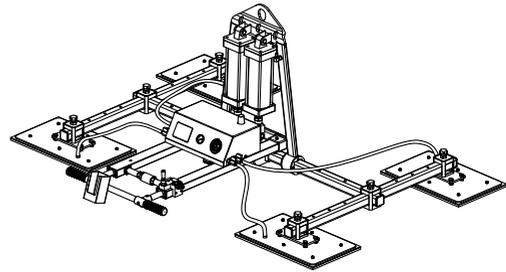
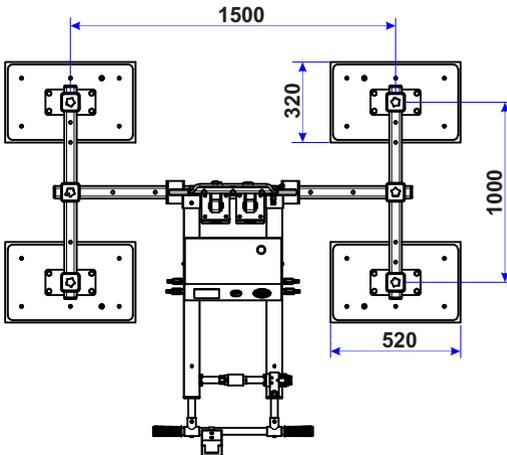
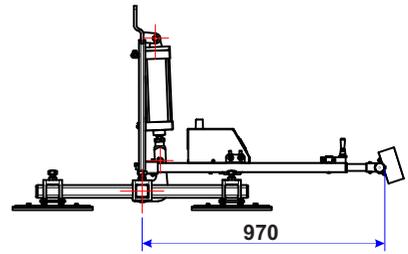
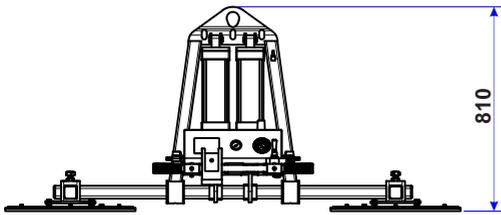
• Battery information for the device • Battery charger for lifter:

Code battery: GBA 12V 2.0Ah Bosch	Battery charger: GAL 12V-40 Bosch
Type battery: Lithium-ION	Input supply voltage: 220-240VAC
Voltage: 12V	Output voltage: 12V
Current: 2.0Ah	Output current: 4.0Ah
Quantity: 1	Quantity: 1
Continuous operation time with mode saving pressure: 2 hours	Fully charger time: 0.5 hour
Working time with mode saving pressure: 6 hours	Weight: 460 gram
Continuous operation time with mode audio alarm only: 120 hours	
Working time with mode audio alarm only: 360 hours	

• Compressed air requirement:

Air consumption	180 liters/minute
Supply air pressure	5 bars

dimensions

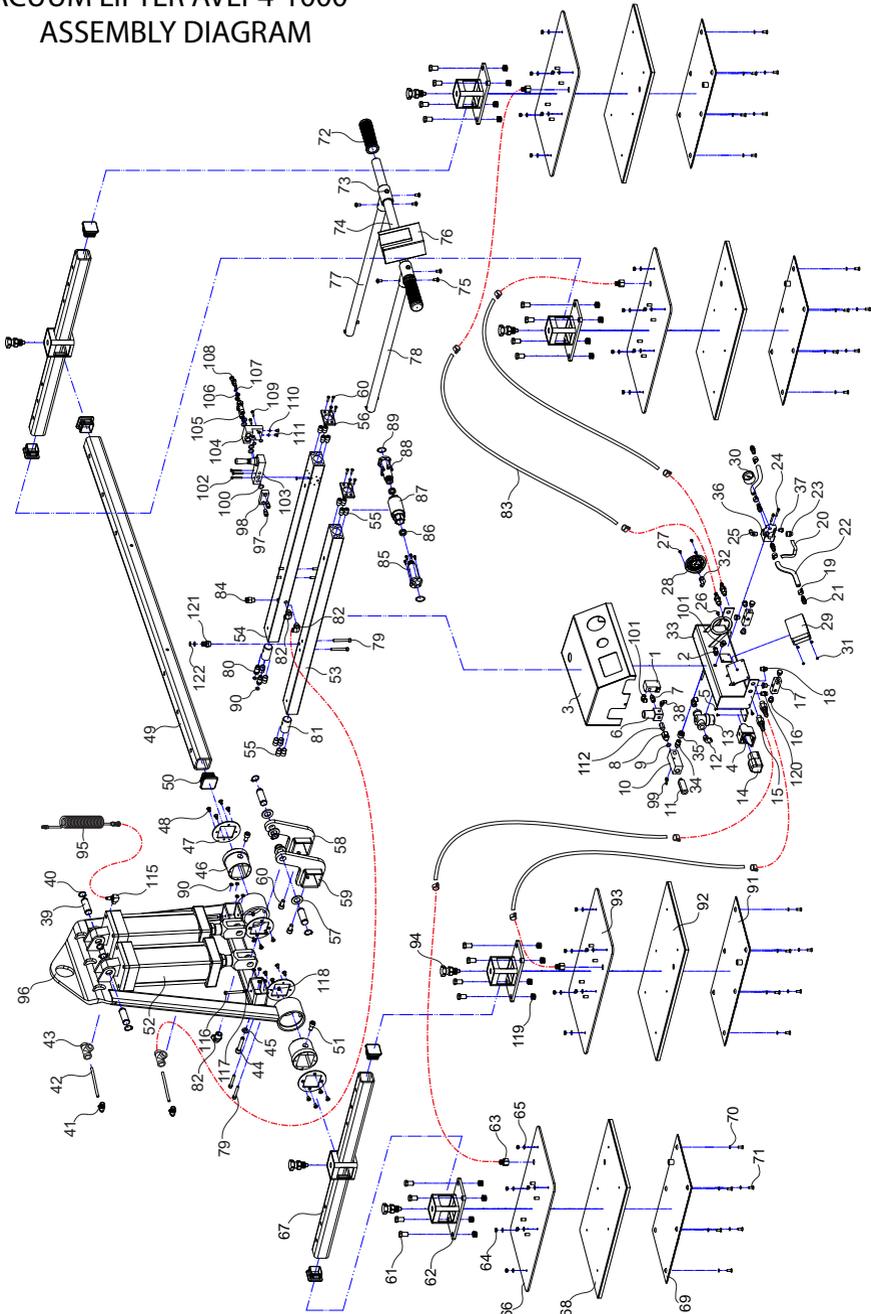


Features

- Pneumatic vertical-horizontal tilting from 0 to 90°.
- Vacuum tank ensuring safe pickup in the event of a sudden power break to the vacuum pump.
- Acoustic and visual alarm system powered by a rechargeable 12V Li-Ion battery.
- Slide valve with ON/OFF position for attaching and releasing of material.

PART DRAWING & PART LIST

VACUUM LIFTER AVLP4-1000 ASSEMBLY DIAGRAM



PART DRAWING & PART LIST

POSITION	CODE	DESCRIPTION	QTY.
1	AVLP4-1000-001	VACUUM SWITCH	1
2	AVLP4-1000-002	Y CONNECTION Ø6	1
3	AVLP4-1000-003	COVER	1
4	AVLP4-1000-004	BATTERY BASE	1
5	AVLP4-1000-005	COUNTERSUNK HEAD M4x8	2
6	AVLP4-1000-006	PRESSURE CONTROLLER	1
7	AVLP4-1000-007	CONNECT MALE TUBE 1/4	1
8	AVLP4-1000-008	NOZZLE	1
9	AVLP4-1000-009	O-RING SEAL Ø12.8	1
10	AVLP4-1000-010	VENTURI PUMP	1
11	AVLP4-1000-011	PLASTIC SILENCER	1
12	AVLP4-1000-012	L-CONNECT MALE Ø10x3/8	2
13	AVLP4-1000-013	FILTER	1
14	AVLP4-1000-014	BATTERY	1
15	AVLP4-1000-015	TAIL PIECE 1/4	4
16	AVLP4-1000-016	COVER BOLT 1/4	6
17	AVLP4-1000-017	DELIVER - A	2
18	AVLP4-1000-018	AIR OUTER VALVE 1/4	1
19	AVLP4-1000-019	COLLAR Ø16	12
20	AVLP4-1000-020	COMPRESSED AIR HOSE Ø10	1
21	AVLP4-1000-021	TAILPIECE - MALE Ø12x1/4	4
22	AVLP4-1000-022	AIR HOSE Ø16-B	2
23	AVLP4-1000-023	I-CONNECTOR TUBE Ø10x1/4	1
24	AVLP4-1000-024	HEXAGON SOCKET HEAD CAP SCREW M5x30	2
25	AVLP4-1000-025	ELBOW MALE TUBE Ø6x1/8	2
26	AVLP4-1000-026	MACHINE SCREW M5x10	2
27	AVLP4-1000-027	MACHINE SCREW M4x10	3
28	AVLP4-1000-028	VACUUM GAUGE	1
29	AVLP4-1000-029	WARNING HORN	1
30	AVLP4-1000-030	AIR REGULATION GAUGE	1
31	AVLP4-1000-031	NUT M4	4
32	AVLP4-1000-032	ELBOW FEMALE TUBE Ø6x1/4	1
33	AVLP4-1000-033	VACUUM TANK	1
34	AVLP4-1000-034	CHECK VALVE	1
35	AVLP4-1000-035	BUSH	1
36	AVLP4-1000-036	DELIVER - B	1
37	AVLP4-1000-037	QUICK CONNECTOR 1/8 - Ø4	1
38	AVLP4-1000-038	ELBOW MALE TUBE Ø4x1/8	1
39	AVLP4-1000-039	PIN Ø20x55	4
40	AVLP4-1000-040	CIRCLIP Ø20	8
41	AVLP4-1000-041	ELBOW MALE TUBE Ø10x1/2	2
42	AVLP4-1000-042	AIR HOSE Ø10x100	2
43	AVLP4-1000-043	TEE FEMALE TUBE FIT Ø10x1/2	2
44	AVLP4-1000-044	HEXAGON SOCKET HEAD CAP SCREW M10x40	2
45	AVLP4-1000-045	WASHER Ø10	2
46	AVLP4-1000-046	PLASTIC BUSH	2
47	AVLP4-1000-047	FLANGE	4
48	AVLP4-1000-048	COUNTERSUNK SCREW M4x12	16
49	AVLP4-1000-049	CROSS BAR	1
50	AVLP4-1000-050	PLASTIC COVER	6
51	AVLP4-1000-051	HEXAGON SOCKET HEAD CAP SCREW M10x20	4
52	AVLP4-1000-052	CYLINDER SC100x200	2
53	AVLP4-1000-053	HANDLE (LEFT)	1
54	AVLP4-1000-054	HANDLE (RIGHT)	1
55	AVLP4-1000-055	HOLE COVER - A	14
56	AVLP4-1000-056	TUBE COVER	2
57	AVLP4-1000-057	WASHER Ø20x3.5	4
58	AVLP4-1000-058	ARM (RIGHT)	1

59	AVLP4-1000-059	ARM (LEFT)	1
60	AVLP4-1000-060	COUNTERSUNK FLAT HEAD SCREW M4x20	4
61	AVLP4-1000-061	SPECIAL NUT M8	16
62	AVLP4-1000-062	BRACKET	4
63	AVLP4-1000-063	TAILPIE FEMALE 3/8x1/4	4
64	AVLP4-1000-064	NYLON NUT M6	24
65	AVLP4-1000-065	WASHER M6	24
66	AVLP4-1000-066	LEFT VACUUM BASE	2
67	AVLP4-1000-067	STRINGER BEAM	2
68	AVLP4-1000-068	LEFT VACUUM PAD	2
69	AVLP4-1000-069	LEFT VACUUM LIMIT	2
70	AVLP4-1000-070	RUBBER SEAL	24
71	AVLP4-1000-071	COUNTERSUNK SCREW M6x16	24
72	AVLP4-1000-072	RUBBER HANDLE	2
73	AVLP4-1000-073	PUSH BUTTON	2
74	AVLP4-1000-074	HANDLE ASSEMBLY	1
75	AVLP4-1000-075	ROUND HEAD MACHINE SCREW M4x10	6
76	AVLP4-1000-076	PENDANT CONTROL BRACKET	1
77	AVLP4-1000-077	GUIDE ROD RIGHT	1
78	AVLP4-1000-078	GUIDE ROD LEFT	1
79	AVLP4-1000-079	HEXAGON SOCKET HEAD CAP SCREW M6x40	8
80	AVLP4-1000-080	HOLE COVER - B	2
81	AVLP4-1000-081	SHAFT	2
82	AVLP4-1000-082	L-CONNECTOR MALE Ø10 - G1/4	3
83	AVLP4-1000-083	AIR HOSE Ø16	4
84	AVLP4-1000-084	I-CONNECTOR MALE Ø10 - G1/4	1
85	AVLP4-1000-085	HANDLE CONNECTOR	2
86	AVLP4-1000-086	O-RING OD22.36 - Ø2.62	4
87	AVLP4-1000-087	SLIDE VALVE	1
88	AVLP4-1000-088	HEXAGON SOCKET HEAD CAP SCREW M4x14	12
89	AVLP4-1000-089	O-RING OD25.2 - Ø2.65	2
90	AVLP4-1000-090	O-RING OD12 - Ø2.5	2
91	AVLP4-1000-091	RIGHT VACUUM LIMIT	2
92	AVLP4-1000-092	RIGHT VACUUM PAD	2
93	AVLP4-1000-093	RIGHT VACUUM BASE	2
94	AVLP4-1000-094	LATCH LOCKING	6
95	AVLP4-1000-095	SPIRAL HOSE	1
96	AVLP4-1000-096	BODY	1
97	AVLP4-1000-097	SPECIAL BOLT	2
98	AVLP4-1000-098	LEFT CONNECTION BOX	1
99	AVLP4-1000-099	WIND NUT M6	1
100	AVLP4-1000-100	O-RING OD17.5 - Ø2.5	5
101	AVLP4-1000-101	L-CONNECTOR Ø6xG1/8	2
102	AVLP4-1000-102	HEXAGON SOCKET HEAD CAP SCREW M4x30	3
103	AVLP4-1000-103	HANDLE VALVE STNC TG3521B-08C	1
104	AVLP4-1000-104	RIGHT CONNECTOR BOX	1
105	AVLP4-1000-105	PRESSURE CONTROLLER	2
106	AVLP4-1000-106	LOCKING NUT	2
107	AVLP4-1000-107	O-RING OD6.56 - Ø1.78	2
108	AVLP4-1000-108	ADJUSTABLE KNOB	2
109	AVLP4-1000-109	HEXAGON SOCKET HEAD CAP SCREW M4x16	2
110	AVLP4-1000-110	O-RING OD9.5 - Ø1.7	5
111	AVLP4-1000-111	COVER SCREW	2
112	AVLP4-1000-112	CONNECTOR MALE 1/4	1
115	AVLP4-1000-115	AIR CONNECTOR	1
116	AVLP4-1000-116	HEXAGON SOCKET HEAD CAP SCREW M6x55	2
117	AVLP4-1000-117	WASHER Ø6	2
118	AVLP4-1000-118	NYLON NUT M6	2
119	AVLP4-1000-119	COMPRESSION SPRING	16
120	AVLP4-1000-120	QUICK CONNECTOR 1/4	1
121	AVLP4-1000-121	CONNECTOR 1/4	1
122	AVLP4-1000-122	O-RING OD12.5 - F1.5	2



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