INSTRUCTION MANUAL

Battery powered below the hook vacuum turn and lift device
for sandwich roof- and wall panels

VIAVAC-RB

Read this manual carefully before operating this lifter.

CLADBOY AUSTRALIA
ABN 186 2622 5998
30 SYDNEY RD BAYSWATER VIC 3153

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A 1 Introduction

Dear reader,

This manual is subdivided in the following sections:

A **General section**
This section is intended for anyone who uses this manual.

B **Operators section**
This section is intended for anyone who utilizes and operates this device.

C **Technical section**
This section is intended for the specialist staff who take care for maintenance and repair of this device.

Depending your function you need to read carefully the belonging section.
To operate this device safely it is important that you strictly follow the instructions.

If you are in doubt, or face problems when use, maintenance or repair, please contact your authorized VIAVAC dealer. They will do their utmost to serve you in an adequate and quick way.

In the text of this manual the following symbols are used.

TIP:
Gives suggestions and advice to perform certain tasks in an easier and more effective way.

TAKE CARE
a remark with additional information, draws your attention for possible problems.

WARNING
If these instructions are not carefully being executed, this can result in (serious) injuries or even death.

These symbols indicate important information.
You need to be convinced that anyone who utilizes this device has understood this information well.

This manual should be made available to anyone who operates, checks or repairs this device.

To have the manual available it should be stored at the designated spot together with the device.

A 2 EC-declaration of conformity

Complies to enclosure II A from directive 2006/42/EG

CE

The manufacturer:

VIAVAC vacuum lifting BV
Bedrijfsweg 6
3411 NV Lopik
The Netherlands

Hereby declares that:

Machine : Vacuum lifter

Type : VIAVAC-RB

Machine nr. :

Complies with the following directives:

- Machine directive 2006/42/EG with modifications
- Low voltage directive 2006/95/EG with modifications
- EMC directive 2004/108/EG with modifications
- American standard ASME B30.20.2006 “Below-the-hook lifting devices”
- Australian Standard AS 4991-2004 "Lifting devices"

The following standards have been applied:

Safety of machinery	Basic concepts	EN-ISO 12100-1
Safety of machinery	Basic design principles	EN-ISO 12100-2
Safety of machinery	Principles of risk assessment	EN-ISO 14121
Safety of machinery	Audible and visual warning signals	EN 981+A1
Safety of machinery	Electrical equipment for machines	EN 60204-1:2001
Crane safety	Non-fixed load lifting attachments	EN 13155+A2

Date: 10 - 01 - 2011

Signature

Arie de Groot
Managing director

A 3 Definitions

Operator	Person or persons who operate and utilizes the vacuum lifter.
Lifting device	Lifting crane, overhead crane, forklift truck or any other, well or not into a machine integrated lifting arrangement, where the vacuum lifter is suspended on and lifting tasks are being executed.
Load	The object being transported and/or handled by the vacuum lifter.
Working load Limit	The maximum weight of the load which can be transported safely with the vacuum lifter
Suction	By actuating a valve, sucking the load fixed to the suction pad.
Aerating	By actuating a valve, releasing the load by enabling air flowing to the suction pad
Maintenance expert	Expert who is responsible for inspection, maintenance and repair of the vacuum lifting device.
Load ratio	Ratio between the maximum calculated load which can be lifted with the device and the safe working load which is indicated on the device.
Testing ratio	Ratio between the load, used for the static test of the vacuum lifter and the safe working load indicated on the device
Static test	Test where the vacuum lifter should withstand a static force equivalent to 2x working load limit without permanent deformation and after removal of the force, there shall be no visible defects.
Holding time Test	With the suction pad in vertical position, a (non porous) load corresponding the working load limit is lifted. After this, the main switch is switched off so the vacuum pump will not run anymore. The vacuum lifter should be able to hold the load for a prescribed time.

B 1 Operators declaration

The undersigned hereby declares that before operating this vacuum lifter, he has read and understood the operators section of this instruction manual and will follow the instructions and guidelines.

Control of the management on compliance is required.

DATE	NAME	SIGNATURE
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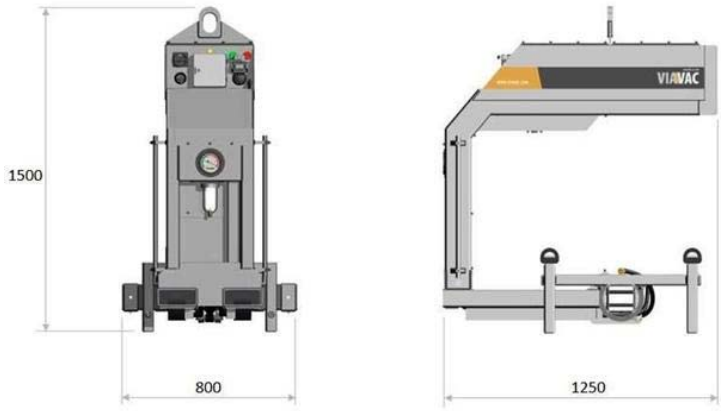
B 2 Operating limits



Lift and turn capacity	max. 350kg depending of the Total lifting capacity of the active suction pads.
Own weight	c.a. 650kg
Load	Non porous rigid material such as glass, aluminum, steel and stone. The suction area may be flat as slightly structured. The suction pad seal can compensate (when not too rough) unevenness's up to 5mm.
Capabilities	- 180° powered rotating.
Operation elevation	Max. 1.200 meter above sea level.
Operating Temperatures	0°C to +40°C -10°C to 0°C with special precautions.
Service life	At least 20.000 cycles, when used as intended.
Outside use	This lifter can also be used outside, however not in area with explosive danger.
Rain and snow	This lifter may also be used in rain and snow conditions, however there should be taken care for a dry suction area. The reason for this is that moisture or ice strongly reduces the necessary friction between suction pad and load. This friction is essential to lift the load in vertical position of the suction pad.
Wind	Do not use this lifter at wind speeds above 11 meter/sec.
Non rigid plates	This lifter is not suitable to lift non rigid plates. (plate can peal of from the suction pad causing to release the load.
	Extra regulations according CE standard EN 13155 When this lifter is being used for the erection, renovation or demolishing of buildings or other building constructions, the use of a falling safety device is required.

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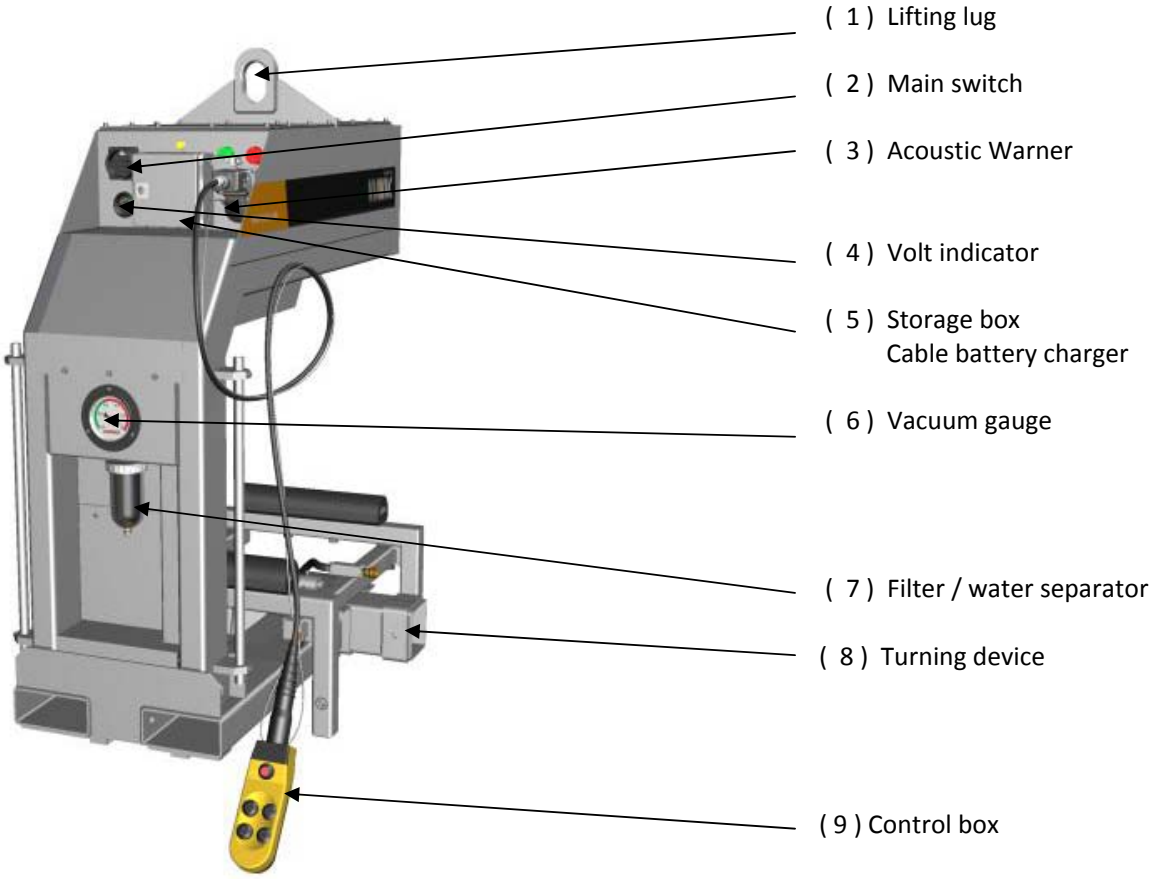
B 3 Operation



1. Suspend device at the crane hook by the lifting eye (1).
2. Before every lift, check the condition of the rubber sealing profile of the suction pad, there may be no tears or damage to it.
3. Before every lift, check the black rubber back plate at the backside of the suction cups; these must be clean and dry.
4. Start up the device by setting the main switch (2) on 1.
   -Now you will hear the vacuum pump running, it will stop 10 seconds after a vacuum level of -0.65 bar has been built up in the vacuum buffer tank.
   - The alarm is audible and the red lamp will light up as long as the vacuum level is still below -0.6-bar, above that the alarm will stop and the green lamp will light up instead of the red one.
5. Check on the volt meter (7) whether the battery has been sufficiently charged; the pointer must remain between the 11 and 13 volt while the vacuum pump is running.
6. Put the device with the suction pad on the load, ensure that the suction surface is dry and clean.
7. Push the green button on the control box (9) for “suction”
9. Check on the vacuum meter (6) whether the required vacuum level of >-0.60 bar has been built up (pointer in the green area).
10. If used on the building site in the EU, lift the load a little and attach the fall safety straps as indicated.
11. The load can now be lifted further and, just before the load is set on its place, the falling safety strap should be removed, if applicable.
12. When the load has been put on its place and is secured, push at the control box (9) at aerating (red button).
13. The suction pad will release and then a new load can be taken up by putting the suction pad on it and pushing the button on the control box (8) at “suction”.
14. After the last element has been placed, disconnect the device by setting the main switch (2) on 0.

Before any lift, the user must check the following:

I. Check the rubber sealing profile of the suction pad for damage and cracks and replace if necessary.
II Check rubber back plate of the suction pad to verify whether it is clean and oil-free and, if necessary, to clean it up.
III Whether the battery is sufficiently charged; The volt meter (8) must indicate between 11 and 13 Volt.
IV Functioning of the acoustic alarm (11) at a vacuum level below -0.60m bar.
This can be checked by briefly putting the control lever (8) in the position "suction" (green area) before the suction pad is placed on the load.

If the load has a protective film, it must first be removed before the suction pad is placed on the load.

During every lift the operator must constantly monitor the following:

a. Vacuum meter, during lifting the pointer must constantly remain in the green area.
b. Acoustic alarm signal; during the lift it may not be audible.

If the vacuum meter is in the red area and/or the acoustic alarm signal sounds, do not lift!

If the vacuum meter is in the read area and/or the acoustic alarm signal sounds, a lifted load must be put down as quickly as possible.

If the vacuum pump for some reason fails, from the moment the vacuum level decreases below the required level of> -0.60, the load will be held for a minimum of 5 minutes.

To work safely with the device, it is therefore necessary that:

- The operator must have good hearing and is not using hearing protection.
- During the lifting the operator must be within hearing and visibility distance of the device.
- The ambient sound does not amount to more than 70db.
- The operator of the device is constantly in contact with the operator of the lifting machine and agreements have been made about a clear communication.

Protective precautions at operation temperatures between the -10°C and 0°C.

- To prevent clogging of the filters, it has to be ensured that all the humidity has been removed from the device. This is achieved by letting the vacuum pump run approx. 15 minutes with the control level (9) in the position "suction" in a dry and heated compartment.
- To be assured of sufficient battery capacity, store the device at a temperature of 15°C or higher at night.
- For sufficient friction between suction pad and the load, it must be ensured for every lift that both the suction pad and the suction surface of the load are dry and clean. All humidity, snow and ice must therefore be removed.

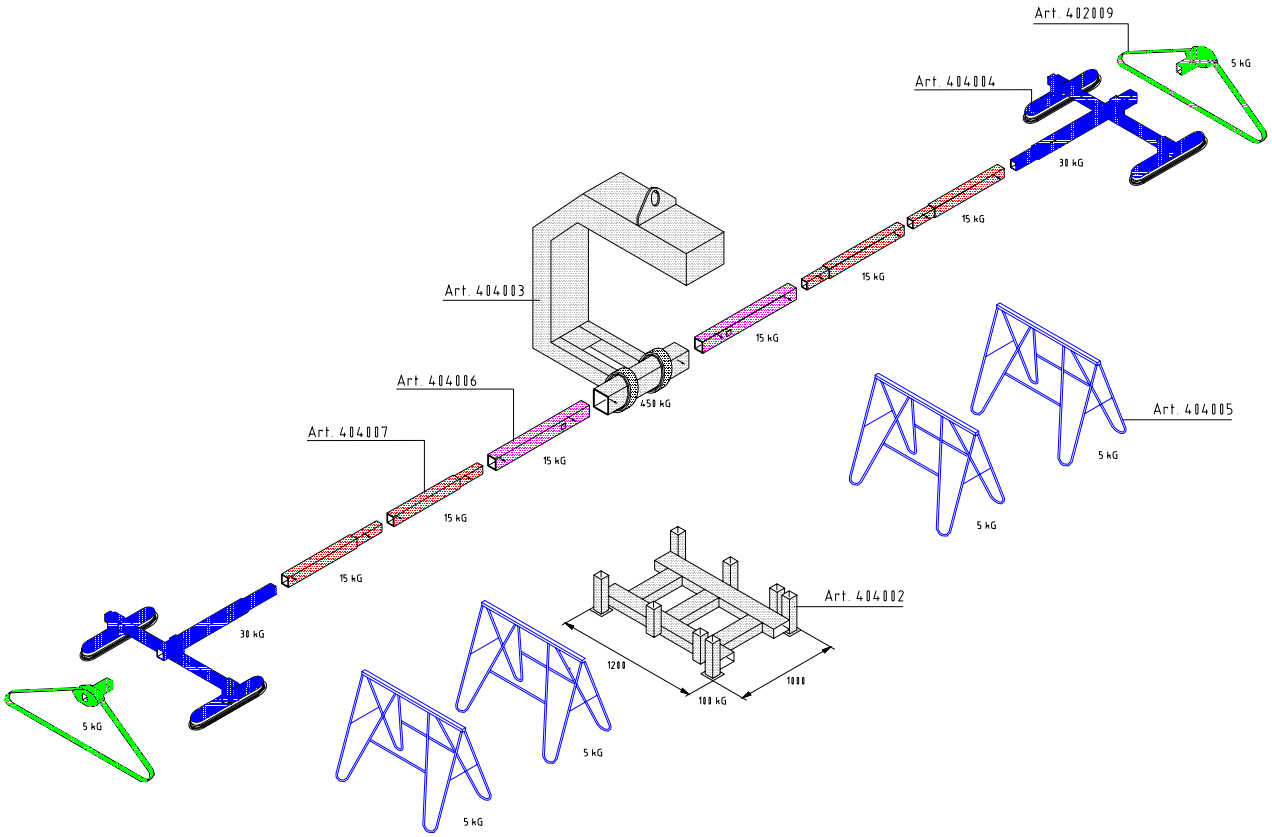
The vacuum pump can run approx. 120 minutes constantly with a fully charged battery.

To ensure that it is possible to work a whole day with a battery load, the user must also keep an eye on the vacuum condition of the system during the operation:

This is done by checking that the vacuum pump stops 10 seconds after a vacuum level of 0.65 bar has been reached. Then it must take at least 30 seconds before it starts pumping again.
If the pump starts up more frequently, this indicates a leak and this causes the battery to discharge faster than expected and one cannot operate for a whole day.
Therefore it is advisable to first rectify this, before the work is continued.

B 4 Storage

The device should preferably be stored as follows:
- In a dry place at temperatures between 15 and 25°C.
- Switched off, water drained, charged battery and suction pad shielded.



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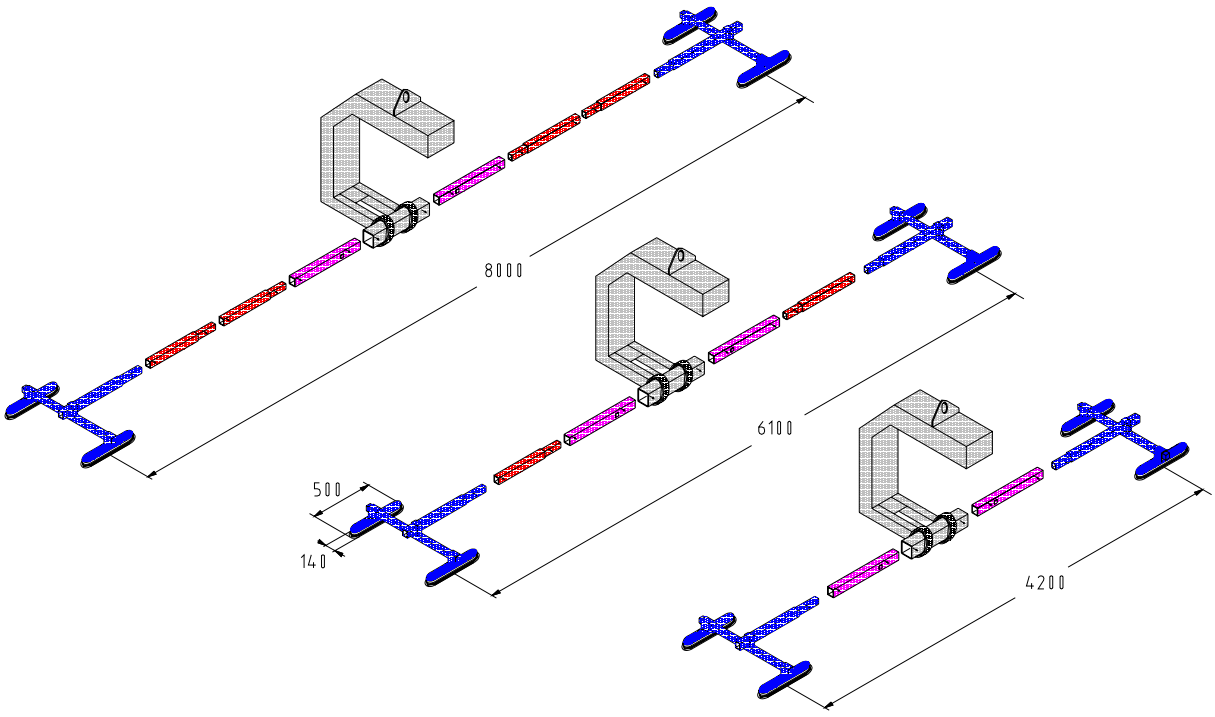
B 5 Assembling

Assembling components according their number (1-1 / 2-2. etc.)

Connecting hoses.

Assembled the suction pads are pointing upwards.

Release RotaBoy from transport frame.



Assembled lengths

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B 6 Working procedure

- Main switch on, control button at release, Wait until the red lamp and the acoustic Warner turns of and the green lamp aluminates.
- Place the RotaBoy in the middle oft he panel and push the button „suction“ (picture 1). Vacuum level is indicated at the vacuum gauge.
- The panel can be lifted as soon as the green lamp aluminates and the acoustic Warner stops beeping.
- The lifter panel can now be turned (picture 2). After turning press the 2 buttons for release.
  Now the panel can be laid on the supports.
- **Take care! First release before laying the panel on the supports (the weight oft he RotaBoy may not hang on the panel.**
- Pull the RotaBoy from under the panel and turn the suction pads downwards again..
- Pick up the panel from the topside and after applying oft he falling safety strap the RotaBoy is ready to put the panel on the roof. (picture 5).
- Release the falling safety strap just before laying the panel on the roof.

Picture 1

Picture 2

Picture 3

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Picture 4

Picture 5

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Picture 6

The operator must have the knowledge to determinate the weight and properties of the products to be lifted and manipulated.

Admissible overhang
At higher lengths oft he load to be lifted, danger occurs of breaking or buckling oft the load because oft he own weight which hangs over from the suction pads.
The max. admissible overhang depends from the material properties and thickness.
This is most unfavourable in the horizontal position oft he load.

The permissible overhang is determined by the experiences with the product and must in case of doubt to be determined before lifting.

We hereby give a guideline fort he maximum permissible overhang oft he following materials:

DIST. mm	EXT. TRAVERS Number	SET WEIGHT kg	MAX. LAST kg	**L** (type RA) meter	**L** (type RB) meter
4200	2	590	350	6 …12	6 … 8
6100	4	620	350	12 …14	8 …10
8000	6	650	350	14 … 18	10 …14

Type RA = roof panels with min.0,5mm steel skin & EPS/PUR/PIR core.
Type RB = roof panels with min. 0,5mm steel skin & mineral wool core.

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B 7 Battery

The battery can be charged by the battery charger, which is placed in the switchbox.

- Turn the main switch (9) off.
- Insert the plug of the charger (14) in the socket,
  the voltage of the mains should be between 110 ... 240V.
- The LED lamp changes during the load cycle from red (empty battery) to yellow (almost fully charged battery) to green (fully charged battery).

In approx. 6 hours loading time an empty battery (13) is again fully charged (green LED lamp is lighted).
A full battery load is sufficient for placing a minimum of 60 elements (approx. 1 full day of operation).

When the green LED lamp is lighted, the battery charger will automatically switch to maintenance loading. The connector can therefore remain in the electric socket without any danger of overloading the battery.

In case of a charged battery the volt meter on the cabinet indicates between 12 ... 14 Volt, when the vacuum pump runs, it will fall back with approx. 1V.
If the meter falls back significantly to back with 2 or more Volt during additional pumping, this means that the battery is discharged.
In case of a discharged battery the vacuum pump will also run slower, due to which it will not achieve the set switch off vacuum level and the vacuum pump will run constantly.

If the voltage of the battery decreases below the 11V, the electronic vacuum switch will also turn off, because of this, the vacuum pump will run constantly, the red lamp will light up and the acoustic alarm signal will sound.

The battery will last approx. 3 to 5 years, because the capacity will decrease after time, we advise to renew the battery every 3 years as a precaution.

It improves the life time of the battery when it is stored in a charged state.
We recommend that, even if you don't need the device the next day, to charge immediately after use.
Interim charging the battery has no negative impact on it's capacity (no memory effect).

B 7.1 Falling safety system

According CE regulation EN 13155 it is in all countries of the European union when a vacuum lifter is used at building site, a secondary safety system is obliged.

The falling safety devices are executed by means of lifting straps with hooks, which must be hooked to the device. During use the following must take place.

1 The correct falling safety device is hooked to the therefore intended fixing points on the device (1).
2 Lift the element with the vacuum lifter approx. 0,5 meter free from the ground.
3 Consequently the straps are at both ends put around the element as indicated above.
4 Through the clamp buckle (2) the strap is pulled tight around the element. (no clearance).
5 With the lifting device the whole unit is lifted to the designated place.
6 Just before the element is put in its place, the falling safety device is removed after which the element is placed on its spot.

1. Protect from sharp edges of the elements to be lifted at location of the straps.
2. If there are cracks or tears in the lifting straps, do not use them and replace them immediately.

B 8 Safety precautions

Recommendations

8.1 **Only** use this lifter when you have read and understood the operators section of this manual.

8.2 **Only** use this lifter when the main switch (10) for the power supply is turned "on" before lifting. (danger of lifting with the vacuum which is still in the vacuum tank.

8.3 **Always** check this lifter before use for its conditioning and correct functioning.

8.4 **Always** charge the battery before and after use.

8.5 **Always** take care that the contact area of the load is clean and dry before placing the suction pad on the surface.

8.6 **Always** position the suction pad correctly on the load.

8.7 **Always** put down the load immediately when the alarm sounds.

8.8 **Always** the operator should be within sight- and hearing distance of the lifter and the operator of the lifting machine.

8.9 **Always** there should be an agreement about the communication between the operator of the vacuum lifter and the lifting machine.

8.10 **Always** wear protective equipment that is appropriate for the material being handled. Follow trade association guidelines.

8.11 **Always** keep the device periodically checked and maintained by an expert

8.12 **Always** has the vacuum lifter to be examined within the period as prescribed by the safety regulations which are valid for the country where the vacuum lifter is in use.

Prohibitions

8.15 **Never** operate a lifter when it is damaged, malfunctioning, or missing parts.

8.16 **Never** operate a lifter as the seal of the suction pad is damaged or cracked.

8.17 **Never** operate a lifter if the Load capacity or any warning appears to be missing or obscured.

8.18 **Never** exceed the Load Capacity which is indicated on the lifter.

8.19 **Never** attempt to lift a cracked or broken load with this lifter.

8.20 **Never** lift a load which is buckled.

8.21 **Never** lift a load when any vacuum indicator Showa inadequate vacuum.

8.22 **Never** lift a load when the alarm sounds.

8.23 **Never** lift a load higher than necessary.

8.24 **Never** leave suspended loads unattended.

8.25 **Never** lift a load over people

8.26 **Never** store the lifter standing on the suction pad.

8.27 **Never** lift a load at wind speeds exceeding 11 m/s.

8.28 **Never** lift a load when there is a chance for wind bursts.

8.29 **Never** release the load when the lifting sling or chain is not vertically above the vacuum lifter. (danger of swinging of the lifter).

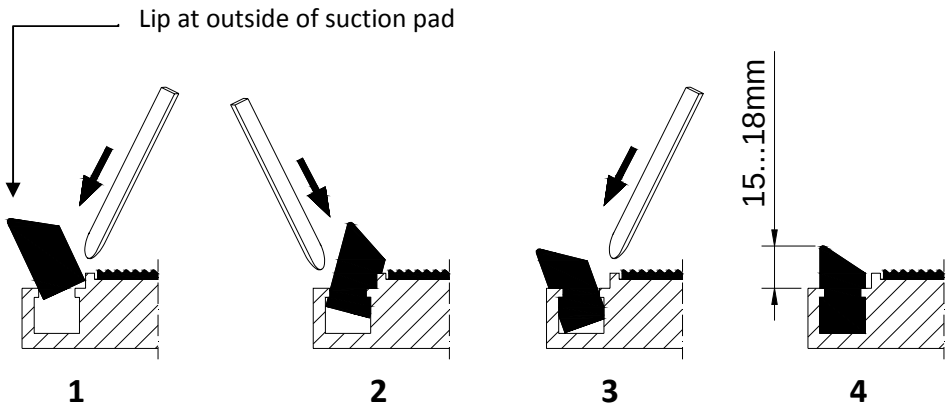
8.30 **Never** use the lifter when it's examined period has been exceeded.

8.31 **Never** use the lifter when the operator has a hearing loss or wears ear muffs.

8.32 **Never** use the device where the ambient noise exceeds the 70dB.

8.33 **Never** use solvents, petrol or other chemicals to clean the rubber parts of the suction pad.

C 1 Fitting sealing profile in suction pad



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