

INSTRUCTION MANUAL

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



Read this manual carefully before operating this lifter.

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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

**The manufacturer:**

VIAVAC vacuum lifting BV
Bedrijfsweg 6
3411 NV Lopik
The Netherlands

Hereby declares that:

Machine : Vacuum lifter
Type : VIAVAC-CB^{dc} (model 5)
Machine nr. :

Complies with the following directives:

- Machine directive 2006/42/EG with alterations
- Low voltage directive 2006/95/EG with alterations
- EMC directive 2004/108/EG with alterations

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: . . - . . -

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.

<u>DATE</u>	<u>NAME</u>	<u>SIGNATURE</u>
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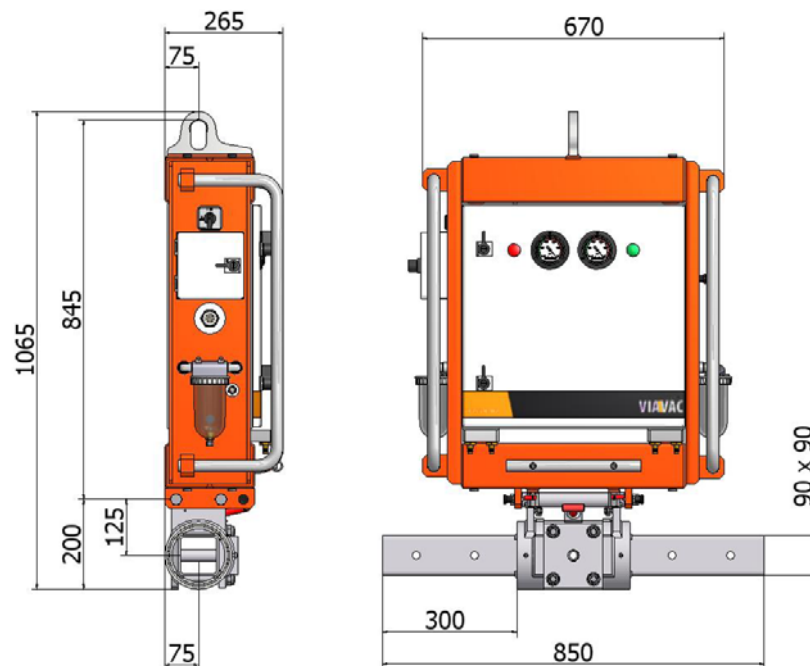
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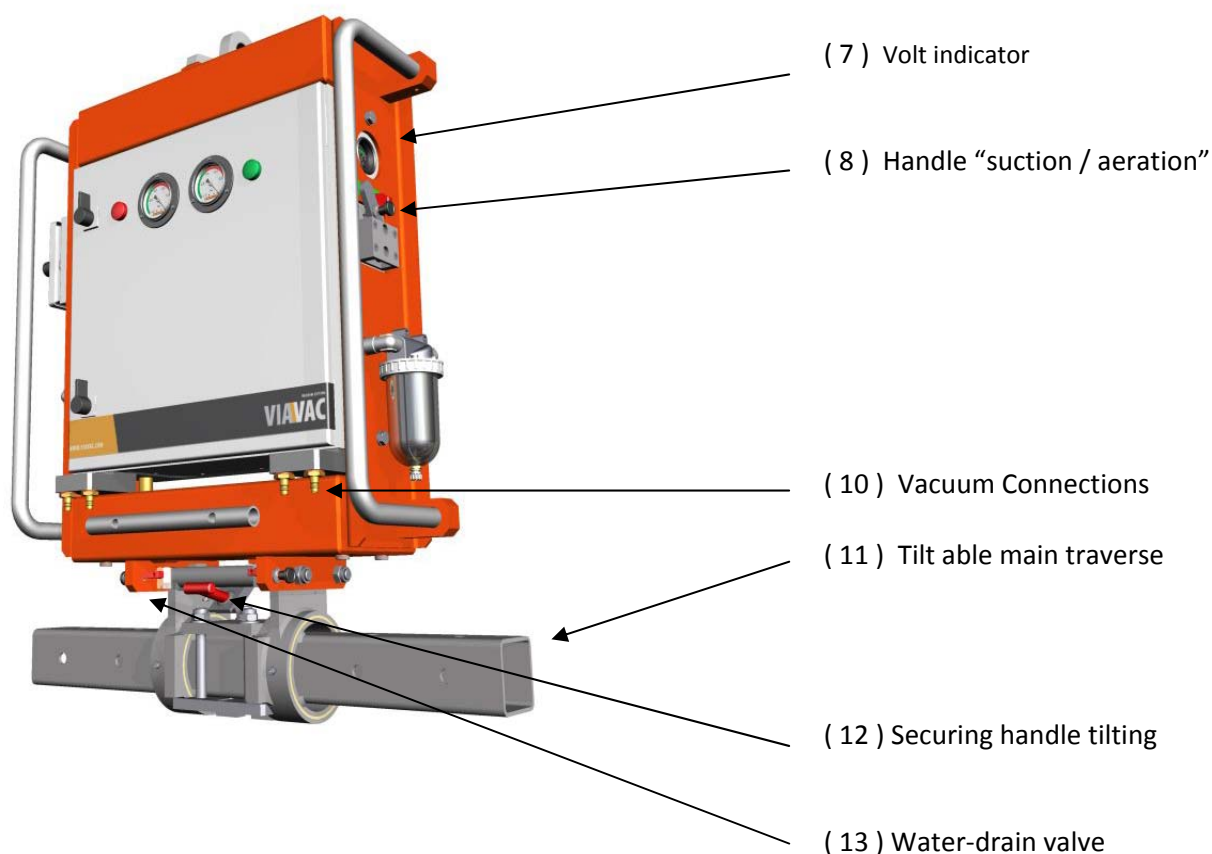
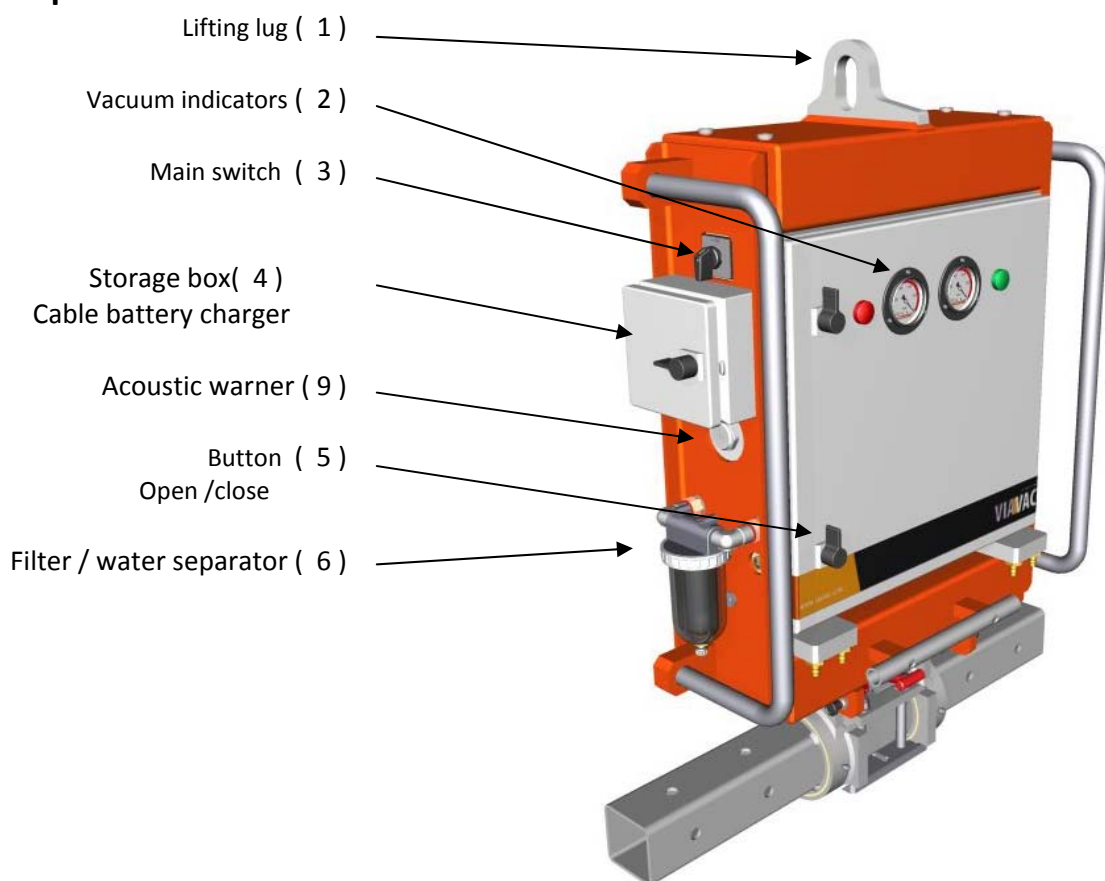
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B 2 Operating limits



Lifting capacity	max. 800kg depending of the Total lifting capacity of the active suction pads.
Own weight	c.a. 125kg
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	- 90° tilting from horizontal to vertical with locking facility in vertical position.
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 peel of from the suction pad causing to release the load.

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. Ensure that the control lever (8) "suction & aerating" is set to the back (read area)
Start up the device by setting the main switch (3) 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 indicator (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. Use the control lever (12) to set the suction pad in the right position.
- Lever up: enables to rotate the main traverse with 90°
7. Put the device with the suction pad on the load, ensure that the suction surface is dry and clean.
8. Set the control lever (8) at suction (green area).
9. Check on the vacuum meter (2) whether the required vacuum level of >-0.60 bar has been built up (pointer in the green area).
10. The load can now be lifted further and when the load has been put on its place and is secured, set the control lever (8) at aerating (red area).
11. The suction pad will release and then a new load can be taken up by putting the suction pad on it and putting the control lever (8) at "suction".
12. After the last element has been placed, disconnect the device by setting the main switch (3) 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 (9) 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 indicator is in the read area and/or the acoustic alarm signal sounds, a lifted load must 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.

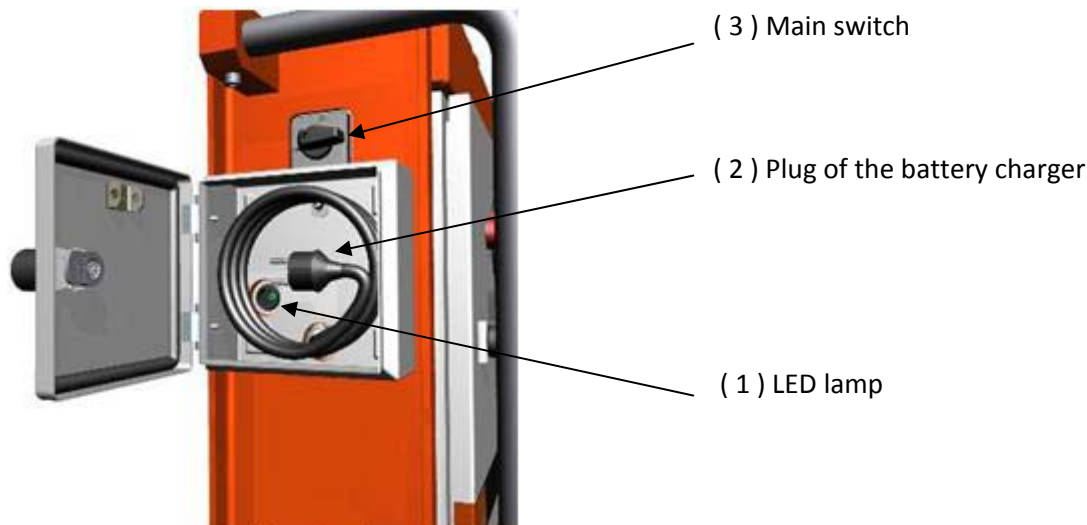
B 4 Storage

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.

B 5 Battery

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



- Turn the main switch (3) to 0.
- Insert the plug of the charger (2) in the socket, the voltage of the mains should be between 110 ... 240V.
- The LED lamp (1) changes during the load cycle from red (empty battery) to yellow (almost fully charged battery) to green (fully charged battery).

In approx. 18 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 120 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.

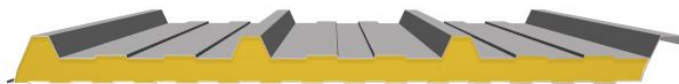
We recommend that, even if you don't need the device the next day, to charge immediately after use again.

Interim charging the battery has no negative impact on it's capacity (no memory effect).

B 6 Transport- and manipulation possibilities

TYPE SANDWICH ROOF PANELS

type RA (1)

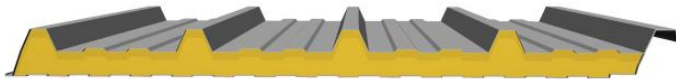


0,5 .. 0.7mm Steel / aluminium

PUR / EPS

0,5 .. 0.7mm Staal / aluminium

type RB (2)

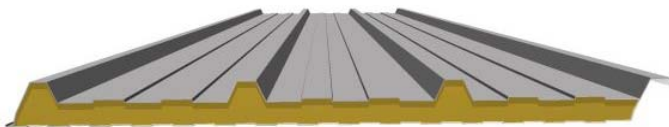


0,5 .. 0.7mm Steel / aluminium

PUR / EPS

Foil

type RB (3)



0,5 .. 0.7mm Steel / aluminium

Mineral wool

0,5 .. 0.7mm Steel / aluminium

type RB (4)



0,5 .. 0.7mm Steel / aluminium

PUR / EPS

0,5 .. 0.7mm Steel / aluminium

MAXIMUM LIFTING CAPACITY

The maximum lifting capacity depends of 2 factors.

- A. Number x capacity of the active suction pads per vacuum circuit.
- B. Number of extension beams (of 900mm extension) applied for the main traverse.

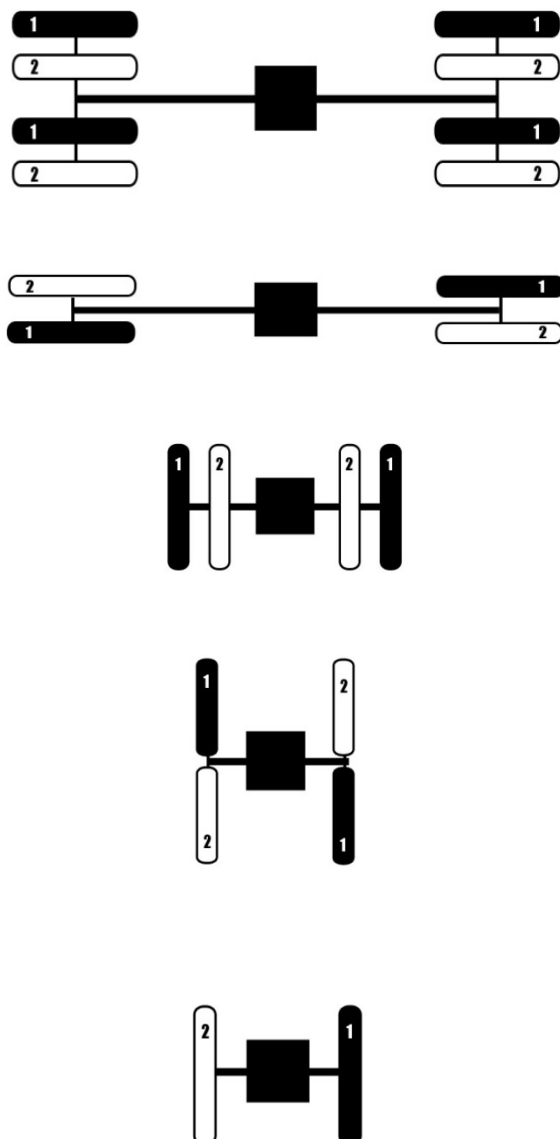
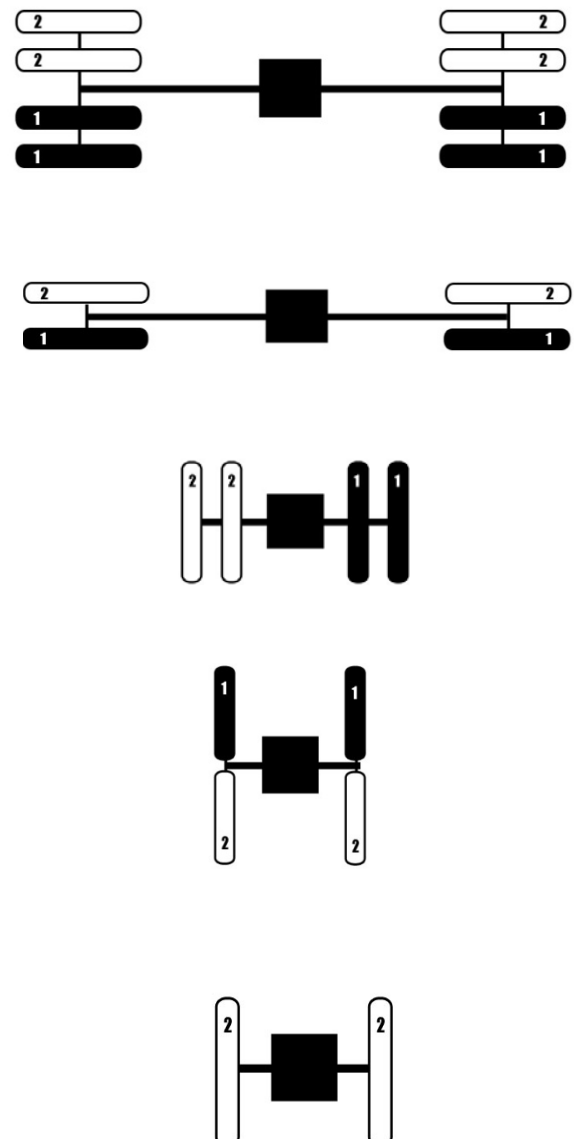
Ad A.

For safety reasons this lifter is equipped with a double vacuum circuit.

This implicates that for one or the other reason (breaking of hose, leakage of suction pad etc.) the vacuum drops in one circuit, the load will be held by the other circuit.

For correct operation of this safety system the following matters have to be taken into account:

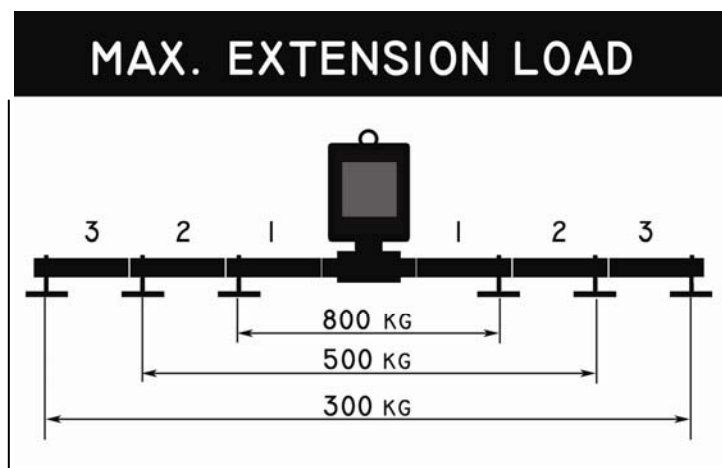
1. The lifting capacity is determinated by multiplying the Total lifting capacity of all suction pads connected to one circuit. This means that every circuit needs the same amount/capacity of active suction pads.
This means that for a certain lifting capacity a double amount of suction pads are connected.
2. For an even load distribution of the suction pads it is necessary that, in case 1 circuit fails, de suction pads of the other circuit are equally divided over the load as indicated below.
You need to take care that the hoses are connected to the corresponding circuit.

RIGHT**WRONG**

Ad B.

The longer the main traverse, the lower the lifting capacity.

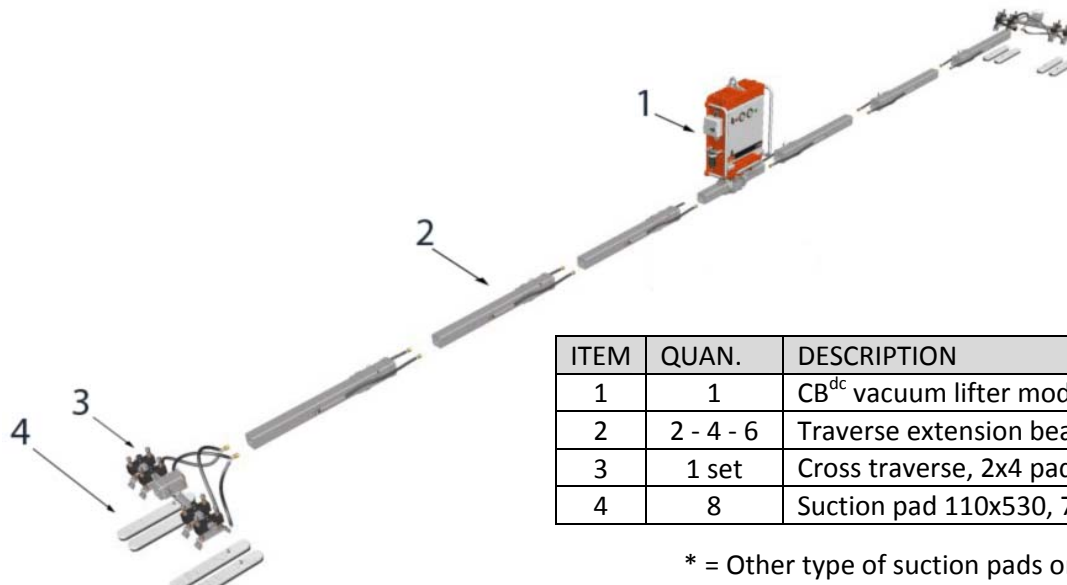
The load of the main traverse diagram below should not be exceeded.



CB^{dc} configuration type: R 2600 - 4400 - 6200

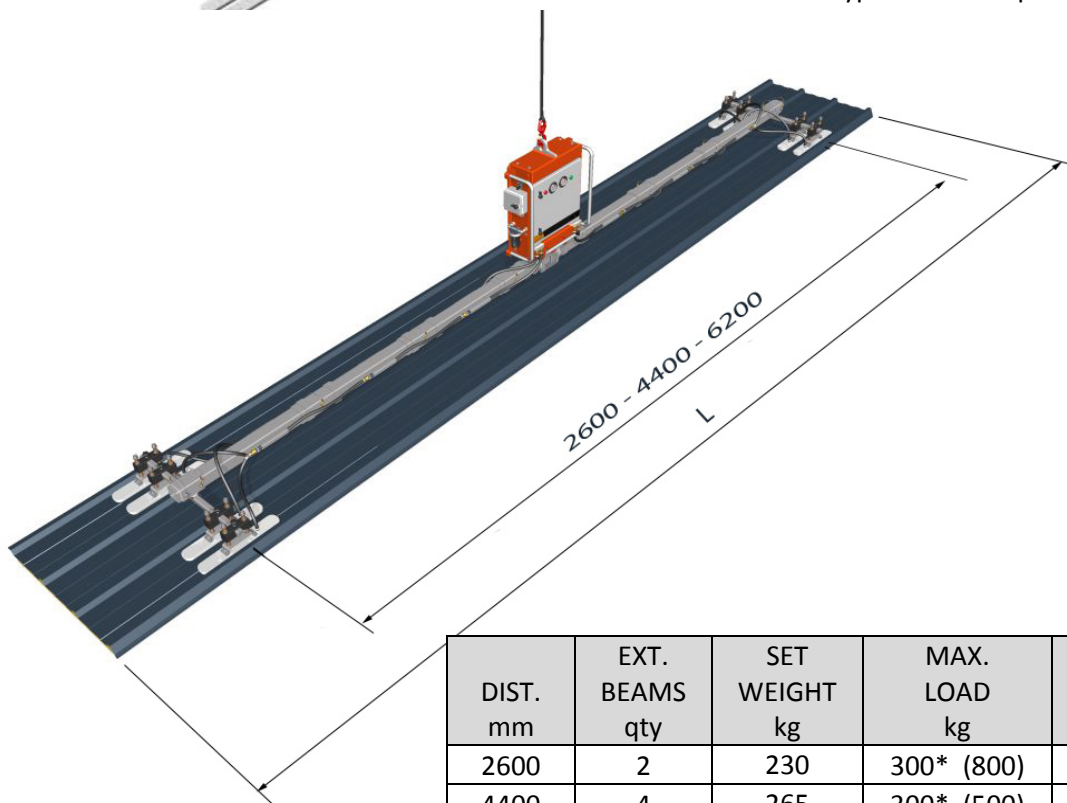
For roof panels up to 16 meter length

Roof pitch 0 25°



ITEM	QUAN.	DESCRIPTION	ART. NR
1	1	CB ^{dc} vacuum lifter module (m5)	409500
2	2 - 4 - 6	Traverse extension beam	408003
3	1 set	Cross traverse, 2x4 pad susp.	409501
4	8	Suction pad 110x530, 75kg	402502*

* = Other type of suction pads on request.



DIST. mm	EXT. BEAMS qty	SET WEIGHT kg	MAX. LOAD kg	L (type A) meter	L (type B) meter
2600	2	230	300* (800)	3 ...12	3 ... 8
4400	4	265	300* (500)	12 ...14	8 ...10
6200	6	300	300* (300)	14 ... 16	10 ...12

... *= load with 8x75kg pads, (. . .) = max. possible load on traverse.

Type A = panels with min.0,5mm steel skin & EPS/PUR/PIR core.

Type B = panels with min. 0,5mm steel skin & mineral wool core.

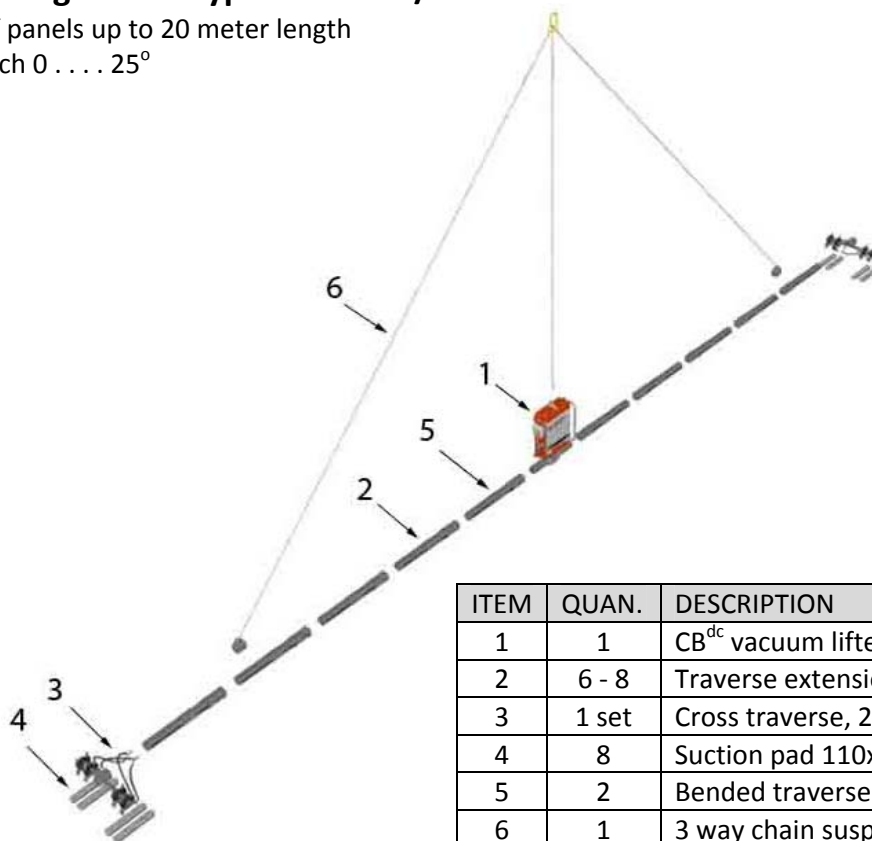
REMARKS

- Panels with a length up to 20 meter are possible with configuration type RC 8000 - 9800.
- Panels with a roof pitch 25° up to 45° are possible with configuration RT 2600 - 4400 - 6200

CB^{dc} configuration type: RC 8000 / 9800

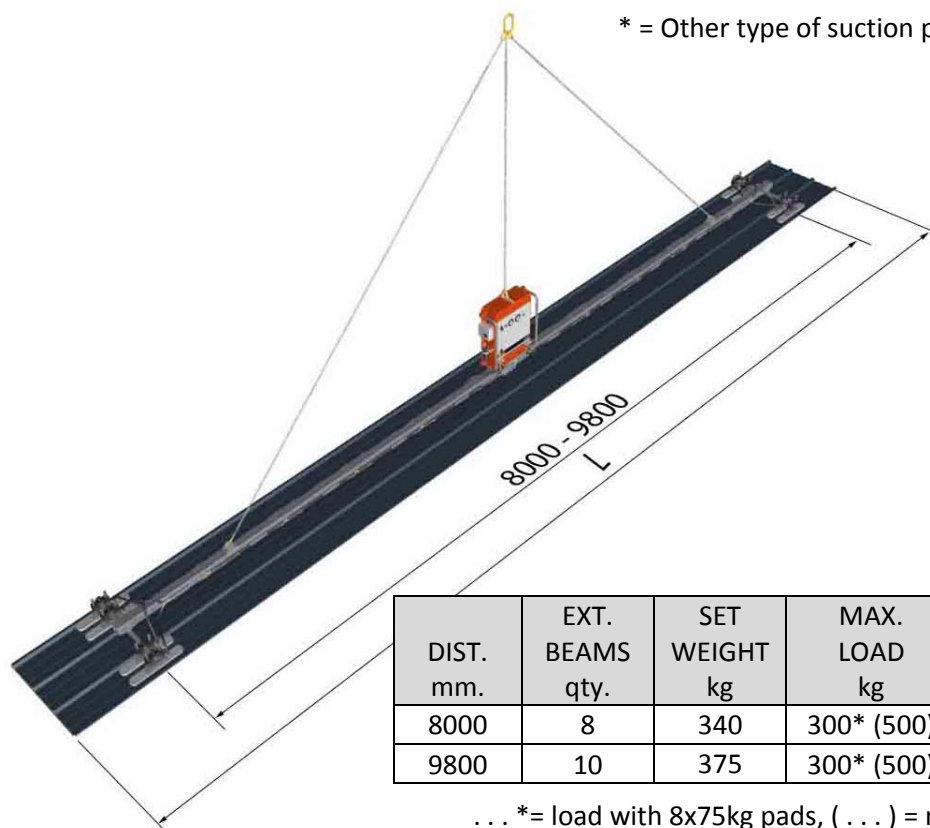
For roof panels up to 20 meter length

Roof pitch 0 25°



ITEM	QUAN.	DESCRIPTION	ART. NR
1	1	CB ^{dc} vacuum lifter module (m5)	409500
2	6 - 8	Traverse extension beam	408003
3	1 set	Cross traverse, 2x4 pad. susp.	409501
4	8	Suction pad 110x530, 75kg	402502*
5	2	Bended traverse extension beam	408004
6	1	3 way chain suspension (m5-k8)	409050

* = Other type of suction pads on request.



DIST. mm.	EXT. BEAMS qty.	SET WEIGHT kg	MAX. LOAD kg	L (type A) meter	L (type B) meter
8000	8	340	300* (500)	16 ... 18	Not advisable
9800	10	375	300* (500)	18 ... 20	Not advisable

... * = load with 8x75kg pads, (. . .) = max. possible load on traverse.

Type A = panels with min.0,5mm steel skin & PUR/PIR core.

Type B = panels with min. 0,5mm steel skin & mineral wool core.

REMARKS

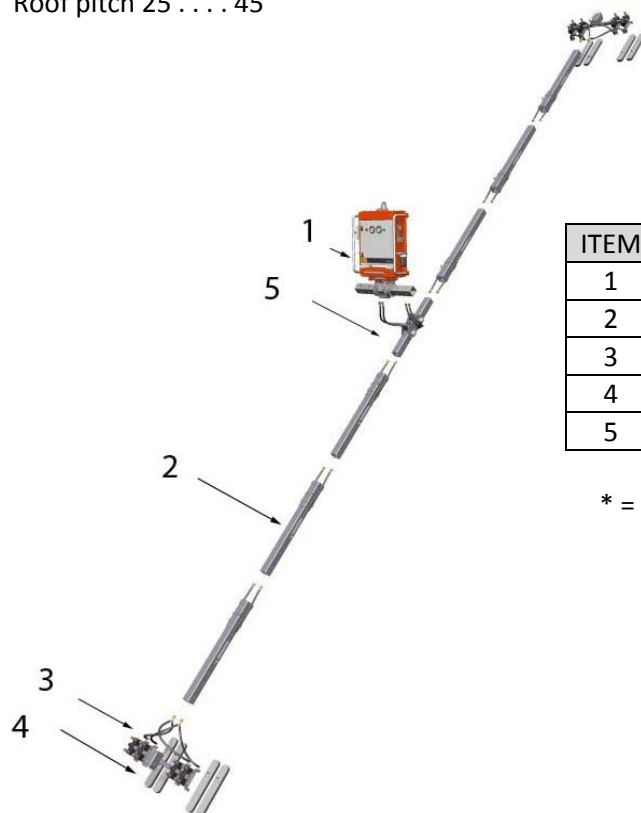
- Panels with shorter lengths are possible with configuration type R 2600 - 4400 - 6200.

- Panels with a roof pitch 25° up to 45° are possible with configuration RT 2600 - 4400 - 6200.

CB^{dc} configuration type: RT 2600 / 4400 / 6200

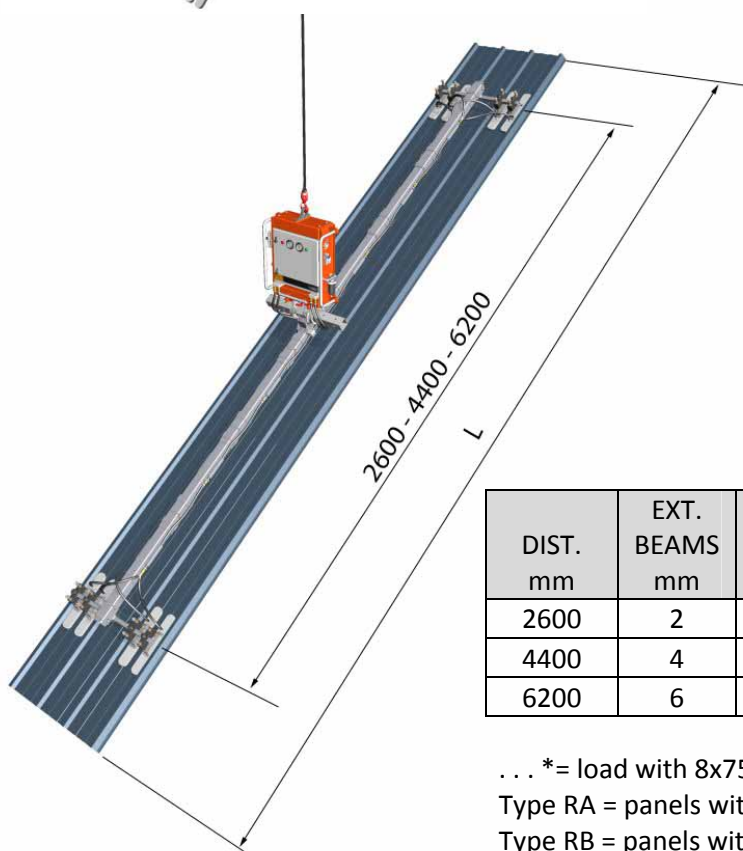
For roof panels up to 16 meter length

Roof pitch 25 . . . 45°



ITEM	QUAN.	DESCRIPTION	ART. NR
1	1	CB ^{dc} vacuum lifter module (m5)	409500
2	2 – 4 - 6	Traverse extension beam	408003
3	1 set	Cross traverse, 2x4 pad susp.	409501
4	8	Suction pad 110x530, 75kg	402502*
5	1	Tilting beam (m4&5)	408006

* = Other type of suction pads on request.



DIST. mm	EXT. BEAMS mm	SET WEIGHT kg	MAX. LOAD* kg	L (type RA) meter	L (type RB) meter
2600	2	205	300* (800)	3 ...12	3 ... 8
4400	4	240	300* (500)	12 ...14	8 ...10
6200	6	275	300* (300)	14 ... 16	10 ...12

... * = load with 8x75kg pads, (. . .) = max. possible load on traverse.

Type RA = panels with min.0,5mm steel skin & PUR/PIR core.

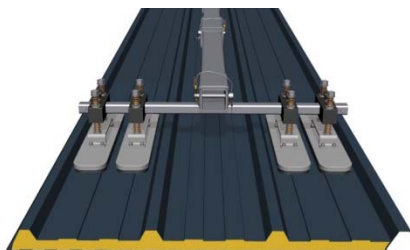
Type RB = panels with min. 0,5mm steel skin & mineral wool core

REMARKS

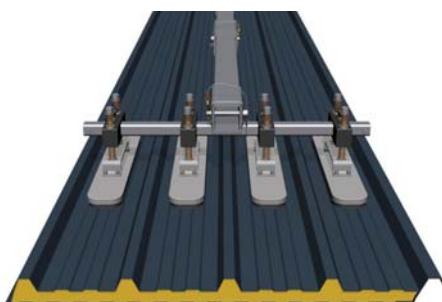
- Panels with a roof pitch 0° up to 25° are possible with configuration R 2600 / 4400 / 6200

- Panels with a length up to 20 meter are possible with configuration type RC 8000 / 9800.

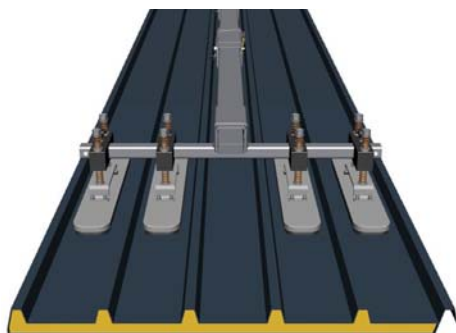
PLACING SUCTION PADS ON DIFFERENT TYPE OF ROOF PANELS



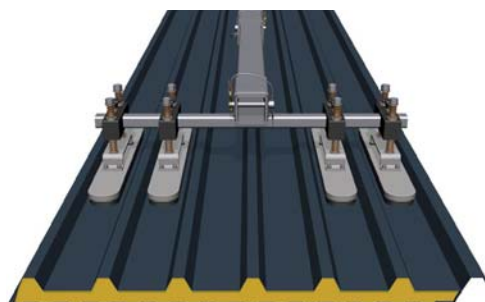
Panel 3x333mm
Suction pads 110x530mm



Panel 4x250mm
Suction pads 110x530mm



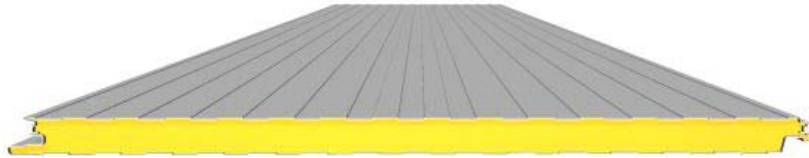
Panel 5x200mm
Suction pads 110x530mm



Panel 6x166mm
Suction pads 90x550mm

TYPES OF WALL PANELS

type **WA** (1)



0,5 .. 0.7mm Steel / aluminium

PUR / EPS

0,5 .. 0.7mm Staal / aluminium

type **WB** (2)



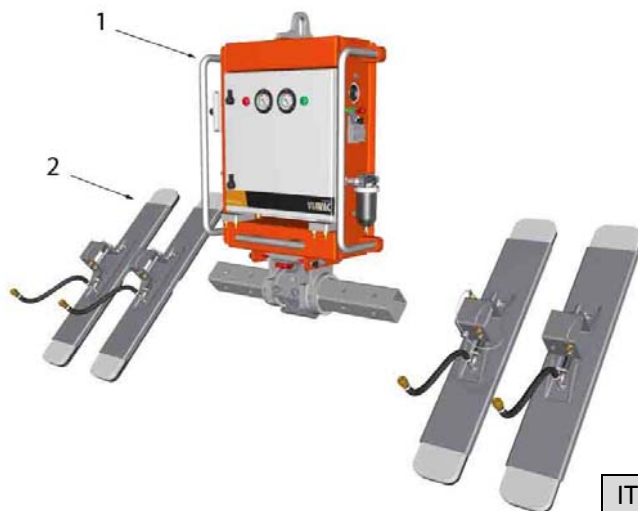
0,5 .. 0.7mm Steel / aluminium

Rockwool

0,5 .. 0.7mm Steel / aluminium

CB^{dc} configuration type: WV

For vertical wall panels up to 12 meter length.



ITEM	QUAN.	DESCRIPTION	ART. NR
1	1	CB ^{dc} vacuum lifter module (m5)	409500
2	2 set	Suction pad with suspension	408034*

* = Other type of suction pads on request.

DIST. mm	SUCTION PADS qty	SET WEIGHT kg	MAX. LOAD kg	L (type A) meter	L (type B) meter
-	1 set	165	200* (800)	3 ...12	3 ... 8
-	2 set	195	400* (800)	3 ...12	3 ... 8

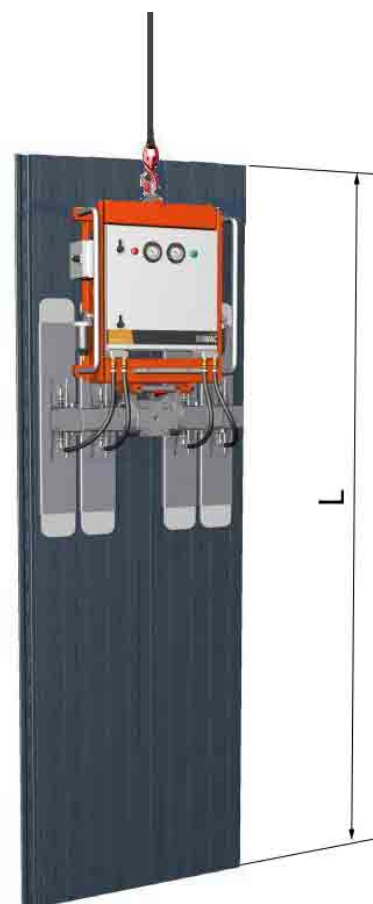
... * = load with 8x100kg pads, (. . .) = max. possible load on traverse.

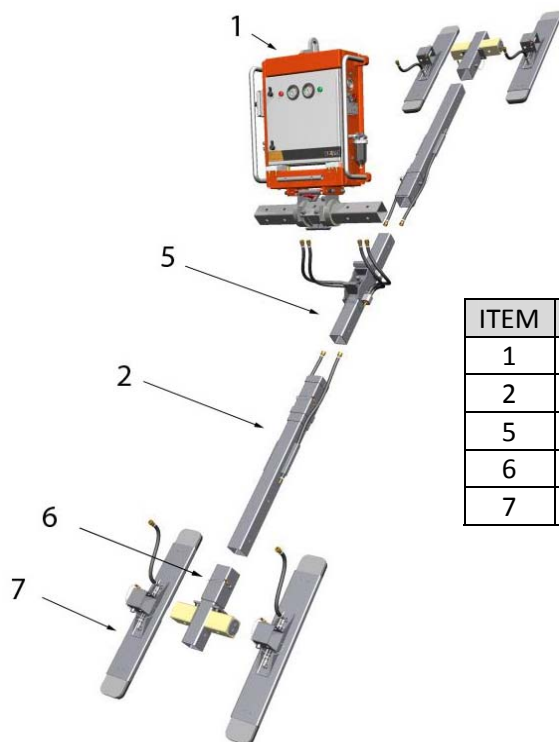
Type A = panels with min.0,5mm skin & PUR/PIR core.

Type B = panels with min. 0,5mm steel skin & mineral wool core

REMARKS

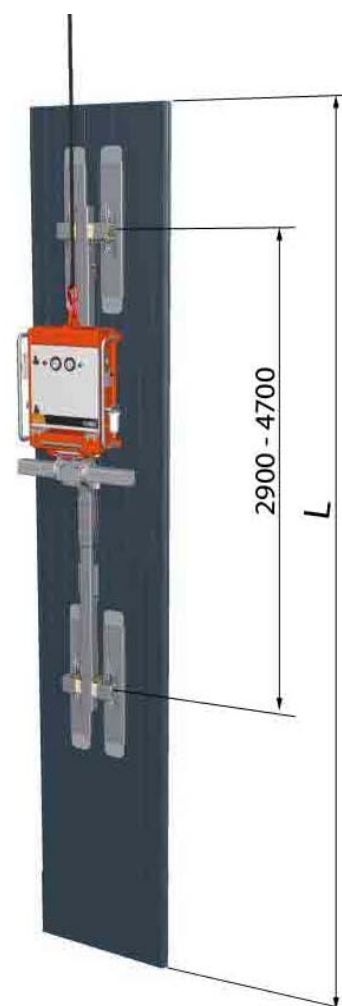
* Panels with a length up to 17 meter are possible with configuration type WVK 2900 / 4700.



CB^{dc} configuration type: WVK 2900 - 4700For vertical wall panels **up** to 17 meter length

ITEM	AANTAL	DESCRIPTION	ART. NR
1	1	CB ^{dc} vacuum lifter module (m5)	409500
2	2 - 4	Traverse extension beam	408003
5	1	Tilting beam	408006
6	1 set	Traverse cross	408030
7	2 set	Suction pad with suspension	408034*

* = Other type of suction pads on request.



DIST. mm	EXT. BEAMS qty.	SET WEIGHT kg	MAX. LOAD kg	L (type A) meter	L (type B) meter
2900	2	260	400* (800)	13 ...15	9 ... 11
4700	4	295	400* (500)	15 ...17	11 ... 13

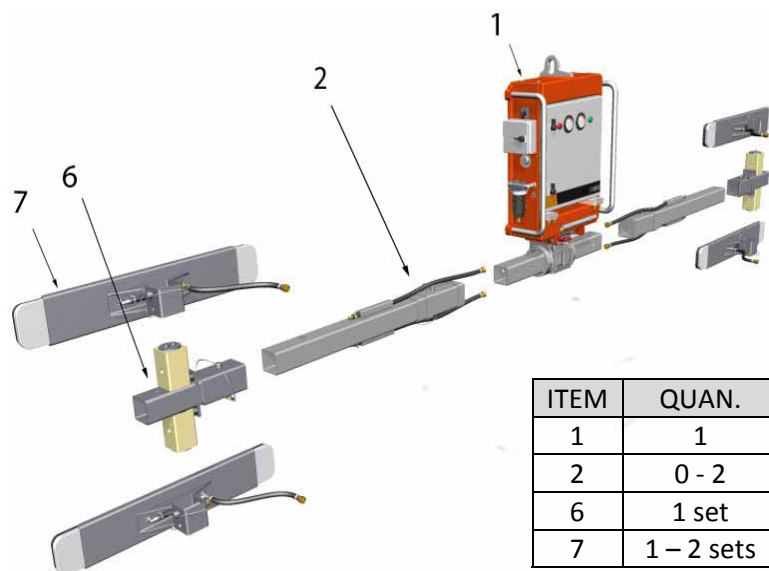
... *= load with 2 sets 2x100kg pads, (. . .) = max. possible load on traverse.

Type A = panels with min.0,5mm skin & PUR/PIR core.

Type B = panels with min. 0,5mm steel skin & mineral wool core

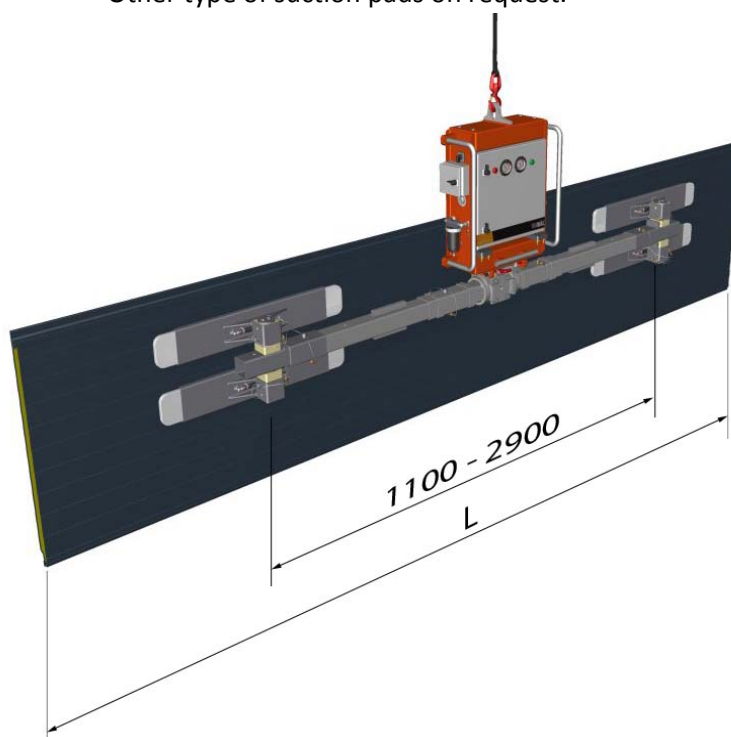
REMARKS

* Panels with a length up to 12 meter are possible with configuration type WV.

CB^{dc} configuration type: WH 1100 - 2900For horizontal wall panels **up** to 15 meter length

ITEM	QUAN.	DESCRIPTION	ART. NR
1	1	CB ^{dc} vacuum lifting module (m5)	409500
2	0 - 2	Traverse extension beam	408003
6	1 set	Traverse cross	408010
7	1 – 2 sets	Suction pad with suspension	408034*

* = Other type of suction pads on request.



DIST. mm	EXT. BEAMS qty.	SET WEIGHT kg	MAX. LOAD kg	L (type A) meter	L (type B) meter
1100	0	190	400* (800)	3 ...13	3 ... 9
2900	2	225	400* (800)	13 ...15	9 ... 11

... *= load with 2 sets 2x100kg pads, (...) = max. possible load on traverse.

Type WA = panels with min.0,5mm skin & PUR/PIR core.

Type WB = panels with min. 0,5mm steel skin & mineral wool core

B 7 Options

B 7.1 CB falling safety devices

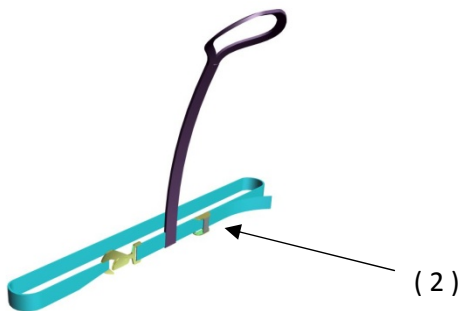


According CE regulation EN 13155 it is in all countries of the European union when use of a vacuum lifter at a construction site, a secondary falling safety system is obliged.

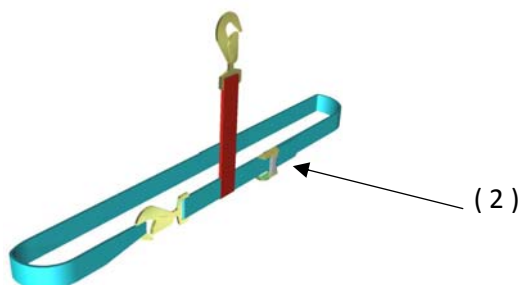
This can be realized in the following way's:

- 1 (single) vacuum circuit and the use of an additional safety device.
- 2 (dual) independent vacuum circuits, each circuit must be capable to hold at least a load corresponding to 2 times the max. load limit.
- **This device is executed with 2 independent vacuum circuits and the use of an extra falling safety device is therefore not obliged.**

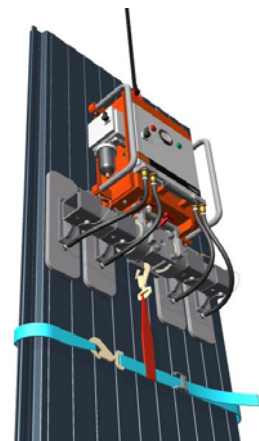
CB falling safety device for vertical wall panels

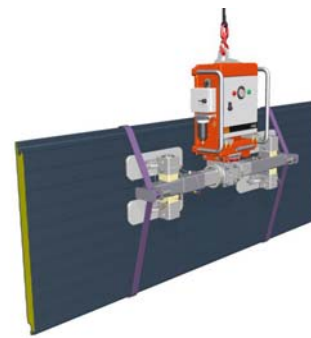
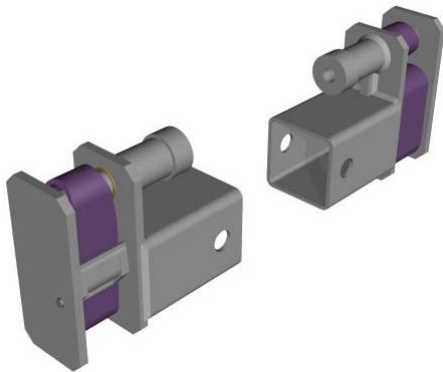


ITEM	QUAN.	DESCRIPTION	WEIGHT kg	ART. NR
1	1	Falling safety strap with sling	-	17003



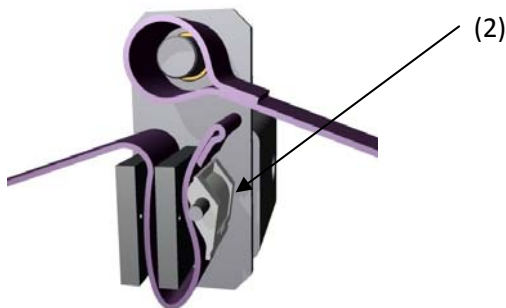
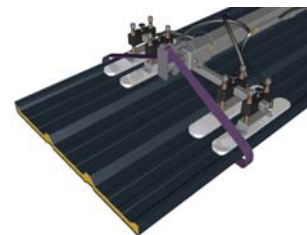
ITEM	QUAN.	DESCRIPTION	WEIGHT kg	ART. NR
1	1	Falling safety strap with hook	-	17004



CB falling safety device for horizontal wall and roof panels

HORIZONTAL WALL PANELS

ITEM	QUAN.	DESCRIPTION	WEIGHT kg	ART. NR
1	1 set	Falling safety device	5	408007



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.

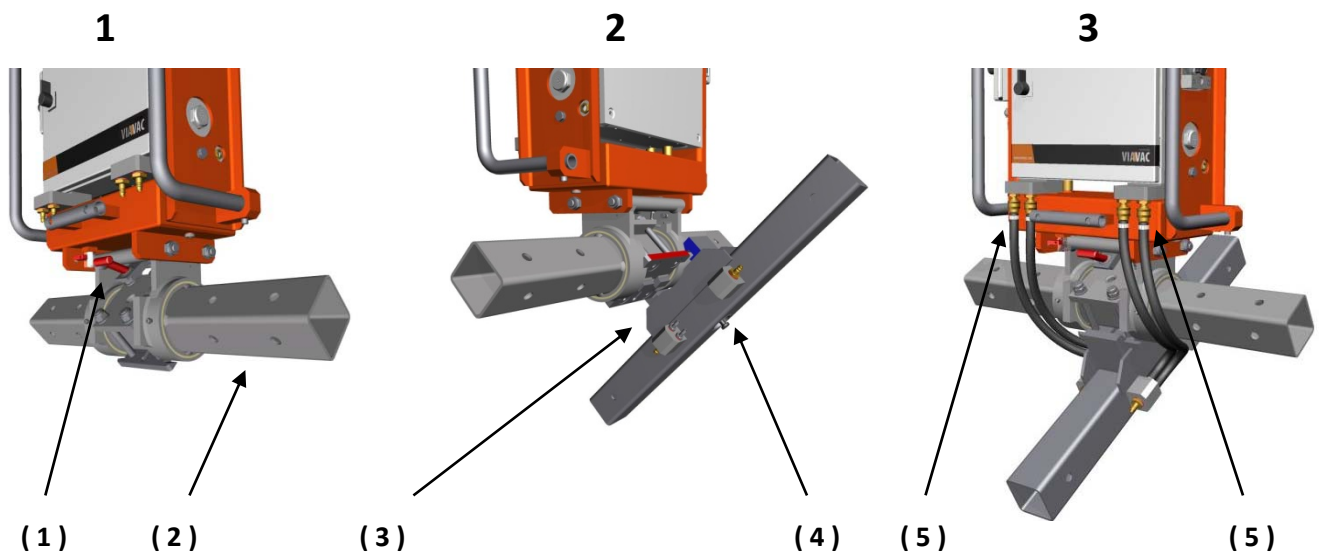
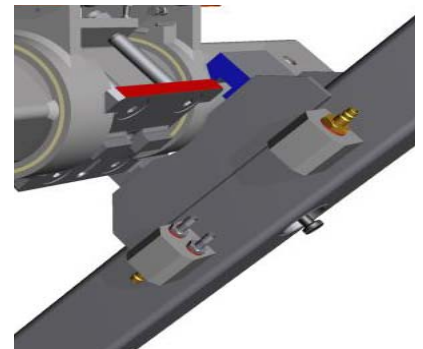


1. Protect from sharp edges of the elements to be lifted at location of the straps.
2. If there are cracks or tears in the lifting straps, do not use them and replace them immediately.

B 7.2 CB tilting beam

The tilting beam is an accessory which makes it possible to install roof panels with an pitch larger then 45° as well to install long vertical wall panels.

The tilting beam can be mounted without the use of tools. It slides over the mounting plate en locks itself by an integrated spring loaded securing pin. Because of the weight tilting beam we advise to do this with 2 persons.

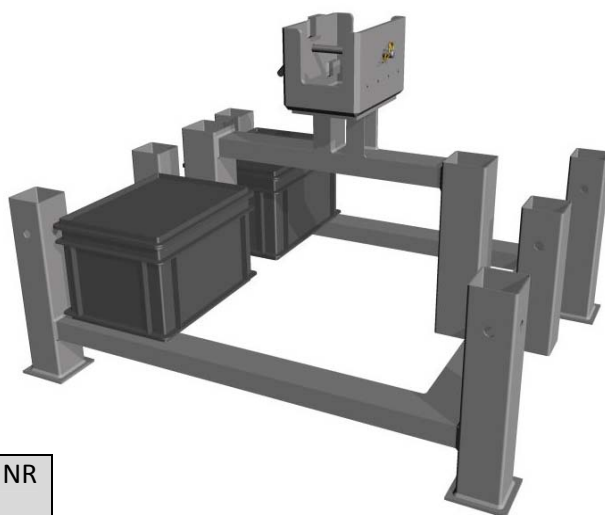


1. To be able to mount the tilting beam the traverse under the device has to be tilted approx 45° Therefore it has to be unlocked by lifting the securing handle (1) as indicated. Consequently the traverse can be rotated 45° .
2. The tilting beam (4) has to be slid over the entire length of the mounting plate, to achieve this you need to pull the securing pin simultaneously. When put in place the securing pin will lock the position of the tilting beam
3. Connect the vacuum hoses to the device.

Subsequently the extension beams and suction pads sets can be fitted along the tilting beam.

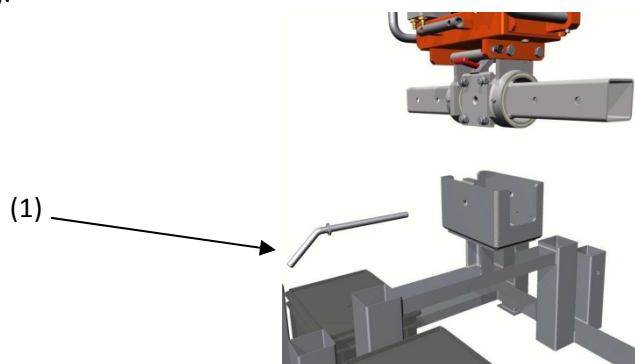
B 7.3 CB transportframe

The transport frame is an ideal to store the device compact together with it's accessories and to be able to transport it as a compact unit with a forklift or crane.



ITEM	QUAN.	DESCRIPTION	WEIGHT kg	ART. NR
1	1 set	Transport frame	100	408012

The vacuum unit has to be put with the tilting mechanism in the foundation bin, when the device can be attached to the frame by the securing pin (1).



Subsequently all extension beams can be placed on the various foundation spots.



B 7.4 CB transport wheelset

The transport wheels are usefull to transport the unit without the use of a forklift or crane.

ITEM	QUAN.	DESCRIPTION	WEIGHT kg	ART. NR
1	1 set	Transport wheels	12	408011



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 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 Shows 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 Expert declaration

The undersigned hereby declares that before he performs maintenance- or repair to this vacuum lifter, he has read and understood the operators section of this instruction manual and will follow the instructions.

<u>DATE</u>	<u>NAME</u>	<u>SIGNATURE</u>
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C 2 Technical data

Model number	CB 5
Application	Horizontal, vertical and inclined picking of rigid and non porous elements with a flat or slightly structured surface. The suction pad seal can compensate (when not too rough) unevenness's up to 5mm.
Functions	- 90° tilting mechanism.
Lifting capacity	max. 800kg (depending of configuration and the active suction pads) at -0.60 bar vacuum level.
Own weight	125kg
Dimensions	1065x1000x265
Power supply	Battery 12V / 65Ah
Battery charger	Primary 110 ... 240V / Secondary 12V-4A
Vacuum pump	2x2 Piston pump 12V capacity each 1,5m3 per hour, max. ca -0.8 bar vacuum.
Safety features	- Secondary safety device. - Audible low vacuum warning. - Large vacuum buffer tank which prevents a sudden vacuum loss in case of leakage or break down of the vacuum pump. - Vacuum indicator with red / green indication.
Service life	At least 20.000 cycles, when used as intended.

C 3 Checking and maintenance

Checking, maintenance and repair activities must be executed by relevant expert technical personnel.

If your company does not have such expert personnel it can be executed by a VIAVAC expert.
Contact VIAVAC or your VIAVAC dealer for this.

Use only original VIAVAC parts in case of repair, because the properties and quality of these are guaranteed.

Modification of the device can influence the safety of the device and is therefore not allowed.



If the above issues are not fulfilled this will lead to a risk for reliability and safe use
In this case VIAVAC can not accept any responsibility.

Periodic checks and tests.

The activities and periods described hereafter pertain to the minimum requirements with regard to maintenance.

It is advisable to perform these activities more frequently if the circumstances make this necessary, such as with increased frequency of use resulting in more wear and tear, corrosion and/or an increased defect pattern.

Daily

- a. Check rubber sealing profile (15) for presence of wear and tears and replace, if necessary.
- b. Check whether rubber back plate (14) is clean and oil-free, and clean it if necessary.
- c. Check vacuum tightness.
- d. Mechanical status of the lifting eye and the pivoting points.
- e. Suction filter (at then side of the switch box).
- f. Functioning of the vacuum meter.
- g. Functioning of the acoustic alarm.
- h. When necessary remove water by using the drain tap (10).
- i. Check falling safety device for wear and tears and replace if necessary.

Monthly

- a. The same as the daily maintenance.
- b. Check control of the vacuum pump.
- c. Clean the rubber back plate of the suction pad with natural vinegar

Yearly

- a. The same as the monthly maintenance.
- b. Testing the battery capacity.
- c. Static test procedure.

3 yearly

- a. The same as the yearly maintenance.
- b. Replace suction pad rubber sealing profile (15).
- c. Replace battery.

Compulsory a regular inspection of the device must also take place.

This in accordance with the requirements from the authorities of the country where the device is used.

In the device there are no pivoting points or parts which require lubrication.

The vacuum pump is completely maintenance free and lubrication is not allowed.



In vertical position of the suction pad, the load is held by the friction between the rubber back plate of the suction pad and the load; therefore it is essential that this is clean, dry and oil-free. Monthly cleaning of the rubber back plate with natural vinegar ensures that the required friction between suction pad and the load remains retained.



Never use solvents, petrol or other chemical agents to clean the rubber of the suction pad.



Checks and repairs must be documented in writing; for this purpose the following forms can be found in this manual:

- C 4 Check and maintenance report.
- C 11 Maintenance history.

METHOD OF OPERATION:

- Vacuum tightness*** Hereby the device must be put on a non porous sheet of glass, metal or plastic, after which suction is applied and waited until the pump stops running. Then the main switch is turned off and after waiting 1 minute it is then checked to which extend the vacuum level of each circuit has decreased.
The loss of vacuum in each circuit may not exceed 10% per minute.
- Vacuum indicator*** Hereby the device must be put on a non porous sheet of glass, metal or plastic, after which suction is applied and waited until the pump stops running. Compare the value indicated by the pointer of the vacuum indicator with the value indicated by the digital vacuum switch (2).
Indication from the vacuum meter may not deviate more than 3% from the digital value.
- Acoustic alarm*** Hereby the device must be put on a non porous sheet of glass, metal or plastic, after which suction is applied and waited until the pump stops running. By slowly opening the water drain valve (12), the system will be gradually aerated and the vacuum level will decrease.
As soon as the vacuum level falls below the -0.60 bar the acoustic alarm should sound, the volume thereof should amount to at least 85db at 1 meter of distance.
- Control of the vacuum pump*** Hereby the device must be put on a non porous sheet of glass, metal or plastic, after which suction is applied and waited until the pump stops running. By slowly opening the water drain valve (12), the system will be gradually be aerated and the vacuum level will decrease.
As soon as the vacuum level falls below the -0.65 bar the vacuum pump must start.
After 10 seconds the vacuum pump must automatically stop, whereby the digital vacuums switch must indicate a vacuum level of -0.70 bar or more.
- Battery capacity** First the battery is fully charged with a battery charger, after which the battery is discharged with a certain amperage, by measuring the time needed for discharging, The battery capacity is determined by multiplying time and amperage.
This needs to be 90% or more of the nominal battery capacity (65 AH).
- Static test*** With the suction cup in a vertical position, a (non porous) load with a weight equal to 2 times the working load limit should be lifted. Subsequently 1 circuit should be completely aerated by opening the water drain valve.
The load should be held and after the removal of the load no permanent deformation of the device should be visable.
- Holding time test*** With the suction cup in a vertical position, a (non porous) load with a weight equal to the working load limit should be lifted. Subsequently 1 circuit should be completely aerated by opening the water drain valve. The main switch should be turned off so the vacuum pump will no longer run.
The load should be held for at least 5 minutes.



The tests indicated with a * should be executed for each vacuum circuit separately.



During the static and the endurance test, the load should be lifted only a few millimeters so that in case of an unsuspected release, this will not result in damage or personal injury.

C 4 Inspection & maintenance report

Machine nr. :

Owner :

Type :

Contact person :

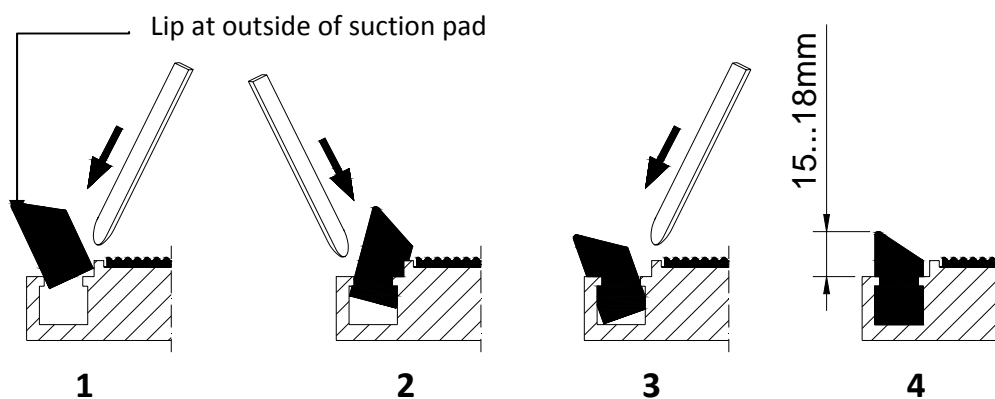
		APPROVED			
	<u>Limited value</u>	D	M	Y	3Y
<u>Suction pads</u>					
Sealing profile checked for cracks and wear.		O	O	O	O
Rubber back plate, cleaned and free from grease.		O	O	O	O
Rubber back plate cleaned with natural vinegar.		-	O	O	O
Replace the sealing profile		-	-	-	O
<u>Filters</u>					
Clean filter with compressed air		-	-	O	O
<u>Water</u>					
Drain by opening valve (when used in rain)		O	O	O	O
<u>Falling safety device</u>					
Check for cracks and wear		O	O	O	O
<u>Mechanical</u>					
Check lifting eye and pivoting points of suspension arm		O	O	O	O
Check securing device from handle "suction/aeration"		O	O	O	O
<u>Alarm</u>					
Acoustic alarm + illumination of red lamp at vacuum level < -0.60 bar (+/- 2%)	85db	O	O	O	O
Illumination of lamp at vacuum level of > -0.60 bar (+/- 2%)		O	O	O	O
<u>Control of vacuum pump</u>					
Switching on at vacuum level -0.65 bar	+/- 2%	-	O	O	O
Time for switching off 10 sec after reaching vacuum level -0.65 bar	+/- 2 sec.	-	O	O	O
Vacuum level after switching off	min. 70%	-	O	O	O
<u>Sealed condition</u>					
Decrease of vacuum level with suction pad on flat surface and in sucked state	max. 10 % in 60 sec.	-	O	O	O
<u>Vacuum indicator</u>					
Compare level of vacuum indicator with digital vacuum switch	+/- 0.03 bar	O	O	O	O
<u>Battery</u>					
Capacity test	min. 90% of 65Ah	-	-	O	O
Replace preventative		-	-	-	O
<u>Tests</u>					
Static load test	2x working load	-	-	O	O
Holding time test	min. 5 minutes	-	-	O	O

(D = Daily / M = Monthly / J = Yearly / 3 Yearly)

When everything is approved, complete this report and apply new certification sticker with date indication.

Inspection & maintenance
executed by : _____

Date : _____

C 5 Fitting sealing profile in suction pad

C 6 Mal functioning and repair

MAL FUNCTION ANALYSE

Fault	CAUSE	ACTION
1. No action and volt indicator shows 0	Battery very low	Charge battery or replace
	Fuse of the control current defect	Replace glassfuse
2. Insufficient vacuum level Acoustic alarm sounds	Sealing profile of suction pad is damaged	Replace sealing profile
	Load is from porous material	Move load in another way
	Surface is too rough	Move load in another way
	Battery is low	Charge battery or replace
3. Sufficient vacuum level Acoustic warning signal sounds	Relais K1 or K3 is defect	Replace relais K1 or K3
	Vacuum switch is deprogrammed	Re program or replace
	Leakage of non return valve	Clean non return valve or replace
	Capacity of vacuum pump has decreased	Replace vacuum pump or valveplate in de vacuum pump
4. Sufficient vacuum level No acoustic warning signal but vacuum pump keeps running	Relais K2 or K5 is defect	Replace relais K2 or K5
	Vacuum switch is deprogrammed	Reprogram or replace.
	Battery low	Charge or replace battery
	Vacuum leakage	Check and replace if necessary seal of suction pad
	Leakage of non return valve	Clean or replace non return valve
	Capacity of vacuum pump has decreased	Replace vacuum.
	Surface too rough or porous	Move load in another way
5. Vacuum pump does not run	Fuse of the electric motor is defect	Replace fuse.
	Vacuum pump defect	Repair or replace vacuum pump.

Fault 2, 3 & 4 apply to each vacuum circuit.