

What you need to know about the maintenance of vacuum lifters

To assure a sufficient level of safety with vacuum lifters, they require maintenance at least once a year. That will be perfectly clear to anyone who has ever stood beside a suspended load of this kind. However, what form should this maintenance actually take? How can you ensure that you finish up with a vacuum lifter that functions safely? Are you aware of the requirements? And do you know how these can be tested?

OK, you may have an external service provider who checks this for you. Does the service provider actually do a good job? You see, there are circumstances where it could be your health that is affected if a vacuum lifter should ever malfunction. For my own part, I would always at least want to make sure for myself that the service provider is doing the work diligently. For this, it is important to know what needs to be done. That is what we are about to explain to you.

These things always need to be done when maintenance work is being carried out

- Visual inspection of the welded seams.
Are the welded seams OK? Are there any cracks in the paint, or rust forming in linear form down the welded seam? If so, the welded seam is no longer OK, and it needs to be inspected by a welding specialist.
- Function check of the actuator components!
Do all mechanical interlocks engage independently?
Are all powered drives still able to move the nominal rating?
If not, the faults need to be remedied.
- Function check of the dirty filter.
Please check for unobstructed passage, as well as conducting a visual inspection, ideally with compressed air while the unit is dismantled. On some filters, the functional impairment is not always visible. If the filter is obstructed, the necessary vacuum is unable to form in the suction cup. As a rule, this is not detected by the vacuum monitoring system.
- Is a two-stage release function present?
This release function must always involve two independent steps. This means that simply pressing **one** button and turning a valve lever does not provide the operator with sufficient safety.
Devices of this kind need to be retrofitted.
- Vacuum control okay?
As well as a control vacuum meter with designated danger and operating areas, an acoustic and/or a visual warning device is essential. That applies to every single vacuum circuit if the device has more than one of them.
Failing this, the device needs to be retrofitted.



Maintenance of vacuum lifters

- Suction cup(s) damaged?
Suction cups that exhibit signs of damage need to be replaced.
To prevent any asymmetrical loading of suction cups, we recommend the replacement of all suction cups. This prevents any overloading of an individual suction cup. However, this only applies if suction cups are already older than 6 months.
- Does the build-up of vacuum take place quickly and reliably enough?
If not, the fault needs to be remedied as quickly as possible.
By way of example, this could be caused by a compressed hose. Or the pump diaphragm may be torn or the carbon separator on the vacuum pump may be worn, or may simply be jamming.
- Leak test, but how?
The device should be capable of maintaining the vacuum in the working area for at least 5 minutes.
For this, you place the device with its suction cups on an air-impermeable sheet or pane of glass and apply suction. Then switch off the device and wait for 5 minutes. During this time, the danger area should not be reached. If it is, then the cause of the leak needs to be remedied immediately.
On multi-circuit vacuum lifters, every vacuum circuit needs to be tested to enable two-way interactions to be identified.
- Load test, but how?
There is no visual way to inspect suction cups to establish their carrying capacity. This can only be achieved by means of a load test. As a rule, suction cups should be replaced every 24 months when used for perpendicular lifting.
On 1-circuit vacuum lifters for in-house operation, the suction cups and/or the device must be capable of carrying double the nominal rating.
On 2-circuit vacuum lifters for in-house operation, the suction cups and/or the device must be capable of carrying double the nominal rating with just one vacuum circuit active.
On 4-circuit vacuum lifters for in-house operation, the suction cups and/or the device must be capable of carrying double the nominal rating with just three vacuum circuits active.

If this is not the case, it must then be assumed that the suction cups have lost their carrying capacity. Therefore, the suction cups need to be replaced.

Here you can view a short video of the maintenance operation. Perhaps you can now understand why it is so important for **your own health and that of the people around you** to test vacuum lifters exhaustively as part of the maintenance work.

Find this on YouTube:
How can damage be avoided when working with vacuum lifters?

		https://youtu.be/iZXxt7cqMLY
		https://youtu.be/0QN-3-eJj2l

The load test must be carried out in every position and configuration level. With an unknown device, this should always be conducted during a first test. If the areas of weakness are known, it is always sufficient just to test the least favourable case.

- Example on a Kappel vacuum lifting beam DSZ2/12V

		https://www.facebook.com/Vakuumheber/videos/453868631477522/
		https://www.facebook.com/VacuumLifter/videos/1695553587324596/
		https://youtu.be/fvqDUUp29o9o
		https://youtu.be/uKZwR9wAMmA





Why is the load test so important in maintenance?

- Example on a Kappel vacuum lifting beam DSZ2/12V

		https://www.facebook.com/Vakuumheber/videos/661611650703218
		https://www.facebook.com/VacuumLifter/videos/196695838351744
		https://youtu.be/GSLud4uQIyQ
		https://youtu.be/9a3YgUARSxg

Here you can also see tests conducted on suction cups of different ages, which may help you better to understand why it is so important for **your own health and that of the people around you** to replace the suction cups from time to time.

Find this on YouTube:
Tensile test with a new 388 suction cup

		https://youtu.be/77jR_M7hYxQ
		https://youtu.be/GC43_Intrwc

Find this on YouTube:
Tensile test with a 388 suction cup that is 5 years old

		https://youtu.be/65RbdHEBRS4
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Find this on YouTube:
Tensile test with a 388 suction cup that is 10 years old

		https://youtu.be/MMHpvl2LFtc
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