

Transport of wet glass panes, ... and then?

Does it make any difference to working with a vacuum lifting device if the glass panes are wet or dry?

If the answer is yes, what changes should you anticipate?

Is it a good idea to dry the glass panes before starting to move them?

Today, we wish to answer these questions, as well as some similar ones. To clarify technical questions, it is a good idea to conduct a load test for suction cups.

The following videos show you what becomes apparent during a load test.

Just click the link, and the video file will open on any Internet-capable PC.

Is there actually any difference between dry and wet glass panes?

To answer this, a Pannkoke suction cup 388 was simply subjected to a load test in dry condition. Next, the glass pane was sprayed with water and the test was repeated. Will there be a change? And if there is, what form will it take?

The test setup is a very simple one: On a fixed-position glass pane to which a vacuum suction device is being attached by suction. The lower operating point is chosen as a vacuum figure. On our vacuum lifting devices, that figure is -0.6 bar. The suction cup is suspended from a crane scale and is then attached to a spindle. Now the spindle can be used to develop a level of tensile force when shortened. The crane scale supplies this tensile force in kg. Once the maximum level of tensile force has been reached, a waiting period commences. EU standard EN 13155 stipulates that a vacuum lifter must be able, in the event of a power failure, to hold a load at its nominal rating for at least five minutes. As a rule, we therefore usually observe this period of time. None of the suction cups must slip. To move glass panes and similar items, we therefore need to maintain a static holding force rather than a dynamic holding force, which would be higher. In any event, this is what our test results yielded.

Find this on YouTube:

Suction cup 388 – load tests, dry & wet

		https://youtu.be/SkXy0IzprYQ
		https://youtu.be/aXchqlDheSY

The difference between wet and dry

This result should not really come as any surprise. The film of water between the surface of the suction cup and the glass pane minimises friction. However, when using a suction cup in a vertical position, since the friction between the surface of the suction cup and the glass pane is the only thing that holds up the glass pane, carrying capacity is going to decrease.

What might perhaps shock you is the extent of that loss in carrying capacity. When dry, that figure is easily 200 kg, but what is it after the glass pane has been sprayed with water? Do you know the answer from this video? No? Take another look, or simply believe me that that figure was about 36 kg. As you could see, that is a very big change indeed. What you can learn from this is that you should never apply suction to wet surfaces and then try to transport them in a vertical position. Alternatively, with our 388 suction cups, simply increase the number of suction cups by a factor of about 6.

Only transport dry glass panes with a vacuum lifter because, depending on the type of suction cup, carrying capacity diminishes by a very significant factor. Always bear this in mind because the **safety of yourself and that of your co-workers is at stake, so only ever move glass panes in a vertical position when they are dry. Wet glass panes have much lower friction coefficients.**

If the glass pane is wet, do your best to wipe it dry. Using rubber wipers of the kind used by window cleaners can help a great deal. It is always better to finish by wiping the pane of glass with a dry cloth.