

Planar stabilized

The load is usually some form of large, thin plate or panel, such as glass panes or sheet metal panels. Depending on their size and thickness, metal panels that are held only in their centre will usually deform during transport, which makes exact positioning in their final location difficult and is therefore undesirable.

In addition the bending forces acting on the suction cups significantly increases the strain on the suction cup lips, which can cause the suction cup to break off.

The example on the following pages shows what can happen if a load is not planar stabilized.

Planar stabilized means that the transport load is held in such a way that it can not deform. An example: A sheet of paper is to be transported horizontally (as if resting on a table) and planar stabilized (i.e. without bending) from A to B. To transport this sheet of paper planar stabilized, it must be supported at many points that are spread across the sheet's entire surface.



not planar stabilized – load bends



planar stabilized – the transport load does not bend

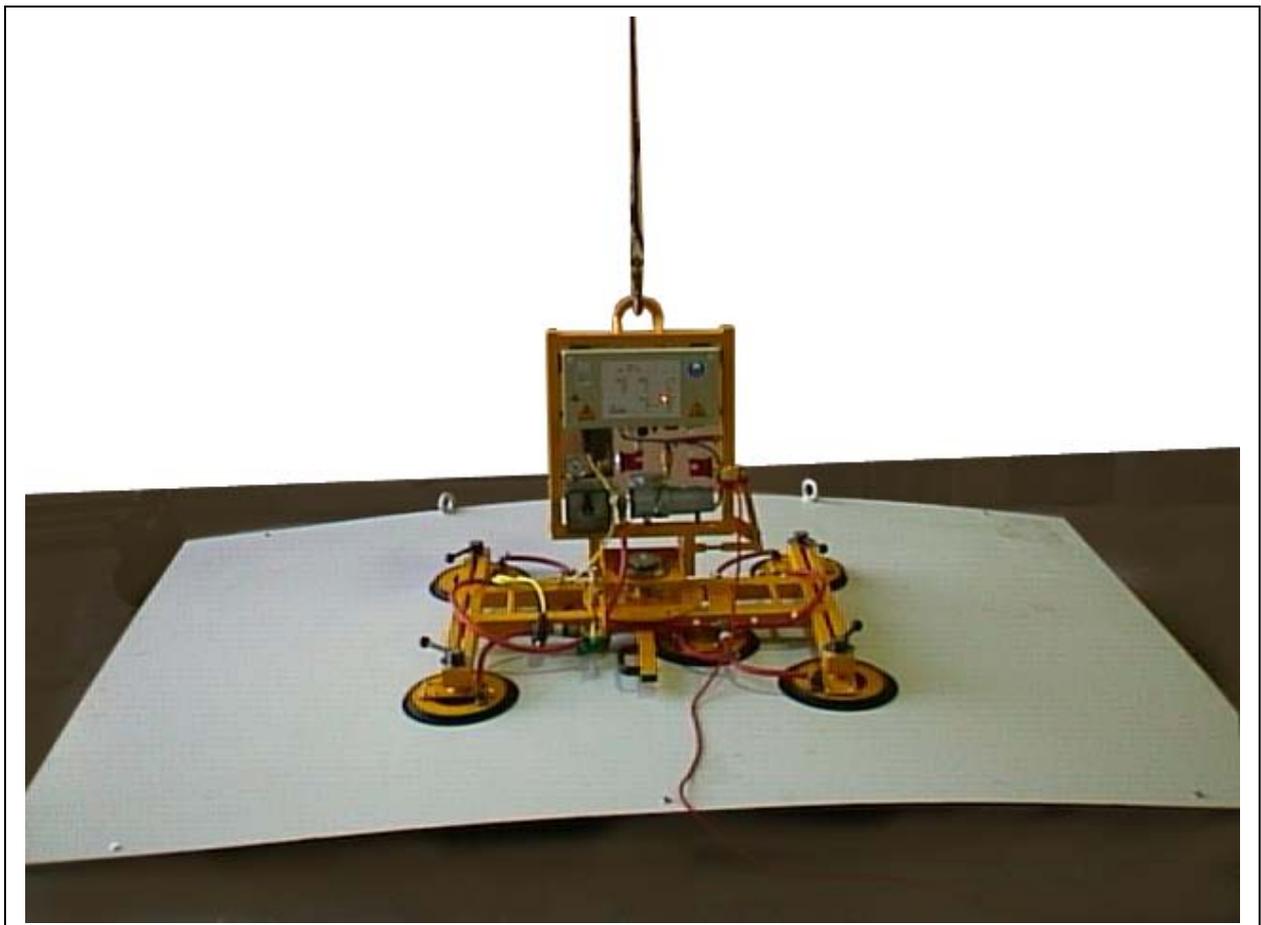
Example for a not planar stabilized transport
(because the load itself does not have sufficient surface stability)

When taking into consideration the accumulator device Kombi 7011-DS it means, that:
The suction cups 388 used by us can hold onto a clean glass sheet until they detach, according to the type of force effect and speed, approx. 300 kg at a negative pressure of 0.6 bar, without consideration of a safety factor. In theory, a 7011-DS with 6 suction cups could hold approx. 1800 kg horizontally (without a safety factor).

The frame dimensions are approx. 1.0 x 0.8 m. According to our specifications it is possible to move materials up a maximum dimension of 2.0 x 1.8 m.

Take for example a steel plate with the dimensions 3.0 x 2.0 m and a weight of approx. 580 kg and you want to move it horizontally.

It would take about 10 seconds before the plate would fall down.



If you strengthen the steel plate with supports, the transport is possible, provided that you take care that no bending occurs.

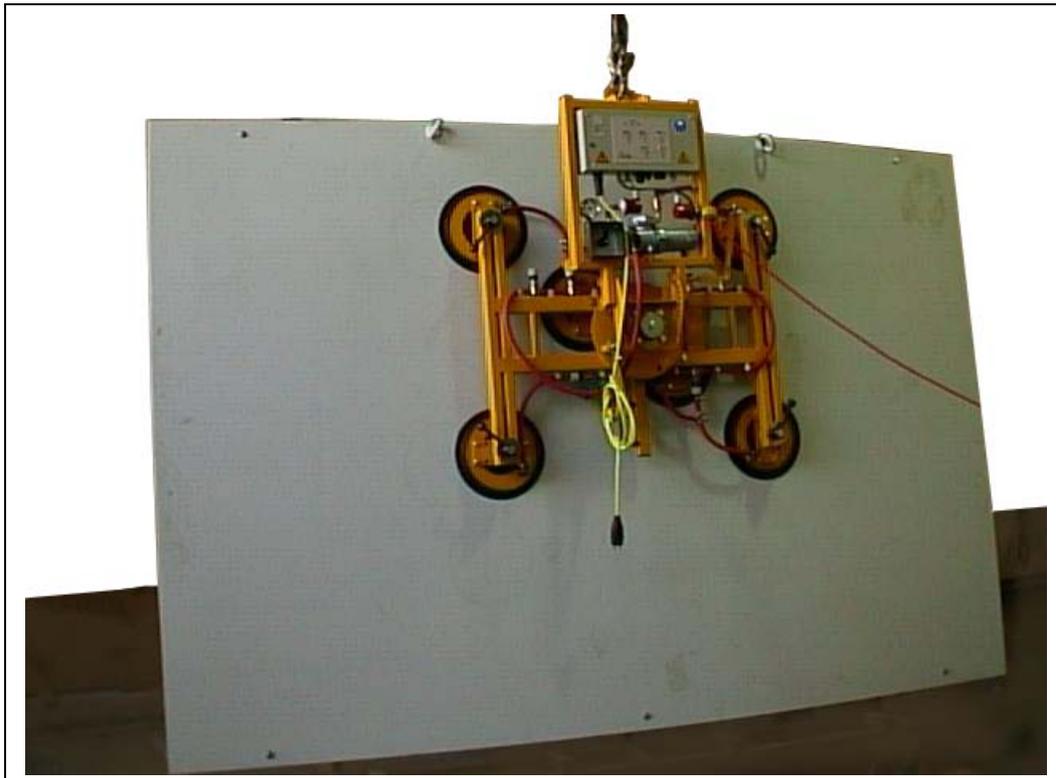
During the vertical use, the stiffness is not as important because each plate material has a certain inherent stability in this direction. Pick the sheet of paper up with two fingers on one corner and hold it vertically so that the side with the 30 cm is horizontal and the 20 cm side vertical. The sheet will be suspended relatively straight without bending.

If the inherent stability is too low, the bending of the material can lead to the same effect as in the horizontal application.

When taking into consideration the accumulator device Kombi 7011-DS it means, that: The suction cups 388 used by us can hold onto a clean glass sheet until they pull-off, according to the type of force and speed, approx. 200 kg at a partial vacuum of 0.6 bar without taking into consideration a safety factor. In theory, with a 7011-DS with 6 suction cups, one could hold approx. 1200 kg horizontally (without a safety factor).

The frame dimensions are approx. 1.0 x 0.8 m. According to our specifications it is possible to move materials up a maximum dimension of 2.0 x 1.8 m.

Take for example a steel plate with the dimensions 3.0 x 2.0 m and a weight of approx. 580 kg and you want to move it vertically.



In fact the steel plate can be held but the bending of the steel plate can already be recognized clearly. We have now reached the limit.