

Why is this suction cup a safety component?

Why should suction cups only be replaced with manufacturer-made suction cups?

The individual suction cup is the central component on a vacuum lifting device!

The manufacturer looks for a suction cup for the vacuum lifting device he has produced. With this carefully selected suction cup, the manufacturer is able to confirm the operating characteristics of the device. First and foremost among this is carrying capacity.

Not every suction cup can provide the same carrying capacity, even if they look identical in shape, mounting, physical appearance and such like.

We have had the carrying capacity of various different suction cups tested by the technical college in Kiel [Fachhochschule Kiel]. All of these suction cups were counterfeit versions of our 388 and 540 suction cups. For the user, everything may look identical, but differences of up to 25% were discovered.

It must by now be clear to everyone that the suction cup is a central safety component and that the replacement of a part like this has an impact on the technical safety of the device as a whole.

Without the right kind of suction cup, no vacuum lifting device can lift or move a load. Consequently, the suction cup must be a central component in a vacuum lifting device.

With vertical transport, the friction coefficient, i.e. the friction factor, plays a substantial role, one not solely dependent on size and shape. Everything depends on this, in particular the life and continuing good health of the people who work with it.

Take our 388 suction cup for example. When it is new, we quote a carrying capacity of 100 kg on dry, clean material. This means that the suction cup must be able to contend with loads of 200 kg and must not slip even when placed vertically on the glass.

A device with two suction cups could therefore theoretically lift a load of 200 kg with our suction cups. We confirm this on the type plate and in the operating manual. Now the user, perhaps through ignorance or to save money, swaps these suction cups against a competing product. However, this competing product only holds 150 kg instead of 200 kg. At first glance, nothing would happen because the normal load of max. 200 kg will continue to be held. However, the assumed safety factor of two (double) is no longer provided.

Nonetheless, in such cases the carrying capacity should be reduced from its original figure of 100 kg to 75 kg. Because vacuum lifting devices in the EU always have to be able to cope with double their nominal rating, in this case 200 kg.

By the way, if you only replace one suction cup, the same situation arises. However, this now has something to do with suction cup distribution and there is no need to go into greater depth at this point.

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What consequences arise if you replace suction cups with third party products?

In the event of an accident, if the manufacturer is assessed for liability, things get difficult for the user. That is because anyone who makes a significant change to the technical safety of a product becomes the manufacturer of that device or machine, under the terms of the machinery directive. Any reduction in carrying capacity constitutes a technical safety modification of this kind.

Now let us return to the example of the device with the two suction cups. The carrying capacity was reduced through replacement with third party products. The operator has now become the manufacturer. At this point, the original EC conformity declaration and the CE mark of the original manufacturer has ceased to be valid. The operating manual also no longer applies. If the operator does not alter this by fitting a new type plate, by displaying an EC conformity declaration and by providing an appropriate operating manual, that machine is now operating in a manner that is not compliant with CE requirements. Something like that has consequences in the EU. If an accident occurs, it becomes difficult to prove that everything has been done to prevent workplace accidents.

Although a replacement of this kind may appear fairly trivial, in terms of liability legislation, it results in a very high level of risk. However, for the employee, these consequences may take the form of lasting injuries, and that is a much more serious matter.

For this reason, you should think very carefully before replacing our suction cups with third party products, because if anything untoward happens, claiming ignorance will not protect you against the legal penalties.

For this reason, when we conduct maintenance, we will assess a device as non-compliant if the suction cups have been replaced in this way. We only commission devices with the original suction cups of the manufacturer since we do not know what the other products are capable of lifting. In any event, we would not issue a certificate to you.

All of this is simply to ensure that, as the party responsible for workplace safety, you have done everything necessary. After all, that should be the objective of conscientious maintenance.