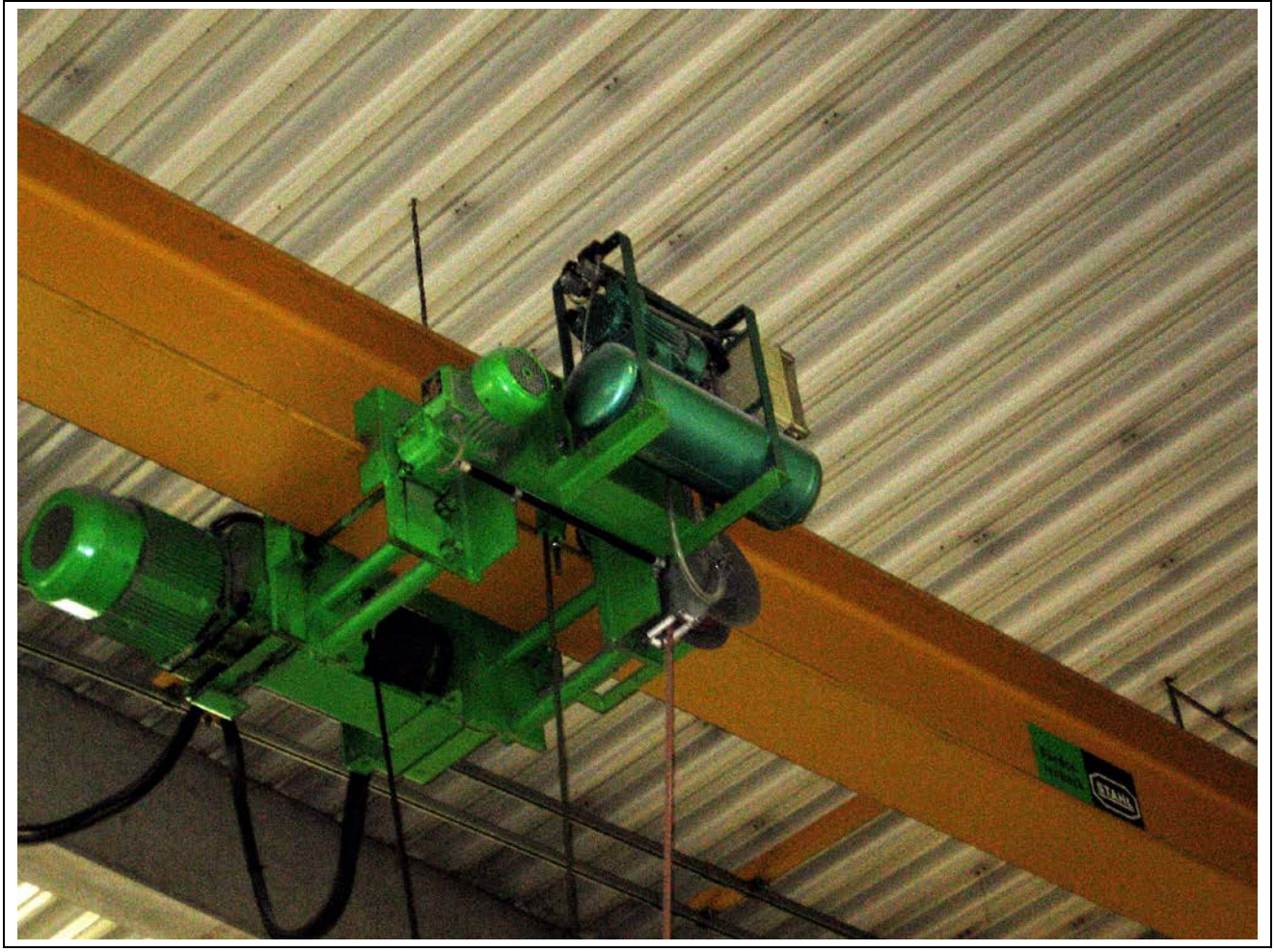
Vacuum pump and hose reel in the crane line

What makes this type of installation so dangerous?

The first vacuum lifting devices for the glass store, back in 1960, comprised this threesome: vacuum pump, hose reel and suspension gear.

From the suspension gear, the vacuum pump and the hose reel were installed in the crane line.



Address: Haendelweg 5 23556 Luebeck Germany
Phone: +49 451 47008-0
Fax: +49 451 47008-37
E-mail: info@pannkoke.de
Internet: www.pannkoke.com

How is a hose reel tested?

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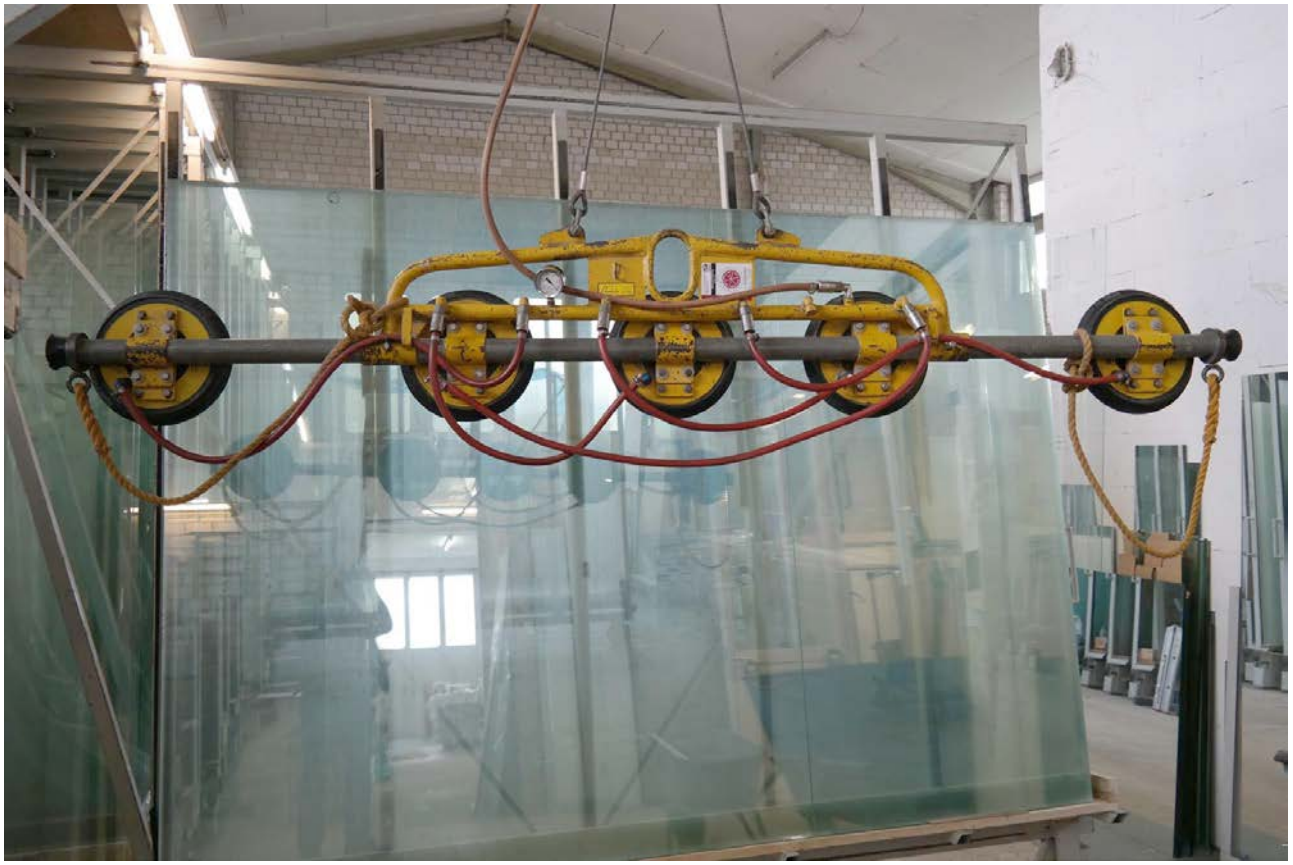

Back in the day, this was an optimum solution. Today however, and perhaps regrettably, this no longer meets the safety requirements of EU standard EN 13155. There is too much scope for a serious accident and, again regrettably, accidents of this severity have been known to happen.

The great weakness of this solution is the way the shaft and its gasket seals is inserted in the hose reel. All too frequently, leakage in this area is not discovered until it is too late. Leaks here can be big enough to prevent the vacuum pump from equalising losses altogether.

Anyone installing a solution of this kind should arrange to have the hose reel inspected at least once every six months, and should replace it immediately if the slightest trace of leakage is detected, because your safety is at stake here.

In the past, accidents, some of them very serious, have been known where the glass pane suddenly broke free of its suction cups. In cases like this, the glass pane has being transported at the height of the point of leakage, and the loss of vacuum was not detected because it occurred slowly and very progressively.

In the next section, we would like to introduce an appropriate test procedure to you that should help you to assess device safety and to initiate remedial action before it is too late. To this end, we can provide you with a test kit for the hose reel.

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How is leakage tested?

Connect our test kit or a long hose (at least 4 m) with a vacuum meter to one end of the supply line to your suspension gear. Then you quite simply and slowly reel and unreel the hose from the hose reel and monitor the vacuum down on the inspection vacuum meter.

- Connect up a hose at least 4 metres in length and a vacuum meter to the end of the hose from the hose reel.
- Switch the vacuum pump on. Almost immediately, the vacuum on our vacuum pumps should rise rapidly to -0.8 bar when the SUCTION setting is chosen.
- Release the hose from the hose reel on the suspension gear so that the hose can be reeled and unreeled.
- Monitor the vacuum meter while you slowly let the hose be reeled in by the hose reel. The needle on the inspection vacuum meter should not move. The important thing is that the hose should be reeled in very, very slowly because leakage can occur on a very short section, and then disappear again.
- Once you have tested the entire 4 metre length of hose, and if you have not detected any leakage, you should then switch off the vacuum pump. The vacuum should now still be present in the system.
- Now, very slowly pull the hose down again and monitor the inspection vacuum meter. Once again, the needle should not move.
- If this is completed successfully, the system is not suffering any leakage.

Then you should check the vacuum warning signal. First check this while the vacuum pump is switched on.

- A breather valve is attached to our test kit. Slowly open this valve until the pointer leaves the green range of the inspection vacuum meter. This vacuum level should read about -0.55 bar.
- Now a warning signal should be clearly visible or audible. If that is the case, the test has been passed successfully.

This signal should also function in the event of a power failure, as stipulated by EU standard EN 13155.

- For this, shut down the power supply to the crane line, equivalent to the action of a power failure.
- At this point, you should still be able to see or hear a warning signal. If that is the case, vacuum production satisfies the requirements of EU standard EN 13155 and may continue to be used.

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.

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