

## The Importance of Vacuum on IS Machines

The correct installation of the vacuum system allows much higher productivity



An impressive new hollow glass factory was supplied with UV16 Vacuum Pumps. The Yantai Changyu Glass facility in the Shandong Province is of medium size, extremely accurate in company choices, seen for the ordered set up, the cleanness indoor and the care for machine selection. The improvement on the IS machines could be clearly measured: running vacuum on a 8 section DG line for 750 ml wine bottles results in the increased IS machine speed by 10% and the reduced bottle weight by another 10%.

Higher IS machine speed means producing more bottles using the same equipment and the same amount of human resources. Obviously, the glass quantity supply from the furnace to the IS machine will increase, as well as the amount of bottles produced daily. Higher productivity by 10% is an important result, it uses the potential of the IS machine, which is frequently underestimated. In this case, the machine speed, which was initially 128 bottles/min was increased to 144 bottles/min. In other words the IS machine efficiency was improved from 88% to 92%. The customer was satisfied with this result alone. His strict observation of recommendations by the various suppliers finally paid off. The vacuum system was designed by Pneumofore with calculation of correct pipe diameters to avoid capacity and vacuum level losses. When the vacuum pumps were commissioned in January 2011 by our engineer, supported by the local distributor, another relevant result appeared immediately. The hollow glass containers with weight of 450 g were measured again: their weight was reduced to 405 g. Like this, the higher amount of glass required by the increased moulding speed of the IS machines was 'compensated' by the minor glass quantity need for each glass bottle.

These two notable changes caused by the use of vacuum on the IS machines modify sensibly the administrative calculations. The unit 'glass factory' can produce more bottles and use less glass for the single bottle, by the simple choice of the right vacuum system supplier. As a consequence, the total amortization time for the initial investment was shorter. Vacuum pumps alone are not sufficient, their size and installation, their electrical and pipe connections have to be engineered as well. Here is where Pneumofore has its strength, we have 90 years of continuous experience on this technology. Most IS machines are set up for vacuum supply, but many do not recognize its importance or neglect it completely. Others install non-adequate pumps which fail very soon or cause immense repair costs. The wrong choice of vacuum pumps can also multiply the cost of electrical power consumption by factor 2 or 3. Liquid ring pumps are practically excluded by any factory which considers the Total Ownership Cost or Life Cycle Cost of 24/7 running industrial machinery. Fortunately, water cooling is rare to find due to the present and growing environmental awareness, also in China.



Following the first successful experience with 3 Vacuum Pumps mod. UV16 ordered in May 2010, Yantai Changyu Glass invested in 3 further machines of the same size in May 2012. The service operations made regularly and the use of original Pneumofore spare parts allow these vacuum systems to run smooth and trouble-free, also for the decades to come, as they are designed to run 12+ years according to the lifespan of the glass furnace. Later, the simple overhauling will make the Pneumofore UV pumps run for additional decades.

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