

## The Multimaster Control optimizes the operation of several large vacuum pumps



The systematic replacement of water cooled pumps with Pneumofore UV50 units at HNG involved in 2012 the Naidupeta and Nashik plants, where a new logic was installed, combined with a Variable Speed drive and an Ethernet card for each vacuum pump.

When top quality IS machines are installed, which has been the choice of Hindustan National Glass, then Pneumofore is involved to guarantee the vacuum required for high speed and precise molding of hollow glass containers. Based on past collaboration experiences, we managed to deliver, install and commission the pumps without any trouble. Important engineering work with lay-out drawings and pipeline system calculations by Pneumofore anticipated the delivery of the pumps, so that the customer was ready and could easily position and connect the UV50 vacuum pumps.

The commissioning of these vacuum systems consisting of 6 x UV50 VS90 HC S each for Naidupeta and Nashik ran smooth, the major issue was the leak detection in the piping system. Operators were instructed how to operate and maintain the machines in the pumps room. Regarding service operations, HNG is independent from Pneumofore and also did not face severe machine problems, since the maintenance is performed regularly and with original spare parts in all their plants.



Every thermodynamic machine has a specific, highest efficiency point, which is also the optimal 'working status' of the machine. The aim of the Multimaster control is to keep as many pumps as possible in this state, with one only machine using the Variable Speed (VS) drive to cover fluctuations of vacuum capacity. Thus, there is always just one pump running off the highest efficiency point, using the Variable Speed. All pumps happen to be the Master, as they follow together a simple logic of sequence, so that finally all machines have the same load and working hours.

The application of rough industrial vacuum in hollow glass works is tricky and counts very few experienced vacuum pumps manufacturers. First is the relevance of vacuum to keep the glass molding process at its full potential with the minimal rejection rate. The special filters protecting the pumps from the lubrication graphite coming from the molds at the IS machines are installed nearby the pumps and require regular checks as well. The piping is designed to avoid any pressure or capacity losses.

Pneumofore thanks HNG for the attention given to the correct installation and operation of the vacuum pumps. Each system has the maximal capacity of about 20.000 m<sup>3</sup>/h with 540 kW nominal installed power. With the new Multimaster control for the 6 x UV50 vacuum pumps, it does not matter if one or all six IS lines of the glass factory are running, the power consumption is kept at the minimal value under all production circumstances. One stand-by unit is also included and it occurs to all pumps to stand still and to be available for the ordinary maintenance while production is working.

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