



# Raising productivity with VPS

Installing a new VPS, a pharma company largely reduces batch completion time

Source: Everest

The Vacuum Pumping System (VPS) manufactured by Everest has vastly improved operational efficiency in a pharmaceutical company in India.



As a replacement of the existing steam jet ejector at M/s XYZ Pharma Ltd. (name changed to keep the user's identity secret), Everest Blower Systems has recently installed a Vacuum Pumping System (VPS), which was manufactured in their (Everest's) factory. Here is an exhaustive case study based on the step by step commissioning report and onsite experience.

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On June 21 this year, the Everest team reached the site of XYZ Pharma, and the material was unpacked and shifted to the exact location of installation. After a meeting with the plant AGM and Senior. Manager (Utilities), a team of (XYZ) engineers was assigned to Everest for the commissioning of the Vacuum Pumping System (VPS). Thereafter, the manufacturer gave the necessary guidelines to the engineers of XYZ Pharma regarding construction of the pipelines and other required extension of power supply facilities.

On the next day, the pipelines were found ready, but some other changes were suggested. The work started again immediately with the cooperation of the maintenance team from XYZ, in presence of all officials from Everest's end as well as XYZ's side.

Although the vacuum pump was connected on the third day – that was not started, because Everest team had to check the parameters of the existing setup in the reactor, which was having a water ring pump of 20 HP connected with two steam jet ejectors and a post Everest mechanical vacuum booster of 7.5 HP motor.

XYZ's production department staff found through observation that – Everest VPS was giving higher vacuum of the order 710-720 mm of Hg, thus reducing distillation temperature to 20-25°C – compared to the vacuum of 670 mm of Hg achieved by XYZ's existing steam jet ejector and the product distillation at a temperature of 38.2°C.

On the fourth day, the Everest VPS was connected to the reactor having 5 KL capacity. A vacuum drop was found to be there in the reactor, for which the batch was stopped to check the pipelines for leakages.

Leakages were found after checking the pipelines @ 0.8 Kg/cm<sup>2</sup> air pressure, and those were rectified. The leakage test had to be performed @ 2 kg/cm<sup>2</sup> pressure to get the exact leakage in the plant and setup.

The batch process was started again, and the vacuum was seen to be 710-720 mm of Hg in the dial gauge over the reactor – for which the batch completion time was seen to be 36 hrs. 30 minutes – against 42 hours offered by the existing XYZ's set up.

STATUS OF BATCH INSTALLATION		
Parameters/Systems	Steam jet system in XYZ	Everest Supervac 1200
Vacuum range	660- 680 mm of Hg	700- 720 mm of Hg
Batch completion time	42 Hours	36.5 Hours
Distillation volume	3000 Litres	3365 Litres

Thus, a reduction of five hours and 30 minutes was observed by the production people of XYZ Pharma with the help of Everest vacuum pumping system.

After successful installation of the VPS and showing its obvious benefits to XYZ, Everest took some opinions from the XYZ Pharma's production department team members on the fifth day. They all said that the new system was found to be good and the distillation rate also highly improved to yield better quality of product.

On the sixth day, XYZ Pharma's purchase manager had come to the plant to check the newly installed system, and ran discussions with their maintenance, electrical and production departments. As per his suggestion for improvement, immediately some more rectifications were carried out, and that led to even

better performance of the VPS. From the seventh to tenth day, the Everest team continuously monitored the VPS's performance. Essential parameters – such as current, power consumption and yield, as noted by the XYZ's production department, were found to be steady and satisfactory.

One, among the XYZ's production department team, said, "The system is running well and is easy to handle with no use of steam – as earlier due to that sometimes we had to stop the batch and then restart the process for attaining the desired level of vacuum."

Another technical staff member from the same department commented, "The system is showing satisfactory results by increasing the distillate volume as well as improving the quality of the product. We will look further for this kind of systems soon. The running of the pump is very easy and helpful to the production people."

Electrical department's comment was, "The control panel supplied by Everest is very good, compact and automated, the main differentia-

tor constitutes the VFDs (Variable Frequency Drives) installed – which will be helpful in reducing the power to 40 per cent. As to the connected load, the operation and connections are easy and user friendly."

One staff member from the maintenance department said, "The systems design is good and easy to understand and maintain, oil requirement is very less, no steam consumption, very easy to maintain."

His colleague commented, "The system connected is very good in performance and also very user-friendly, as such there is no maintenance required at the regular intervals as was seen in the previous system for cleaning the nozzles of the ejectors for not getting proper amount of flow of steam, this is a very good and automated system."