



After the polymerization process, the polyester chips require the drying to remove all water moisture content. The installation of the new vacuum system with one UV8 allowed vast results: the drying cycle time was reduced from 32 to 10 hours and the utility cost was cut by 50%. Our Indian customer improved from 240 to 720 batches per year: huge savings since installation in 2007.

The polyester chips with size 2 - 4 mm result from the polymerization and need to have moisture content below 0,06% to be appropriate for good quality yarn weaving. Furthermore the chips should be white and transparent. These specifications were the challenge for our partner in India Toshniwal Brothers, who designed and installed the ultimate solution to meet the process requirements with impressive success. With a volume of 16 m³ and the initial moisture content of 12% by 80 °C temperature, 4 tons of polyester chips are dried with a certain speed.

The existing system consisted of three German pumps, two roots and one rotary piston pump with total nominal power of 19 kW and a condenser: the drying cycle lasted 32 hours and presented several problems. The final product used to have a higher production price due to excessive operational costs caused by the unstable operating pressure with oil contamination during the process. In addition, an unpleasant noise level and the undersized receiver volume, which made condense water enter the vacuum pumps, worsened the situation.

The present vacuum system, as shown in picture right, consists of one Pneumofore vacuum pump mod. UV8 combined with two root pumps and a new condenser, total 20,7 kW. This modified system runs trouble free since two years and the reduction of batch time from 32 to 10 hours allows to produce 720 batches per year with a production of 2.880 tons of polyester chips, compared to the previous system with only 240 batches (each of 4 tons) of lower quality due to less transparency of the chips. Another huge improvement was the reduction of the oil consumption from 12.900 Euro/year to 500 Euro/year. All the oil consumed by the vacuum system is emitted at the exhaust of the pumps, thus contaminating the environment, potentially also the final product, the chips. Besides minor operational costs, the 1:25 reduction of oil consumption allows the better chip appearance in terms of transparency and coloring. The savings in oil consumption alone are of 11.400 Euro/year, while the power need remained about the same.



UV8 with 2 roots: 3-Stage Drying Vacuum System

The installation of this dedicated, engineered and up-to-date vacuum system by the experienced and skilled Toshniwal Brothers company in India shows extraordinary improvements with tripled productivity and with better chips quality. No oil moisture in the air and the drastic reduction of expenses further support the very short and attractive Return of Investment period, measured in few months only. The success of this engineering project is based on the UV pump ability to suck water vapor in large quantities, as no other rotary machine can handle as easy and efficient. Furthermore, the continuous 24/7 chips drying process requires sturdy and reliable equipment, which corresponds to the design criteria of Pneumofore UV pumps.

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