

The technology of the REVEN devices helped to reduce the annual power consumption by more than 70 %.

Among other products, Voith Paper Rolls manufactures suction rolls for paper making at its production site in St. Pölten. The shell of each of these roll is fitted with up to 900,000 drill holes according to a particular pattern. VPR uses two automatic deep drilling machine tools for this task that process roll shells up to a length of 15 metres and a width of 2,200 mm. Up to 176 spindles drill simultaneously holes into the suction rolls. The tools are cooled with high-performance cooling lubricant under a pressure of 80 bars.

It goes without saying that high amounts of smoke and mist are generated in such a specific machining process which must be separated from the exhaust air in an environmentally friendly manner for reasons of workplace health and because of economic aspects. The oil filtered out during separation should be returned into the cooling lubricant circuit. To ensure these requirements, the automatic deep drilling machine tool TIBO 2 was initially equipped with all in all 13 oil mist separators having a nominal capacity of 3,000 m³/h. The separation performance, maintenance friendliness and energy consumption of these devices could however not satisfy the requirements of VPR.

Energy-saving of more than 70 %

In the year 2008, the engineer and managing director of Voith Paper Rolls, Thomas Hack searched for an alternative. After comprehensive testing of several test installations from different manufacturers, he found the appropriate solution offered by the Swabian manufacturer of ventilation equipment Rentschler REVEN Lüftungssysteme and its Austrian representation TTS Fertigungstechnologien GmbH. Gerald Marx, specialist for REVEN equipment at TTS and the engineer and sales manager for tools and accessories, Michael Neuhaus took up the demanding challenge and replaced the 13 initial devices of another make by six electrostatic oil mist separators type REVEN UCE 2500T.

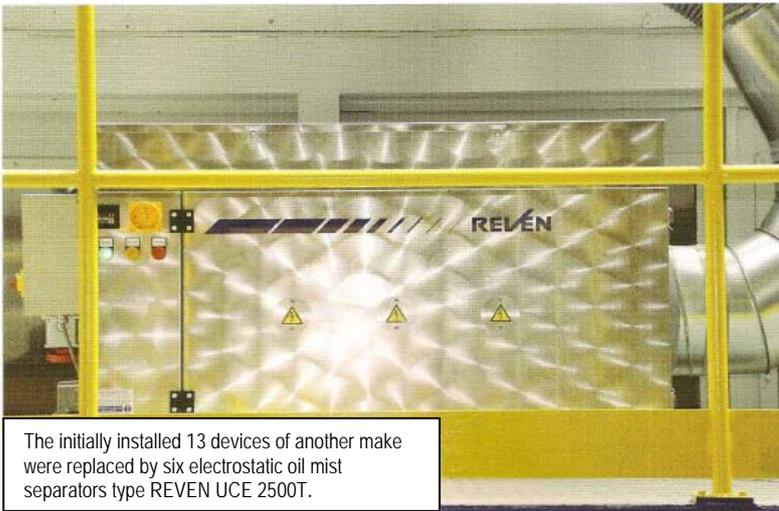
The reduction of the number of devices and the fact that these devices make REVEN consumed far less power than the previous equipment while delivering the same extraction performance and an improved separation helped to reduce the annual power consumption in three-shift operation by more than 70 %.

Extremely high separating efficiency

Electrostatic oil mist separators are based on a simple physical principle of electricity. The ionization wires on the collector convert the particles in the exhaust air flow into positively charged ions that are attracted subsequently by collector plates with a negative charge. Particles having a negative charge are attracted by collector plates with a positive charge inside the collector.

Oil mist separation cuts operating costs

The company Voith Paper Rolls (VPR) based in the Austrian town of St. Pölten uses two automatic deep drilling machine tools to apply special drill holes to suction rolls. A high amount of oil mist and smoke is generated during this machining process. The task was to separate these mists and smokes from the air in an environmentally friendly manner, filter out the oil and return it into the cooling lubricant circuit. The company succeeded in finding a specialist for this task, namely TTS Fertigungstechnologien GmbH, that provided the optimal solution using oil mist separators by REVEN.



The initially installed 13 devices of another make were replaced by six electrostatic oil mist separators type REVEN UCE 2500T.

The electrostatic oil mist separators make REVEN are fitted with stainless steel enclosures with integrated high-performance fans that accommodate the two-stage mechanical pre-filter system and a three-stage electrostatic filter unit. The mechanical pre-filter system consists of an agglomerator for the collection and a patented X-Cyclone filter for the separation of the larger particles from the exhaust air flow. The electrostatic filter unit ensures the separation of particles that are smaller than three microns from the exhaust air. Gerald Marx points out that the system offers an extremely high separating efficiency even though it dispenses with any type of throwaway filters such as HEPA, Teflon or paper filters and therefore, helps to reduce environmental pollution.

The fact that no costs arise for the the acquisition and disposal of fine filter elements is one of the main reasons why the operation of the REVEN separating equipment is so economical. In addition, the REVEN Ultra Cleaner electrostatic collectors are fitted with an intelligent high-voltage device including a maintenance indication and a short-circuit monitoring system. These protective features prevent damage to the electrostatic collectors. And Gerald Marx adds that the ozone generation of the REVEN equipment is relatively low due to the reduction of high-voltage to max. 7 kV and remains below the statutory workplace limit of 0.3 mg/m³ like any other REVEN device based on the electrostatic principle.

"All these facts have convinced us that the investment into new filter systems is the best way to reduce the high maintenance and spare part costs of the previous equipment from an economic point of view. Thomas Hackl is very satisfied because TTS is also in charge of the regular maintenance and cleaning of the new REVEN separating equipment thus allowing his company to keep the annual costs at a fixed rate.

TTS Fertigungstechnologien GmbH

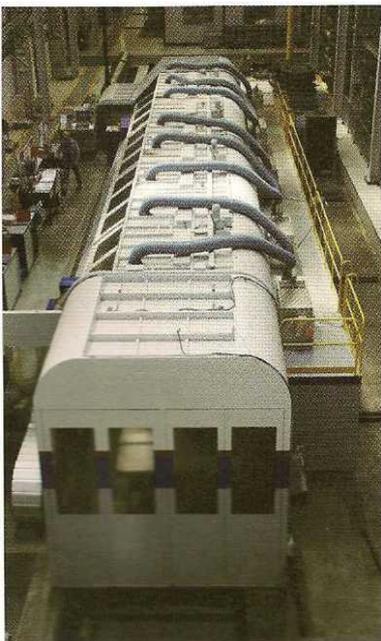
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User profile

Voith Paper St. Pölten is an international centre of competence for cardboard and packaging paper production that is active in the sectors research, product development, construction, distribution, marketing and controlling in this domain. The company's production site for paper-making rolls is also located at St. Pölten. The biggest part of the rolls that Voith Paper uses in its paper-making machines all over the world is manufactured there.

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On the left: The company Voith Paper Rolls based in the Austrian town of St. Pölten uses two automatic deep drilling machine tools to apply special drill holes to suction rolls.

On the right: The engineers Thomas Hackl, Voith Paper Rolls (on the left) and Michael Neuhaus, TTS Fertigungstechnologien (on the right) in front of a suction roll