



User report of the company
HOFFMANN Maschinen- und Apparatebau GmbH

Suction belt filter replaces centrifuge

As part of the transmission production by a European car manufacturer, two grinding machines that have been in use for more than 10 years are utilised for e.g. machining gearwheels made of steel. Centrifuges had hitherto been used to filter the grinding oil.

Each grinding machine was assigned one centrifuge. Frequent failure and high maintenance efforts caused grinding machine downtime. However, since the machine tools were supposed to be operated for many more years, a solution was sought. **HOFFMANN** Maschinen- und Apparatebau was able to help and designed a filter system for the supply of two grinding machines, the suction belt filter with integrated cooling.

With a filter surface area of 1.5m² and a filtration capacity of up to 300 l/min, the suction belt filter operates in the main flow shunt and filters more cooling lubricant than is required in order to supply the grinding machine. This guarantees a permanent availability regardless of the operating state of the grinding machine. The portion filtered in the shunt makes for a continuous, additional maintenance of the cooling lubricant.

The consumable-free plastic endless belt in the suction belt filter simultaneously fulfills three functions (Figure 1): The filtration takes place in the lower part of the belt. The filter belt then conveys the chips into the upper part, where the drying takes place by means of a vacuum pump. The drying reduces the weight, which significantly reduces the disposal costs of the chips and the procurement costs for new oil. "The result of the filtration is excellent, the filter cake had a significantly higher oil content with the old system," said the customer.

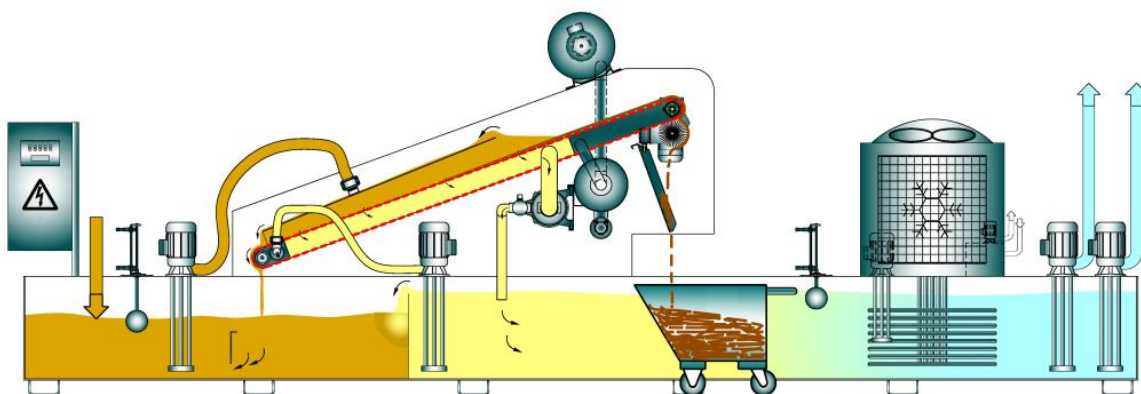


Figure 1: Representation of suction belt filter HSF 150 with immersion cooler

Users know that temperature stability plays a key role in manufacturing accuracies in the micrometre range: "Constant temperatures improve the quality of the product while also increasing the service life of the machine." An immersion cooler from in-house manufacturing completes the overall **HOFFMANN** system. The control of the cooler which is integrated in the control of the filter system ensures ease of use. Designed for ambient temperatures



of up to +40°C, the **HOFFMANN** immersion cooler achieves a control accuracy of $\pm 1^\circ\text{C}$. Its space-saving position is on top of the cooling lubricant tank, and it is immersed in the liquid to be cooled and filtered. As needed, several different circuits can be supplied. For example, the machine tool spindle can be lubricated and tempered independently of the main flow.

A very good result from filtration and recooling, low operating costs and the permanent availability with low maintenance costs convince users and speak for the suction belt filter from **HOFFMANN**.



Figure 2: **HOFFMANN** suction belt filter in the customer's plant



Figure 3: The result is convincing: Dry filter cake