Maximum profit for your paper machine

Achim Kneifel, Sales Engineer For Pulp And Paper Industry, Wefapress

INTRODUCTION:

Founded in 1895 and with nearly 130 years of company history, Wefapress is a reliable partner to the pulp and paper industry when it comes to highly wear resistant spare parts from engineering plastics.

In times of high inflation and energy costs it is most important to optimize the paper and board machine performance in order to get the most value out of it. Wefapress Beck + Co. GmbH supports paper mills all around the world with customized spare part solutions which

- improve the paper quality
- increase machine uptime
- reduce the energy consumption
- reduce maintenance effort
- create cost savings and quick ROI

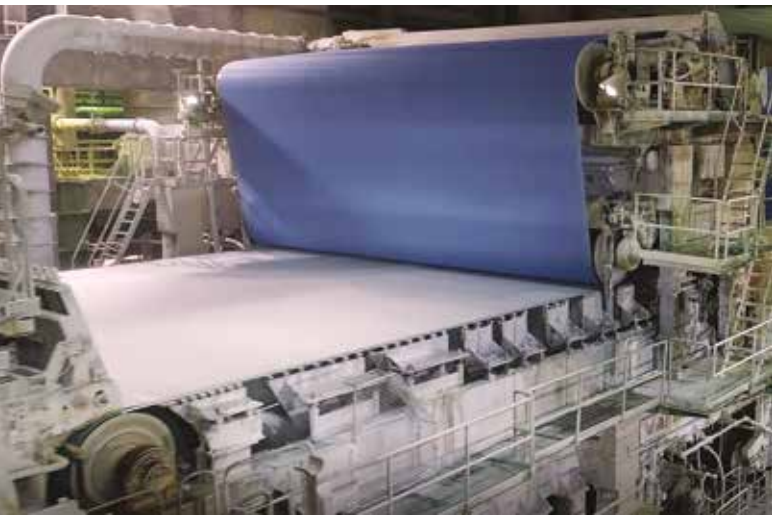

Figure 1: Forming section of a paper machine.

Tailer made dewatering elements improve paper sheet formation, paper strength and drainage

Whether the need is for high chemical, temperature or wear resistant materials, the wide range of modified UHMW-PE material grades from Wefapress has the right solution for each application. Pulp mills benefit from the St9000MOS2 material as the included lubrication additive reduces friction and wear while it also resist perfect to agressive bleaching chemicals and high process temperatures. Like this, the mills profit next to reduced drive power also from long life time and less maintenance effort.

When paper mills speed up the machines Wefapress has the solution to close the gap between standard PE material and dewatering elements in costly ceramic material. CeramX is a hybrid material which combines the advantages of highly wear resistant ceramic with the advantages of UHMW-PE like:

Figure 2: Options for different perforations in suction box covers.

- low cost
- flexible material which is easy to handle
- lowest coefficient of friction
- up to 3 times longer life time compared with standard PE
- highest felxibility in profile shape and type of perforation
- possible local regrinding
- short delivery times
- no risk of cracks or sharp edges which might damage the paper machine clothing

Figure 3: Suction box cover in highly wear resistant CeramX material.

Figure 4: Hydrofoil for usage in paper machine forming section

CeramX material get used in forming sections up to 1200 m/min and as uhle box cover in press sections up to 2000 m/min, it cost just ~ 10 % of elements in aluminium oxide ceramic, other ceramic grades are even more expensive. When changing the design of existing dewatering elements it is always usefull to try the new design first in CeramX material before investing in new ceramic parts. Also as spare part for drainage elements in brittle ceramic the CeramX material is predestinated as the fixed capital in the storage get reduced by 90 % and can get used for other projects.

Many production manager and process engineers report that old ceramic elements have sometimes round front tips which create a remoistening instead of drainage and worn foils without foil angele can't create microturbulences but when there is no budget for new ceramic or a ceramic grinding, the production is forced to produce with existing elements. CeramX foils are the perfect solution as the wear resistant material keeps longer the foil angle on the surface and a frequent change of the dewatering elements gives always a fresh front tip and foil angle on the surface which is important for even dewatering and good sheet formation.

The better sheet formation results in:

- better and even dewatering about the complete machine width
- higher paper strength what could reduce starch consumption
- less needed vacuum what reduces fiber loss and increase paper volume as well as stiffness
- lower energy consumption for dewatering what saves cost

Suction roll sealing strips in flexible rubber graphite for easy handling and lowest friction.

An essential and very critical position in paper and board machines are the sucton rolls, they are important for dewatering, direction changes of the sheet or for picking the sheet from wire section to press section. In most paper machines it is impossible to transfer the paper sheet into press section without a stable vacuum on the pick up roll. To guarantee this stable vacuum Wefapress has developed suction roll sealing strips in FlexGuard, which is a rubber graphite material. The high graphite content ensures excellent sliding properties and self lubrication in case of a water lubrication fail, while the rubber content keeps the sealings flexible and assures easy handling.

Figure 6: FlexGuard suction roll sealing strip.

The material adjust itself very good to the roll shell profile and ensures a quick function directly after installation. Like this it is possible to work with very low air loading tube pressure of 0,3 Bar or less. The low pressure allows for the lubrication water to get on top of the sealing strip and to seal the gap in between sealing and roll shell. By this, the water seals the vacuum without any wear of the sealing stip. In addition the low pressure and friction ensures also reduced drive power consumption, as well as increased sealing strip life time.

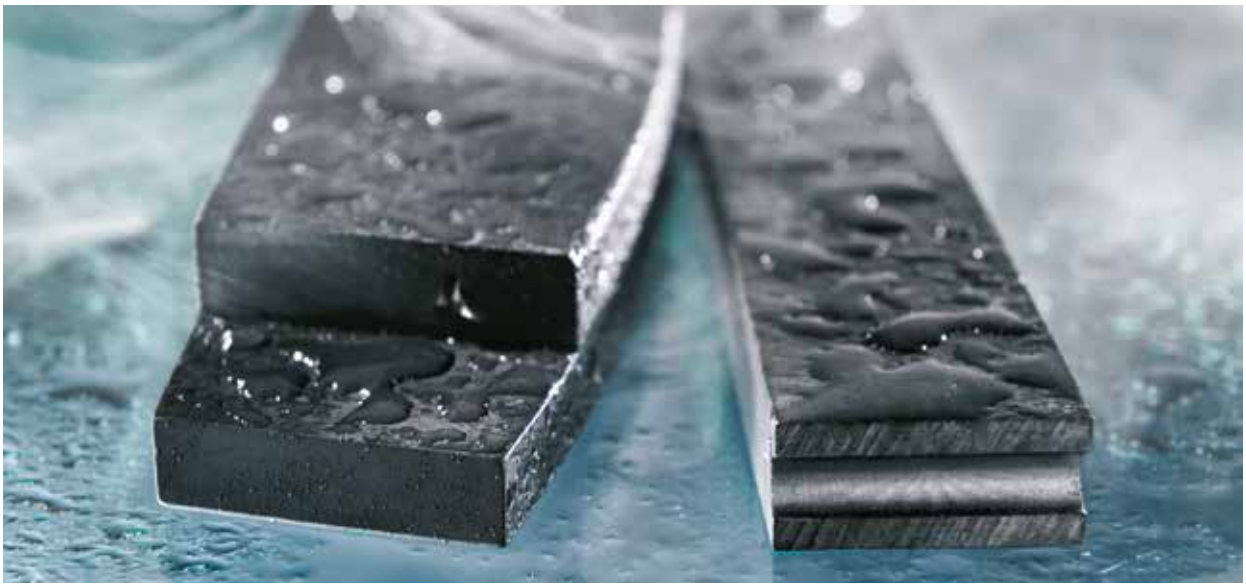

Figure 5: FlexGuard end sealing.

Also the biggest paper machines with nearly 12 meter long sealing strips are running successfully with FlexGuard and benefit from it's advanced material properties.

Pinions and gear wheel segments for drying cylinder drives reduce cost, noise and downtime

For many years gear wheel drives where used for paper and board machines with wheels in casted iron but increased machine speeds caused vibration and noise. Gear wheels in casted iron could get damaged in case any object gets in between two gear wheels and to change a complete gear wheel was a huge effort for the maintenance team, extremly expensive and caused several hours machine downtime.

Figure 8: Gear wheel segments in Nylatec360 mounted on metal rim.

Figure 7: Drive pinions in Nylatec360.

Wefapress has developed the hydrolyse resistant Nylatec360 material for the tough application inside the drying hood. It is resilient to the high temperature, moisture and absorbs also demanding mechanical forces after many years of application. Nylatec360 cause running smoothness without vibration and noise, there is no lubrication grease needed what result in a clean drive side of the paper and board machines. Another huge advantage is the easy change of the gear wheel segments while the metal rim can stay installed. This means the machine downtime get reduced from several hours to just a few minutes.

The competent paper technology experts from Wefapress analyse each customer situation and provide individual solutions for each application. Service technicians support paper mills also worldwide during regular maintenance work to ensure long-term success.

Figure 9: Wefapress technician at customer mill site service.

Author: Achim Kneifel
Sales Engineer For Pulp And Paper Industry
kneifel@wefapress.com
+49170-2043821