

SpeedSizer film press with Luna roll covers provides a constant film coating process.

LunaFilm and SolarCoat: The new applicator roll covers

The key to successful film coating

The film coating application is a complex process in which many different parameters have to be considered. Applicator roll covers have to be able to run reliably and consistently for long periods of time and have to enable cost effective production of high quality end products. To fulfill these demands, Voith Paper Rolls has developed two new applicator roll cover families: LunaFilm and SolarCoat.

The paper industry employs film presses for the production of coated and sized paper in a broad speed range. The record-breaking production rates for packaging paper of 1,500 m/min and for coated paper of 1,700 m/min make high demands on the roll covers. The applicator roll covers have a strong and decisive effect on paper machine efficiency and paper quality.

Film application process

The film application process depends upon various factors. The rod pre-meters the amount of film applied on the roll cover. Hydrodynamic conditions under the rod, machine speed, rod diameter, rod pressure, rod grooves, coating color solids as well as the wettability of the cover, cover hardness and cover roughness all affect the amount of film. The surface of the roll cover has to be designed

to enable the formation of a homogeneous film which is transported to the paper in the nip. The film transfer depends on various factors, including: film coating composition, absorption behavior of the paper, dwell time in the nip and nip pressure.

To achieve an even coating color distribution and ideal runnability of the film press, the nip width should be uniform across the whole roll face. For coating applications, the nip pressure has to be lower to minimize the penetration of the film coating color into the paper. In contrast, a higher nip load is required for starch penetration.

Which roll cover is the right one?

Due to the various demands of a paper machine, it is evident that only a broad product range with different

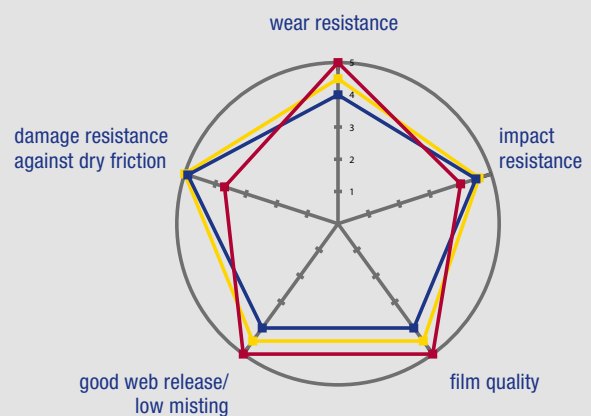
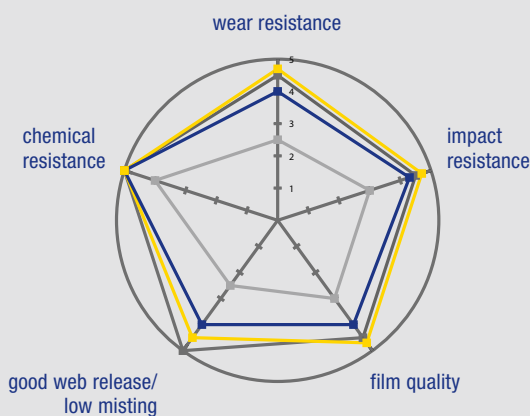
features can provide the correct selection for the roll cover.

LunaFilm

LunaFilm combines a new rubber material with high quality fillers and fibers. Thus, the durability is increased, the abrasion reduced and the roll cover surface optimized for the particular case of operation. LunaFilm is available in three different versions:

LunaFilm S is the basic product of the new fiber reinforced Luna rubber cover series, which provides additional impact/mark resistance against paper wads and wraps.

LunaFilm E is highlighted by enhanced abrasion resistance. The typical roughness value (Ra) is 1-1.5 µm. Uniform film quality and stable web run are maintained over long running periods.



Conventional cover LunaFilm S LunaFilm E LunaFilm R SolarCoat

Film sizing properties of LunaFilm.

Film coating properties of LunaFilm and SolarCoat.

LunaFilm R provides the highest roughness. The higher initial roughness (typical Ra = 1.5-3 µm) is retained throughout cover life cycle. It is utilized when additional coating distribution/transportation onto the roll surface is required, and/or additional control of web release is needed.

SolarCoat

SolarCoat is a polyurethane cover which is specifically designed for the film coating process. The excellent wettability of SolarCoat provides best coating film formation and splitting characteristics. Misting is minimized at very high coat weights and high machine speed. The high hydrolysis resistance maximizes hardness stability. The resulting uniform nip conditions as well as stable web release ensure a trouble-free operation during the film coating process.

Infobox: Benefits of LunaFilm and SolarCoat

- Consistent film quality without rod splitting due to optimized dynamic properties and surface conditions
- Minimized process variations due to thermal and mechanical stability during the run cycle
- Customized dynamic properties at the roll nip enabling the desired transfer of starch/coating into the substrate
- Optimized sheet release, consistent sheet run and reduced misting due to customized cover surface and roughness
- Longer runtime and less unscheduled downtime due to improved mechanical stability and abrasion resistance

Contact



Max Albrecht
Rolls
max.albrecht@voith.com



Sergio Giuste
Rolls
sergio.giuste@voith.com



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