# Keeping air out of film

## KAMPF presents an optimised winder for the film production process, which is reported to eliminate air inclusion

**KAMPF's new Imperial winder**

Besides displaying their comprehensive machine programme for converting applications, Kampf Schneid- und Wickeltechnik from Wiehl in Germany used ICE Europe 2015 to show line optimisations for film producers. The new Imperial Non Stop turret winder, in particular, has raised some eyebrows.

"The film processing industry demands increasing annual throughputs, larger web diameters, thinner films and longer machine runs," underlines Markus Vollmer, sales director at KAMPF. "In order to fulfil these complex requirements, winders have to deliver a higher performance in the production chain and offer higher web speeds, larger rewinding diameters and material widths. One should also not forget about the increasing demands in control technologies as well as the operation and maintenance of the machines."

### Cycle times cut in half

The Imperial winder is responsible for the first winding of the film directly behind the biaxial film stretching line. The non-stop operation is realised by means of turning discs with two opposite winding points, which are equipped with steel cores. When the winding reaches the desired diameter, the film is automatically cut and the roll pivoted into the unloading position.

The unloading is conducted by an integrated handling system, which cuts the cycle times in half simply by parallelisation of some changeover processes. During the roll unloading, the empty steel core is put into the winding position, while the starting point of the material is docked and the winding continues.

All of this happens at full working speed, which may reach up to 700m/min with the new Imperial winder. The machine has been designed for working widths of up to 11m and single roll weights of up to 25t at winding diameters of up to 1650mm.

### Keep the 'enemy' outside

The contact roller system of the Imperial is now designed for higher speeds and larger working widths of up to 11m and capable of reducing possible wrinkling of the final product over the entire web – or even eliminating these factors entirely. The construction of the system allows the creation of the pressure that is necessary for higher speeds by means of targeted adjustment of the roller. In this way air inclusions can be prevented effectively. "In our opinion air is one of the biggest enemies of the winding process," explains Vollmer. "Air inclusions would lead to quality-lowering effects and vibrations. This is why we apply a stable and secure process control here." The developers at KAMPF have accepted this challenge with a completely new solution that has been realised for the very first time.

This, modern sensor technique, which is combined with so-called smart materials, allows a reaction time to disturbing effects of a few milliseconds. The new smart condition control can conduct in real time a quick, fully electric change of the damping properties of the used intelligent medium.

The usage of ERF smart materials – these are electro-rheological liquids that fulfil sensoric tasks – in combination with modern control technology offers optimal conditions for the present application. Compared to the 90 Imperial winders that have been delivered in the last 10 years, the new model also shows a striking optical before/after effect: The new machine design does not only appear more modern but is also said to improve operation and maintenance. ■