

LAY-ON ROLLER AS ACTIVE SYSTEM

WRINKLE-FREE AND PRECISE WINDING

CONTROL OF THE WINDING PROCESS, MINIMIZING WASTE

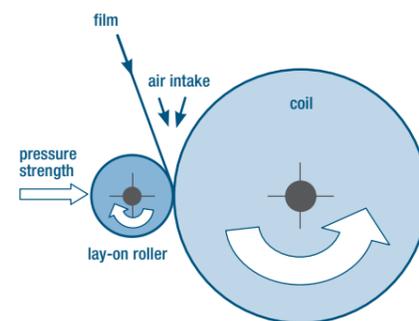
LAY-ON ROLLERS: MINIMUM DEFLECTION CREATES UNIFORMITY

Every engineer is aware of the significant importance that efficient winding technologies have when it comes to the speed of production. The requirements for the film reel design are tremendous, especially at very high machine speeds: Because every irregularity of the cylindricity, winding hardness or edge shape should absolutely be avoided. Such errors are usually caused by air which becomes trapped between the material layers of the mill roll. As a specialist for lay-on, web guide and sensor rollers, we are well aware of the requirements and offer the respective solution options.

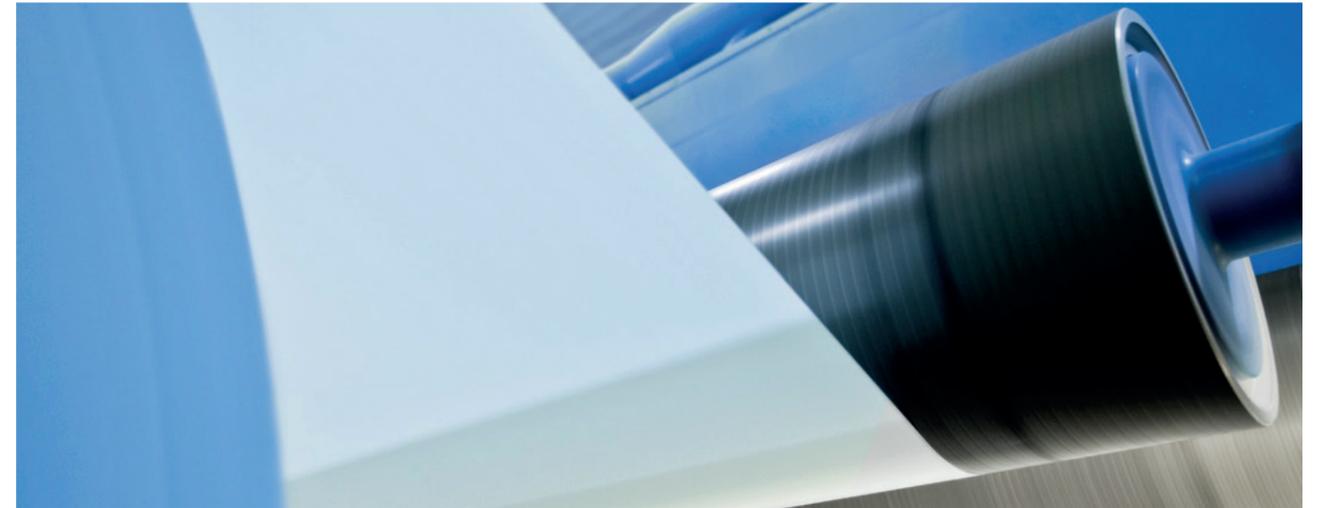
Overcoming barriers

The core task of a lay-on roller is to prevent the undesired air intake. The roller presses the winding film against the mill roll and presses out the sucked in here, or respectively prevents the air intake. This requires a perfect “clinging” of the lay-on roller to the mill roll across the entire working width. The difficulty lies in the fact that the external diameter of the mill roll continu-

ously increases, which affects the circumferential speed of the mill roll and results in deflection of the lay-on roller. The optimal flushness therefore requires a different characteristic of the necessary pressure application force at any given time across the entire length of the lay-on roller. The performance of previous lay-on roller was fairly restricted regarding precisely this adaptability.



lay-on roller in winding process



LDS Lay-On Rollers

The design of the LDS (low deflection system) is based on the well-known and proven CSR principle.

CSR stands for Center Supported Roll. This is actually a “roller-in-roller” system, in which the two roller bodies are connected in the middle by the Center Support, which makes them rotate at the same speed. Both roller bodies are made of carbon fiber composite material. They are designed according to the respective case of application and the required parameters in terms of stiffness and natural frequency. The precise design which is performed using FEM tools

optimizes the interaction between stiffness and connection length; the deflection of the lay-on roller is thereby significantly reduced. The excellent lightweight properties of CFRP make it possible to produce double tube systems such as the LDS lay-on roller with very high degree of slenderness.

ALDS Roller

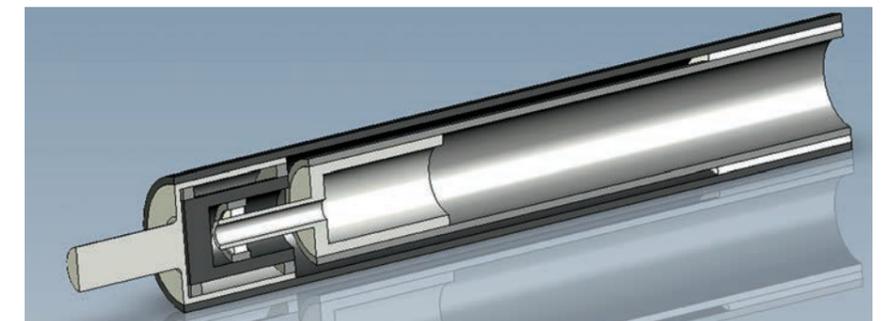
The special design of the ALDS roller (adaptive low deflection system) allows a pressing of the film web onto the winding core with an optimal linear force.

The distribution of contact force is performed fully automatically, and controlled

dependent on different machine parameters. This allows even very thin film (<10µm) to be wound wrinkle-free. As a result, ALDS rollers significantly help reduce waste and contribute to a productivity boost.

The ALDS roller is customized to the requirements of its respective installation site. It doesn't exhibit any differences compared to conventional lay-on rollers, and it can be retrofitted into existing installations without restrictions since all occurring forces are absorbed internally.

The double tube principle allows an adjustment of the contact characteristic.





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