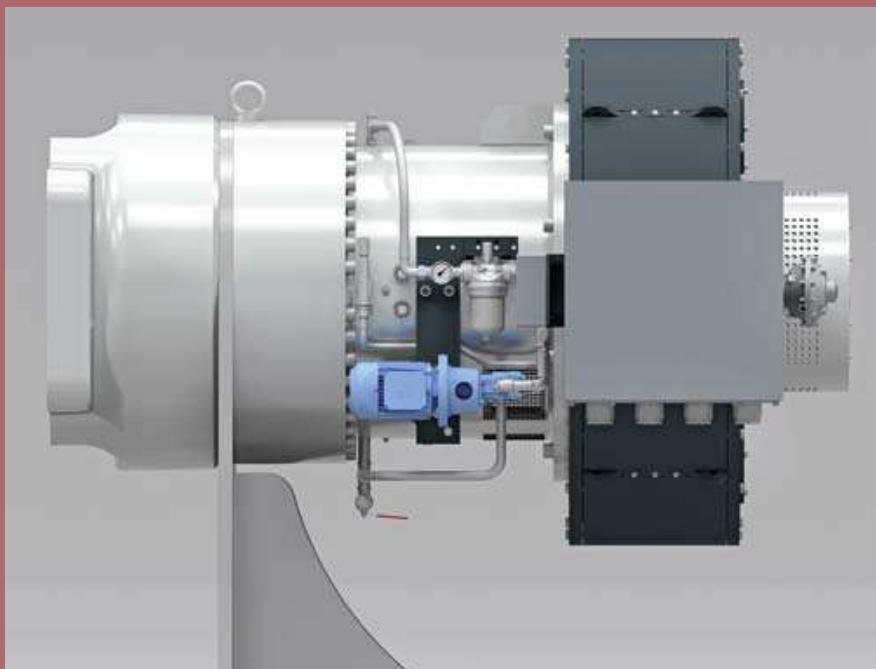


LIGNA topics 2015

# Cut your cost! – Improve quality, increase plant capacity, lower costs

Lowering production costs, improving quality, and increasing plant capacity are the key factors that plant operators have to consider to ensure and increase production efficiency. With the motto "Cut your cost!" Siempelkamp sums up these customer requirements and develops machines and components to support manufacturers of wood-based materials in their endeavor to cut costs. At this year's LIGNA, the world's leading trade fair for forestry and wood industries, Siempelkamp will present to industry professionals new concepts as well as market-ready systems which will optimize the operation of wood-based material plants. Apart from developments in the areas of drive technology, resin blending, mat forming, and preheating, with Siempelkamp's further development of the proven control technology system Prod-IQ®, the focus of the fair is particularly put on the topic "Industry 4.0".

By Inga Bambitsch



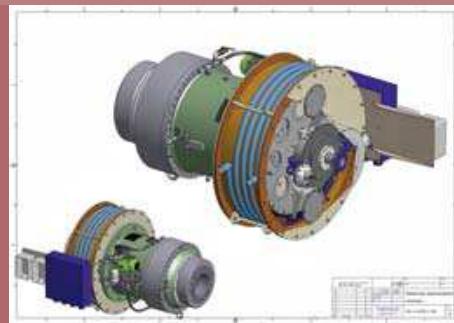
Ecodrive

## 7 % energy savings with drive system Ecodrive for presses

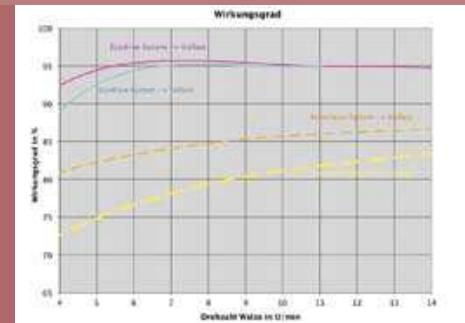
One for all: For performance-strong operation of the ContiRoll® discharge drums Siempelkamp developed the **Eco-drive** which can be used with any ContiRoll® model. The drive system consists of an energy-efficient electric motor and a two-stage gearbox. With the synchronous motor, a variable speed press drive at consistently high torque can be implemented. With the new Ecodrive plant operators can achieve a high degree of efficiency even at low speeds. At full load this translates into energy savings of 7 % compared to previously used drive systems. At partial loads the advantages of the Ecodrive drive system in terms of energy efficiency become even more apparent. With the Ecodrive Siempelkamp customers literally



Ecodrive installed on ContiRoll®



Ecodrive drawing



Ecodrive power curve

save money and achieve a quick return on investment.

Maintenance efforts and the corresponding downtimes are also minimized with the new Siempelkamp drive system which is the first drive system that was completely developed in house. Due to the low rotational speeds of the synchronous motor, the wear of parts (e. g., bearings and gearwheels) is reduced. Using only two gear stages also minimizes the probability of failure.

Siempelkamp's innovative Ecodrive can be supplied together with a switchgear as component of a new plant. However, it is designed in such a way that it can be easily retrofitted into existing plants with minimum expense for conversion work. With the Ecodrive plant operators rely on consistent torques and constant outputs at optimal synchronization characteristics when operating their ContiRoll® presses.

#### Cost efficiency for wood-based material production

At LIGNA 2013 Siempelkamp presented innovative concepts for the cost-efficient production of wood-based material boards with a consistent high quality. These concepts have meanwhile been developed into market-ready machines which have been tested extensively in customer plants and have also been sold. The **Ecoresinator P**,

the innovative resin-blending system for particleboard production, the new surface layer wind forming machine **Ecoformer SL** and the mat pre-heater **ContiBooster** are available for purchase with immediate effect.

#### Ecoresinator P: Resin savings for particleboard production

Since Siempelkamp introduced its innovative resin-blending system for MDF, the Ecoresinator for fibers, at LIGNA in 2011 the system has been sold 26 times to date. The customers' need for resin and material savings is unbroken. After all, the Ecoresinator is proven to lower resin and material consumption by 15 %. The manufacturers of particleboard also want to save. That is why Siempelkamp developed the Ecoresinator P for particles.

During first trials at a Turkish customer the Ecoresinator P achieved resin savings of approx. 10 % for the core layer. At a Siempelkamp customer in Central Europe, the innovative resin-blending system for particles is currently being further developed. Two systems have already been sold.

Siempelkamp developed the Ecoresinator P together with its subsidiary CMC Texpan in Colzate, Italy. To do so the experience gained from the development of the Ecoresinator for MDF was used. In both systems, special nozzle technology ensures

fine and even resin-coating of the core layer particles. To do so the centre layer is divided.

Afterwards, the special nozzles which are arranged in a staggered manner opposite from one another apply a fine mist of resin to the two particle flows from the inside and the outside.

Conclusion: At low investment costs the Ecoresinator P provides large savings. When installing the Ecoresinator P as a retrofit, the customer's glue kitchen including the dosing system for resin and additives remain unchanged.



Ecoresinator P



Ecoresinator P

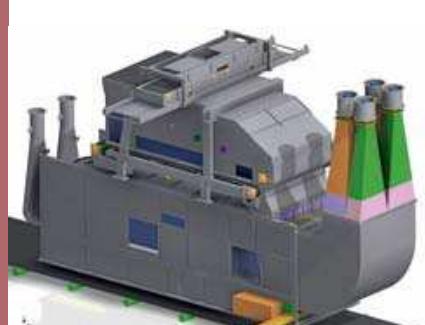
### Ecoformer SL: 5% percent less material consumption for surface layer forming

For the subsequent forming of the surface layer Siempelkamp, in cooperation with CMC Texpan, has brought another concept to market maturity: the wind former Ecoformer SL (Surface Layer). Compared to traditional systems, the Ecoformer SL uses up to a proven 5 % less material and provides optimal forming of the surface

layer. These characteristics make it a "must have" for particleboard production.

Blowers create the air flow needed for the distribution of the surface layer particles in mat-forming machines. The new Ecoformer SL is equipped with two small axial blowers in the lower sector as well as two larger ones in the upper sector. Via these blowers the air speed can be controlled individually at different heights inside the wind chamber. An intermediate chamber

provides for uniform distribution of the air flow to a perforated plate positioned behind the chamber. From here the air is routed to individual air nozzles. Mechanically controllable baffles also help control and adjust the air flow at different heights. This principle has improved the air flow accuracy from  $+/- 5\%$  to  $+/- 1\%$ . As a result an unprecedented precise and controlled air flow inside the entire wind chamber is created which leads to an even more



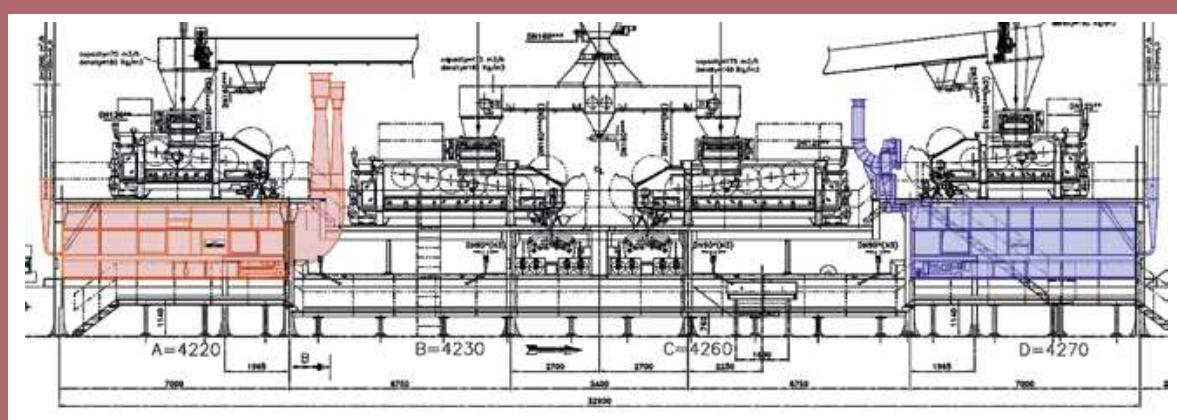
Ecoformer SL



Operational principle Ecoformer SL



Ecoformer SL



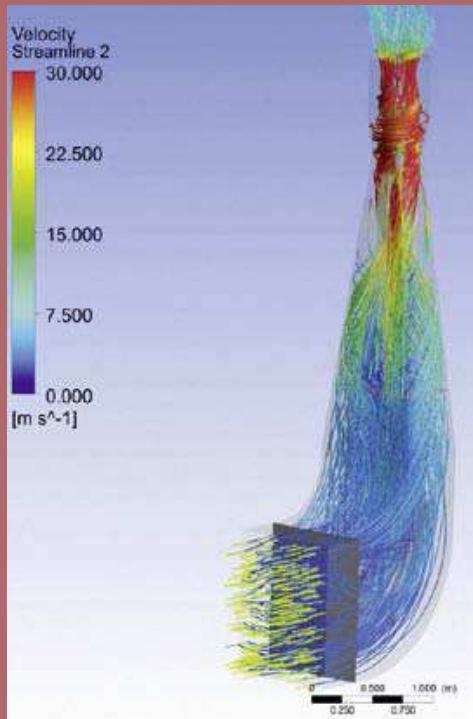
Ecoformer installation location

uniform forming of the surface layer and high-quality board surfaces.

Furthermore, the pressure loss inside the wind chamber could be reduced seven-fold. To achieve the necessary pressure, less energy is required. For particleboard manufacturers using the Ecoformer SL this translates into proven energy savings of up to 65 %.

Optimized accessibility to the system and the simplified cleaning of the short and round air nozzles improve the system's ease of maintenance. Thus, shut-down times are decreased, availability and productivity of the plant increased. The Ecoformer SL can be installed as part of a new plant as well as used as a component of a retrofit package. It is designed to fit exactly into the space that becomes available when replacing the traditional wind forming system.

Drastic reduction of the pressure loss with Ecoformer SL (CFD simulation)



ContiBooster in the test



### ContiBooster for up to 10 % and higher outputs

With the ContiBooster, Siempelkamp offers customers an innovative, simple and cost-effective version of its proven concept for mat preheating via steam. The installation of the system in existing plants takes only a few days but provides quick results. For the production of particleboard with varying board thicknesses plant operators achieve up to 10 % and higher outputs.

In the innovative system, Siempelkamp specialists replaced the intermediate belt in the infeed area of the press with a steam-permeable screen belt. An additional

belt including a cleaning device and a belt preheater on top of the mat with a thickness of up to 350 mm provides for uniform steam and heat supply as well as safe and reliable operation.

During the preheating phase, steam distributors, which are mounted above and below the screen belt, inject up to 500 kg/h of steam into each side of the mat. Thus, the board's surface layers (approx. 40 % of the mat) are heated and moistened. Moreover, the steam distributors can be pulled out sideways making them easy to maintain. At the customer's request, Siempelkamp can also supply the steam generator for the ContiBooster.