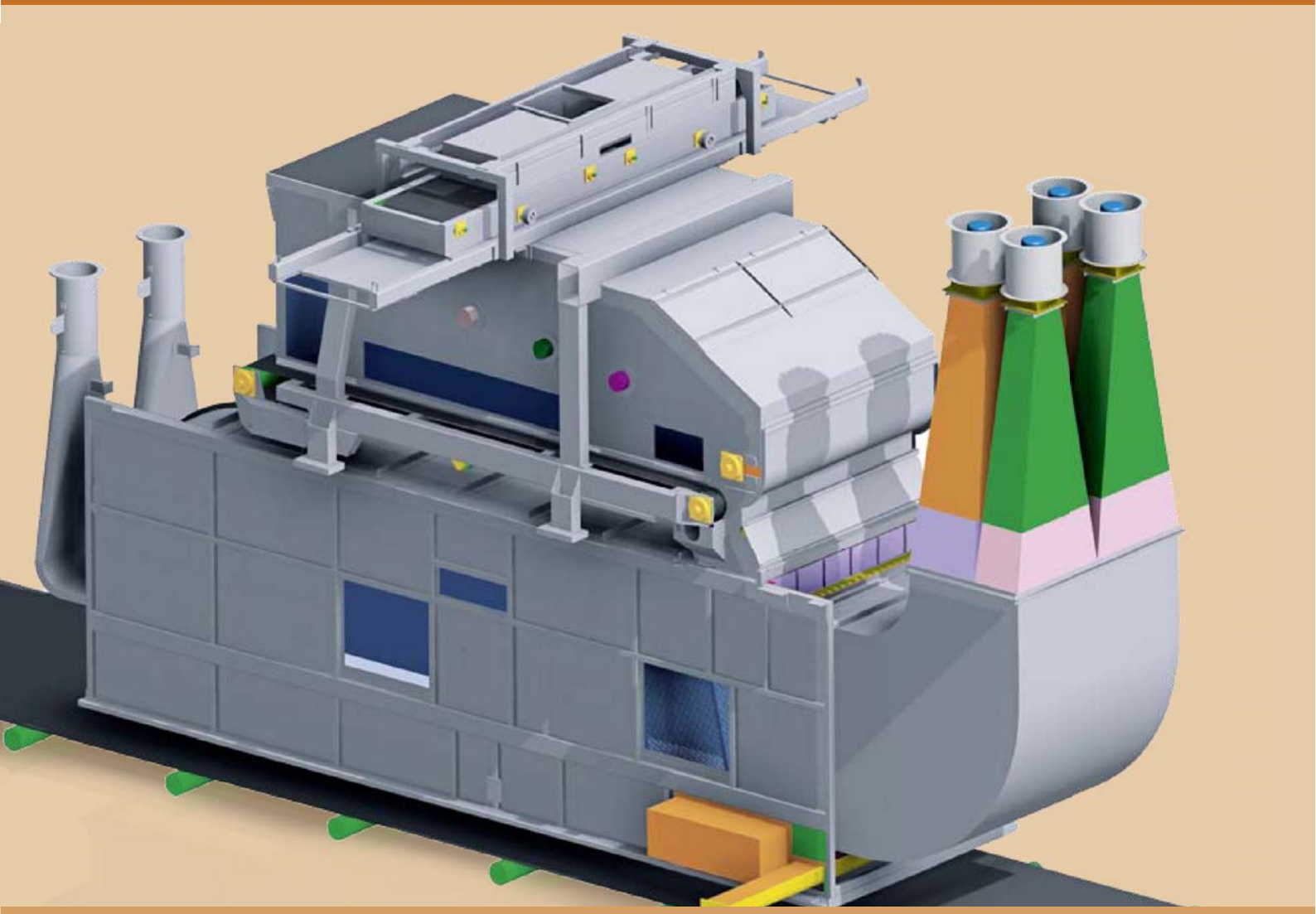
EcoFormer SL from CMC Texpan:

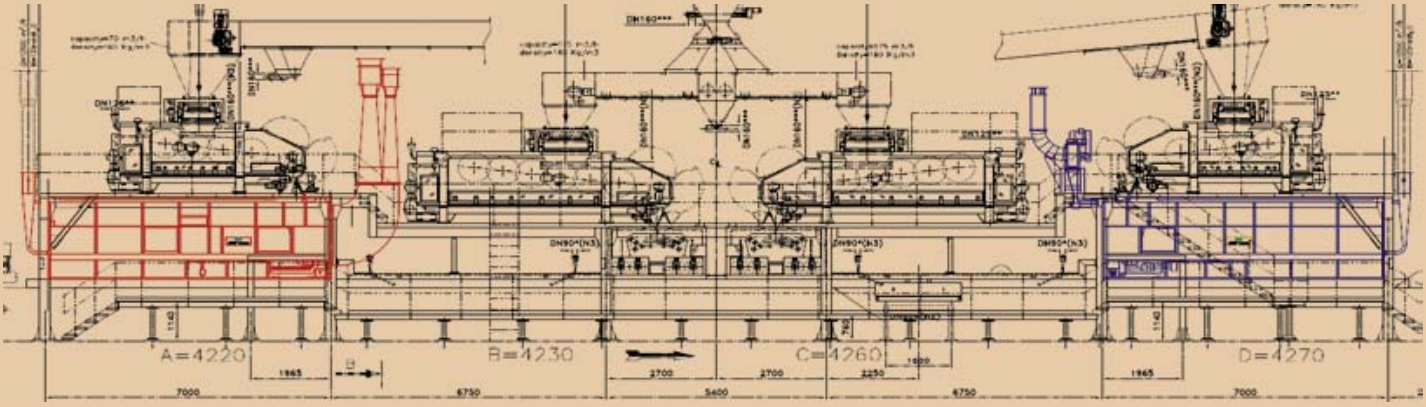
From now on the wind blows in a different way!

For many years the name CMC Texpan has represented high-quality mat forming systems and the best particle preparation for wood-based material production plants. Plant operators from all over the world contact the Siempelkamp subsidiary in Colzate, Italy, to equip their plants with first-class technology. The results: increased plant capacity, cost savings during production and higher quality of the finished boards. Corresponding to these customer benefits, CMC Texpan has further developed its proven wind mat forming system: The EcoFormer SL (Surface Layer) provides an even more uniform forming of the surface layer during particleboard production – all that with the lowest possible energy consumption.

by Paolo Gattesco



EcoFormer SL



Increased plant capacity and efficient production processes are the basics in achieving an economically profitable production. A significant role in reaching these objectives is the lowering of production costs without losing quality. Keeping this in mind, CMC Texpan has reviewed the proven mat forming process and focused on two essential development goals: an even more uniform forming of the surface layer crosswise to the direction of production and lower energy consumption. The result is the EcoFormer SL, which was introduced at Ligna, the world's foremost international wood-based products fair, in May of 2013.

Preserving what has proven its worth

The proven mat forming process from CMC Texpan already included important characteristics which were to be maintained throughout further development. For example, the air nozzles always achieved the desired particle separation impulse. The height of the wind chamber always allowed optimal separation of smaller and larger particles during the traditional mat forming process. To achieve a more uniform particle distribution across the entire width of the mat, the air speeds were adjusted via valves.

The experts of CMC Texpan and Siempelkamp saw further potential for optimization in the vertical and horizontal air and weight distribution in the mat. Furthermore, the goal was to reduce the pressure loss in the air distribution system and, as a result of it, the power consumption of the blowers. The accessibility and maintenance effort of the system was also to be simplified.

Thus, the development objectives for the EcoFormer SL were clearly outlined. An additional challenge was to design the system in such a way that, in the case of a plant modernization, it would fit exactly in the space of the traditional mat forming system.

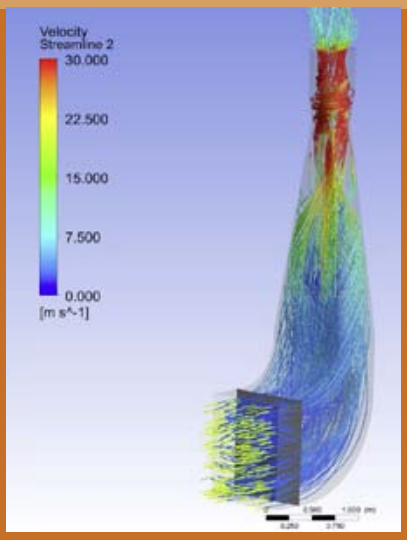
Improved wind distribution with the EcoFormer SL

Traditionally, the particles are separated via an air flow and deposited uniformly according to their size and weight. This results in a board structure with increasingly finer particles towards the board surface. While this air flow was controlled via traditional blowers in the previous system, CMC now offers a simplified and more effective system for the separation of surface layer particles.

The new EcoFormer SL is equipped with two small blowers in the lower sector as well as two larger ones in the upper sector. In this way the air speed can be controlled individually at different heights inside the wind chamber. The blowers create the air flow needed for the distribution of the surface layer particles. 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 via numerous pyramidally tapered combs to

Customer benefits of the EcoFormer SL:

- homogeneous distribution of the particles crosswise to the direction of production as well as in production direction
  > improved surface area weight tolerance
  > reduced material consumption
- reduced electricity consumption of the blowers
  > electricity savings
- simplified maintenance
  > increased plant availability
  > easier cleaning of the nozzles and diffusers to maintain a highly efficient air distribution
- suitable as retrofit



Drastic reduction of pressure loss with EcoFormer SL (CFD Simulation)

Functional principle EcoFormer SL

individual air nozzles. To engineer the most effective air flow, the design was researched via Computational Fluid Dynamics and lab-tested. Mechanically controllable baffles help control and adjust the air flow.

This principle provides a precise and controlled air distribution inside the entire wind chamber and as a result of this, an even more uniform forming of the surface layer. This allows the plant operator to save significant amounts of material and produce high-quality boards with low power consumption. All of this adds up to yearly savings of around 500,000 euros according to the plant size.

EcoFormer SL

Building of a prototype

Correct forming – saves energy

The EcoFormer SL also provides an advantage in the area of energy savings. Due to the innovative design, the pressure loss is reduced allowing the use of smaller blowers with lower energy consumption. Energy resources are used sustainably which leads to significant cost savings. Compared to the traditional mat forming process, further energy savings are possible by reducing the power consumption of the blowers. Furthermore, the new forming system is extremely maintenance-friendly due to the fact that it is easily accessible. The short and round air nozzles minimize possible dust deposits and simplify the cleaning of the system. Thus, shut-down times are decreased, availability and productivity of the plant increase.

In order to meet the growing challenges of the market, modernizations of existing plants are becoming more important. The EcoFormer SL can be installed as part of a new plant as well as used as a component of a modernization package. It is designed to fit exactly into the space that becomes available when replacing the traditional wind forming system.

The first customer is convinced

Our Russian customer Uvadrev-Holding OAO – an experienced particleboard manufacturer – purchased the EcoFormer SL for a new complete particleboard line made by Siempelkamp. The system is currently being installed and is scheduled to start operation in summer of 2014. "We expect excellent forming results," explains Uwe Wagner, Siempelkamp's site manager in Uva – approx. 1,200 km East of Moscow. Next to a 6' x 30.4 m ContiRoll® press, the Siempelkamp scope of supply includes the complete plant engineering by Sicoplan, chipper, silos, flakers, dryers as well as screens, sifters, and the resin blending system. CMC Texpan is also supplying several components for this new line. Board storage and finishing systems including a sanding line will also be supplied by Siempelkamp. With this order, Uvadrev strengthened its position on the strongly growing Russian particleboard market on time with a competitive, continuous production line – which includes the new EcoFormer SL from CMC Texpan.

Paulo Gattesco, Managing Director at CMC Texpan, Italy

The right wind is important

Bulletin talked with Paolo Gattesco, Managing Director of CMC Texpan and responsible for R & D projects, about the further development of the wind forming technology, its benefits and the customer Uvadrev. He explains why an investment in the EcoFormer SL pays off in any case.

Bulletin: Why did you decide to revise your existing forming system?

Paolo Gattesco: CMC has a clear objective and a strong motivation to reach it. To us, future is the continuous search for perfection and innovation. The EcoFormer SL clearly demonstrates our vision: here, we have further enhanced the already excellent performance of an existing machine.

Bulletin: Why is a uniform forming of the surface layer crucial for the quality of the finished boards?

Paolo Gattesco: The surface layer of particleboard is very delicate. It is just like the skin on our face: it needs proper care and must always be smooth and nice to touch. There are several very important reasons why the surface layer is so important: Firstly, the continuous search for cost savings but also the evolution of the finished product have resulted in the use of low-weight decorative papers, or respectively of papers with very soft colours and delicate designs. Therefore, any possible flaws on the surface of the particleboard substrate would become enormously more visible after the application of the decorative papers themselves. Secondly, achieving a constant and homogeneous particleboard surface means less sanding allowance, i.e. less material to be removed during the sanding process. This not only leads to savings in wood material that otherwise would have to be burnt after a long and expensive preparation process, but it also provides for a longer life of the sanding belts. Last but not least, the electricity savings related to the sanding process have to be considered as well.

Bulletin: What influence does the distribution of the air speed inside the EcoFormer SL have in regards to the forming accuracy of the surface layer?

Paolo Gattesco: Surface layer particles are very tiny and light. Spreading them with high accuracy in a large wind forming chamber is a very delicate and difficult task. The smallest variation in the air speed raises these particles and makes them move. So, in order to obtain a consistent and uniform layer of particles, you must be able to define exactly where and how these "flying" particles shall fall.

Bulletin: How difficult is it to control the air flow inside the wind chamber?

Paolo Gattesco: This is not an easy job. The EcoFormer SL has been obtained by combining the huge, long-term experience of our skilled experts (developed on hundreds of machines subject to countless variables) with the design technology of our technical department, as well as using sophisticated calculation models and extremely accurate verification software programs. Thanks to this effort, we can supply our customers with machines characterized by high level technical competence, yet very simple and easy to operate.

Bulletin: Uvadrev in Russia is the first customer who purchased the new EcoFormer SL. What were the factors that were decisive in the end?

Paolo Gattesco: The results of different preliminary tests had amply demonstrated the potential and advantages of this solution. The agreement could be reached thanks to a perfect cooperation between the Uvadrev, Siempelkamp and CMC Texpan teams. Uvadrev was absolutely determined to build a state-of-the-art production plant and extremely responsive to energy saving solutions, so they promptly accepted our proposal. Of course, we are also delighted to contribute to the fulfilment of their objectives and goals.

Bulletin: Does the EcoFormer SL only make sense as an investment for a new plant?

Paolo Gattesco: Absolutely not! In regards to new plants, the EcoFormer SL undoubtedly represents a decisive and winning choice in order to provide the market with new particleboard panels of a higher quality. In these cases, the investment required is so little that it doesn't affect the project expectations at all. At existing plants that are already equipped with CMC Texpan forming machines, it is possible to replace only the blowers and air blowing nozzles section of the wind forming chambers, which is an affordable investment obtaining very important results on particleboard quality. For those existing plants that are not equipped with CMC Texpan forming machines, this solution needs to be evaluated by our specialists, who can work out a detailed definition of the possible benefits and advantages.

Bulletin: In other words, for particleboard production plants there is no alternative to the EcoFormer SL?

Paolo Gattesco: Well, if you wish to innovate and also to improve production quality in this section of the plant, the only solution is the EcoFormer SL!