

HF FOCUSES ON ENERGY SAVING, EFFICIENCY



Dr. Jörn Seevers, Director

Automotive sector demand for energy-saving tyres is likely to have a significant impact on the tyre machinery sector over next few years. The trend is linked to current developments among car manufacturers, for whom energy-saving technologies are now a major focus.

This takes the form of both reducing the energy consumed during curing, and increasing process efficiency by raising the throughput of the presses, which are commonly a bottleneck in the tyre production process.

The weight of the tyre needs to be as low as possible, which means the pre-materials are getting thinner with tighter tolerances. This has an impact on the accuracy of the manufacturing process and makes tyre handling more and more sensitive.

This will increase reliance on hydraulic curing presses, they are “the optimal solutions to ensure a repeatable accuracy over the life time of the press combined with a high output to keep the process cost under control,” says Dr. Jörn Seevers, Director of curing presses.

To reduce energy consumption HF is working on energy-saving measures and we hope to reveal more in 2016. It's more evolution than revolution. The company follow its customers' wishes, but it's always about improving tyre performance and lower process cost.

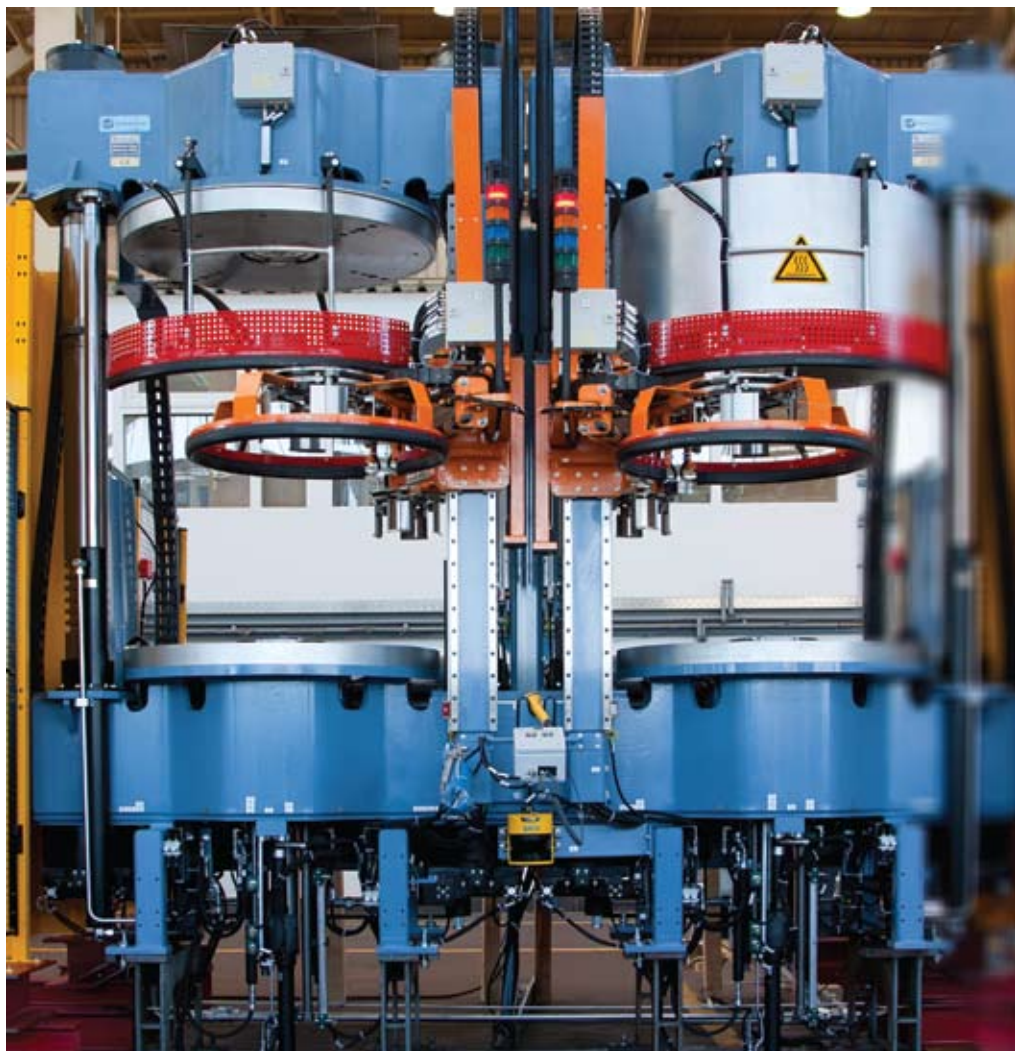
Machine and process efficiency is the second major area of R&D for curing press manufacturers. The adoption post-cure inflators (PCIs) is also raising efficiency in the curing press area and offer the chance to reduce curing time by moving part of the process outside the press and will decrease tyre uniformity forces.

“Machine efficiency is everything, because the tyre manufacturers will decide on the number of presses they need based on the machine efficiency ratio. Some might install eight presses per TBM, others 10 – a

20 per cent difference. It all depends on the efficiency value you can give your customer. That not only reduces the investment in presses, but also decreases the factory space required, which is a further cost saving," Seevers says.

At HF Group, one of the newest products is a quick mold-change device, but there are other uses of technology on the horizon to increase the intelligence and efficiency of the curing press. "I see there are perhaps two topics in the development stages here," expands Seevers. "One is data storage and access via the HMI for process analysis and optimisation, real-time adjustments to curing time, etc. Some companies already have fully networked plants that enable them to spot trends such as longer curing times due to condensation or worn valves. "The other development is with an eye to energy saving, which is currently a bigger topic in some countries than others. The ways we would do that include process control (fast open/close to trap the heat), better insulation and maybe some heat recovery, too. The latter might require higher investment, but would pay for itself in lower process costs."

Another important trend is the move among tyre makers to produce smaller lot sizes, this will require more moulds and more frequent mould changes. "Independent controlled cavities of



the curing presses are the current standard to support this trend. Our quick mould-change devices can enable tyre manufacturers to decrease the mould-change time to less than 30 minutes. This gives the customer the flexibility

for smaller lot sizes without a significant production loss." HF has these devices in operation at the sites of some of HF customers.

On the business front, there is a great importance of global-reach for HF, which produces curing presses at a plant in

Croatia and delivers worldwide. "Our customers are investing worldwide, in a lot of countries following the car manufacturers and we can deliver to their needs. More than 80 per cent of our deliveries are outside Europe.

"We are studying the potential need to further expand the production and to strengthen our engineering department in Hamburg in order to fulfill the expected customer demands."

The first hydraulic curing press was introduced by Krupp (now HF Group) in the early 1970s, this technology has emerged as the standard in the curing of passenger car tyres, offering ease of maintenance and greater accuracy over the press's life.

Dr. Joern Seevers started his career as a process engineer at Continental: taking on a leadership role in new manufacturing processes in 2003. In 2010, he moved to become general manager of Giti Tyre's equipment centre in Shanghai, guiding machinery and investments for all tyre plants. Since January 2014, he has been responsible for the curing press division at HF and MD of its production plant in Belisce, Croatia. ▲