Stefan Bahlke, Lead Engineer, Curing Presses, and Kevin Rolfe, Vice President Sales, Curing Presses

HF CUREMASTER TBR: FLEXIBLE AND COMPACT

By Sharad Matade

HF Tire Tech Group has introduced a revolutionary curing press, HF Curemaster TBR, for the manufacturing of truck tyres, which will set a new benchmark in truck tyre manufacturing.

Introduced during the Tire Technology 2019 in Germany, the HF Curemaster TBR, cures truck tyres with more precision, reduced energy and space, and better quality.

The new truck tyre curing press 'HF Curemaster TBR' offers a flexible and compact footprint, enabling it to replace older smaller presses and ultimately saves space or allows for the possibility to fit more presses per existing trench. Therefore, customers are able to increase production without expanding their footprint, says the company.

One of the main highlights of the HF Curemaster TBR machine is uniform distribution of squeeze force. The HF Curemaster TBR has two separate curing cavities which operate independently. "Older generation curing machines have the common controller and two moulds that operate at the same time. Such machines, due to their design, may have deflection while applying pressure. In the HF Curemaster TBR , the load to the moulds is very uniform," says Stefan Bahlke, Lead Engineer, curing presses at HF Tire Tech Group.

Adding to Bahlke, Kevin Rolfe, Vice President Sales, Curing Presses at HF Tire Tech Group, says, "The most import aspect of the machine is to maintain the quality of tyres. The quality is achieved by applying uniform distribution of squeeze forces through six hydraulic cylinders." The Six cylinders are built into the bottom of the new press.

Diversified markets demand customized machines to make final products that meet the markets' requirement. Taking this demand of precision into consideration, HF has availed much scope for customization in its HF Curemaster TBR. Responding to the latest market requirements, The HF Curemaster TBR accommodates moulds from 62"-67". The company has kept the main body and other main parts of the HF Curemaster TBR as its other cure press machines. "This helps us to customise theHF Curemaster TBR as per our customers' need. So, we can apply different chucks, unloaders and loaders and the most import is curing panels, which we make according to the customers' requirements," says Bahlke. The HF Curemaster TBR also meets the latest safety, environmental and manufacturing requirements.

However, a part of sustainability, tyre companies mulls on lower energy consumption machines and processes. The design of the HF Curemaster TBR optimizes the heat required to cure the tyres. "Due to the open design, one can see the machine is curing. Sometimes there are heat shields as well, but there are chance of evictionof air from the mould. That is the biggest energy loss that press machine could have. In our machine, the complete power flow is coming from the bottom. When the machine is locked, the complete power flow comes into the squeeze area. Whereas in other machines, power flow goes into the squeezes and the frames as well, in the HF Curemaster TBR the complete air is kept inside in the mould," explains Bahlke. According to the company officials, the HF Curemaster TBR help to save one third energy consumption against conventional cure press machines in the market.

HF Tire Tech has already started supplying HF Curemaster TBR machines in the market. It has sold the first HF Curemaster TBR machines in the European market. "So far we have sold 40 HF Curemaster TBR units in the market and I can say the launch has been very successful," says Rolfe. The company is aggressively working on sales of HF Curemaster TBR machines and is in talks with customers in the US, Europe and Asian markets. "Good order books show that we have come out with right solution, with the right market price," says Rolfe.

Tyre companies in developed world are under pressure due to the current trend and future trends such electrification, smart and shared mobility which will lead to diverse designs, patterns, raw materials and manufacturing processes. In the response to the markets' demand, Flexibility is another growing demand from machine companies. "Because of its flexibility, the HF Curemaster TBR can meet all parameters needed for the making of truck tyres. It can produce very thin side walls and large walls as well. We have two independent cavities so you can have different mould sizes, having different curing times," says Bahlke. "We analysed the market and designed the HF Curemaster TBR accordingly. Order sizes are getting smaller and smaller in the market so independent cavities allows for great efficiency and flexibility," adds Rolfe.

The company so far has delivered over 5000 cure presses, including both passenger and truck tyres. HF Tire Tech, while design the any cure press, considers not only customers' requirements during the operations but also in maintenance. "Our new cure press machine is low profile and has quick and easy access to the mould, bladder, and heating system," says Rolfe. As the HF Curemaster TBR has two cavities working independently, one cavity can be brought in under maintenance, while the other is in operations.

Though the curing time of tyres depends on size and other factors, the HF Curemaster TBR's design influences the operation cycle time. "We have taken care to reduce cycle time, from removing the cured tyre to place a green tyre in the mould. That helps to reduce the cycle time by one to two min per cavity or press and leads to improve productivity of tyre curing," says Bahlke. Due to flexibility of the HF Curemaster TBR Machine, tyre producers can change their mixing as per their requirements.

Generally, the Asian market is still considered to be a price sensitive. However, talking about the company's strategy to penetrate the HF Curemaster TBR, Rolfe says, " though HF Curemaster TBR will not be successful with all Asian tyre companies, it will be successful and adopted by tyre companies which are serious about total ownership costs by achieving higher quality, precision, accuracy and saving energy."

Talking on challenges in designing curing presses Bahlke says, "the challenges is how to accommodate all parameters such as space, flexibility, energy consumption and accuracy of the tyre industry. And considering all the parameters and our expertise and experience in passenger and truck cure presses business over the years, we have developed the HF Curemaster."

Space

- Flexible and compact footprint
- Possibility to replace older, smaller presses
  > Potential for more presses per existing trench

Quality & maintainability

- Even distribution of squeeze force ensures optimum tire uniformity and longest mold life
- Longer life time of the hydraulic components due to maximum hydraulic pressure of only 100 bar
- Easy access to main hydraulic, pneumatic and heating components

Modularity

- Press accommodates molds from 62-67"
- Modular design to meet the latest market requirements
- Customized modules offer adjustment to customers specifications and individual needs
- Built according to the latest safety, environmental and manufacturing requirements

Total cost of ownership

- Designed to provide the lowest energy consumption
- Durable construction for longer press-life
- Meets the highest requirements for availability, performance and quality