



TECHNOLOGY

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Digitalising Tyre Production

HF Group's upcoming range of digital solutions will monitor several parameters in the curing process, like cycle times, movements of the machines etc. One of the exhibitors at the Tire Technology Expo, 2022 that was held in Hannover, Germany was HF Group. Dr Bernd Pape, Digital Solutions, HF Group, threw light on the company's plans to develop a new product line that will enable its customers to digitally monitor tyre curing machines more effectively, the significance of sharing data and having trusted partnerships.



Dr Bernd Pape, Head of Digital Solutions, HF TireTech Group, Germany

The global tyre industry is steering more towards digitisation to ensure precision and save production time. And in this effort, HF Group seems to be the frontrunner, banking on data warehousing to produce effective monitoring solutions for tyre curing.

"HF is known as a company constantly extending traditional machine solutions. However, we are very well aware of digitisation, and the solutions will change our previous way of doing business at a global level," said Dr Bernd Pape, Digital Solutions, HF Group, while we interacted with him at the latest edition of the Tire Technology Expo held this year in Hannover, Germany.

"I joined HF last year in June to build up a new product segment. However, due to the pandemic, I had limited chances to visit customers or talk to potential partners for development, and this conference has been an optimum opportunity to perceive an overview of our industry," Dr Pape mentioned while he talked about the expo.

Digital solutions

HF's upcoming range of digital solutions will monitor several parameters in the curing process, like cycle times, movements of machines etc. It will then churn out the alarm messages of the machines and correlate them to identify discrepancies. The new-age solutions will monitor machine data at different stages and have communication modules that will share the data from the machine control software to the internet using IoT gateways.

Extra sensors will be placed on the machines to measure certain component parameters like pressure, temperature, energy consumption etc. Leveraging the combination of cycle time monitoring, alarm messages and specific measurements of the sensor technology, the data will be analysed to bring out in-depth information about the machines' performance.

Answering whether the sensors are capable of identifying the problems, Dr Pape informed, "In order for them to work efficiently to identify problems, we need quite some data. And when we have that data, we can do two things – analyse that data and see if insights can be derived automatically, or work with experts to derive insights and then transfer the knowledge into the digital solutions. He further added, "The entire research and development process demands a lot of communication and learning together with pilot customers, too."

It's important to share data

Initially, HF plans to implement the solution in their own curing press and further develop solutions for other machines. "We may need cooperation from customers to better understand other machines or even the OEM of that specific machine. If you look into digital transformation, it's all about partnership. And if you don't share data, you will not be able to flourish. And so far, my gut has been that our industry still has room to improve. We can still learn from each other by sharing data. With every new machine, we will have a growing database and knowledge on how to improve production," Dr Pape asserted.

Digital benefit

HF strives to keep the cycle time of a machine at a constant low level. The curing process for one tyre may take 14 minutes. With the solutions, it can be reduced by 10 to 20 seconds. This would add up for the customer to produce roughly between 500 and 1,500 tyres per press per year, informed Dr Pape. Moreover, the solutions will enhance machine availability by detecting warnings for errors or repair time.

Trusted partnerships

The new solutions will require huge amounts of data to effectively do its task, but protection of proprietary data is a major concern. Speaking in this context, Dr Pape cited, "Digital transformation is about partnership, and you need to share data. So, partnership is all about trust. You need an initial amount of trust to provide data. There is no way around that."

"On the other hand, once you give me the data, it is on me to keep it carefully and not to share it," he further averred and went on, "Because if I do not comply, then the alliance will be harmed. So, there is a great opportunity because we are a long-standing partner for the whole industry. Therefore, we have trusted partnerships and projects with a lot of customers."

Explaining the timeline from implementation to resumption of services, the executive said, "Once we are up and running with this solution, we just need a couple of days to implement it. But for new machine types that have not been analysed before, a couple of weeks are needed. Once knowledge of the specific machine type, how to adjust the software and how to analyse and interpret the data is known, we can configure same machine types within days."



(L) David Laczowski, Executive Vice President, Curing Presses, HF TireTech Group and Dr Bernd Pape, Head of Digital Solutions, HF TireTech Group (R)

Current monitoring landscape

According to the executive, currently technicians might face severe problems while monitoring the machines as the industry has witnessed a generation shift. Experienced technicians retire and new ones have to learn the entire process. With the automation of unloading and loading systems, which are getting more and more automated, there might be no operators available who can point out if the machines have any problems.

"If we get the data from the machine and analyse it, we can redirect technicians to the area that causes the problem, so that they are faster in remedying it. The data will also help us to predict problems in the near future," Dr Pape pointed out.

Stepping into the Indian market

HF has expanded its footprint across the globe and wants to market its products worldwide. The company's pilot customers are in the Americas, followed by Europe. It also plans to tap into the Asian market.

Speaking on its plans to enter India, Dr Pape cited, "The country has great companies and some of them might be interested in the solutions. For building up a new product segment in India, we have to know what kind of customers are interested. We will then start operations on a remote basis and develop further."

Collaborations for the long term

HF Group has also collaborated with Possehl Analytics as its solutions partner, which will also allow it to build a network for digital solutions in the industry. On the reference side, HF refers them as their solutions partner, while Possehl Analytics refers HF as a good operations partner.

Change is the only constant

While the tyre industry itself isn't one that changes every day, we know that digitisation will have a pivotal role in its growth, including the tyre curing process, making sure the final product is of high quality. At the same time, sharing data and making long-lasting partnerships will only make the process and final outcome more competent. ■