NEW PRIORITIES FOR VMI

BY TT BUREAU

VMI MILEXX

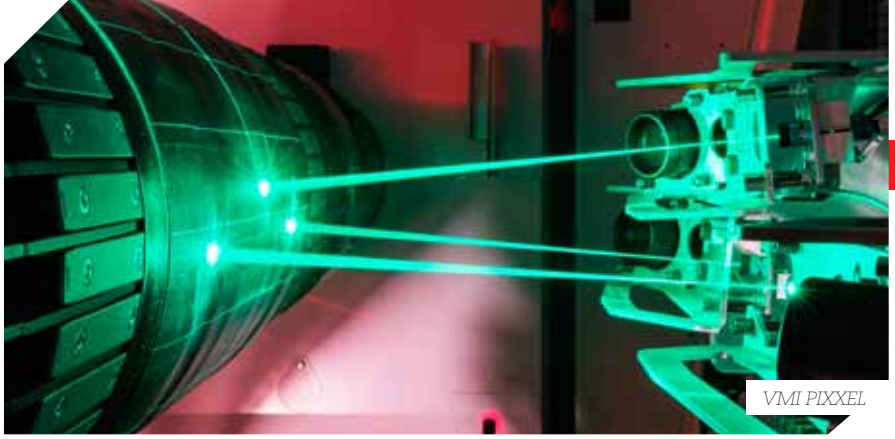
In the past few years, VMI has focused more attention than ever on the Indian market. This changing strategic vision will culminate in the autumn of 2024 with the opening of VMI's first permanent service centre in India – which will be featured in the next edition of this magazine. A stronger focus on India is entirely logical: this is now the 5th largest economy in the world, and future growth is likely to make it the 3rd largest in the years ahead. India is also the acknowledged centre of the world software industry, and as manufacturing continues to embrace AI, Machine Learning and other forms of smart software more creatively than ever, having a strong development base in India seems like a very good idea!

In the automotive and transportation sectors, the big story in the past few years has been the growing investment in roads across India, backed by tougher regulations for tyre quality and performance. This is fuelling transformational changes in the tyre industry – and VMI is playing a key part in helping India's next stage of development through enhanced automation in truck tyres, backed by wider moves to bring AI into the heart of our tyre-building systems.

That's what makes the MILEXX system so important.

GREATER AUTOMATION IN TRUCK TYRE MANUFACTURE

VMI is already known as a world leader for highly automated tyre-building machines in the passenger car sector, and MILEXX has brought many of the same technology advances to building truck tyres as well. MILEXX was first launched in 2016 and has been constantly developed in recent years. This is connected to VMI's vision for evolution: ensuring that production systems are constantly updateable, making it possible to add new components and software as they become available.



VMI PIXXEL

For MILEXX, even though individual machines are normally fine-tuned to fit exact customer specifications, the system is becoming more flexible and adaptable, year on year. The ability to add new capability to an existing and installed machine is delivering real benefits to the Indian market already, but the latest advances, announced earlier in 2024 and ready for introduction to India now, represent another big step forward.

These new developments centre on the use of VMI's advanced camera/computer vision systems, PIXXEL and LMI, and how these can be used to enhance and upgrade the performance of the Breaker Servicer. Here's how it works.

Process automation, measured and managed by the vision and sensor systems, will:

- Pre-centre the breaker and carry out edge measurement to ensure the correct length is cut – a key requirement when cutting obliquely (for example at an angle of 30°). This ensures the right material length is cut every time.
- The automated handling solution, supported by PIXXEL and LMI systems, guides the breaker by measuring the edges of the material and then centring it accurately by moving the conveyor to right or left, keeping the material straight on the reel.
- Camera systems now measure the complete breaker to ensure it is in the right position on the conveyor. This makes it possible for the system to apply the material to the drum correctly, ensuring the splices are to specification.
- The same approach is then taken to applying the tread, keeping this centred and to specification. The other tyre components, such as tread wings, are then applied according to the same automated method.
- Finally, the system automatically monitors and measures breaker and tread quality to ensure that the centring, width and splices of all components applied on the drum are of the right quality and to the right specification.

The data gathered at this stage is collected for analysis and to enable continuous improvement to the guidance systems. By introducing higher levels of automation in this way, MILEXX has achieved up to a 95 percent pass rate for tyre building actions in the breaker and tread servicer. This saves a great deal of operator time, frees them up for other activities and helps bring costs down substantially.

And this is only the first step.

TOWARDS AN EVOLUTIONARY FUTURE

The evolutionary, stage by stage approach taken by VMI aims to derisk and reduce the cost of adopting what may soon include some radical new technologies. VMI is already starting to use machine learning (ML) and artificial intelligence (AI) algorithms to accelerate the core processes of tyre building, enabling production platforms to learn from each experience, improving performance incrementally and continuously.

In VMI's drive to help the entire industry become more sustainable, use of smart software is playing a big part in everything from better use of materials to energy reduction to avoidance of scrap. Equally important is the way VMI is using automated components from its UNIXX single cell solutions to bring higher performance levels into more traditional tyre manufacturing.

UNIXX Belt Maker potentially removes the need for a standalone calendering line and uses continuous extrusion to enable incorporation of more 'exotic' and high-performing compounds in tyre designs. This is a key factor in helping manufacturers reach better levels of environmental performance, not just through reduced use of resources and energy but also by cutting particulate emissions.

Another new VMI system for component preparation is Revolute, the new automated Bead Apex solution, which accelerates production, uses high apexes (handling a wider variety of compounds) and simplifies handling. The importance of these new concepts lies in the way they can be integrated with existing investments, adding value to the platforms already in operation. For Indian manufacturers, this could be extremely welcome news.

WHAT NEXT FOR VMI IN INDIA?

In October of 2024, the new permanent service centre in Vadodara will bring higher levels of hands-on support to all customers in India, together with fixed cost, simplified support for such essential requirements as drum refurbishment. India will also become a key part of VMI's global software group and will play a leading role in developing new ML and AI concepts for customers everywhere.

VMI REVOLUTE

That's for the future. Right now, the arrival of MILEXX, together with the use of new technologies in materials, automation and quality management will be helping the Indian tyre industry gain a competitive edge today and into the future – for the benefit of Indian industry as a whole. ■