



Bringing new technology to life

Dr Matthias Kümmerle has worked for Bucher Emhart Glass for 10 years. The company's VP of Technology discusses his role and explains how innovation remains at the heart of the organisation.

Dr Matthias Kümmerle's role is to oversee all aspects of R&D and Product Management at Bucher Emhart Glass - from the feeder to the forming machine as well as ware handling and cold end inspection.

"If you are in R&D in the glass industry you realise it's extremely broad.

"It is high in technical complexity and comprises a wide range of different engineering disciplines. At the same time it's exactly the breadth of the technology which is fascinating and is a paradigm I enjoy a lot" says Matthias Kümmerle.

Engineering disciplines include mechanical engineering, material science, thermodynamics or fluid dynamics, while in recent years software, controls, and data analysis have also become critical topics to the industry and to Emhart.

While the introduction of a completely new type of IS machine is rare - once every 10 years - software products, such as new closed loop controls, and other

developments such as new sensor systems or mechanical modules represent the more frequent product launches.

As glassmakers are under pressure to be more flexible, are facing increased competition from rival packaging materials, are confronted with environmental challenges as well as cost pressures Mr Kümmerle is convinced that the glass industry can remain successful only through continuous innovation.

"The need for innovation has never been higher and we have to come up with safe, flexible and effective solutions," continues Mr Kümmerle.

Emhart invests up to €18 million a year on R&D and maintains its own research centre in Windsor, Connecticut, USA.

The centre has its own fully functional glass plant with a 40t furnace and the full Emhart range of forming and inspection technologies.

"This allows us to drive R&D, which would be difficult to do in parallel with on-going production at our customers."

As a whole Emhart has about 80 people that work in the research and the development of new technologies.

End to End

The company will be present once again at this year's glasstec event, where it will highlight the achievements as well as the next steps of its End to End journey.

End to End Technology is a unique set of solutions and automation technologies designed to make glass production easier, safer and more efficient.

It takes a holistic view of the production process and unifies forming and inspection technology.

Emhart launched its End to End concept at the previous glasstec in 2016.

End to End also aims to address the problem of acquiring and retaining young talent to the glassmaking sector.

Mr Kümmerle said: "This is probably one of the largest motivators for the

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Mr Kümmerle outlines how a new item of technology is created at Emhart Glass

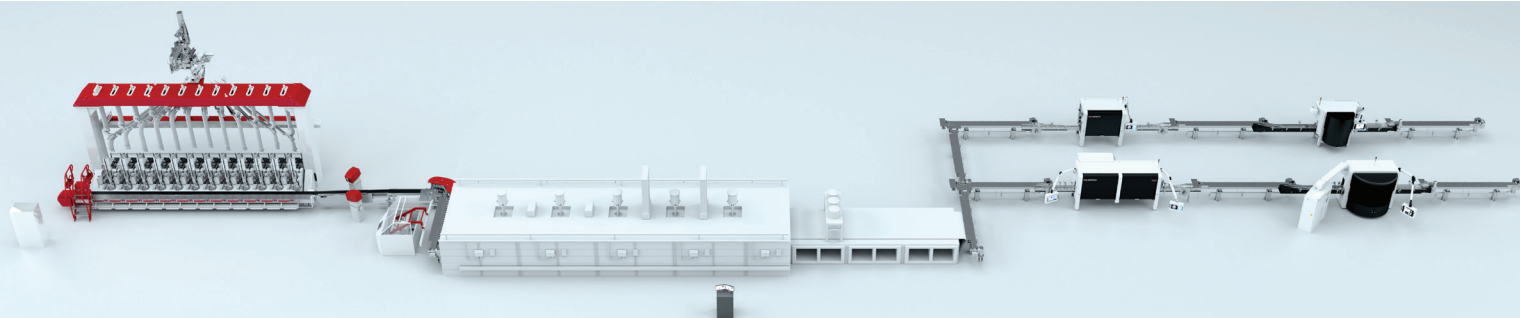
"It all starts with a customer need and we try to understand what the customers want. Before we start doing anything we have meetings at the very early stages with our customers. We have a culture where we involve our customers in the R&D process from day one. In the past, R&D people were not comfortable to share early ideas with external customers. But we have changed this completely.

Once we have confidence that a new solution addresses a market need and that there

► Dr Matthias Kümmerle, the company's VP of Technology



is a business case, we have a relatively conventional development process where we follow a stage-stage methodology, from concept to prototype and then go step by step. We have a strategic product platform in our organisation, where we act as a funnel, evaluating market needs and ranking development ideas and try to answer two questions: One, does a proposal fulfil a customer need and result in a favourable business case for it and two is our organisation capable of driving such development? The trick in product development is to make the right choices, to prioritise, since there are always more ideas than available resources."



whole End to End development because we realised we had to develop technology in the direction where it is more effective, easier to use and safer to operate and is less dependent on experienced people.

"We don't believe it will ever be where you run a machine at the push of a button but we see a lot of areas where we can make the technology more effective and simpler.

"End to End is a set of solutions and technologies particularly in the area of automation and process control that also makes better use of all the data than today."

One aspect of End to End focuses on automatically adjusting parameters of the forming machine by using measurement data from integrated sensors. As a result, the operators can spend much less time babysitting the machine and adjusting its parameters while at the same time the processes become more consistent, repeatable and thus resulting in better quality and higher output of the plant.

End to End can also help glass operators manage the amount of data available to

them.

Mr Kümmerle said: "If you look at the forming and inspection process there is a lot of data available. There is a multitude of control screens and monitors and the average plant engineer is overwhelmed. There's a big push to make better sense of the data to help the operator in his task and to push automation to the next level."

Ongoing End to End developments aim at applying big data analysis to investigate correlations that a human could not pick up.

The ultimate concept of End to End is that the hot end and cold end work hand in hand together. The cold end continuously 'talks' to the hot end.

"We will feed information that is picked up in the cold end back to the hot end. Based on such information, the process will be adjusted automatically and eventually we will avoid defects being produced.

"Today there are still too many losses and End to End tries to minimise those losses," he added.

Customer Feedback

Initial developments of the End to End journey have already been implemented in several glass plants in recent years and the response has been good.

"We have been overwhelmed by the feedback we are getting on End to End. It seems we are hitting a nerve and the feedback from pretty much all our customers is that this is exactly what the industry needs."

End to End is a 10 year roadmap and is staged in a way where there are many intermediate steps and several product launches rather than a whole package which is completed in a couple of years.

It combines several solutions on topics such as process control, safety and ergonomics. The company has also received positive feedback about the concept's scalable approach, where customers can add on elements as they become available.

Such feedback is one of the perks of Mr Kümmerle's job.

"One of the best things that can happen for somebody working in product

development is if there is positive feedback from the users and market. It confirms that your initiatives are going in the right direction and that you're working on solutions that are recognised, that is very motivating."

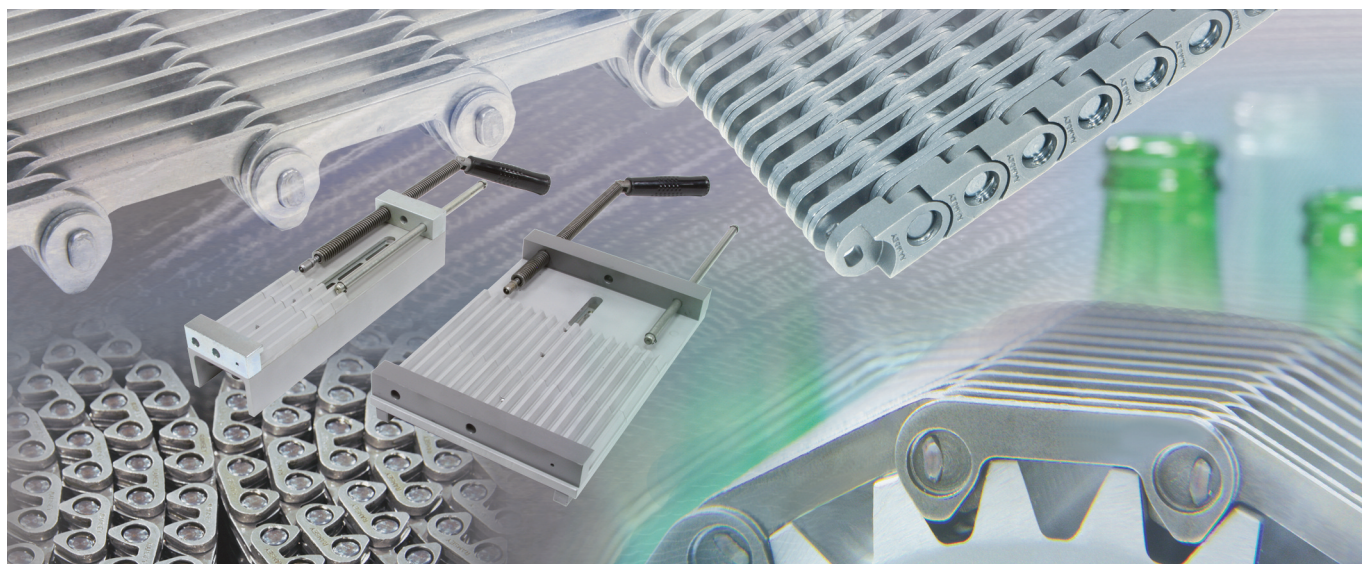
More of the roadmap will be unveiled at this year's glasstec, where Emhart will unveil more innovations towards its dream of a glass plant of the future.

"In 10 years time it will be much more hands off and a very stable process. It will require less interaction of people and will be simpler for glass plants that struggle today with low efficiency rates to produce at a much higher rate." ■

Bucher Emhart Glass, Cham, Switzerland
www.bucheremhartglass.com



◀ End to End incorporates the latest automation technology.



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