Kautex Maschinenbau is the world market leader for extrusion blow molding machines. The family-owned company was founded in Germany in 1935.

Kautex Maschinenbau simplifies plant handling and support with ifm solutions.

As the world market leader in their segment, Kautex Maschinenbau manufacture extrusion blow moulding machines that not only produce products of the highest quality, but also help to work efficiently and conserve resources. In order to realise this even more efficiently in the future and in even closer coordination with customers all over the world, Kautex Maschinenbau was looking for a way to easily digitise all relevant plant data.

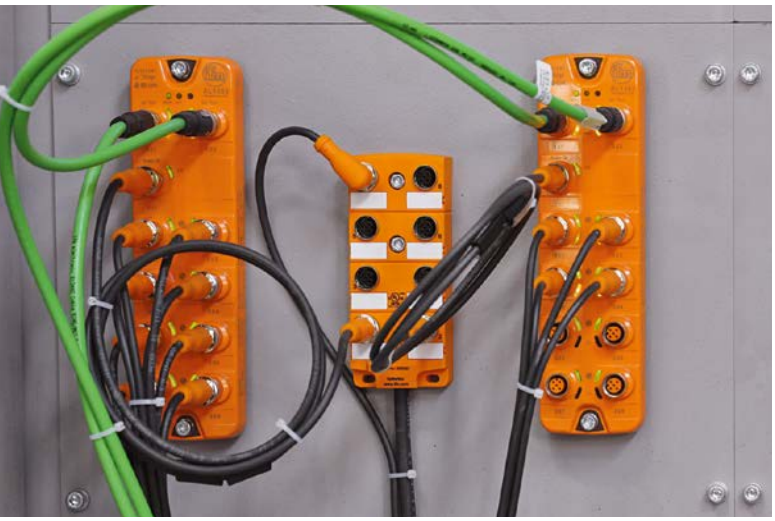
"The processes that take place in our plants are highly complex," says **Maurice Mielke,** Engineering Manager at Kautex Maschinenbau in Bonn. "In order to achieve the desired result in the end, it is not enough for the automated processes to mesh perfectly. It is also important to precisely maintain conditions such as temperature or blowing pressure."

So far, this has been ensured by a multitude of sensors that Kautex implements in each plant. For example, the function of mechanical components such as extruders, heads or clamping units can be automated and monitored. Flow sensors ensure a loss-free and correctly metered supply of compressed air, while flow meters detect the flow rate and temperature of the cooling liquid flowing through the moulds.

All relevant measured variables are recorded and transmitted to the IT level via IO-Link.

Digitalisation as a customer benefit

Even sensors without IO-Link can be integrated into the IT structure via data splitters.



The information from the sensors is bundled in IO-Link masters and forwarded from there via an IoT connection (green cable) for IT-based evaluation.

Collaboration for machine optimisation at customer request

"Digitisation has several advantages. First of all, the customer can view and evaluate all important plant information centrally on a computer in order to operate the plant as efficiently as possible," says **Mielke**.

"At the same time, it is also possible to view the process data on site at the machine itself, which simplifies the work for the plant operator. If support from us is required, the customer can temporarily transfer the necessary data to a cloud with just a few clicks, where everyone involved can work remotely on a solution based on real-time data."

For the implementation of the plant digitalisation, Kautex Maschinenbau relied on hardware and software from ifm. The automation specialist offers a comprehensive portfolio of sensors, infrastructure and software to implement a project like that of the machine builder quickly and easily from the sensor to the IT level. The basis for this is provided by the manufacturer-independent digital communication technology IO-Link. Sensor data is transmitted purely digitally, i.e. without conversion losses and thus with high precision, to both the controller and the IT level.

Easy retrofitting thanks to the IO-Link data splitter

"In addition to the comprehensive product range for the implementation of our project, we were particularly convinced by the simple retrofit option," says **Mielke**.

If IO-Link-capable sensors are already installed in systems, but have so far only been connected to the PLC in analogue form, digitisation can be easily implemented using an interconnected IO-Link data splitter. But even purely analogue sensors can easily be made fit for the digital age with a converter that is placed between the sensor and the splitter. Via the Y path opened up by the IO-Link data splitter, the digital signal from the sensor then reaches both the PLC and, via the IO-Link infrastructure, the IT level without any loss of time.

In the Kautex Maschinenbau plant, an edgeGateway collects the data transmitted by the sensors, processes it into readable values and makes it available locally or additionally on one or more cloud platforms, depending on the customer's wishes. If necessary, this selection can be adjusted with just a few clicks – via a browser or on the unit touchscreen, where the most relevant information about the plant process can be visualised.

If necessary, the customer can contact the manufacturer's support and make specific data temporarily accesssible. An enormous advantage, especially with complex machines, to ensure high efficiency of the plant.

> *For the implementation of the plant digitalisation, Kautex Maschinenbau relied on hardware and software from ifm.*

Kautex implements the local analysis of the data history with the IoT software ifm moneo. All the data collected is available here for detailed examination and evaluation. In addition, values can be linked with each other to make it easier to understand interrelations and to detect changes more quickly. For example, the temperature difference between the flow and return of the cooling circuit can be displayed as a calculated value. Pressure and quantity differences between compressed air input and total consumption at the end points can be quickly identified. This means that leakages in the compressed air system can be quickly detected and repaired. Tank levels can also be easily converted into litres and displayed in a dashboard, for example.

"However, true to our slogan 'Be one with customers and partners', for us the work on such a machine does not end with delivery to our customers," **Mielke** emphasises.

"We want to offer our customers production reliability. This also includes continuous support when it comes to operating the system in ideal condition. With the digitalisation solution, we do not only meet our own demand for maximum efficiency and resource conservation. We also make it easier for our customers, as well as ourselves, to react to changes in the plants more quickly and in a more targeted manner. And that is exactly what Industry 4.0 should be about."

Conclusion

With ifm's digitalisation solutions, Kautex Maschinenbau has been able to both increase process transparency for its customers and optimise its services if a customer needs support. With just a few clicks, the customer can temporarily release relevant plant data for joint evaluation with the machine manufacturer's specialists. A real win-win for everyone involved.