



PROBAT/Bauermeister
Digitalised coffee grinders



Coffee grinders with maximum automation enjoyment

IO-Link makes installation, diagnostics and maintenance significantly smarter

PROBAT SE, headquartered in Emmerich am Rhein, is the global market leader in coffee roasters and grinders. After all, two out of three cups of coffee consumed worldwide are made using the company's machines.

Its subsidiary Bauermeister Zerkleinerungstechnik GmbH is based in Norderstedt, near Hamburg, where they have been developing and producing machines for the comminution (particle size reduction) of foodstuffs for the past 135 years. Bauermeister's clear focus on innovation and quality has established the company as a leading manufacturer of coffee grinders which are valued throughout the world for their reliability and precision. The company's many years of experience and the continuous development of its technologies make Bauermeister — as a subsidiary of the PROBAT Group — an indispensable partner for the coffee industry. The coffee grinders benefit from the parent company's innovative strength and therefore also bear the PROBAT name.

Adapting automation to Industry 4.0

Although Bauermeister's coffee grinders have featured a high degree of automation for a long time now, this used to be based on conventional sensor technology. Signals were individually routed through PLC modules, which made diagnostics and component replacement difficult.

In order to meet the demands of Industry 4.0, Bauermeister looked for a future-proof solution that offered greater convenience and user-friendliness. The challenge was to modernise the existing technology in such a way that it could meet the increasing demands of networked industry without compromising the quality and reliability of the machines. Industry 4.0 requires not only higher efficiency, but also improved data integration and simplified maintenance to make the process as frictionless as possible for the user.

This 3-stage grinder can grind up to about one tonne of filter coffee per hour.





*Gone are the days of the millstone:
the stainless steel rollers of a 2-stage grinder.*



The drive side of a 2-stage grinder.

IO-Link technology from ifm

Working closely with the experts from automation specialists ifm, Bauermeister has developed a new automation concept on the basis of IO-Link technology. The use of IO-Link master modules and a wide range of IO-Link-capable sensors has allowed the amount of wiring to be reduced considerably: instead of many individual signal lines, a single bus cable is sufficient to connect all the sensors to the controller.

IO-Link is a manufacturer-independent, globally recognised communication standard that enables seamless digital communication between sensors, actuators and controllers. As a further development of conventional binary interfaces, IO-Link allows the transfer not only of pure process data, but also of extensive diagnostic and parameter information. This creates a high degree of transparency. Simultaneously, sensors and actuators can be configured centrally via the controller. Stored settings are automatically transferred when devices are replaced, which simplifies commissioning considerably. Communication is completely digital, thus increasing process reliability and measurement accuracy. In addition, the IO-Link technology enables seamless integration into existing systems, thus increasing the solution's flexibility and scalability.



The signals from all the sensors are combined via IO-Link master and transferred to the machine controller via PROFINET.

“The changeover to IO-Link enabled us to wire the sensors directly to IO-Link modules, thus avoiding clamping and installation errors”, explains Detlef Krüger, Team Lead Electrical Engineering at Bauermeister. “Thanks to the plug connections, mechanics are now able to replace individual modules, too, as an electrician is no longer absolutely necessary.”

This simple replaceability considerably reduces maintenance and operating costs while increasing plant uptime. In addition, IO-Link offers comprehensive diagnostic capability right down to each individual sensor. Potential problems can be detected early on, isolated and quickly fixed, which minimises downtimes and increases productivity over the long term.

Faster installation, simpler maintenance, greater flexibility

Switching to IO-Link has given Bauermeister numerous benefits. Wiring errors during installation have been completely eliminated and installation times reduced by 20 to 25 percent. Thanks to IO-Link, additional functions can easily be integrated on the hardware side without the existing wiring having to be changed. It is often enough to connect sensors or actuators to a free port on the IO-Link module — the actual adjustment takes place subsequently by means of the software.

“We also take our customers’ special wishes into account”, emphasises Detlef Krüger “Some customers may want to have vibration monitoring integrated, for example. Then we would simply equip the relevant modules in the coffee grinder with vibration monitoring.”

This customer-oriented approach underlines Bauermeister’s philosophy of always focusing on the users’ needs and developing innovative solutions that meet the highest standards.

The advantages of IO-Link technology go far beyond pure functionality. It enables precise data collection and analysis, so that users can make informed decisions and increase the efficiency of their processes over the long term. Access to real-time production data offers new possibilities for adapting machines optimally and reacting flexibly to changing requirements.

A partnership on an equal footing

The success of the transformation to modern digitalisation is in large part thanks to the close, trusting cooperation between Bauermeister and ifm.

Regular workshops and training courses encourage intensive dialogue that benefits both sides. For example, the ifm developers have been able to integrate valuable practical feedback into the further development of their products.

The partnership impressively demonstrates how close cooperation between companies produces innovative solutions that meet the requirements of modern industry.

“I can describe our cooperation with ifm as positive in every respect — especially with the sales team”, concludes Detlef Krüger. “Also, the dialogue with the developers has consistently been constructive — for example, when discussing how to integrate new sensors usefully and profitably. I can wholeheartedly recommend ifm.”

This positive assessment underlines the importance of a partnership that is based on mutual trust and respect and a common goal: in this case, to develop technologies that help shape the industry’s future.

Conclusion

The IO-Link-based automation solution makes Bauermeister ideally equipped for the future. As a technology leader, the company sets standards when it comes to efficiency, flexibility and user friendliness — and thus helps coffee to be enjoyed throughout the world at the highest level. The combination of technological progress and customer-oriented innovation makes PROBAT and Bauermeister pioneers in the coffee industry and reliable partners for companies that focus on quality and efficiency.