

PRESS REPORT

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Keeping an eye on energy consumption: How smart energy monitoring enhances competitiveness

Injection molder Filthaus optimizes its production with iMAGOxt

Energy efficiency involves more than sustainability. It has a noticeable effect on competitiveness especially in the packaging industry, where unit costs must be calculated with an extremely sharp pencil. At Filthaus, the iMAGOxt energy monitoring system from WITTMANN helps company staff to keep an eye on all power consumption points, resulting in continuous production process optimization.

300 watt power consumption on standby – this is definitely too high for this production cell. But where does the current go? – Immediately after our arrival at Filthaus GmbH in the German town of Meinerzhagen, we are right in the middle of discussing this issue. Stefan Filthaus, Managing Partner of the company has just come from a meeting with the digital experts of the WITTMANN Group, who had just noticed by accident that this particular injection molding cell was consuming a lot of energy although currently not in action.

Only a few weeks before, Filthaus had started up the iMAGOxt energy management system from WITTMANN on its injection molding floor containing 26 machines, and the benefit has already proved enormous. “Without iMAGOxt, we would never have noticed the high no-load consumption of this work cell”, says Stefan Filthaus. “Now we can address this issue, eliminate the hidden electricity consumers and thus save several thousand Euros per year.” What is the practical benefit of iMAGOxt? We had arranged our meeting with Stefan Filthaus to find answers to this very question.

For ten years now, the plastics processor on Werner-Battenfeld-Strasse in Meinerzhagen has been a direct neighbor of WITTMANN BATTENFELD Deutschland, the German subsidiary of the Austrian WITTMANN Group. “And it’s quite natural for us to look at what our neighbors are doing, and see what synergies can be found close by”, reports Stefan Filthaus. “iMAGOxt caught our attention. Such a tool was previously unknown to us on the entire market.”

iMAGOxt is a cloud-based energy management software which supports injection molding processors in analyzing, visualizing and optimizing energy consumption. To enable dynamic, real-time visualization of amounts and variations of energy consumption at all consumption points, iMAGOxt collects measurement data at certain consumption points, analyzes trends, calculates user-defined KPIs and visualizes all results in the form of very clear, self-explanatory graphs. “Energy transparency is not just an internal efficiency indicator, but a marketable asset that strengthens the company's positioning and credibility and thus enhances long-term business resilience,” emphasizes Federico Colombo, sales expert at WITTMANN DIGITAL, the software house within the WITTMANN Group.

“iMAGOxt is a perfect decision-making guide for actions to reduce energy consumption and the CO₂ footprint, as well as to comply with the Supply Chain Act”, underlines Daniel Müller, who as Regional Sales Manager at WITTMANN BATTENFELD Deutschland is responsible for the customer Filthaus.

With 20 staff members, Filthaus itself is currently not yet subject to the reporting obligation according to the Supply Chain Act, but its customer base includes several major corporations requiring from all their suppliers evidence of the CO₂ footprints of the products delivered.

Clarity and easy operation meet with positive response

The Filthaus product portfolio consists of two major business segments of roughly equal size: packaging and technical parts.

In the packaging sector, products such as screw-top and slip-lid jars are being made, together with matching lids, as well as double-walled jars and measuring scoops for food products, cosmetics and chemicals among others. The materials processed are polypropylene in large quantities and various types of bio-based plastics, as well as recycled materials coming partly from in-house recycling of sprue and scrap parts.

The technical parts division caters to users in various sectors of industry, including medical technology and health care, as well as the building and furniture industries. Here over one hundred different types of plastic are being processed by single- and two-component injection molding and mono-sandwich processes.

What both these business segments have in common is that a high proportion of the total unit costs is incurred by energy consumption. “On average about 20 per cent”, explains Stefan Filthaus. “In order to remain competitive, we must compensate the

rising energy prices by reducing our energy consumption.” What is more, the practice of mixed costing may quickly lead to a loss of orders from the particularly price-sensitive packaging market. “With iMAGOxt, we are now able to carry out more precise financial evaluations of each production process”, says Filthaus.

Transparency for all consumers on the production floor – this is exactly the point, and in addition to the requirements of customers, this was the second motive for Filthaus to investigate the opportunities iMAGOxt had to offer. “I had this demonstrated to me at WITTMANN’s technical center”, says Stefan Filthaus. “The clarity and simple operability of the software dashboard convinced me at once. I could see at a single glance how the energy management system functions and what it can achieve”, says Stefan Filthaus.

Monitoring of all consumers across all system brands

In addition to the software, the scope of delivery for iMAGOxt includes current measurement sensors, which transfer their readings to the software via a cloud. The sensors are installed on the individual consumers. Whether these are machines and auxiliaries from the WITTMANN Group, or systems coming from other suppliers, is irrelevant. “iMAGOxt functions system-independently and just as reliably with machinery systems consisting of many different brands”, explains Rainer Grießmann, design engineer at WITTMANN BATTENFELD Deutschland, who, jointly with Daniel Müller, supports Filthaus in the implementation of iMAGOxt.

The measuring points may be individual systems or complete production cells. “Here, we offer a lot of flexibility”, Grießmann continues. “Before the installation we evaluate jointly with our customers which measuring points will contribute most effectively to reaching their specific individual goals.” In the case of Filthaus, it was decided to treat each injection molding production cell as a separate unit. For the calculation of the product carbon footprint must be based on the total consumption of the production cell.

In addition to the injection molding cells, two cooling systems and the two large air compressors were integrated into the energy monitoring system, and finally, the main connection was also defined as a separate measurement point. The thought behind this was that the power consumption of the administration and warehousing departments including lighting, IT infrastructure, heat pump and other consumers not directly involved in production processes could also be calculated from the difference between the total consumption inside the building and that of the production equipment.

In total, this adds up to 30 measuring points which were installed and interconnected at Filthaus.

The individual consumption figures can be visualized by the software either in kilowatt hours or in tons of CO₂ emissions, in both cases per kilogram of material processed. These values are invariably lower on days with strong sunlight, since Filthaus had invested in a photovoltaic system in 2024. “In summer, there are days when our production is running completely independently of the public power network”, says Stefan Filthaus. “This reduces the CO₂ footprint of the products and saves money.” The CEO is convinced that all actions to increase sustainability must also pay off financially.

Mobile consumption monitoring

“The graphic displays on the dashboard of iMAGOxt have made it very easy for us to analyze our energy consumption rates and help us to make the right decisions”, Filthaus emphasizes. Particularly exciting, for example, is a display in which the total energy flow is divided into graphic strips representing the individual consumers, with the width of each strip reflecting each consumer’s relative proportion of the total consumption. An individual color can be defined for each consumer, which is also taken over automatically into other graphic displays.

The energy consumption values can be visualized as required either per year, per week or per hour, or in the form of a progressive trend chart. On the basis of these values, Stefan Filthaus calculates his energy costs, CO₂ emissions and unit costs for each production cell in operation. Stefan Filthaus is especially pleased about the software’s web-based functions. “I can also retrieve all of the data via my cellphone or any terminal of my choice without any need for a separate app”, says Filthaus.

“iMAGOxt provides a distinctive advantage by offering precise, data-driven insights that directly impact strategic decision-making,” says Edoardo Tettamanti, Head of Marketing at WITTTMANN DIGITAL. “The platform enables businesses to transition from reactive energy management to a proactive approach, optimizing resource allocation and ensuring compliance with evolving sustainability regulations.”

There is a lot of potential in this newly acquired transparency, which Filthaus is now exploiting step by step. “iMAGOxt helps us to optimize our processes in order to continuously increase the efficiency of our production”, explains Stefan Filthaus. “We derive very specific actions from the analyses of iMAGOxt.” The detection of energy

losses like those in the production cell mentioned above, which consumes too much power while on standby, is only one of innumerable examples. “The energy management system also helps us to sensitize our workforce” is how Stefan Filthaus describes an aspect of particular importance to him. Is there any temperature controller or conveyor belt switched on although it is not needed at present? Has someone forgotten to switch off the light? The evaluations delivered by iMAGOxt reveal that even small actions contribute substantially to overall efficiency.

Elimination of power consumption peaks

A current project at Filthaus addresses the analysis of power peaks – and here, too, iMAGOxt is able to help. “We can now clearly see the consumption flow and pinpoint exactly to the minute when power peaks have occurred. We evaluate these by investigating which special effects caused those peaks on that very day”, explains Filthaus. For in spite of carefully planned start-up procedures performed after weekends or company vacations, it often happened in the past that the power consumption shot up briefly to excessive peak values. And the local power supplier providing the energy calculates and charges its overall electricity price for a whole year on the basis of such brief maximal consumption events. “Just because something got out of control once, we are paying extremely high provision fees for the entire year”, says Filthaus. “This is precisely what we need to prevent in future”.

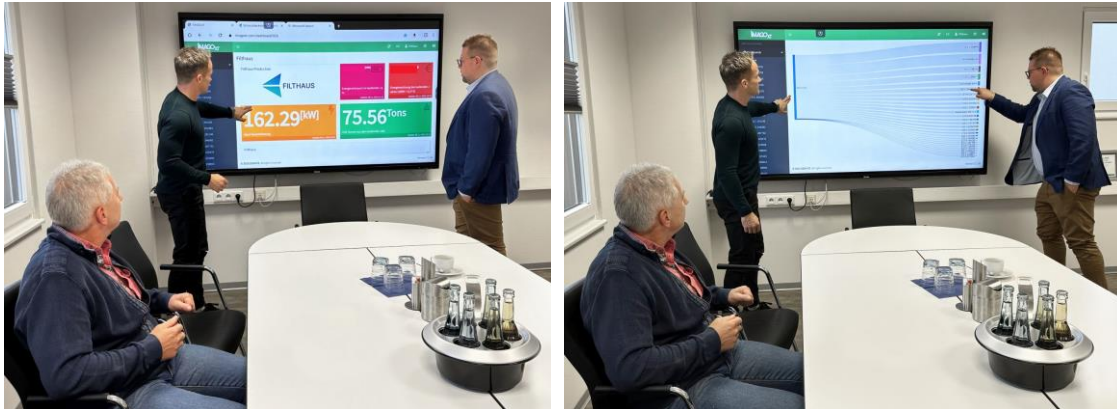
In order to investigate further potentials, Stefan Filthaus and his team continue to cooperate closely with the experts from WITTMANN. Here, the fact that the two companies are located only a few meters apart is a definite advantage. “We can always arrange spontaneous personal meetings at short notice”, says Grießmann. But for Stefan Filthaus, there is more to the excellent cooperation: “We talk to each other on equal terms, and all of our contact persons are quick and target-oriented in implementing projects. But what I appreciate most is our easy-going mutual interaction.”



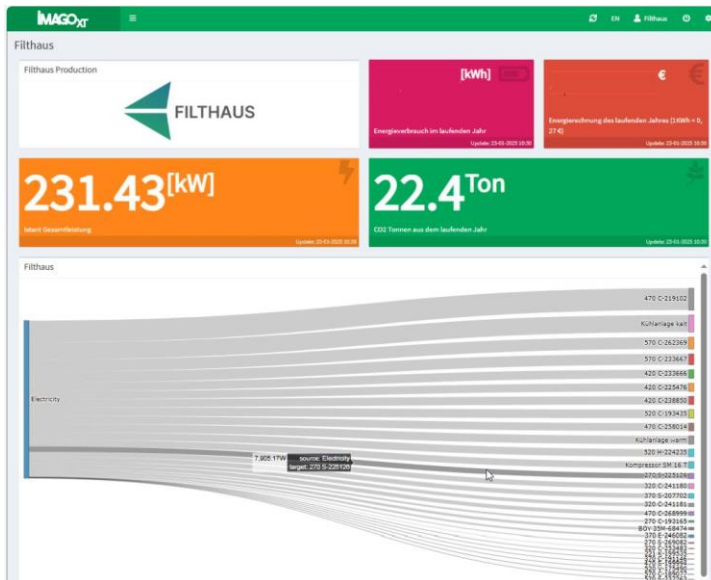
Jars with screw tops and slip-on lids are one of the specialties made by Filthaus. In the business segment of packaging, a mixed calculation can quickly lead to a loss of orders. (Photo: Filthaus)



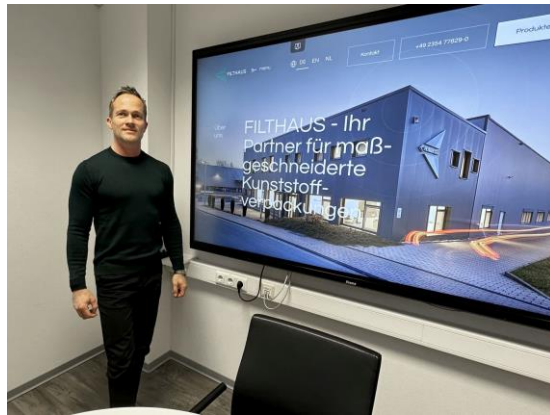
Jointly exploiting energy saving potentials: Rainer Grießmann from WITTMANN, Stefan Filthaus from Filthaus and Daniel Müller from WITTMANN. (Photo: WITTMANN Group)



The short distances simplify teamwork. Filthaus and WITTMANN are direct neighbors in Meinerzhagen, so spontaneous personal meetings can be arranged easily. (Photo: WITTMANN Group)



The clarity of the display convinced Stefan Filthaus right from the start. The flow diagram reveals the largest energy consumers at a single glance. (Photo: WITTMANN Group)



“Without iMAGOxt, we would not have noticed this system’s excessive power consumption on standby. Now we are able to address the issue, eliminate the hidden electricity consumers and thus save several thousand Euros per year.”

Stefan Filthaus, Managing Partner of Filthaus GmbH