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#anugafoodtec

Digitalisation and automation as a cornerstone of the energy turnaround

Anuga FoodTec 2024 shows how digitalisation and automation can help achieve a new level of efficiency in the production of food and beverages

Depleting resources, the challenges on the energy markets and strict environmental requirements are turning efficient production processes into a decisive competitive factor in the food and beverages industry. The consumers are also expecting new approaches and increased commitment from the manufacturers. The respective technologies are the focus of Anuga FoodTec from 19 to 22 March 2024. With its key topic "Responsibility" the trade fair is placing the spotlight on the many energy-efficient solutions and measures of the supplier industry across the entire supply chain. That means: Many core processes have to be rethought to unite the sustainability goals with the increasing product diversity within the trade.

Automation and digitalisation hand in hand

With an extensive range of cross-process and cross-industry solutions and services the exhibitors of Anuga FoodTec will address the themes energy efficiency and the conservation of resources. Systems for the seamless energy monitoring, as demanded by the DIN EN ISO 50001, must be intelligently and flexibly implementable. The aim is the representation of corresponding energy performance indicators (EnPI), i.e. such as the energy used per production unit to enable the development of measures to reduce the energy consumption. This is however difficult without an exact analysis of possible weaknesses directly on the shop floor.

This is precisely where automation and digitalisation come into play - because efficiency and sustainability can be best achieved through automated processes, which are monitored digitally and in real-time so they can be adapted as required. The key lies in data transparency which enables the companies to break the energy consumption for rinsing, cleaning, washing or heating down into the individual processes. The shorter the reaction time of for instance a temperature sensor on the heat exchanger, the faster the heating valve can be controlled. This not only saves thermal energy, but also reduces the negative influence on the taste. On the other hand, with the help of exact flow measurement the required heat holding time can be observed exactly and a control concept can be implemented to increase the production capacity.

Smart sensors and AI ensure transparency

Modern sensors and data managers are the centrepiece here, which act as an interface to the process control level and support all common fieldbuses. They connect the plants and production systems vertically with each other, whether in on-



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premises, Edge or Cloud environments. Artificial Intelligence (AI) is being increasingly implemented in the systems. It analyses the measured readings and correlates them. This enables the production to be automated and controlled in an energy-efficient manner. As well as the suppliers of automation systems, above all the process measuring technology specialists, who are exhibiting in Cologne, are required for the integration of AI. They are called upon to introduce new dimensions of data collection and implement machine-learning algorithms that go beyond the functions of the individual sensors.

Temperature, fill level, pressure, moisture and much more: Whereas the manufacturers of measurement and control systems tried to develop sensors for every need up until a few years ago, today they are solving more complex tasks with new sensor software concepts. The sensor fusion - the transition over to multisensors for the simultaneous measurement of physical, chemical or biological values in a sensor assembly - is a trend that is also reflected at Anuga FoodTec. Vortex flowmeters with integrated temperature and pressure sensors are an example here. They are suitable for the flow measurement of the liquids, gases as well as saturated steam and superheated steam in industrial supply circuits. In the scope of an intelligent energy management system they also enable the measurement of the gross/net heat volumetric flow rate of steam and condensation.

Future-proof systems thanks to efficient technology

Compressed air is a further determining factor for increased energy efficiency. This requires on the one hand the precise design so that compressors - also thanks to the implementation of frequency convertors to control the speed - can work at the optimum operating point around the clock. In this way, the energy efficiency of whole production chains can be significantly improved - from ventilators, to pumps, through to conveyor belts. Converting the motors over to more efficient models can increase the overall efficiency. For example asynchronous motors with an efficiency of IE4 and synchronous reluctance motors with an efficiency of IE5 are available. In turn, retrofits optimise the reliability and energy efficiency of already installed electric motors and converters without having to invest in new equipment. The exhibitors of Anuga FoodTec 2024 will also be presenting solutions in this area.

The climate goals cannot be achieved with efficient energy consumption alone. Whereas the initial question is how the energy requirement can be reduced using innovative process technology, the next step involves the integration of renewable energy sources. For food producers, who are actively co-shaping the energy turnaround, but who at the same time want to guarantee their security of supply, solar thermal energy, heat pumps, biogas or biomass are attractive alternatives on the way to CO₂ neutral food production. These topics will be addressed in the exhibition area "Environmental technology and energy", which is being integrated into Anuga FoodTec for the first time. Cogeneration units and combined heat and power (CHP) plants, which provide at the same time electricity and heat in the form of steam or hot water, offer further promising potential. Thermal storage technologies are comparably quickly implementable alternatives to fossil raw materials. They enable electricity to be sourced favourably-priced from the grid, stored and used on-demand during sunny and windy periods.

How can the CO2 emissions in the production area be reduced? Which best practice examples are there for energy efficiency and renewable energy? And how can food producers use them to improve their energy independence? The exhibitors and the congress and event programme of Anuga FoodTec will provide answers to these questions. From 19 to 22 March 2024 the leading international trade fair in Cologne will thus become the game changer for the energy turnaround of the food and beverage industry.

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The signs are already very good that there will be a high number of exhibitors in all segments at Anuga FoodTec. The event programme comprising of lectures and panel discussions is also taking on shape. One of the key questions of the event programme will be: How should food production be aligned across the supply chain to ensure a sustainable change in our food system and global food security in future?

Anuga FoodTec is unique with its cross-process and cross-industry approach. It covers all aspects of the production of food and beverages - from process technology, as well as filling and packaging technology through food safety and packaging to digitalisation and intralogistics. Environmental technology and energy will be integrated into the trade fair as a new exhibition area.

Organised by Koelnmesse, Anuga FoodTec is being staged in Cologne from 19.-22.03.2024. The professional and industry sponsor is the DLG, the German Agricultural Society.

Koelnmesse - industry trade fairs for the food technology sector: Koelnmesse is an international leader in organising trade fairs in the field of food and beverage processing. Anuga FoodTec and ProSweets Cologne are established, world-leading trade fairs, hosted in Cologne/Germany. In addition to the events at its Cologne headquarters, Koelnmesse also stages further food technology trade fairs with different sector-specific areas of focus and content in key markets across the world, including India, Italy and Colombia. These global activities enable Koelnmesse to offer its customers bespoke events and leading regional trade fairs in a variety of markets, thus creating the foundation for sustainable international business. Koelnmesse is also ideally positioned in the field of food and beverages with its leading international trade fairs Anuga and ISM and its global network of satellite events.

The next events:

ANUTECH - International FoodTec India - India's largest international supplier fair for the food and drink technology, Mumbai 07.09. - 09.09.2023

Cibus Tec - Inspiring Innovation in Food and Beverage Technologies, Parma 24.10. - 27.10.2023

Andina Pack - International Processing and Packaging Exhibition for the Food, Pharma and Cosmetic Industry, Bogotá 27.11. - 30.11.2023

Note for editorial offices:

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