A century of expertise

Past, present and future of factory planning

The general planning for the construction of food production facilities all over the world and the design and engineering of utilities from cooling to civil engineering needs international and long experience. In 2022, Falkenstein celebrates 100 years of planning and engineering facilities for the meat and food industry around the globe. With its vision for the „Factory of the Future", the company studies the effects of process automation and digitalisation on climate neutrality.

By Christian Falkenstein

Perdigão's pigs and chicken slaughterhouse and sausage production project for over 1000 t per day in 2000. *Photo: Falkenstein*

The company was founded in Silesia in 1922 by Friedrich Meyer as a consulting and planing office specialising on the architectural design of slaughterhouses for the meat industry. His son Heinrich joined the company after becoming an architect and began working in the familiy business. Soon after, in 1956, he started managing the company.

Under Heinrich Meyer's leadership, the company relocated to the spa town Aulendorf in Southern Germany and expanded its ventures in the slaughtering and meat processing sector.

Due to the company's growth, the architect Josef Falkenstein joined the company in 1975 and soon became an important figure until he was appointed partner in 1982, renaming the company as Meyer-Falkenstein. By the time Heinrich Meyer was 70 years old, Josef Falkenstein took over as managing owner in 1992 and merged the different sectors into Falkenstein Architects and Engineers. With headquarters located in Aulendorf, the company expanded its architectural and engineering portfolio including projects and services for the white meat sector and the manufacturing of sausages, convenience and ready meals while also developing its business outside of Central Europe.

Adler's pork slaughterhouse project in 1963 in Bonndorf/Black Forest. *Photo: Falkenstein*

Global projects realised

After gaining international recognition, Falkenstein was contracted with three projects of great magnitude in South America. For the company Friosa SA in Santiago de Chile Falkenstein planned a slaughtering and processing facility for pork of up to 240 pigs per hour. Then another facility in Santiago de Chile was built, a sausage and ham manufacturing plant with a volume of up to 80 tpd for La Preferida, now part of CIAL Alimentos. And as one of the biggest projects globally at the time, a greenfield project in Rio Verde, Brazil, where Falkenstein Architects and Engineers also planned and built an abattoir for pigs and chicken and a manufacturing plant for sausages with a volume of over 1000 tpd for Perdigão, which now belongs to BRF. Thus, leading Falkenstein to open a new office in Blumenau, Brazil in 1997. The successfull ventures in Brazil made Falkenstein a well-known industry name and opened up new opportunities all over the world.

International growth

After Josef Falkenstein had passed, his children Simone, Michael and Christian took over. The siblings were able to add the general planning for the construction of a food production facility to their portfolio and the design and engineering of utilities such as heating, cooling, sanitary, ventilation, and civil engineering. The international experience in combination with an all-in-one solution for the planning of food processing facilities

resulted in worldwide growth from Europe to the Middle East, Asia and South America. Falkenstein partnered with a number of food companies such as CP Foods, OSI, Vion Food Group, Müller-Gruppe, Bell Food Group, Apetito AG, Dr. Oetker, Ehrmann, Homann and Vindija.

For Falkenstein, a globalised operation came with the opportunity to foray into new product categories e.g. bakery, dairy, fruits and vegetables, ready-to-eat salads, and other convenience options while also adding fish to their established meat processing portfolio.

Working remotly

During the last 25 years, the company had already been working remotely as its offices are in different time zones and its partners are located all over the world. Therefore, remote work has been part of the culture for a long time.

As the industry is evolving towards more sustainable practices, Falkenstein meets the growing demand for climate-neutral production, technological innovations, digitalisation and automation. The pandemic has also resulted in an increased demand for hygiene and ventilation solutions. Furthermore, the shift to implementing better animal welfare standards led to a rethinking of pre-slaughter conditions and humane slaughter procedures. These topics will have long-term effects on the whole industry and will be among the main challenges for the upcoming years.

CP Food's 2022 meat processing plant building site in China. *Photo: Falkenstein*

After 100 years of experience in the meat industry, Falkenstein developed the ability to meet the challenges of complex factory planning. From specific cultural, regional and religious requirements such as halal guidelines, varying food safety policies, or varying product ranges, the acquired know-how over its long history has allowed Falkenstein to create a diversified and solution-oriented portfolio.

Besides operating in its traditional field, Falkenstein also currently invests in research for „The Factory of the Future" and „The Zero-Waste Factory". These projects aim to study the effects of process automation and digitalisation on climate neutrality and the efficient use of ressources in food-processing factories.

Network of experts

Another main focus for this decade is networking. Falkenstein wants to develop and expand its network of experts in all fields of the food industry. Close partnerships and collaborations are of utmost importance due to the growing complexity of and demand for technological solutions. Therefore the Smart Factory Association was created to build innovative food-processing facilities hand-in-hand with leading industry experts.

In the factory of the future, production processes will be automated, cross-linked, and flexibel. The Internet of Things, analytics and artificial intelligence will improve efficiency, downtimes, and maintenance while also leading to increased product quality. Smart factories will also operate climate-friendly and resource-efficient. The smart factory can thus be an effective way for many enterprises to achieve a more transparent, sustainable and cost-effective operation. Therefore, a step-by-step transformation towards a smart factory will be the right strategy for food companies to meet future challenges.

Falkenstein invests in the training and skill development of its employees but most importantly the company wants to motivate them to become leading experts in architecture, engineering, or food technology with a fierce passion for their work. Because in the end, for the last 100 years, passion has been the company's main driver and passion will remain its leading force going into the future.

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Loma Systems

Combination streamlines operation

Leading Cheshire-based food production company, Forresters, has recently invested in eight IQ4 Metal Detection Combination solutions from Loma Systems. Manufacturers of poultry products to some of the biggest names in the UK's food industry since 1972, Forresters produce roasted, steamed, marinated and sliced chicken portions for 128 different SKUs. Amounting to 60 t of chicken daily, their customers are mainly retailers, including Lidl, Aldi, Iceland and Morrisons, plus some food service companies.

IQ4 Metal Detection Combination solution in action. *Photo: Loma*

Operating 15 production lines, Forresters needed an inspection solution that would allow them to achieve fast switching between a high throughput of multiple packaged products, while maintaining inspection and weighing accuracy. Their aim was to simplify the production line by replacing metal detection equipment and check weighing systems from different brands with a combination system from one vendor. This would result in a reduction in product giveaway, provide a smaller footprint to allow for more spacing in between lines on the shop floor, while being flexible enough to handle their product switching demands.

Following a competitive tender, Forrester's preference went to Loma's IQ4 Combination System for simultaneously detecting metal contaminants and reducing food giveaway, plus enabling quick and accurate product switches. Having previously invested in a Loma metal detector 17 years ago, which was still functioning, Loma's 'Built to Survive' attribute was seen as an important factor in Forresters' decision making process.

Combining the sturdiness of Loma's IQ4 metal detection technology and the accuracy of CW3 checkweigher, the IQ4 Combo offers a single touchscreen control with an easy-to-use icon driven menu for easy operation and integrated machine communication. The combination system proposed also suited Forrester's space reduction needs, saving around 25% of floor space within their production line.

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Winweb

Innovative and up to date

Winweb-food, the software developed by Winweb Informationstechnologie GmbH based in Aldenhoven near Aachen/Germany, has been used for 25 years from craft-oriented family businesses up to highly-industrialized companies.

The system is also continually being developed. In addition to legally mandatory QA checks such as average weight control of prepackaged products and gas analysis, it is now also possible to define in-house quality inspections: this includes regular checks, such as the cleaning of production equipment prior to production release or temperature testing in certain rooms. All of these checks can be marked as optional or mandatory and performed at specified dates. A window will then open on the predefined user's computer to carry out the tests, all of which are documented. Any checks can be directly linked either to the entry of a stock movement type, the opening of a document in the incoming or outgoing goods departments, or it can be set up entirely independently of a transaction.

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