



Special features of the CP plant include the high quality of the fixtures in the visitor centre and the visitor walkway, which runs in a straight line through the plant from the enclosure area right through to the dispatch area. It had to be planned without any steps, as well as the extremely short construction time of just one year from the ground-breaking ceremony through to opening. *Photo: Falkenstein*

# United behind a common purpose

## International project management from the first draft to going live

Specialising in industrial construction, Falkenstein Projektmanagement GmbH is a general planning office with operations all over the world. The company has made a name for itself globally in the meat industry over more than the last 100 years. The latest reference project is a new 650 pigs-per-hour slaughter and cutting plant in Inner Mongolia, China, built for the largest Thai company, the CP Group.

By Christian Falkenstein

Professional know-how, experience and profound knowledge of engineering are all called for – because such a building only forms a functioning unit in conjunction with a multitude of installations and machines. Besides the building shell itself, these include the supply of different media, internal transport and conveying equipment, various machines for slaughtering, cutting and production, as well as the exhaust air and wastewater systems. The Falkenstein general planning office is based in Aulendorf in the southwest of Germany; the company opened a branch office in Brazil in 1997. The subsequent period saw Falkenstein launch its first projects in South America. These included the planning of a pig slaughterhouse for Friosia S.A., a sausage production plant for La Preferida in Santiago de Chile as well as a slaughter, cutting and production plant for Frigorífico Paladini

S.A. in Rosario in Argentina. The Center West project for Perdígão, now Brasil Foods (BRF), in Rio Verde in Brazil, represented a special project on an unprecedented scale. Here, Falkenstein took over the complete general planning of a slaughter, cutting and production plant for pigs and poultry, with linear processes and a daily production capacity of over 1000 tonnes.

### Global operations

The facility planner also demonstrates its global competence with challenging projects in Asia. In the Philippines, Falkenstein planned a pig slaughterhouse for Biotech Farms and, shortly afterwards, a fish processing facility for Blue You. In South Korea, it planned a ham and convenience food production plant for Lotte Foods and a sausage and canned foods factory for the Harim Group. In addition, it was responsible for planning two sausage production plants in Thailand for Belucky and Thai German Meat (TGM).

Another project was a 650 pigs-per-hour slaughter and cutting plant for Thailand's largest company, the CP Group, in China. This new pig slaughterhouse was built in Inner Mongolia. CP executives paid longer visits to reference sites in Germany and Switzerland before awarding the contract to Falkenstein. A delegation consisting of several staff members came to Europe twice to view state-of-the-art facilities in this field.

Falkenstein also made several trips to China to visit the property and discuss the initial drafts.

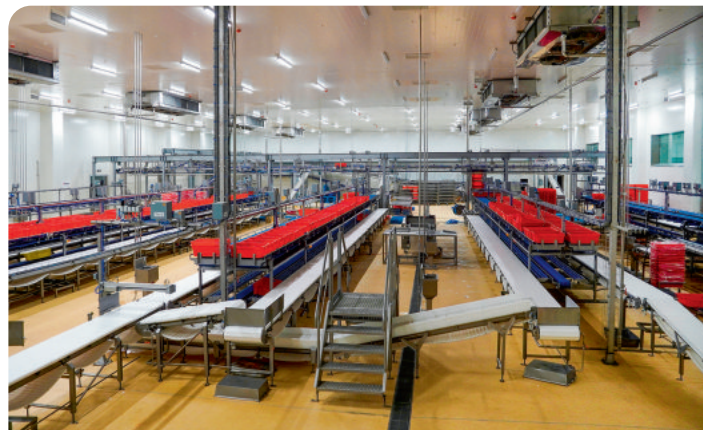
The new plant was planned with the help of Building Information Modelling (BIM). BIM is a process tool used for the three-dimensional planning, construction and operation of a facility. It creates an intelligent 3D model, which then serves as a communication tool between the various parties involved in the planning. The model can also be used to run virtual simulations of possible scenarios to predict future outcomes and events without wasting resources on building an actual structure. Once the necessary data has been entered, the carbon footprint can be calculated, or a dedicated energy system for the operation can be simulated, for example. The model can be used not only during the planning and construction phase but can also serve as a tool for facility and life cycle management once the planning is completed.

### Joint project spanning three continents

The collaboration between Germany and China did not go as originally envisaged. The pandemic meant that many meetings had to be conducted online. This was possible thanks to the stable connection to China – and the participation of a meat expert who was able to translate. The use of various technical tools allowed the participants to conduct fruitful project and planning meetings over a distance of many thousands of kilo-



Animal welfare is gaining importance as an issue for the industry. Planning companies can make a major contribution to optimising the design of the enclosures and the race for stunning. *Photo: Falkenstein*



Ideas for the production of typical Chinese products and the high level of vertical integration in the processing of by-products represented particular challenges for the facility planner. *Photo: Falkenstein*

metres. The time difference between the countries had a useful effect because, by the time the early-morning meetings started in Germany, it was already afternoon in China. When the client arrived in the office the next morning, the work discussed the previous day was usually completed, and the discussions could continue. For matters concerning technical building equipment, Falkenstein relies on its branch office in Brazil, which in turn starts much earlier than in Germany due to the time difference. This made it possible to conduct the planning more or less around the clock.

The Falkenstein-designed plant was built for the CP Food Group near the regional capital Hohhot in Inner Mongolia in northern China. CP stands for Charoen Pokphand, a Thai conglomerate which is also one of the largest food producers in the world. CP is the top industrial company in Thailand; it has also been operating in China for many years due to the owner family's Chinese roots.

China consumes more pork than any other country in the world. However, an outbreak of African swine fever greatly reduced pig stocks,

and the country had to rely on a large number of imports. The Chinese meat industry has therefore been looking for ways to increase pork production for some time. Recent years have seen the construction of huge pig farms all over the country. These are located in the immediate vicinity of a slaughterhouse, also newly built in each case.

One of these was the Hohhot project, which the CP Food Group entrusted to Falkenstein. The regional capital is about an hour's flight from Beijing and has a population of around 2.8 million. Hohhot can now also be reached from Beijing by express train, which was built for the Beijing and Zhangjiakou Winter Olympics. Inner Mongolia is part of China but is an autonomous region. The CP Food Group's new plant is located in an industrial area about 30 kilometres outside the capital Hohhot. It is designed for a throughput of 650 pigs per hour. In addition to the slaughter and cutting plant with a production section and deep-freeze storage, the large premises also include a biological sewage treatment plant, a central laboratory for regional animal health, and staff housing.

Falkenstein has built up a wealth of international experience, yet this was the company's first plant in China. Important new aspects here included the production of typical Chinese products and the high degree of vertical integration in the processing of by-products. Otherwise, the technical equipment in the facility is of high quality by European standards, is partially automated and has high hygiene levels. A unique aspect was the high quality of the fixtures in the visitor centre and the visitor walkway, which runs in a straight line through the plant from the enclosure area right through to the dispatch area, and had to be planned without any steps. This was an essential requirement for the client, as anything else would bring bad luck. The short construction period of exactly one year was also notable. This was made possible because the construction work was carried out more or less around the clock, including overnight shifts under floodlights, by a correspondingly large number of craftsmen. This was also necessary because of the extremely low temperatures in the north of China, where it is only possible to work outdoors for a few months of the year.

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In addition to the slaughter and cutting plant with a production section and deep-freeze storage, the large premises also include a biological sewage treatment plant and staff housing. *Photo: Falkenstein*



The slaughter and cutting plant for a throughput of 650 pigs per hour was built near the regional capital Hohhot in Inner Mongolia. *Photo: Falkenstein*

### Meeting the customer's requirements

The Falkenstein planning office has close links to the different trades as well as to SMEs and industry. The company's expertise in the meat industry – from slaughter and cutting through to production – is reflected in the majority of the long list of references. There are no "standard" projects. Falkenstein has built up its own interdisciplinary team and enjoys long-standing, trust-based cooperation with various experts. One of the keys to successful planning lies in anticipating and meeting clients' requirements and expectations. Aside from providing the necessary certification and documentation, the office regards it as its responsibility to deliver cost-effective, sustainable and future-proof solutions to its customers, including strong climate neutrality, zero waste and smart factory elements.

Falkenstein has set itself the goal of shaping the factory of the future and has founded the "Smart Factory Association". Digitalisation and automation are just two of the key building

blocks intended to yield greater efficiency and increase productivity and quality. The Smart Factory Association brings together global expertise for the planning, creation and operation of factories. Members include factory operators, service providers, machine builders and experts from the scientific and research communities. They keep abreast of the latest topics and innovations. Still, they are also actively involved in exploring new technological developments as well as plant-based meat substitutes and the production of in vitro meat.

Animal welfare is also a key issue for Falkenstein. For example, it is working on improving animal enclosure conditions as well as on devising new stunning methods. The planning company is thus making a major contribution to optimising the design of the enclosures and the race for stunning. Falkenstein looks to the past to inform its decisions. Here its motto is "Retain and refine the successful while applying modern standards" – a precept it follows in the expansion and modernisation of existing buildings, for

example. It often makes more sense to upgrade a building instead of demolishing and then rebuilding it – considering that the construction industry accounts for over 50 per cent of waste and that it is a huge producer of carbon emissions. A constant challenge in the projects is to reconcile all the different aspects – including the highly topical and the cutting-edge.



### Christian Falkenstein

is the owner of Falkenstein Projektmanagement GmbH. He has been actively involved in project management for the global meat industry for over 25 years. In addition to planning factories, his primary focuses are on digitalisation and green factory engineering for the realisation of carbon-neutral factories.

#### Author's address

Christian Falkenstein, Falkenstein Projektmanagement GmbH, Hauptstraße 53, 88326 Aulendorf, Germany, christian@falkenstein.de

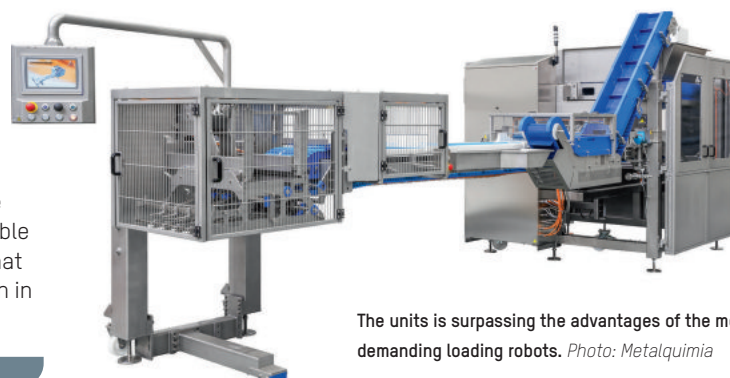
## Metalquimia

### Automatic sausage loader doubles the productivity

Metalquimia (Girona, Spain) has just introduced the new Evoloader DS automatic sausage loader. The automatic loader doubles the productivity with up to four lanes loading. It increases the loading speed with improved depositing head, offering a superior precision in the placement in the container and a maximization of the capacity of the packaging unit. The loader contains the improvement of food safety and

high flexibility in dealing with multiple packs configurations. It has a very fast disassembly and open frame structure, hygiene and sanitation are improved. Loading is possible inline and in 90 degree, what means up to 50% reduction in loading space.

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The units is surpassing the advantages of the most demanding loading robots. *Photo: Metalquimia*