**Work cabins in the pharmaceutical and chemical industries**

**Modular and flexible – ChemCon uses
item products in manufacturing**

**Highly sensitive end products and complex production process – ChemCon has specialised in manufacturing pharmaceutical ingredients and fine chemicals of maximum purity in line with the strictest production guidelines, known as Good Manufacturing Practices (GMPs), for substances with human applications. Stringent demands are placed on the manufacturing environment to ensure products are always of the highest possible quality. ChemCon selected item as the ideal partner for fitting out its laboratories and cleanrooms. Using different aluminium profiles from Line X in combination with item Installation Columns and [XMS machine cabin components](https://welcome.item24.de/xms), item has created customised enclosures and work cabins to protect workers and materials alike. The solutions are based on designs provided by ChemCon. The owner-operated business in Freiburg, Germany, benefits from the versatility and modular design of the item MB Building Kit System. Whenever a change needs to be made in production, the constructions can be expanded and flexibly modified to suit the new processes.**

[ChemCon GmbH](https://www.chemcon.com/en/) is an international, owner-operated business that manufactures fine chemicals and active pharmaceutical ingredients (APIs) for pharmaceutical, biotech and chemical companies. Besides producing small amounts of special chemicals and APIs, such as cytostatics for treating cancer patients, ChemCon offers chemical analysis services, comprehensive quality inspections, quality assurance and consulting. More than 100 employees work at its site in Freiburg, Germany, where the company has an extensive collection of specialist equipment and systems in multiple laboratories and cleanrooms spread across an area of 4,300 m².

**Tough requirements for the production environment**

Stringent requirements need to be met to safeguard highly sensitive products from harmful environmental influences. Numerous process steps are involved in manufacturing some of these synthetic substances. The production facilities are often located in cleanrooms, where the number of particles such as dust and bacteria are kept to an absolute minimum. Many manufacturers use work cabins, both to prevent undesired substances from escaping into the air, thus contaminating products and the environment or causing chemical reactions, and for occupational health and safety reasons. These enclosures tend to be connected to exhaust systems, thus protecting sensitive devices, materials, experiments and people from dusts, gases, fumes and splashes during various work processes. Particularly when it comes to handling cytostatics and other highly toxic compounds, enclosures that protect personnel are absolutely essential. ChemCon has an extensive range of laboratory equipment and multiple cleanrooms, which have been optimised for manufacturing chemical substances in kilogram or gram batches.

**Creating different cabins with the item building kit system**

“Conventional walk-in laboratory fume hoods are only of limited use for our production processes because they only come in standard sizes,” explains the head of technical equipment engineering at ChemCon, adding: “We manufacture active ingredients and fine chemicals in systems of various sizes, which is why we needed customisable work cabins for our manufacturing processes.” ChemCon decided to put together its own cabins and found exactly what it needed from [item](https://www.item24.de/en/home.html) – a comprehensive portfolio of different aluminium profiles and numerous fastening options. The modular building kit system offers a whole range of design options and can be extended to suit customers’ precise needs. “We’ve been in contact with item for seven years now,” says the technical manager. “During that period, we’ve made eight cabins using aluminium Line X 8 profiles, with item adapting the design to our requirements each time.” The dimensions of the frames vary – the largest work cabins are 3.50 m long, 1.80 m wide and 2.50 m tall. Plastic panels are incorporated into the aluminium profile frame structure, and there are double door sections including safety glass at the front of the work cabins.

**Installation conduits for supply lines**

Plug sockets and light switches inside the cabin can be controlled from outside. These sockets and switches have been installed into an Installation Column directly integrated into the cabin’s back panel and are controlled using operating elements in a second Installation Column attached to the cabin’s exterior. The Installation Columns are connected using Line [XMS profiles](https://welcome.item24.de/xms), with built-in cable conduits allowing for optimum cable routing and secure process control via the outer column. Other media such as inert gas, other types of gas, coolant and compressed air are supplied via cables and hoses routed along the back wall of the cabins – and connected directly to the consumer point in the cabin. By physically separating electricity from other media, ChemCon ensures they are all safely supplied to the user. Emergency stop buttons attached to the inside of the Installation Columns ensure processes can be brought to a halt immediately in an emergency.

**Modular principle compared to made-to-measure solutions**

Since the company’s manufacturing processes change from one project to the next, the cabins are converted and adapted accordingly. “We plan and configure the cabins in close collaboration with the item distribution partner in Freiburg,” the project manager explains. “We believe this direct contact and being located close to item is immensely beneficial throughout the entire project.” The profiles are already cut to size when they arrive at ChemCon, where the constructions are then put together on-site from the prefabricated construction kits during final assembly. More complex parts, such as door elements incorporating safety glass, are supplied complete and merely have to be fitted in place. The end result is that customised work cabins can be put together in next to no time. The installed aluminium profiles are lightweight and their minimal edge radii ensure an extremely smooth transition between the individual profiles. Edges do not need to be machined or reworked. Having the option to cover over grooves helps stop deposits of dust and other particles building up. The concealed grooves offer optimum flexibility, too, as accessories can be subsequently added almost anywhere with minimum effort. Compared to constructions made out of welded stainless steel, aluminium frames can be quickly modified and thus ideally adapted to new requirements. Precise contours make it easier to clean the construction once a project has been completed. Should the profile surfaces show signs of wear and need to be replaced, this can be done very quickly thanks to the construction’s versatile nature. “Other benefits relate to the costs for creating the machine cabins,” explains ChemCon’s project manager. “Compared to made-to-measure solutions from other manufacturers, the constructions from item offer better value for money and the delivery times are significantly shorter, too.”

**The next projects in the pipeline**

“Line X 8 profiles from item are ideal for building machine cabins, and satisfy our demands in terms of cleanliness and variable design perfectly,” says the project manager. “We have been completely won over by their versatility, modularity and compatibility with the MB Building Kit System.” Impressed by item products, ChemCon has decided to build its office furniture and work benches using item components, too. ChemCon expects ergonomic work bench design will take strain off its staff, support them in their work and optimise working processes. The specialist for the customised synthesis of active pharmaceutical ingredients and fine chemicals will therefore continue to work closely with item in the future. “We are following the growth of the product range with great interest,” points out the project leader, adding: “Seeing as item is constantly adding to its product catalogue, we are able to continuously optimise our enclosures and work cabins.”

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**Caption 1:** Enclosures to protect workers, equipment and materials are absolutely essential for companies like ChemCon that manufacture fine chemicals and active pharmaceutical ingredients. ChemCon has therefore used aluminium profiles and components from item to configure customised work cabins for its production processes.

**Caption 2:** Plastic panels are incorporated into the aluminium profile frame structure, and there are double door sections including safety glass at the front of the work cabins.

**Caption 3:** Plug sockets and light switches are located in an Installation Column on the rear wall of the cabin. Media such as inert gas, other types of gas, coolant and compressed air are supplied via cables and hoses routed along the back wall of the cabin – and connected directly to the consumer point in the cabin.

**Caption 4:** The plug sockets and light switches are controlled using operating elements in an Installation Column attached to the outside of the cabin.

**About item**

item Industrietechnik GmbH is a global market leader in building kit systems for industrial applications and employs around 500 members of staff. It has been designing and marketing construction solutions for machinery, fixtures and plants since 1976. The product portfolio comprises more than 3,500 high-quality components designed for use in machine bases, work benches, automation solutions and lean production applications. Thanks to the inclusion of transport solutions and dynamic elements, the company’s products can cover virtually all working processes, from manual production to automated manufacturing. The highly skilled employees work day in, day out to develop innovative solutions for state-of-the-art mechanical engineering and also offer exceptional consulting services. item is headquartered in Solingen, Germany. Eleven branches and support centres ensure the company is always close to customers in Germany. The group has wholly owned subsidiaries in the USA, China, Mexico, Italy, Poland and Switzerland.

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