



 schwarzmann

**More than 25 years of design,
engineering, fabrication and
installation of steel structures**

Schwarzmann group

Schwarzmann has been planning, manufacturing and installing prefabricated steel-structure buildings since 1993. In the past 20 years, more than 2,100 Schwarzmann buildings and facilities have been built in 25 countries worldwide. Due to their flexibility and custom design, our steel buildings are implemented in various industries, from manufacturing and logistics to waste management and aviation.

75 expert employees are bound by a common objective of developing custom-build steel buildings catering to specific needs of our growing partner companies. Our individual approach, combined with professionalism and experience result in successfully completed projects across Europe and beyond.

With modernisation of our production facilities in Polhov Gradec, Slovenia, digitalisation and process optimization, along with continuous employee training we strive to provide our partners with all the support they need throughout planning, manufacture and build of the new facilities.



Focus on research and development is a major driver of growth

In 2021, the company's combined effort was put in development and stable growth of the group. Substantial investment was made in automation, digitalization, and infrastructure. We are aware of our employees being a key factor in the success of the company and the development of the local environment. Therefore, several trainings and courses were provided to our employees to build and strengthen their competencies in various fields of expertise.

Representatives from France and Benelux were given the opportunity to market the Schwarzmann brand and its product assortment and help manage projects in their respective markets. Vervaeke Artextile – Benelux and Locabri – France are successful companies and crucial partners in business development in the segment of large fabric structure buildings.

We continued to develop and optimize the details of the Schwarzmann X[®] fabric structure. The market's response to the new product was extremely positive. Several Schwarzmann X[®] contracts have been signed, of which over 15,000 m² of covered storage facilities have already been erected.

Despite the uncertain economic climate of 2021, the group ended the year with growth in productivity and larger projects than in the past. End of 2021, we have secured the largest project to date, an aircraft hangar for Airbus 320 maintenance in Germany, to be completed in summer 2022. Some of the projects, which have already been completed last year, are presented on the following pages of this publication.

The only fabric structure on the market that can be erected right next to the fence, parking, driveway, and other facilities, because the snow remains on the roof and removal is not required. Snow load is calculated according to Eurocodes by location.



Schwarzmann X[®] Fabric Structure

Looking to expand your business with additional storage, production or office space? Contact our project managers to learn more!

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Sustainability is becoming an integral part of process and strategy

Sustainability is a term often used interchangeably with ecology, but it is much more than just that. It represents a new mindset of human development that separates economic growth from climate change, poverty and inequality. Younger generations that are entering the market, tend to feel more strongly about sustainability issues and are, as customers, often willing to purchase sustainable products and services at a premium.

Many companies still view sustainability as a cost instead of profit centre, despite compelling evidence, that sensible introduction of sustainable processes can result in many advantages, including:

- increase in productivity and cost reduction,
- improved brand image and thus competitive advantage,
- attracting new employees and investors,
- waste reduction.

Since there are many different sustainability indices and certificates on the market, this leads to problems in comparability. To combat this, the European Union is preparing a comprehensive legislative package for 2022, which will standardize reporting in the field of sustainable development. Upcoming changes in legislation will have a substantial impact on industries which are tied to the consumption of fuels and raw materials (manufacturing, construction, logistics and transport, etc.). This will force many companies to redesign their processes in accordance with the new regulations and standards; if they do not yet have a clear sustainable development strategy in place, they will be obligated to do so in the coming years.

Sustainable development brings added value, and the companies' reluctance to do so can lead to major barriers to doing business due to exclusion from supply chains or restrictions imposed by the legislation. It makes sense for companies to start including sustainability in its planning and strategy now, when it can still bring advantages and not delay and wait to be overtaken by the competition.

Upcoming EU legislation will limit carbon emissions from buildings, which will further steer investors towards building environmentally responsible, low-carbon

buildings. Environmental policies and corporate commitments in larger corporations already require carbon emissions reductions throughout the supply chain. If suppliers do not meet these requirements, there is a risk that they will be replaced and eliminated from the supply chain.

In the segment of industrial construction, Schwarzmann's field of business, investors are increasingly leaning towards sustainability. We have reached out to our supplier Knauf Slovenija, who are experts in sustainable architecture and construction and examined the possibilities of including their Urban Roof green roof system into design and implementation of Schwarzmann steel buildings. They are pioneers in the field of sustainable construction. In 2019, they opened a Regional Center for sustainable construction, which is the first platinum DGNB (German council for sustainable construction) certified building in Slovenia. Furthermore, Schwarzmann is looking to introduce best practices throughout the value chain, so we choose to work with responsible partners.



Moreover, in 2022 a renewal of the ISO 9001 standard - quality management system is already underway, with establishment of ISO 14001 - environmental management system to follow. These certificates will serve as a basis for further process optimization and the implementation of the analysis of the impact of processes on the environment LCA (integrated environmental impact assessment). Based on the results of the analysis, we will create a strategy for sustainable development of the company, which will include production processes as well as our products and services. strategies and commitments in the field of sustainability.



Composting plant in Kremš, Austria

For Brantner Group, one of the largest waste management companies in Europe, we supplied and assembled a fabric structure for composting plant at the site in Kremš. The Brantner Group manages five landfills, three sorting plants, five composting plants, and four other waste processing facilities in Austria alone. We supplied an additional canopy structure of 12 x 110 m for storage and handling of composted material. In total, the composting plant spans more than 6400 m².

The steel part of the structure was placed on the concrete wall. Steel parts are hot-dip galvanized with a thicker application than is usually the case when it comes to storage alone. This way, the steel part of the structure is more resistant to corrosive gases generated during the composting process. Other parts are also adapted to the specific environment or use of the facility.

Steel parts are hot-dip galvanized with a thicker coating to make the steel structure more resistant to the gases produced in the process of composting. Other parts are also adapted to the specific environment and use of the facility. Entryways were designed to accommodate truck deliveries of organic materials to the inside of the building. The composting plant is equipped with a ventilation

system that evacuates the gases generated in the building due to composting processes. The air is purified through specialized biofilters before being released into the environment.

At the plant, 35,000 tons of organic waste will be processed into valuable compost annually. After the material from the town and district of Kremš and part of the district of Hollabrunn has been delivered, the compost is dumped in stockpiles. It is composted in the facility for four weeks and during this time it is aerated regularly. It is then transferred to an outdoor area, where it is processed for a further 8 weeks. At the end of the composting process, the compost is checked for foreign matter and sifted before shipping to users.

Environmental protection was important to Brantner during construction. All water from roof surfaces is collected and used in the composting process. This saves drinking water. The client wanted to implement photovoltaic panels on the roof, but the restrictions due to the proximity of Gneixendorfer Airport and danger of reflection prevented them from doing that.





Three-storey multipurpose steel building in Ljubljana, Slovenia

The client company from Ljubljana designs and manufactures hydraulic systems. In addition to their core business, they also rent out office and production space. They invested in a new three-storey multi-purpose steel building to further expand their business.

The steel building is placed on a concrete slab. In the middle of the building, there is a staircase built of brick with an elevator shaft. The rest of the building consists of a galvanized steel structure covered with a 150 mm thick sandwich panel in anthracite.

The building has a varied architecture. Along the length, numerous windows are installed to provide enough light inside the rooms. On the 2nd floor, there is an open terrace with a canopy along the entire length the building, which offers additional outdoor space for offices.

A tower for a mobile signal transmitter is installed on the roof of the building, rented by the telecommunications company. Access to the roof and to the tower is provided by an external steel staircase in the colour of the building. The staircase also serves as an emergency exit from the offices.

Due to its attractive location and functional layout, the building offers excellent business spaces, both for renting and for the client's core business. The client was very satisfied with the overall implementation and management of the project.



Additional storage space for a logistics company

The client is a logistics company, which needed to quickly expand their storage and transshipment capacities. Large clear span was required and a fabric structure was identified as an optimal solution. One of the benefits of fabric structure is the possibility of fixing the structure directly to the asphalt surface with no need for costly concrete foundation. The galvanized steel structure is designed according to Eurocode for the specific location, with a snow load capacity of 1.70 kN/m². An additional inner liner membrane was installed in the building. Consequently, the air trapped between the two layers of the membrane provides insulation and prevents condensation.

The rapid delivery and installation of the facility, which was completed in three weeks, was a key in the client's expansion of storage capacities.



Fabric structure workshop and covered storage space

The client was looking for an affordable option in expanding workshop and warehouse space. They wanted the possibility of the building to be further insulated later. The Schwarzmänn X[®] fabric structure was chosen, because it is more affordable than an insulated steel building, and at the same time allows for later modification in terms of insulation. The roof is made of profiled sheet metal, 3 cm of styrofoam insulation and PVC membrane. The walls are covered with PVC tarpaulin in anthracite colour. The low incline fabric structure provides modern look and, with a height of 4.5 m, optimal volume utilization for storage.

The roof system prevents condensation and consists of high-profile sheet metal, which ensures adequate load-bearing capacity. The top layer is a PVC membrane that envelops the entire building. Ventilation is arranged via fans with a grille at the end of the building. Installation took place on an asphalt surface, as with Schwarzmänn X, concrete foundations are not necessary. The building was completed in two weeks.



Carport in Styria, Austria

In Styria, Austria, a carport for the sale of vehicles was erected. Auto Reiterer GmbH is a family business with a long history of selling BMWs and Peugeots. They operate at two locations, in Deutschlandsberg and at St. Martin.

The robust galvanized steel structure is designed for the appropriate load-bearing capacity of the snow for the location (246 kg/m²). It is covered with a quality white PVC membrane (900 g/m²) which lets in daylight and reduces the need for artificial lighting. The company logo is printed in gray on the front gable. The rear end wall is completely closed.

The carport will allow viewing of vehicles in all weather conditions. It will also protect vehicles from the hail, sun heat and snow.



From rented spaces to custom made multipurpose facility



The client has been a subcontractor for the auto industry for 20 years. Until last year, they were renting but decided to invest in tailor-made office and production facilities. The facility combines masonry offices and steel structure production plant. Both parts are covered with insulated sandwich panels, which gives the building a uniform appearance. Inside the production part, the load-bearing columns are designed to allow for the installation of a bridge crane with a load of up to 2.5 T.

The building has a gabled roof with a parapet wall and integrated drainage pipes. The roof is covered with 120 mm Kingspan polyurethane sandwich-panels, while wall panels are 100 mm thick. Polycarbonate light panel strips are installed on the sides of the building, which provide natural light in the production part. The multipurpose steel building together with the masonry office segment is a cost-effective and low impact way for companies to expand their office and production capacities.

Dispatch warehouse



Cutlery and tableware wholesaler Josef Mäser GmbH has entrusted us with production and installation of a storage facility for their expansion at the primary location in Dornbirn, Austria. The group has several successful companies in Europe and Asia and generates over 36 million € in annual turnover.

They needed a dispatch warehouse to be placed on an existing asphalt surface, which would have adequate protection against moisture and condensation. These requirements were best met with fabric structure Schwarzmann with a double membrane. This insulates the facility and intercepts any moisture that builds up inside.

Due to the space between the membranes, no excess moisture is accumulating, so the facility does not need additional ventilation. The warehouse is fitted with automatic doors and emergency exits on the end wall. The 1,200 m² warehouse provides the company with enough space for storage and uninterrupted delivery to customers in the Vorarlberg area.

Optimization of storage space with Schwarzmann X[®]



The client wanted to expand the storage space and make better use of the plot at the location in Slovenia. A new Schwarzmann X[®] was chosen to replace the older fabric structure, for which we also arranged dismantling and resale. In addition to the increase in storage space, the main reason driving client's decision was the modern look of the new facility. The entire building is covered with PVC membrane, and the building is designed to be anchored directly to the asphalt surface, without concrete foundations. It is equipped with two double 4 x 4.5 m sliding doors, and two emergency exits. The roof system of the Schwarzmann X[®] has a minimum slope of up to 2°, and the insulation between the sheet metal and the top sheet prevents condensation. The building is designed to withstand snow loads on location and removal of snow is not necessary. An additional metal flashing was installed around the upper edge and at the corners, which emphasizes the appearance of the flat roof and at the same time acts as a parapet wall. It gives the building a modern and polished look.

Logistics centre

The Slovenian client company Transport Bogataj has been our partner for logistics and transport for many years and already has a Schwarzmann warehouse facility from 2015 and a smaller single-story prefabricated hall from 2019. Based on positive past experience, they decided to increase their storage capacities with a new Schwarzmann X[®] fabric structure.

The new logistics centre is equipped with two loading docks and automatic sectional doors. As the structure is placed on asphalt and fixed to the ground with metal anchors, therefore concrete foundation is not required. The entire building is covered with a durable PVC membrane. The insulated roof has a slope of 2° and is equipped with an anti-condensation system.

With new logistics centre client will be able to achieve additional business growth and optimization of logistics processes.



Storage of moisture-sensitive materials

Company Blažič from Slovenia required more storage next to its office building. The Schwarzmann X[®] fabric structure was chosen for the storage of moisture-sensitive material, due to the roof's condensation protection system. The flat roof look brings the appearance of the fabric warehouse closer to other buildings on the site. The warehouse is equipped with standard double sliding doors covered with PVC membrane. The building is 17 m wide, 35 m long and has 5 m usable height.

The client is very satisfied with the new warehouse and is already planning an extension, which is easily done due to the modular construction.



Installation in progress: largest Schwarzmann hangar yet

In February, an installation of double aircraft hangar began in Germany. It is the largest project in the company's history. The works will be completed in August.

The double hangar will cover 10,000 m² of covered areas intended for servicing Airbus 320 aircraft. It will be covered with 100 mm Roma sandwich panels thick. 700 tons of steel will be used to make the structure.

The project is logistically and organizationally very complex due to the strict deadlines of each phase of installation and work with lifting equipment in the highly restricted airport area.

