

Cutting costs automatically



STOPA supplying automatic sheet-metal and longspan shelf storage system to the USA



Schletter Inc., of Shelby, North Carolina, has invested in automatic sheet-metal and longspan shelf storage system from STOPA. The operator benefits from short distances for supplying his machinery, from unmanned shifts, from a marked saving in time and from a bottom line of sustainably reduced internal logistic costs.

The subsidiary of the German company Schletter GmbH gained initial experience in the storage of metal sheets and long materials in Tucson, Arizona, where it was originally established. The material there lay in cantilever racks and was transported to the equipment using fork-lifters. Christoph Hackner, Vice President of Manufacturing at Schletter Inc., explains during a tour why a new concept was selected for the plant at Shelby, North Carolina. "It was already clear in the early phase of building planning that we'd be investing in automatic storage systems. The aim was to devise a sustainable and economical strategy for handling raw materials and semi-finished parts."

That has been achieved, as Hackner stresses. Machines have been linked up to one another with short distances and short times by the storage system which in this case acts as a conveyor system. This option is being used by the company to run unmanned shifts, or ghost shifts as the Americans call them, at night and above all from Friday afternoon to



A cutting facility cuts the thin sheets supplied in coils to size, and pushes the sheets onto a flat pallet for return by a scissor lift table to the STOPA COMPACT automatic storage system.

Saturday morning. Apart from that, fork-lifter traffic inside the building has been greatly reduced, creating a safer working environment while minimizing damage to materials. In the final analysis, the aim of cutting internal logistic costs has been accomplished.

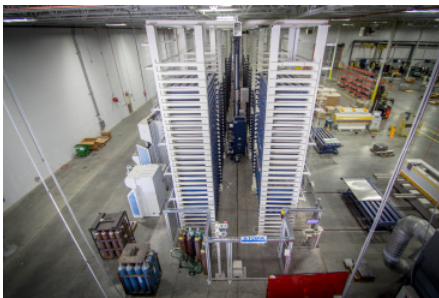
Sheet-metal store as a supply axis

A Krasser CENTURIO system cuts the thin sheets supplied in coils to the required dimensions, and pushes the sheets onto a flat pallet resting on a scissor lift table. The latter takes the sheets into the STOPA COMPACT automatic storage system, where they are picked up by the two-mast storage and retrieval unit (SRU). Further material is supplied by the operator to the storage system (which came into operation in October 2013) at a manual storage station.

The sheet-metal store, around 51.5 meters long, 8.4 meters high and 5.5 meters wide, and like the longspan shelving originating from STOPA Anlagenbau GmbH of Achern-Gamschurst in Germany, handles six to eight tons of steel and aluminium per shift. Designed for metal sheets in large and medium formats, and boasting 781 pallet positions and two loading heights, the storage system supplies sheets to several machines. They include a TRUMPF TruLaser 5030 laser machine. It is linked to the storage system by a double car – consisting



By investing in two automatic storage systems from STOPA, Schletter benefits from short distances for supplying its machinery, from unmanned shifts, from a marked saving in time and from a bottom line of sustainably reduced internal logistic costs.



Using a particularly high-performance storage and retrieval unit shortens the material retrieval times and cuts the waiting times for employees, while at the same time increasing productivity at the stations..

of a loading car and unloading car in gantry design – and by an automatic handling unit. The double car takes sheets from the storage system to the machine and brings back semi-finished parts. Hackner says: “Return storage of semi-finished parts is just routine for us, because the sheet-metal store also acts as a supply axis to the other systems.” For example, a transport car takes laser-machined parts to an RAS Multibend-Center, which is used by Schletter for upward and downward swing-folding and which supplies a robot with sheets cut to size. In addition, two TRUMPF folding machines and an RAS sheet-metal shear are linked by transport cars. The material is transferred manually to the folding machines and the sheet-metal shear. Barcode scanners installed at the stations allow operators to scan the printed-out transport orders, making access to the material needed much easier. At every storage or return sto-



A double car – consisting of a loading car and unloading car in gantry design – transports sheets from the storage system to a laser cutting unit and brings back semi-finished parts.

The company

Schletter Inc.: Specialist for solar mounting systems

Schletter Inc. was founded in Tucson, Arizona in 2008, and it designs, develops and produces solar mounting systems made of steel and aluminium for sale in North and South America. Since it was founded, Schletter Inc. has manufactured photovoltaic mounting systems for more than one gigawatt of power. The company, which employs about 200 people, offers roof-mounted and ground-mounted systems for photovoltaic systems designed for residential and commercial buildings and also for energy suppliers. Its clients are mainly project developers and solar installers. Its second production location after Tucson is at Shelby, North Carolina, today its headquarters. In that location alone the company handles material weighing a good 100 tons every day.

Schletter Inc. is an independent subsidiary of Schletter GmbH of Kirchdorf, near Haag in Upper Bavaria, which has subsidiaries in eleven countries worldwide employing more than 1300 people. When it comes to solar mounting systems, the Schletter Group can look back on more than 20 years of experience.

rage operation, a weighing unit records the weight. Since the operator also has an eye to the future, he has kept open an option for extensions, earmarking an area for two stations to link up a TruPunch 5000 punching machine.

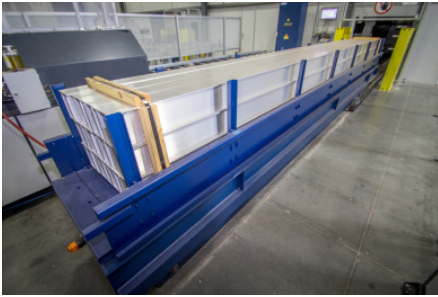
Hackner watches as a storage and retrieval unit (SRU) that has picked up a flat pallet to be placed in storage now speeds away towards its storage position. “We picked on a particularly high-performance SRU that reaches a speed of up to 150 meters a minute during longitudinal movement.” This enables the SRU to cover more quickly the 51 meter long stretch between the 26 shelf towers of the storage system arranged in double rows. As a result, material

retrieval times are shortened and the waiting times for employees are cut, while at the same time productivity at the stations increases. There are however also cases where it would be better to approach and decelerate more gently. To do that, the operator can file lower acceleration and speed values in the article master data, and in so doing increase process safety.

More production surface thanks to longspan shelving

STOPA longspan shelving LG-B1,5, which came into operation in August 2013 and can handle five to six tons of material per shift, is used by Schletter mainly to stock extruded aluminium sections. 222 large cassettes rated for a payload of up to 1,500 kilograms each and with a size of 830 x 600 x 6,626 millimeters (W x H x D) are used as load carriers. An overhead SRU stores and retrieves the cassettes in the twelve aisles of the system. The storage system, about 8.5 meters high and – when the service bridge is counted 34.5 meters long and 7.3 meters wide – uses four output stations to supply the linked-up saws operated manually, automatically and semi-automatically by Schletter. The longspan shelving system is also equipped with a storage station. Hackner unfolds a drawing: “Since the system is set up close to the incoming materials area and the saws, we have short distances to the machines. The main advantage of longspan shelving is however that the sawing unit has, thanks to the space-saving storage

of the sections, considerably more production area available to it and that we can provide our employees with a convenient material handling process.”



The load carriers are large cassettes each rated for a payload of up to 1,500 kilograms and with a size of 830 x 600 x 6,626 millimeters (W x H x D).

Requested sections are taken by the stations in Automatic mode, monitored by scanners, directly to the saws. That saves the operators time which they can use for machinery loading and hence for productivity increases. More time is won by interim storage positions at the output stations, which are used by the system to minimize the material supply cycle times.

The issue of return storage was also solved by STOPA in the sawing unit. This is a crucial point, because it is often necessary to put a half-opened coil back into storage. This is particularly because the extruded sec-



An overhead storage and retrieval unit inserts and retrieves the cassettes in the twelve aisles of the longspan shelving store

tions come from pressing in very large coils and cannot always be processed straight away in these quantities. During return storage, the weighing units of the stations make stock recording easier.

Data exchange via SAP-certified interface

The system control consists in the case of the sheet-metal store of an

industrial PC with integrated slot PLC, and in the case of longspan shelving with an integrated soft PLC. Both storage systems are linked to the SAP-supplied ERP system of the operator. Data exchanges about storage stocks and material requirements for work orders go through an SAP-certified iDoc interface. This is a proprietary transport record with which warehouse management is reproduced in the SAP system. The ERP system always keeps the master data and the complete stocks well up to date. Production orders too are planned by the company in the SAP system, which sends these orders as transport orders to the STOPA warehouse management systems (LVS).

The warehouse management system of the sheet-metal dynamically (chaotically) assigns the materials to the storage positions, manages the tare weights of the pallets, processes manually initiated storage and retrieval orders, controls/monitors movement orders and performs diagnostic functions.

Once the sections that were inside a longspan material cassette have been completely used up, the cassette goes to an empty cassette pool. From there the operator requests a cassette for new material and books the incoming goods onto it. Management of the sections and standardized cassettes is handled by the warehouse management system.

Hackner leans on the system control panels of the sheet-metal storage system, with its graphic user interface for easy operation: “Before we made the decision we looked into three alternatives. We finally picked STOPA because of the price, high availability, which is as promised 99 percent, and the standby service offered by STOPA in the USA too.



The longspan shelving store uses four retrieval stations to supply the linked-up saws over short distances.



The main advantage of the longspan shelving storage system is that the sawing unit has considerably more production area available to it thanks to space-saving storage of the sections.

STOPA's experience and its close cooperation with TRUMPF and RAS played a big part in the success of the project. As regards amortization, we reckon it will be in five years.”

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