



**Title:** Compact Sheet Metal Storage and Retrieval Systems for small and storage volumes  
**Topic:** Compact Sheet Metal Storage and Retrieval Systems in use.....  
Press text 49-2006-E / Oktober 2006

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**Sub-Title:** Compact Sheet Metal Storage and Retrieval Systems for sheet metal guarantee fast and effective handling on reduced footprint

**Text:**

Manufacturing companies and commissioning steel distributors constantly optimize the material flow since it has a substantial influence on speed, flexibility and overall productivity. This is not only true for first-level processing of bar products but also more and more for the processing of sheets and flat products, which have to be stored, handled, cut, commissioned, processed and packaged too.

The UNITOWER Metal Storage and Retrieval Systems, part of the independent product line "Sheet Metal Storage" of KASTO Maschinenbau GmbH & Co. KG in Achern, the leading manufacturer of saws, sawing systems, sawing centers as well as bar stock and sheet metal storage and retrieval systems, offer the user distinct advantages and user potential. Starting with the well-proven components from the bar stock storage systems, which are designed for high demands in commissioning, the UNITOWER series was expanded to store and handle sheet metal. A wide range of mostly available standard modules allowed the creation of individual systems in different sizes.

**UNITOWER C,  
the perfect solution for small storage volumes in job shops, industry and distribution**

The smallest representative of the UNITOWER-Sheet Metal Storage series is the UNITOWER C. This compact tower storage system can store on standard sheet metal pallets for large sizes (3 x 1,5 m) max. 1,2 tons each. The steel structure can be adapted easily to meet customer's demands up to a total system height of 7 m and can even be assembled by the customer himself. Depending on the option on the loading traverse, either only one shelf height or up to three different shelf heights can be reliably arranged, recognized and checked for overload. Same as with the larger systems of the UNITOWER-series, the KASTO pull/push principle via precise roller chain carriers and glide technology on maintenance-free plastic is used allowing an optimum storage density. For example, the UNITOWER C can be designed for usable load heights of 51 mm with its highest packing density, which is ideal for smaller users who have to store a large variety of sheets. The control of the UNITOWER C is the compact BasicControl, where the appropriate cassette location is directly selected at a touch panel. The loading traverse approaches this location, takes the cassette out and makes it available. In the so-called semi-automatic operation, this cycle takes place automatically by using the dead-man control.

**Compact sheet metal tower for flexible applications: UNITOWER B**

If heavier loads are necessary, if individual adaptations or several station types and larger storage volumes are needed, the compact storage and retrieval system UNITOWER B is used. Here, the customer can not only choose between small, medium and large size pallets but can also store 4 x 1,5 m sheets or the maxi size 4 x 2 m, which is especially important for cladding/facade manufacturers. The basic structure is similar to the one of the UNITOWER C. All components are designed for a usable load of 3 tons per pallet. Contrary to the UNITOWER C, where the hoist moves alongside a rack, the lift as well as the pull movement takes place via



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heavy precision roller chains. On all systems, the hoist motor moves up and down with the traverse, which is ideal for the system maintenance.

The KASTO-control EasyControl is used in all UNITOWER B storage systems. This control is characterized by a consistent, workshop-oriented operation. Menu control, system operation and order entry via 10" color touch screen, the control is PC-based and works under Windows CE, uses Ethernet for the integration to higher-ranking company networks. The interface of the existing periphery is via profibus. To manage the orders and material data records, a data base with the appropriate functionality is used. The inventory management can be either in kg, m, qm or piece (option). Online language change from German to the customer's language. Each storage and removal station has its own job list, which always guarantees a clear overview and an updated status of all orders at any time.

A simple version of the UNITOWER B is the one-sided version consisting of a shelf block and an operating gantry crane with lift and pull/push function moving in front of the shelf block on separate columns. In this case, the loading traverse of the operating gantry crane has the function of a station, same as with the UNITOWER C, which means, that the material preparation for commissioning, loading or unloading or the deposit of remnants onto a pallet takes place right here. For this purpose, the loading traverse can be moved to an ergonomic machining or transfer height ensuring an easy and safe operation.

If the storage volume is too high for this one-sided tower, there is the possibility to design the storage tower double-sided with an operating gantry crane, which can be lifted and lowered, moving between two shelf blocks. If needed, a one-sided UNITOWER B sheet metal storage system can be expanded by another storage block at a later time. But in both cases a separate storage/removal station in form of a cart or chain conveyor, which can move out of the system longitudinally or laterally, is necessary since a direct access to the material on the loading table is no longer possible. Equipped with stations, which can move out of the storage tower longitudinally or laterally, several processing stations can be designed. One station can be used for loading/unloading, another for commissioning and at a third one linked to a sheet processing machine – either a punching, laser or bending machine, can be loaded with material and remnants can be discharged. Moreover, it is possible to arrange stations and processing areas on different levels. If necessary, all stations can be equipped with scales, for example for steel distributors who track inventory by weight.

### **Increased storage volumes by adding on to the outside of an existing production building**

If the building height of an existing building is not sufficient to store the needed volume, a UNITOWER B Sheet Metal Storage and Retrieval System can be added-on to an existing production building on the outside or built "through the roof" of a building. This 'rack-supported' design allows systems heights of up to 25 m. A "fully cladded machine" compared to a classic building can have additional tax advantages as well. Also, a large area in the production building is freed. Without interrupting the production, this system can be assembled and commissioned while inside the building, only the station area has to be installed.

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### **More storage volume with double-double tower**

If the UNITOWER B needs to be placed in a building where there is not sufficient space available, the KASTO-Sheet Metal Storage Systems UNITOWER B can be expanded by another storage tower with its own operating gantry crane. Here, both operating gantry cranes are controlled via one control so that an integrated and fine-tuned transport movement of both towers is guaranteed by the EasyControl. With the appropriate preparations, it is possible to perform such an expansion step-by-step. A popular design version is the utilization of an undercarriage moving under the system, which optimizes the coordination and the transport of the material to another storage system or in the station area. Moreover, here a station cart can possibly be eliminated. Such systems are modularly expandable to two, three or four towers step-by-step according to storage needs.

### **Economic commissioning of sheets**

Compared with the conventional storage of sheet metal packs on the floor or in cantilever arm shelves – with expensive sheet removal and safety risks as well a danger of scratching the sheets during removal – the utilization of a modern UNITOWER Sheet Metal Storage and Retrieval System is a clear-cut streamlining of the sheet storage. Another rationalization potential is the automation of the actual commissioning cycle to reduce personnel and to increase the output of order or production positions. For this task, KASTO offers different sheet commissioning units, which can satisfy the simple but also very complex applications. In the simplest version the sheet metal commissioning unit consists of a manually adjustable manipulator with a vacuum lifter to pick and deposit the individual sheets.

More expensive sheet commissioning units are equipped with two or three vacuum circuits with different-sized suction cups to handle (as an option computer-controlled) oiled sheets, sensitive stainless steel and aluminum sheets or corrugated sheets. This solution ensures a clean transport of the stainless steel sheets. Moreover, the vacuum lifter can adapt fully automatically to each size – small, medium or large.

Modern sheet metal systems of the KASTO UNITOWER series offer users in job shops, production or distribution crucial advantages in regard to space utilization, personnel, safety, protection of sensitive surfaces, inventory as well as the paperless order processing directly from the production planning or inventory management system. The sheets are fully automatically delivered to processing machines (punching, bending, saws) or made available for commissioning. Considering the increase in productivity, profitability and competitiveness, the payback of such a future-oriented investment is only a question of time.

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**Picture 1**  
Shows the compact Sheet Metal Storage and Retrieval System UNITOWER C, which stores sheets with a usable load of 1,2 tons per pallet



**Picture 2**  
Shows a one-sided Sheet Metal Storage and Retrieval System UNITOWER B for maxi sizes (4 x 2 m) with a usable load of 3 tons per pallet



**Picture 3**  
Shows a Sheet Metal Storage and Retrieval System UNITOWER B as double tower with lateral cart and lift unit at a steel distributor



**Picture 4**  
Shows the station cart of a Sheet Metal Storage and Retrieval System UNITOWER B at a steel distributor taking out the stored material



**Picture 5**  
Shows the to an outside wall added, fully enclosed UNITOWER-Storage and Retrieval System for Sheet Metal



**Picture 6**  
Shows the commissioning area of sheet metal with a lateral cart and a sheet metal restacking system for commissioning at a steel distributor



**Picture 7**  
Shows a double-double tower with station cart and EasyControl at a steel distributor



**Picture 8**  
Shows a cart moving longitudinally out of a double-double tower with scale and raised sheet pack



**Picture 9**  
Shows a fully automatic sheet metal commissioning system at a large steel distributor in Denmark