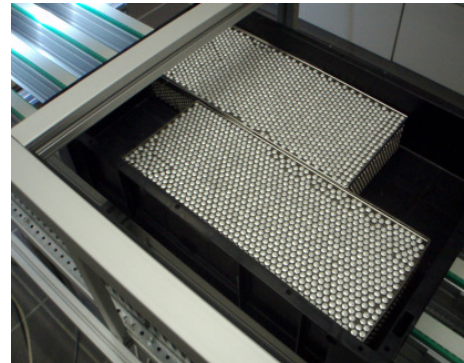


## Small Storage Space, Big Effect – Multiple-Layer Storage of Anaesthetics

The company de Man GmbH has manufactured many automatic storage systems for pallets and containers or trays. Its most recent project is a multiple-layer automatic small parts storage system (SPSS) that is being developed for an international pharmaceutical company headquartered near Munich. The materials to be stored are ampoules containing anaesthesia destined for the dental industry. The capacity of the storage facility is 4,000 containers, translating into storage space for 8 million ampoules.



The ampoules are housed in racks, with each rack containing about 1,000 pieces. These racks will be placed in small load carriers (SLC) for storage purposes. After being placed in storage, the exact number of ampoules is determined by means of a camera system. The storage container is photographed from above and the image is then evaluated with analysis software. Exact determination of the quantity is necessary due to the explosive nature of the content.

The storage is located in the level below. The containers are brought to this level using a stacker crane, take over by a stacker crane and stored in multiple layers. A completely new and innovative technology is used to achieve this, one that clearly increases availability. The so-called channel car, that runs from the stacker crane to the storage channels and deposits the small load carriers, moves freely and independent of the main device. It is not connected with it either with a data cable or an energy feed. The result is a number of advantages:

- The previous wear-and-tear part, the *connecting cable* is dispensed with, which increases availability.
- Maintenance and service work is also greatly simplified, which saves time and money.
- An error in the system does not cause an outage of the entire storage system; the system can continue to operate independently.

When it is removed from storage, the container is picked up by the stacker crane and raised up one level by means of the distribution lift. Here the containers are transported to shipping via a conveyor belt hanging from the ceiling and made available with a lift.

All conveyor belts have a “double up” configuration (built one on top of the other), so that the empty containers are returned via the same route. A sufficient quantity of them is kept at the ready in the place in storage zone; excess empty containers are buffered in the storage area. Distribution of the empty containers also takes place via the distribution lift.

