



2023

CASE STUDY | TRANSPORT LOGISTICS | HEAVY DUTY

ARMASUISSE

SWITZERLAND

HEAVY-DUTY SYSTEM

HIGH-BAY WAREHOUSE FOR CONTAINERS

The Swiss Armed Forces – one of Switzerland's biggest logistics enterprises – opted for a sustainable, state-of-the-art, and efficient solution to store its materials: a high-bay warehouse for containers. Thanks to this new solution, the army can store non-stackable swap bodies and swap roller containers as well as ISO containers in a minimum of space. What's more, the army's high-end systems are protected against outside influences and can be maintained directly in the warehouse.

The troops of the Swiss Armed Forces need a huge amount of material for every deployment. But owing to the lack of a solution, the material used to be stored outdoors at various locations throughout Switzerland, which meant it was at the mercy of the elements. This was an issue when storing technically sophisticated systems in particular. Collecting the required materials was extremely difficult from a logistical perspective, but there were also other factors that played a significant role – such as

carrying out maintenance on the containers and ensuring sensitive substances were protected against fire during storage. After an extensive planning phase, Switzerland's Federal Office for Defense Procurement (Armasuisse) came to the decision that a high-bay warehouse was the solution to all these requirements.

Working as equal partners

We were able to implement this project together with our long-time partner Jungheinrich AG. As a full-service provider, Jungheinrich took care of the entire intralogistics side of the project, while we supplied the stacker crane. This was the biggest heavy-duty system we have worked with so far, with a payload of 18,000 kg.

In addition to saving space, this system cuts down on unnecessary work. Prior to this, the goods had to be collected from across Switzerland using trucks. Handling the containers



Schweizerische Eidgenossenschaft **armasuisse**
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Federal Office for Defense Procurement Armasuisse

Procurement, technology, and real estate center of the Swiss Armed Forces, responsible for the development, evaluation, procurement, and disposal of systems and materials.

Employees: approx. 950



Stacker crane with 18,000 kg payload



Direct connection to the repair workshop.



Space for 203 containers.

was also a demanding process, as many items generally have to be moved in block storage systems before reaching the right container. This made it much more difficult still to access the individual containers. Plus, the containers need to undergo regular maintenance, which sometimes results in uncomfortable working conditions in freezing temperatures or icy weather.



We have been working with LTW for several decades and have already implemented countless projects together. We knew right from the start that if anyone can deliver a stacker crane that accommodates these loads, it's LTW. And they didn't let us down this time either. Marc Fritschi, Team leader realisation of automated logistics systems, Jungheinrich AG

The solution

The solution that addresses all these challenges is a high-bay warehouse for containers. But because the Swiss Armed Forces needs to store swap bodies and swap roller containers in addition to containers, a heavy load carrier designed just for this purpose was developed to keep everything running smoothly inside the high-bay warehouse.

Besides giving stability a special priority, the platforms also act as a preliminary collecting basin that can hold up to 200 liters of liquid if need be. Given that this warehouse also houses hazardous substances, equipment of this type is especially advantageous.

In addition to a large-scale extinguishing system, another focus when fitting the stacker cranes was placing the control cabinet and conductor line in an elevated position where they would be protected against the risk of explosions.

The heavy-duty system

The stacker crane is the first we have supplied to have a payload of 18,000 kg. Apart from its impressive weight class, another special feature is that the system utilizes our belt technology. Unlike most stacker cranes designed for such heavy weights, we used a belt system here rather than a rope. Why? Because the belt gives us an even greater degree of precision in the approach dimensions. Not only is it faster in terms of positioning, it is also considerably more reliable when transferring the load from the shuttle to the storage position. In response to our customer's request, we equipped our stacker crane with a dual drive system. What does this mean? Because there are two of each of the main drive axes, the system can be kept up and running in the event of a malfunction.

Another unique feature is that many of the storage spaces in the high-bay warehouse are equipped with a special gateway system. This allows personnel to carry out minor maintenance and repair work on the containers in the warehouse. If more extensive repairs are needed, a fully automated system can transport the relevant containers to the repair workshop directly adjoining the warehouse.

Advantages

Now that this project has been implemented, the Swiss Armed Forces boasts one of the most modern heavy-duty warehouses in the world, with five levels that easily provide enough space to store, maintain, and repair up to 203 containers and swap bodies. In addition to protecting the environment, this system also simplifies the army's operations enormously. And the best part is that the temperature in the entire warehouse is kept at a minimum of 5 degree, which is a big plus for the high-grade electronics systems and maintenance personnel. This ensures all the goods inside are protected against frost as well as inclement weather.

More Infos at:

[LTW.AT/en/referenzen/detail/armasuisse](https://www.ltw.at/en/referenzen/detail/armasuisse)

PROJECT OUTLINE



HIGH-BAY WAREHOUSE

- Steel rack high-bay warehouse
- L x B x H: 69 x 31 x 20 m
- 1 rack aisle
- single- / double-deep storage
- Approximately 206 container spaces
- Payload: 40,000 lb
- Temperature range: +5 bis +35°C

STACKER CRANES

- 1 aisle-bound stacker crane Typ LTW 2HE-18020 LSHU-2/R/A
- Rail systems: 67 m, Typ S41
- Driving speed: 80 m/min
- Driving acceleration: 20 m/min
- Lifting speed: 0,25 m/s²
- Lifting acceleration: 0,25 m/s²
- Performance: 11 KS / h / RBG