Plate handling in a steel distribution warehouse

Quick pick-up and safe transport of material into the storage area

Nowadays, it is difficult to imagine efficient ways of handling steel plates other than by using suitably designed magnets. Magnets, when used properly, allow the load to be approached, picked, unloaded and transported to the storage location, quickly and reliably. With TRUNINGER magnet systems the lifting force can be finely adjusted so that even thin steel plates can be distributed individually and quickly to different storage areas or working locations.

![Diagram of steel plate picking](image)

Figure 1: Picking of steel plates

The process of separating steel plates is shown in the simplified diagram (see figure 1). The lifting force is gradually reduced at magnet ① (far left). Any excess sheets picked up thus quickly peel off from the other magnets in a controlled way. An unbeatable advantage compared to transporting material using mechanical lifting devices.

High stacks – very compact storage

However, fast, reliable and efficient handling of steel plates in the material flow is just one of the benefits offered. Magnet systems also permit more compact storage in your warehouse.

Advantages

- No gaps required between plate stacks
- No aisles required between plate stacks
- No need to limit the stack height to that of a man

Your benefits

- You can store considerably more material within the same area
- Average crane travel distances are shorter
- This saves time thanks to compact storage
- You also save money!
Steel plate storage

A good way of storing large quantities of identical material is horizontally on the warehouse floor.

Horizontal floor storage

Floor storage is simply in structure and basically requires no additional storage equipment. High stacking is no problem at all using a magnet system since plates can be quickly stacked and unstacked.

Using two individual spreader beams each with two magnets (see figure 2) is the most efficient solution. The distance between the two independently controllable magnet groups can be adapted to different plate lengths. Short plates and off-cuts can be lifted using just one spreader beam.

In this case the beam is never longer than the load, which makes it easier to set the load down next to walls or high stacks and to lower it into lorries, railway wagons or ships.

Figure 2: Lifting a steel plate using two independent spreader beams

The upper spreader beams with their load balancing mechanisms ensure that the load is evenly spread across all of the magnets in situations where there is any slight height difference between the two magnet group beams (see plate deflection in figure 2).

In warehouses where a very diverse range of material is handled, a space-saving alternative to horizontal floor storage is vertical storage.

Vertical plate storage

Vertical plate storage is a very interesting TRUNINGER development. In contrast to horizontal floor storage additional storage equipment is needed for storing the plates vertically. This consists of upright racks arranged close together at a slight angle (see figure 3). The plates are stored compactly in the racks and grouped according to plate type. Access to the plates is quick and easy. There is no need to move plates around to access lower layers. An unbeatable benefit whenever saving time helps to cut costs.

You will find more information on upright plate storage in the ‘Vertical plate storage’ document.
Other benefits of TRUNINGER magnet systems

- Access to material from above with no pressure marks or damaged edges
- Precision picking of individual plates and/or multiple loose plates when using magnets with an extra deep magnetic field
- The entire system can be designed with built-in redundancy, i.e. from the magnet controller through the power supply cables to the magnet coils the system incorporates redundant components (useful feature for loading ships)
- Use of different spreader beams with a single magnet controller
- Fast changing of spreader beams using a TRUNINGER Quick Change™ system