
Magnets for rebar coils

Magnetic handling of rebar coils

TRUNINGER has a long background in magnetic handling of rebar coils. The first ring magnets were delivered over 30 years ago.

For a long time, magnetic transport of rebar coils played a secondary role compared with the handling of rebar bundles. This was mainly because certain thicknesses of rebar were not produced as coils and so storage of rebar bundles was still required.



Figure 1: Magnetic lifting of a 3t, 1'200mm diameter rebar coil

Nowadays compact coils up to 20mm thick can be manufactured and processed. Also, maximum coil weight has increased recently from 3t to 5t. These two changes offer a significant advantage over rebar bundles. Producing a wide range of rebar forms on bending machines results in less wastage when using coils than when using individual bars. Consequently, substantial cost savings can be achieved.

Also, with a maximum bundle weight of 2.5t - 3t, compared with the maximum coil weight, only half the number of cycles are needed for the same amount of steel. This time saving is also a benefit for coil storage.

Doubling the coil weight to 5 tons presented a design challenge for the new magnet. The surface area covered by the coils did not change much, only the winding height was increased. The lifting force of a magnet depends, amongst other things, on the contact surface area between the magnet and load.

In order to lift the extra weight, the magnet dimensions had to be pushed to the extreme to adapt to the coil size. Tightly wound coils and an even surface guarantee a minimal air gap between the magnet and load and are therefore a prerequisite for safe transport.



Figure 2: New rebar coil magnet on 5t load

When compared with mechanical lifting devices such as internal or external tongs, a magnet offers the following benefits for rebar coils:

- Testing of the load during hoisting guards against tearoff.
- No mechanical deformation of the coils due to friction so no loss of quality.
- No damage to strapping and therefore no risk of coil falling apart.
- The magnet is barely bigger than the coil itself, and therefore allows higher storage density than possible with external tongs.
- A magnet can be easily aligned with the top coil even on a high stack. With internal tongs, visibility on the gripper is impaired.
- With a magnet, the feed mandrel of the bending machine can be loaded easily and efficiently. This is not possible with internal tongs.



Figure 3: High storage density with magnetic stacking of rebar coils