Cold-rolled sheet coil handling

Transporting coils quickly and safely

Steel mills, logistics companies and service centres set high standards in terms of coil quality. This quality must also be maintained in internal handling as well as during external transportation. No pressure marks, damaged edges or residual magnetism are tolerated.

One excellent alternative to mechanical lifting devices such as coil clamps, is the electromagnet. TRUNINGER produces special magnets for cold-rolled sheet coils weighing up to 50 tons. Each of these magnets can handle a wide range of different coil diameters and widths.

Coil magnets grip the coil from above on the curved surface and not by the eye of the coil as in the case of tongs. All layers of the coil are thus protected from lateral damage. TRUNINGER coil magnets are also fitted with proximity sensors as standard. These sensors allow the magnet to be set down gently on the coil surface.

Advantages

- Fast picking and setting down, easy handling
- Increased storage density of up to 30% due to elimination of aisles
- No pressure marks or coil edge damage
- Increased safety thanks to deep magnetic field
- Quick and thorough demagnetisation
- Minimum maintenance (no moving parts)
Your benefits

- Significant time saving
- You can store considerably more material within the same area
- No degradation in coil quality
- No problem handling packed coils
- Complete removal of residual magnetism

![Densely stored coils in a warehouse using magnets](image)

*Figure 2: Densely stored coils in a warehouse using magnets*

Features of TRUNINGER design

- At TRUNINGER the dimensions and design of such magnets are determined using the FE method. Using the FE method, lifting force, magnetic field penetration and air gap—tolerance can also be simulated in advance on the computer. This guarantees a smooth transfer of customer specifications from theory into practice.

![Calculating a coil magnet's flux concentration](image)

*Figure 3: Calculating a coil magnet’s flux concentration*
Coil magnets can be equipped with two independent magnet coils with each coil being powered and monitored separately from the magnet controller. If one coil fails, the surviving coil will continue to carry the load. The controller generates a visual and audible alarm and optionally sends a signal to the crane. When this happens the load must be set down and the magnet switched off (see ‘Fully redundant system’ document).

![Figure 4: Magnet system with totally redundant design – important for loading ships](image)

Using signals from proximity sensors mounted between the magnet poles the crane control system is able to reduce the approach speed of the hoist. It is thus possible to guarantee that the magnet is set down gently on the coil’s surface.

For special applications it is possible to attach a slewing device to a magnet. Coils can thus be rotated by remote control.

TRUNINGER coil magnets can be fitted with special pole adapters allowing vertical cold-rolled coils to be carried reliably, safely and without damage.
Figure 5: Lifting a coil in line with winding axis