The Spanish company Celsa:
How they are pioneering the use of the LMB magnets. Pages 1/2

The new LMB magnet technology:
how it works. Page 2

Mobile magnetic lifting technology:
What can now be transported by wheel excavators. Page 3

Dear Readers,

Our Magnet News is now appearing, right on time for its fifth birthday, in new dress. We have retained the format and the informative basic concept, but integrated them into a modern layout. Naturally we hope that you will like the new look of the magazine.

In this issue, we have directed our attention primarily to Spain, where a worldwide innovation from TRUNINGER has been in use since the beginning of the year. Find out how bundles of thin-walled W-profiles can be handled in the Spanish steel mill Celsa using the innovative LMB magnet technology. Or come along on a side trip to the wine region of La Mancha; with a little bit of luck, you may win a premium wine set. Whatever you decide to do, we have something interesting in store for you.

Enjoy your reading!

Felix Truninger

The most modern rolling mill in the world

Celsa – With Profile to the Future

Since January 2003, the Spanish steel mill Celsa has been using a worldwide innovation from TRUNINGER: innovative magnetic lifting equipment with which bundles of steel beams can be safely handled.

The Group Celsa (Compañía Española de Laminación SA), Spain’s largest independent steel producer, puts out more than 3.5 million tons of steel every year, making it one of the 30 largest steel manufacturers in the world. Its primary markets are in the European Union, Southeast Asia and the USA.

The steel mill in Castellbisbal has an electric arc furnace with a capacity of 140 tons for melting down scrap. Celsa uses exclusively scrap as an iron raw material in order to preserve the world’s limited iron ore resources. The molten steel flows from a casting distributor into two continuous casting lines in which billets are cast. The billets are then further processed into steel bars, round wire, wire rod, reinforcing bars and profile steel in the three hot-rolling mills owned by the company.

Increasing demand for hot-rolled steel. Use of hot-rolled steel in Europe rose by about 6% in 2002. Thanks to the continued high level of construction activity in the EU (Germany is the only depressed market), the outlook for 2003 also remains good. A real boom in demand has occurred in China, where the use of hot-rolled steel products rose by 25% in 2002.

Celsa recognized these needs early and commissioned the rolling mill Celsa IV in June 2001.

Continued on Page 2
Continued from Page 1

Its annual production capacity of one million tons of profile steel make it one of the largest rolling mills in the world, and it is also the most modern. Since production began, magnetic lifting equipment from TRUNINGER has been used in the difficult transport path from the rolling line to the warehouse.

Special magnets for W-profiles.
The modern W-profiles with very thin walls for the American market are also produced in the steel mill in Castellbisbal. These H-beams cannot be handled using conventional magnetic lifting technology. So TRUNINGER developed an innovative family of magnets for the warehouse, opened in January 2003, which no longer grasp the beams only on the two flanges, but in addition fasten onto the web. Two of these magnetic lifting systems have been used successfully for the first time worldwide since the mill began operation.

Four more systems from TRUNINGER by June 2003.
Celsa pursues the strategy of growing along with the needs of its customers. So the product line of profile types and profile dimensions has been greatly expanded. Besides the storage lengths of 6, 12 and 18 meters, customer-specific lengths between 5 and 24 meters are also in the portfolio. As part of Celsa’s expansion policy, four more magnetic lifting systems using the LMB technology from TRUNINGER will be put into operation there by June 2003.

Made especially for bundled thin-walled profiles

The new LMB magnet

Hot-rolled thin-walled steel profiles are being used more and more in structural steelwork today. Previously, the bundled beams could only be handled using mechanical handling equipment such as chains or belts. But now an innovation from TRUNINGER makes it possible to handle bundles of thin-walled profiles with magnetic lifting technology.

Conventional magnets are not adequate for the job. These magnets are equipped with a flat, even pole geometry and, as a consequence, the contact surface of the magnet pole to the thin flange of the H-beam is extremely narrow. But the size of the contact surface is decisive, because it has a major effect on the lifting capacity and safety of the magnetic lifting equipment. A thin-walled steel beam of the type W 410*140*38.8 has a flange which measures a mere 8.8 millimetres in thickness, while the weight of the bundle can be as much as 4.5 tons. If this bundle of beams is to be lifted safely using conventional magnets, the contact surface must be at least 37,500 square millimetres. In this particular case, that would mean that the contact length would have to be no less than 4261 millimetres!

A conventional magnet design for this application would be extremely large, heavy and correspondingly expensive. Due to this drawback, thin-walled steel profiles have always been handled with conventional, purely mechanical handling equipment such as belts or chains. It has not been possible to use magnetic lifting equipment for this purpose.

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LMB technology is the solution. TRUNINGER took on the challenge and has developed a new magnet for bundles of thin-walled profiles. This development has expanded the range of applications for magnetic lifting technology by the addition of a major sector. The new LMB magnet will substantially increase handling efficiency and safety of material transport in many warehouse areas. The basic idea is based on the concept of grasping the beam on the web and not on the flange. This requires a variable pole geometry which can be adapted to the variances in the material geometry. A package of movable magnetic pole plates is the solution to the problem. The pole plates slide between the flanges of the beam and direct the magnetic flow into the large-area profile web without any loss of strength. Another decisive advantage of the new LMB design is that the magnet is no wider than the layer width of the bundle of beams. This increases storage density and substantially simplifies and accelerates the loading and unloading of lorries, ships or railway wagons.

A bipolar magnet design has been optimized using the finite element method and guarantees deep penetration of the magnetic flow into the bundle of beams, increasing lifting capacity and safety. The magnet was designed with the aid of a 3 D CAD model. The functionality of the design was tested before it even left the computer screen. Consequently, the construction of expensive trial samples was avoided.

LMB technology already in Spain and Brazil.
The Spanish company Celsa as well as Acominas in Brazil have already decided to take LMB magnets. Four systems with LMB magnets for profile bundle layers up to 1810 millimetres in width and with a maximum weight of 18 tons were delivered in March of this year.
The Spanish company Llinás is betting on a unique combination: a wheel excavator with a mobile magnet system from TRUNINGER, which can easily lift even heavy, compact loads.

A clever combination

The Spanish company Llinás is betting on a unique combination: a wheel excavator with a mobile magnet system from TRUNINGER, which can easily lift even heavy, compact loads.

Win one of twelve elegant wine sets suitable for the finest taste.

First-class wine – one for Spain, for example – deserves to be decanted elegantly and enjoyed with style. The anticipation begins with the ingenious corkscrew, which removes the cork from the bottle by means of compressed air. With a little bit of luck, this valuable set will soon belong to you.

Just fill in the contact card and fax it to TRUNINGER by 31 October 2003. Good luck!

There is no correspondence about the contest. The winners will be notified personally. No recourse to legal action possible.
A visit to the wine region of Valdepeñas

Spanish sun in the glass

José Vicente Berenguer Haym, the TRUNINGER representative in Spain, recommends it most heartily – the full-bodied, fruity red wine from Valdepeñas. Located in the south of La Mancha, the region around the picturesque city of Valdepeñas produces premium quality wines in this hot and dry climate.

The gigantic plain of La Mancha, with its sea of grapevines reaching almost from horizon to horizon, stretches across the heart of Spain. In the southernmost part of La Mancha, around the city of Valdepeñas, lies the wine-growing region of the same name, virtually an enclave, with the Denominación de Origen (DO) in which very high standards of quality apply. This wine region covers ten towns and 34,300 hectares of vineyards, most of them on flat terrain. The primary grapes grown here are the white Airén and the red Cencíbel.

Premium class red wines. Most of the attention is given to the Cencíbel red wines, which are aged in oak barrels; they offer a great diversity in their bouquet and a rounded body, well structured by a pleasant acidity. The quality production begins in the south of La Mancha, the region around the picturesque city of Valdepeñas produces premium quality wines in this hot and dry climate.

Worth the trip especially for wine connoisseurs. The rambling region of Castile-La Mancha invites its visitors to take a diversified journey of discovery. An excursion to the Ciudad del Vino, Valdepeñas, is especially worthwhile. A large number of the more than one hundred bodegas of the wine region are at home in this city.

A viticulture museum has been opened in the old buildings of the bodegas Los Llanos. But the surroundings offer many other sights. They can be viewed during a tour along the wine route around the wine region of Valdepeñas.

Who will win the Sony camcorder?

This digital camcorder DCR-IP220 from Sony is still waiting for you in our internet vault. In case you haven’t broken into it yet, you had best log on to our home page www.truninger.com right now. You will find the vault under the topic magnetic lifting technology. Your secret code 4487 will help you further.

Take advantage of this opportunity. You still have time until 1 September 2003. Good luck!