



## Zaporizhstal Steel Works purchases up to date equipment

Zaporizhstal Steel Works purchased an up to date machine for thermal cutting of metal for the metal structures shop within the modernization program of Metinvest Group enterprises. Investments constituted about UAH 1 million. A new machine Crystal is designed for automated processing of the flat products with use of plasma and gas cutting. Up to date equipment will allow the Works to organize production of component parts for its main process units instead of buying them from other companies as it had to be done before.

Crystal has high performance



specifications productive capacity, kinematic and manufacturing accuracy, performance reliability of the major components. An up to date numerical program control of the equipment arranges the component parts on the sheet with maximum efficiency, minimizing manual labour and the time for

production of a component part, thus increasing the overall production efficiency. High accuracy and quality of cutting of metal allow decreasing quantity of metal waste and machining after cutting to the greatest possible extent, and in some cases even completely excluding it.

## World's first application of new in-line rail hardening goes commercial at Baotou



Brinell HBW10/3000 at the surface of the rail head, and from 34 to 42 Rockwell HRC across the rail section, according to the applicable measuring protocol. R60 U75V gr.340 is the first rail in the world to be commercially processed through Idrha+, and is now in industrial production already at a rate of 15 pieces per hour with a 100 m standard length.

Siemens Metals Technologies has received notice from Baotou Iron & Steel (Group) Co. Ltd. that the in-line "Injector Dual phase Rail Hardening" (Idrha+) achieved the expected performances for the rail R60 U75V gr.340 according to TB/T2344 2012 norm and has therefore entered the regular commercial production. The system, contracted to Siemens in December 2012, is capable to improve the rail resistance to both wear and rolling contact fatigue, and was designed by Siemens Metals Technologies and Centro Sviluppo Materiali S.p.A. (RINA CSM). The grade U75V is one of the most widely produced rails for high speed application. After head hardening treatment with Idrha+ process, all the obtained mechanical and metallurgical characteristics of the rails exceed the values required by the applicable standards. In particular, the minimum values of UTS tensile strength and A% elongation are 1180 MPa and 10%, respectively. The measured values of hardness range from 340 to 400

With a rail production capacity up to 1.3 6 million tons (record reached in 20 09), Baotou is the largest rail manufacturer in the world. The first in line Idrha+ system is installed in the rail rolling mill nr 2, which has a yearly capacity of 400,000 metric tons and produces various sizes and grades of rails for domestic and export markets, according to the main international standards.

The design of the Idrha+ system by Siemens and Centro Sviluppo Materiali S.p.A.

(RINA CSM) is based on thermo mechanical and metallurgical process models, and validated by experimental trials in a pilot plant. This allows the simulation of various cooling strategies for different grades of rail steel prior to the start of production, thus enabling run up times to be shortened and nominal capacity to be attained faster while relevant performance parameters are fulfilled consistently and reliably.

## New side guide system from Siemens extends service life by up to ten times



With the newly developed Eco Slide Disc Solution, Siemens Metals Technologies offers operators of hot strip mills a side guide system which can be adapted to nearly all existing entry guides and elongates the lifetime of wear parts up to 10 times compared to conventional wear plates. The core of the solution consists of wearing discs which are integrated into the entry side guides. After the wear limit has been reached, the discs can be simultaneously round up to eight times, every time offering a new sliding surface. Furthermore, the discs can be turned over to their back face to be used on both sides. This optimizes strip guidance eliminates personnel-intensive replacement processes in the safety zone and reduces the costs of operational wear parts by up to 75 percent. The system can pay for itself within one to two years. The Eco Slide Discs are successfully in continuous use at voestalpine Stahl GmbH in Linz, Austria, since August 2014.