Editorial

Under the shadow of the recession, Drever International managed to keep its head held high in 2009 and is looking forward to a new year focusing on customer satisfaction and innovation.

In 2010, more than ever before, we are committed to listening to our clients. We will continue to develop our products according to their needs and new market demands without forgetting our competitive edge. This is the goal shared by the whole team at Drever International. For several years, our R&D policy has helped us develop new technology which has improved the performance of our products, whether they are new or old. These have already been adopted by a number of our clients.

By continuing to offer innovative, financially attractive and competitive solutions, we will be able to maintain our position as market leader when it comes to the annealing process for stainless steel and carbon steel, which is our core business. A position that we intend to secure in new markets as well.

Our aim for 2010 is to continue developing environmentally-friendly technology that doesn’t guzzle energy and which is designed in such a way as to reduce the impact of our installations on the environment as much as possible.

This is how our engineers, helped along by a constant commitment to creativity, are proud to announce that the first new furnaces, that we're going to call regenerative as opposed to the current exchange system, are now in the design phase. The first installations will soon be up and running, heat treating carbon steel and tinplate. Drever is now working on other applications for this technology to regenerate the energy lost by the sheet metal in the cooling process into the heating process.

With the support of the SMS-Siemag AG group and the commitment of all of our team, I have no doubts that Drever International will achieve its main goal for 2010: continue to improve customer satisfaction.

I wish you a very successful 2010!

Enjoy the newsletter,
Jean Marc RAICK Managing Director

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News

First Coil Produced at Nucor
On July 21, 2009, the first prime coil was produced on the new Continuous Galvanizing Line at Nucor Steel’s facility in Decatur, Alabama, USA.

This new Drever furnace has an annual capacity of 600,000 tpy (short tons) and is designed to process cold rolled strip made from ultra low carbon steel, interstitial-free (IF), and high strength low alloy (HSLA) steel for production of exposed automotive quality galvanized sheet as well as galvannealed sheet.

The main areas of the furnace include:
- A heat recovery section for strip preheating and hot water production;
- A pulse-fired, recuperative heating section;
- An electrically-heated soaking /slow cooling section;
- A rapid cool section capable for uniform transverse temperature;
- An equalization section;
- An exit section incorporating a bridle for optimal tension control and strip stabilization;
- Electrically-heated mobile and fixed galvanneal heating and soaking sections;
- Controlled after pot strip cooling combined with galvanneal heat extraction system;
- A final air-cooling section and water spray quench with wringer rolls and dryer.

Together, along with future startups at ThyssenKrupp Steel USA and Severstal NA Line 2 in Mississippi, there is mounting evidence of Drever’s re-emergence in the North American market, made possible by its advanced technology and global market leadership position.

The line represents the second new Drever furnace startup in the USA within the past two years. The other line, of similar characteristics, was built as Line 1 for Severstal NA, in Columbus, Mississippi.
Drever consolidates its presence in Asia

In November 2009, Drever International attended two international trade shows in South Korea and India. It was the perfect opportunity for Drever to introduce its latest technology, share its experience and consolidate its presence on these key markets.

The Asia-Pacific Galvanizing Conference in South Korea

Professionals from around the world came together in Jeju, Korea, between 8th and 12th November for the AP Galva Conference 2009. Over 3 days, scientists and industry experts presented their research and all the latest developments relating to galvanizing production and applications.

In collaboration with Shougang Cold Rolling Mill, Drever International S.A. presented its patented improvement for cooling technology through atmosphere gas management. This cooling technology development ensures higher cooling rates without additional expensive hydrogen gas consumption and without the use of complex sealing equipment between zones.

A great opportunity for Drever to introduce to existing and future partners the latest developments applied by its R&D department and the new ideas that it has for cooling AHSS steel.

Metals Minerals Manufacturing Expo in India

The 8th Metals Minerals Manufacturing Expo in 2009 took place from 14th to 17th November in Kolkata, India. This is one of the biggest trade shows dedicated to the steel industry in India. It brings together market leaders, giving them the opportunity to present their latest products and technology.

Drever International was well represented at the show thanks to its presence at the SMS-Siemag AG booth. As the Group’s “furnace” division, Drever had the opportunity to develop its regional and international contacts as well as seeking new partners.

Mathematical Model at Rasselstein

The Rasselstein plant in Andernach is fitted with three Continuous Annealing Lines (CAL), each one being equipped with a furnace supplied by Drever International. The DO3, DO4 and DO5 lines were started in 1973, 1983 and 2005, respectively. At the time of starting the DO5 line, highly sensitive products and high quality were set in the mathematical model.

Highly sensitive products and high quality

Rasselstein is specialized in Tin plate material serving the packaging market. The lines at Rasselstein are designed to produce very thin and wide material, which are very sensitive to buckling. Typically, a vertical CAL or CGL line processes material with a width/thickness ratio of around 3000. In the case of Rasselstein, the line processes material having a ratio above 6000. In the product range covered by Rasselstein, we also encountered DWI material. DWI requires high drawing characteristics reflected by a very soft material, which can be folded like paper at annealing temperature. The final machines process thin DWI material in the width range of 1200 - 1300 mm, thus leading to very sensitive products to handle on CAL lines.

Several main challenging tasks were requested by Rasselstein:

• On steady condition, the strip temperature must be at ±5°C around its target;
• During transition, the heat cycle of both coils must be respected;
• No heat buckle allowance;
• Some materials are produced with quality limits of ±5°C, even during the transition and line speed up.

Drever International’s Mathematical Model

To achieve these objectives, the latest generation of mathematical models has been installed at Rasselstein. In addition to traditional solutions for thermal equations, its main functions include calculating capacity, dynamic control and optimisation. Operational Transparency is provided by the model’s HMI interface, MoviS*, which shows the results of the transitional calculation in a time line.

Positive results

The products processed on the DO5 line have been presented as being very sensitive. Using an on-line thermodynamic mathematical model, a new generation transition management algorithm has been introduced to control any situation. A mixed furnace and speed control method, with continuous monitoring, drives the equipment at their nominal capacity while respecting the quality.

Model accuracy

Sampling count of strip temperature deviation in steady state and transient state. Duration: 24 hours.

Line speed up

The model has also proven its capability to speed up the line and keep the strip temperature deviation within ± 5°C, if advised.

Focus on DMT

Drever International decided in 2006 to open a wholly-owned business organization in China. DMT was founded in Shanghai for a customer-oriented mission as follows:

• to allow Drever to deliver a completely Chinese product to the local market, adapting the Drever technology to match the demands of the market;
• to assist Drever in the execution of foreign projects by facilitating communications and improving our relationships with the Chinese customers;
• to supply aftermarket services to the Chinese customers;
• to maintain the contact and improve relations with the Chinese customers and suppliers;
• to keep Drever informed about the specific demands and expectations of the Chinese customers.

Mathematical Model at Metal + Metallurgy China 2010 in Beijing

From 11th to 14th May 2010, Drever International will be at one of the largest international trade shows dedicated to the metal industry: Metal + Metallurgy China.

Drever International will be represented by its subsidiary DMT (Drever Metallurgical Technology Ltd.), based in Shanghai. Drever will present its latest projects including the roller pressure quench machine and fully hydrogen atmosphere tube bright annealing furnace.

Metal + Metallurgy China will give Drever an excellent profile in the world’s most attractive markets.

Inside

2 questions for Klaus-Günter Butzbach

Do you think that the Mathematical Model is essential for the sector today?
I think the mathematical model is essential for modern plants. Processes are becoming more and more complicated and plants are run with fewer people. It’s also an important criterion for audit inspections that there’s an automatic system that controls (regulates) the annealing process virtually independently.

Will you be installing it in your next lines immediately?
It’s definitely worth developing the model further, so it can be supplied to all future plants. One useful addition (redundant at Rasselstein as there’s already a coil management system) is complete coil management. This means the mathematical model selects coils from a large pool of available coils according to defined criteria.
New kind of steel grade: focus on the environment

It is now clear to everyone on earth that CO₂ emissions are targeted for drastic reductions in the coming years. An interesting concept is gaining momentum in the world of car makers i.e. electric and hybrid engines. Both types need electrical steel sheets of the non-grain oriented (NGO) type.

Designing the future

This kind of steel grade will surely be developed by some of the well-established NGO steel producers. Drever International is accompanying some of the European producers in designing the annealing furnace technology that will handle the technical requirements of the near future i.e. mainly higher annealing temperature and different atmosphere gas compositions along the thermal cycle.

With its experience of high temperature annealing of stainless steel strip and with its well-known technology of atmosphere gas control Drever International is in the best position to satisfy the future needs of electrical steel manufacturers.

Drever delivers Roller Pressure Quench (RPQ) to MMK

The Drever Quench (Continuous DQ Equipment family) has been delivered to Magnitogorsk Iron and Steel Works (MMK). Initial tests are very promising. The completion of the commissioning process should be achieved during the first quarter of 2010.

Thanks to its most recent technological advances, the RPQ provided by Drever will help MMK excel in the areas of cooling speed and flatness while using less energy than the previous generation of RPQs.

Cold commissioning was completed in early October. Initial tests in heated conditions gave some very promising results. The next stage will involve adjusting the Quench according to different grades of steel and finalising the installation of the mathematical model.

Drever’s Roller Pressure Quench is part of a collection of integrated tools provided by SMS-Siemag AG.

Technical specifications of heavy plates:
- Thickness: 8 to 60mm
- Width: 1,500 to 4,800mm
- Length: 6 to 20m
- Grade: construction steel and ship plate
- Guaranteed cooling rate at plate core: ≥ 16°C/sec for 30mm thick plates

> Roller Pressure Quench for MMK 5000 Mill Heat Treatment Line