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The articles can also be found on our website. Download the latest issues under NEWS & PRESS / HICON® Journal.
In the second edition of our HICON® Journal this year, celebrating 100 years of production "Made by EBNER", we would like to report on some of the more interesting projects and technological developments in the industrial furnace sector.

Our company philosophy - to be technological leader in heat treatment facilities for the steel, aluminum and copper alloy metals industries - has again been acknowledged by our customers worldwide with an excellent level of incoming orders this year. EBNER has impressed many customers with the quality of its furnace technology, in particular in the aluminum sector, and especially with pusher furnaces for reheating ingots, solution heat treatment roller-hearth furnaces for plate and, above all, floater furnaces for strip.

This trust went so far that EBNER has even been chosen by some customers as the single-source provider for all their high quality heat treatment requirements. As a result, even more item in daily use - from airplanes to cars and aluminum beverage cans - will contain components heat treated using EBNER technology.

Of course this motivates all EBNER employees to give their best for the benefit of our customers, and motivates me to ensure that we continue to deliver in full to meet the trust placed in us.

Enjoy!

Dear business partners,
Dear employees,

Yours sincerely

Robert Ebner
CEO
One of the most important businesses in Kamensk Uralsky is Kamensk Uralsky Metallurgical Works (KUMZ). KUMZ was founded in 1944, and today it is one of the world’s leading manufacturers of high-quality aluminum semi-finished products for the aerospace and mechanical engineering industries.

In 2006, a modern plant for the production of aluminum plates was completed. Since then, KUMZ has counted major aerospace companies such as Airbus, Boeing and Bombardier among its customers. For this investment, KUMZ placed its trust in the market leader EBNER for the heat treatment equipment.

The logical next step was for KUMZ to begin planning a new rolling mill plant. Orders for the first phase, the cold rolling mill, were placed in 2011. In order to be prepared for future demand, KUMZ has invested in a modern cold rolling mill with a maximum roll width of 2800 mm (173’). EBNER was again chosen to supply the heat treatment facility. This HICON® overhead furnace facility consists of 10 single-chamber batch-type furnaces and is currently being installed, with commissioning scheduled for Q1 of 2014.

The second and third phases were contracted in early 2013 and comprise a modern hot rolling mill with a maximum roll width of 4400 mm (173’), all ancillary equipment and a plate production unit. For the first time in EBNER’s history, we will be able to supply a single customer with all required heat treatment facilities for the entire production cycle - from the cast ingot to the final semi-finished products (plates, sheets, strips).

The huge order includes the following furnaces:
- 2 HICON® pusher-type furnaces for reheating and homogenizing ingots
- 3 HICON® batch-type furnaces for reheating and homogenizing individual ingots
- 1 HICON® roller-hearth furnace with a clear width of 3200 mm (126”) for solution heat treating aluminum sheets
- 1 HICON® roller-hearth furnace with a clear width of 4200 mm (165”) for solution heat treating aluminum plates
- 2 HICON® batch-type furnaces with a clear width of 2800 mm (110”) and a max. length of 13 m (43`) for annealing and aging sheet
- 2 HICON® batch-type furnaces with a clear width of 4200 mm (165”) and a max. length of 33.5 m (110”) for annealing and aging plates
- 1 HICON® floater furnace with a clear width of 2600 mm (102”) for continuous heat treatment of aluminum strip, including the coil handling equipment and an in-line shear unit which trims the heat treated strip and cuts it into sheets.
- 8 HICON® single-coil overhead furnaces for annealing strip coils to expand the overhead furnace facility in the cold rolling mill.

About 100 km southeast of Ekaterinburg lies the industrial city of Kamensk-Uralsky. Close to 200,000 people live here in the mid-Ural region and largely make a living in the main industry of the region: metallurgy.
KUMZ has decided to trust "Made by EBNER" quality yet again, there must be a reason for that.

An investment of this magnitude is not made quickly or without a lot of thought. The main reasons were probably the good experience KUMZ had with EBNER during the already completed projects and also our technology leadership in each of the furnace types.

And the concept of getting everything from one source appealed to KUMZ.

EBNER was the only supplier able to quote for all the different heat treatment facilities. Having a single supplier is highly advantageous for KUMZ, just consider facility servicing and spare parts acquisition. Project management will undoubtedly also be simpler for the customer, since they only have to coordinate a single furnace supplier.

Surely this is not a run-of-the-mill order for EBNER.

Absolutely not. This is the largest single order EBNER has ever received in its long history, and will definitely be a challenge for the EBNER team, from engineering to fabrication, transportation, installation and commissioning. The fact that all the facilities need to be completed at more or less the same time makes this a huge order. Currently, more than 50 specialists are working on the engineering, transportation will take nearly 500 truckloads, many of them extra wide. At peak times, more than 30 EBNER installation supervisors and commissioning engineers will be working at KUMZ. No other furnace manufacturer in the world has the resources to complete such a large project, which surely also played a role in EBNER getting the KUMZ order.

EBNER supplied a roller-hearth furnace for aluminum plates to KUMZ in 2005.

HICON Journal interviewed the Sales Manager for Russia, Reinhard Leithner, about the project.

Aluminum strip, sheet and plate for the aerospace and mechanical engineering industries. KUMZ’s product portfolio seems to have quite the quality requirements.

Just another reason to choose our heat treatment facilities. Quality and the technical ability to completely meet the customer’s requirements. I would also like to highlight a new development in our batch-type furnaces at this point. Plate producers such as KUMZ often have very small batch sizes with many different ingot dimensions. This plays to the strengths of our newly designed batch-type furnace, in which individual ingots are charged and decharged fully automatically. In the past, soaking pit furnaces were usually used for this application, which required the ingot being handled by an ingot grab. Now, the entire heat treatment cycle from charging to decharging and placement on the rolling mill roller table takes place fully automatically. The investment costs for the deep foundation pits and the special crane system necessary for soaking pit furnaces can be eliminated. KUMZ was excited about our design and is the first customer we have implemented this innovation for.

Thank you for your time.
Asia. Specifically, South Korea. More specifically, the city of Ulsan.

Until 1962, it was largely a sea harbor and fish market. Today, Ulsan is home to many major industries such as oil refineries, heavy industry, fertilizer factories and automotive manufacturers.

Both the globally active car manufacturer Hyundai and a Poongsan Corporation plant are located here. This plant manufactures plate and strip for a large variety of industries.

EBNER technology has been trusted here for years: four EBNER furnace facilities are in operation at this plant. The newest success, joining the two bell annealer facilities and the roller-hearth furnace: a vertical bright annealing line for a very broad spectrum of materials including bronze, nickel silver, copper iron, copper and much more, which are primarily used in the electronics industry but can also be found in the automotive and construction industries.

In August 2008, Poongsan Corporation placed an order with EBNER Industriefenbau for a HICON/H2® vertical bright annealing line for the Ulsan works, which was commissioned in 2012. The strip is heated in a gas-fired muffle furnace with high-convection in straight hydrogen atmosphere up to 950°C (1742°F).

This facility has been designed with special strip handling equipment to process ultra-thin strips with thicknesses ranging from 0.05 mm (0.002") to 1.0 mm (0.44") at lowest possible strip tension.

At a maximum strip width of 660 mm (26"), an annual throughput of up to 60,000 t (66,000 USt) is possible.

The scope of supply includes the inlet and outlet strip handling components, a more than 30 m (98') high looper, a hot water degreaser for pre-cleaning, the furnace section with a jet cooler, a rinse and passivation system, the utility supply as well as the electrical control center with a process control system.

This EBNER vertical strand annealer represents an investment in environmentally-friendly, future-oriented technology by Poongsan Corporation.

The Texas subsidiary, PMC, also operates several EBNER bell annealer facilities.
Sales and Project Manager Franz Wiesinger on the cooperation between EBNER and Poongsan:

Mr. Wiesinger, what did EBNER do to establish itself as the best partner for solving problems and meeting requirements for Poongsan?

The decision for “made by EBNER” heat treatment was a clear one, especially because of the ultra-thin material thickness of just 0.05 mm. The alternative technology to EBNER’s bright annealing line is an annealing/pickling line, which cannot process this material thickness.

So the advantages of the EBNER bright annealing line triggered the order?

Of course this isn’t the only advantage EBNER can offer Poongsan. Another advantage of HICON/H₂® vertical bright annealing lines is the environmental compatibility of the facility. The EBNER degreaser cleans the strip surface with hot water instead of alkali chemicals. This is made possible by bright annealing in straight hydrogen atmosphere. Little or no post cleaning is required.

What was it like to work with this customer?

EBNER has convinced long-time customer Poongsan of its superiority yet again - Ulsan is already home to three EBNER facilities, the vertical bright annealing line makes it an even four. The EBNER specialists were supported by the highly-experienced and open-minded Poongsan team. As usual, EBNER implemented proven technology at Ulsan. A pilot facility in Italy with similar requirements served as a basis for the Korean facility.

How is Poongsan positioned on the global market?

Poongsan is Korea’s largest copper-base metal producer, and also ranks among the big players worldwide. For example, Poongsan has more than 50% of the global market share of coinage blanks.

And is now “good as gold” with EBNER, so to speak?

Exactly. You could say a coin toss is not necessary when deciding on EBNER products.

Thank you for your time.
Vertical hardening and tempering line with HICON/H₂Q® quenching technology
Böhler Uddeholm Precision Strip GmbH, a subsidiary of voestalpine AG, is a world leader in hardened and tempered steel strip. In order to maintain this quality leadership while carrying out a strategic centralization of various activities, one of Europe's most modern cold rolling mills with integrated saw blade production was built in Kematen an der Ybbs, Austria.

The first construction phase (2011) included the cold rolling mill and the world’s most modern bell annealer facility featuring a heat exchanging concept (as reported in the April 2012 edition of the HICON Journal).

The second phase (2012) introduced a saw blade fabrication workshop, at the heart of which are the two EBNER hardening and tempering lines.

A H&T line with a molten metal quench was installed parallel to an H&T line featuring an H₂ jet quench.

The entire project was carried out with the goal of highest quality end product with optimized yield of the material used.

H&T line with molten metal quench

The facility is designed to be able to produce three different microstructures. Steel strip with the best possible flatness, bright surface finish and uniform microstructure can be martempered, austempered (bainite) and patented (ultra-fine pearlite).

To meet the goal stated above, the heat treatment section was fitted with a number of “extras”.

Both the austenitizing furnace and the tempering furnace were fitted with a special roller support system to ensure best surface quality.

The molten metal quench features direct heating of the basin and a heated wiper duct. This ensures best temperature uniformity and ideal processing of all technologies.

The martempering cooler features a totally new technology: a FLEXFLAT® infinitely variable bendable cooling plate unit, which corrects strip geometry during martensite formation. This ensures both best strip flatness and easy reproducibility thereof.

The leveling furnace features a directly heated leveling plate for best temperature uniformity and flexibility for temperature changes.

As mentioned, the high-convection tempering furnace includes a new roller support system.

Final cooling takes place in an optimized flow jet cooler.

...in the countryside

Inlet to the gas-fired austenizing furnace
We talked with Mr Eppensteiner and Mr Seemann about the production process of Böhler-Uddeholm’s newest piece of equipment: the H₂ jet hardening and tempering line

Mr Eppensteiner, what made Böhler-Uddeholm decide on an EBNER facility?

Böhler Uddeholm recognized that a lead-free H₂ jet hardening and tempering line is the technology of the future and decided to invest in a vertical hardening and tempering line with HICON/H₂Q® hydrogen quench technology.

Mr Seemann, I suppose it was not just the environmental compatibility of the facilities that gave EBNER the edge. What would you say are the other main selling points of the facility?

Of course not. There were several factors which convinced Böhler-Uddeholm of “made by EBNER” technology, which is engineered in perfect detail.

The austenitizing furnace features 4 muffle ducts which can accommodate up to 16 parallel strands at once.

The vertical design allows austenitizing to take place without the strips coming into contact with any support systems.

This, together with the (lead-free) hydrogen quench, guarantees perfect surface quality.

The HICON/H₂Q® quench consists of a special jet system and a gas-tight high-capacity recirculation blower in which the strips are quenched without precipitation. The system has many possible settings, allowing maximum possible flexibility in the critical quenching phase.

... - and Mr Eppensteiner adds:

The following martensite cooler was implemented as a plate cooler.

After rounding a generously sized basket roll, the strip is tempered in an electric-heated leveling furnace and a high-convection tempering furnace.

Final cooling takes place in an optimized flow jet cooler.

EBNER also supplied the strip handling components for both facilities, and was able to fine-tune every detail to ensure highest process safety and optimized yield.

Have the facilities already been commissioned?

Both facilities have been in operation since March 2013 to Böhler Uddehom’s fullest satisfaction.

Thank you for your time.
**TECHNICAL DATA:**

**H&T line with molten metal quench**
- strip width: 90 - 650 mm (3.5 - 25.5")
- strip thickness: 0.6 – 4.5 mm (0.02 - 0.08")
- number of parallel strands: max. 3
- material grades: carbon steels (unalloyed and low-alloyed)
- processes: martempering, austempering, patenting

**H&T line with H_2 jet quench**
- strip width: 10 - 131 mm (0.4 - 5.1")
- strip thickness: 0.4 – 1.3 mm (0.01 - 0.05")
- number of parallel strands: max. 16
- material grades: carbon steels (unalloyed and low-alloyed)
- processes: martempering
Bahadurgarh, also called ‘Gateway of Haryana’, is one of the most important cities in the National Capital Region. The plant is located in Haryana State, 40 km (25 mi) from the capital New Delhi. With its modern production facilities, ASL produces the standard of quality required to meet the specific needs of quality-aware purchasers of cold-rolled steel strip coils. ASL is currently the fastest growing steel strip producer with an installed capacity of 300,000 t/y (330,000 US t/y).

Potential customers of ASL include Samsung, Honda, Suzuki, LG, Whirlpool, and Videocon.

ASL offers cold-rolled, compact annealed coils with tight dimensional tolerances, excellent surface finish and mechanical and physical properties defined to customer specifications.

Various equipment - such as slitter/winders, pickling, cold rolling mills, electrolytic degreasers and bell annealers - is required to achieve these results.
HICON Journal talked to Helmut Lux, Senior Sales Manager at EBNER, about the reasons for this order being placed.

Mr. Lux, Allied Strips Ltd.’s decision for EBNER was made at the very last moment, why was that?

The order from Allied Strips was a very positive surprise for us. The 14 workbase facility had already been ordered from a competitor when Allied Strips decided to go with an EBNER facility after all. This decision will ensure the customer’s quality requirements are met.

So the decision was based purely on quality?

For us it was clear that going for EBNER was a result of our high level of quality. Allied Strips wants to enter the higher quality market segment, which will be easy with our HICON/H₂® technology, and explains the order placed by the Indian manufacturer. The guaranteed temperature uniformity is achieved in the guaranteed time and maintained throughout the entire charge stack.

Our argumentation was convincing, and we received an order for 14 workbases. They were delivered in two phases, first eight, then six additional bases. They are gas-fired and designed for an annual throughput of 286,000 tons. (315,260 USt)

So you could say that this is a decisive step towards quality?

Allied’s satisfaction with the HICON/H₂® facility and the quality being produced has meant that follow-up projects with EBNER are being discussed. The existing workbases are operating perfectly in the Bahadurgarh works.

Thank you for your time.

"Allied Strips wants to enter the higher quality market segment, which will be easy with our HICON/H₂® technology"

Helmut Lux
Dortmund, Düsseldorf, Duisburg

- all near Iserlohn, Germany, home to the workshop of family-owned company Stahlrump with about 100 employees. Soccer is the main topic of discussion in the pretty front yards of the nearby homes, but no matter how hot last night’s game was, it’s no match for the 500 - 850°C (932 - 1562°F) operating temperature of the EBNER bell annealer facility at Stahlrump.

Cold rolled strip and wire coils of carbon steel and martensitic Cr steel are annealed in Iserlohn. The facility can process strip material with a max. outer coil diameter of 1500 mm (59"), strip widths of up to 400 mm (15.7") and strip thicknesses between 0.1 and 6.0 mm (0.004 and 0.23"), as well as wire coil diameters of up to 1100 mm (43") with a wire diameter of 3.0 to 13.0 mm (0.12 - 0.51"). Recrystallization anneals and spheroidization anneals are carried out at workload space temperatures of between 500 and 850°C (932 - 1562°F).

It is no exaggeration to say that EBNER and Stahlrump have been working together for decades; the first two workbases were installed in 1985. Modernization and technological updates were always a priority. In 2001, the facility was revamped to support hydrogen mode, and seven years later in 2008, an exhaust gas extraction system was installed.

A capacity expansion project in 2011 saw the installation of two addition workbases and a modernization of the entire facility. New control system, new valve stands, outburners and retrofitting a fuel gas meter brought Stahlrump back up to state-of-the-art level. The two bases installed in 2012 give Stahlrump a total of 6 “made by EBNER” workbases.

The demands placed on the steel strip and wire for end products such as tools, precision machines, mechanical engineering, textile needles, medical technology and bearings are no doubt very high and a perfect use of EBNER heat treatment furnaces.
Project Manager Bernhard Ennsbrunner was happy to answer the following questions for us:

Stahlrump in Iserlohn, Germany. This company is not well-known outside the industry. What can you tell us about them?

We at EBNER are very proud to have been a partner in contributing to Stahlrump’s success for many years, and are furthermore proud to present a first in this edition. This is the first time the customer has allowed us to report on and publish photos of their facility in the HICON® Journal.

EBNER has been providing modernizations and expansions to this facility for the past five years, you must practically feel at home there.

It’s absolutely true that we have always been welcomed at Stahlrump with a friendly attitude and excellent support. EBNER technical specialists definitely enjoy visiting Iserlohn.

What is so interesting about this German facility?

It is a bell annealer facility with proven technology, incorporating many EBNER patents. Some of the highlights include the full workbase/bell compatibility, the ability to switch between nitrogen mode and hydrogen mode, and the fact that this facility showcases several generations of EBNER bell annealers, all at state-of-the-art levels.

Seems to be a clear advantage in Iserlohn in terms of the economical production of the required material grades.

Our customer enjoys proven EBNER technology in addition to flexibility, customer support and service. Germany may be home to the world’s best soccer, but Austria is definitely the leader in heat treatment facilities.
A BIG FISH IN A PROMISING OCEAN

Biesheim, France’s Alsace region, near the German border.

The dynamic small town of around 2,500 people is an economic big fish - focused on cultural, commercial and agricultural activities. Biesheim’s economy is also based on the presence of important companies, which are pillars of industrial activity. The gum giant Wrigley has a production facility in Biesheim, as does Constellium, which has trusted in EBNER facilities since 2001.

Constellium has specialized in the development of innovative, value-added aluminum products for a wide range of applications in a variety of markets and industries.

The company sells its products all over the world, mainly in the areas of aerospace, packaging and automotive.

The Biesheim plant opened in 1967, and received a new addition in June 2013: a HICON® pusher-type furnace from EBNER.
Project coordinator Carl-August Preimesberger on the newest facility at Constellium:

*Mr. Preimesberger, what type of furnace did EBNER recently install in Blesheim?*

The EBNER pusher-type furnace installed at Constellium is a state-of-the-art version of one of our proven types. However, we didn’t supply the entire facility. In this project, EBNER only supplied and replaced the furnace - the existing handling system was revamped and reused by the customer.

*Is this the company’s first HICON® pusher-type furnace from EBNER?* Constellium has been operating an EBNER single-coil overhead furnace facility since 2001, but they did not have one of our pusher furnaces until now.

*So the customer has been relying on EBNER quality for some time.* Exactly. A follow-up order has also already been placed for a similar situation: EBNER is to supply a HICON® pusher-type furnace to be installed with Constellium-provided handling systems.

*What products does Constellium produce?* The company’s main products are aluminum coils, in 3xxx/5xxx alloys for beverage and food cans. The plant also supplies the automotive industry.

*What would you say is the main appeal of the HICON® pusher-type furnace facility? What are its outstanding characteristics?* The facility achieves highest temperature uniformity in the material with shortest possible heating-up times, resulting in high-quality product and throughputs. Another advantage of the HICON® pusher-type furnace is its very low energy consumption. Finally, the very robust components and ease of servicing have to be highlighted.

*How long has the facility been in operation in Blesheim?* The new furnace started production in mid-June 2013.

*Thank you for your time, Mr Preimesberger.*

A few hard facts about the facility:

- **Slab dimensions:**
  - slab length: 3,500 - 5,600 mm
  - slab width: 1,000-2,100 mm (39.3“ - 82.6“)
  - slab thickness: 350 - 610 mm (13.7 - 24“)
  - max. slab weight: 15 t (16 USt)
  - no. of slabs in furnace: 36
  - max. net charge: 540 t (595 USt)
  - max. furnace temperature: 680°C (1256°F)
  - clear inside dimensions of furnace:
    - length: 25.4 m (83'4“)
    - width: 6.2 m (20’2“)
    - height above slab shoes: 2.4 m (7’10“)
The Chinese province Jiangsu is a flourishing region in Asia, whose 102,000 km² and about 78 million inhabitants offer ample resources for continuing growth.

The city of Zhenjiang, just two hours by car from EBNER Taicang (just around the corner in Chinese terms), is home to Aleris Aluminum (Zhenjiang), a subsidiary of the major American company Aleris International, and specialized in manufacturing aluminum material for the growing Chinese automotive and aerospace industries.

The German sister company Aleris Koblenz, has been trusting in the quality and reliability of “made by EBNER” heat treatment furnace facilities for decades.

Three furnaces - a roller-hearth furnace for solution heat treating plates and two batch-type furnaces - from EBNER’s product range have been added to the rolling mill in China. The two batch-type furnaces with a shared charging system are designed for aging and recrystallization anneals. Aging takes place at temperatures up to 280°C (536°F) and is used to strengthen the material in a greatly reduced time span.

Three furnaces from EBNER are perfect for the high quality demands of the aerospace industry. Why? This furnace accommodates aluminum plates up to 3.8 m (12'5") wide, 24 m (78'9") long and 255 mm (10") thick. This allows very large airplane wing components to be solution heat treated in one piece, minimizing or even eliminating the need to rivet sections together.

A uniform temperature profile in plates of this size is only possible with absolute state-of-the-art technology. The aluminum plates pass through the roller-hearth furnace at 450°C to 570°C (842°F - 1058°F) with extremely low temperature scatter, which places high demands on the measuring equipment. A water quench cools the material to 45 - 65°C (113°F - 149°F) within seconds. EBNER engineers ensured this drastic temperature reduction in such a short time by providing thousands of water jets, which distribute water evenly across the surface of the material, guaranteeing homogeneous cooling.
The fact that Aleris Aluminum (Zhenjiang) counts on “made by EBNER” heat treatment facilities to supply the growing Asian aerospace industry is not just due to our long partnership with the Aleris Group. Rather, EBNER was yet again able to demonstrate that we can meet and even exceed the highest requirements, supplying a facility which will make the customer competitive for years to come.
Project Manager Gerhard Schauer on the newest facility at Aleris:

Mr. Schauer, what were the specific requirements demanded by Aleris of the new EBNER facility in Zhenjiang?
Because of the clear definition of the aerospace industry sector, EBNER knew from day one that the required tolerances would be minimal and the material grades extremely high.
Our customer, Aleris, maintains a huge material sample archive in Koblenz, Germany, for consistent quality assurance and quality control. Breaks and tears in material can have catastrophic consequences in the aerospace industry, after all, hundreds of lives hang in the balance. There is only one standard: the best is just barely good enough.

Was this reason enough for the customer to decide on EBNER?
A customer's choice of industrial furnace facility is also ultimately based on economic considerations. Aleris also makes use of regional suppliers for less challenging applications, but EBNER's heat treatment facilities are valued for their ability to produce high-end products.

With such a complex total facility as Aleris Aluminium Zhenjiang now owns, good team work with the other suppliers has to be an advantage.
Absolutely. But that's not all. The customer's support and know-how exchange are also essential for a successful project. At this point, I would like to be sure to mention Dr. Dirk Menzler (an Aleris Koblenz consultant), who commuted between Koblenz and Zhenjiang every two weeks and thus had an excellent overview of the progress being made, which he was always happy to share with EBNER specialists and engineers. This way, we were always up-to-date on how the project was progressing. This kind of cooperation does not go without saying, and simplifies the process quite a bit.

Is the facility already in operation?
Yes, production began in early 2013. The facilities have reached the ability to fulfill AMS / NADCAP Standard. The certification process is in progress.
We at EBNER are especially proud that our heat treatment furnace facilities were the first ones reaching this ability.

So we can put our minds at ease the next time we board an airplane and relax when we take off. EBNER definitely ensures a good “take off” and Aleris is sure to provide the Asian aerospace industry with a safe landing.

Thank you for your time.
Batch-type furnace for aging aluminum plates of various dimensions.
The literary town of Langenberg, an old city with a young heart, is home to one of the plants in the Wieland Group. The company is one of the leading manufacturers worldwide of semi-finished copper and copper alloy products.

In this picturesque northern German idyll, copper strip is produced mainly for the electronic and electrical engineering industries as well as for the automotive sector. Wieland-Werke AG was founded in 1820 in Ulm as a bell and sculpture foundry. Today, the Wieland Group employs around 6,500 people in more than 40 countries.

The two-base bell annealer facility commissioned in 2012 features the same HICON/H$_2$® technology our customers have trusted for 40 years and bright anneals copper and copper alloy strip and foil with thicknesses ranging from 0.1 to 4.0 mm (0.004 - 0.157").

Stack heights up to 2900 mm (114") result in a net charge weight of 40 t (44 USt). The operating temperature range of the two bases is 200-750°C (392 - 1382°F). Thanks to the ability to fine-tune the atmosphere track (hydrogen content of the process atmosphere can be set between 5 - 100%) and the temperature program to the material being annealed, annealing results are both qualitatively and quantitatively excellent.
Project coordinator Karl Wohlfart on the newest facility at Wieland:

Mr. Wohlfart, does the customer already own any EBNER facilities?

Yes, Wieland is a long-time customer of EBNER’s. We supplied this workshop with 2 HICON/H₂® bell annealer facilities over 20 years ago, and they are still in operation. The company also operates several EBNER roller-hearth furnaces and bell annealer facilities at its works in Vöhringen, Germany and Buntmetall Amstetten, Austria.

How did EBNER get the order?

EBNER invented the process of bright annealing copper-base material in hydrogen in bell annealers over 40 years ago. Continuous development of the bell annealer sector allowed us to maintain our lead over the competition, with our top priority being safety engineering. The customer’s similar mindset must have been a major factor in the decision-making process.

Tell us a little about the special features of this new facility.

Everything has been automated, down to the automatic media and energy couplings. The inner covers are moved and parked together with the cooling bells, which saves precious storage space.

The excellent teamwork with our Wieland counterparts during the development and installation of this project was a major contributor to its success.

Many thanks indeed for your time Mr. Wohlfart.
With 36,600 inhabitants, St. Ingbert is the fifth largest town in Saarland.

From an economic point of view, the town plays a major role in Saarland because it is on a straight line between the Paris basin and the Rhein-Main area around Frankfurt am Main.

Industrial development in St. Ingbert started back in the 18th century. Today, it is the location of the headquarters of Willy Voit GmbH & Co KG, a technology company that employs 1,600 people worldwide, 1,000 of them here in St. Ingbert.

Almost 65% of the world’s leading automotive manufacturers place their trust in Voit. Around 140 million parts are fitted to components such as transmissions, fuel supplies, driveline, exhaust systems, chassis and bodywork at Audi, BMW, Mercedes, VW, Ford, Opel, Chrysler, Jaguar and Landrover.

In fall 2012, the first EBNER facility went into operation at Voit, a gas-fired HOTPHASE® roller-hearth furnace facility for press-hardening blanks.

- nominal width: 2,500 mm (98”)
- total heated length of furnace: 20,890 mm (822”)
- combustion system rating: approx. 1,875 kW
- net throughput capacity: max. 5.6 t/h (6.2 USt/h)
We talked to Project Manager Siegfried Hehenberger about the first EBNER facility at Voit.

Does this customer already own any EBNER facilities?

No, the first EBNER facility - a gas-fired HOTPHASE® roller-hearth furnace facility for press-hardening blanks - went into operation at Voit in fall 2012.

Which products does Voit manufacture?

Their product range consists of steel press hardening parts for car bodies (body in white) such as reinforcements for A and B pillars, side wall components, crash bars, sills, footwell supports, crossbars, roof bars, and chassis components such as axles and wheel mountings.

When was this roller-hearth furnace facility commissioned?

Commissioning took place in August 2012. Optimization and integration into the system was then carried out. These measures were performed in September 2012.

What can you tell us about the technical specifications and highlights of this facility?

This HOTPHASE® roller-hearth furnace facility is the very latest design of gas-fired radiant tube heated furnace. Thanks to the use of cost-effective natural gas to provide energy, the production costs for heating press-hardening blanks in this furnace are kept to a minimum. This facility is constructed in modules so that future technological developments can easily be retrofitted.

A highlight is the automatic roller rotation monitoring system, which is offered as an option with this type of furnace and which was implemented at the Voit project. The roller rotation monitoring system means that measures for preventative maintenance and remedying malfunctions can be initiated and implemented.

Many thanks!
Big block motors, V8s, endless highways, floater furnace facility - what’s the connection?

Easy: the two state-of-the-art floater furnace facilities at Novelis Corporation in Oswego, NY, USA producing material for the American automotive industry.

The city is located on the southeast shore of Lake Ontario and nicknamed “The Port City of Central New York”. Novelis Corporation is known as a global market leader in aluminum rolled products. Novelis has made a name for itself internationally in the beverage can, architecture and electronic entertainment industries thanks to a multitude of customer-oriented innovations. Products of the highest quality are setting new standards in the automotive industry.

The two identical floater furnaces are configured for different material thicknesses, optimizing material output with minimal preparation. For EBNER, these two furnaces represent a unique constellation regarding the flexibility of the cooling systems. The way EBNER’s engineers solved this technical issue was one of the main reasons the order was won. A special calculation model changes the furnace settings for each material coil, ensuring maximum consistency of quality.

This EBNER facility shows off the full range of its flexibility in the quench. Depending on the alloy, either air or water quenching can be selected. When quenching with water, the air tunnel serves to dry the strip. The water quench uses demineralized water in a closed circuit system. The floater furnace is integrated into a continuous processing line specifically designed for automotive material.
Project manager Robert Schmidt on the details of the Novelis facility:

EBNER’s reputation for highest technical expertise is known the world over. But the quench at the Novelis facility seems to have been a challenge.

That’s absolutely true. At EBNER, we do not see ourselves simply as furnace builders. We want to offer our customers a modern, future-safe and high quality facility, which of course includes our specialty (industrial furnaces) but also includes all the associated components at the same level of quality.

Two identical facilities in one workshop. Wouldn’t one air quench and one water quench have made more sense?

It really can’t be simplified like that. The customer decided on two facilities due to the different material thicknesses. This allows Novelis to utilize the maximum throughput very quickly with minimal preparation time. The “correct” cooling method (air or water) is a question of the material alloy. The demand for highest temperature uniformity and optimal cooling rates, i.e. maximum temperature change in the shortest possible time, was a challenge for the EBNER team on Lake Ontario.

Is this where “big block” and floater furnaces meet?

EBNER is always a good choice for state-of-the-art aluminum heat treatment, putting Novelis “on the road again”.

Thank you for your time.
### EBNER TRADE FAIR SCHEDULE 2013 - 14

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