



EBNER[®] GROUP
Driving Green Technologies

EBNER GROUP

Ladies and Gentlemen,
Dear customers and partners
of the **EBNER GROUP!**



Driven by our vision of Driving Green Technologies, we are committed to providing innovative, sustainable solutions that empower our customers to achieve their ambitious goals.

We are dedicated to understanding our customers' needs, delivering technologies and solutions that make a positive impact. We collaborate with like-minded partners on exciting projects that drive positive change.

With the expertise found in both business units of the **EBNER GROUP**, Thermal Processes and Advanced Materials, we can be a trusted and capable partner that supports your sustainability goals. Together, we can create a more sustainable future for generations to come.

We look forward to forming a partnership with you that addresses new challenges.

Yours,
Robert Ebner
CEO **EBNER GROUP**

EBNER[®]GROUP

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Gautschi[®]



HAZELETT

EBNER[®]GROUP

EBNER[®]

EED

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EEMCO[®] **SIGCREATE** **ARCTICSiC**[®] Silicon Carbide. Crystal Growth.

FAMETEC[®] **ARCTICSapphire**[®] Sapphire. Crystal Growth.

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EBNER®

Gautschi®

HAZELETT

HPI

GNA

EED

TPS®

CRC

EQMS
Excelente
Calidad
Manufacturada
de los Servicios

EBNER GROUP THERMAL PROCESSES

Our technological expertise.

Your competitive advantage.

In the realm of high-performance materials, the key to success lies in precise control. Heat treatment, the controlled heating and cooling of metals, plays a vital role in shaping the properties of aluminum, steel, and copper, paving the way for exceptional end products.

Industrial furnaces are the beating heart of this process, ensuring consistent and accurate heat treatment for optimal material performance.

At the **EBNER** GROUP, however, we go beyond simply providing furnaces.

The companies of the **EBNER** GROUP constitute a comprehensive solution, offering:

- **Unmatched Expertise**
Our team of engineers and specialists possesses a deep understanding of melting, casting and heat treatment processes, as well as their impact on various metals.
- **Cutting-Edge Technology**
We continuously invest in research and development, pushing the boundaries of furnace design and control systems to ensure the highest levels of efficiency and precision.

- **Tailored Solutions**
We recognize that every project is unique. We work closely with our clients to develop customized furnace solutions that perfectly meet their specific needs and requirements.
- **Sustainable Solutions**
As globally-active companies, we take environmental responsibility very seriously. It is for this reason that we are pioneering the development of eco-friendly melting, casting and heat treatment technologies and resource-efficient production processes.

Innovation at our Core.

Pioneering green heat treatment technologies.

At every one of our locations, the **EBNER** GROUP is dedicated to Driving Green Technologies. Our commitment is fueled by a continuous exchange between R&D and technical staff, leading to advanced solutions for our customers.

DECADES OF EXPERTISE, POWERED BY FORWARD THINKING

Our extensive knowledge in heat treatment, combined with decades of experience, is readily available to our customers. We leverage strategic roadmapping to anticipate future challenges in thermal processing, particularly within key metal-using fields like the automotive, aerospace, construction, and packaging industries.

COLLABORATIVE INNOVATION FOR SUSTAINABLE SUCCESS

We partner with suppliers, customers, and OEMs to identify future technological needs. This collaborative approach ensures our products remain at the forefront.

YOUR VOICE SHAPES THE FUTURE

Through open communication, we embark on future-oriented roadmapping processes with our customers. This integrates their needs, and those of their customers, into our innovation pipeline – years before technologies reach the market. A cooperation with the **EBNER** GROUP puts our customers ahead of their competition.

TEST AND REFINE AT OUR R&D CENTERS

Benefit from our cutting-edge R&D facilities. Conduct trials and tests of your products and processes, ensuring your solutions are optimized for success.



Digitalization at EBNER

Boost Efficiency and Availability of Your Furnaces with Secure Digital Solutions

The industrial world is rapidly evolving, driven by advances in digitalization and automation. Our goal is to help customers unlock their equipment's full potential, optimizing production while enhancing efficiency and sustainability. Digitalization is essential to meet these demands. **EBNER** integrates digital technologies to make systems smarter, connected, more efficient, and sustainable. **EBNER** digital solutions enable real-time monitoring, maintenance optimization, minimizing downtime and ensuring smooth operations.

To achieve this together, **EBNER** has established a dedicated Digital Solutions team focused on developing and deploying cutting-edge digital products and services.

HOW DOES EBNER IMPLEMENT DIGITALIZATION?

Our digital strategy combines technological advancements with ongoing customer input, ensuring that every solution directly addresses customer needs. These use cases form the foundation of our digital roadmap and guide our approach to industry challenges.

- **Analysis of Processes and Recipes – Fine-Tune Production**
EBNER helps customers optimize production by analyzing how equipment, materials, and recipes affect outcomes. Protecting customer intellectual property (IP) is a top priority, with customers retaining full control over which specific data is shared, ensuring sensitive information remains secure during process optimization.
- **Equipment Availability – Maximize Uptime**
Data-driven insights optimize equipment uptime, reduce downtime, and help customers operate at maximum efficiency by providing all necessary information for performance and maintenance control.
- **Compare Equipment and Plants – Share Data Across Sites**
Customers can benchmark performance across facilities, sharing best practices internally to improve efficiency and standardize processes.
- **Simulation with Digital Physical Models – Accelerate Time to Market**
By simulating **EBNER** equipment using historical data and advanced models, customers can accelerate new product launches and reduce commissioning costs for new facilities.
- **Sustainability – Reduce Energy Use and CO₂ Emissions**
We help customers reduce energy consumption and costs by comparing inputs and outputs. Automated CO₂ tracking supports sustainability efforts, helping meet regulatory requirements.

These exemplary use cases highlight how **EBNER** leverages technology and customer insights to address challenges and enhance competitiveness.

WHAT HAVE WE ACHIEVED SO FAR?

The foundation of **VISUALFURNACES®8** and the **EBNER** GROUP Hub is firmly in place, marking the start of a new era of innovation and process optimization. This foundation opens exciting opportunities to improve operational efficiency and drive customer-focused advancements.

At the heart of these innovations is a secure data exchange system that provides flexible connectivity between equipment and the cloud. Designed with customer needs in mind, the system operates in a hybrid mode, allowing deployment either on-premises or in the cloud, maximizing optimization potential for new and existing facilities.

A notable achievement is the successful deployment of the **ATMOSPHEREperfect** module, where one customer saved over €100,000 annually in operating costs while significantly reducing CO₂ emissions. This highlights the positive impact of our solutions on both economic performance and environmental sustainability.

EBNER'S DIGITAL PATH FORWARD

Our vision is clear: we aim to make industrial manufacturing smarter, more efficient, and sustainable. Our strategic goals include:

- **Expanding customer platform – EBNER GROUP Hub**
The **EBNER** GROUP Hub is a web-based platform that centralizes key operational data and offers real-time insights into equipment operation and performance. It supports context-based communication by enabling users to create and manage support cases, ensuring efficient issue tracking. With SMART services and access from any device, the platform provides seamless control of operations, critical data, and relevant documentation.
- **Optimizing process control – VISUALFURNACES®8**
VISUALFURNACES®8 is a cloud-enabled Level 2 SCADA system providing real-time monitoring, control, and data analytics for furnaces. Its hybrid architecture, which allows for both on-premise and/or cloud connectivity, enhances production planning and process efficiency. Updates can be made remotely with a one-click update feature, ensuring systems stay up to date without manual intervention. We are rolling out **VISUALFURNACES®8** across all **EBNER** furnace models, and it can also be retrofitted to existing equipment, ensuring both new and older systems benefit from this advanced technology.
- **Optimization through Physical Models/ Digital Twins**
Digital twin technology provides deeper insights by creating virtual replicas of equipment, enabling customers to simulate, predict, and optimize operations. This improves efficiency, reduces downtime, and enhances AI and machine learning capabilities, leading to smarter decision-making.
- **Strengthening sustainability**
We prioritize sustainability by focusing on reducing energy consumption and CO₂ emissions in our equipment, supporting customers' sustainability goals. This aligns with **EBNER**'s vision: Driving Green Technology.

At **EBNER**, customers are central to our digitalization strategy. Every solution is developed in close collaboration to meet their needs and foster long-term partnerships.

We drive industrial excellence through smart, connected, and sustainable digital solutions. By combining technological advancement with ongoing customer collaboration, we help you boost productivity, reduce costs, and achieve sustainability goals.

Join us on this journey. Together, we can navigate digital transformation and create a future where innovation drives efficiency and sustainability. **EBNER** remains at the forefront of industry progress and we invite you to collaborate with us in the development of our digital products and services. Contact us to get involved.



www.ebner.cc



C-R-C Casthouse (R)Evolution Center

The aluminum sector's source for expertise in processing special alloys and meeting individual requirements.

The Casthouse (R)Evolution Center (C-R-C), founded in 2019, is a fully functional industrial foundry. It incorporates an HPI horizontal casting machine and a vertical casting machine from Gautschi, which are used for customer demonstrations, alloy development, operator training and small, fast production runs of special products. It is also used to further develop the **EBNER GROUP**'s state-of-the-art molds and casting systems.

A special feature of the C-R-C is that it can offer contract casts of a wide variety of materials at short notice.

- 7.5 t melting/casting furnace and VDC (vertical continuous casting machine) from Gautschi
- 1.5 t electric melting/casting furnace and HDC (horizontal continuous casting machine) from HPI
- 1000 m² area for research and development

SERVICES ARE OFFERED AT THE C-R-C

- **Alloy development and testing**
Individual support in developing alloys that meet or exceed product requirements, testing at pilot casting machines (HDC or VDC).
- **Training and education**
Training and qualification of future experts in aluminum casting.
- **Production of sample material**
Production of small batches of custom alloys or with special dimensions; can be used for testing in forging, rolling and extrusion processes.
- **Contract casting**
Individualized production runs according to customer specifications.



www.c-r-c.info

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1 000 m²



Thermal Processing Solutions GmbH

Plasma burners: **TPS** is developing a technology that will provide a carbon-neutral alternative to conventional gas burners.

Since its foundation in 2022, **TPS** has been pioneering the development of sustainable, cost-effective technologies that will enable carbon-free heating to be employed in a variety of industries and sectors. As part of this effort, **TPS** is currently working on a novel design for a plasma burner suitable for industrial applications.

One of the major factors considered in the design is that the technology needs to be capable of being installed at existing facilities equipped with gas-fired combustion systems. That is, the plasma burners must be able to replace the gas burners of the existing heating system. Critical components must be kept from coming into contact with the plasma, as the plasma itself will heat and melt aluminum.

To eliminate the carbon emissions created by the combustion of natural gas or fuel oil, our burner design utilizes induction to create plasma - an approach that offers a number of potential advantages. Most importantly, powering the burner with green electricity will mean that it is possible to melt aluminum with a carbon-neutral method. Another advantage offered by the design is that the technology can be employed in flexible furnace atmospheres. Finally, as an added benefit, the presence of oxygen in the furnace is eliminated and the amount of dross that is created is reduced.

TPS is cooperating with well-known partners to develop this innovative technology.



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Gautschi Engineering GmbH

The most innovative full solution provider for casthouses.

Gautschi Engineering GmbH, based in Ranshofen, Austria, develops melting and casting solutions for the aluminum processing industry. Founded in 1922, the company is a reliable partner with more than 100 years of experience and in-depth know-how.

Since 2010, Gautschi has complemented the product portfolio of the **EBNER GROUP** and is one of the most innovative and competitive full-solution suppliers for aluminum melting and casting processes.

GAUTSCHI'S PRODUCT RANGE INCLUDES:

- Melting and holding Furnaces for processing primary material and scrap
- Ingot casting machine - for primary and secondary ingots
- Vertical casting machines – for rolling slabs and billets
- Heat treatment furnaces – for coils, rolling slabs and billets

Gautschi offers thoroughly-developed and proven products, ranging from individual items of equipment to complete casthouses.



www.gautschi.cc

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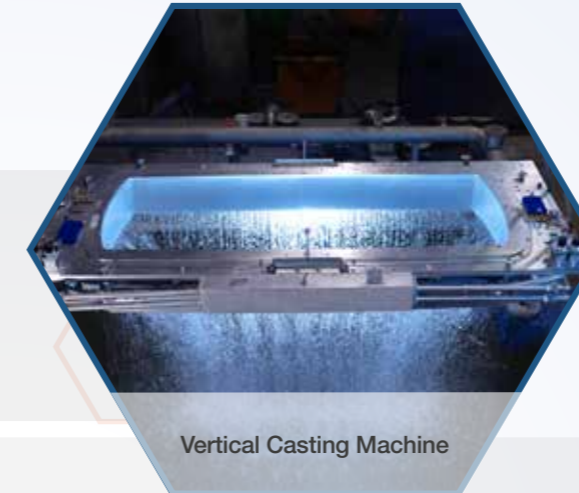
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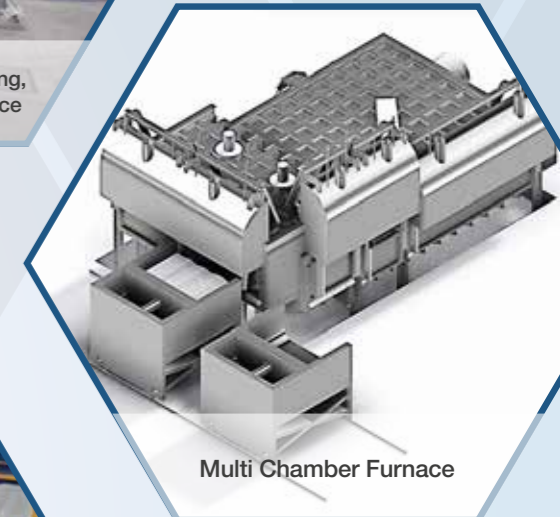
Round Top Charged
Melting Furnace



Rectangular and Oval Melting,
Casting and Holding Furnace



Vertical Casting Machine



Multi Chamber Furnace



Hybrid Rotary Tilting
Furnace



Pit-type Reheating Furnace



Ingot Casting Machine



CCF - Compact Coil
Furnace



Pusher-Type Furnace



HPI High Performance Industrietechnik GmbH

Innovative and reliable systems for the light metal industry.

For more than 35 years, customers worldwide have placed their trust in HPI's products and expertise. The company, based in Ranshofen, Austria, and founded in 1988, joined the **EBNER GROUP** in 2017. HPI is specialized in the development, engineering, manufacture and supply of turnkey systems for the light metals industry.

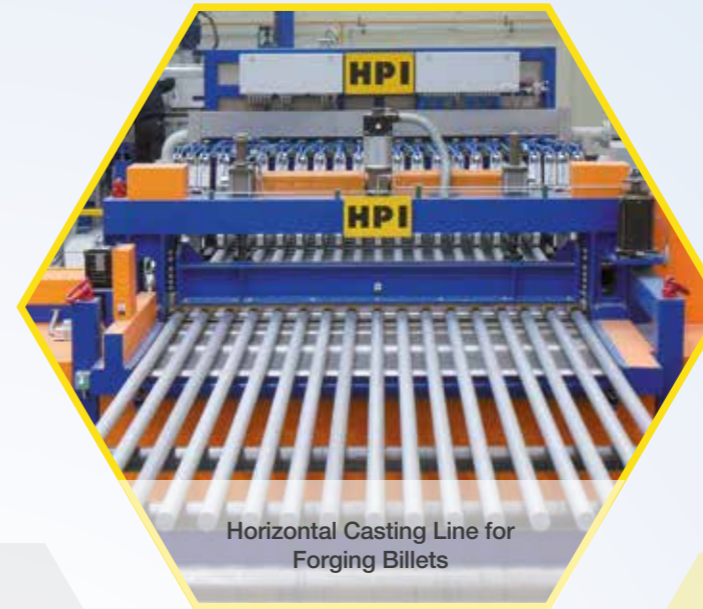
HPI's focus lies on individual customer projects for heat treatment, remelting, charging, casting, testing, sawing, marking, packaging, handling, modernization and engineering.

HPI'S PRODUCT PORTFOLIO INCLUDES:

- Horizontal casting lines
- Charging machines
- Continuous homogenizing lines
- Equipment for handling, stacking, sawing and packing



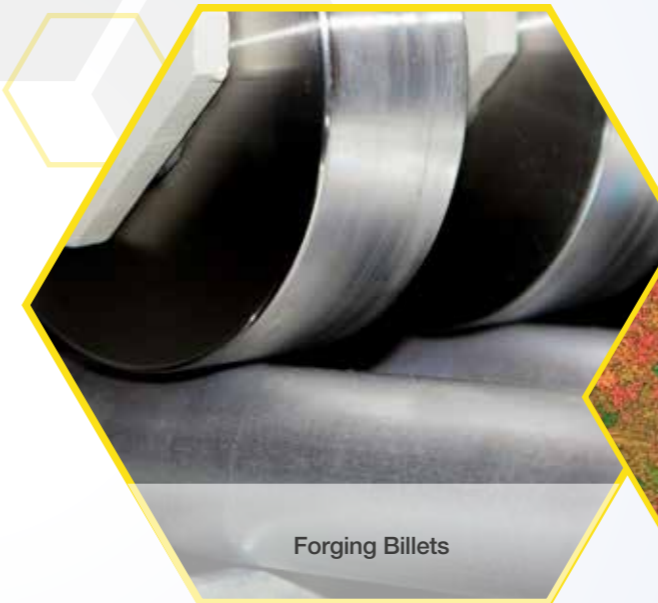
www.hpi.at



Horizontal Casting Line for Forging Billets



Billet Sawing & Packing Lines



Forging Billets



Etched Cross Section (Barker's Reagent), Alloy 6082, Cast with ForgeMaster



Ultrasonic Testing Equipment



Continuous Homogenizing Line



Horizontal Casting Line for Extrusion Billets



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GNA Alutech Inc.

The Industry Leader in Casthouse Technologies and Services.

GNA specializes in the design and construction of furnaces and supplementary equipment for the aluminum industry, with a focus on the North American market. Along with other machinery, they offer melting and holding furnaces, heat treatment furnaces for homogenizing, annealing and other processes, and cathode sealing equipment.

Founded in 1983 to supply combustion equipment and control systems to local metallurgical plants, GNA has steadily expanded and now provides equipment and services for primary and secondary aluminum producers around the world.

GNA joined the **EBNER** GROUP in 2019, and its competency and know-how has reinforced the existing strengths of Gautschi and HPI. Combining the expertise, experience and resources of these three companies has created an extremely capable supplier, one that can provide the market with unrivaled equipment from a single source.

Alongside the development and manufacture of new equipment, GNA has continuously expanded its service division. Throughout the aluminum industry, GNA's service teams are now widely acknowledged to be flexible and experienced problem solvers.



www.gna.ca



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Scrap Melter



Melting Furnace



Casting Furnace



Homogenizing Furnace



Rotary Melting Furnace



Cathode Block Oven



Sow Preheater

HAZELETT CASTechnology™ Process

Featuring HAZELETT's patented "Next Generation" Twin-Belt Caster.

CASTechnology (Convergent Aluminum Solidification Technology) is at the heart of what will be the world's greenest process for producing aluminum strip.

The CASTechnology process converts molten aluminum directly into strip 2 – 5 millimeters thick and is particularly suited to applications where surface quality is critical, such as those found in the auto body sheet, beverage container and common alloy sheet markets.

CASTechnology offers a CAPEX and an OPEX (capital expenditure and operational expenditure) that are a fraction of those required by a DC/Hot mill process. The process is easily scalable, meaning that even lower volume production lines can remain economically viable.

When implemented, CASTechnology uses the least amount of energy, provides the smallest carbon footprint, and requires the smallest amount of floorspace of any aluminum strip casting process.

CASTechnology™ Demonstration Line in Kingston

■ Present Configuration

- 13 t melting furnace
- 1.3 t electric tilting furnace
- CASTechnology™ caster
- Water quench
- HAZELETT isolation / pinch roll
- MINO shear and coiler

■ Future Configuration

- 13 t melting furnace
- De-gassing & filtration units
- CASTechnology™ caster
- **EBNER** SMART air quench
- HAZELETT isolation/pinch roll
- **EBNER** SMART water quench
- MINO bridle/pinch roll
- MINO shear and coiler

■ CASTechnology™ Team

With a combined team of 8 FTEs in Kingston and 6 in Colchester, VT, along with a consultancy network in Kingston, HAZELETT clients benefit from a marriage of world-class aluminum specialists and with expert caster/builders.

Capabilities of a CASTechnology™ Line

- Capable of casting strip with thicknesses ranging from 2 – 5 mm; current designs focus on 3 mm strip
- Casting speed up to 90 m/min. Presently 40 – 60 m/min, ~20-25 t/hr-m
- Capable of casting strip up to 1.7 m in width; current designs produce strip 350 mm in width. Models capable of 1000 mm will be available in Q2 2024
- Casting time > 25 minutes
- Capable of casting AA1xxx, AA2xxx, AA3xxx, AA5xxx and AA6xxx alloys; current designs focus on AA5182

Accurate molten metal control in the tundish (± 1 mm) ensures good strip edge quality for coiling without side dams. Tunable in-line water quench allows targeting of coiling temperatures to fully exploit metallurgical properties.

Metallurgical Advantages of CASTechnology™

- The complete solidification process takes place „inside“ the caster, providing an extremely homogeneous microstructure.
- The extremely high cooling rate (~ 1000 °C/s) means that the time for inverse segregation caused by the back diffusion of solute is reduced, ensuring high-quality as-cast surfaces.
- Finer as-cast intermetallics and higher solid solution levels are provided, resulting in higher formability and increased strength.
- The technology allows the development of high alloy grades with a high proportion of scrap.
- It allows a far wider range of alloys to be cast in comparison to the continuous casters currently on the market. It is expected that the equipment will be capable of casting all alloy series from AA1xxx to AA8xxx.



HAZELETT Strip-Casting Corporation

Global leader in the design and manufacture of continuous casting machines.

A pioneer in the continuous casting of metal strip since 1919, HAZELETT designs, manufactures, installs, and services continuous casting machines and related equipment for the metals industry. HAZELETT is known for its innovative twin-belt casters, and over 100 HAZELETT casters are producing aluminum, lead, zinc, copper bar and copper strip in over 25 countries throughout the world.

The company, a member of the **EBNER** GROUP since 2021, is fully integrated; engineering, manufacturing, R&D, and technical services are all located in-house. Headquartered in Colchester, Vermont, HAZELETT also operates a revolutionary R&D facility in Kingston, Ontario and a sales and service office in Taicang, China.

HAZELETT is committed to increasing the productivity and energy efficiency of the global metals industry through innovation in continuous metals casting. HAZELETT employs leading experts in process engineering, mechanical and electrical design, automation, and metallurgy to ensure that our products deliver the highest possible production rates and product qualities, which they pair with the lowest possible operating costs.



www.hazelett.com



Lead Strip Casting Machine



Fully Integrated Aluminum Strip Casting Machine



Fully Integrated Aluminum Strip Casting Machine



Copper Rod Casting Machine



Fully Integrated Copper Rod Casting Machine

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Pioneering Green Technologies

Collaborative Innovation for Sustainable Success.

At the **EBNER** Tech Center in Leonding, Austria, pilot plants are built to scale or even at 1:1 to enable the measurement of flow conditions, heat transfer, and temperature distribution. This data is used by our calculation and design teams to develop simulations with the correct boundary conditions and to properly dimension systems.

In addition to in-house projects, the **EBNER** Tech Center is also used to examine use cases presented by our customers – for example, to heat treat sample material. This allows heat treatment cycles to be optimized for required mechanical properties, supporting the development of our customers' materials.

THE EBNER TECH CENTER: COMPETENCES AND SERVICES

- **HICON®** systems
- Test chamber for burners and radiant tubes
 - ◊ CO₂ reduction
- High-efficiency combustion systems
 - ◊ Energy savings
 - ◊ NO_x reduction
- ◊ Atmosphere recycling systems
- ◊ Prototype testing
- ◊ Small-scale testing
- ◊ Full-scale testing
- ◊ Process development
- ◊ Production
- ◊ Simulations, FEM, CFD, CSC

QUALITY CONTROL AND MATERIAL TESTING

METALLOGRAPHIC ANALYSIS
 WATERJET CUTTING
 HARDNESS MEASUREMENT
 TENSILE TEST
 CHEMICAL ANALYSIS
 EPSTEINTEST
 AIRFLOW TEST BENCH

Test Chambers for Burners
 Up to 1 200 °C/ 2192 °F
 Up to 200 kW
 Radiant Tube and Open Flame

4 000 m²

SIMCAL



Simulation of Continuous Annealing Lines
 Length 480 mm/ 18.9"
 Width max. 200 mm/ 7.9"
 air, N₂, H₂, Ar, He
 Up to 1260 °C/ 2300 °F

PACC



Roller-Hearth Furnaces
 Length 200 - 500 mm/ 787 - 1968.5"
 Width 1900 or 2500 mm/ 74.8 or 98.4"
 gas/electric rad. Tube
 Up to 1000 °C/ 1832 °F

TUBE FURNACE



Simulation of Continuous Annealing Lines
 Length 200 mm/ 8"
 Width 20 mm/ 1"
 N₂, H₂, Ar
 Up to 1200 °C/ 2192 °F

FLOATER FURNACE



Continuous Solution Heat Treatment and Annealing Lines
 Length 450 mm/ 177"
 Air
 Up to 600 °C/ 1110 °F

POT-TYPE ANNEALER



Charge Diameter 280 mm/ 11"
 Height 300 mm/ 11.8"
 280 mm/11"
 N₂, H₂, Ar
 Up to 980 °C/ 1796 °F

ROLLER HEARTH FURNACE



Hot Forming Aluminum
 Length 320 mm/ 126"
 Air
 Up to 600 °C/ 1112 °F

BELL ANNEALER



Charge Diameter 2000 mm/ 78.7"
 Height 3000 mm/ 118"
 N₂, H₂, Ar
 Up to 1200 °C/ 2192 °F

CHAMBER FURNACE



Length 500 mm/ 19.7"
 Width 500 mm/19.7"
 Air
 Up to 900 °C/ 1652 °F

Unmatched Expertise in Heat Treatment Solutions

The same **EBNER** quality can be found anywhere in the world, located close to our customers.

EBNER is a global leader in heat treatment solutions for steel, aluminum, and copper base metals. We offer unparalleled expertise and decades of experience, ensuring our customers receive the most advanced and effective heat treatment processes.

EBNER provides comprehensive support and services across the entire life cycle of a project. From the initial research and development phase through engineering and manufacturing, our team guides you every step of the way.

Our logistics specialists coordinate a seamless global sourcing strategy, enabling our experienced installation supervisors and commissioning experts to ensure that projects run on schedule. Our customer service team is a cornerstone of our sustainability strategy. Its experts provide regular maintenance and upgrades to reduce environmental footprints, optimize performance and extend the lifespan of your investment.

STAY AHEAD OF THE COMPETITION WITH **EBNER**

A partnership with **EBNER** puts you at the forefront of the heat treatment industry. Our innovative solutions and commitment to excellence guarantee you consistently superior results, giving you a competitive edge in the market.

- Every one of our heat treatment facilities can be equipped with an electric heating system
- Industry-leading, state-of-the-art technology - made by **EBNER**
- Over 75 years of know-how in the design and manufacture of heat treatment facilities
- Tailor-made solutions perfectly matched to customer needs
- Continuous improvement of facilities in our in-house R&D labs
- World-wide service by **EBNER** specialists
- High-quality manufacturing at our own workshops in Austria, the USA, China and Mexico
- Everything from one source: from the project design phase to final acceptance



www.ebner.cc



EBNER Furnaces Inc.
USA, since 1987



EBNER Industrieofenbau GmbH
AUSTRIA, since 1948



EBNER Industrial Furnaces (Taicang)
Co., Ltd. CHINA,
since 2002



EBNER Thermal Solutions S.r.l.
ITALY, since 2003



EBNER India Pvt. Ltd.
INDIA, since 2009



EBNER spol. s.r.o.
CZECH REPUBLIC,
since 2005

EBNER Heat Treatment Facilities for the Aluminum Industry

EBNER offers a variety of industry leading heat treatment facilities for aluminum semi-finished products: plate, sheet, strip, foil, ingots and blanks. With close to 400 aluminum heat treatment facilities in operation worldwide, EBNER is your premium partner for complete facilities tailored to your specific requirements and needs.

HOMOGENIZATION

- Pusher-Type Furnaces, FlexBatch Furnaces, Batch-Type Furnaces and Car-Bottom Furnaces

SOLUTION HEAT TREATMENT

- Roller-Hearth Furnaces & Floater-Type Furnaces

HOT FORMING

- Batch-Type Furnaces

RECRYSTALLIZATION

- Batch-Type Furnaces, Bell-Type Furnaces & Overhead Furnaces

AGING

- Batch-Type Furnaces

KEY FEATURES

- Efficient heat transfer, extremely uniform temperature distribution, low energy consumption
- Meets strict industry standards such as AMS 2750 and CQI-9
- Easy to maintain, safe to operate, low environmental impact

CAPABILITIES

- A variety of highly efficient electric or gas heating systems available
- Carbon-free electrical and H₂ burner options
- Advanced control system with smart diagnostic modules for process optimization and temperature systems

EBNER®

INGOTS

HEAT TREATMENT

PLATE AND SHEET

STRIP

FOIL

BLANKS

HICON® Pusher-Type Furnace

HICON® Batch-Type Furnace

HICON® Car-Bottom Furnace

HICON® Batch-Type Furnace

HICON® FlexBatch Furnace

HICON® Roller-Hearth Furnace

HICON® Floater-Type Furnace

HICON® Multi-Coil Batch-Type Furnace

HICON® Single Coil Overhead Furnace

HICON® Single Coil Batch-Type Furnace

HICON® Batch-Type Furnace

HICON® Bell Annealing Furnace

HOTFORM® Multi-Level Batch-Type Furnace

EBNER Heat Treatment Facilities for the Steel Industry

We have been designing and manufacturing industrial furnaces for the steel industry for over 75 years. Our **HICON/H₂**® annealing technology, introduced over 50 years ago, revolutionized the heat treatment of semi-finished products and took the industry a decisive step forward in quality and economy.

Thanks to high convection and a 100 % hydrogen atmosphere, semi-finished products annealed with **EBNER HICON/H₂**® technology have the best possible mechanical properties, uniform microstructures and the cleanest possible surfaces.

- Resource-saving, tailor-made facilities designed to minimize utility and operating costs
- Consistent magnetic and mechanical properties of the final product
- Process simulation before heat treatment enables the identification of suitable annealing programs to reduce scrap and achieve optimized magnetic and mechanical properties
- In-house R&D center for developing processes and products of the future

FOR THE STEEL INDUSTRY EBNER OFFERS A PRODUCT PORTFOLIO INCLUDING:

- Bell Annealing Furnaces for strip and wire
- Continuous Bright Annealing Lines for stainless steel strip and speciality alloys
- Continuous Hardening and Tempering Lines for medium/high carbon strip and high alloyed grades
- Continuous Annealing Lines for hot-rolled and cold rolled electrical steel
- Continuous Annealing Lines for deep drawing battery strip
- Roller Hearth Furnaces for long products
- Press Hardening Furnaces for blanks

EBNER®

TUBE AND BAR

HEAT TREATMENT

STEEL BLANKS

STEEL STRIP

STAINLESS STEEL

STEEL WIRE

ELECTRICAL STEEL



EBNER Heat Treatment Facilities for the Copper Base Metal Industry

EBNER has been manufacturing HICON® facilities to heat treat semi-finished copper base metal products for over 50 years, providing state-of-the-art technology to its customers.

Whether for semi-finished products in copper, brass, bronze, nickel silver, copper/iron gold alloys or other special alloy, EBNER can supply the right heat treatment equipment for every application.

The combination of high hydrogen atmosphere and high convection provides the best possible surface finishes and mechanical properties, high throughputs and the lowest possible energy and utility consumption per ton.

To support the latest market developments in electrification & miniaturization, we offer customized continuous vertical bright annealing lines for high-performance copper alloys with the highest possible annealing temperatures.

FOR THE COPPER BASE METAL INDUSTRY EBNER OFFERS A PRODUCT PORTFOLIO INCLUDING:

- Continuous Vertical Bright Annealing Lines for copper alloy strip and high-performance copper alloy strip
- Bell Annealing Furnaces for strip, wire, level wound coils and coinage blanks
- Roller Hearth Furnaces for tube, bar and level wound coils

TUBE AND BAR



HEAT TREATMENT

EBNER®

STRIP



COINAGE BLANKS

WIRE



LEVEL WOUND COILS



EED Furnaces (Taicang) Co., Ltd

Your Partner for Industrial Heat Treatment Solutions in Asia.

Established in 2011, EED Furnaces (Taicang) Co., Ltd. leverages the proven technology, management expertise, and manufacturing capabilities of the EBNER GROUP to deliver comprehensive industrial furnace solutions. We specialize in designing, fabricating, installing, and commissioning furnaces for the Asian market.

EED's team of domestic and international specialists boasts extensive experience in thermal equipment design, fabrication, and process software control. This deep knowledge base, combined with ongoing technical support and R&D collaboration with EBNER, allows us to provide cutting-edge furnace solutions.

MAIN PRODUCT PORTFOLIO

- Bell Annealing Furnaces
- Short-Time-Cycle Annealing Furnaces (STC)
- Roller-Hearth Furnaces
- Aging Furnaces

These furnaces are ideal for heat treatment applications involving steel strip, copper strip, wire, and a variety of non-ferrous metals.

COMMITTED TO OUR CUSTOMERS

At EED Furnaces, we prioritize customer satisfaction. We are dedicated to continuous innovation and delivering exceptional value-added services to ensure your success.



Roller-Hearth Furnace for steel wire



Bell Annealing Furnace for steel wire



STC Annealing Furnace



Aging Furnace



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Manufacturing Worldwide

Uncompromising standards. Unmatched quality.

We take complete control over quality by fabricating key components in our modern, in-house workshops around the world. Every facility benefits from:

- **SKILLED CRAFTSMANSHIP**
Experienced employees ensure meticulous construction.
- **GLOBAL CONSISTENCY**
Our rigorous standards guarantee exceptional quality, wherever you are.

MEETING YOUR NEEDS, EVERYWHERE

We prioritize proximity to our customers. This allows for:

- **CUSTOM SOLUTIONS**
We tailor equipment to your specific requirements.
- **FLEXIBLE MANUFACTURING**
We adapt our designs to meet your changing needs.
- **COST-EFFECTIVE EFFICIENCY**
Innovative components and flexible configurations deliver optimal performance and value.

UNWAVERING COMMITMENT TO QUALITY

Our dedication to excellence is reflected in:

- **CUTTING-EDGE EQUIPMENT**
We utilize the latest technology for precise manufacturing.
- **PREMIUM MATERIALS**
We source only the highest quality materials to ensure our products are extremely durable.
- **RIGOROUS QUALITY CONTROL**
Documented inspections ensure every component meets our strict standards.

BECOME AN **EBNER** PARTNER AND ENJOY THE SECURITY OF RELIABLE, HIGH-QUALITY EQUIPMENT.



Global Service. Unmatched Expertise.

The global service network of the **EBNER** GROUP provides expert support for every heat treatment challenge, leveraging our extensive experience and innovative methods of analysis to meet every service need. **EBNER**'s comprehensive service portfolio includes:

- **UPGRADE & REBUILDS**
Comprehensive upgrade and rebuild solutions for heat treatment facilities, empowering our customers to enhance efficiency and embrace both sustainability and quality
- **SPARE PARTS**
Minimizing downtime and maximizing productivity through strategic spare parts inventory
- **GLOBAL SERVICES**
locations work together with remote experts to ensure the trouble-free operation of your heat treatment equipment
- **SEMINARS, WEBINARS AND TRAINING**
The acquisition of know-how and the development of employee skills are the building blocks of success and competitiveness
- **PROCESS DEVELOPMENT**
EBNER's global R&D centers enable tailor-made process solutions to be developed

RELOCATION AND RECOMMISSIONING OF HEAT TREATMENT SYSTEMS

The relocation and recommissioning of a heat treatment facility require comprehensive assessment, careful disassembly, secure transport, accurate reassembly and expert recommissioning. A detailed risk assessment and the optimization of processes are essential to ensure safety, maximize efficiency and ensure a smooth return to operation at the new location. Precision during assembly and commissioning is the prerequisite for ensuring high production quality and minimizing downtime.

PROCESS OPTIMIZATION

Process optimization aims to shorten cycle times, improve quality, reduce utility consumption and enhance performance. Targeted measures lower operating costs and accelerate production. This increases the overall efficiency of the equipment and ensures that production is both more sustainable and more profitable, increasing the competitiveness of our customers.

UPGRADES AND SPARE PARTS FOR THIRD-PARTY SYSTEMS

The correct selection of components is crucial when modernizing a facility or procuring spare parts for heat treatment equipment, whether from **EBNER** or other manufacturers. The full compatibility of components, combined with innovative modernizing technologies, is a prerequisite for reliable and optimal performance of any heat treatment facility. It also minimizes operating costs and maximizes productivity.

FACILITY ASSESSMENTS

An **EBNER** service visit encompasses everything from a detailed assessment of the heat treatment facility to the inspection of safety devices, precise adjustment of the heating system and the performance of regularly scheduled maintenance tasks. **EBNER** service personnel provide comprehensive care that optimizes performance, ensuring the safety of the heat treatment equipment and extending its service life.

CUSTOMER
SERVICE



METALLURGICAL AND TECHNOLOGICAL SUPPORT

Metallurgical and technological simulations (CFD/FEM) optimize furnace design, predict the flow of thermal energy and ensure uniform temperature distribution. Precise material analyses help to determine optimal heat treatment parameters for specific materials. This includes measuring key mechanical properties like hardness, strength, and ductility, along with the features of product microstructure. Put together, this support translates to reduced energy consumption, improved product quality and an extended service life.

DECARBONIZING AND RETROFITTING HEATING SYSTEMS

Transform your heat treatment facilities with our advanced upgrades. **EBNER**'s innovative, state-of-the-art systems for decarbonization employ technologies like hydrogen burners, advanced electric heating systems and alternative fuels, leading to a significant reduction in the CO₂ that is emitted – even as energy efficiency is increased at the same time. **EBNER**'s reliable and sustainable technologies can help you keep your competitive advantage, even in an environmentally conscious future.

IN-HOUSE/ON-SITE TRAINING

Our in-house/on-site training program for heat treatment facilities is designed to train and transfer knowledge to maintenance personnel, facility operators, measurement technicians and control technicians. Our specialized training programs are designed to expand expertise and maximize operational efficiency, ensuring your systems operate safely and efficiently.



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EBNER GROUP ADVANCED MATERIALS

Pioneering furnaces.
Crystal growth.

Advanced Materials is a new business unit within the **EBNER GROUP**, specializing in the growth of crystals for the semiconductor industry. Member companies include **FAMETEC**, **ARCTICSapphire**, **ARCTICSiC**, **EEMCO**, and **SICREATE**, each of which focuses on different materials such as sapphire or silicon carbide.

The companies operate independently, functioning as producers and developers of crystal growth technology rather than equipment manufacturers, and are united by a strong commitment to green practices. While **EEMCO** and **FAMETEC** focus on R&D and pilot production in Austria, **ARCTICSapphire** and **ARCTICSiC** concentrate on large-scale crystal production in Norway using 100% hydroelectric power.

Advanced Materials leverages the shared services of the **EBNER GROUP**, allowing the companies to focus on research, development, and production with strong operational support. This synergy provides advantages in global networking, customer and supplier relationships, expertise, local know-how, purchasing, logistics, quality management, engineering, manufacturing, maintenance, sales, and marketing.

With the **EBNER GROUP**, you gain access to more than just industrial furnaces. With the **EBNER GROUP**, you gain access to more than just industrial furnaces: you gain a trusted partner dedicated to helping you achieve the highest standards in material performance.

Helping you unlock the full potential of your products is an achievement that fully aligns with our goal of Driving Green Technologies.

From Silicon Carbide Powder to Crystal Growth

EEMCO is an independent European company specializing in the production of silicon carbide (SiC) single crystals in the form of 150 mm and 200 mm wafers. These crystals are grown using a proprietary physical vapor transport (PVT) method in a special type of furnace, which employs an induction heating system.

The SiC crystals produced by **EEMCO** find applications in high-power electronics, particularly in the automotive, industrial, and renewable energy sectors. As they enable the development of more efficient and sustainable power devices, they are a key component in the transition to a greener future.

YOUR EUROPEAN SILICON CARBIDE SOURCE

One of **EEMCO**'s primary goals is to help create a robust, self-sufficient European supply chain for SiC substrates. This goal is being supported by the European Union through various programs and initiatives, reflecting the importance that SiC technology has to Europe's industrial and environmental objectives. The strong demand for **EEMCO** products and the positive feedback received from European customers have validated the company's role in establishing and maintaining Europe as a leader in the rapidly growing market for SiC-based power electronics.

To further strengthen the European supply chain for SiC powder, **EEMCO** acquired SiCreate: an Austrian start-up specializing in the development and production of highly pure SiC powders tailored to diverse customer needs. This partnership ensures **EEMCO** a reliable source of SiC powder, while also allowing it to uphold its commitment to sustainability by providing access to production processes that minimize resource consumption. By combining the research and development expertise of both companies, the quality of SiC crystals can be improved in tandem with advancements in SiC powders. The collaboration also fosters a closed-loop system, in which excess crystal can be repurposed for SiC powder production – supporting an eco-friendly circular economy.

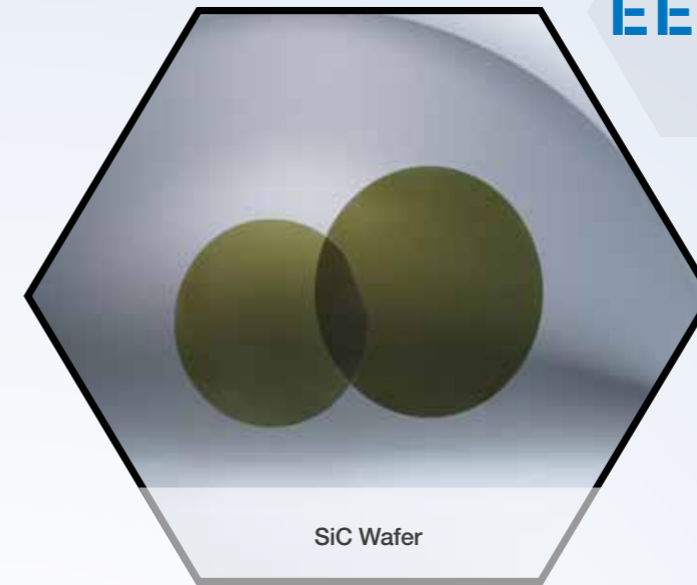
OUR LOCATION IN NORWAY - ARCTICSiC

EEMCO is building a mass production facility for 200 mm SiC substrates in Norway, which will open in 2026. Using 100 % hydroelectric power, this new **ARCTICSiC** plant is designed to improve the reusability of crucibles and insulating components and will be capable of producing substrates with a much smaller environmental impact. **ARCTICSiC** is a major step forward in meeting another one of **EEMCO**'s goals: establishing a fully European supply chain for SiC substrate by 2027. This supply chain will encompass hot zones, powder and seeds – delivering full European control over the entire substrate manufacturing process.

EEMCO

ARCTICSiC

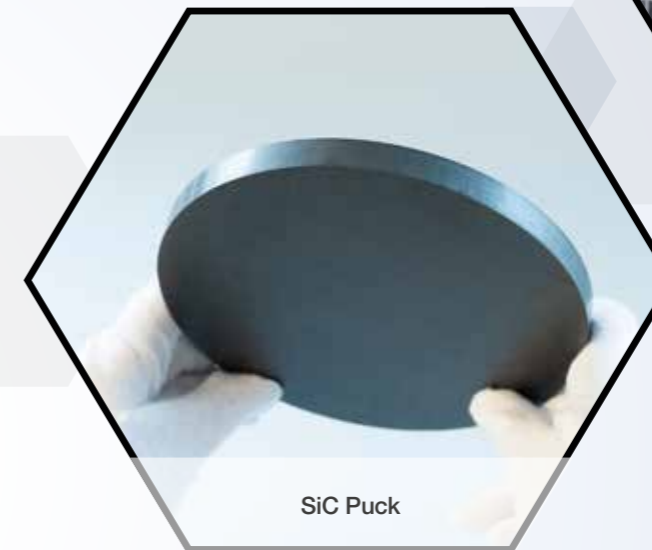
SICREATE



SiC Wafer



EEMCO Crystal Growth Furnace



SiC Puck



High Power Electronics



Automotive



Renewable Energy



www.eemco.at

A Pioneering Legacy in Furnaces for Sapphire Crystal Growth

FAMETEC is a European company born from the innovation and expertise of the **EBNER GROUP**'s THERMAL PROCESSES business unit, taking advantage of **EBNER**'s leadership in industrial plant engineering and over 75 years of experience in furnace design.

FAMETEC's story began in 2012, when **EBNER**'s research and development efforts led to the successful development of a unique furnace specifically designed for growing high-quality sapphire single crystals.

Following this breakthrough, **FAMETEC** spun off from **EBNER** in 2020. **FAMETEC** leverages **EBNER**'s extensive knowledge in furnace design and crystal growth methods to continuously develop their „McSAP“ line of furnaces, allowing **FAMETEC** to focus on cutting-edge technology, while benefiting from **EBNER**'s established production capabilities.

YOUR EXPERT FOR MONOLITHIC SAPPHIRE INGOTS

FAMETEC's ability to grow high-quality 150 mm and 200 mm diameter crystals along both c axes offers exceptional versatility. Combined with processes that have high yields and minimal waste, we are the ideal solution for large-scale sapphire wafer production – whether for optoelectronics (LED, MiniLED, MicroLED), power semiconductors, optical applications, windows or watch glasses.

As a European manufacturer, we can ensure that your supply chain remains stable and provide you with opportunities for close collaboration. Your end customers will benefit from our strong emphasis on traceability and state-of-the-art quality management systems. This ensures the consistent reliability of our sapphire materials.

OUR LOCATION IN NORWAY - ARCTICSapphire

Current approaches to sapphire production are resource-intensive and not particularly environmentally friendly. Furthermore, they generally fail to meet the requirements of new legislation such as the European Green Deal or European Chips Act.

ARCTICSapphire is the first company in the world to take a new approach, one that requires 60 % less energy to produce high-quality crystals. No pollution is released into the water or air, even as the crystals fulfil every market requirement for size and quality. In full compliance with the European Chips Act, **ARCTICSapphire** is producing sapphire for global leaders like Samsung, Apple and Phillips – providing the products demanded by the latest market trends.



www.fametec.co

FAMETEC

ARCTICSapphire

