



EBNER **CAST HOUSE[®]**
TECHNOLOGIES



Driving Innovation in Aluminum **Cast House** Technologies

The **EBNER** GROUP's **Cast House** Technologies division brings together the expertise of Gautschi, GNA, HAZELETT, HPI, C-R-C and TPS creating a unique portfolio of technologies and solutions for the global aluminum industry. From melting and casting to advanced strip production, our companies provide customers with integrated solutions that cover the entire value chain of modern casthouse operations.

By combining decades of experience with continuous innovation, we support aluminum producers worldwide in achieving higher productivity, improved product quality, greater sustainability, and enhanced operational efficiency.

Each company contributes specialized know-how and market-leading technologies, while customers benefit from the collective strength of an internationally connected group.

A key advantage of the **EBNER Cast House** Technologies division is the close collaboration between its companies. Engineering expertise, manufacturing capabilities, research resources, and service networks are shared across the organization, enabling the development of comprehensive solutions tailored to the specific requirements of each customer and application.

With a global presence, advanced research and development capabilities, and a strong customer service network, the **Cast House** Technologies division is uniquely positioned to support the aluminum industry's transition toward more efficient, sustainable, and future-oriented production processes.

Together, Gautschi, GNA, HAZELETT, HPI, C-R-C and TPS represent a powerful combination of technology leadership, innovation, and customer focus, helping shape the future of aluminum processing around the world.

Six companies. One vision.
Advancing aluminum production
worldwide.

Global Innovation

Shared Expertise

Innovation is a cornerstone of the **EBNER Cast House** Technologies division. Through our global network of Research & Development centers in Europe and North America, we continuously advance technologies, optimize processes, and create solutions that help our customers stay ahead in a rapidly evolving industrial landscape. Our innovation efforts extend beyond equipment design to encompass digital solutions that enhance transparency, efficiency, and process control across the entire casthouse. A prime example is our vision of the Autonomous Casthouse, where intelligent automation, advanced analytics, and connected systems work together to maximize productivity, quality, and sustainability while supporting data-driven decision-making.

What makes us unique is the seamless collaboration across all companies within the division. Every subsidiary has access to our global R&D resources, enabling the rapid exchange of knowledge, technologies, and best practices. This ensures that innovations developed in one region can be leveraged worldwide.

 **EBNER® TECHCenter**



Ebner-Platz 1
4060 Leonding
AUSTRIA

At the **EBNER TECHCenter** in Leonding, Austria, engineers and researchers validate new technologies under real-world conditions. Full-scale pilot facilities provide critical data for simulations, process optimization, and the development of advanced heat treatment solutions, helping customers transform innovative concepts into reliable industrial applications.

The Casthouse (R)Evolution Center (**C-R-C**) in Ranshofen, Austria, serves as a unique platform for aluminum casting innovation. Equipped with fully functional industrial casting facilities, the **C-R-C** supports alloy development, technology demonstrations, operator training, and rapid pilot production, enabling customers to explore new materials and manufacturing possibilities with confidence.

TPS develops innovative CO₂-free industrial plasma burner systems that redefine sustainable thermal processing. Engineered as a direct replacement for conventional gas burners, the technology enables efficient, carbon-neutral heating and melting processes while utilizing existing furnace infrastructure.



Schloßstraße 32,
5282 Ranshofen
AUSTRIA



In North America, **HAZELETT's CASTechnology™ Center** drives the future of sustainable aluminum production. Its pioneering direct strip casting technology enables significant reductions in energy consumption, carbon footprint, plant complexity, and production costs while delivering high-quality aluminum strip for demanding applications.



800 Innovation
Drive, Suite 9
CA K7K 7E7
Kingston, Ontario
CANADA



Together, these centers form a globally connected innovation ecosystem that combines regional expertise with international collaboration. By sharing resources, knowledge, and technological advances within the **EBNER Cast House** Technologies division, we ensure that our customers benefit from the best ideas and the latest innovations, wherever they operate.

Innovating globally. Engineering the future together.

Global Manufacturing

Local Strength

The **EBNER Cast House** Technologies division has access to a powerful global manufacturing network with production facilities in Austria, the United States, Mexico, China, and India. This international footprint enables us to serve customers around the world with reliability, efficiency, and the highest quality standards.

Our manufacturing locations combine state-of-the-art production technologies with extensive engineering expertise and consistent quality processes. At the same time, customers benefit from proximity to regional markets, shorter supply chains, and greater flexibility in project execution.

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TECHNOLOGIES



A key advantage of the **EBNER Cast House** Technologies division is the close collaboration between all companies. Every subsidiary has access to the resources, capabilities, and expertise of our global manufacturing network. This integrated approach ensures maximum scalability, optimized capacity utilization, and a secure and resilient supply chain for our customers worldwide.

Whether in Europe, North America, or Asia, the production facilities provide the foundation for sustainable growth, international competitiveness, and the successful delivery of complex projects across the globe.

Global Service

Local Presence

With a global network of service specialists, engineering experts, and field technicians, the **EBNER Cast House Technologies** division ensures that our customers receive fast, reliable, and professional support throughout the entire lifecycle of their equipment and systems.

Our international service organization combines global expertise with local responsiveness. Whether in Europe, the Americas, or Asia, customers benefit from direct access to highly qualified service teams who understand local requirements.

A unique strength of the **EBNER Cast House Technologies** division is the close collaboration between all companies within the group. Every subsidiary can leverage the capabilities, resources, and technical expertise of our global service network. This enables us to provide consistent support worldwide, rapidly deploy specialists across regions, and respond efficiently to even the most complex service requirements.

From installation and commissioning to maintenance, modernization, spare parts management, remote support, and process optimization, our service teams work alongside customers to maximize equipment performance, productivity, and operational reliability. Through continuous knowledge sharing and collaboration across continents, we ensure that best practices and technological advancements are available wherever our customers operate.

By combining local presence with global resources, the **EBNER Cast House Technologies** division delivers service excellence that extends far beyond troubleshooting. We build lasting partnerships, help customers achieve their operational goals, and ensure the long-term success of their investments.



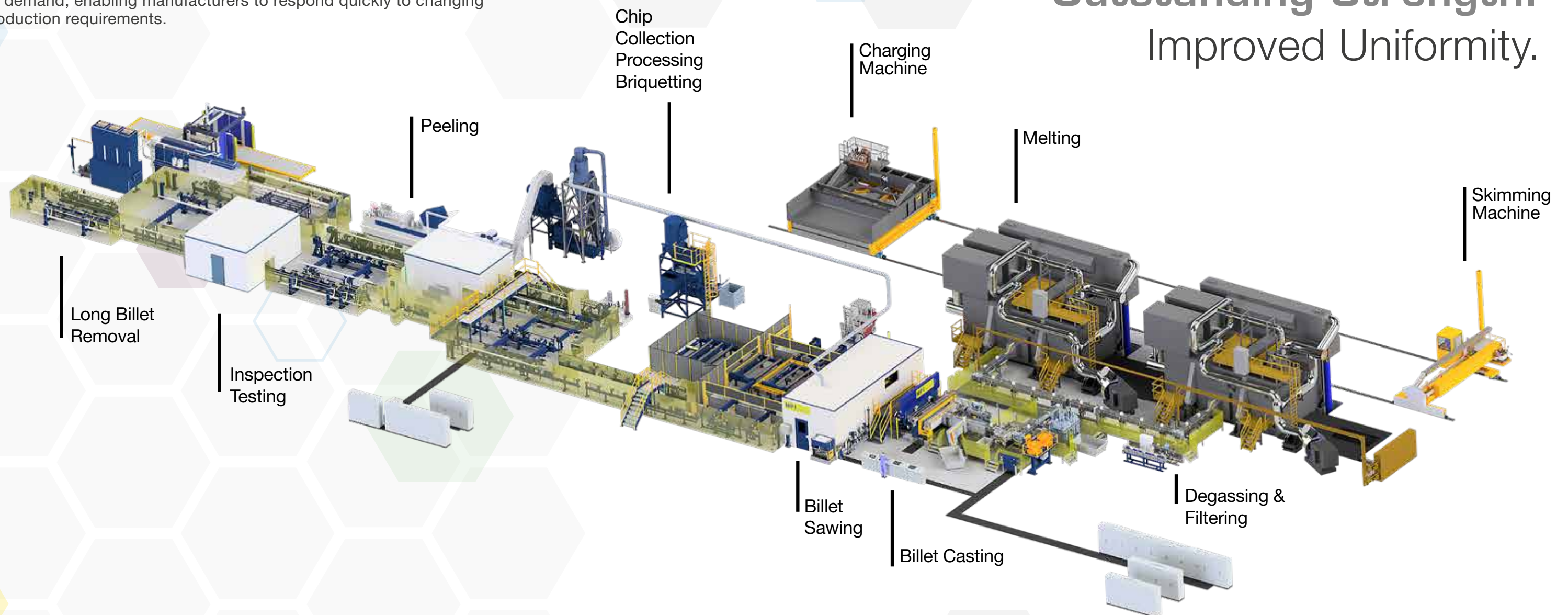
Always close to our customers.
Globally connected.
Committed to excellence.

Forging Billet Production Line

Continuous casting with our
forging stock production plant

Our continuous casting solution is designed for maximum productivity and operational efficiency. Rapid production readiness minimizes downtime through exceptionally short set-up times, while seamless off-line mould maintenance ensures that production remains uninterrupted during servicing. With the capability to operate continuously for more than 24 hours, the system delivers outstanding reliability and throughput. Material losses are kept to a minimum, requiring only a single head cut at the start of the casting process. In addition, ultimate flexibility allows billets to be produced in different lengths on demand, enabling manufacturers to respond quickly to changing production requirements.

Outstanding Strength.
Improved Uniformity.



Production Line

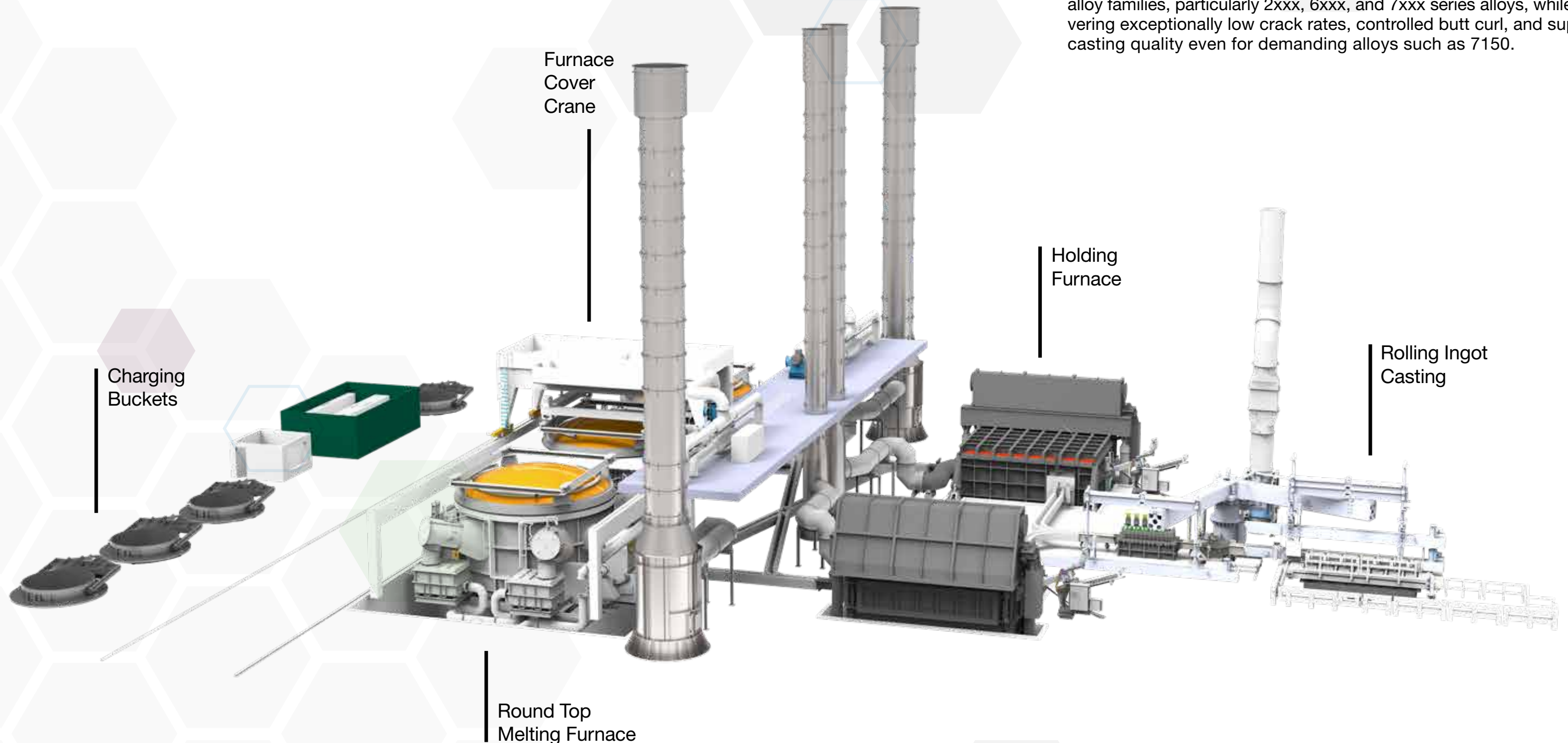
for rolling ingots or billets

Designed for maximum productivity and efficiency, our advanced aluminum processing solutions cover the entire value chain from melting to casting.

Our round, top-charged melting furnaces offer capacities of up to 170 tonnes and melting rates of up to 45 t/h, available in both stationary and tilting configurations. Features such as a cooled furnace cover structure, dry cleaning door frame design, long service life, and the latest VAREGA^{ENVICOM}® regenerative burner technology ensure outstanding energy efficiency and low emissions

Complementing the melting process, our holding furnaces provide capacities of up to 165 tonnes with fixed-hearth or tilting designs, flexible door configurations, and the same high-efficiency burner technology. For downstream casting operations, our highly automated stacking lines deliver proven casting performance for smelter-grade and foundry alloys, producing ingots from 6 to 25 kg at capacities of up to 22 t/h, with robotic stacking and fully integrated packing systems including weighing, strapping, labelling, marking, and colour coding.

In addition, our vertical D.C. casting machines for extrusion billets and rolling slabs incorporate advanced technologies such as the internally guided casting cylinder, Airglide[®] billet mould system, and Gautschi slab mould. With capacities ranging from 5 to 150 tonnes drop weight, these systems produce premium-quality billets and slabs across all alloy families, particularly 2xxx, 6xxx, and 7xxx series alloys, while delivering exceptionally low crack rates, controlled butt curl, and superior casting quality even for demanding alloys such as 7150.



Billet Processing Line

Full Traceability. Maximum Quality.

The automatic Billet Handling, Homogenizing and Sawing System is designed to efficiently process Aluminum logs from the Vertical Direct Chill (VDC) casting pit through inspection, heat treatment, sawing, and packaging while maintaining full product traceability and ensuring maximum product quality.

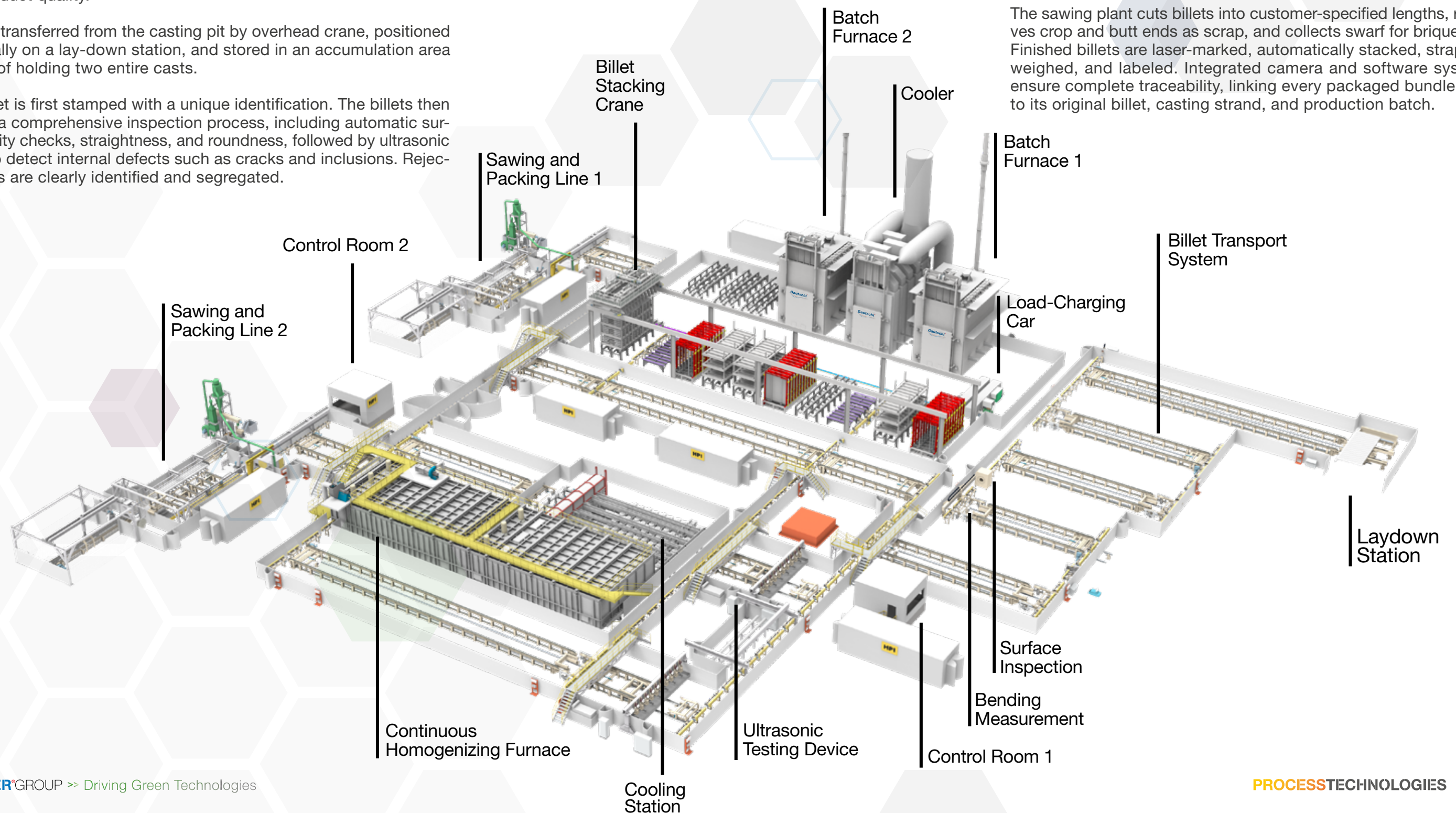
Logs are transferred from the casting pit by overhead crane, positioned horizontally on a lay-down station, and stored in an accumulation area capable of holding two entire casts.

Each billet is first stamped with a unique identification. The billets then undergo a comprehensive inspection process, including automatic surface quality checks, straightness, and roundness, followed by ultrasonic testing to detect internal defects such as cracks and inclusions. Rejected billets are clearly identified and segregated.

In the continuous process, the accepted billets are conveyed individually and sequentially through the furnace heating and soaking zones, followed by the cooling station. As a result, every billet is subjected to exactly the same temperature profile throughout the entire heat-treatment cycle, ensuring highly consistent metallurgical properties and optimum microstructural quality.

In the batch process, billets from the same cast are stacked with spacers in dedicated frames, preventing deep surface indentations caused by the weight of the layers above and thereby preserving billet surface quality. They are heat treated according to alloy-specific recipes, cooled under controlled conditions, destacked again and subsequently transferred to the sawing area.

The sawing plant cuts billets into customer-specified lengths, removes crop and butt ends as scrap, and collects swarf for briquetting. Finished billets are laser-marked, automatically stacked, strapped, weighed, and labeled. Integrated camera and software systems ensure complete traceability, linking every packaged bundle back to its original billet, casting strand, and production batch.

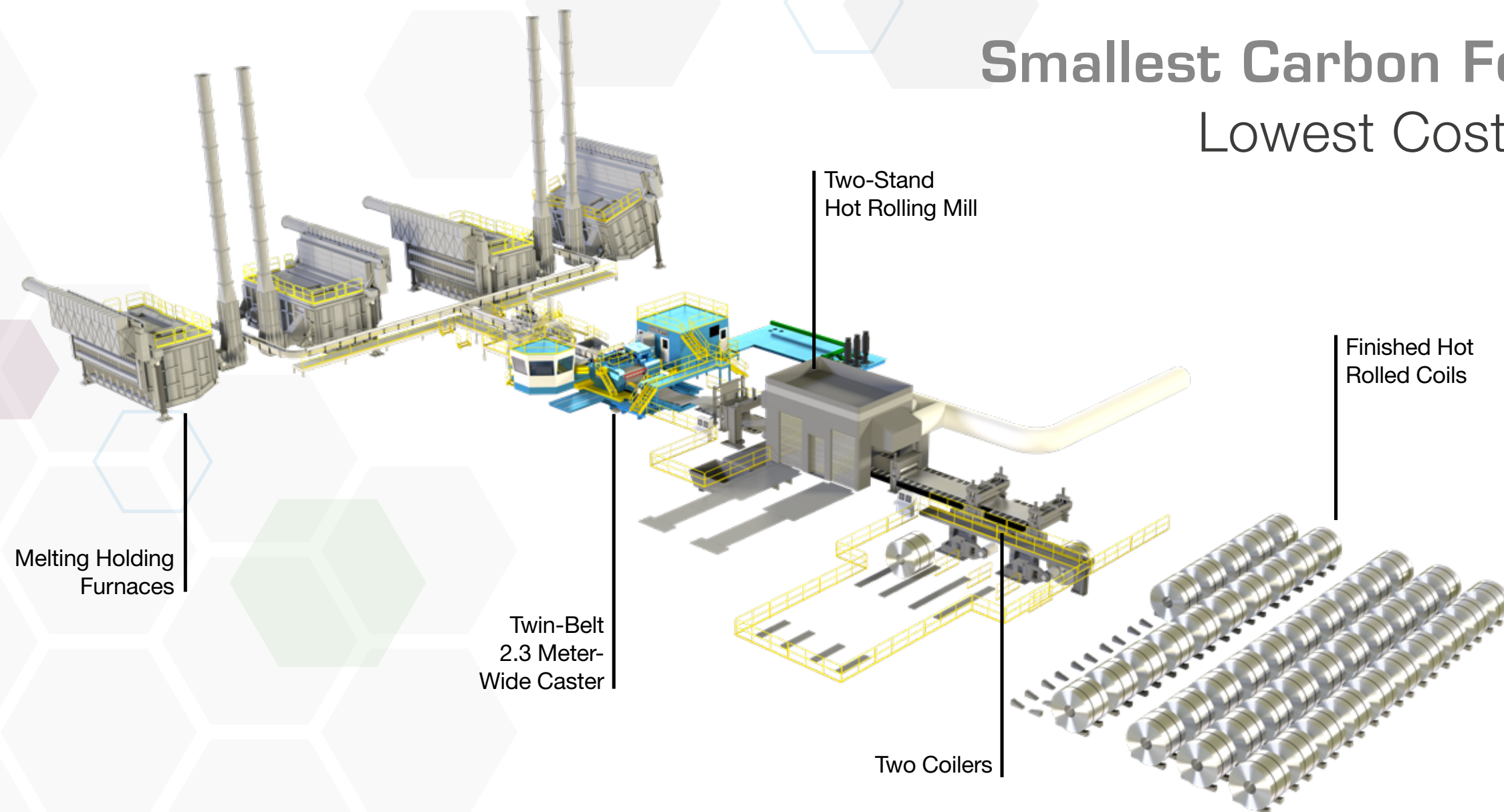


Aluminum Strip-Casting Production Line

Twin-Belt Casting Technology for
Continuous Aluminum Production

HAZELETT casters are the foundation of countless aluminum products worldwide. The HAZELETT Twin-Belt Casting Machine delivers the industry's highest production rates for rolled aluminum sheet at the lowest operating cost. With proven energy savings and lower emissions than conventional processes, it provides a more sustainable and efficient manufacturing solution. The technology also produces premium-quality strip for impact extrusion slugs, meeting the stringent requirements of demanding applications. HAZELETT has built its reputation on producing high-quality aluminum sheet for industries such as packaging, transportation, and building construction.

Smallest Carbon Footprint.
Lowest Cost Process.



Melting Furnaces

The **Cast House** Technologies division offers a wide range of liquid metal furnaces for the Aluminum Industry.

Multi-Chamber Furnace

Combining our recycling expertise with our advanced furnace technology, the Multi-Chamber Furnace delivers maximum energy efficiency, high metal recovery, and low dross formation. It is ideal for processing a wide range of scrap materials while significantly reducing fuel consumption and emissions.

Rectangular Melting Furnace

Designed for high-capacity aluminum production, our rectangular melting furnaces offer outstanding reliability, excellent thermal efficiency, and consistent melt quality. Their robust design ensures long service life and high productivity.

Dual-Chamber Furnace

Our Dual-Chamber Furnaces enable the efficient melting of clean and contaminated scrap with high metal yield and reduced oxidation losses. The separated charging and melting zones improve safety, environmental performance, and operating costs.

Rotary Furnace

Our rotary furnace solutions are optimized for dross recycling and scrap remelting, achieving high metal recovery rates from challenging materials while ensuring flexible and efficient operation.

Sidewell Furnace

Sidewell furnaces provide superior melt quality through controlled metal circulation and reduced oxidation. The result is cleaner aluminum, lower metal losses, and reliable performance for demanding casting applications.



Charging Solutions

Rail-mounted charging machines provide a safe and efficient solution for aluminum melting operations. Designed to handle primary ingots, T-bars, sows, scrap, and long material, they offer capacities from 5 to 10 tonnes and enable fast charging cycles of just 2 to 3 minutes. Remote-controlled or fully automated operation, integrated load cells for accurate charge weight control, and optional fume extraction and automation system integration ensure high productivity, process reliability, and seamless operation in demanding casthouse environments.



Skimming solutions for aluminum casthouses

Rail-mounted skimming machines provide a safe and efficient solution for furnace cleaning in aluminum melting operations. Designed for reliable dross removal, they ensure consistent furnace performance while reducing metal losses and minimizing oxide contamination to improve melt quality. Their precise operation protects furnace linings and refractories from mechanical damage, extending equipment life. With short cleaning cycles, reduced heat losses, and a robust design for continuous casthouse operation, these machines deliver dependable performance in demanding production environments.



Automation-supported casting system with HPI Flowmaster

Automated process control for launder systems combines melt monitoring, casting control, and data acquisition through HPI Flowmaster to improve process consistency, product quality, and transparency. Continuous monitoring of key process parameters, automated launder dam operation, and recipe-based grain refiner feeding ensure stable and reproducible casting conditions while reducing operator influence. Centralized data management supports process optimization and provides full traceability of process and quality data down to individual billets.

Sawing Line for profiles

Our advanced sawing lines are designed to deliver exceptional precision, efficiency, and flexibility for a wide range of profile cutting applications, including single profiles, profile layers, and profile bundles. Engineered for superior cut quality, the system ensures precise lengths, perfectly square cuts, smooth cutting surfaces, and virtually burr-free edges through the use of specialized saw blades. High throughput is supported by a high-performance swarf extraction system and fully automated process control, including comprehensive recording of all operating data for maximum traceability and production optimization. The sawing lines accommodate cutting widths of up to 1,200 mm, cutting heights of up to 250 mm, and profile lengths of up to 8,000 mm, while achieving outstanding length tolerances of up to ± 0.1 mm.



From extruded aluminum profile to precisely-cut component

Heating Solutions

VAREGA^{ENVICOM}[®]

Regenerative Burner

The VAREGA^{ENVICOM}[®] regenerative burner is a high-performance burner system specifically developed for aluminum melting furnaces. It combines high energy efficiency, low emissions and reliable operation, providing an advanced solution for modern and sustainable casthouse operations.

The regenerative burner technology recovers thermal energy from the furnace exhaust gases and uses it to preheat the combustion air. By returning this energy to the melting process, VAREGA^{ENVICOM}[®] significantly reduces fuel consumption while maintaining excellent melting performance. Advanced combustion technology with internal recirculation and staged combustion helps to minimize NO_x and CO₂ emissions. At the same time, the system provides the flexibility required for different furnace concepts, operating conditions and melting capacities. Various burner arrangements and regenerator configurations allow the technology to be adapted to individual plant requirements.

A modular design facilitates maintenance, cleaning and replacement of major components from outside the furnace, helping to reduce downtime and simplify operation. Integrated control and monitoring provide transparency over the burner performance and ensure reliable furnace atmosphere management.

VAREGA^{ENVICOM}[®] combines energy efficiency, reduced emissions, operational flexibility and proven Gautschi furnace technology for efficient aluminum melting.

- Best Available Technology (BAT) for NO_x and CO₂ emission control
- Specifically developed for aluminum melting furnaces
- Regenerative heat recovery technology
- Combustion air temperatures up to 1,050°C
- Specific gas consumption as low as ≤ 550 kWh/t Al
- CO₂ footprint as low as ≤ 110 kg CO₂ eq/t
- Single-head burners up to 8 MW
- Double-head systems up to 12 MW
- Flexible roof- or floor-mounted configurations
- Modular and maintenance-friendly design



PLASMA BURNER

Direct electrification of high-temperature processes

TPS is developing an innovative inductively coupled plasma burner technology that enables the direct replacement of conventional fossil-fuel burners in industrial heating systems. Designed for demanding high-temperature applications, the system generates thermal energy entirely from electricity and therefore provides a pathway toward the decarbonization of melting, heating, and thermal processing operations.

Unlike conventional plasma systems based on electrodes, the TPS solution uses inductive energy transfer to generate plasma. This design eliminates electrode wear, significantly reducing maintenance requirements while ensuring reliable operation in industrial environments.

- Direct replacement of conventional gas burners
- CO₂-free process heat when powered by renewable electricity
- Significant reduction of dross and hydrogen inclusions in Aluminum melting applications by controlling the furnace atmosphere composition
- Media cost reduction and firing efficiency increase by low plasma media consumption
- Anticipated system efficiency between 88 - 89 % (grid to Plasma)
- Reduction in maintenance due to electrode free plasma generation
- Suitable for melting, heating, and various other high-temperature industrial processes
- Easy scalable on a 1 MW basis due to modular approach, enabling future multi-megawatt installations

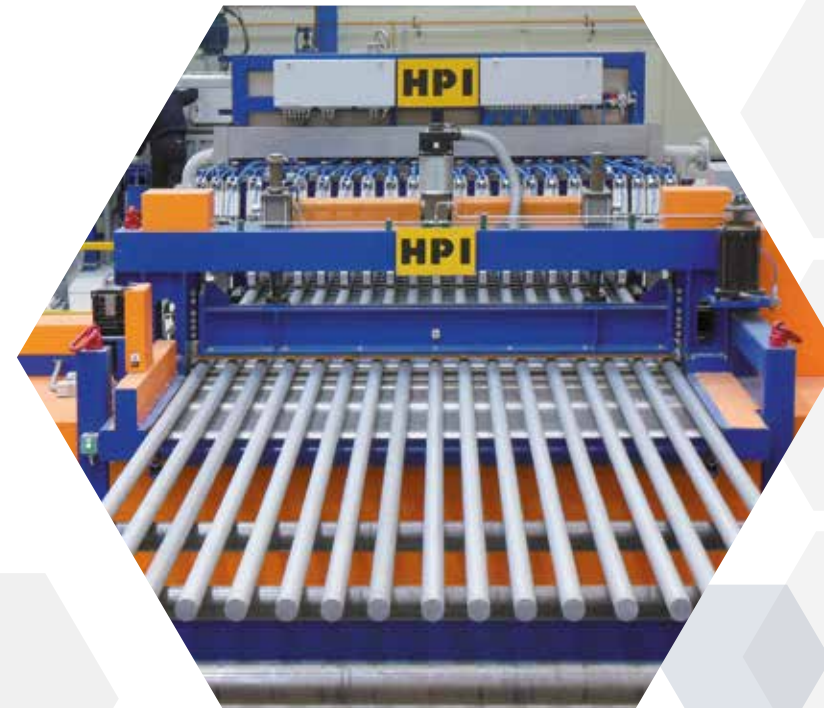


Casting Solutions

We are a leading supplier of casting equipment for aluminum. Our casting machines are known for their precise, robust designs and high level of automation. Around the world, our casting machines are used to produce high-quality rolling slab, extrusion billets, forging stock.

Ingot Casting Machine and Stacking Lines

Our stacking line solutions for smelter-grade and foundry alloys combine proven casting technology with a high degree of automation and productivity. Designed for ingot weights from 6 to 25 kg and capacities of up to 22 t/h, these systems ensure reliable and efficient production. Automated robotic ingot stacking and a fully integrated packing line featuring weighing, strapping, labelling, marking, and colour coding guarantee consistent product quality while minimizing manual handling and optimizing plant efficiency.



Horizontal Casting Lines

Our horizontal casting lines transform liquid metal into high-quality prematerial with precision and efficiency. Thanks to state-of-the-art mold technology and decades of manufacturing expertise, they enable the production of a wide range of products – from extrusion and forging billets to cast plates, busbars, T-bars, and ingots.

With a broad alloy range, continuous casting and sawing processes, and fully automated process control, HPI systems deliver maximum product quality, low operating costs, and outstanding efficiency with annual capacities from 3,000 to 50,000 tons.

Vertical Casting Machine

Our vertical D.C. casting machines deliver outstanding billet and slab quality for the full range of aluminum alloys, particularly demanding 2xxx, 6xxx, and 7xxx series grades. Featuring an internally guided casting cylinder, the proven Airslide[®] billet mold system, and Gautschi slab molds, the machines ensure stable casting conditions, minimal cracking, low butt curl, and no butt swell. Available in tilt-frame or drive-carriage designs with capacities ranging from 5 to 150 tons drop weight, they combine maximum productivity with excellent metallurgical quality and yield.



Casting Solutions

Twin-Belt Strip-Casting Process

EBNER GROUP members in partnership with Mino SpA, are proud to offer fully integrated lines for continuous cast aluminum strip and sheet.

Our advanced continuous casting and rolling technology delivers the world's lowest-cost process and smallest carbon footprint for the production of flat rolled aluminum products. Delivered as a fully integrated turnkey line, the solution is backed by a consortium of expert suppliers who provide the complete, optimized continuous processing line from a single source. This integrated approach eliminates the risks and interfacing challenges often associated with multiple unrelated suppliers, ensuring smooth project execution, efficient commissioning, and a rapid ramp-up to full production capacity.

- Alloy capabilities include AA1XXX, AA3XXX, AA5XXX, AA6XXX and AA8XXX
- Up to 50 tonnes/hour at 2 meters wide
- Annual production rates range from 100,000 to 250,000 tonnes

Customer Benefits

- Lower Capital Investment and Operating Expense
- Fewer Processing Steps
- 37% Less Carbon Emitted
- Smaller Physical Footprint
- Less Cold Rolling Required
- Lower conversion cost
- Higher productivity

Turn-key Installations

- Single point of contact which will provide a complete and optimized continuous processing line
- Avoid risks and interfacing issues associated with suppliers operating independently
- Ensure a smooth and efficient commissioning and ramp-up to full production



Casting Solutions

Non-Aluminum applications

CONTIGRID™

Industry-leading process technology for lead grids in the automotive industry

HAZELETT and Eagle Oxide introduce CONTIGRID™, a fully integrated lead grid manufacturing platform designed to deliver a continuous, synchronized process from melt to finished grid. Beyond just the equipment, a deep process and integration experience is offered, unique in the industry.

- Grids for lead acid batteries
- Superior Grid Quality
- High Production Rates
- Low-Operating Costs
- Proven Process



CONTIROD®

HAZELETT Twin-Belt Strip-Casting Machine for Copper Wire

The HAZELETT casting process combines a 15° descending straight-in-line mold with positive mold pressure to ensure excellent mold contact, minimize centerline porosity, and enable high casting speeds. An adjustable mold taper maximizes contact between the cast bar and the mold, resulting in efficient heat extraction and consistent product quality. Enhanced by fast-film cooling, edge dam heat sinks, and an in-line secondary cooling system, the process delivers high cooling performance and controlled straight-line solidification for a uniform microstructure and reliable material properties.

- High Quality Equipment and Production Output
- Industry Leading Production Rates of up to 62 tonnes/hour
- Low-Operating Costs



Homogenizing Solutions

Continuous Homogenizing Furnace

Our continuous homogenising lines provide a fully integrated solution for the heat treatment and preparation of aluminum billets, combining maximum process efficiency with consistently high product quality. The system includes a lay-down station, entry and exit storage conveyors, a continuous homogenising furnace, a cooling station, ultrasonic inspection equipment, sawing and packing lines, as well as billet marking devices. Advanced process control with complete data acquisition ensures reliable and fully automated operation, delivering consistent metallurgical properties, uniform extrusion characteristics, and straight billets. Designed for cost-efficient production, the line offers low energy consumption, reduced power requirements, and minimal labour costs. It is capable of processing billets with diameters from 50 to 410 mm and lengths up to 8,200 mm, with homogenising temperatures ranging from 480°C to 600°C and soaking times between 2 and 6 hours, providing the flexibility to meet a wide range of production requirements.



Homogenizing and Preheat Furnace – Batch

Our annealing and homogenizing furnace solutions are designed for strip and foil coils, billets, and slabs, delivering consistent metallurgical quality and process reliability. Advanced protective gas annealing ensures optimal surface quality, while a specially engineered nozzle system provides high heat-transfer efficiency and uniform temperature distribution. Equipped with energy-efficient self-recuperative burners, these systems minimize fuel consumption and operating costs. For billet and slab production, precise homogenization guarantees superior material properties, and fully automatic charging machines ensure safe, efficient, and highly productive furnace operation.



From casted
to homogenised billets

R&D Services

Casthouse (R)Evolution Center From trials to small-series production.

The Casthouse (R)Evolution Center (**C-R-C**) in Ranshofen, Austria, provides a unique industrial environment for the development, testing and optimization of aluminum alloys and casting processes.

Combining the expertise of Gautschi and HPI, the **C-R-C** brings together Vertical Direct Chill Casting (VDC) and Horizontal Direct Chill Casting (HDC) technologies in one facility. This allows new alloys, casting technologies and process parameters to be tested under realistic production conditions before being transferred to industrial-scale applications. The flexible equipment enables customer-specific trials with relatively small quantities of metal, providing an efficient solution for alloy development, material qualification and the production of sample material for further processing. Rolling ingots, extrusion billets and other product formats can be produced for subsequent rolling, forging or extrusion trials.

In addition to research and development activities, the **C-R-C** provides an ideal environment for practical customer and operator training. Processes can be demonstrated and optimized without interfering with ongoing production.

With its combination of industrial equipment, comprehensive process know-how and maximum flexibility, the **C-R-C** supports customers throughout the development process, from the first idea and casting trials to successful industrial implementation.

- Industrial-scale R&D and training center
- Customer-specific alloy and casting trials
- Batch sizes up to 7.5 t
- Rolling ingots and billets up to approx. 7 m
- Material for rolling, forging and extrusion trials
- Process development, qualification and optimization
- Hands-on operator and customer training



EBNER TECHCenter Integrate our know-how into your development process.

The **EBNER TECHCenter** in Leonding is the research and development center for practical heat treatment processes. State-of-the-art pilot facilities, comprehensive measurement and testing equipment, and extensive process and material expertise provide ideal conditions for the development, testing, and optimization of new products and processes.

Laboratory and pilot-scale trials make it possible to align process conditions with the desired material and product properties in a targeted manner. This generates valuable insights for technical decision-making, more efficient production processes, and cost-effective solutions.

As an R&D partner, we support customers from the initial idea through to industrial implementation. Together, we develop, test, and validate new products, materials, and processes, creating a solid foundation for successful transfer into production.

Our Services at a Glance

- Process-oriented development and optimization of heat treatment processes
- Simulation of industrial processes at laboratory and pilot scale
- Trials, feasibility studies, and evaluation of performance limits
- Design and testing of prototypes
- Metallographic investigations
- Destructive and non-destructive testing methods
- Contact and non-contact temperature measurement
- Analysis of atmospheres, media, and gases
- Heat treatment expertise for ferrous and non-ferrous materials



Digital Solutions for the connected casthouse

The **EBNER Cast House** Technologies division provides advanced automation and digital solutions seamlessly integrated across its portfolio of melting, casting and process equipment. **EBNER GROUP** Digital Solutions forms the technological backbone, creating a unified platform that connects shop-floor sensors, production assets and plant-wide enterprise systems through a single, consistent data architecture.

Vertical integration connects every automation and IT level of a single piece of equipment. Process signals from the field level flow through PLC and process control up to MES and ERP via standardized interfaces. The result is equipment that adapts to process variables such as alloy type, documents its own performance and improves energy efficiency.

Horizontal integration connects the production steps of the casting route: melting, holding and metal treatment, casting, homogenizing, sawing and packing. Material and data move together, so every billet, slab and ingot carries its complete process history.

Every **EBNER Cast House** Technologies equipment is delivered with its Level 2 process control and the Core Digital Suite: operator interface, process intelligence, traceability and maintenance. Both integration dimensions are open and vendor-neutral, so existing and non-**EBNER** equipment can be connected.

Security is built in: defense in depth across physical, network, application and data levels, network segmentation, role-based access control and alignment with state-of-the-art cyber security for industrial automation and control systems.



AI
Modified

The Autonomous Casthouse

The Autonomous Casthouse is an integrated concept developed by the **EBNER Cast House** division and **EBNER GROUP** Digital Solutions. Powered by the **EBNER GROUP** Digital Platform, it integrates decades of metallurgical expertise with Industrial AI, digital-twin simulation, and closed-loop automation - deployable module by module in new or existing casthouses. The result is a casthouse that continuously learns, self-optimizes, and removes operators from the hazard zone without removing them from control.

■ Safety first

Zero operator exposure to molten metal. AI-assisted situational monitoring enables supervising critical casting phases from a safe distance. Autonomous transport vehicles and complete sensor coverage safeguard personnel at all times.

■ AI-driven process optimization

From charge planning to final cast: industrial AI turns real-time chemistry and process data into optimized charging recommendations and parameter adjustments. Every cast improves the next, raising quality, throughput and cost-efficiency.

■ Consistent quality in every shift

Routine tasks and standard decisions are automated. Continuous monitoring detects deviations early or prevents them entirely, ensuring consistent quality regardless of shift or operator. Expert knowledge stays in the system instead of leaving with retiring staff.

■ Predictive asset protection

Trained condition models detect component wear across pumps, fans, and drives. Maintenance work orders are generated automatically before downtime occurs. Augmented reality guidance leads technicians straight to the affected component.



AI
Modified

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