



# SHOW NEWSPAPER

## ALUMINIUM 2022

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powered by **Aluminium Praxis** and **ALUMINIUM INTERNATIONAL JOURNAL** for the global aluminium industry

**Special Edition 2022**



After a four-year break, ALUMINIUM will be held again in Düsseldorf from 27 to 29 September 2022

# Curtains up: ALUMINIUM 2022

Three days, one topic: when ALUMINIUM 2022 will open its doors in the Düsseldorf exhibition halls on 27 September one of the most exciting materials of our day and age will be centrestage. Sustainability, new mobility, additive and digital manufacturing, digitalisation, construction and engineering – ALUMINIUM will shed light on the most urgent issues of our time and flag up the versatile solutions aluminium has to offer for these as a material.

**A**LUMINIUM 2022 will cover the complete spectrum of the aluminium industry in six exhibition halls. The big renowned companies will take part as exhibitors just as much as numerous SMEs and start-ups that make an invaluable contribution to the diversity and innovation of the sector. In this sense, the trade fair, which is already nearly fully booked, will serve as a truly comprehensive showcase.

Norsk Hydro, HAI Hammerer, Amag, Alvalco, Rio Tinto, Alcoa, Trimet and Assan Alüminyum have confirmed

their participation, to name but a few. Alongside many other household names there will also be a plethora of SMEs and start-ups ensuring enormous variety.

### Solutions for the major questions

The aluminium sector is undergoing massive transformation. This is why in terms of content ALUMINIUM 2022 will focus on the issues that will also continue changing this industry; and for which this material offers a host of exciting solutions.

■ **Sustainability:** Industries are facing increasing pressure to make their product lifecycles more sustainable and the cir-

cular economy a reality – and the material that is aluminium is almost ideally suited to do this. At the trade fair numerous innovations involving climate-neutral aluminium will be presented.

■ **New Mobility:** The development of e-mobility is rapidly changing the face of the automotive industry. At the same time, pressure is rising to reduce vehicle weight to cut greenhouse gas emissions. Both trends favour aluminium, which is getting more and more important as a material for the automotive industry. Vehicles are more environment-friendly with aluminium.







■ **Additive and Digital Manufacturing:** 3D printing has long left behind its prototyping image: this manufacturing process has become long established in the industry – and is still far from being fully exploited. It provides a wide variety of technical possibilities allowing the material properties of the metal to be combined with the design freedom of additive manufacturing. In Düsseldorf large corporations as well as start-ups will highlight exciting avenues of how additive manufacturing opens up completely new opportunities.

■ **Digitalisation:** More efficiency, more effectiveness – digitalisation is a long way from being exhausted. There are still many powerful levers waiting to be exploited by the aluminium industry – from networking between machines and processes down to the complete supply chain of the aluminium sector. Therefore, innovative engineering and machine software as well as data management systems for Industry 4.0 will be another focal theme at the fair.

■ **Construction and Engineering:** According to UN estimates as early as 2050 more than two thirds of the world's population will live in cities. Developing these mega-cities in a smart and environment-friendly way is therefore a central task for the coming years and decades. Here, too, aluminium will play a prominent role: as a sustainable, recy-

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## Facts and Figures

Dates	27 - 29 September 2022
Venue	Messe Düsseldorf, Halls 1 – 7a Stockumer Kirchstraße 61, D-40474 Düsseldorf
Exhibition Centre entrances	North and South Entrances
Opening hours	For exhibitors: 27 - 29 September 2022: 8:00 am – 7:00 pm For visitors: 27 - 29 September 2022: 9:00 am – 6:00 pm
Information and registration	<a href="http://www.aluminium-exhibition.com">www.aluminium-exhibition.com</a>

cable material for facades and window frames, for example. Aluminium forms part of the future-proofing of our cities.

### Powerful partner for the special shows

Two of these focal themes will be covered by dedicated special shows. “Additive and Digital Manufacturing” in Hall 5

demonstrates the versatile technical possibilities provided by 3D printing. Partners for this special show include the Aachen Center for Additive Manufacturing (ACAM) of RWTH Aachen, one of the world's most relevant research centres for additive manufacturing with alu-

*Continued on Page 2 →*

Photos: Behrendt und Rausch

## Dear Exhibitors and Visitors of ALUMINIUM 2022,

When you hold this special edition of Aluminium Praxis in your hands, you are part of an event that a great number of people have been looking forward to for a long time – including us as organizers.

ALUMINIUM occupies a special place in our portfolio. On the one hand, because, as a truly world-leading trade fair, it is characterized by an exemplary international flair. On the other hand, it is dedicated to a material that is more promising for the future, more exciting and more likeable than any other.

Aluminium has the amazing ability to provide great answers to several of the pressing questions of our time, especially in the context of sustainability, such as circular economy, mobility turnaround, recycling, and the development of more people-friendly urban centers. In all these areas, aluminium is a fundamental part of the solution and will be even more so in the future. The same applies to the topics of digital and additive manufacturing: Here, too, there will be no avoiding way around aluminium.

At the same time, this industry seems to have given birth to a community in the truest sense of the word. A common desire has emerged around this exciting material, a joint pursuit of a better future and with this, a collective way of communicating.

When we put ALUMINIUM 2022 under the motto "Sharing a Vision", we also understand it in this sense as a clear message: As trade fair organizers, we are part of this community and we are definitely proud of that.

Of course, a trade show like this is only possible if many partners work together in a spirit of trust. I would therefore like to take this opportunity to express my sincere thanks to all exhibitors, visitors, and partners – from associations to leading scientific institutes and trade media, like Aluminium Praxis. They have all contributed to the permanent development of ALUMINIUM and to making it what it is today.

My special thanks go to those partners who, together with us, have ensured that we can experience a content program of unique density and quality at the show:



Photo: RX Global

Aluminium Deutschland, whose conference will be an integral part of the show starting this year. The CRU Group, whose renowned experts play a key role in shaping the program of the Speakers Corner Sustainability & Recycling, the Aachen Center for Additive Manufacturing, and – last but not least – Quartz Business Media. Together they are behind the program of Speakers Corner Additive & Digital Manufacturing.

All that is left for me is to wish you a successful, exciting, and informative ALUMINIUM 2022. We wish you a warm welcome!

Barbara Leithner,  
COO RX Austria & Germany

Continued from Page 1 →

Furthermore, the trade fair will cooperate with Quartz Business Media, who have long been active in the field of digital manufacturing with aluminium, organising the "Future Aluminium Forum". Both partners will share intriguing insights and contribute to this focal theme with exciting speakers.

Hall 6 of ALUMINIUM will be all about sustainability and recycling. Against the background of the outstanding properties this material boasts for the circular economy, the "Innovation Plaza Sustainability and Recycling" will await trade fair visitors with plenty of examples of best practice and innovations. And for this topic another excellent partner could be enlisted: the leading business intelligence company CRU with its highly specialised analysts – a household name for the aluminium industry.

Both special shows will be accompanied by Speakers' Corners with a packed programme of expert lectures, focused content and insights on the key questions related to additive manufacturing and/or sustainability. They will provide more

in-depth information and set the stage for presenting products and solutions. These themed stages will be curated by high-calibre industry partners who will also contribute to the theme with their expertise.

### Content drives the trade fair

The ALUMINIUM Conference organised by Aluminium Deutschland will form an integral part of the trade fair from 2022. It will be staged under the heading of "Aluminium – the Solution Provider" in Hall 3 and its content will be guided by the central focal themes of the trade fair. The ALUMINIUM Conference will follow on from the extremely successful ALUMINIUM Business Summit and invite experts, key players and above all also the customers of the aluminium industry to the stage.

### More sustainability in new halls

Sustainability will not only be one of the focal themes covered by ALUMINIUM – but the event as such is also committed to this goal. In the wake of the new exhibition concept all pavilions and special shows will

be planned with a new stand construction concept developed by the trade fair organiser's own company StandOut: the materials are selected in such a way that they can be completely dismantled after the trade fair and be re-used for following RX trade shows. Only damaged items or those customised for individual needs will have to be disposed of. Beyond this, ALUMINIUM 2022 will be held for the first time in Halls 1 to 7 of Messe Düsseldorf – a "move" that is also welcomed by exhibitors. This makes it possible to ensure new and even better hall segmentation as well as visitor guidance.

### A showcase of superlatives

Like all trade shows organised by RX, ALUMINIUM will also include hybrid elements and make available a digital trade fair portal. In addition to digital exhibitor profiles it will also be possible to follow the ALUMINIUM Conference stream live. Add to this, Audio Guided Tours, digital trade fair bags, Matchmaking, Emperia Leadscanning of all visitors and dashboards for exhibitors, to name but a few of the digital features.

## Focal themes of the special shows

### Digital and additive – new paths for the sector

Additive and digital manufacturing have not only transformed the aluminium industry for a long time now but also its user industries. What new possibilities have emerged here? And what's more important: what new technologies are in the starting blocks, and which already appear on the horizon? These questions will be addressed at the "Innovation Plaza Additive & Digital Manufacturing" of ALUMINIUM 2022 and this area will also encompass a Speakers Corner for expert lectures, discussions and dialogue.

Here RX's content partners are the ACAM and Quartz Business Media. The Aachen Center for Additive Manufacturing at the RWTH Aachen Campus is one of the key research and development centres for additive manufacturing. The British trade publishing house Quartz Business Media publishes amongst others "Aluminium International Today".

Hall 5

days the Conference will feature a line-up of prominent experts, key players and, above all, also customers of the aluminium industry that will address the pivotal issues of the industry in in-depth lectures and panel discussions.

The integration of this Conference into the trade fair is the preliminary climax of the long-standing partnership between organiser RX and Aluminium Deutschland. Marius Baader, the Managing Director of the Association, therefore also views this recent step as a logical one: "With this move ALUMINIUM positions itself even better in both organisational and content terms, setting the perfect stage for the red-hot topics that drive our industry today and will continue doing so over the coming years. On this stage we can communicate the problem-solving ability of this material and our industry even more strongly and clearly."

Hall 3

### Circular – a sustainable material

In connection with aluminium this term is used very often: sustainability. The outstanding properties of this material for the circular economy are known – but there is much more to be said about this. Which is why a dedicated "Innovation Plaza Sustainability & Recycling" will feature as part of ALUMINIUM 2022. Amongst others this Plaza will encompass a themed stage on which some of the most distinguished experts will share their knowledge with trade fair visitors for three days. Admission is free. The programme of this Speakers Corner will be put together by the experts of the CRU Group. This London-based business-intelligence firm offers the most in-depth analyses for the aluminium segment.

Hall 6

### "The solution provider" – The ALUMINIUM Conference

For the first time, this year will see the major Conference organised by Aluminium Deutschland form an integral part of ALUMINIUM. Under the theme "Aluminium – the Solution Provider" the Conference with free admission for all trade fair visitors will address the topics that are all also centrestage at the trade fair itself: What potential does aluminium offer in terms of recycling and the circular economy? What opportunities does this material offer in connection with new mobility? What developments do we face in additive and digital manufacturing? What role will aluminium play as a material for tomorrow's smart and environment-friendly cities? On all three trade fair

**AL** Aluminium  
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27 – 29 September 2022  
Exhibition Center Düsseldorf

## ALUMINIUM 2022. HALL OVERVIEW.

ENTRANCE NORTH.



ENTRANCE SOUTH.

Hall 1 Semi-finished products (Focus Extrusion)

Hall 3 Semi-finished products (Focus Rolling)

Hall 4 Semi-finished products

Hall 5 Metal working and processing,  
Joining technologies, Automation

Hall 6 Primary Production, Casting, Heat treatment,  
Furnace technology, Recycling

Hall 7a Surface treatment

## Handling solutions from Combilift Focus on electric power at ALUMINIUM 22



At ALUMINIUM Combilift presents new electric models

In the years since the last ALUMINIUM show took place, Combilift's R&D department has been busy developing new models for its range of materials handling solutions. In the last year alone Combilift added four new electric models to its portfolio, and some of these innovations will be exhibited in Düsseldorf with live demonstrations proving their effectiveness to offer safe, space saving and productive handling of even the longest and most awkward loads.

The Combi-XLE model with a 5t lift capacity was launched in 2021. This multidirectional forklift combines emission-free operation with powerful performance for tough applications. It shares the same design features with its original IC-powered counterpart such as high ground clearance, large cushioned front and rear tyres, patented all-wheel traction and a spacious cab. These allow smooth operation on semi rough terrain whilst offering a high level of driver comfort. It also incorporates up-to-the-minute technology such as the patented all-wheel traction that reduces tyre wear and load swing and enhances braking.

The Combi-MR4 is a multidirectional 4-wheel electric powered reach-truck, which incorporates Combilift's new Dynamic 360° steering. This provides rotation on each wheel, enabling seamless directional change of the truck while on the move and allows forward, sideward and crab steer mode,

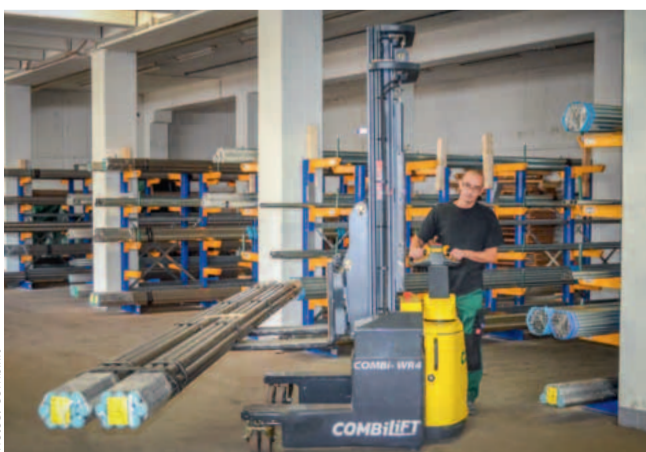
guaranteeing excellent manoeuvrability. Two drive wheels at the rear and two sets of smaller dual front wheels provides a platform height as low as 380mm, allowing otherwise redundant storage areas towards the floor to be used.

Other exhibits will include a selection of pedestrian operated stacker trucks which are increasingly popular as a replacement for ride-on forklifts. These all features Combilift's unique, patented multi-position tiller arm, designed to ensure maximum safety for the operator and other personnel nearby. The tiller can be turned to the left or right of the truck and enables push button rotation of the rear wheel parallel to the chassis and back again. It allows the operator to remain in the safest possible position when working in narrow aisles - at the side of the truck rather than at the rear as is the case with other pedestrian trucks. This reduces the risk of the operator being crushed or trapped between the truck and the racking and guarantees full visibility of the load.

Combilift CEO and Co-Founder Martin McVicar: "The Aluminium event is a highlight of our international show calendar. We are looking forward to welcoming familiar faces as well as new contacts to our stand and to advise them on how they can improve their handling procedures with our products."



Combilift  
Hall 3, Stand D10  
[www.combilift.com](http://www.combilift.com)



Handling with a Combilift is safe, space-saving and productive

## Novelis: Pioneer in sustainability

Emilio Braghi - Executive Vice President, Novelis & President, Novelis Europe

After the restrictions of the past two years by Covid, we are even more pleased to be able to meet our customers and business partners in person again at ALUMINIUM 2022. Three trade show days of focused exchange are valuable and important for all involved.

At our booth we will present the news about our company as well as our product range, including for the first



Photo: Novelis

time our offer for aerospace and industrial plates. We expect intensive discussions with customers, representatives of our industry and other stakeholders. In addition, as part of the conference program we will be providing exciting insights into the circularity of the automotive industry and the importance of recycling in the beverage can market.

Novelis is a pioneer when it comes to sustainability and

of course we also look at the carbon footprint of our physical events. However, our full program with our customers on site shows that we can save time and business trips this way. Our future, in my eyes, will therefore lie in a good balance of conventional and virtual trade shows and meetings."



[www.novelis.com](http://www.novelis.com)  
Hall 3, Stand B69

## Optical profile measuring technology - 100 % made in Germany

### Ascona presents new study on measuring profiles

Ascona - the specialist for dimensional profile measuring technology based in Germany presents a new study at ALUMINIUM 2022.

Quality, service, safety and efficiency are the hallmarks of Ascona, the specialist in dimensional profile measurement technology based in Germany. Since 1988, the company has been developing optical profile measuring systems for the aluminium, plastics and rubber industries, which enable an improvement in the quality of its own product as well as a cost reduction.

A worldwide established partner network enables Ascona to support all customers worldwide. The company is counting more than 700 installations in 54 countries around this world. "We do not stand still. Because our requirement is to constantly develop new solutions and bring our customers forward", that's the Ascona philosophy.

In the latest study, Ascona is developing a measurement system based on computer tomography in cooperation with the Fraunhofer Institute. According to Ascona, it is "A



Photo: Ascona

Promex Expert measurement system

breakthrough for the profile industry." Currently, there is no way to measure extremely small, thin-walled and complex aluminium profiles. A sample preparation, like a special cut or deburring, which is currently required in all cases, would severely deform the contours or even the whole profile, making them no longer measurable. For rubber profiles, sample preparation causes

smearing of single material layers which in turn, affects the visibility of the carrier.

With this measuring system it could be possible to measure even complex profiles without time-consuming sample preparation. The user can simply insert it at the desired length, as the computer tomography allows a view inside and thus provides the dimensions of the profile, regardless of the pre-

pared cutting edge that Ascona currently uses for its other measurements.

Are you still looking for a solution to control and optimize your product quality? Have look at product line of Ascona:

- Promex Basic Fast models are usable in the lab and guarantee faultless measurement of off-hand samples either to check suppliers or the own production.

- Promex Expert measurement systems are high-end solutions for dimensional measurements which meet highest demands regarding measurement accuracy in a minimum of measuring time and are ideal for the use at the extrusion press because they are not sensitive to vibrations, temperature fluctuations or dust.

As a result, scrap is reduced to a minimum, raw material can be saved and faulty deliveries to customers can be avoided. This guarantees high productivity in accordance with objective quality statements and consistent quality control in the aluminum extrusion.



Ascona  
Hall 1, Stand C09  
[www.ascona.de](http://www.ascona.de)

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## X-Tract: A combination of mechanical and sensor-based sorting

# Alutrade takes advantage of Tomra's new X-Tract generation

Tomra Recycling develops and manufactures sensor-based sorting technologies for the global recycling and waste management industry. The X-ray transmission technology (XRT)-based X-Tract sorter combines innovative synergies from metal and diamond recovery and sets new standards in sensor-based aluminium sorting. Recently, the next generation of the X-Tract was introduced with a new design and groundbreaking innovations.

**A**lutrade, the UK's largest independent aluminium recycling company and extrusion specialist, is the first company in the world to reap the benefits of the sophisticated new sensor-based sorting solution. The new X-Tract, Tomra's most advanced x-ray metals sorting unit, has enabled Alutrade to achieve 99 percent pure aluminium for use in secondary aluminium production.

The new X-Tract unit was installed in March 2021 at Alutrade's Oldbury recycling plant in Birmingham which processes 42,000 tons of waste annually. The plant's infeed material com-

prises metal extrusions from different types of post-consumer construction waste, such as windows and doors, as well as aluminium cans.

### A combination of mechanical and sensor-based sorting

When the infeed material arrives at Alutrade's Oldbury plant it is initially pre-shredded into smaller pieces of around one to two meters in length before being further shredded by a hammer mill. Magnets and eddy current separators are then used to separate the metals into ferrous and non-ferrous metals, removing any contaminants in preparation for the next sorting stage.

Following magnetic separation, a combination of Tomra sensor-based sorting units is used to process, sort and recover the target fraction of aluminium. Two of the earlier edition Tomra X-Tract units – which were installed in 2017 and 2018 respectively – are programmed to capture a larger aluminium fraction of >30mm and the new machine targets a smaller 10-30mm aluminium fraction, removing any heavy metal content from the aluminium. Both the

earlier and new edition X-Tract units sort metals based on the difference in atomic density, separating out any heavy metals.

### Meeting industry demand for premium recycled aluminium

Alutrade's customers are remelts based all over the world who demand the highest purity grade of aluminium product for their remelting process as any heavy metal content affects the melt specifications.

Andrew Powell, Director at Alutrade LTD, explains: "Over the past five years, we have worked closely with Tomra and our main customer, and have undertaken a lot of research to achieve this milestone of recovering an aluminium end fraction that meets the exceptionally high purity levels required to go straight into the remelt process. The smaller 10-30mm grain size captured by the new machine is 99 percent pure aluminium which means we can sell it on at a much higher price to our customers for use in the production of new aluminium products. What's more, the new version of X-Tract has opened up new international



Scrap pile at Alutrade

market opportunities for Alutrade as we can now source different infeed material, as well as sell on the ejected heavy metal products."

### The new X-Tract – a superior solution

Although the two earlier edition Tomra X-Tract units at the Oldbury plant allowed Alutrade to capture the >30mm aluminium fraction, there were some restrictions on smaller fractions. However, thanks to a new x-ray sensor design, the X-Tract 2.0 can separate fractions down to 5mm at even higher purity levels.

Tomra's new X-Tract uses the same process of separating metals by atomic density as the earlier edition but offers far superior x-ray capabilities. The software-based solution can guarantee premium remelt quality recycled aluminium by ejecting the heavy metal contaminants.

The new generation X-Tract unit boasts a number of new innovative features, including much faster sorting (up to 3.8 meters per second) and an increased capacity per meter width. A new high-acutance XRT sensor ensures sharper detection and shorter integration times for higher throughput, while a high-power (up to 1,000w) x-ray source is capable of processing multiple applications and grain sizes. An extended separation chamber reduces material

loss by improving the trajectory of sorted objects and a new catcher hood ensures safer access and faster maintenance.

Alutrade's X-Tract 2.0 unit is connected to Tomra Insight, Tomra's secure, nearly real-time and on-demand cloud-based data monitoring platform. The platform enables customers to turn their sorters into connected devices and to transform sorting into a strategic management tool. Generating high value data, Tomra Insight helps to maximize plant throughput, boost sorting performance and optimize output quality.

Reflecting on the long-standing partnership between Alutrade and Tomra, Andrew Powell of Alutrade adds: "Alutrade has been using X-Tract units for the past four years to guarantee the quality of our products that we supply to our customers. This has enabled us to build up the trust between ourselves and our customers. Right from day one of operation, Tomra has helped us improve the recovery rates of aluminium in a reliable way. By using X-Tract units we have been able to upgrade our material so that it could remain in the UK rather than be exported.

"Investing in the new X-Tract has enabled us to close the loop on the recycling process as much as possible, converting aluminium back into aluminium for use in high-grade aluminium products so that in effect, a window frame can be recycled into a new window frame. With low operational costs, improved safety and superior sorting capabilities, the new X-Tract definitely stands out in terms of the aluminium recycling solutions available in the global metals recycling market."

Terence Keyworth, Segment Manager Metal Recycling North/East Europe, adds: "Tomra and Alutrade have worked together for more than ten years so Alutrade's Oldbury plant was an ideal plant for us to test and prove the capabilities of our new X-Tract 2.0. As the first prototype of this unit in an industrialized environment, it has been a very exciting project. We're delighted that Alutrade has been so impressed with the sorting capabilities of this new technology and look forward to rolling out further installations over the coming months."



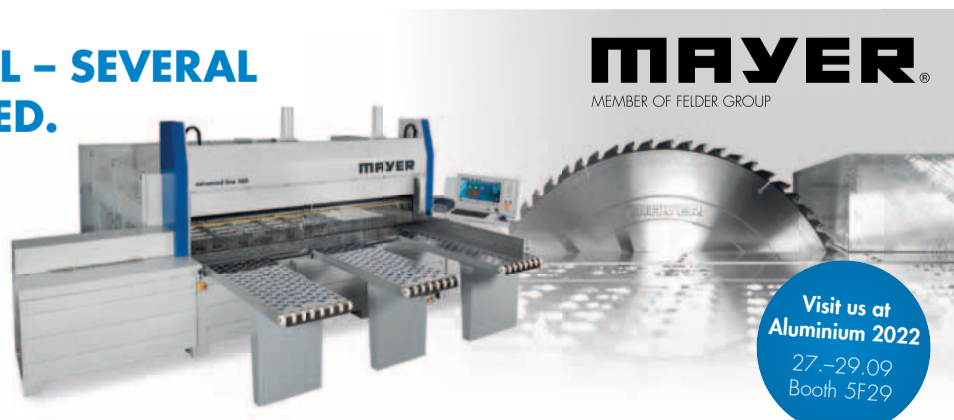
Tomra  
Hall 6, Stand F19  
[www.Tomra.com/recycling](http://www.Tomra.com/recycling)



The new X-Tract at Alutrade

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## About TomraRecycling

Tomra Recycling designs and manufactures sensor-based sorting technologies for the global recycling and waste management industry. Over 7,400 systems have been installed in more than 100 countries worldwide.

Responsible for developing the world's first high capacity Near Infrared (NIR) sensor for waste sorting applications, Tomra Recycling remains an industry pioneer with a dedication to extracting high purity fractions from waste streams

that maximize both yield and profits.

Tomra Recycling is part of Tomra Sorting Solutions which also develops sensor-based systems for sorting, peeling and process analytics for the food, mining and other industries.

Tomra Sorting is owned by Norwegian company Tomra Systems ASA, which is listed on the Oslo Stock Exchange. Founded in 1972, Tomra Systems ASA has a turnover of around €985 million and employs ~4,300 globally.

Recycling of aluminium with melting technology from Gautschi

# Gautschi adds tilting rotary furnaces to its portfolio

Gautschi Engineering GmbH, based in Ranshofen, Austria, develops melting and casting solutions for the aluminum processing industry. Founded in 1922, the company celebrates its 100th anniversary this year. 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. The company has recently expanded its product portfolio to include tiltable rotary furnaces based on KMF technology.

Gautschi is the market leader for facilities with the highest melting rates and metal fill levels, and its latest generation of regenerative burners achieves top values in terms of energy consumption – even as they set new standards in terms of NOx emissions. The classic line of Gautschi single-chamber furnaces is suitable for industrial scrap without organic adhesions and remelting products from primary aluminum production, such as ingots of different sizes.

As soon as scrap with organic impurities such as oil, paint or plastic requires remelting, single-chamber technology reaches its limits. For this reason, Gautschi also offers multi-chamber furnaces.

### Melting technology adapted to scrap type and shape

It may be obvious that no single type of furnace is suited to all types of scrap, but when selecting a furnace there are three basic principles for scrap melting that should be followed as closely as possible:

**Don't melt in the atmosphere:** This generates droplets whose surface oxidizes immediately, leading to high metal loss. For this reason, solid metal should be immersed in a molten bath.

**Preheat:** To enable scrap to be immersed, it must be ensured that no moisture adheres to it.

To also remove any organic impurities, scrap should be preheated to about 400 °C.

**Use available energy during melting:** Pyrolysis gases, which are generated from organic material during preheating, are burned in the furnace. The energy content of impurities can thus be used to melt aluminum in the furnace – reducing natural gas consumption and pollutant emissions.

Following the above principles may sound easy, but the melting process must be adapted to the scrap mix for each application. Chips, cans, foils or shredders are melted down in a way that differs from that used for profile scrap, cast parts or sheet metal. Furthermore, the proportion of impurities in the scrap is limited to 3 – 6 percent by weight (depending on the type of impurity), as it may not contain more energy than that required to melt aluminum in the multi-chamber furnace.

Finding the optimal melting furnace design for the available scrap mix is Gautschi's core competence. For this purpose, standard components of different sizes are combined. The jumbo-sized model of melting furnace, SMF140, is capable of melting scrap into more than 100,000 tons of liquid aluminum per year.

### The addition of rotary tilting furnaces to the Gautschi portfolio

Dross is generated in single and multi-chamber furnaces, and is a mixture of 30 – 50 percent aluminum oxide and metallic aluminum. To recover it, it is reheated in a rotary furnace with the addition of salt. It is then melted and non-metallic components are separated out. Scrap that is too contaminated or cannot be melted in a multi-chamber furnace can also be melted in rotary furnaces, with the addition of salt.

Gautschi has also launched a new product line, namely Tilting Rotary Furnaces based on KMF technology. The "Master



max furnace" has been successfully operating in industrial applications for many years. Four sizes, from 4 to 25 tons capacity, are already available and a furnace with a capacity of 50 tons is currently under development. Furthermore, components for waste gas post-combustion, continuous melt-bath temperature measurement and oxygen control are being added, enabling this new product to even better meet market requirements for aluminum recovery.

This makes Gautschi the most innovative and competitive full solution provider for sustainable aluminum melting processes today.

**i** Gautschi  
Hall 6, Stand: H42-01  
[www.gautschi.cc](http://www.gautschi.cc)

## Infobox

Recycling one kilogram of aluminum leaves a carbon footprint almost 95 percent smaller than that created by one kilogram of new aluminum. About 75 percent of the aluminum from all aluminum products ever manufactured is still in use today, as e.g. car or airplane parts, window profiles, or packaging materials. About 35 percent of the aluminum produced annually is recycled secondary aluminum produced from scrap.

Scrap can be divided into industrial scrap and post-consumer scrap. Both are collected, processed and, if necessary, mixed with primary aluminum to produce alloys suitable for new components for the transport, construction or packaging industries.

Today, annual primary aluminum production is about 68 million tons, compared to about 36 million tons of secondary aluminum production. About 14 million tons of secondary aluminum is created from industrial scrap, with the remaining 22 million tons created from post-consumer scrap. (Source: Global Aluminum Cycle 2021; Public Access – International Aluminum Institute ([international-aluminum.org](http://international-aluminum.org)))



Photo: Gautschi Engineering GmbH



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# Assan Alüminyum Investing For a More Sustainable Future

Assan Alüminyum, a subsidiary of the Kibar Group and the fastest growing flat rolled aluminium producers in Europe, is prioritizing sustainability in its future investments, as well as its process designs. The company's sustainability commitment is to adopt global sustainability targets as a business principle and not as an obligation.

Many sustainability-oriented activities are being carried out at the company, ranging from offsetting scope 2 emissions with the International Renewable Energy Certificates (I-RECs) issued for the renewable energy production at the company-owned hydro power plant to integrated recycling operations. Assan Alüminyum recently achieved the ASI (Aluminium Stewardship Initiative) Performance Standard Certificate, which essentially certifies that the company's production and recycling facilities operate in ac-

cordance with the global sustainability criteria set by ASI for the aluminium value chain. The company has a series of investment plans, aiming to contribute positively to a more sustainable future.

Assan Alüminyum, a subsidiary of the Kibar Group and one of the two largest aluminium foil producers in Europe, produces aluminium coil and sheet, foil and pre-painted products. These products serve many different industries, such as automotive, packaging, construction, consumer durables and HVAC, as a raw material input. The company exports its products to 70 countries around the world, on four different continents. The main focus of the activities carried out is sustainability, which is one of the core values of the company, along with reliability, flexibility and innovation.

## Action for Climate Change

As climate change becomes one of the most significant factors



General Manager Göksal Güngör, Assan Alüminyum

that will impact the world and our future, many industries are forced to act and to become more sustainable. The aluminium industry is in the forefront of the transition to a circular economy in Europe, offering many extraordinary advantages such as infinite and 100 percent recyclability, lightness, impermeability and highly efficient conductivity.

Assan Alüminyum aims to create a sustainable ecosystem together with its business partners, by using its expertise and aluminium's environment-friendly advantages. Assan Alüminyum's General Manager and GLAFRI (Global Aluminium Foil Roller Initiative) President Göksal Güngör explains further: "We prioritize our core value of sustainability in all of our future plans. We develop our plans based on the 2025 Sustainability Strategy of our mother company and on the circular economy framework, in line with the European Green Deal. Our sustainability-oriented activities have been recognized by the ASI, as we received the Performance Standard Certificate for both of our production facilities and our integrated recycling facility. ASI sets the standards for sustainability for the global aluminium value chain. This certificate is therefore not only a significant milestone, but also a valuable guideline for us moving forward."

Assan Alüminyum also produces renewable energy in its own power plant and offsets its scope 2 emissions, through the I-RECs (International Renew-

able Energy Certificates) it generates and buys. The company additionally implements new energy efficiency projects, aiming to reduce its scope 1 and 2 emissions. The projects completed in the last seven years reduced CO2 emissions equivalent to the planting of more than 2,5 million trees.

Assan Alüminyum approaches sustainability on an environmental, social and governance perspective, prioritizing it in its corporate social responsibility projects as well. The company partnered up with Kocaeli University in the company's Biodiversity Preservation Project, which aims to save endemic plants from extinction. With the project, the Amsonia orientalis (Blue Star) plant was saved and reintroduced into nature. The project continues this year with the Sand Lily Plant. The company also engages in many reforestation projects every year, aiming to balance the impacts of its activities, such as wooden pallets and customer events.

## Investing for a More Sustainable Future

Assan Alüminyum is currently working on realizing a series of investment plans, in line with its sustainability motto of "Producing the Future Without Wasting It". These investments, worth almost 100 million USD, are projected to be completed in 2024. General Manager Göksal Güngör adds: "Our annual production capacity is planned to reach 360 thousand tons by next year. Our investment plans include new cold rolling lines, comprehensive modernization of existing lines, along with regenerative filtration systems improving efficiency and reducing emissions. With the installation of the five new casting lines in the next two years, Assan Alüminyum is forecasted to have the largest continuous casting capacity in all of Europe and America."

Hall 6, Stand A23  
www.assanaluminum.com/en



In the primary production area, Trimet is pursuing the goal of producing primary aluminium in a climate-neutral manner by 2045

## Trimet strengthens recycling business unit

# Trimet showcases material sustainability

Trimet Aluminium SE is presenting a wide range of services and material innovations for lightweight construction at the leading international trade fair ALUMINIUM 2022 in Düsseldorf.

The materials specialist places a special focus on the development of sophisticated aluminium alloys with a high recycled content for a range of applications that need to meet stringent requirements. The company offers rolled, extruded and casting alloys with new qualities, as well as existing alloys that have been ecologically upgraded. In addition, Trimet is aligning its product portfolio on the sustainability requirements of the processing industry. Minimizing CO2 emissions throughout the

entire product life cycle plays a key role here. For this reason, the family-owned company is further strengthening its Recycling division.

With the planned expansion and increase in personnel at the remelting plant in Gelsenkirchen, Trimet will significantly increase its production capacity for recycled aluminium. In the primary production area, the company is pursuing the goal of producing primary aluminium in a climate-neutral manner by 2045. In a research project, Trimet is developing inert furnace technology that will reduce CO2 emissions to zero during smelter electrolysis.

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Juries were convinced by particularly good user experience

## New user software from IMS receives iF Design Award

The "Mevi web" user software from IMS Messsysteme, Heiligenhaus, has received the iF Design Award.

Already crowned with the Red Dot Design Award in 2021, the „Mevi web“ human machine interface developed in-house recently received another prestigious honour in the form of the Industrie Forum Design.

„Mevi web“ is the name of the control and regulation software developed in-house by IMS Messsysteme GmbH, which is a logical further

development of the „Mevi net“ automation system that has proven itself over many years. The new HMI is based on the latest technology standards – focussing on the user and their individual requirements – and also takes into account the specific requirements and environmental conditions of the primary fields of application in rolling mills.

### Freely configurable software solution

As a logical consequence, „Mevi web“ is designed as a freely configurable software solution that can be programmed using

an HMI editor to meet specific customer and measuring system requirements. Operators of IMS measuring systems have a clearly structured overview of the most important analytical data of their measuring systems at all times on the modern-looking user interface.

Thanks to the modern information design and clear visual feedback of the status, the user has a precise overview of the status of the individual systems and can evaluate the extensive amounts of data quickly and easily. In addition, a fold-out control panel pro-

vides direct access to basic system functions so that the user can respond immediately to a changing system status.

### Advantages of the new user interface in practical use

Initial reports from users of the „Mevi web“ HMI for measurement, control, regulation and visualisation, and thus for quality management, have been positive and confirm the theoretical advantages of the new user interface in practical applications. Users particularly appreciate the speed and the browser-based, clear and variable pre-

sentation of data by the software, which, incidentally, can also be used on mobile devices.

Overall, the usability of the innovative „Mevi web“ control and regulation technology convinced the two independent juries and the first users alike with the following criteria:

- Use of the latest technologies (JavaScript, NodeJS, HTML5, CSS, JSON)
- Open communication with standardised, non-proprietary interfaces
- Large test coverage with unit tests, integration tests and simulation

- Platform-independent use of operating systems (Windows, Linux, ...)
- Standardised configuration tools & improved user experience
- Configuration via the web
- Use of smartphones and tablets is possible
- Modern appearance with different, customisable themes
- Clearly structured, user-friendly interface
- Extended functionality

**i** IMS Messsysteme  
Hall 3, Stand A54  
ims-gmbh.de

## The focus is on sustainability

**Rob van Gils, CEO HAI Hammerer Aluminium Industries**



Although we currently have to cope with a very volatile environment, we are very optimistic about the medium and long term. Aluminium is an enabler of the green deal, and the current high demand will continue to grow – whether in the area of renewable energy or in electromobility, which is gaining strong momentum and bringing high momentum to our business. Significantly more aluminium is used in an electric vehicle than in conventional vehicles with combustion engines. OEMs have reacted to the shortage of wire harnesses and microchips by reprioritizing supplies to electric projects.

In the short term, the Ukraine war is depressing sentiment. We are all feeling the consequences of the war – the conflict is drastically fuelling raw material and energy prices, and the prospect of possible supply stops for gas is not exactly positive. The Corona crisis, which has still not been resolved, is not helping planning security either. The

0-covid policy in China will continue to cause us disrupted supply chains. All these issues are challenges that we have to tackle in the short, medium and long term.

At HAI, we are 100 percent behind the Green Deal, but in Europe we have failed to equip ourselves strategically. A sustainable damage of the aluminium industry has to be avoided urgently – the way and the safeguarding of a level playing field (!) are essential for competitiveness (CBAM, carbon leakage).

Despite everything, the European aluminium industry is developing in the right direction. The expansion of renewable energy is going well – but needs to be much faster for a real energy transition. Another essential part of the solution is the expansion of aluminium recycling – both recyclable alloys and recyclable designs – to simplify the return and recycling processes.

**i** [www.hai-aluminium.com](http://www.hai-aluminium.com)

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# Novelis

## HAI: Sustainability strategy as a success factor

# SustainAl alloys – the green product line from HAI

The Austrian aluminum specialist Hammerer Aluminum Industries (HAI), Ranshofen, focuses on sustainability along the entire value chain: Sustainable corporate management, aluminum recycling, green sourcing and green energy as well as environmentally friendly processes form the pillars for this. With the new SustainAl alloys, which have a high recycled content, HAI offers its customers a "green" alternative to existing standard alloys.

The ambitious sustainability strategy makes HAI a pioneer in lightweight aluminum construction. By using an average of 80 percent recycled material and primary aluminum from certified production, which is generated entirely with electricity from renewable energies, the company is a pioneer in climate protection. "Our customers are pursuing ambitious emission targets. With our aluminum products, including sustainable performance, we are their strong partner in achieving

their goals – and that in all three sales areas - transport, industry and construction," emphasizes HAI CEO Rob van Gils the sustainable orientation of the group. "The HAI Group sees resource-saving management as a success factor in the course of the green transition and as a social responsibility in equal measure."

### Alloy variants SustainAl 2.0 and SustainAl 4.0

HAI's commitment to sustainable performance results in greatly demanded products. Since the beginning of 2021, HAI has been offering customers the opportunity to make a significant contribution to sustainable production in a simple and transparent way with the SustainAl 2.0 and SustainAl 4.0 alloy variants. "The quality properties of the surface and mechanical parameters of the alloys are conform to our classic products," explains Markus Schober, COO of the HAI Group, who has been involved with the topics of decarbonization and circular economy at HAI for many years. The carbon footprint of the SustainAl 2.0 and

SustainAl 4.0 alloys is well below the European average. Customers receive certificates for the tonnes of CO<sub>2</sub> saved with SustainAl compared to the European or global average per project or over the desired period. Thus, even customers who don't cover all their aluminum extrusion needs with SustainAl have the possibility to evaluate and market individual projects or simply to be able to demonstrate a transparent contribution to their sustainability strategy.

### Ecological balance

Since the demand for the new alloys is constantly growing, HAI has drawn up a life cycle assessment (LCA) for this purpose. According to this, the CO<sub>2</sub>e/to aluminum billets for the alloy HAI Standard amounts to approx. 4 to 6 tons, for HAI SustainAl 4.0 to a maximum of 4 tons and for HAI SustainAl 2.0 to a maximum of 2 tons. With the HAI SustainAl 2.0, HAI uses up to 80 percent recycled material. The HAI SustainAl 4.0 uses billets from selected external suppliers as well as our own aluminum billets. This enables HAI to offer



Markus Schober, COO HAI Group, Rob van Gils, CEO HAI Group

its customers sustainable products that do not have any technological disadvantages. "The entire capacity of the two foundries can be used to produce the sustainable alloys. We achieve high availability by using process and old scrap," explains Markus Schober. HAI does not promise a solution with a very high proportion of old scrap, which can then hardly be delivered or only in small quantities. On average in the EU, only 10-

20 percent of the recycling material is old scrap. We are convinced that sustainable aluminum alloys are also about high availability and an honest, reliable product. This is what our customers expect and it is precisely this solid, sustainable solution that we can deliver with SustainAl 2.0 and SustainAl 4.0."

HAI also goes "green" when it comes to the primary aluminum used. HAI last year contracted Century Aluminum to supply 150,000 tonnes of Natural Al aluminum over a five-year period, providing a primary product that was produced using 100 percent renewable energy.

### HAI relies on Green Energy

When it comes to energy supply, HAI is pursuing a consistent green electricity strategy, with which the company has already significantly improved its carbon footprint. By purchasing 100 percent CO<sub>2</sub>-neutral electricity from renewable energy sources, HAI is committed to the green energy revolution. At the two largest locations of the HAI Group, in Ranshofen in Austria and in Soest in Germany, the company has been relying exclusively on "green" electricity for two years. With this change,

around 21,000 tons of CO<sub>2</sub> could be saved in 2020 at these two locations alone. Since January 2021, the two Romanian locations have also been supplied with electricity from renewable energy sources.

The company locations are also used to generate environmentally friendly electricity. A photovoltaic system with a collector area of over 9,000 m<sup>2</sup> was installed on the roofs of HAI in Ranshofen. Further photovoltaic projects at other company locations are already in the starting blocks.

### Digitization

In order to map the processes and structures necessary for the sustainability strategy and future further growth, HAI is now relying on a digitization offensive. With 20 million euros, all processes along the value chain will be strengthened and optimized over the next four years.

### The HAI Group

Hammerer Aluminium Industries employs about 2,000 people. The company was founded in 2007 and has its headquarters in Ranshofen in Upper Austria as well as seven further locations in Germany, Romania and Poland. HAI can look back on a great success story. It combines dynamics and the innovative spirit of a young company with the experience of a traditional business. For 2022 HAI forecasts a turnover of about 950 million euros in the three production areas Casting (foundry), Extrusion and Processing (mechanical further processing). The products of the HAI Group can be found in the construction sector, automotive, transport and electrical engineering as well as mechanical and plant engineering.



By using an average of 80 percent recycled material and primary aluminum from certified production HAI is a pioneer in climate protection

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## SPS Group Austria – Customized solutions for the aluminum industry

SPS Group Austria has been offering customized solutions in the aluminum industry for years and has firmly established itself in the traditional extrusion sector.

Starting with material preparation, billets, sawing, over the entire profile and basket logistics up to fully automatic packaging systems, SPS has been

able to convince with innovative solutions for years and manages the constantly increasing demand for fully automatic constructions of complete aluminum assemblies. This significantly extends the value chain in the extrusion plant.

Fully automated loading of machine tools, testing equipment, as well as complete au-

tomated production lines round off the delivery spectrum and in E-mobility SPS is considered a strong partner. Thus, the extrusion plant is able to meet the constantly growing demand of automotive manufacturers for perfect automation.

The combined knowledge of the SPS Group ranges from the traditional extrusion busi-

ness to over 200 fully automated logistics solutions. From crane automation to profile transport with AGVs (automated guided vehicles), SPS is already developing the concepts for tomorrow, giving its customers a clear competitive edge.



Hall 1, Stand B51  
www.sps.at



APL- automated packing line

Photo: SPS

## Precise cut at the push of a button

There are many reasons to visit the ALUMINIUM trade fair in Düsseldorf. One of them is the b+s group, which will be demonstrating its expertise in the aluminum industry at its booth 3A08. The company will present a fully automatic slitting shear with impressive precision.

When it comes to cutting and straightening a wide variety of materials and the associated automation, customers trust the expertise of the b+s group. The family-owned company, which operates worldwide, emerged from Burghardt + Schmidt through the acquisition of well-known companies established on the global market. The existing portfolio of Burghardt + Schmidt is extended and expanded by products and solutions from Schnutz and b+s Automation in the field of straightening machines, strip feeding systems and automation technology. With the fully automatic slitting shear for aluminum coils, the b+s group



Fully automatic slitting shear with high precision

once again demonstrates its expertise in this metal processing discipline at the trade fair. Thanks to the automatic system, the shear can be easily and flexibly adjusted to new coil widths between 700 and 1,850 mm. As a result, the automatic slitting shear enables short setup times and fast format changes. With speeds of up to 250 m/min, it creates the basis for increasing throughput in production.

The automated adjustment system, together with the precise knives, meets the highest demands on the quality of the cut, as usual. The shear effortlessly cuts up to seven slit strips. Material thicknesses between 0.2 and 3 mm can be processed with ease.



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How a German Aluminium plate producer is on a worldwide solo attempt and sets new quality standards

# Especially now – Heat treatment without usage of (natural) gas

by Sebastian Ricken, General Manager, Gleich Aluminium Service-Center, Kaltenkirchen

The daily reports are countless. One of the biggest concerns of the German industry and its customers is reduced or even no availability of natural gas. Apart from heating of buildings Aluminium producers usually need natural gas for their heat treatment process. Therefore, natural gas is an extremely important component in the manufacturing process after casting. Electricity as alternative to natural gas is not wide spread, but it is tested and has been continuously improved over the last decades.

## Electricity as an alternative to natural gas

To understand the biggest advantage of electricity over natural gas in the heat treatment process, we have to have a look at the usual gas driven heat treatment process. This process was adapted from the Steel industry. Traditionally numerous Aluminium slabs at the same time are heat treated in gas driven batch furnaces. With the heat treatment a target oriented metal structure can be achieved that delivers mechanical properties to point and at the same time should guarantee a maximum of stress relief. Nevertheless, it is not only the heat input into the metal that makes a difference in the final product quality. It is necessary to know the material structure before starting heat treatment as well as knowing the precise temperature curves in every single part of the Aluminium slabs.

## Precise control of heat input

In the original operation area of gas driven batch furnaces – i.e. heat treatment of steel – difference in temperatures of 30 - 50 °C did not have big

influence on the final steel product. With heat treatment of Aluminium – depending on alloy – a temperature difference of 3 - 10 °C can already destroy volitional material properties, or at least those will be below the expectations. With heat treatment of Aluminium, it is mandatory to know the heat input every minute exactly to the degree. A natural flame that heats numerous Aluminium slabs in different positions in a batch furnace is very limited in that regard. This can be compared to baking cakes in your home oven without circulating air: if you were baking several cakes on different levels of your home oven at the same time, you would not expect them to be all the same quality after one hour of baking.

## Unique single-slab heat treatment

This is different with electricity driven furnaces for heat treatment of Aluminium slabs. Especially in a single slab process superior microstructure qualities can be achieved. The more machining you do on the semi-finished product made from those slabs the higher is its material superiority. Stress relief and outstanding microstructural homogeneity besides repro-



Aluminium slabs before heat treatment



Fully automatic plant for heat treatment at Gleich

ducibility slab by slab is the achieved goal. At Gleich Aluminium, not numerous Aluminium slabs (8 - 14 pc in a batch furnace) are heat-treated at the same time, but every single slab sits in an electricity driven furnace on its own. The whole system is computer operated and controlled. The temperature curves of each slab are continuously checked by Quality Control and therefore permanent, systematic and statistic quality is achieved. The heat treatment with this method can be set-up and controlled precisely each and every minute

to the degree. This is extremely efficient, delivers exactly the wanted microstructure, and results in superior mechanical properties. Of course, the chemical analysis of the slabs as well as the casting method is aligned to this single slab heat treatment. It guarantees that the unique single slab heat treatment process is able to achieve material superiority of the heat-treated slabs.

## Fully automated overall process at Gleich

In the cooling phase, the released thermal energy of the slabs will be used to pre-heat

cold slabs. The rejected heat of the furnaces will be used for heating the building and with this in sense of sustainability used twice. A direct independence from fossil fuels like natural gas can be achieved also in a high industrial process. Thinking a bit further the geographic location of Gleich Aluminium in the very north of Germany in between North Sea and Baltic-Sea offers great perspectives for the future. For sure, wind power will become an even bigger part of environmentally friendly energy production directly in front of our factory. In other words, the glossy silver Gleich Aluminium will see a green touch in the near future.

In the end, there is for sure one question to be posed: Why is only Gleich Aluminium following the way of electricity driven heat treatment and all producers remain gas driven?

The answer can be found in a fully automated total process, as well as in the absolute quality commitment of the traditional-conscious family business.

The electricity driven heat treatment was the best way to highest material quality, but unfortunately in the beginning also the most expensive one. As a result, the overall production process needed to be updated and automated to absorb those extra costs and make the resulting products competitive. Gleich Aluminium today has fully automated the majority of plant sections, which more or less work self-governed.

## New challenges to secure the supply chain

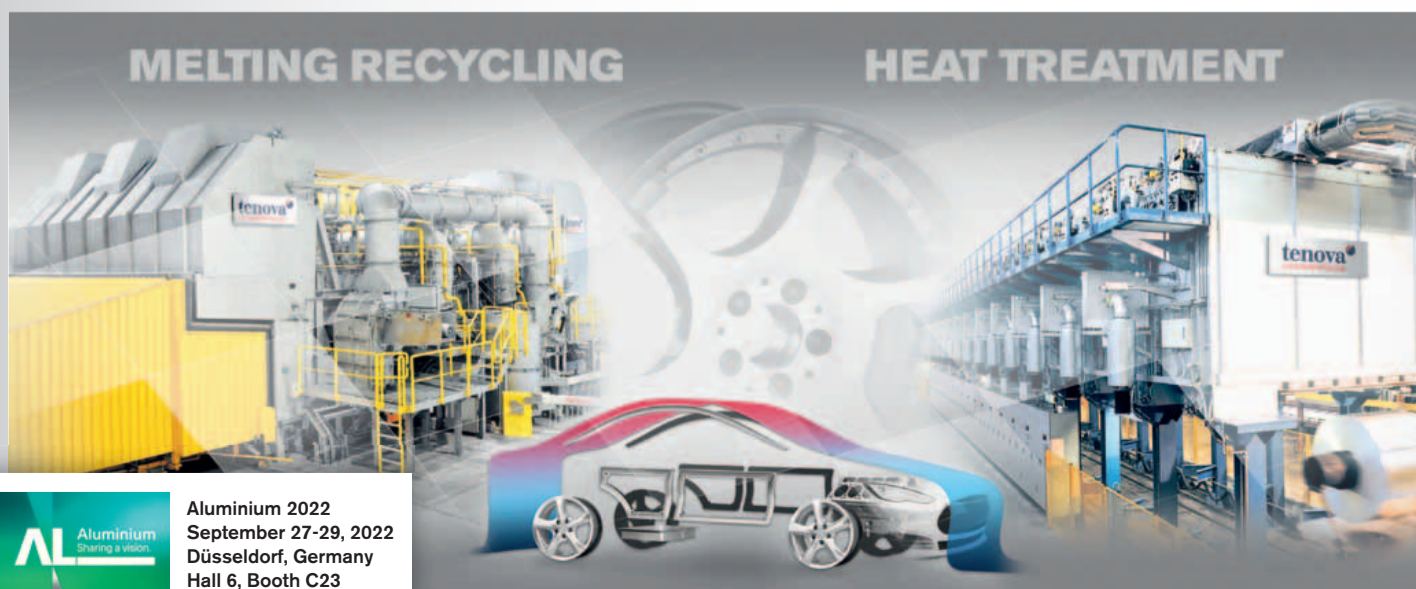
Looking for a cheaper way of implementing an in-house heat treatment, gas driven furnaces traditionally offered a feasible solution, even at the expense of superior quality. The current worldwide development questions this traditional approach more and more. Imminent shortages lead to new challenges to secure the supply chains of all industrial sectors. Gleich Aluminium faces these challenges with its own way.



[www.gleich.de](http://www.gleich.de)

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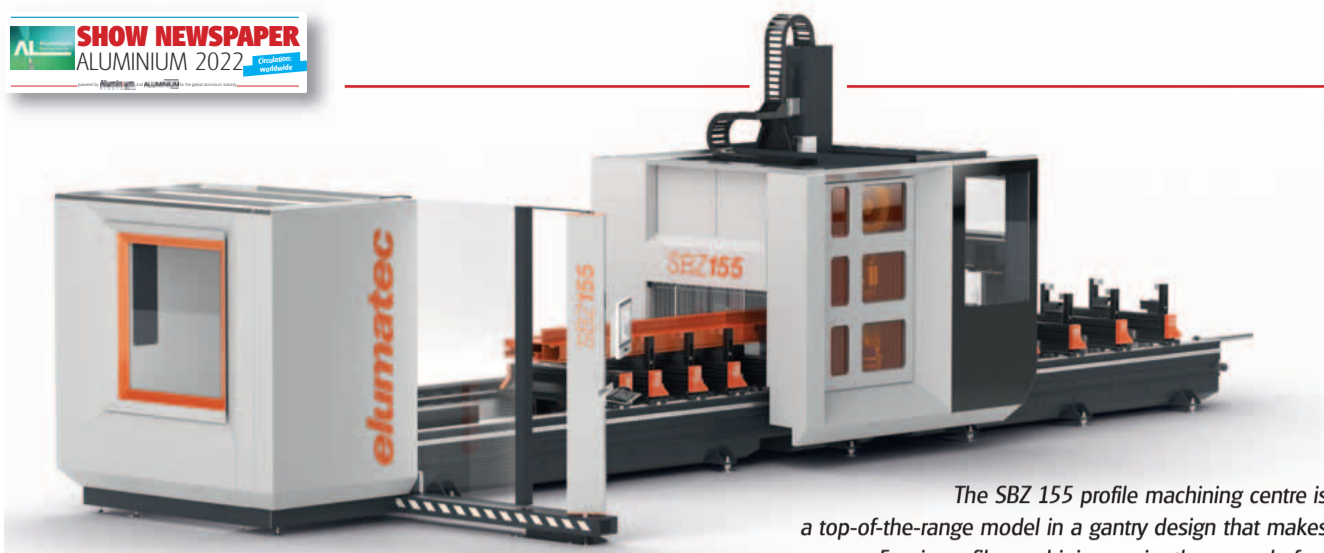
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The SBZ 155 profile machining centre is a top-of-the-range model in a gantry design that makes 5-axis profile machining easier than ever before

**Faster, more compact, more flexible**

## The elumatec SBZ 155 points the way to the future of automated CNC machining of aluminium profiles

The new top-of-the-range model from elumatec is a breakthrough: as the first 5-axis machine in a gantry design, the SBZ 155 profile machining centre raises the bar for automated CNC machining of aluminium and thin-walled steel profiles. With better performance than ever before and designed entirely to meet customer needs, elumatec customers can accelerate their processes and open up new business segments. The machine is expected to be available from Q1/2023.

Our new top-of-the-range model gives industrial and metal construction customers a clear competitive edge," says elumatec CEO Paolo F. Bianchi. One example is the tool changeover times of the SBZ 155, which are minimised by the high rates of travel of the servo axes to guarantee optimum machining cycles. Customisable equipment options give customers maximum flexibility to make their production processes even more efficient, and optional features include 6-sided machining from below with an angle head and the space-saving gantry drive.

The SBZ 155 will be a particular asset for businesses which are thinking big in every sense: its large on-board magazines can be equipped with 14 standard tools, and depend-

ing on the individual configuration, up to six special tools and two 200 or 550 mm diameter saw blades can be used. A gantry design and a machining area divided into two zones allow profiles with cross-sections of up to 1,000 x 380 mm to be picked up and passed through, as well as flexible working in shuttle mode. Overall, the SBZ 155 delivers extremely precise machining results even at high rates of travel, while its RPM-regulated spindle ensures high process reliability even with quickly changing loads.

Whether it's automatic length measurement on both sides, tool length measurement, fracture detection or a barcode scanner, the SBZ 155 covers all the specific needs of customers – plus it's eluCloud ready in order to meet the requirements of Industry 4.0. "It's future-proof and powerful with a clever design that offers flexibility – that's what a successful model needs", says Bianchi.

### More benefits of the SBZ 155 at a glance:

- All operations, such as routing, drilling, tapping, thread milling, notching and sawing, are performed while the profile bar is stationary to protect the profile surfaces
- Fast positioning of the machining unit with up to 100 m/min thanks to dynamic servo drives

- Autonomous clamp positioning with absolute measurement system
- Two separate working zones enable machining in shuttle operation. Secure access thanks to protective side fences, light barriers and a central area protection system using lasers
- 5-axis CNC control with independent CNC for 3D machining, notching and cutting
- The absolute rotary encoder system means no axis homing is required
- Remote online maintenance
- Low power consumption thanks to intelligent control technology



Elumatec  
Hall 5, Stand A30  
[www.elumatec.com](http://www.elumatec.com)

### About elumatec AG

elumatec AG, part of the Italian Voilap Holding group, is one of the leading global manufacturers and providers of machines for machining aluminium, PVC and steel profiles in the premium market segment. With its extensive product range, elumatec covers the entire spectrum of applications – from small craftsman's businesses to industrial profile processors. Custom-designed and modu-

lar machinery concepts provide flexible and individual industry solutions for all groups of customers. The company, which is headquartered in the Swabian town of Mühlacker and was founded in 1928, has subsidiaries and dealers in more than 50 countries, employs about 700 people worldwide and achieved consolidated sales of over 125 million euros in 2021.

## Aluminum tubes – Product of the Future

Bültmann GmbH, at its location in Neuenrade, Sauerland, is an owner-run family business with its main focus on the manufacture of bar and tube mill machinery. As market leader in the fields of "Drawing, Straightening and Peeling" Bültmann mainly deliver their machinery to customers of the semi-product industry all over the world. The services include the initial planning, engineering, construction, assembly and also turnkey deliveries. On-site commissioning and after-sales service for the equipment are part of the scope of supply.

The increasing demand for aluminum tubes as a result of consistent lightweight construction is also evident in the order situation for straightening machines. As a result of the growing demand for peeling and drawing machines, two additional tube straightening machines were recently delivered to a US customer with subsidiaries in the EU.

The two machines of the type RRM 10/032 and RRM 10/150 are the supplement for the type RRM 10/350; already delivered in the past. Both machines, which cover tube diameter ranges of 4.8 – 152 mm with wall thicknesses of 0.5 – 13.5 mm and lengths of 5 – 13.5 m, are 10-roll straighteners, equipped with corresponding charging and discharging handling systems as well as straightness measuring devices.

Allen Bradley machine controls were installed here at the request of the customer, which was designed and executed by Bültmann's in-house electrical department.

The required alignment accuracy < 0.2 mm/m is of course reliably achieved, which was verified by the successful machine acceptance.



Bültmann  
Hall 1, Stand E51  
[www.bueltmann.com](http://www.bueltmann.com)



Today for straightening of precision tubes mainly 10-roll straightening machines are used

Photos: elumatec AG, Mühlacker, Germany



The gantry design means the SBZ 155 can machine large-volume profiles of up to 1,000 x 380 mm

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Interview with Jürgen Kreutzer, Managing Partner of Reimann

# Innovations in furnace renovation: conversion of existing systems to electric heating

For almost 50 years, Reimann GmbH has stood for industrial solutions in the steel, aluminum and energy sectors. In just under 10 years, owner and managing director Jürgen Kreutzer shaped the medium-sized company from a steel constructor into an industrial manufacturer that handles complex projects for multinational corporations. The family business specializes in the renovation of industrial furnaces.

In our interview, we talk to the managing partner of Reimann GmbH, Jürgen Kreutzer, about the electrical heating of industrial furnaces, which is gaining increasing momentum as part of the renovation of existing furnace systems.

**APR:** Mr. Kreutzer, moving away from natural gas as an energy source has become a top priority. How do you assess the situation?

**Jürgen Kreutzer:** We are currently experiencing a significant acceleration of the energy transition. In addition to energy efficiency, the move away from natural gas as an energy source has become even more of a priority against the backdrop of the Russia-Ukraine war. In this respect, furnace renovation is of immense importance, because it is no longer just a matter of refurbishing insulation or other important components

of a furnace, such as furnace lids, but in particular the electrical heating system.

**APR:** What measures have typically been taken to increase energy efficiency?

**Jürgen Kreutzer:** Europe's leading industrial furnace manufacturers and operators have already implemented many modernizations in the areas of insulation, waste heat recovery and heating systems. Because if we assume that a good two thirds of final energy consumption is used for process heat, i.e. for operational performance, and only a quarter of final energy consumption is used for operating machines and motors, then the energy consumption of a modern plant can be significantly lower than that of an old model.

**APR:** In what way are the plants currently heated?

**Jürgen Kreutzer:** The vast majority of thermoprocessing plants in the aluminum industry are currently heated with natural gas. Heating furnaces to temperatures ranging from approx. 200 °C (aging) to approx. 1,200 °C (melting) is extremely energy-intensive.

**APR:** As is well known, the burner technology is the heart of an industrial furnace. So if the heating method is changed, do you also replace the burner technology as part of the renovation?



Jürgen Kreutzer  
**"We are currently experiencing a significant acceleration of the energy transition."**

**Jürgen Kreutzer:** Yes, we offer our customers a full service from a single source. In any case, new burner technologies are usually also required for the plants as part of the renovation work. This is because burners that no longer work

optimally impair the safety, efficiency and trouble-free operation of the plant. Older burners in particular are often difficult to maintain, as spare parts may no longer be available or may be difficult to obtain. In this respect, we consider the conversion to electric heating to be part of a comprehensive renovation of an industrial furnace.

**APR:** What solutions are there for the electric heating of industrial furnaces?

**Jürgen Kreutzer:** Replacing or significantly saving natural gas as an energy source requires new, innovative ways of heating thermoprocessing equipment. There are already various approaches for the use of alternative energy sources, be it through adapted burners, or through the use of different heat exchangers and flow technologies to be able to use waste heat in the process. However, many processes can also be electrified directly.

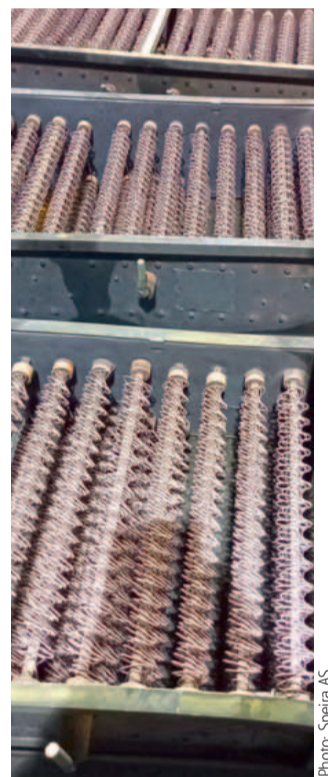
In aluminum foundries, for example, inductive melting and homogenization in resistance-heated furnaces are examples, but resistance-heated die heating and aging furnaces as well as billet heating furnaces with inductive heating are also already in widespread use in aluminum extrusion plants due to very good temperature control. We expect electric process heat generation, and in particular resistance heating, to play a deci-

sive role in modernizations and new plants in the near future.

**APR:** Reimann GmbH has added conversion to electric heating to its portfolio. What technology do you use for your customers?

**Jürgen Kreutzer:** We currently offer our customers resistance heating as a possible solution and assume that electrical process heat generation, and in particular resistance heating, will soon play a decisive role in modernizations and new plants. Among other things, it is planned to train selected employees in the processing, especially welding, of metallic heating conductor materials.

Reimann GmbH  
 Hall 7A, Stand D08  
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Resistance heating register of an ingot pusher-type furnace dismantled for refurbishment



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"A promise kept"

# Presezzi's ZPE billet oven technology

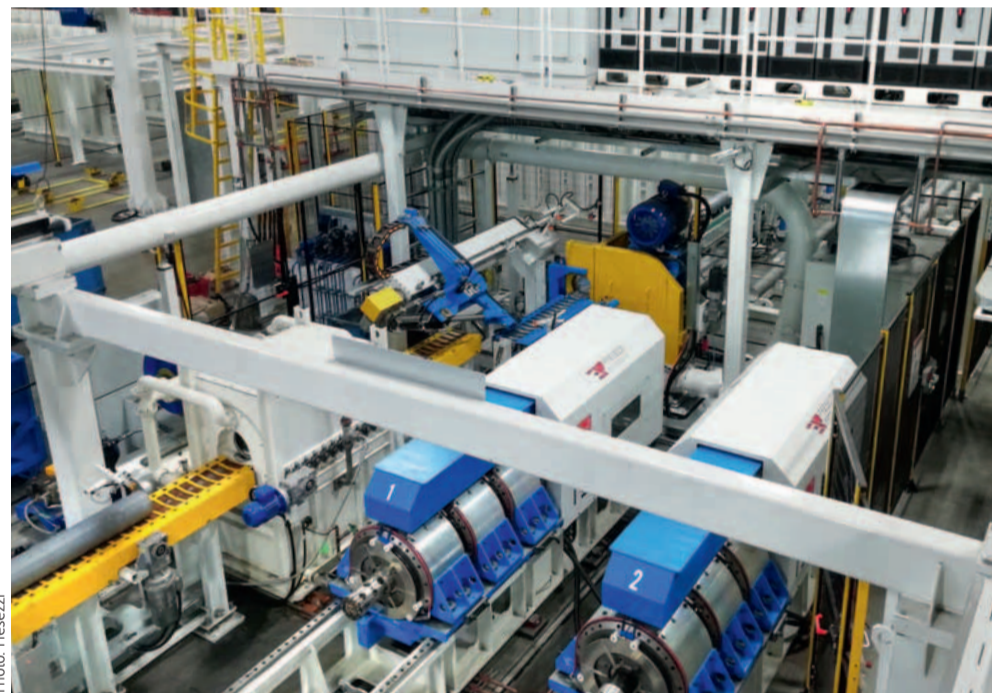
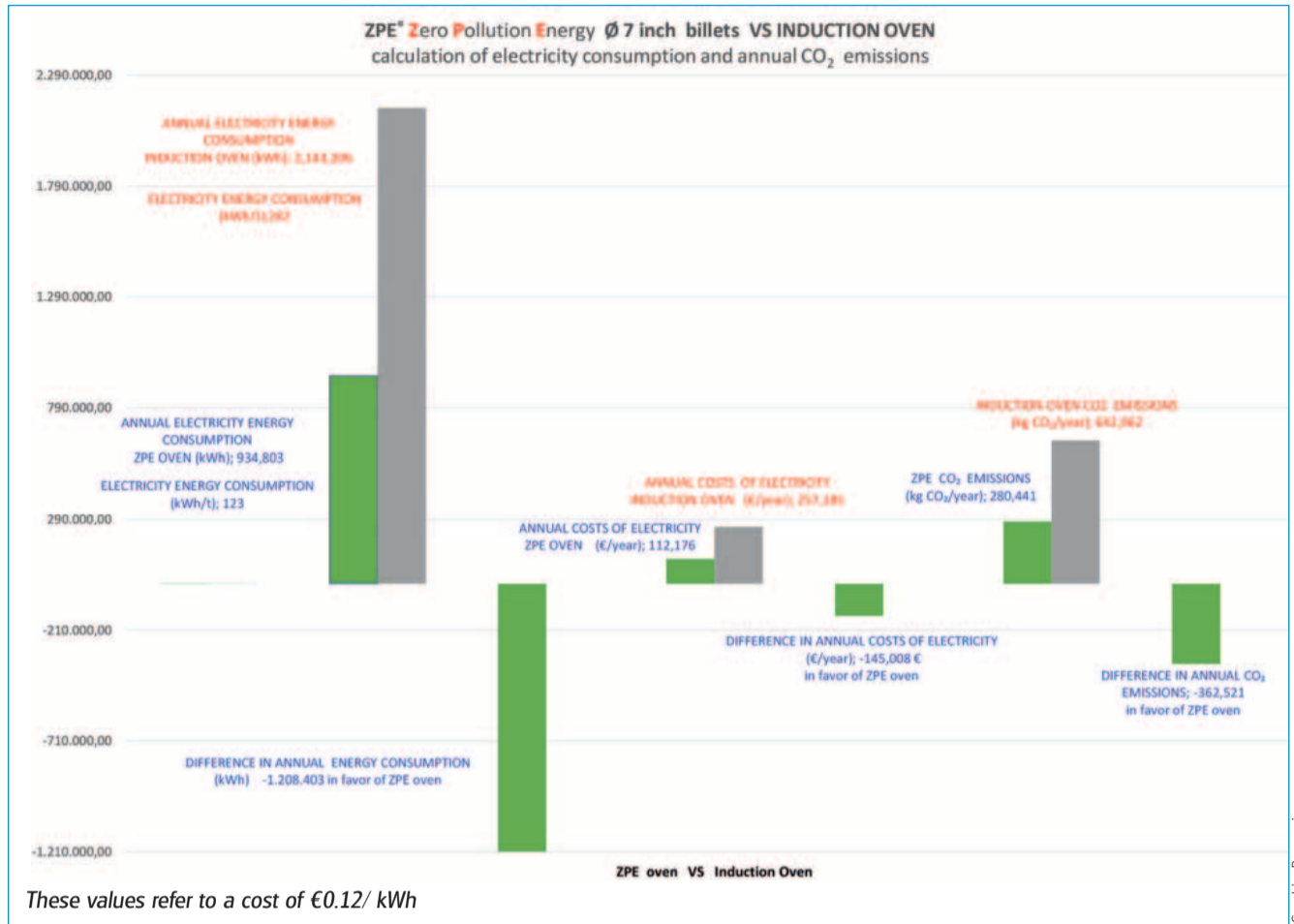
In 2015 Presezzi Extrusion promised its Japanese customer who bought the very first ZPE Zero Pollution Energy billet oven that it would guarantee considerable energy savings, accurate billet homogenization and perfect tapering. And so it was. "Our promise has been kept," says Valerio Presezzi, president of Presezzi Extrusion Group.

The ZPE technology is an innovative and for many revolutionary billet heating system based on the principle using permanent magnets. Thanks to various improvements, the project has achieved

an excellent level of operational control since 2015. Even though it is suitable for heating any alloy, it is finding its main application in the production of profiles for the demanding automotive industry.

The system offered manages the process right from the log-loading table to the introduction of the billet into the press, going from a cutting line that is fast and safe, ensuring repeatability and cut precision. An optional system for accurate temperature control completes the line. The system is fully integrated and completely automated; there is no operator required.

Presezzi highlights that the quality that can be achieved is



ZPE Zero Pollution Energy billet oven

excellent, but the most striking fact is the very high energy savings together with a significant reduction in CO<sub>2</sub> emissions, as shown in the diagram comparing the same production values obtained by the customer using the ZPE oven with the parameters obtained with a traditional inductor system, both producing with 7-inch billets.

"We leave the technical specialists from the sector to draw their own conclusions, both in terms of the production values and annual energy savings which can be obtained, on how important it has been to have maintained the promise we made in 2015," says Valerio Presezzi.

The ZPE Zero Pollution Energy system is easy to install, does not require any founda-

tions or elaborate cooling stations, pumps, tanks, heat exchangers, high or medium power transformers, insulation testers, capacitor banks, etc. None of these items are necessary, which result in significant cost savings which would otherwise be caused by corresponding indirect investments.

Thanks to the simple installation the ZPE project is perfect as a replacement of traditional induction ovens, "making them more or less obsolete and in any case uneconomical with their high energy consumption rates and high maintenance costs," according to Presezzi. In fact, for each unit replaced, components such as cooling units, transformers, wiring, filtration,

pumps and piping can also be eliminated. And maintenance is significantly reduced too.

"With our ZPE Zero Pollution Energy system we are ready to fulfil all our promises regarding performance and reliability. For each of our customers, one last but not least aspect is the respect for the environment, where in this case the green concept fits in perfectly with the ZPE technology. Green technology means not only producing clean energy, but it also entails saving as much energy as possible to grant the same production values," concludes Valerio Presezzi.

**i** Presezzi Extrusion  
Hall 1, Stand D13  
[www.presezziextrusiongroup.com](http://www.presezziextrusiongroup.com)

ADVERTORIAL

## ETEM Gestamp: Sustainable manufacturing of profiles for the automotive sector and industry

In April 2019, the Viohalco Group (listed in the Belgian Stock exchange) as the Holding Company of the Aluminium Extrusion supplier ETEM has established together with the Spanish automotive supplier Gestamp a joint venture. The joint organization, ETEM Gestamp, with 50 years of knowhow in aluminium extrusion, produces fully machined automotive profiles. ETEM Gestamp is focusing on the production of machined extruded profiles for components and structural systems in the automotive industry. The primary areas of application are battery housings, chassis and body in white. The company is also producing a range of products for industrial use. The joint venture currently employs 500 people.

ETEM Gestamp's Sofia production facility operates four extrusion presses with an annual capacity of around 40,000 tons of profiles a year, depending on the product mix.



Processing extruded profiles in Sofia

Investments in new extrusion presses and the continuous modernization of existing presses ensure that the quality meets the stringent requirements of served industries. A new extrusion line and new machines for the further processing of aluminium profiles have already been installed in Sofia plant while further investments are already under implementation in conjunction with major lifetime orders from automotive OEMs and Tier 1 suppliers leading to important sales growth.

ETEM Gestamp is a key player in the vehicle electrification and light weighing. The company is currently manufacturing longitudinal and cross members for the new battery housings of fully electrified vehicles. With a focus on

performance and sustainability, Etem Gestamp continuously develops extrudable aluminium alloy materials of high strength meant for high performance combined with weight reduction. Outstanding crash properties, heat resistance and a specific heat conduction profile ensure, among other things, that the battery of the electric car remains completely protected in the event of a crash. Lower car weight ensures longer range with the same amount of electricity consumed thus reducing the vehicle's carbon footprint.

ETEM Gestamp cares for the environment and remains

dedicated to actions that will ensure sustainability and a positive impact on the local and global communities. As part of its ESG strategy, the company recently signed a ten-year power purchase agreement (PPA) with Bulgarian renewable energy investor "Private Equity Fund-Growth" for 4 GWh of solar energy per year. Integrating solar energy is ETEM Gestamp's next step towards more sustainable aluminium production with facilities switching to renewable power.

**i** ETEM Gestamp  
[www.etemgestamp.com](http://www.etemgestamp.com)  
Hall 3, Stand D68



## Innovative, pioneering technologies

# Smart Solutions for a green, lean, and digital future

Achenbach is known worldwide as the specialist for rolling and slitting technology to produce aluminium flat rolled products at the highest quality level. With the commitment "Green.Lean.Digital" Achenbach is setting clear signals towards the future challenges of the aluminium industry.

On the one hand, this involves innovative, pioneering technologies, that are equally demanding in terms of sustainability and profitability. Specifically, Achenbach has recently developed numerous components in the rolling mill sector, which are increasingly being used by customers in the context of new orders and in the course of modernizations.

These include, for example, the energy-efficient fume exhaust hoods, the "Achenbach UniHeat Advanced Hot Edge System" for inductive strip edge heating or the new direct drive technology "Achenbach UniTorque" and not least the accompanying "Achenbach Optipure Media systems" serving the energy-optimized separation, recovery, and regeneration of the rolling oil. They show that sustainability and productivity are no longer considered opposites, but rather increasingly mutually dependent.

With the goal of achieving a sustainable optimum for the customer, it is not enough to supply first-class stand-alone systems. With its integrative approach, Achenbach focusses on improving the customer's

entire production process through all stages of the value chain hereby identifying savings potential as well as consistently minimising waste. With this in mind, new customers in particular are increasingly opting for the total solution from Buschhütten. On the Indian market alone, Achenbach has received eight orders for new "Achenbach Smart Plants" with rolling and slitting technology since 2019. Especially for complex production plants in the battery foil sector, Achenbach's integrative solution approach is perfectly suited to meet the highest quality demands of the end product as well as the requirements in terms of sustainability and productivity. Europe's largest battery foil production, which went into operation at

the beginning of this year, is a benchmark for this. Two further Achenbach rolling lines especially for the production of battery foil in China started production last year. A greenfield production plant for the manufacture of battery cathode foil will also be built in the USA with technology from Achenbach.

The decisive factor regarding production optimization – making sustainable results possible in the first place – is the cloud-based analysis system "Achenbach Optilink". By systematically recording machine data from various sources across the process chain and extracting valuable information on the entire production process from it, the customer benefits not only from the most efficient production possible, but also



Achenbach Smart Plant for battery foil production

from a relevant reduction in energy and resource consumption. "With Optilink Energy Monitoring, we can make a major contribution to greener aluminium by monitoring and optimizing energy use in relation to a single coil," says André E. Barten, President & CEO of Achenbach.

With Green.Lean.Digital, Achenbach is presenting its smart solutions in terms of a green, lean and digital future at this year's Aluminium Trade Fair. Here, visitors will also get

a first impression of the new corporate design, also an expression of Achenbach's further development into a provider of sustainable future concepts. Customers, business partners and interested visitors are cordially invited to visit the stand and in particular to a get-together on the second day of the trade fair (28 September, 4 pm) for personal networking.



Achenbach  
Hall 3, Stand E13  
[www.achenbach.de](http://www.achenbach.de)

## Saw-robot combination from IMA Schelling

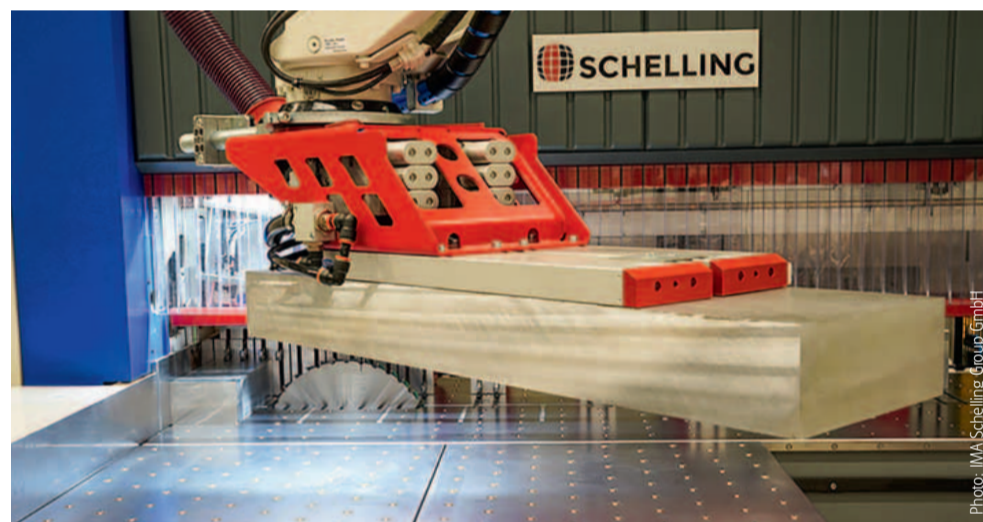
# Fully automated efficiency

IMA Schelling Precision combines a panel-sizing saw for aluminum with a handling robot. This increases cutting efficiency enormously: users achieve higher throughput with lower manpower and energy requirements. The robot automatically stores residual panels, and material remnants are disposed of according to type.

IMA Schelling Precision has developed a highly productive system for cutting aluminum plates. It is based on a manual panel-sizing saw of the fm-series in combination with an articulated-arm robot and a manipulation surface with air cushions. Together they form a fully automated solution for cutting aluminum sheets. The robot takes over the feeding

and handling of the aluminum plates at the saw, the stacking of the blanks and the removal of the remnants. This solution impresses with high productivity – but also with efficient use of resources of all kinds.

Thanks to the high degree of automation, the system works without any operating personnel. A machine operator previously employed at the saw can thus be efficiently deployed in other areas. The advantage of this automation solution is most apparent in the cutting of small parts. This takes a lot of time, even when relatively small quantities of material are being processed. The robot enables the system to perform this task unattended, for example on a night shift or ghost shift. The material residues are disposed of by a specially designed



By automatically handling the workpieces, the articulated arm robot turns the manual saw into an automated processing cell

disposal system. This sorts them by type into disposal containers according to the alloys. The robot can be used universally for handling tasks. During non-productive or downtimes, it can take over other tasks, thus freeing up further resources.

The high efficiency of this system is also reflected in the

reduced energy requirements. The control system adapts the energy consumption of the electric motors to the current operating status. During long cuts, it reduces the compressed air supply to the air cushion. During non-productive times, the motors are reduced to a minimum speed, but not switched off.

This avoids the high power requirements of powerful drive motors when ramping up from standstill. In this way, energy is only used in this automatic cell when it serves productivity.



IMA Schelling  
Halle 3, Stand E22  
[www.imaschelling.com](http://www.imaschelling.com)

## Normality returns back

Thomas Reuther,  
Member of the Board,  
Trimet Aluminium



The entire value chain in the aluminium industry is facing enormous changes. For example, the call for CO<sub>2</sub>-free products is becoming louder and louder. As a local producer, Trimet is facing up to these challenges and began gearing its production to them years ago.

ALUMINIUM offers us an excellent platform to jointly address future requirements with our partners from different manufacturing levels – cleanly, safely and sustainably.

In addition to the production of primary aluminium, recycling is also playing an increasingly important role when we talk about CO<sub>2</sub>-free aluminum products. "Design for recycling" is the keyword here – in other words, product design that takes full recycling into account.

Only then can the circular economy really function economically and ecologically. For us at Trimet, this is an important stage on the way to CO<sub>2</sub>-free production of aluminium by 2045.



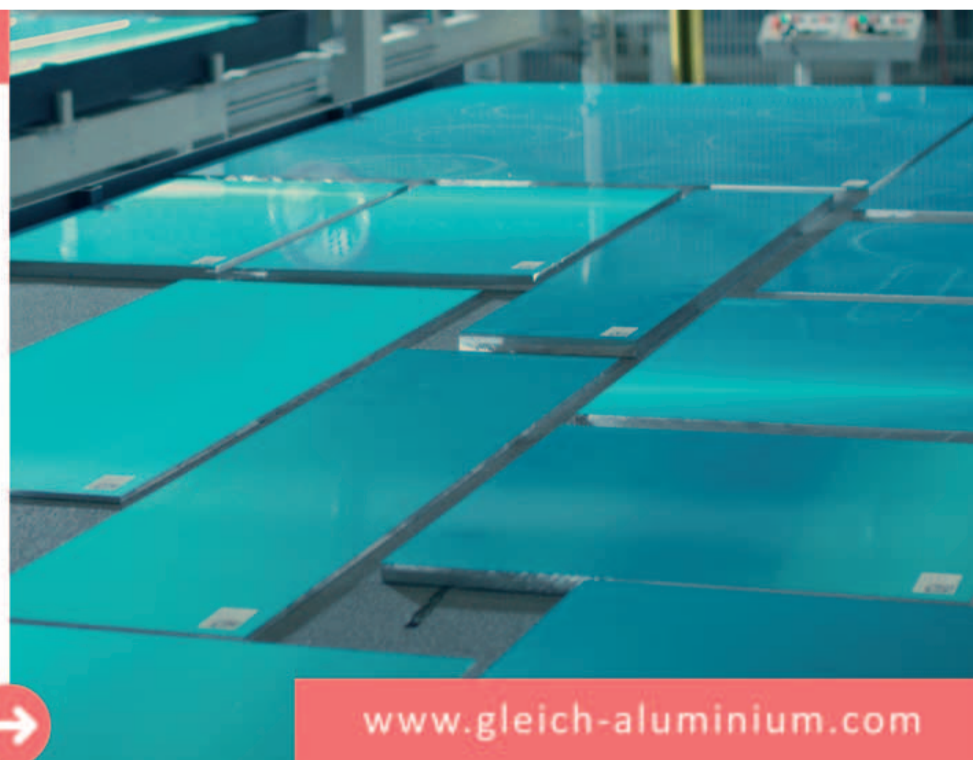
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Plants for the recycling of Aluminium scrap as well as heat treatment for several applications represent technologies of Tenova LOI Thermprocess; their excellence proving LOI to be the leading international supplier for the Aluminium industry. Moreover, Tenova LOI Thermprocess distinguishes itself with the sophisticated process technology for the plants and the integrated automation of both the entire production process and the handling of the heating good.

Offering complete facilities for the recycling of Aluminium scrap and the heat treatment of cast and forged parts, strips and foils, Tenova LOI Thermprocess provides innovative and efficient thermal process and plant engineering in the process cycle of recycling, melting and heat treatment.

The decarbonisation of processes and plants, e.g. by H<sub>2</sub>-ready combustion systems or electrical heating systems, is applied by us in practical, industrial scale.

### Melting, Casting and Recycling Plants

The strength of innovation is particularly evident for the TCF Twin-Chamber Melting Furnace. High metal yield, energy efficiency and environmental compatibility characterize these plants.

Contaminated end-of-life scrap of various origins can be recycled without pre-treatment since the entire contamination treatment takes place within the plant. The integrated waste gas treatment ensures safe and efficient combustion of pollutants. The TCF is equipped with LOI's regenerator system CCR, providing an optimum heat recovery from the waste

gas. CCR guarantees the rapid quenching of the waste gas required for environmental compatibility. Due to the very low waste gas temperature, no additional cooling upstream the filter system is needed.

The application of the proven contamination treatment process for single chamber Melting furnaces allows for a cost-effective solution for recycling of lower contaminated scraps.

Successfully applied by the Aluminium industry throughout the world, the LOI Thermprocess recycling technology TCF currently produces a total of approx. 5,000 tons of liquid metal from Aluminium scrap every day.

### al-loi Heat Treatment

The innovative strength of Tenova LOI Thermprocess is also the basis for the concepts of heat treatment plants. The pioneering process technology im-

plemented therein is made available to Aluminium processing companies. The combination of highest temperature uniformity, uniform heating of the construction components, a perfect process and batch control as well as production planning comprises all essential features of today's heat treatment 4.0. Quenching concepts applicable to the requirements of individual components and complete batches as well as the integrated fully automatic control systems are indispensable for the ground-breaking plant flexibility. Furthermore, the energy source can be selected flexibly and sustainably – whether with highly efficient burner systems, as purely electric heating or as hybrid heating - the design is individually adapted to current and future requirements.

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## Aluminium EERC Algorithm

# Pyrometric temperature measurement using the new EERC algorithm during the extrusion of aluminium profiles

Author: Dipl.-Ing. Albert Book, Keller HCW GmbH

The correct measurement of the profile temperature is a prerequisite for the control of the optimum extrusion speed and therefore for the efficiency of the plant when extruding aluminium. A sporadic contact measurement by means of a penetration probe is to be considered unsuitable for dynamic control.

Therefore, pyrometers are used for this measuring task, which record the heat radiation of the profile at the press exit in milliseconds and from a safe distance. Because of the special radiation properties of aluminium, standard pyrometers can only be used to a limited extent. In order to achieve reliable measured values even when producing profiles with different alloys and surfaces, Keller ITS developed an extended emissivity ratio algorithm, shortly called EERC. The report shows the limits of previous measuring methods and explains the function and advantages of the new EERC algorithm.

### Importance of temperature in the production of aluminium profiles

In the production of aluminium profiles, temperature is of great importance in the individual process steps (Fig. 1). In addition to the temperature of the billet (1), the die (4) and the profile after quenching (3), the temperature of the profile at the exit of the press (2) plays a decisive role in the choice of production parameters.

The extrusion of aluminium is a complex process in terms of heat. Especially in the direct extrusion process, in which the heated aluminium billet is pressed through a die, frictional heat is generated. As a result,

there is a temperature rise from the beginning to the end of the strand. The inhomogeneity can influence the grain structure and the metallic structure and consequently the subsequent workability. If the billet temperature is too cold, the die of the extrusion press wears out faster. This leads to a change in the dimensions of the profile. For the reasons mentioned, the precise recording of the temperature at the exit of the extruder is decisive for controlling the extrusion speed, with the aim of minimising process fluctuations over the length of the profile and maximising efficiency and output.

### Measuring the profile temperature by means of contact probes

So far, the usual method for measuring the temperature of the profiles has been to use contact-based surface probes that are placed on the strand for several seconds in order to record the measured values. In addition to safety concerns due to manual measurement, another disadvantage is that the measurement can only be carried out sporadically and not continuously. In this way, no automatic control of the press speed can be realised. Furthermore, the surface of the profile is damaged by the contact probe, so that this profile piece has to be sorted out. The lifetime of the measuring tips, which are subject to wear, is limited and causes regular consumption costs.

### Infrared temperature measurement during the extrusion of aluminium

In contrast to measurement by surface probes, pyrometers optically detect the infrared radiation of the measured object in milliseconds and from a safe distance and determine the tem-

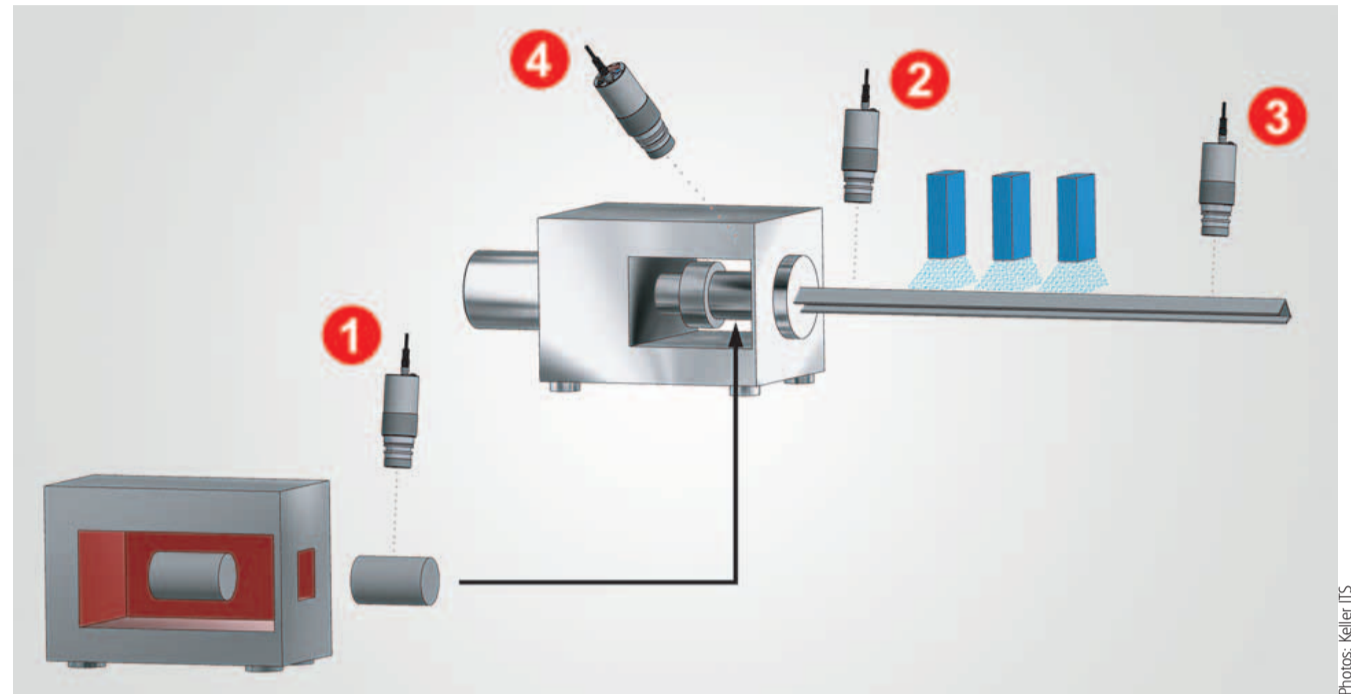


Fig. 1: Temperature measuring points during the extrusion of aluminium profiles

perature from this. The temperature of the aluminium profile at the press exit is measured continuously and can therefore be used as a control variable for the pressing speed. Damage to the surface is excluded with this non-contact measuring method. The measurement does not produce any scrap and no consumption costs are caused. Therefore, infrared temperature measurement is the ideal measuring method for the measurement after extrusion. However, the optical temperature measurement of aluminium is a demanding measuring task and involves some special features.

### Special features of heat radiation of aluminium

Aluminium alloys are extremely poor heat emitters. The emissivity, i.e. the ability of an object to emit infrared radiation, is sometimes only 10 percent (%). Without a correction of the emissivity, a band radiation pyrometer at an extrusion temperature of 500 °C will only indicate a measured value of approx. 350 °C. For a correct tem-

perature measurement, the emissivity must therefore be taken into account and adjusted on the pyrometer.

With an emissivity of 10 %, the reflectivity is 90 %. If there are hot objects in the close surrounding of the unit, a pyrometer would also detect the reflected ambient radiation. It is therefore absolutely essential to ensure that any extraneous radiation from the measuring environment is shaded out.

With different aluminium alloys and profile surfaces, the emissivity may vary considerably. For example, at a profile temperature of 500 °C, a pyrometer will show a deviation of approx. 47 °C if the emissivity changes from 10 % to 20 % due to a profile change. In practice, single-channel pyrometers therefore only provide useful measurement results under constant production conditions, i.e. the same alloys and profiles.

The two-colour measuring method was developed more than 40 years ago to compensate for emissivity fluctuations. The quotient is formed from the

infrared radiation measured at two different wavelengths. This is proportional to the object temperature. As long as the emissivity of the measured object changes in the same ratio in both measuring channels, i.e. it is a "grey body" (Fig. 2), a ratio pyrometer determines the correct temperature even if the emissivity fluctuates.

However, aluminium is a so-called "non-grey body" (Fig. 2). Therefore, the emissivity ratio of the two measuring channels can also change with different alloys or surfaces. A conventional two-colour pyrometer can react to a change of material with quite considerable measuring deviations and is therefore only suitable to a limited extent for measuring aluminium profiles at the press exit.

### Influence of the geometry of the profiles during optical temperature measurement

Very different profile geometries are sometimes produced on an extrusion press (Fig. 3). Depending on the profile, the mea-

suring field of the pyrometer can be aligned on the smooth surface or in a recess. In case of a recess, multiple reflections lead to an "artificial" increase in emissivity. A pyrometer then shows a significantly higher measured value with an unchanged emissivity setting.

### Function and limitations of multichannel pyrometers

In the 1980s, multi-channel pyrometers were developed to compensate for the interference caused by the emissivity. The infrared radiation is detected at up to 4 wavelengths and the temperature is calculated from this. In the pyrometer, a disc with 4 openings in which different filters are installed rotates in front of the probe. In this way, the radiation is measured at the corresponding wavelengths one after the other. In combination with the movement of the aluminium profile, there is always a temporal and local offset in the detection of the different measurement signals. Compared to conventional ratio pyrometers, the devices

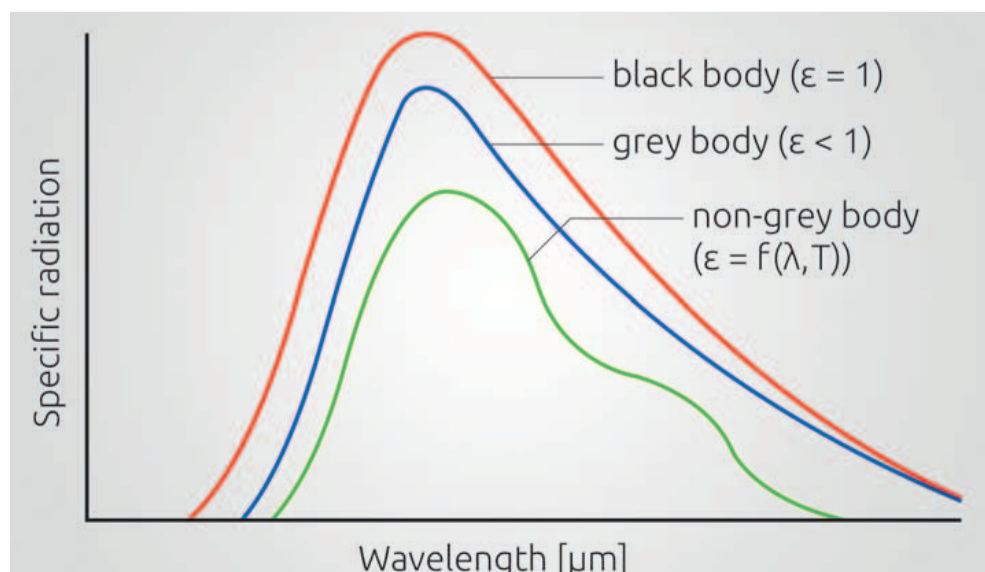


Fig. 2: For aluminium, the emissivity ratio changes with the wavelength (non-grey body).

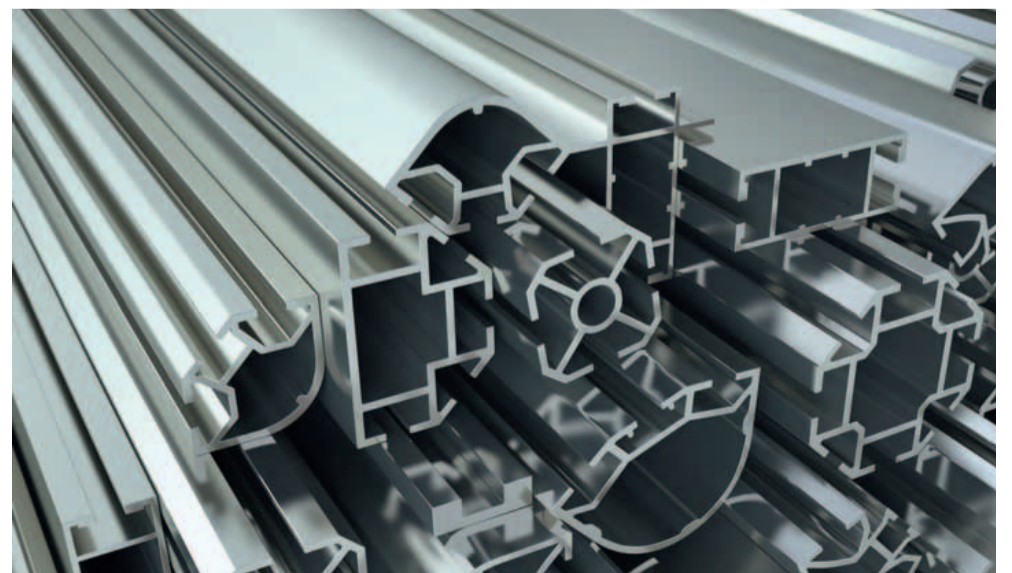


Fig. 3: The profile of the aluminium can influence the infrared temperature measurement.



certainly provide more stable measurement results. However, the detection sensitivity of the infrared sensors, the processing performance of the microprocessors as well as the quality of the amplifier technology of the devices developed at that time no longer correspond to today's state of the art technology and the measuring possibilities. The mechanical construction is complex and the motor drive is prone to wear and failure. With different alloys and profiles, a time-consuming so-called teach-in process is necessary to adjust the devices, even with this measuring method. When changing materials and profiles, the empirically determined correction curve must be set on the device.

### Modern infrared thermometers with EERC algorithm

Today's modern sensor technology, high-quality amplifier components and high-resolution converters make it possible to build devices which operate on constant light technology, i.e. without motor and moving filters. KELLER ITS developed the EERC (Extended Emissivity Ratio Correction) algorithm to compensate for the wavelength-dependent change in the emissivity ratio of aluminium. The basis is a ratio pyrometer with sandwich diode. With the extended ratio measuring method, the signals of the spectral channels are also dynamically included in the measured value determination. The compact CellaTemp PX 69 pyrometer is built with the latest powerful processor technology, high-resolution converters and extremely low-noise amplifiers. This ensures extremely effective signal processing and enables the complex calculation algo-

rithms to be carried out in real time (Fig. 4). To check the alignment and focus, the pyrometer is optionally equipped with a through-the-lens-sighting, a laser pilot light or, to monitor the measuring point on a control monitor in the control room, with a video camera. The video image shows the exact size and position of the measuring field as well as the measured temperature.

As with all previous methods for infrared temperature measurement of aluminium profiles, the correction factor for each profile must be determined for different profile geometries. In the CellaTemp PX 69, the values are stored in the controller and automatically transferred to the pyrometer via the modern IO-Link communication interface when the profile is changed.

### Conclusion

The infrared temperature measurement of aluminium profiles is still a demanding measuring task today due to the special radiation properties. But for a temperature-dependent control of the pressing speed, the continuous measurement of the temperature by means of a pyrometer is the only applicable measuring method. Modern, high-performance devices with corresponding mathematical algorithms are able to compensate for the material-dependent emissivity influences to the greatest possible extent. Any correction values for different profile geometries are stored in the control system and automatically transferred to the pyrometer via the interface.



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Fig. 4: CellaTemp PX 69 pyrometer with integrated EERC algorithm and modern IO-Link communication interface

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# Current Challenges of the Coating Industry and the Role of the GSB International

Author: Philipp Mader (M.A.), GSB International

The economic climate in the aluminium industry is characterised by a level of complexity that has never been seen before. This applies to the aluminium industry and to downstream industries such as the coating industry. There are many issues that keep decision-makers busy. Rising energy costs, sustainability, shortages of skilled workers as well as the growing complexity of norms and standards are much discussed.

If you look at these topics separately, you may be led to think that at least some of them don't have much to do with each other - a misconception. Through their membership and certifications, GSB member companies can get a step closer to mastering these complex challenges and deliver coatings of the highest quality even in times of uncertainty. For this reason, it is worth analysing the multi-faceted complex of challenges in detail.

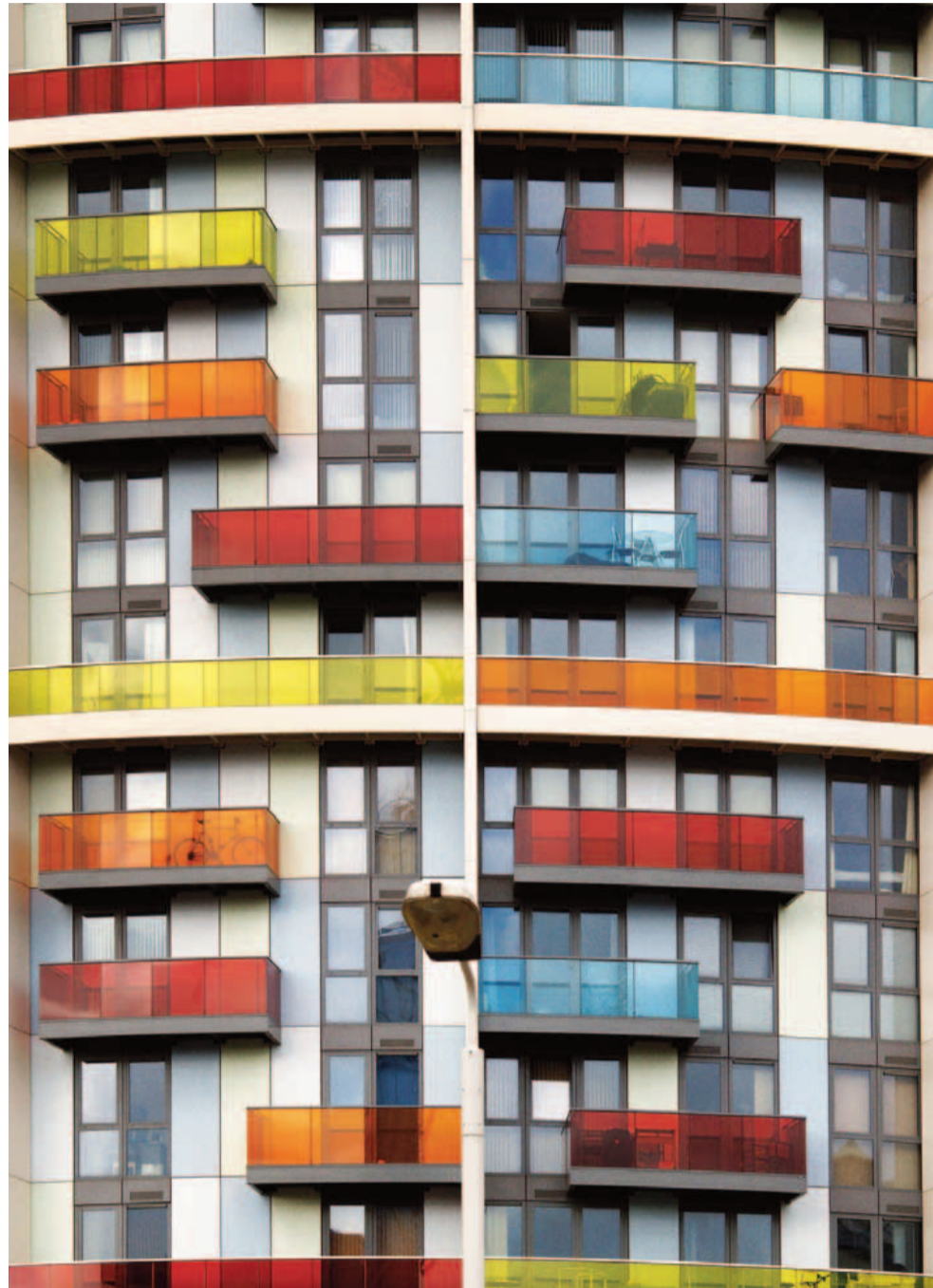
## Norms and Standards

First of all, let's start with the growing complexity of norms and standards. Alongside the various national and international standards, a wide variety of customer groups have their own factory standards. It is easy to lose track of everything. One might even sometimes get the idea that there might be the possibility that there is not a single soul left who has not yet completely lost the overview.

Overlapping standards that cover several norms, standards and regulations at the same time are highly appreciated at this point. It is only necessary to deal with one standard and valuable working time can be saved. In times of staff shortages, this represents an enormous competitive advantage. Furthermore, susceptibility to errors due to the risk of confusion can be avoided in the context of quality assurance.

GSB-certified coating companies can thus offer their services to various clients. Through their GSB certification, they fulfil several quality standards at the same time. Coatings that come from GSB-certified coating companies are considered to be the highest quality standard for coatings on aluminium using coating powders and liquid paints for exterior architectural applications and are part of many tenders.

But other standards from industry and structural engineering



Icona Building Warton, London

are also covered. These include the Deutsche Bahn Standard DBS 918 340, DIN EN 1090 as well as ZTV-ING. If it is a matter of coating aluminium for outdoor use in these cases, GSB-certified coating companies can offer their services.

For suppliers of pre-treatment chemicals and coating powders or liquid paints, GSB certification of their own products is extremely beneficial, because GSB-certified coating companies must use GSB-certified pre-treatment chemicals and coating materials - only in this way it is possible to achieve the well-known and appreciated GSB Quality Standard. At this point, a journey back in time to the 1990s can provide a transition to the field of sustainability.

## Sustainability – the 1990s as the Kick-off

In 1994, the report of the Enquete Commission of the German Parliament "Protection of Humans and the Environment – Evaluation Criteria and Per-

spectives for Environmentally Compatible Material Cycles in Industrial Society" was published. Be it a coincidence or not - we will leave that open - just at the time of the publication of the report, the GSB began to focus more on the topic of sustainability. Within the framework of the mission statement presented in the report, it is explained that ecological, economic and social goals should be considered as equally important and interdependent goals in the sense of a "sustainable future-compatible development".

Whether and to what extent one or the other objective should receive a little more or less attention is much debated. An in-depth analysis of this topic would go beyond the scope of this article. However, it cannot be denied that all three goals are characterised by great importance and need to be appreciated adequately. After all, coatings according to the GSB Quality Regulations, with the whole coating process chain

secured by GSB International, help to achieve all these goals - a reason to analyse these partial areas in more detail.

## Ecological Sustainability Goals – Chromium VI-free Pre-treatment Processes and VOC-free Coating Powders

At the beginning of the 1990s, the pre-treatment of aluminium by chromating was still standard. GSB International has been significantly involved in the development of chromium and chromium VI-free pre-treatment chemicals since the beginning in the mid-1990s. Most of the GSB certified coating companies that coat aluminium now use chromium or chromium VI-free pre-treatment chemicals.

This proactive approach has paid off, because based on a decision by the EU Commission in December 2020, the use of chromium VI in pre-treatment must be discontinued in architecture and mechanical engineering by September 2024. Possible reapplications for con-



tinued use will most likely be rejected. In addition to the chromium or chromium VI-free chemical pre-treatment processes, GSB-certified coating companies also have the option of pre-treatment by means of pre-anodisation - the pre-treatment of choice for highly corrosive environments. Furthermore, the powder coating process has a system-related ecological advantage. Coating powders do not contain any solvents and are therefore free of VOCs.

## Economic Sustainability Goals – Quality as a Sustainability Aspect

Let's move on to the economic goals, which partly intersect with the ecological goals. GSB certified coating companies save valuable resources through the GSB Certification. Less personnel is required, as the GSB Standard directly covers several standards, as already mentioned above, and the quality assurance system is specified externally. The working time saved can, for example, be used for further training of the staff.

Furthermore, the superior quality of GSB Coatings is an additional sustainability factor. Resources can be saved that would have been used for premature repairs of poor-quality coatings. In the worst case, for example, a poorly coated facade would have to be completely dismantled and recoated - an enormous expense, especially when you consider that the coating accounts for a very small proportion of the cost of a facade.

## Social Sustainability Goals - Intergenerational Knowledge Sharing and Sustainable Building

The interested reader may now ask how a quality association for coating can contribute to the achievement of social goals. Several points can be mentioned here. On the one hand, young professionals are involved in a wide variety of tasks within the GSB. In this way, an intergenerational exchange is promoted and, moreover, knowledge, which must be considered one of the most important resources of all, is preserved.

On the other hand, GSB's research on the coating of recycled aluminium has made a

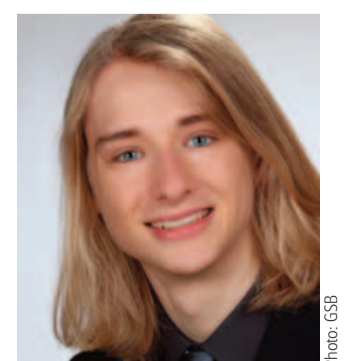
decisive contribution to the use of this material. The use of recycled aluminium is essential for meeting social sustainability goals, as affordable housing in urban regions is high on the agenda here. Low maintenance and construction costs are necessary to counteract high rental prices. Consequently, the use of recycled aluminium is particularly important because the production of recycled aluminium requires only a fraction of the energy needed to produce primary aluminium, which is very advantageous in times of rising energy costs.

The extensive studies have shown no quality deficiencies in the coating. The prerequisite for this is that, firstly, the limits of the alloy elements are adhered to an adequate extent and not pushed to the limits of the standard. Secondly, the coating must be applied in accordance with the GSB Quality Regulations. If this is taken into account, recycled aluminium can be coated with a clear conscience.

## Sustainability – Not a Stand-Alone Goal but a Lifestyle

Whether economic, ecological or social objectives, in the end it can be summarised that sustainability is not a challenge that can be mastered in the sense of a competition and that is completed when first place is achieved. Living together in a sustainable way should rather be understood as a continuous improvement process to which every company can make its contribution. In the end, the activities of the GSB presented can serve as an inspiration for all interested parties.

**i** GSB International e.V.  
Hall 7A, Stand A07  
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Author: Philipp Mader (M.A.), GSB International

Interview with Rob Greve and Christophe Lagrange of EURANIMI, the European Association of Independent Importers of Aluminium and Stainless Steel

## EURANIMI gives downstream a voice in Europe

EURANIMI (European Association of Non-Integrated Stainless Metal Importers & Distributors), a new European association representing the interests of independent importers of aluminium and stainless steel, has been operational for nearly two years. Aluminium Praxis spoke to Rob Greve and Christophe Lagrange, managers of the association, about mission, objectives and challenges.



Christophe Lagrange



Rob Greve

**APR:** Rob Greve and Christophe Lagrange, you're managing "EURANIMI" together. Please briefly describe your association, its tasks, and objectives.

**Rob Greve:** Operational since January 2021, EURANIMI is the Brussels-based European association of the mill-independent importers of aluminium and stainless steel. Our members are generally stockholding distributors, service centres, or traders but a growing number of downstream manufacturers find it useful to join us as well.

EURANIMI is committed to keeping European downstream industry in Europe as much as possible. If the European manufacturing of goods and assemblies prices itself out of the world market, more and more manufacturing will take place outside Europe, to the detriment of European jobs and consumption.

Our association's mission is to interact with the institutions of the European Union, but also with the mills' associations or other supra-national organizations. In these exchanges, we express the specific point of view of our members: the middle and the downstream of the supply-chain.

**APR:** Please briefly describe the current market situation and how your member companies are affected by it.

**Christophe Lagrange:** In recent years the European Commission has implemented several anti-dumping or anti-subsidy measures affecting among others imports of aluminium. The purpose of such measures is to levy compensating import duties to protect the EU production industry against unfair behaviours of non-EU competitors. Our association supports the principle of maintaining a level playing-field between all producers. However, since these EU protective measures are put in place by EC-officials who are not at all familiar with the specificities of the products concerned and their market, we want to make sure that excessive protective measures would not jeopardize the competitiveness of our members' main customers: the European manufacturing industry. Our role is to objectively inform the EC's investigation teams about the market situation and the possible consequences of their decisions. The downstream viewpoint voiced by EURANIMI is therefore often different from

the one expressed by the EU mills, who approach things essentially from the angle of production costs and profitability.

**APR:** What are your possibilities of exerting influence, since EURANIMI has only been in existence for one and a half year and the Commission has so far practically exclusively heard arguments from producers.

**Rob Greve:** One of the difficulties of a new European association is to make a name for itself in its starting phase. You'd be surprised of the number of hurdles that ought to be jumped before being recognized by all as a valid spokesman of a profession, especially in an attorney's working environment that is often more concerned about legal nit-picking than by the market-technical substance of a case.

Even though today the European flat aluminium production is in its vast majority in the hands of non-EU ownership, nobody would question the right of the producers' association, European Aluminium, to validly represent the interest of the aluminium production mills operating in Europe.

What made things difficult for our association to be recognized by all, is that many of our members, particularly in the (flat) aluminium sector, are quite reluctant to openly disagree with the statements expressed by their main European suppliers – especially in the very tense market context that we've been through and when so few world-groups tightly control the European aluminium market. That's why many individual companies or groups have joined our association under the express condition that their anonymity be always preserved.

To the best of our knowledge, in our aluminium world, no European association has ever represented the interests of the (independent) downstream players. The market now seems to have accepted that there is one.

**APR:** In aluminium, what measures has EURANIMI taken so far to make its position clear to the EU?

**Christophe Lagrange:** In the sector of aluminium, we have conveyed the position of the importing distributors and the downstream manufacturing in two antidumping cases investigated by the European Commission: the one related to the imports of Chinese aluminium extrusions and the one concerning Chinese flat rolled aluminium.

We were happily surprised that the European Commission still allowed us to actively participate in the investigation on the alu extrusions, considering that we joined this investigation at the last minute, only a few weeks after our association's

founding. The Commission's positive attitude towards our input was perceived as a very clear sign that the EC welcomes independent importers to voice their concerns too.

Regarding the proceedings related to the imports of flat alu from China, we have managed to convince the EC's investigating team to suspend, for a period of 9 months, the coming into force of the anti-dumping measures affecting these imports from China. We dare not imagine how much more severely the European market would have been impacted, had this suspension NOT been pronounced. This suspension came right in the middle of the post-covid economic revival, when unprecedented shortages of material were leading to extremely long delivery times and soaring prices.

**APR:** What other current issues are important for EURANIMI and its member companies?

**Rob Greve:** During its first 20 months of operation, our association has been nearly overwhelmed with addressing a considerable number of EC investigations on possible new import restrictions in the field of imports of aluminium or stainless steel. It has also been very time consuming to bring at the level of the European Court of justice, certain litigations that importers of seamless stainless steel tubes had with their national customs authorities as a result of a questionable report issued by the European anti-fraud office (OLAF). National Courts were ruling identical cases differently, customs authorities were not

charging the same import duty on similar imports cleared in different EU harbours... This Kafkaesque situation caused that EU importers were being treated totally differently in their different member states. It required much work and collaboration between the affected companies, ourselves, and the Brussels law firm that we appointed to bring this case at European level.

This heavy workload explains why EURANIMI has so far spend too little time and efforts in informative marketing and member recruitment. Further enlarging the size of our association is important.

**APR:** The Düsseldorf trade fair "ALUMINIUM" is probably an excellent recruitment opportunity for EURANIMI?

**Christophe Lagrange:** Without any doubt and we'll both attend it!

**APR:** Any other communication you'd like to make?

**Christophe Lagrange and Rob Greve:** We invite mill-independent market insiders to take a look at [www.euranimi.eu](http://www.euranimi.eu) and to consider joining our association. Our association is extremely cost-competitive and has no overheads. That's why most members join us for an annual membership fee of only 1.500 € while even the largest European groups join us for not more than 4.500 € annually.

**APR:** Mr Greve, Mr Lagrange, thank you very much for the interview.

 [www.euranimi.eu](http://www.euranimi.eu)

### Messer: Gases for Life

## Gas for aluminium production and processing

Messer is the world's largest family-run specialist for gases used in industry, environmental protection, medicine, the food and beverage sector, welding and cutting technology, 3D printing, construction, and research and science. Under the 'Messer – Gases for Life' brand, the company markets products and services in Europe, Asia and the Americas. Its 10,800 employees collaborate in a family business that focuses on diversity and mutual respect.

While aluminium offers many advantages, it also has many characteristics that need to be taken into consideration during production and processing. The world's largest family-run industrial gases specialist will be at ALUMINIUM 2022 in Düsseldorf this year to present the company and its products. At Stand 5A04 in Hall 5, Messer will be providing information about its entire aluminium-related spectrum: from efficient production to welding and cutting to recycling. The choice

of gases depends on the material and process involved. Messer offers the right solution for a large number of applications. Nitrogen cooling of dies facilitates productivity gains, better surface quality and a longer die service life. The Incal process involves the use of our gases and equipment to achieve the best possible reproducible results with minimal process variations. There are special requirements regarding the selection and purity of gases for welding, cutting

and 3D printing of aluminium. Our helium-containing shielding gases for welding counteract thermal conductivity in fusion welding processes. We will be showcasing new, high-performance shielding gases for cost-optimised TIG and MIG welding of aluminium. As well as building and selling customer-specific Oxipyr oxy-fuel burners (flameless; with different enrichment levels) and suitable control systems, among other things, Messer also works with the customer to optimise furnace production. Oxipyr-Air



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**1997**  
*Majestic kickoff:  
Queen Sonja from Norway at the  
opening ceremony of the first ALUMINIUM*

# History

## In the beginning there was aluminium

After a four-year break due to Corona, ALUMINIUM will be held again in Düsseldorf from 27 to 29 September 2022. The trade fair, which was first held in 1997, celebrates its 25th birthday this year and opens its doors for the thirteenth time. Since its first edition 25 years ago, ALUMINIUM has developed into the industry's No. 1 meeting place and the largest platform for the lightweight material worldwide. APR looks back on the first 25 years.

What few people realise: the origins of Deutsche Messe AG in Hannover were all about aluminium. That's because until the end of World War II, the location of the world's biggest exhibition centre today was the site of Metallwerke Hannover, a subsidiary of aluminium producer and processor Vereinigte Leichtmetall Werke (VLW). High-quality aluminium alloys were rolled, pressed, drawn and forged right here, at the plant in Laatzen. No one at the time expected the production site to one day turn into the home of the leading capital-goods trade fair in the world – today's Hannover Messe. But that's exactly how it came to be.

### Miracle of Hannover

Once the war was over, the British military government pushed for Germany's economy to get back on its feet. A large industrial trade fair was aimed at driving reconstruction. Initially Düsseldorf, already a trade fair location, was the Britons' first choice. But Düsseldorf hesitated, and so the city on the Leine river – until then a blank spot on the trade fair map – was awarded the contract. A location was found quickly: within 99 days, the partially destroyed VLW halls were renovated and turned into the venue of the first industrial trade fair. The "Miracle of Hannover" began on 17 August 1947 and has since created the world's largest network of trade fairs, which itself spawned a number of sepa-

rate industry fairs over time. ALUMINIUM, launched in 1997, was one of them. But 65 years would go by before Düsseldorf would get its second chance at hosting ALUMINIUM.

"The idea of launching a separate trade fair initiative had been discussed intensively in GDA's governing bodies since 1995", recalls Christian Wellner, executive Member of GDA's Executive Committee until 2019. That need arose because the aluminium industry hadn't been represented with a group stand in Hannover since 1992. The GDA, the just-founded German Confederation of the Aluminium Industry, started discussing new ways of establishing a trade fair presence: "Why not in the form of an independent trade fair that lives up to the self-image and growing importance of the aluminium industry?" It's a question

Christian Wellner kept asking repeatedly. Acting as the driving force for a stand-alone event, he engaged in talks with Blenheim, the international trade fair organiser later acquired by Miller Freeman and, ultimately, by Reed Exhibitions.

The first draft of the ALUMINIUM contract listing GDA as a conceptual sponsor was signed on 20 March 1996. The biggest surprise: the Rhein-Main-Hallen exhibition centre was designated as the venue – and not Essen. Meanwhile, evidence was piling up that a British publishing and event company had been pursuing concrete plans for an aluminium congress and exhibition. The location was supposed to

be Essen. Two events on the same topic, both in Germany: an agreement was reached to organise a joint congress and trade fair. Reed Exhibitions wouldn't take over the shares of the partner until 2004.

### 1997: ALUMINIUM kickoff

The big day finally arrived on 24 September 1997: ALUMINIUM was launched in Essen. A total of 265 exhibitors set up their stands in Exhibition Halls 1 and 2; 5,394 trade visitors came to see them. It was striking even then that more than half of the exhibiting companies and nearly 40 per cent of the visitors hailed from abroad. And, of course, renowned names from the industry will be represented at the premiere. A brilliant start with spe-

cial guest adding an extra dose of glamour: Queen Sonja of Norway made the trek from Oslo to open the first ALUMINIUM.

She probably wasn't aware back then that she would inaugurate one of the most successful industrial trade fairs to hit the market in the past 25 years. It's been so successful and growing that 65 years after the initial "No", Düsseldorf did ultimately get its chance – and has been the site of the ALUMINIUM trade fair since 2012.



**1998**  
*ALUMINIUM  
shows profile*



**2004**  
*Bright prospects for the  
automotive industry*



**2004**  
*Aluminium in dialogue:  
The GDA talk*



**2012**  
*Aluminium approaching Düsseldorf:  
With the Ju52 over the aluminium country NRW*



**2006** *Astronaut Ulf Merbold, racing driver Jutta Kleinschmidt and designer Luigi Colani at the presentation of the European Aluminium Award*