

THE GROUP





OUR PURPOSE

More than aluminium

OUR VISION

The technological, innovative and sustainable benchmark for providing diversified solutions with a customer-centric approach

OUR MISSION

Our mission is to continue listening to the market actively, changing processes through digitalisation, to ensure innovative and sustainable development, with an eye on the beauty and elegance of our product



ALMECO Group

A world leader
in aluminium
production

The unique heritage of expertise gained in more than 60 years of experience in aluminium production. An international organisation with units specialised in the different stages of the entire industrial process. A widespread presence on the global market through an extensive commercial network, distribution centres and services for strategic areas.

These are the strengths that make **ALMECO GROUP** one of the entrepreneurial world leaders in the production and treatment of aluminium sheets for the architectural, interior design, solar and lighting industries.

An in-depth knowledge of the aluminium mechanical and optical characteristics and its surface treatments, along with the constant investment in plant equipment, allows the **ALMECO GROUP** to have a production capacity of over 20 thousand tons of aluminium/year. A service focused on maximum customisation of the product and the highest level of supply flexibility makes the **ALMECO GROUP** an ideal partner in each phase of the industrial process.

Strengthened with this proven leadership, the **ALMECO GROUP** has progressively developed more specialised skills which led the

company to winning a leading role in both the renewable energy market, for which it produces reflective and selective metal surfaces for concentrated solar power plants and solar flat plate collectors, and the architectural and interior design markets, to which it provides a wide range of anodised aluminium laminate products used by planners and designers for solutions and components that combine, functionality, sustainability and affordability. Wide colour palette, thickness up to 3mm and strong resistance to abrasion can satisfy both indoor and outdoor market.

20 thousand
tons per year

ALMECO

History

The stages of constantly developing progress

THE FOUNDATION AND THE INDUSTRIAL GROW



Visigalli & Fiorentini is founded, a company that specialises in the mechanical machining of aluminium sheet metal and the production of reflectors, later taking the company name Citor.

Visigalli
&
Fiorentini

1960



The first automated system for the electrobrightening and anodising in line is installed, in addition to a factory specialised in the manufacturing of small reflectors and special alloys.

1982



Sacall installed its second continuous anodising line to increase production capacity and provide a more efficient service to the market.

1997

ALMECO
making light together!

ALMECO S.p.A. is born from the merger between Citor and Sacall, to exploit the company's operations synergistically and optimise common activities.

1999

THE INTERNATIONALIZATION AND THE GROUP



ALMECO INTERNATIONAL TRADING (SHANGHAI) CO. LTD. Founded in 2005 in one of the most highly industrialised areas, the office serves as a commercial hub and distribution centre for semi-finished products for the Asian market.

2005

vega

ALMECO's new German production facility develops vega, highly reflective PVD aluminium for lighting and solar applications. ALMECO GmbH is founded.

2006

Over 60 years experienced

THE DEVELOP OF MARKETS AND PRODUCTS



The acquisition of Satma gives rise to the bandoxaldecor brand for decorative applications.

2007

TiNOX®

ALMECO is structured as an industrial group and expands its product range in the solar applications sector through the acquisition of the well-known TiNOX brand.

2008



The ALMECO Group consolidates by acquiring a service centre for the marketing of pre-treated metals to supply the NAFTA market located in Atlanta, Georgia: Almeco USA, Inc. is established.

2010

reflect+A™

Reflect+A, the first range of PVD aluminium reflectors designed by ALMECO, is launched.

2012

bandoxalpro®

Integrating the production of laminates up to 3 mm and high oxidation thicknesses, ALMECO enters the architectural market with bandoxalpro.

2018

bxPRO
bxDECOR

In line with the evolutionary trends in communication, a major rebranding activity is carried out involving the group's best-known brands: bandoxaldecor becomes bxDECOR and bandoxalpro becomes bxPRO.

2022



In response to increasing market demand, the fourth anodising line (Linea 1600) is installed in the Italian factory to increase production capacity for the bxPRO sector.

2023



A new important investments are made in ALMECO's Italian production site to offer an increasingly complete service in treatments: Linea lacquering.

2024

ALMECO Today

An international organisation,
with 4 highly specialised units.



The productive organisation of the ALMECO GROUP consists of four different units, each of which is structured to manage the specialised process of aluminium manufacturing, depending on the different types of treatment to which it is subjected and the specific application sector to which it is intended.

This manufacturing specialisation is one of the elements that qualifies the ALMECO GROUP to distinguish itself by its ability to focus on the specific area of business for each of its customers while operating on different markets. The Group's strategic and managerial functions are located in the headquarters of San Giuliano Milanese, Italy.

more than
200 people
in the world at your service





ALMECO S.P.A.

San Giuliano Milanese - Milan - Italy

The Italian office is the Group's headquarters, where its main functions are located. The large industrial complex concentrates on the anodising and selective coating of aluminium used for products for the architectural and interior design, decorative and lighting sectors.



ALMECO GmbH

Bernburg - Sachsen-Anhalt - Germany

The German factory produces extremely high-reflectance metal surfaces (aluminium based), coated using the PVD (Physical Vapour Deposition) in a vacuum process and intended for the lighting, solar and electronics market, and highly selective aluminium and copper absorbent surfaces for heat generation.



ALMECO USA Inc.

Atlanta - Georgia - USA

The American office, thanks to its strategic geographic position, acts as a final manufacturing centre of semifinished products for the NAFTA market, with slitters and cut-to-length lines and a well-equipped laboratory for chemical and optical experiments that is aligned with the Group's standards.



ALMECO ASIA

Shanghai - China

Established in one of the most highly industrialised areas, the office acts as a processing centre for semifinished products. It is the distribution centre of products manufactured in the Group's European factories for the Asian market.

Business Model

A three-generation family business ran with a managerial vision

The business model on which the **ALMECO GROUP** is founded represents the perfect synthesis between the typical values of a family-owned industrial company with the most modern business management principles.

The original intuition of the founders, Luigi Visigalli and Enrico Fiorentini, was followed over the decades with a constant commitment to development. This commitment has led ALMECO to new application

sectors and new geographic markets, with an emphasis on international vocation and focus on service. Direct involvement in the management of the organisation has gone alongside the creation of a structured managerial organisation which aims to coordinate the various activities of a constantly growing company. A business model that holds sustainability, integrity, passion and pursuit of excellence as its core values.

Green Company: continuous investments in technologies for process control and for active environmental protection is combined with the research of products and solutions aimed at reducing energy consumption and the use of renewable energy.

Human Resources: the Group's policy is aimed at enhancing the skills of each employee and the creation of a safe and people-friendly working environment.

Experience and innovation: the experience gained in more than 60 years of business is the guarantee of high reliability. An important value for the company is the integration of this experience with the dynamism of an innovative company, interpreted as a process of continual improvement and attention to the changing market demands.

Customer oriented: offering effective solutions that are tailored to the specific needs of each client is the benchmark of the Group's commitment.

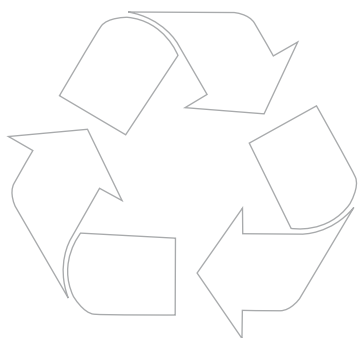
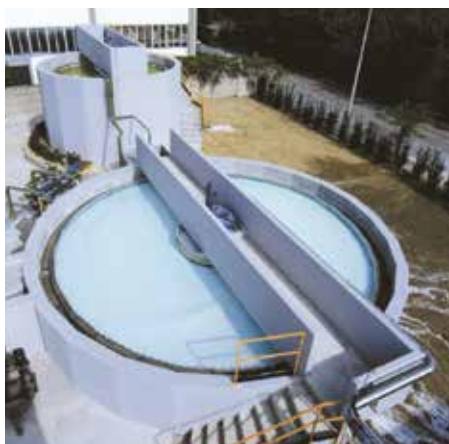
3
generations



The third generation joins Almeco: this phase brings new ideas, updated skills and a fresh perspective, but also the challenge of maintaining the inherited company values and culture

Green company

Environmental sustainability:
an across-the-board commitment.



Commitment to the environment is a fundamental value of the **ALMECO GROUP** business philosophy. Respect for current standards and the continuous improvement of production processes enable the Group to operate in total harmony with the environment. Since the 1960s, **ALMECO GROUP** has in fact initiated the search for “green” technologies

and has invested in water purification treatments and fume extraction and abatement to minimise its environmental impact, both inside and outside the various production complexes where there is a system of continuous monitoring of sensitive parameters and emissions. The latest anodisation line is equipped with a unique total recycling of process waters called “zero waste”.

510kW
produced



This continuous journey toward the optimum is confirmed not only in the certification according to ISO 14001/2015 that all the **ALMECO GROUP** companies have obtained, but also in its active commitment to eliminate the use of hazardous substances,

to increase the efficiency of water treatment processes, to favour the use of substances and materials compatible with the environment, to promote waste recycling and to improve the sustainable exploitation of natural resources. As part of this project, ALMECO created in 2013 a 4,000 m² photovoltaic plant with

a total power of 510 kW on the roof of the San Giuliano Milanese manufacturing complex, ALMECO in 2016 created a new concept of Combined Heat and Power plant, able to provide half the energy needed for the industrial process. Together with the existing photovoltaic plant, ALMECO reduced its CO₂ production of more than 1,800 tons per year.

-1,800 tons of
CO₂/year

4 thousand m²
of photovoltaic panels



Certifications

The guarantee that
procedures and processes are
always under control

From the entry of raw materials to each individual production process, right up to the packaging of the finished product, the individual stages are taken care of from a quality, energy, environmental and work safety point of view.

Accurate identification and traceability procedures are also used for materials and products.



ALMECO S.p.A.

ISO14001

ISO9001

RoHS

REACH

QUALANOD



EPD verified

ALMECO GmbH

ISO14001

ISO9001

ISO50001

ISO450001



We constantly innovate

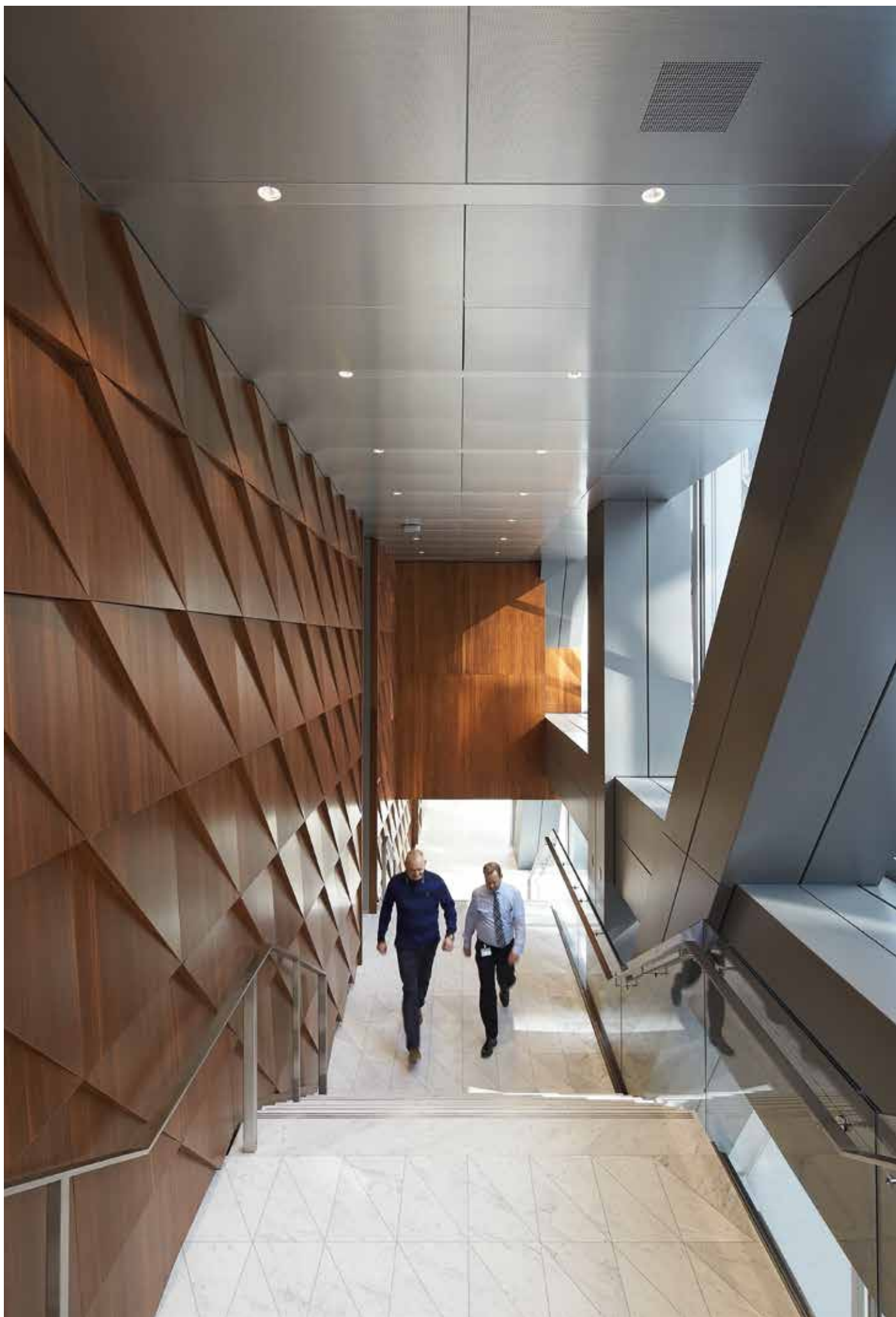
Processes and products to anticipate your every need

The service we offer is aimed at transforming the metal surface for technical and/or aesthetic applications. Thanks to these treatments, the metal can acquire greater surface resistance, be suitable for outdoor use, and have a specific colour. In addition, the total reflection of the metal can be increased or decreased and even the emissivity of heat can be adjusted to the application's requirements.

We are constantly investing in the anodising, PVD surface coating

and selective coating facilities of our factories in Italy and Germany to increase production capacity, expand the range of colours, finishes and specific characteristics of our products, always aiming to achieve high quality standards.

The innovation of processes and products relies on the fundamental contribution of specialised technical personnel with consolidated experience in the sector, supported by our research and development team.





Continuous anodising

We give light
and colour
to surfaces

To improve the characteristics of reflectance and gloss and to preserve the surface from corrosion and deterioration, the aluminium is subjected to a continuous anodising process. The cycle is developed through the successive stages of polishing, anodising, colouring and sealing.

Brightening is the electrochemical process by which the semi-finished aluminium is immersed in a tank containing a concentrated acid solution at a high temperature and is subjected to a strong electric current to smooth its surface in a controlled manner, thereby increasing

the brightness and reflectance.

During the subsequent anodising, the brightened aluminium, through an electrochemical conversion of the metal to form aluminium oxide, is coated with a thin film with perfect adhesion to the metal. The accurate adjustment of the parameters ensures the perfect control of the anodic oxide layer thickness and its homogeneity on the surface, improving the characteristics of reflectance and minimising the phenomenon of iridescence.

The layer, transparent and very durable, protects the surface from wear and tear, keeping the optical characteristics of the product unchanged over time.

Due to its porosity, this layer is particularly receptive to colouring with special organic pigments which produce metallic hues of striking aesthetic effect. This additional process is carried out in the San Giuliano Milanese plant, where there are production lines dedicated to the aluminium dyeing.

The anodising cycle ends with the sealing phase in demineralised water at about 100° C, during which the pores of anodic oxide close and the electrochemically grown layer is sealed and compacted.

4 automated
lines



We ensure great resistance and aesthetic with the highest homogeneity

The technological plant in San Giuliano has been specifically designed to produce surfaces with various shades and tactile appearance for any outdoor and indoor application for the Architectural & Design sector. Thanks to 2000 Line, surfaces with a highly resistant anodizing layer and a metal gauge up to 3mm thick and 2,000mm wide are available, since 2018, in a wide palette to satisfy each design requirement. Aside from continuous anodizing, the core of the production is the etching, a chemical process developed to make the surface rougher. The resulting typical dull appearance is achieved by controlling

the dissolution of the surface which generates fine and dense microcraters. This process occurs only in specific conditions which have to be carefully controlled to obtain the consistent high aesthetic appeal that Almecco standard guarantees. Shades of metallic colours are finally available for facades and exteriors too thanks to special pigments and to the electro-colouring. After the anodisation, the coil strip is immersed in an acid solution containing metal salts and then subjected to an alternating current. Under these conditions, the metal is deposited in the porous structure of the oxidized film, producing the characteristic color of the metal salt used.



The results are extremely fine surfaces with high uniformity and tight tolerances. In addition to the will to supply an excellent product, the environmental commitment of the company emerges from the installation of the first zero liquid discharge water treatment

plant in the world on **bxPRO** line, which eliminates the pollutants and minimises the resulting liquid waste. The excellent results that ALMECO surfaces have achieved in the architecture and design market have led the company to invest in recent years in a new production line (1600

Line) with similar performance to the existing one, so as to double production and further improve service for customers in sectors where ALMECO **bxPRO** line aluminium is meeting with particular appreciation for its excellent performance.



98%
reflectance

20

The exclusive PVD process

To further enhance the reflective properties of the aluminium or to modify and improve its performance, the ALMECO GROUP has developed an exclusive process at the Bernburg plant that allows the Group to obtain the continuously controlled deposition of thin metallic and ceramic film using the latest PVD (Physical Vapour Deposition)

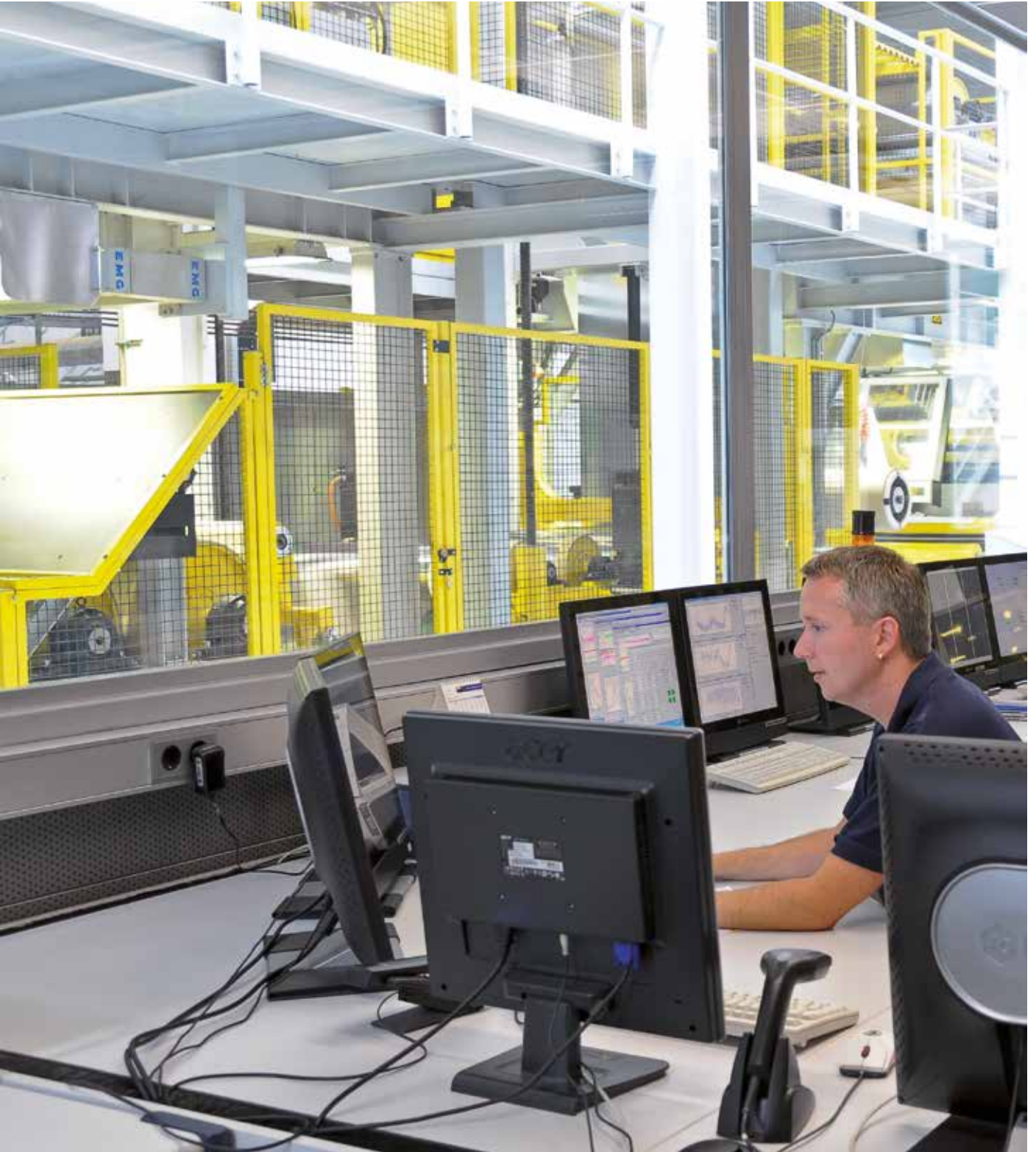
technologies. During the process that is carried out under vacuum, the material to be deposited, after being evaporated, will form a nanometer layer on the metal surface, giving it unique properties.

This sophisticated and exclusive treatment, used for the production of the gamma **vega**, assures an outstanding performance of the metal

in terms of light reflectance (over 98%) and absorption, making it ideal for applications in lighting and solar sectors. It also ensures the product features qualities including anti-scratch, anti-wear, anti-static and resistance to corrosion, moisture and fingerprints, as well as specific photostable and heat-resistant qualities.

We guarantee
the maximum
light reflectance
and heat
absorption





Linea lacquering

A new selective coating plant

The series of continuous metal surface treatments carried out by ALMECO GROUP is completed with the selective coating process, developed thanks to a specific lacquering line installed at the San Giuliano Milanese plant.

The process is applied to aluminium, copper and steel alloys: the transparent coating increases their

surface resistance, making the metal scratchproof or suitable for aggressive environments.

In addition, with this process it is possible to apply a primer to the metal surface that favours its bonding to other materials and makes it ideal for the production of composite panels. Out of this process,

VELO+ and **VELOprime** are born.

VELO+
VELOprime





Manufacturing of laminates

We guarantee
the highest
customisation
with supply

All the ALMECO GROUP plants are equipped with longitudinal and transversal cutting lines for the production of aluminium strips with widths ranging from 15 to 1,250 mm, and cut-to-length lines which allow to obtain strips with a width from 150 to 1,250 mm and a length of 150 to

4,000 mm. The embossing system, installed in the San Giuliano Milanese production plant, creates finishes designed to widen the light distribution and to vary the aesthetic appearance with defined applications to the aluminium surface.



Architecture & Design

All the unique magic of an infinite range of colours and finishes

Technical but also lively, thanks to its ability to animate itself by reflecting light. Classic and timeless in its purity, but also innovative due to its multiple shades and finishes. And then recyclable, bright, light, functional and flexible in applications. These are the main - but not the only - reasons that lead a wide range of designers to prefer the aluminium to other metals such as steel, brass or copper. To give a

complete answer to the use needs of this material in the architectural and decorative fields, **bandoxal** was born: polished and anodised aluminium produced by the **ALMECO GROUP**. Anti-static, anti-scratch, fingerprint-resistant and durable over time, the aluminium **bandoxal**, thanks to its light weight and flexibility, is used in the building of structures that combine lightness and strength. **bandoxal** is a

material suited to design, architecture, furniture and furnishings: from the coating of exterior facades, to walls, ceilings and interiors; from the creation of furnishings and works of art to etching plates and reproducing trademarks; from automotive accessories to nautical finishes; from cosmetics to components for the electrical industry and for household appliances. Naturally beyond lighting.

Architecture

26



bxPRO

Strength, lightness
and sustainability
at the service
of architecture

Totally sustainable, durable resistant to atmospheric agents e corrosione phenomena, light and able to be formed as required, easily coupled with other supports and giving a highly

contemporary technical appearance, anodized aluminium of the Almecco line for outdoor architecture **bxPRO** is used on the exterior of buildings for façades, cladding and roofing.



bxPRO
FACE

Façades of
prestige and
personality

The excellent control of the gloss level, the homogeneity of the colour, its resistance even in the most aggressive environments and the compactness of the oxide

layer created in the anodising process make **bxPRO FACE** the ideal choice for architectural façades.

Available in natural colours and a full range of UV-

resistant colours, it offers aesthetic solutions of great prestige and personality.



bxPRO
PROFIL

Unaltered
advantages for
drawn surfaces

The flexibility of the oxide thickness in the continuous anodising process makes the anodised aluminium of the **bxPRO PROFIL** line ideal for profiling, while maintaining

the advantages in terms of appearance, uniformity or surface protection. **bxPRO PROFIL** can be used to make corrugated or profiled sheets or to create three-dimensional surfaces, even lar-

ge ones, without requiring complex fastenings.



**bxPRO
BOND**

The best
solution for
composite
panels

bxPRO BOND provides - in both exterior and interior applications - impressive decorative finishes.

Non-combustible and corrosion-resistant, **bxPRO BOND** is suitable for all lamination applications. Thanks to the thickness of



the anodic layer, the back side resists well the hot bonding process used in the production of aluminium composite panels, where it is also used because of its light weight. Despite the thin thickness of the aluminium normally used for panels,

the exposed surface offers excellent resistance to fading, corrosion, abrasion and breakage.



**bxPRO
TEK**

All-round
versatility

The anodised layer of the **bxPRO TEK** surface line can be used to provide additional functionality unrelated to corrosion resistance. **bxPRO TEK** can be



subjected to subsequent protective coatings. Its versatility also makes it suitable for use to enhance the laser welding process of spacer bars in double-glazed

windows or to give a purely aesthetic appearance to welded aluminium tubes.



HRC73A™

Combines
innovation and
sustainability

HRC73A™ is the world's first highly sustainable pre-anodised aluminium surface for architectural applications. It combines an alloy consisting of 90% recycled aluminium and ALMECO's innovative 'zero waste' anodising treatment, a

sophisticated purification system that allows the total re-use of process water, reducing its consumption by 90% compared to traditional processes.

An innovative product, born from the collaboration between ALMECO and

Novelis, capable of providing, in line with the principles of sustainability and decarbonisation, a concrete response to design requirements that require high recycled content and low carbon emission.



TiNOX® outdoor

More efficiency,
more comfort

TiNOX® outdoor is the first highly selective aluminium absorber surface that can be installed outdoors without any additional transparent cover. Its specially designed and patented coating structure combines

weather resistance with unprecedented thermal radiation losses, enabling significantly higher operating temperatures. In addition to the possibility of increasing the efficiency of existing solar ventilation systems on the

market to further improve the building climate, it enables new applications of solar heat to improve the energy performance of buildings.

Design

30



bxDECOR A rainbow of possibilities

Twenty-one different finishes, sixty colours, eight different thicknesses: **bxDECOR**'s combinations are virtually endless. A unique range for its breadth and depth, which is further enriched thanks to the ability to create solutions that

are tailored to the specific needs of designers and businesses. **bxDECOR** can also be supplied on request with different types of adhesives. The surfaces are designed for a wide range of transformation techniques, from bending

and shaping to cutting, gluing and stamping. They can be silkprinted, hot stamped and laser, mechanically or chemically engraved. Thousands of solutions, including the right one for you.

bxE

Aesthetic and climate control

Climate control panels work on the principle of radiation. For this application, Almecco R&D

developed a special high-emissive finish used in **bx**E. The reflectance spectrum of

bxE is determined by the oxide layer and its thickness.

bx3D

Awe-inspiring three-dimensional effects

bx3D is a collection of three-dimensional aluminium surfaces designed for application in architecture and interior design. The lightness, versatility and surface

resistance of aluminium make **bx**3D ideal for wall and ceiling coverings and interior decoration.

bx3D is available in a wide choice of surface finishes (from specular to

textured), and of colours that, combined with the 3D patterns, allow for totally customised solutions of great scenic effect.



From the planning to the finished product

Even in the decorative sector, the ALMECCO GROUP is able to assist its clients by drawing the object until its final creation thanks to its internal

design staff that develop the clients' ideas, creates a prototype and then engineers its production. The certainty of quality and production flexibility

also adds to the guarantee of a single contact who controls the entire process and keeps costs and timing under control.



Solar

Our contribution to the development of renewable energy

The growing global demand for energy, which is influenced by strong uncertainties related to cost and supply from traditional sources, has imposed, over the last few years, the need to create and disseminate technologically advanced materials that can stimulate the use of renewable alternative energy in line with the renewed environmental awareness. To take on this challenge on a global level, the **ALMECO GROUP** has devoted itself to a greater commitment to studying and creating surfaces with dedicated solar

energy technologies. This activity, which is based in Bernburg, Germany, is primarily focused on two macrosectors. For the solar thermal sector, the **ALMECO GROUP** has developed **TiNOX energy**, the world's first range of highly selective absorbent coatings which are designed to prevent heat loss and allow the conversion of more than 90% of incident solar energy into thermal energy. Using the know-how acquired in the lighting industry with the unique PVD process, the **ALMECO GROUP** has then

developed **vega energy** in the thermodynamic field, which is a concentration range of specular surfaces with reflectance up to 98%. They are used in the CSP (Con centrated Solar Power) and CPV (Concentrated Photovoltaic) parabolic solar collectors or in the solar ther-mal collectors and CPC (Compound Parabolic Concentrator) vacuum-sealed tubes, standing out in particular for its excellent performance in the CSP micro-concentrators and the linear Fresnel collector systems.

Specularity

vega
energy®

High performing solar secondary reflectors

The **vega energy** surfaces were developed to maximize optical performance and its durability of secondary reflectors installed on solar concentrating systems: the innovative multilayer that characterizes these surfaces offers the best combination of optical performance and resistance to temperature so as to ensure a durability efficiency.

The vega energy range consists of.:

- **vega energyHT** is designed to maintain constant high reflection levels even at continuous operating temperatures up to 250°C. It is the ideal surface to be used in secondary reflectors of Fresnel systems.. Its special coating greatly reduces the degradation phenomena of the reflective surface, ensuring its high performance for a long time;
- **vega energyTS** has a special composition that allows it to maintain its reflection performance intact even at operating temperatures above 300°C, while minimizing losses.



Absorption



TiNOX[®]
energy

Selective
absorption for
solar thermal
panels

The **TiNOX[®] energy** surface features high absorption of sunlight and low emissivity of thermal radiation. The combination of these characteristics, which are stable over time, makes it possible to utilise

solar energy effectively while minimising the heat lost from the surface through radiation. Thanks to this selective behaviour for different forms of radiation, optimised for the typical working temperature

of solar collectors (approx. 100°C), **TiNOX[®]** products are able to harvest up to 50% more



TiNOX[®]
robust

When the going
gets tough

TiNOX[®] robust is a highly selective absorber coating designed for harsh environmental conditions that can be found in flat plate solar collectors near the seaside or in the industrial environment. Compared to other absorber coatings designed

for harsh environmental conditions based on black chromium or lacquer, it features nearly the same optical properties as the well-established coating due to a complex multilayer structure applied by PVD coating process. Due to the special ceramic top

layer, the material has good corrosion resistance and fingerprints are nearly not visible. In humid conditions, optical stability is maintained. It also has an optimum balance between efficiency, environmentally friendly manufacturing and costs.



Lighting

Full-range partner of lighting companies

The ALMECO group represents a unique business reality in the world that is able to offer itself as a complete partner of the most important lighting industries. In its industrial complexes, in fact, ALMECO integrates the most in-depth knowledge of the various stages of the continuous aluminum anodizing and PVD treatment process with the most advanced technologies to design,

engineer and manufacture semi-finished products and reflectors. An expert interlocutor, therefore, capable of satisfying every need, even the most complex, for each specific type of application: from outdoor lighting (parking lots, gardens, urban areas or places of architectural interest) to indoor lighting (domestic environments, offices, commercial or industrial spaces, greenhouses), in which

traditional sources, daylight or UV light, up to infrared radiation are used.

Our reflective surfaces have the widest range of features and finishes, with the aim of working with lighting manufacturers to ensure that every environment is illuminated in the most correct way, with a specific focus on sustainability and energy efficiency.

vega The highest light reflection

vega is the most advanced expression in high reflectance aluminium for the ALMECO GROUP's lighting applications. Made with PVD technology and available in several

types depending on the specific application, **vega** is characterised by total reflectance values up to 98%, which are 15% higher than those of anodised aluminium.

At the same light intensity, **vega** therefore can obtain significant energy savings and increases the efficiency of the lighting fixtures up to 20%.



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vega95®

vega98®

Our best-sellers

Available with patterns and finishes from diffusing to shiny, thanks to different PVD vacuum deposition,

the range of aluminium surfaces **vega95** and **vega 98** guarantees a minimum reflection of 95%

or, alternatively, of 98% with both isotropic and anisotropic distributions.



vega^{green} Growth and efficacy

vega greenN is the new version of surfaces optimised for horticultural applications. It is available both as a version for HPS (high-pressure sodium) lamps where it offers up

to 4% more efficacy than standard materials with 95 per cent total reflectance, and as a version for LED sources.

In particular, **vega greenN LED** is suitable for use for

crops with different light wavelength requirements, thanks to its maximum reflection uniformity in the entire visible range (380-780 nm).



vega^{SP} Recommended for daylighting

vega SP is a special highly reflective PVD aluminium used for systems that direct natural light in a controlled manner indoors to improve visual and thermal comfort. These shiny surfaces are characterised first

and foremost by a very high total reflection of 98.5% of the visible spectrum, which translates into clear advantages in system efficiency. They also have very low losses due to multiple reflections, an aspect that

is particularly appreciated in light chimneys. These characteristics are complemented by a high uniformity of the visible spectrum and excellent colour rendering, resulting in improved visual comfort.



vegaUV Highest performances in UV applications

vega®UV surfaces offer improved performance over anodised materials or other typical reflective surfaces in UV applications.

vega®UV is widely used in photopolymerisation processes, where UV radiation is used to initiate chemical reactions. In addition, each variant of **vega®UV** has its own specific area of application.

vega®UV-A is used in tanning lamps, as well as in forensic applications and in the evaluation of gems and works of art, where certain substances are made visible through the fluorescence phenomenon.

vega®UV-B is used in medical applications, e.g. in the treatment of psoriasis and other skin diseases.

vega®UV-C is used in the field of sterilisation, for coating the inner walls of medical equipment and devices or for the production of reflective optics. The composition of the layers, optimised for the UV-C band (with wavelengths between 200 nm and 280 nm), increases the effectiveness of UV systems through reflection.



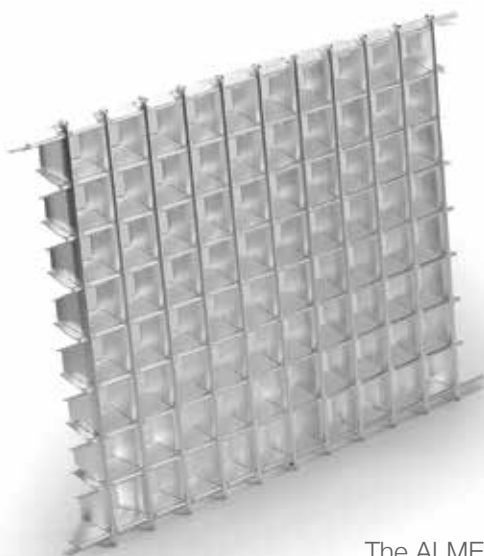
infrared SURFACES Specially designed for infrared radiation

Almeco Infrared (IR) surfaces are specially designed in the production of infrared heaters and lamps due to their ability to handle infrared radiation. Made of anodised aluminium, they help maximise irradiation, concentrating radiation

towards a specific direction, or diffuse the radiation, increasing distribution uniformity. Infrared heat can be directed exactly where it is required through the use of optimised reflectors that improve the effectiveness of the radiation system and reduce energy waste.

In industry, IR systems speed up the heating process during the production phase: from curing paint to activating adhesives to heating plastics before moulding. Infrared heat also acts as a germ reducer on surfaces.

Reflectors



The ALMECO Group is able to offer, depending on requirements, global support along the entire path that leads from the idea to the realisation of a reflector or, alternatively, to intervene with its own specialised skills from a specific phase of the

development process: from design to engineering, from prototyping to production. Each new project at ALMECO is developed by a team of specialists combining complementary skills, ranging from commercial to more technical (ambient lighting,

optics design, aluminium deformation). In this way, every single aspect of the project can be carefully assessed and investigated in depth, taking advantage of the synergetic and specialist input, to the benefit of the customer.





Automotive

Eco-sustainable lightness

Strength-to-weight ratios make aluminum the metal of choice for mobility solutions in the automotive, marine, rail and aeronautical sectors. In an

increasingly environmentally conscious society, light weight, which is directly related to fuel consumption and CO₂ emissions, is a concrete choice through

which to contribute to a more sustainable future, thanks in part to aluminum's complete recyclability.

bxDECOR
Creativity knows
no limits or
boundaries

With **bxDECOR**, the line of anodized aluminum decorative surfaces made by ALMECO, creativity knows no limits or boundaries, thanks to its endless range of colors that are always in step with the latest design trends.

Aluminum has always played the role of material of excellence for trims and protective caps for hi-fi system speakers in passenger cars. Aluminum helps convey a perception of elegance and high tech to a car's center console.

At last, due to its inherent strength and moldability, anodized aluminum is used in making the plates that protect the underside of the door and tailgate from unintentional scratches and damage.



Electronics

Innovation at the service of technology

Aluminum is a well-established material for metal core printed circuit boards (PCB) thanks to its lightness and excellent thermal conductivity. In LED applications it is common to take advantage of its reflectivity as well: a lower number of LEDs can then generate the same light

output with lower power consumption and lower heat emission.

Focusing on this aspect, Almeco offers vegaLED on Board (VLB) PCB core materials with reflector-grade specular surfaces and highly reflective PVD coatings, including silver-based coatings. These

advanced materials can help reach even better performance than using silver-plated copper cores.

vegaLED
on BOARD

Surfaces with
the highest light
reflection

vega on Board (VLB) is a MC-PCB (Metal Core – Printed Circuit Board) material specially studied for high-power LEDs. Compared with a silver-plated copper printed

PCB, it offers numerous advantages in terms of performance and it increases the LED modules overall efficiency. **Vega on Board** (VLB) surfaces reflect light almost equally

on all visible wavelengths, ensuring excellent color rendering. They are available in multiple thicknesses.

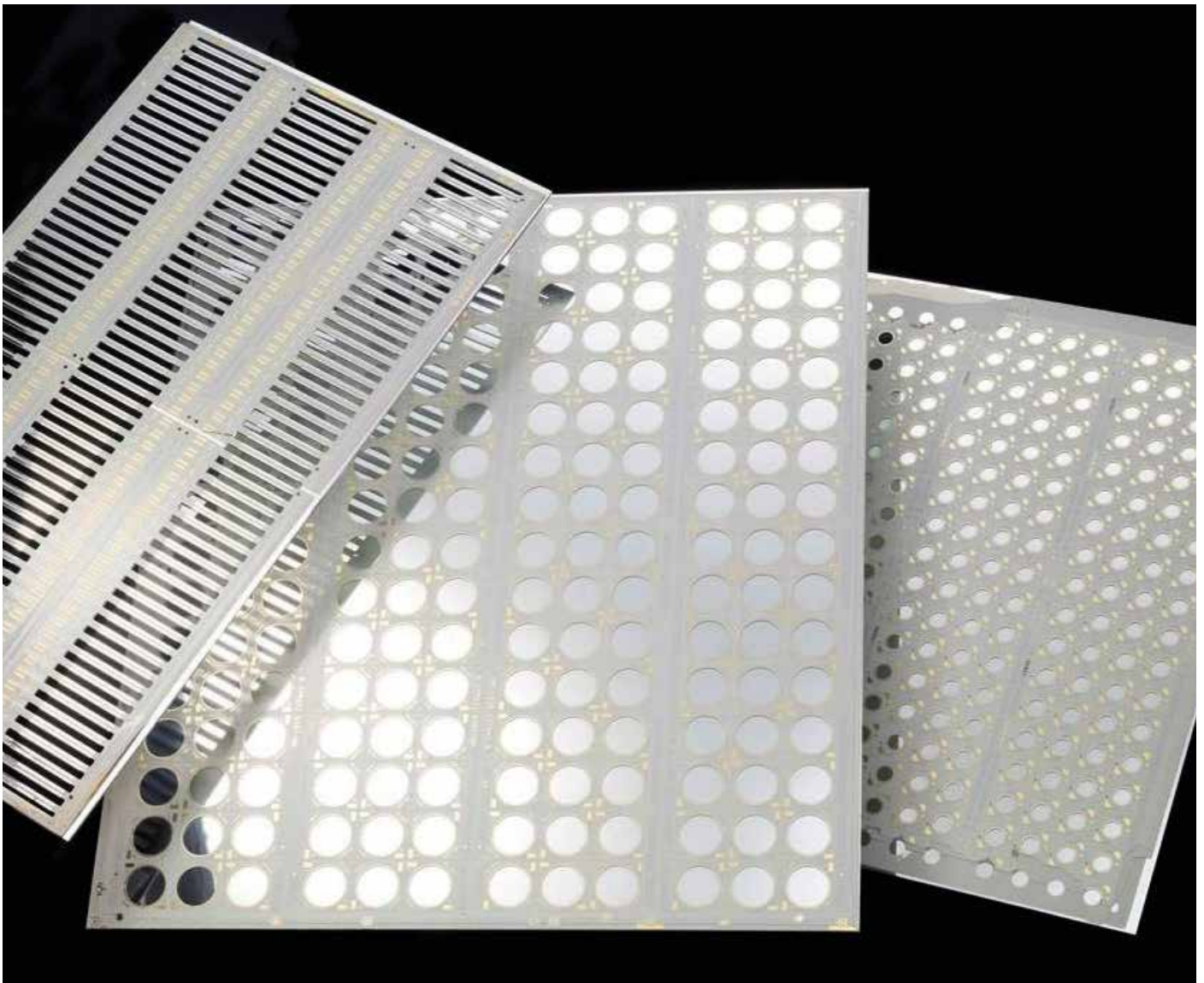
Solutions for Metal cores for CoB LEDs

To achieve optimal heat management and increase the light output of the LED luminaire, it is advantageous to mount the LED chips on an aluminum

PCB plate with an appropriate PVD coating. The total reflectance of the **vegaLED on Board** (VLB) surface is combined with high standards

in spectral uniformity, optical performance, and environmental and heat stability.

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Solutions for SMD LEDs

Special variants of **vegaLED on Board** (VLB) enable the creation of aluminum frames and

holders for SMD LEDs. The high reflectance achieved by the PVD vega coating is combined with

the material stability and solderability required for this application.

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