# THE GROUP

ALMECO
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 treatement 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



Over 60 years experienced

## 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


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

## THE DEVELOP OF MARKETS AND PRODUCTS

reflect+A™

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

2012

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

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

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

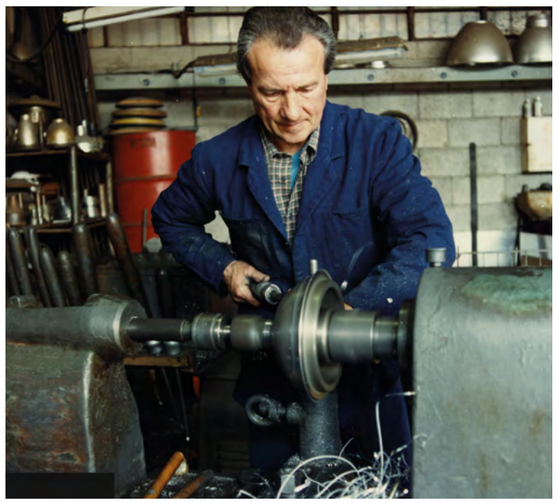
## A three-generation family business ran with a managerial vision

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.

3 generations

**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.

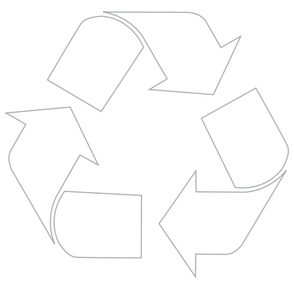




**The third generation joins Almeco**: this phase bring new ideas, updated skills and a fresh perspective, but also the challenge of maintaining the inherited company values and culture

# 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 envronmental 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”.

510 kW 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 $CO_2$ production of more than 1,800 tons per year.

-1,800 tons of $CO_2$/year

4 thousand $m^2$ 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.



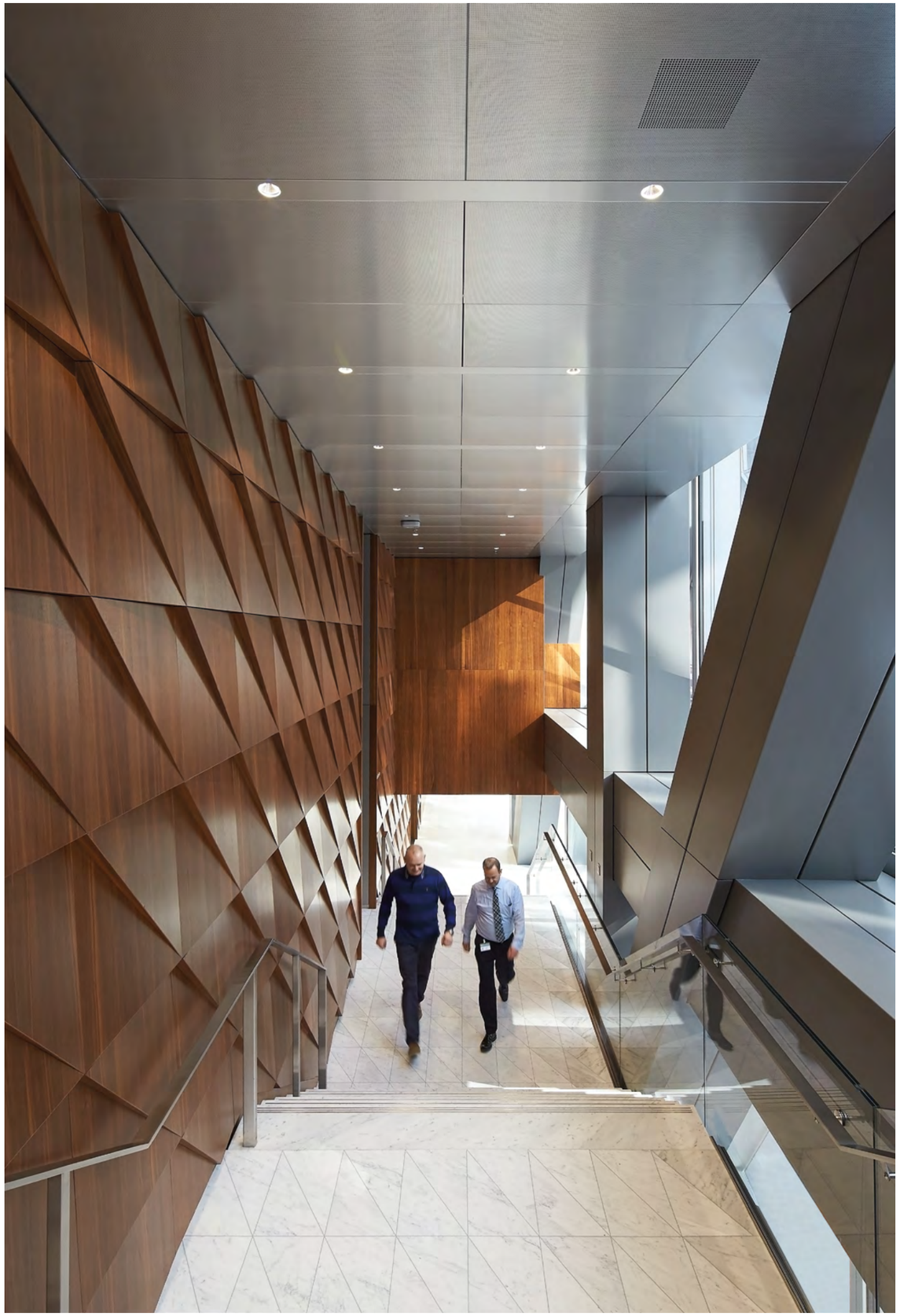
| ALMECO S.p.A. | ALMECO GmbH |
|---|---|
| ISO14001 | ISO14001 |
| ISO9001 | ISO9001 |
| RoHS | ISO50001 |
| REACH | ISO450001 |
| QUALANOD | |

EPD verified

# 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.





# Continuos 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 s ubjected 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 Almeco 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 sub-jected 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 tollerances. In addition to the will to supply an excellent product, the environmen-tal 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

# The exclusive PVD process

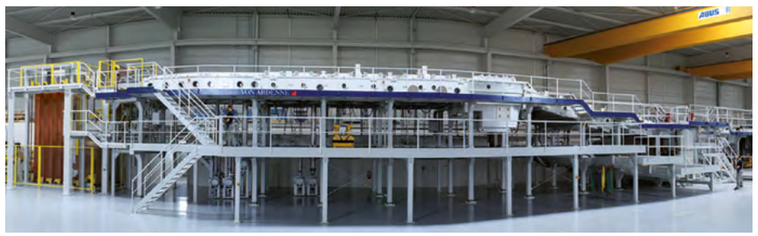


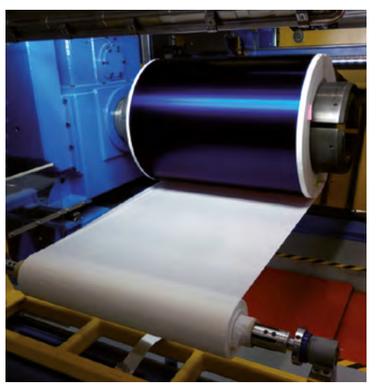




To further enhance the reflective properties of the aluminium or to modify and improve its performance, the ALMECO GROUP has developed an exclusive process at the Bernburg plant that allows the Group to obtain the continuously controlled deposition of thin metallic and ceramic film using the latest PVD (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 andresistance to corrosion, moisture and fingerprints, as well as specific photostable and heat-resistant qualities.

We guarantee the maximum light reflectance and heat absorption



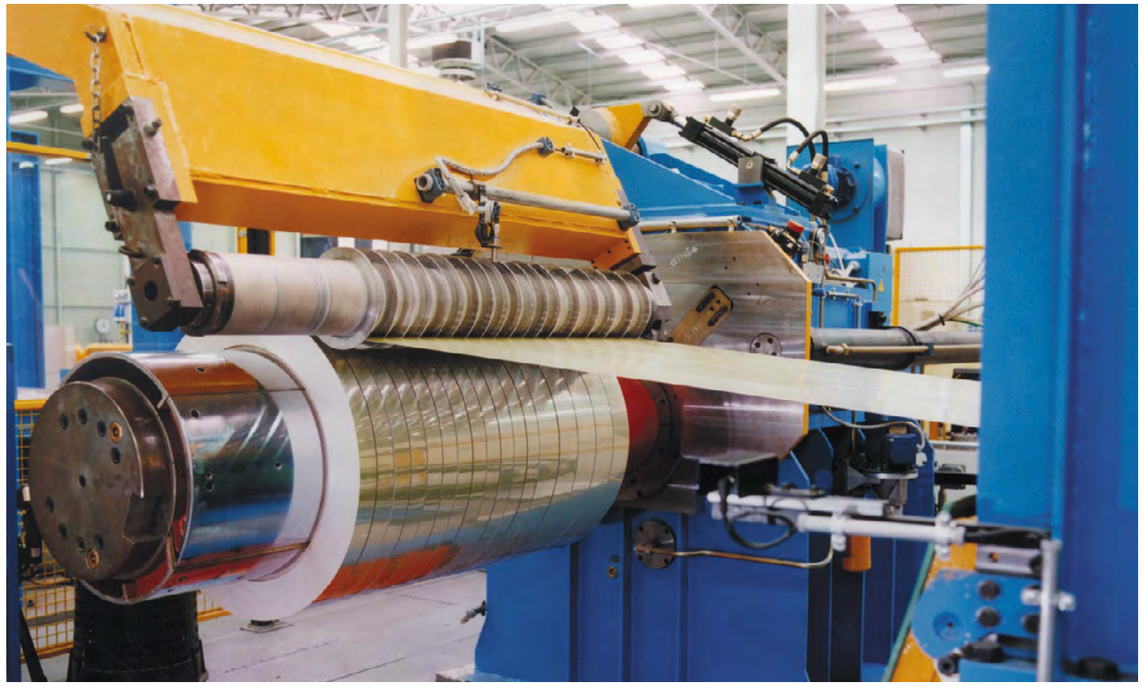


# Linea lacquering

## 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.

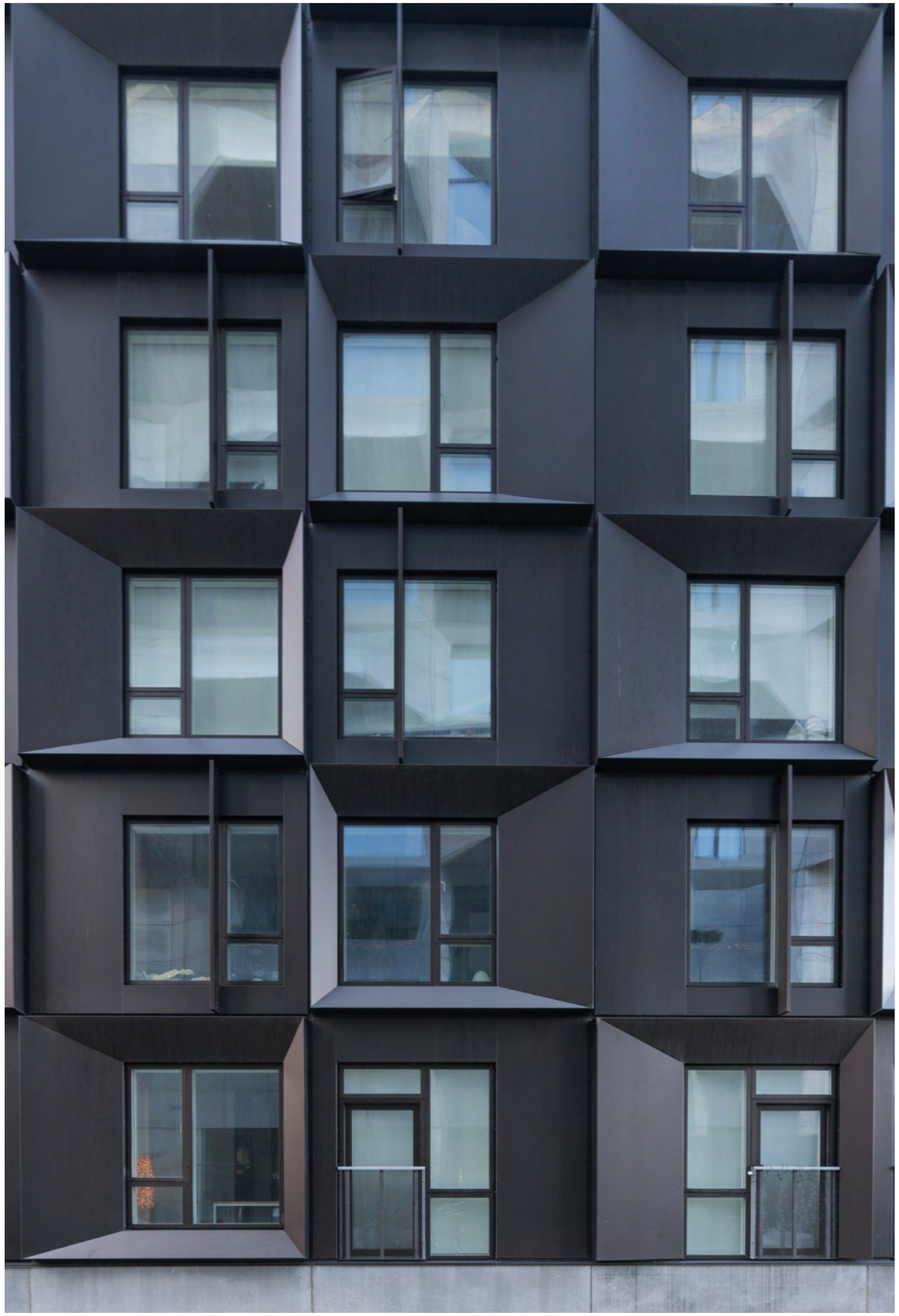




# Manufacturing of laminates

## 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

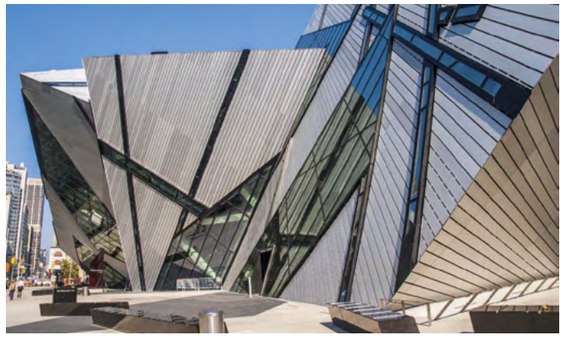
Technical but also lively, thanks to its ability to animate itself by reflecting light. Classic and timeless in its purity, but also innovative due to the its multiple shades and finishes. And then recyclable, bright, light, functional and flexible in applications. These are the main - but not the only - 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 architectual 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 creatio  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.

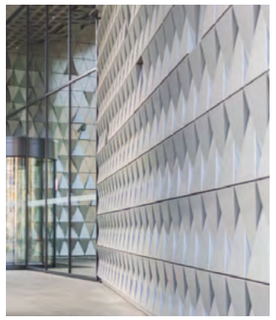
# Architecture













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 Almeco 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

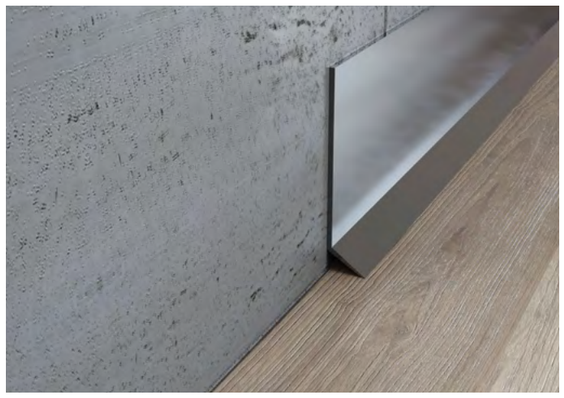
## Unaltered advantages for drawn surfaces

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 large 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.



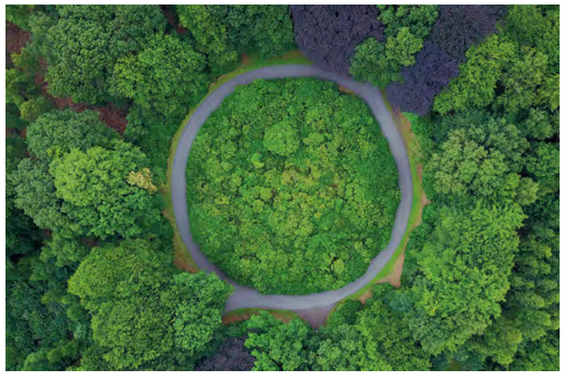
bxPRO TEK

## 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.

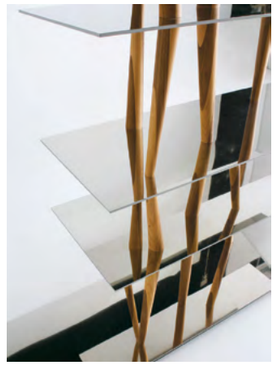
TiNOX® outdoor

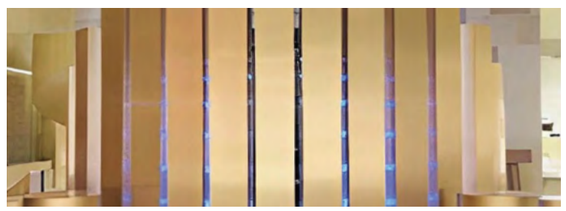
## More efficiency, more comfort

**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





## 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 tecniques, 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.



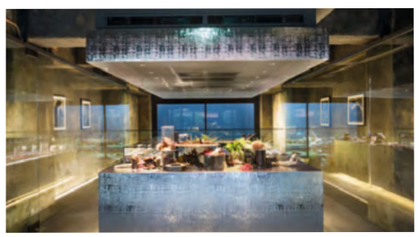


## bxε
## Aesthetic and climate control

Climate control panels work on the principle of radiation. For this application, Almeco R&D developed a special high-emissive finish used in **bxε**. The reflectance spectrum of **bxε** 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 **bx3D** 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 ALMECO 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

## 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 hat 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.



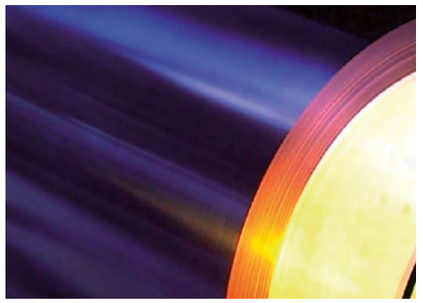


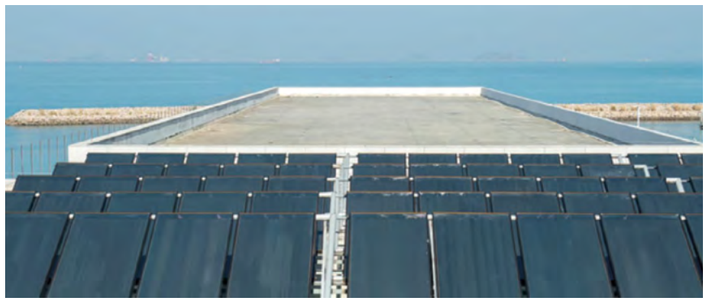


# Absorption

## 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





## 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



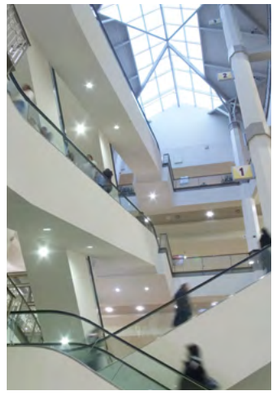
## Full-range partner of lighting companies

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

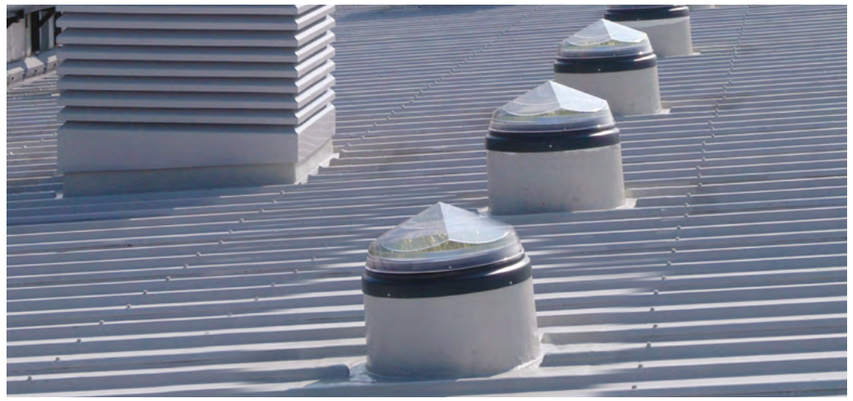
Availables with patterns and finishes from diffusing to shiny, thanks to different PVD vacuum deposition, the range of aluminium surfaces **vega95** and **vega 98** guarantees a minimum reflection of 95% or, alternatively, of 98% with both isotropic and anisotropic distributions.





## vega green
## Growth and efficacy

**vega greeN** 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 greeN 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.

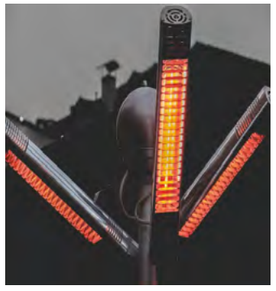
## vegaUV
## Highest performances in UV applications

**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.



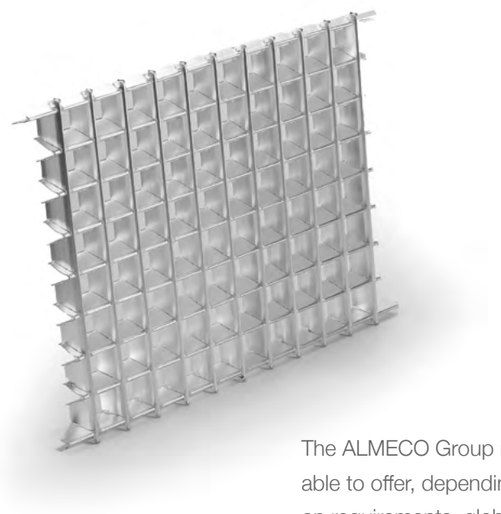
## infrared SURFACES
## Specially designed for infrared radiation

**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 $CO_2$ emissions, is a concrete choice through which to contribute to a more sustainable future, thanks in part to aluminum's complete recyclability.

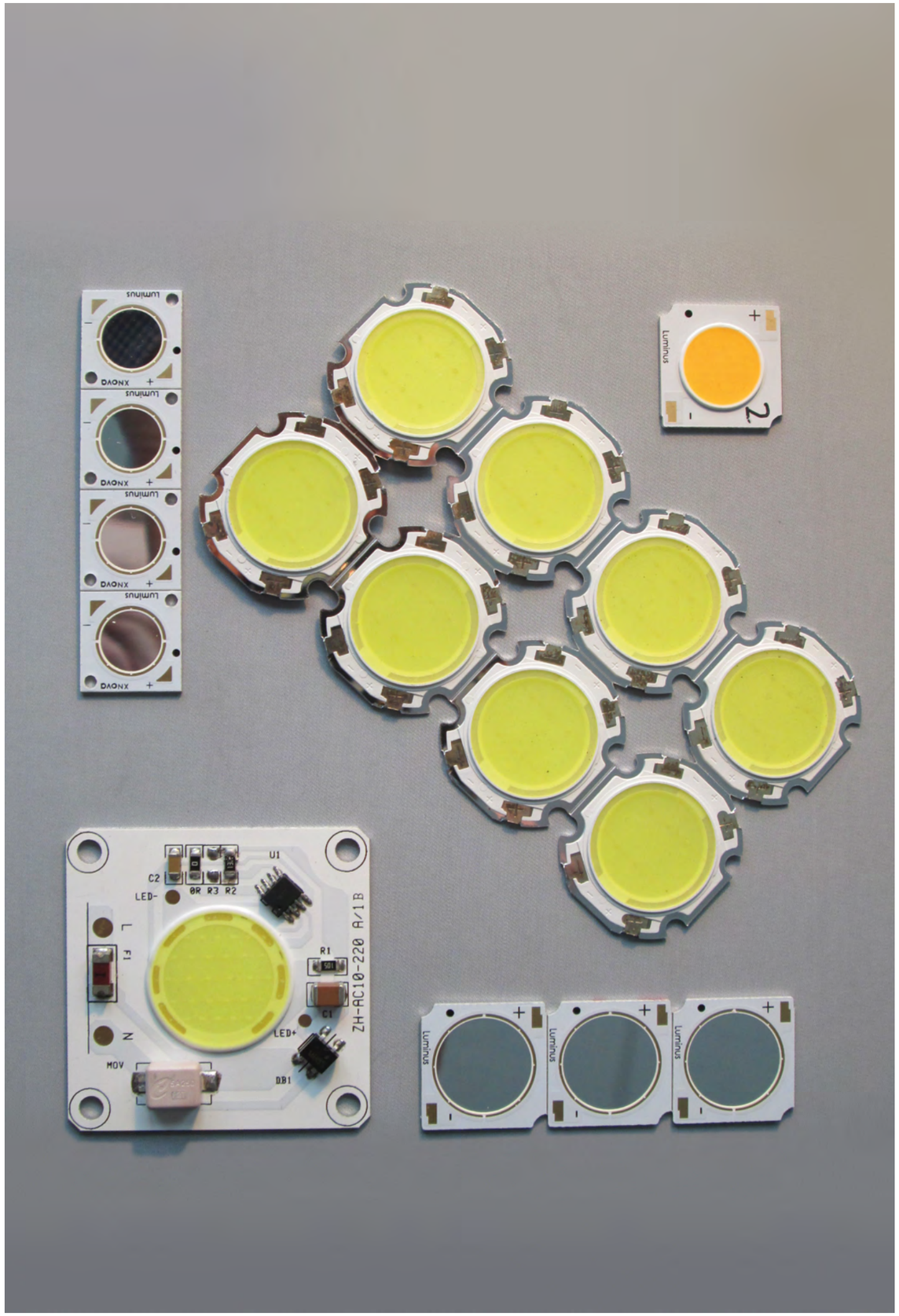
bxDECOR

## 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.

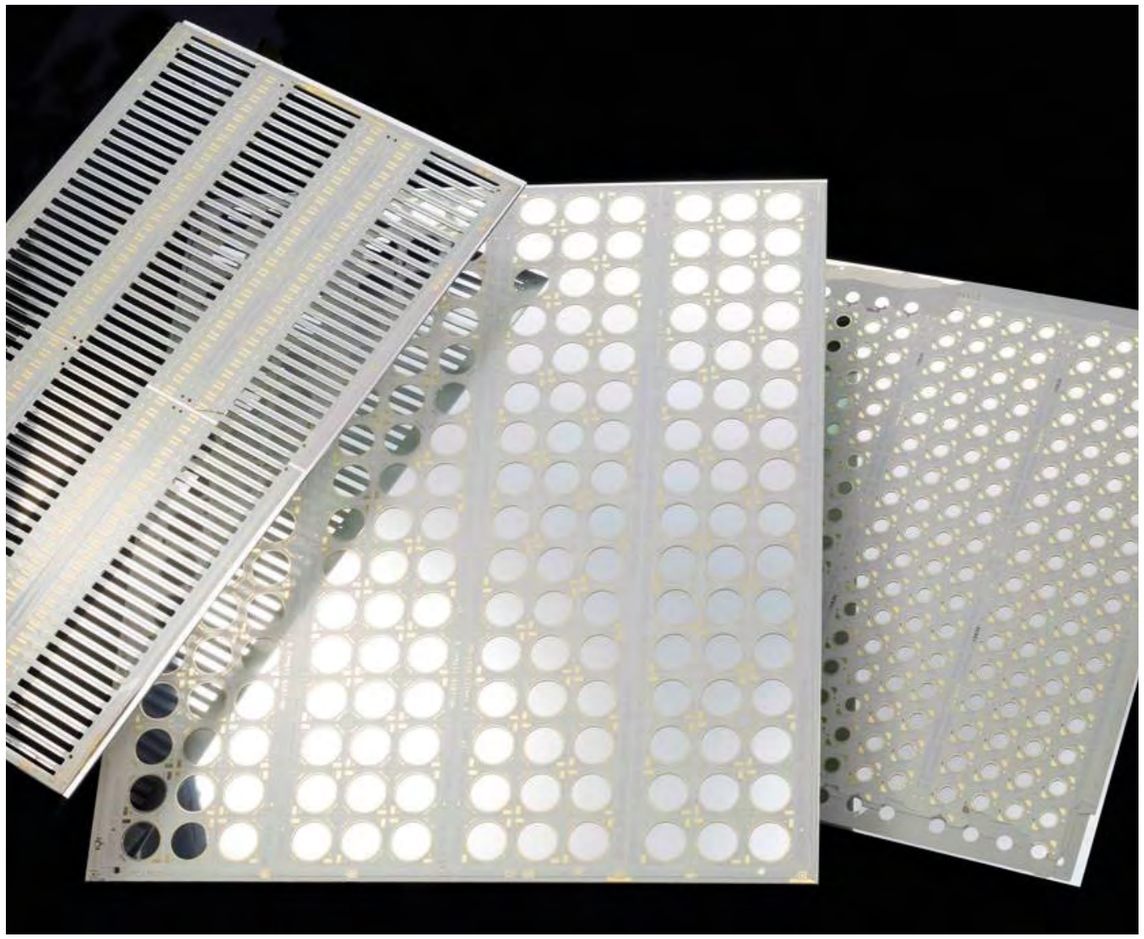
vegaLED on BOARD

## 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.



## 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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