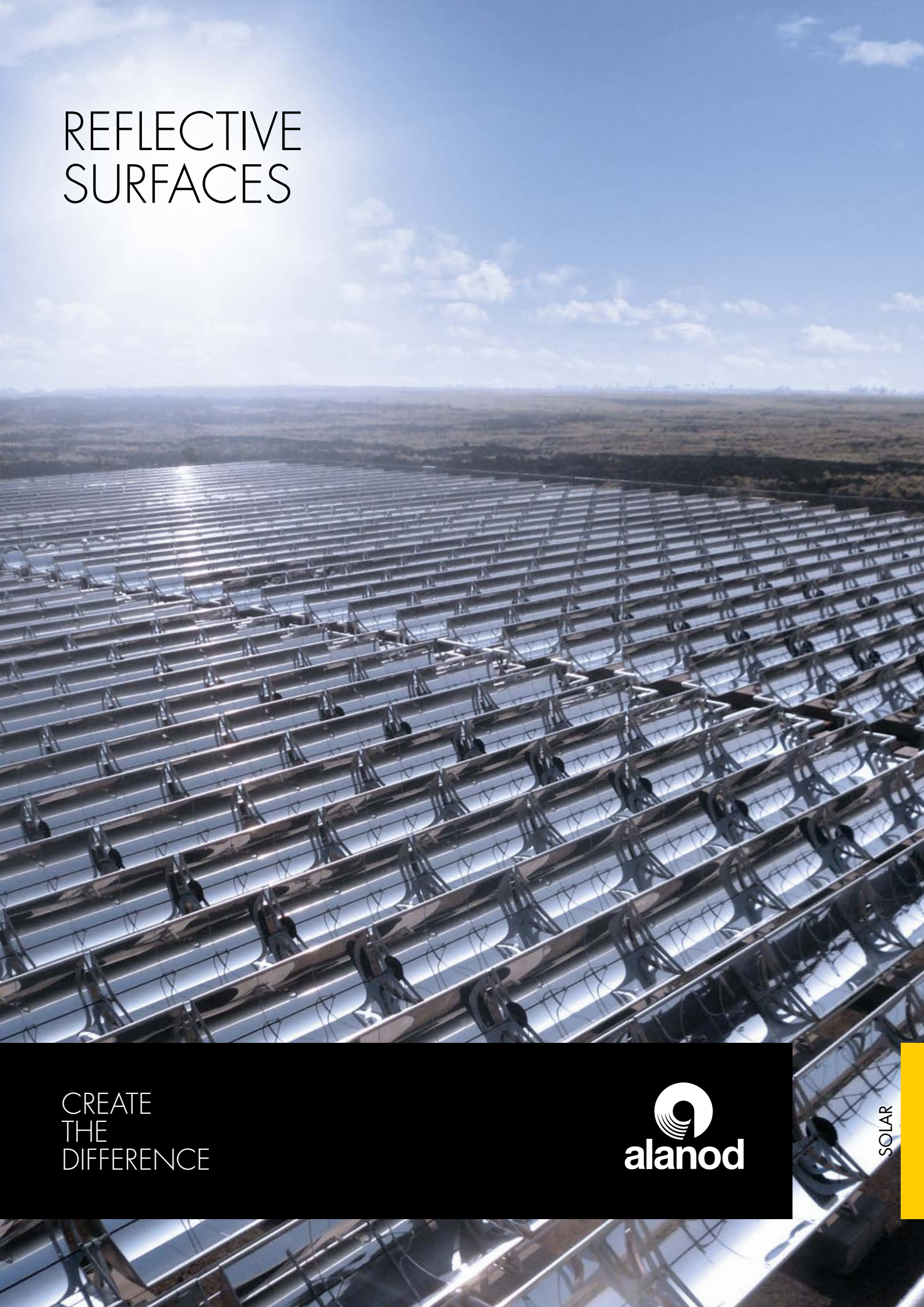


REFLECTIVE SURFACES



CREATE
THE
DIFFERENCE



SOLAR

Concentrate your energy

With our solar reflecting surfaces, we offer you various products with optimal solar reflection for outdoor applications. Thanks to the perfectly matching properties of the nano-composite layer on top of the anodised aluminium – or on top of PVD-coated aluminium – excellent durability is achieved.

Reflective 85 weatherproof and MIRO-SUN® reflective 90 weatherproof are generally used, for example, as CPC reflectors (CPC = Compound Parabolic Concentrator) in evacuated tube collectors and parabolic trough concentrators (CSP = Concentrated Solar Power).

Application examples
of tube collectors with
Alanod reflective surfaces:
Paradigma from Ritter
(left) and Buderus from
Bosch Energie (right)



Your advantages

- 10-year material warranty*
- Weather-resistant*
- Optimised for highest solar reflection
- UV-resistant
- Heat-resistant
- Easy to clean*
- Formable
- Flexible
- Scratch-resistant*
- Environmentally friendly/
emission-free manufacturing process

*valid only for the weatherproof products

Example reflection applications

- Evacuated tube collectors
(CPC Compound Parabolic Concentrator)
- Parabolic trough power plants
(CSP Concentrated Solar Power)
- Micro parabolic trough
(CST Concentrated Solar Thermal)
- Photovoltaics (CPV Concentrated Photovoltaics)
- Solar cookers
- Heliostats



CPC application





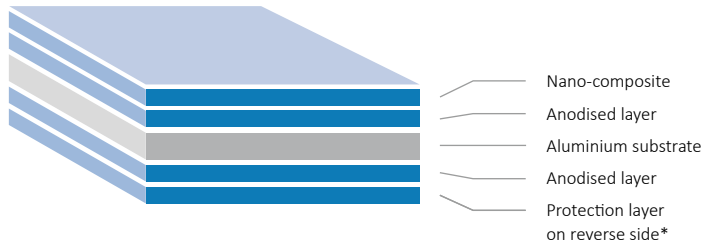
Reflective 85 weatherproof

Reflective 85 weatherproof is a highly reflective surface with a transparent, extra clear nano-composite lacquer, especially developed for high solar transmission, which is resistant against all kinds of environmental influences. Upon request, the surface is available with a similar reverse side lacquer.

Quick Info

- 86% total solar reflection
- Lacquer specially developed for solar applications
- 10-year material warranty

Layer structure for Reflective 85 weatherproof



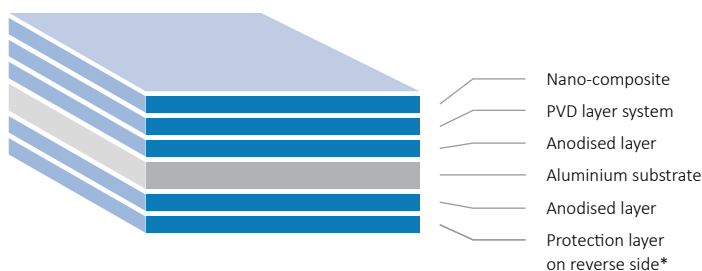
MIRO-SUN® reflective 90 weatherproof

Based on our MIRO® product range, we have developed MIRO-SUN® reflective 90 weatherproof specifically for outdoor use. A highly reflective coating (MIRO®) is deposited via a continuous air-vacuum-air PVD (Physical Vapor Deposition) process on anodised coils. A nano-composite lacquer is then applied onto the PVD coated strip using a coil-coating method. MIRO-SUN® reflective 90 weatherproof provides 90% total solar reflection making it ideal for various outdoor applications.

Quick Info

- 90% total solar reflection
- 10-year material warranty

Layer structure for MIRO-SUN® reflective 90 weatherproof

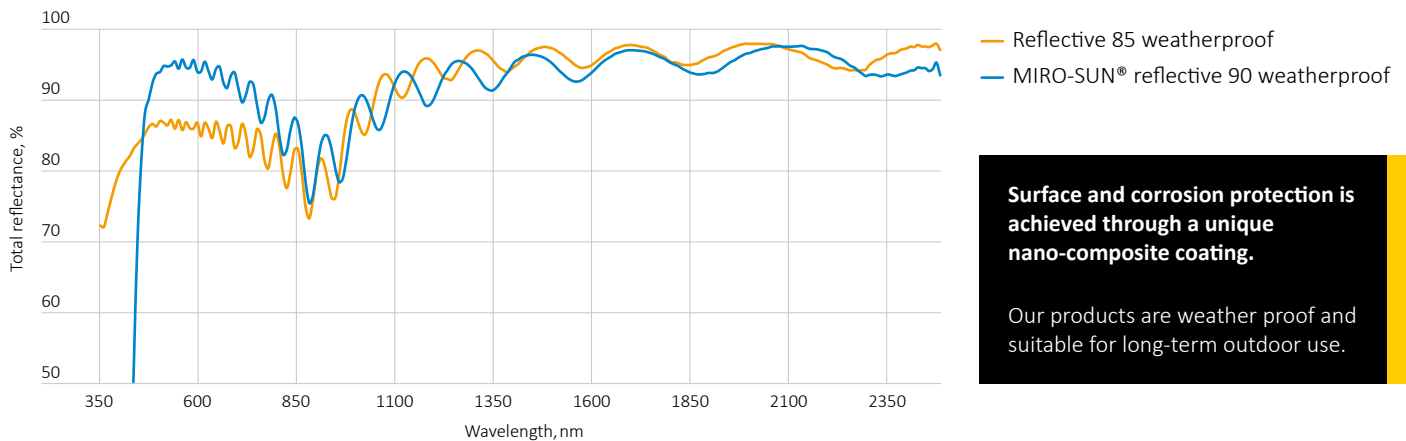


* upon request



Solar Reflectance

Typical reflection spectra of Alanod surfaces



Surface and corrosion protection is achieved through a unique nano-composite coating.

Our products are weather proof and suitable for long-term outdoor use.

Technical Specifications Reflective Weatherproof Products

| | Reflective 85 weatherproof | MIRO-SUN® reflective 90 weatherproof |
|---|---|---|
| Mechanical | | |
| Tensile Strength Rm [MPa] | >100 ¹⁾ | >100 ¹⁾ |
| Yield Strength Rp0,2 [MPa] | >90 ¹⁾ | >90 ¹⁾ |
| Elongation A50 [%] | ≥2 ¹⁾ | ≥2 ¹⁾ |
| Bending radius [mm] | ≥1,5 fold thickness | ≥1,5 fold thickness |
| Optical | | |
| Total solar reflectance [%] | 86±2 ²⁾ | 90±2 ²⁾ |
| Solar weighted diffuse reflectance [%] | 6±3 ²⁾ | 10±3 ²⁾ |
| Front side | anodised, lacquered | anodised, PVD coated & lacquered |
| Reverse side | anodised | anodised |
| Reverse side lacquered | upon request | upon request |
| Dimensions | | |
| Thickness [mm] | 0,5 ⁸⁾ | 0,5 ⁸⁾ |
| Width [mm] | max. 1.250 | max. 1.250 |
| Delivery | | |
| Coils or sheets with | protective film ³⁾ | protective film ³⁾ |
| Inner diameter [mm] | 400 or 500 | 400 or 500 |
| Corrosion, Weather Resistance & Warranty | | |
| Corrosion and weather resistance | fit for outdoor use, passed salt spray test ⁴⁾ , ΔT-Test ⁵⁾ , 500h QUV-B-Test ⁶⁾ , 24h boiling test ⁷⁾ | fit for outdoor use, passed salt spray test ⁴⁾ , ΔT-Test ⁵⁾ , 500h QUV-B-Test ⁶⁾ , 24h boiling test ⁷⁾ |
| Warranty | 10 years | 10 years |

¹⁾ EN 485-2, ²⁾ ASTM G 173, ³⁾ We guarantee for a period of 6 months after delivery, with appropriate storage (15–25°C and rel. air humidity of not more than 60%), a constant film adhesion and the residue-free removal of our protective films. It is necessary to protect the goods from sunlight and other sources of heat. The protective films are not UV resistant, ⁴⁾ DIN 50 021, ⁵⁾ DIN 50 928, chapt. 9.5, ⁶⁾ DIN EN ISO 4892-3, ⁷⁾ GSB guideline, ⁸⁾ Other thicknesses on request



Reflective standard products

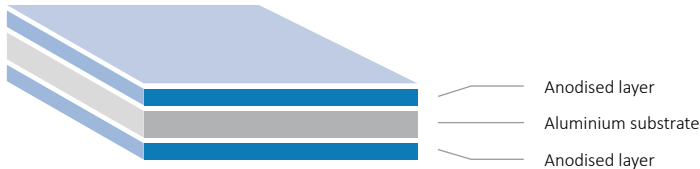
As the global leader in reflective surfaces, we manufacture products with the highest reflection values. For solar applications that are not exposed to environmental influences, we offer our highly reflective product portfolio without a nano-composite coating. This includes the products Reflective 85, MIRO® reflective 90 and MIRO® high reflective 95.

These products, which have proven their value over many years, are durable, extremely stable and stand for the highest overall reflectivity of up to 98%. By using MIRO® products, you are choosing optimum performance.

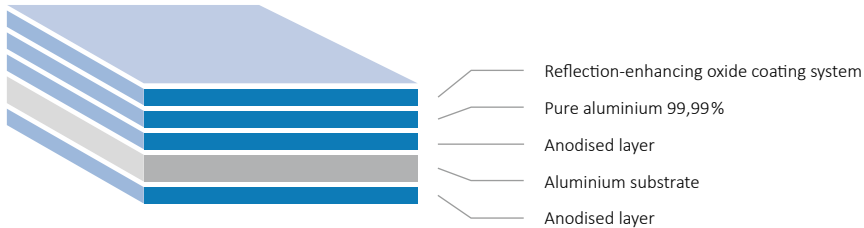
Quick Info

- highly reflective with > 86, 90 and 95% total solar reflection
- durable and robust Products
- Proven quality with more than 20 years of field experience

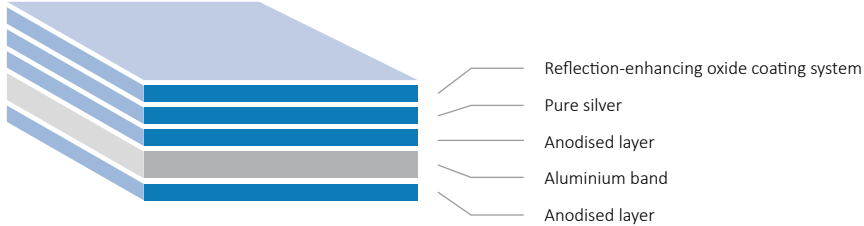
Layer structure for Reflective 85



Layer structure for MIRO® reflective 90

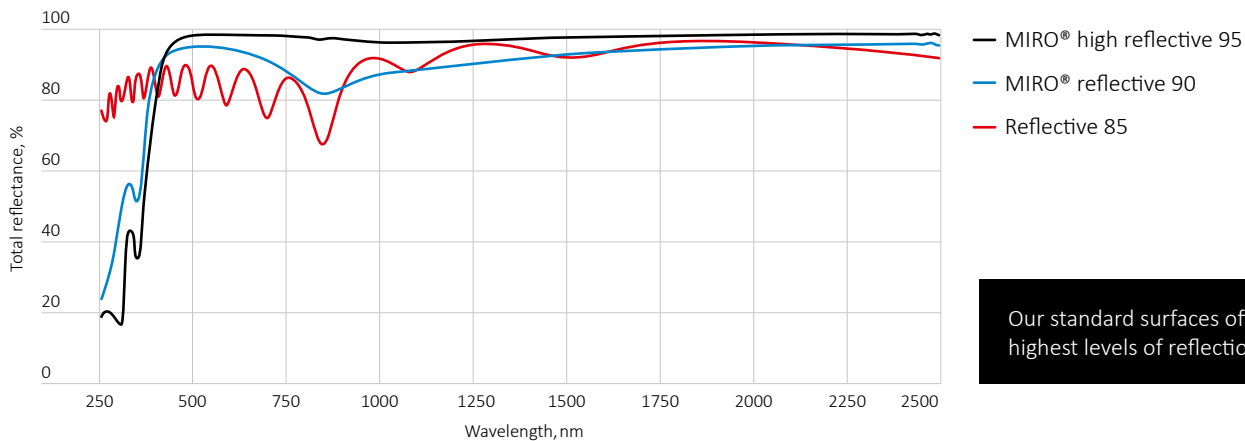


Layer structure for MIRO® high reflective 95



Solar Reflectance

Typical reflection spectra of Alanod surfaces



Our standard surfaces offer the highest levels of reflection.

Technical Specifications Reflective Standard Products

| | Reflective 85 | MIRO® reflective 90 | MIRO® high reflective 95 |
|--|-------------------------------|-------------------------------|-------------------------------|
| Mechanical | | | |
| Tensile Strength Rm [MPa] | >100 ¹⁾ | >100 ¹⁾ | >100 ¹⁾ |
| Yield Strength Rp0,2 [MPa] | >90 ¹⁾ | >90 ¹⁾ | >90 ¹⁾ |
| Elongation A50 [%] | ≥2 ¹⁾ | ≥2 ¹⁾ | ≥2 ¹⁾ |
| Bending radius [mm] | ≥1,5fold thickness | ≥1,5fold thickness | ≥1,5fold thickness |
| Optical | | | |
| Total solar reflectance [%] | 86±2 ²⁾⁴⁾ | 90±2 ²⁾⁴⁾ | 95±2 ²⁾⁴⁾ |
| Solar weighted diffuse reflectance [%] | 6±3 ²⁾⁴⁾ | 7±3 ²⁾⁴⁾ | 5±3 ²⁾⁴⁾ |
| Front side | anodised | anodised & PVD coated | anodised & PVD coated |
| Reverse side | anodised | anodised | anodised |
| Dimensions | | | |
| Thickness [mm] | 0,4–0,5 | 0,4–0,5 | 0,4–0,5 |
| Width [mm] | max. 1.250 | max. 1.250 | max. 1.250 |
| Delivery | | | |
| Coils or sheets with | protective film ³⁾ | protective film ³⁾ | protective film ³⁾ |
| Inner diameter [mm] | 400 oder 500 | 400 oder 500 | 400 oder 500 |
| Weather Resistance | | | |
| | not for outdoor use | not for outdoor use | not for outdoor use |

¹⁾ EN 485-2, ²⁾ ASTM G 173, ³⁾ We guarantee for a period of 6 months after delivery, with appropriate storage (15–25 °C and rel. air humidity of not more than 60%), a constant film adhesion and the residue-free removal of our protective films. It is necessary to protect the goods from sunlight and other sources of heat. The protective films are not UV resistant.

⁴⁾ SolarPaces Reflectance Guide V3.1 https://www.solarpaces.org/wp-content/uploads/202004_SolarPACES-Reflectance-Guidelines-V3.1.pdf

Care for the Environment

Conserving natural resources has been part of our corporate philosophy ever since our company was founded in 1975. Today, Alanod is a climate-neutral, sustainably run company. Due to the excellent recycling properties of aluminium, our materials use up to 90% recycled aluminium. This consumes up to 95% less energy compared to primary aluminium production.

Our cutting-edge post-combustion technology enables production of all of our materials without the need for excessive energy input. All our electricity needs are met using “100% green” energy sources.



Made in Germany

Our high-tech materials are all manufactured at our sites in Germany.

System Development

Our broad-based team of experts develops individual solutions for our customers in close cooperation with international research institutions and long-standing industrial partners. Talk to us so that we can work together to fulfill your wishes.

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