

## Instructions for Handling, Storage, Processing and Installation

### 1. Scope and Responsibility

This document sets out binding requirements for the receipt, storage, processing, handling, installation and maintenance of aluminium composite panels (ACP Bond, Economy Bond, DeBond). These instructions form an integral part of the product warranty conditions.

**WARNING:** Failure to comply with any provision of these instructions will void the product warranty. The customer/installation company is solely responsible for ensuring that all personnel handling these products are familiar with the contents of this document before starting work.

Compliance with local building regulations, fire safety standards and structural requirements is the sole responsibility of the installation company and/or the customer. The supplier makes no representation as to the suitability of the product for a specific application without prior written confirmation.

### 2. Inspection upon Receipt of Goods

The customer is obliged to thoroughly inspect the goods before signing the delivery note. The following must be checked:

- The quantity corresponds to the order confirmation and delivery documentation.
- All panels are free of visible transport damage, dents, scratches or deformation.
- The protective film is intact and undamaged on all panels.
- Panel dimensions and colour/finish correspond to the order specification.

**WARNING:** Any damage or discrepancies must be documented with photographs and reported to the supplier in writing within 2 working days of delivery. After this period, claims for transport damage will not be accepted. Signing the delivery note without noting any damage confirms that the goods were received in satisfactory condition.

Do not remove the protective film during the inspection. Pay particular attention to the edges and corners of the panels, which are the most vulnerable areas during transport.

### 3. Colour Consistency and Batch Uniformity

Colour deviations may occur between RAL codes and the actual colour of aluminium composite panels. This is a characteristic of the manufacturing process, not a product defect.

#### COLOUR DEVIATIONS

Colour deviations may occur between individual panels or between different batches. Bright, intensely coloured shades (red, yellow, blue, etc.) show greater colour deviations and faster pigment degradation compared to lighter shades. Metallic, brushed and special-effect finishes are particularly sensitive to viewing angle and lighting conditions.

**NOTE:** We strongly recommend purchasing all panels required for one project in a single order to ensure maximum colour uniformity. Using panels from different production batches on one façade may lead to visible colour differences, which are not covered by the warranty.

### PANEL ORIENTATION (Rolling Direction)

The protective film of each panel bears arrows indicating the direction of the coating or surface structure. This orientation must be strictly observed for all panels on the same wall or façade area.

**WARNING:** Installing panels with mismatched arrow directions will cause visible differences in shade between adjacent panels — especially with metallic, brushed or special-effect finishes. This is not a product defect and is not covered by the warranty.

## 4. Storage

### BASIC REQUIREMENTS

Store composite panels horizontally on pallets to prevent sagging. Protect them from direct sunlight, moisture and rain. The storage temperature must be at least +15 °C. Avoid condensation — when moving cold panels into a warmer environment, allow them to acclimatise gradually before unpacking.

### STACKING

- A maximum of 4 pallets of the same size may be stacked on top of each other.
- Heavier pallets must always be at the bottom.
- Do not stack panels of different sizes on top of each other — the corners of smaller panels will scratch the surface of larger panels below.

### PROTECTIVE FILM - CRITICAL DEADLINES

ACP Bond, Economy Bond and DeBond panels are fitted with a special protective film providing protection during transport, storage and processing. Although the film contains UV inhibitors, prolonged exposure to temperature fluctuations and direct sunlight will damage the film and make it impossible, or considerably more difficult, to remove without damaging the coated surface.

**WARNING:** The protective film must be removed immediately after installation, no later than 30 calendar days after installation. Do not remove the film at temperatures below +10 °C. Film left on the panels for an extended period may permanently adhere to the coated surface or leave an imprint on it — such damage is not covered by the warranty.

Do not apply solvents, plasticisers or self-adhesive labels to the protective film. Do not use permanent markers whose ink could bleed through. If panels need to be identified on site, use paper labels with dispersion adhesive, attached only to the edge of the film.

## 5. Handling and Transport on Site

Composite panels must be handled with care, especially large-format panels.

- Always lift panels with two or more people, supporting all four sides simultaneously.
- Never drag panels across other panels or hard surfaces.
- Do not grip or pull panels by a single edge — there is a risk of permanent deformation exceeding the panel's elastic limit.
- Panels have a defined maximum bending radius; once exceeded, the deformation is permanent and the panel cannot be restored to its original state.
- When transporting panels in bundles on site, use protective battens or foam pads.
- Carry panels vertically only over short distances; store and set them down horizontally.

## 6. Processing and Cutting

**WARNING:** Improper processing is one of the most common causes of panel damage and warranty avoidance. All cutting, routing and bending operations must be carried out by trained personnel using suitable tools.

### CUTTING

- Use carbide-tipped circular saw blades with a fine tooth count (at least 60 teeth for a 300 mm diameter blade) or CNC routing equipment.
- The feed rate must be controlled to prevent overheating and melting of the polyethylene core.
- On table and panel saws, cut with the coated (film-protected) side facing up; with handheld circular saws, cut with the coated side facing down. This way the blade teeth enter the coated side and the coating does not chip at the cut edge.
- The panel must be fully supported during cutting — unsupported panels vibrate and cause fraying at the cut edge.
- Immediately after cutting, remove all metal chips and aluminium filings to prevent surface scratching or corrosion staining.

### ROUTING AND BENDING

V-grooving (routing) is the standard method for creating bends and returns. The routing depth must leave the outer aluminium skin intact — cutting through the outer skin structurally weakens the panel and voids the warranty.

- Minimum internal bending radius for ACP Bond:  $r = 10 \times d$  (d = panel thickness).
- Minimum internal bending radius for ACP Bond A2:  $r = 25 \times d$  (d = panel thickness).
- Cold bending only — do not use heat to facilitate bending.
- Bend a routed panel along the groove only once — repeated bending or bending back and forth will crack the outer aluminium layer. Handle routed panels with care; the groove is a mechanically weakened area.

### DRILLING AND FIXING

- Use sharp drill bits suitable for aluminium; blunt bits generate excessive heat and cause panel delamination around the hole.
- All fixing holes must be oversized to compensate for thermal expansion — at least 2 mm of additional clearance per hole relative to the fastener diameter.
- Use only fasteners compatible with aluminium (stainless steel, aluminium or hot-dip galvanised material) to prevent galvanic corrosion.

## 7. Thermal Expansion and Joint Design

**WARNING:** Insufficient allowance for thermal movement is one of the most common causes of panel deformation, fixing failure and substructure damage on installed façades.

Aluminium composite panels expand and contract considerably with temperature changes. The installation company is responsible for calculating the correct expansion joint based on panel dimensions, installation location and the expected temperature range.

As a general guideline, an expansion gap of at least 1.5 mm per linear metre of panel length must be provided at all fixed joints, with additional allowance at corners and perimeter conditions. The coefficient of linear thermal expansion of the panels is 0.0247 mm/m·°C. Never install panels in rigid contact with adjacent panels or structural elements on all four sides simultaneously.

- Use slotted fixing holes (not round) wherever panel movement in one direction is expected.
- Sealed joints must be filled with a movement-resistant sealant (polyurethane or silicone; compatibility with the panel finish must be verified before application — see Section 9).
- Do not install panels at ambient air temperatures below +5 °C or above +40 °C without specific written recommendation from the supplier.

## 8. Installation

### SUBSTRUCTURE

The substructure to which the panels are fixed must be structurally adequate, plumb, flat and rigid. The supplier accepts no responsibility for problems arising from an inadequate substructure.

- An aluminium substructure is preferred. When using steel, all contacts between dissimilar metals must be insulated with suitable sealing washers or coating to prevent galvanic corrosion.
- The substructure must independently accommodate the thermal movements of both the substructure itself and the panels.

### PANEL FIXING

- Follow the fixing design documentation approved by a structural engineer where required by local regulations.
- Do not overtighten fasteners — tighten them so that the panel is secured but can move freely within the slot to accommodate thermal expansion.
- Rivet or screw heads must not protrude above the panel surface in a way that would damage adjacent panels or create water traps.

### EARTHING

Aluminium composite cladding panels form part of the building envelope and can accumulate static charge. Where required by local electrical or building regulations, the substructure and panel system must be bonded and earthed in accordance with the applicable standard.

- The installation company is responsible for compliance with all applicable electrical regulations.
- Do not drill additional holes in the panels for earthing purposes without verifying that the structural integrity of the panel is maintained.

### FIRE SAFETY

The fire performance classification of ACP Bond, Economy Bond and DeBond panels varies by product type and market. The customer and the installation company are solely responsible for:

- Verifying that the specified product meets the fire performance requirements set by the applicable building regulations for the intended application and building height/use.
- Ensuring that the complete façade system (panel + substructure + insulation + sealing) has been tested and certified to the required standard where regulations so require.

**WARNING:** The supplier provides product fire performance certificates upon request. However, the fire performance of the system as a whole depends on the entire assembly, not just the panel itself. Using panels in applications exceeding their certified fire performance is strictly prohibited and voids all warranties.

## 9. Chemical Compatibility

The coated and finished surfaces of composite panels are susceptible to damage from a range of chemicals encountered during and after construction. The following substances must not come into contact with the panel surface:

- Cement, mortar, concrete, lime and other alkaline building materials — rinse off immediately upon contact.
- Acidic cleaning agents, etching solutions or compounds with active pH.
- Solvent-based adhesives, primers or sealants whose compatibility with the panel finish has not been verified.
- Bituminous products, tar or asphalt.
- Run-off water from copper or copper alloys (from roofing, gutters or fasteners) — causes irreversible staining.
- De-icing salts and chloride-containing compounds in concentrations exceeding normal atmospheric exposure.

Before applying any sealant, adhesive or coating near or in contact with the panels, the applicator must confirm chemical compatibility with the panel manufacturer or obtain a written compatibility declaration from the sealant/adhesive supplier.

**NOTE:** Silicone sealants are generally compatible with PVDF- and polyester-coated panels; however, acid-curing (acetoxo) silicone sealants must never be used — use exclusively neutral-curing silicone.

## 10. Maintenance and Cleaning

Regular cleaning is essential to preserve the appearance and service life of composite panels, especially in urban or coastal environments where dirt deposition is accelerated.

### RECOMMENDED CLEANING METHOD

- Clean with a soft cloth or non-abrasive sponge using a diluted neutral detergent (pH 6–8) in clean water.
- After cleaning, rinse thoroughly with clean water to remove all detergent residues.
- Clean in the shade or during the cooler part of the day — do not clean surfaces heated above +40 °C.
- For stubborn deposits, first increase the detergent concentration before resorting to mechanical cleaning aids.
- During every maintenance, inspect and clean drainage channels, joints and sealant lines.

### PROHIBITED CLEANING METHODS

- Pressure washing directed straight into panel joints or sealant lines — risk of water ingress.
- Abrasive pads, wire brushes or scouring powders — these will permanently damage the surface layer.
- Solvent-based cleaners, thinners, paint strippers or alkaline/acidic cleaners — see Section 9.
- Steam cleaning at surface temperatures above +40 °C.

## 11. Warranty Conditions

### VOIDING OF THE WARRANTY

The warranty on ACP Bond, Economy Bond and DeBond products is voided under any of the following conditions:

- The panels are not installed in accordance with these instructions and the supplier's current technical documentation.
- The panels are damaged, scratched or structurally compromised during storage, handling or processing.
- The protective film is not removed within 30 calendar days of installation.
- The panels are exposed to environments not specified in the product data sheet, including intense smoke, radioactive environments, chemical exposure, air saturated with chemical particles or other aggressive environments.
- The panels are installed in areas subject to sandstorms or similar abrasive atmospheric conditions.
- The panels are in prolonged or repeated contact with standing water.
- The panels are exposed to saline (coastal) or alkaline environments exceeding the classification stated in the product data sheet.
- The panels are not cleaned and maintained in accordance with Section 10.
- The panels are used in a fire safety application for which they are not certified.
- Modifications, penetrations or further processing not specified in these instructions are carried out without the supplier's prior written consent.
- Expansion joints and thermal movement compensation are not provided in accordance with Section 7.

### WARRANTY PERIODS BY COATING TYPE

The duration of the warranty on the weathering resistance of the coated surface depends on the coating type. Zone A includes countries above 45° northern/southern latitude (incl. Germany, Austria, Switzerland — the Czech Republic and Slovakia fall within Zone A); Zone B covers countries between 30° and 45° (incl. Portugal, Spain, Italy, Greece, Turkey).

### Polyester (PE)

- Technical warranty (Zones A and B): 5 years for installations
- Aesthetic warranty (Zones A and B): no warranty
- Colour stability:  $\Delta E \leq 10$  ( $\leq 8$  for white shades),  $\Delta E \leq 4$  in the first year after installation; gloss change in the first year will not exceed 20 % (measured at 60°).

### High Durable Polyester (HDP)

- Technical (functional) warranty: 2 years, film integrity  $\geq 90\%$  (Zones A and B, vertical and non-vertical installations).
- Aesthetic warranty: Zone A 2 years ( $\Delta E \leq 5$ ,  $\leq 3$  in the first year; gloss change up to 50 % at 60°), Zone B 2 years ( $\Delta E \leq 5$ ; gloss change up to 50 % at 60°).

### PVDF

- Technical (functional) warranty: 15 years, film integrity  $\geq 95\%$  of the total area (Zones A and B, vertical and non-vertical installations); 15 years when an additional layer of PVDF or FEVE clearcoat is applied to the recommended PVDF system.
- Aesthetic warranty: Zone A 15 years ( $\Delta E \leq 5$ ,  $\leq 2$  in the first year; gloss change up to 60 % at 60°), Zone B 15 years (the limits  $\Delta E \leq 5$  and gloss change up to 50 % apply for 10 years).

The following applies to all coating types: rich and bright shades (yellow, orange, red) containing organic pigments may show faster colour degradation in the first year after installation (see Section 3.1). The warranty is conditional on proper protection of cut edges and holes and on regular maintenance in accordance with Section 10. It does not cover mechanical damage (scratching, abrasion, impact), damage caused by moisture trapped in bundles during transport or storage, standing water on the surface, chemically aggressive or highly humid and dusty environments, contact with animals and their excrement, installations with insufficient air circulation, fallout from facilities processing copper, lead, nickel or silver, or damage caused by force majeure.

## 12. Waste, Offcuts and Recycling

Offcuts and waste from aluminium composite panels must be handled responsibly:

- Cut edges are sharp — wear cut-resistant gloves when handling offcuts.
- The aluminium and the polyethylene core are recyclable but must be separated — do not mix them with construction waste where separate recycling streams are available.
- Dispose of all waste in accordance with local environmental regulations.
- Waste panels with damaged or contaminated surface finish must not be used as visible finishing material.
- Upon request, we can take back offcuts of our ACP