

Technical Data Sheet (TDS)

RV Exterior Aluminum Composite Panel System



1. Product Description

This product is a heavy-duty aluminum composite panel (ACP) specifically developed for RV, caravan, and trailer exterior applications.

It is manufactured with 0.30mm aluminum skins on both sides bonded to a polyethylene core, and coated with a high-performance PVDF (fluorocarbon) coating, offering excellent durability, weather resistance, and long-term appearance stability. Designed for lightweight construction, superior flatness, and vibration resistance, it is ideal for mobile outdoor environments.

2. Product Structure

Layer: Specification

Top Coating: PVDF Coating ($\geq 25\mu\text{m}$)

Aluminum Skin: 0.30 mm

Core: LDPE (FR B1 optional)

Bottom Aluminum: 0.30 mm

Back Coating: Protective Polyester Coating

Total Thickness: 3 mm

3. Key Features

Heavy-Duty Structure
 0.30mm aluminum skins significantly improve:

- Impact resistance
- Structural rigidity
- Anti-deformation performance

Ideal for RV applications with vibration and dynamic loads.

Superior Flatness

Composite structure eliminates waviness commonly found in solid aluminum panels after coating and thermal exposure.

Excellent Weather Resistance

PVDF coating provides:

- UV resistance
- Color retention
- Chalk resistance
- Corrosion resistance

Suitable for high UV environments such as Australia and the United States.

Lightweight Solution

Reduces total vehicle weight compared to solid aluminum, improving fuel efficiency and towing performance.

Easy Fabrication

Compatible with:

- CNC cutting
- Routing & folding
- Adhesive bonding
- Riveting systems

4. Technical Properties

Item: Typical Value

Surface Density: 4.5 – 5.5 kg/m²

Peel Strength: ≥ 5 N/mm

Flexural Strength: ≥ 120 MPa

Thermal Expansion: 2.4 mm/m
($\Delta T=100^{\circ}\text{C}$)

Surface Hardness: $\geq 2\text{H}$

Impact Resistance: No cracking

5. Coating Performance (PVDF)

Item Result

Gloss Retention (10 years): $\geq 50\%$

Color Difference ΔE : ≤ 5

Chalk Resistance: Grade ≤ 1

UV Resistance: Excellent

6. Standard Sizes

Width \times Length

1220 \times 2440 mm

1500 \times 2440 mm

1500 \times 3050 mm

2000 \times 5000 mm

7. Custom Sizes

- Max width: ≤ 2000 mm
- Max length: ≤ 6000 mm
- Custom sizes available upon request

Large-format panels reduce joint lines and improve overall appearance and sealing performance of RV exteriors.

8. Applications

- RV side panels
- Trailer skirts
- Exterior wall panels
- Lightweight transport bodies

9. Fabrication Guidelines

- Use PU adhesive or MS polymer adhesive
- Routing is required before bending
- Avoid direct cold bending
- Allow for thermal expansion

10. Installation Notes

- Seal all panel edges to prevent water ingress
- Avoid long-term exposure of cut edges
- Use non-corrosive sealants
- Ensure proper structural support to minimize vibration fatigue

11. Warranty

- 10-Year PVDF Coating Warranty

Covers:

- Significant color fading
- Coating peeling or cracking

Excludes:

- Improper installation
- Mechanical damage
- Chemical corrosion exposure

12. Optional Configurations

- Fire-retardant core (B1)
- Matte / Gloss finishes
- Custom colors
- Anti-scratch coating