

1. Product Overview

1.1 Product Identifier

Aluminum Honeycomb Composite Panel

HCP-2500

Ballesta Honeycomb Composite Panel is a premium all-aluminum sandwich panel system designed for building facades and curtain wall applications. The panel consists of a hexagonal aluminum honeycomb core (AA3003H18 foil, 0.05–0.08mm thickness, 10mm cell size) bonded between two aluminum face/back skins (AA3003 or AA5005, 0.5–1.2mm) using high-strength adhesive. Available in thicknesses from 10mm to 25mm with standard panel sizes up to 1500×4000mm and custom lengths up to 12m. The honeycomb structure delivers exceptional flatness ($\pm 0.5\text{mm}/1000\text{mm}$), high strength-to-weight ratio, and A2 fire classification making it ideal for large-format facade cladding, curtain walls, column covers, and interior feature walls.

2. Technical Specifications

Product Name	Aluminum Honeycomb Composite Panel	Ballesta® HCP Series
Panel Thickness	10mm, 15mm, 20mm, 25mm	Custom thickness available
Face/Back Skin	0.5–1.2mm AA3003 or AA5005 aluminum	Per specification
Honeycomb Core	Hexagonal aluminum foil AA3003H18, 0.05–0.08mm foil	10mm standard cell size
Standard Panel Size	1220mm × 2440mm (4' × 8')	Wider sizes available
Maximum Panel Size	Standard: 1500mm × 4000mm; Custom up to 12m length	Per project
Coating Options	PVDF (Kynar 500) /	All standard systems

	Anodized / Powder coating	
Coating Thickness	25–35 µm (PVDF two-coat or three-coat system)	Per AAMA 2605
Bond Strength	≥2.0 MPa	GB/T 23443 certified
Peel Strength	≥80 N/mm peel resistance	High bond integrity
Flatness Tolerance	±0.5mm per 1000mm span	Superior flatness
Fire Classification	A2 – non-combustible	EN 13501-1 / ASTM E84
Applications	Facade cladding, curtain walls, column covers, soffits, interior feature walls	Large-format cladding
Installation	Concealed fixing / visible cap / cassette systems; subframe by others	Per facade design
Warranty	15-year limited warranty (PVDF coating); structural integrity per design life	Subject to conditions
Certification	ISO 9001:2015 / GB/T 23443 / AAMA 2605	SISA certified
Density	2.70 g/cm ³	ASTM D792

3. Manufacturing Process

3.1 Aluminum Substrate Cutting:

Precision cutting of 3003/5005 series aluminum sheet into 300mm×3750mm size with 0.7mm thickness, ensuring dimensional tolerance (Length±2mm, Width±1mm, Thickness±0.03mm).

3.2 Surface Pretreatment:

Degreasing and dust removal treatment on aluminum substrate surface to enhance the adhesion between UV ink and substrate, and improve the overall corrosion resistance of the panel.

3.3 UV Printing

Coating environmentally friendly UV ink on the pretreated substrate, precisely controlling

ink dosage, printing speed and curing time. The ink is cured by UV technology to form a uniform and firm coating ($\geq 60\mu\text{m}$), and the matte surface gloss is adjusted to 15-25°. Custom texture (wood grain/stone grain) can be printed according to customer requirements with high restoration degree.

3.4 Forming & Splicing Processing

Edge folding treatment of the panel with precise control of fold angle ($90^\circ \pm 1^\circ$) and consistent fold width, no visible cracks/distortions at the folds. Seamless splicing design is adopted, and the joint is reinforced by intermittent welding or structural adhesive to ensure structural stability.

3.5 Post-Processing:

Edge trimming, deburring and flatness calibration of the panel. Multi-point testing of surface gloss, color difference and thickness by professional equipment to ensure all indicators meet the standard.

3.6 Installation Accessory Matching:

Configure special hangers for ceiling installation; steel support frames or counter supports are equipped for hangers longer than 1.5m to enhance the stability of the suspension system.

4. Application Scope

This aluminum panel is widely used in architectural decoration fields, including but not limited to:

- Indoor ceilings, interior walls, column cladding and ground decoration (special anti-slip customization)
- Exterior facades of commercial buildings, office buildings and residential buildings
- Decoration of public places such as shopping malls, hotels, airports and subway stations
- Customized decoration projects requiring Grade A fire resistance, seamless splicing and matte effect
- Decoration in harsh environments such as high temperature ($\leq 70^\circ\text{C}$), high humidity ($\text{RH} \geq 95\%$) and 5% salt spray concentration

5. Compliance Standards

- **YS/T429.1:** Aluminum Curtain Wall Panels - Part 1
- **YS/T429.2:** Aluminum Curtain Wall Panels - Part 2
- **GB/T3190-2020:** Chemical Composition of Wrought Aluminum and Aluminum Alloys
- **GB/T3880:** Aluminium and Aluminium Alloy Plates and Sheets for General Industrial Use
- **National Fire Resistance Standard for Building Materials** (Grade A combustion performance)
- **ASTM D1186:** Standard Test Method for Thickness of Organic Coatings
- **ASTM D3359:** Standard Test Methods for Measuring Adhesion by Tape Test
- **AAMA 501.6:** Standard Practice for Installation of Exterior Wall Cladding Panels

6. Packaging & Storage

Packaging: Each panel is covered with PE film to prevent scratches, then packed in wooden crates with foam padding to avoid collision and deformation during transportation. The folding edge and splicing part are protected by special anti-collision accessories.

Storage: · Store in a dry, ventilated and rainproof warehouse, avoid direct sunlight, high temperature ($>70^{\circ}\text{C}$) and high humidity ($\text{RH}>95\%$) environment.

- Avoid contact with sharp objects, chemicals and corrosive substances to prevent surface damage and substrate corrosion.
- Stacking height shall not exceed 3 layers to prevent flatness damage caused by excessive pressure.
- The storage site shall be far away from fire sources to meet the fire safety requirements of Grade A fire-resistant materials.

7. Quality Assurance

All panels undergo strict multi-item quality inspection before delivery, including dimensional tolerance, thickness error, surface gloss, color difference, flatness, coating adhesion, wear resistance and fire resistance test.

We provide a warranty period of not less than 15 years for the product (under normal use conditions and compliance with installation and storage requirements). Within the warranty period, the UV printing coating shall have no obvious fading, peeling, cracking and color loss; the aluminum substrate shall have no corrosion, deformation and other defects, and the splicing part shall remain stable and firm.
