

1. Product Overview

1.1 Product Identifier

Product Name: Ballesta® Stainless Steel Honeycomb Panels

Product Code: B-SSH-001

Description: Ballesta stainless steel honeycomb panels feature an aerospace-inspired sandwich structure combining a premium stainless steel face sheet (0.4–0.6 mm) with an aluminum honeycomb core (AA3003 H18) and a galvanized steel or aluminum backer. This composite construction delivers the visual prestige of stainless steel at lower cost, 40–60% weight reduction compared to solid panels, and superior flatness that eliminates oil-canning. Available in mirror No.8, brushed No.4, matte bead-blasted, and PVD color finishes with nano-scale anti-fingerprint coating. Ideal for office lobby walls, column cladding, elevator interiors, and luxury retail environments.

2. Technical Specifications

Item	Specification	Test Standard
Face Sheet Material	Stainless Steel Grade 304 (standard) Grade 316L (marine/costal)	ASTM B209
Face Sheet Thickness	0.4 mm, 0.5 mm, 0.6 mm (Custom up to 1.5 mm available)	ASTM B209, ISO 16809
Honeycomb Core Material	Aluminum AA3003 H18 Hexagonal cell: 6–10 mm Foil thickness: 0.04–0.08 mm	GB/T 3880
Backer Sheet	Galvanized steel 0.5 mm (standard) Aluminum AA3003 0.5–1.0 mm	Per project spec

Total Panel Thickness	10 mm, 12 mm, 15 mm (interior) 20 mm, 25 mm (curtain wall / high-strength)	Per project spec
Standard Panel Size	1220 mm × 2440 mm (4' × 8')	Per project spec
Max Panel Size	1500 mm × 4000 mm (custom)	Per project spec
Panel Weight	5–8 kg/m ² (10–15 mm) 8–12 kg/m ² (20–25 mm)	ASTM D792
Surface Finishes	Mirror (No.8), brushed (No.4), matte bead-blasted, embossed, patterned, PVD color	Aesthetic spec
PVD Color Options	Titanium gold, champagne, bronze, blue, gunmetal, rose gold, black	PVD process std
Anti-Fingerprint Coating	Nano-scale clear coating, standard on all touch-accessible installations	Supplier QC std
Adhesive System	Aerospace-grade epoxy resin film Hot-pressed: 120–140 °C, 0.8–1.2 MPa	ASTM C297
Peel Strength	>7 MPa (SGS certified)	ASTM C297
Flatness Tolerance	≤1.0 mm/m (mirror finish) ≤1.5 mm/m (brushed / matte)	GB/T 3880
Fire Rating	Class A non-combustible Flame Spread Index ≤25,	ASTM E84, GB 8624 A1,

	Smoke Developed ≤ 450	EN 13501-1
Edge Treatment	V-groove folded edge, embedded Al frame, sealed open edge	Per project detail

3. Manufacturing Process

3.1 Raw Material Preparation

Selection and preparation of stainless steel coils (Grade 304/316L), aluminum honeycomb core (AA3003 H18, foil 0.04–0.08 mm, cell size 6–10 mm), and backer sheets (galvanized steel or AA3003 aluminum). All materials inspected for surface quality, thickness tolerance, and chemical composition per ASTM B209 / GB/T 3880.

3.2 Surface Pretreatment & Finish Application

Stainless steel face sheet undergoes chemical degreasing and surface activation. Finish applied per specification — brushed (No.4), mirror polished (No.8), bead-blasted matte, embossed, or PVD colored. Nano-scale anti-fingerprint coating applied for touch-accessible installations. Backer sheet cleaned and pre-treated for adhesive bonding.

3.3 Adhesive Application & Core Assembly

Aerospace-grade epoxy resin film applied uniformly to both face and backer sheets (adhesive weight 120–500 g/m²). Aluminum honeycomb core positioned between face and backer in symmetrical sandwich layup. Alignment verified for dimensional accuracy.

3.4 Hot Pressing & Curing

Sandwich assembly placed in vacuum hot press. Cured at 120–140°C under 0.8–1.2 MPa pressure for 30–60 minutes. The hot-press process ensures complete adhesive penetration into honeycomb cell edges, achieving peel strength >7 MPa (ASTM C297, SGS certified).

3.5 Post-Processing & Edge Treatment

Panels trimmed to final dimensions via CNC waterjet or saw cutting (± 0.5 mm tolerance). Edge treatment options include V-groove folded edge, embedded aluminum frame extrusion, or sealed open edge. Holes, cutouts, and penetrations machined per project shop drawings.

3.6 Quality Inspection & Packaging

Final inspection includes dimensional verification, flatness measurement (≤ 1.0 mm/m for mirror finish), surface quality check, and peel strength sampling. Panels wrapped with protective PE film, interleaved with foam sheets, packed in wooden crates per export standard. Labeled with project ID, panel number, and installation position.

4. Application Scope

This stainless steel honeycomb panel system is widely used in architectural applications

including but not limited to:

- Office building lobby walls, corporate headquarters and reception areas
- Column cladding for hotel atriums, commercial lobbies and transit hubs
- Elevator interior panels and elevator lobby feature walls
- Luxury retail store display walls, showroom feature walls and brand flagship stores
- Airport VIP lounges, conference centers and exhibition hall accent walls

5. Compliance Standards

- **ASTM B209: Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate**
- **ASTM C297: Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions**
- **ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials**
- **GB/T 3880: Aluminium and Aluminium Alloy Plates and Sheets for General Industrial Use**
- **GB 8624 A1: Non-combustible building material classification (China)**
- **ISO 9001:2015: Quality Management Systems (SISA certified)**
- **EN 13501-1: Fire Classification of Construction Products (Class A)**
- **AAMA 2605: Voluntary Specification for High-Performance Organic Coatings on Aluminum Extrusions**

6. Packaging & Storage

Packaging: Each stainless steel honeycomb panel is covered with protective PE film to prevent surface scratches, then packed in wooden crates with foam cushioning between panels. Edge protectors applied to prevent damage during transport. Panel sets organized per installation sequence with clear labeling.

Storage: · Store in a dry, ventilated and rainproof warehouse, avoid direct sunlight and high temperature (above 50°C).

- Avoid contact with sharp objects, chemicals and corrosive substances to prevent surface damage and coating degradation.
- 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 materials.

7. Quality Assurance

All honeycomb panels undergo strict multi-item quality inspection before delivery, including dimensional tolerance verification (± 0.5 mm), flatness measurement (≤ 1.0 mm/m for mirror finish), peel strength testing (> 7 MPa, ASTM C297), coating thickness (ASTM D7091), adhesion (ASTM D3359), color consistency ($\Delta E^*_{ab} \leq 2.0$ per ISO 7724-1), and visual surface inspection under standard lighting conditions.

We provide a warranty period of not less than 15 years for the product under normal use conditions and proper maintenance. Warranty covers delamination resistance, coating integrity, and dimensional conformance to approved shop drawings.
