

1. Product Overview

1.1 Product Identifier

Product Name: Ballesta® U Type Baffle Ceiling (U-Shaped)

Product Code: [Customizable, e.g., U-BF-35-100x4000-0.6]

The Ballesta U Type U-shaped baffle ceiling features a 35mm-wide open U-section aluminum profile available in 50mm, 100mm, and 150mm heights. Blades are suspended from top/bottom clip fixation keels with spacing equal to blade height. The clean U-shaped profile creates strong linear ceiling rhythms with open ventilation for transit hubs, commercial atriums, and public concourses.

2. Technical Specifications

Item	Specification	Test Standard
Material	AA3000 series aluminum sheet Profile: 0.6-0.7mm thickness	GB/T 3190, ASTM B209
Profile Shape	U-shape (open U-section) Width: 35mm; Height: 50/100/150mm	ISO 128, GB/T 23444
Standard Length	≤4000mm (custom lengths available) Length tolerance: ±2mm	GB/T 23444, JG/T 450
Panel Thickness	0.6-0.7mm (substrate) Thickness tolerance: ±0.03mm	GB/T 3880, ASTM B209
Suspension System	Top/bottom clip fixation keel Clips engage blade edges at top and bottom Spacing = blade height (e.g. 150mm blades = 150mm)	JG/T 450, YS/T429.2

	spacing)	
Surface Finish	Powder coating (RAL) / Coil coating Heat-transfer wood grain / Decorative film wrapping	Powder: AAMA 2604 Coil: AAMA 2605
Coating Thickness	Powder coating: $\geq 60\mu\text{m}$ Coil coating: $\geq 20\mu\text{m}$	ASTM D7091
Color Performance	Full RAL color range Custom wood grains and decorative films Monochrome $\Delta E^*_{ab} \leq 1.5$ (ISO 7724-1)	ISO 7724-1, ASTM D2244
Adhesion Strength	High adhesion: no peeling/delamination under standard tape test Cross-cut classification: $\geq$ Class 1	ASTM D3359 Method B, GB/T 9286
Weight	Approx. 2.0-4.5 kg/m ² (varies by height and spacing)	ASTM D792
Fire Resistance Rating	Class A1 non-combustible No toxic fume emission in fire conditions	EN 13501-1, ASTM E84, GB 8624
Corrosion Resistance	Salt spray resistance: $\geq 1000\text{h}$ (ASTM B117) High humidity resistance: RH $\geq 95\%$	ASTM B117, GB/T 10125
Tensile Strength	AA3000 series: 145-180MPa	GB/T 3880, ASTM B209 (ASTM E8/E8M)
Flatness	$\leq 1.5\text{mm/m}$ blade flatness No wavy deformation or	JG/T 450, YS/T429.1

	surface irregularities	
Density	2.70 g/cm ³ (aluminum substrate)	ASTM D792
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3. Manufacturing Process

3.1 Aluminum Substrate Cutting:

Precision roll-forming of AA3000 series aluminum coil into baffle profile shapes. Material thickness 0.6-0.7mm. Roll-formed profiles are cut to specified lengths with $\pm 2\text{mm}$ tolerance, ensuring consistent blade dimensions and accurate spacing alignment.

3.2 Surface Pretreatment:

Degreasing, cleaning and chemical conversion treatment on aluminum strip surface to enhance coating adhesion and corrosion resistance. Chromium-free pretreatment process for environmental compliance. Surface roughness controlled within specification.

3.3 UV Printing

Application of specified surface finish: polyester powder coating (RAL/Pantone), coil coating, heat-transfer wood grain, or decorative film wrapping. Each finish applied per its respective AAMA specification with strict quality controls on coating thickness, color consistency and surface appearance.

3.4 Forming & Splicing Processing

Precision roll-forming creates the final profile geometry — the U-shape, V-shape, inverted Omega-section, or VH-section depending on product type. Profiles are formed with accurate angle control ($\pm 1^\circ$) and consistent cross-section dimensions to ensure proper engagement with the dedicated suspension keel system.

3.5 Post-Processing:

Edge trimming, deburring and flatness calibration of finished baffle blades. Flatness $\leq 1.5\text{mm/m}$. Straightness verification over full blade length. Visual inspection of surface finish quality, edge condition and dimensional compliance.

3.6 Installation Accessory Matching:

Configure complete suspension system including dedicated keel, hangers, connectors, perimeter trims and fastening hardware. All matching components are precision-matched for seamless assembly and consistent blade alignment across the full ceiling plane.

4. Application Scope

This baffle ceiling system is designed for architectural applications requiring open, linear ceiling treatments with natural ventilation and clean visual rhythm:

- Airport terminals, metro stations and railway stations
- Office buildings, exhibition halls and conference centers

- Shopping malls and commercial atriums
- Parking garages and public transit hubs

5. Compliance Standards

- **JG/T 450:** Metal Ceilings for Building Decoration
- **GB/T 3190-2020:** Chemical Composition of Wrought Aluminum and Aluminum Alloys
- **GB/T 3880:** Aluminium and Aluminium Alloy Plates and Sheets for General Industrial Use
- **GB/T 23444:** Metal Curtain Wall and Ceiling System for Building Decoration
- **EN 13501-1:** Fire Classification of Construction Products and Building Elements
- **ASTM E84:** Standard Test Method for Surface Burning Characteristics of Building Materials
- **ASTM D3359:** Standard Test Methods for Measuring Adhesion by Tape Test
- **AAMA 2604/2605:** Specification for High Performance Organic Coatings on Aluminum

ASTM B209: Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

6. Packaging & Storage

Packaging: Baffle blades are bundled in protective strapping with foam edge protectors. Blades of the same profile and finish are grouped together and wrapped in PE film to prevent scratches and surface damage during transit. Keel components and hardware are packaged in labeled cartons.

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.