1. Product Overview

1.1 Product Identifier

Product Name: Ballesta® Ice Flower Ceiling
Product Code: Ballesta-IFC (Ice Flower Ceiling)
Description: The Ballesta Ice Flower Ceiling is a premium decorative ceiling system featuring intricately welded aluminum petal modules. Each petal is precision laser-cut from AA3003/AA1100 aluminum alloy, individually shaped and assembled by skilled craftsmen using TIG welding on specialized jig fixtures. The completed welded modules are finished with high-grade powder coating or PVDF, then test-assembled in the factory before shipment. Designed for modular hoist installation, these sculptural ceiling panels create stunning crystalline floral ceiling surfaces ideal for hotel lobbies, palace interiors, luxury retail flagships, and grand architectural spaces. Custom pattern geometry, module size, and surface finish are fully configurable to the project design.

2. Technical Specifications

Item	Specification	Test Standard
Base Material / Alloy	AA3003 / AA1100 Aluminum Alloy	GB/T3190-2020, ASTM B209
Panel Thickness	0.8mm - 1.5mm (±0.05mm)	ASTM B209
Standard Panel Size	600×600mm, 600×1200mm	ISO 128
Welded Module Size	Custom, typically 1200×2400mm per module (larger on request)	Custom
Pattern Construction	Laser-cut aluminum petals + TIG welded assembly	N/A
Pattern Depth / Projection	30mm - 200mm (customizable petal geometry)	Custom

Surface Finish Options	Powder coating (RAL), PVDF, metallic, antique bronze, brushed, polished	AAMA 2604, AAMA 2603
Coating Thickness	Powder: ≥60μm; PVDF: ≥25μm	ASTM D7091
Installation Method	Modular hoist system — pre-assembled modules lifted into position	Engineering specification
Fire Resistance Rating	Grade A (non-combustible)	EN 13501-1, ASTM E84
Flatness Tolerance	≤2mm/m	YS/T429.1
Coating Adhesion	Cross-cut: Grade 1	ASTM D3359
Corrosion Resistance	Salt spray: ≥500h	ASTM B117
Tensile Strength	145-180 MPa (AA3003)	ASTM E8, GB/T3880
Density	2.70 g/cm³	ASTM D792
Warranty & Customization	15-year warranty; pattern/size/finish fully customizable	Company standard / Per project

3. Manufacturing Process

3.1 Laser Cutting of Aluminum Petals

Precision CNC laser cutting of AA3003/AA1100 aluminum sheets into individual petal shapes per the ice flower pattern design. Cutting tolerance maintained at ±0.2mm with smooth burr-free edges. Each petal is numbered and organized by position within the module assembly.

3.2 Petal Shaping & Fixture Arrangement

Laser-cut petals are individually shaped by skilled craftsmen using specialized forming tools. Petals are arranged on precision jig fixtures following the approved pattern layout, ensuring consistent spacing, alignment, and three-dimensional geometry across the entire module.

3.3 TIG Welding Assembly

Arranged petals are assembled using TIG (Tungsten Inert Gas) welding by certified

welders. Each weld joint is made on dedicated jig fixtures to maintain pattern accuracy and dimensional stability. Weld penetration is controlled to ensure structural strength without visible distortion on the finished face.

3.4 Surface Finishing & Coating

Completed welded modules undergo surface grinding, weld joint blending, and edge finishing. Panels are then cleaned, pretreated, and coated with specified finish — powder coating (any RAL color), PVDF fluorocarbon, metallic finish, antique bronze patina, or brushed/polished aluminum. Coating thickness and color consistency are verified.

3.5 Factory Test Assembly & QC

Finished modules undergo full test assembly in the factory to verify fit, alignment, and pattern continuity. Each module is inspected for dimensional accuracy, weld quality, surface finish, flatness, and coating adhesion. Modules are then disassembled and prepared for packing.

3.6 Packaging & Hoist Preparation

Welded modules are carefully packed in custom wooden crates with foam padding and edge protectors. Lifting points and hoist hardware are pre-installed on each module. Modules are numbered and documented with installation sequence drawings for on-site modular hoist assembly.

4. Application Scope

The Ballesta Ice Flower Ceiling is designed for prestigious architectural spaces, including but not limited to:

- Hotel lobbies, atriums, and grand ballroom ceilings requiring sculptural visual impact
- Palace interiors, luxury residences, and royal reception halls
- Luxury retail flagship stores, boutique showrooms, and high-end brand spaces
- Casino VIP halls, fine dining restaurants, and premium lounge areas
- Spa and wellness centers, museum entrance galleries, and theater foyers

- Corporate headquarters, executive office lobbies, and conference centers

- **ASTM B209:** Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- **GB/T3190-2020:** Chemical Composition of Wrought Aluminum and Aluminum Alloys
- **GB/T3880:** Aluminium and Aluminium Alloy Plates and Sheets for General Industrial Use
- **EN 13501-1:** Fire Classification of Construction Products (Class A1/A2)
- **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:** Voluntary Specification for High Performance Organic Coatings on Aluminum Extrusions and Panels
- **ASTM B117:** Standard Practice for Operating Salt Spray (Fog) Apparatus

6. Packaging & Storage

Packaging: Each welded module is covered with protective film to prevent surface scratches, then packed in custom wooden crates with foam padding, edge protectors, and corner guards. Hoist hardware and lifting accessories are included in separate labeled packaging. Modules are individually numbered and accompanied by installation sequence documentation.

Storage: · Store in a dry, ventilated and rainproof warehouse, avoid direct sunlight, high temperature (＞70℃) and high humidity (RH＞95%) environment.

· Avoid contact with sharp objects, chemicals and corrosive substances to prevent surface damage and substrate corrosion.

· Stacking height shall not exceed 2 layers for welded modules to prevent deformation and pattern damage.

· 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 ice flower ceiling modules undergo strict multi-item quality inspection before delivery, including dimensional tolerance, weld quality, pattern alignment, surface finish, coating thickness, color difference, flatness, and fire resistance verification. Each module is test-assembled in the factory to ensure perfect fit on site.

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 welded assembly shall remain structurally sound with no weld failure; the surface coating shall have no obvious fading, peeling, or cracking; and the aluminum substrate shall have no corrosion or deformation defects.