

Technical Data Sheet (DTS)

Product Name:

1.0/0.5/10mm Aluminum Composite Honeycomb Panel

Product Description:

The aluminum honeycomb panel stands out for its remarkable strength-to-weight ratio, making it an ideal choice for large-span applications where both durability and lightness are essential. Its robust yet lightweight structure enables it to support expansive installations such as wide-span roofing, factory doors, curtain wall facades, and ceilings with ease. Beyond architectural uses, this panel's weight-reducing benefits are also highly valuable in the transportation sector; it's widely used in aircraft, trains, and ships, where minimizing weight without compromising stability is a priority. This versatile panel meets both structural demands and aesthetic appeal, providing a solution that is both practical and visually striking.

1. Technical Specifications

- **Total Thickness:** 10mm
- **Face Thickness:** 1.0mm
- **Back Thickness:** 0.5mm
- **Standard Width:** 1250mm, 1500mm
- **Length:** Customized according to customer requirements
- **Aluminum Alloy:** Made of high-strength aluminum alloy 3003 H24
- **Core Material:** Aluminum honeycomb structure
- **Surface Coating:** PVDF
- **Coating Thickness:** $\geq 25\mu\text{m}$
- **Color:** Customized according to client requirements

2. Dimensional Tolerances

- **Panel Thickness:** $\pm 0.2\text{mm}$
- **Aluminum Thickness:** $\pm 0.02\text{mm}$
- **Width:** $\pm 2\text{mm}$
- **Length:** $\pm 3\text{mm}$
- **Diagonal:** $\pm 5\text{mm}$
- **Warpage:** $\leq 4\text{mm}$

3. Mechanical Properties

- **Flexural rigidity**[kNcm²/m]: ≥ 21900
- **Rigidity** [Nmm²/mm] : 8,000,000
- **Bending moment** [Nmm/mm]: $\geq 3,200$
- **Elongation:** ≥ 5

- **Compressive strength** [N/mm²]:
 - Punch - $\varnothing 60.0\text{mm}$: 2.2
 - Punch - $\varnothing 6.0\text{mm}$: 25

4. Physical Properties

- **Sound absorption factor:** 0.05
- **Rated sound reduction index (according to standard ISO 717-1, ISO 140-3):** 21[dB]
- **Density:** Approximately 6 kg/m² (for 4mm thickness with aluminum)
- **Coefficient of Thermal Expansion:** $2.4 \times 10^{-6} / ^\circ\text{C}$
- **Heat Distortion Temperature:** $\geq 95^\circ\text{C}$
- **Water Vapor Permeability:** $\leq 0.1\text{ g/m}^2 \cdot 24\text{h}$
- **Corrosion Resistance:** Good, suitable for outdoor use
- **Thermal conductivity (in terms of total thickness, incl. cover sheets):** 1.35 [W/mK]
- **Thermal resistance:** 0.0074 [m² K/W]
- **Temperature resistance:** -40 to +80 [°C]

5. Surface Paint Properties

- **Coating finish:** PVDF coating
- **Paint Thickness(micron meter):** 27 \pm 1
- **Pencil Hardness:** $\geq 2\text{H}$
- **Toughness of Coating:** $\leq 2\text{T}$
- **Boiling Water Resistance:** Boiling for 2H without change
- **Solvent Resistance:** Cleaned 200times with Dimethylbenzene without change
- **Acid Resistance Immerse Surface:** In 2% HCL for 24H without change
- **Alkali Resistance:** Immerse Surface in 2% NaOH for 24H without change
- **Cleaning Resistance:** >1000 times without change
- **Weather Resistance:** Excellent, can withstand UV exposure, rain, and other environmental factors while maintaining color stability.
- **Chemical Resistance:** Good resistance to general chemicals (acids, bases, and solvents).
- **Scratch Resistance:** High surface hardness and superior scratch resistance, suitable for high-traffic areas.
- **Color Fastness:** Colors do not easily fade after prolonged exposure to sunlight, maintaining an attractive appearance.

- **Stain Resistance:** Smooth surface that is easy to clean and maintain, with dirt not easily adhering.

6. Performance Features

- **Lightweight:** Reduces the overall load on structures, making it easy to transport and install.
- **Aesthetic Appeal:** The three-dimensional design adds depth and visual interest to architectural applications.

7. Application Areas

- Building facades
- Interior walls and partitions
- Decorative elements in commercial and residential spaces
- aircraft, trains, and ships

9. Installation Recommendations

- Ensure the substrate is dry, clean, and flat before installation.
- Use appropriate tools and accessories to ensure secure installation.
- Follow relevant building codes and standards based on specific project requirements.

10. Storage and Handling

- Store the product in a dry, cool, and well-ventilated area, avoiding direct sunlight.
- Take precautions during transportation to prevent impacts and scratches on the surface.

11. Warranty

- This product comes with a warranty of 15 years; specific terms can be found in the relevant warranty policy.

-----END-----