Aluminium Composite Panel (ACP)

DESCRIPTION

Aluminium Composite Panel consists of a thermoplastic compound core sandwich between two pre-painted or brushed steel effect aluminium sheets. Bonding of the aluminium and the core is achieved by both chemical and mechanical action, this giving exceptional bond integrity.

Colours
White, Red, Black, Blue, Green, Brushed Steel (Butler), Silver (Metallic)

Sheet Size
2500 x 1250 | 3050 x 1500 (sheet size depending on finish)

Characteristics
- The special aluminium panel alloy offers increased corrosion resistance and advantages in processing
- The super polyester lacquer guarantees ideal printing properties, for screen as well as for digital printing
- The black PE Core with UV blocker increases the UV resistance (compared to a bright core material)
- Despite its light weight, ACP offers high rigidity and perfect flatness, also within thin sheets
- Excellent exterior stability within a range of temperatures from -50 to +80°C and minor thermal expansion
- ACP is environmentally friendly and is fully recyclable
- For the same rigidity, ACP 3mm thick weights 2 times less than 10mm PVC foam sheet

Uses
- For furniture
- For shop fronts
- For bars, discos and hotels
- Digital & Screen Printing
- Manufacture of point of sales displays
- Transport
- Industrial applications
TECHNICAL DATA

Engineering properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of Aluminium skin</td>
<td>0.20mm</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>Rm≥260Mpa</td>
</tr>
<tr>
<td>Elongation</td>
<td>A 50≥6%</td>
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<tr>
<td>Modulus of elasticity</td>
<td>E=70000Mpa</td>
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</tbody>
</table>

Linear thermal expansion

Can be used between -50°C to + 80°C, the linear thermal expansion is of 0.024mm/m/°C which means 1mm/m for a thermal difference of 40°C

Cutting

Any conventional sawing equipment appropriate for aluminium can be used. This includes stationary vertical panel saw, circular hand saw, jig saw or indeed hand saw.

For a hand saw:

- Orthogonal clearance: 15°C
- Cutting Angle: 10°C
- Cutting speed: 5000m/min
- Feed Speed: 25to30m/min

Hand Holding

It is easy to fold ACP by hand if a ‘V’ shaped groove is milled on the rear side of the panel.

The upper cladding sheet as well as 0.2mm thick polyethylene should remain on the bottom. To enable a good fold it is recommended to opt for a groove flat of 3mm
Routing and Milling
The copy milling machine, the hand milling cutters and other conventional tools used by aluminium fabricators are acceptable.

Cutting Speed: 3 to 5000 m/min
Feed Speed: 25 to 30 m/min

Drilling
It is recommended to use drill bits acceptable for aluminium or plastic.

Cutting Angle: 100° to 140°
Helix Angle: 30° to 50°
Cutting Speed: 50 to 300 m/min
Feed Speed: 0.02 to 0.5 mm/revolution

Bending with brake press or folding machine
The minimal bending radius has to be taken into account.
**Bending**
Minimum bending radius = 15xpanel thickness. As for metal sheet bending, the spring back effect has to be taken into consideration.

**Shearing**
Guillotine machines are suitable. Take care while shearing as a small radius can form on the edge of the upper side. To eliminate this shearing mark, it is recommended you lay this skin on the fixed support or the guillotine shearing machine.

**Fixing**
ACP can be assembled with stainless steel or aluminium rivets. Where threaded fasteners are used, the under construction (substrate) on which the ACP will be fixed determines the use of either wood, metal or sheet screws, largest possible heads and washers should be used to minimise surface pressure.

The use of standard metal adhesives or double sided tapes is possible. End to end joining should be avoided with a gluing process and should be carried out with hot air welding.

**Screen Printing**
The compatibility and adherence of several inks has been successfully tested. For permanent outdoor exposure, the surface should be protected with a clear protective coating.

**Spray Painting**
Standard air drying painting acrylic type or two component polyurethane is suitable. In some cases oven drying ay maximum 80°C can shorten the drying process.

Pre testing is advised in order to determine suitability of the inks and paintings to the ACP sheet coating.

**Cleaning and Maintenance**
Use a mild standard detergent. All cleaning operations must be followed with a thorough rinse of clean water to avoid stains. Dry the panels with a sponge or other absorbent material.

**Caution:** Do not use high alkaline products, scouring agents with abrasive agents or solvent based agents.