



Q-PANEL

Aluminum Panels

Summary

Q-PANEL® aluminum test substrates from Q-Lab minimize metal variability as a source of bias in critical tests. Made from high quality aluminum, they are clean, consistent, convenient, and economical. A wide range of panel sizes and types are available for immediate shipment from stock. Panels are stored completely clean, and in most cases can be used right out of the box.

Bare Aluminum Panels (Type A, AQ, ARX, and ASX) Type A are our standard aluminum panels, made from alloy 3003 H14, and are 0.64 mm (0.025 in) thick. Alloy 3003 H14 is now the most widely used general purpose aluminum alloy from coil stock. Type AQ are made from alloy 5005 H24, are 0.81 mm (0.032 in) thick, and are offered in Europe to meet Qualicoat requirements. Type ARX are made from alloy 2024 T3, while Type ASX are made from alloy 6061 T6. Both Type ARX and ASX are 0.81 mm (0.032 in) thick, have square corners, no hanging hole, and are also available with or without a removable PE film on one side (-P).

Anodized Aluminum Panels (Type AN) are treated with an anodization process which improves resistance to corrosion. Most aluminum exposed to exterior weathering is given such a durable treatment. Type AN are made from alloy 3003 H14, and are 0.64 mm (0.025 in) thick.

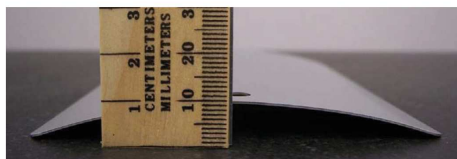
Chromated Aluminum Panels (Type AL, AT, ALQ, and AQT) are treated with a chromium conversion coating which improves paint adhesion and resistance to underfilm corrosion. Most aluminum is given such a pretreatment prior to painting. Type AL and AT are made from alloy 3003 H14, and are 0.64 mm (0.025 in) thick. Type ALQ and AQT are made from alloy 5005 H24 and are 0.81 mm (0.032 in) thick. Type AL and ALQ are pretreated with hexavalent chromium, which is restricted according to certain EU regulations. Type AT and AQT are pretreated with trivalent chromium, which has no such restrictions.

Aluminum Adhesive Panels (Type AD and AR) are made from alloy 2024 T3 and are 1.6 mm (0.063 in) thick and are heavy gauge and made from a high strength aluminum alloy to resist the stress of adhesive testing. Type AR is plain (bare) and Type AD is "Alclad" or laminated with a thin coat of pure aluminum for improved corrosion resistance. These panels do not have our signature, trademarked Q-shaped hole.

Automotive Styling Panels (Type SPC and SPA) are made from coated or bare smooth finish, series-3000 aluminum. They are 381 x 610 x 0.64 mm (15 x 24 in and 0.025 in) thick. They are curved and have a horizontal bend along the center to mimic the side panel of an automobile. Coatings applied to styling panels reflect light in a manner similar to a coating on an actual automobile side panel. Panels are available in a white, coil coated polyester finish or in bare aluminum. Hanging holes are available upon request.

Large Display Panels (Type L-1424) are made from smooth finish, series-3000 aluminum. They are 356 x 610 mm (14 x 24 in), with round corners and a hanging hole. They are useful for evaluating and displaying paints and coatings anywhere a large format is needed.

Curved Panels (-CU) are available on any standard aluminum (or steel) panel width shown below, with the crown heights as indicated. Min box quantity and nominal setup fee applies.



| Panel Width | Standard Crown Height |
|---------------|------------------------------|
| 76 mm (3 in) | 6.4 ± 1 mm (0.25 ± 0.04 in) |
| 102 mm (4 in) | 9.5 ± 1 mm (0.38 ± 0.04 in) |
| 152 mm (6 in) | 15.8 ± 1 mm (0.63 ± 0.04 in) |

A) Q-PANEL Base Metal Alloys, Mechanical Properties, Chemical Composition

Q-Lab Corporation certifies that Q-PANEL Brand Test Substrates, type Aluminum, designation "A", "AL", "AN", "AR", "AS", "AT", "AD", "AQ", "ALQ", and "AQT" comply with the specifications found in the following tables.

| | Type A, AL, AN, AT | Type AQ, ALQ, AQT | Type AR, ARX | Type ASX | Type AD |
|----------------------------------|--------------------|-------------------|--------------|-------------|----------------|
| Alum. Assoc. Material Design. | 3003 H14 | 5005 H24 | 2024 T3 | 6061 T6 | 2024 T3 Alclad |
| ASTM Material Specifications | B209 | B209 | B209 | B209 | B209 |
| AMS Material Specifications | QQ-A-250/2 | — | QQ-A-250/4 | QQ-A-250/11 | QQ-A-250/5 |
| ISO Material Design. (ISO 209-1) | AlMn1Cu | AlMg1(B) | AlCu4Mg1 | AlMg1SiCu | AlCu4Mg1 |
| ISO Panel Specifications | 209-1, 1514 | 209-1 | 209-1 | 209-1 | 209-1 |
| Tensile Strength* (kpsi) | 20 - 26 | 20 - 26 | >63 | >42 | >61 |
| Tensile Strength* (MPa) | 140 - 180 | 140 - 180 | >435 | >290 | >420 |
| Min Yield Strength* (kpsi) | 17 | 15 | 42 | 35 | 40 |
| Min Yield Strength* (MPa) | 115 | 105 | 290 | 240 | 275 |
| Aluminum (%) | Balance | Balance | Balance | Balance | Balance |
| Chromium (%) | — | <0.10 | <0.10 | 0.04 - 0.35 | <0.10 |
| Copper (%) | 0.05 - 0.20 | <0.20 | 3.80 - 4.90 | 0.15 - 0.40 | 3.80 - 4.90 |
| Iron (%) | <0.70 | <0.70 | <0.50 | <0.70 | <0.50 |
| Manganese (%) | 1.00 - 1.50 | <0.20 | 0.30 - 0.90 | <0.15 | 0.30 - 0.90 |
| Magnesium (%) | — | 0.50 - 1.10 | 1.20 - 1.80 | 0.80 - 1.20 | 1.20 - 1.80 |
| Silicon (%) | <0.60 | <0.30 | <0.50 | 0.40 - 0.80 | <0.50 |
| Titanium (%) | — | — | <0.15 | <0.15 | <0.15 |
| Zinc (%) | <0.10 | <0.25 | <0.25 | <0.25 | <0.25 |
| Iron + Silicon (%) | — | — | — | — | — |
| Others (Each/Total) (%) | 0.05 - 0.15 | 0.05 - 0.15 | 0.05 - 0.15 | 0.05 - 0.15 | 0.05 - 0.15 |

Notes: * Per ASTM B209-07 and B209M-07

B) Q-PANEL Coating Composition

| | Coating Description |
|---------|--|
| AN | Sulfuric acid anodized per MIL-A-8625 Type II, Class 1 minimum coating thickness 2.6 micron (.000103 inch) with seal, color is clear. |
| AL, ALQ | Hexavalent chrome conversion coating per ASTM B449 Class 2 and ISO 10546 Class 3. Coating weight 0.16 - 0.27 g/m ² (15-25 mg/ft ²), color is brown. |
| AT, AQT | RoHS and REACH Compliant trivalent chrome conversion coating per ASTM B921 Class 2. Coating weight 0.11 - 0.21 g/m ² (10-20 mg/ft ²), color is clear. |