Q-PANEL Standard Test Substrates

Andy Francis

Dave Duecker

Bill Tobin

Sean Fowler

Q-Lab Corporation

View Recorded Presentation

Q-Lab's New Webinar Series

Today is the third of four new webinars this spring from Q-Lab on weathering and corrosion testing topics

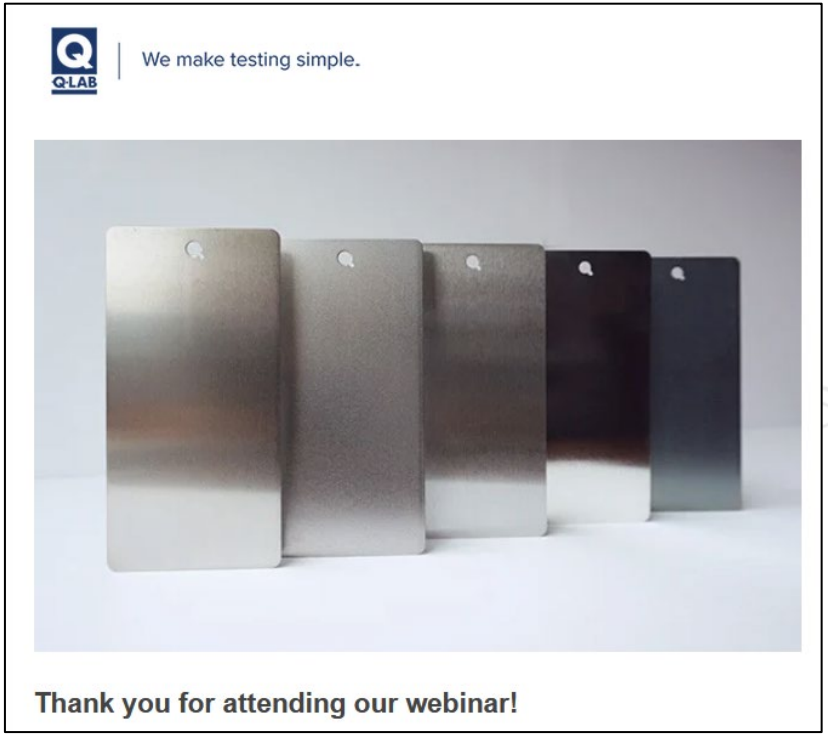
All upcoming and archived webinars can be accessed at:
q-lab.com/webinars

Date	Topic
29 May	How to Perform a Comparison Test
12 Jun	New Developments in Testing Standards
01 Jul	**Q-PANEL Standard Substrates**
29 Jul	Black panel selection in weathering testing

Administrative Notes

You'll receive a follow-up email from info@email.q-lab.com with links to a survey, registration for future webinars, and to download the slides

Use the **Q&A feature in Zoom** to ask us questions today!



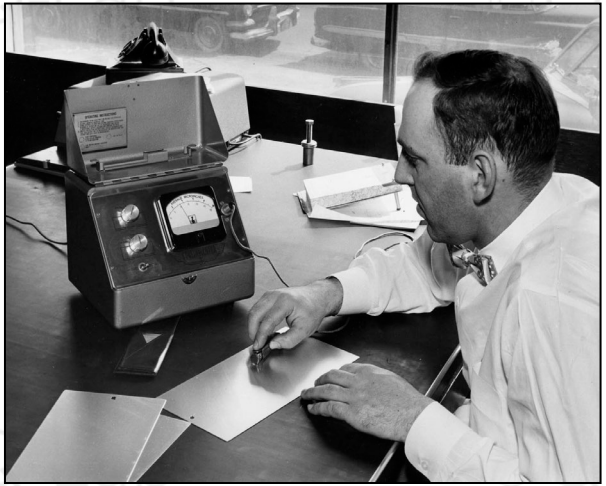
Today's Agenda

- Q-PANEL history and overview
- Steel Q-PANEL
- Aluminum Q-PANEL
- Corrosion Coupons
- Automotive Refinish Training System (ARTS)
- Custom Q-PANEL
- Q-PANEL resources

We make testing simple.

Q-PANEL Standard Test Panels

1956



George Grossman founds Q-PANEL to fill a need for standard test panels for paint research

Today

Q-PANEL are the World's Most Widely Used Test Substrate for Paints

The “Q”-shaped hole

- Q-PANEL are the most widely-recognizable test substrates from the “Q” shaped hanging hole that gave our company its name.
- The Q-shaped hole also clearly indicates which side of the panel is guaranteed for testing.

Look for the Q-shaped hole.
It’s our trademark...
and your assurance of quality!

We make testing simple.

What Makes It a Q-PANEL?

Q-SHAPED HOLE
It's our trademark and your assurance of quality. Accept no substitutes.

PRE-CLEANED
Special pre-cleaning processes allow most Q-PANEL substrates to be used right out of the box.

BURR-FREE EDGES
A deburring process ensures that all Q-PANEL edges are safe and easy to handle.

SHIPPED FROM STOCK
Nearly all Q-PANEL substrates are available for shipping within 24 hours from order placement.

COST-EFFECTIVE
Q-PANEL substrates are priced low because of high-volume production efficiency.

HIGH-QUALITY METAL
Q-Lab has special relationships with select, trusted, and strategic mills to ensure consistent quality.

STANDARDIZED SURFACES
A variety of finishes are available to reproduce different real-world metal surfaces, such as smooth mill, matte, and ground. Strict quality control processes ensure that these surfaces deliver repeatable and reproducible test results.

SPECIAL PACKAGING
Steel substrates are carefully packaged with a vapor phase rust inhibitor to guarantee pristine surface quality free of oil stains, with a shelf life of years.

EXPERIENCE
Q-Lab provides expert-level applications assistance to help get the most out of testing with your Q-PANEL substrates. We can help you understand the best panel selections for a wide variety of uses and industries.

NO-NONSENSE WARRANTY
Q-Lab offers a complete, 100% warranty on Q-PANEL substrates. Just return them for any reason if you're not satisfied.

Q-PANEL substrates are pre-cleaned

- Panels are carefully cleaned during manufacturing
- All oil residues and surface dirt are removed
- In most cases, the substrates can be used directly from the pack
- In critical applications, it is sometimes necessary to remove traces of the rust inhibitor with distilled water and a cloth
  - A plastic protective film is also available for some panels to protect from abrasion during transport

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Q-PANEL Naming Convention

AN-36

Material
Type and Finish

Size
Width × Height
(in inches)

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.

Panel Type & Description	Stock Number	Size W × L (in) (± 0.04, except as noted)	Thickness (in) (± 0.002, except as noted)	Size W × L (mm) (± 1, except as noted)	Thickness (mm) (± 0.05, except as noted)	Box Qty	In Stock? US	In Stock? EU
Type AN Anodized Surface Smooth Mill Finish	AN-36	3 × 6	0.025	76 × 152	0.64	500	●	●
	AN-46	4 × 6	0.025	102 × 152	0.64	250	●	●
	AN-612	6 × 12	0.025	152 × 305	0.64	125	●	●

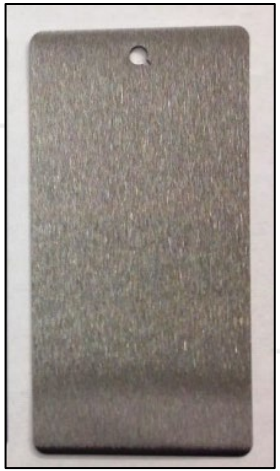
Steel Q-PANEL Substrates

General Purpose Steel Q-PANEL summary

Description	Type	Comment
Smooth mill finish	QD, D	General applications, gloss and color
Matte mill finish	R	General sheet metal
Ground finish	S	Improved adhesion
Iron Phosphated	-I, -ICF	Improved adhesion (for S & R panels)
Painted	GW, WW, WWS	Eliminates need for priming

©Q-Lab

General-Purpose Steel Panels: Type QD, D, R, S



Type	QD	D	R	S
Thickness (mm)	0.51	0.25	0.81	0.81
Finish	Smooth	Smooth	Matte	Ground, one side
Roughness (R_a, µm)	<0.5	<0.5	0.6 – 1.6	0.5 – 1.1
Use	Color/gloss, sturdy	Color/gloss, flexible	Phys/chem test	Consistent finish

All made from SAE A1008 steel

General-Purpose Steel Panels: Type QD, D, R, S

SMOOTH *(D, QD)*

MATTE *(R)*

GROUND *(S)*

Type	QD / D	R	S
Thickness (mm)	0.51 / 0.25	0.81	0.81
Finish	Smooth	Matte	Ground, one side
Roughness (R_a, µm)	<0.5	0.6 – 1.6	0.5 – 1.1
Use	Color/gloss	Phys/chem test	Consistent finish

All made from SAE A1008 steel

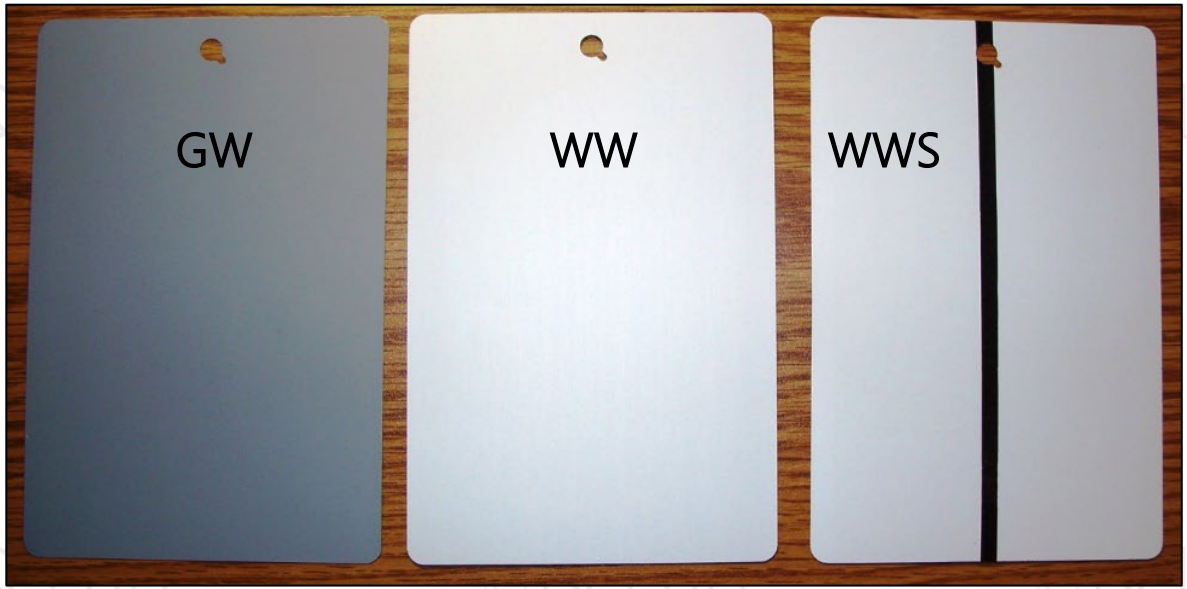
Iron Phosphated Steel: Type –I, -ICF

Type R and S panels can be treated with Bonderite M-FE 1000™, the most commonly-used type of industrial iron phosphate.

- Type –I panels also use a chrome seal, Bonderite M-PT 60.
- Type -ICF use a REACH/RoHS-compliant chrome-free seal (-ICF), Bonderite M-PT 99X.

We make testing simple.

Pre-Painted Steel: Type GW, WW, WWS



- Pre-primed panel for automotive refinishers
- 0.0078" (0.20 mm), and flexible

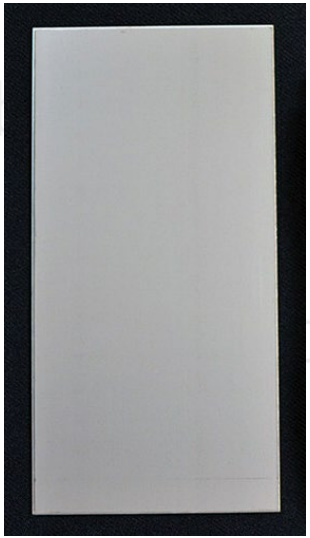
We make testing simple.

Specialty Steel Q-PANEL summary

Description	Type	Comment
Stainless steel	SS	Corrosion resistant, lap shear testing
Adhesive	RS	Resists stresses of lap shear testing
Tinplate	DT	Tin-plated applications, legacy government tests
Low alloy	HA, HN	Mo and Cr included for strengthening
Taber Abraser	-T	Abrasion testing

©Q-Lab

Specialty Steel Panels: Type SS, RS, DT



Type	SS	RS	DT
Description	Type 304-2B stainless steel, bright finish	SAE 1010 Cold Rolled Steel w ground finish on one side	Tin plated steel, smooth finish

We make testing simple.

Low Alloy Steel: Type HA & HN

- 4130 Cr-Mo Steel
  - High-strength, weldable
  - Used in many applications
- Strength and hardness
  - Better for heat treatment
  - Best for machining processes
- Prone to corrosion; must be protected
  - Mn / Zn phosphating
  - Electroplating

HA-14
Meets AMS 6350/6351

HN-34
Meets AMS 6345

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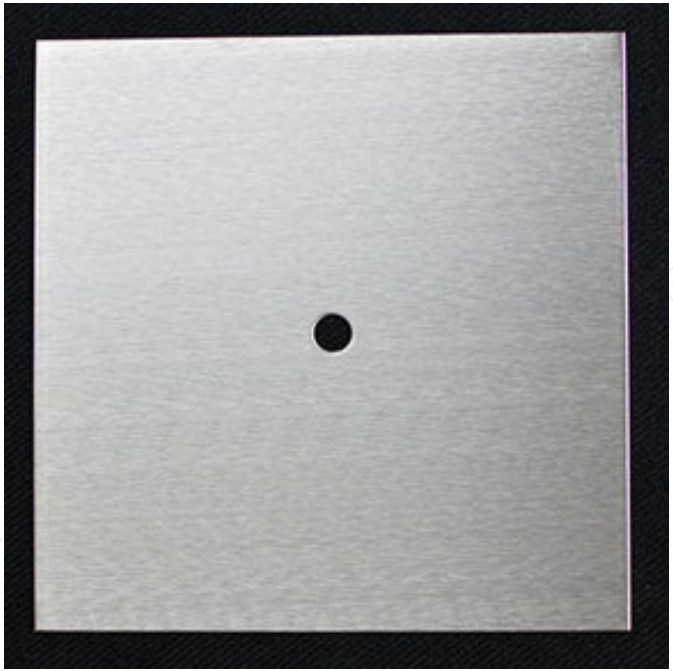
Taber Abrasion: Type -T

- Specially sized 102 × 102 mm (4×4″), with a hole punched in the middle for mounting on the turntable of a Taber Abraser.
- Same steel and thickness as Type R and S



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Aluminum Q-PANEL Substrates

We make testing simple.

General-Purpose Aluminum Q-PANEL summary

Description	Type	Comment
Bare Aluminum	A	Standard Al offerings, mill finish
Anodized Aluminum	AN	Anodized for improved corrosion resistance
Chromated Aluminum	AL, AT	Chromium conversion treatment to improve paint adhesion and resistance to underfilm corrosion

©Q-Lab

General-Purpose Al Panels: Type A, AN, AL / AT

Type	A	AN	AL / AT
Finish	Smooth mill	Anodized	Chromated
Use	General purpose	Weathering/corrosion	Improved adhesion

All made from 3003-H14 alloy, 0.64 mm (0.025 in) thick

We make testing simple.

General-Purpose Al Panels: Type A, AN, AL / AT

MILL FINISH *(A)*

ANODIZED FINISH *(AN)*

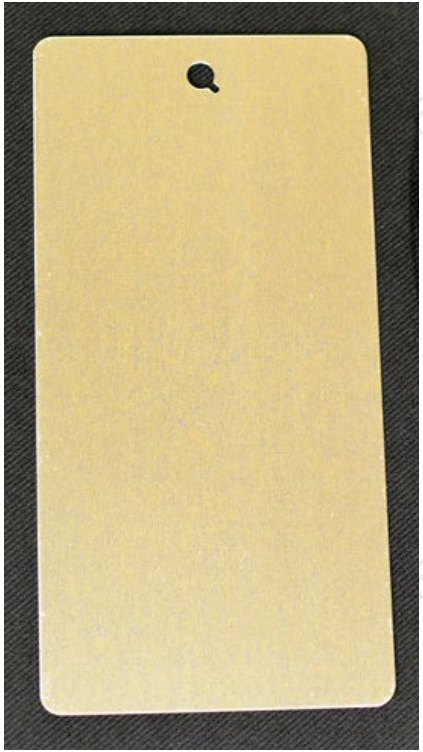
CHROMATED FINISH *(AL, AT)*

Type	A	AN	AL / AT
Finish	Smooth mill	Anodized	Chromated
Use	General purpose	Weathering/corrosion	Improved adhesion

All made from 3003-H14 alloy, 0.64 mm (0.025 in) thick

Chromated Aluminum Panels: Type AL

- Pretreated with a conversion coating of chromium trioxide (CrO_3), which contains hexavalent chrome (Cr^{6+})
- Restricted by REACH legislation as a Substance of Very High Concern
- Not sold in EU; available elsewhere



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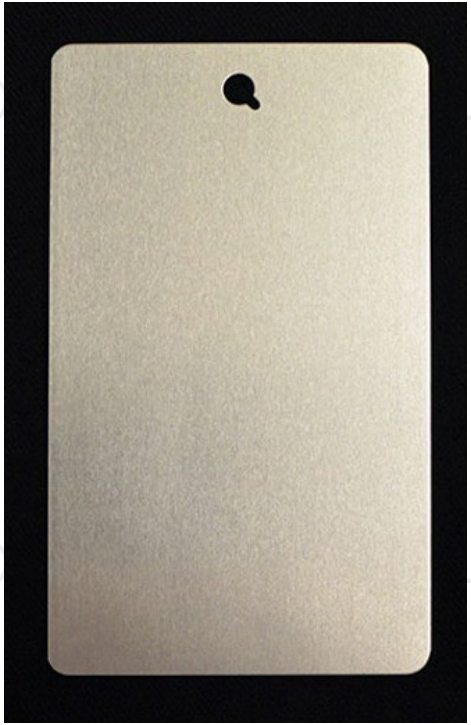
Chromated Aluminum Panels: Type AT

- "T" for Trivalent Chrome (Cr^{3+}) conversion coating pretreatment
- REACH-compliant alternative to Type AL
- Available in EU and rest of world



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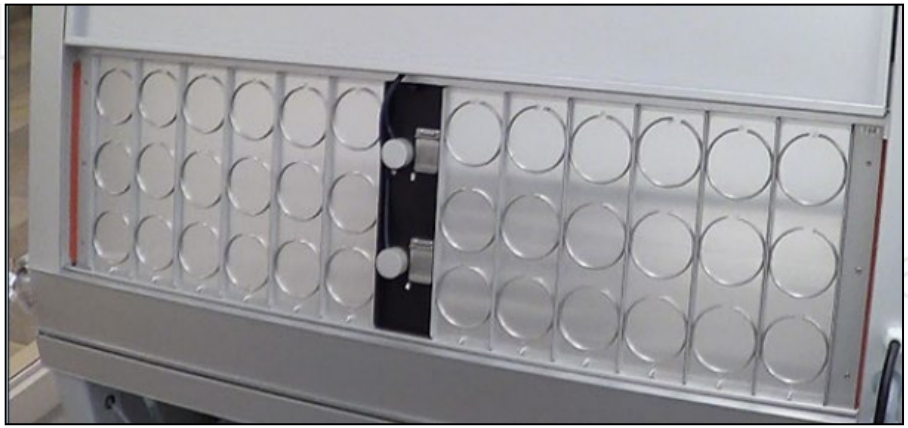
Anodized Aluminum Panels: Type AN

- Anodized per MIL-A-8625 Type II, Class 1
- “Filler” panels in specimen holders for QUV (3 × 6”) and Q-SUN testers (2 × 4”)
- Other sizes also available



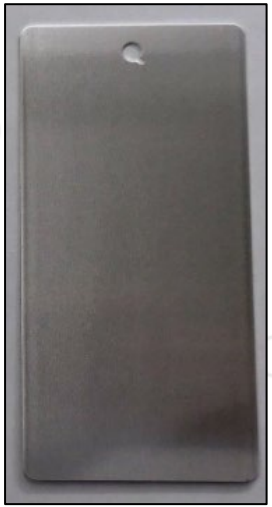
We make testing simple.

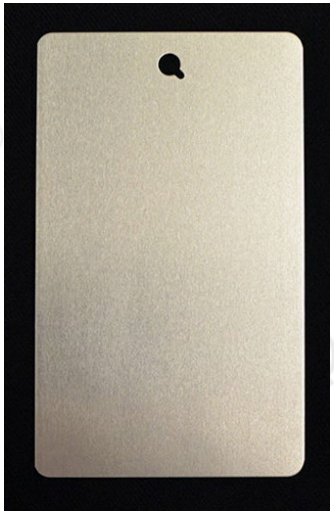
Specialty Aluminum Q-PANEL summary

Description	Type	Comment
Bare Aluminum	AQ	Qualicoat Al, smooth mill finish
Chromated Aluminum	AQT	Qualicoat Al; Cr conversion treatment to improve paint adhesion and resistance to underfilm corrosion
Extruded Aluminum	AEX	Qualicoat Al, GSB etch rate testing
Bare Aluminum	ARX, AGX, ASX	Smooth mill finish, optional PE film on one side, used in aircraft / military applications
Adhesive	AD, AR	Heavy gauge to resist adhesive testing stress
Auto styling	SPC, SPA	Curved to mimic automobile side panels

We make testing simple.

Qualicoat Panels: Type AQ, AQT, AEX





Type	AQ	AQT	AEX
Alloy	5005-H24	5005-H24	6063 T5/T6
Thickness (mm)	0.81	0.81	0.81
Note	Bare Al	Tri-chrome	Extruded

We make testing simple.

Q-PANEL Substrates for QUALICOAT Tests

- Q-PANEL standard substrates can be used for a variety of QUALICOAT tests as presented in Section 2, “Test Methods and Requirements”.
- Q-PANEL substrates are also ideal for Accelerated weathering testing according to QUALICOAT requirements
  - Classes 1, 1.5, and 2
  - ISO 16474-2 Method A for 1,000 hours
- 4” × 12” Q-PANEL substrates to qualify new color and powder coatings in Florida outdoor exposures

Q-PANEL	QUALICOAT Spec	Test Type
AQ	2.6, 2.7, 2.8	Mechanical Tests
	2	General coated parts testing
	2.2	Scratch / mar resistance test
AEX-26	2.10, 2.11	Corrosion tests
	3.2.1	Etch rate test

We make testing simple.

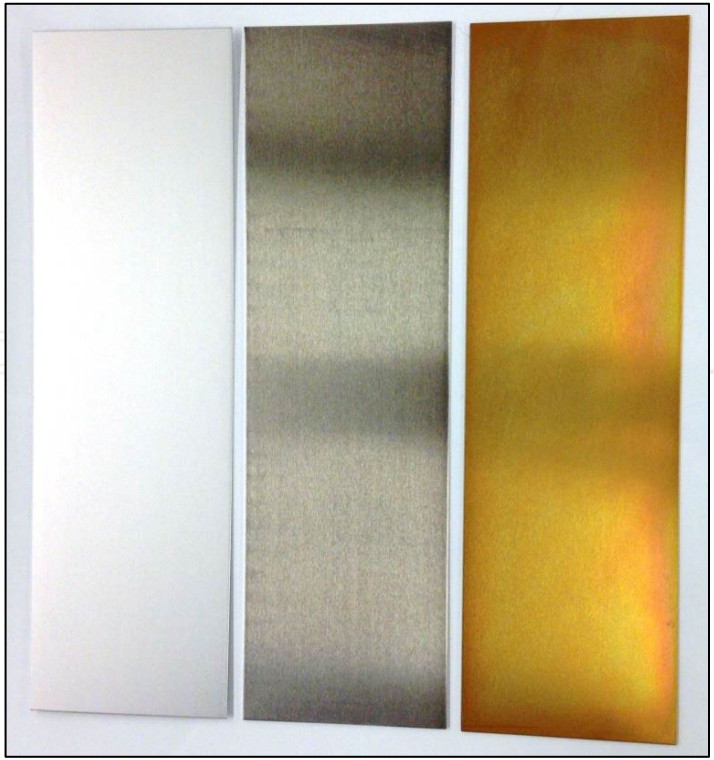
Type ARX, ASX, AGX

Type	ARX	ASX	AGX
Alloy	2024 T3	6061 T6	7075 T6
Thickness (mm)	0.81	0.81	0.81
Note	Bare Al	Bare Al	Bare Al

We make testing simple.

Aircraft-Grade Aluminum: Type ARX, ASX, AGX

- ARX - 2024 T3 bare aluminum
- ASX - 6061 T6 bare aluminum
- AGX - 7075 T6 bare aluminum
- High Strength-to-Weight Ratio
- Good Fatigue Resistance
- Used in aircraft and watercraft
- Military Standards require 3 × 10" panels
  - MIL-DTL-5541 - chromating
  - MIL-A-8625 – anodizing
- Used to verify the corrosion resistance of chromating and anodizing processes



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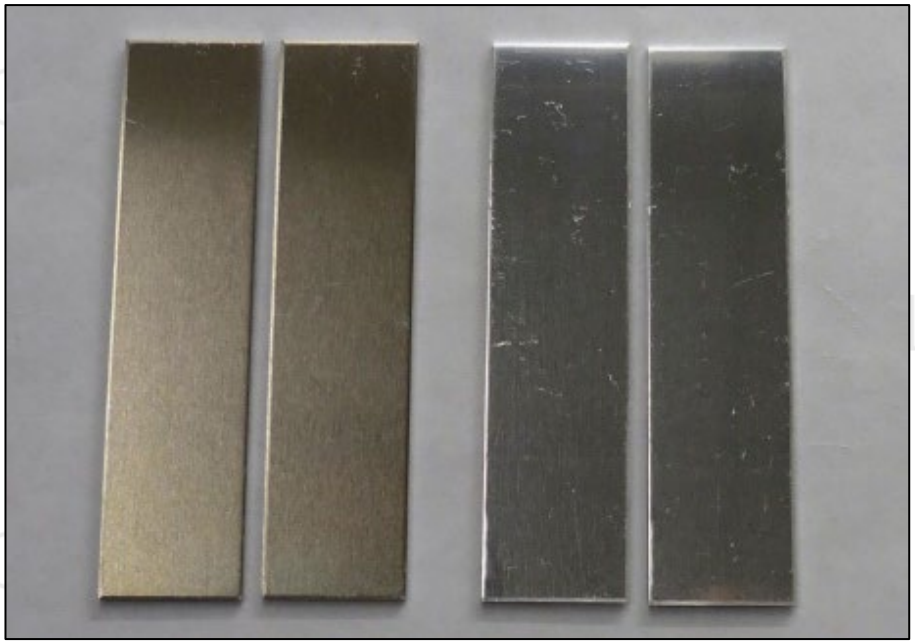
Aluminum Adhesive Panels: Type AR, AD

- **Type AR** panels are bare aluminum panels made from alloy 2024 T3 and are 1.6 mm (0.063 in) thick.
- **Type AD** are the same as Type AR, but are “Alclad” - laminated with a thin coat of pure aluminum for improved corrosion resistance.



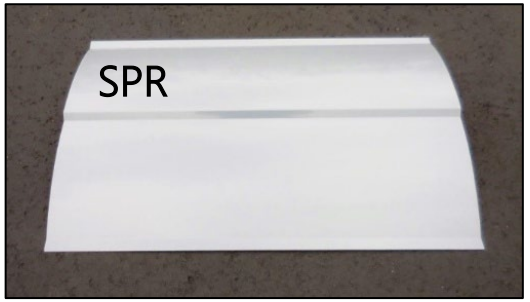
Used for lap shear adhesion testing per ASTM D1002

We make testing simple.

Auto Styling Panels: Type SPC, SPR

24 × 34″
610 × 864 mm

SPC (pre-painted Al); SPR (steel)



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Corrosion Coupons (Mass Loss Coupons)

We make testing simple.

Corrosion Test Coupons: CX Series

CXB-12
(GMW 14872 and SAE J2334)

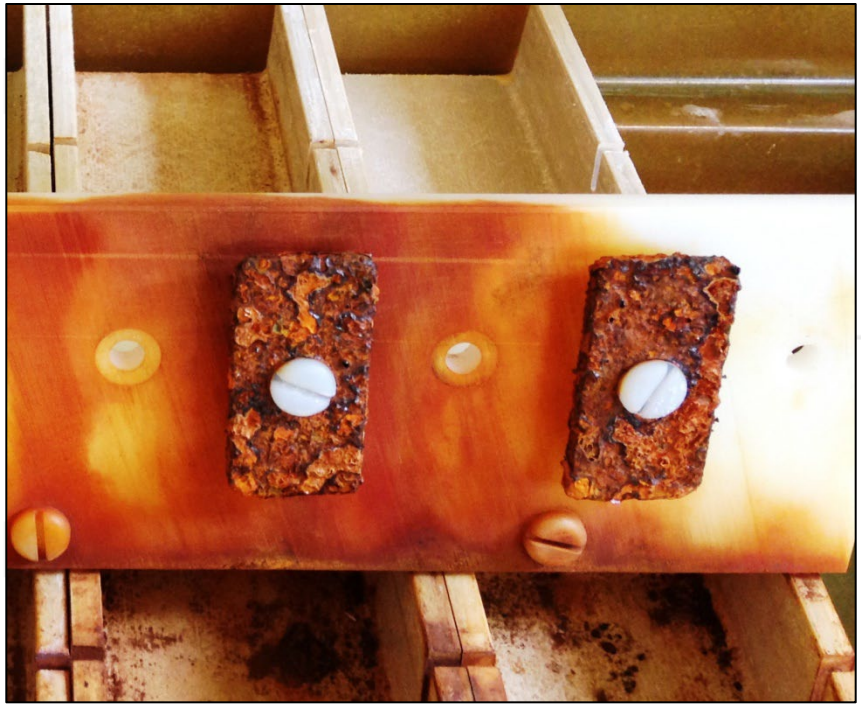
CXC-35
(ASTM B117)

CXD-2.76-5.90
(ISO 9227 and VDA 233-102)

We make testing simple.

Corrosion Test Coupons: CX Series

- Ensure repeatability and reproducibility
- Monitor test conditions
- Measure mass loss as the test progresses
- Pre-cleaned and ready to use
- Certificate of Analysis included standard with each box



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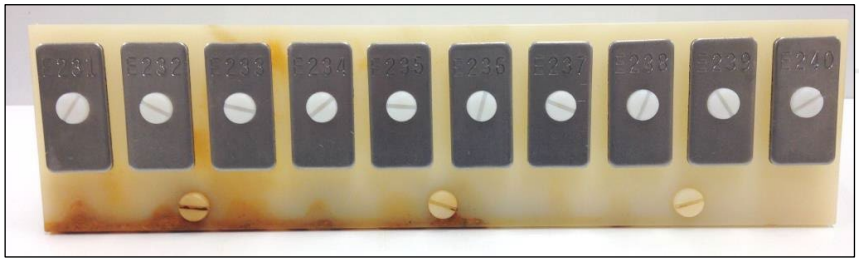
Corrosion Test Coupons: CXB-12

- 25 × 51 × 3 mm
  (1 × 2 × 0.125″)
- GMW 14872, 9540P
  SAE J2334, J2721
- 30 panels per box



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Corrosion Test Coupons: CXC-35

- 76 × 127 × 0.80 mm
  (3 × 5 × 0.032″)
- ASTM B117
- 30 panels per box

We make testing simple.

Corrosion Test Coupons: CXD-2.76-5.90

- 70 × 150 × 1.20 mm
  2.76 × 5.90 × 0.047″
- ISO 9227
  - NSS, AASS, CASS
- VDA-233-102
- 30 panels per box

We make testing simple.

Automotive Refinish Training System (ARTS)

We make testing simple.

Automotive Refinish Training System

ARTS Cart

We make testing simple.

Automotive Refinish Training System

- Great for testing automotive paint on large surfaces
- Used to train painting technicians
- Used in Automotive OEM paint lines for QC and development

We make testing simple.

Automotive Refinish Training System

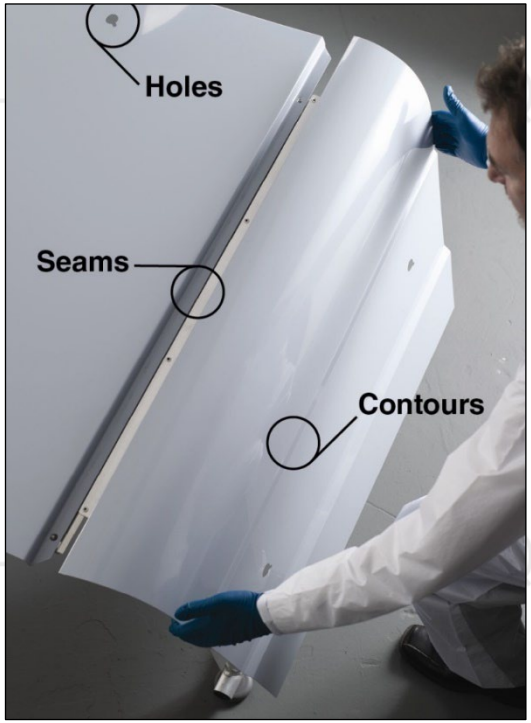
Easy Storage and Transportation

We make testing simple.

Automotive Refinish Training System

Ease of Use

- Panels can be changed easily by one person
- Panels mimic auto body features



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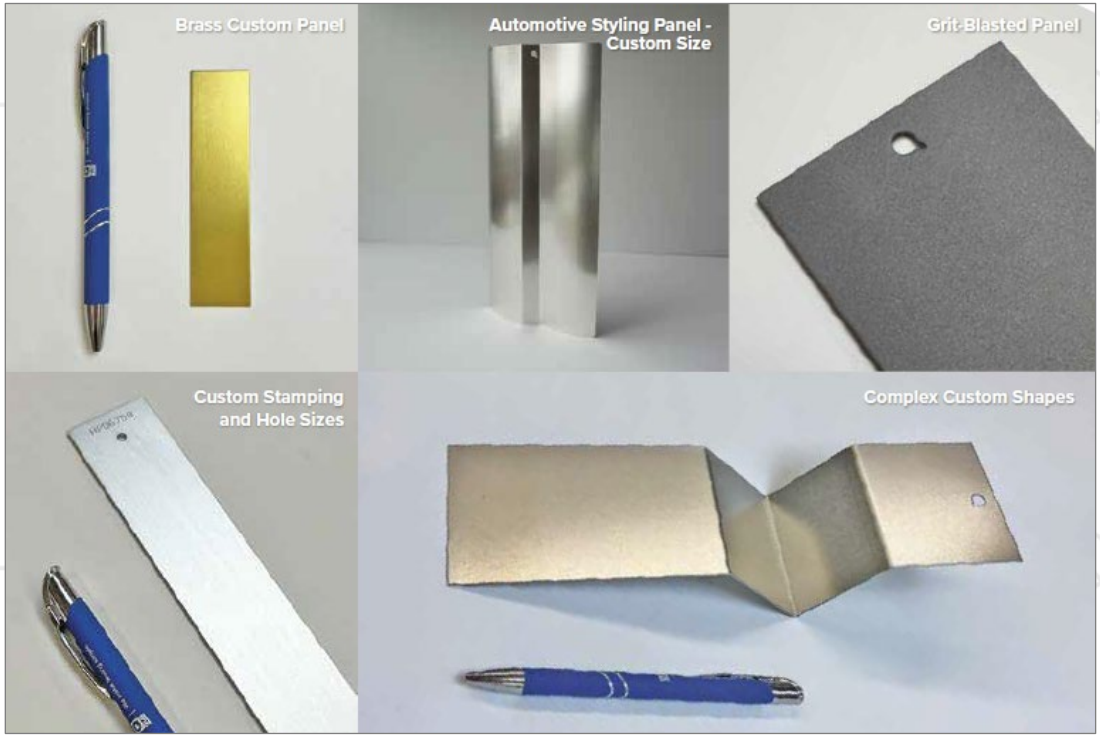
Custom Q-PANEL substrates

Custom Q-PANEL offerings

- Materials
  - Copper, Brass, Magnesium, Titanium, Hot Rolled Steel, Stainless Steel, Nickel, Tin, Aluminum alloys
  - If the material can be sourced and processed, we will quote!
- Thicknesses up to:
  - Aluminum 0.250" (6.35 mm)
  - Steel 0.125" (3.18 mm)
- Hole sizes & placements
- Markings & Stamps
  - Stamp lot numbers / serialized / alloys

We make testing simple.

Custom Q-PANEL offerings



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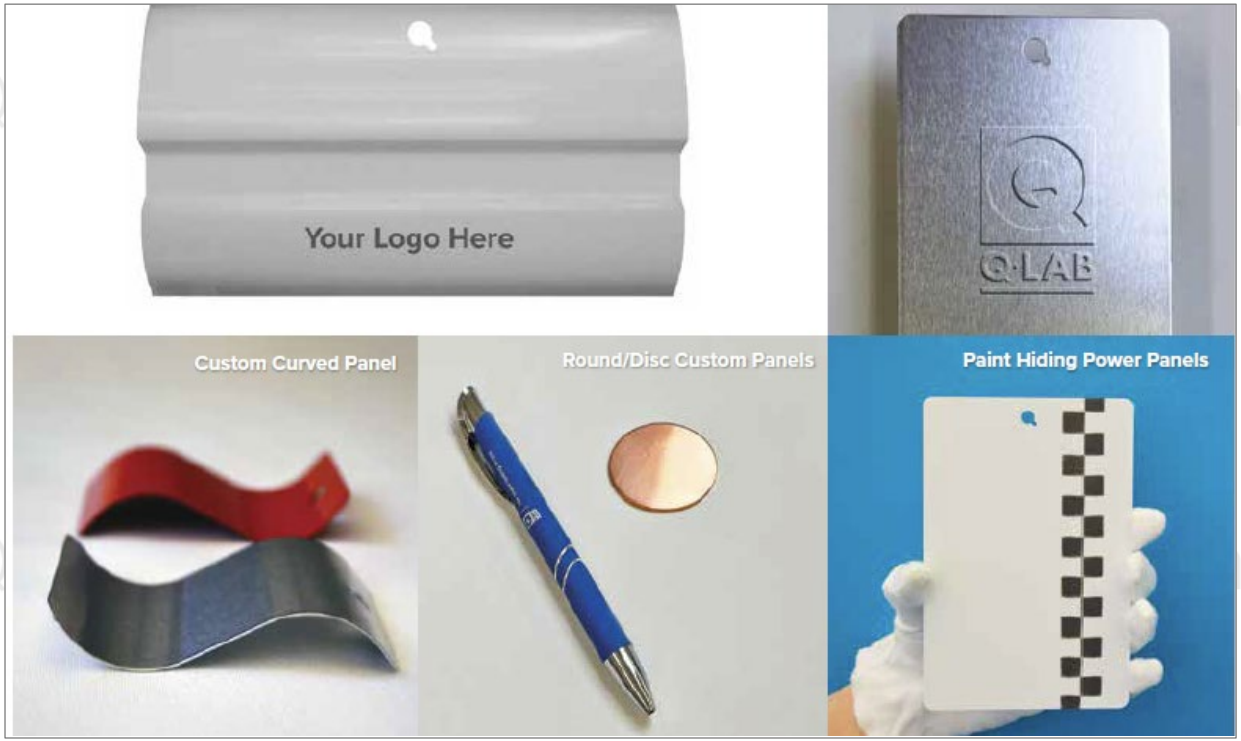
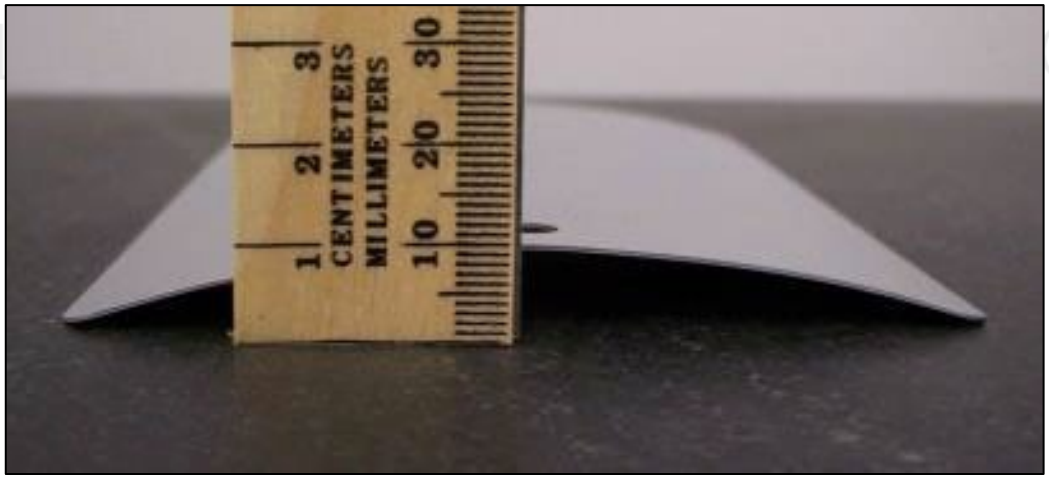
Custom Q-PANEL offerings



Curved Panels

Standard steel and Aluminum panels are available with curve

Panel Width	Standard Crown Height
76 mm (3″)	6.4 mm (0.25″)
102 mm (4″)	9.5 mm (0.38″)
152 mm (6″)	15.8 mm (0.63″)



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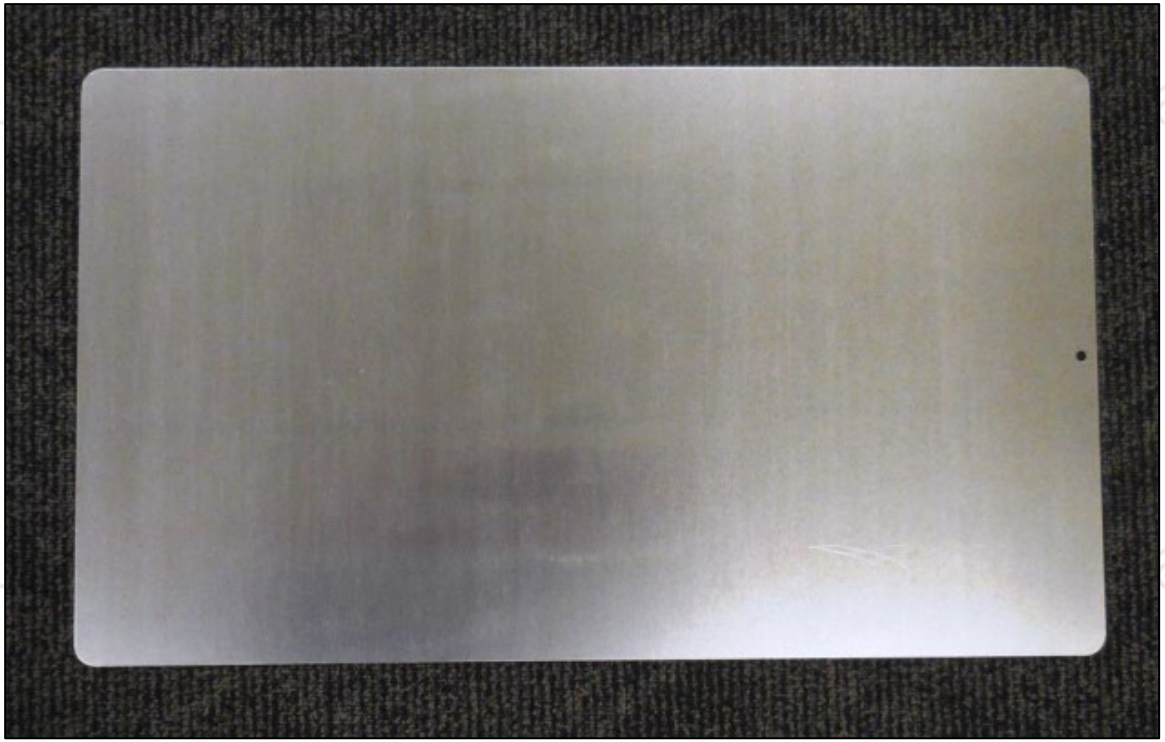
Double Ground Panels: Type DG

Any Type S Panel with a ground finish can have that finish applied to both sides

We make testing simple.

Large Display Aluminum Panels

14 × 24″
356 × 610 mm



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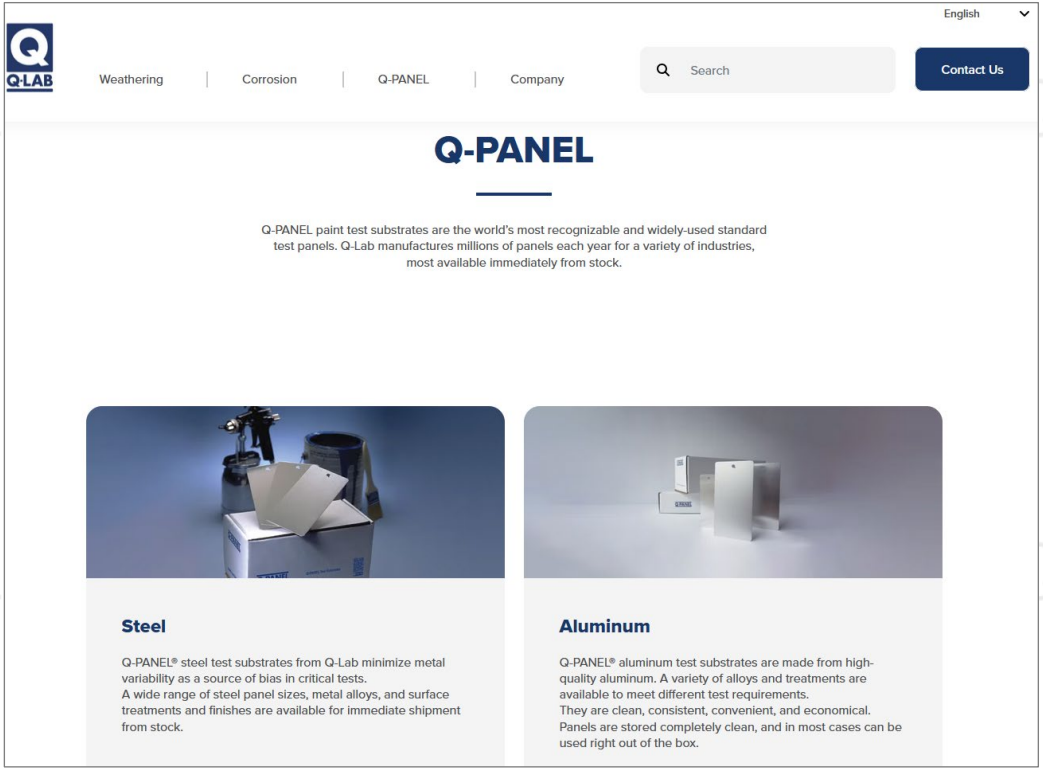
Q-PANEL Resources

q-lab.com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Q-PANEL
Q-PANEL paint test substrates are the world's most recognizable and widely-used standard test panels. Q-Lab manufactures millions of panels each year for a variety of industries, most available immediately from stock.
Steel
Q-PANEL® steel test substrates from Q-Lab minimize metal variability as a source of bias in critical tests.
A wide range of steel panel sizes, metal alloys, and surface treatments and finishes are available for immediate shipment from stock.
Aluminum
Q-PANEL® aluminum test substrates are made from high-quality aluminum. A variety of alloys and treatments are available to meet different test requirements.
They are clean, consistent, convenient, and economical.
Panels are stored completely clean, and in most cases can be used right out of the box.

Specification Bulletins

SPECIFICATION BULLETIN LP-0862-A

Q-PANEL Steel and Iron Phosphated Panels

Summary

Q-PANEL® steel test substrates from Q-Lab minimize metal variability as a source of bias in critical tests. Made from standard low-carbon, cold-rolled steel, 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.

Smooth Finish Steel Panels (Type QD, D, and DT) have a smooth, bright finish. Type QD are 0.51 mm (0.020 in) thick, and are our smoothest panel. They are recommended for testing gloss and color, and are the best buy for many general applications. Type D and DT are very thin (0.25 mm (0.010 in), flexible panels. Type D offers the same smooth surface as Type QD, while Type DT panels are tin plated. These types are very inexpansive and are stocked in a limited number of sizes.

Matte Finish Steel Panels (Type R) are a dull matte mill finish produced by roughened rolls. This matte finish is representative of general purpose sheet metal applications. Because they are thicker, 0.81 mm (0.032 in), Type R panels are more rigid than Type QD.

Ground (Polished) Finish Steel Panels (Type S) are the same steel as Type R, with a thickness of 0.81 mm (0.032 in), but one side is polished by grinding it with an abrasive until the mill surface is completely removed. This imparts a smooth surface that looks similar to a "brushed" finish. The ground (or polished) surface frequently gives better adhesion results than a matte finish. Add a **(-DG)** for ground surfaces on both sides of any Type S panel (double ground).

Painted Panels (Type WW, CW and WWS) are pre-coated in gray or white to eliminate the time required to prime test substrates. They are also available with black stripes and other patterns to test the hiding ability of a coating. They are 102 x 152 mm (4 x 6 in) and 0.20 mm (0.008 in) thick.

Iron Phosphate Treatment (Type R-XX-I, S-XX-I, R-XX-ICF, and S-XX-ICF) panels are pretreated with Bonderite M-FE 1000™, the most commonly used type of industrial iron phosphate. Q-PHOS panels incorporate either a chrome seal (-I) using Bonderite M-PT 60, or REACH/RoHS-compliant chrome-free seal (-ICF) using Bonderite M-PT 99X. Both options are followed by a virgin deionized water rinse. Iron phosphated panels have a coating weight of 323-646 mg/m² (30-60 mg/ft²) and are 0.81 mm (0.032 in) thick.

Stainless Steel (Type SS) panels are made from 304 stainless, in two sizes: 25 x 76 mm (1 x 3 in) and 76 x 152 mm (3 x 6 in). They are 0.035 in (0.89 mm) thick and do not have a Q-shaped hole.

Low Alloy Steel (Type HA and **Type HN)** panels are made from AISI 4130 steel, which contains molybdenum and chromium as strengthening agents. These panels are 1 mm (0.040 in) thick. HA panels meet AMS 6360/6361 and HN panels meet AMS 6345. Type HA panels do not have a Q-shaped hole.

Adhesive Panels (Ground Finish) (Type RS) are stocked in a 25 x 102 mm (1 x 4 in) size and 1.6 mm (0.063 in) thickness for testing adhesives. One side has a surface finish similar to Type S. These panels are thicker and harder than regular steel to resist the stress of lap shear testing and do not have a Q-shaped hole.

Taber® Abraser Panels (Type R-44-T and Type S-44-T) are specially designed for use with the Taber Abraser Tester. They are 101 x 101 mm (4 x 4 in) and 0.81 mm (0.032 in) thick, with a hole in the center. Their surface finish corresponds with our Type R and Type S panels, respectively.

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)

Custom Panels are available for unique needs. Please see page 4 for further details.

Q-LAB

SPECIFICATION BULLETIN LP-0862-B

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, ASX and AGX) 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. Type ASX are made from alloy 6061 T6, and Type AGX are made from alloy 7075 T6. Type ARX, ASX, and AGX are 0.81 mm (0.032 in) thick, have square corners, and no hanging hole. Type ARX and ASX are also available with a removable PE film on one side (-P) or with a hanging hole (-H).

Extruded Aluminum Panels (Type AEX-26) are made from alloy 6063 T5/T6. They are 51 x 152 × 2 mm (2 × 6 × 0.080 in). They are offered in Europe to meet Qualicoat requirements.

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, 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 AQT are made from alloy 5005 H24 and are 0.81 mm (0.032 in) thick. Type AL 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. They 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-2434) are made from coated series-3000 aluminum. They are 610 × 864 × 1.0 mm (24 × 34 × 0.040 in). 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 light gray, coil coated, polyurethane finish.

Large Display Panels (Type L-1424) are made from smooth finish, series-3000 aluminum. They are 356 × 610 × 0.6 mm (14 × 24 × 0.025 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)

Custom Panels are available for unique needs. Please see page 4 for further details.

Q-LAB

SPECIFICATION BULLETIN LP-0862-C

Q-PANEL Corrosion Test Coupons

Summary

For over 50 years, Q-PANEL® test substrates have been recognized as the world standard for a consistent and uniform test surface for paints, plating, adhesives, sealants, rust inhibitors and other coatings.

This consistency and uniformity is now available through Q-Lab's CX-series corrosion test coupons. Corrosion test coupons ensure repeatability and reproducibility when performing laboratory corrosion testing. They help a user independently monitor the test conditions in the chamber by measuring the mass loss of the coupons as the test progresses. CX corrosion coupons are designed to meet the stringent requirements specified in many international modern corrosion test methods.

Features and Benefits

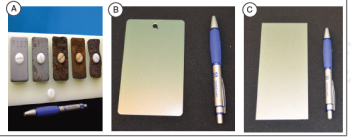
- Meet requirements of GMW14872, ASTM B117, SAE J2334, SAE J2721, ISO 9227, GB/T 10125, and VDA-233-102
- Pre-cleaned and ready to use right out of the package
- Often half the price of competitors' coupons

All Q-PANEL CX-series corrosion coupons include a Certificate of Analysis, come pre-cleaned, and are ready to use right out of the package. This allows the user to simply weigh the panels and place them in the tester, saving time and effort. And best of all, CX corrosion coupons are often half the price of competitors' coupons.

A) Q-PANEL Stock Numbers, Standards Met, and Sizes

Stock Number	Photo	Meets Standards:	Size (W x L) ± 1 mm (± 0.04 in)	Thickness ± 0.05 mm (± 0.002 in)	Box Qty	In Stock? US	In Stock? EU
CXB-12-K	A	GMW14872, 9640P, SAE J2334, J2721	25 x 51 mm (t x 2 in)	3.00 mm (0.125 in)	30*	●	●
CXC-35-K	B	ASTM B117	76 x 127 mm (3 x 5 in)	0.80 mm (0.032 in)	30*	●	●
CXD-2.76-5.90-K	C*	ISO 9227 VDA-233-102 GB/T 10125	70 x 150 mm (2.76 x 5.90 in)	1.02 mm (0.040 in)	30*	●	●

Notes: * No Q-shaped hole ● In-Stock
1. Box qty 30 includes 3 sealed packs of 10 each, extra set of plastic mounting hardware. Corrosion coupon rack sold separately (Part No. F-9220-X).
2. Box qty 30 includes 5 sealed packs of 6 each.
3. Q-PANEL CX-series coupons are only sold in quantities of 30. Broken boxes are not permitted.



Q-LAB

PRODUCT SUMMARY LP-0869

Q-PANEL Automotive Refinish Training System

The Q-PANEL® Automotive Refinish Training System (ARTS) is a patented, portable painting setup that provides a low-cost, simulated surface for automotive paint and coatings application. The system comprises a mounting cart and a contoured, simulated hood and pair of fenders. The cart can be folded and the panels stacked together to save space. The system is designed to give the paint applicator experience with the techniques used to paint whole vehicles, without the high expense.

Features

- **Low cost - saves money over real automotive hoods & fenders**
- **Realistic training - panels have seams, holes and contours**
- **Compact storage - hood and fender panels are stackable**
- **Portable and lightweight - cart rolls out of the way easily and folds to save storage space**
- **Convenient - Panels arrive pre-coated so no primer is needed**

Save Money

Lower in cost than actual automobile hoods and fenders, the Q-PANEL simulated hood and fender are shaped like real automotive components to provide a true-to-life painting experience. They are constructed from sturdy 1 mm (0.040 in) thick aluminum to allow for multiple uses. Also, the cart is constructed from lightweight aluminum for reduced shipping costs.

Applications

- **Technician Training & Evaluation**
- **Paint & Coatings Development**
- **Trade Show Displays**
- **Customer Demonstrations**

Save Time

It takes just a minute to attach the simulated hood and two fenders onto the portable mounting cart to create the look and feel of the front "clip" of an automobile body. Because the hood and fenders come pre-coated in a neutral gray color, no priming is necessary.

A fully assembled Q-PANEL automotive refinish training system provides a realistic simulation for painting professionals.

Save Space

The Q-PANEL mounting cart can be folded up and easily rolled in and out of a paint booth or corner for compact storage. The simulated fenders and hoods take up surprisingly little room. A set of 16 stacked fender panels can be stored in the same space as one real fender. The condensed shape of the panels frees up precious space for other uses.

Hood and fender panels stack easily for extremely compact storage. Real fenders and hoods don't.

Q-LAB

Specification Bulletins

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", "AT", "AD", "AQ", "AQT", "ARX", "ASX", "AGX", and "AEX" comply with the specifications found in the following tables.

	Type A, AL, AN, AT	Type AQ, AQT	Type AR, ARX	Type ASX	Type AGX	Type AD	Type AEX
Alum. Assoc. Material Design.	3003 H14	5005 H24	2024 T3	6061 T6	7075 T6	2024 T3 Alclad	6063 T5/T6
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-250/12		
ISO Material Design. (ISO 209-1)	AlMn1Cu	AlMg1(B)	AlCu4Mg1	AlMg1SiCu	AlZn5,5MgCu		
ISO Panel Specifications	209-1, 1514	209-1	209-1	209-1	209-1		
Tensile Strength* (kpsi)	20 - 26	20 - 26	>63	>42	>76		
Tensile Strength* (MPa)	140 - 180	140 - 180	>435	>290	>520		
Min Yield Strength* (kpsi)	17	15	42	35	67		
Min Yield Strength* (MPa)	115	105	290	240	470		
Aluminum (%)	Balance	Balance	Balance	Balance	Balance		
Chromium (%)	—	<0.10	<0.10	0.04 - 0.35	0.18 - 0.28		
Copper (%)	0.05 - 0.20	<0.20	3.80 - 4.90	0.15 - 0.40	1.20 - 2.00		
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		
Magnesium (%)	—	0.50 - 1.10	1.20 - 1.80	0.80 - 1.20	2.10 - 2.90		
Silicon (%)	<0.60	<0.30	<0.50	0.40 - 0.80	<0.40		
Titanium (%)	—	—	<0.15	<0.15	<0.20		
Zinc (%)	<0.10	<0.25	<0.25	<0.25	5.10 - 6.10		
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		

Chemistry, sizing, and quantity information at a glance

C) Q-PANEL Dimensions, Stock Numbers and Box Quantities

Panel & Description	Stock Number	Size W × L (in) (± 0.04, except as noted)	Thickness (in) (± 0.002, except as noted)	Size W × L (mm) (± 1, except as noted)	Thickness (mm) (± 0.05, except as noted)	Box Qty	In Stock? US	In Stock? EU
Type A Bare Surface Smooth Mill Finish	A-1.75-5	1.75 × 5	0.025	44 × 127	0.64	800	●	●
	A-2-3.5	2 × 3.5	0.025	51 × 89	0.64	500	●	●
	A-24	2 × 4	0.025	51 × 102	0.64	450	●	●
	A-2.75-4	2.75 × 4	0.025	70 × 102	0.64	300	●	○
	A-35	3 × 5	0.025	76 × 127	0.64	500	●	●
	A-36	3 × 6	0.025	76 × 152	0.64	500	●	●
	A-39	3 × 9	0.025	76 × 229	0.64	150	○	○
	A-46	4 × 6	0.025	102 × 152	0.64	250	●	●
	A-48	4 × 8	0.025	102 × 203	0.64	150	●	●
	A-412	4 × 12	0.025	102 × 305	0.64	125	●	●
	A-612	6 × 12	0.025	152 × 305	0.64	125	●	●

Q-PANEL Brochure and Applications Guide

TECHNICAL BULLETIN LP-0867

Q-PANEL Standard Substrate Applications Guide

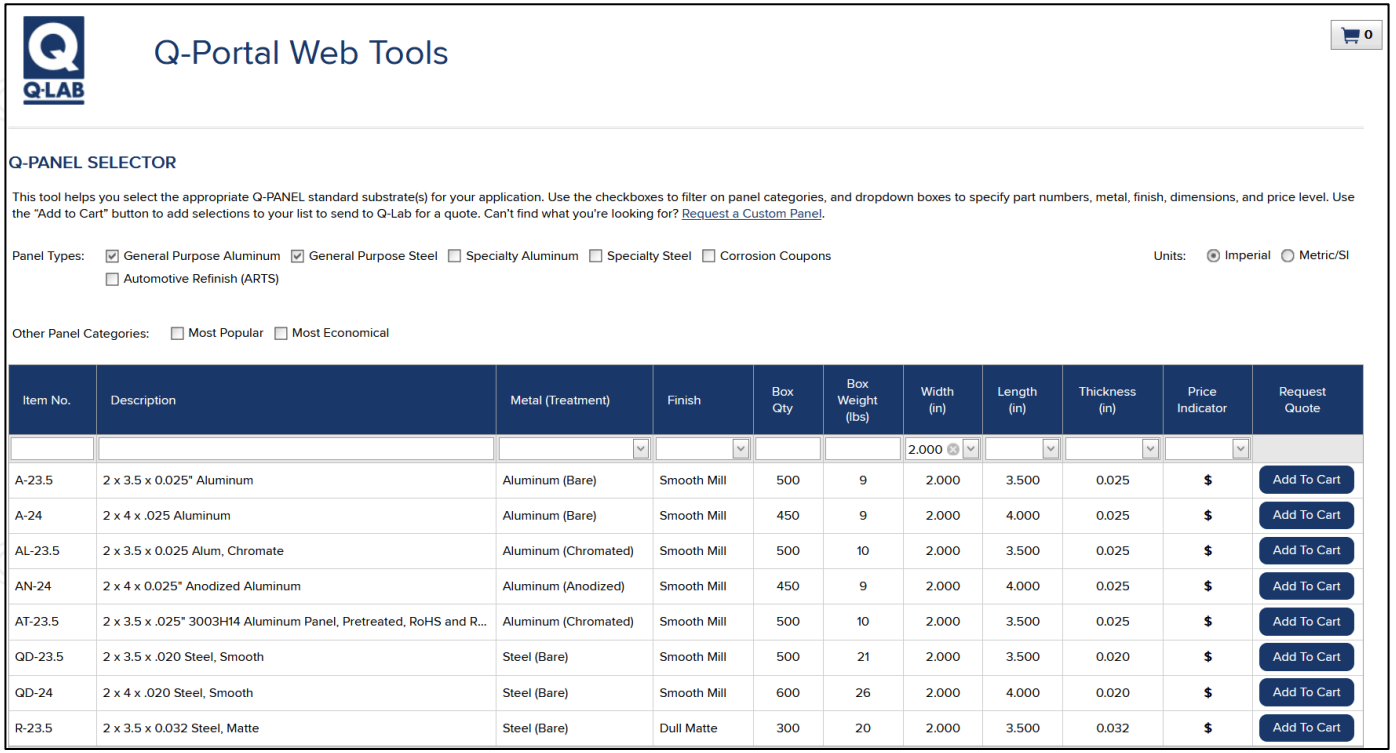
	Steel						
Q-PANEL® Type	**D**	**QD**	**R**	**S**	**R-I**	**HA**	**HN**
Thickness (inches)	0.010"	0.020"	0.032"	0.032"	0.032"	0.040"	0.040"
Thickness (mm)	0.25 mm	0.50 mm	0.80 mm	0.80 mm	0.80 mm	1.00 mm	1.00 mm
Coating	-	-	-	-	phosphate	-	-
Finish	smooth	smooth	matte	ground	matte	matte	matte
Roughness RMS (micro-inches) µ in.	<20	<20	25-65	20-45	25-65	20-40	20-40
Roughness RMS (micro-meters) µm	<0.50	<0.50	0.63-1.65	0.50-1.14	0.63-1.65	0.50-1.02	0.50-1.02
VISUAL PROPERTIES							
Color Measurement	●	●	●	●	●	●	●
Gloss Measurement	●	●	◕	◕	◕	◕	◕
Wave Scan (orange peel)	●	●	◐	◐	◐	◐	◐
PHYSICAL PROPERTIES							
Abrasion - Taber	◴	◕	●	●	●	●	●
Abrasion - other	●	●	●	●	●	●	●
Adhesive (scratch, cross-hatch)	●	●	●	●	●	●	●
Adhesive (pull-off)	◐	◕	●	●	●	●	●
Impact	○	◐	●	●	●	●	●
Bend - Mandrel	◕	●	●	●	●	●	●
Bend - Zero t	●	●	◕	◕	◕	◕	◕
Gravelometer	○	◴	●	●	●	●	●
Film Thickness - wet film	●	●	●	●	●	●	●
Film Thickness -electronic dry film	●	●	●	●	●	●	●
Hardness - pencil	●	●	●	●	●	●	●
Hardness - rocker	◐	◕	●	●	●	●	●
CHEMICAL / ACID							
Chemical Resistance	◕	◕	●	●	●	●	●
Acid Resistance (coating itself)	◕	◕	●	●	●	●	●
Acid Resistance -corrosion of substrate	◕	◕	●	●	●	●	●
WEATHERING & CORROSION							
Corrosion - Salt Spray	◕	●	●	●	●	●	●
Corrosion - Humidity / Condensation	◕	●	●	●	●	●	●
Corrosion - Outdoor Natural Exposure	◴	◐	●	●	●	●	●
Accelerated Weathering	◕	●	●	●	●	●	●
Outdoor Weathering	◴	◐	◕	◕	◕	◕	◕
SALES SAMPLES - BATCH RECORDS							
Sales Samples (light weight)	●	◕	◐	◐	◐	◐	◐
Batch Records (light weight)	●	◕	◐	◐	◐	◐	◐
BAKING AND CURING							
Baking / Curing - Liquid Coating	●	●	●	●	●	●	●
Baking / Curing - Powder Coatings	◕	●	●	●	●	●	●

● = Best ◐◑ ○ = Not Suitable
NOTE: See Page 4 for additional details regarding testing.

Q-LAB

We make testing simple. Q-LAB

Q-Portal Q-PANEL selector



Q-Portal Web Tools

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Q-PANEL SELECTOR

This tool helps you select the appropriate Q-PANEL standard substrate(s) for your application. Use the checkboxes to filter on panel categories, and dropdown boxes to specify part numbers, metal, finish, dimensions, and price level. Use the "Add to Cart" button to add selections to your list to send to Q-Lab for a quote. Can't find what you're looking for? Request a Custom Panel.

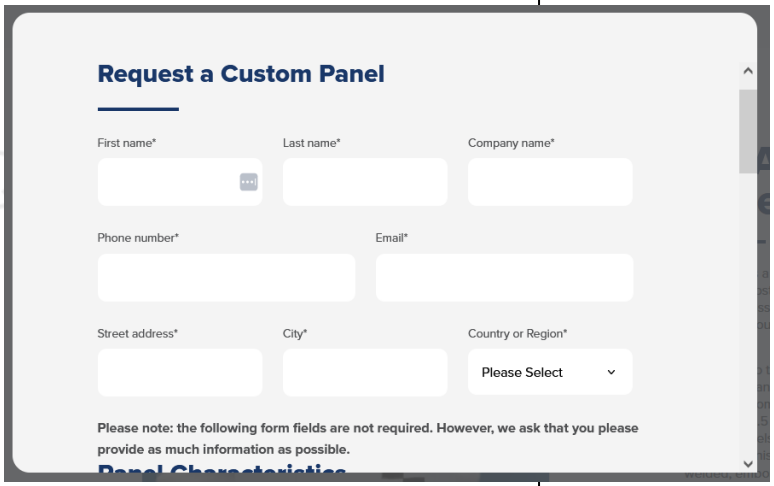
Panel Types: ☑ General Purpose Aluminum ☑ General Purpose Steel ☐ Specialty Aluminum ☐ Specialty Steel ☐ Corrosion Coupons ☐ Automotive Refinish (ARTS)

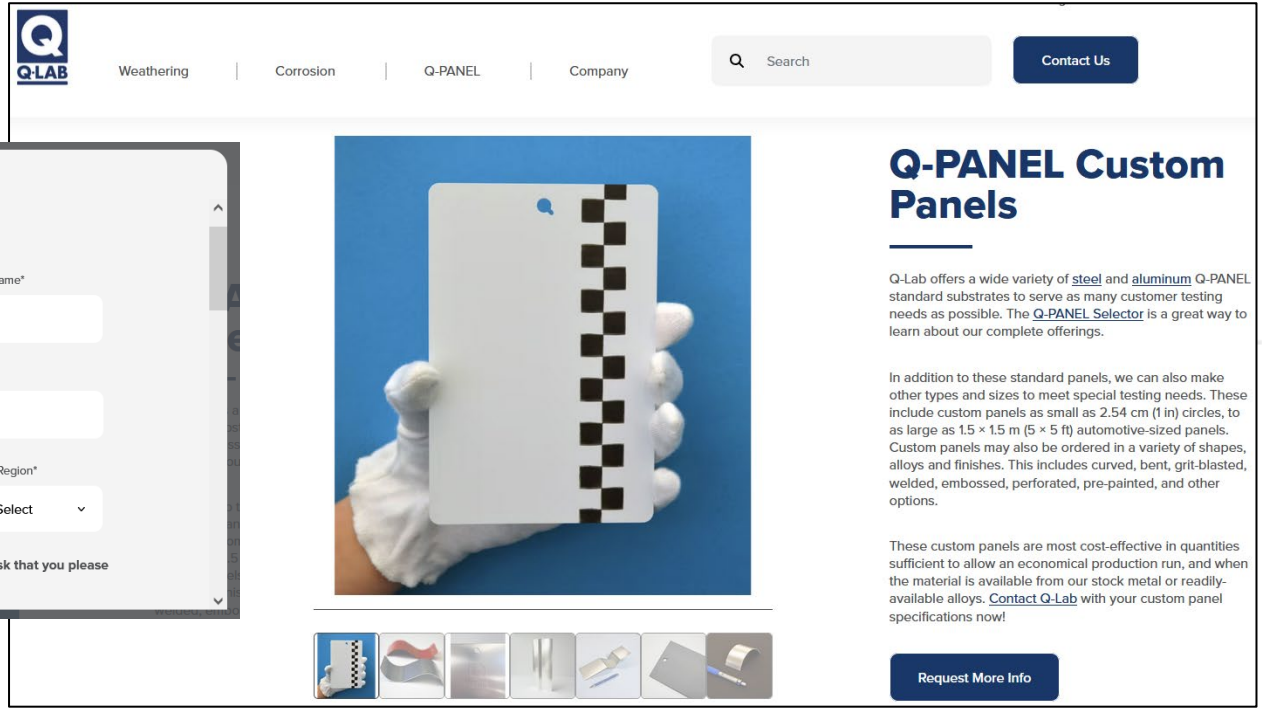
Units: ◉ Imperial ○ Metric/SI

Other Panel Categories: ☐ Most Popular ☐ Most Economical

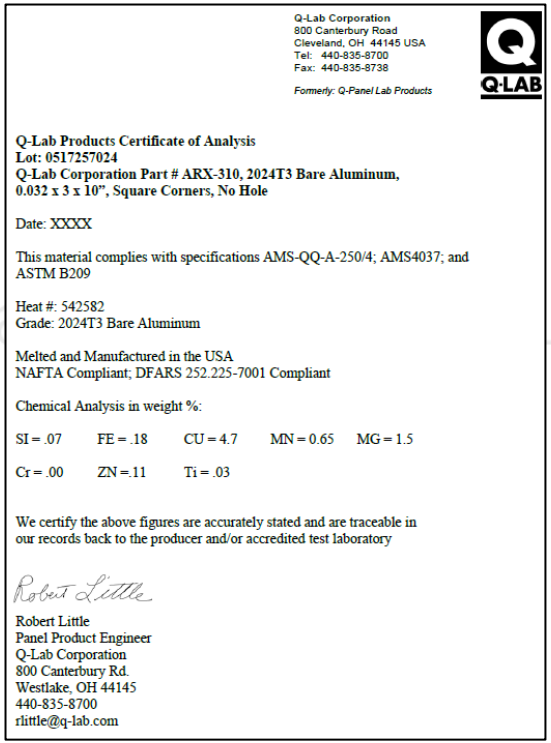
Item No.	Description	Metal (Treatment)	Finish	Box Qty	Box Weight (lbs)	Width (in)	Length (in)	Thickness (in)	Price Indicator	Request Quote
						2.000				
A-23.5	2 x 3.5 x 0.025" Aluminum	Aluminum (Bare)	Smooth Mill	500	9	2.000	3.500	0.025	$	Add To Cart
A-24	2 x 4 x .025 Aluminum	Aluminum (Bare)	Smooth Mill	450	9	2.000	4.000	0.025	$	Add To Cart
AL-23.5	2 x 3.5 x 0.025 Alum, Chromate	Aluminum (Chromated)	Smooth Mill	500	10	2.000	3.500	0.025	$	Add To Cart
AN-24	2 x 4 x 0.025" Anodized Aluminum	Aluminum (Anodized)	Smooth Mill	450	9	2.000	4.000	0.025	$	Add To Cart
AT-23.5	2 x 3.5 x .025" 3003H14 Aluminum Panel, Pretreated, RoHS and R...	Aluminum (Chromated)	Smooth Mill	500	10	2.000	3.500	0.025	$	Add To Cart
QD-23.5	2 x 3.5 x .020 Steel, Smooth	Steel (Bare)	Smooth Mill	500	21	2.000	3.500	0.020	$	Add To Cart
QD-24	2 x 4 x .020 Steel, Smooth	Steel (Bare)	Smooth Mill	600	26	2.000	4.000	0.020	$	Add To Cart
R-23.5	2 x 3.5 x 0.032 Steel, Matte	Steel (Bare)	Dull Matte	300	20	2.000	3.500	0.032	$	Add To Cart

Custom Q-PANEL





Certificates of Analysis and Conformance



Q-Lab Corporation
800 Canterbury Road
Cleveland, OH 44145 USA
Tel: 440-835-8700
Fax: 440-835-8738

Formerly: Q-Panel Lab Products

Q-Lab Products Certificate of Analysis
Lot: 0517257024
Q-Lab Corporation Part # ARX-310, 2024T3 Bare Aluminum, 0.032 x 3 x 10", Square Corners, No Hole

Date: XXXX

This material complies with specifications AMS-QQ-A-250/4; AMS4037; and ASTM B209

Heat #: 542582
Grade: 2024T3 Bare Aluminum

Melted and Manufactured in the USA
NAFTA Compliant; DFARS 252.225-7001 Compliant

Chemical Analysis in weight %:

SI = .07 FE = .18 CU = 4.7 MN = 0.65 MG = 1.5

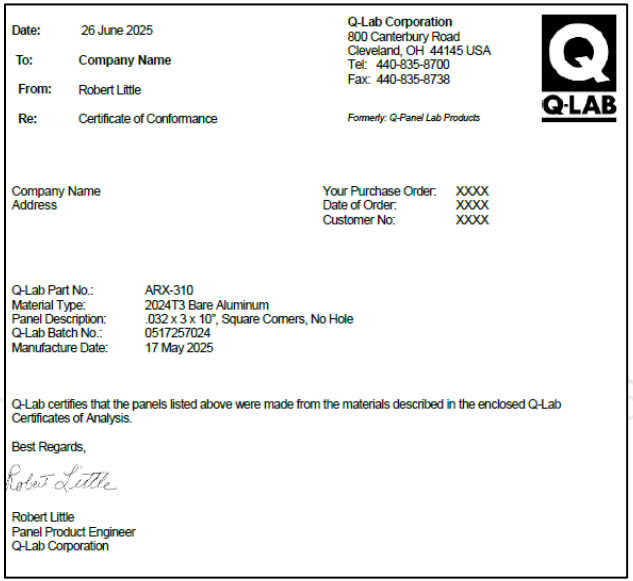
Cr = .00 ZN =.11 Ti = .03

We certify the above figures are accurately stated and are traceable in our records back to the producer and/or accredited test laboratory

Robert Little

Robert Little
Panel Product Engineer
Q-Lab Corporation
800 Canterbury Rd.
Westlake, OH 44145
440-835-8700
rlittle@q-lab.com

Documentation of panel chemistry and compliance with relevant specifications



Date: 26 June 2025
To: Company Name
From: Robert Little
Re: Certificate of Conformance

Q-Lab Corporation
800 Canterbury Road
Cleveland, OH 44145 USA
Tel: 440-835-8700
Fax: 440-835-8738

Formerly: Q-Panel Lab Products

Company Name
Address

Your Purchase Order: XXXX
Date of Order: XXXX
Customer No: XXXX

Q-Lab Part No.: ARX-310
Material Type: 2024T3 Bare Aluminum
Panel Description: .032 x 3 x 10", Square Corners, No Hole
Q-Lab Batch No.: 0517257024
Manufacture Date: 17 May 2025

Q-Lab certifies that the panels listed above were made from the materials described in the enclosed Q-Lab Certificates of Analysis.

Best Regards,

Robert Little

Robert Little
Panel Product Engineer
Q-Lab Corporation

Thank you for your time.

Questions?

panels@q-lab.com

We make testing simple.

Q-LAB