

# Q-PANEL Standard Test Substrates

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# Q-Lab's Special Topic Webinar Series

- Today is the 1st of a two-part webinar series on special testing topics
- Previously this year we've done series on Outdoor Testing, Corrosion, and Laboratory Weathering Testing
- Our upcoming and archived webinars are hosted at: [q-lab.com/webinars](https://q-lab.com/webinars)

Date	Topic
02 Jun	Q-PANEL standard test substrates
09 Jun	UVC Testing

# Housekeeping

You'll receive a follow-up email from [info@email.q-lab.com](mailto: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!



We make testing simple.



**Thank you for attending our webinar!**

We hope you found our webinar on *Q-PANEL Standard Test Substrates* to be helpful and insightful. The link below will give you access to the slides and recorded webinar.

You can help us continue to provide valuable and high quality content by completing our [3-question survey](#) about your webinar experience. Every piece of feedback is carefully reviewed by a member of our team.

We consistently hold seminars and webinars about weathering, corrosion, standards, and more. The best way to keep up with news and events is by following us on [Facebook](#), [Twitter](#) and [LinkedIn](#).

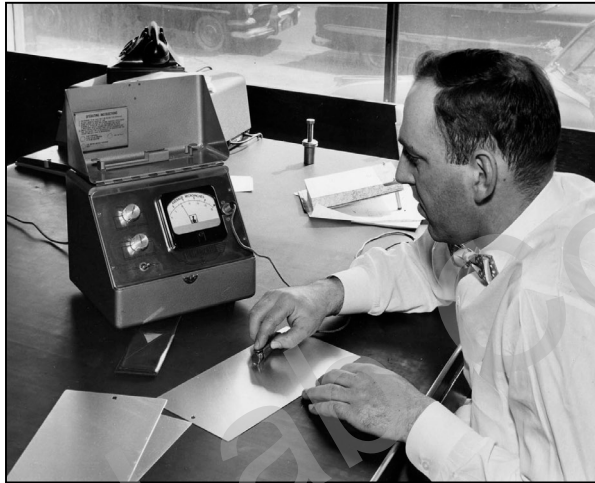


# Today's Agenda

- Q-PANEL history and overview
- Steel Q-PANEL
- Aluminium Q-PANEL
- Corrosion Coupons
- Automotive Refinishing Training System (ARTS)
- Custom Q-PANEL

# 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 products are the most widely-recognizable test substrates due to 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!***



# Advantages of Q-PANEL test substrates

- Quality
  - Q-Lab stands behind every panel produced, standard or custom.
- Cleanliness
  - Oil-free, contaminate-free - use right out of the pack
- Packaging
  - Bare steel panels are wrapped in rust-proof paper
  - Aluminum and steel sheets are then packaged in smaller quantities in plastic bags
- Standardization
  - Same product every time
- Price
  - Competitive pricing, quantity discounts
- Availability
  - Stock in Westlake, Saarbrücken & Bolton

# Q-PANEL substrates are pre-cleaned

- The panels are carefully cleaned during the manufacturing process
- All oil residues and dirt that may be on the surface 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 to protect from abrasion during transport

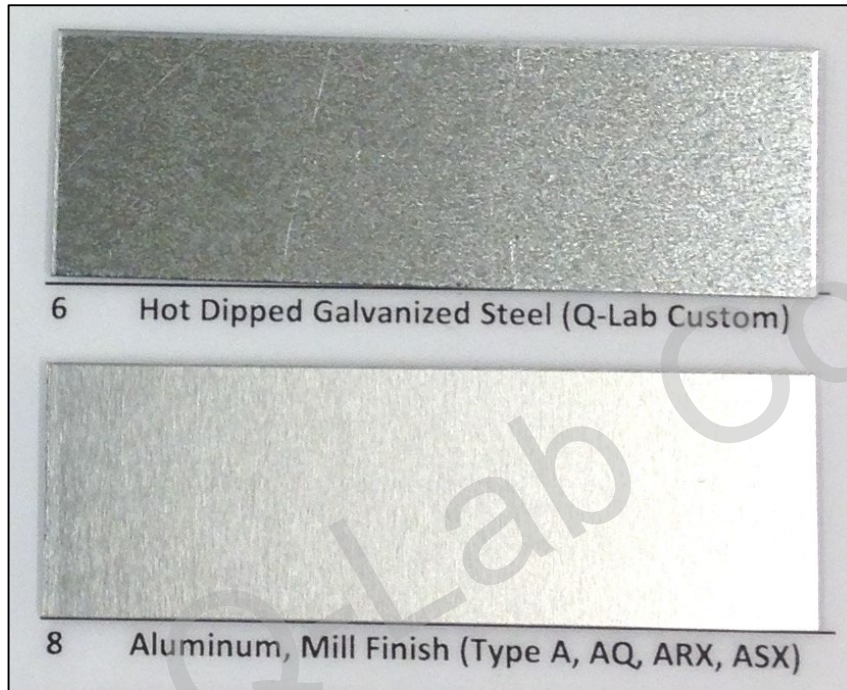


# Standard Q-PANEL offerings

- Aluminium
  - Alloys 2024, 3003, 5005, 6061, 6063, and 7075
- Steel
  - Alloy SAE 1008/1010 CRS
- Treated Al (Anodized & Chromated)
  - Available in REACH-approved version
- Phosphated Steel
  - Available in REACH-approved version
- Corrosion Coupons
- Automotive Refinishing Training Systems (ARTS)



# Standard Q-PANEL substrates



# Panel selector

q-lab.com

Request a Custom Panel

**METAL**  
Check All | Uncheck All

- Aluminum
- Aluminum (Alclad)
- Aluminum (Anodized)
- Aluminum (Bare)
- Aluminum (Chromated)
- Steel
- Steel (Bare)
- Steel (Iron Phosphated)
- Steel (Pre-Painted)
- Steel (Stainless)
- Steel (Tinplate)

**TYPE**  
Check All | Uncheck All

- A
- AL
- AQ
- AR
- ASX
- CX
- DT
- HN
- QD
- R-XX-I
- RS
- S-XX-I
- SPA
- SPR
- W
- AD
- AN
- AQT
- ARX
- AT
- D
- HA
- L
- R
- R-XX-ICF
- S
- S-XX-ICF
- SPC
- SS

**FINISH**  
Check All | Uncheck All

- #2B
- Dull Matte
- Ground (One Side)
- Mill
- Painted
- Smooth Mill
- Tinplate

**WIDTH**  
Check All | Uncheck All

- 1
- 2
- 2.75
- 3
- 6
- 15
- 1.75
- 2.36
- 2.76
- 4
- 14
- 24

**LENGTH**  
Check All | Uncheck All

- 2
- 3.5
- 5
- 5.9
- 8
- 10
- 24
- 3
- 4
- 5.51
- 6
- 9
- 12
- 34

**THICKNESS**  
Check All | Uncheck All

- 0.007
- 0.020
- 0.032
- 0.040
- 0.063
- 0.010
- 0.025
- 0.035
- 0.047
- 0.125

**Submit**

Inches (in)  Millimeters (mm)

# Q-PANEL Naming Convention

A-



Material Type

36



Size

Width × Height  
*(given in inches)*



## 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 inexpensive and are stocked in a limited number of sizes.

# Q-PANEL Naming Convention

R - 412

Material Type

Size

Width × Height

*(given in inches)*

# Steel Q-PANEL Substrates

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# Steel Q-PANEL summary

Description	Type	Comment
Smooth finish	QD, D, DT	General applications, gloss and color
Matte finish	R	General sheet metal
Ground finish	S	Improved adhesion (-DG for double ground)
Painted	WW, GW, WWS	Eliminated need for priming
Iron Phosphated	-I, -ICF	Improved adhesion
Stainless steel	SS	Corrosion resistant
Low alloy	HA, HN	Mo and Cr included for strengthening
Adhesive	RS	Resists stresses of lap shear testing
Taber Abraser	-T	Abrasion testing
Curved	-CU	Available on any 3", 4", or 6" steel panels

# Steel Panels: Type QD, R, S



Type	QD	R	S
Thickness (mm)	0.51	0.81	0.81
Finish	Smooth	Matte	Ground, one side
Roughness ( $R_{ar}$ , $\mu\text{m}$ )	<0.5	0.6 – 1.6	0.5 – 1.1
Use	Color/gloss	Phys/chem test	Consistent finish



# Double Ground Panels: Type DG

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



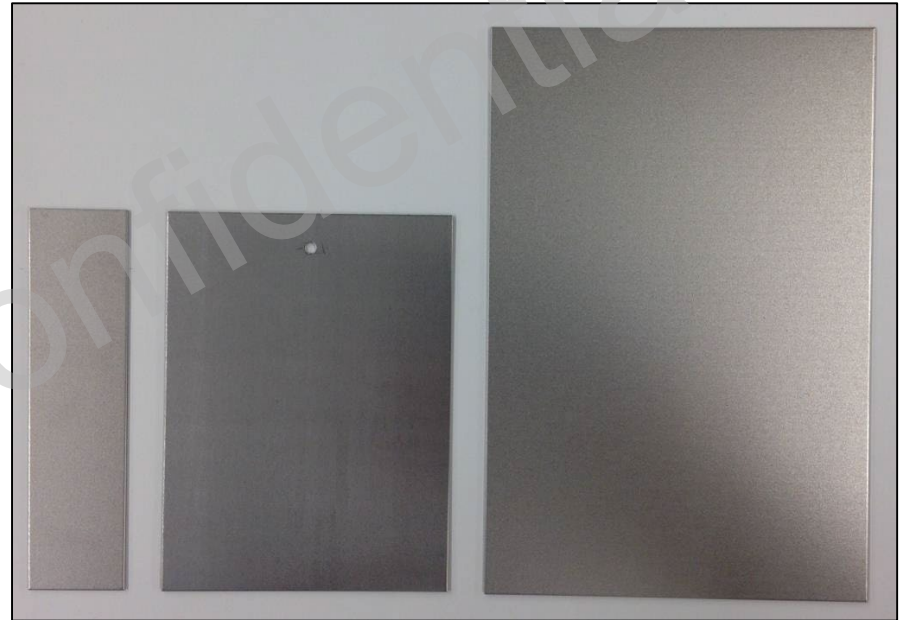
# Pre-Painted Steel: Type GW, WW, WWS

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



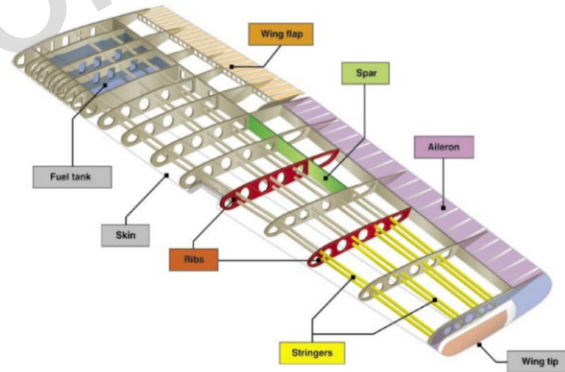
# Low Alloy Steel: Type HA & HN

- 4130 Cr-Mo Steel
  - High Strength Steel
  - Can be welded
  - Used in many applications
- Very strong and hard
  - Better for heat treatment
  - Best for welding purposes
  - Best for machining processes
- Prone to corrosion; must be protected
  - Manganese phosphating
  - Zinc phosphating
  - Electroplating



# Low Alloy Steel: Type HA & HN

- Commonly used in structural applications
  - Gears
  - Fasteners
  - Aircraft parts
- Used to make tubing
  - Bicycle frames
  - High-pressure piping
  - Firearm parts
  - Roll cages
  - Oil drilling pipe



# Additional Steel Panels: Type ICF, SS, RS, DT



Type	-ICF	SS	RS	DT
Description	Iron phosphated steel with Chrome Free (CF) sealer	Type 304-2B stainless steel, bright finish	SAE 1010 Cold Rolled Steel w ground finish on one side	Tin plated steel, smooth finish

# Aluminium Q-PANEL Substrates

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# Aluminium Q-PANEL summary

Description	Type	Comment
Bare aluminium	A, AQ, ARX, ASX, AGX	Standard Al offerings, mill finish
Anodized aluminium	AN	Anodized for improved corrosion resistance
Extruded aluminium	AEX	For Qualicoat and GSB etch rate testing
Chromated	AL, AT, AQT	Chromium conversion treatment to improve paint adhesion and resistance to underfilm corrosion
Adhesive	AD, AR	Heavy gauge to resist adhesive testing stress
Auto styling	SPC, SPA	Curved to mimic automobile side panels
Large display	L	Large-format products
Curved	-CU	Available on any 3", 4", and 6" aluminium panels

# Aluminium Panels, Mill Finish: Type A, AQ

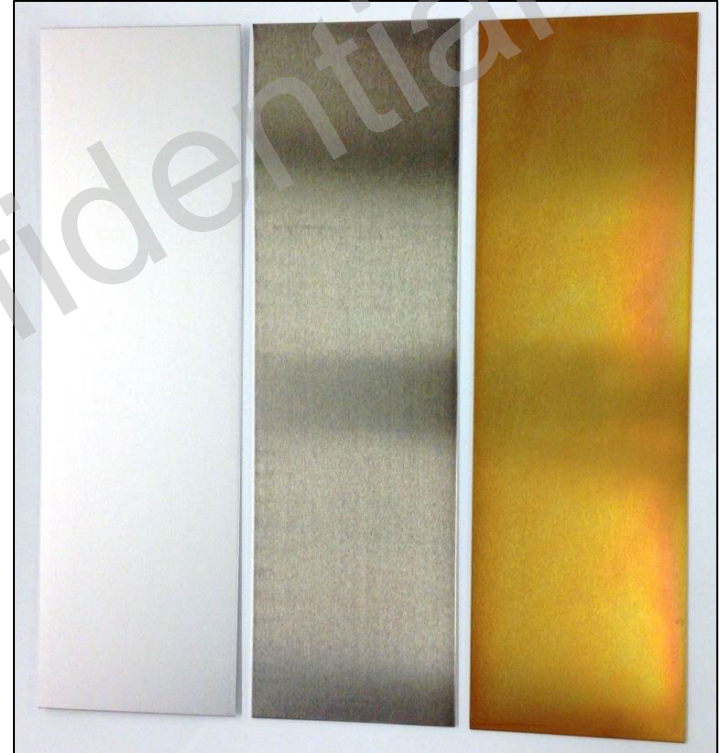


Type	A	AQ
Alloy	3003-H14	5005-H24
Thickness (mm)	0.64 mm	0.81 mm



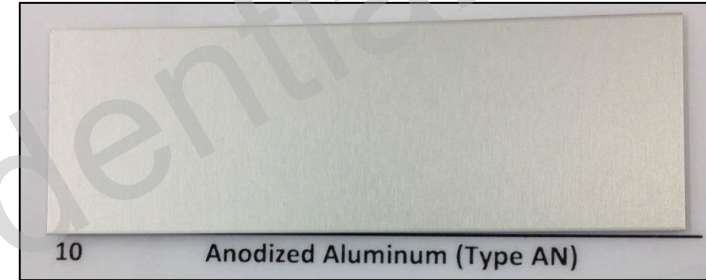
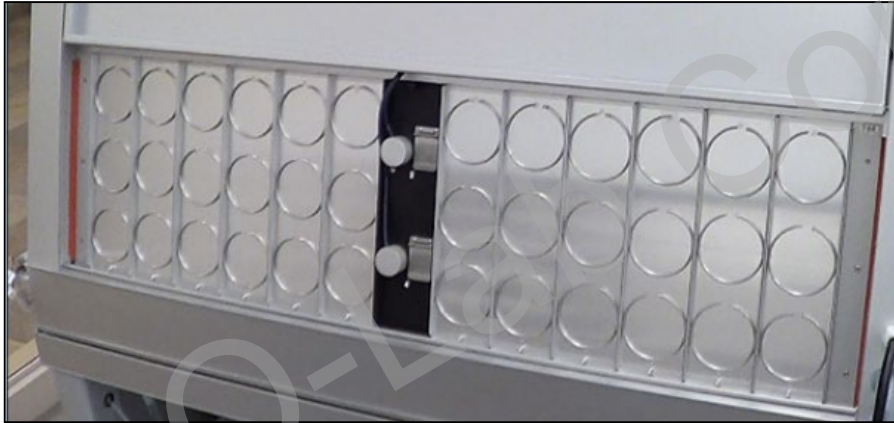
# Aircraft-Grade Aluminium: Type ARX, ASX, AGX

- ARX - 2024 T3 bare aluminium
- ASX - 6061 T6 bare aluminium
- AGX - 7075 T6 bare aluminium
- 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



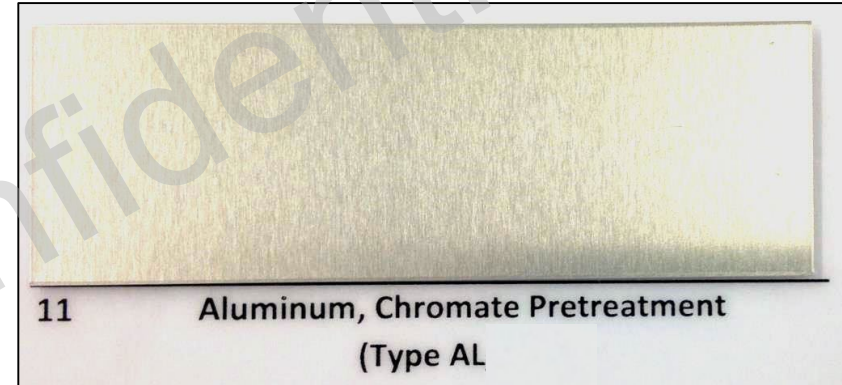
# Anodized Aluminium Panels: Type AN

- Anodized per MIL-A-8625 Type II, Class 1
- "Filler" panels in specimen holders for QUV (3 × 6") and Q-SUN testers (2 × 4")
- Size (6 × 12") also available



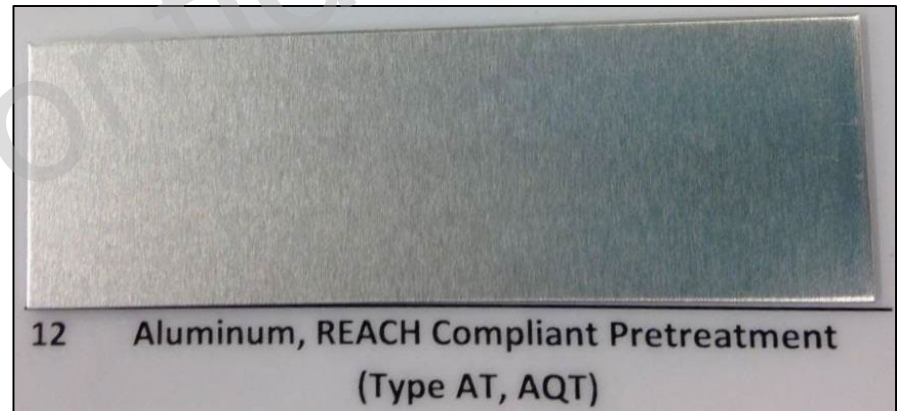
# Chromated Aluminium Panels: Type AL

- Pretreated with a conversion coating of chromium trioxide ( $\text{CrO}_3$ ), which contains hexavalent chrome ( $\text{Cr}^{6+}$ )
- Restricted by REACH legislation as a Substance of Very High Concern
- Not sold in EU but available elsewhere



# Chromated Aluminium Panels : Type AT/ATQ

- "T" for Trivalent Chrome ( $\text{Cr}^{3+}$ ) conversion coating pretreatment
- REACH-compliant alternatives to Type AL and ALQ
- Available in EU



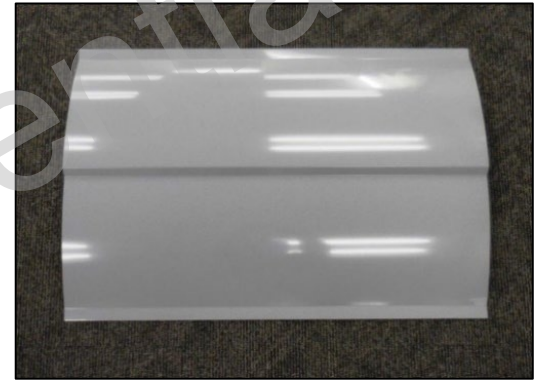
# Aluminium Adhesive Panels: Type AR, AD



Used for lap shear adhesion testing per ASTM D1002

# Auto Styling Panels: Type SPC, SPR

24 × 34"  
610 × 864 mm





# Large Display Aluminium Panels: Type L

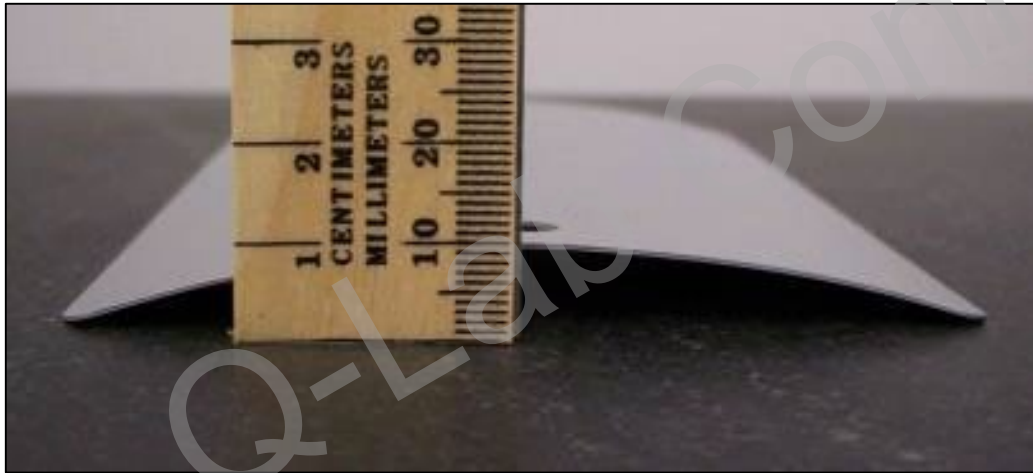
14 × 24"  
356 × 610 mm



# Curved Panels (- CU)

Standard steel and aluminium panels are available as -CU

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





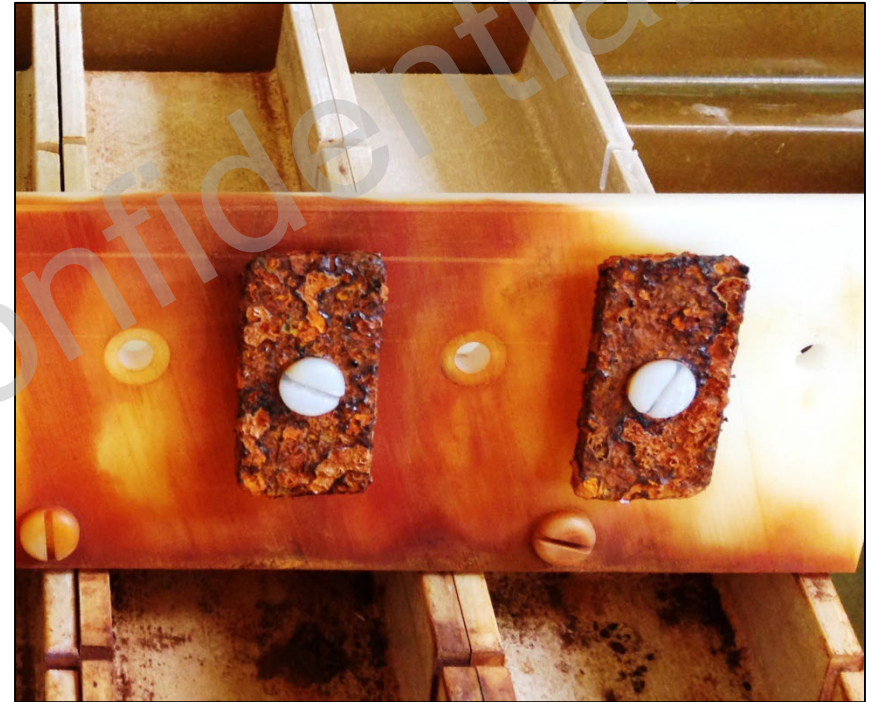
# Corrosion Coupons (a.k.a. Mass Loss Coupons)

# Corrosion Test Coupons: CX Series



# 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



# Corrosion Test Coupons: CXB-12

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



# Corrosion Test Coupons: CXC-35

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



# 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 kit (box)





# Automotive Refinishing Training System (ARTS)

# Automotive Refinishing Training System

## ARTS Cart





# Automotive Refinishing 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



# Automotive Refinishing Training System

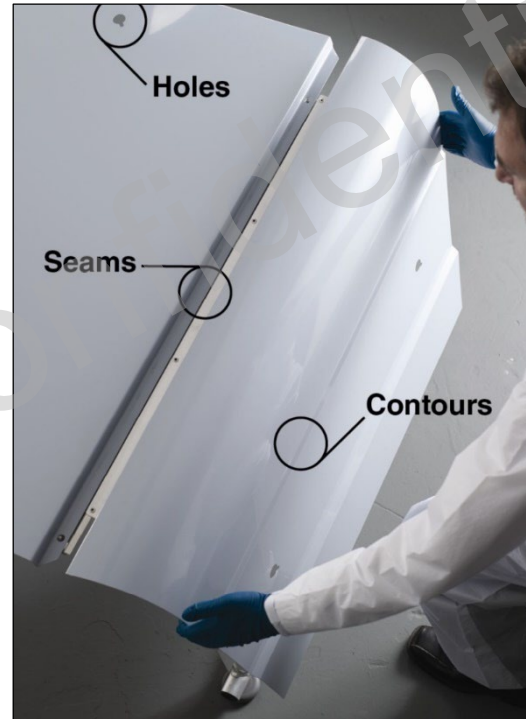
## Easy Storage and Transportation



# Automotive Refinishing Training System

## Ease of Use

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



# Custom Q-PANEL substrates

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# Custom Q-PANEL offerings

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

# Custom Q-PANEL offerings



# Thank you for your attention!

## Questions?

Send your inquiry to:  
[info@q-lab.com](mailto:info@q-lab.com)