



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.

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, GW 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.

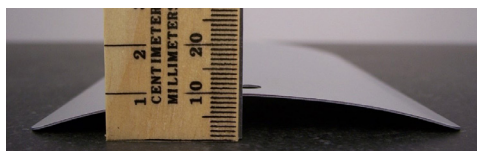
Stainless Steel (Type SS) panels are made from 304 stainless, in two sizes: 25 x 76 mm (1 x 3 in) and 76 x 152 mm (3 x 6 in). They are 0.035 in (0.89 mm) thick and do not have a Q-shaped hole.

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 6350/6351 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.

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

	Type QD	Type D	Type DT	Type R	Type S	Type RS	Type WW, GW & WWS	Type SS	Type HA & HN
SAE Material Designation	1008/1010						1008	304	4130
ASTM Material Specifications	A1008	A1008	A624	A1008	A1008	A109	—	A240 A666	A505 A506
ISO Material Specifications	3574 Type CR1	3574 Type CR1	11949	3574 Type CR1	3574 Type CR1	—	—	15510: X5CrNi 18-9	—
ASTM Panel Specifications	D609- Type 3	D609- Type 3	—	D609- Type 1	D609- Type 2	D1002	—	—	—
ISO Panel Specifications	1514- Type 3	1514- Type 3	1514 Section 4.1	1514- Type 1	1514 Sect. 3.5.4	1514	—	—	—
Roughness Ra (micro-inches)	<20	<20	<20	25-65	20-45	20-45	Gray: 5-10 ¹ White: 10-20 ¹	<20	20-40
Roughness Ra (microns)	<0.51	<0.51	<0.51	0.63-1.65	0.51-1.14	0.51-1.14	Gray: 0.13-0.25 ¹ White: 0.25-0.51 ¹	<0.51	0.51-1.02
Surface Finish	Smooth	Smooth	Tinplate	Dull Matte	Ground	Ground	Painted	2B	Dull Matte
Temper	1/4 hard	T4	T2	1/4 hard	1/4 hard	1/2 hard	1/2 hard	—	—
Hardness (Rockwell B)	50-65	62-71	50-65	50-65	50-65	70-85	60-88	80-90	HA 70-80 HN 90-96
Tensile Strength (MPa)	310 - 448	310 - 448	262 - 400	310 - 448	310 - 448	379 - 517	—	650 - 700	HA 480 - 590 HN 655 - 760
Carbon (%)	<0.15							<0.08	0.28 - 0.33
Chromium (%)	—							18 - 20	0.80 - 1.10
Manganese (%)	<0.60							<2	0.40 - 0.60
Molybdenum (%)	—							—	0.15 - 0.25
Nickel (%)	—							8 - 10.5	—
Phosphorus (%)	<0.03							<0.045	<0.035
Silicon (%)	—							<0.75	0.15 - 0.30
Sulfur (%)	<0.035							<0.03	<0.04

Notes:

1. 60° gloss measurement.

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

Panel Type & Description	Stock Number	Size (in) W x L (± 0.04, except as noted)	Thickness (in) (± 0.002, except as noted)	Size (mm) W x L (± 1, except as noted)	Thickness (mm) (± 0.05, except as noted)	Box Qty	In Stock?	
							US	EU
Type QD Steel, Smooth Finish	QD-2-3.5	2 x 3.5	0.020	51 x 89	0.51	500	●	●
	QD-24	2x4	0.020	51 x 102	0.51	600	●	○
	QD-2.75-4	2.75 x 4	0.020	70 x 102	0.51	400	○	○
	QD-35	3 x 5	0.020	76 x 127	0.51	400	●	●
	QD-36	3 x 6	0.020	76 x 152	0.51	400	●	●
	QD-39	3x 9	0.020	76 x 229	0.51	200	○	○
	QD-46	4 x 6	0.020	102 x 152	0.51	200	●	●
	QD-48	4 x 8	0.020	102 x 203	0.51	200	●	●
	QD-412	4 x 12	0.020	102 x 305	0.51	150	●	●
	QD-2.36-5.51	2.36 x 5.51	0.020	60 x 140	0.51	400	○	●
QD-612	6 x 12	0.020	152 x 305	0.51	150	●	●	
Type D Steel, Smooth Finish	D-35	3 x 5	0.010 (± 0.001)	76 x 127	0.25 (± 0.03)	800	●	○
	D-36	3 x 6	0.010 (± 0.001)	76 x 152	0.25 (± 0.03)	800	●	●
	D-46	4 x 6	0.010 (± 0.001)	102 x 152	0.25 (± 0.03)	400	●	●

Notes: * No Q-Shaped Hole **1/8 in diameter round hole ● Typically in stock ○ Special order ⊗ Not Available

B) Q-PANEL Dimensions, Stock Numbers and Box Quantities (Continued)

Panel & Description	Stock Number	Size (in) W x L (± 0.04, except as noted)	Thickness (in) (± 0.002, except as noted)	Size (mm) Wx L (± 1, except as noted)	Thickness (mm) (± 0.05, except as noted)	Box Qty	In Stock?	
							US	EU
Type DT Steel, Tinplate	DT-36	3 x 6	0.010 (± 0.001)	76 x 152	0.25 (± 0.03)	800	●	●
	DT-46	4 x 6	0.010 (± 0.001)	102 x 152	0.25 (± 0.03)	400	○	●
Type R Steel, Dull Matte Finish	R-13*	1 x 3 (± 0.01)	0.032	25 x 76 (± 0.25)	0.81 (± 0.08)	1400	●	○
	R-2-3.5	2 x 3.5	0.032	51 x 89	0.81	300	●	●
	R-35	3 x 5	0.032	76 x 127	0.81	250	●	●
	R-36	3 x 6	0.032	76 x 152	0.81	250	●	●
	R-39	3 x 9	0.032	76 x 229	0.81	125	○	○
	R-46	4 x 6	0.032	102 x 152	0.81	200	●	●
	R-48	4 x 8	0.032	102 x 203	0.81	125	●	●
	R-412	4 x 12	0.032	102 x 305	0.81	100	●	●
	R-612	6 x 12	0.032	152 x 305	0.81	100	●	●
	Taber® Abrasion	R-44-T	4 x 4	0.032	102 x 102	0.81	250	○
Type S Steel, Ground Finish (One Side Standard; Two Sides Available, Just Add -DG)	S-35	3 x 5	0.032	76 x 127	0.81	250	●	○
	S-36	3 x 6	0.032	76 x 152	0.81	250	●	●
	S-39	3 x 9	0.032	76 x 229	0.81	125	○	○
	S-46	4 x 6	0.032	102 x 152	0.81	200	●	●
	S-48	4 x 8	0.032	102 x 203	0.81	125	●	●
	S-412	4 x 12	0.032	102 x 305	0.81	100	●	○
	S-612	6 x 12	0.032	152 x 305	0.81	100	○	○
	Taber® Abrasion	S-44-T	4 x 4	0.032	102 x 102	0.81	250	○
Type HA & HN Steel, Dull Matte Finish	HA-14*	1 x 4	0.040	25 x 102	1.00	600	●	○
	HA-46*	4 x 6	0.040	102 x 152	1.00	100	●	○
	HN-34**	3 x 4	0.040	76 x 102	1.00	250	●	○
Type WW, GW & WWS Pre-Painted	WW-46	4 x 6	0.008	102 x 152	0.20	600	○	○
	GW-46	4 x 6	0.008	102 x 152	0.20	600	○	○
	WWS-46	4 x 6	0.008	102 x 152	0.20	600	○	○
Type R-XX-I Iron Phosphated, Chrome Seal, Dull Matte Finish	R-36-I	3 x 6	0.032	76 x 152	0.81	250	●	⊗
	R-46-I	4 x 6	0.032	102 x 152	0.81	200	●	⊗
	R-412-I	4 x 12	0.032	102 x 305	0.81	100	●	⊗
Type S-XX-I Iron Phosphated, Chrome Seal, Ground Finish	S-36-I	3 x 6	0.032	76 x 152	0.81	250	●	⊗
	S-46-I	4 x 6	0.032	102 x 152	0.81	200	●	⊗
	S-412-I	4 x 12	0.032	102 x 305	0.81	100	○	⊗
Type R-XX-ICF Iron Phosphated, Chrome- Free Seal, Dull Matte Finish	R-36-ICF	3 x 6	0.032	76 x 152	0.81	250	●	●
	R-46-ICF	4 x 6	0.032	102 x 152	0.81	200	●	●
	R-48-ICF	4 x 8	0.032	102 x 203	0.81	125	●	○
	R-412-ICF	4 x 12	0.032	102 x 305	0.81	100	●	○
Type S-XX-ICF Iron Phosphated, Chrome- Free Seal, Ground Finish	S-36-ICF	3 x 6	0.032	76 x 152	0.81	250	●	○
	S-46-ICF	4 x 6	0.032	102 x 152	0.81	200	●	○
	S-412-ICF	4 x 12	0.032	102 x 305	0.81	100	○	○
Type SS Steel, Stainless	SS-13*	1 x 3 (± 0.01)	0.035 (± 0.003)	25 x 76 (± 0.25)	0.89 (± 0.08)	600	●	○
	SS-36*	3 x 6	0.035 (± 0.003)	76 x 152	0.89 (± 0.08)	250	●	○
Type RS Ground Finish	RS-14*	1 x 4 (± 0.01)	0.0630 (± 0.0024)	25 x 102 (± 0.25)	1.60 (± 0.08)	600	●	●

Notes: * No Q-Shaped Hole **1/8 in diameter round hole ● Typically in stock ○ Special order ⊗ Not Available

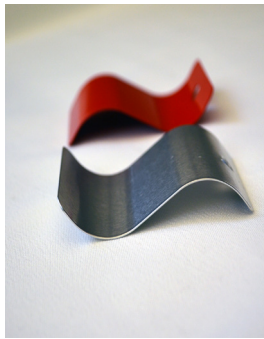
C) Custom Panels

In addition to our standard panels, we can also make types and sizes not shown in this specification bulletin. These include custom panels as small as 2.54 cm (1 in) circles, to as large as 1.5 m x 1.5 m (5 ft x 5 ft) automotive-sized panels. Custom panels may also be ordered in a variety of shapes, alloys and finishes. This includes curved, bent, grit-blasted, welded, embossed, perforated, pre-painted in grey or white with a variety of patterns, and other options.

These custom panels are most cost-effective when there are quantities sufficient to allow an economical production run, and when the material is available from our stock metal or readily available alloys. Contact Q-Lab with your custom panel specifications now!



The Q-PANEL automotive refinishing training system is a cost-effective simulation of hoods and fenders.



Custom panels in complex shapes can be created with a small minimum order size.



A variety of different pre-painted, patterned and other custom panels can be made upon request.



Panels can be customized in dozens of different ways, such as adding your company's logo.

Cleaning and Packaging

Our production process thoroughly cleans the panels and removes any oil or contaminants that might be on the surface. Steel panels are packed in plastic bags with vapor phase rust inhibitor and shipped in a sturdy cardboard carton. With this multilayer packaging, our steel panels may have a shelf life of up to 10 years. In most cases the panels can be used right out of the package. However, for critical applications it may sometimes be necessary to remove traces of the rust inhibitor with a distilled water or MEK wipe prior to coating the panel.

Quantity Discounts

Quantity discounts are available. Please consult with Q-Lab or your local representative for details.

Satisfaction Guaranteed

If the panels do not meet your expectations of quality, you may return them for a full refund or replacement. Just call for a return authorization number. For other returns and replacements, a 15% restocking fee will be charged (\$50 minimum). Q-Lab Corporation makes no other warranties, including implied warranties of merchantability or fitness for a particular purpose, except as may be expressly provided by Q-Lab Corporation in writing. Q-Lab Corporation shall not be liable for any incidental, consequential, special or contingent damages arising out of the sale or use of any product. Warranty is only valid on shipments within the United States. Due to shipping circumstances beyond our control, we are not able to offer warranties on exported panels.



For sales, technical, or repair support, please visit:

[Q-Lab.com/support](https://www.q-lab.com/support)

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