



# QUV Specimen Mounting Guide

The QUV® accelerated weathering tester can be used to test a variety of specimens. Coatings, plastics, and films are easily accommodated in the QUV tester using standard flat panel specimen holders. Other specimens can be mounted using specialty holders. Q-Lab also offers custom specimen holders for unique needs. All of Q-Lab's panel holders are designed to meet the requirements of ASTM G154, ISO 4892-3, and other international standards.

## Specimen Mounting Guidelines

The QUV chamber can accommodate a variety of specimen types, but three principles should be considered when mounting specimens:

- To ensure uniformity of UV exposure, the surface of the test specimen should be in the standard specimen plane, 50 mm from the lamps.
- The specimens and their holders must seal off the side of the QUV tester to prevent vapor from escaping from the chamber.
- The specimens should be mounted at the wall of the chamber so that room air cools the backs of the specimens (and any backing) to cause condensation on the specimen front

Specimens should have good thermal contact with any backer present. Highly-insulating specimens thicker than 6 mm may require special attention. Watch a short video regarding specimen mounting and safety here: <https://pages.q-lab.com/quvsafety>.



Flat panels up to 6 mm thick are fastened to the holders with convenient snap-rings. Simply push the ring down snug against the panel. There is no need for panels cut to precise widths.



**A standard specimen holder is installed by resting it in a slot on the QUV frame. To seal in vapor, it is essential to operate with all holders in place and with blank panels in all unused spaces.**

Extra-large flat specimens can be mounted on the QUV frame in place of several standard specimen holders. Also, small, odd-shaped parts can be mounted either by attaching them to a flat metal backer, or by enclosing them in an optional mounting box.

The QUV tester's specimen mounting system is highly adaptable. The standard QUV specimen holders are designed to hold two 75 × 150 mm (3 × 6") specimens. See table below.

In addition, Q-Lab can provide 100 mm (4") wide or 150 mm (6") wide specimen holders upon request. A wide variety of flat specimens including metal, wood, plastic plaques, and thin films are easily accommodated in the standard holders.

## A) Flat Specimen Holders

Q-Lab offers flat specimen holders in three sizes. All sizes include an individual holder for two specimens, anodized aluminum panels, and circular retaining rings. For thicker specimens, the use of thick panel retaining clips is recommended.

Standard holders included with a new QUV tester. Medium or Large Flat Panel Holders may be substituted when ordering a new QUV tester.



Panel holders are available in three sizes: standard, medium, and large.

### Thick Panel Retaining Clips

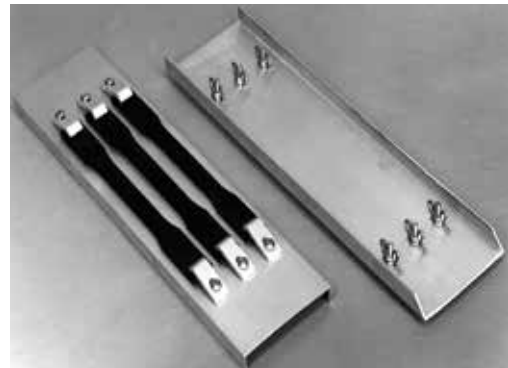
Each clip is designed to hold one specimen of approximately 6 to 19 mm ( $\frac{1}{4}$  to  $\frac{3}{4}$ ") in a flat panel holder.



Thick panel retaining clips hold larger specimens in place on a flat specimen holder.

### Tensile Bar Holder

Similar to a flat panel holder, this holder includes multiple clips for exposing "dog bone" shaped polymer specimens prior to tensile strength testing. Please specify tensile bar length when ordering; maximum 200 mm (8").



Use one, two, or all three clips to hold tensile bar specimens during exposure.

QUV Flat Specimen Holder Summary and Part Numbers					
Description	Specimen Size	Exposure Area	Capacity*		Part Numbers
			QUV/se	QUV/basic	
Standard Flat Panel Holder	75 × 150 mm (3 × 6")	95 × 63 mm (3.75 × 2.5")	48	50	V-131.3-X (Individual) V-131.3-K (Complete set of 25)
Medium Flat Panel Holder	100 × 150 mm (4 × 6")	95 × 88 mm (3.75 × 3.5")	32	36	V-131.4-X (Individual) V-131.4-K (Complete set of 18)
Large Flat Panel Holder	150 × 150 mm (6 × 6")	95 × 132 mm (3.75 × 5.2")	24	26	V-131.6-X (Individual) V-131.6-K (Complete set of 13)
Tensile Bar Holder	N/A	N/A	72	75	V-131.3T-X (Individual)

\*This table shows the specimen capacity for flat specimens up to 20 mm ( $\frac{3}{4}$ ") thick.

## B) Three-Dimensional (3D) Specimen Holders

Q-Lab offers a variety of holders designed for mounting 3D specimens, or specimens too thick to fit in a flat specimen holder.

When using 3D specimen holders, it is suggested to utilize the insulated black panel to ensure proper specimen temperature during testing.

### Adjustable Quadrant Boxes

- Available in 200 mm (8") and 100 mm (4") depth
- Holds parts up to 495 mm wide by 325 mm tall
- Adjustable, perforated mounting plate accommodates specimens from 25 mm to 200 mm thick
- Includes mounting screw to hold specimen holders in place when testing heavy specimens.

These adjustable quadrant boxes are best suited for use when testing 3D or variable-sized parts. The mounting plane can be adjusted in 6 mm increments to ensure that the specimens receive accurate and uniform irradiance, regardless of dimensions.

### Natural and Artificial Wood Holder

- Expose parts up to 495 × 38 × 324 mm (19.5 × 1.5 × 12.75")
- Can hold two pieces of common wood and artificial wood specimens, up to 324 mm (12.75") long

Note: Order four to fill a QUV tester. The QUV chamber doors should be removed when using this holder.

### Large 25 mm (1") 3D Part Holder

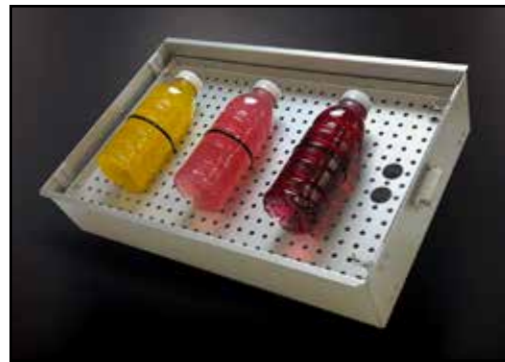
- Exposes parts and odd-shaped specimens up to 495 × 25 × 324 mm (19.5 × 1.0 × 12.75") - (w × d × h)
- Hardware for mounting specimens is not included - Customers can provide their own hardware or order a custom specimen holder

These holders are made for exposing large 3D parts and thick specimens.

### Small 25 mm (1") 3D Part Holder

- Exposes parts and odd-shaped specimens up to 75 × 25 × 324 mm (3.0 × 1.0 × 12.75") - (w × d × h)
- Hardware for mounting specimens is not included - Customers can provide their own hardware or order a custom specimen holder

These holders are made for exposing small 3D parts and thick specimens.



The Adjustable Quadrant Box allows testing of a variety of specimens while ensuring the exposure surface remains the correct distance from QUV lamps.



The Natural and Artificial Wood holder is used to expose materials typically used in decking and fencing applications.



Three-dimensional specimens can be easily fastened to the large 3D part holder using zip ties, for example.



This small 3D part holder is provided without mounting hardware. Customers can use screws, zip ties, and wire or work with Q-Lab to design custom attachment hardware.

## Small Adjustable 3D Part Holder

- Exposes parts up to 17 mm (0.7") thick and up to 75 mm (3") wide
- Height of the specimens can range from 58 mm (2.3") to 85 mm (3.37")
- Clamps are lined with silicone foam rubber

This adjustable holder is designed to hold small items such as lenses, cosmetics, toys, artificial turf, vehicle reflectors, and other small, 3D parts.



Originally designed to hold ophthalmic lenses, these can also hold various odd-shaped specimens.

QUV 3D Specimen Holder Summary and Part Numbers					
Description	Depth	Exposure Area	Number of Holders		Part Numbers
			QUV/se	QUV/basic	
Adjustable Quadrant Box (200 mm)	200 mm (8")	495 × 324 mm (19.5 × 12.75")	4	4	V-60292-K
Adjustable Quadrant Box (100 mm)	100 mm (4")	495 × 324 mm (19.5 × 12.75")	4	4	V-60301-L
Natural and Artificial Wood Holder	38 mm (1.5")	495 × 324 mm (19.5 × 12.75")	4	4	V-4962-K
Small Deep Part Holder	25 mm (1")	75 × 324 mm (3.0 × 12.75")	24	25	V-4960-X Minimum order of 6
Large Deep Part Holder	25 mm (1")	495 × 324 mm (19.5 × 12.75")	4	4	V-4961-X Minimum order of 2
Small Adjustable 3D Part Holder	17 mm (0.7")	75 × 85 mm (3.0 × 3.37")	24	25	V-4019-X Minimum order of 5

## C) Custom Specimen Holders

For unique applications or for specimens that cannot fit in the standard flat or 3D specimen holders, Q-Lab can make custom specimen holders for nearly any application.

No matter what is being exposed, it is critical that the front surface of the specimen is at the same distance from the lamps as the flat panel holder. This should be taken into consideration when modifying a specimen holder or creating a new specimen holder design. Specimens may need to be modified in order to fit properly into the QUV tester. Additionally, testing large parts may require relocating the temperature sensor and the use of an insulated black panel for control of the QUV tester, as thick specimens may see higher temperatures than the standard, uninsulated black panel.

To receive a price quotation on custom specimen holders, contact your local Q-Lab office or distributor. Providing Q-Lab with specimen test specimens will simplify the process.



Many items can be mounted simply by attaching them to an appropriately sized specimen box.



Adding brackets and other modifications allow further versatility to hold even very heavy specimens, such as concrete blocks.



3D holders can be made in various sizes. Examples of items mounted in similar holders include fuel tanks, beverages, shoes, and hardware.



This small 3D part holder illustrates an example of possible custom attachment hardware.



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