

CMMP1212V - October 3, 2022

Item # CMMP1212V was discontinued on October 3, 2022. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

OPTICALLY CLEAR ACRYLIC BREADBOARD

- ▶ **Optically Clear Acrylic for High Transmission in the Visible and NIR**
- ▶ **1/4"-20 Tapped Through Holes for Mounting**
- ▶ **Central Unobstructed Viewing Window**
- ▶ **Ideal for Vision Systems and Metrology**



Alphanumeric Labels
 Allow for Mounting
 Hole Identification



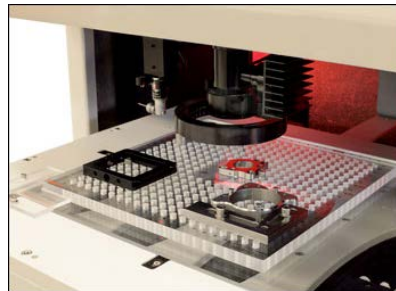
CMMP1212V
 Acrylic Breadboard

[Hide Overview](#)

OVERVIEW

Features

- 12" x 12" (304.8 mm x 304.8 mm) Optically Clear Acrylic Breadboard
- On-Axis Alphanumeric Labels Indicate Mounting Hole Locations
- 1/4"-20 Tapped Holes on 0.50" (12.7 mm) Centers
- Central Window for Unobstructed Viewing of Parts
- Heat Treated and Polished to Maintain Clarity and Resist Cracking
- Ideal for Vision Systems and Metrology



Click to Enlarge
 The front plate of a Polaris® mirror mount is secured on the CMMP1212V within a vision system to verify its dimensions. Cap screws were used to secure and create stops for the parts being inspected. See the *Application Idea* tab for details.

Thorlabs' CMMP1212V Breadboard is crafted from polished, optically clear acrylic and is ideal for applications that require parts to be backlit and fixed in place at specific reference positions, such as vision metrology. Each breadboard contains a pattern of 1/4"-20 tapped through holes, spaced 0.5" (12.7 mm) apart, that is offset by 1.0" (25.4 mm) from the edges of the board. This allows for an increased number of mounting options for components when compared to breadboards that have

Specifications

Specifications	
Material	Optically Clear Acrylic
Finish	Polished, Clear
Thickness	0.5" (12.7 mm)
Flatness	±0.0029" (±0.075 mm) over 1 ft ²
Hole Size and Spacing	1/4"-20 Tapped Holes on 0.5" Centers
Number of Mounting Holes	416
Center Window	2.72" x 2.72" (69.2 mm x 69.2 mm)
Distance from Edge to First Hole	1.0" (25.4 mm) on All Sides
Transmission (Click for Plot)	
Operating Temperature	-40 °C to 110 °C

a standard 1" or 25.0 mm hole pattern or a double-density 0.5" or 12.5 mm hole pattern. Within the 1.0" wide region on each side are on-axis alphanumeric labels for identifying specific rows, columns, or mounting holes.

A 2.72" x 2.72" (69.2 mm x 69.2 mm) center-located window is included for components or smaller parts that need to be viewed without obstructions such as mounting holes. Constructed from acrylic, the breadboard has high transmission in the visible and near-IR regions of the spectrum as shown in the graph within the Specifications table to the right.

Recommended Screw Tightening Torque	5 N•m (44.2 in-lb)
Maximum Screw Tightening Torque^a	12 N•m (106.2 in-lb)

- a. Force at which visible damage could start to be seen on the threading of the breadboard.

Each acrylic breadboard is heat treated and polished to provide the highest quality breadboard possible. Heat treating the acrylic and letting it cool in a controlled environment removes the internal stresses that develop during the casting process, creating a more stable, crack-resistant breadboard that has a longer lifetime. This in addition to a high-quality polish ensures that the board will remain optically clear and resist yellowing for a longer period of time.

We also offer a broad selection of solid aluminum breadboards as well as steel and aluminum honeycomb breadboards. For a quick comparison of our different breadboard options, please see the *BB Selection Guide* tab.

[Hide Application Idea](#)

APPLICATION IDEA



Click to Enlarge
A CMMP1212V Being Used within an Optek Vision Metrology System

Vision/Video Metrology

The CMMP1212V Tapped Breadboard is the ideal solution for securely holding parts for inspection with vision metrology systems. Vision, or video, systems provide rapid, non-contact 3-axis coordinate measurement of a part under inspection. Using a tapped breadboard with one of these systems allows for defined reference points to be set up before placement into the system, which shortens the amount of time between runs, allows for multiple parts to be checked at once, and allows for parts to be secured in place via fixtures.

Since vision systems implement both front and backlighting methods for illuminating parts, it is important

that the mounting surface is able to transmit a large amount of light. Constructed from optically clear acrylic and finished with a clear polish, the CMMP1212V provides high transmission in the visible and near-IR regions of the spectrum. This means that edges and through holes of an item under inspection can be clearly visualized and measured when backlighting is used.

At 0.5" (12.7 mm) thick, parts mounted on or above the surface of the breadboard will not interfere with the imaging camera. The 12" x 12" (304.8 mm x 304.8 mm) size is compact and will fit within most vision systems, while providing enough space to mount multiple components.

An array of 1/4"-20 tapped mounting holes allows for the addition of fixtures to secure multiple items in place, while the alphanumeric labels around the edges help to create reference points when inspecting multiple items. An included 2.72" x 2.72" (69.2 mm x 69.2 mm) window is ideal for smaller parts that cannot be visualized when mounted over obstructions such as mounting holes.

An example of the CMMP1212V being used within a vision system is shown above. In this setup, multiple parts are mounted on the breadboard for inspection. The part being inspected in the photo is the front plate of a Polaris mirror mount. The front plate was mounted over the central viewing window so that the smaller through holes could be examined and measured before production.

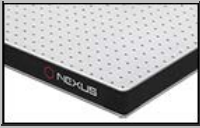









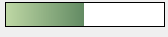

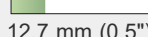

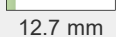





Click to Enlarge
The front plate of a Polaris[®] mirror mount is secured on the CMMP1212V within a vision system to verify its dimensions. Cap screws were used to secure and create stops for the parts being inspected.

[Hide BB Selection Guide](#)

BB SELECTION GUIDE

--	--	--	--	--	--	--	--

Breadboards	 Nexus, Optimized Damping	 Intrinsically Damped	 Aluminum Honeycomb	 Stainless Steel	 Solid Aluminum	 Optically Clear Acrylic
Construction						
Breadboard Thickness	60 mm (2.4") 110 mm (4.3")	58 mm (2.28")	25 mm (0.98") 55 mm (2.2")	12.7 mm (0.5")	7.0 mm (0.28") 9.5 mm (0.375") 12.7 mm (0.5") 19.05 mm (0.75")	12.7 mm (0.5")
Working Surface	4003 Grade Stainless Steel or 304L Grade Nonmagnetic Steel Top Plate	4003 Grade Stainless Steel Top Plate	Aluminum	416 Grade Stainless Steel	Solid Aluminum Anodized or Unanodized	Acrylic
Top Skin	5 mm (0.20")	5 mm (0.20")	6 mm (0.24")	N/A	N/A	N/A
Bottom Skin	5 mm (0.20")	3 mm (0.12")	3 mm (0.12")	N/A	N/A	N/A
Core Design	High-Density Plated Steel Honeycomb, 0.26 mm Thick		High-Density Plated Aluminum Honeycomb	N/A	N/A	N/A
Side Panels	Rigid Steel Box Section	Unplasticized Polyvinyl Chloride (uPVC)	Black Laminated Aluminum Sides	N/A	N/A	N/A
Ferromagnetism	Magnetic or Non-Magnetic Options	Magnetic	Non-Magnetic	Magnetic	Non-Magnetic	
Sealed Holes	Sealed (25 mm Depth) or Non-Sealed Options	Non-Sealed		N/A	N/A	N/A
Thread Options	1/4"-20 (M6) Tapped Holes	1/4"-20 (M6) Tapped Holes		1/4"-20 (M6) Tapped Holes	1/4"-20 (M6), 4-40 (M3), or 8-32 (M3) and 1/4"-20 (M6) Tapped Holes	1/4"-20" Tapped Holes
Spacing	1" (25 mm) Centers	1" (25 mm) Centers		1" (25 mm) Centers	1" (25 mm) Centers or 0.5" (12.7 mm) Centers	0.5" (12.7 mm) Centers
Distance from Edge to First Holes	0.5" (12.5 mm) on all Sides		0.5" (12.5 mm) or 1.0" (25 mm) on all Sides	0.5" (12.5 mm) on all Sides	0.5" (12.5 mm) on all Sides	1.0" (25.4 mm) on all Sides
Performance^a						
Damping				N/A	N/A	N/A
Stiffness	 60 mm (2.4") Thick	 58 mm (2.28") Thick	 25 mm (0.98") Thick	 12.7 mm (0.5") Thick	 7.0 mm (0.28") Thick	 12.7 mm (0.5") Thick
	 110 mm (4.3") Thick		 55 mm (2.2") Thick		 19.05 mm (0.75") Thick	

- a. The damping and stiffness performance shown here is qualitative and does not relate to exact specifications of each breadboard.

Optical Breadboard Selection Guides

The selection guides below list every size offered for our honeycomb, solid aluminum, and acrylic breadboards. Simply locate the specific width and length needed and then select the type of breadboard. Expand each table by clicking the *More [+]* button within the header.

Thorlabs also offers several unique breadboard solutions. For applications requiring temperature control, we offer anodized aluminum water cooled breadboards in several sizes, in addition to a temperature-controlled mini-series breadboard for small-scale operations. Our anodized aluminum large-area translation stages and rotating breadboards offer hand-operated positioning control, while our manual and motorized translating mounting platforms are ideal for use in microscopy applications.

Width	Length	Honeycomb					Stainless Steel	Solid Aluminum ^a			Acrylic, Transparent
		Nexus (60 mm Thick) ^b	Nexus (110 mm Thick) ^b	Intrinsically Damped (58 mm Thick)	Aluminum (25 mm Thick)	Aluminum (55 mm Thick)		Standard	Double Density	High Density	

- a. Solid aluminum breadboards are offered with four different thicknesses: 0.5" (item # prefix MB), 0.75" (item # prefix MBH), 3/8" (item # prefix MS), or 0.28" (item # prefix MS). Select sizes are also available without an anodized coating (item #s ending with U).
- b. Item Number Suffix:
 - o F, A, B, or G: Non-Sealed Mounting Holes
 - o T, L, U, or N: Sealed Mounting Holes
 - o FN or AN: Nonmagnetic Mounting Holes
 - o Y or Z: No Mounting Holes
 - o S: Stainless Steel
- c. Tapped Hole Pattern Aligned at 45°
- d. Build-to-Order
- e. Includes a T-Slot in Side Panels for Compatibility with 25 mm Rail Accessories
- f. This product has an access aperture.

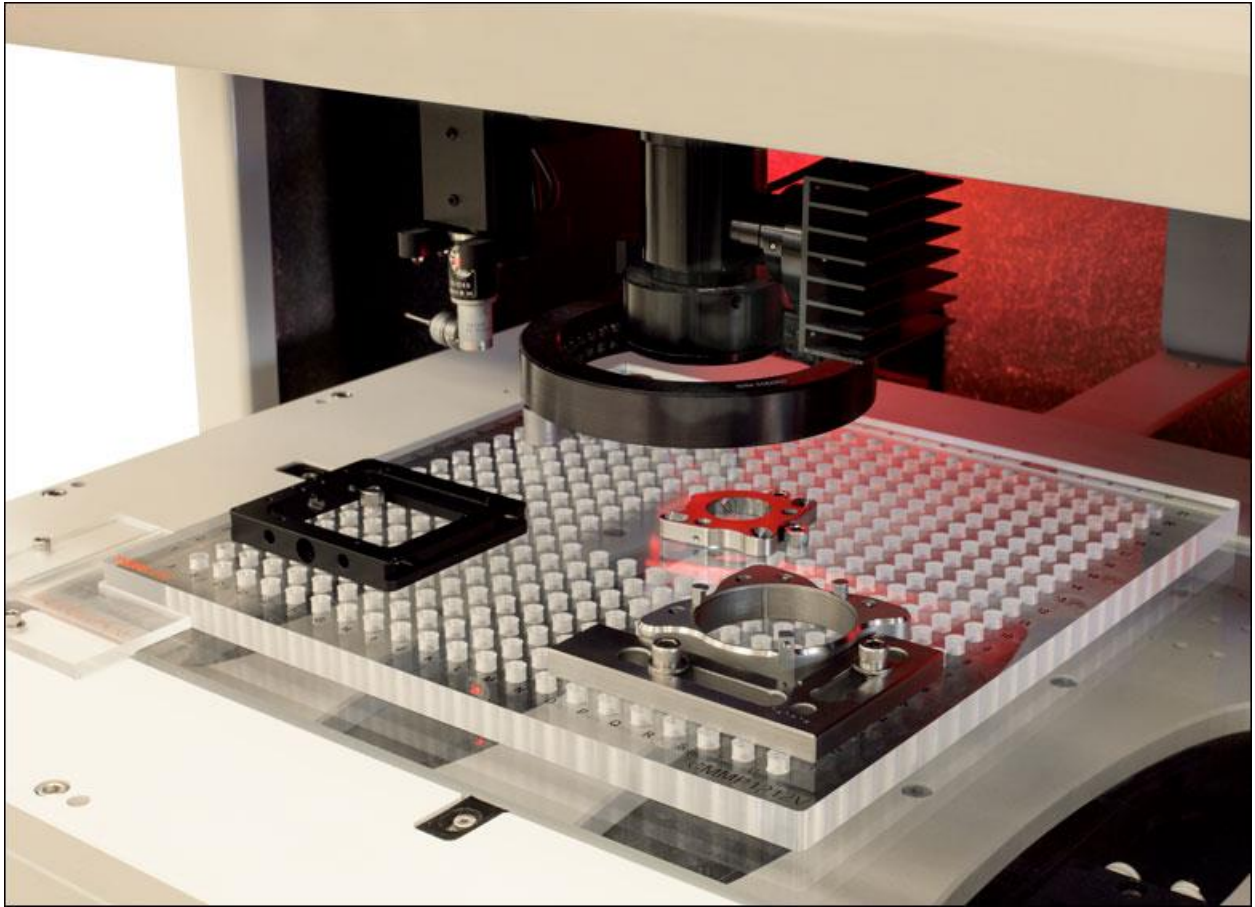
Metric Optical Breadboard Size Options										
Width	Length	Honeycomb					Stainless Steel	Solid Aluminum ^a		
		Nexus (60 mm Thick) ^b	Nexus (110 mm Thick) ^b	Intrinsically Damped (58 mm Thick)	Aluminum (25 mm Thick)	Aluminum (55 mm Thick)		Standard	Double Density	High Density

- a. Solid aluminum breadboards are offered with four different thicknesses: 12.7 mm (item # prefix MB), 19.05 mm (item # prefix MBH), 9.5 mm (item # prefix MS), or 7.0 mm (item # prefix MS). Select sizes are also available without an anodized coating (item #s ending with U).
- b. Item Number Suffix:
 - o F, A, B, or G: Non-Sealed Mounting Holes
 - o T, L, U, or N: Sealed Mounting Holes
 - o FN or AN: Nonmagnetic Mounting Holes
 - o Y or Z: No Mounting Holes
 - o S: Stainless Steel
- c. Tapped Hole Pattern Aligned at 45°
- d. Build-to-Order
- e. Includes a T-Slot in Side Panels for Compatibility with 25 mm Rail Accessories
- f. This product has an access aperture.

[Hide](#)

Part Number	Description	Price	Availability
CMMP1212V	Acrylic Breadboard, 12" x 12", 1/4"-20 Tapped Mounting Holes	\$887.45	Lead Time





Optically Clear Acrylic Transmission

