

B4560AE - OCT 11, 2017

Item # B4560AE was discontinued on October 11, 2017. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

OPTICAL BREADBOARDS, INTRINSICALLY DAMPED, 58 MM (2.28") THICK

- ▶ 58 mm (2.28") Thick
- ▶ Stainless Steel Top and Bottom Skins
- ▶ Lightweight Design
- ▶ Plated Steel Honeycomb Core Construction



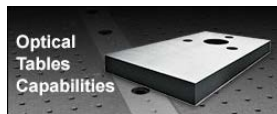
B6090AE
600 mm x 900 mm



OVERVIEW

Features

- Thickness: 58 mm (2.28")
- Sizes from 300 mm x 450 mm (12" x 18") to 900 mm x 1800 mm (36" x 72") are Available
- ± 0.15 mm (± 0.006 ") Surface Flatness over any 1 m² (11 ft²) Area
- Stainless Steel Top and Bottom Skins with Moisture-Resistant MDF Side Panels
- Approximately 25% Lighter than our Honeycomb Core Nexus Breadboards



Thorlabs' 58 mm (2.28") thick optical breadboards are offered in a variety of lengths and widths from 300 mm x 450 mm (12" x 18") to 900 mm x 1800 mm (36" x 72"). The stainless steel top and bottom skins are 5 mm and 3 mm thick, respectively, and have a precision-machined matte finish with a surface flatness of ± 0.15 mm over any 1 m² area. Metric breadboards have M6 mounting holes on 25 mm centers with a 37.5 mm border at the edges, while imperial breadboards have 1/4"-20 mounting holes on 1" centers with a 1.5" border at the edges. The maximum screw depth of these mounting holes is 54 mm and is unimpeded by the honeycomb structure.

Specifications ^a		
Construction		
Breadboard Thickness	58 mm (2.28")	
Flatness	± 0.15 mm (± 0.006 ") Over Any 1 m ²	
Working Surface	430 Grade Stainless Steel Top Plate	
Core Construction	High-Density Plated Steel Honeycomb 0.26 mm Thick	
Damping ^b	Intrinsic	
Compatible Mounting Legs	Breadboard Frames and Feet ScienceDesk Frames	
Mounting Holes	Imperial	Metric
Threads and Spacing	1/4"-20 Tapped Holes on 1" Centers	M6 Tapped Holes on 25 mm Centers
Distance from Edge to First Holes	1.5" from Table Edge on all Sides	37.5 mm from Table Edge on all Sides
Maximum Screw Depth	54 mm	

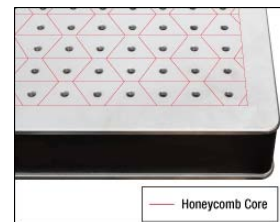
• Please See the Specs Tab for More Detailed Specifications

These breadboards are intrinsically damped and are an ideal solution for applications requiring minimal vibration damping. The 0.26 mm thick precision-formed honeycomb core (shown to the bottom right) extends from the top to bottom skin without intermediate layers, leading to a stiff and stable board as large as 900 x 1800 x 58 mm (36" x 72" x 2.28"). When paired with the 5 mm thick top skin these breadboards offer good rigidity and damping performance.

As the size of any breadboard is increased the chance for static deflection will rise, especially when high loads are being used. To increase the rigidity of the system and minimize static deflection, we recommend using a thicker breadboard, such as our 110 mm (4.3") thick Nexus Breadboard. Static deflection is a factor when slight variations of the optical axis height are detrimental. A thicker breadboard will help maintain the optical axis height throughout the system and simplify long-distance alignments. For more information regarding breadboard design and vibration damping please see our Vibration Isolation Tutorial.

For a comparison of our breadboard options please see our *BB Selection Guide* Tab. Custom sizes and options are also available, contact Tech Support for more information.

- Intrinsic Damping Provided by Steel Honeycomb Core, Precision-Machined Steel Working Surface, and MDF Side Panel Construction.



Click to Enlarge
Outline of the honeycomb core location on an optical breadboard. The core does not intersect with any screw holes, allowing for a maximum screw depth of 54 mm.

Support Options

Isolation Feet

We offer passive and active self-leveling isolator feet for mounting a breadboard on top of a table. They can support a variety of breadboard sizes and loads and can be easily attached to any breadboard.

ScienceDesks™

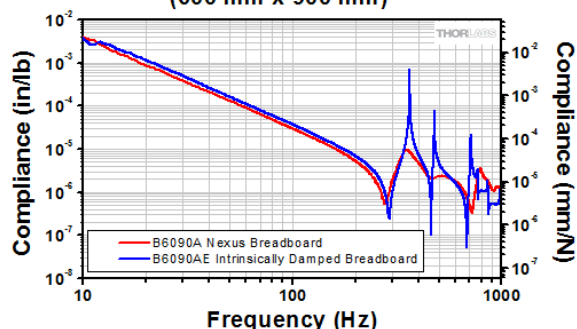
Our ScienceDesk line of breadboard frames are high-quality ergonomic supports optimized for applications where the user will be seated. They are available with rigid, passive, or active vibration isolators, and feature a modular system of accessories. ScienceDesk frames are available to fit many of our breadboards sized from 600 mm x 900 mm (24" x 36") to 900 mm x 1200 mm (36" x 48").

Breadboard Frames

We also offer Breadboard Frames available with rigid supports, or with passive or self-leveling active vibration isolation.

SPECS

B6090A/B6090AE Compliance Comparison (600 mm x 900 mm)



Click to Enlarge

Comparison of the compliance curves for both the B6090A Nexus and B6090AE Optical Breadboards. Our intrinsically damped breadboards are ideal for applications requiring minimal damping, while our line of Nexus Breadboards is highly recommended when high-vibration damping and minimal deflection are necessary. See the Vibration Isolation Tutorial for more information on compliance.

Specifications	
Construction	
Breadboard Thickness	58 mm (2.28")

Flatness	±0.15 mm (±0.006") Over Any 1 m ²	
Top Plate	5 mm (0.20") Thick Stainless Steel 430 Grade Working Surface	
Bottom Plate	3 mm (0.12") Thick Stainless Steel 4003 Grade	
Core Construction	High-Density Plated Steel Honeycomb 0.26 mm Thick	
Damping ^a	Intrinsic	
Side Panels	Moisture-Resistant Medium Density Fiberboard (MDF)	
Top Surface Finish	Machined Matte Finish	
Compatible Mounting Options	Breadboard Frames and Isolators ScienceDesk Frames	
Mounting Holes	Imperial	Metric
Threads and Spacing	1/4"-20 Tapped Holes on 1" Centers	M6 Tapped Holes on 25 mm Centers
Distance from Edge to First Holes	1.5" from Table Edge on all Sides	37.5 mm from Table Edge on all Sides
Maximum Screw Depth	54 mm	
Sealed Holes	No	

- Intrinsic Damping Provided by Steel Honeycomb Core, Precision-Machined Steel Working Surface, and MDF Side Panel Construction.

Imperial Breadboard Dimensions & Weight


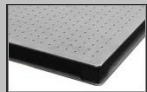














Item #	Dimensions (W x L x H)	# of Tapped Holes	Unpacked Weight	Packaged Shipping Weight	Packed Dimensions
B1218FE	12" x 18" x 2.28"	160	22.04 lbs	33.07 lbs	14.6" x 20.5" x 5.1"
B1224FE	12" x 24" x 2.28"	220	22.88 lbs	42.11 lbs	14.9" x 26.7" x 5.5"
B1824FE	18" x 24" x 2.28"	352	43.65 lbs	61.29 lbs	20.5" x 26.4" x 5.5"
B2424FE	24" x 24" x 2.28"	484	57.98 lbs	77.82 lbs	26.4" x 26.4" x 5.5"
B2436FE	24" x 36" x 2.28"	748	88.18 lbs	112.44 lbs	26.4" x 37.5" x 9.1"
B2448FE	24" x 48" x 2.28"	1012	116.84 lbs	145.51 lbs	26.8" x 50.8" x 9.1"
B3036FE	30" x 36" x 2.28"	952	110.23 lbs	141.10 lbs	32.7" x 38.6" x 9.1"
B3048FE	30" x 48" x 2.28"	1288	145.50 lbs	182.98 lbs	32.7" x 50.4" x 9.1"
B3060FE	30" x 60" x 2.28"	1624	182.98 lbs	224.87 lbs	32.7" x 62.2" x 9.1"
B3648FE	36" x 48" x 2.28"	1564	176.37 lbs	211.64 lbs	38.5" x 50.4" x 9.1"
B3660FE	36" x 60" x 2.28"	1972	220.46 lbs	273.37 lbs	38.6" x 62.6" x 9.1"
B3672FE	36" x 72" x 2.28"	2380	264.56 lbs	324.08 lbs	38.6" x 74.4" x 9.1"

Metric Breadboard Dimensions & Mass

Item #	Dimensions (W x L x H)	# of Tapped Holes	Unpacked Mass	Packaged Shipping Mass	Packed Dimensions
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B3045AE	300 mm x 450 mm x 58 mm	160	10 kg	15 kg	370 mm x 520 mm x 130 mm
B3060AE	300 mm x 600 mm x 58 mm	220	13 kg	19 kg	360 mm x 660 mm x 140 mm
B4560AE	450 mm x 600 mm x 58 mm	352	19 kg	28 kg	510 mm x 660 mm x 140 mm
B6060AE	600 mm x 600 mm x 58 mm	484	25 kg	36 kg	680 mm x 680 mm x 140 mm
B6090AE	600 mm x 900 mm x 58 mm	748	39 kg	50 kg	660 mm x 960 mm x 230 mm
B60120AE	600 mm x 1200 mm x 58 mm	1012	51 kg	67 kg	660 mm x 1260 mm x 230 mm
B7590AE	750 mm x 900 mm x 58 mm	952	48 kg	62 kg	810 mm x 960 mm x 230 mm
B75120AE	750 mm x 1200 mm x 58 mm	1288	64 kg	81 kg	810 mm x 1260 mm x 230 mm
B75150AE	750 mm x 1500 mm x 58 mm	1624	81 kg	100 kg	810 mm x 1560 mm x 230 mm
B90120AE	900 mm x 1200 mm x 58 mm	1564	77 kg	98 kg	960 mm x 1260 mm x 230 mm
B90150AE	900 mm x 1500 mm x 58 mm	1972	97 kg	121 kg	960 mm x 1560 mm x 230 mm
B90180AE	900 mm x 1800 mm x 58 mm	2380	116 kg	143 kg	960 mm x 1860 mm x 230 mm

BB SELECTION GUIDE

	 Nexus, Optimized Damping	 Intrinsically Damped	 Aluminum Honeycomb	 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")	12.7 mm (0.5")
Working Surface	430 Grade Stainless Steel Top Plate		Aluminum	Solid Aluminum Anodized or Unanodized	Acrylic
Top Skin	5 mm (0.20")	5 mm (0.20")	6 mm (0.24")	N/A	N/A
Bottom Skin	5 mm (0.20")	3 mm (0.12")	3 mm (0.12")	N/A	N/A
Core Design	High-Density Plated Steel Honeycomb, 0.26 mm Thick		High-Density Plated Aluminum Honeycomb	N/A	N/A
Side Panels	Rigid Steel Box Section	Moisture-Resistant Medium Density Fiberboard (MDF)	Black Laminated Aluminum Sides	N/A	N/A
Ferromagnetism	Magnetic or Non-Magnetic Options	Magnetic	Non-Magnetic		
Sealed Holes	Sealed (25 mm Depth) or Non-Sealed Options	Non-Sealed		N/A	N/A
Threads and Spacing	1/4"-20 (M6) Tapped Holes on 1" (25 mm) Centers or Untapped Top Plate	1/4"-20 (M6) Tapped Holes on 1" (25 mm) Centers			1/4"-20 Tapped Holes on 0.5" (12.7 mm) Centers
Distance from Edge to First Holes	0.5" (12.5 mm) on all Sides	1.5" (37.5 mm) on all Sides	1.0" (25 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
Stiffness	 60 mm (2.4") Thick		 25 mm (0.98") Thick		
					

110 mm (4.3") Thick

55 mm (2.2") Thick

- 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.

Imperial Optical Breadboard Size Options

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

- Item Number Suffix:
 - F, A, B, or G: Non-Sealed Mounting Holes
 - T, L, U, or N: Sealed Mounting Holes
 - FN or AN: Nonmagnetic Mounting Holes
 - Y or Z: No Mounting Holes
- Build-to-Order

Metric Optical Breadboard Size Options

Width	Length	Honeycomb					Solid Aluminum		
		Nexus (60 mm Thick) ^a	Nexus (110 mm Thick) ^a	Intrinsically Damped (58 mm Thick)	Aluminum (25 mm Thick)	Aluminum (55 mm Thick)	Anodized, Standard	Anodized, Double Density	Unanodized, Standard

- Item Number Suffix:
 - F, A, B, or G: Non-Sealed Mounting Holes
 - T, L, U, or N: Sealed Mounting Holes
 - FN or AN: Nonmagnetic Mounting Holes
 - Y or Z: No Mounting Holes
- Build-to-Order

Imperial Breadboards, Stocked in US

Part Number	Description	Price	Availability
B1218FE	Optical Breadboard, 12" x 18" x 2.28", 1/4"-20 Mounting Holes	\$501.00	Lead Time
B1224FE	Optical Breadboard, 12" x 24" x 2.28", 1/4"-20 Mounting Holes	\$542.00	Lead Time
B1824FE	Optical Breadboard, 18" x 24" x 2.28", 1/4"-20 Mounting Holes	\$625.00	Lead Time
B2424FE	Optical Breadboard, 24" x 24" x 2.28", 1/4"-20 Mounting Holes	\$719.00	Lead Time
B2436FE	Optical Breadboard, 24" x 36" x 2.28", 1/4"-20 Mounting Holes	\$891.00	Today
B2448FE	Optical Breadboard, 24" x 48" x 2.28", 1/4"-20 Mounting Holes	\$1,056.00	Lead Time
B3036FE	Optical Breadboard, 30" x 36" x 2.28", 1/4"-20 Mounting Holes	\$1,014.00	Lead Time
B3048FE	Optical Breadboard, 30" x 48" x 2.28", 1/4"-20 Mounting Holes	\$1,223.00	Today
B3060FE	Optical Breadboard, 30" x 60" x 2.28", 1/4"-20 Mounting Holes	\$1,434.00	Lead Time
B3648FE	Optical Breadboard, 36" x 48" x 2.28", 1/4"-20 Mounting Holes	\$1,388.00	Lead Time

B3660FE	Optical Breadboard, 36" x 60" x 2.28", 1/4"-20 Mounting Holes	\$1,645.00	Lead Time
B3672FE	Optical Breadboard, 36" x 72" x 2.28", 1/4"-20 Mounting Holes	\$1,897.00	Lead Time

Metric Breadboards, Stocked in UK

Part Number	Description	Price	Availability
B3045AE	Optical Breadboard, 300 mm x 450 mm x 58 mm, M6 x 1.0 Mounting Holes	\$501.00	Lead Time
B3060AE	Optical Breadboard, 300 mm x 600 mm x 58 mm, M6 x 1.0 Mounting Holes	\$542.00	Lead Time
B4560AE	Optical Breadboard, 450 mm x 600 mm x 58 mm, M6 x 1.0 Mounting Holes	\$625.00	Lead Time
B6060AE	Optical Breadboard, 600 mm x 600 mm x 58 mm, M6 x 1.0 Mounting Holes	\$719.00	Lead Time
B6090AE	Optical Breadboard, 600 mm x 900 mm x 58 mm, M6 x 1.0 Mounting Holes	\$891.00	Lead Time
B60120AE	Optical Breadboard, 600 mm x 1200 mm x 58 mm, M6 x 1.0 Mounting Holes	\$1,056.00	Lead Time
B7590AE	Optical Breadboard, 750 mm x 900 mm x 58 mm, M6 x 1.0 Mounting Holes	\$1,014.00	Lead Time
B75120AE	Optical Breadboard, 750 mm x 1200 mm x 58 mm, M6 x 1.0 Mounting Holes	\$1,223.00	Lead Time
B75150AE	Optical Breadboard, 750 mm x 1500 mm x 58 mm, M6 x 1.0 Mounting Holes	\$1,434.00	Lead Time
B90120AE	Optical Breadboard, 900 mm x 1200 mm x 58 mm, M6 x 1.0 Mounting Holes	\$1,388.00	Lead Time
B90150AE	Optical Breadboard, 900 mm x 1500 mm x 58 mm, M6 x 1.0 Mounting Holes	\$1,645.00	Lead Time
B90180AE	Optical Breadboard, 900 mm x 1800 mm x 58 mm, M6 x 1.0 Mounting Holes	\$1,897.00	Lead Time

