bridgelux®

Bridgelux® Application Note AN251

Non-Soldering Holder Selection Guide and Application Note

Introduction

Bridgelux Non-Soldering Holders – simplifying LED integration.

Bridgelux non-soldering holders are mechanical and electrical interfaces designed to simplify the integration of COB (Chip-on-Board) LED arrays into lighting systems. These holders enable tool-less, solder-free installation, improving assembly efficiency and reducing manufacturing risk.

Spring-loaded terminals eliminate the need for manual soldering, reducing labor time and improving reliability. Built-in alignment features ensure precise COB positioning and compatibility with standard secondary optics.

Bridgelux non-soldering holders are compatible with popular product families like V Series™, V Series HD, Vesta Tunable WhiteLED array, and Vesta Dim to Warm (Gen 3) products, making them a versatile solution across a range of form factors and performance classes.

Product Selection Guide

Solder-Free Holder Part Number	Array Size (mm xmm)	Center Hole Diameter (mm)	Bridgelux Arrays
BXHD-1212-095	12.5 x 12.5	9.5	V6, V8, V3HD, V4HD, Vesta TW6
BXHD-1313-112	13.5 x 13.5	11.2	V10, V6HD
BXHD-1616-125	15.8 x 15.8	12.5	Vesta TW9
BXHD-1919-160	19.0 x 19.0	16.0	V13, V9HD, Vesta TW13
BXHD-1919-165L	19.0 x 19.0	16.5	V13, V9HD, Vesta TW13
BXHD-2424-213	24.0 x 24.0	21.3	V18, Vesta TW18
BXHD-2828-243	28.0 x 28.0	24.3	V22, Vesta TW22

Two-Step Installation Process

Step 1. Orient electrical contacts correctly - see wiring diagrams

Step 2. Align COB under retaining lever, and rotate directly down into holder

Completed assembly

Holder-COB Compatibility

V Series

Solder-Free Holder Part Number	V Series Gen7	V Series Gen8	V Series Gen9	Array Size (mm xmm)	Center Hole Diameter (mm)
BXHD-1212-095	BXRE-xxx08xx-x-7x	BXRE-xxx08xx-x-8x	BXRE-xxx08xx-x-9x	12.5 x 12.5	9.5
BXHD-1313-112	BXRE-xxx10xx-x-7x	BXRE-xxx10xx-x-8x	BXRE-xxx10xx-x-9x	13.5 x 13.5	11.2
BXHD-1919-160	BXRE-xxx20xx-x-7x	BXRE-xxx20xx-x-8x	BXRE-xxx20xx-x-9x	19.0 x 19.0	16.0
BXHD-1919-165L	BXRE-xxx20xx-x-7x	BXRE-xxx20xx-x-8x	BXRE-xxx20xx-x-9x	19.0 x 19.0	16.5
BXHD-2424-213	BXRE-xxx40xx-x-7x	BXRE-xxx40xx-x-8x	BXRE-xxx40xx-x-9x	24.0 x 24.0	21.3
BXHD-2828-243	BXRE-xxx65xx-x-7x	BXRE-xxx65xx-x-8x	BXRE-xxx65xx-x-9x	28.0 x 28.0	24.3

V Series HD

Solder-Free Holder Part Number	V Series HD Gen7	V Series HD Gen8	Array Size (mm xmm)	Center Hole Diameter (mm)
BXHD-1212-095	BXRH-xxx06xx-x-7x	BXRH-xxx03xx-x-8x BXRH-xxx06xx-x-8x	12.5 x 12.5	9.5
BXHD-1313-112	BXRH-xxx10xx-x-7x	BXRH-xxx10xx-x-8x	13.5 x 13.5	11.2
BXHD-1919-160	BXRH-xxx30xx-x-7x	BXRH-xxx30xx-x-8x	19.0 x 19.0	16.0
BXHD-1919-165L	BXRH-xxx30xx-x-7x	BXRH-xxx30xx-x-8x	19.0 x 19.0	16.5

Vesta Dim-to-Warm

Vesta Tunable White

Solder-Free Holder Part Number	Vesta Dim-to-Warm Gen3	Vesta Tunable White Gen2/ Gen3*	Array Size (mm xmm)	Center Hole Diameter (mm)
BXHD-1212-095	BXRV-DR-xxxxx-060x-x-3x	BXRV-TR-xxxxx-06Ax-x-xx BXRV-TR-xxxxx-06A2-x-3x*	12.5 x 12.5	9.5
BXHD-1313-112	BXRV-DR-xxxxx-100x-x-3x	/	13.5 x 13.5	11.2
BXHD-1616-125	/	BXRV-TR-xxxxx-10Ax-x-xx	15.8 x 15.8	12.5
BXHD-1919-160	BXRV-DR-xxxxx-200x-x-3x	BXRV-TR-xxxxx-20Ax-x-xx	19.0 x 19.0	16.0
BXHD-1919-165L	BXRV-DR-xxxxx-200x-x-3x	BXRV-TR-xxxxx-20Ax-x-xx	19.0 x 19.0	16.5
BXHD-2424-213	/	BXRV-TR-xxxxx-40Ax-x-xx BXRV-TR-xxxxx-40A2-x-3x*	24.0 x 24.0	21.3
BXHD-2828-243	/	BXRV-TR-xxxxx-65Ax-x-xx	28.0 x 28.0	24.3

* Wiring for "*" marked products use **Gen2** wiring diagrams that follow.

Wiring Instructions for Non-soldering Holders

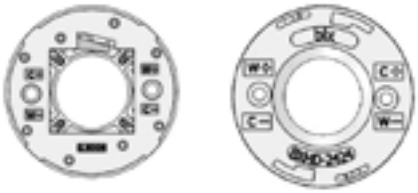
Wiring for most of Bridgelux's Vero Solderless holders is straight forward - match the positive and negative terminal markings on the Bridgelux COB and the solderless holder. However, Vesta Tunable White Gen3 "A0" versions require special attention in order to match terminals correctly. This is resolved in the "A2" versions, which wire identically to the Gen2 versions.

Vesta Tunable White Series Gen 3 "A0" Versions

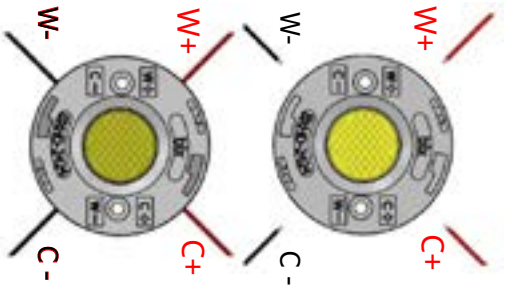
The positive terminals (W+ and C+) are correctly labeled and aligned between the COB and the holder. The negative terminals (W- and C-) are reversed, meaning the W- terminal on the Vesta COB mates with the C- terminal on the holder. See below:

COB Top View

Holder Back/ Front View



Electrical Connections



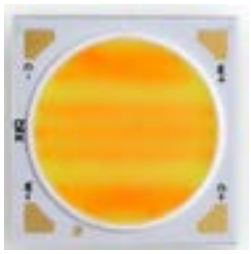
Exploded view

Vesta TW Gen3 "A0" Reference Designator	Mates With	Solder Free Holder Molded Marking	Explanation
W+	-->	W+	"W+" markings match on both COB and holder
W-	-->	C-	**Attention:** "W-" marking on COB mates with "C-" marking on holder
C+	-->	C+	"C+" markings match on both COB and holder
C-	-->	W-	**Attention:** "C-" marking on COB mates with "W-" marking on holder

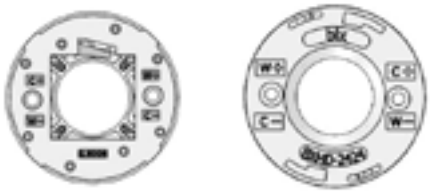
Wiring Instructions for Non-soldering Holders

Vesta Tunable White Series Gen 2, and Gen3 “A2” Versions

COB Top View



Holder Back/ Front View



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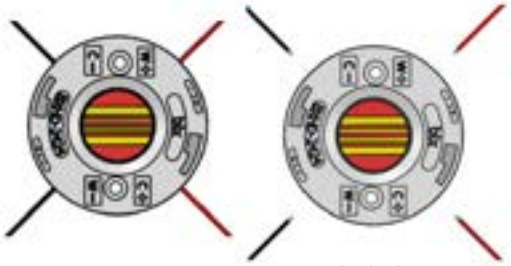
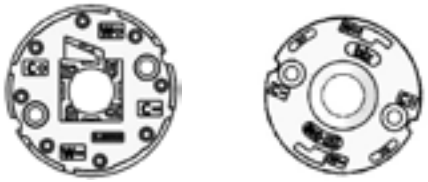


Exploded view

V Series and V-Series HD

COB Top View

Holder Back/ Front View



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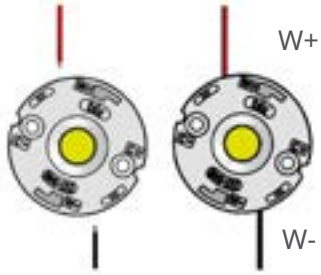
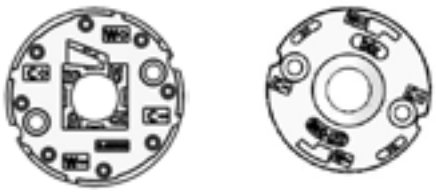


Exploded view

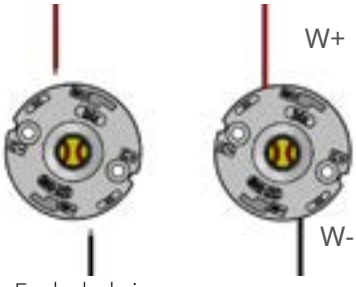
Vesta Dim-to-Warm Series Gen3

COB Top View

Holder Back/ Front View



Electrical Connections



Exploded view

Recommended Screws and Mounting Guidelines

The mounting guidelines focuses on the recommended screw types, sizes, and torque to ensure proper mechanical stability without damaging the holder or LED. Following these specifications will optimize mechanical integrity, thermal performance, and product lifespan.

The table lists the different solder-free holder part numbers (e.g., BXHD-1212-095, BXHD-2828-243) and the mechanical requirements for each:

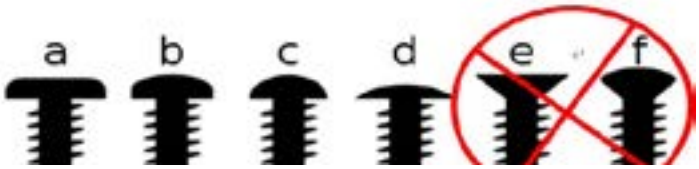
Solder-Free Holder Part Number	Mounting Holes	Hole Diameter (mm)	Hole Spacing (mm)	Recommended Screw	Recommended Torque, N-cm (lbf-in)
BXHD-1212-095	2	3.20	25.0	M2.5	23 (2)
BXHD-1313-112	2	3.20	25.0	M2.5	23 (2)
BXHD-1616-125	2	3.20	25.0	M2.5	23 (2)
BXHD-1919-160	2	3.20	25.0	M2.5	23 (2)
BXHD-1919-165L	2	3.20	35.0	M2.5	34 (3)
BXHD-2424-213	2	3.45	35.0	M2.5	34 (3)
BXHD-2828-243	2	3.45	35.0	M2.5	34 (3)

Bridgelux recommends using the torques listed in the table above by using a torque-limiting screw driver. Torque should never exceed 56 N-cm, or 5 lbf-in, if the connection is not secure at that level, inspect taps and screws.

Applying torque beyond the recommended limit can result in mechanical damage to the holder or COB array, such as cracking, warping, or delamination. Such damage is considered outside of warranty coverage, and Bridgelux cannot be held responsible for failures resulting from improper installation. Undertightening may also lead to insufficient thermal contact, which can impair performance and reduce product lifetime.

To ensure product reliability and maintain warranty validity, please use torque-limiting tools during assembly.

The diagram at the right illustrates acceptable and unacceptable screw head types. Types a–d are allowed (flat), while types e and f (tapered) must not be used due to improper fit or mechanical risk.



The diagram on the left shows how the screws secure the holder and COB to the heatsink. The holder should be installed to a flat surface.

Recommended Electrical Wires

The table below shows the recommended electrical wire specifications for use with Bridgelux solder-free holders. Proper wire selection ensures reliable electrical contact, safe operation, and ease of installation when connecting power to COBs.

All listed wires must be either solid core (single conductor) or stranded core (multiple fine conductors twisted together). Both types are accepted, giving design options depending on whether rigidity or flexibility is the priority in your fixture design.

A maximum insulation diameter of 2.1 mm is required for all compatible wires. This ensures the wire can be inserted properly into the holder's push-in terminal without damaging the internal contact mechanism or causing poor connectivity.

Recommended Wire Sizes	Conductor Type	Maxiumum Insulation Diameter, mm	Strip Length, mm
AWG 22	Solid core, or stranded wire	2.1	6.0 +/- 1.0
AWG 20	Solid core, or stranded wire	2.1	6.0 +/- 1.0
AWG 18	Solid core, or stranded wire	2.1	6.0 +/- 1.0
0.34mm^2	Solid core, or stranded wire	2.1	6.0 +/- 1.0
0.50mm^2	Solid core, or stranded wire	2.1	6.0 +/- 1.0
0.75mm^2	Solid core, or stranded wire	2.1	6.0 +/- 1.0

Example 1: Individual conductors

Example 2: Pairs of wires in a cable

About Bridgelux: Bridging Light and Life™

At Bridgelux, we help companies, industries and people experience the power and possibility of light. Since 2002, we've designed LED solutions that are high performing, energy efficient, cost effective and easy to integrate. Our focus is on light's impact on human behavior, delivering products that create better environments, experiences and returns—both experiential and financial. And our patented technology drives new platforms for commercial and industrial luminaires.

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