

MASTERING LED COOLING

MTx
MechaTronix

An introduction

MechaTronix was formed in 2007, comprised of five already successful manufacturing companies, with each of them in excess of a decade of continuous operation. MechaTronix provides a wide variety of mechanical and electromechanical parts as well as assemblies for the international Original Equipment Manufacturers market.

Starting off with the production of metal and plastic enclosures for electronic applications and the assembly of half-products and elaborate cables, MechaTronix utilised several production processes, amongst which die casting, forging, extrusion and plastic injection.

The application of secondary processes such as CNC grinding and cutting and finishing such as anodising, painting and silk screen printing enable us to offer a very high degree of customisation and personalisation to our customers.

It was through the expertise in these processes that MechaTronix found its stride as a serious contender in the market of heat sinks and cooling engines. What started as a one-off venture into the extrusion of aluminium heat sinks resulted in a very comprehensive package of cooling solutions for the booming international LED market.

Nowadays, MechaTronix is the preferred cooling partner for world leading LED manufacturers and designers, with an offering of heat sinks and cooling solutions for every conceivable LED application. To service the international markets and meet the exploding demand for its products, MechaTronix formed an international distribution group. Through these localised professional partners, MechaTronix' products are readily available all over the world.



Mastering LED Cooling

With the evolution of LED lighting over the last years, the demand for professional thermal solutions has grown exponentially. And now that we no longer remain in the realm of low power LED's, thermal management becomes a critical factor within LED fixtures. To that end, MechaTronix has developed several series of pin-fin and star heat sinks, manufactured through die casting, forging or extrusion. This has resulted in a comprehensive range of more than 400 off-the-shelf available LED coolers, for passive or active heat dissipation.

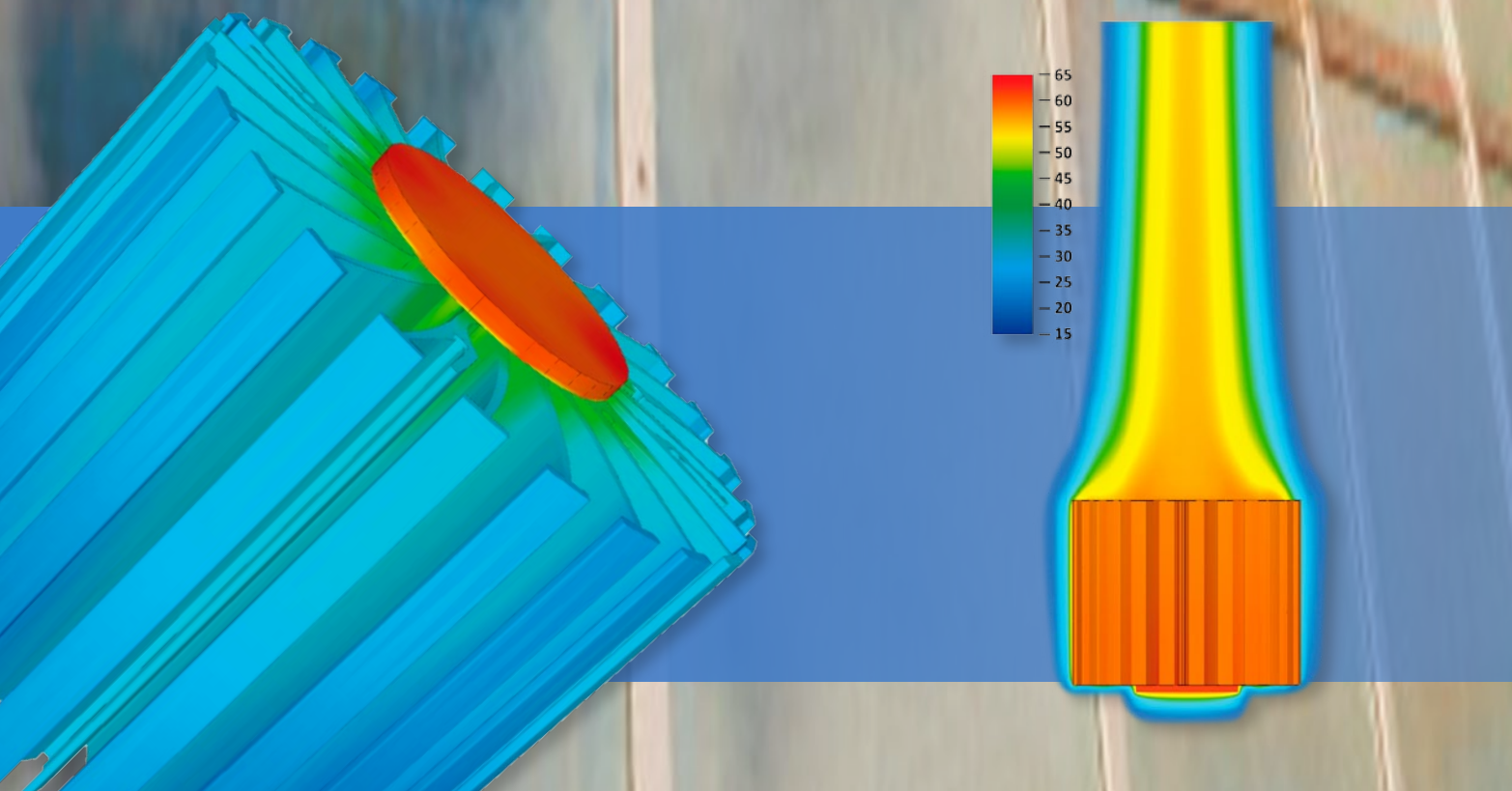
After initial reservations concerning active LED coolers, specialists have found that there really is no better option, when closing in on the 8000 lumen mark. Admittedly, the fan's lifespan becomes somewhat of a focal point in the application of an active LED cooler, but given that the lifespan of the LED engine itself dramatically decreases at high temperatures, the lifespan of the fan looks rather favourable all of a sudden.

MechaTronix' ground breaking ModuLED coolers and its actively cooled sibling IceLED have garnered a lot of attention and positive reviews in the LED market. ModuLED and IceLED are just precursors of a complete range of dedicated and highly effective LED coolers for professional deployment in spotlights, downlights, high bays and a further score of architectural and utility LED applications.

Both ModuLED and IceLED, as well as their upcoming descendants are Zhaga-ready and have a matrix of mounting holes that allows for very easy attachment of a great number of market-leading LED engines. Simply apply a thermal interface of your choice, put the LED engine in place and fasten with self-tapping screws and you are good to go! No drilling, customisation or special mounting brackets are needed.

Thanks to an extremely thorough thermal verification of all heat sink lines, MechaTronix provides total thermal disclosure for each model, coupled with several brands and categories of LED COB's and engines. All thermal data is available in the product specifications, that come with every MechaTronix heat sink. In this way, engineers save time and effort during the design stage of their LED fixture and will significantly shorten their time to market.

OUR PROCESS STARTS WITH LISTENING



Zhaga & ECO Partnerships

In conjunction with several world leading LED manufacturers and other stakeholders in the field, MechaTronix whole heartedly supports the emerging Zhaga industry standard. To that end, many off-the-shelf MechaTronix heat sinks - passive as well as active - are compatible with these Zhaga specifications, making them instantly ready for assembly with Zhaga designed LED engines or secondary optics, such as lenses or reflectors.

Despite Zhaga's efforts, the international market still offers a great diversity in unique mechanical formats for LED engines. MechaTronix appreciates the need for LED coolers to be modular plug and play components, matching all varieties of LED engines and secondary optics.

Not surprisingly, MechaTronix has been able to forge strong alliances with - and establish specific heat sink ranges for many leading LED manufacturers. Amongst these are the likes of Bridgelux, Citizen, Cree, Edison, GE Lighting, LG Innotek, Lumileds, Luminus, Lustrous, Osram, Osram Opto Semiconductors, Philips Lighting, Prolight Opto, Seoul Semiconductor, Sharp, Tridonic, Vossloh Schwabe and Xicato. Countless hours of compatibly testing enable us to present you with complete and validated thermal data of all feasible combinations of heat sinks and LED engines.

As a result of these efforts, MechaTronix has found a score of LED manufacturers and other specialist parties in the business to form ECO partnerships with. The mutual sharing of data and R&D and the adherence to Zhaga specifications comes with great benefits to all involved, not forgetting the end users. MechaTronix now is being endorsed as the preferred brand of heat sinks within these ECO Partnerships, guaranteeing a perfect mechanical fit, reliable thermal performance and an overall aesthetic design.

OUR PROCESS STARTS WITH LISTENING—



THERMAL CALCULATION

1. Calculation of the required LED Cooler Thermal Resistance Rth

In this document we show how to calculate the required thermal resistance of the LED cooler

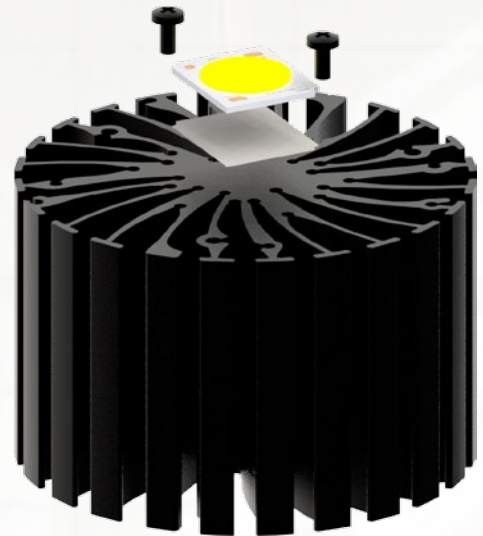
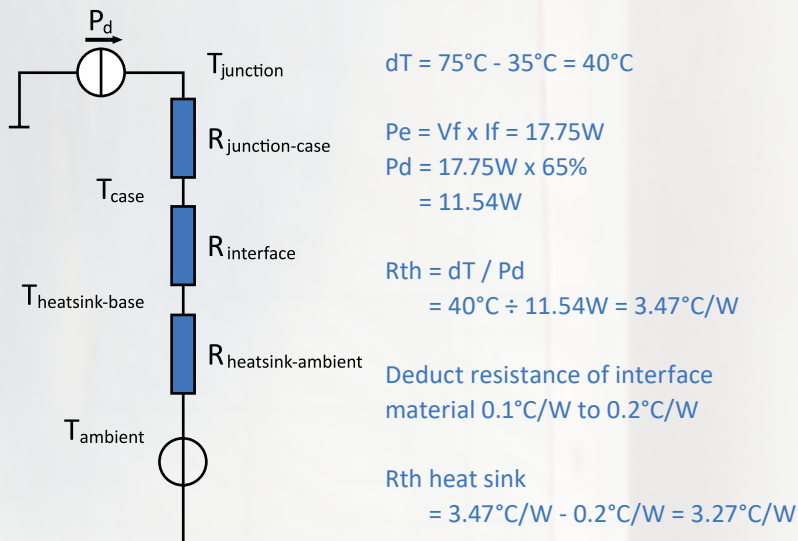
As an example we take a LED COB model, which has a nominal forward current I_f of 450mA and a maximal forward current of 900mA

We will drive the module at a forward current of 500mA with a forward voltage V_f of 35.5V

The maximal case temperature T_c is 105°C but in our design we aim at a life time case temperature of 75°C

The ambient temperature for our application is 35°C

A LED luminaire can be seen as an electrical scheme with the thermal resistances of the LED internally, the interface material and the LED cooler in series



The electrical power $P_e = V_f \times I_f$ or $35.5\text{V} \times 0.5\text{A} = 17.75\text{W}$

The dissipated power $P_d = P_e \times \text{efficiency}$ where the efficiency of the COB is around 35% or $17.75\text{W} \times 0.65 = 11.54\text{W}$

This is the amount of energy which need to be cooled down

dT is the temperature difference between the case temperature T_c we want to acquire and the ambient temperature T_a

$dT = T_c - T_a$ or $75^\circ\text{C} - 35^\circ\text{C} = 40^\circ\text{C}$

The required maximal thermal resistance R_{th} of the LED cooler + the thermal interface material $R_{th} = dT / P_d = 40^\circ\text{C} / 11.54\text{W} = 3.47^\circ\text{C/W}$

The thermal interface you use has a major impact on the performance

We recommend to use either arctic silver, a good thermal grease or a thin 0.1 to 0.15mm phase change or graphite thermal pad

In this case the thermal resistance from the interface material will be between 0.1 and 0.2°C/W

This interface resistance you subtract from the calculated interface resistance to determine the cooling performance your heat sink needs to be

So $R_{th \text{ heatsink}} = 3.47^\circ\text{C/W} - 0.2^\circ\text{C/W} = 3.27^\circ\text{C/W}$ maximal

Any led cooler which does better than a thermal resistance (lower value) of 3.27°C/W in free air conditions would make that our LED case temperature T_c will remain below the required 75°C

Keep in mind that an enclosure around the LED cooler, tilting and other variations will affect the performance of the LED cooler – contact us in case assistance is needed

2. Lab measurement of the required LED cooler

MechaTronix has performed over 1000 hours of lab measurements on the combination of world leading LED manufacturers LED COB's and modules, with various LED coolers and alternative driving currents

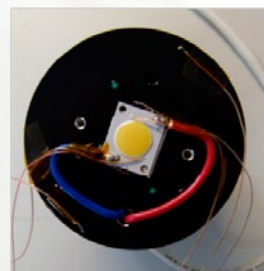
These lab tests are done under free air convection environment, vertical positioning with the LED on the bottom

For the tests we use a phase change thermal interface Laird TPCM 585

To conduct thermal measurement we use good digital meter (2 channels or more) and thin wire thermocouples which can easily measure the T_c point under operation

Besides a thermocouple on the T_c point, also attach a thermocouple on the base of the LED cooler near the LED module

When we see a temperature difference of more than 5°C between the two points, we will verify if it's caused by interface material or wetting surface (the contact between the LED module and the LED cooler)



MECHATRONIX LED COOLER OVERVIEW

MTX LED cooler model name	Style	Dimension (mm)		Rth* ¹ (°C/W)	Cooling performance (lm)	Electrical Power Pe (W)* ²	Dissipated Power Pd (W)* ³
		Ø Diameter	Height				
LPF3550-ZHC	Forging AL1070	Ø35	50	7.41	300 - 1,000	10.5	6.8
LPF4768-ZHP		Ø47	68	3.9	600 - 2,200	20	13
LPF6050-ZHC		Ø60	50	4.0	500 - 1,700	18.5	12
LPF6768-ZHP		Ø67	68	2.1	1,100 - 3,300	37	24
LPF8050-ZHC		Ø80	50	2.34	1,000 - 3,000	32	21
LPF8668-ZHC		Ø86	68	1.46	1,500 - 4,600	52	34
LPF11180-ZHE		Ø111	80	1.07	2,000 - 6,000	77	50
ModuLED Pico 4750	Extrusion AL6063-T5	Ø47	50	5.3	400 - 1,400	14.8	9.6
ModuLED Pico 4780			80	4.2	600 - 1,800	18	11.9
ModuLED Nano 7050		Ø70	50	2.2	1,000 - 3,100	35	22.7
ModuLED Nano 7080			80	1.8	1,200 - 3,800	43	28
ModuLED Micro 8630		Ø86	30	1.8	1,200 - 3,800	43	28
ModuLED Micro 8650			50	1.5	1,500 - 4,500	50	33
ModuLED Micro 8680			80	1.2	1,800 - 5,500	65	42
ModuLED 9950 / Xtra 9950		Ø99	50	1.34	1,600 - 5,000	57	37.3
ModuLED 9980 / Xtra 9980			80	1.02	2,100 - 6,400	75	48.9
ModuLED Mega 13420	Extrusion AL6063-T5	Ø134	20	1.32	1,600 - 5,000	59	38
ModuLED Mega 13450			50	0.88	2,400 - 7,300	88	57
ModuLED Mega 134100-HBG			100	0.67	3,300 - 10,000	115	75
ModuLED Giga 15220		Ø152	20	1.13	2,000 - 6,000	68	44
ModuLED Giga 15250			50	0.7	3,000 - 9,000	109	71
ModuLED Giga 152100-HBG			100	0.52	8,000 - 14,000	146	95
ModuLED Giga 152150-HBG			150	0.46	10,000 - 16,000	169	110
CoolBay® Giga-A / Giga-B	Extrusion AL6063-T5 (Heat sink body) + Closed-loop copper heat pipe (Heat sink core)	Ø152	200	0.34	12,000 - 22,000	230	150
CoolBay® Tera-A / Giga-B		Ø192	250	0.22	15,000 - 35,000	350	228
CoolBlock® SQ-01	Die-casting ADC12	W96 - L96 - H61.5		1.45	1,500 - 4,600	52	34
CoolBlock® LX-01-2x6 / -02-2x6		W80 - L192 - H45		1.09	2,000 - 6,000	70	45.8
IceLED 450	Extrusion AL6063-T5 (Heat sink body) + Plastic injection (Fan)	Ø99	45	0.58	3,500 - 10,500	132	85.5
IceLED 550 / Xtra 550			55	0.46	4,200 - 12,800	168	109
IceLED Ultra / Xtra Ultra			75	0.25	5,000 - 20,000	308	200
IceLED Ultra VS			75	0.26	5,000 - 20,000	230	150

*¹ The thermal resistance Rth is determined with a calibrated heat source of 30mm x 30mm central placed on the heat sink, Tamb 40° and an open environment. Reference data @ heat sink to ambient temperature rise Ths-amb 50°C
The thermal resistance of a LED cooler is not a fix value and will vary with the applied dissipated power Pd

*² ηL, LED Light efficiency is based on 35%

*³ Dissipated power Pd. Reference data @ heat sink to ambient temperature rise Ths-amb 50°C
The maximal dissipated power needs to be verified in function of required case temperature Tc or junction temperature Tj and related to the estimated ambient temperature where the light fixture will be placed
Please be aware the dissipated power Pd is not the same as the electrical power Pe of a LED module

PIN FIN PASSIVE LED COOLING

LPF3550-ZHC



LED Pin Fin cooler

For Zhaga Book 11 LED modules
& 13.5x13.5mm LED COB direct
mounting holes

ø35mm - H50mm - Rth 7.41°C/W

Cooling performance 300 - 1,000 lm
Black or clear anodised

LPF4768-ZHP



LED Pin Fin cooler

For Zhaga Book 3, Book 11 LED modules
& 16x19mm, 20x24mm LED COB
direct mounting holes

ø47mm - H68mm - Rth 3.9°C/W

Cooling performance 600 - 2,200 lm
Black or clear anodised

LPF6050-ZHC



LED Pin Fin cooler

For Zhaga Book 3, Book 11 LED modules
& 13.5x13.5mm LED COB direct
mounting holes

ø60mm - H50mm - Rth 4.0°C/W

Cooling performance 500 - 1,700 lm
Black anodised

LPF6768-ZHP



LED Pin Fin cooler

For Zhaga Book 3, Book 11 LED modules
& 16x19mm, 20x24mm LED COB
direct mounting holes

ø67mm - H68mm - Rth 2.1°C/W

Cooling performance 1,100 - 3,300 lm
Black or clear anodised

LPF8050-ZHC



LED Pin Fin cooler

For Zhaga Book 3 LED modules &
19x19mm LED COB direct mounting
holes

ø80mm - H50mm - Rth 2.34°C/W

Cooling performance 1,000 - 3,000 lm
Black anodised

LPF8668-ZHC



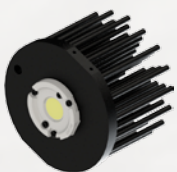
LED Pin Fin cooler

For Zhaga Book 3 LED modules &
19x19mm LED COB direct mounting
holes

ø86mm - H68mm - Rth 1.46°C/W

Cooling performance 1,500 - 4,600 lm
Black or clear anodised

LPF11180-ZHE



LED Pin Fin cooler

For Zhaga Book 3 LED modules
mounting holes

ø111mm - H80mm - Rth 1.07°C/W

Cooling performance 2,000 - 6,000 lm
Black or clear anodised

MODULED PASSIVE LED COOLING

ModuLED Pico 4750



Modular Passive LED Star cooler
Zhaga Book 3, Book 11 LED modules
& 20 mounting holes for direct
assembly of all LED COB brands
ø47mm - H50mm - Rth 5.3°C/W
Cooling performance 400 - 1,400 lm
Black or clear anodised

ModuLED Pico 4780



Modular Passive LED Star cooler
Zhaga Book 3, Book 11 LED modules
& 20 mounting holes for direct
assembly of all LED COB brands
ø47mm - H80mm - Rth 4.2°C/W
Cooling performance 600 - 1,800 lm
Black or clear anodised

ModuLED Nano 7050



Modular Passive LED Star cooler
Zhaga Book 3, Book 11 LED modules
& 20 mounting holes for direct
assembly of all LED COB brands
ø70mm - H50mm - Rth 2.2°C/W
Cooling performance 1,000 - 3,100 lm
Black or clear anodised

ModuLED Nano 7080



Modular Passive LED Star cooler
Zhaga Book 3, Book 11 LED modules
& 20 mounting holes for direct
assembly of all LED COB brands
ø70mm - H80mm - Rth 1.8°C/W
Cooling performance 1,200 - 3,800 lm
Black or clear anodised

ModuLED Micro 8630



Modular Passive LED Star cooler
Zhaga Book 3, Book 11 LED modules
& 30 mounting holes for direct
assembly of all LED COB brands
ø86mm - H30mm - Rth 1.8°C/W
Cooling performance 1,200 - 3,800 lm
Black or clear anodised

ModuLED Micro 8650



Modular Passive LED Star cooler
Zhaga Book 3, Book 11 LED modules
& 30 mounting holes for direct
assembly of all LED COB brands
ø86mm - H50mm - Rth 1.5°C/W
Cooling performance 1,500 - 4,500 lm
Black or clear anodised

ModuLED Micro 8680



Modular Passive LED Star cooler
Zhaga Book 3, Book 11 LED modules
& 30 mounting holes for direct
assembly of all LED COB brands
ø86mm - H80mm - Rth 1.2°C/W
Cooling performance 1,800 - 5,500 lm
Black or clear anodised

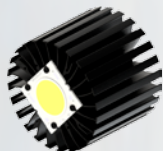
ModuLED 9950



Modular Passive LED Star cooler
Zhaga Book 3 LED modules & 25
mounting holes for direct assembly of
all LED COB brands
ø99mm - H50mm - Rth 1.34°C/W
Cooling performance 1,600 - 5,000 lm
Black or clear anodised

MODULED PASSIVE LED COOLING

ModuLED 9980



Modular Passive LED Star cooler
Zhaga Book 3 LED modules & 25 mounting holes for direct assembly of all LED COB brands
ø99mm - H80mm - Rth 1.02°C/W
Cooling performance 2,100 - 6,400 lm
Black or clear anodised

ModuLED Xtra 9950



Modular Passive LED Star cooler
Zhaga Book 2, Book 3, Book 5, Book 6, Book 11 LED modules & 22 mounting holes for direct assembly of all LED COB brands
ø99mm - H50mm - Rth 1.34°C/W
Cooling performance 1,600 - 5,000 lm
Black or clear anodised

ModuLED Xtra 9980



Modular Passive LED Star cooler
Zhaga Book 2, Book 3, Book 5, Book 6, Book 11 LED modules & 22 mounting holes for direct assembly of all LED COB brands
ø99mm - H80mm - Rth 1.02°C/W
Cooling performance 2,100 - 6,400 lm
Black or clear anodised

ModuLED Mega 13420



Modular Passive LED Star cooler
Zhaga Book 3 LED modules & 36 mounting holes for direct assembly of all LED COB brands
ø134mm - H20mm - Rth 1.32°C/W
Cooling performance 1,600 - 5,000 lm
Black anodised

ModuLED Mega 13450



Modular Passive LED Star cooler
Zhaga Book 3 LED modules & 36 mounting holes for direct assembly of all LED COB brands
ø134mm - H50mm - Rth 0.88°C/W
Cooling performance 2,400 - 7,300 lm
Black anodised

ModuLED Mega 134100



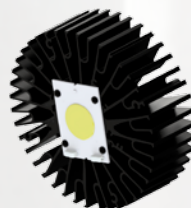
Modular Passive LED Star cooler
Zhaga Book 3 LED modules & 36 mounting holes for direct assembly of all LED COB brands
ø134mm - H100mm - Rth 0.67°C/W
Cooling performance 3,300 - 10,000 lm
Black anodised

ModuLED Giga 15220



Modular Passive LED Star cooler
Zhaga Book 3 LED modules & 27 mounting holes for direct assembly of all LED COB brands
ø152mm - H20mm - Rth 1.13°C/W
Cooling performance 2,000 - 6,000 lm
Black anodised

ModuLED Giga 15250



Modular Passive LED Star cooler
Zhaga Book 3 LED modules & 27 mounting holes for direct assembly of all LED COB brands
ø152mm - H50mm - Rth 0.7°C/W
Cooling performance 3,000 - 9,000 lm
Black anodised

ICELED ACTIVE LED COOLING



IceLED 450

Modular Active LED Star cooler
Zhaga Book 3 LED modules & 25 mounting holes for direct assembly of all LED COB brands
ø99mm - H45mm - Rth 0.58°C/W
Fan Voltage 12Vdc - 50mA
Fan Speed 1500RPM
Cooling performance 3,500 - 10,500 lm



IceLED 550

Modular Active LED Star cooler
Zhaga Book 3 LED modules & 25 mounting holes for direct assembly of all LED COB brands
ø99mm - H55mm - Rth 0.46°C/W
Fan Voltage 12Vdc - 50mA
Fan Speed 1500RPM
Cooling performance 4,200 - 12,800 lm



IceLED Xtra 550

Modular Active LED Star cooler
Zhaga Book 2, Book 3, Book 5, Book 6, Book 11 LED modules & 22 mounting holes for direct assembly of all LED COB brands
ø99mm - H55mm - Rth 0.46°C/W
Fan Voltage 12Vdc - 50mA
Fan Speed 1500RPM
Cooling performance 4,200 - 12,800 lm



IceLED Ultra

Modular Active LED Star cooler
Zhaga Book 3 LED modules & 25 mounting holes for direct assembly of all LED COB brands
ø99mm - H75mm - Rth 0.25°C/W
Fan Voltage 12Vdc - 230mA
Fan Speed 3000RPM
Cooling performance 5,000 - 20,000 lm



IceLED Xtra Ultra

Modular Active LED Star cooler
Zhaga Book 2, Book 3, Book 5, Book 6, Book 11 LED modules & 22 mounting holes for direct assembly of all LED COB brands
ø99mm - H75mm - Rth 0.25°C/W
Fan Voltage 12Vdc - 230mA
Fan Speed 3000RPM
Cooling performance 5,000 - 20,000 lm



IceLED Ultra VS

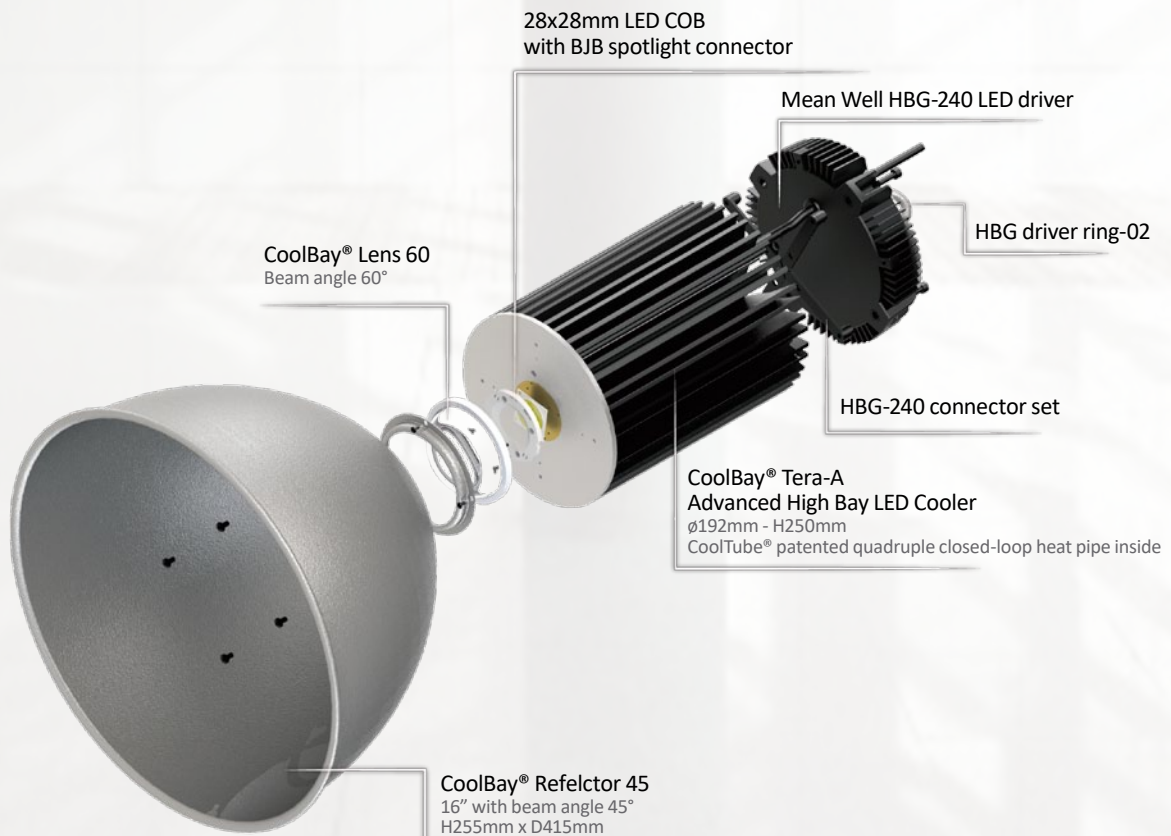
Modular Active LED Star cooler
Zhaga Book 2, Book 3, Book 5, Book 6, Book 11 LED modules & 22 mounting holes for direct assembly of all LED COB brands
ø99mm - H75mm - Rth 0.26°C/W
Fan Voltage 12Vdc - 160mA
Fan Speed 2600RPM
Cooling performance 5,000 - 20,000 lm

HIGH BAY & INDUSTRIAL LED COOLING

Total assembly example of ModuLED Giga 152100-HBG



Total assembly example of CoolBay® Tera-A



HIGH BAY & INDUSTRIAL LED COOLING

ModuLED Mega 13450-HBG



High Bay LED cooler with direct mounting holes for Mean Well HBG series driver
Zhaga Book 3 LED modules & 36 mounting holes for direct assembly of all LED COB brands
ø134mm - H50mm - Rth 0.88°C/W
Cooling performance 2,400 - 7,300 lm
Black anodised

ModuLED Mega 134100-HBG



High Bay LED cooler with direct mounting holes for Mean Well HBG series driver
Zhaga Book 3 LED modules & 36 mounting holes for direct assembly of all LED COB brands
ø134mm - H100mm - Rth 0.67°C/W
Cooling performance 3,300 - 10,000 lm
Black anodised

ModuLED Giga 152100-HBG



High Bay LED cooler with direct mounting holes for Mean Well HBG series driver
Zhaga Book 3 LED modules & 27 mounting holes for direct assembly of all LED COB brands
ø152mm - H100mm - Rth 0.52°C/W
Cooling performance 8,000 - 14,000 lm
Black anodised

ModuLED Giga 152150-HBG



High Bay LED cooler with direct mounting holes for Mean Well HBG series driver
Zhaga Book 3 LED modules & 27 mounting holes for direct assembly of all LED COB brands
ø152mm - H150mm - Rth 0.46°C/W
Cooling performance 10,000 - 16,000 lm
Black anodised

CoolBay® Giga-A



Advanced High Bay LED cooler with CoolTube® quadruple closed-loop heat pipe structure
Direct connection for Citizen CLU056, Edison HM 120W/150W, Seoul ZC100 high power COB LEDs, and for Mean Well HBG-160 LED driver & various accessories
ø152mm - H200mm - Rth 0.34°C/W
Cooling performance 12,000 - 22,000 lm
Black nano coating

CoolBay® Giga-B



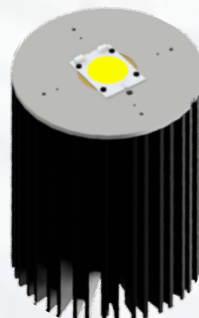
Advanced High Bay LED cooler with CoolTube® quadruple closed-loop heat pipe structure
Direct connection for Bridgelux Vero 29, Cree CXA/CXB35xx, Tridonic FLE high power COB LEDs, and for Mean Well HBG-160 LED driver & various accessories
ø152mm - H200mm - Rth 0.34°C/W
Cooling performance 12,000 - 22,000 lm
Black nano coating

CoolBay® Tera-A



Advanced High Bay LED cooler with CoolTube® quadruple closed-loop heat pipe structure
Direct connection for Citizen CLU056, Edison HM 120W/150W, Seoul ZC100 high power COB LEDs, and for Mean Well HBG-240 LED driver & various accessories
ø192mm - H250mm - Rth 0.22°C/W
Cooling performance 15,000 - 35,000 lm
Black nano coating

CoolBay® Tera-B

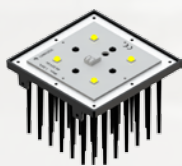
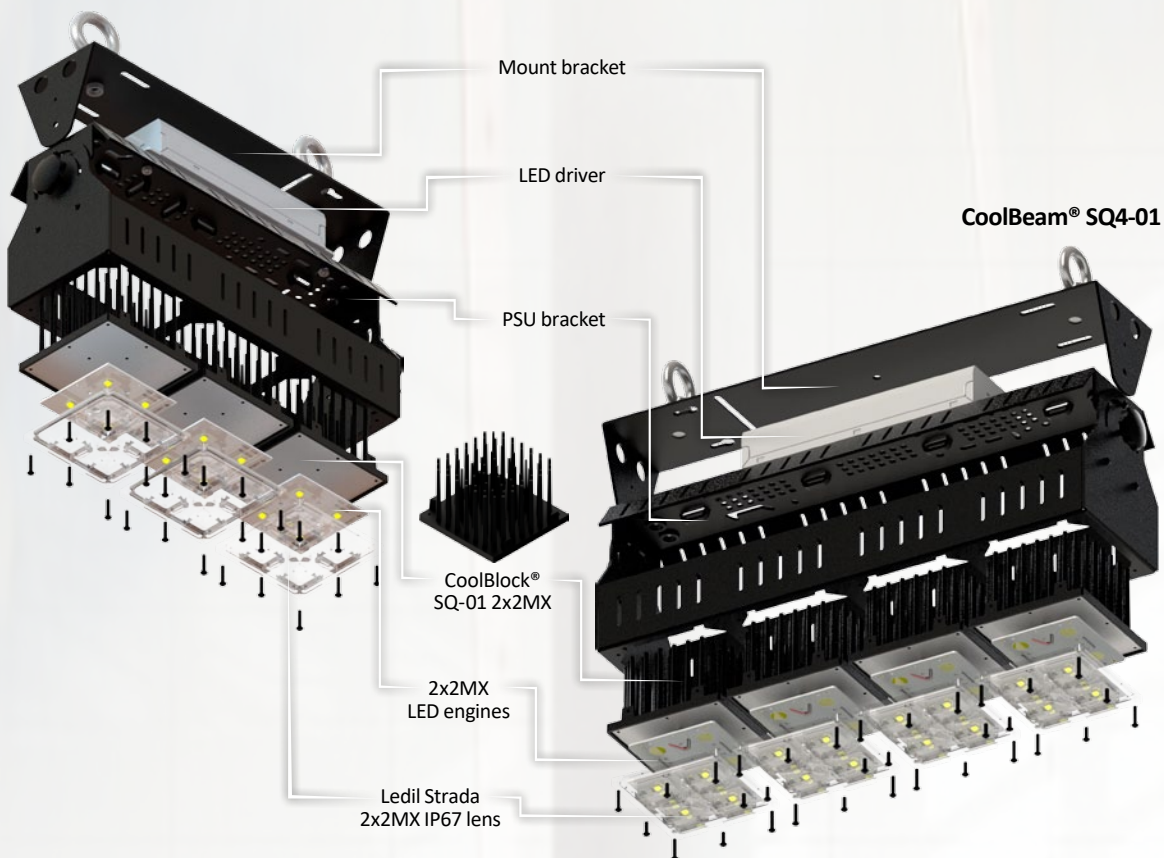


Advanced High Bay LED cooler with CoolTube® quadruple closed-loop heat pipe structure
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ø192mm - H250mm - Rth 0.22°C/W
Cooling performance 15,000 - 35,000 lm
Black nano coating

HIGH BAY & INDUSTRIAL LED COOLING

Total assembly example of CoolBeam® & CoolBlock®

CoolBeam® SQ3-01



CoolBlock® SQ-01 2x2MX

Patented LED cooler for the 2x2MX platform. Accommodating LED boards with 4 high power LEDs like the Lumileds XR-M, Cezos 2x2MX (Osram P10), Citizen CLU028, Cree CXA15 / CXB15, Adura Sinkpad 2x2MX and Ledil 2x2MX lenses for IP67 waterproof with just a few screws

W96mm - L96mm - H61.5mm
Thermal resistance R_{th} 1.45°C/W
Cooling performance 1,500 - 4,600 lm
Black electro-coating



CoolBlock® LX-01 2x6

Patented LED cooler for the 2x6 platform. Accommodating LED boards with 12 high power LEDs like the Lumileds Luxeon XR-TX and Ledil Strada / HB 2x6 lenses for IP67 waterproof with just a few screws

W80mm - L192mm - H45mm
Thermal resistance R_{th} 1.09°C/W
Cooling performance 2,000 - 6,000 lm
Black electro-coating

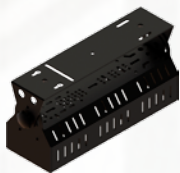


CoolBlock® LX-02 2x6

Patented LED cooler for the 2x6 platform. Accommodating LED boards with 12 high power LEDs like the ADURA Sinkpad LED PCB's and Ledil Strada / HB 2x6 lenses for IP67 waterproof with just a few screws

W80mm - L192mm - H45mm
Thermal resistance R_{th} 1.09°C/W
Cooling performance 2,000 - 6,000 lm
Black electro-coating

HIGH BAY LED ACCESSORIES



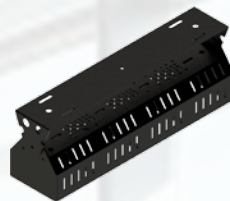
CoolBeam® SQ3-01

Patented fixture kit accommodating 3 CoolBlock® LED engines. For industrial flood lights or high bay designs up to 16,000 lumen. Various wall mount and suspended mounting options

Smart PSU bracket for drivers of Mean Well, Inventronics, Osram,...

W107mm - L316mm - H150.5mm

Black electro-coating



CoolBeam® SQ4-01

Patented fixture kit accommodating 4 CoolBlock® LED engines. For industrial flood lights or high bay designs up to 20,000 lumen. Various wall mount and suspended mounting options

Smart PSU bracket for drivers of Mean Well, Inventronics, Osram,...

W107mm - L418mm - H150.5mm

Black electro-coating



CoolBeam® SQ Dual mount bracket

Mounting bracket for 2 CoolBeam® SQ4-01 luminaires. Creates an industrial flood light, high mast or high bay luminaire up to 40,000 lumen. Free tilting of the individual CoolBeam® arrays for flexible beam patterns

W240mm - L418mm - H125mm

Weight 1387g - Black electro-coating



CoolBeam® SQ Triple mount bracket

Mounting bracket for 3 CoolBeam® SQ4-01 luminaires. Creates an industrial flood light, high mast or high bay luminaire up to 60,000 lumen. Free tilting of the individual CoolBeam® arrays for flexible beam patterns

W370mm - L418mm - H125mm

Weight 2034g - Black electro-coating



CoolBox

Universal high bay LED driver box with direct mounting holes for ModuLED-HBG and CoolBay® series LED Cooler

W180mm - L300mm - H130mm

Weight 1076g



CoolBay® Lens 60

High Bay lens set with beam angle 60° , uniform light dispersion with high reflectivity rate

Lens set content :

- High transparency 97% glass lens
- Rubber sealing ring
- Lens holder

ø100mm - H39.5mm - Weight 195g



CoolBay® Lens 90

High Bay lens set with beam angle 90° , uniform light dispersion with high reflectivity rate

Lens set content :

- High transparency 97% glass lens
- Rubber sealing ring
- Lens holder

ø100mm - H35mm - Weight 215g



CoolBay® Lens 120

High Bay lens set with beam angle 120° , uniform light dispersion with high reflectivity rate

Lens set content :

- High transparency 97% glass lens
- Rubber sealing ring
- Lens holder

ø100mm - H29.5mm - Weight 170g



CoolBay® Reflector 45

High Bay aluminium reflector set 16" with beam angle 45°, uniform light dispersion with high reflectivity rate

Reflector set content :

- Aluminium reflector
- Mounting screws M5x6mm x 4pcs

ø415mm - H255mm - Weight 615g



CoolBay® Reflector 90

High Bay aluminium reflector set 20" with beam angle 90°, uniform light dispersion with high reflectivity rate

Reflector set content :

- Aluminium reflector
- Mounting screws M5x6mm x 4pcs

ø515mm - H185mm - Weight 665g

HIGH BAY LED ACCESSORIES



CoolBay® Reflector 120

High Bay aluminium reflector set 20" with beam angle 120°, uniform light dispersion with high reflectivity rate

Reflector set content :

- Aluminium reflector
 - Mounting screws M5x6mm x 4pcs
- ø495mm - H145mm - Weight 585g

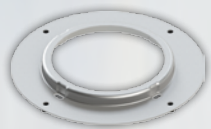


CoolBay® Reflector 45 PC

High Bay polycarbonate reflector set 16" with beam angle 45°, uniform light dispersion with high reflectivity rate

Reflector set content :

- Polycarbonate reflector
 - Cover cap & Mounting frame
 - Mounting screws M5x6mm x 4pcs
- ø410mm - H265mm - Weight 850g



ModuLED Mega optics adaptor

Adaptor plate for connection of lenses and reflectors on ModuLED Mega-HBG series LED coolers

Compatible with all CoolBay® reflector and lens variations

4 screws M5x10mm included
ø158mm - Weight 60g



ModuLED Giga optics adaptor

Adaptor plate for connection of lenses and reflectors on ModuLED Giga-HBG series LED coolers

Compatible with all CoolBay® reflector and lens variations

4 screws M5x10mm included
ø158mm - Weight 60g



DPP-Mega-2828-01

Designed for combination with any 28x28mm COB directly mounted on the ModuLED Mega-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG-60 LED driver

ø134.6mm - Thickness 1mm - Weight 38g



DPP-Mega-2828-02

Designed for combination with any 28x28mm COB directly mounted on the ModuLED Mega-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG-100 LED driver

ø134.6mm - Thickness 1mm - Weight 38g

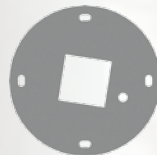


DPP-Mega-3838-01

Designed for combination with any 38x38mm COB directly mounted on the ModuLED Mega-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG-60 LED driver

ø134.6mm - Thickness 1mm - Weight 36g



DPP-Mega-3838-02

Designed for combination with any 38x38mm COB directly mounted on the ModuLED Mega-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG-100 LED driver

ø134.6mm - Thickness 1mm - Weight 36g



DPP-Mega-ZHAGA3-01

Designed for combination with any Zhaga Book 3 LED module or COB with Zhaga Book 3 LED holder mounted on the ModuLED Mega-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG-60 LED driver

ø134.6mm - Thickness 1mm - Weight 32g



DPP-Mega-ZHAGA3-02

Designed for combination with any Zhaga Book 3 LED module or COB with Zhaga Book 3 LED holder mounted on the ModuLED Mega-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG-100 LED driver

ø134.6mm - Thickness 1mm - Weight 32g

HIGH BAY LED ACCESSORIES



DPP-Mega-BW458

Designed for combination with Citizen CLU05x by using Bender Wirth holder 458 mounted on the ModuLED Mega-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG-100, HBG-160 LED driver
ø134.6mm - Thickness 1mm - Weight 30g



DPP-Giga-2828

Designed for combination with any 28x28mm COB directly mounted on the ModuLED Giga-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG series LED driver
ø152mm - Thickness 1mm - Weight 41g



DPP-Giga-3838

Designed for combination with any 38x38mm COB directly mounted on the ModuLED Giga-HBG LED cooler to avoid dust accumulation in the lens

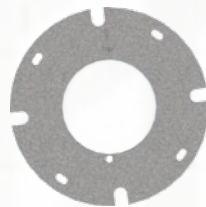
Cable hole position for Mean Well HBG series LED driver
ø152mm - Thickness 1mm - Weight 41g



DPP-Giga-ZHAGA3

Designed for combination with any Zhaga Book 3 LED module or COB with Zhaga Book 3 LED holder mounted on the ModuLED Giga-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG series LED driver
ø152mm - Thickness 1mm - Weight 41g



DPP-Giga-BW458

Designed for combination with Citizen CLU05x by using Bender Wirth holder 458 mounted on the ModuLED Giga-HBG LED cooler to avoid dust accumulation in the lens

Cable hole position for Mean Well HBG series LED driver
ø152mm - Thickness 1mm - Weight 39g



Driver Box Connector ring

The connector ring creates an ideal bridge between any driver box in the market and our high bay coolers to allow free air convection

Dedicated mounting holes with MechaTronix ModuLED-HBG and CoolBay® series LED coolers
ø55mm - H20mm - Weight 37g



HBG-60 Connector set

Connector set for Mean Well HBG-60 LED drivers with interchangeability towards all the ModuLED-HBG and CoolBay® series LED coolers

Creates an 11mm gap between the cooler and the driver to allow free air convection
ø118mm - H14mm - Weight 65g



HBG-100 Connector set

Connector set for Mean Well HBG-100 LED drivers with interchangeability towards all the ModuLED-HBG and CoolBay® series LED coolers

Creates an 11mm gap between the cooler and the driver to allow free air convection
ø133mm - H14mm - Weight 75g



HBG-160 Connector set

Connector set for Mean Well HBG-160 LED drivers with interchangeability towards all the ModuLED-HBG and CoolBay® series LED coolers

Creates an 11mm gap between the cooler and the driver to allow free air convection
ø152mm - H14mm - Weight 85g



HBG-240 Connector set

Connector set for Mean Well HBG-240 LED drivers with interchangeability towards all the ModuLED-HBG and CoolBay® series LED coolers

Creates an 11mm gap between the cooler and the driver to allow free air convection
ø174mm - H14mm - Weight 110g

Your local distributor:

OUR PROCESS STARTS WITH LISTENING 



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