

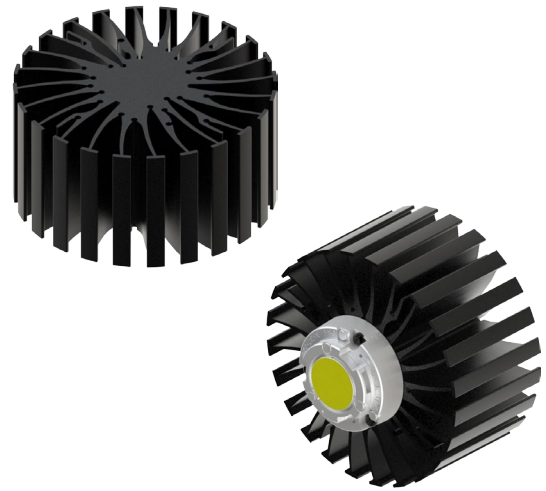
MechaTronix *in* LED

ModuLED Modular Passive LED Cooler



Features & Benefits

- For spot and downlight designs from 700 to 3000 lumen
- Thermal resistance range Rth 1.02 - 1.34°C/W
- Modular design with mounting holes foreseen for most common LED modules on the market - Zhaga compatible (book 3), Bridgelux RS array, Xicato XSM & XPM, Citizen CLL030/040/050
- Aesthetic design with high cooling performance and flexible mechanical adaptation for reflector options
- Diameter 99mm
- Standard height 50mm & 80mm
Other heights on request
- Extruded from highly conductive aluminum



Order Information



Example : ModuLED 9950-B

ModuLED 99 **1** - **2** - **3**

- 1** Height (mm)
- 2** Anodising Color
B - Black
C - Clear
- 3** Mounting options
On request:
mounting holes, cable holes,
screw thread, thermal interface pad

ModuLED is designed in this way that you can mount LED modules from various manufacturers on the same LED cooler

Simple mounting with M3 x 6mm self tapping screws

Recommended screw force 6lb/in

Screws are available from MechaTronix

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Product Details

Model n°	 ModuLED 9950	 ModuLED 9980
Dimension (mm) ^{*1}	ø99 x h50	ø99 x h80
Volume (mm ³)	137181	219491
Cooling Surface (mm ²)	104563	164008
Weight (gr)	356	573
Thermal Resistance (°C/W) ^{*2}	1.34	1.02
Power Pd (W) ^{*3}	37.3	48.9
Heat Sink Material	AL6063-T5	AL6063-T5

^{*1} 3D files are available in ParaSolid, STP and IGS on request

^{*2} 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

^{*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

To calculate the dissipated power please use the following formula: $Pd = Pe \times (1 - \eta_L)$

Pd - Dissipated power

Pe - Electrical power

η_L = Light efficiency of the LED module

Notes:

- MechaTronix reserves the right to change products or specifications without prior notice.
- Mentioned models are an extraction of full product range.
- For specific mechanical adaptations please contact MechaTronix.

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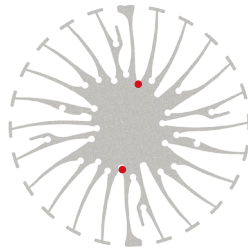
Mounting Options

Zhaga LED engines

ModuLED modular passive LED coolers are standard foreseen for mounting of all Zhaga compliant LED modules and LED holders (Zhaga book 3)



Right side illustration can be used to easily determine the required mounting holes
A flipchart with transparent overlays is available online and as hardcopy
MechaTronix advises the use of self tapping mounting screws M3 x 6mm
Mounting torque 6lb/in - Compliant high end screws available on request



Zhaga Compliant LED engines*1

Bridgelux Cetero, Cree XLamp, Edison Edilex SLM, GE Infusion, Osram Prevaled, Philips Fortimo SLM (G2 & G3), Tridonic Talexx, Vexica Lumaera, Vossloh Schwabe Luga Shop



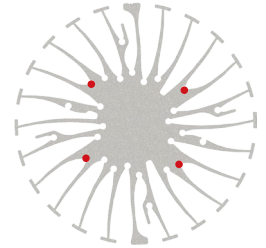
*1 This list is a non-binding overview of available Zhaga book 3 LED engines at press

Bridgelux RS array LED engines

ModuLED modular passive LED coolers are standard foreseen for mounting of the Bridgelux RS array LED engines and the related TE Connectivity / AMP-2154455-1-holder



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A flipchart with transparent overlays is available online and as hardcopy
MechaTronix advises the use of self tapping mounting screws M3 x 6mm
Mounting torque 6lb/in - Compliant high end screws available on request



Bridgelux RS Array BXRA

TE Connectivity / AMP-2154455-1-holder*1

- Red indicator marks

*1 Contact MechaTronix for mounting instructions



Cooling example BXRA-W3000 @ Ta 25°C

If 2100mA - Vf 25.6Vdc - Tc 75°C

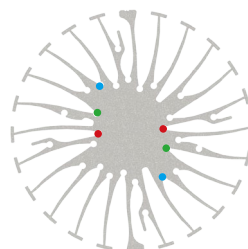
Advised cooling - ModuLED9980 - Rth 1.02°C/W

Citizen CILELED CLL LED engines

ModuLED modular passive LED coolers are standard foreseen for mounting of the Citizen CILELED CLL030, 040 and 050 series LED engines



Right side illustration can be used to easily determine the required mounting holes
A flipchart with transparent overlays is available online and as hardcopy
MechaTronix advises the use of self tapping mounting screws M3 x 6mm
Mounting torque 6lb/in - Compliant high end screws available on request



CILELED CLL030 - Red indicator marks

cooling example CLL030-1212 @ Ta 40°C

If 720mA - Vf 36.6Vdc

advised cooling - ModuLED9950 - Rth 1.34°C/W

CILELED CLL040 - Green indicator marks

cooling example CLL040-1818 @ Ta 25°C

If 1620mA - Vf 36.6Vdc

advised cooling - ModuLED9980 - Rth 1.02°C/W



CILELED CLL050 - Blue indicator marks

no passive cooling with ModuLED possible

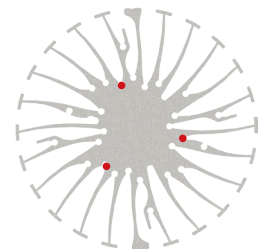
advised cooling - IceLED 550 - Rth 0.46°C/W

Xicato XSM & XPM LED engines

ModuLED modular passive LED coolers are standard foreseen for mounting of the Xicato XSM & XPM LED engines

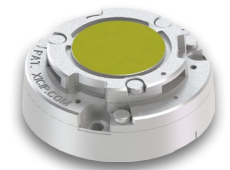


Right side illustration can be used to easily determine the required mounting holes
A flipchart with transparent overlays is available online and as hardcopy
MechaTronix advises the use of self tapping mounting screws M3 x 12mm
Mounting torque 6lb/in - Compliant high end screws available on request



Within the Xicato XSM & XPM series there is a wide variation of LED engines with different cooling needs

Please follow the Xicato thermal class recommendations for selection of the correct ModuLED cooling



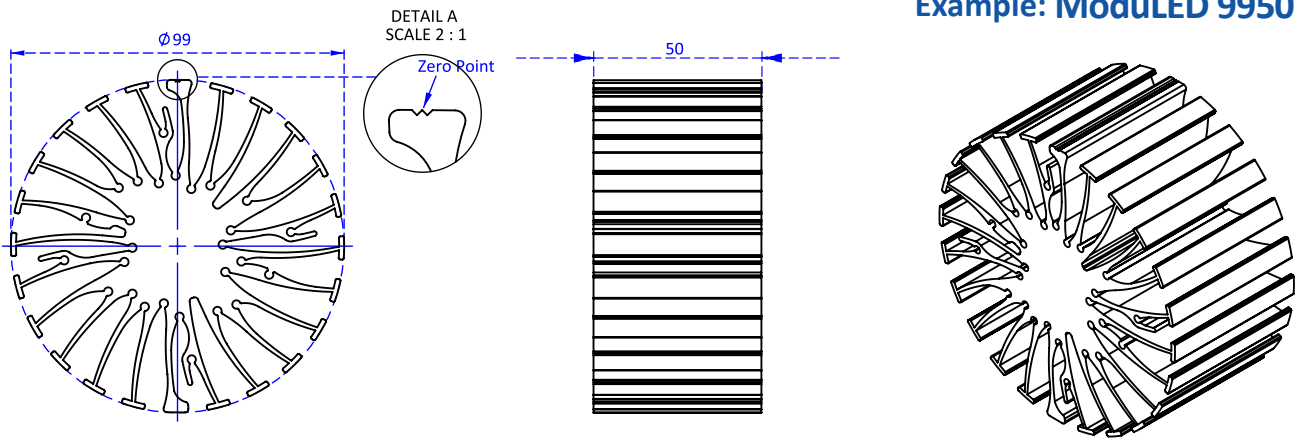
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Drawings & Dimensions

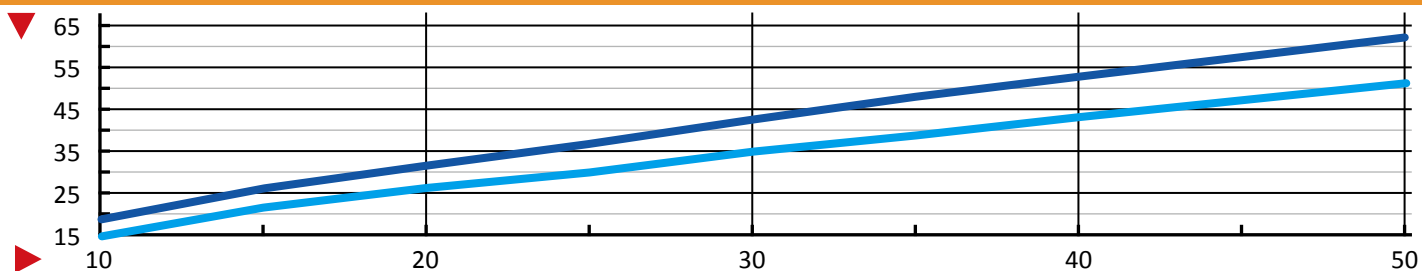
Example: ModuLED 9950



Thermal Data

$P_d = P_e \times (1 - \eta_L)$			LED Light efficiency, η_L (%)			Heat sink to ambient thermal resistance R_{hs-amb} ($^{\circ}C/W$)		Heat sink to ambient temperature rise T_{hs-amb} ($^{\circ}C$)	
			17%	20%	25%	ModuLED 9950	ModuLED 9980	ModuLED 9950	ModuLED 9980
Dissipated Power P_d (W)	10	Electrical Power P_e (W)	12.0	12.5	13.3	1.9	1.5	19	15
	15		18.1	18.8	20.0	1.7	1.4	26	21
	20		24.1	25.0	26.7	1.6	1.3	32	26
	25		30.1	31.3	33.3	1.5	1.2	37	30
	30		36.1	37.5	40.0	1.4	1.2	43	35
	35		42.2	43.8	46.7	1.4	1.1	48	39
	40		48.2	50.0	53.3	1.3	1.1	53	43
	50		60.2	62.5	66.7	1.2	1.0	62	51

Heat sink to ambient temperature rise T_{hs-amb} ($^{\circ}C$) — ModuLED 9950 — ModuLED 9980



Dissipated Power P_d (W)