

MechaTronix in LED

IceLED Modular Active LED Cooler



Features & Benefits

- Ultra high cooling performance
- For spot & downlight designs from 2000 to 8000 lumen
- Modularity - Mounting compatible with most of the LED modules available on the market
- Anti-vibration low-noise fan <21dB@1m
- Super silent design over full spectrum (human and animals)
- Fan rated voltage 12Vdc
- High lifetime design >60Khrs (L 10 life time @40°C)
- Dust protection fan cover
- Warranty 5 years



Order Information

Zhaga

BRIDGELUX
The Magic of Light™

CITIZEN
Micro HumanTech

Xicato

Example: IceLED 450

IceLED **1**

1 Height (mm)

Overall height top to bottom

(Fan height 25mm)

IceLED 450 - 45mm

IceLED 550 - 55mm

IceLED 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°	 IceLED 450	 IceLED 550
Dimension (mm) ^{*1}	ø99 x h45	ø99 x h55
Fan Voltage (Vdc) ^{*2}	12	12
Fan Speed (RPM)	1500	1500
Noise @ 1m (dBA)	<21	<21
Weight (gr)	223	294
Thermal Resistance (°C/W) ^{*3}	0.58	0.46
Power Pd (W) ^{*4}	85.5	109
Heat Sink Material	AL6063-T5	AL6063-T5

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

^{*2} The fan requires a constant voltage power source of 12Vdc, 50mA

^{*3} 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

^{*4} 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

ηL = 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

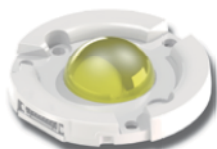
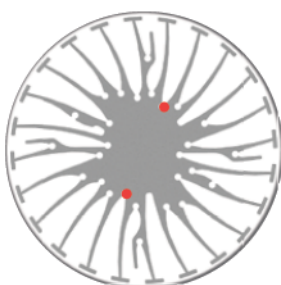
IceLED modular active LED coolers are standard foreseen for mounting of all Zhaga compliant LED modules and LED holders (Zhaga book 3)

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

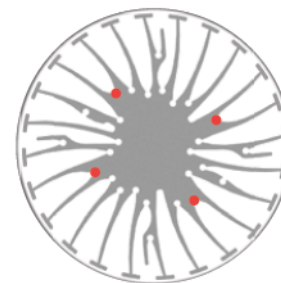
IceLED modular active LED coolers are standard foreseen for mounting of the Bridgelux RS array LED engines and the related TE Connectivity / AMP-2154455-1-holder

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.

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 40°C
If 2100mA - Vf 25.6Vdc - Tc 65°C
Advised cooling - IceLED 550 - Rth 0.46°C/W



Citizen CITELED CLL LED engines

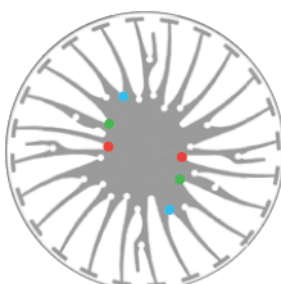
IceLED modular active LED coolers are standard foreseen for mounting of the Citizen CITELED CLL030, 040 and 050 series LED engines

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.

CITELED CLL030 - Red indicator marks
cooling example CLL030-1212 @ Ta 40°C
If 1440mA - Vf 36.6Vdc
advised cooling - IceLED 450 - Rth 0.58°C/W

CITELED CLL040 - Green indicator marks
cooling example CLL040-1818 @ Ta 40°C
If 1080mA - Vf 54.9Vdc
advised cooling - IceLED 550 - Rth 0.46°C/W

CITELED CLL050 - Blue indicator marks
cooling example CLL050-1825 @ Ta 40°C
If 1620mA - Vf 54.9Vdc
advised cooling - IceLED 550 - Rth 0.46°C/W



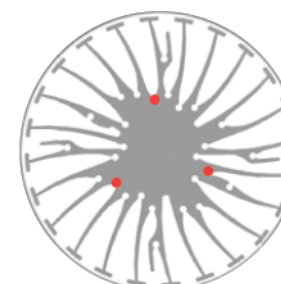
Xicato XSM & XPM LED engines

IceLED modular active 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 6mm. 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 IceLED cooling



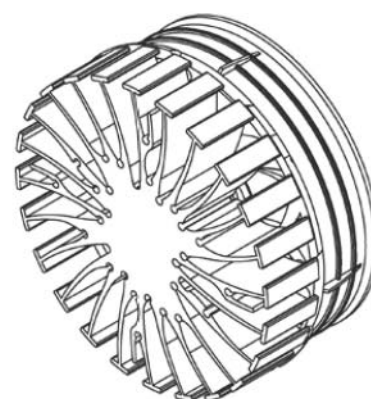
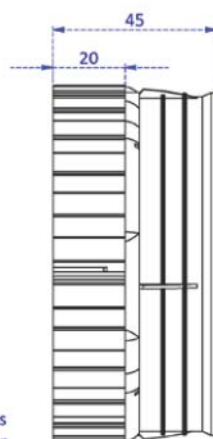
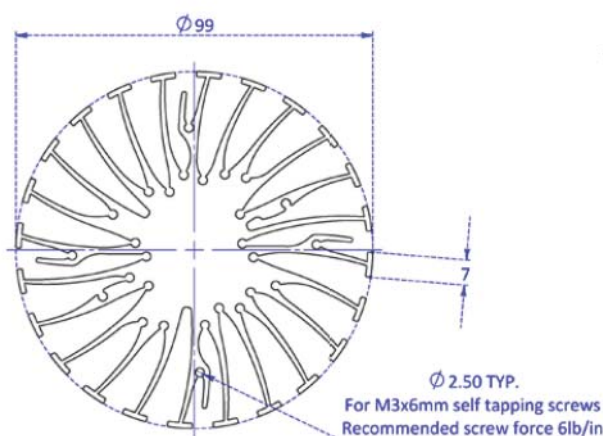
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Drawings & Dimensions

Example: IceLED 450



Thermal Data

$P_d = P_e \times (1 - \eta_L)$			LED Light efficiency, η_L (%)			Heat sink to ambient thermal resistance R_{hs-amb} ($^{\circ}\text{C}/\text{W}$)		Heat sink to ambient temperature rise T_{hs-amb} ($^{\circ}\text{C}$)	
Dissipated Power P_d (W)	20	Electrical Power P_e (W)	17%	20%	25%	IceLED 450	IceLED 550	IceLED 450	IceLED 550
			24.1	25.0	26.7	0.62	0.50	12	10
			30.1	31.3	33.3	0.62	0.49	15	12
			36.1	37.5	40.0	0.61	0.49	18	15
			42.2	43.8	46.7	0.61	0.49	21	17
			48.2	50.0	53.3	0.60	0.48	24	19
			60.2	62.5	66.7	0.60	0.48	30	24
			72.3	75.0	80.0	0.59	0.47	36	28
			84.3	87.5	93.3	0.59	0.47	41	33
			96.4	100.0	106.7	0.59	0.47	47	37

Heat sink to ambient temperature rise T_{hs-amb} ($^{\circ}\text{C}$)

IceLED 450 IceLED 550

