MTx MechaTronix
www.mechatronix-asia.com

MASTERING LED COOLING

XSA-216 Xicato Modular Passive Star LED Cooler ø47mm

Features & Benefits

• The XSA-216 Xicato modular passive LED cooler is specifically designed for luminaires using the Xicato LED modules. Mechanical compatibility with direct mounting of the LED modules to the LED cooler and thermal performance matching the lumen packages.

• For spot and downlight designs from 1,200 to 2,400 lumen

• Thermal resistance Rth 4.2°C/W

• Xicato thermal class E

• Modular design with mounting holes foreseen for direct mounting of Xicato XIM, XTM and XCA LED modules.

• Diameter 47mm - Standard height 80mm
  Other heights on request

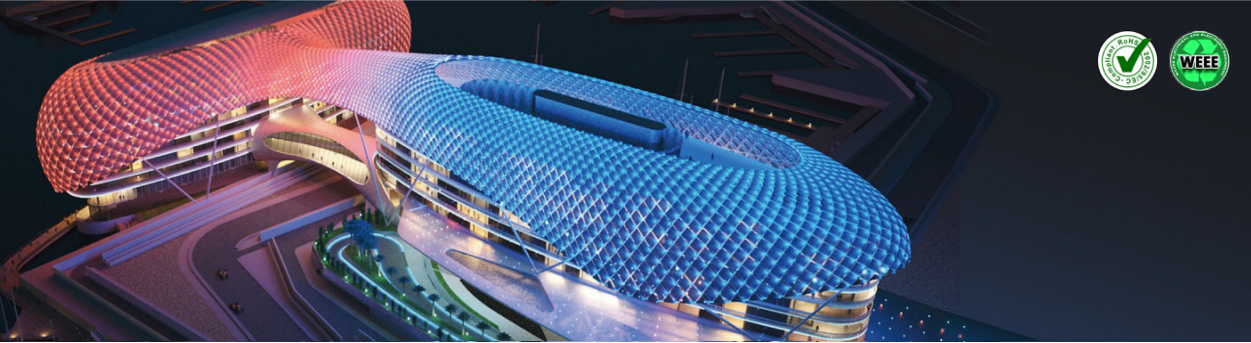• Extruded from highly conductive aluminum

Order Information

Zhaga

Xicato®

Example : XSA-216-B

XSA-216- **1**

1 Anodising Color

B - Black
C - Clear

Simple mounting with M3 screws

Recommened screw force 6lb/in

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Product Details

Model n°	XSA-216
Dimension (mm)*1	ø47 x h80
Volume (mm³)	78046
Cooling Surface (mm²)	55960
Weight (gr)	213
Thermal Resistance (°C/W)*2	4.2
Power Pd (W)*3	11.9
Heat Sink Material	AL6063-T5

*1 3D files are avaliable 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

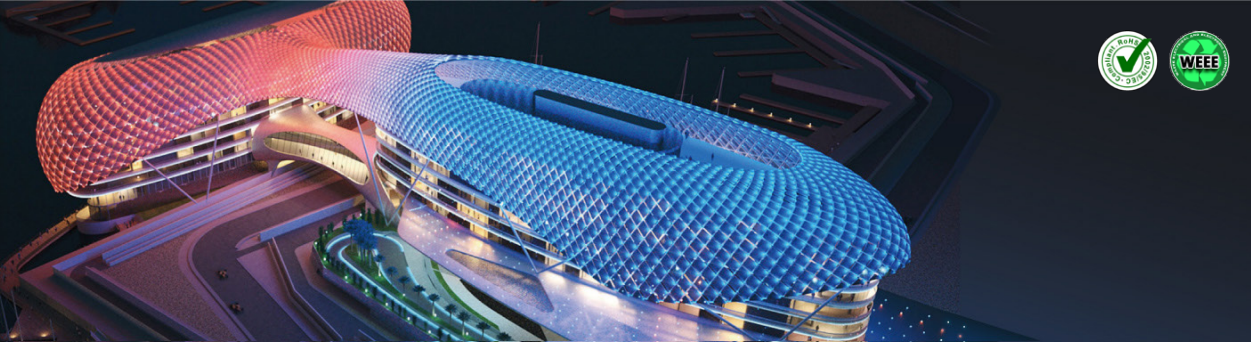To calculate the dissipated power please use the following formula: $Pd = Pe \times (1-\eta L)$
Pd - Dissipated power
Pe - Electrical power
ηL = Light effciency of the LED module

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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# XSA-216 Xicato Modular Passive Star LED Cooler ø47mm

Mounting Instructions

Xicato®

Xicato is changing the way the world looks at light – and enabling everyone to experience it. Xicato believes that with better light, shoppers will buy more, diners will order more and guests will be happier and feel more comfortable. In turn, for owners, operators and managers of environments, better lighting will contribute to high sales, margins and brand perception.

Mounting indicator marks overview

MechaTronix recommends the use of a high thermal conductive interface between the LED module and the LED cooler. Either thermal grease, a thermal pad or a phase change thermal pad thickness 0.1-0.15mm is recommended. Thermal pads or phase change thermal pads can be pre-applied from MechaTronix.
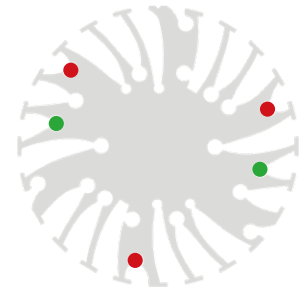
Xicato XIM LED modules

Model names	Mounting
• XIM09xxxx • XIM19xxxx	• Direct mounting with 3 screws M3 x 20mm Red indicator marks

Xicato XTM LED modules

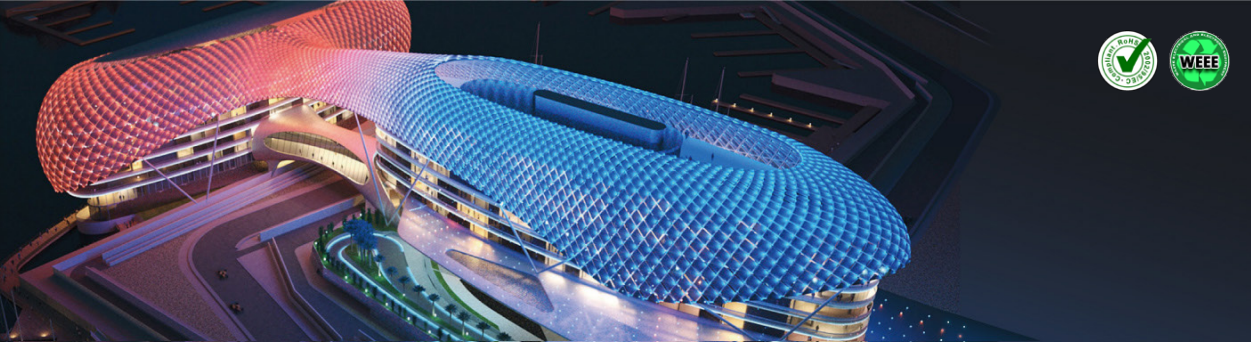| Model names	Mounting

• XTM09xxxx
• XTM19xxxx
	• Direct mounting with 3 screws M3 x 8mm
	  Red indicator marks
	• Direct mounting by Zhaga mounting holes with 2 screws M3 x 8mm
	  Green indicator marks

Xicato XCA LED Core Array

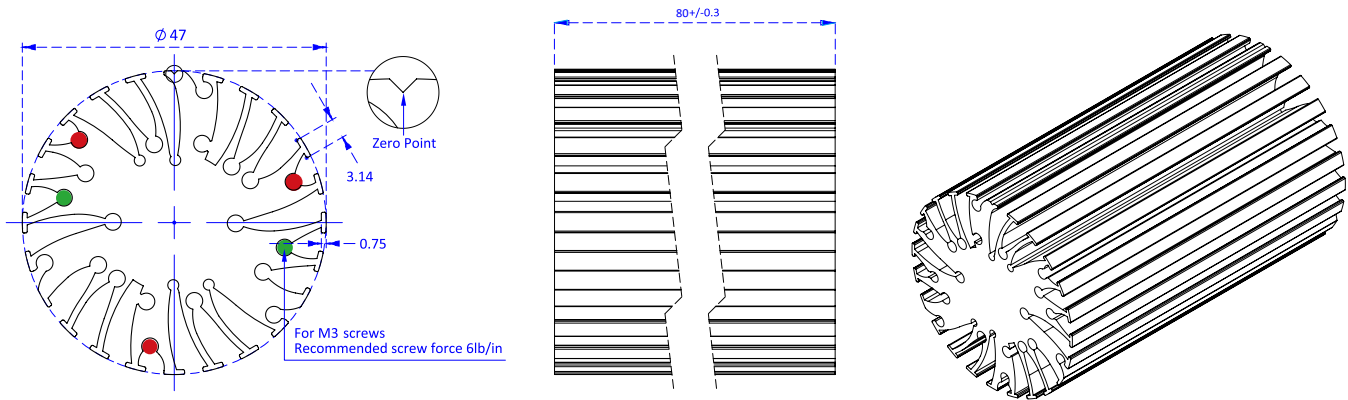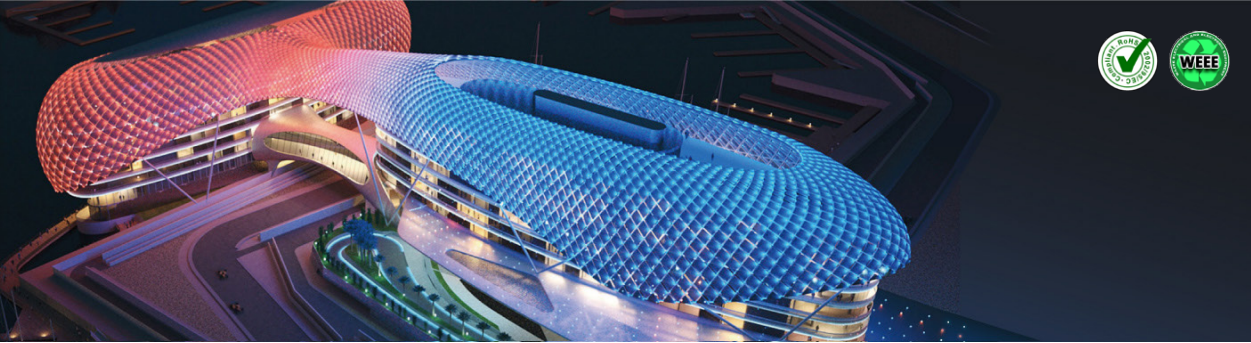| Model names	Mounting

• XCA09xxxx
• XCA19xxxx
	• With Xicato XSA-401 LED holder
	
	  Mounting with 3 screws M3 x 8mm
	  Red indicator marks
	
	  On Zhaga mounting holes with 2 screws M3 x 8mm
	  Green indicator marks

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MechaTronix

Drawings & Dimensions

Example: XSA-216
Unit: mm

Ø 47

Zero Point

3.14

0.75

For M3 screws
Recommended screw force 6lb/in

80+/-0.3

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Thermal Data

The thermal performance of a LED cooler, expressed as Thermal Resistance Rth in K/W (or °C/W) tells you how many degrees Kelvin (or Celsius) the base of the LED cooler will incline per Watt of dissipated power Pd.

This dissipated power Pd is the heat loss a LED package or LED COB/LOB will create besides the efficient light generation.

Typically for white LED packages the efficiency varies with the color CCT and the CRI – values here below can be taken as a rule of thumb for white LED packages (phosphor corrected blue light)

CCT 4000 - 7000 and CRI 70 - 80 –> 35% efficiency –> 65% heat loss
CCT 2700 - 3000 and CRI 85 - 97 –> 30% efficiency –> 70% heat loss

For other LED packages like horticulture specific wave lengths or UV, we recommend you to look up the thermal efficiency in the datasheet or contact the supplier.

Keep in mind that for horticulture LED packages, example 660nm Deep Red, the thermal losses are drastically lower and can be as low as 40%, meaning you could almost use double the electrical power Pe on the same LED cooler for the same temperature rise dT.
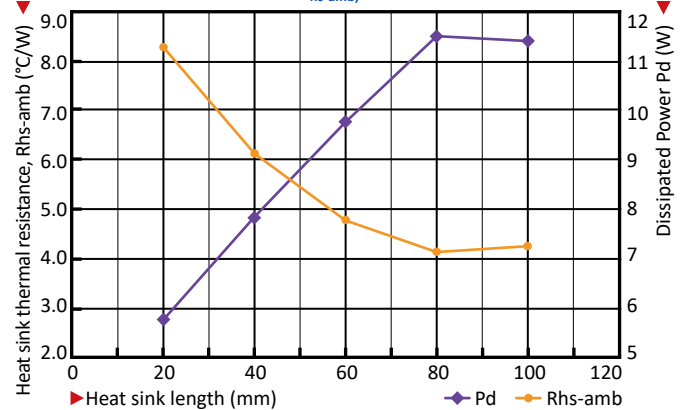
Next the Thermal Resistance Rth is not a fix value – the nominal value we declare corresponds with a 50°C temperature rise – The table below explains the thermal resistance Rth for various dissipated power values.
In this way you can completely predict the temperature you are going to get in your LED luminaire.

Difficulties figuring it out – just let us know and our engineers will do the math for you.

$Pd = Pe \times (1-\eta L)$		Heat sink to ambient thermal resistance R_{hs-amb} (°C/W)	Heat sink to ambient temperature rise T_{hs-amb} (°C)
		XSA-216	XSA-216
Dissipated Power Pd(W)	2	5.3	11
	4	4.9	19
	5	4.7	24
	6	4.6	28
	8	4.4	35
	10	4.3	43
	15	4.0	61

XSA-216 performance data at a heat sink to ambient temperature difference, ΔT_{hs-amb}, of 50 °C

Heat sink thermal resistance, Rhs-amb (°C/W) / Dissipated Power Pd (W) vs Heat sink length (mm) — Pd, Rhs-amb

Heat sink to ambient temperature rise T_{hs-amb} (°C) — XSA-216

Dissipated Power Pd(W)