

# MechaTronix in LED

## ModuLED Xtra GE Infusion Modular Passive LED Cooler



### Features & Benefits

- The ModuLED Xtra passive LED coolers are specifically designed for luminaires using the GE Infusion Spot Light Modules (GEN2 & GEN3) and the GE Infusion Down Light 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 700 to 4,000 lumen
- Thermal resistance  $R_{th}$  1.02 - 1.34°C/W
- Modular design with mounting holes foreseen for direct mounting of the GE Infusion collar - Infusion module mounting by twist and lock operation
  - GE Infusion M1000 series - DLM1000 series
  - GE Infusion M1500 series - DLM1500 series
  - GE Infusion M2000 series - DLM2000 series
  - GE Infusion M3000 series - DLM3000 series
  - GE Infusion M4500 series - DLM4000 series
- Diameter 99mm - Standard height 50mm & 80mm  
Other heights on request
- Extruded from highly conductive aluminum



### Order Information



GE  
Lighting

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

Simple mounting with self tapping screws

Recommended screw force 6lb/in

Screws are available from MechaTronix

Example : ModuLED Xtra 9950-B

ModuLED Xtra 99 **1** - **2**

- 1** Height (mm)
- 2** Anodising Color
  - B - Black
  - C - Clear

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### Product Details

Model n°	ModuLED Xtra 9950	ModuLED Xtra 9980
Dimension (mm)* <sup>1</sup>	ø99 x h50	ø99 x h80
Volume (mm <sup>3</sup> )	147282	236160
Cooling Surface (mm <sup>2</sup> )	106079	167047
Weight (gr)	398	638
Thermal Resistance (°C/W)* <sup>2</sup>	1.34	1.02
Power Pd (W)* <sup>3</sup>	37.3	48.9
Heat Sink Material	AL6063-T5	AL6063-T5

\*<sup>1</sup> 3D files are available in ParaSolid, STP and IGS on request

\*<sup>2</sup> 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

\*<sup>3</sup> 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

$\eta_L$  = 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

The ModuLED Xtra passive LED coolers are standard foreseen from a variety of mounting holes which allow direct mounting of LED engines, COB's and secondary optics on the LED heat sink.

In this way mechanical afterwork and related costs can be avoided, and lighting designers can standardize their designs on a limited number of LED coolers.

Below you find an overview of GE Infusion LED modules which standard fit on the ModuLED Xtra cooler.

For a full overview of available LED coolers for GE Lighting, please refer to the GE Infusion LED cooler overview on [www.led-heatsink.com/Download.php](http://www.led-heatsink.com/Download.php) or scan the QR code here.



#### GE Lighting

##### Infusion M-series GEN2 & GEN3 Spot Light Modules

With lumen package from 1000-4500, a choice of colour temperatures, and a wide range of optics, the Infusion™ M-series offers almost unlimited versatility, enabling high efficacy solutions for offices, healthcare, hospitality, museums, retail and more. This flexibility, together with the innovative, easy-to-upgrade twist-fit design of the GE Infusion™ LED module, makes this one of the most popular LED lighting solutions on the market.

##### Model names

- Infusion M1000 series
- Infusion M1500 series
- Infusion M2000 series
- Infusion M3000 series
- Infusion M4500 series

##### Mounting

- Direct mounting of the LED collar with 4 self tapping screws M4 x 6mm
- Mounting of the LED engine by twist and lock operation
- Green indicator marks



#### GE Lighting

##### Infusion DLM-series Down Light Modules

The Infusion™ DLM (Downlight Module) range is a versatile solution suitable for general lighting in retail and commercial office environments. Built with its own white light, excellent lumen performance and outstanding colour rendering. And, like all GE Infusion™ modules, twist/fit replacement means future-proof peace of mind.

##### Model names

- Infusion DLM1000 series
- Infusion DLM1500 series
- Infusion DLM2000 series
- Infusion DLM3000 series
- Infusion DLM4000 series

##### Infusion NPM-series Narrow Punch Modules

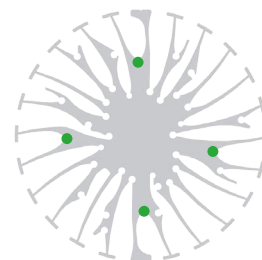
The Infusion™ NPM (Narrow Punch Module) works with GE's innovative optical system to deliver a high-intensity, narrow-spot beam suitable for galleries, museums and others specialist applications requiring dramatic, controlled light. Suitable for track mounting, recessed accent lighting and spotlighting, no other product matches the quality NPM system in such a tight beam angle.

##### Model names

- MP30/827/W/N
- MP30/930/W/N
- MP30/830/W/N
- MP30/850/W/N

##### Mounting

- Direct mounting of the LED collar with 4 self tapping screws M4 x 6mm
- Mounting of the LED engine by twist and lock operation
- Green indicator marks



To determine the mounting holes you need, please use the corresponding flip chart on [www.led-heatsink.com/download.php](http://www.led-heatsink.com/download.php), or request a hard copy flip chart with easy to use transparent overlays.

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.

All GE Infusion LED modules are already foreseen from a thermal interface pad on the back side of the LED module, so extra precautions will not be necessary.



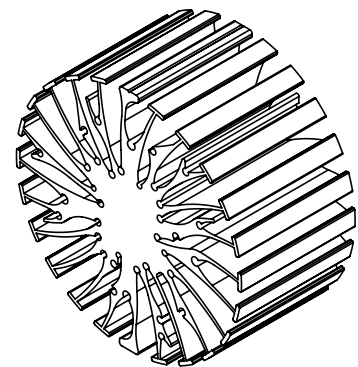
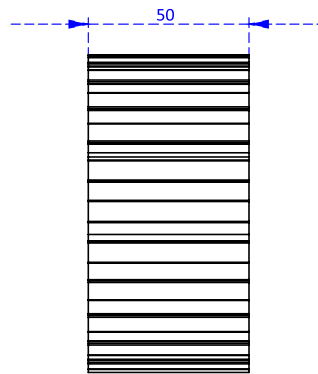
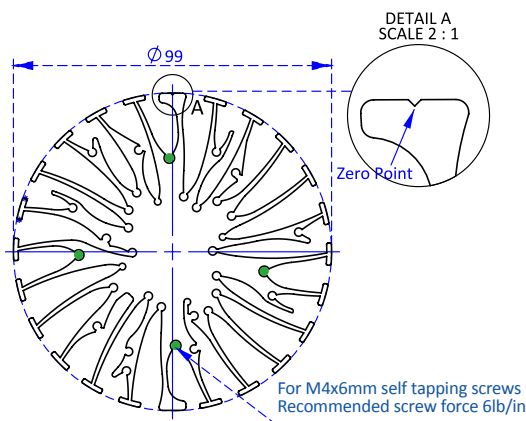
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## ModuLED Xtra GE Infusion Modular Passive LED Cooler



### Drawings & Dimensions

Example: ModuLED Xtra 9950

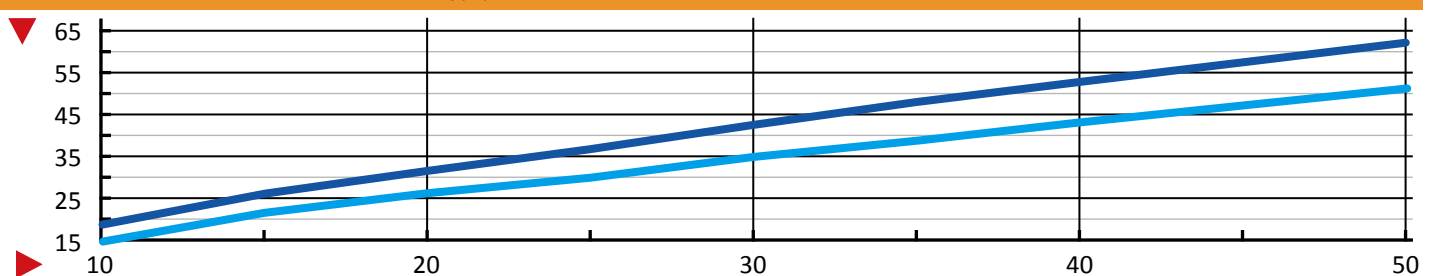


### Thermal Data

$P_d = P_e \times (1 - \eta_L)$			LED Light efficiency, $\eta_L$ (%)			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 $P_d(\text{W})$	10	Electrical Power $P_e(\text{W})$	17%	20%	25%	ModuLED Xtra 9950	ModuLED Xtra 9980	ModuLED Xtra 9950	ModuLED Xtra 9980
	15		12.0	12.5	13.3	1.9	1.5	19	15
	20		18.1	18.8	20.0	1.7	1.4	26	21
	25		24.1	25.0	26.7	1.6	1.3	32	26
	30		30.1	31.3	33.3	1.5	1.2	37	30
	35		36.1	37.5	40.0	1.4	1.2	43	35
	40		42.2	43.8	46.7	1.4	1.1	48	39
	45		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  $T_{hs-amb}$  ( $^{\circ}\text{C}$ )

ModuLED Xtra 9950 ModuLED Xtra 9980



Dissipated Power  $P_d(\text{W})$



## ModuLED Xtra GE Infusion Modular Passive LED Cooler



## Thermal Data

[illegible]

### Notes:

Above data is a compilation of real thermal measurements with the GE Infusion LED module mounted on the LED cooler.

As interface material between the LED module and the LED cooler we used thermal grease from Laird Technologies Tgrease 880.

The setup is placed in a vertical direction with the LED module facing down and in a free air convection environment (no forced air cooling)

For those combinations of LED module and LED cooler where the recommended case temperature is exceeded, this is indicated by the "-" symbol.

For those combinations of LED module and LED cooler where the field is left empty, this means the cooling power of the LED cooler is largely exceeding the needed cooling performance for that LED.

A suitable LED cooler for this combination can be found in the GE Infusion LED cooler overview on [www.led-heatsink.com/Download.php](http://www.led-heatsink.com/Download.php)

In case assistance is needed or for a thermal validation of your complete LED lighting design, please contact MechaTronix on [led@mechatronix-asia.com](mailto:led@mechatronix-asia.com)