



for

LED



GooLED

### GooLED-PHI-8650 Pin Fin Heat Sink $\Phi$ 86.5mm for Philips

#### Features VS Benefits

- \* The GooLED-PHI-8650 Philips Pin Fin LED Heat Sinks are specifically designed for luminaires using the Philips LED engines.
- \* Mechanical compatibility with direct mounting of the LED engines to the LED cooler and thermal performance matching the lumen packages.
- \* For spotlight and downlight designs from 1,600 to 4,400 lumen.
- \* Thermal resistance range  $R_{th}$  1.85°C/W.
- \* Modular design with mounting holes foreseen for direct mounting of Philips LED engines.
- \* Diameter 86.5mm - standard height 50.0mm, Other heights on request.
- \* Forged from highly conductive aluminum.



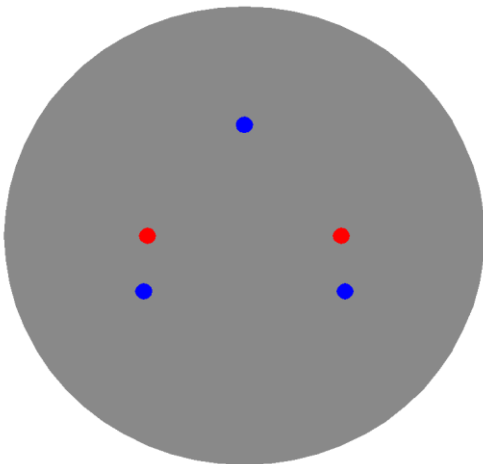
#### Zhaga LED engine and radiator assembly is a unified future international standardization

- \* Below you find an overview of Philips COB's and LED modules which standard fit on the Pin Fin LED Heat Sinks.
- \* In this way mechanical after work and related costs can be avoided, and lighting designers can standardize their designs on a limited number of LED Pin Fin LED Heat Sink.

# PHILIPS



# LEDiL



#### Philips LED Modules directly Mounting Options

Philips Fortimo SLM LED modules name:

- Fortimo SLM C xxx 1205 L13 2024 G6;
- Fortimo SLM C xxx 1208 L15 2024 G6;
- Fortimo SLM C xxx 1211 L19 2828 G6;
- Fortimo SLM C xxx xx 1205 L13 2024 G6;
- Fortimo SLM C xxx xx 1208 L13 2024 G6;
- Fortimo SLM C xxx xx 1208 L15 2024 G6;
- Fortimo SLM C xxx xx 1211 L19 2828 G6;

NO`1:With the Zhaga Book 3 standard, Red indicator marks.

NO`2: Blue indicator marks.

Direct mounting with machine screws M3x6.5mm.

With the LEDiL products:

Ronda series: FN15xxx;

Olivia series: FN14828-M; FN14637-S;

#### Mounting Options and Drawings & Dimensions

Example:GooLED-PHI-8650-B-1,2

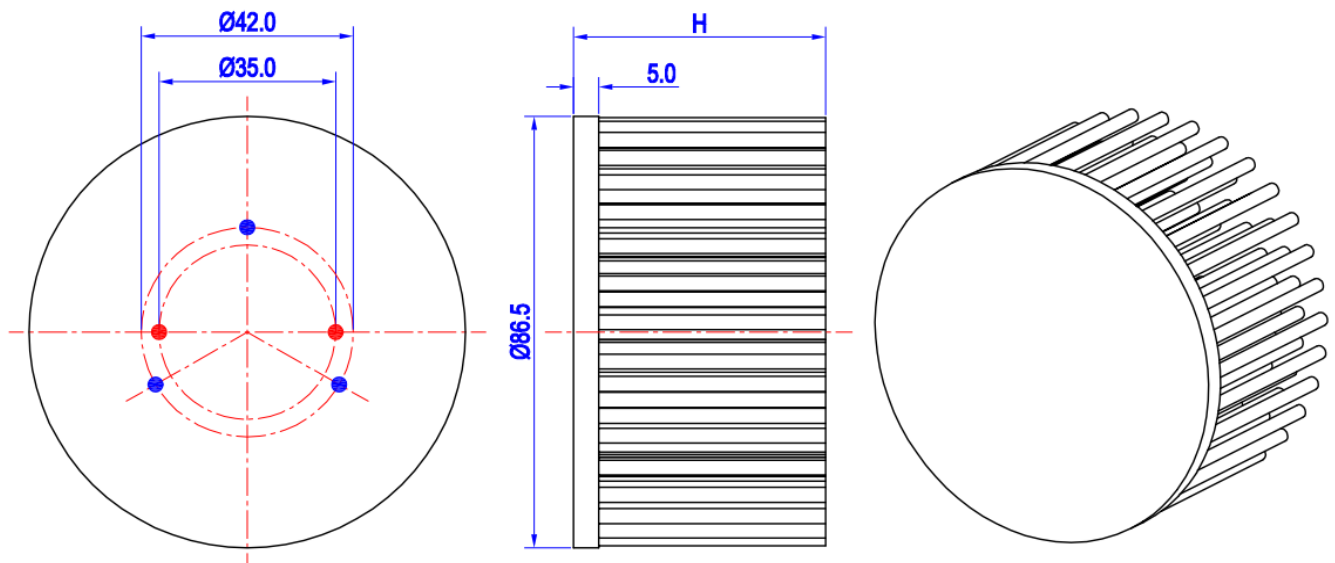
Example:GooLED-PHI-86 **1** - **2** - **3**

- 1** Height (mm)
- 2** Anodising Color  
B-Black  
C-Clear  
Z-Custom
- 3** Mounting Options - see graphics for details Combinations available  
Ex.order code - 12  
means option 1 and 2 combined

#### Notes:

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

MOUNTING OPTION	Module type	Holder NO.	LEDiL products		THREAD	THREAD DEPTH	THREAD HOLE DISTANCE
			Olivia series	Ronda series			
N	/	None	None	None	None	None	None
1	Fortimo SLM	/	FN14828-M; FN14637-S;	FN15xxx;	M3	6.5mm	35.0mm/ 2-@180° (Zhaga book 3)
2					M3	6.5mm	42.0mm/ 3-@120°





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GooLED-PHI-8650 Pin Fin Heat Sink  $\Phi$ 86.5mm for Philips

The product data table

	Model No.	GooLED-PHI-8650
	Heatsink Size	$\Phi$ 86.5xH50mm
	Heatsink Material	AL1070
	Finish	Black Anodized
	Weight (g)	210.0
	Dissipated power (T <sub>hs-amb</sub> ,50°C)	27.0 (W)
	Cooling surface area (mm <sup>2</sup> )	77577
	Thermal Resistance (R <sub>hs-amb</sub> )	1.85 (°C/W)

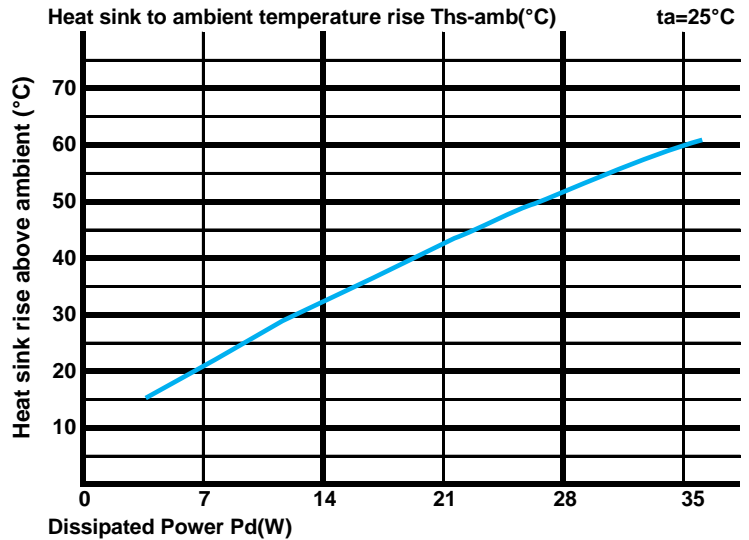
The thermal data table

\* 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 x (1-ηL).

Pd - Dissipated power ; Pe - Electrical power ; ηL = Light efficiency of the LED module;

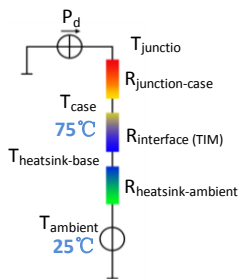
Dissipated Power Pd(W)	Heat sink to ambient thermal resistance R <sub>hs-amb</sub> (°C/W)	
	GooLED-PHI-8650	
7.0	2.86	20.0
14.0	2.21	31.0
21.0	2.00	42.0
28.0	1.82	51.0
35.0	1.69	59.0



\*The aluminum substrate side of the package outer shell is thermally connected to the heat sink via TIM (Thermal interface material).

MingFa 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 resistance is a heat property and a measurement of a temperature difference by which an object or material resists a heat flow.

Geometric shapes are different, the thermal resistance is different. Formula:  $\theta = (T_{hs} - T_a) / P_d$

$\theta$  - Thermal Resistance [°C/W]; T<sub>hs</sub> - Heatsink temperature; T<sub>a</sub> - Ambient temperature;

\*The thermal resistance between the junction section of the light-emitting diode and the aluminum substrate side of the package outer shell is R<sub>junction-case</sub>, the thermal resistance of the TIM outside the package is R<sub>interface (TIM)</sub> [°C/W], the thermal resistance with the heat sink is R<sub>heatsink-ambient</sub> [°C/W], and the ambient temperature is T<sub>ambient</sub> [°C].

\*Thermal resistances outside the package R<sub>interface (TIM)</sub> and R<sub>heatsink-ambient</sub> can be integrated into the thermal resistance R<sub>case-ambient</sub> at this point. Thus, the following formula is also used:

$$T_{junction} = (R_{junction-case} + R_{case-ambient}) \cdot P_d + T_{ambient}$$