



for

LED

xLED

### xLED-PHI-4550 Pin Fin Heat Sink $\Phi$ 45mm for Philips

#### Features VS Benefits

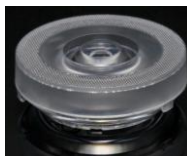
- \* The xLED-PHI-4550 Philips Pin Fin LED Heat Sinks are specifically designed for luminaires using the Philips LED engines.
- \* Mechanical compatibility with direct mounting of the LED engines to the LED cooler and thermal performance matching the lumen packages.
- \* For spotlight and downlight designs from 400 to 1,500 lumen.
- \* Thermal resistance range Rth 5.55°C/W.
- \* Modular design with mounting holes foreseen for direct mounting of Philips LED engines.
- \* Diameter 45.0mm - standard height 50.0mm, Other heights on request.
- \* Forged from highly conductive aluminum.



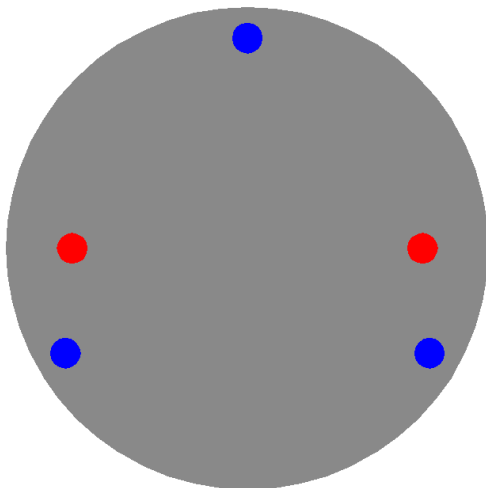
#### Zhaga LED engine and radiator assembly is a unified future international standardization

- \* 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 1203 L09 1619 G6
- Fortimo SLM C xxx 1205 L13 2024 G6;
- Fortimo SLM C xxx 1208 L15 2024 G6;
- Fortimo SLM C xxx xx 1203 L09 1619 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;

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;

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Http://www.mingfatech.com





**xLED**

**xLED-PHI-4550 Pin Fin Heat Sink  $\Phi$ 45mm for Philips**

### Mounting Options and Drawings & Dimensions

Example: xLED-PHI-4550-B-1,2

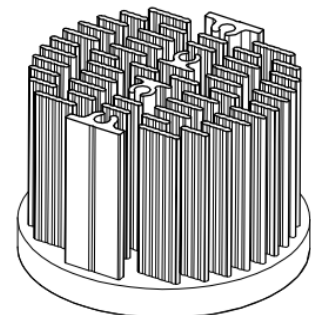
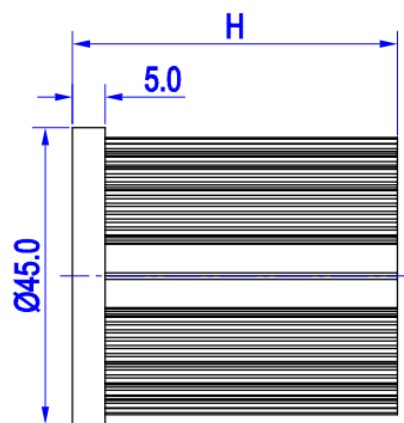
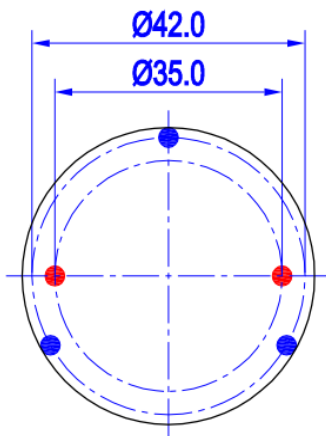
Example: xLED-PHI-45 **1** - **2** - **3**

- 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°



## xLED

### xLED-PHI-4550 Pin Fin Heat Sink $\Phi 45\text{mm}$ for Philips

#### The product data table

	Model No.	xLED-PHI-4550
	Heatsink Size	$\Phi 45 \times H 50\text{mm}$
	Heatsink Material	AL1070
	Finish	Black Anodized
	Weight (g)	63.5
	Dissipated power (T <sub>hs-amb</sub> , 50°C)	9.0 (W)
	Cooling surface area (mm <sup>2</sup> )	37985
	Thermal Resistance (R <sub>hs-amb</sub> )	5.55 (°C/W)

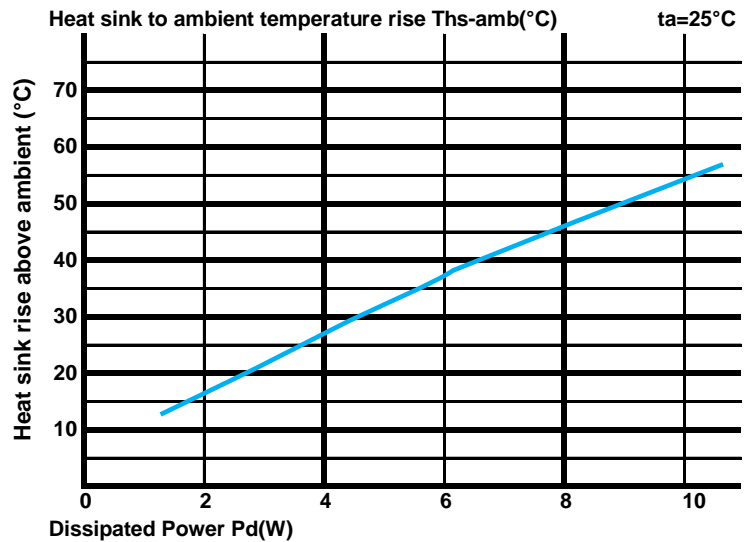
#### The thermal data table

\* 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:  $P_d = P_e \times (1 - \eta_L)$ .

Pd - Dissipated power ; Pe - Electrical power ;  $\eta_L$  = Light efficiency of the LED module;

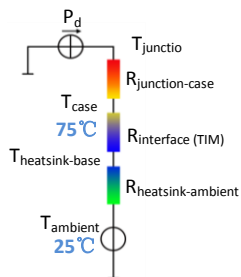
Dissipated Power Pd(W)	Pd = Pe x (1- $\eta_L$ )	Heat sink to ambient thermal resistance R <sub>hs-amb</sub> (°C/W)	Heat sink to ambient temperature rise T <sub>hs-amb</sub> (°C)
		xLED-PHI-4550	
2.0		8.00	16.0
4.0		6.50	26.0
6.0		6.17	37.0
8.0		5.75	46.0
10.0		5.40	54.0



\*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:

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