

Polar

Polar-3011 Lighting Kits assembly & introduction

Features & Benefits

- * Mechanical compatibility with direct mounting of the COB products to the LED thermal body and thermal performance matching the lumen packages.
- * For Down light designs from 1500 to 2500 lumen.
- * Thermal resistance range $R_{th} 2.05^{\circ}\text{C/W}$.
- * Full accessory kit with LED cooler Body, PSU mounting shrapnel & lens holder.
- * Other accessories like COB holder & lens separate available.
- * Modular design with mounting holes foreseen for direct mounting of a wide range of LED modules and COB's.
- * Forged from highly conductive aluminum (ADC12).
- * Diameter 108mm - Standard height 85mm, Other heights on request.
- * 3 standard colors - white powder, black powder and gray powder.



Heatsink

Holder

PC Reflector



- 01) Bridelux: Vero 10/13 Vero SE 10/13 LED engines;
- 02) Cree: XLamp CXA 13xx, XLamp CXB 15xx, CXA 18xx Series engines;
- 03) Citizen: CLU026, CLU027, CLU028, CLU036, CLU038, CLU721, CLU711, CLU701 LED engines;
- 04) Edison: EdiLex III COB LED engines;
- 05) GE lighting: Infusion™ LED engines;
- 06) LG Innotek: 7W, 10W, 16W, 21W, 32W LED engines;
- 07) LumiLEDs: LUXEON 1202/1203/1204/1205/1208 LED engines;
- 08) Lumens: Ergon-COB 15xx, 18xx LED engines;
- 09) Luminus: CXM-6, CHM/CLM/CXM-9/14/18 LED engines;
- 10) Nichia: NVxxx024Z, NVxxx036Z, NFCWxxxB Series LED engines;
- 11) Osram: SOLERIQ® S 9/S13, Z6 Mini LED engines;
- 12) Philips: Fortimo SLM LED engines;
- 13) Prolight Opto: PACJ-7xxx/14xxx/21xxx/28xxx-xxxx, PACK-35xxx/42xxx/57xxx-xxxx engines;
- 14) Samsung: LCxxxC Series, LCxxxD Series LED engines;
- 15) Seoul Semiconductor: SAWxxxxxx Series, DC COB LED engines;
- 16) Tridonic: SLE G5, SLE G6 10/15/17mm LED engines;
- 17) Vossloh-Schwabe: LUGA Shop and LUGA C LED engines;

Order Information

Example: Polar-3011-12-BK

Polar - **1** - **2** - **3**

1

Product model
- 3011

2

Beam Angel
- 12 12°
- 24 24°
- 36 36°

3

Finish
- BK Black
- WH White
- GY Gray

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.

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Http://www.mingfatech.com



The product data table

	 <i>Polar</i>
Model No.	Polar-3011
Heatsink Size	Φ108xH85mm
Heatsink Material	ADC12
Heatsink Finish	White/Black/Gray
Weight	429g
Dissipated power (Ths-amb,50°C)	20 (W)
Beam Angle	12° / 24° / 36°
Thermal Resistance (Rhs-amb)	2.05 (°C/W)

* 3D files are available in ParaSolid, STP and IGS on request

* The thermal resistance R_{th} is determined with a calibrated heat source of 16mm×16mm central placed on the heat sink, T_{amb} 40° and an open environment. Reference data @ heat sink to ambient temperature rise T_{hs-amb} 50°C

The thermal resistance of a LED cooler is not a fix value and will vary with the applied dissipated power P_d

* Dissipated power P_d . Reference data @ heat sink to ambient temperature rise T_{hs-amb} 50°C

The maximal dissipated power needs to be verified in function of required case temperature T_c or junction temperature T_j and related to the estimated ambient temperature where the light fixture will be placed
Please be aware the dissipated power P_d is not the same as the electrical power P_e of a LED module

To calculate the dissipated power please use the following formula: $P_d = P_e \times (1 - \eta_L)$

P_d - Dissipated power

P_e - Electrical power

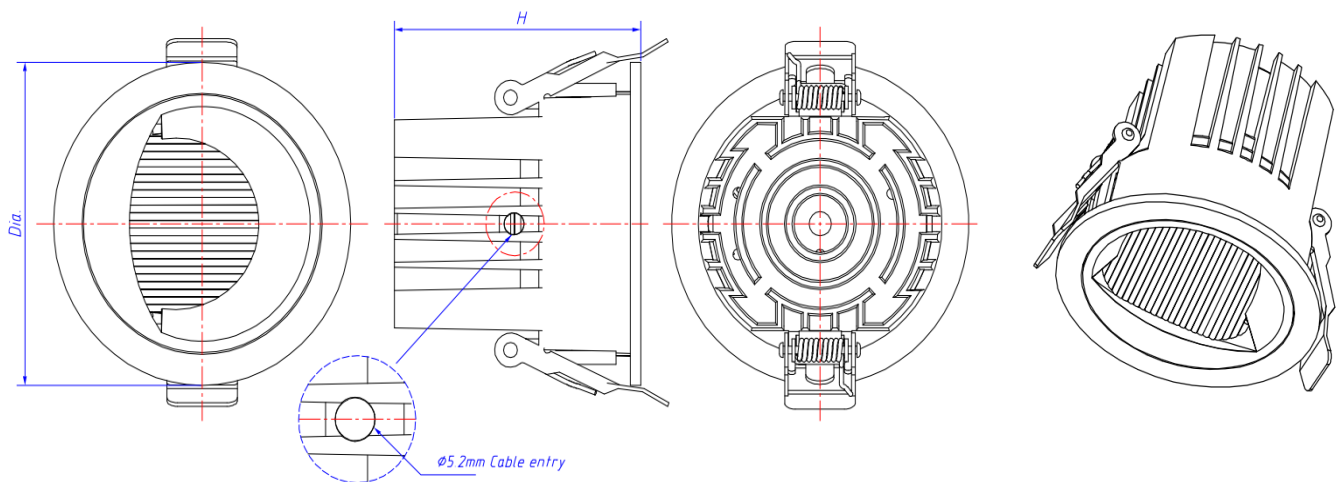
η_L = Light efficiency of the LED module

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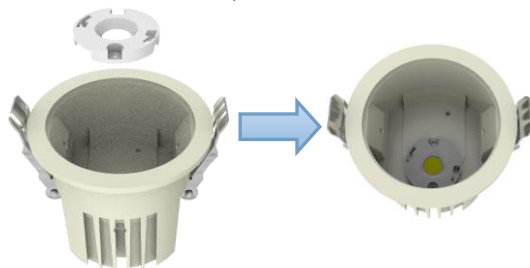
Drawings & Type Selection

Type	Dia.(mm)	Height(mm)	Power(w)	LES(mm)	Beam Angle	Cut-out(mm)
Polar-3011-12	108	85	20	17	12°	95
Polar-3011-24					24°	
Polar-3011-36					36°	

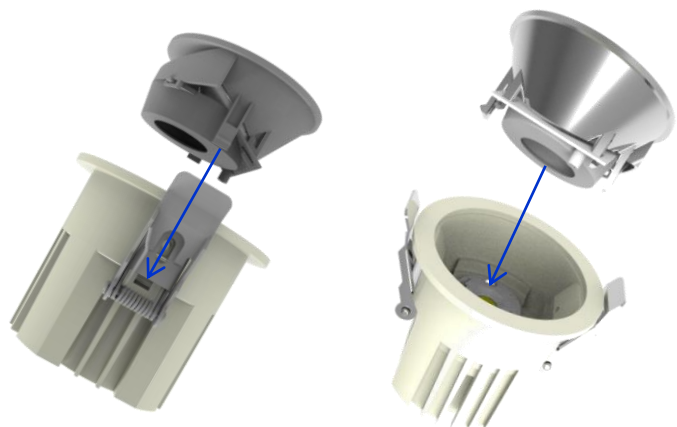


Components introduction

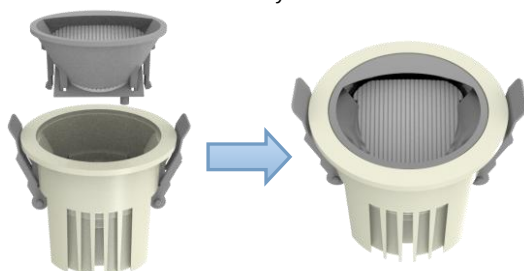
1. Remove the reflector, Install the COB



2-1. Insert the reflector kits into the two square holes in the heatsink



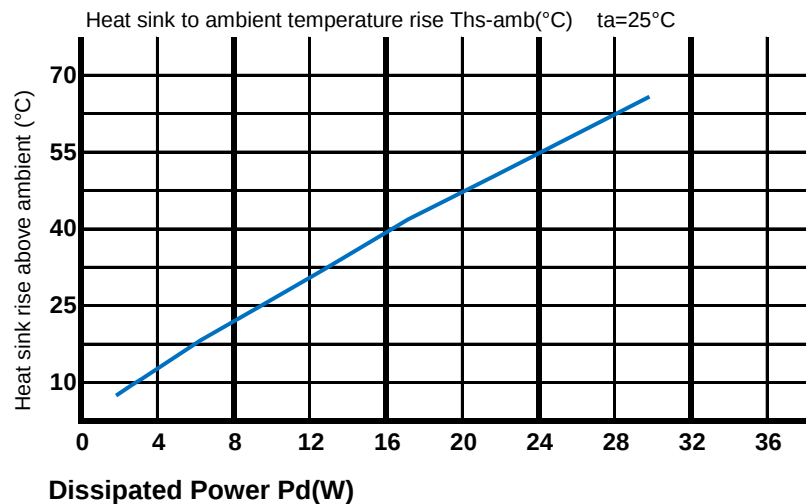
2. The reflector kits assembly



2-2. The reflector kits compatible with COB's LES

The thermal data table

Dissipated Power Pd(W)	Pd=Pe x (1-ηL)	Heat sink to ambient thermal resistance Rhs-amb(°C/W)	Heat sink to ambient temperature rise Ths-amb(°C)
		Polar-3011	
2		3.40	7.2
5		2.80	15
10		2.50	27
15		2.27	37
20		2.05	45
25		2.00	55
30		1.97	65



* Please be aware the dissipated power Pd is not the same as the electrical power Pe of a LED module.

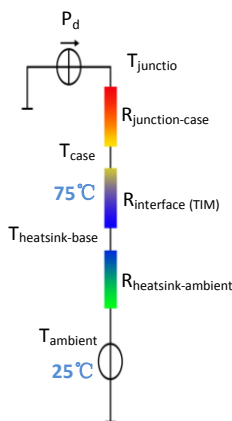
*To calculate the dissipated power please use the following formula: $P_d = P_e \times (1 - \eta_L)$.

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

*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: $\theta = (T_{hs} - T_a) / P_d$

θ - Thermal Resistance [°C/W] ; T_{hs} - Heatsink temperature ; T_a - 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 $R_{junction-case}$, the thermal resistance of the TIM outside the package is $R_{interface (TIM)}$ [°C/W], the thermal resistance

with the heat sink is $R_{heatsink-ambient}$ [°C/W], and the ambient temperature is $T_{ambient}$ [°C].

*Thermal resistances outside the package $R_{interface (TIM)}$ and $R_{heatsink-ambient}$ can be integrated

into the thermal resistance $R_{case-ambient}$ at this point. Thus, the following formula is also used:

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