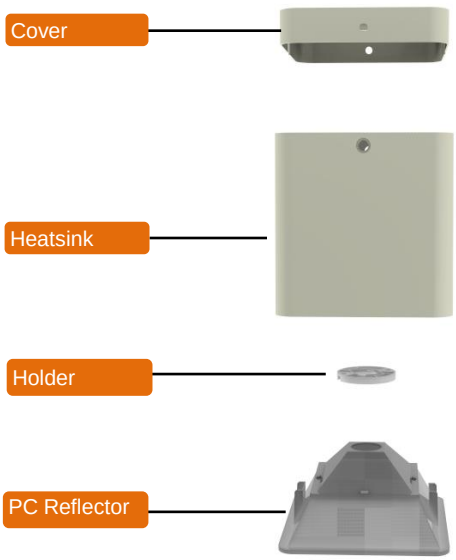
Mingfa TECH for LED

# Cube-110 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 1600 to 2400 lumen.
* Thermal resistance range Rth 2.25°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）.
* Dimension 110×110mm - Standard height 110mm , Other heights on request.
* 3 standard colors - white powder,black powder and gray powder.




01) Bridelux: Vero 10 Vero SE 10 LED engines;
02) Cree: XLamp CXA 13xx, Xlamp CXB 15xx Series engines;
03) Citizen: CLU026,CLU027,CLU028,CLU721,CLU711,CLU701 LED engines;
04) Edison: EdiLex III COB LED engines;
05) GE lighting: Infusion™ LED engines;
06) LG Innotek: 7W, 10W LED engines;
07) LumiLEDS: LUXEON 1202/1203 LED engines;
08) Lumens: Ergon-COB 1304, 15xx LED engines;
09) Luminus: CXM-6, CHM/CLM/CXM-9 LED engines;
10) Nichia: NVxxx024Z,NVxxx036Z, NFCWxxxB Series LED engines;
11) Osram: SOLERIQ® S9 LED engines;
12) Philips: Fortimo SLM LED engines;
13) Prolight Opto: PACJ-7xxx/14xxx/21xxx/28xxx-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 LES10mm LED engines;
17) Vossloh-Schwabe: LUGA Shop and LUGA C LED engines;

## Order Information

**Example: Cube-110-WH**

**Cube - 1 - 2**

**1 Product model**
- **110**

**2 Finish**
- **WH White**
- **BK Black**
- **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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## The product deta table

| | |
|---|---|
| |  Cube |
| **Model No.** | **Cube-110** |
| **Heatsink Size** | **110x110×110mm** |
| **Heatsink Material** | **ADC12** |
| **Heatsink Finish** | **White/Black/Gray** |
| **Weight** | **553g** |
| **Dissipated power** (Ths-amb,50℃) | **20** (W) |
| **Beam Angle** | **50°** |
| **Thermal Resistance** (Rhs-amb) | **2.25**(°C/W) |

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

* The thermal resistance Rth is determined with a calibrated heat source of 16mm×16mm 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

* 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 x (1-ηL)
Pd - Dissipated power
Pe - Electrical power
ηL = Light effciency of the LED module

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Cube

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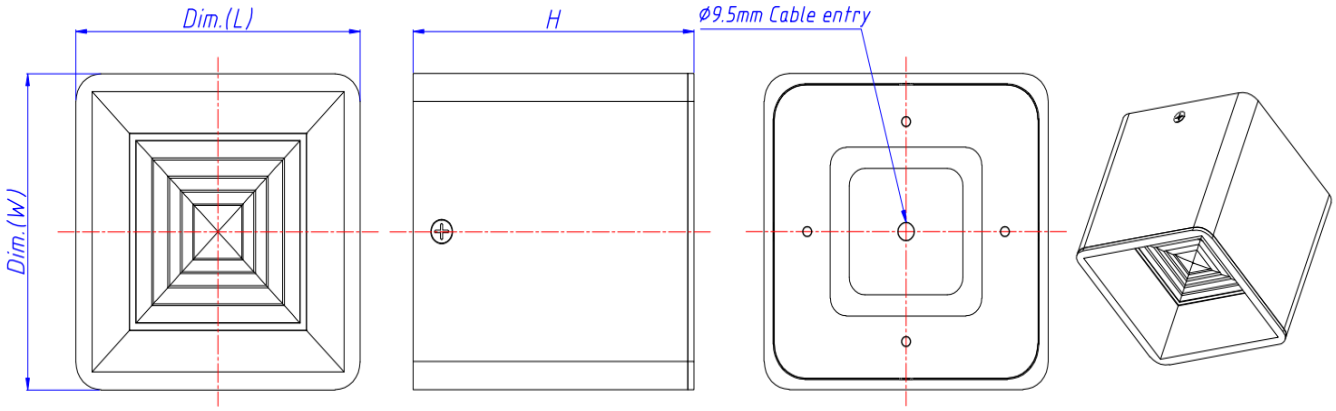
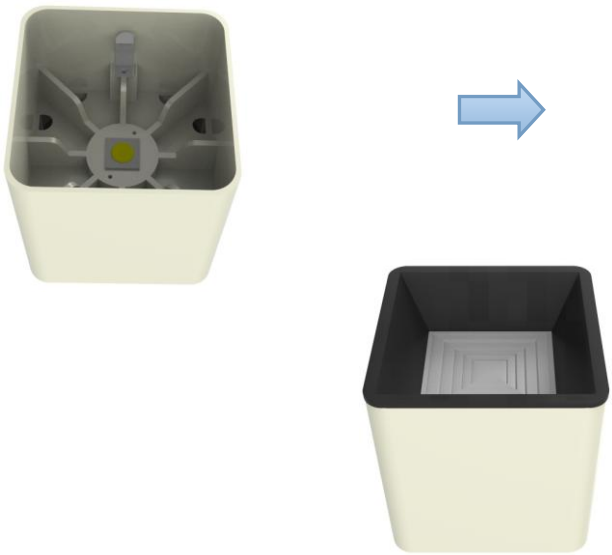
## Drawings &Type Selection

| Type | Dim.(mm) | Height(mm) | Power(w) | LES(mm) | Beam Angle | Cut-out(mm) |
|---|---|---|---|---|---|---|
| Cube-110 | 110×110 | 110 | 20 | 11 | 50° | N/A |




## Components introduction

1.Remove the reflector, Install the COB



2. Fix the COB by the holder and screw

3.Vertically align the shrapnel and press down on the reflector assembly

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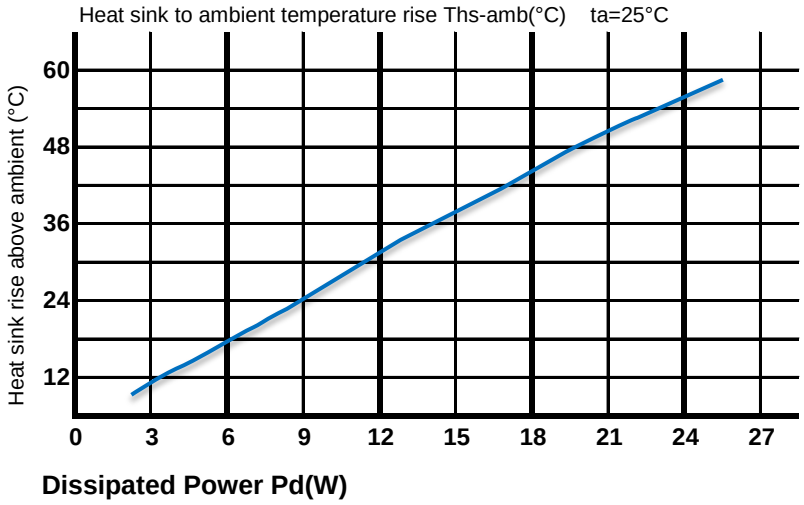
## The thermal data table

| Pd=Pe x (1-ηL) | | Heat sink to ambient thermal resistance Rhs-amb(°C/W) | Heat sink to ambient temperature rise Ths-amb(°C) |
|---|---|---|---|
| | | Cube-110 | |
| Dissipated Power Pd(W) | 2 | 3.15 | 6.7 |
| | 5 | 2.80 | 15 |
| | 10 | 2.45 | 26.5 |
| | 15 | 2.40 | 39 |
| | 18 | 2.30 | 45 |
| | 20 | 2.25 | 49 |
| | 25 | 2.12 | 58 |




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

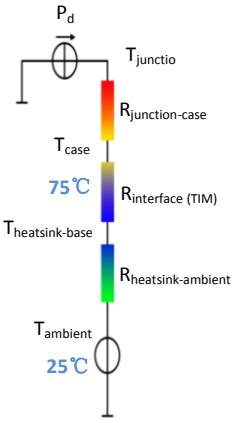
*To calculate the dissipated power please use the following formula: Pd = Pe x (1-ηL).

Pd - Dissipated power ; Pe - Electrical power ; ηL = Light effciency 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: θ ＝(Ths－Ta)/Pd

θ - Thermal Resistance [°C/W] ; Ths - Heatsink temperature ; Ta - 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:

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

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