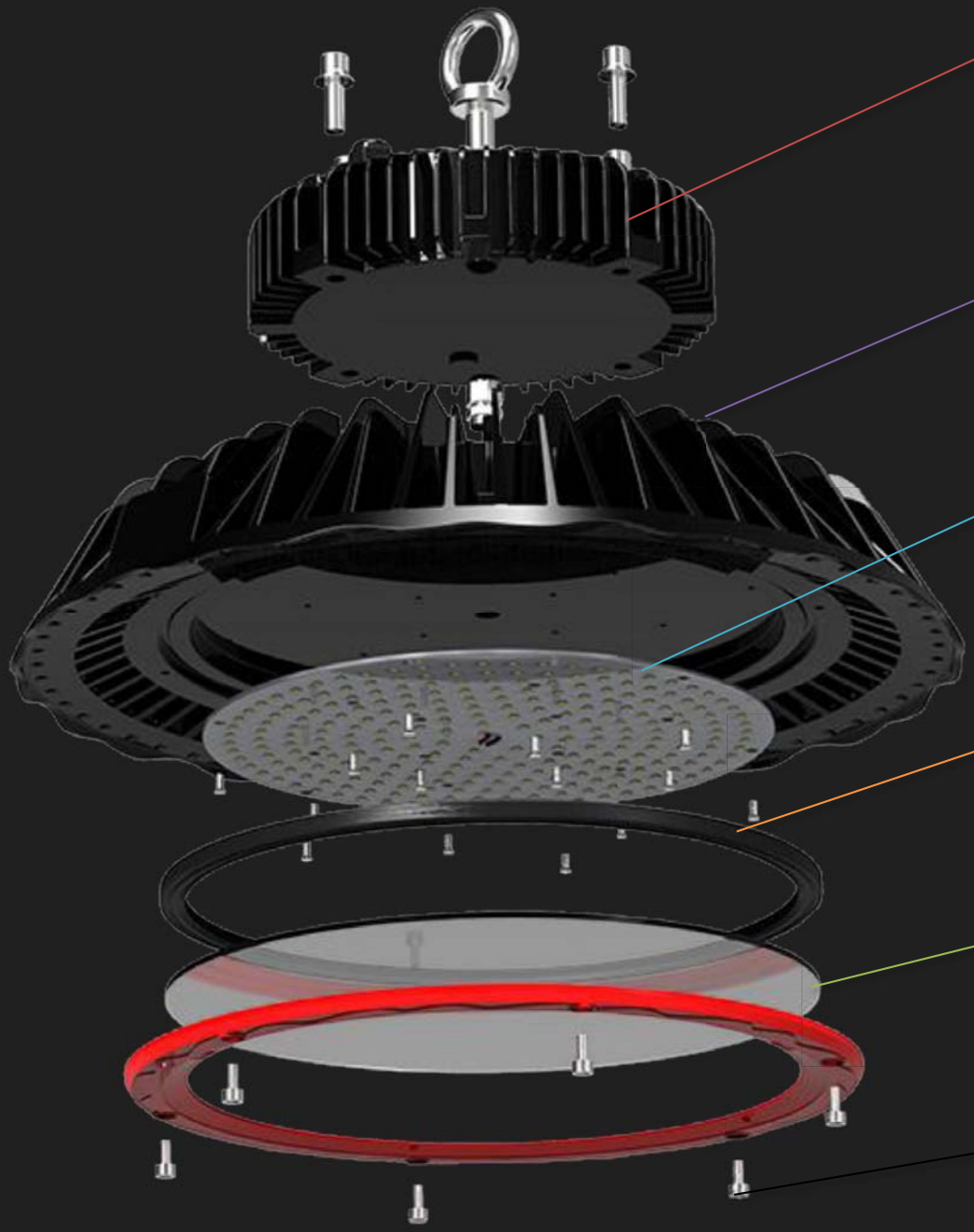
LED & LED
LED High Bay Light

Designed used to replace conventional LED High Bay Light and Metal Halide, HPS & Mercury Vapor.

The LED High Bay Structure



Meanwell
60000 hrs High Bay Driver

$7.6x10^5mm^2$
face special design heat sink

Nichia LED
from Japan LM80 TM21 listed

Double Face
Double Proof

92% Transmittance
tempered strong no scratch

Stainless
all screws for bad situation

It maybe the brightest LED High Bay!

120W LED High Bay 14023lm, 113.18 lm/w:

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.5V I:0.5590A P:123.9W PF:0.9610 Lamp Flux:14023.2x1 lm		
NAME: HC-A12	TYPE:120W	WEIGHT:
DIM.:	SPEC.:5000K	SERIAL No.:1
MFR.: OK LED	SUR.:0.23*0.23	PROTECTION ANGLE:

DATA OF LAMP	PHOTOMETRIC DATA Eff: 113.18 lm/W

Conventional 200W LED High Bay 14598lm, 74.24 lm/W:

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.2V I:0.9035A P:196.6W PF:0.9886 Lamp Flux:14598x1 lm		
NAME: HIGH BAY	TYPE:LED HIGH BAY LIGHT	WEIGHT:10.5kg±0.4kg
DIM.: D400*H640	SPEC.:40W*4	SERIAL No.:HB200_B_90
MFR.: OTHER COMPANY	SUR.:0.025	PROTECTION ANGLE:44

DATA OF LAMP	PHOTOMETRIC DATA Eff: 74.24 lm/W

If your supplier cannot send you IES file or IES report, please don't trust any information on the datasheet.

Maybe the best way is to get a sample yourself, and send to the lab. Or please don't surprise your current 200W High Bay consume more energy, but has the nearest lumens with 120W LED High Bay.

If you don’t mind waterproof, High Bay even could do better!

Rating 150W High Bay IES test data:

Test:U:231.3V I:0.6760A P:151.7W PF:0.9690 Lamp Flux:18109.1x1 lm	
DATA OF LAMP	PHOTOMETRIC DATA Eff: 119.37 lm/W

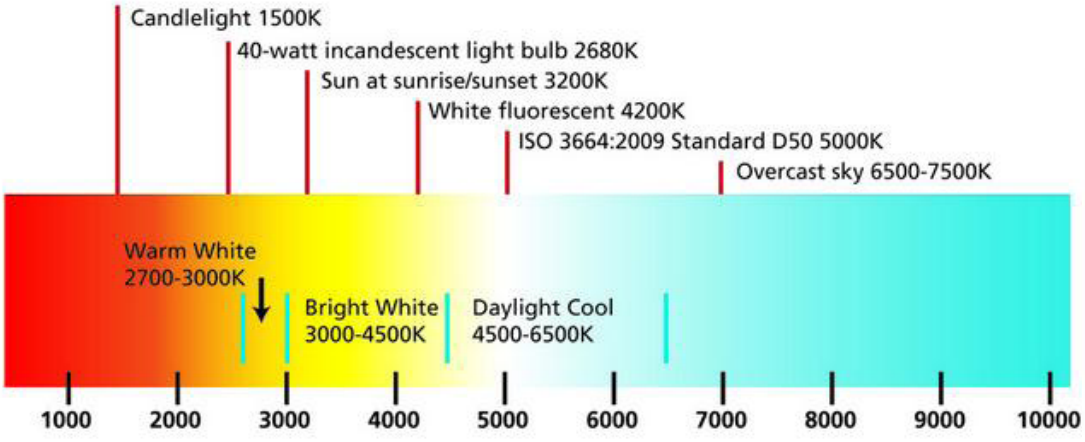
If you’re a lighting expert, you should know that low CRI could help the lumen efficiency. The above data is based on CRI 73. CRI above 70 could be accepted by 99% industrial projects.

Average Color Index	73. 7

While lots of conventional LED high bays may only has CRI 55 to 65.

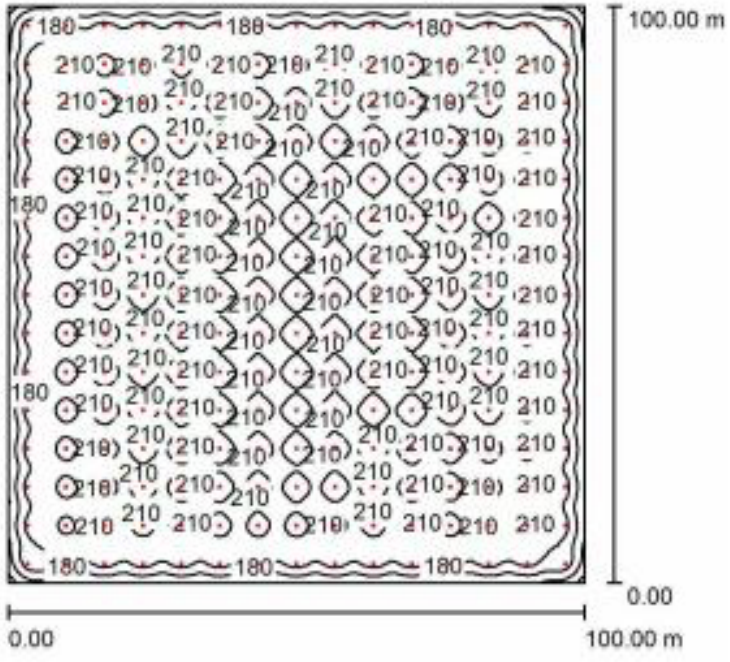
Again, please don’t trust the datasheet unless you get a REAL test report.

Anyway, if you need higher CRI for commercial lighting projects, it’s not a problem.



LED High Bay standard color temperature is around 5000K, which like the sunshine in the morning. It’s welcome for most of lighting projects. Other color temperature could be optional.

Dialux Simulation Comparison: Other company 150W HB



Height of Room: 10.000 m, Mounting Height: 10.000 m, Maintenance factor: 0.80

Values in Lux, Scale 1:1284

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0
Workplane	/	199	78	226	0.394
Floor	20	198	87	220	0.438
Ceiling	70	38	26	41	0.681
Walls (4)	50	60	28	96	/

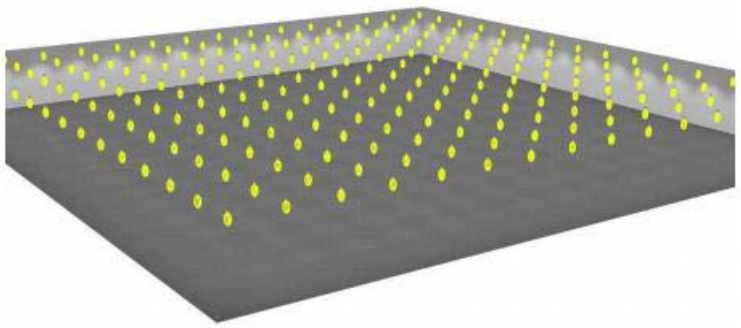
uniformity

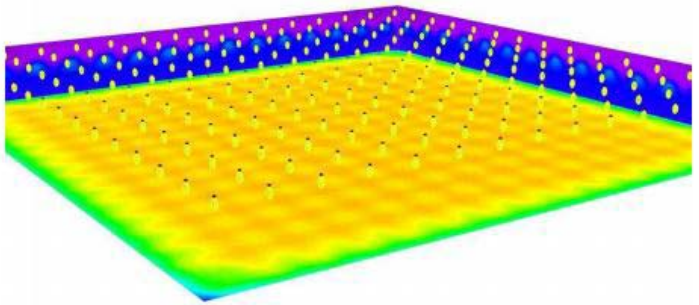
Workplane:

Height:	0.850 m
Grid:	128 x 128 Points
Boundary Zone:	0.000 m

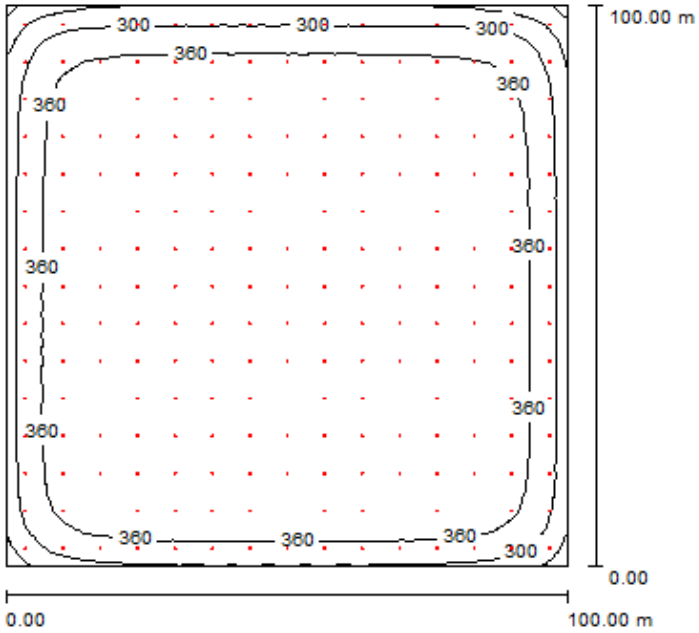
Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	225	150W LED HIGH BAY LIGHT other companies (1.000)	10117	10096	158.0
			Total: 2276425	Total: 2271600	35550.0





Dialux Simulation Comparison: 150W HB



Height of Room: 10.000 m, Mounting Height: 10.000 m, Light loss factor: 0.90

Values in Lux, Scale 1:1284

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0
Workplane	/	379	160	427	0.422
Floor	20	375	169	421	0.450
Ceiling	70	78	60	104	0.776
Walls (4)	50	182	61	292	/

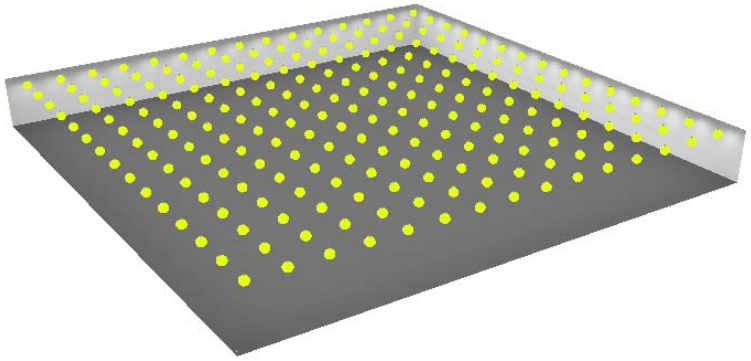
Workplane:

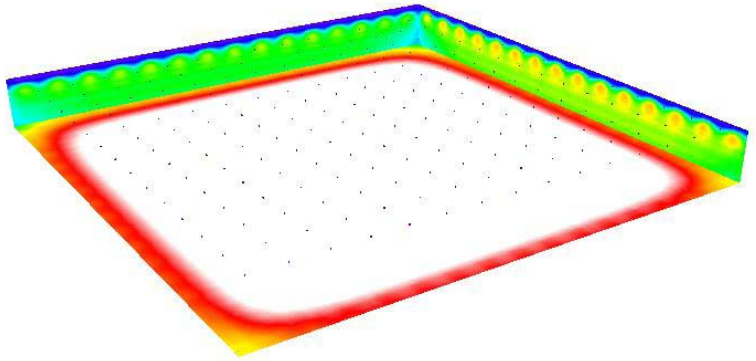
Height:	0.850 m
Grid:	128 x 128 Points
Boundary Zone:	0.000 m

uniformity

Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	225	HC-A15 150W 5000K (1.000)	17865	17850	151.5
			Total: 4019680	Total: 4016295	34087.5

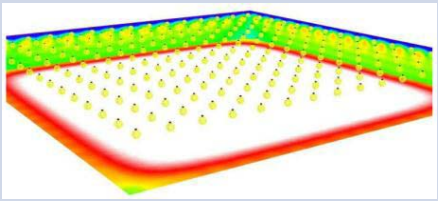
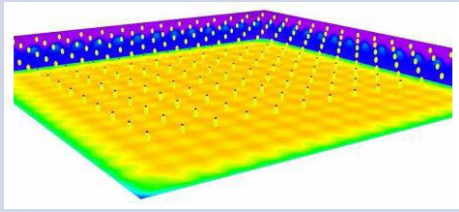




Note:

We could make simulation for you if you could supply us your project information. So that you don't need to worry about the lighting performance can meet your demand or not.

Dialux Simulation Comparison

Room Width:100m Room Length:100m Room Height:10m Fixture Qty: 255pcs Fixture Spacing:6.7m	High Bay 150W 	Conventional LED 150W 
Working Plane	379lux	199lux
Uniformity	0.422	0.394
3D Rendering		

The secret why High Bay has such good lighting performance!

Do you see many LED chips in this 200W High Bay?

252pcs X 1.4W/pc

We use 252 pcs 1.4W LED chips to make a 200W high bay. It may look like crazy. But it does great help for the lumen output. Because the more LED for a certain wattage, the driving current is less for each LED chip. So it will bring less heat, higher efficiency and longer lifespan. And each single LED chip is 140lm/Watt.

More secrets behind the lighting performance!

When you calculate your current high bay LED chip quantity, you may find that it only uses 120pcs X 1W/pc to make a 150W High Bay.

It means that you paid 150W price but only get a 120W High Bay!

High Bay uses 189pcs X 1.4W/pc LED chip to make a 150W high bay!

Conventional LED high bay

Beside the quantity, we still need to consider

	High Bay HB	Conventional HB
Brand	Nichia Original from Japan	Brigelux , Episitar or unknow brands packed in China, not original
LM80	Yes	NO
Package	Low Power SMD	High Power COB

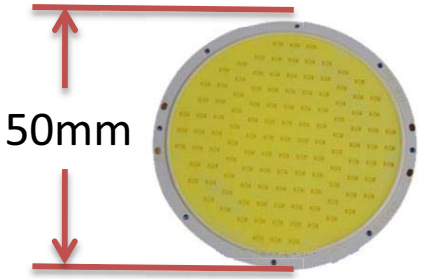
Brand: It's easy understand Cree, Nichia & Philips are top quality brands in industrial LED market. We may not have problems for one order uses low quality LED, but how about the next order?

LM80: If the LED chip doesn't have LM80 report, it means the chip cannot last a long time. For example, it may have 100lm in the beginning, but it may only have 65lm after one year.

Package: Package type affects chip heat dissipation. Low power SMD chip is obviously much better than high power COB LED chip at heat dissipation.

Thermal Management : LED Board

If two LED boards have the same quantity, same brand LED chips,
JUST the circuit board diameter different
Which one do you think has better heat dissipation?

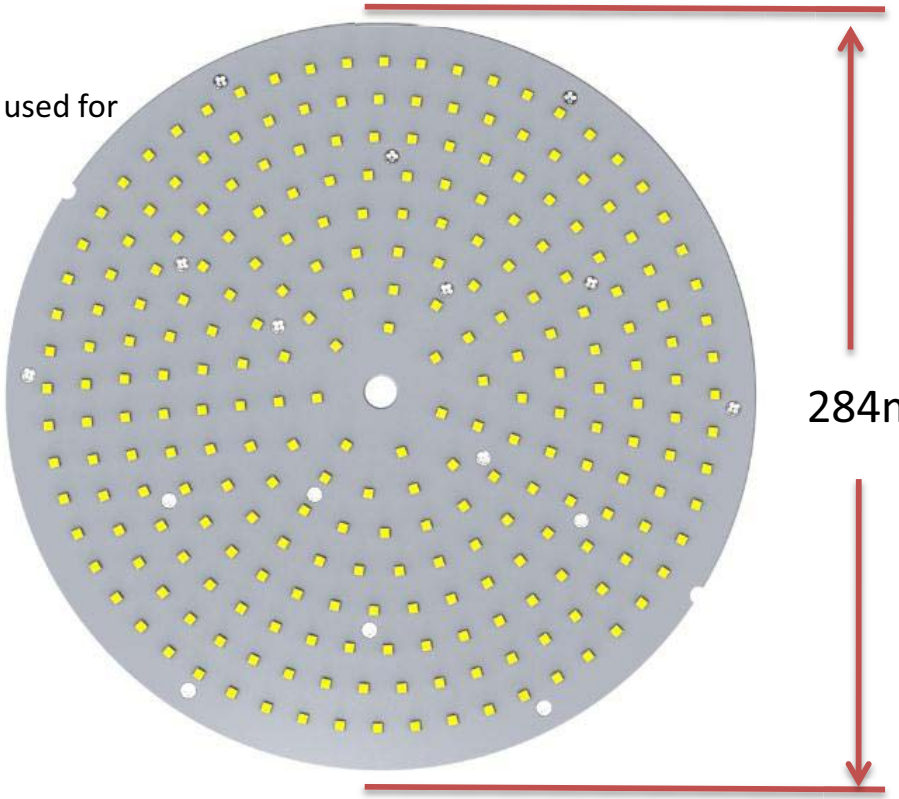


The COB LED chip board used for conventional LED High Bay

VS.

6 times larger.

LED chip board used for High Bay



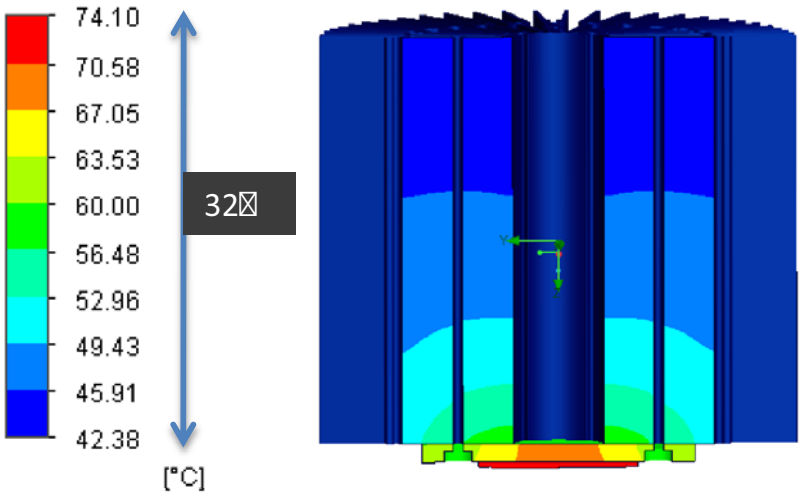
The below sentence is from Nichia LED chip datasheet.

NICHIA STS-DA1-2940A <Cat.No.140116>

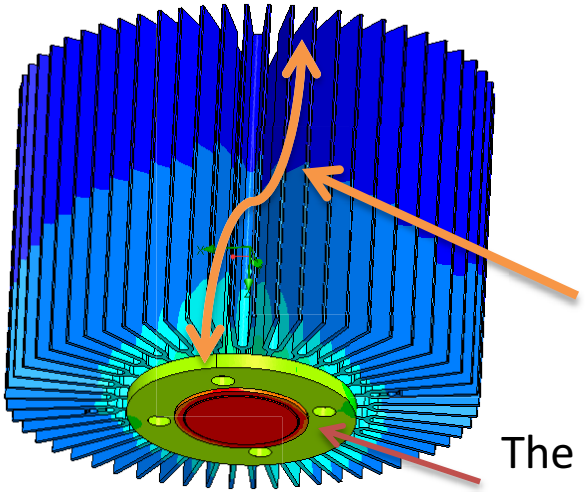
(6) Thermal Management

- Proper thermal management is an important when designing products with LEDs. LED die temperature is affected by PCB thermal resistance and LED spacing on the board Please design products in a way that the LED die temperature

Thermal Management: Heat Sink

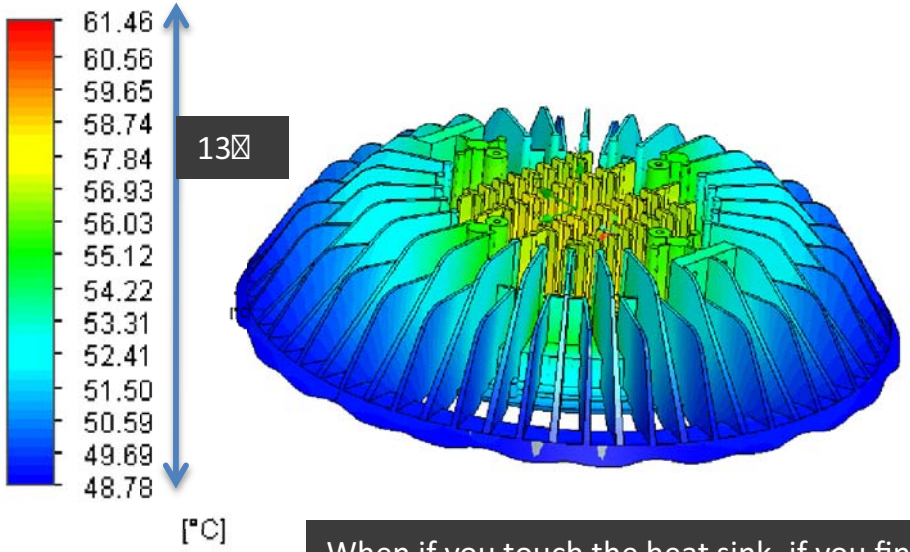


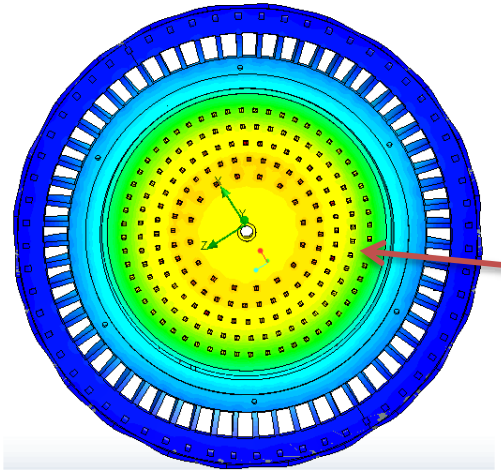
The hot point to the cool point temperature gap.



a. Too many chips are too closed together in a small size board.
b. The hot point is too far away from the end of the heat sink.

The conventional high bay light source board is pretty hot.





LED & LED High Bay LED chips spacing is large and the special design heat sink can spread the heat to the air very quickly.

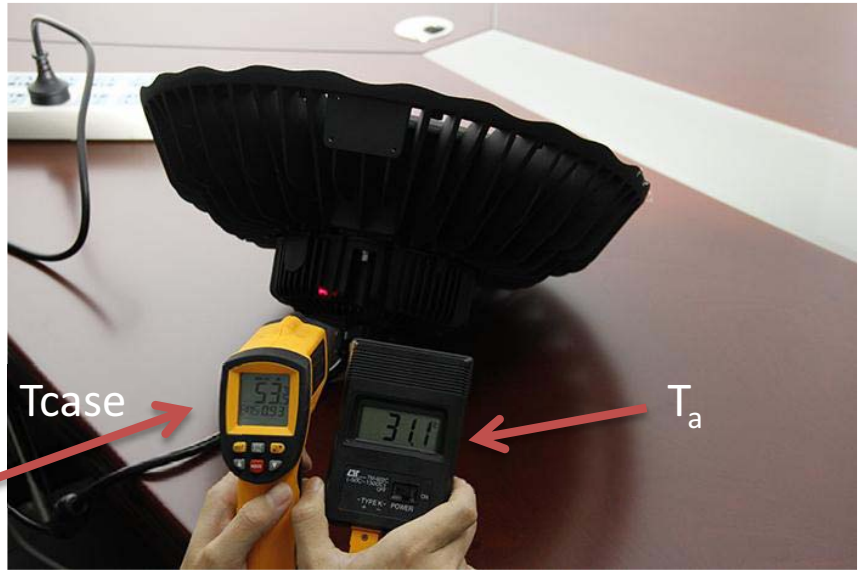
When if you touch the heat sink, if you find it's not hot it doesn't mean it's a good heat sink. You need to check the light source board temperature.

Another Importance: Power Supply

LED chip could last up to 60000 hours if the heat dissipation is good enough and driving current is correct. But the driver may not, so have you ever asked for the reliability report for the driver from your supplier?

The below picture is a screen shot from LED & LED high bay driver reliability report.

CAPACITOR LIFE CYCLE	HBG-160-36:SUPPOSE C103 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P：FULL LOAD Ta=25 ℃ LIFE TIME (2) I/P： 230VAC O/P：FULL LOAD Ta=60 ℃ LIFE TIME (3) I/P： 230VAC O/P：75% LOAD Ta=60 ℃ LIFE TIME	(1) 493901.6 HRS (2) 47769.2 HRS (3) 66189.2 HRS
MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE：252.3KHRS	
DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 40,000 hours @ Tcase 70℃	



The driver for 150W LED & LED High Bay is working under 87% load, 60000hrs is no question for most of applications.

LED & LED HB driver is exposed to the air directly with heat sink fins.

MEAN WELL

World Class, top brand.
5 years warranty.

Un-heard brand.
No warranty

But the driver for conventional led high bays won't be so lucky. No heat sinks fins. And the driver Is sealed in the case. No air flow inside. You never know how high the temperature inside is.

Control will help you save more energy!

The LED & LED LED High Bays can switch instantly, but HPS, MH,MV cannot – this is a massive benefit for LED & LED LED high bay. So power savings could also come from reducing running hours & dimming (control strategies).

	LED & LED	Conventional	HID
			
Switch instantly	YES	YES	NO
Dimmable	YES	NO	NO
Occupancy Sensors	YES	No	NO
Lighting Sensors	YES	NO	NO
Dali	YES	NO	NO

More info about control strategies, please contact info@ledochled.se

Why LED & LED High Bay not have reflectors?

Reflector

Conventional LED High Bay
with 120 degree reflector

LED & LED High Bay
No Reflector

Why no reflector?
Do you think the reflector helps the lighting distribution?

Why LED & LED High Bay not have reflectors?

Let’s the big brands LED high Bay looking.

Dialight

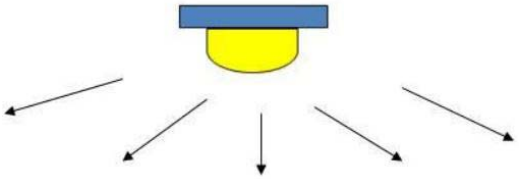
Phillips

LED & LED

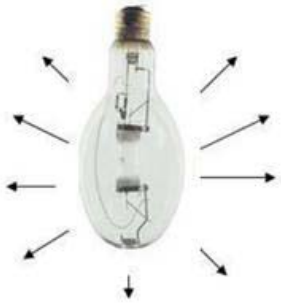
The famous brands LED high bay lights all no reflectors,
and most of LED high bay lights in future won’t use reflector for sure.

Package Comparison

The conventional led high bay lights are just copying the looking from the old HID.



120 degree



320 degree

But the light from LED chip has been very directional to the ground already.
They aren’t like the MH bulbs need reflector.

If use small angle reflector for LED, what happens?

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.2V I:0.9035A P:196.6W PF:0.9886 Lamp Flux:14598x1 lm		
NAME: HIGH BAY	TYPE:LED HIGH BAY LIGHT	WEIGHT:10.5kg±0.4kg
DIM.: D400*H640	SPEC.:40W*4	SERIAL No.:HB200_B_90
MFR.:	SUR.:0.025	PROTECTION ANGLE:44
DATA OF LAMP	PHOTOMETRIC DATA	Eff: 74.24 lm/W

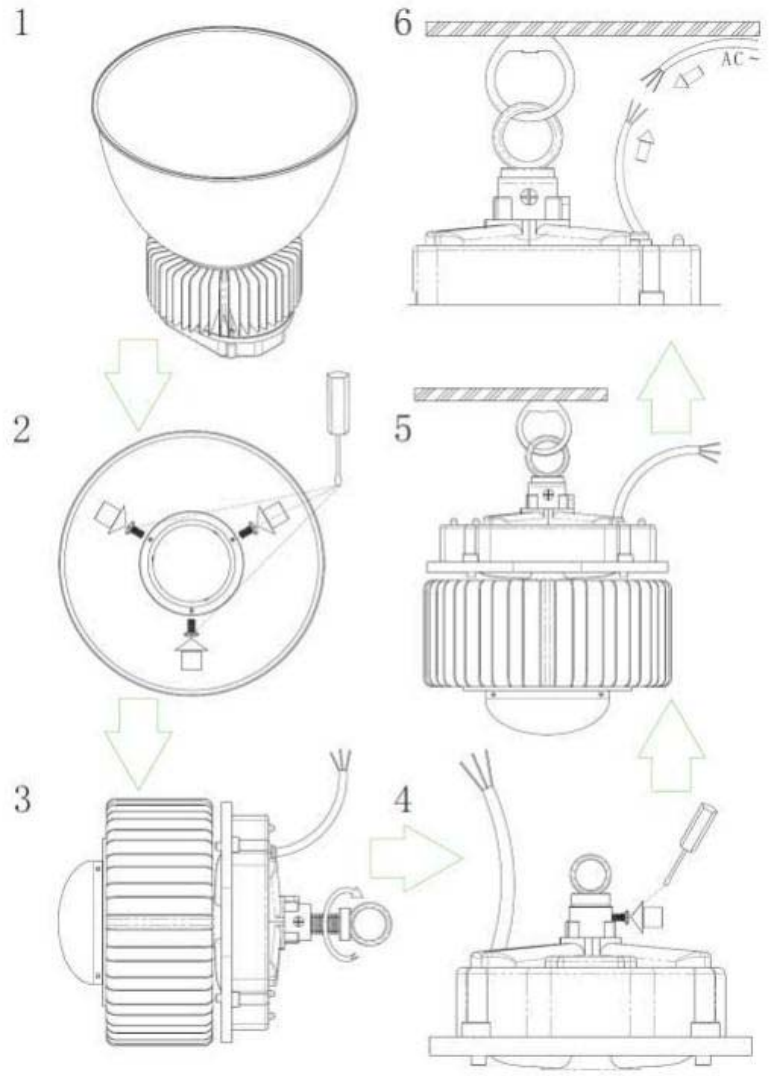
LUMINAIRE PHOTOMETRIC TEST REPORT

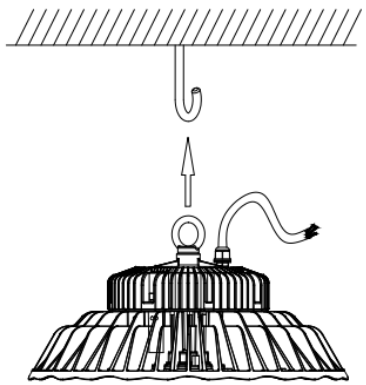
Test:U:220.2V I:0.8782A P:191.0W PF:0.9877 Lamp Flux:16215x1 lm		
NAME: HIGH BAY	TYPE:LED HIGH BAY LIGHT	WEIGHT:10.5kg±0.4kg
DIM.: D400*H640	SPEC.:40W*4	SERIAL No.:HB200_B_120
MFR.:	SUR.:0.025	PROTECTION ANGLE:44
DATA OF LAMP	PHOTOMETRIC DATA	Eff: 84.91 lm/W

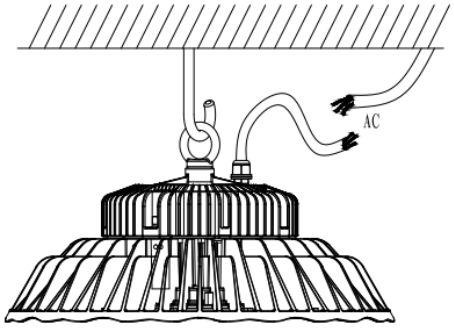
When the same conventional LED high bay light uses a different beam angle reflector. The efficiency is totally different. So please don’t use the small angle reflector to change the beam angle of LED. Unless you don’t care the lumen output.

Installation Time 10 minutes VS. 1 minute.

Conventional LED High Bay take 10 minutes to install one fixture.







LED & LED High Bay takes only one minute.

Step 1: Hang the fixture.
Step 2: Connect the cord or plug.

How could LED & LED LED high bay replace traditional HID?

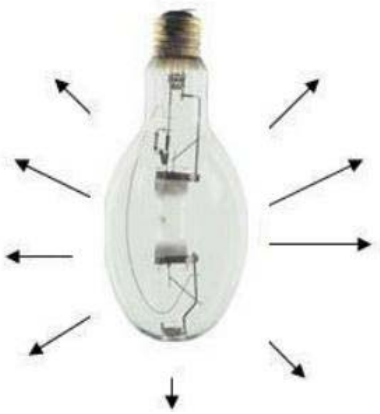
Before answer the question, let's see a picture comparison below:

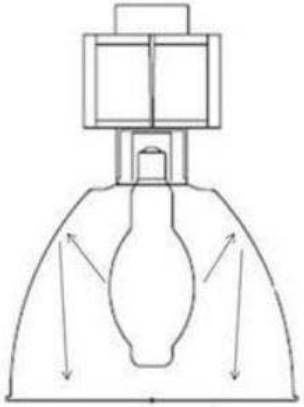
400W HPS

120W High Bay

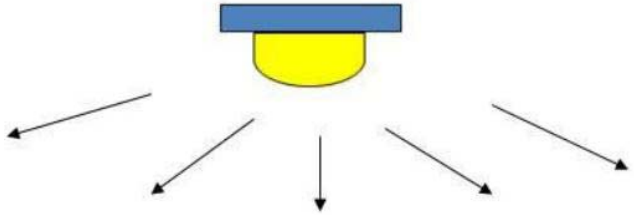
We could buy and send the lux meter to you for free, if you need it.

How could LED & LED LED high bay replace traditional HID?





Typical metal-halide light distribution



Typical high power LED light distribution

We won't say 120W LED will replace the 400W MH, as this is not 100% accurate. We do however accept that a 120W LED "CAN" replace a 400W MH.

Reasons for this is because although some have mentioned that a 400W MH has a lumen output of 35,000 (or similar) it does not help when talking the lumen output from the Luminaire (with reflector, accessories etc).

How could LED & LED LED high bay replace traditional HID?

A reputable manufacturer generally supplies each of their lamps with an .IES format file which can be used in conjunction with a photo-metric design program such as Dialux which you can simulate light output for any given sized/height room.

Without going into too much detail this program shows what We call "hidden secrets". A lot of people just believe that the 35,000 lumen figure is what comes from a lamp but this is unfortunately far from the truth. The .IES file shows you actual light output from the entire lamp (including reflector) and tells a different story to their catalog spec.

For example, a typical (reputable) 400W High bay in .IES format shows the following:
400W High bay
Luminous flux (Luminaire): 27,639 lm (actual lamp output)
Luminous flux (Lamps): 36,000 lm (Bare globe specification)
Luminaire Wattage: 460.0 W (Actual power consumption) – varies with different ballast types. I have seen 425W total consumption all the way up to 480W total lamp consumption for a "400W" high bay.

From this data, the bare globe is 36,000 lumens and actual power consumption is 460W which = 78.2 lm/W efficacy as a bare lamp (which doesn't mean anything in a real life scenario with reflector)
Actual real life efficacy = 27,639 / 460W = 60 lm/W.

The 150W LED & LED LED High Bay Light .IES file looks like this:
Luminous flux (Luminaire): 17850lm
Luminous flux (Lamps): 17865lm
Luminaire Wattage: 150 W
Actual Power Consumption: 151.5W
So the real lumen efficacy = 17850lm/151.5W =118lm/W

Please contact info@ledochled.se
To get the IES file.

How could LED & LEDLED high bay replace traditional HID?

Steve from Australia says in a forum:

My personal philosophy with any retro fit situation is data, data and more data. The more lux readings, power readings and power supply information I can get, the better. It bugs me quite a lot when someone makes a claim that a 150W will replace a 400W lamp. Because at the end of the day it all depends.

I recently replaced 10* 400W MV lamps with 7* wide dispersion 150W LED lamps and the results are better and the total consumption went from 4,250 W/h to 1,050 W/h.

The reason this worked is because the 400W lamps were old, and were probably beyond their 30% initial light depreciation point. But again, a lux meter and the correct photometric design can go a long way to not only provided the correct light levels, but also the correct financial savings.

There have also been times in the past where the Metal Halide lamps have performed better than I had hoped (in terms of saving the client) – in which I have to bump up the LED power consumption to get more light into a given space, this is the nature of the beast and which is why proper auditing and consultation is an important process.

In terms of feasibility and pay back. A majority of installs are under a 3 year pay back which I think is very reasonable when comparing to other Eco technologies (solar). Facilities using lights for more than 10 hours per day benefit the greatest from a energy efficient lighting upgrade.

Because this and that lots of clients are happy with LED & LED 120W HB to replace 400W HID.

Return On Investment Payback in 1 – 2 years

LED & LED LED High Bay wattage	120w
Traditional Lamp Source	400W MH
What is the quantity of luminaires ?	500pcs
Cost of replacement lamps in ($)	$5
Cost of disposal per lamp ($)	$5
Time per fixture for lamp maintenance (Hours)	2hrs
How many people are required for lamp maintenance ?	1
Labor rate ($ per Hour)	$75
What is the energy cost on site ?	$0.2
Lighting hours of operation per day	10
Operation days per week?	6
Lift Rental, Scaffolding Costs, Contractor Costs, Ect	$500
Estimated Tax Rebate Per Fixture (if available)	0

MH Yearly Energy Costs:
0.456kWX500pcsX3120hrs/pyX$0.2= $142,272

LED High Bay Yearly Energy Costs:
0.120kWX500pcsX3120hrs/pyX$0.2= $37,440

Yearly Saving at Energy:
$142,272 - $37,440 = $104,832

Metal Halide lifespan is about 10000hrs
High Bay lifespan is about 60000hrs.
Please calculate the maintenance costs yourself during the lifespan.

Payback in 1 – 2 YEARS

Please contact info@ledochled.se for price.
After 2 years, you're making money, not saving.

Note:

- The existing 400W metal halide fixtures draw 456W (including ballast consumption).
- Be sure replacement time includes time for approvals, down time, paperwork, lock out tag out, man lift, etc.
- Use the fully loaded labor rate. Many Harsh and Hazardous locations require 2 person teams
- If you work 8 hour shifts, don't forget to add an hour at the end and a hour at the beginning of the day. We often find that there is usually someone there early and late, So you want to take all factors into consideration.

LED & LED LED High Bay Light Details

Item	HB-100B	HB-120B	HB-150B	HB-200B
Wattage	100W	120W	150W	200W
Lumens	>11,500lm	>13,800lm	>17,850lm	>23,000lm
Color Temp	5000K	5000K	5000K	5000K
CRI	73	73	73	73
IP Rating	IP65	IP65	IP65	IP65
Equivalent	250W HID	400W HID	400W HID	600W HID

It is not the end of this file! Please contact us for more information

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Thank you!