

songhyun

‘GlowOne’

hting's on for you

2017 GlowOne Profile

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1. About Songhyun Group

◆ Songhyun Group Affiliate



Marine cable manufacturer Optical communications Ect Cable Fastner
Automotive Parts Total distribution business LED Lighting Advanced Material



Enterprise with Dream, Hope and Future



www.tmc-cable.com



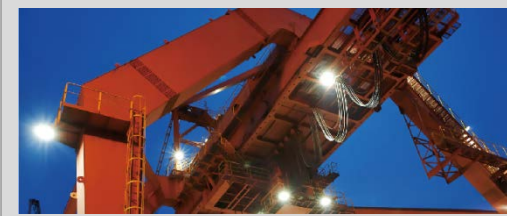
World Leading Forging Company



www.koreabolt.com



LED Lighting Total Solution

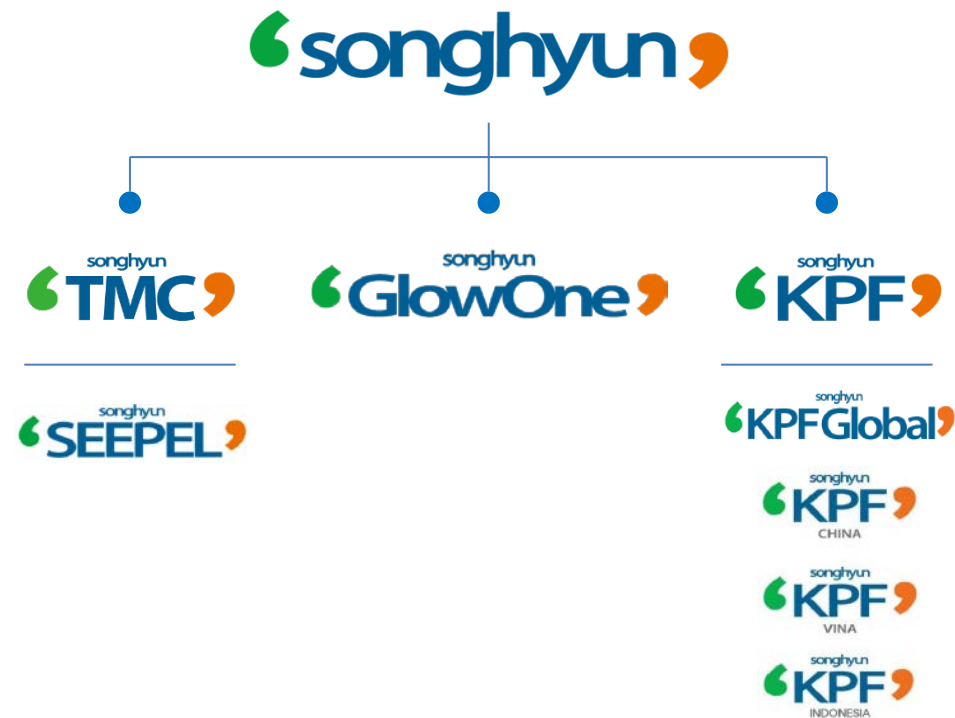


www.glowone.com

◆ Songhyun Group Vision

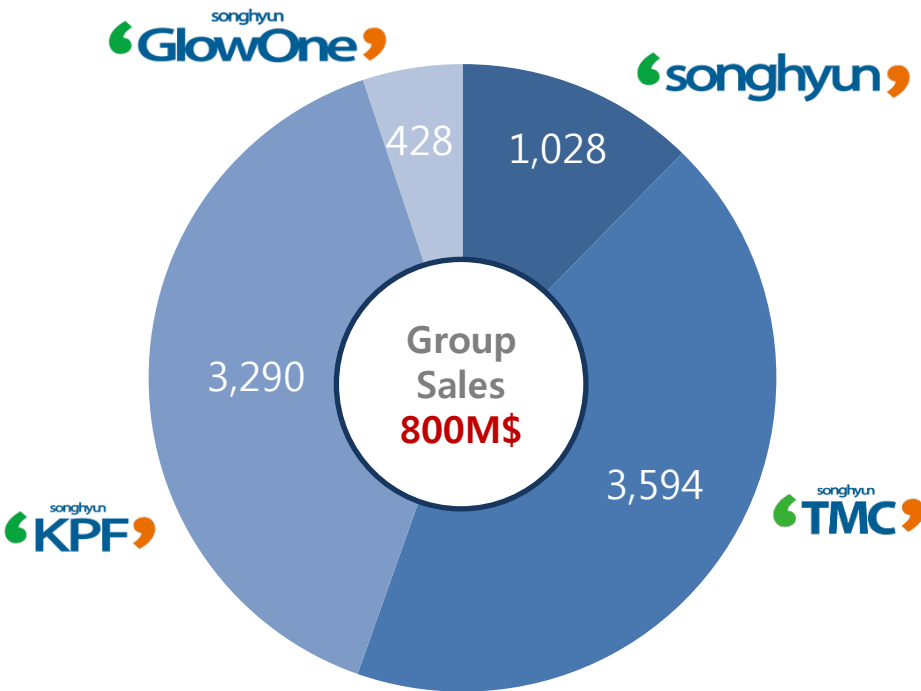
Songhyun Group consists of Songhyun Holdings, responsible for new business investments and management of affiliated companies. TMC, a world leader in marine cables, offshore plants, and optical fiber cables. and KPF, a manufacturer of automobiles and construction/plant components. And GlowOne which is newly taken over as Major Subsidiaries. Currently, total sales achieved about 800 million dollars.

Major Subsidiaries



Sales Scale (Standard for 2015)

(단위 : 억원)



Songhyun Group aims to achieve sales of KRW 2trillion in 2020 through aggressive domestic and overseas business expansion.

◆ CEO Message



CEO Gong Hoon Ahn

Education

- Graduated from Yonsei Univ.
(Bachelor of Science in Engineering) in 1982

Major Career Moves

- 2016~ GlowOne CEO / 2014~ TMC CEO
- 2004~ Senior Director of Business Development and Board Member, Jinro Industries
- 1984~ Entered Daewoo Shipbuilding & Marine Engineering



CEO Hee Jong Yoon

Education

- Graduated from Yonsei Univ. & Graduate School of Electrical and Electronics Engineering in 1984
- Purdue University, Marketing MBA

Major Career Moves

- 2016. 07 ~ GlowOne CEO
- 2013~ Vice President of Digital Appliance Division, SAMSUNG
- 2001~ Joined SAMSUNG Electronics CO., LTD

GlowOne will create a new world of Illumination.

GlowOne has been continuing to pursue technological innovation as a leader of the LED lighting market and provide the highest quality of the products and services.

Newly launched as a group-wide effort by Songhyun, GlowOne aims to bring you a new world of illumination by manufacturing and supplying LED lighting to foster eco-friendly green growth. LED lighting is an environmentally friendly lighting option that makes energy saving possible due to this high-efficiency in comparison to conventional lighting while producing luminescence close to that of natural sunlight. In particular, LED lighting can stir human emotions through its versatility in display when applied in digital gadgetry.

GlowOne aims to become a global company by not only providing lighting products but utilizing its know-how in system integration to extend its services to include LED lighting system construction. In working towards this goal, GlowOne and its employees will seek ongoing innovation and technological development while maintaining a perspective equivalent to that of customers and shareholders to provide the best products and services. We kindly ask for your consistent interest and warm encouragement in support of our challenge in creating a green, eco-friendly future in which men and nature can co-exist in harmony and happiness. Thank you.

2. Introduction GlowOne

◆ GlowOne History

- 2017** 08 Expansion of TG-POSCO production line in China
07 Factory located in Dontan city is scheduled to be completed
03 Launched NBL115 / 160
Low power consumption (75W, 110W) High efficiency(150lm/w, 145lm/w)
- Direct production from factory in Yongin-si
(Coexisting factories exist in Ansong, GuangJu)

- 2016** 11 Factory located in Yongin-si was completed
07 Changed its name from 'POSCO LED' to 'GlowOne'
04 Newly launched as a group-wide effort by Songhyun (POSCO LED->Songhyun Group)

- 2015** 02 The company moved to Giheung-gu, Yongin-si, Gyeonggi-do

- 2014** 10 Received the grand prize in the LED/OLED lighting Design contest exhibit hosted by LED FORUM (LE400)

- 2013** 12 Establishing TG POSCO LED (a joint venture in China)
09 AC LED Entered all 3 Big box retailers
04 Opening the showcase in Philadelphia, US.
01 The acquisition of ISO 14001

- 2012** 12 Received AIDA Good Design Award (Bay Light)
11 Received iF Design Award 2013 (Bay Light)
09 Launching AC LED Lamp
09 Received Korea Good Design (Bay Light)
06 Participation in LED EXPO Exhibition 2012
04 Opening the showcase in Frankfrut, Germany
03 Received Red Dot Design Award (Linear Light)

- 2011** 12 Received US Good Design (Bay Light, Street Light)
10 Received Korean Good Design (Street Light)
10 Received iF Design Award 2012 (Street Light)
03 Initial Production of Bay Light
02 Pohang Plant Establishment

- 2010** 12 The acquisition of KS license-Panel light
11 Establishing new technology research Institute
09 POSCO LED Establishment

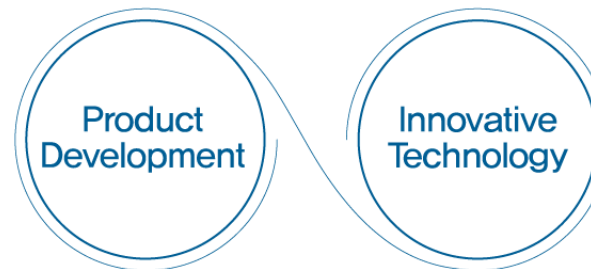


◆ GlowOne Vision

Focusing our expertise



Continuous improvment



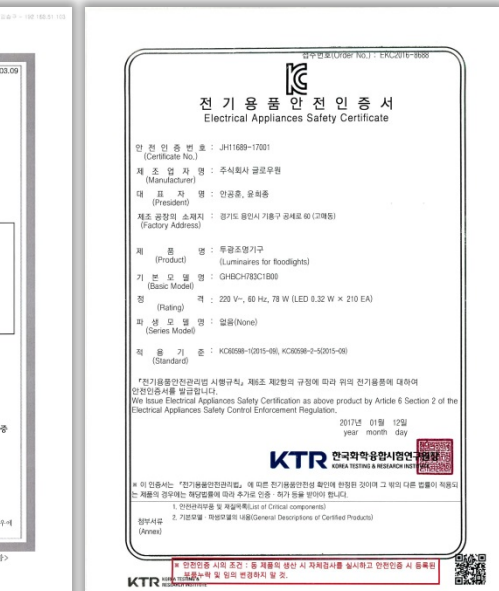
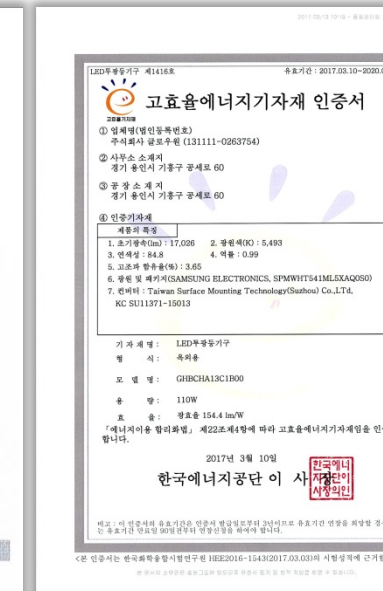
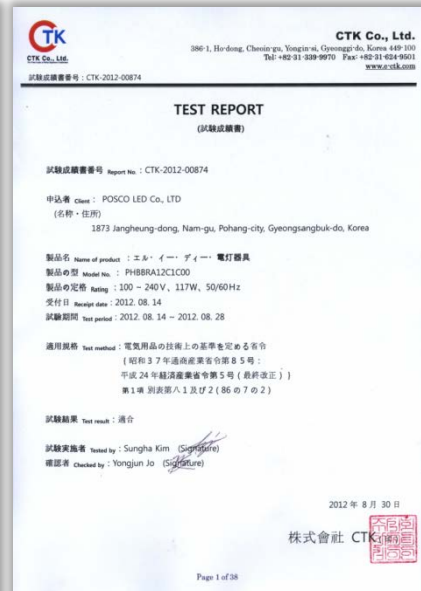
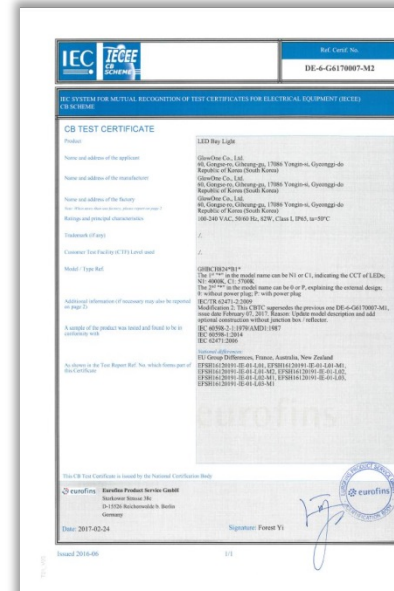
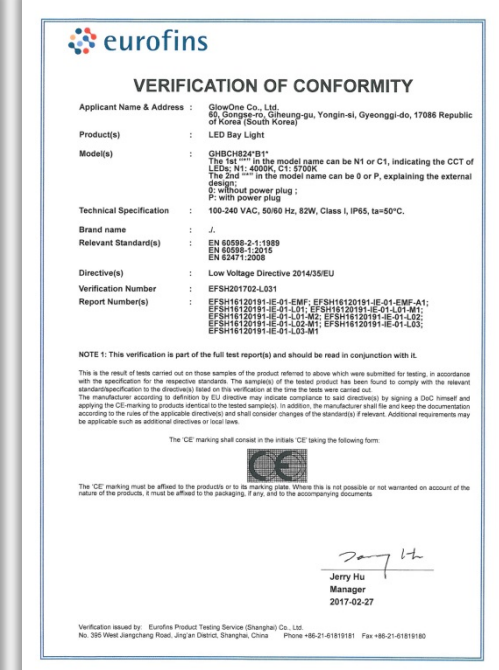
Extended value creation



2. Introduction GlowOne

Certificate

Certification Status	GlowOne	Contractor
Cert. Status in Korea	524	35
KC / Efficiency / Electromagnetic	348	77
Overseas	177	-



◆ Design Awards

Top 3 Design Awards

We pursue the sophisticated, user-friendly design that could add more values to a space.

IF Design

One of the world's prestigious design awards, established in 1953



Reddot

Established in 1950, the reddot design awards recognize the future-forwarding and innovative approach in design.



Good Design

A design award that values practicality, functionality, modeling and economic efficiency and consumer satisfaction of design



2014



LEDIF
제품소개

2012



2011



3. Why LED

◆ Features of LED

1. High CRI can dramatically improve the appearance of object

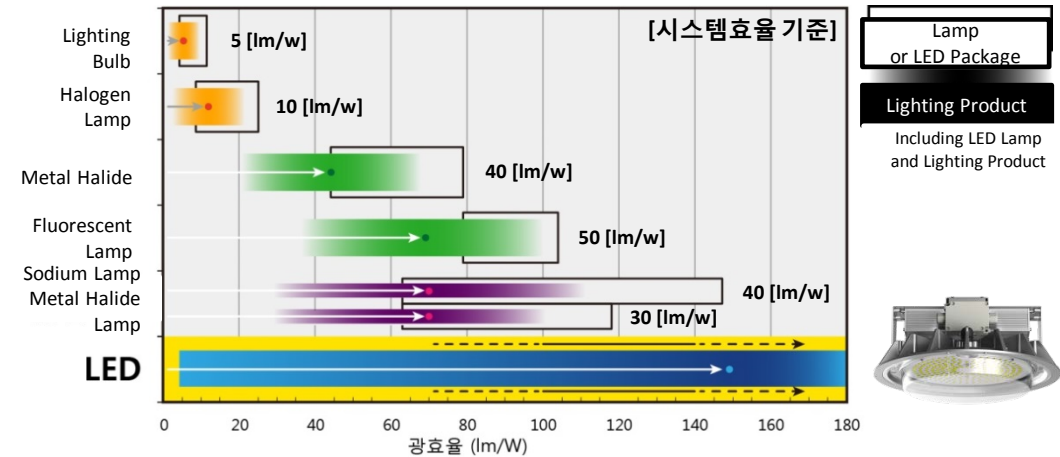
Comparison of CRI(Color Rendering Index)



High CRI

Long Life Span

2. High Energy Efficiency Compared to conventional Lighting (150 lm/W↑)

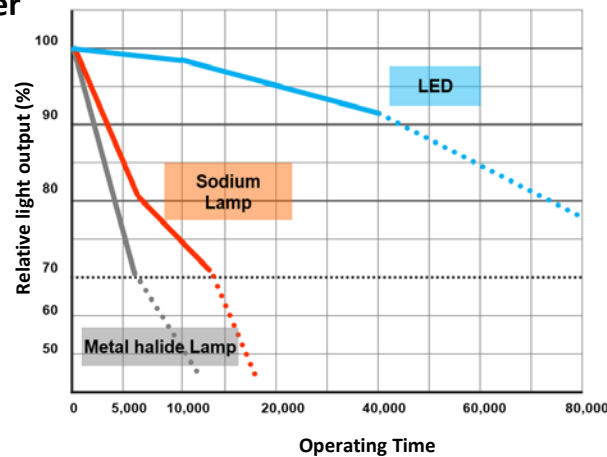


High Efficiency

Energy Saving

3. LED Lamp last much longer

- Fluorescent Lamp : 8,000hrs
- Sodium Lamp : 12,000hrs
- **LED chip : 100,000 hrs↑**
- **Warranty : 40,000 hrs ↑**

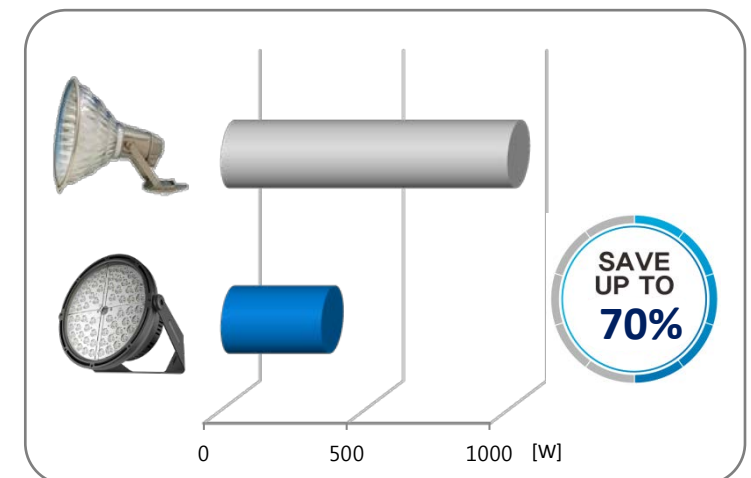


<Luminous flux Retention Curve>

4. Lower Energy Cost (Energy Saving 70%↑)

HID : 1150W

LED 350W



3. Why LED

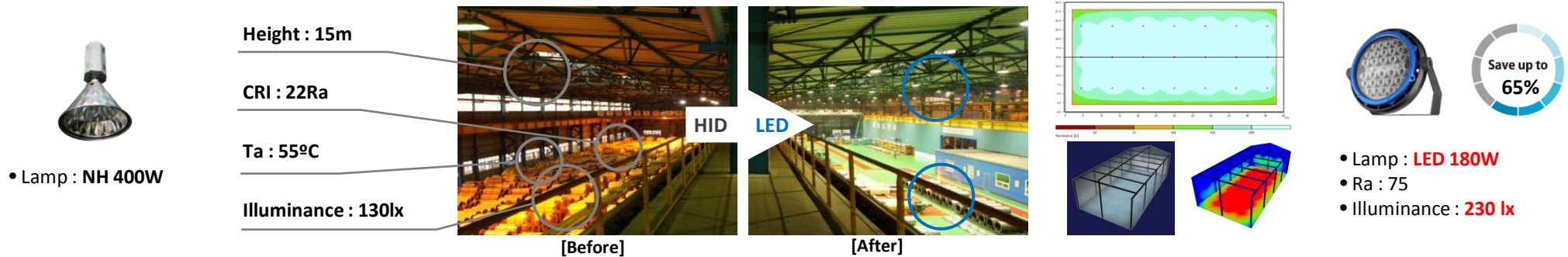
◆ GlowOne Feature

Specialized Design Know-How of Industrial Facilities

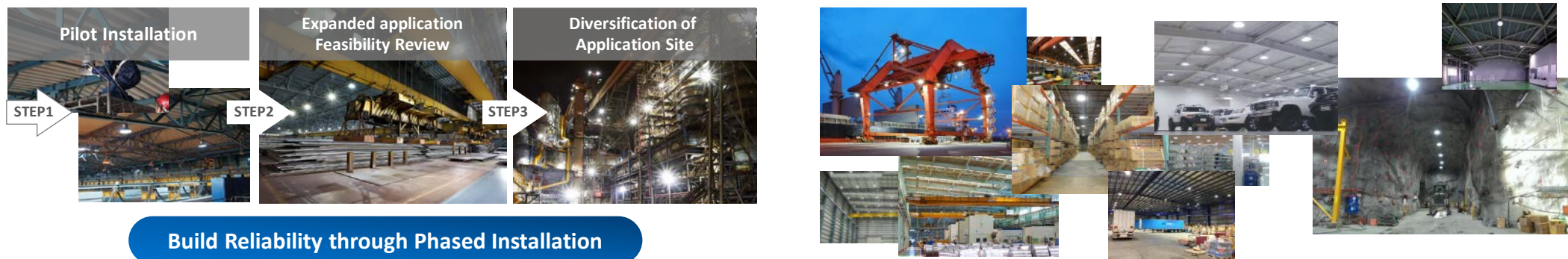
1. Expertised Industrial Lighting Line-Up



2. Total LED Lighting Solutions by considering work stability & productivity through analyzing workspace



3. Products Reliability Proven by various references such as Heavy Industry, Logistics Facilities, Storage Facilities



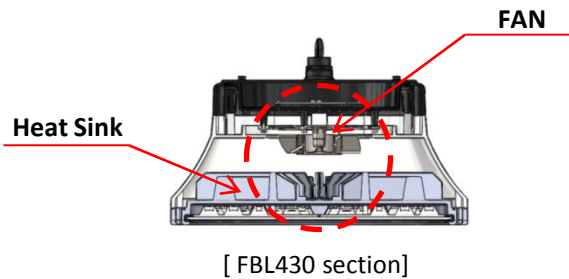
3. Why LED

◆ GlowOne Feature

Technical technology for industrial facilities

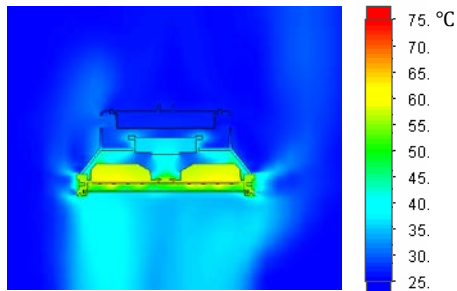
1. Operating Stabilization of high-temperature above 60 °C

By applying forced cooling technology using fans, We can safely operate at high-temperature circumstances, above 60 °C .



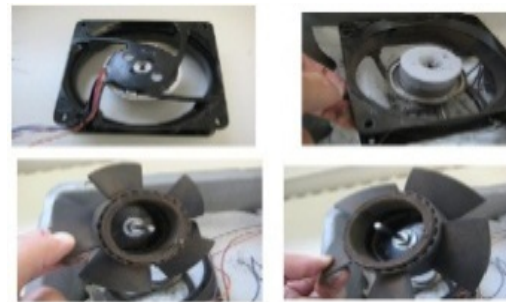
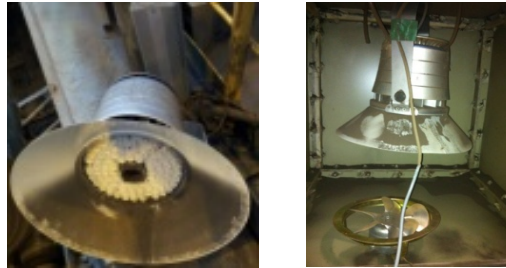
Forced Cooling Technique

The heat sink applied at fan, serving to oil the wheels of airflow and heat flow, improves the longevity and durability of the product, and ensures product performance in hot environments.



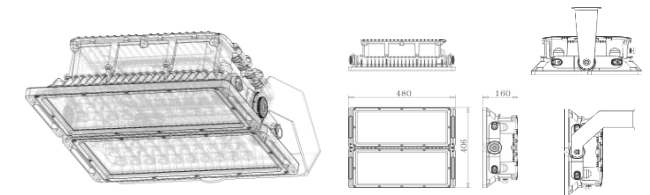
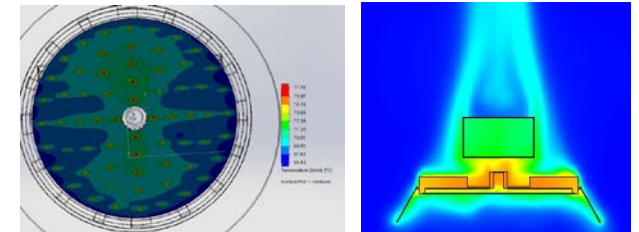
2. Correspondence to Extreme dust environment

Through several years of industrial field experience, we provide reliable product that can withstand the severe conditions.



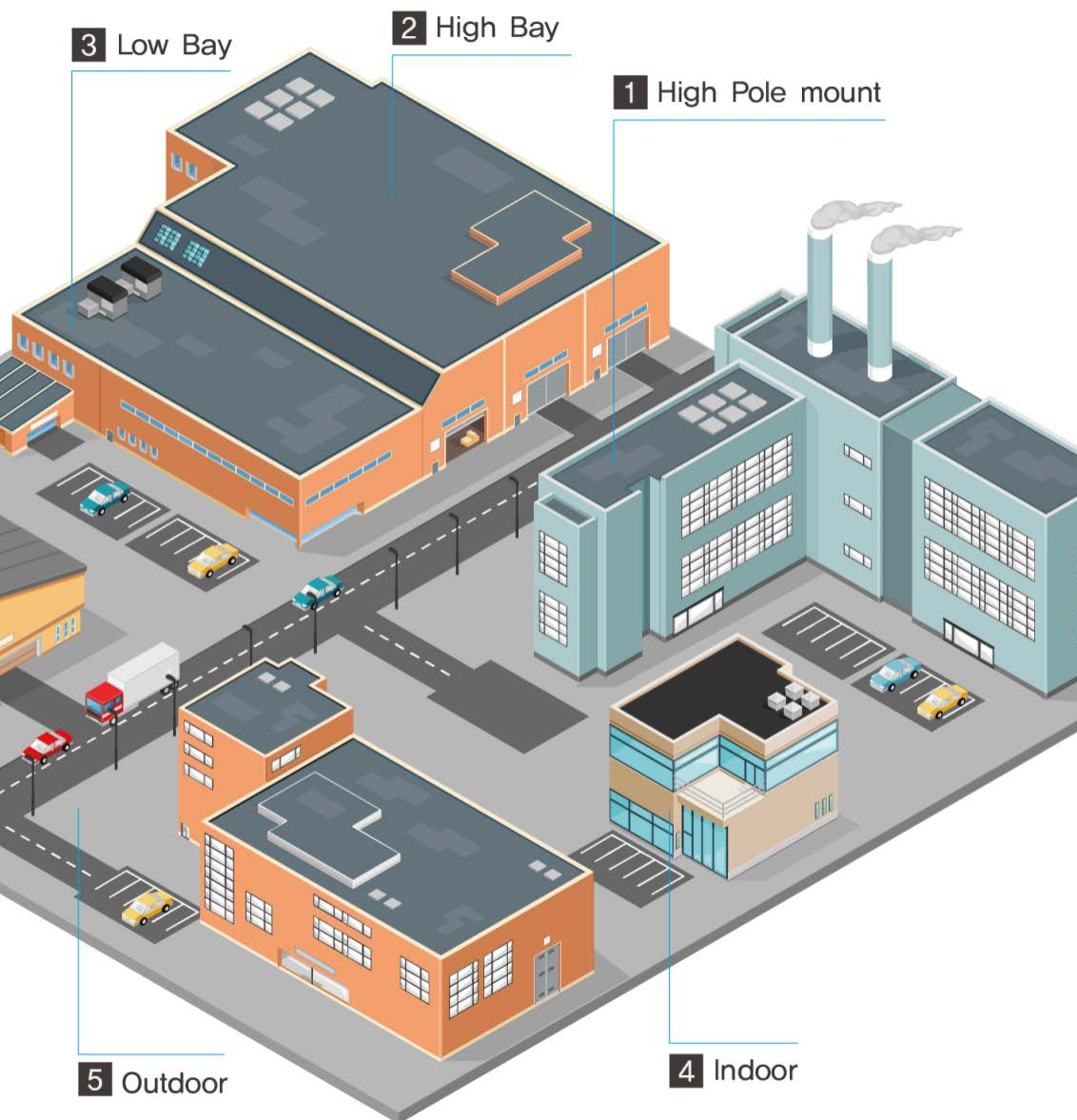
3. Thorough Product development and Validation

To respond to various industrial sites, we are developing products which are suitable for the site.



4. Product Intro

◆ GlowOne Product Line-up



1



LE400



BL395 G2

High pole mount : Wharfs, Terminals, Inside of underground Mines, High Columns, Open Stadiums, Aviation Sheds, etc.



2



BL200 G2



NBL160



BL145

High bay : High-rise Plants or Factories, Warehouses, Gymnasiums, Supermarkets, Assembly-lines, etc.



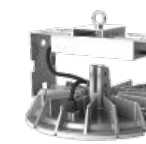
3



NBL115



BL100 G2



BL085

Low bay : Low-rise Plants or Factories, Warehouses, Supermarkets, Shopping Malls, Exhibition Centers, Gymnasiums, HACCP, etc.



4



Panel Light



Down Light



Bulb



L-Tube

Indoor : Commercial lighting, Retailers, Residential or Educational Facilities, Parking Garages, Offices, Storehouses, etc.



5



LE025



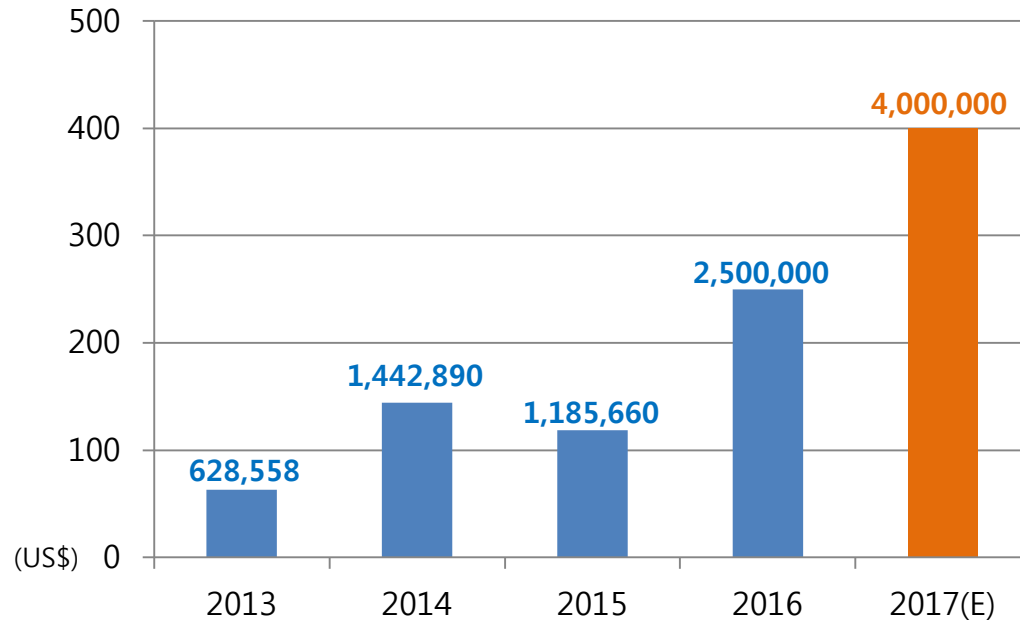
Street Light

Outdoor : Roads / Expressway / Streets / Boulevards, Public facilities, Pedestrian walkways, Parks, etc.

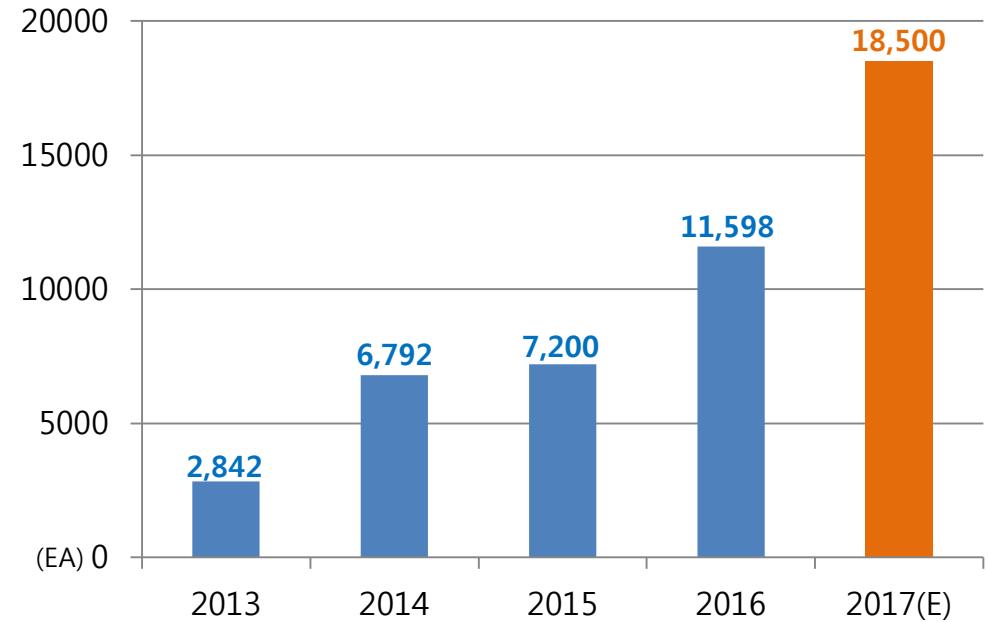
5. 2017 Sales Plan

◆ GlowOne Sales History & Plan

Amount



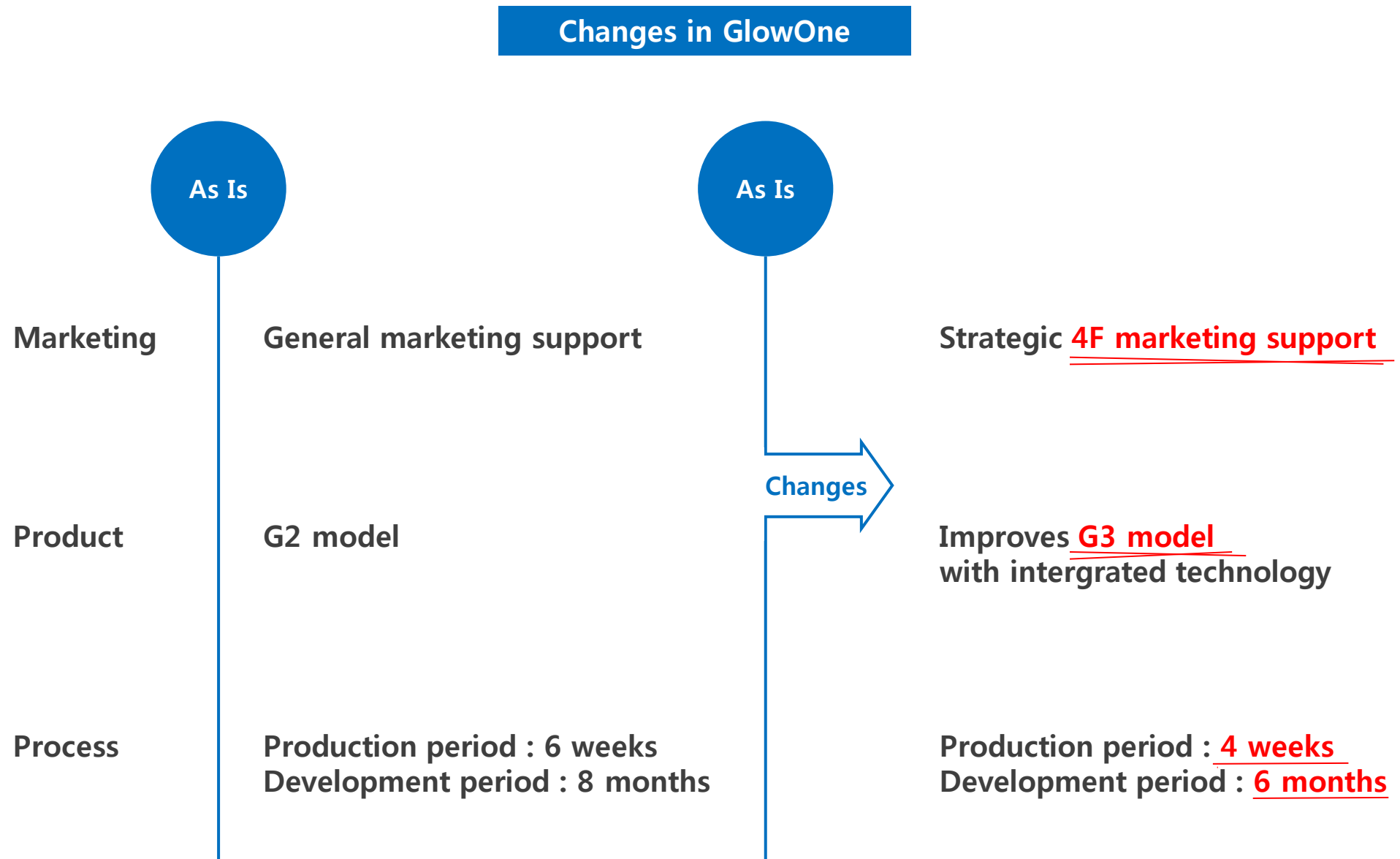
Quantity



Sales Models

Year	2013	2014	2015	2016	2017(P)	Total
US\$	0.6 mil	1.4 mil	1.2 mil	2.5 mil	4.0 mil	ABT 9.7 mil
Quantity	2,842	6,792	7,200	11,598	18,500	ABT 47,000 EA
Model	115W	115W	90W	90W	12K	
	175W	155W	115W	115W	16K	
		175W	145W	145W	20K	
			155W	20K	40K	
			400W	400W		

◆ Summary



◆ 4F Support from GlowOne

Full Certification Support

- ✓ CB / SAA **Certifications**
- ✓ LM79 / LCP Test Report
- ✓ IK Test Report



Free Marketing Support

- ✓ **Free Sample** for New Model Image, Data for marketing



Fast Production Support

- On time delivery
- ✓ Before : 6weeks
- ↓
- ✓ After : 4weeks



Fixed Annual Meeting Support

- 2 Times a year
- ✓ **Join Sales Conference (Feb)**
- ✓ **Factory Visit as a prize(Nov)**

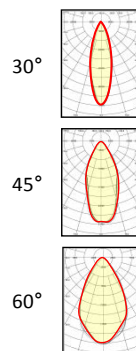


7. Product Proposal

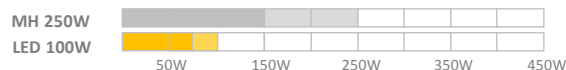
◆ Bay light



High Power LED



Product Bay-Light 70W / 100W
Substitutes MH/NH 150W~250W

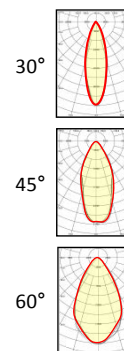


Saving Energy up to 65% annually

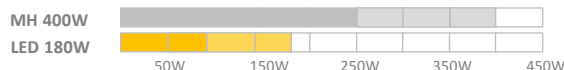
Product name	FBL090 G3	FBL120 G3
Power Consumption	70 W	100 W
Luminous Flux	8,750 lm	12,500 lm
Efficiency	125 lm/W	
Color Temperature	5700 K	
CRI	75 Ra	
Input Voltage	220 Vac	
Weight	3.5 Kg	
Size	280 x 82 mm	
Operating Temperature	-30°C ~ 50°C	
IP Rate	IP66	



High Power LED



Product Bay-Light 90W / 180W
Substitutes MH/NH 250W~400W

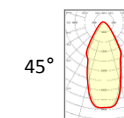


Saving Energy Up to 55% annually

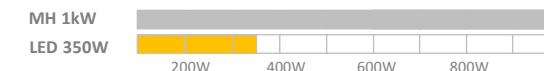
Product name	FBL110 G3	FBL220 G3
Power Consumption	90 W	180 W
Luminous Flux	11,250 lm	22,500 lm
Efficiency	125 lm/W	
Color Temperature	5700 K	
CRI	75 Ra	
Input Voltage	220 Vac	
Weight	5.3 Kg	
Size	312 x 94 mm	
Operating Temperature	-30°C ~ 60°C	
IP Rate	IP66	



High Power LED



Product Bay-Light 350W
Substitutes MH/NH 1,000W



Saving Energy up to 70% annually

Product name	FBL430 G3
Power Consumption	350 W
Luminous Flux	43,750 lm
Efficiency	125 lm/W
Color Temperature	5700 K
CRI	75 Ra
Input Voltage	220 Vac
Weight	10.5 Kg
Size	415 x 215mm
Operating Temperature	-30°C ~ 60°C
IP Rate	IP66

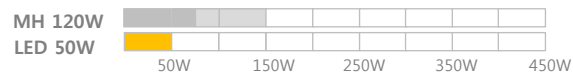
7. Product Proposal

◆ Bay light

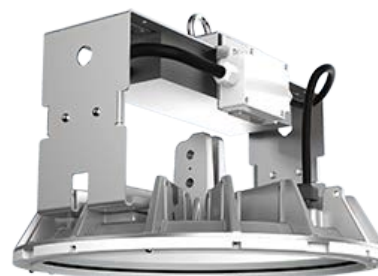
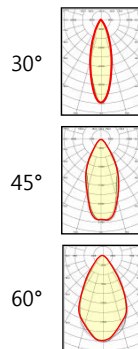


High Power LED

Product Bay-Light 50W
Substitutes MH/NH 80W~120W

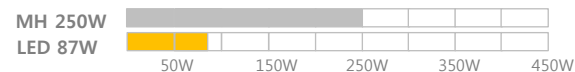


Product name	BL050 G2
Power Consumption	50 W
Luminous Flux	5,500 lm
Efficiency	110 lm/W
Color Temperature	5700 K
CRI	75 Ra
Input Voltage	220 Vac
Weight	3.5 Kg
Size	280 x 82 mm
Operating Temperature	-30°C ~ 50°C
IP Rate	IP66

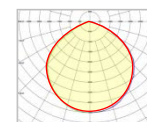


Middle Power LED

Product Bay-Light 87W
Substitutes MH/NH 250W

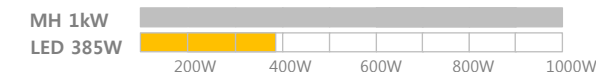


Product name	BL085
Power Consumption	87 W
Luminous Flux	12,000 lm
Efficiency	138 lm/W
Color Temperature	5700 K
CRI	80 Ra
Input Voltage	220 Vac
Weight	4.3 Kg
Size	304 x 222mm
Operating Temperature	-20°C ~ 45°C
IP Rate	IP65

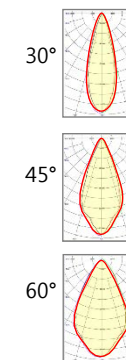


High Power LED

Product Flood-Light 385W
Substitutes MH/NH 1,000W

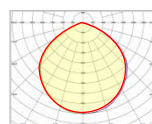


Product name	LE400
Power Consumption	385 W
Luminous Flux	42,350 lm
Efficiency	110 lm/W
Color Temperature	5700 K
CRI	75 Ra
Input Voltage	220 Vac
Weight	11.0 Kg
Size	480 x 406 x 134 mm
Operating Temperature	-30°C ~ 50°C
IP Rate	IP66



7. Product Proposal

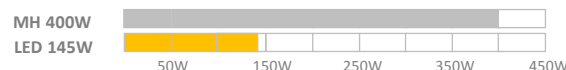
◆ Bay light / Linear Light



110°

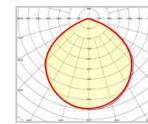
Middle Power LED

Product Bay-Light 145W
Substitutes MH/NH 400W



Saving Energy up to 70% annually

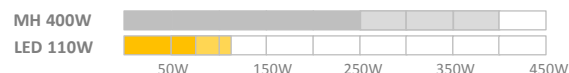
Product name	BL145
Power Consumption	145 W
Luminous Flux	15,950 lm
Efficiency	110 lm/W
Color Temperature	5700 K
CRI	80 Ra
Input Voltage	220 Vac
Weight	6.0 Kg
Size	340 x 289 mm
Operating Temperature	-20°C ~ 50°C
IP Rate	IP65



110°

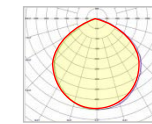
Middle Power LED

Product Bay-Light 78W / 110W
Substitutes MH/NH 250W / 400W



Saving Energy up to 76% annually

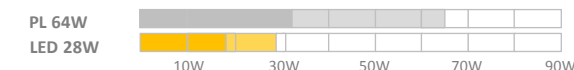
Product name	NBL115	NBL160
Power Consumption	78 W	110 W
Luminous Flux	11,700 lm	16,000 lm
Efficiency	150 lm/W	145 lm/W
Color Temperature	5700 K	
CRI	80 Ra	
Input Voltage	220 Vac	
Weight	3.0 Kg	
Size	304 x 180 mm	
Operating Temperature	-30°C ~ 50°C	
IP Rate	IP65	



110°

Linear Lighting

Product Linear-Light 18W / 28W
Substitutes FL/PL 32W / 64W



Saving Energy up to 60% annually

Product name	LN18	LN28
Power Consumption	18 W	28 W
Luminous Flux	1,980 lm	3,080 lm
Efficiency	110 lm/W	110 lm/W
Color Temperature	5700 K	
CRI	80 Ra	
Input Voltage	220 Vac	
Weight	1210 x 68 x 72 mm	
Size	-20°C ~ 40°C	
Operating Temperature	IP20	

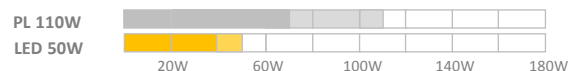
7. Product Proposal

◆ Indoor Light



Panel Lighting

Product Panel-Light 40W
Substitutes Fluorescent Light 64W / 110W



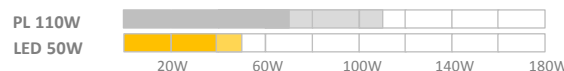
Saving Energy up to 60% annually

Product name	PL040 (6x6)
Power Consumption	40 W
Luminous Flux	4,000 lm
Efficiency	100 lm/W
Color Temperature	5700 K
CRI	80 Ra
Input Voltage	220 Vac
Weight	640 x 640 mm
Size	-20°C ~ 40°C
Operating Temperature	IP20



Panel Lighting

Product Panel-Light 40W
Substitutes Fluorescent Light 64W / 110W



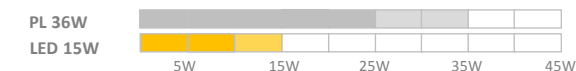
Saving Energy up to 60% annually

Product name	PL040 (3x12)
Power Consumption	40 W
Luminous Flux	4,000 lm
Efficiency	100 lm/W
Color Temperature	5700 K
CRI	80 Ra
Input Voltage	220 Vac
Weight	330 x 1280 mm
Size	-20°C ~ 40°C
Operating Temperature	IP20



Down Lighting

Product Down-Light 10W / 15W
Substitutes PL 26W / 36W

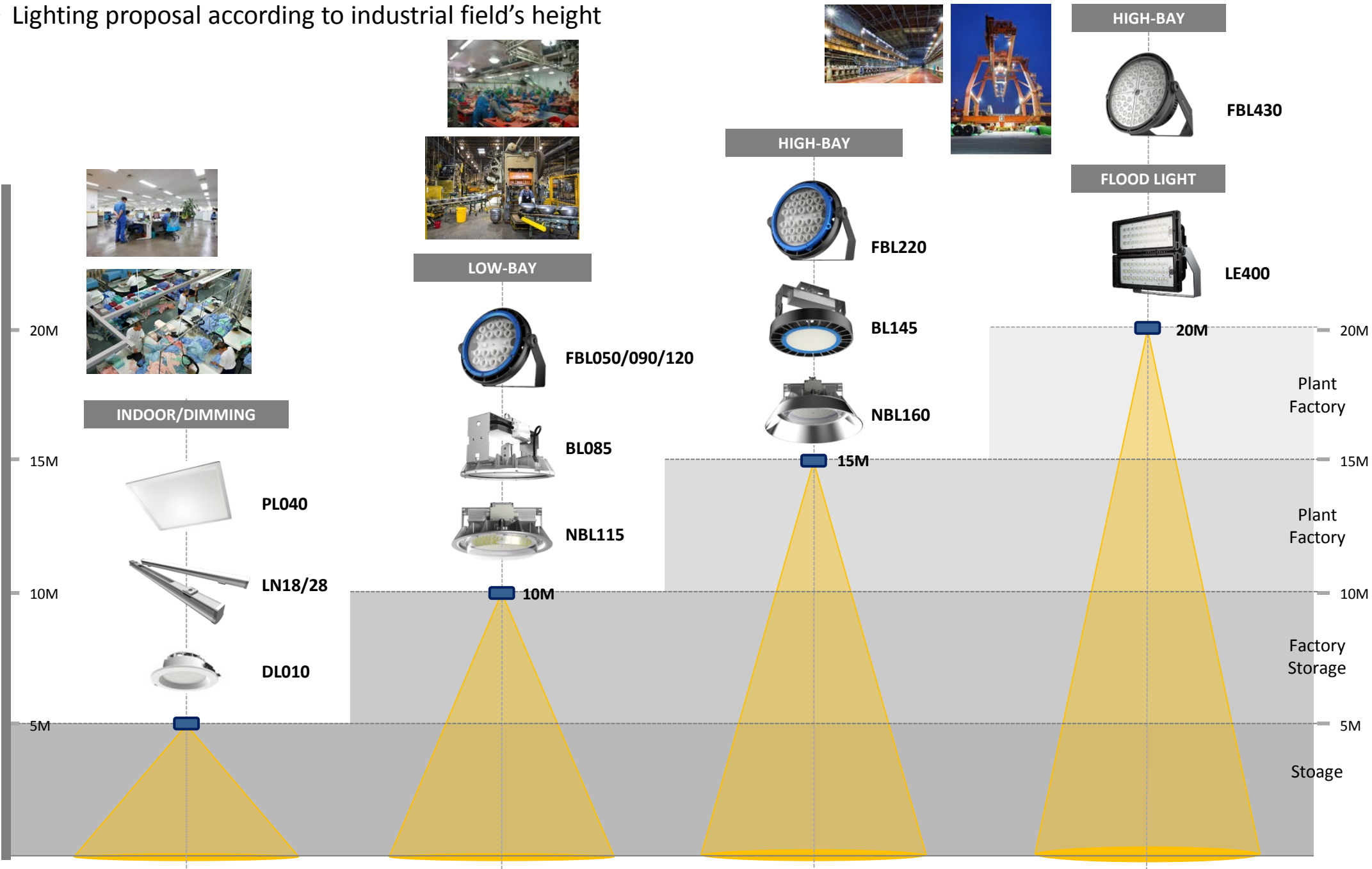


Saving Energy up to 63% annually

Product name	DL010 (6")	DL015 (6")
Power Consumption	10 W	15 W
Luminous Flux	750 lm	1,125 lm
Efficiency	75 lm/W	75 lm/W
Color Temperature	5700 K	
CRI	80 Ra	
Input Voltage	220 Vac	
Weight	173 x 95 mm	
Size	-20°C ~ 40°C	
Operating Temperature	IP20	

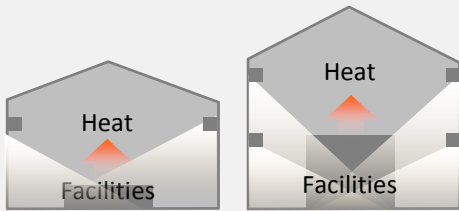
7. Product Proposal

◆ Lighting proposal according to industrial field's height



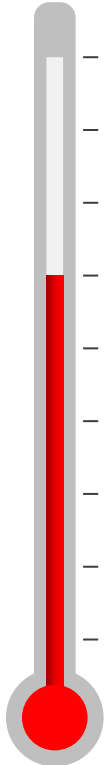
7. Product Proposal

◆ Proposal based on Installation Sites



Wall Mounting Type

For High Ceiling-Inaccessible Area
& When Needed to be Highlighted Wall side Area

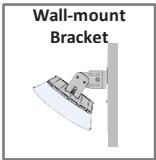


Max 60°C
Hot Temp

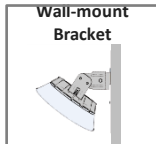
- Fan Type-



FBL 430



FBL 220/110



Pipe Type

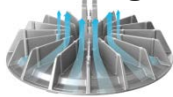


Chain Type

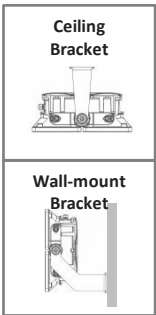


Max 50°C
Normal Temp

Natural
Cooling



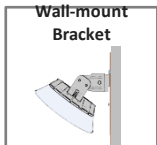
LE 400



FBL 050/090/120



NBL 115/160



Pipe Type



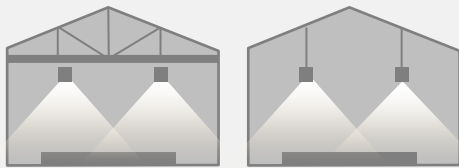
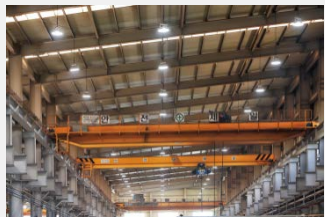
Chain Type



BL 145



BL 085

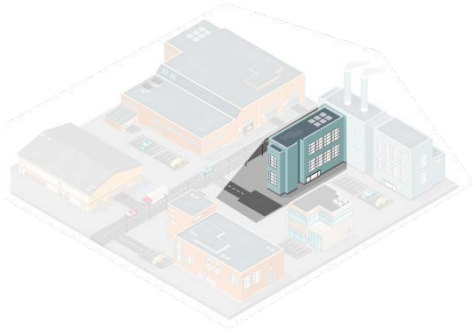


Ceiling Mounting Type

For area which is to be lightened uniformly or
needed to be high Illumination

7. Example of Industrial Facilities Lighting Design

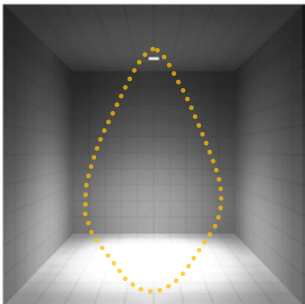
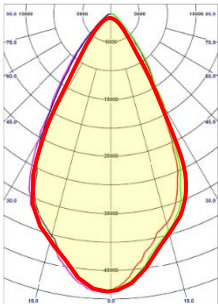
Tall Structure (Lighting Tower)



Product Name : LE400
Power Consumption : 385W
Efficiency : 110 lm/W
Color Temperature : 5700K

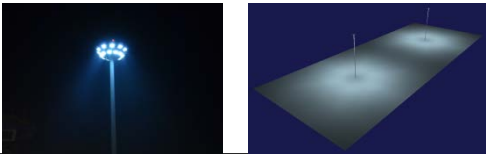
Light Distribution curve

60°

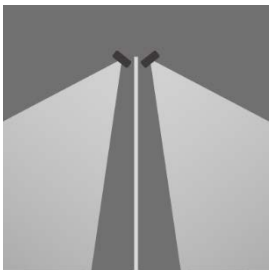


67%

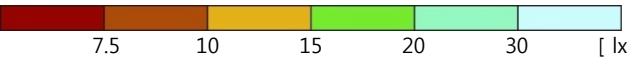
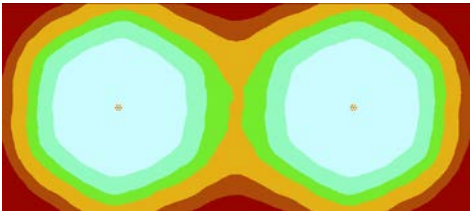
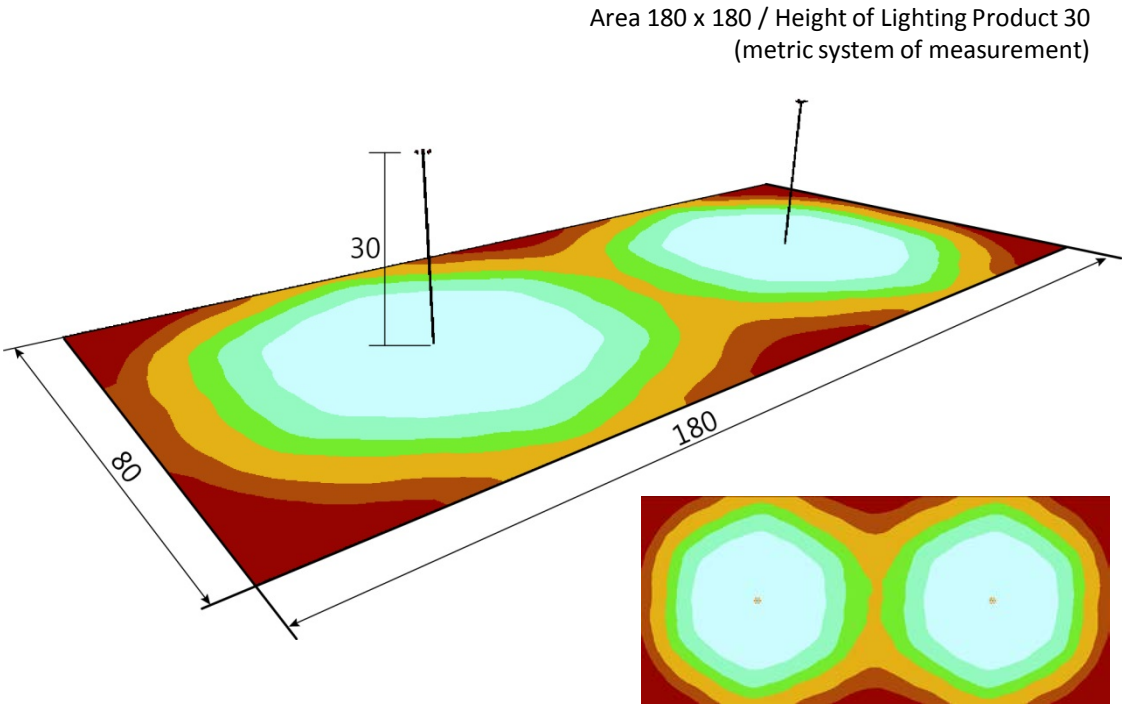
Electric power savings versus traditional lights



- Max. 50°C** Installation Temp Maximum 50°C
- IP67** IP Rate IP67
- Natural Cooling System



Height of Pole : 30M
Product per Pole : 6ea



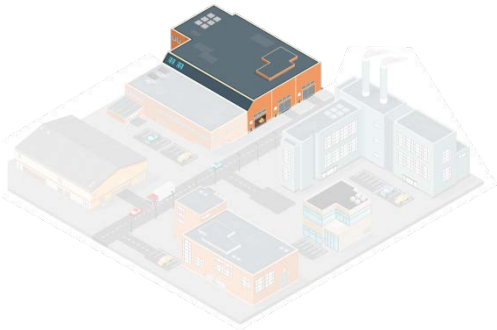
Power Consumption	Quantity	Average Flux (lux)	Uniformity Ratio	CRI (Ra)	Total Consumption
Recommended Criteria			>20	>20	
NBL115	385 W	12	21.4	75	4620 W
NH 250W	1150 W	12	18.1	22	13800 W

*KS 표준조도 : C 15-20-30 [lx]

*소비전력 : (SMPS 및 안정기 포함)

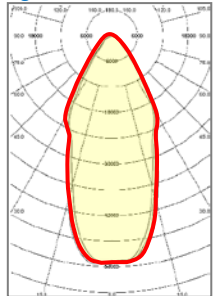
7. Example of Industrial Facilities Lighting Design

◆ High Bay Installation (Manufacturing Facilities / 20M Height)

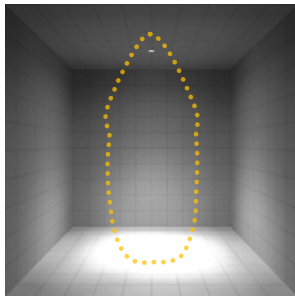


Name : FBL430 G3
Power Consumption : 350W
Efficiency : 125 lm/W
Color Temperature : 5700K

Light Distribution curve

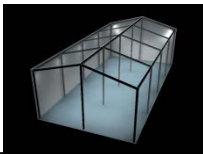
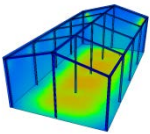


45°



70%

Electric power savings versus traditional lights



Max.
60°C

Installation Temp
Maximum 50°C

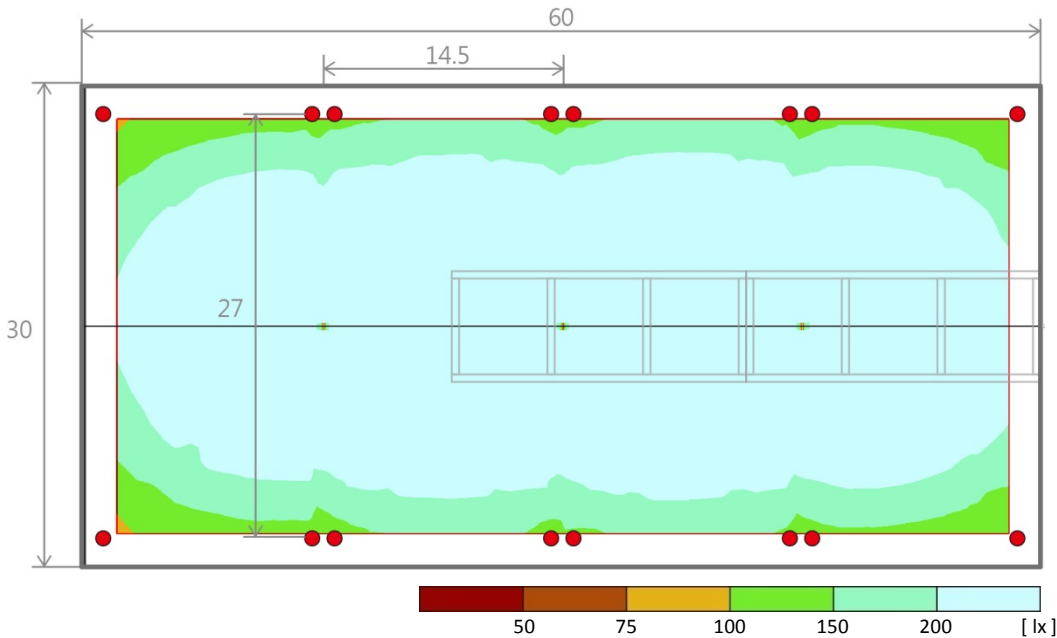
IP66

IP Rate
IP65



Mounting Type

Area 60 x 30 / Height 25 / Height of Lighting Product 20
(metric system of measurement)



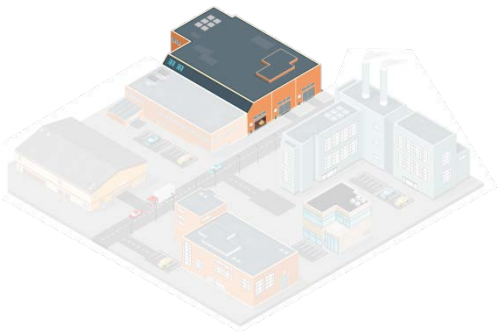
	Power Consumption	Quantity	Average Flux (lux)	Uniformity Ratio	CRI (Ra)	Total Consumption
Recommended Criteria			>200	>0.40	>70	
FBL430 G3	350 W	16	244	0.44	75	5600 W
NH 1kW	1150 W	16	211	0.37	22	18400 W

*KS 표준조도 : F 150-200-300 [lx]

*소비전력 : (SMPS 및 안정기 포함)

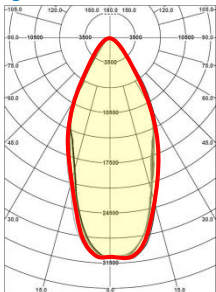
7. Example of Industrial Facilities Lighting Design

◆ High Bay Installation (Manufacturing Facilities / 15M Height)

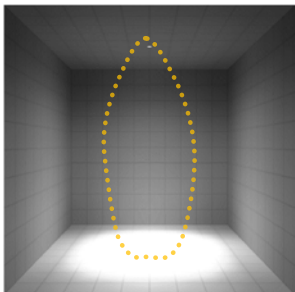


Product Name : FBL220 G3
Power Consumption : 180W
Efficiency : 125 lm/W
Color Temperature : 5700K

Light Distribution curve

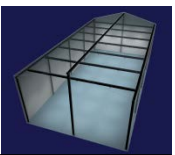
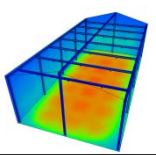
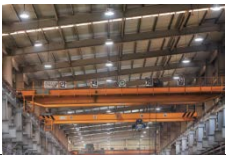


45°



61%

Electric power savings versus traditional lights



Max.
60°C

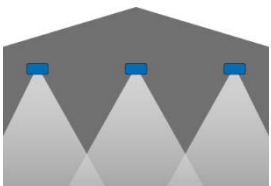
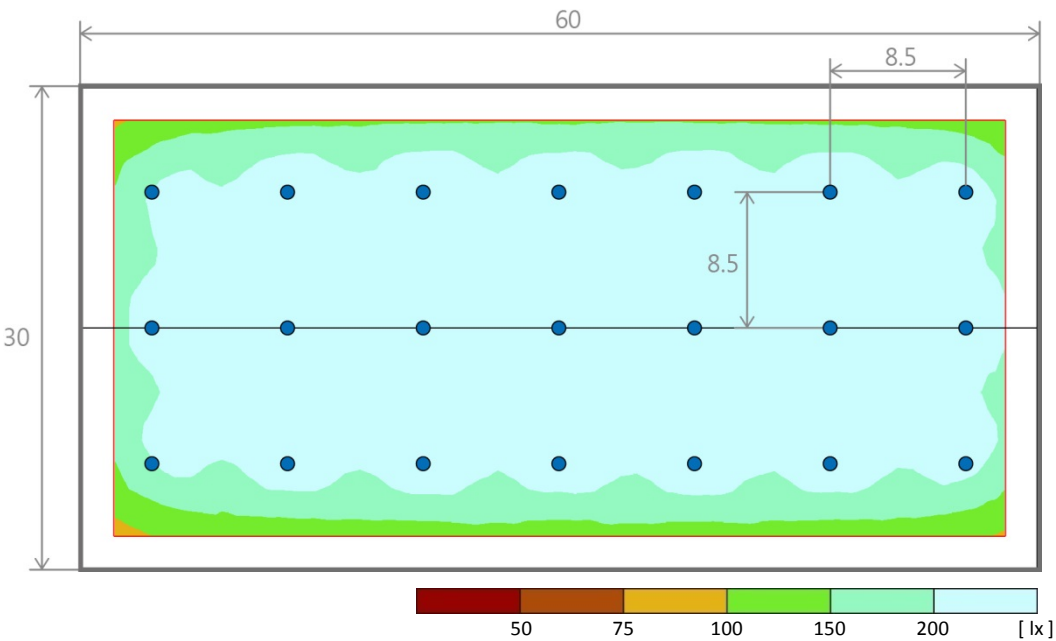
Installation Temp
Maximum 50°C

IP66

IP Rate
IP65



Area 60 x 30 / Height 20 / Height of Lighting Product 15
(metric system of measurement)



Mounting Type

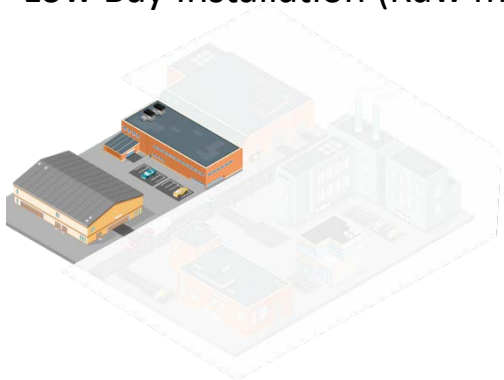
	Power Consumption	Quantity	Average Flux (lux)	Uniformity Ratio	CRI (Ra)	Total Consumption
Recommended Criteria			>200	>0.40	>70	
FBL220 G3	180 W	21	222	0.48	75	3780 W
NH 400W	460 W	21	205	0.42	22	9660 W

*KS 표준조도 : F 150-200-300 [lx]

*소비전력률 : (SMPS 및 안정기 포함)

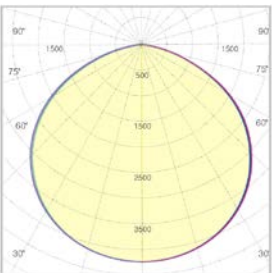
7. Example of Industrial Facilities Lighting Design

◆ Low Bay Installation (Raw materials Warehouse)

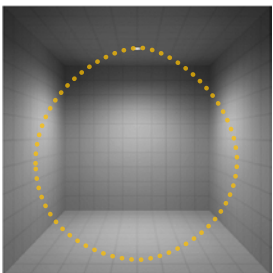


Product Name : NBL115
Power Consumption : 78W
Efficiency : 150 lm/W
Color Temperature : 5700K

Light Distribution curve



110°



73%

Electric power savings versus traditional lights

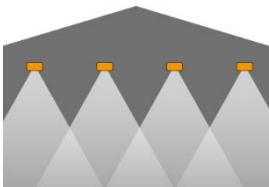
Max.
50°C

Installation Temp
Maximum 50°C

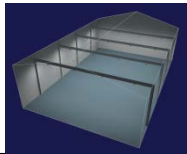
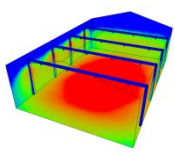
IP65

IP Rate
IP65

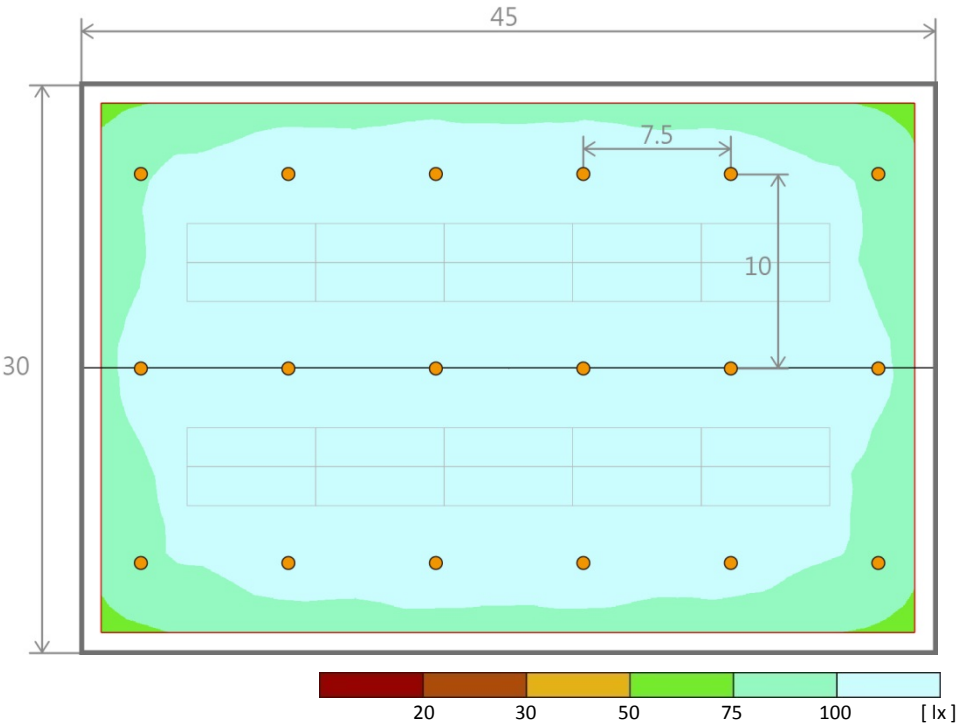
Natural Cooling
System



Mounting Type



Area 45 x 30 / Height 16 / Height of Lighting Product 10
(metric system of measurement)



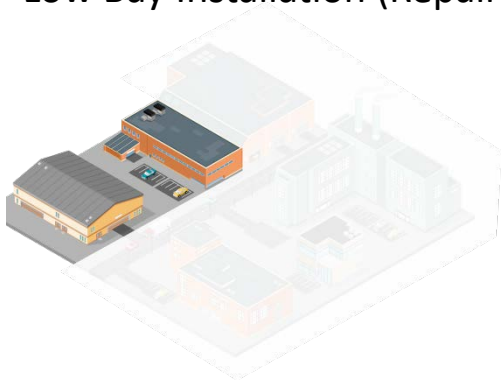
	Power Consumption	Quantity	Average Flux (lux)	Uniformity Ratio	CRI (Ra)	Total Consumption
Recommended Criteria			>100	>0.40	>70	
NBL115	78 W	18	109	0.72	80	1404 W
NH 250W	288 W	18	107	0.74	22	5184 W

*KS 표준조도 : E 60-100-150 [lx]

*소비전력 : (SMPS 및 안정기 포함)

7. Example of Industrial Facilities Lighting Design

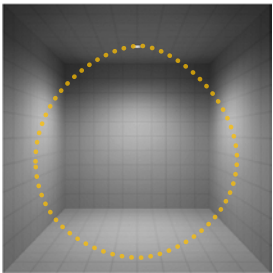
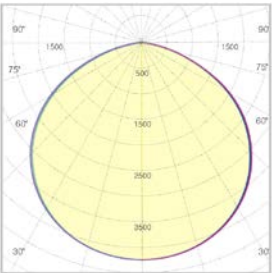
◆ Low Bay Installation (Repair Facility)



Product Name : NBL160
Power Consumption : 110W
Efficiency : 145 lm/W
Color Temperature : 5700K

Light Distribution curve

110°



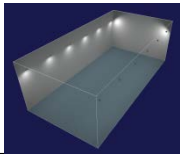
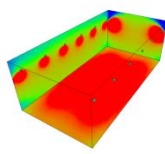
73%

Electric power savings versus traditional lights

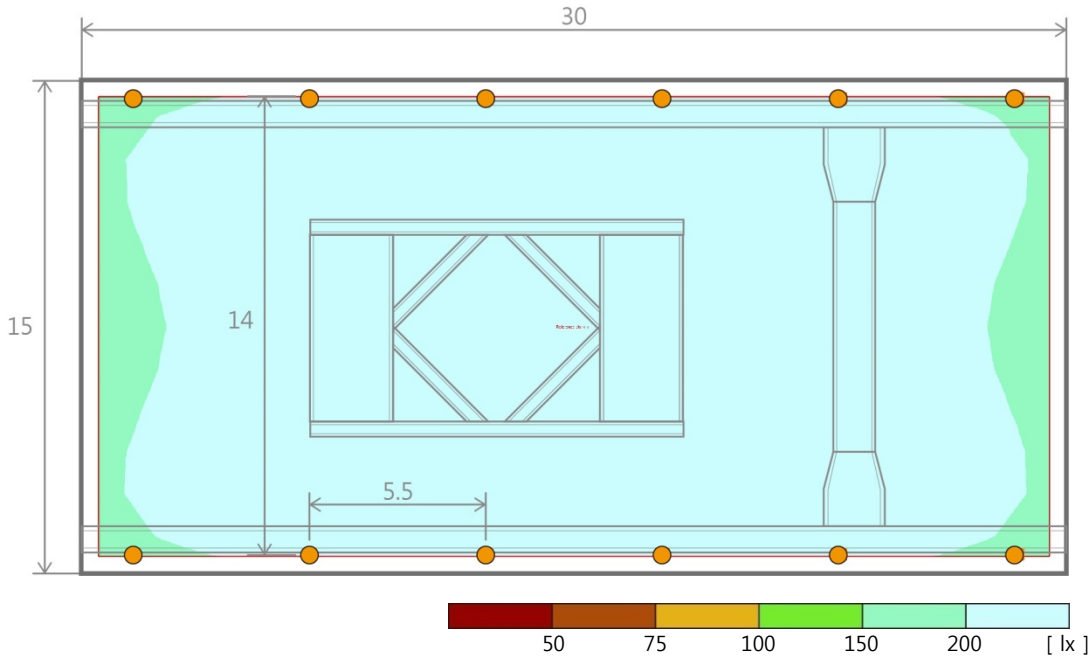
- Max. 50°C** Installation Temp Maximum 50°C
- IP65** IP Rate IP65
- Natural Cooling System



Mounting Type



Area 30 x 15 / Height 10 / Height of Lighting Product 8
(metric system of measurement)



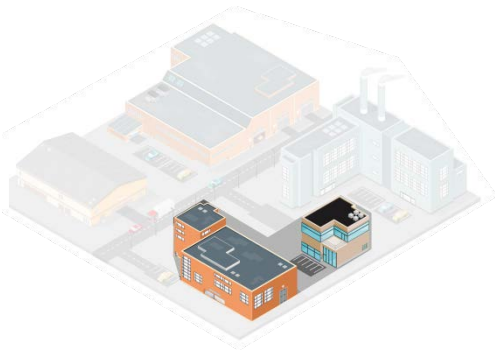
	Power Consumption	Quantity	Average Flux (lux)	Uniformity Ratio	CRI (Ra)	Total Consumption
Recommended Criteria			>200	>0.60	>70	
NBL115	110 W	12	245	0.79	80	1320 W
NH 250W	400 W	12	246	0.62	22	4800 W

*KS 표준조도 : F 150-200-300 [lx]

*소비전력 : (SMPS 및 안정기 포함)

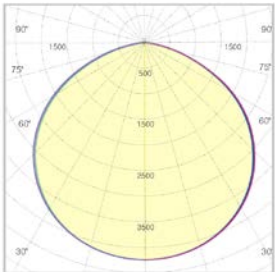
7. Example of Industrial Facilities Lighting Design

◆ Indoor (Office)

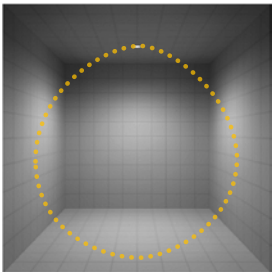


Product Name : PL040(3x12)
Power Consumption : 40W
Efficiency : 100 lm/W
Color Temperature : 5700K

Light Distribution curve



110°



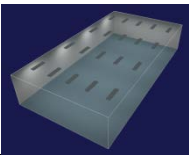
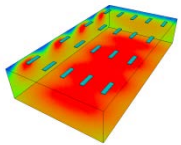
43%

Electric power savings versus traditional lights

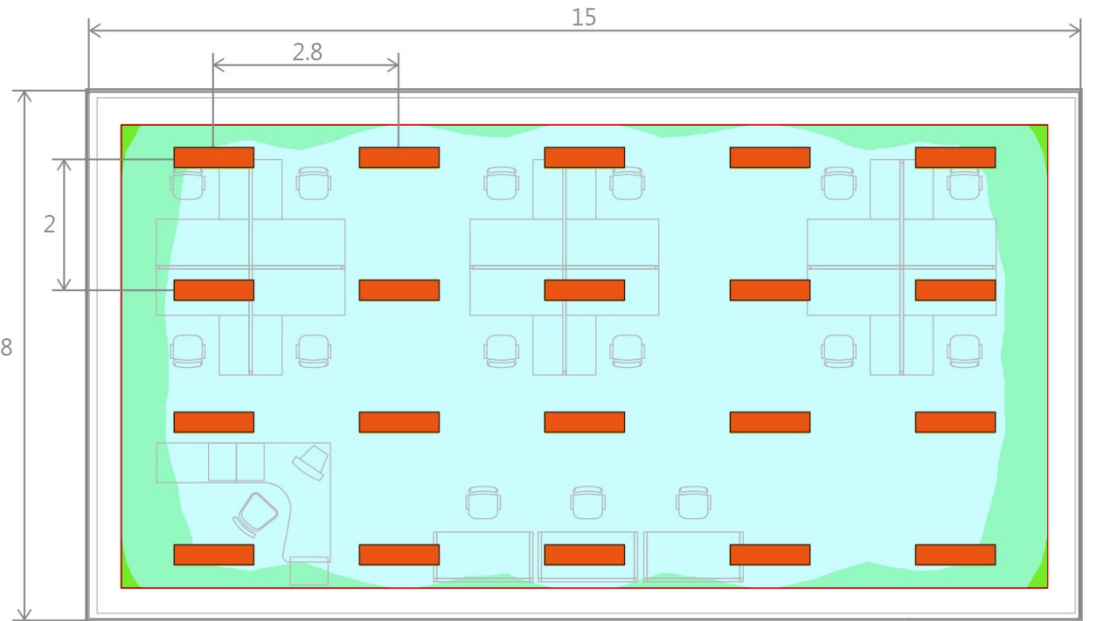
- Max. 40°C** Installation Temp Maximum 40°C
- IP20** IP Rate IP20
- Natural Cooling System



설치 방식 : 천장 매입



Area 15 x 8 / Height 8 / Height of Lighting Product 2.8
(metric system of measurement)



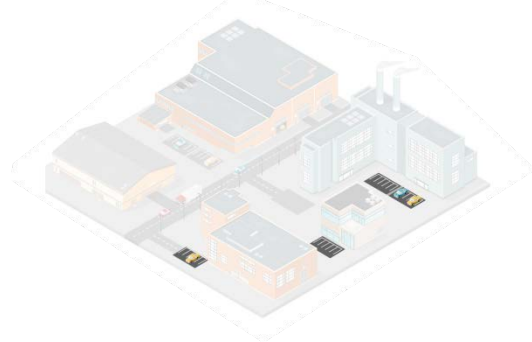
	Power Consumption	Quantity	Average Flux (lux)	Uniformity Ratio	CRI (Ra)	Total Consumption
Recommended Criteria			>500	>0.60	>80	
NBL115	40 W	20	587	0.62	80	800 W
NH 250W	35 W x 2	20	412	0.54	70	1400 W

*KS 표준조도 : G 300-400-600 [lx]

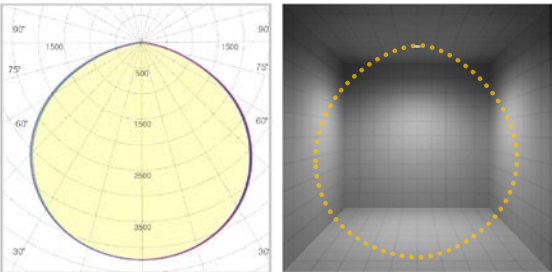
*소비전력 : (SMPS 및 안정기 포함)

7. Example of Industrial Facilities Lighting Design

◆ Indoor (Basement Garage)

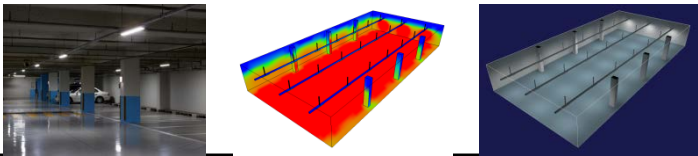


Product Name : LN18
Power Consumption : 18W
Efficiency : 110 lm/W
Color Temperature : 5700K



49%

Electric power savings versus traditional lights

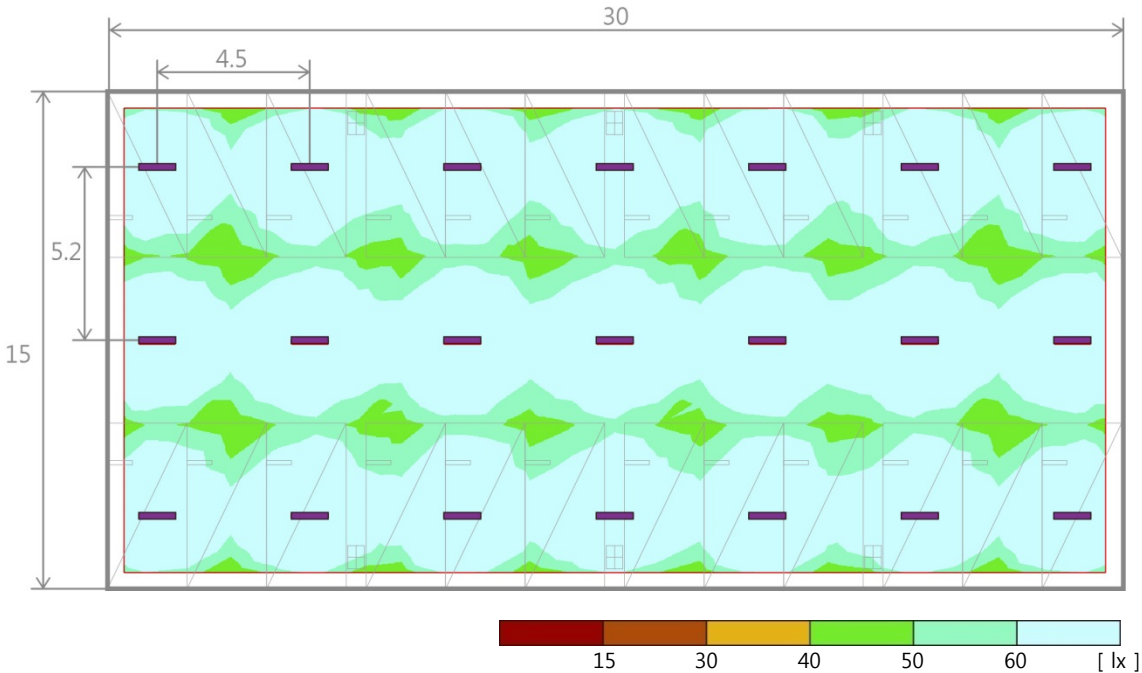


- Max. 40°C** Installation Temp Maximum 40°C
- IP20** IP Rate IP20
- Natural Cooling System



설치 방식 : 레이스웨이 직부

Area 30 x 15 / Height 5 / Height of Lighting Product 2.8
(metric system of measurement)






	Power Consumption	Quantity	Average Flux (lux)	Uniformity Ratio	CRI (Ra)	Total Consumption
Recommended Criteria			>40	>0.40	>40	
NBL115	18 W	21	79	0.55	80	378 W
NH 250W	35 W	21	48	0.67	70	735 W

*KS 표준조도 : D 30-40-60 [lx]

*소비전력 : (SMPS 및 안정기 포함)

7. Illumination Standard (KS in Korea)

◆ KS Recommended Standards

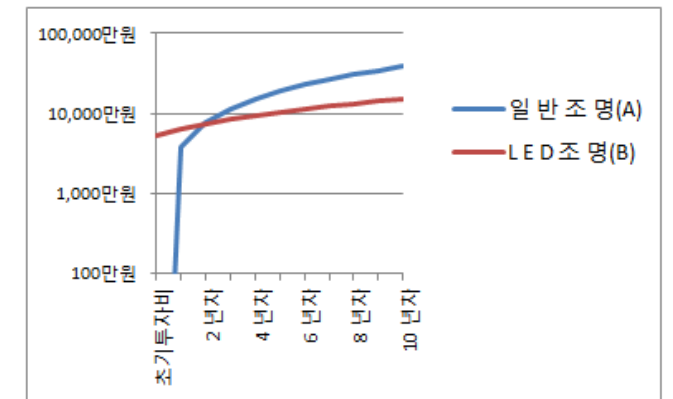
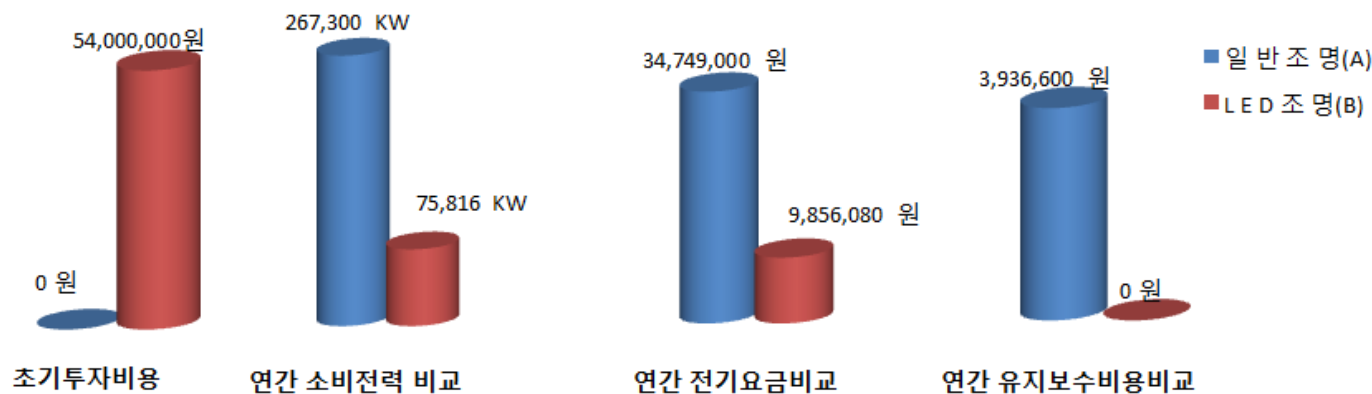
Types of Lighting Way	Types of Activities	Luminous Categorization	Min	Avg	Max
Overall Illumination of the Space 	Inspection Work Space in the dark environment	A	3	4	6
	The dark environment where there is no frequent use	B	6	10	15
	Public Place in the dark environment	C	15	20	30
	Work Place for short-term work	D	30	40	60
	Work Place hardly with visualized work	E	60	100	150
Workplace Illumination 	Performing visualized work with large object or object with highly brightness	F	150	200	300
	Performing visualized work with small object or object with normal brightness	G	300	400	600
	Performing visualized work with tiny object or object in the darkness	H	600	1000	1500
Work Place's Illumination with Overall and Local Lighting 	Performing visualized work with small object or hard work for a long time	I	1500	2000	3000
	Performing tough visualized work for a long time	J	3000	4000	6000
	Especially tough work where the place can hardly distinguish stuffs	K	6000	10000	15000

* Criteria : lx

MH250 ► NBL115 R.O.I example if Replaced

Contents	Conventional Light(A)	L E D Lighting (B)	Difference (A-B)
■ Comparison of Initial Investment Cost	0 KRW	54,000,000 KRW	54,000,000 KRW
■ Comparison of Annual Power Consumption	267,300 KRW	75,816 KRW	191,484 KRW
■ Comparison of Annual Electric Charge	34,749,000 KRW	9,856,080 KRW	24,892,920 KRW (71.64%)
■ Comparison of Annual Maintenance Charge	3,936,600 KRW	0 KRW	3,936,600 KRW
■ R O I	Annual Savings 28,829,520 KRW	Period of Repayment 1.87 yrs	

Payback SIMULATION											
Section	Initial Cost	1 yr	2 yrs	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs
Maintenance SAVING – Cumulative Cost		28,829,520원	57,659,040원	86,488,560원	115,318,080원	144,147,600원	172,977,120원	201,806,640원	230,636,160원	259,465,680원	288,295,200원
Additional Investment Cost – SAVING Cumulative cost	-54,000,000원	-25,170,480원	3,659,040원	32,488,560원	61,318,080원	90,147,600원	118,977,120원	147,806,640원	176,636,160원	205,465,680원	234,295,200원



Thank You.