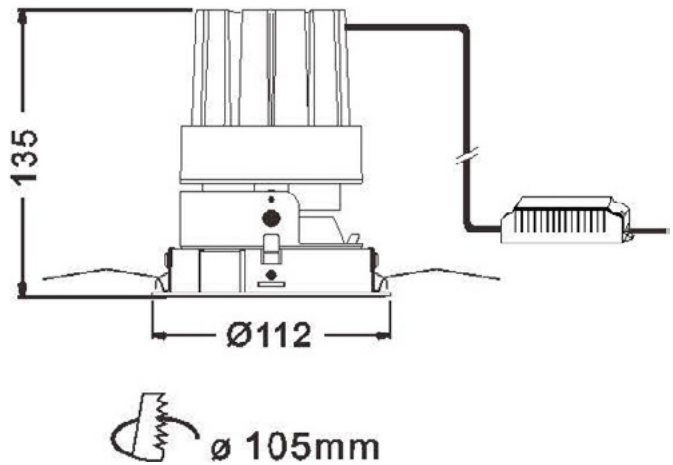
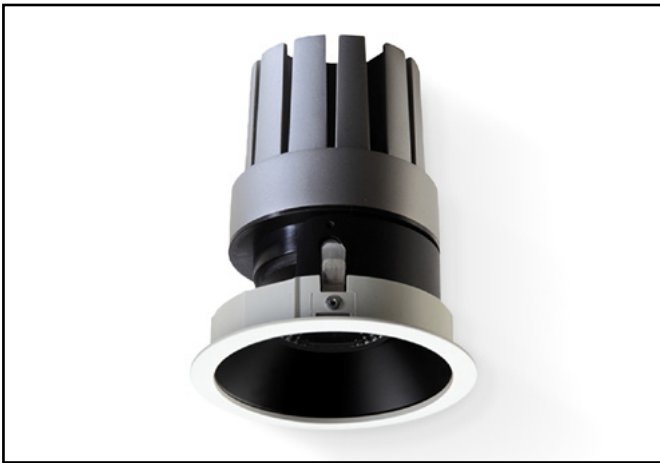


# DARKLIGHT DESIGN

## DARKLIGHT DESIGN DIANA LED IP44 RECESSED DOWNLIGHT

3162918ID



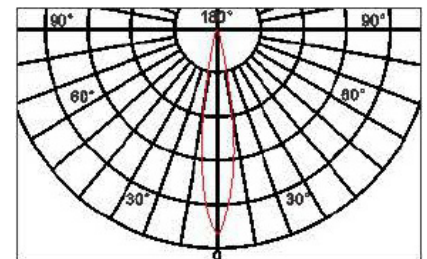
\*complete with 500mA dimmable driver

### LED COB 15 °

### 12W 2700K - Flux 869 lm

Power	12W	12W
CCT	2700K	3000K
CRI	=80(min)	=80(min)
Output V.	36V DC	36V DC
I	280mA	280mA
Efficacy	72lm/W	72lm/W

Lux				
h(m)	d(cm)	Em	Emax	
1	29	2910	3140	
2	59	727	916	
3	88	323	406	



Fitting: Die-cast aluminium ADC12  
Ambient temperature: -15 °C~40 °C  
QTY/CTN: 27 PCS/CTN  
GW: 24.9kg/CTN  
CTN size: 420x420x465mm

### 12W 3000K - Flux 871 lm

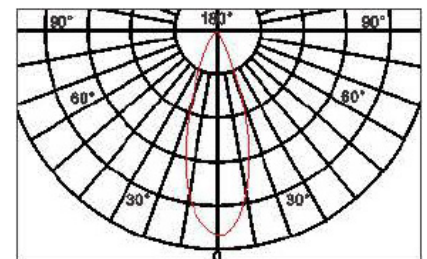
Lux				
h(m)	d(cm)	Em	Emax	
1	28	3014	3460	
2	57	753	943	
3	85	334	418	

### LED COB 25 °

### 12W 2700K - Flux 826 lm

Power	12W	12W
CCT	2700K	3000K
CRI	=80(min)	=80(min)
Output V.	36V DC	36V DC
I	280mA	280mA
Efficacy	68lm/W	69lm/W

Lux				
h(m)	d(cm)	Em	Emax	
1	43	1728	1940	
2	87	432	505	
3	131	192	224	



Fitting: Die-cast aluminium ADC12  
Ambient temperature: -15 °C~40 °C  
QTY/CTN: 27 PCS/CTN  
GW: 24.9kg/CTN  
CTN size: 420x420x465mm

### 12W 3000K - Flux 828 lm

Lux				
h(m)	d(cm)	Em	Emax	
1	43	1738	1960	
2	87	434	562	
3	131	193	249	

\* can be dimmed via compatible DALI, 0-10v, trailing edge or leading edge drivers. Please specify your preference at the time of ordering.

# DARKLIGHT DESIGN

## DARKLIGHT DESIGN DIANA LED IP44 RECESSED DOWNLIGHT 3162918ID

### LED COB 15°

Power	15W	15W
CCT	2700K	3000K
CRI	=80(min)	=80(min)
Output V.	36V DC	36V DC
I	350mA	350mA
Efficacy	66lm/W	71lm/W

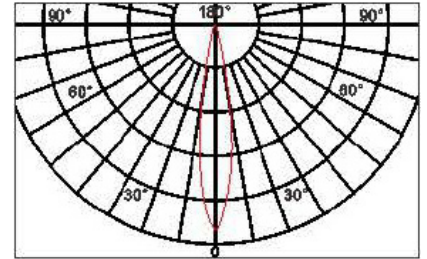
Fitting: Die-cast aluminium ADC12  
Ambient temperature: -15 °C~40 °C  
QTY/CTN: 27 PCS/CTN  
GW: 24.9kg/CTN  
CTN size: 420x420x465mm

### 15W 2700K - Flux 993 lm

Lux	h(m)	d(cm)	Em	Emax
	1	29	3343	4020
	2	58	853	1100
	3	87	371	488

### 15W 3000K - Flux 1009 lm

Lux	h(m)	d(cm)	Em	Emax
	1	28	3524	4170
	2	57	881	1140
	3	86	391	505



### LED COB 25°

Power	15W	15W
CCT	2700K	3000K
CRI	=80(min)	=80(min)
Output V.	36V DC	36V DC
I	350mA	350mA
Efficacy	63lm/W	65lm/W

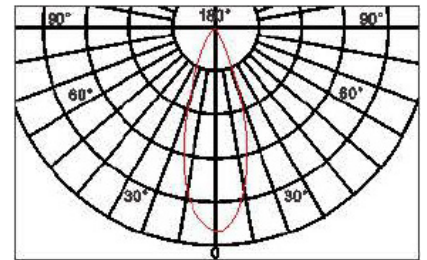
Fitting: Die-cast aluminium ADC12  
Ambient temperature: -15 °C~40 °C  
QTY/CTN: 27 PCS/CTN  
GW: 24.9kg/CTN  
CTN size: 420x420x465mm

### 15W 2700K - Flux 949 lm

Lux	h(m)	d(cm)	Em	Emax
	1	42	1977	2320
	2	85	494	611
	3	127	219	270

### 15W 3000K - Flux 980 lm

Lux	h(m)	d(cm)	Em	Emax
	1	43	2075	2340
	2	87	518	676
	3	130	230	300



\* can be dimmed via compatible DALI, 0-10v, trailing edge or leading edge drivers. Please specify your preference at the time of ordering.

# DARKLIGHT DESIGN

## DARKLIGHT DESIGN DIANA LED IP44 RECESSED DOWNLIGHT 3162918ID

### LED COB 15°

Power	18W	18W
CCT	2700K	3000K
CRI	=80(min)	=80(min)
Output V.	36V DC	36V DC
I	450mA	450mA
Efficacy	67lm/W	66lm/W

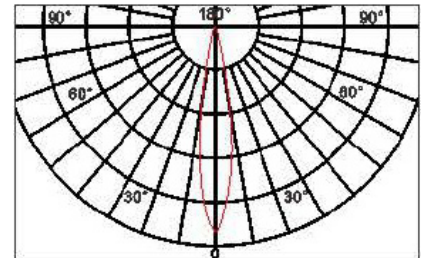
Fitting: Die-cast aluminium ADC12  
Ambient temperature: -15 °C~40 °C  
QTY/CTN: 27 PCS/CTN  
GW: 24.9kg/CTN  
CTN size: 420x420x465mm

### 18W 2700K - Flux 1024 lm

Lux	h(m)	d(cm)	Em	Emax
	1	42	4126	4800
	2	58	1031	1320
	3	87	458	586

### 18W 3000K - Flux 1216 lm

Lux	h(m)	d(cm)	Em	Emax
	1	29	4244	5010
	2	59	1061	1370
	3	88	471	608



### LED COB 25°

Power	18W	18W
CCT	2700K	3000K
CRI	=80(min)	=80(min)
Output V.	36V DC	36V DC
I	450mA	450mA
Efficacy	63lm/W	65lm/W

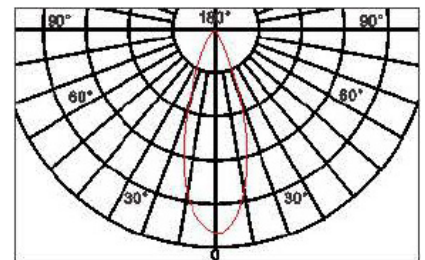
Fitting: Die-cast aluminium ADC12  
Ambient temperature: -15 °C~40 °C  
QTY/CTN: 27 PCS/CTN  
GW: 24.9kg/CTN  
CTN size: 420x420x465mm

### 18W 2700K - Flux 1134 lm

Lux	h(m)	d(cm)	Em	Emax
	1	42	2378	2820
	2	85	594	735
	3	127	264	326

### 18W 3000K - Flux 1180 lm

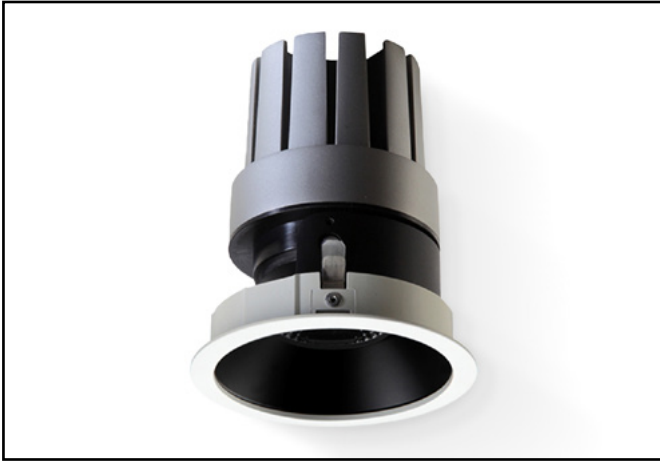
Lux	h(m)	d(cm)	Em	Emax
	1	45	2456	2840
	2	90	614	758
	3	136	272	335



\* can be dimmed via compatible DALI, 0-10v, trailing edge or leading edge drivers. Please specify your preference at the time of ordering.

# DARKLIGHT DESIGN

## DARKLIGHT DESIGN DIANA LED IP44 RECESSED DOWNLIGHT 3162918ID



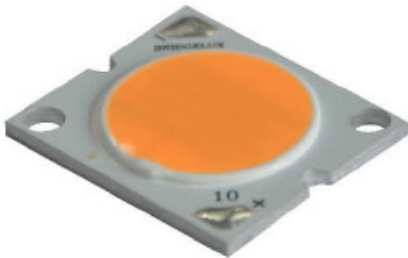
black reflector - C



white reflector - B

### COB (chip-on-board)

COB (chip-on-board) technology generates the light evenly over the surface like that of an incandescent lamp, but without double image. The light generated from the fitting with COB makes the subject look natural and clean compared to a fitting with a single-LED-chip, which has a double image.



Fitting with COB generates the light even and soft, making the subject natural and clean and consequently creating strong stereoscopic feel.



Fitting with single LED chip generates the light from the scattered chips, making the subject blur and unclear in boundary with double image and consequently creating weak stereoscopic feel.

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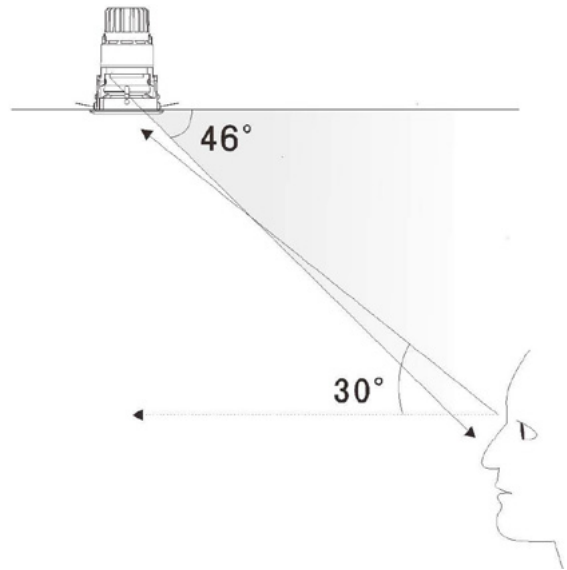
# DARKLIGHT DESIGN

## DARKLIGHT DESIGN DIANA LED IP44 RECESSED DOWNLIGHT 3162918ID

### GLARE CONTROL

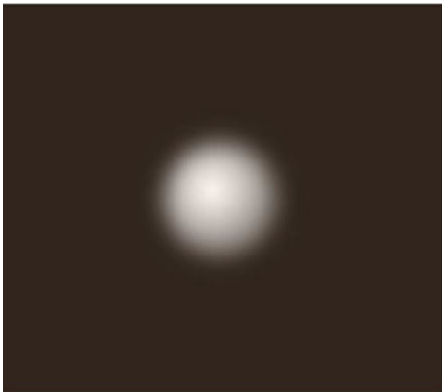
As shown in the diagram on the right, the glare-cut reaches  $46^\circ$  MAX, offering good glare control. The MAX cut-off which human can bear is  $30^\circ$  MAX at horizontal. Otherwise, glare is visible.

The glare-cut off is over  $30^\circ$ . The glare is consequently well kept beyond the glare area.

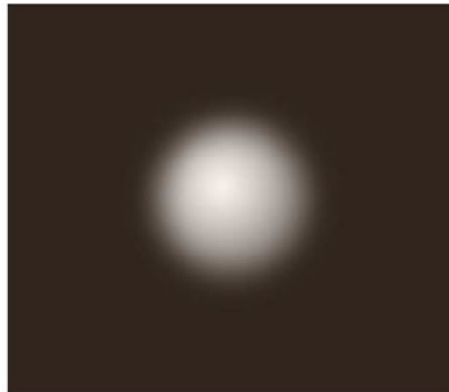


### ACCURATE LIGHT DISTRIBUTION AND CONTROL

Available with beam angles at  $15^\circ$ ,  $25^\circ$  or  $35^\circ$  to cater for differing requirements.



$15^\circ$



$25^\circ$



$35^\circ$

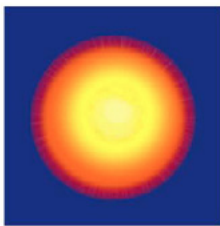
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# DARKLIGHT DESIGN

## DARKLIGHT DESIGN DIANA LED IP44 RECESSED DOWNLIGHT 3162918ID

### HEAT SINK

Wind cooling theory is fully taken into account in the heat sink design. Sufficient passageway for air ventilation is made so that the hot and cool air can exchange freely within the heat sink. Thus strong heat dissipation is produced. This is a so-called heat sink which can breath.



### THERMAL MANAGEMENT

Efficient thermal management is indispensable in order to achieve the long service life and to operate LEDs as efficiently as possible. The extra-high temperatures in the LED chip reduces not only its own service life but also its efficiency.

Reliable and efficient thermal management starts during the development process, which includes comprehensive tests and simulations. A large heat sink alone cannot generally be considered a sufficient quality criterion for optimal thermal management.

A thermal connection between board and heat sink must also be ensured in quality. Thermal pads or compounds are utilized as required for this purpose. Within the scope of quality processes, thermal connection of the LED chips to the boards is checked as well with reference to the LED manufacturer's specifications.

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# DARKLIGHT DESIGN

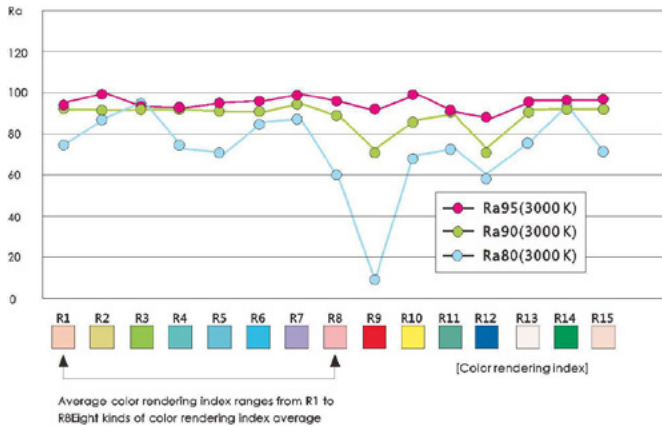
## DARKLIGHT DESIGN DIANA LED IP44 RECESSED DOWNLIGHT 3162918ID

### HIGH CRI

Utilizing a world top class LED chip which creates high color rendering with RA > 90 and makes the subject natural and fresh in a way that few other LED products can do at present.

Lighting in high power & high CRI results in higher definition of the colour and detail of the subject. Subsequently this fitting is an ideal lighting solution for both the retail sector and public spaces.

This fitting is available in CRI 80 or CRI 90.



### AVERAGE RA EVALUATION INDEX

Ra Evaluation Index is applied to estimate the color rendering index of the lighting product to see the reflection level of natural color compared to those by conventional lightings.

Average color rendering index ranges from R1 to R8.

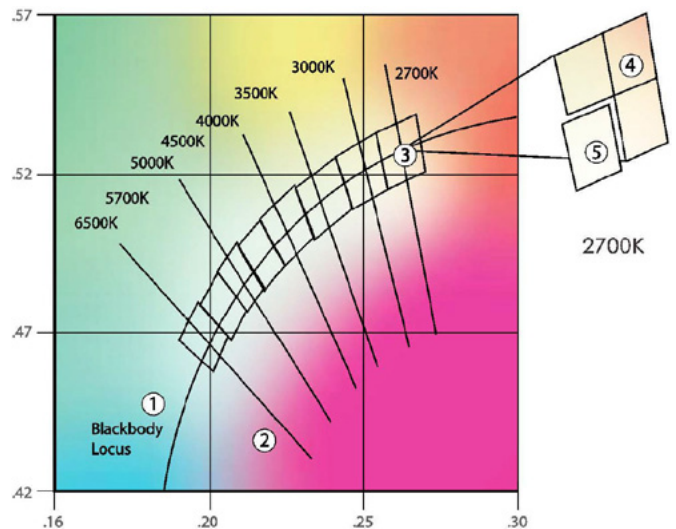
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# DARKLIGHT DESIGN

## DARKLIGHT DESIGN DIANA LED IP44 RECESSED DOWNLIGHT 3162918ID

### RA CONSISTENCY

The requirement for high Ra consistency for the quality lighting and also faces the phenomenon of inconsistency in terms of Ra market. It is a headache of designers and the consumers. For this purpose, our LED chips are sourced at a high consistency from the quality chips manufacturers. All LED chips are sorted out, stored and processed in strict and scientific criterion to guarantee the LED chip in consistency in one batch.



When LEDs are manufactured, the most challenging part is producing consistent and precise white color. Binning is the process of sorting the white LEDs into groups of similar white colors. The regulation of this process is outlined by the ANSI standards for tolerances of white color variations to fit within a color temperature group, or bin. Some LED manufacturers have adapted a more stringent process of sorting called micro-bins which allows for much smaller white color variations.

Our LEDs exceed the ANSI binning standards, giving our fittings optimal color matching. Definition of 'Binning' - when white LEDs are created, whether they be on the warm or cool end of the spectrum, there are always slight inconsistencies with regards to specific color temperatures.

- The arced black line in the graph represents the white color spectrum.
- These long intersecting lines represent the range, from one end of the line to the other, of variation in color for each corresponding color temperature.
- In order to keep the range of each temperature as close to the same color as possible, ANSI created tolerance zones. Only the LEDs that fall into this range are used for that particular color temperature, these are referred to as "bins".
- As you can see this bin still has plainly visible variations throughout. ANSI tolerance zones are adjacent to account for the challenges around manufacturing LED chips consistently.
- Once divided into smaller bins, the differences in color are much less, allowing for minimal variation when two or more LEDs are used together.

Although there is a cost associated with consistency, various LED chip manufacturers now make smaller bins available.

Micro-bin sizes vary between chip manufacturers and while micro-bins allow for better consistency by batch, there is commonly a color variation between batches.

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