



**PHILIPS**

CorePro  
LEDspot LV



## Technical Application Guide

# Philips CorePro LED MR16

PHILIPS CorePro LED MR16 is the series of low voltage (12VAC) Halogen spot replacement. Not only does it employ Philips patented solution to guarantee the good thermal and driver design, it also delivers beam intensity which reaches that of 35W, 50W Philips Halogen MR16 lamps. The form-factor of the Philips LED MR16 guarantees a 100% form-fit on the back-side of the lamp (exact form fit with Halogen lamps).



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Up to  
**86%**  
Energy cost  
saving



# Design highlights

- Up to 86% energy saving compared to Philips halogen MR16 35W, 50W lamp
- Long lifetime of 15,000 hours (F50, L70)
- Retrofits into vast majority of GU5.3 based luminaires
- 36 degree beam angle for a clearly defined beam spread
- CCT: 2700K, 4000K, 6500K
- No UV and IR
- Environmental friendly, without mercury or other hazardous substances
- RoHS compliant

## Application areas

Philips CorePro LED MR16 family is suitably designed for spot and general lighting applications in hospitality, retail and home segment. Unlike the conventional halogen reflector lamp, Philips CorePro LED MR16 has a long lifetime of 15,000 hours (or equivalent to 10 years if lit continuously for 4 hours a day) ensuring minimum maintenance cost in vast spot lighting applications.

## Application notes

- Compatible with existing halogen transformer (refer to the recommended transformer table)
- Do not use with dimmer
- Only to apply in indoor environments and open luminaire in the front with GU5.3 lamp-holders that offer sufficient space (at least 10mm free air space)
- Operating temperature range is between 0 °C and 40 °C ambient
- Do not use or install the lamp in wet environment
- Not intended to use with emergency light luminaire or exit lights

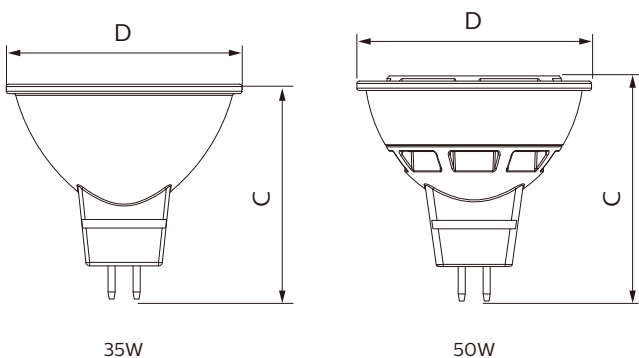
# Product features

## Technical Specifications

| Product type                             | Voltage (VAC) | Power Wattage (W) | Replaced Wattage (W) | Base  | 90D Cone Lumen (lm) | Beam Angle (°) | CCT (K) | MBCP | Lifetime (Hrs) | CRI | Dimmable | KSA EEL label |
|------------------------------------------|---------------|-------------------|----------------------|-------|---------------------|----------------|---------|------|----------------|-----|----------|---------------|
| CoreProLEDspotLV ND 4.7-35W 827 MR16 24D | 12            | 4.7               | 35                   | GU5.3 | 360                 | 24             | 2700    | 900  | 15,000         | 80  | No       | C             |
| CoreProLEDspotLV ND 4.7-35W 865 MR16 24D | 12            | 4.7               | 35                   | GU5.3 | 365                 | 24             | 6500    | 900  | 15,000         | 80  | No       | C             |
| CoreProLEDspotLV ND 8.2-50W 827 MR16 36D | 12            | 8.2               | 50                   | GU5.3 | 621                 | 36             | 2700    | 1400 | 15,000         | 80  | No       | C             |
| CoreProLEDspotLV ND 8.2-50W 840 MR16 36D | 12            | 8.2               | 50                   | GU5.3 | 645                 | 36             | 4000    | 1400 | 15,000         | 80  | No       | C             |

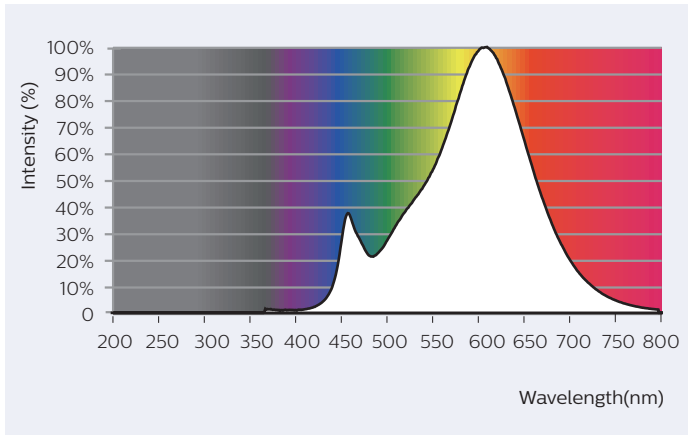
## Fixture Compatibility

| Type                                     | C max. Overall Length (mm) | D max. Diameter (mm) | max. Weight (gram) |
|------------------------------------------|----------------------------|----------------------|--------------------|
| CoreProLEDspotLV ND 4.7-35W 827 MR16 24D | 46                         | 50                   | 33                 |
| CoreProLEDspotLV ND 4.7-35W 865 MR16 24D | 46                         | 50                   | 33                 |
| CoreProLEDspotLV ND 8.2-50W 827 MR16 36D | 48                         | 50                   | 45                 |
| CoreProLEDspotLV ND 8.2-50W 840 MR16 36D | 48                         | 50                   | 45                 |

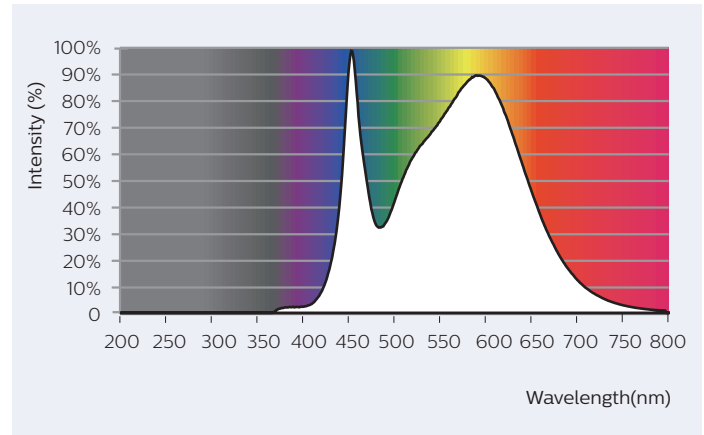


## Spectral Power Distribution

Spectrum CorePro LEDspotLV 2700K



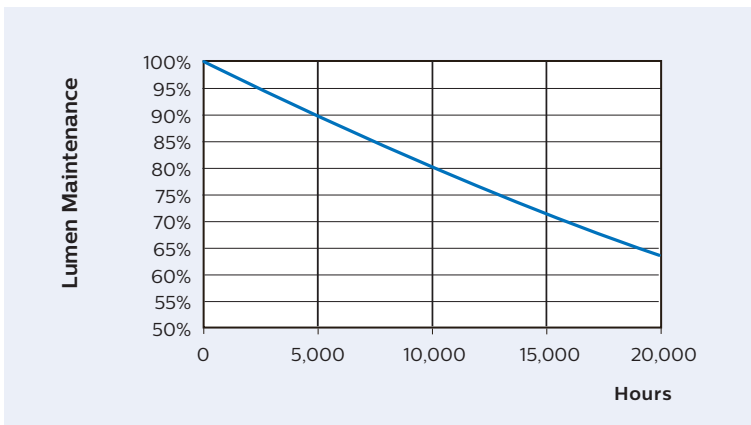
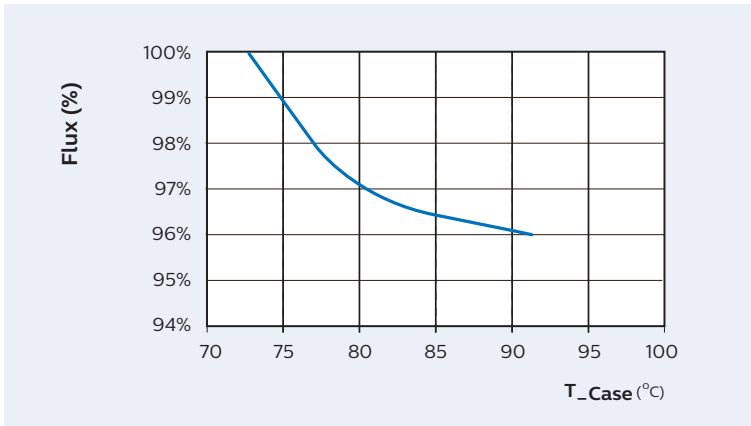
Spectrum CorePro LEDspotLV 4000K

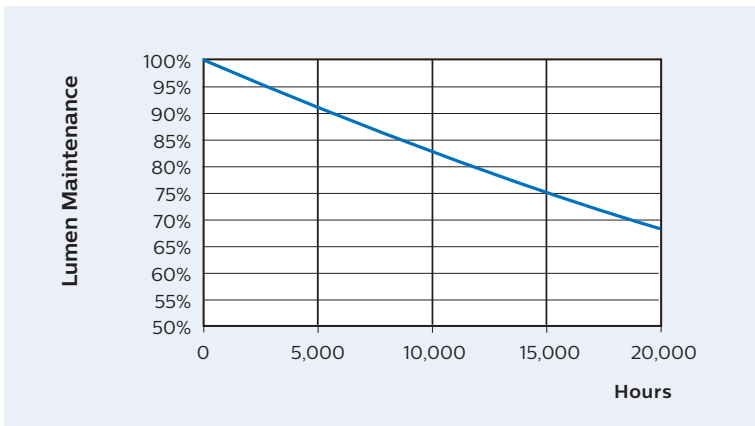
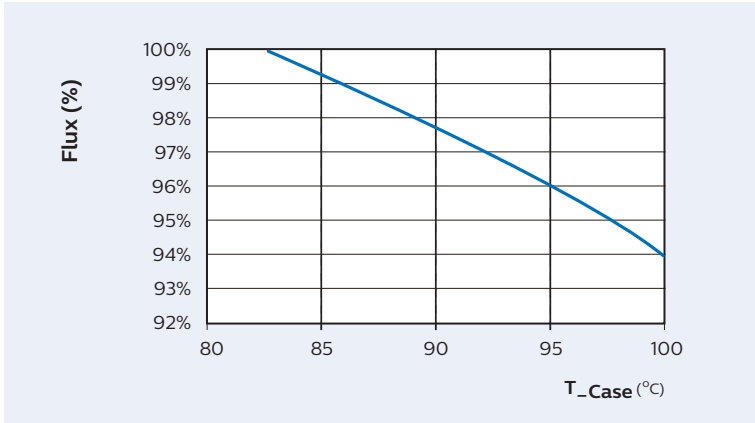


## Temperature

PHILIPS 12V CorePro LED MR16 is designed for operation in all GU5.3 lighting installations in open fixtures, 10mm free air space is needed around the lamp housing to ensure long-life.

CorePro LED MR16 4.7-35W





# Photometric Diagrams

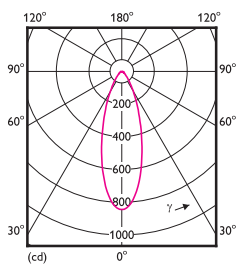


CoreProLEDspotLV ND 4.7-35W 827 MR16 24D

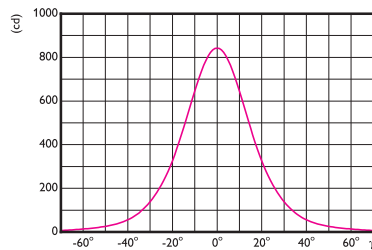
90° cone 360 lm

|                    |      |                             |         |
|--------------------|------|-----------------------------|---------|
| Light output ratio | 1.00 | l <sub>max</sub>            | 843 cd  |
| Service upward     | 0.00 | BS ( 1/2 l <sub>max</sub> ) | 2 x 17° |
| Service downward   | 1.00 | VBA ( 1/2 E <sub>0</sub> )  | 2 x 16° |

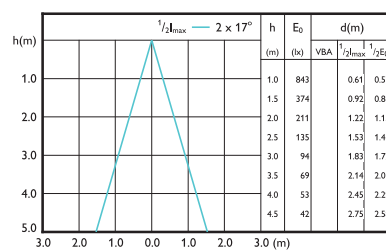
Polar intensity diagram



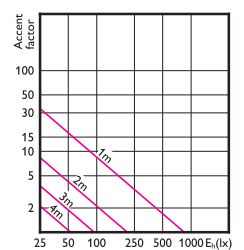
Cartesian intensity diagram



Beam diagram



Visual impact diagram



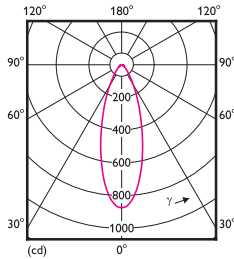


### CoreProLEDspotLV ND 4.7-35W 865 MR16 24D

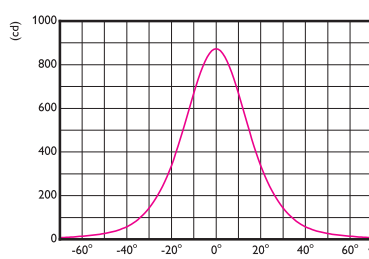
90° cone 365 lm

|                    |      |                              |                     |
|--------------------|------|------------------------------|---------------------|
| Light output ratio | 1.00 | $I_{max}$                    | 873 cd              |
| Service upward     | 0.00 | BS ( $\frac{1}{2} I_{max}$ ) | $2 \times 17^\circ$ |
| Service downward   | 1.00 | VBA ( $\frac{1}{2} E_0$ )    | $2 \times 16^\circ$ |

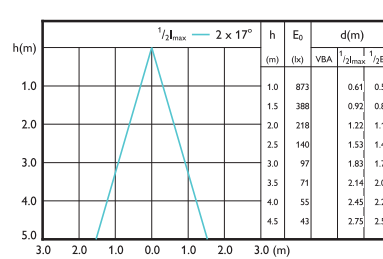
Polar intensity diagram



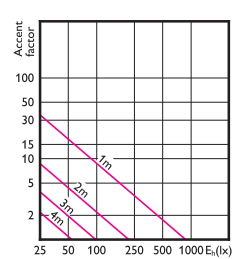
Cartesian intensity diagram



Beam diagram



Visual impact diagram

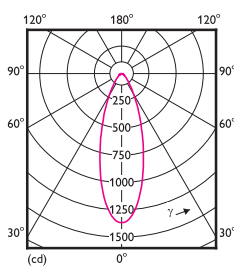


### CoreProLEDspotLV ND 8.2-50W 827 MR16 36D

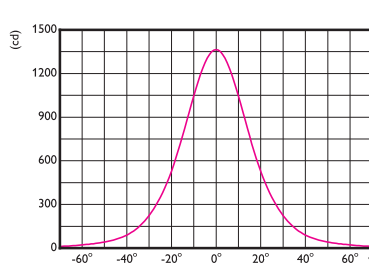
90° cone 621 lm

|                    |      |                              |                     |
|--------------------|------|------------------------------|---------------------|
| Light output ratio | 1.00 | $I_{max}$                    | 1364 cd             |
| Service upward     | 0.00 | BS ( $\frac{1}{2} I_{max}$ ) | $2 \times 17^\circ$ |
| Service downward   | 1.00 | VBA ( $\frac{1}{2} E_0$ )    | $2 \times 16^\circ$ |

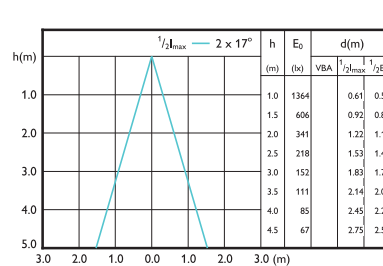
Polar intensity diagram



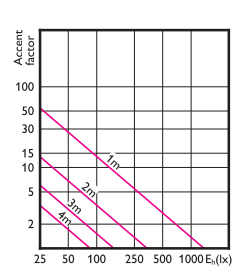
Cartesian intensity diagram



Beam diagram



Visual impact diagram

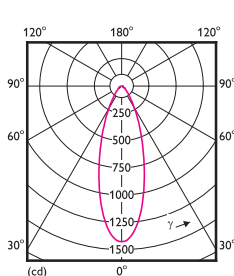


### CoreProLEDspotLV ND 8.2-50W 840 MR16 36D

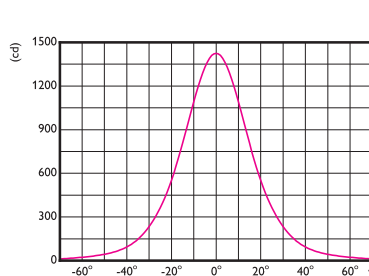
90° cone 645 lm

|                    |      |                              |                     |
|--------------------|------|------------------------------|---------------------|
| Light output ratio | 1.00 | $I_{max}$                    | 1424 cd             |
| Service upward     | 0.00 | BS ( $\frac{1}{2} I_{max}$ ) | $2 \times 17^\circ$ |
| Service downward   | 1.00 | VBA ( $\frac{1}{2} E_0$ )    | $2 \times 16^\circ$ |

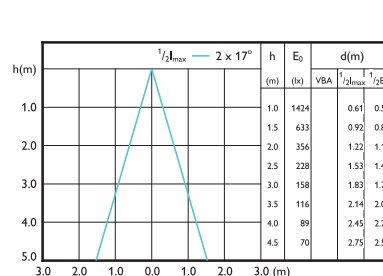
Polar intensity diagram



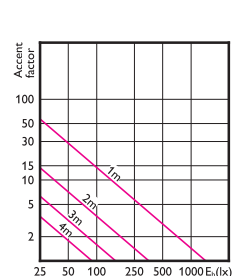
Cartesian intensity diagram



Beam diagram

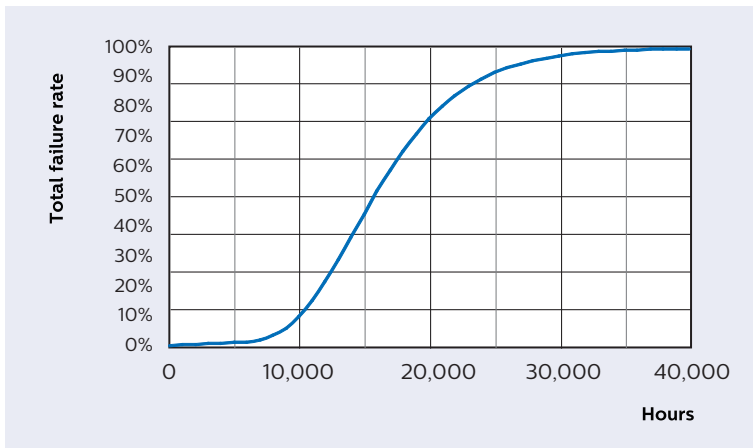


Visual impact diagram



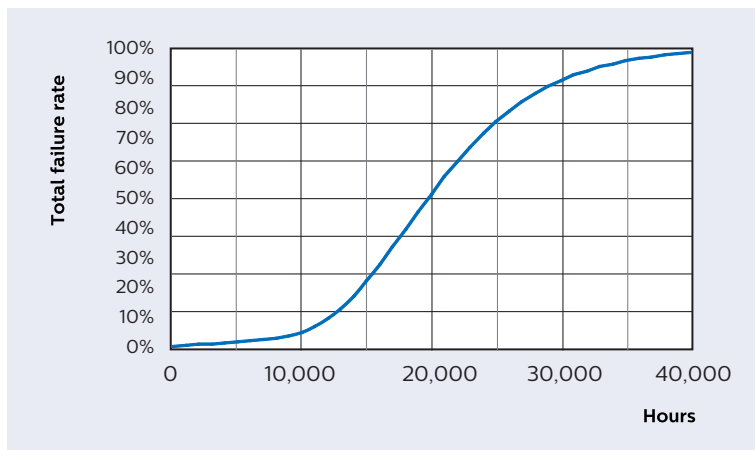
## Lifetime + Sustainability

Failure Rate Curve of CorePro LED MR16 4.7-35W



- PHILIPS 12V CorePro LED MR16 has a lifetime of 15,000 hours, defined as the number of hours when 50% of a large group of identical lamps below 70% of its initial lumens.
- Lifetime estimation based on the application environment condition at room temperature (25°C @ 10mm free air), base down burning position, and at rated voltage.

Failure Rate Curve of CorePro LED MR16 8.2-50W



## Transformer Compatibility

PHILIPS 12V CorePro LED MR16 has a unique, patented, electronic solution embedded that makes this LED Replacement lamp compatible with the broad range of standard 12VAC Halogen electronic transformers in the global market place except for some IC-base transformers WHEN the whole system is without Dimmers. Compatibility with electromagnetic transformers is guaranteed as well.

Determine the max. number of lamps can be connected to a ET, 20% power derating of ET should be considered

For example:

W (or VA) \*20% of ET to determine max. lamps per transformer



Transformer: Certaline 60

Pout: 20W...60W

$60W \times 20\% / 4.7W = 2.55$

4.7W lamp 2 pcs max. per transformer



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05/2016

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