



95W/140W

# Technical Application Guide for PHILIPS LED Lamps

Philips TrueForce universal LED Highbay Lamp



**PHILIPS**



## Introduction

Philips TrueForce universal LED highbay lamps give you a quick and easy payback solution to replace HID lamps in Highbay application. The solution gives you the LED benefits of energy-efficiency and long-lifetime, plus they come for a low initial investment. Lamp design allows directly retrofit HID lamps with TrueForce universal LED highbay lamps without changing the fixtures or gear. This feature also allow system with ignitor failure or without ignitor to continue working, meanwhile, the lamps can also work with main voltage input after bypassing the existing gear. Multiple beam angle options and high colour rendering index enhance the lighting distribution while creating a comfortable, safe and high productivity environment.

## Benefits

- Cost saving with quick payback, up to 90% energy saving
- Easy adoption
- Low initial investment

## Features

- Universal driver design, it can work with both mains voltage and existing gear
- High energy efficiency with directional light
- Long lifetime 50,000hrs
- 2 beam angles 60/120 degree
- Pleasant white light with CRI 80

## Applications

- Industrial – Factories, Warehouses, Distribution centres
- Retail – Hyper markets, Shopping malls
- Others – Transportation hubs, Convention centres, Sports halls



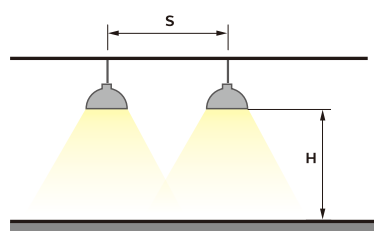
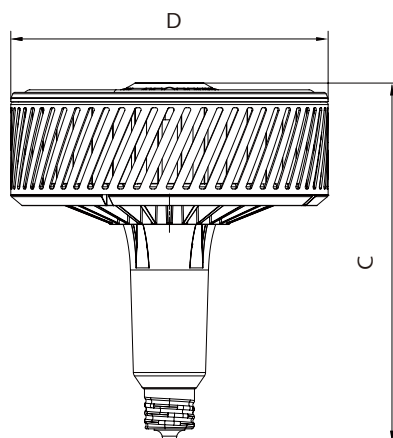
**IP40**

## Technical Specifications

Product description	Watts	Lumens	Voltage	Beam Angle	CCT	CRI	LED Lifetime	Cap	Equivalent Wattage	Energy Saving
	W	lm	VAC	°	K		Hrs		W	
TForce LED HPI UN 95W E40 840 NB	95	13000	220-240	60	4000	80	50,000	E40	250	up to 62%
TForce LED HPI UN 95W E40 840 WB	95	13000	220-240	120	4000	80	50,000	E40	250	up to 62%
TForce LED HPI UN 140W E40 840 NB	140	20000	220-240	60	4000	80	50,000	E40	400	up to 65%
TForce LED HPI UN 140W E40 840 WB	140	20000	220-240	120	4000	80	50,000	E40	400	up to 65%

## Fixture compatibility

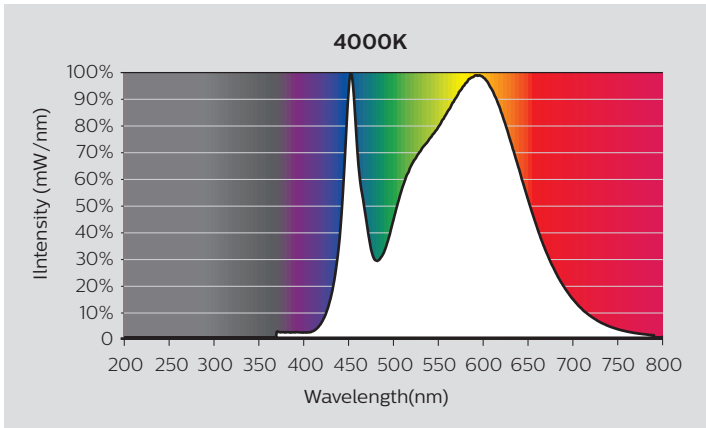
Product description	C max. Overall Length	D max. Diameter	Weight
	mm	mm	g
LED highbay lamp	285	250	1250



### Recommendation:

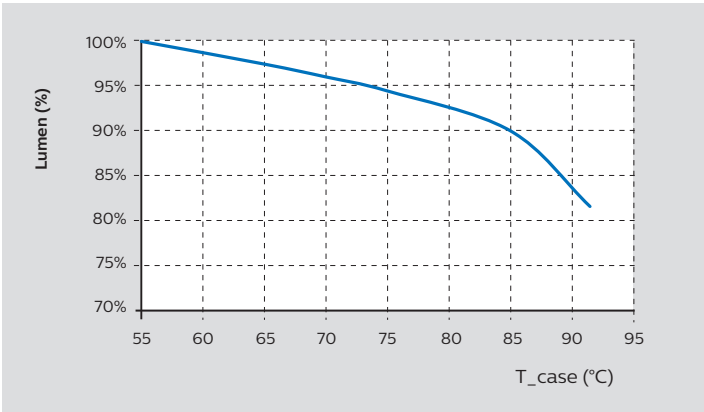
- $S/H < 1.1$  use NB
- $S/H < 2.1$  use WB

# Spectral Power Distribution



# Temperature

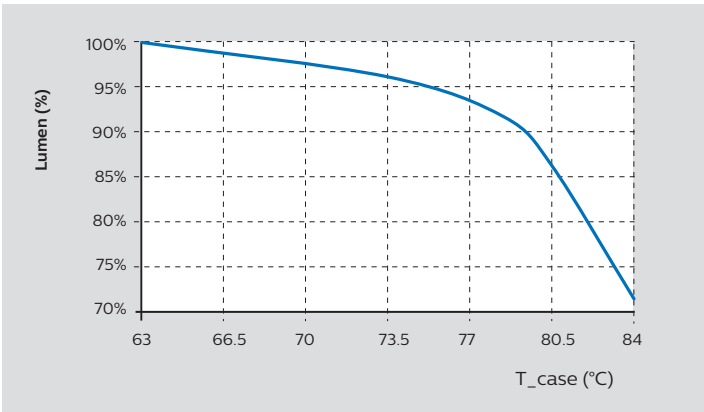
95W



TC point

95W	T <sub>c</sub> Max: 91.5 °C
140W	T <sub>c</sub> Max: 84 °C

140W

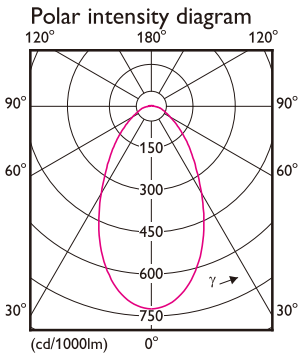


# Photometric Diagrams

TForce LED HPI UN 95W E40 840 NB

1 x 13000 lm

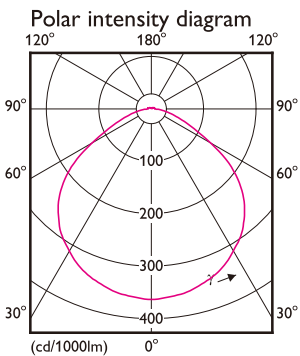
Light output ratio	1.00	CIE flux code	66 88 96 97 100
Service upward	0.03	UGRcen (4Hx8H, 0.25H)	22
Service downward	0.97		



TForce LED HPI UN 95W E40 840 WB

1 x 13000 lm

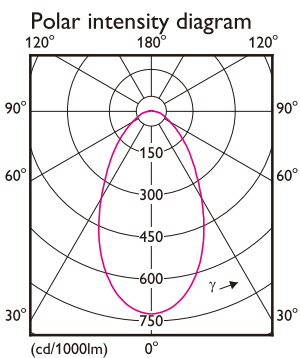
Light output ratio	1.00	CIE flux code	51 84 97 97 100
Service upward	0.03	UGRcen (4Hx8H, 0.25H)	24
Service downward	0.97		



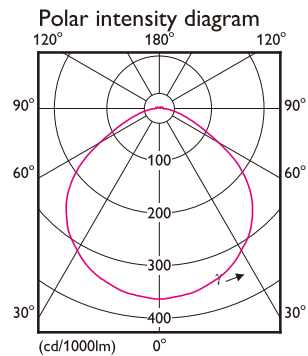
TForce LED HPI UN 140W E40 840 NB

1 x 20000 lm

Light output ratio	1.00	CIE flux code	66 88 96 97 100
Service upward	0.03	UGRcen (4Hx8H, 0.25H)	24
Service downward	0.97		



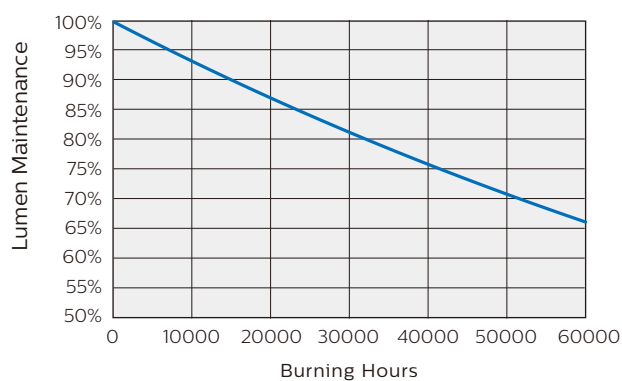
Light output ratio	1.00	CIE flux code	51 84 97 97 100
Service upward	0.03	UGRcen (4Hx8H, 0.25H)	26
Service downward	0.97		



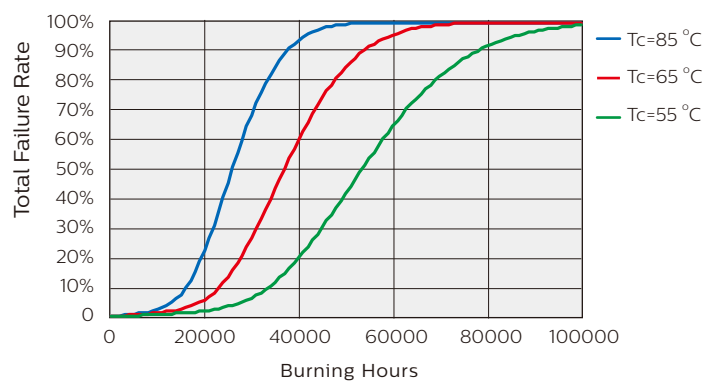
## Lifetime + Sustainability

### • 95W

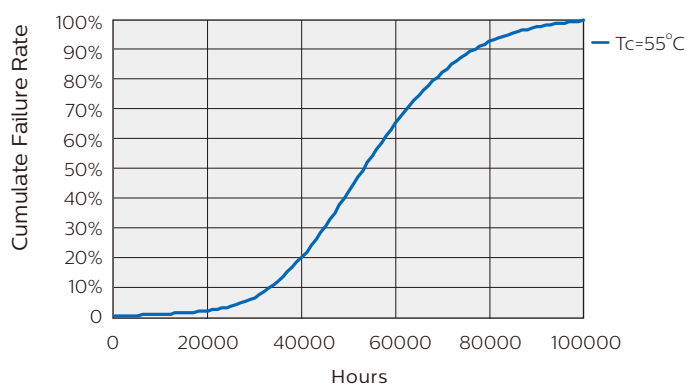
Lumen Maintenance vs Lifetime



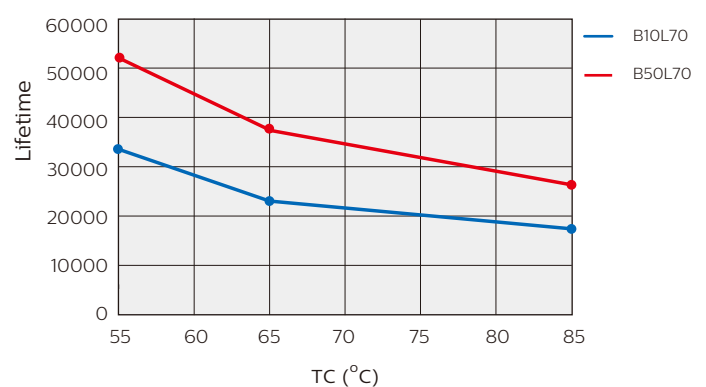
Failure Rate vs Lifetime



Failure rate vs. Lifetime @ Ta 25 °C



Lifetime vs. Tcase

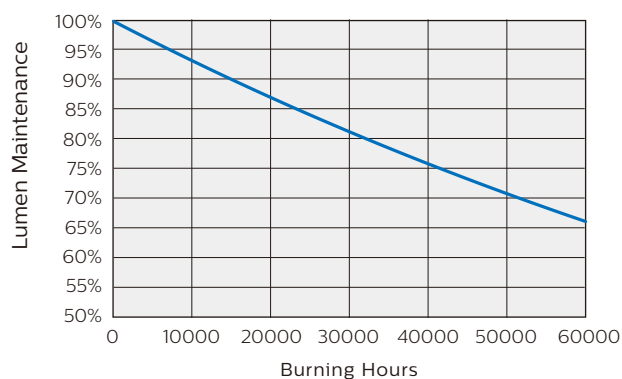


- The Philips TrueForce universal LED Highbay lamp has a lifetime of 50,000 hours, defined as the number of hours when 50% of a large group of identical lamps fall below 70% of its initial lumens.

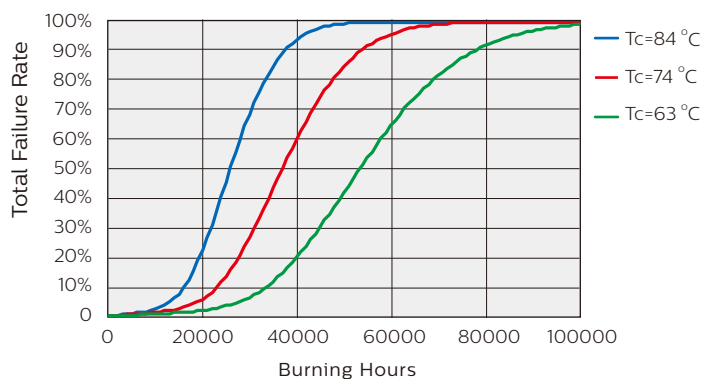
- Lifetime estimation based on the application environment condition: please refer to the Tc for lifetime forecast.

- 140W

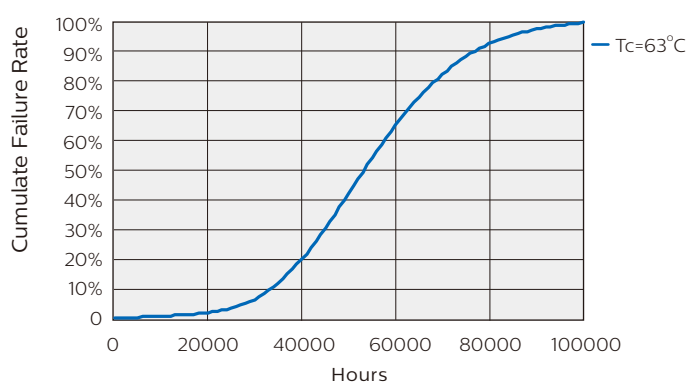
Lumen Maintenance vs Lifetime



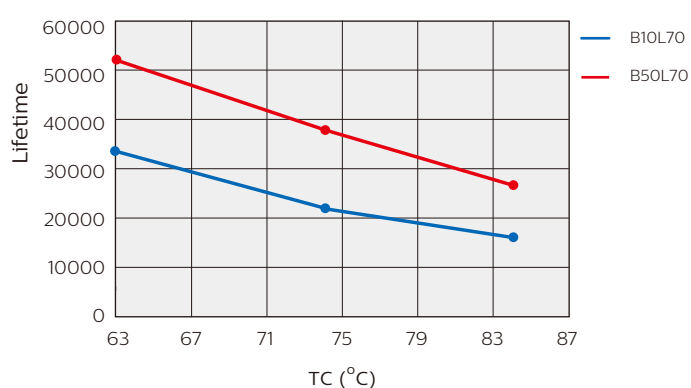
Failure Rate vs Lifetime



Failure rate vs. Lifetime @ Ta 25 °C



Lifetime vs. Tcase



## WARNINGS & CAUTIONS

- Always switch off the power supply before commencing work!
- The LED lamp is suitable for direct main voltage input.
- 95W LED highbay lamp is compatible with BHL/BSN 250W ballast and 140W LED highbay lamp is compatible with BHL/BSN 400W ballast.
- The LED lamp is NOT compatible with dimmers.
- The product is NOT compatible to use with electronic ballasts.
- Check the ballast type before commencing the installation.
- Suitable for use in operation temperature range between -40°C to +55°C.
- If LED lamp is being used within luminaire, the minimum dimensions requirement on lamp compartment is (HxØ) 300mm X 406mm. If the luminaire comes with a glass/cover, it's recommended to detach it for optimal light efficiency and product lifetime. Please check the Tc temperature in application guide for the best performance.
- Do not change the structure or any components of the LED lamp to ensure safety.
- The LED lamp is designed to fit in standard IEC compliant E40 lamp holders.
- The LED lamp should be installed by qualified professional electrician.
- Perform inspection before installation to ensure the luminaire/lamp holder is in good condition to carry the weight and performance of the LED lamp.
- The LED lamps should be positioned so that prolonged staring into the luminaire at a distance closer than 1m is not expected.

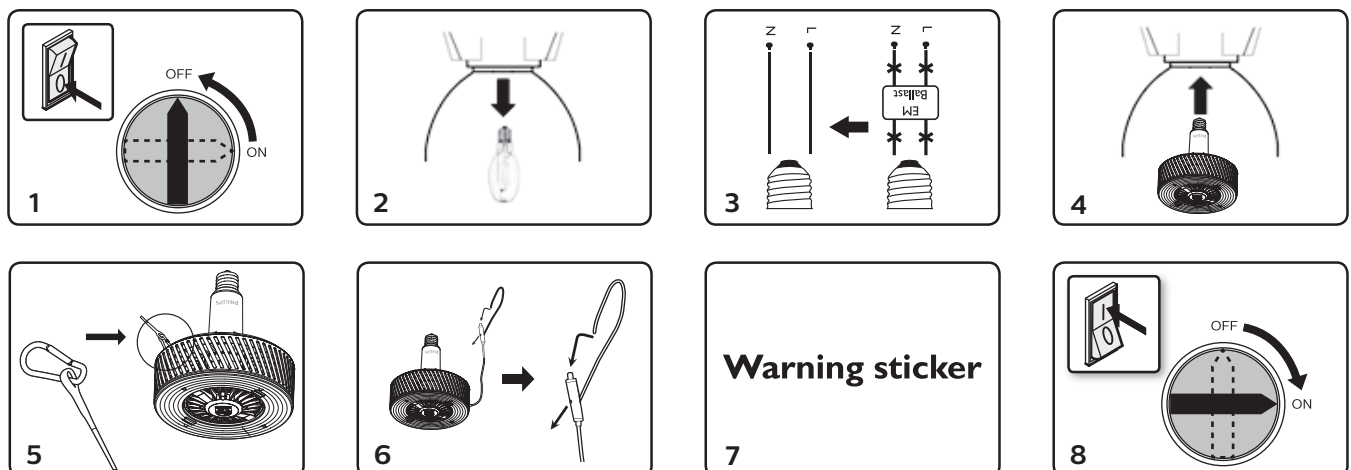
- Always install the safety sling provided in the package.
- The LED lamp fulfilled IP40 requirement.
- The LED lamp is designed for general lighting service.
- Please do not apply the LED lamp in applications which contains emergency or/and explosive proof luminaire.
- The total system performance may vary depending on the lighting/luminaire system.
- For latest information, please refer to [www.philips.com/lighting](http://www.philips.com/lighting).
- In case of doubt, please consult Signify representative.

#### DISCLAIMER:

Signify disclaims liability for any direct, indirect or incidental damages in case of installation performed either not according to this guide or not performed by a professional electrician.

## Installation Guide

- **For replacing MH HID lamp, convert to mains voltage input**

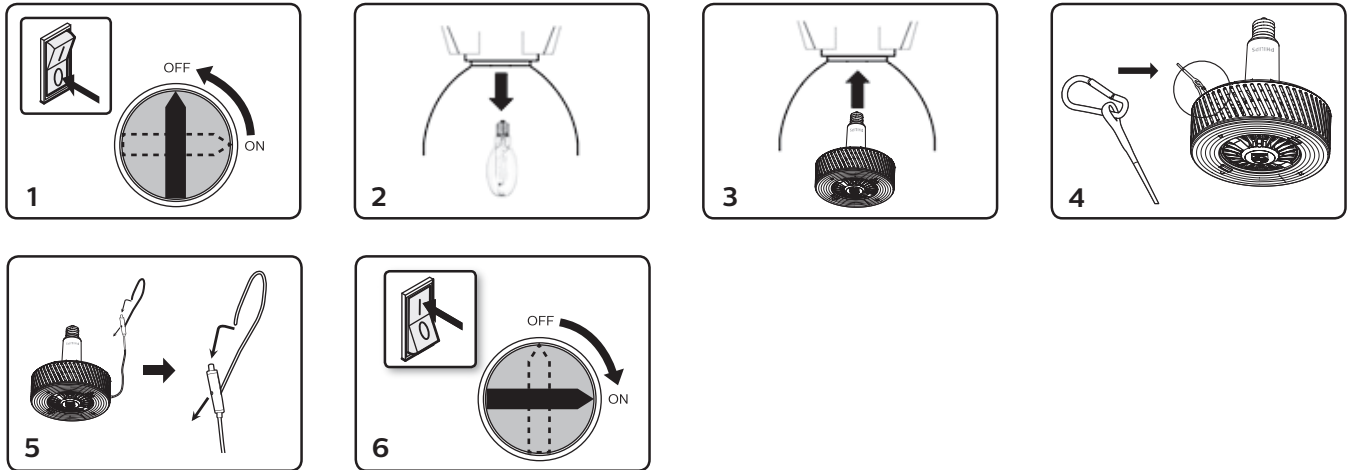


Perform a visual inspection to ensure the lamp-holder and internal wiring is not damaged, if the lamp-holder is damaged, corroded, charred, blackened, or loose, the lamp holder should be replaced with new lamp-holder. If the internal wire is damaged, it should be replaced with new wire.

1. Switch off the power to luminaire.
2. Remove diffuser/glass (if provided) and existing lamp from the luminaire.
3. Bypass the gear including ballast/capacitor/ignitor and connect lamp-holder wires directly to AC supply leads. Use only on 220-240VAC circuits.
4. Check the socket condition (replace it if the condition is poor) then screw in Philips TrueForce LED lamp into the E40 lamp holder firmly.
5. Install the safety sling provided to the lamp.
6. Attach the other end of the safety sling to the luminaire/fixed point. Adjust the sling length until suitable.
7. Affix the sticker provided inside the luminaire where it is prominently visible to the future installers.  
The sticker serves to notify that the luminaire has been modified and do not accept traditional HID lamps any longer.
8. Switch on power.



• For replacing MH HID lamp with gear directly



Perform a visual inspection to ensure the lamp-holder and internal wiring is not damaged, if the lamp-holder is damaged, corroded, charred, blackened, or loose, the lamp holder should be replaced with new lamp-holder. If the internal wire is damaged, it should be replaced with new wire.

1. Switch off the power to luminaire.
2. Remove diffuser/glass (if provided) and existing lamp from the luminaire.
3. Check the socket condition (replace it if the condition is poor) then screw in Philips TrueForce LED lamp into the E40 lamp holder firmly.
4. Install the safety sling provided to the lamp.
5. Attach the other end of the safety sling to the luminaire/fixed point. Adjust the sling length until suitable.
6. Switch on power.



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