



Technical Application Guide for PHILIPS LED Lamps

Philips TrueForce LED Industrial and Retail
(Highbay – HPI/SON/HPL) Main Voltage



PHILIPS



Introduction

Philips TrueForce LED Industrial and Retail (Highbay – HPI/SON/HPL) 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 retrofit HID lamps with TrueForce LED lamps with no gear loss and high power factor. 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
- Easy adoption
- Low initial investment



Features

- High energy efficiency with directional light and no gear loss
- Long lifetime 25,000hrs
- Direct lamp replacement solution with high power factor
- 2 beam angles selection
- Pleasant white light with CRI 80

Applications

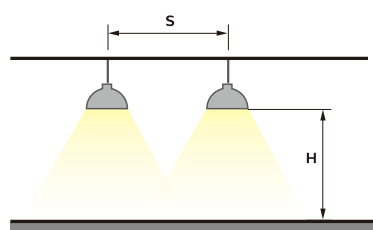
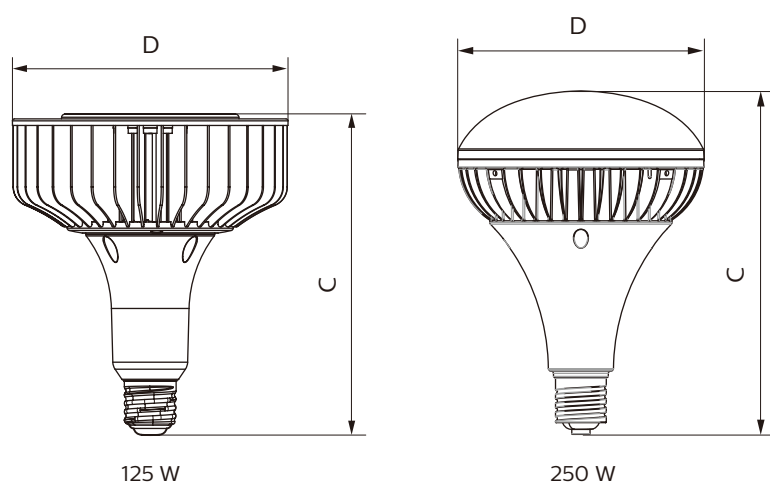
- Industrial – Factories, Warehouses, Distribution centres
- Retail – Hyper markets, Shopping malls
- Others – Transportation hubs, Convention centres, Sports halls

Technical Specifications

Product description	Lumen Output	Wattage	Efficacy	Color Temp	CRI	Beam Angle	Lens	Cap	Lifetime	Dimmable
	lm	W	lm/W	K		o			hrs	
TForce HB 200-160W E40 840 NB	20000	160	125	4000	80	70	Clear	E40	25,000	No
TForce HB 200-160W E40 840 WB	20000	160	125	4000	80	130	Clear	E40	25,000	No
TForce HB 200-160W E40 865 NB	20000	160	125	6500	80	70	Clear	E40	25,000	No
TForce HB 200-160W E40 865 WB	20000	160	125	6500	80	130	Clear	E40	25,000	No
TForce HB 100-85W E40 840 120D	10000	85	250	4000	80	120	Frosted	E40	25,000	No
TForce HB 100-85W E40 865 120D	10000	85	250	6500	80	120	Frosted	E40	25,000	No

Product description	Voltage	C max. Overall Length	D max. Diameter	Weight	12NC*
	VAC/Hz	mm	mm	g	
TForce HB 200-160W E40 840 NB	110-277 50/60	252	211	1500	929001812408
TForce HB 200-160W E40 840 WB	110-277 50/60	252	211	1500	929001812508
TForce HB 200-160W E40 865 NB	110-277 50/60	252	211	1500	929001812608
TForce HB 200-160W E40 865 WB	110-277 50/60	252	211	1500	929001812708
TForce HB 100-85W E40 840 120D	110-277 50/60	270	190	935	929001875708
TForce HB 100-85W E40 865 120D	110-277 50/60	270	190	935	929001875908

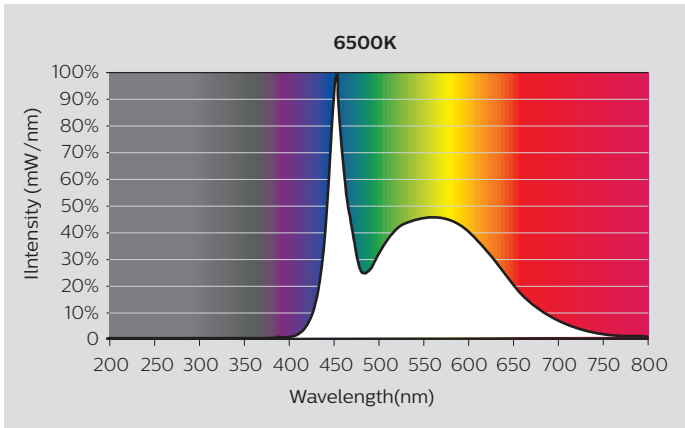
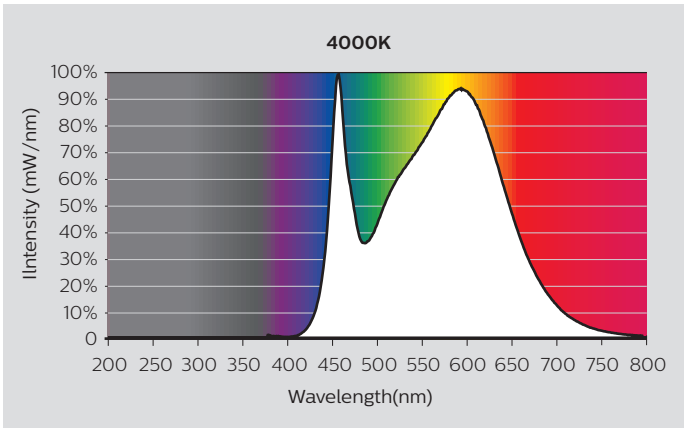
* 12NC subject to market. Please check with Philips Lighting representative.



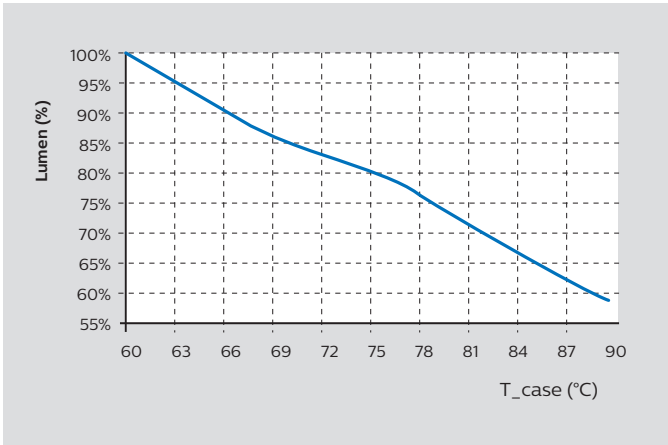
Recommendation:

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

Spectral Power Distribution

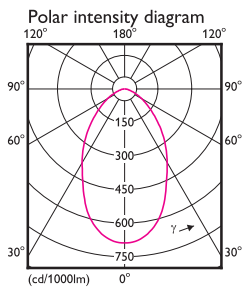


Temperature

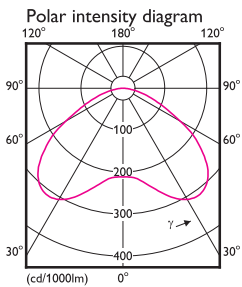


Photometric Diagrams

TForce HB 200-160W E40 840 NB		1 x 20000 lm	
Light output ratio	1.00	CIE flux code	66 91 98 100 100
Service upward	0.00		
Service downward	1.00		



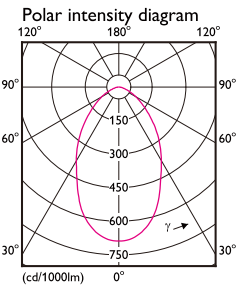
TForce HB 200-160W E40 840 WB		1 x 20000 lm	
Light output ratio	1.00	CIE flux code	45 82 97 100 100
Service upward	0.00		
Service downward	1.00		



TForce HB 200-160W E40 865 NB

1 x 20000 lm

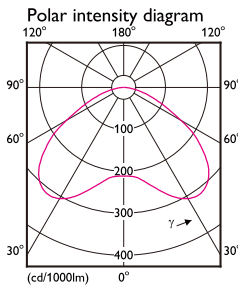
Light output ratio	1.00	CIE flux code	66 91 98 100 100
Service upward	0.00		
Service downward	1.00		



TForce HB 200-160W E40 865 WB

1 x 20000 lm

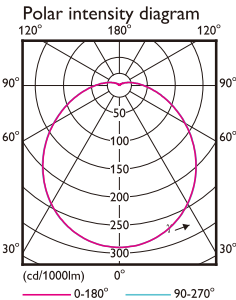
Light output ratio	1.00	CIE flux code	45 82 97 100 100
Service upward	0.00		
Service downward	1.00		



TForce HB 100-85W E40 840 120D

1 x 10000 lm

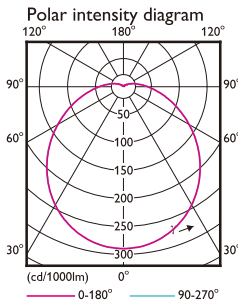
Light output ratio	1.00	CIE flux code	42 71 90 92 100
Service upward	0.08	UGRcen (4Hx8H, 0.25H)	27
Service downward	0.92		



TForce HB 100-85W E40 865 120D

1 x 10000 lm

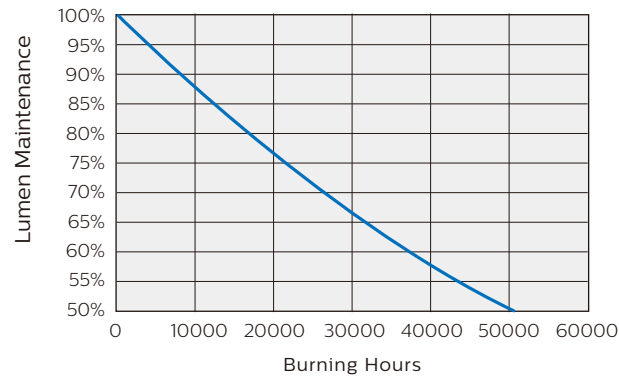
Light output ratio	1.00	CIE flux code	42 71 90 92 100
Service upward	0.08	UGRcen (4Hx8H, 0.25H)	27
Service downward	0.92		



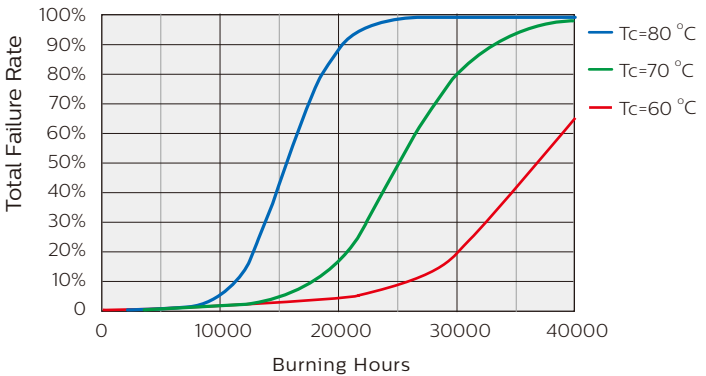
Lifetime + Sustainability

TForce HB 200-160W E40

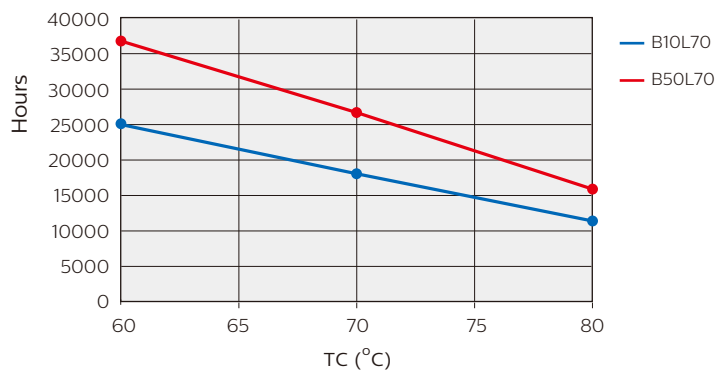
Lumen Maintenance vs Lifetime



Failure Rate vs Lifetime

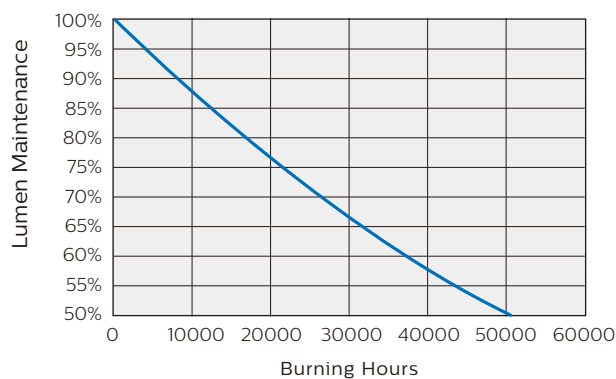


Lifetime vs. Tcase

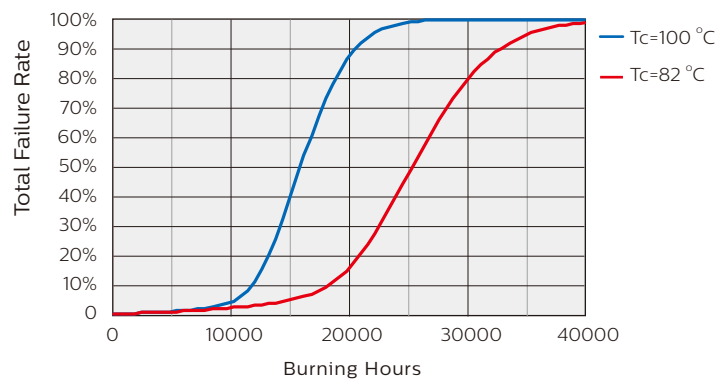


TForce HB 100-85W E40 120D

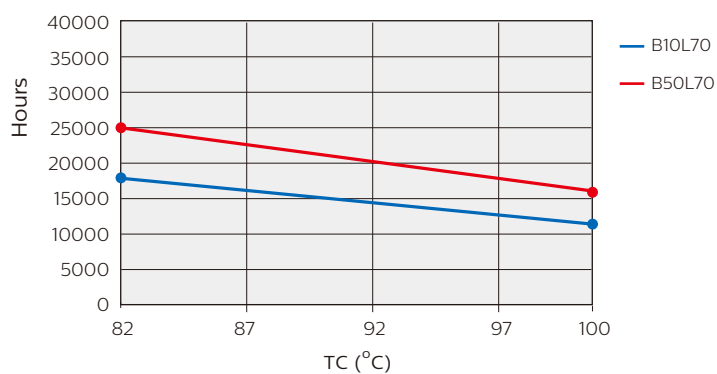
Lumen Maintenance vs Lifetime



Failure Rate vs Lifetime



Lifetime vs. Tcase



- The Philips TrueForce LED Industrial and Retail lamp has a lifetime of 25,000 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 T_c for lifetime forecast.

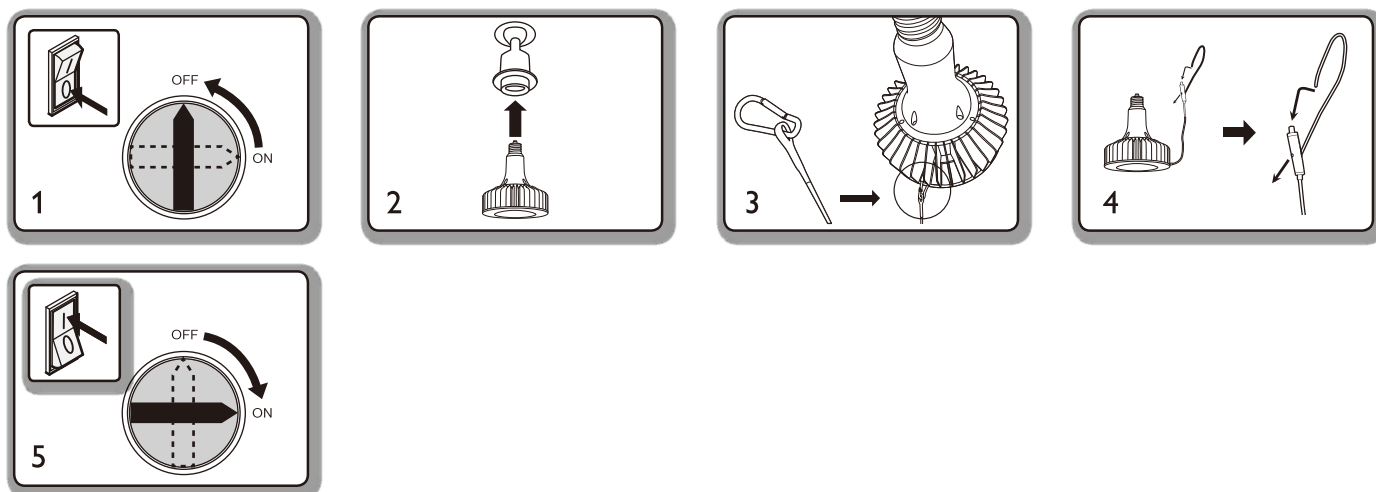
WARNINGS & CAUTIONS

- Always switch off the power supply before commencing work!
- The product is suitable for direct main voltage input.
- The product is NOT dimmable.
- The product is NOT compatible to use with ballasts.
- Suitable for use in operating temperature range between -20°C to +45°C.
- If LED lamp is being use within luminaire, the minimum dimensions requirement on lamp compartment is (H x Ø) 220mm X 390mm. 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 best performance.
- Do not change the structure or any components of the product to ensure safety.
- The product is designed to fit in standard IEC compliant E40 lamp holders.
- The product 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 product.
- 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 product fulfilled IP40 requirement.
- This lamp is designed for general lighting service.
- Please do not apply the product in applications which contains emergency or/and explosive proof luminaires.
- The total system performance may vary depending on the lighting/luminaire system.
- For latest information, please refer to www.lighting.philips.com.
- In case of doubt, please consult Philips representative.

DISCLAIMER:

Philips Lighting 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



- Install the safety sling to the lamp and attach the other end to the luminaire/a fixed point.

WARRANTY STATEMENT

- For the Philips limited warranty please visit www.lighting.philips.com
- Information in the document subject to change without notice.
- In case of doubt, please consult Philips representative.



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