



## **Philips MASTER**

LEDtube 1200 mm High Output T8



**PHILIPS**





MASTER LEDtube is a reliable value-for-money LED lamp out of Philips lighting portfolio, incorporates frontier LED chips and other advanced technologies. The product helps customers achieve more than 60% energy saving and significant maintenance cost reduction by comparing to fluorescent lamps. It also helps generate natural and comfortable lighting effect, and to build up green and environment friendly image for our customers.

## Product Features

### Highly Reliable

- Reliable operation between  $-20^{\circ}\text{C}$  to  $45^{\circ}\text{C}$  ambient temperature
- Rated 50,000 hours lifetime according to F50L70
- 200,000 switching cycles

### Highly Comfortable

- CRI > 80
- Advanced optical design ensures a uniform light output and superior optical efficiency

### Highly Energy Efficient

- Energy savings of more than 60%\*

### Highly Safe

- Protection circuit inside ensuring people's safety in case of mis-use, complying with IEC safety requirements
- Pass 4KV high-pot test, insulation & safety guaranteed
- Pass 1KV surge test (vs. IEC standard 500V), avoiding the damage caused by input voltage fluctuation and lightning strike

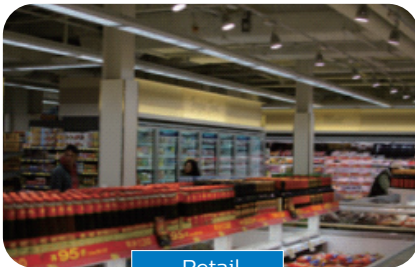
### Perfect Fit

- 100% comply with IEC requirement on T8 dimension, fitting into fluorescent luminaire perfectly

### Highly Environmental Friendly

- No mercury
- No breakage and pollution risk

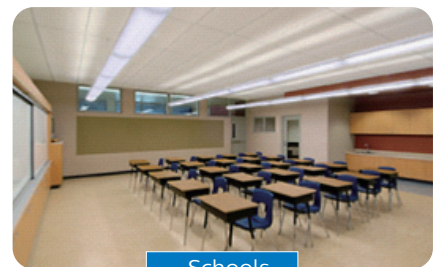
## Application



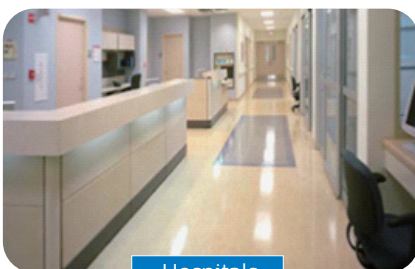
Retail



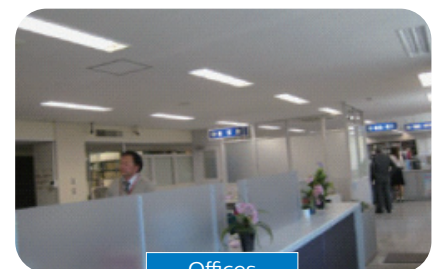
Industry



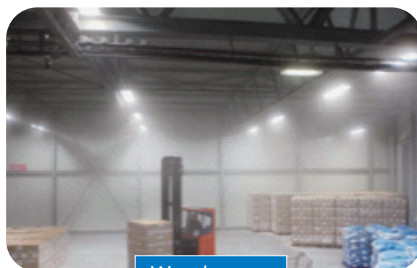
Schools



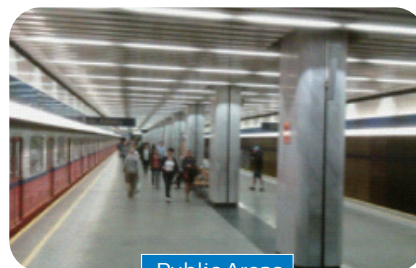
Hospitals



Offices



Warehouses

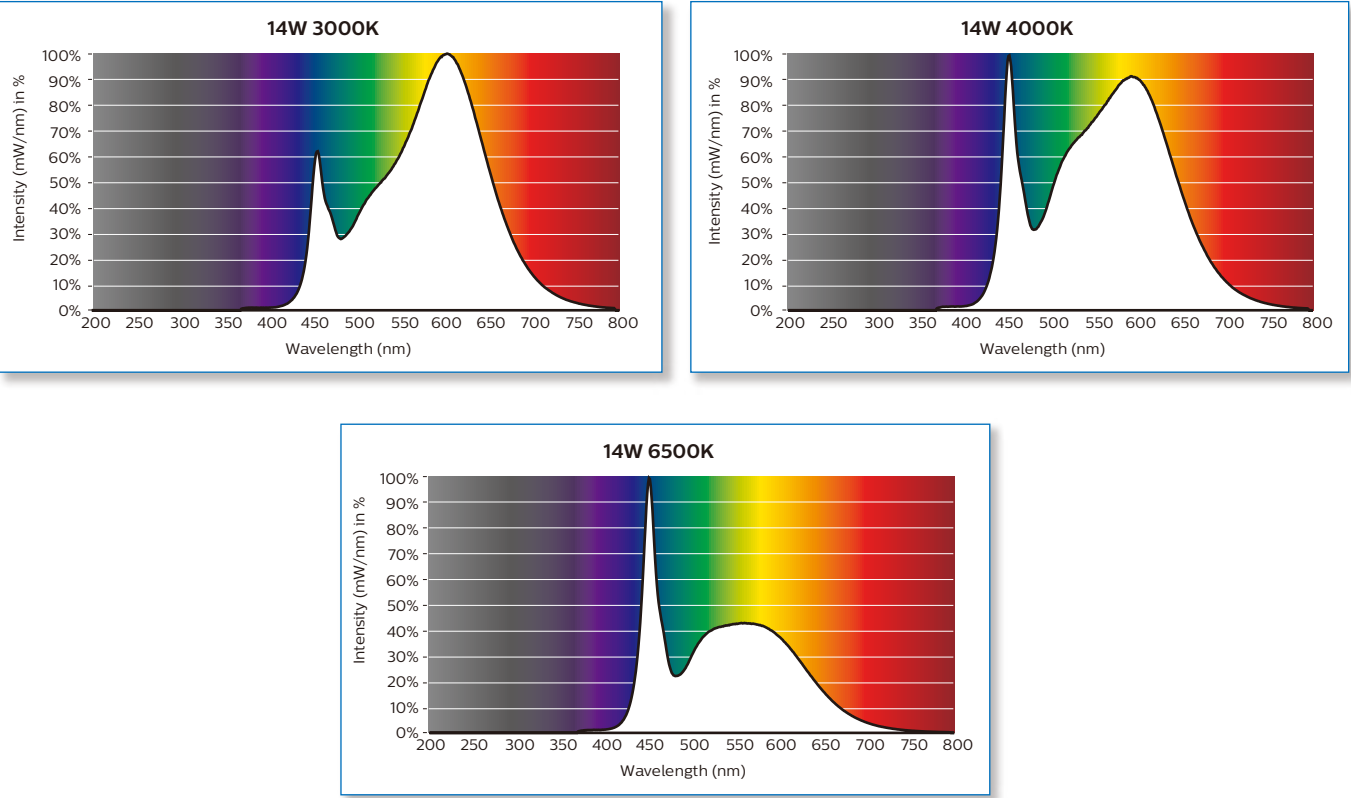


Public Areas



Spectral Power Distribution

Light may be precisely characterized by giving the power of the light at each wavelength in the visible spectrum. The resulting spectralpower distribution (SPD) shows that the MASTER LEDtube HO 1200 mm contains the visible light only. No harm from UV and IR.

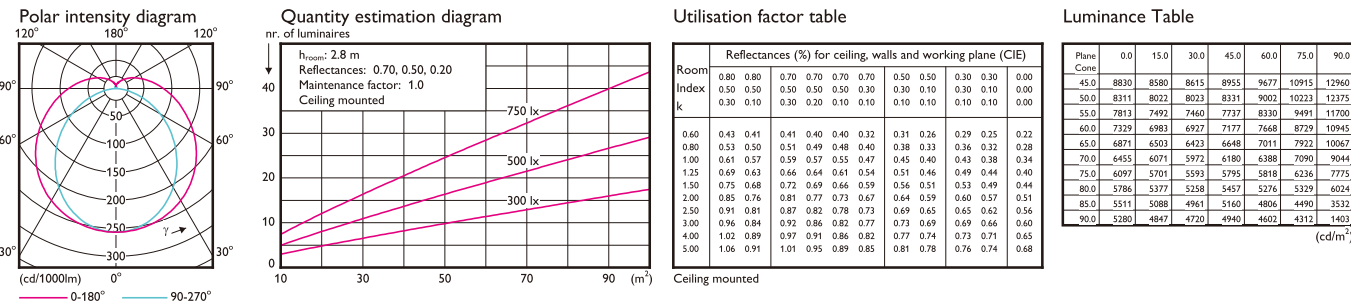


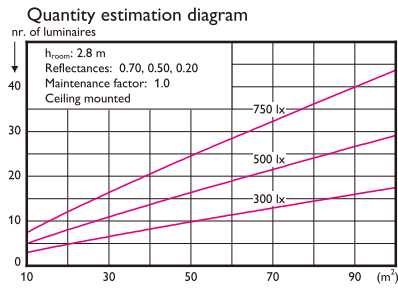
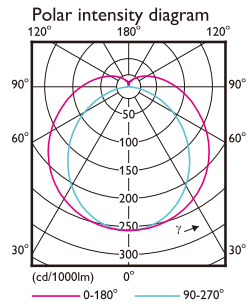
Photometric Diagrams

The Photometric diagram depicting the top down mounted lighting fixtures in a specific area and a numerical grid of the maintained lighting levels that the fixture will produce in that specific area. Pictures below show the photometric diagrams of a typical Philips MASTER LEDtube's application.

1 x TLED 14W 3000K

1 x 2000 lm





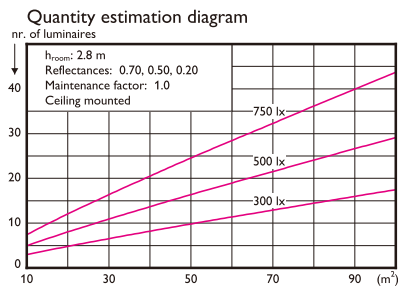
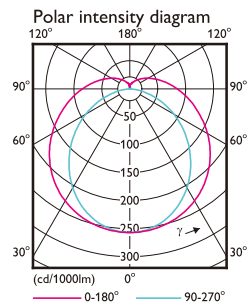
Utilisation factor table

Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)															
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00	0.50	0.50	0.50	0.30	0.00
0.60	0.43	0.41	0.41	0.40	0.40	0.32	0.31	0.26	0.29	0.25	0.22	0.30	0.26	0.26	0.22	0.20
0.80	0.53	0.50	0.51	0.49	0.48	0.40	0.38	0.33	0.36	0.32	0.28	0.40	0.36	0.36	0.32	0.28
1.00	0.61	0.57	0.59	0.57	0.55	0.47	0.45	0.40	0.43	0.38	0.34	0.48	0.43	0.43	0.38	0.34
1.25	0.69	0.63	0.66	0.64	0.61	0.54	0.51	0.46	0.49	0.44	0.40	0.56	0.50	0.50	0.44	0.40
1.50	0.75	0.68	0.72	0.69	0.66	0.59	0.56	0.51	0.53	0.49	0.44	0.64	0.57	0.57	0.51	0.47
2.00	0.85	0.76	0.81	0.77	0.73	0.67	0.64	0.59	0.60	0.57	0.51	0.78	0.70	0.70	0.64	0.59
2.50	0.91	0.81	0.87	0.82	0.78	0.73	0.69	0.65	0.65	0.62	0.56	0.88	0.79	0.79	0.73	0.67
3.00	0.96	0.84	0.92	0.86	0.82	0.77	0.73	0.69	0.69	0.66	0.60	0.94	0.84	0.84	0.78	0.72
4.00	1.02	0.89	0.97	0.91	0.86	0.82	0.77	0.74	0.73	0.71	0.65	1.00	0.90	0.90	0.84	0.78
5.00	1.06	0.91	1.01	0.95	0.89	0.85	0.81	0.78	0.76	0.74	0.68	1.04	0.94	0.94	0.88	0.82

Ceiling mounted

Luminance Table

Plane	0.0	15.0	30.0	45.0	60.0	75.0	90.0
Cone							
45.0	8830	8580	8615	8955	9677	10915	12960
50.0	8311	8022	8023	8331	9002	10223	12375
55.0	7813	7492	7460	7737	8330	9491	11700
60.0	7329	6983	6927	7177	7668	8729	10945
65.0	6871	6503	6423	6648	7011	7922	10067
70.0	6455	6071	5972	6180	6388	7090	9044
75.0	6097	5701	5593	5795	5818	6236	7775
80.0	5786	5377	5258	5457	5276	5329	6024
85.0	5511	5088	4961	5160	4806	4490	5332
90.0	5280	4847	4720	4940	4602	4312	5103

(cd/m<sup>2</sup>)

Utilisation factor table

Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)															
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00	0.50	0.50	0.50	0.30	0.00
0.60	0.43	0.41	0.41	0.40	0.40	0.32	0.31	0.26	0.29	0.25	0.22	0.30	0.26	0.26	0.22	0.20
0.80	0.53	0.50	0.51	0.49	0.48	0.40	0.38	0.33	0.36	0.32	0.28	0.40	0.36	0.36	0.32	0.28
1.00	0.61	0.57	0.59	0.57	0.55	0.47	0.45	0.40	0.43	0.38	0.34	0.48	0.43	0.43	0.38	0.34
1.25	0.69	0.63	0.66	0.64	0.61	0.54	0.51	0.46	0.49	0.44	0.40	0.56	0.50	0.50	0.44	0.40
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3.00	0.96	0.84	0.92	0.86	0.82	0.77	0.73	0.69	0.69	0.66	0.60	0.94	0.84	0.84	0.78	0.72
4.00	1.02	0.89	0.97	0.91	0.86	0.82	0.77	0.74	0.73	0.71	0.65	1.00	0.90	0.90	0.84	0.78
5.00	1.06	0.91	1.01	0.95	0.89	0.85	0.81	0.78	0.76	0.74	0.68	1.04	0.94	0.94	0.88	0.82

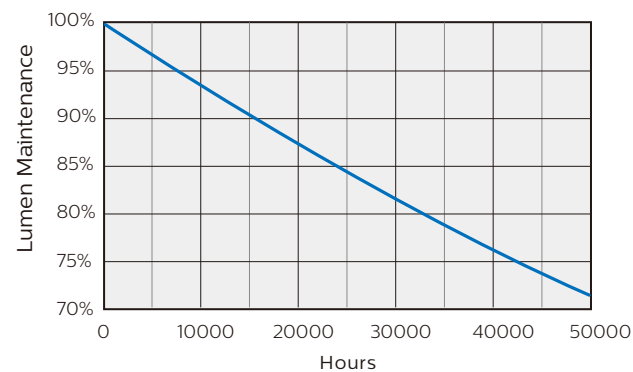
Ceiling mounted

Luminance Table

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90.0	5280	4847	4720	4940	4602	4312	5103

(cd/m<sup>2</sup>)

## Lifetime and Lumen Maintenance

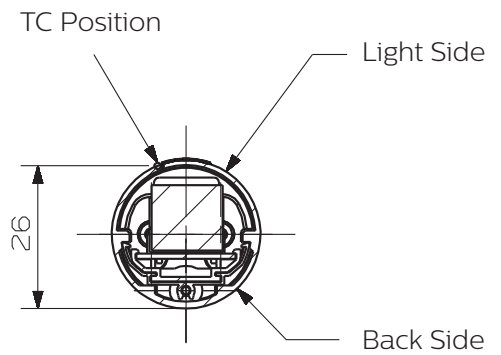
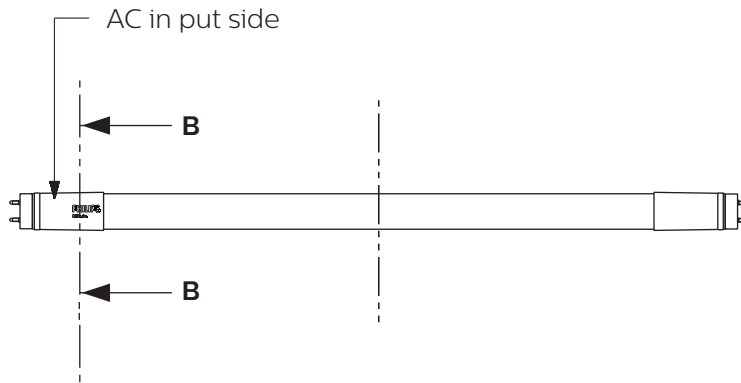
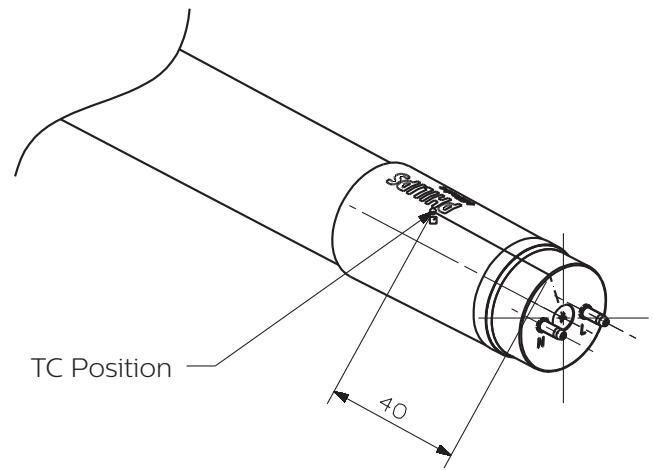
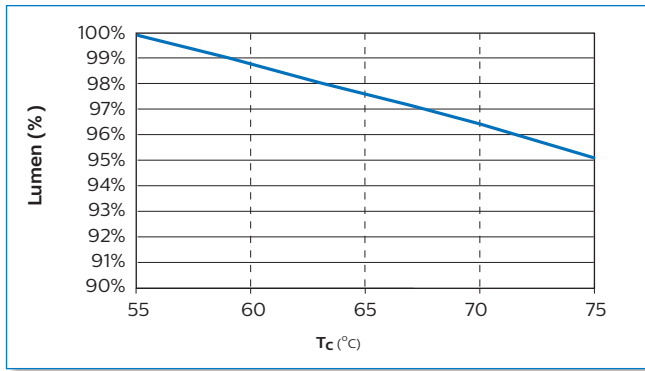


Philips MASTER LEDtube has a lifetime of 50,000 hours, defined as the number of hours when 50% of a large group of identical lamps below 70% of its initial lumen (F50L70).

## Temperature

MASTER LEDtube's excellent thermal design ensures low temperature during operating, which brings reliable and stable product performance throughout life time.

Operating temperature	T operating	min -20°C	max +45°C
Storage temperature	T storage	min -40°C	max +65°C
Maximum case temperature of tube at Tamb.=25°C	T case		+60°C



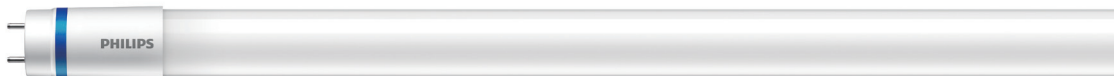
SECTION B-B

## Approbation & Certificates

Philips MASTER LEDtube is designed by strictly following applicable legislation and international standard. The product complies with **TUV, CE, KEMA, RoHS** and **REACH**.



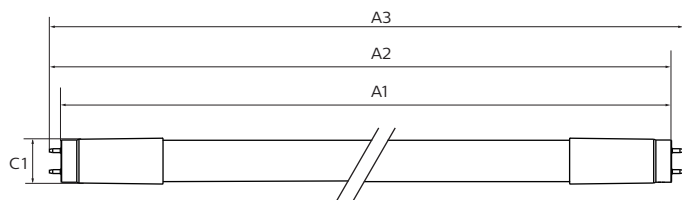
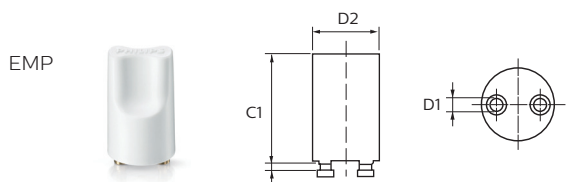
**RoHS**



## Technical specification

10NC	Product Description	Wattage	Equivalent Fluorescent Wattage	Voltage	Cap	Length	Lifetime	Lumen output (Typical)	Color Temp	CRI
		(W)	(W)	(V)		(mm)	(Hrs)	(Lm)	(K)	(Typical*)
9290012992	MAS LEDtube 1200mm HO 14W830 T8	14	36	220-240	G13	1200	50000	2000	3000	83
9290012993	MAS LEDtube 1200mm HO 14W840 T8	14	36	220-240	G13	1200	50000	2100	4000	83
9290012994	MAS LEDtube 1200mm HO 14W865 T8	14	36	220-240	G13	1200	50000	2100	6500	83

\* Minimum CRI is 80



## Accessories

### MASTER LEDtube

Protector EMP

871829172930300

## Dimensions (mm)

Product	A1	A2	A3	C1	D1	D2
1200mm	1198	1205	1212	27.9	-	-
EMP	-	-	-	34.5	3	21.5

## Quick Installation Guide

Please take the time to read this quick installation guide. Philips Lighting does not accept liability for any damages for installations not performed according to this guide or not performed by a professional electrician.

## Installation Warning

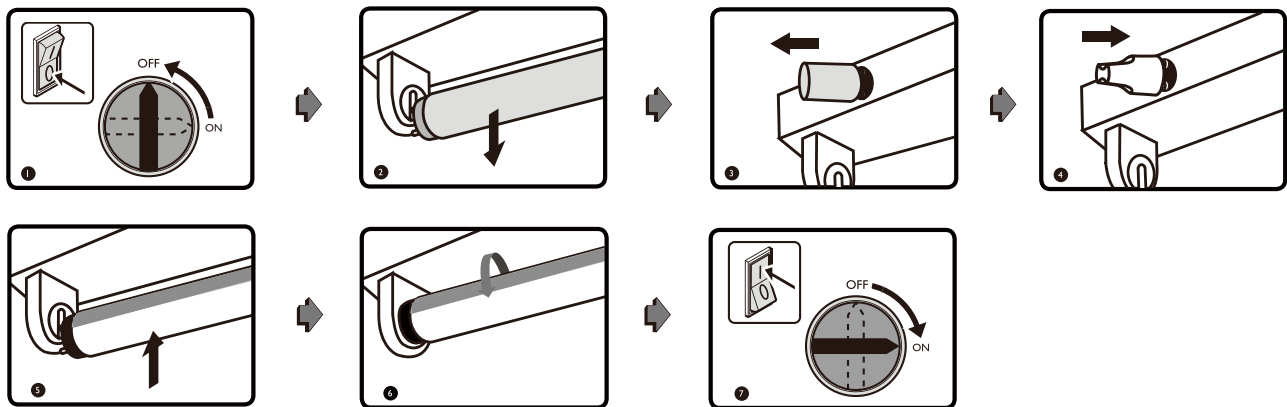
- Check whether the system is an EM (Electro Magnetic) ballast based system or an HF (High Frequency electronic) ballast based system, and follow the appropriate instructions accordingly. For new built luminaires follow section "New built luminaires".
- Product is not dimmable
- Always switch off the power supply before commencing work
- Do not change the structure or any components of the product

## Application Notes

- Operation temperature range is between -20°C and +45°C ambience.
- Only to apply in dry indoor usage and environments.
- Not intended for use with emergency light fixtures or exit light.
- For use in fixtures which consist of IEC compliant G13 bi-pin lamp holders which can support 500 gram.

# Installation Guide

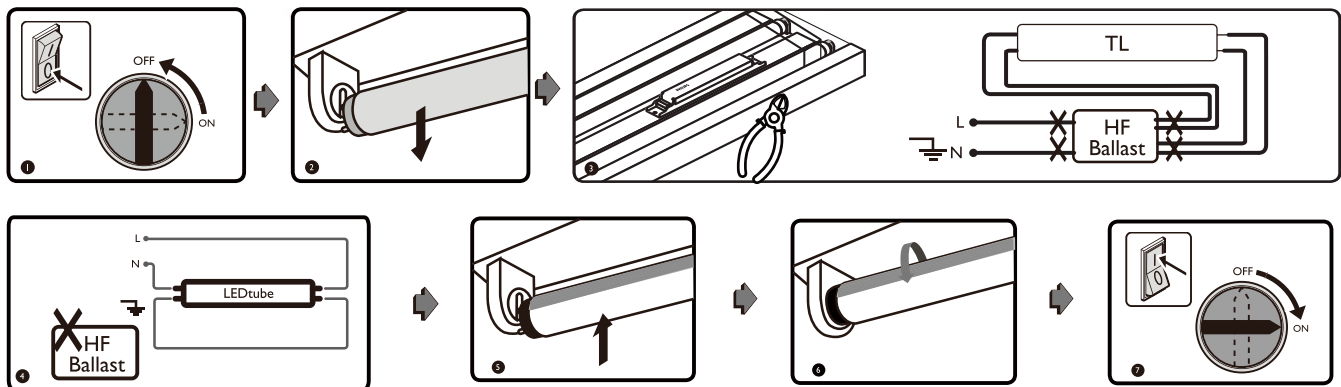
- EM ballast based system



For EM ballast installation please check if a power factor correcting capacitor is installed in the existing circuit. If yes, please follow the instruction below:

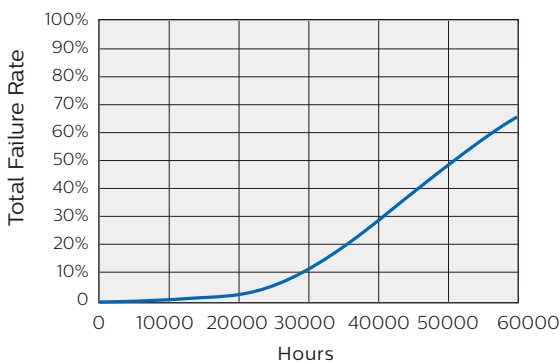
- Please simply remove the capacitor if it is parallel with the EM ballast

- HF ballast based system

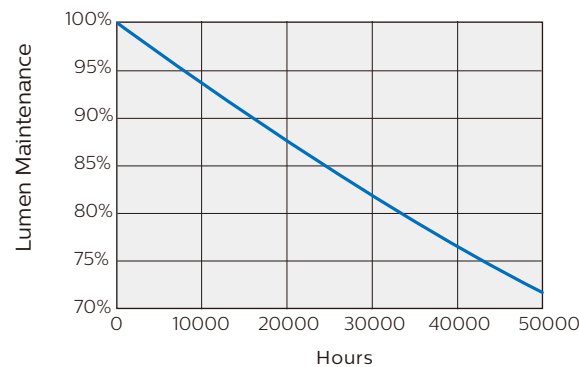


# OEM Guideline

Lifetime vs. Failure Rate @ Ta 25 °C

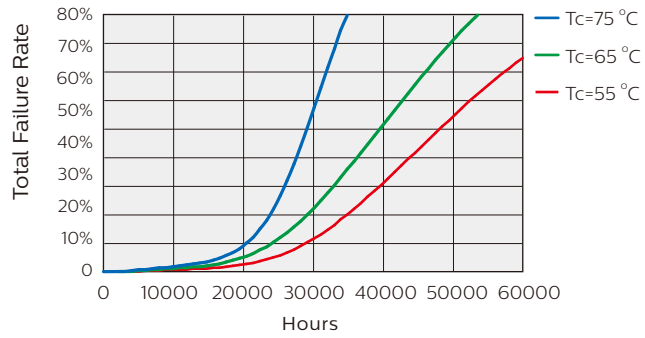


Lifetime and Lumen Maintenance

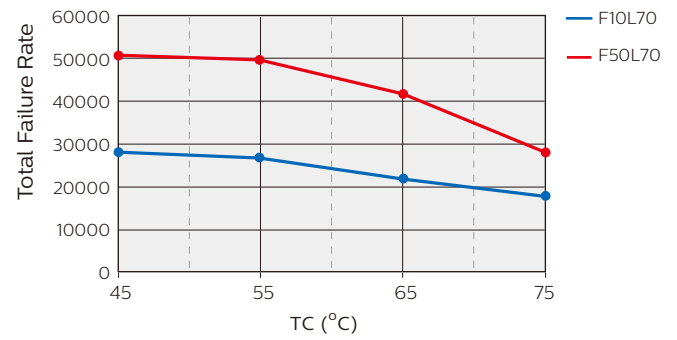




Failure Rate vs.  
Lifetime vs. Tcase



Lifetime vs. Tcase



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