

A man in a blue shirt is holding a long, white Philips LED tube light horizontally. He is looking at the light with a focused expression. The background is a blurred industrial setting with metal structures and overhead lighting.

**PHILIPS**

LEDlamps

LEDtube



# The right LEDtube every time

Whatever you need, the Philips MASTER LEDtube portfolio offers it all. From optimised energy efficiency, to the highest light output for even the most demanding applications.

# The right LEDtube every time

Whatever you need, the Philips MASTER LEDtube portfolio has it all. We've repositioned the way that our lamps are labelled into three new categories of light output – Standard, High and Ultra output. A simple change that will make it even easier to choose the right lamp, for the right application. From optimised energy efficiency to the highest light output.

A simple switch that comes in a choice of three lengths and color temperatures, with the option of rotating end-caps. So with our lamps, you have the right LEDtube every time.



“

The new LEDtubes provide a **power saving of 53% per fitting.**”

Ulrik Leth, Electricity Installer  
Dansk Supermarked A/S



### The right tube, right now

Our portfolio of LEDtubes is now available with a range of options in Standard, High and Ultra Output.

### Save on energy costs

LEDtubes are up to 65% more efficient than TL-D lamps, so you can save on energy costs without compromising on light quality.

### Long-lasting and reliable

With a lifetime of 50,000 hours they outshine TL-D lamps by 25,000 hours for lower maintenance and operation costs.

### High quality of light

Our LEDtubes won't flicker or cause glare. The 100% instant light has a high color consistency and uniform visual appearance in a choice of color temperatures.

### NEW Ultra output, ultra efficient

Choose Ultra Output for ultra efficiency of 148 lm/W and exceptional light quality. Philips has a long history of ground-breaking innovation in lighting technologies. Our Ultra Output LEDtubes are specially designed for demanding applications that require a high light output to comply with ergonomic norms. In fact they raise the bar in lighting efficiency and comfort by meeting all office, supermarket and healthcare standards.

### A green choice

LEDtubes are a mercury-free alternative to traditional fluorescent tubes, a responsible choice that can also contribute towards your green credentials.

### 100% safe installation

LEDtubes are the fastest and easiest way to upgrade existing luminaires to LED technology. Installation is 100% safe and 0% hassle with a simple lamp-for-lamp replacement.

**Ultra  
Output HF**  
available  
NOW





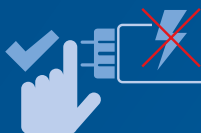
# The installer's choice

If you're an installer there are even more reasons for you to choose Philips MASTER LEDtubes. As you'd expect from the world's leading name in lighting, our quality and attention to detail means that we can also make your life safer and easier.



## HF compatibility

No wires to replace, no hassle changing drivers; our InstantFit solution works with High Frequency electronic ballast, making it easy and safe for all installation methods. All you have to do is slot the tube into your existing fitting.



## Pin safety

With Philips products you can safely touch the other end-cap when installing the tube. The integrated driver is also safely isolated from touchable parts. Philips LED tubes adhere to all UL and IEC pin safety requirements.



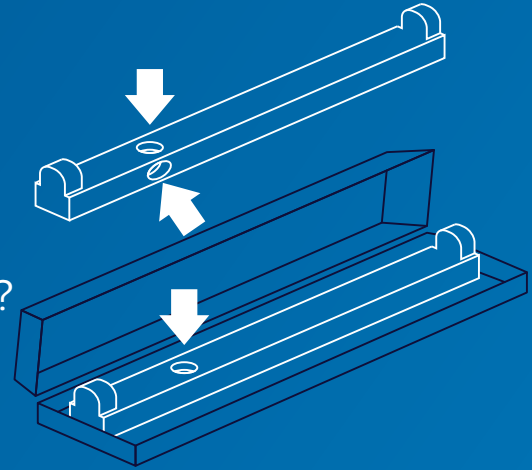
## Rotating end-caps

In many applications the pin fitting is rotated. This can be a problem as LEDtubes only provide directional light. MASTER LEDtubes have rotating end-caps to allow you to rotate the tube by up to 90 degrees. So you can always direct the light to best effect.

# Finding the right fit

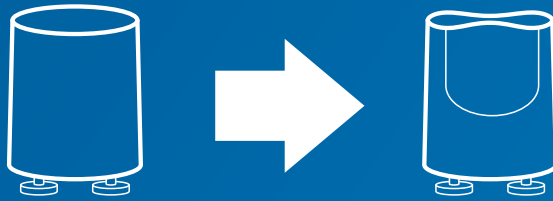
## 1 Does your luminaire have a starter?

This illustration shows its typical location in an open or closed luminaire with the length of 1200 and 1500 mm tubes.



## 2 Yes.

The luminaire works on Electro Magnetic ballast. Simply replace the old starter with the new (EM) LED starter included in the packaging. Choose the LEDtube with one ring on the cap.



## No.

The luminaire works on High Frequency electronic ballast (HF). Choose MASTER LEDtube InstantFit with the end-cap with two rings. No need to change drivers or rewire. It's a plug and play solution that works straight out of the box.

Quick and easy installation.

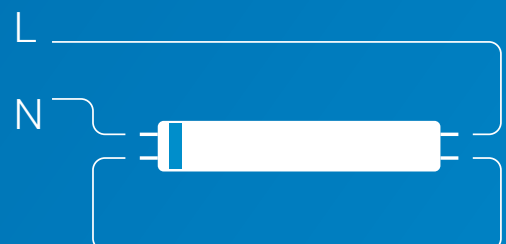
Check the ballast compatibility list on [www.philips.com/ledtube](http://www.philips.com/ledtube)



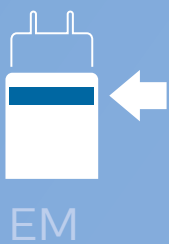
## 3 No.

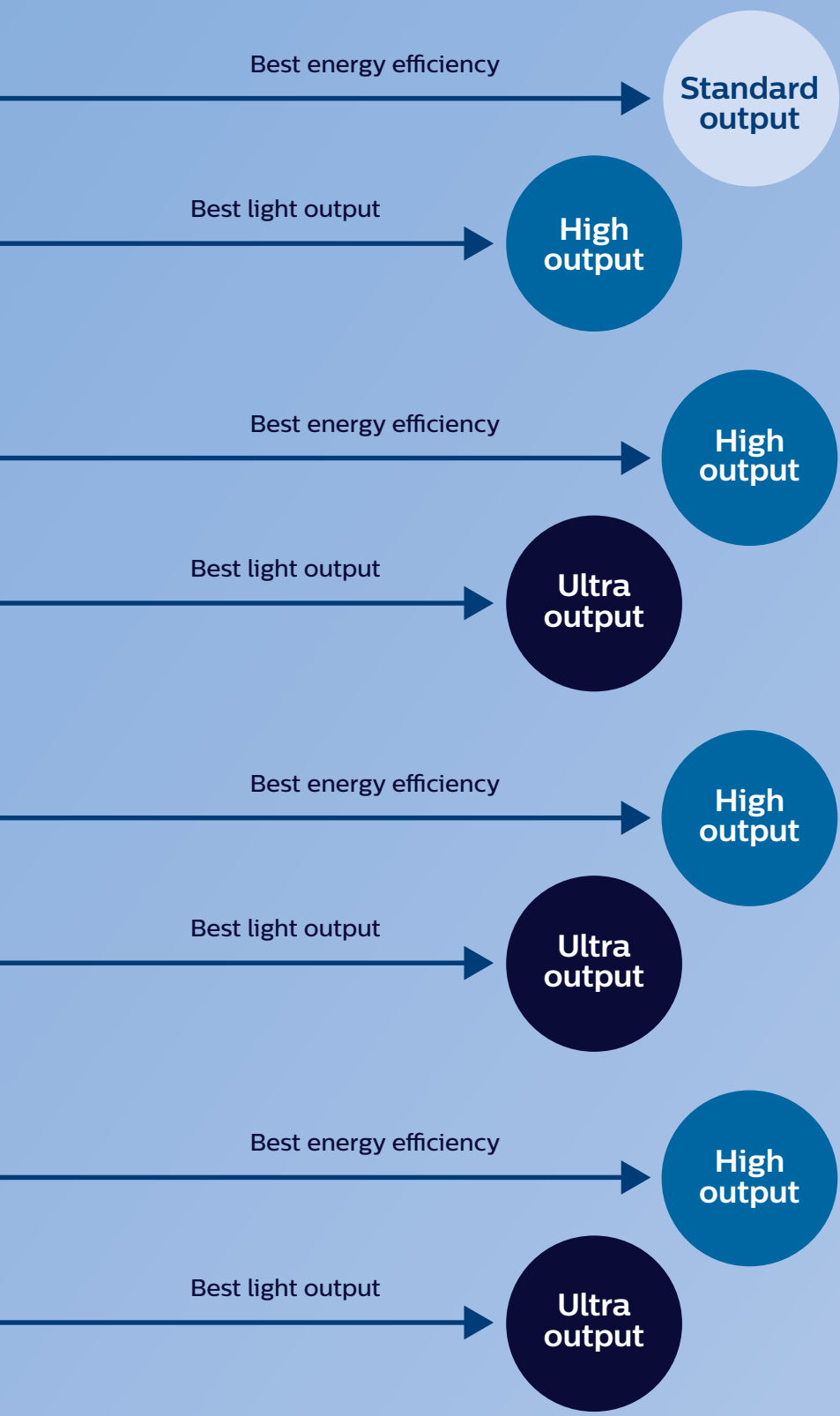
Your luminaire works on High Frequency Electronic Ballast (HF) but you can't use MASTER LEDtube InstantFit or your ballast is not compatible.

Cut wires, remove ballast and connect direct to mains. Use the MASTER LEDtube EM with one ring on the cap.



# Finding the **right tube**





**Standard output**  
1600 – 2000 lumen

- 1200 mm ROT
- 1200 mm InstantFit
- 1500 mm
- 1500 mm ROT InstantFit

**High output**  
2100 – 3100 lumen

- 1200 mm ROT
- 1200 mm ROT InstantFit
- 1500 mm ROT
- 1500 mm ROT InstantFit

**Ultra output**  
2500 – 3700 lumen

- 1200 mm ROT
- 1200 mm InstantFit
- 1500 mm ROT
- 1500 mm InstantFit


**Ultra Output HF**  
available NOW

# Finding the right output

For ultra-output applications, our solutions meet lighting industry standards (EN12464-1) by providing high light levels without causing discomfort or glare\*.

## Lux

Working, typing reading and data processing require sufficient light with a minimum lux level




**Sufficient light**

- › Key parameter for indicating the amount of minimum required light is indicated in EN12464-1 in lux (unit of illuminance per square meter).
- › EN12464-1 prescribes minimum lux values, uniformity of illumination, and color rendering index, depending on the task.

## Unified Glare Rating (UGR)

The amount of glare, annoyance or reflection created by high or non-uniform brightness must be kept to a minimum



**Discomfort glare**

- › Sensation of annoyance or reflection caused by high or non-uniform brightness (eg. on computer screen).
- › Amount of glare is indicated in EN 12464-1 standard by Unified Glare Rating (UGR).

## Lighting requirements

EN12464-1 prescribes minimum lux values, uniformity of illumination and color rendering index, depending on the task



### Supermarkets / Retail

- › For Supermarket and Retail applications 500 lux counts as minimum value.
- › UGR standard for Supermarket applications is also set at max 19 UGR.



### Industry

- › For Industry applications, there are many sub segments, each having their own specific standards, in storage industry segment 300 lux counts as minimum value.
- › UGR standard for Industry applications is set at max 25 UGR.



### Office / School / Healthcare

- › For Office applications 500 lux per square meter counts as minimum value for writing, typing, reading, data processing, conference and meeting rooms.
- › UGR standard for Office applications is set at max 19 UGR.
- › For most Healthcare applications 200 lux counts as minimum value.
- › UGR standard for applications is set at max 22 UGR.

\* Final light quality, besides the LEDtube, also depends on application circumstances like e.g. type of luminaire used and amount of daylight.

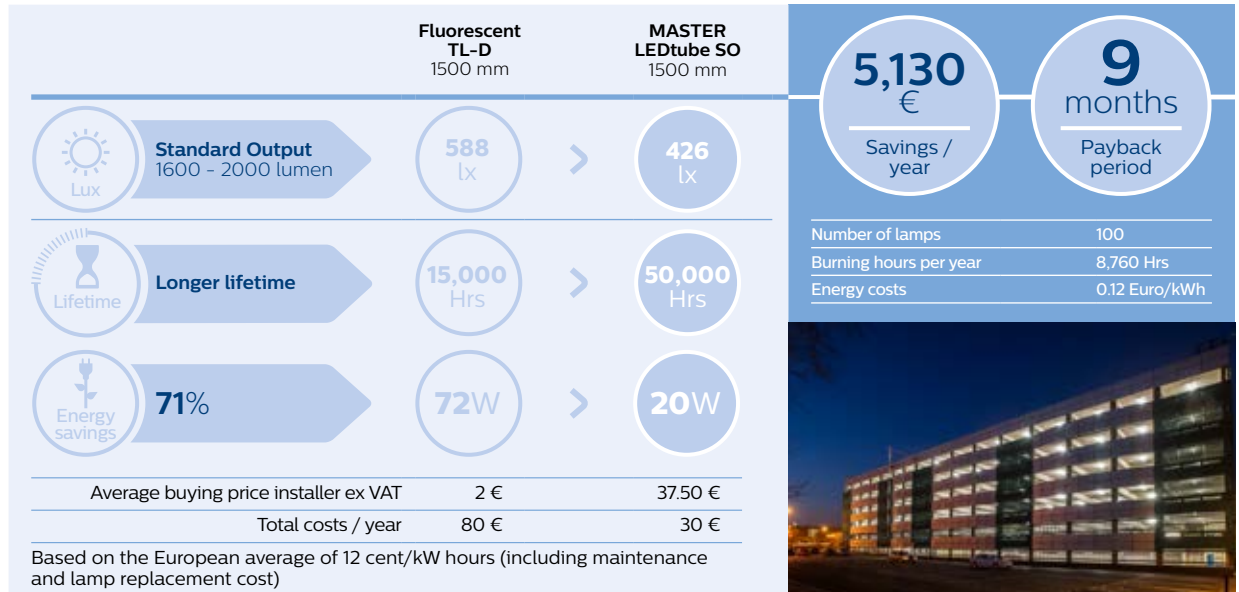


# Finding the **right solution** for your application



## New standard for car parks

Car parks and transportation networks need to feel bright and welcoming 24 hours a day. White LED light has a higher perceived brightness and superior color rendering, so people feel safer. And because LED is highly reliable and energy efficient, your customers will welcome the savings too.

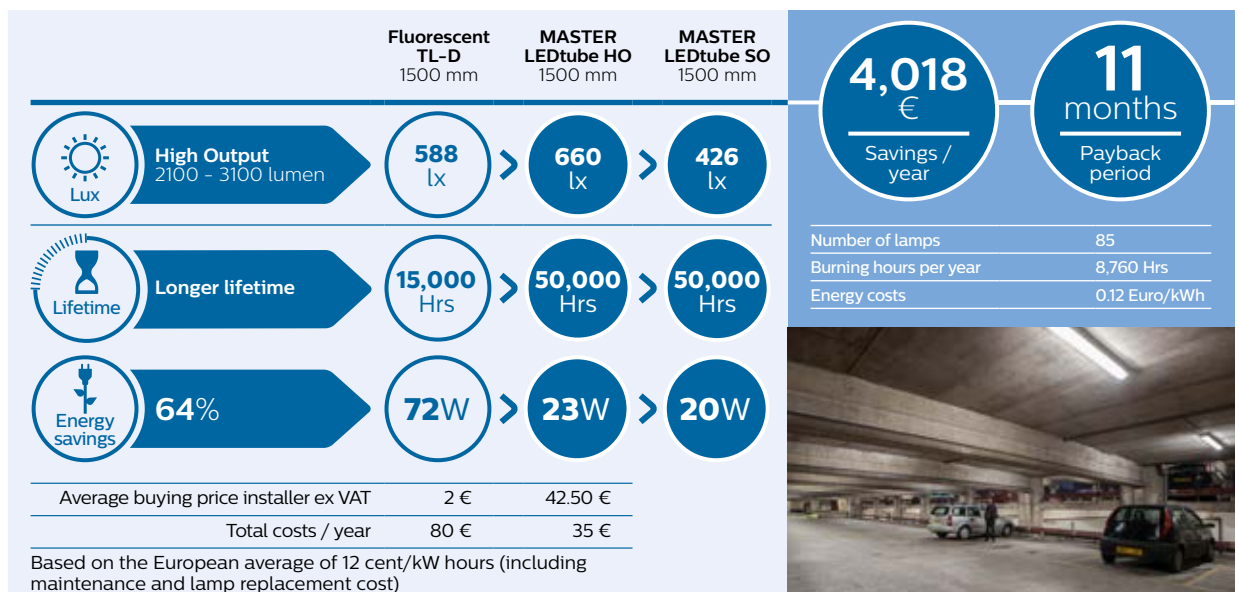


› Choose Standard Output LEDtubes for a **lower TCO** with the best **energy efficiency**



## High output for higher standards in car parks

High Output LEDtubes raise the standards in car parks even higher. With a light output of up to 3100 lumen they provide maximum visibility and safety – particularly important in car parks that operate right around the clock.

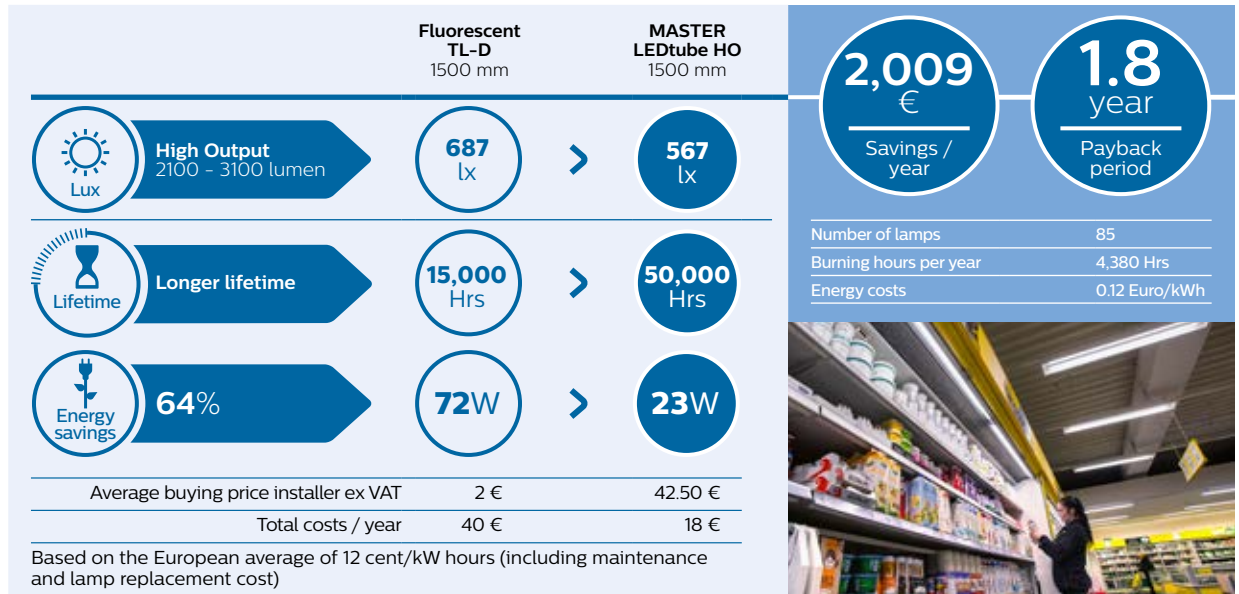


› Choose High Output LEDtubes for **high light output** with the best **lm/w**



## High output on the high street

Retail stores and hospitality venues know light has the power to attract. It creates irresistible displays, brings brands to life and encourages customers to spend longer in store. With our LEDtubes you can light up sales at the same time as reducing energy and maintenance costs.

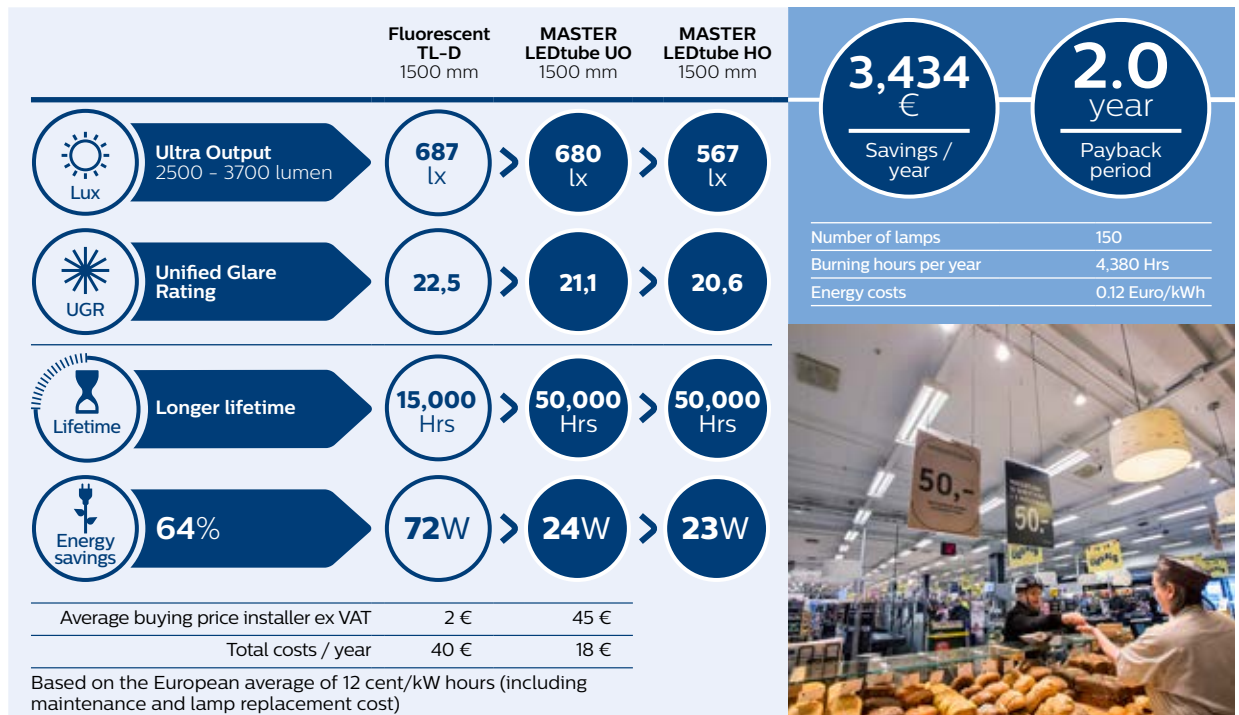


› Choose High Output LEDtubes for **high light output** with the **best lm/w**



## Ultra output for ultra efficient supermarkets and retail

Beautiful lighting brings out the best in the products on display and enhances the shopping experience for customers. But with lamps burning for up to 18 hours a day, food retailers want solutions that will reduce energy and maintenance costs – and show their green credentials in the best light.

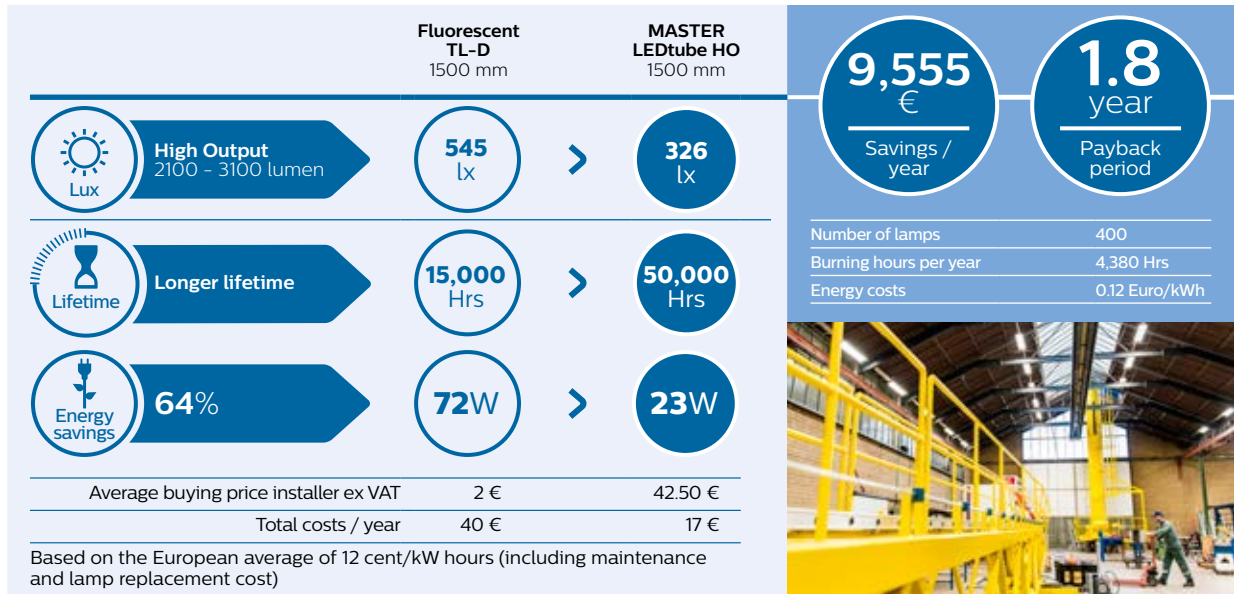


› Choose Ultra Output LEDtubes for **ultra efficiency** in the most demanding supermarket and retail applications



## High output for highly-efficient industry

Industry demands high visibility, efficiency and safety. But 24/7 operations can run up expensive energy bills. Our solutions save energy and maintain their energy efficiency, even in extremely cold conditions. So they reduce maintenance costs and avoid expensive production down time.

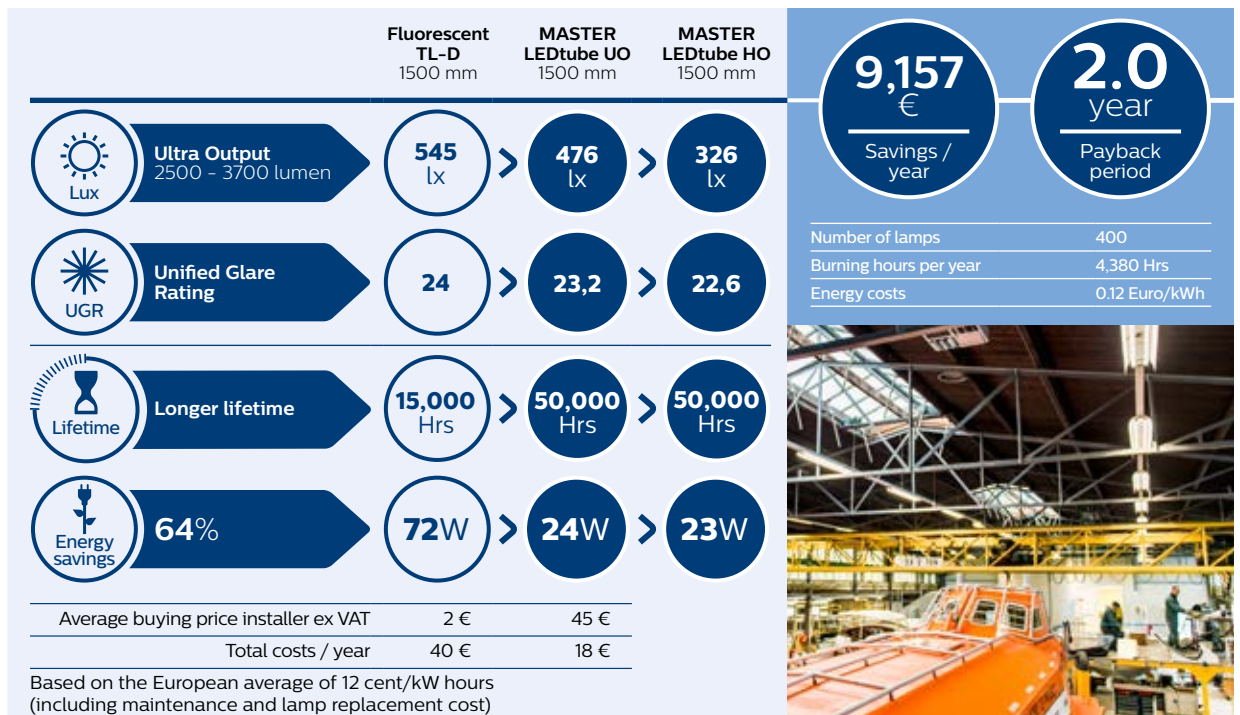


> Choose High Output LEDtubes for high light output with the best lm/w



## Ultra output for ultra-efficient industry

In ultra-demanding applications, our Ultra Output LEDtubes take safety and performance to the next level. With a super bright light output of up to 3700 lumen they offer the best light output for maximum visibility and minimal maintenance.

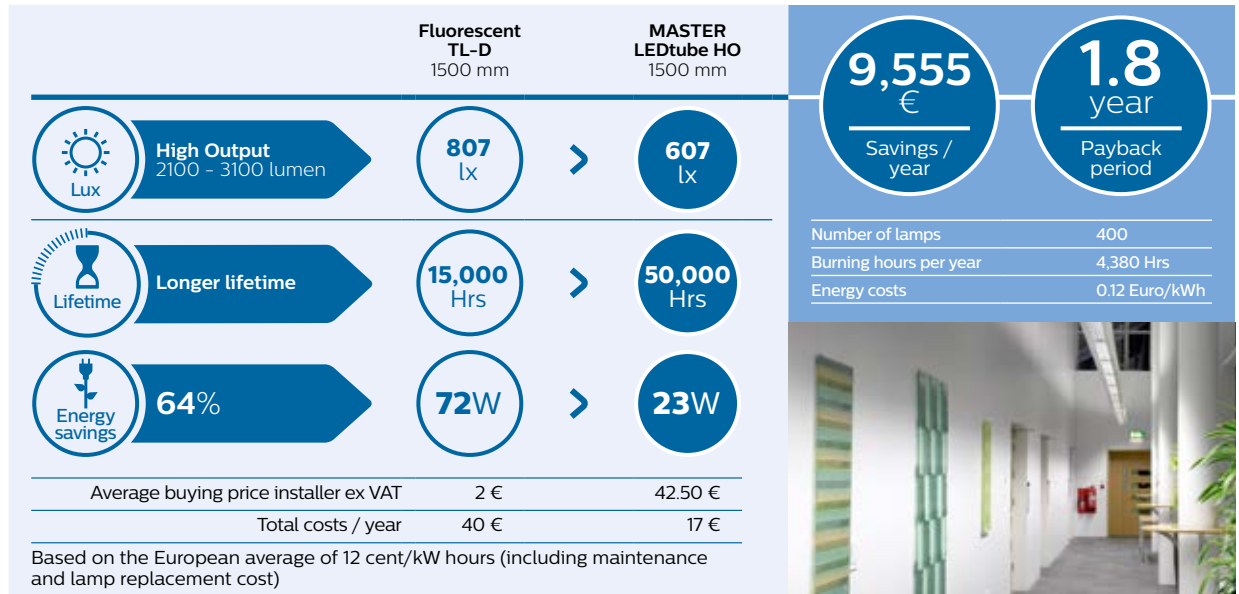


> Choose Ultra Output LEDtubes for the best light output in the most demanding industry applications



## High output for highly efficient offices

With a light output of up to 3100 lumen, our High Output LEDtubes provide brilliant light quality with the best lumen per watt. A simple switch for offices and healthcare settings that save on energy but feel bright and welcoming.

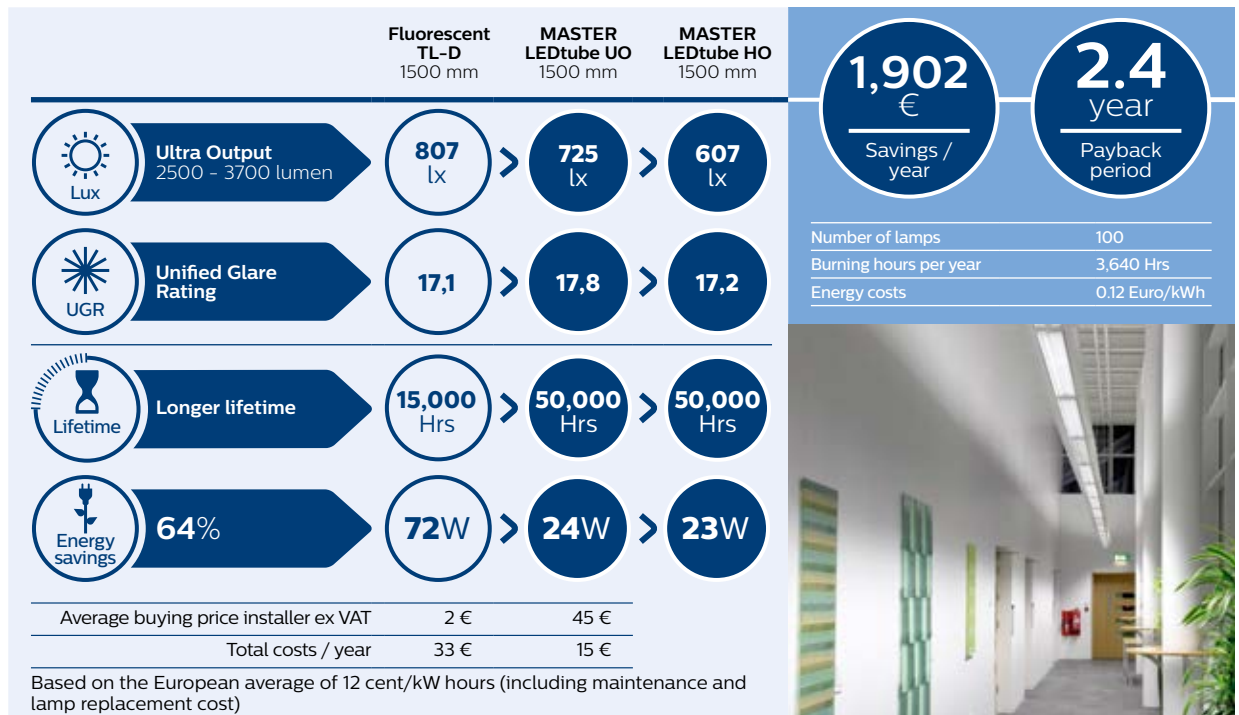


› Choose High Output LEDtubes for **high light output** with the **best lm/w**



## Ultra output for ultra-efficient offices

Office and school lighting can influence energy levels, performance and wellbeing. Our solutions shine with impressive, high quality light to create the most comfortable ambience that complies with all office norms and still saves on energy. So business is always a pleasure.



› Choose Ultra Output LEDtubes for the **best light output** in the most demanding office and healthcare applications

Calculate your own **savings** on  
[www.philips.com/ledtube](http://www.philips.com/ledtube)





## Case study

# Dansk Supermarked saves 53%

### Background

In September 2014, Dansk Supermarked began replacing more than 80,000 fluorescent lamps with Philips MASTER LEDtubes. The process is expected to carry on into late summer 2015 and involves all Bilka, Føtex and Netto stores in Denmark as well as Netto in Sweden and Germany. Altogether, more than 500 stores are having most of their lighting renovated in store areas, stock rooms, administration etc. In many of the stores, the lighting is also being replaced in most of the chilled display cabinets.

Electricity Installer Ulrik Leth, Dansk Supermarked, says: "This change is part of our ongoing energy renovation in which we are constantly looking for ways to minimise our power consumption and the corresponding CO<sub>2</sub> emissions. When it comes to lighting, the quality of the light is especially important because the goods in our stores have, of course, to be presented in the best possible way. We have followed the development of LEDtubes closely and we're convinced that they are the right solution, both in terms of power consumption and light quality."

### Project

Several types of the new MASTER LEDtubes are being used; for example, T8 fluorescent tubes 36 W with glow starter switches are being replaced by LEDtubes 20 W.

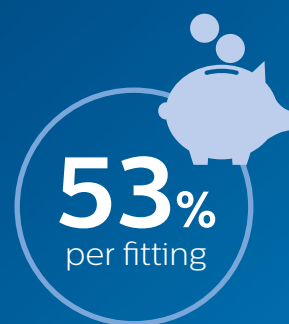
"We have reused the existing fittings and have only had to repair very few of them. Otherwise, it's only been the capacitors that have been removed and the glow starter switches replaced with dummy starters. Also, the bases on the LEDtubes can be rotated to fit the fittings, so it's a really simple operation," says Ulrik. "We haven't made any changes to the electrical installations, and we can happily say that the LEDtubes have not caused any problems for the stores' existing electronics, such as the electronic front edges of the shelves, WiFi network etc."

The actual replacement is being carried out by AURA Energi's installation department, which also uses cooperation partners in eastern Denmark. "We've had a special 'Philips van' to drive around in with the new LEDtubes for all the stores," explains Thomas Vraa Baiemler, Departmental Manager of AURA Energi's installation department. "The LEDtubes have been easy to work with and our biggest challenge was accessibility, as since it's been a total replacement, we've also been working in basements, toilets etc."

“

We get the same level of brightness, a good colour rendering of the goods and much longer lifespan of the light sources, **saving us more than half the energy consumption.**”

Ulrik Leth, Electricity Installer  
Dansk Supermarked A/S



### The benefits

The new LEDtubes provide a power saving of 53% per fitting (for a 36 W fitting). "We used an external company to measure the consumption, as we wanted a completely objective result," says Ulrik Leth. "The LEDtubes also offer an extra benefit, as their long lifespan of around 50,000 hours – compared to the T8 tubes at around 15,000 hours – saves the costs of replacement, and the longer burning hours also increases the lifespan of our oldest fittings, as we no longer risk breaking them when replacing the tubes."

The quality of the LEDtubes has also been good. "We have had far fewer faulty tubes delivered from Philips," explains Thomas Vraa Baiemler. "In fact, the number is way below the percentage we agreed beforehand."



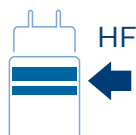
# Technical specifications

## MASTER LEDtube Standard Output



Product type	LED	Rotatable endcap	Lumen output	Operation	Beam angle	CRI	Color temperature	EOC 1 pcs (C)*
MASTER LEDtube	Wattage		Lumen		°		K	
1200mm	14.5 W	Yes	1600 lm	EM & Mains	160°	83	4000	871829179308300
1200mm	14.5 W	Yes	1600 lm	EM & Mains	160°	83	6500	871829179310600
1500mm	20 W	Yes	2000 lm	EM & Mains	160°	83	4000	871829173451200
1500mm	20 W	Yes	2000 lm	EM & Mains	160°	83	6500	871829173453600
1200mm InstantFit	16.5 W	Yes	1600 lm	HF	160°	83	4000	871829172885600
1200mm InstantFit	16.5 W	Yes	1600 lm	HF	160°	83	6500	871829172887000
1500mm InstantFit	22 W	Yes	2000 lm	HF	160°	83	4000	871869640078400
1500mm InstantFit	22 W	Yes	2000 lm	HF	160°	83	6500	871869640080700

## MASTER LEDtube High Output



Product type	LED	Rotatable endcap	Lumen output	Operation	Beam angle	CRI	Color temperature	EOC 1 pcs (C)*
MASTER LEDtube	Wattage		Lumen		°		K	
1200mm	18 W	Yes	1900 lm	EM & Mains	160°	83	3000	871869642198700
1200mm	18 W	Yes	2100 lm	EM & Mains	160°	83	4000	871869642200700
1200mm	18 W	Yes	2100 lm	EM & Mains	160°	83	6500	871869642202100
1500mm	23 W	Yes	2900 lm	EM & Mains	160°	83	3000	871829178956700
1500mm	23 W	Yes	3100 lm	EM & Mains	160°	83	4000	871829178958100
1500mm	23 W	Yes	3100 lm	EM & Mains	160°	83	6500	871829178960400
1200mm InstantFit	18 W	Yes	2000 lm	HF	160°	83	3000	871869651456600
1200mm InstantFit	18 W	Yes	2100 lm	HF	160°	83	4000	871869647125800
1200mm InstantFit	18 W	Yes	2100 lm	HF	160°	83	6500	871869647127200
1500mm InstantFit	25 W	Yes	2900 lm	HF	160°	83	3000	871869651458000
1500mm InstantFit	25 W	Yes	3100 lm	HF	160°	83	4000	871869640886500
1500mm InstantFit	25 W	Yes	3100 lm	HF	160°	83	6500	871869640888900

# MASTER LEDtube Ultra Output



3000/4000/6500



G13



ROTATABLE (ROT)



NON-DIMMABLE



50,000 H



EEL\*

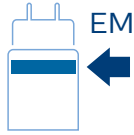


BEAM ANGLE



27.3  
K1198 K1498

DIMENSIONS



EM

Product type	LED	Rotatable endcap	Lumen output	Operation	Beam angle	CRI	Color temperature	EOC 1 pcs (C)*
MASTER LEDtube	Wattage		Lumen		°		K	
1200mm UO	18 W	Yes	2300 lm	EM & Mains	160°	83	3000	871869646149500
1200mm UO	18 W	Yes	2500 lm	EM & Mains	160°	83	4000	871869646151800
1200mm UO	18 W	Yes	2500 lm	EM & Mains	160°	83	6500	871869646155600
1500mm UO	25 W	Yes	3400 lm	EM & Mains	160°	83	3000	871869646157000
1500mm UO	25 W	Yes	3700 lm	EM & Mains	160°	83	4000	871869646159400
1500mm UO	25 W	Yes	3700 lm	EM & Mains	160°	83	6500	871869646163100
1200mm UO RN**	21 W	Yes	2300 lm	HF	160°	83	3000	871869656527800
1200mm UO RS**	21 W	Yes	2300 lm	HF	160°	83	3000	871869646149500
1200mm UO RN**	21 W	Yes	2500 lm	HF	160°	83	4000	871869656529200
1200mm UO RS**	21 W	Yes	2500 lm	HF	160°	83	4000	871869646151800
1200mm UO RS**	21 W	Yes	2500 lm	HF	160°	83	6500	871869656531500
1200mm UO RS**	21 W	Yes	2500 lm	HF	160°	83	6500	871869646155600
1500mm UO InstantFit	26 W	Yes	3400 lm	HF	160°	83	3000	871869655288900
1500mm UO InstantFit	26 W	Yes	3700 lm	HF	160°	83	4000	871869655284100
1500mm UO InstantFit	26 W	Yes	3700 lm	HF	160°	83	6500	871869655286500

\* EEL 1200mm UO = A+ / EEL 1500mm UO = A\*\*

\*\* RS = Region Southern Europe / RN = Region Northern Europe

# MASTER LEDtube



3000/4000/6500



G13



ROTATABLE (ROT)



NON-DIMMABLE



50,000 H



EEL



BEAM ANGLE



27.3  
K589 K894 K1798

DIMENSIONS



EM

Product type	LED	Rotatable endcap	Lumen output	Operation	Beam angle	CRI	Color temperature	EOC 1 pcs (C)*
MASTER LEDtube	Wattage		Lumen		°		K	
600mm series RN**	9 W	Yes	1000 lm	EM & Mains	160°	83	3000	871869657279500
600mm series RS**	9 W	Yes	1000 lm	EM & Mains	160°	83	3000	871869646141900
600mm series RN**	9 W	Yes	1050 lm	EM & Mains	160°	83	4000	871869657281800
600mm series RS**	9 W	Yes	1050 lm	EM & Mains	160°	83	4000	871869646143300
600mm series RN**	9 W	Yes	1050 lm	EM & Mains	160°	83	6500	871869657283200
600mm series RS**	9 W	Yes	1050 lm	EM & Mains	160°	83	6500	871869646145700
900mm series RS*	15 W	Yes	1575 lm	EM & Mains	160°	80	4000	871829123880500
900mm series RN*	15 W	Yes	1575 lm	EM & Mains	160°	80	4000	871869647121000
900mm series RS*	15 W	Yes	1575 lm	EM & Mains	160°	80	6500	871829123882900
900mm series RN*	15 W	Yes	1575 lm	EM & Mains	160°	80	6500	871869647123400
1800mm	25 W	Yes	3700 lm	EM & Mains	160°	85	4000	871869648037300

\* RS = Region Southern Europe / RN = Region Northern Europe

# Protection starter

34.5  
K21.5

DIMENSIONS



Product type	EOC 10 pcs (I)*
Accessory	8718291
Starter EMP	72930300

