

LAMP GUIDE

How to save energy using LED



ILLUMINATION LED



DECORATION LED



SPOTLIGHT LED



PROMO LED



INTEGRA LED



STAR
TRADING

LED – the future of lighting



The incandescent light bulb has served us well for more than a hundred years but is now being phased out for environmental and cost reasons. Several alternatives are available today, but it is already clear that the future is spelled LED. LED (Light Emitting Diode) is a modern technology which offers many advantages such as:

Saves energy

LED lamps are the most energy efficient alternative on the consumer market. For the same light output you will save about 85% energy compared to incandescent lamps.

Longer life

The life length of an LED-lamp is 10 to 20 times that of an incandescent light bulb. This means that you will save money buying fewer lamps and reducing your maintenance costs. LED is also less sensitive to vibration and external force.

Dimmer compatible

Many LED lamps can be dimmed using common dimmers. This requires especially designed electronics which makes these lamps somewhat more expensive.

Warm white light

The first generation LED often had a cold, white light but this is a thing of the past. Today's LEDs can be tailor made and there are lamps with an even warmer light than incandescent lamps.

Lights up instantly and withstands cold

Unlike energy-saving lamps (CFL) LED-lamps withstand cold without light-up time or light output being affected.

Less waste, no mercury

The longer life length means less waste. LED lamps don't contain any mercury which some other alternatives do.

No radiating heat (IR radiation)

The light from an LED doesn't contain any heat, only visible light. This is what makes them so efficient and it also makes them suitable for illuminating sensitive objects. High power LED lamps do however get hot.

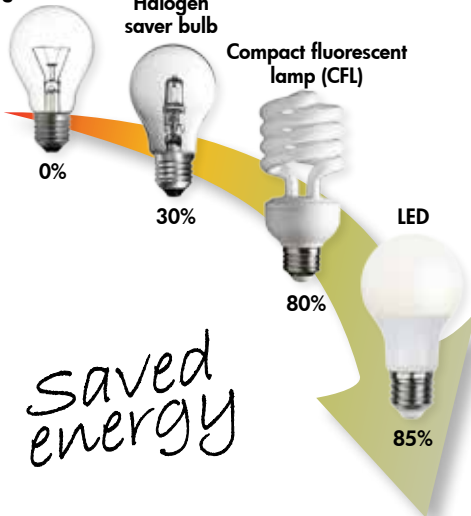
Compact size and built-in functions

Since the actual light source (the LED) is very small, brand new types of lamps can be made. The built-in electronics which is always required for LED can also be adapted and fitted with new functions such as sensors. This allows for wholly new types of lamps to be created.

Incandescent
light bulb

Halogen
saver bulb

Compact fluorescent
lamp (CFL)



New regulation for lamps

What’s going on?

The EU EcoDesign directive means that old, inefficient light sources are phased out and prohibited. The prohibition against a lamp type means that you are no longer allowed to manufacture in or import to the EU. Lamps still in stock at manufacturers, shops and individuals can still be sold and used. Performance and efficiency requirements are also being introduced for the replacement lamps. The rules are gradually toughened so that manufacturers and dealers have time to adjust.

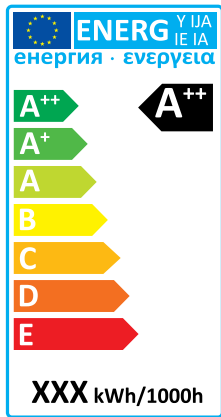
2009-2015	All omnidirectional incandescent light bulbs >15W (60 lm) prohibited. Quality and efficiency requirements on all types of lamps Mandatory energy labelling on both lamps and luminaries
2016	Increased quality and efficiency requirements on all lamps Less lenient exemptions for “special purpose lamps” (de facto prohibition of carbon filament lamps)
2018	Omnidirectional halogen saver bulbs are prohibited

Star Trading’s lamps naturally meets the EU regulations.

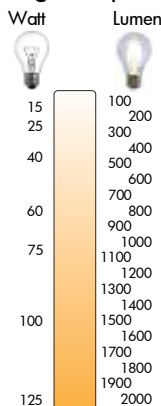
Reduce the energy consumption – not the amount of light

A lot of light (lm) at a low energy consumption (W) means an efficient light source. As a measure of the efficiency there are energy classes where A++ is the highest. All lamps in this brochure are at least class A products.

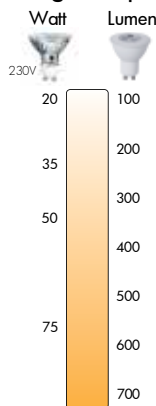
A lot of us are used to thinking of the energy consumption of a light bulb (W) as a measure of its light output. The tables tell you how you can translate the light output in lumen from LED lamps of different types to the equivalent wattage of an incandescent lamp or a halogen lamp.



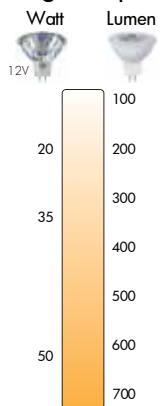
Light output



Light output



Light output



LED – A durable and sustainable alternative

Life length and quality

When used correctly LED-lamps can last for many years even though they will lose some of their initial light output over time. There are however many factors which can have a negative impact on the life length on an LED-lamp. The life length stated on the packaging should therefore be seen as an average and not an individual guarantee.

All lamps in this brochure are of course CE marked and meet the safety regulations in the applicable standards.



Recycle all your lamps

When an LED-lamp breaks you do not need to take any special actions since LED lamps do not contain any mercury. They can nonetheless be recycled and should therefore, just like incandescent lamps, be recycled as light sources. The symbol shows that they should not be thrown among household waste.



LED can be used outdoors

LED lamps are not affected by cold and can therefore be used outdoors in proper fixtures (IP44). On the other hand the life length is reduced if subjected to intense heat and they are therefore not suitable in special applications, e.g. in a sauna.



Read more about LED

LED is a brand new type of light source and is therefore sometimes different from what you are used to from incandescent lamps. For this reason we have collected the most commonly asked questions and answers at www.startrading.com/LED-FAQ



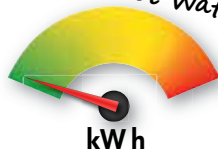
www.toptensverige.se

Several of Star Trading's lamps are included on the Swedish Society for Nature Conservation's list of the most energy efficient products called Top Ten Sweden. See the whole list at www.toptensverige.se.

Lighting terminology and features

Watt (W) only measures the energy consumption and tells you nothing of how much light a lamp produces. A 40W incandescent lamp and a 6W LED lamp produce about the same amount of light, but the LED lamp uses far less energy to do so.

Light output is measured in lumen, not Watt



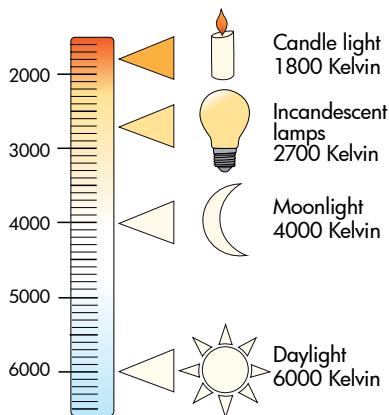
Lumen (lm) is the unit for luminous flux, i.e. the total amount of light emitted in all directions. Lumen is the most relevant measure for omnidirectional lamps but does not tell you how much energy a light source uses.

Candela (cd) is the unit for luminous intensity and is mostly relevant for directional lamps. If two reflector lamps have the same luminous output as measured in lumen, then the lamp with the narrowest beam angle will have the highest light intensity in candela since it focuses the light more.



Beam angle is relevant for directional lamps (reflector lamps) and tells you the width of the light beam. 30° to 40° is the most common but both narrower and wider are available for different uses.

Kelvin (K) measures the colour of the light or "colour temperature". The lower the Kelvin the warmer the light. Any lamp below 3000K is usually called warm white. An incandescent lamp has a colour temperature of about 2700K. Choose a warmer light for ambience and evening time and a cooler light for working and daytime.



Colour rendering (Ra) is a measure of how well the colour of objects lit up by the light source look in comparison to a reference light source. Ra 100 is the highest possible.

Dimmer compatible LED-lamps can be used with many common dimmers. To ensure the best result you should always check in advance if the lamp and dimmer are compatible. You can do this using the up-to-date list at www.startrading.com/dimmer.



LED creates new possibilities

The old lightbulbs were all similar and you only had to choose between different wattages. Since the new technology can be tailor-made for different needs there is now more to choose from. You might feel that it's more difficult to choose the right lamp but at the same time you are given brand new possibilities for lighting your home. We help you to choose!



To illuminate beautiful objects like paintings you should choose a lamp with higher Ra-value (90). Outdoors you can choose lower Ra-value.



The Kelvin can change the experience of a room. When using less bright lamps in a lamp shade you can control which impression the shade gives using Kelvin.



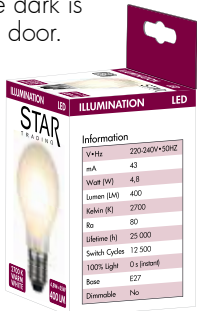
Different beam angles can create various effects on your facade or in a room. Choose between accent lighting or general lighting in your downlight.



There are LED lamps with built-in smart functions. A lamp with built-in light sensor which lights up automatically in the dark is convenient next to your front door.



You will find all relevant information about the lamp on the packaging.



Information	
Voltage	220-240V~50Hz
mA	43
Watt (W)	4.8
Lumen (lm)	400
Kelvin (K)	2700
Ra	80
Lifetime (h)	25,000
Switch Cycles	12,500
100% Light	0.5 instant
Base	E27
Dimmable	No

How to choose your lamp

1. Socket

Choose the right fitting for your luminaire.



E14

Small
screw fitting



E27

Large
screw fitting



B22



G4/GU4

12V



G9



GU10



GU5,3

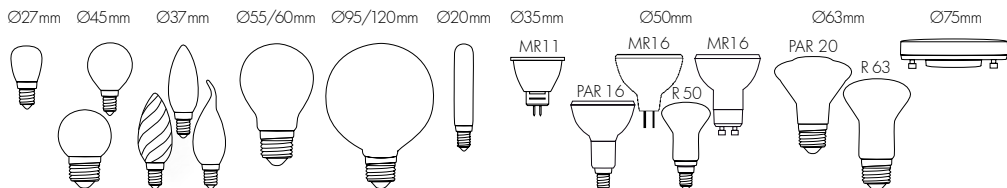
12V



GX53

2. Shape and size

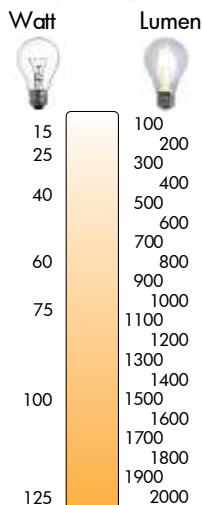
In many cases the shape of the lamp is purely a matter of taste, but in some cases a certain shape and size is needed for the lamp to fit in the fixture or for the lamp shade to attach to the lamp. Many LED-lamps follow standard measurements from older lamp types but to be sure you should always check the dimensions in advance when needed. The height and width of the lamp is stated on the packaging.



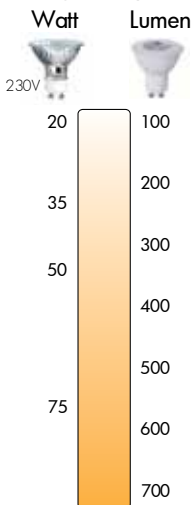
3. Light output

Choose light output in lumen as needed. The tables below will help you compare with the power in W of the older lamp types. (For directional lamps you can also look for candela which is then related to the beam angle.)

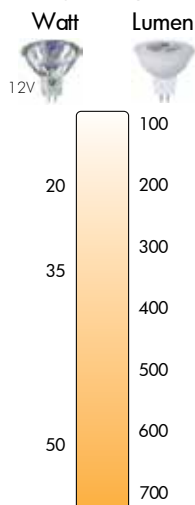
Light output



Light output



Light output



4. Features

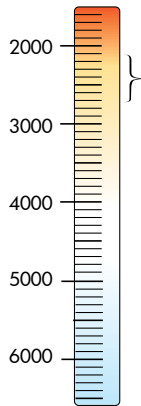
- Choose a dimmer compatible lamp if you want to be able to dim it or if the luminaire has a built-in dimmer.
- Choose colour temperature (Kelvin) according to preference and use. For a warm ambiance select lower Kelvin or for a crisp, clear light select higher Kelvin.
- Also choose beam angle when buying directional lamps.

ILLUMINATION LED

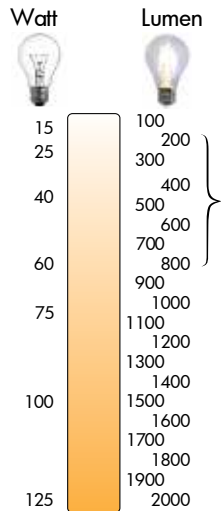
Lamps with so called LED filaments use a special technology to resemble classic incandescent lamps almost perfectly. These lamps are also completely omnidirectional and are suitable also where the light source is clearly visible. Star Trading offers a broad range with many different specifications of the common types of lamps. The standard range is in the ILLUMINATION LED series. Lamps with an extra warm light intended for decorative use are found in the DECORATION LED series.



Colour temperature
Kelvin



Light output



DECORATION LED

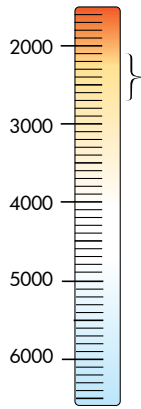


ILLUMINATION LED

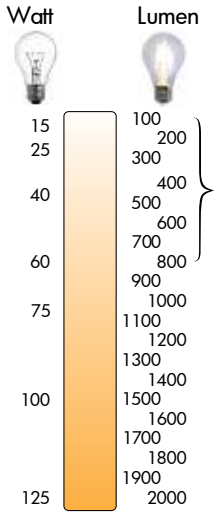
The LED filament technology can be used for many different types of lamps. We also offer a variety of special purpose lamps with this technology to provide you with lamps which look just like you are used to.



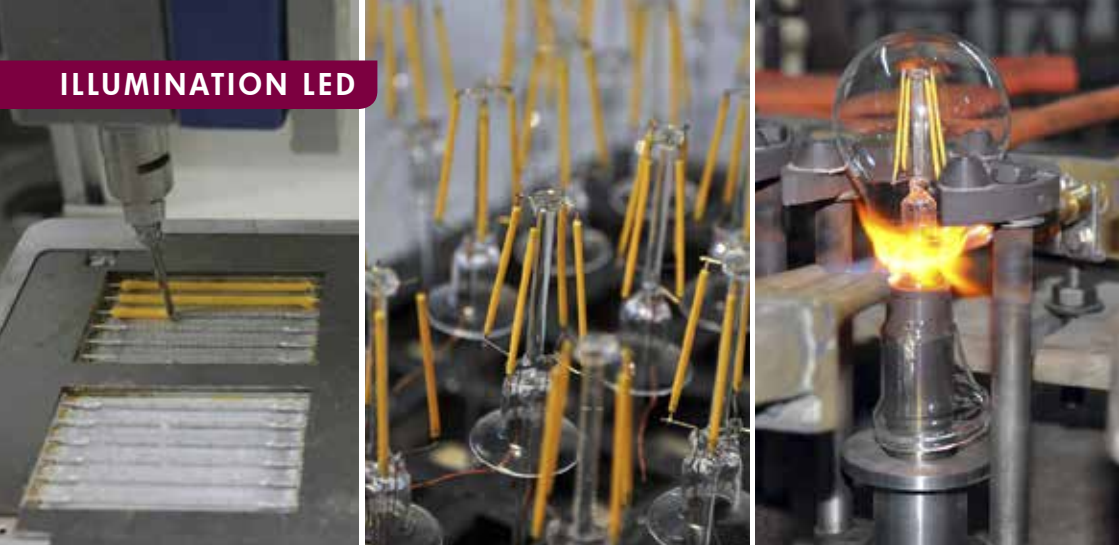
Colour temperature
Kelvin



Light output



ILLUMINATION LED



Filament LED is a new generation of LED technology which mimics incandescent tungsten lamps almost perfectly and produces a truly omnidirectional light. The filaments are produced by mounting very small LED chips on a thin strands which are then encased in a phosphorus mixture. The whole module is then enclosed in a gas filled glass bulb just like when producing an incandescent lamp. But whereas the gas in an incandescent lamp is used to block out the oxygen to prevent the filament from burning off, the LED lamp uses the gas to dissipate heat. This ensures the longevity of the lamp.

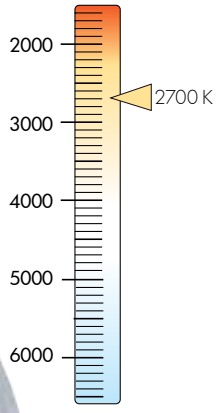


ILLUMINATION LED

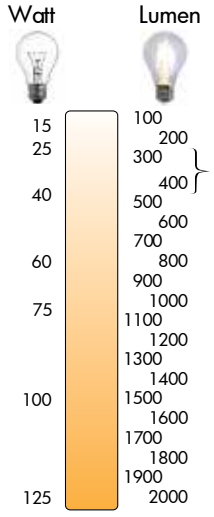
A concentrated, crispy light in a clear glass bulb make these lamps especially suited for fixtures with crystal. The whole series is dimmer compatible and works well with most types of dimmers.



Colour temperature
Kelvin



Light output



ILLUMINATION LED



ILLUMINATION LED

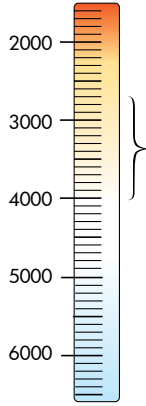
For general lighting purposes in fixtures where the light source is not visible there is our standard range of opal, omnidirectional lamps which can replace all common types of lamps. The whole series is with extra high colour rendering, Ra 90.



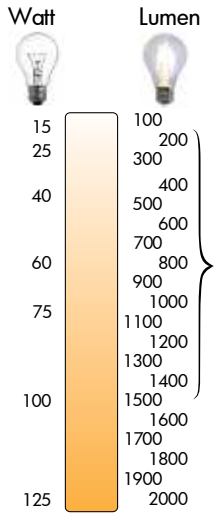
Ra 90
COLOUR
RENDERING



Colour temperature
Kelvin



Light output

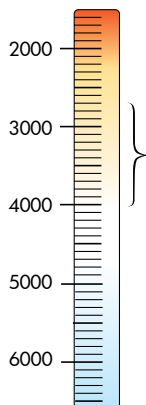


ILLUMINATION LED

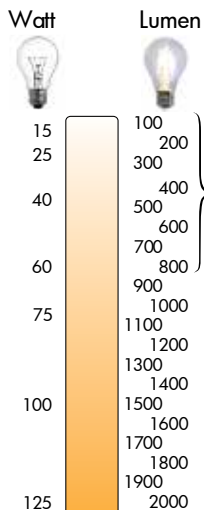
Virtually all types of lamps can nowadays be replaced with LED. There are also brand new types of lamps, e.g. with built-in light sensor which turns on automatically when it gets dark. Star Trading offers a very wide range of all types of LED-lamps. If you can't find what you're looking for in this brochure then look at www.startrading.com or ask your local retailer.



Colour temperature
Kelvin



Light output



See our complete assortment at www.startrading.com

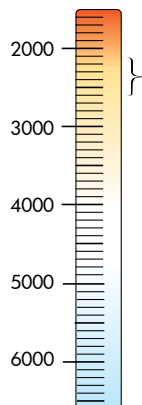
DECORATION LED

For decorative lighting where the appearance of the lamp matters more than the amount of light there is a series of beautiful LED lamps. All have a full glass body without any prolonged base and give a warm and comfortably soft glow. The lamp itself is beautiful to look at without giving any glare.

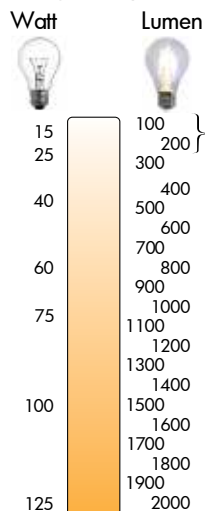


Not Dimmable

Colour temperature
Kelvin



Light output



DECORATION LED

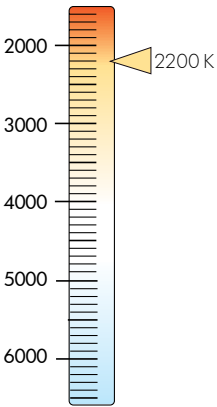


DECORATION LED

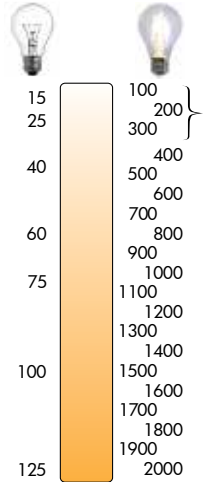
Carbon filament bulbs or antique bulbs as they are also known have grown very popular recently thanks to their beautiful shapes and warm, soft glow. They are however extremely inefficient as light sources, even more so than regular incandescent lamps, and can only be sold by using a loophole in the environmental legislation. Now there are perfect replacements using LED technology. These lamps offer the same beautiful shapes and warm, soft glow but at 90-95% less energy consumption.



Colour temperature
Kelvin



Light output
Watt Lumen



DECORATION LED



DECORATION LED



LED can be used outdoors and since they consume so little energy you don't have to worry about decorating with a lot of light. The fixture should normally have an IP-rating to protect the lamp but there is a special case with open light chains. In this case it's important to choose a lamp with a smooth body which fits snugly with the rubber gasket in the light chain.



DECORATION LED



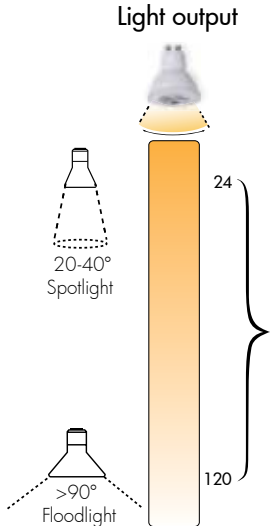
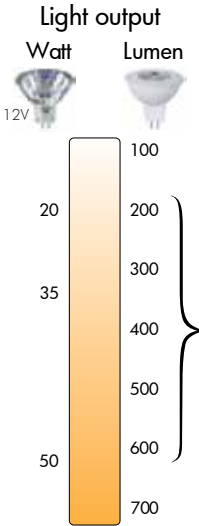
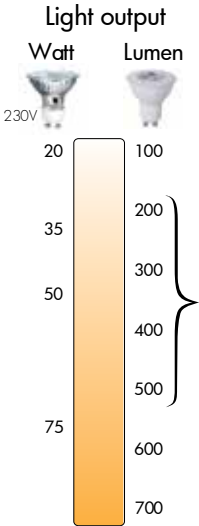
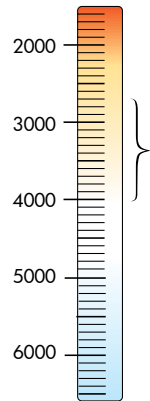
See our complete assortment at www.startrading.com

SPOTLIGHT LED

In the series SPOTLIGHT LED we have collected directional lamps for all needs. The standard range includes many different specifications. If you are looking for the best there is also COB-technology (Chip On Board) which gives you the same soft spread of the light as from halogen reflectors. These lamps are also available with extra high colour rendering, Ra 90.



Colour temperature
Kelvin



SPOTLIGHT LED



See our complete assortment at www.startrading.com

INTEGRA LED



The LED technology allows for brand new smart solutions. You will therefore see more and more fixtures with built-in light sources and nifty functions. We have collected some of these in our INTEGRA LED series.





**LIGHTS UP
WHEN DARK**



**LIGHTS UP
WHEN DARK**



**LIGHTS UP
WHEN DARK**



**MOTION SENSOR
ACTIVATED**



**BATTERY
PRODUCT**

**LIGHTS UP WHEN DARK AND MOTION
SENSOR IS ACTIVATED**

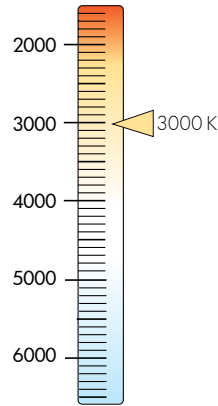


PROMO LED

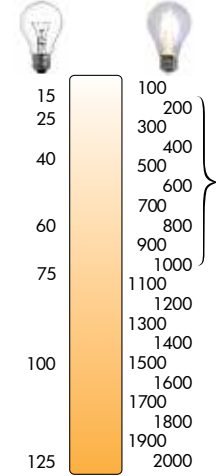
LED lamps come in different quality levels. If the price is of your greatest concern and you are willing to accept a slightly shorter life time then you can find the most common types of lamps in our PROMO LED series or as temporary campaign offers.



Colour temperature
Kelvin



Light output
Watt Lumen

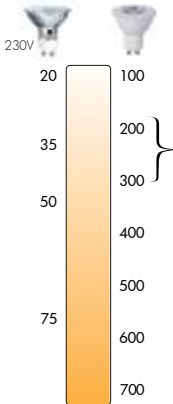


PROMO LED



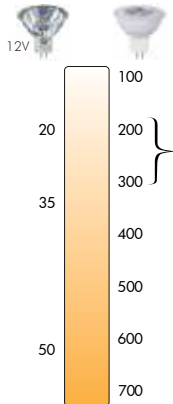
Light output

Watt Lumen

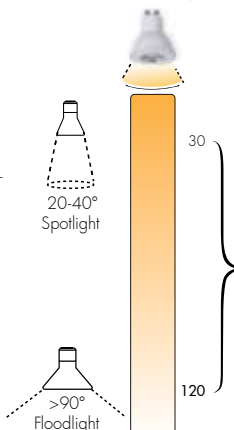


Light output

Watt Lumen



Beam angle



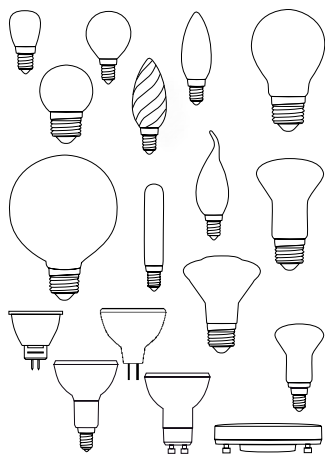


How to choose your lamp

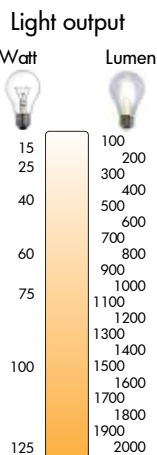
1. Socket



2. Shape and size

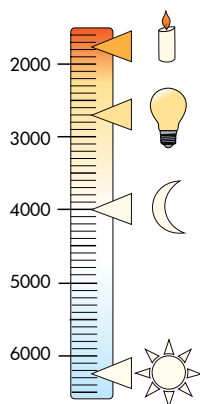


3. Light output



4. Features

Colour temperature Kelvin



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