

## Standard UK Domestic Fitting types

### Bayonet Cap

“bayonet cap”, also known as BC or B22d is used on most regular light bulbs. It is 22mm diameter and with two locating lugs. The “small bayonet cap” (SBC or B15d) is very similar but only 15mm across.



### Edison Screw Cap

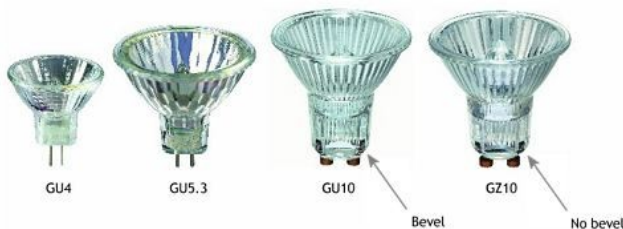
The most popular ES or E27 fitting is 27mm diameter. The SES is often used for smaller decorative fittings, chandeliers, and appliance bulbs. The MES fitting is sometimes used in large chandeliers containing perhaps dozens of small lamps. The most commonly used screw fittings are shown in the table below.



Designation	Diameter	Name	Abbreviation
<b>E5</b>	5mm	Lilliput Edison Screw	LES
<b>E10</b>	10mm	Miniature Edison Screw	MES
<b>E12</b>	12mm	Candelabra Edison Screw	CES
<b>E14</b>	14mm	Small Edison Screw	SES
<b>E27</b>	27mm	Edison Screw	ES
<b>E40</b>	40mm	Giant Edison Screw	GES

### Halogen Spotlights

The most common halogen spots are either push fit (GU4 or GU5.3), low voltage type or twist and lock (GU10 or GZ10) mains versions. PLEASE NOTE the subtle difference between GU10 and GZ10. The GU10 has a bevel around the base but the GZ10 has a square corner. This stops the GZ10 being used in a fitting designed for a GU10 but allows the GU10 to be used in either.



For further fitting types see reference 2

#### References

1. <http://www.electricity-monitor.com>
2. <http://www.lightbulbs-direct.com/article/fittings-caps-and-bases/>
3. <http://www.energysavingtrust.org.uk/In-your-home/Lighting>

# Saving Energy from Lighting

## Light Bulb Types:

### Traditional Light Bulbs

Known as tungsten filament or GLS (General Lighting Service) bulbs are extremely inefficient. Only about 5% of the electricity they use is converted into visible light, changing them will start saving money right away.



### Halogen lamps

These use similar technology to GLS lamps, but are slightly more efficient. In homes, they are mainly used in spotlight downlighters, often in large numbers, with the result that many rooms are over lit. You can save money by installing lower output bulbs or an energy efficient alternative such as an LED. If you do want to use halogen lamps, ones with Energy Saving Trust Recommended label use 30% less electricity than an equivalent standard halogen while giving out exactly the same light. They are the most energy-efficient halogen bulbs on the market.

### Compact fluorescents

Compact Fluorescents, or CFLs, use about 20% to 25% of the electricity that an equivalent GLS lamp will use. CFL lights are available in all shapes and sizes (as an alternative for most standard light fittings in a house) and with different colours of light, from the warm yellowish light of traditional lighting to a cooler pure white for optimum visibility. Modern CFLs do not flicker, and they can reach full light output quite quickly, though they cannot reach full output instantly the way other technologies do. They can last up to ten times longer than traditional incandescent lamps and luminaires.

### LEDs

**LEDs** use light-emitting diodes, are the most efficient light bulbs and last longer than any other technology, paying for themselves several times over before they need replacing. The lamps and luminaires cost more to buy but can last up to 50,000 hours and are used as a direct replacement for existing tungsten and halogen lamps without modification. LEDs provide instant light with no warm up time.

## Factors to consider when buying low energy lamps

### Comparing light bulbs

Lamps and are offered with a variety of different outputs, colours and beam angles that you should consider this when making your selection. Direct wattage comparisons made by manufactures can be misleading.

### Beam Angle

The spread of the light from the bulb is defined by the beam angle, the greater the angle the wider the light will spread. The suitability of the lamp beam angle will be dependant on the fitting type, ceiling height and the proximity to other light sources.

### Colour of the light emitted

The sun gives out white light, whereas the light from GLS lamps is yellow. We think of this yellow light as "white" and if we then see a light source that is genuinely white, it looks blue by comparison. We call this a cold light, because we associate blue with cold and red or yellow with warm. Generally CFL or LED low energy lights are designed to mimic GLS bulbs and are usually described as "warm" or "soft" white. "Cool" or "pure" white are likely to be appropriate where clear vision rather than ambience is the priority e.g. workplace lamps. "Daylight" bulbs are the whitest of all, and are usually only used by artists and others who need to match colours correctly.



### Light levels

Approximate Halogen wattage equivalents based on lumen values as an indication of light levels are provided in this table. Be aware that on many products the manufactures give the wattage equivalent and this can be misleading.

Halogen Watt	Lumens Equivalent
27 W	280 -290 lm
28 W	300 lm
30 W	320 lm
35 W	395 – 400 lm
40 W	480 lm
50 W	638 lm
60 W	806+ lm

Source : <http://www.electricity-monitor.com>

## The Energy Saving Trust Match Wattage as Follows: Matching lumens to Watts for GLS bulbs

Lumens	GLS equivalent	Where to use it
1,200 to 1,300	100W	Usually the brightest bulbs in the house, single light fittings for lighting the whole room.
650 to 700	60W	Wherever a less bright bulb will do, e.g. smaller rooms, rooms with more than one fitting.
350 to 400	40W	Individual reading lamps, fittings that take more than one bulb.
200 to 225	25W	Usually used to give ambient effect only, or to light cupboards etc.

### Matching lumens to Watts for halogen downlighters

When it comes to replacing halogen downlighters with LEDs, the numbers are slightly different. LEDs are naturally directional and don't need reflectors to make them into spotlights. Halogens are often fitted in large numbers and may be giving off far more light than is actually needed therefore an LED may be able to replace a halogen even if its output in Lumens is significantly lower.



Lumens	Halogen equivalent	Where to use it
300+	50W	If you currently have a few 50W halogens and you want to keep the same brightness.
200+	35W	If you currently have 35W halogens, or lots of 50W and you could manage with less light output
100+	20W	Usually for local lighting such as display cabinets, rather than general lighting.
less than 100	-	Not usually useful.

**Potential savings** - Over its lifetime one GU10 LED lamp replaces approximately 25 standard GU10 halogen spotlights, whilst saving as much as 2,450kWh of elec-

Based on Electricity at £0.12/ kWh	40W halogen	5W LED	1W LED
Annual Running Cost (based on 2hrs /per day and 5 day per week)	£2.50	£0.31	£0.06
<b>Annual Savings</b>		<b>£2.19</b>	<b>£2.44</b>
Lifetime running costs : LED rated at 30000 hours	£144	£18	£3.60
<b>Lifetime Savings</b>		<b>£126.00</b>	<b>£140.40</b>