

Leading light

Cheap light bulbs are just as good as more expensive ones

The only time most of us ever think about light bulbs is when one needs replacing. But, as our tests reveal, how often you need to do this will depend on the bulb you buy. We've tested standard light bulbs and spotlight bulbs, and the results may surprise you as some of the cheapest bulbs on test outperformed their more expensive rivals.

Where possible, we tested 40-, 60- and 100-watt versions of widely available bulbs. We've combined the results of all three wattages in the tables, opposite and overleaf – so whatever version you need, the next time you buy a bulb all you have to do is look for one of our Best Buys. We tested mainly pearl bulbs but the results apply also to clear.

Will light bulbs be banned?

Standard bulbs are very inefficient – converting only about 10 per cent of the electrical energy into visible light, with the

rest wasted as heat. They also consume a surprising amount of electricity. For example, in a typical house you may have, say, 12 light bulbs – eight 60-watt and four 100-watt bulbs. If you left them on for three hours a day, they'd set you back around £77 a year.

The government is pressing the European Commission to consider banning energy-inefficient light bulbs, and is consulting with manufacturers about whether these bulbs can be removed from UK shelves before the regulations are in place. If this plan goes ahead, what's the alternative?

Newer technology, energy-saving light bulbs last longer, consume less power and are cheaper to run than standard light bulbs. We're currently testing a large batch of energy-saving bulbs but, due to their much longer lifespan, you will have to wait until November of this year to find out the results.

How they work

Englishman Sir Joseph Swan and American Thomas Edison transformed the world (in 1878 and 1879, respectively) with their invention of the light bulb. Remarkably, today's models vary little from Edison's original design

GLASS BULB

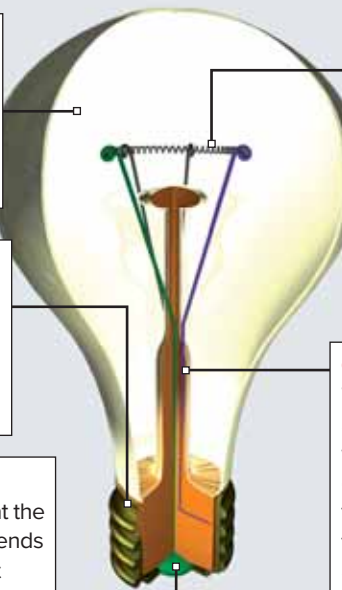
The bulb is filled with an inert gas, like argon. If any oxygen got in, the filament would burn

BASE FITTINGS

There are two types of base: the bayonet fitting, used mainly in the UK, and the Edison screw cap

MAKING CONTACT

Two metal contacts at the base connect to the ends of an electrical circuit



FILAMENT

When electricity flows through the filament it heats up. At 2,200°C it begins to glow white-hot, emitting light

GLASS MOUNT

The contacts are attached to two wires, which are connected to a tungsten filament that is held up by a glass mount



How many Which? testers does it take to change a light bulb? Well, only one actually – his name is Eric and he's screwed and unscrewed around 700 light bulbs for us to bring you this report

Let there be light

After checking the bulbs meet the relevant British safety standards, we use a device called the Globe of Ulbricht to test five samples of each bulb to measure light output and electricity consumption.

To see how long the bulbs last, we turn on five of each type and then leave them switched on. Bulbs dim as they get older, so we also remeasure brightness after 750 hours and 1,500 hours – 1,500 hours is about four hours' daily use for a year.

Breaking point

Turning a bulb on and off uses up less electricity than leaving it on, but it does stress the filament and reduces the bulb's life. We switch samples of each bulb on and off 20,000 times (three minutes on, five minutes off), to see when they break – the equivalent of switching them on and off 11 times daily for five years.

To check whether a bulb will break when being inserted or removed from a socket, we perform a torsion-twist test on the base. For halogen bulbs, we use a laser to destroy the heating coil to check the bulbs don't shatter at the end of their life.

Contacts

Asda
0845 300 1111
www.asda.co.uk

B&Q
0845 609 6688
www.diy.com

General Electric
0800 169 8290
www.ge.com/eu/lighting

Homebase
0845 077 8888
www.homebase.co.uk

Ikea
0845 355 1141
www.ikea.co.uk

Osram
01744 812221
www.osram.co.uk

Philips
0845 601 0354
www.homelighting.philips.com

Ring
0113 276 7676
www.ring.ltd.uk

Sainsbury's
0800 636262
www.sainsburys.co.uk

Tesco
0800 505555
www.tesco.com

Wilko
01909 505505
www.wilko.co.uk

Woolworths
020 7262 1222
www.woolworths.co.uk



1 STANDARD

91% General Electric Classic 39p

The General Electric Classic bulbs gave around 1,500 hours of continuous burn with little dimming over their lifetime. Although they didn't all make it to the end of the switching test, they lasted over 15,000 cycles – which is pretty respectable. Available from B&Q in twin packs for 78p (39p each), or Wilkinson's in triple packs for £1.29 (43p each).

WE LIKE A joint top performer – nothing beat it.

Cheapest store B&Q **Fittings** Bayonet and screw
Wattages 40, 60, 100

WHICH?
BEST
BUY



2 STANDARD

91% Osram Classic A 21p

The 40-, 60- and 100-watt versions of the Osram Classic A all performed consistently well throughout the tests, dimming by less than 10 per cent over the first 750 hours and still burning after around 1,500 hours of continuous use. They also sailed through our tough switching test – still going strong after 20,000 cycles. Available in twin or four-packs from Sainsbury's.

WE LIKE For overall performance, these cheap bulbs are one of the best.

Cheapest store Sainsbury's **Fittings** Bayonet and screw
Wattages 40, 60, 100

WHICH?
BEST
BUY

The Osram Classic A bulbs were still going strong after 20,000 cycles in our tough switching test



3 STANDARD

90% Homebase Pearl Light Bulb 25p

These Homebase pearl bulbs were narrowly behind the leaders. All three wattages – 40, 60 and 100 – hardly dimmed at all over their entire lifespan and were still going strong after around 1,500 hours of continuous use. They also took the switching test in their stride. Available from Homebase in packs of three for £1.09 (36p each) or six-packs for £1.49 (25p each).

WORTH NOTING Buy in bulk for the cheapest price.

Cheapest store Homebase **Fittings** Bayonet and screw
Wattages 40, 60, 100

WHICH?
BEST
BUY

STANDARD LIGHT BULBS	SPECIFICATION		WHICH? TEST PERFORMANCE					SCORE %
	PRICE PER BULB (p)	TYPE	LIGHT OUTPUT	LIGHT DROP-OFF	LIFETIME	SWITCHING TEST	CONSTRUCTION	
1 GENERAL ELECTRIC Classic	39	pearl	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	91
2 OSRAM Classic A	21	pearl	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	91
3 HOMEBASE Pearl Light Bulb	25	pearl	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	90
4 PHILIPS Softone – T55	90	white pearl	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	89
5 WOOLWORTHS Pearl Bulb	65	pearl	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	87
6 ASDA Pearlight Standard Bulb	22	pearl	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	86
7 IKEA Glöda AA-144978-1	37	pearl	★★★★★	★★★	★★★★★	★★★★★	★★★★★	82
8 SAINSBURY'S Basics Pearl Bulb	8	pearl	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	82
9 RING Light Bulb Pearl 49020	16	pearl	★★★	★★★★★	★★★★★	★★★★★	★★★★★	78
10 TESCO Standard Pearl	20	pearl	★★★★★	★★★	★★★★★	★★★★★	★★★★★	75

USING THE TABLE

We tested widely available bulbs from the main manufacturers, supermarkets and DIY outlets. The more stars the better.

Specification

Price The cheapest high-street multi-pack price we could find.

Test performance

Light output How closely the light given out by the bulb matches the manufacturers' claims. **Light drop-off** How much the bulb's brightness decreases throughout its lifetime. **Lifetime** How long the bulb lasts if left to burn for a continuous period of

time – the best were still going strong after 1,500 hours.

Switching test How well the bulb survived being turned on and off regularly – 20,000 times in total.

Construction Strength of the light bulb's base and the durability of any important markings that are on the bulb.

Score

This ignores price and is based on:

Light drop-off	35%
Lifetime	24%
Switching test	24%
Light output	12%
Construction	5%

**11 SPOTLIGHT****94% Osram Concentra Spot R63 82p**

This Osram spotlight's beam is wider, but not as strong, as that of the other Best Buys. It took all our tests in its stride and lasted for nearly 2,000 hours with minimal light drop-off.

Available from Sainsbury's. **WE LIKE A good performer with a long lifespan.**



Cheapest store Sainsbury's **Type** Incandescent **Fittings** Screw **Wattage** 60 **Voltage** 240

**12 SPOTLIGHT****93% B&Q R80 45p**

The B&Q R80 bulb gives a slightly narrower but brighter beam than the Osram R63 (left). The R80 lasted longer than its claimed 1,000-hour lifetime, kept its brightness and passed the switching test with flying colours. You can buy a four-pack of screw caps from B&Q for £1.78.



WE LIKE Cheap with a good, bright beam.

Cheapest store B&Q **Type** Incandescent **Fittings** Screw **Wattage** 60 **Voltage** 240

**13 SPOTLIGHT****93% Sainsbury's Basics Halogen GU10 £1.97**

This 50mm-diameter bulb is our highest-scoring halogen model and has a brighter central beam than its rivals. The bulbs lasted well over their claimed 2,000-hour lifespan with hardly any dimming.

WORTH KNOWING Its long life means you won't need to change it often.



Cheapest store Sainsbury's **Type** Halogen **Fittings** Two-pin twist and lock (GU10) **Wattage** 50 **Voltage** 240

The B&Q R80 lasted longer than its claimed 1,000-hour lifetime

SPOTLIGHTS	SPECIFICATION				WHICH? TEST PERFORMANCE				SCORE %
	PRICE PER BULB (p)	VOLTAGE (VOLTS)	POWER (WATTS)	TYPE	LIGHT DROP-OFF	LIFETIME	SWITCHING TEST	CONSTRUCTION	
11 OSRAM Concentra Spot R63	82	240	60	incandescent	★★★★★	★★★★★	★★★★★	★★★★★	94
12 B&Q R80	45	240	60	incandescent	★★★★★	★★★★★	★★★★★	★★★★★	93
13 SAINSBURY'S Basics Halogen GU10	197	240	50	halogen	★★★★★	★★★★★	★★★★★	★★★★★	93
14 IKEA MR16 12V halogen	175	12	50	halogen	★★★★	★★★★★	★★★★★	★★★★★	89
15 WILKO 80mm	50	240	60	incandescent	★★★★★	★★★★	★★★★★	★★★★★	88
16 B&Q Halogen MR16 240V	197	240	50	halogen	★★★★★	★★★★★	★★★★★	★★★	83
17 OSRAM Concentra Spot R80	149	240	60	incandescent	★★★★	★★★★	★★★★★	★★★★★	80
18 PHILIPS 50W GU10	499	240	50	halogen	★★★★	★★★	★★★★★	★★★★★	80
19 RING 42222	265	240	60	incandescent	★★★★	★★★	★★★★★	★★★★★	74
20 GENERAL ELECTRIC MR16 Start	154	240	50	halogen	★★★	★★★	★★★★★	★★★★★	69
21 TESCO Spotlight R63 60W	89	240	60	incandescent	★★★★★	★★★	★★★★	★★★★★	68
22 GENERAL ELECTRIC Spot R63	125	240	60	incandescent	★★★	★★★	★★★★	★★★★★	59

USING THE TABLE

We tested widely available bulbs. The more stars the better.

Specification

Price The cheapest high-street multi-pack price we could find.

Type A halogen filament is hotter than an incandescent, giving a brighter, whiter light.

Performance

Light drop-off How much the brightness of the bulb reduces throughout its lifetime.

Lifetime How long the bulbs last if left to burn continuously – the best were still going after 1,500 hours.

Switching test How well the bulbs survived being turned on and off regularly.

Construction Strength of base

and the durability of important markings. Halogen bulbs are also subjected to a heating coil destruction test.

Score

Ignores price and is based on:
 Light drop-off **35%**
 Lifetime **30%**
 Switching test **30%**
 Construction **5%**

CUT ELECTRICITY BILLS**Switch with Which?**

If you're one of the 50 per cent of Britons who are still on the old monopoly suppliers' basic tariffs, go to www.switchwithwhich.co.uk and find yourself a better deal.

