

Light Bulb Guide

"I remember in my day, when you can go down to the hardware store and buy a pack of light bulbs for less than \$1.00!"... Sound familiar? Yeah, we know. We are nearing the end of the days of inexpensive incandescent bulbs, thanks in part to the Energy Independence and Security Act of 2007, specifically Title III:B- Lighting Energy Efficiency. This Act requires roughly 25 percent greater lighting efficiency, which essentially bans the manufacture and import of incandescent bulbs in the range of 40-150 watts, the more commonly used sizes in most of our consumer and household applications. The ban started in 2012, and continues into effect in early 2014.

"Watts in a light bulb?"

Traditionally light bulbs were measured in "Watts", which is actually how much energy they consume. Unfortunately, with the newer technologies, watts is not as accurate a measurement for determining light output, more so how much energy it uses. Early on in the introduction of the newer technologies such as Halogen, Compact Fluorescent (CFL or the "curly bulbs"), and LEDs, newer terms and specifications were being used, such as LUX, Lumens (Lm), and Color Temperature. This created confusion, and a lot of dissatisfied early adapters to the technology, which resulted in even more resistance to the changes.

So, what does it all mean?

As mentioned before, **Watt** is the unit of measurement for the energy used to illuminate the light bulb. The lower the number, the less energy is used. Traditionally, this resulted in less light output, but that is no longer the case.

A **Lumen** is the unit of measurement of light output by the light bulb.

LUX is the ratio of Lumens measured over a distance. 1 LUX = 1 Lumen per square meter.

Color Temperature is measured in degrees Kelvin (°K) and is the color of the light output. Traditionally, the color was described as warm; cool; or daylight, but was subjective. This unit of measurement gives a definitive number to compare between technologies.

CHOOSING THE RIGHT COLOR

Warm White, Soft White The standard color of incandescent bulbs.	Cool White, Neutral, Bright White Good for kitchens and work spaces.	Natural or Daylight Good for reading.
2700K	3000K	3500K 4100K 5000K 6500K

HOW MUCH LIGHT DO I NEED?

Old Incandescent Bulbs (Watts)	ENERGY STAR Bulb Brightness (Minimum Lumens)
40	450
60	800
75	1,100
100	1,600
150	2,600

Light Bulb Comparison

See how replacement options for a 60W incandescent lamp (used three hours per day at \$0.11/kWh) stack up.



Halogen Incandescent



Compact Fluorescent (CFL)



Light Emitting Diode (LED)

	Halogen Incandescent	Compact Fluorescent (CFL)	Light Emitting Diode (LED)
Life Span	1 to 3 Years (up to 3x as long)	7 to 10 Years (up to 10x as long)	23 years or more (up to 25x as long)
Savings	*Approx. \$2	*Approx. \$53	*Approx. \$137
Benefits	Spaces where lights are turned on/off frequently.	Spaces where lights are on for 20 minutes or longer at a time.	Spaces where lights are hard to reach and usually kept on. Emit less heat and are harder to break.
Downsides	Halogens just meet new standards, using only 28% less energy. Not much opportunity for great savings.	CFLs have a warm up period before full brightness. Frequent on/off cycles reduce life. Use caution if light bulb breaks, as it may contain mercury.	High upfront cost, and should not be used in enclosed fixtures.

* Energy cost savings over the life of the bulb compared to incandescent lamps. Sources: Department of Energy and ENERGY STAR

lighting facts^{CM}

A Program of the U.S. DOE

Light Output (Lumens)	587
Watts	12.9
Lumens per Watt (Efficacy)	45
Color Accuracy Color Rendering Index (CRI)	83
Light Color Correlated Color Temperature (CCT)	3000 (Bright White)

All results are according to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting. The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the Label Reference Guide.

Registration Number:
Model Number:
Type:

As of January 1, 2012 the above label is required on any lighting product, to help educate and eliminate confusion while selecting a replacement light bulb.



Information sources include EnergyStar.gov, Federal Trade Commission, WW Grainger

If you are still having difficulty choosing Light Bulbs, please contact us at askzoro@zoro.com or 855-289-9676

Product Compliance and Suitability.

THE PRODUCT STATEMENTS CONTAINED IN THIS EZTIP ARE INTENDED FOR GENERAL INFORMATIONAL PURPOSES ONLY. SUCH PRODUCT STATEMENTS DO NOT CONSTITUTE A PRODUCT RECOMMENDATION OR REPRESENTATION AS TO THE APPROPRIATENESS, ACCURACY, COMPLETENESS, CORRECTNESS OR CURRENTNESS OF THE INFORMATION PROVIDED. INFORMATION PROVIDED IN THIS TECH TIP DOES NOT REPLACE THE USE BY YOU OF ANY MANUFACTURER INSTRUCTIONS, TECHNICAL PRODUCT MANUAL OR OTHER PROFESSIONAL RESOURCE OR ADVISER AVAILABLE TO YOU. ALWAYS READ, UNDERSTAND, AND FOLLOW ALL MANUFACTURER INSTRUCTIONS.