



What is the difference between Lumens, Kelvins and Watts?

When shopping for LED bulbs you will frequently see three key specifications mentioned Lumens, Kelvin and Watts. It is quite common for shoppers to get confused about the differences between these terms.

Lumens

'Lumens' is a measurement of total light output or in other words the brightness of the bulb. More lumens means it's a brighter light; fewer lumens means it's a dimmer light. Lumens let you buy the amount of light you want. So, when buying your new bulbs, "think lumens, not watts".

The brightness, or lumen levels, of the lights in your home may vary widely, so here's a rule of thumb:

To replace a 100-watt incandescent bulb, look for a bulb that gives you about 1600 lumens. If you want something dimmer, go for less lumens; if you prefer brighter light, look for more lumens.

Replace a 75W bulb with an LED bulb that gives you about 1100 lumens

Replace a 60W bulb with an LED bulb that gives you about 800 lumens

Replace a 40W bulb with an LED bulb that gives you about 450 lumens



Soft, Warm White

The standard color of incandescent bulbs.

Natural White

Good for Work and Office Spaces.

Cool White, Daylight

Good for reading high contrast.



2700K

3000K

3500K

4100K

5000K

6500K



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Kelvin

Kelvin is a measurement used to describe the color temperature of a light source. This is the specification that gives a description of the warmth or coolness of a light source.

When a piece of metal is heated, the color of light it emits will change. This color begins as red in appearance and graduates to orange, yellow, white, and then blue-white to deeper colors of blue. The temperature of this metal is a physical measure in degrees Kelvin or absolute temperature. While lamps other than incandescent such as LEDs do not exactly mimic the output of this piece of metal, we utilize the correlated color temperature (or Kelvins) to describe the appearance of that light source as it relates to the appearance of the piece of metal (specifically a black body radiator).

By convention, yellow-red colors (like the flames of a fire) are considered warm, and blue-green colors (like light from an overcast sky) are considered cool. Confusingly, higher Kelvin temperatures (3600–5500 K) are what we consider cool and lower color temperatures (2700–3000 K) are considered warm. Cool light is preferred for visual tasks because it produces higher contrast than warm light. Warm light is preferred for living spaces because it is more flattering to skin tones and clothing. A color temperature of 2700–3600 K is generally recommended for most indoor general and task lighting applications. Color Temperature is not an indicator of lamp heat.

Watts and Equivalent Watts

Watts are a measurement of power consumption. With traditional incandescent light sources typically the higher the wattage, the brighter the light.

With energy efficient bulbs such as LED this is somewhat different because there is no hard and fast rule to correlate Wattage with output. For example one brand's 9 Watt LED bulb may emit enough Lumens to replace a 60 Watt incandescent but another brand may need to use a less efficient LED, let's say 12 Watts worth to create enough lumens to replace a 60 Watt bulb. This is why as we mention above, it is more important to take a look at Lumens versus Watts.

Many household and commercial fixtures were not designed with LED bulbs in mind. They typically feature warnings that indicate "Fixture designed for a XXX max Watt bulb". These are heat ratings designed to prevent users from placing a higher wattage bulb inside of the fixture than what it was designed for. LED bulbs consume far less wattage and consequently, produce less heat therefore a 60 Watt equal LED bulb could be safely used in a fixture rated for a 40 Watt incandescent, same goes for using a 75 Watt equal LED bulb in a fixture designed for 60 Watt incandescent.

When we describe the "Wattage Equivalent" of a LED bulb this is a simple way of letting shoppers know what level of output this bulb will provide at a glance without having to dive deeper into the Lumen specification but it remains Lumens should be your guide when measuring the total output of a particular light bulb.

Replace a 40W bulb with an LED bulb that gives you about 450 lumens.