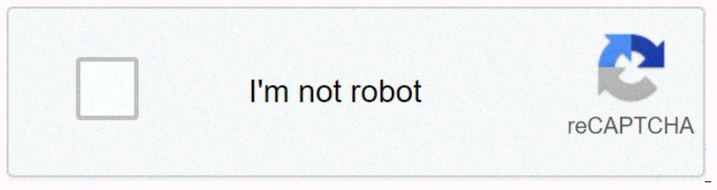

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T5 fluorescent grow light bulbs

Before the invention of the light bulb, lighting the world after sunset was a messy, challenging, dangerous task. It took a lot of candles or torches to fully light up the large rooms, and oil lamps, although quite effective, tend to leave sozo residue on anything in their general vicinity. When the science of electricity really got going in the mid-1800s, inventors everywhere were clamoring to invent practical, affordable electric home lighting equipment. Englishman Sir Joseph Swan and American Thomas Edison got it around the same time (in 1878 and 1879) and over 25 years millions of people around the world installed electric lighting in their homes. The easy-to-use technology was such an improvement over the old ways that the world never looked back. The amazing thing about this historic turn of events is that the light bulb itself could hardly be easier. The modern bulb, which has not changed drastically since the Edison model, consists of only a few parts. In this article, we will see how these parts come together to create a bright light for hours. Light Basics Light is a form of energy that can be released by an atom. It consists of many small particle packages that have energy and momentum but no matter. These particles, called light photons, are the most basic units of light. (For more information, see How Light Works.) Atoms release light photons when their electrons get excited. If you've read how atoms work, then you know that electrons are negatively charged particles that move around the nucleus of an atom (which has a pure positive charge). Atom electrons have different levels of energy, depending on several factors, including their speed and distance from the nucleus. Electrons of different energy levels occupy different orbitals. Generally speaking, electrons with more energy move in orbitals farther from the nucleus. When an atom acquires or loses energy, the change is expressed by the movement of electrons. When something transmits energy to an atom, the electron can be temporarily increased to a higher orbital (further away from the nucleus). The electron holds this position for only a tiny fraction of a second; almost immediately, it is attracted back to the core, to its original orbital. As it returns to its original orbital, the electron releases extra energy in the form of a photon, in some cases a light photon. The wavelength of light emitted (which determines its color) depends on how much energy is released, depending on the specific position of the electron. As a result, different kinds of atoms release different kinds of light photons. In other words, the color of light is determined by what kind of atom is excited. It is a basic mechanism when working in almost all light sources. The main difference between The source is a process of exciting atoms. In the next section we will look at different parts of the bulb. Bulbs have a very simple structure. At the base, they have two metal contacts that connect to the ends of the electrical circuit. Metal contacts are attached to two rigid wires, which are attached to a thin metal fiber. The thread sits in the middle of the bulb, which holds a glass mountain. Wires and fiber are placed in a glass bulb, which is filled with inert gas, such as argon. When the bulb is connected to the power supply, the electric current flows from one contact to another, through wires and fiber. An electric current in a fixed conductor is the mass movement of free electrons (electrons that are not firmly bound to an atom) from a negatively charged area to a positively charged area. As electrons zip along through the fiber, they are constantly bumping into the atoms that make up the filament. The energy of each impact vibrates with an atom - in other words, the current heats the atoms. A thinner conductor heats up more easily than a stronger conductor because it is more resistant to electron movement. Bound electrons in vibrating atoms can be temporarily raised to higher energy levels. When they return to normal levels, electrons release extra energy in the form of photons. Metal atoms release mostly infrared light photons, which are invisible to the human eye. However, if they warm up to a sufficiently high level – 4000 degrees Fahrenheit (2200 degrees C) in the case of a light bulb – they emit a large amount of visible light. The fiber in the bulb is made of long, incredibly thin length tungsten metal. In a typical 60-watt bulb, tungsten fiber is about 6.5 feet (2 meters) long, but only one-hundredth of an inch thick. Tungsten is arranged in a double coil to fit it all in a small space. This means that the thread is reeled to form a single coil, and then this coil is coiled to form a larger coil. In a 60-watt bulb, the coil is less than an inch long. Tungsten is used in almost all bulbs because it is an ideal fiber material. In the next section, we will find out why this is the case and examine the role of glass bulb and inert gas. Let's look at what the thread is made of in the next section. A normal bulb is also known as a light bulb. These bulbs have a very thin tungsten fiber, which is placed inside a glass sphere. They usually come in sizes like 60 watts, 75 watts, 100 watts and so on. The basic idea of these bulbs is simple. Electricity flows through the fiber. Because fiber is so thin that it offers a good bit of resistance to electricity, and this resistance turns electricity into heat. Heat is sufficient to make the thread white hot, and part is light. The fiber glows because of the heat-- it ignites. Advertising The problem with light bulbs is that heat wastes a lot of electricity. The heat is not light and the purpose of the bulb is light, so all energy spent on heat production is waste. Bulbs are therefore very inefficient. They produce about 15 lumens per watt of input power. The fluorescent bulb uses a completely different method to produce light. There are electrodes at both ends of the fluorescent tube, and inside the tube is a gas containing argon and mercury steam. The electron stream flows through gas from one electrode to another (in a similar way to the electron current in the cathode tube). These electrons crash into mercury atoms and excite them. As mercury atoms move from excited state back to uninterrupted state, they emit ultraviolet photons. These photons hit the phosphorus that covered the inside of the fluorescent tube, and this phosphorus produces visible light. It sounds

complicated, so it allows you to pass again in slow motion: A stream of electrons flows between the electrodes at both ends of the fluorescent bulb. Electrons interact with mercury vapour atoms floating inside a light bulb. Mercury atoms get excited, and when they return to an undiscited state, photons release light in the ultraviolet region of the spectrum. These ultraviolet photons collide with phosphorus, which covers the inside of the bulb, and phosphorus produces visible light. Phosphorus fluoresces to produce light. The fluorescent bulb produces less heat, making it much more efficient. A fluorescent bulb can produce between 50 and 100 lumens per watt. This makes fluorescent bulbs four to six times more efficient than bulbs. That's why you can buy a 15-watt fluorescent bulb that produces the same amount of light as a 60-watt bulb. Not all light bulbs are the same. Some have smart home features, others are energy sippers. Some can be controlled using Wi-Fi and others change colors. This week we want to know which ones you think are the best or are on your smart home wish list. It might seem silly to ask for the best light bulbs, but we are willing to bet that some of you have put some idea into which LED bulbs, CFLs, or other bulbs are durable, the last longest, allow you to control the lighting in your home, are affordable, and have other bells and whistles you like. If you have a favorite, let us know in the discussions below. Let's hear your voice in the discussions below! To vote, follow these steps: Follow this format for your vote, including bold printing. If not, it won't count: PHOTO OF THE BEST BULBVote: [BEST BULB] Why: Explain why this bulb is the one you think is the best! Maybe it's energy efficient and guaranteed to last. Maybe it Wi-Fi and can be controlled from your smartphone. What makes it the one you would recommend to others, and why? Make a case! Don't duplicate the nominations! Instead, if someone nominated your choice, the star (we recommend) make it a boost, and answer with your story instead. Please do not leave non-entry, direct comments on this post. He's just going to throw them down. Save your stories for others' submissions! If you're not sure what we mean, just look at the nominations of our writers below. We'll give you a head start and everyone should be in the right format so you can follow our lead. Hive Five is our weekly series where you vote on your favorite apps and tools for the job. Do you have a suggestion on the subject? Send us an email for tips + hivefive@lifehacker.com!Photo by John Loo. Whether you are in the office or at home, it is always useful to know about the lighting you live with. Here's everything you need to know about fluorescent lamps. The new fluorescent lamp is cheap and easy to install, so replacing rather than repairing it is often a better option. Before you do so, quickly check the components in this order: tube, starter (if any), sockets and load. Very old fluorescent lamps have both a heavy load and a starter. Newer models have quick-start ballasts and no starter. The latest models have electronic ballasts that are almost maintenance-free. Fluorescent lamps are often flimsy. Make sure the drawers are firmly seated and un cracked. Pipes should fit tightly between the sockets. The old, delayed-start fluorescent flashes several times before coming on as the starter delivers a burst of energy to get the tube going. The newer, rapid-start luminaire has a load that provides extra power when switched on, so the light lights up instantly. Circular fluorescent differs from a straight tube only in shape. Below we explain all this and even more to help you with unpleasant fluorescent lamps. When faced with the following problems, work your way through the solution one by one until the light works. Do not light the tube that tightens or removes it. If it is a starter, replace it. Replace the damaged socket. Replace the ballast or fasteners. The tube is blackenedAs if only one end is black, turn the tube. Replace the tube if both ends are black. Blinks or takes a long time to lightUs, rotate or replace the tube. If it is a starter, replace it. Replace the ballast or fasteners. Hums and/or seeps through black shoo-inyY don't get your fingers leaking. Wear gloves. Tighten the screw that secures the ballast. Replace the leaking load or fastening device. If the tube is black at both ends, replace it. If it flashes or does not reach, try turning it in the drawer until it is firmly seeded or until the light comes on. To remove the tube hold both ends and rotate until you feel it is released on the End. You take the pins out of the drawer. To install a new tube, insert the pins into one socket and guide the pins to the other socket. Turn the tube a quarter of a turn until you feel it settle or ignite. If the luminaire has a starter, replace it every time you replace the tube. Be sure to buy a starter with the same serial numbers as the old one. If the tube lights up slowly, tighten the starter. If this does not resolve the issue, replace the starter. If the light still does not work, the load is to blame. Replace the socket if it is cracked or does not hold the tube firmly. Some drawers just slip out, while others are held in place by a screw. If you can not remove the wires, cut them off near the socket. Buy a replacement to match the old drawer. Strip the 3/4 inch insulation from each end of the wire and push the end of the wire into the hole of the new socket. Push the new socket firmly into the luminaire. Lamps.

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