Inventor Jake Dyson has LED light with cooling solution

June 10 2015, by Nancy Owano

Jake Dyson, son of Dyson founder James, has staked out his corner in the engineering innovation world with a focus on LED solutions, the Jake Dyson Light. He has in turn been doing a rethink on the characteristics and function of a desk light.

He proudly states his LED light solution goes past other designers who

have tried to cool LEDs with "half-hearted" attempts. Jake said their lights were built to fail. Dyson and team have come up with a light that cools LEDs properly. Benefit to consumers? A light that lasts for 37 years. Conventional lights neglect to protect LEDs from heat, exposing them to temperatures of up to 130°C. This damages the LEDs' phosphorous coating and degrades brightness and color, said his site.

His desk lamp solution: CSYS task lights -Operating at 55°C and making use of "heat pipe technology" the Dyson solution can direct heat away from the LEDs. They lose neither quality nor efficiency for 37 years.

Eight LEDs provide 587lx of white light for 37 years. Each is in a conical reflector to eliminate glare.

How does he know his product lasts for 37 years? The number was calculated based on IES TM-21-11, he said. The 37 years (or 160,000 hours) is based on 12 hours of continual use per day. (IES stands for Illuminating Engineering Society. TM-21-11 provides a method to determine when the useful lifetime of an LED is reached, a point when the light emitted from an LED depreciates to a level no longer considered adequate for a specific application.)

What does he mean by heat pipe technology? "Heat is drawn away from the LEDs using technology typically found in satellites. It's dissipated through an aluminium heat sink, which forms the light's horizontal arm," according to the site.

Looking back at how this was developed, he said the process involved looking at, analyzing, lighting. The key goal was not to design things that look good, he said, but to try to improve efficiency with engineering. He said he spent some months looking at problems with lighting, and the big problems that stood out were the lack of direction of light. The arm of the light was positioned by springs and pillars and those wear out over time, he said. So wherever you position your light, it would drop.

Dyson initiated a mechanism —the light moves up and down and rotates and moves in and out. Where you position the mechanism for light is where it is. The LEDS were also repositioned for an even spread of light.

His site said whereas "conventional lights rely on tension to stay in position, CSYS task lights use gravity." The arm moves vertically using a

counterweight pulley system inspired by the construction crane. It extends 27.5 cm horizontally along anti-friction bearings. The zinc alloy base rotates through 360°, and is weighted to increase stability. One can position the [light](link) where required with the touch of a fingertip. It moves vertically, horizontally and rotationally through 360°.
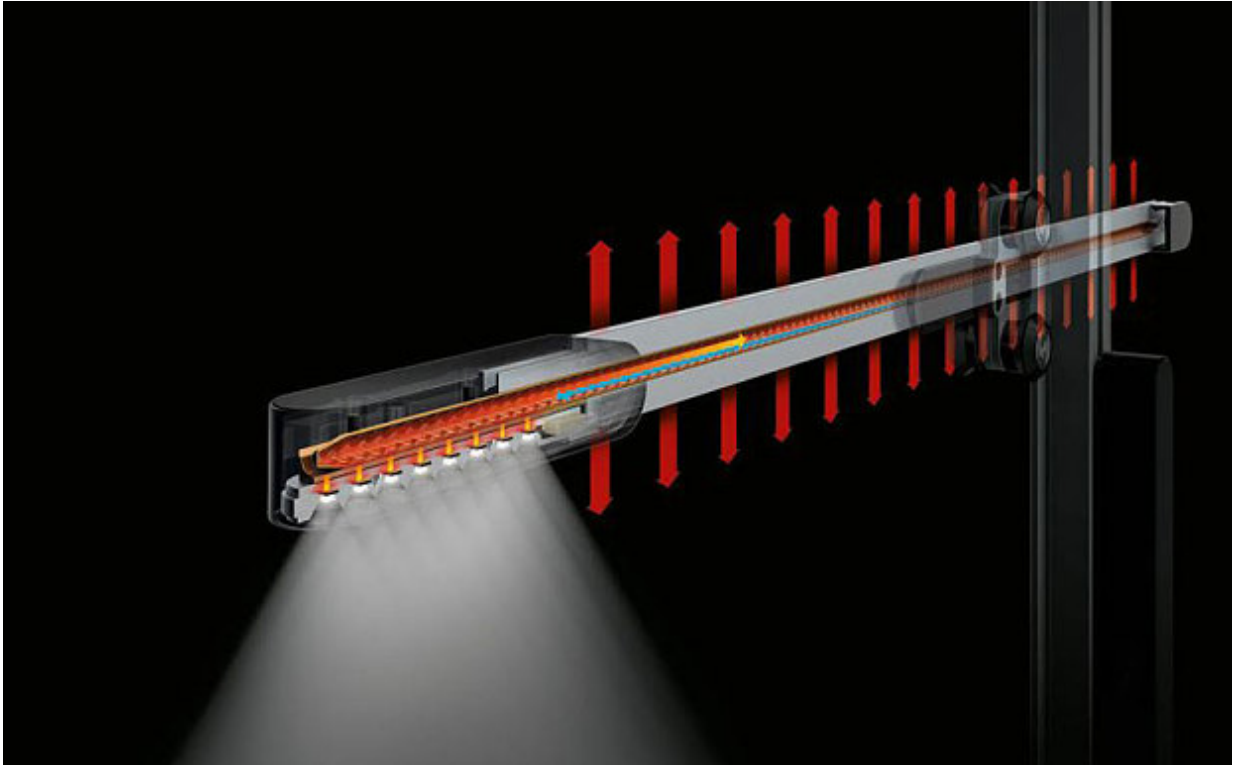
The LEDs use only a fifth of the energy of a conventional halogen bulb. The product prices are listed on the Dyson site.

To cool LEDS is critical to the LED market, he said. *Gizmag*'s Nick Lavars noted how "Efforts to keep LED bulbs cool has been a focus for

manufacturers working to drag the [technology](#) into the mainstream. While LEDs won't get as hot as the incandescent cousins, they do still generate [heat](#), which sees their brightness and color deteriorate over time."

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