

LED Tubes utilize 46% more of their total light output when compared against a standard T8 Fluorescent Tube

LED Technology differs from all previous light engine designs. The light output of any LED lamp is wholly directional. Various Housings and Reflectors are then used to control the distribution of the light.

A fluorescent tube, by mere design, emits light in all directions. The luminous flux rating manufacturers put to their lamps is representative of this. Below is an example of the mean lumens rating of standard Halophosphate T8 Fluorescent Tubes:

Fluorescent Tube Description	Colour	Initial Lumens	Mean Lumens
2ft 600mm T8 18w	Cool White 4000k	1100	880
3ft 900mm T8 30w	Cool White 4000k	2100	1680
4ft 1200mm T8 36w	Cool White 4000k	2600	2080
5ft 1500mm T8 58w	Cool White 4000k	4125	3300
6ft 1800mm T8 70w	Cool White 4000k	5250	4200
8ft 2400mm T12 100w	Cool White 4000k	8300	6640

Source: Philips TL-D Standard Colours

Standard T8 Halophosphate has a luminous efficacy of approximately 70 lumens per watt.

Many manufacturers only quote the initial lumens on their lamps. The initial lumens represent the light output of the lamp during the first 1000 hours or less of operation. Mean lumens is more representative of the light output after this initial 'burn in' period and can be 20% less than the initial lumen rating.

By comparison the LED T8 tubes emit light in one direction only at a beam angle of 120°, which is 1/3rd the light radiation pattern of standard fluorescent tubes.

The vast majority of fluorescent tube fixtures are designed to emit light in one direction, with a similar 120° beam spread, a large proportion of the total light output from a tube is lost, even with chrome reflectors which have been shown to improve light output by only 20 to 30%. Therefore when comparing LED T8 Tubes against a fluorescent T8, a more representative measure is needed to indicate a comparative light output.

With various tests that have been performed, the actual light utilization of a standard T8 fluorescent tube has been determined to be 65% on average. Our LED Tubes have a utilization efficiency of 95% due to their directional nature. This results in a 46% increase in Effective Lumens output when compared against a standard T8 Tube.

LED Tube Description	Colour	Actual Lumens	Effective Lumens
2ft 600mm T8 8w Clear Cover	Daylight 5000k	890	1300
3ft 900mm T8 12w Clear Cover	Daylight 5000k	1050	1533
4ft 1200mm T8 15w Clear Cover	Daylight 5000k	1650	2400
5ft 1500mm T8 19w Clear Cover	Daylight 5000k	1980	2900
6ft 1800mm T8 22w Clear Cover	Daylight 5000k	2200	3200
8ft 2400mm T836w Clear Cover	Daylight 5000k	3000	4380