Light for plant breeding

Horticulture led lighting

TESLA ENGINEERING

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About Tesla

Tesla is your engineering and production partner to realize your lighting and digital ideas according to market needs. Targeted on LED lighting Tesla becomes the leading manufacturer for specialized lighting applications, pioneered the LED technology since 2015.

Tesla is not just lamps; Tesla is an idea! The idea of how to create and light up a vertical farm, how to light up greenhouses, how to optimize the process of photosynthesis in different plant species for different applications.

Tesla provides tailor-made LED lighting systems, calculated in terms of energy savings and profits from the optimization of crops. Dedicated light spectrum brings bigger harvest, higher quality, faster yields and more healthy growth.

Our R&D team that is located in Istanbul Ataşehir Technology Center is waiting for a new challenge!

We invite everyone interested in Horticulture LED light technology.

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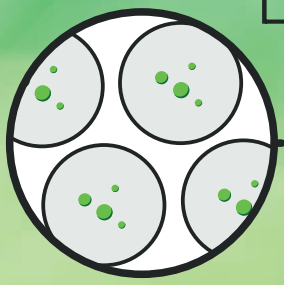
Lighting the Seed to Seed Process

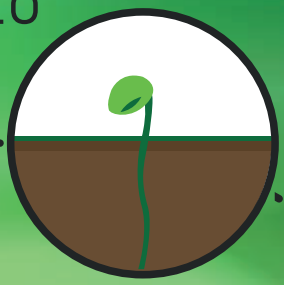


Tissue Culture

Plant growth can be guided throughout the breeding cycle, starting from the tissue culture. Whether it is embryo production from callus or anthers, the process can be accelerated and improved with the correct spectrum. Uniform light distribution creates good growth conditions, even when the light source is placed very close to the plants. Less heat produced by the fixtures decreaes the demad for cooling, providing energy savings.

Tesla Benefit

* Uniform growth results with uniform light
* More embryos and vigorous sprouts from anther and microspore
* More production – faster cycles



Seedling Stage

When plants are grown either in a climate chamber or in a greenhouse, the light quality plays a major role in producing strong seedlings. High quality seedlings result in low mortality rates. This applies to both sprouts retrieved from tissue culture and seedlings propagated from seeds. High biomass in the seedling stage will later on translate into balanced growth, a higher number of flowers and vital seeds. Less plants lost means more production and faster cycles.

Tesla Benefit

* Short hypocotyls guarantee a good start for growth
* Seedlings with high biomass and strong roots
* Low seedling mortality – more production

Vernalization

Vernalization is a process needed with some species. During vernalization the plant is treated with cold for a specific time period. Vernalization can be enhanced with the appropriate light quality, reducing the time required for flowering induction and/or enabling higher growth room temperatures. Faster flowering induction, better survival and less cooling required results in energy and cost savings.

Tesla Benefit

* Shorter time required
* Allowing higher ambient temperature – less cooling required.
* Earlier flowering and good plant survival

Flowers And Seeds

The light environment can be designed to either delay or enhance flowering induction. With the correct spectrum the plants produce more tillers and high biomass, which is reflected as higher number of flowers and seeds. Appropriate light quality can be used to steer plant growth. Reaching targets faster means more production and faster cycles.

Tesla Benefit

* Control plant vegetative and generative growth
* Shorter time seed to seed (SSD)
* Allow all process phases to be conducted without sunlight.

Tesla Led Light

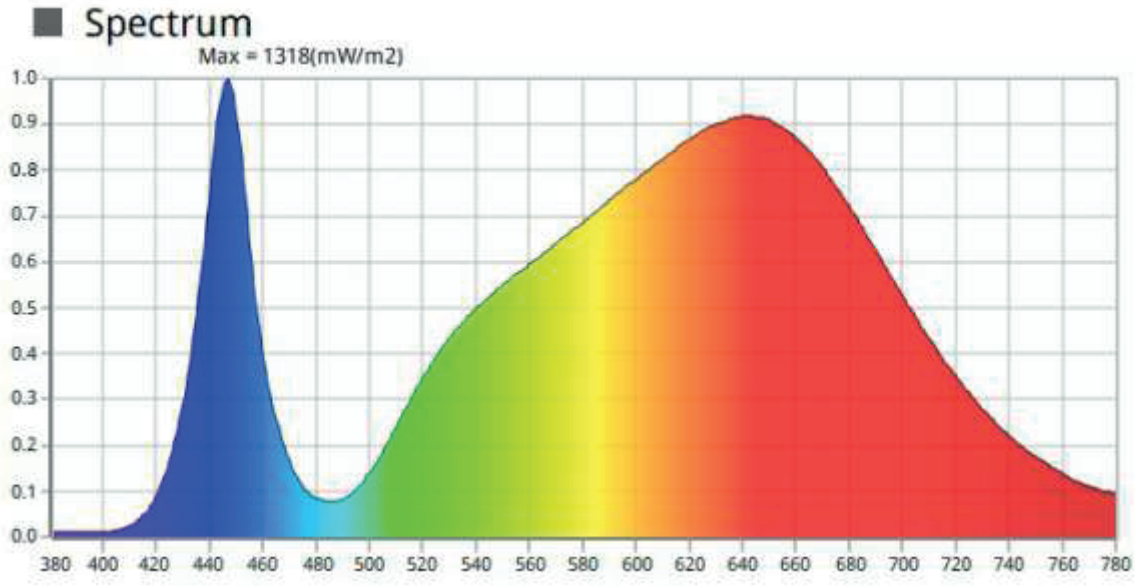
IP65 LED

The LED plant growth fixture

Increase Yield

Tesla Led Light

Tesla Led light series offers a complete range of luminares for horticulture. Tesla Led series form factor resembles traditional HID lighting and offers an easy to install option for one-to-one replacement of HID light. Tesla Led series lights are thus ideal for step by step investment in Leds by replacing part of HID lights with more energy efficient Tesla wide spectrum Led lights.



Description	Wattage (W)	Voltage (V)	Frequency	Beam Angle (°)	Size (LxWxH) (Cm)	Weight (Kg)	Photosynthetic Photon Flux Density PPFD @ 2 ft. (µmol/m2/s)	Photosynthetic Efficacy (µmol/J)	Lifespan at T=25°C (Hours)
Tls Grow 300	300	220-230	AC	30, 60, 90, 120	32 x 30 x 13.5	6.97	831.2	2.77	50,000
Tls Grow 450	450	220-230	AC	30, 60, 90, 120	47.5 x 30 x 14.5	9.65	1,047	2.33	50,000
Tls Grow 600	600	220-230	AC	30, 60, 90, 120	63 x 30 x 14.5	11.86	1,559	2.60	50,000

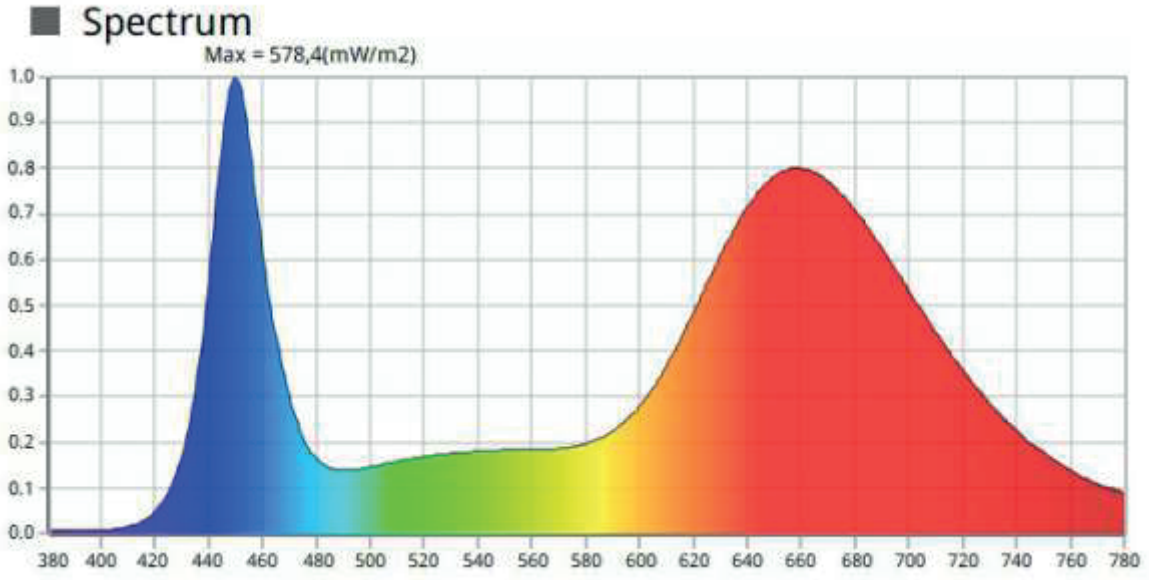
TLS Led Light

The modular horticulture system

TLS Led Light

Accelerate Harvest

Plant growers need flexibility from their horticulture lighting systems to meet plant growth needs and to maximize yields.
For any type of installation, from small greenhouse facilities to large scale installations or for indoor farming projects, the modularity of the TLS Led is the solution for you.



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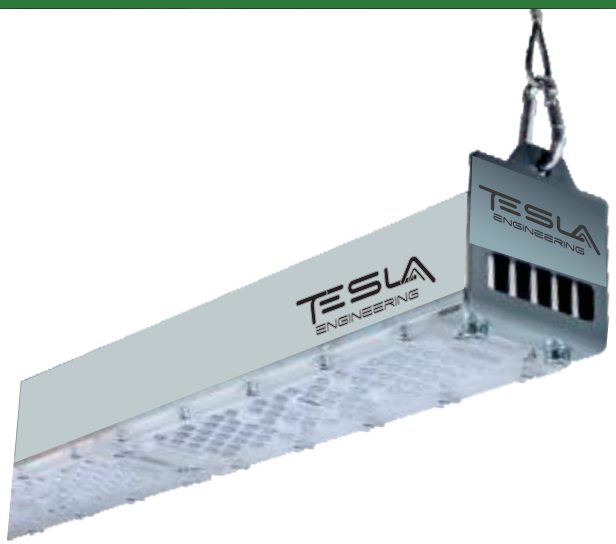
TLS 150	150	220-230	AC	30, 60, 90, 120	31.5 x 25 x 10	3.44	319.2	2.13	50,000
TLS 200	200	220-230	AC	30, 60, 90, 120	33 x 31.5 x 10	4.55	413.9	2.07	50,000
TLS 300	300	220-230	AC	30, 60, 90, 120	62.5 x 25 x 10	6.69	915.7	3.05	50,000
TLS 400	400	220-230	AC	30, 60, 90, 120	62.5 x 33 x 10	9.18	1,062	2.65	50,000

TLS Bar Led Light

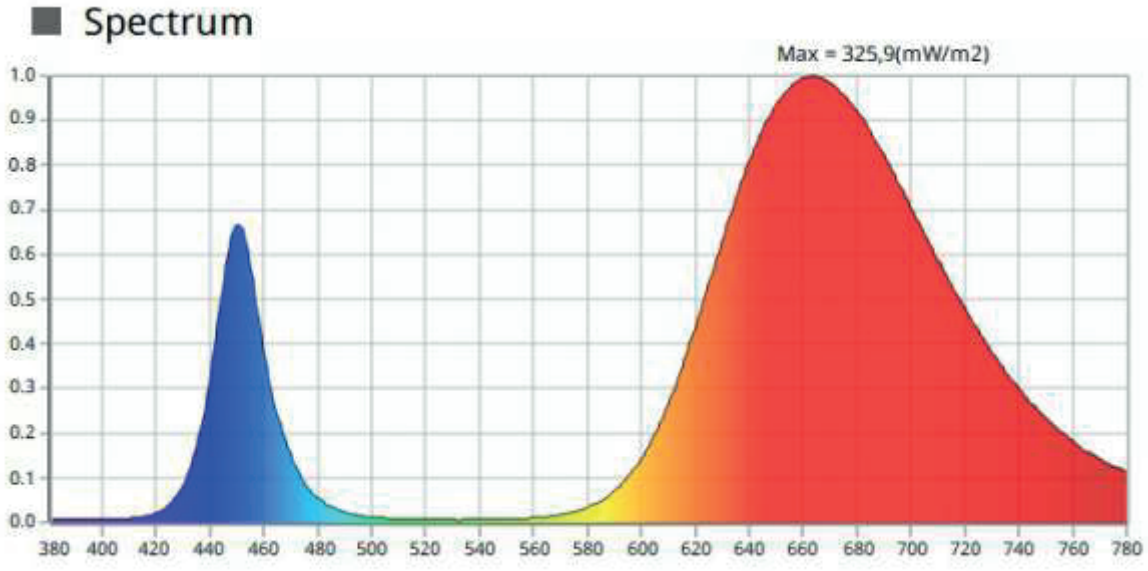


The complete solution for horticulture

Improve Quality

TLS Bar Led Light

TLS Bar Led lights are high intensity, bar shaped luminaires. TLS Bar Led series is ideal for growth rooms and other demanding conditions where higher light intensity is needed. TLS Bar Led series luminaires are slim and lightweight which makes them easy to install to application with limited space.



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TLS Bar 150	150	220-230	AC	30, 60, 90, 120	102.5 x 8.5 x 10	5.50	157.2	1.05	50,000
TLS BarX 175	175	220-230	AC	30, 60, 90, 120	106 x 7.5 x 10	4.55	326.9	2.18	50,000

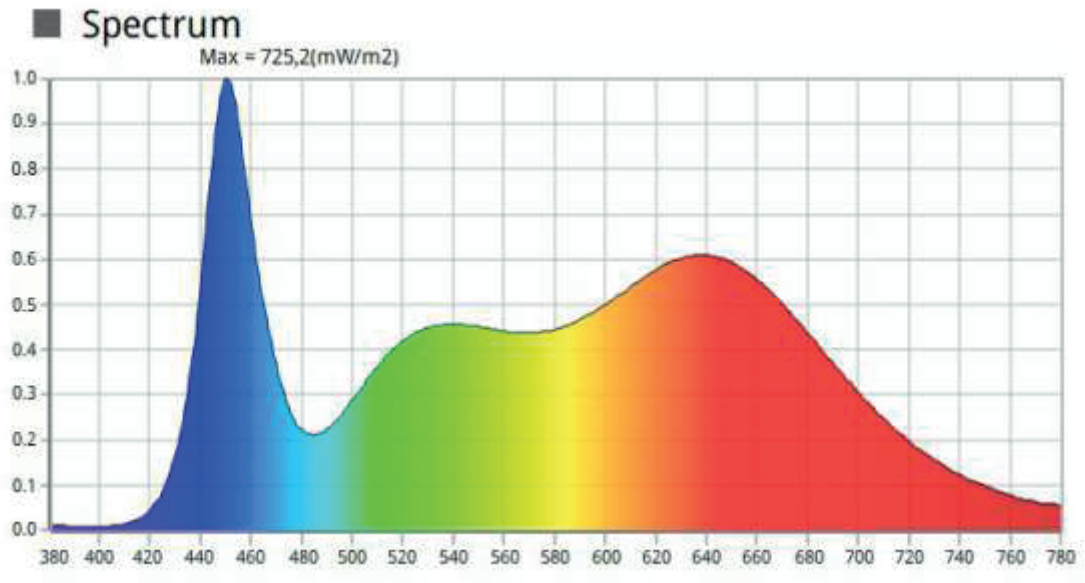
TLS Ufo Led Light

The energy efficient LED light

TLS Ufo Led Light

Control Consistency

TLS Ufo Led series offers a complete range of fixtures for horticulture. With two main spectra for vegetative and flowering applications.
TLS Ufo Led fixtures have higher Photosynthetic Photon Flux (PPF) values with efficacy up to 2.50 µmol/J.



Description	Wattage (W)	Voltage (V)	Frequency	Beam Angle (°)	Size (WxH) (Cm)	Weight (Kg)	Photosynthetic Photon Flux Density PPFD @ 2 ft. (µmol/m2/s)	Photosynthetic Efficacy (µmol/J)	Lifespan at T=25°C (Hours)
TLS Ufo 200	200	220-230	AC	30, 60, 90, 120	44.5 x 3.5	3.88	444.7	2.22	50,000