



# Tungsrām Agritech Greenhouse Solutions



## Tungsram presents: Agritech

Modern horticulture has to deal with serious challenges such as climate change, scarce resources and increasing needs of the fast growing population. In order to meet the demands, the horticulture industry continuously seeks for new technologies in case of key variables, such as lighting, to promote the growth of plants.

The mission of Tungsram Agritech is to apply its expertise - acquired over decades - in the field of LED lighting to serve sustainable plant cultivation.








# The Green Revolution

## Why LED Lighting?

- ⬆ High luminous efficiency
- 🌈 Predefined spectral light output
- ⬆ Controllable light intensity
- ⚡ Energy efficiency
- 🕒 Long lifetime
- 🌀 Effective heat management
- ☀ Uniform illumination
- 💎 Durability



# Agritech lighting solutions by Tungsram

-  Outstanding light distribution
-  Low energy cost
-  Increased profit
-  Long life
-  Limited maintenance



HORTICULTURE

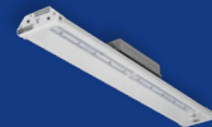
## Agritech product overview

Tungsram Agritech products are designed for installations in new or already established greenhouses and vertical farms.

• Toplight Double Linear



• Toplight Single Linear



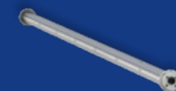
• Toplight Standard



• Toplight Research



• Interlight





HORTICULTURE  
LED LIGHTING

## Greenhouse Linear Toplight Double Module

The Tungram Linear Toplight Double module with its outstanding PPF reaching up to  $1820 \mu\text{mol/s}$ , efficacy of  $3.03 \mu\text{mol/J}$  is the ideal choice for the replacement of the traditional 1000 W High Pressure Sodium lamp. Similarity in the mounting and cabling options allow smooth transition from the existing HPS lighting system into LED based solution offered by Tungram.



1000W HPS replacement



40% energy saving compared to HPS



Low maintenance cost





HORTICULTURE LED  
LIGHTING

## Greenhouse Linear Toplight Single Module

The Tungsum LED Linear Toplight lamps are the most preferred options by horticultural producers, due to their physical parameters, modularity, high 910  $\mu\text{mol/s}$  output and long lifetime.



Slim design - minimal shadowing



High system efficacy up to 3.33  $\mu\text{mol/J}$



Remote driver - better heat management





HORTICULTURE LED  
LIGHTING

## Greenhouse Standard Toplight

Tungsum Standard Toplights deliver high light output in a range from 464 to 1160  $\mu\text{mol/s}$ , providing the optimized spectrum for the crops to grow all year round. Our modules are equipped with standard compositions of LEDs, however we can flexibly tailor the LED selection to meet the needs for specific plants.



Compact design



Future-proof solution



L90/B50 50.000 hours





HORTICULTURE LED  
LIGHTING

## Greenhouse Toplight Research Module

The Research module of the Tungsum Agritech Toplight Series allows users to experiment with different mix of wavelengths and light intensity to define and finetune the most optimal light for given phenophases of all kinds of autotroph organisms to achieve the targeted quantity and quality of primary and secondary metabolites.



Uniform light distribution



Wireless control





HORTICULTURE LED  
LIGHTING

## Greenhouse Interlight

The Tungram Interlight LED solutions serve as a supplementary light source in greenhouses to light the lower, shadowed parts of the canopy. Growers can choose from PPF 136-232  $\mu\text{mol/s}$  modules, supplying the high wired plants' entire surface with proper amount of light to maximize yields and ultimately improve taste and nutritional value of horticultural produces.



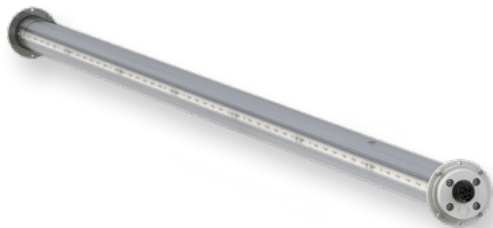
Extremely high system efficacy up to 3,16  $\mu\text{mol/J}$








Low energy cost

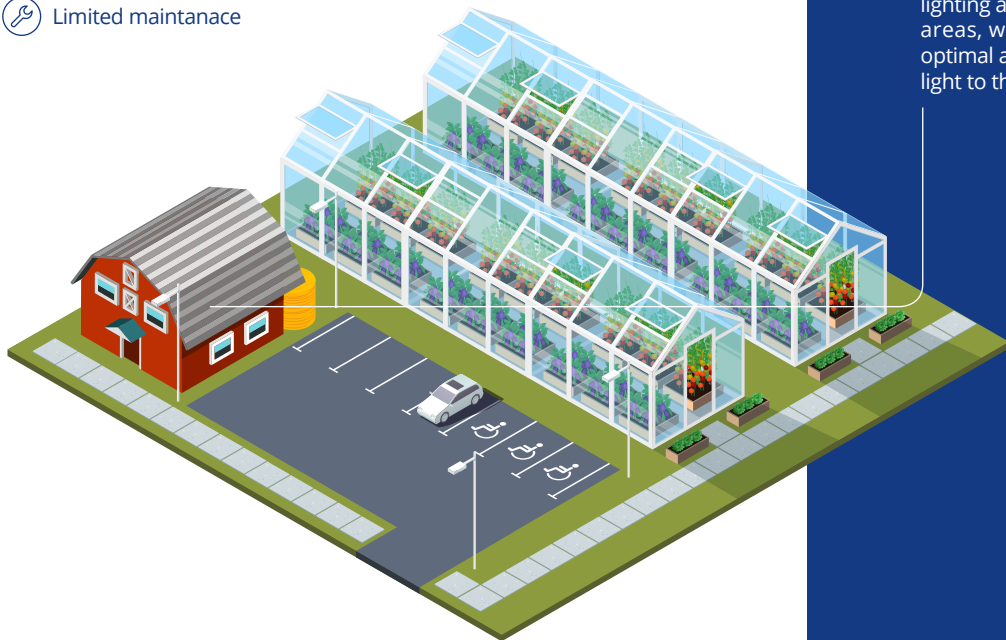


Ease of installation and maintenance



# Complete lighting solutions by Tungsram

-  Outstanding light distribution
-  Low energy cost
-  Increased profit
-  Long life
-  Limited maintenance



INDOOR

## Office, Social and Commuting Areas

Our smart systems can help eliminating unnecessary lighting and costs in less used areas, while projecting the optimal amount and quality of light to the required surfaces.

- Edgelit Panel



- Spotlight G1 5W



- IP54 Downlight








- Slim Downlight Premium

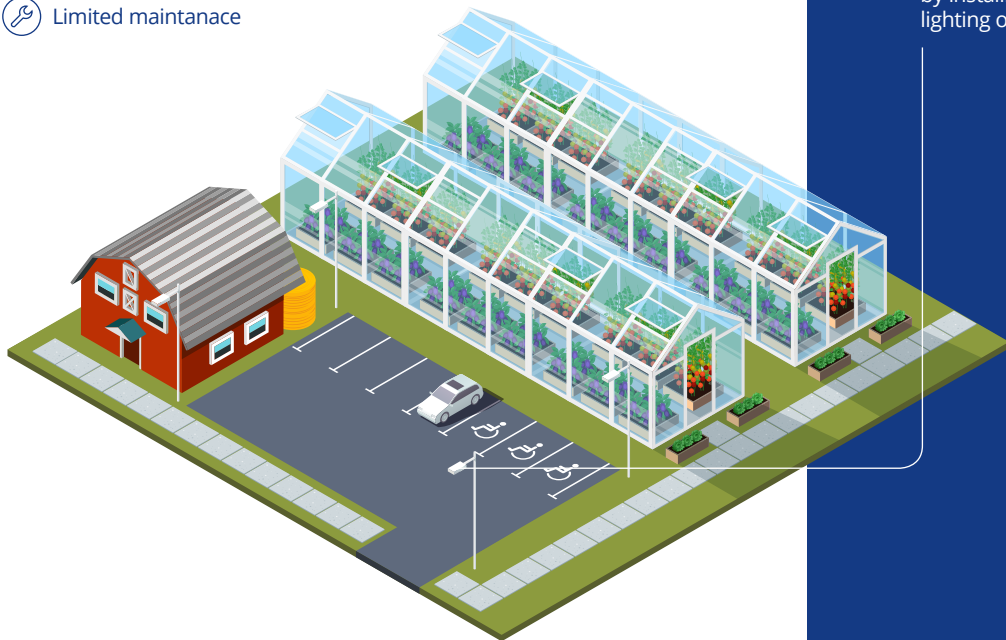


- Integrated Bulkhead



# Complete lighting solutions by Tungsram

-  Outstanding light distribution
-  Low energy cost
-  Increased profit
-  Long life
-  Limited maintenance



## Roads and Other Outdoor Areas

Assure safety and security by installing the necessary lighting outside.

• SLBt



• ALlx Area Lighter



• Piko



• AMlx



• Flood light



**TUNGSRAM™**

