

# VERTICAL FARM LIGHTING

## Tailored to your needs





# Agritech: a new solution by Tungsram

Tungsram Group has more than a century's worth of knowledge of various lighting techniques. It created its Agritech division in 2018 with the aim of offering world-class quality LED and smart solutions for growers and farmers to use in precision indoor farming. Tungsram Agritech is a premium European brand with design, development and manufacturing all done in Europe.

Whether you grow fruits, vegetables, or herbs, the Agritech Indoor Vertical Farming series offers you the ideal lighting solution to help you achieve your target profit. Thanks to features like light intensity and spectrum control, and the modularity of the lightbars that let you set just the right illumination for the different phenophases and pre-harvest treatments, this solution can help drive the growth of your crop.



## TUNGSRAM OPERATIONS

- 5 factories in Hungary
- More than 4000 employees
- Exports to 100+ countries globally
- Up-to-date technologies and certified quality assurance







# WHY LED LIGHTING?

- High luminous efficiency
- Predefined spectral light output
- Controllable light intensity
- Energy efficiency
- Long lifetime
- Effective heat management
- Uniform illumination
- Durability

## WHY CHOOSE VERTICAL FARMING?

Vertical farming is one of the most dynamically developing sectors within the horticulture industry and now Tungsram is applying its expertise to the sector. Tungsram is going beyond providing lamps that suit a grower's individual needs. Our unique LED technology enables the grower to set very specific wavelengths for their crop, which can help the grower optimize and improve their growing techniques. Vertical farms don't use natural light, so selecting just the right light source is extremely important, as lamps provide all the necessary photosynthetically active radiation.

## Vertical farms compared to greenhouses

- Increased yield per square meter and less space needed as plants are stacked in layers
- Independence from external climate: Uses artificial lights in a fully controlled environment
- Suitable for any geographic location, including urban areas
- Efficient water usage as it minimizes fresh water consumption
- Reduces environmental impact including reductions in light pollution, food transportation, and post-harvest loss
- Automatized growing system can reduce cost per yield
- Pesticide free
- Stable production schedule
- High food security










# OUR PRODUCT

## Indoor Vertical Farming lightbars

Tungsram's LED lightbar solution was designed for indoor multilayer growing facilities. The highly efficient modular system is customizable to provide the most suitable amount of photosynthetically active photons and light uniformity to ensure the best results.

### Key benefits

- Up to 3.03  $\mu\text{mol/J}$  — 
- Customizable spectrum — 
- Low heat radiation, remote driver — 
- Flexible, modular design — 
- Waterproof — 
- Shockproof — 
- Super lightweight — 
- Easy to mount — 

### Get what you need

**Fix-spectrum lightbar** (TUAS VFS) offers the most cost-effective solution with proven light configurations.

**4-channel lightbar** (TUAS VFP) with 3.03  $\mu\text{mol/J}$  efficacy provides control over the mix of wavelengths and light intensity resulting in a dynamic lighting strategy for advanced indoor farming production.

**6- to 8-channel research module** (TUAS VFR) provides versatile spectral variations to finetune the light settings in R&D centers for the optimal production in plant factories.

### Full control over growth

- Remotely operated, innovative control systems for both industrial scale and research cultivation
- Real time settings management including pre-defined programs, timed dimming, grouped controls, and an easy-to-use map view of the growing areas
- 0-100% dimmability on each channel ensures numerous spectral variants and a wide range of PPF

## FLEXIBLE. EFFICIENT. MADE IN EUROPE.

- Flexible LED systems designed for vertical farms
- Produced in Europe
- Fast delivery
- Reliability and expertise that's guaranteed by Tungsram Group



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