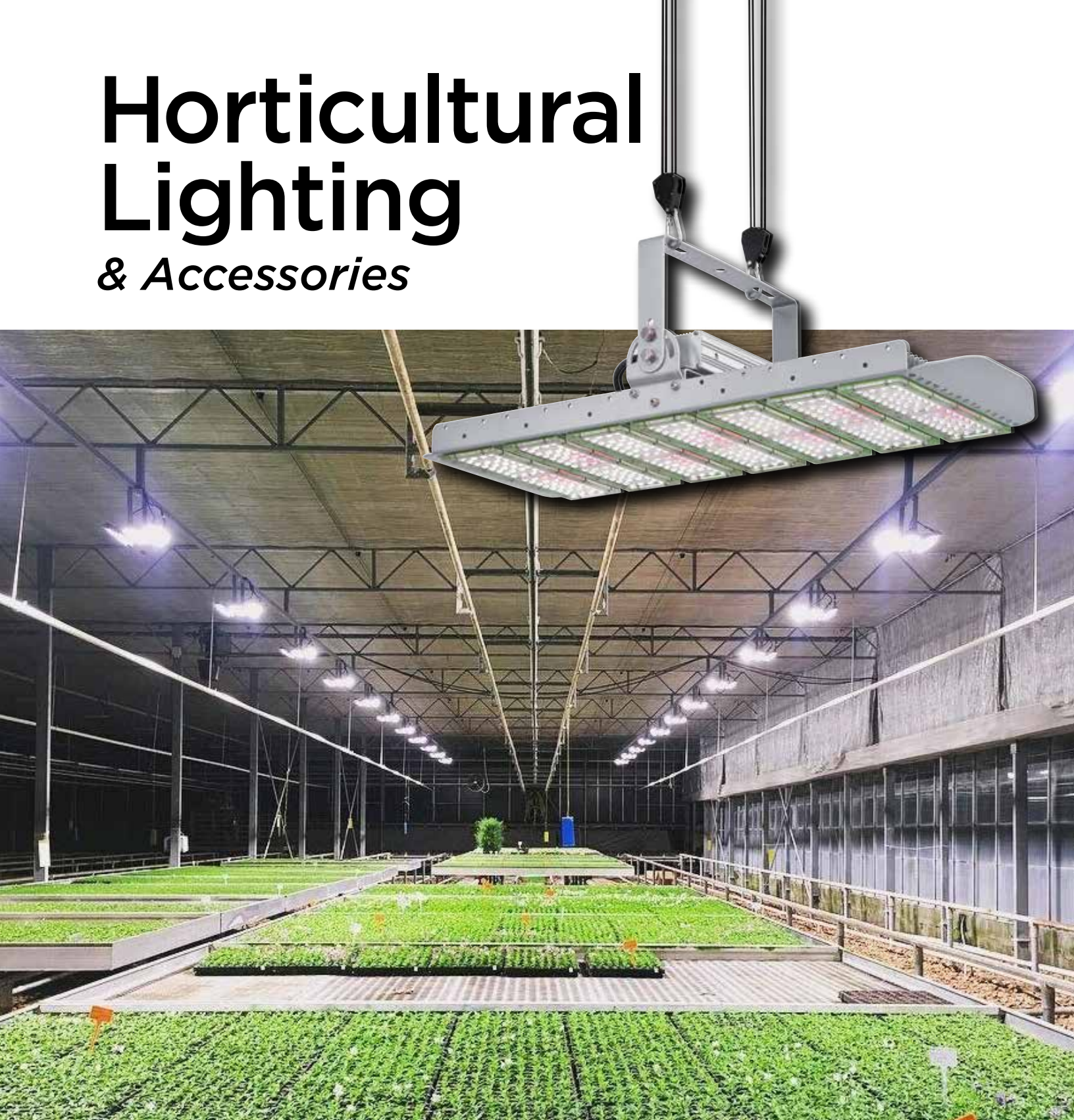


Horticultural Lighting

& Accessories



Horticultural Lighting: The Basics

Light Spectrum

UV A Light (300-399nm)

- Speeds up germination.
- Promotes defensive proteins that help plants resist diseases.

Blue Light (400-499nm)

- Important for chlorophyll formation.
- Inhibits stem elongation.
- Regulates seedling growth.
- Encourages vegetative growth.
- Helps roots and leaves become stronger.
- Essential for seedlings and young plants.

Green Light (500-599nm)

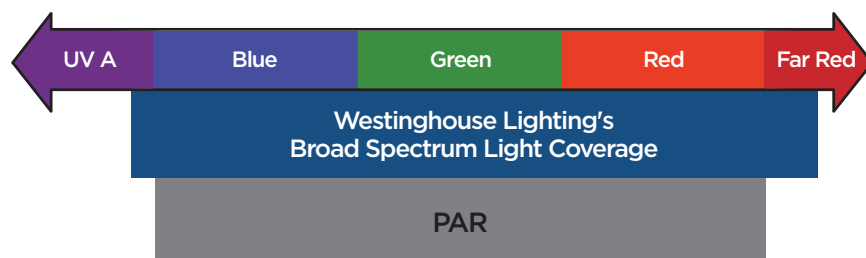
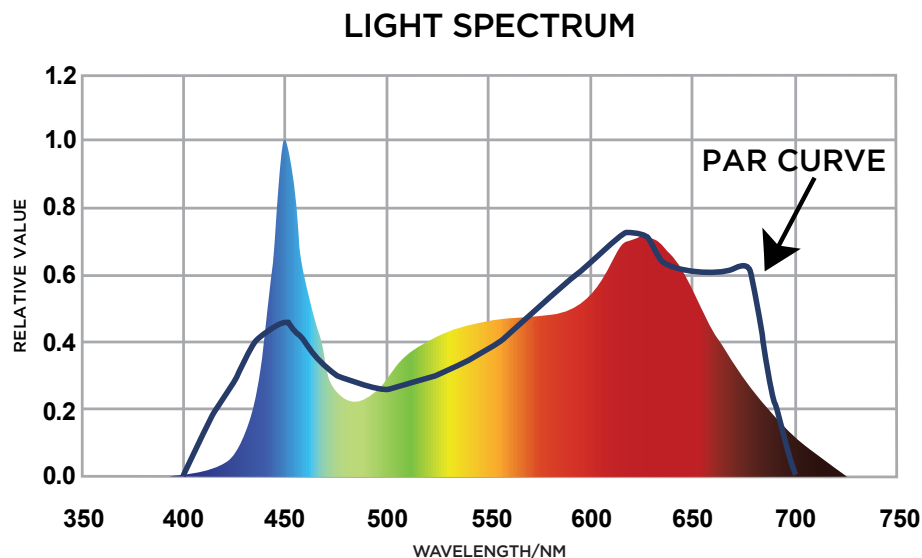
- Penetrates deep into the shaded areas of the plant canopy.
- Drives more photosynthesis by being absorbed on the underside of leaves.

Red Light (600-699nm)

- Speeds up seed germination.
- Encourages plant growth and flowering.
- Promotes chlorophyll and fruit production.

Far Red Light (700-750nm)

- Inhibits branching.
- Promotes flowering.



Glossary



Photon: a particle of light.

Photosynthesis: a process used by plants to convert light into chemical energy to fuel the plant's growth.

PAR (μmol): Photosynthetic Active Radiation; PAR light is the wavelengths of light within the range of 400 to 700 nanometers (nm) that drive photosynthesis.

PPF ($\mu\text{mol/s}$): Photosynthetic Photon Flux; PPF measures the total amount of PAR light that is produced by a lighting fixture each second.

PPFD ($\mu\text{mol/m}^2/\text{s}$): Photosynthetic Photon Flux Density; PPFD measures the number of photosynthetically active photons that fall on a given surface each second. It is measured in micromoles per square meter per second. Light intensity decreases as distance increases.

PAR/Photon Efficacy ($\mu\text{mol/J}$): refers to how efficient a horticulture lighting system is at converting electrical energy into photons of PAR.

Joule: a unit of energy (J). The amount of electricity required to light a 1 watt LED for 1 second.

Micromole: a unit of measure of light at the molecular level. 1 mole = 1,000,000 micromoles.

Daily Light Integral (mol m^2): DLI measures the number of photons in the PAR range accumulated in a square meter over the course of a day.



The Westinghouse Lighting Advantage

Successful cultivation begins with the right lighting fixtures

ENGINEERED FOR SUCCESS

- Our fixtures are designed and engineered to the highest standards with heavy duty, commercial grade construction.
- We use only top quality diodes and binning from respected suppliers.
- Backed by a five-year limited warranty against defects in materials and workmanship.
- Designed with optimal thermal management ensuring proper cooling and reduced maintenance, unlike products that use mechanical cooling solutions with parts to maintain.
- Passive cooling design prevents our LEDs from being overdriven, eliminating the need for excess heat dissipation.
- IP65 rated - resistant to humidity, dust and easy to clean.
- Efficient top brand LED driver with auto-sensing multi-range input voltage of 100-277V.
- Certified to U.S. and international standards, UL/CUL listed and ETL listed..
- Approved for use in damp locations.

SUPERIOR OUTPUT

- Our fixtures come standard with engineered broad spectrum light output based on 7+ years of research.
- Broad spectrum light promotes maximum production and supports all stages of a crop's growth cycle.
- Broad spectrum light is very similar to sunlight, boasting optimal PAR photon efficacy to promote comprehensive plant growth throughout the entire cycle.
- Unlike competitors that focus only on red and blue wavelengths, our fixtures cover the entire PAR area, including Far Red and UV A.
- Proven to increase crop yield and quality, enhance crop appearance, improve taste and extend crop's shelf life.
- Quality and color of light enhances clarity and comfort for crop workers and inspectors.
- LED fixtures generate less heat than HID lamps, allowing fixtures to be placed much closer to the plants to deliver more light, while protecting plants from damaging leaf burn.
- Secondary optics provide even illumination and ensure uniform photon delivery.
- 50,000 hours life.

VERSATILE APPLICATIONS

- Replicate the sun in grow houses and grow tents where there are no lights or sunlight.
- Use to supplement the sun in greenhouses.
- Ideal for controlled plant growth environments.
- Indoor farming.
- Commercial greenhouses.

INSTALLATION

- To make installation easier, our lightweight fixtures include plugs
- Multiple fixtures can be connected to increase light output and coverage.
- Mounting hardware is included.
- Available comprehensive light mapping software for recommended fixture placement.

LED ENERGY EFFICIENCY

- Provide up to 45% energy savings over HID and fluorescent grow light fixtures.
- Long-lasting, energy-saving performance.

LED OR HPS: WHAT'S THE DIFFERENCE?

- LEDs consume up to 45% less energy vs. HPS while delivering better results.
- Our fixtures generate less heat, allowing the fixtures to be placed much closer to plants to deliver more light because light intensity increases as distance decreases
- LED fixtures offer broad spectrum technology, while HPS lamps offer red spectrum only. Broad spectrum is desired for all phases of a plant's cycle.
- High LED CRI of 87-95 versus HPS CRI of 20-40 makes it easier to inspect plants for pest or mold problems, which helps sustain a healthy crop.
- Maintain higher light output over the lifetime of the fixture compared to HID due to substantially higher lumen maintenance of LED vs. HPS light sources.

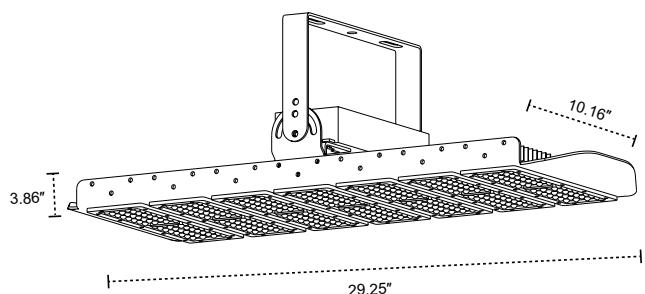
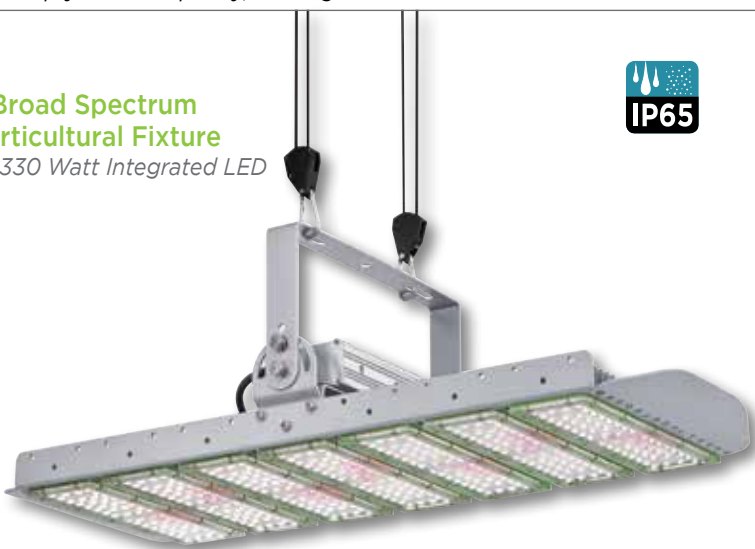
SunForce 330

Improves crop yield and quality, making this an excellent choice for commercial growers.

63659

**330W Broad Spectrum
LED Horticultural Fixture**

Includes 330 Watt Integrated LED



SunForce Features & Benefits:

- SunForce 330 is a high-power LED fixture for cultivating cannabis, flower, vegetable and fruiting crops.
 - Broad Spectrum PPF Efficacy ($\mu\text{mol/J}$) up to 2.30.
 - PPF of 687.
 - Easy to install, lightweight (less than 16 lbs.) and includes mounting bracket, hardware, plug-in cord and 2 rope ratchets.
 - Efficient top brand LED driver with auto-sensing multirange input voltage 100-277V.
 - Brightness of 39,327 lumens, 3900K, CRI 95.
 - 90-degree beam angle with secondary optics.
 - Provides 45% energy savings over HPS.
 - Passively cooled (no fans necessary).
 - Wet location listed.
 - Available with dimming driver option.
- Contact your Westinghouse Lighting Sales Representative for more information.*

SunStream 250

Streamlined design fits narrower grow spaces to optimize light distribution.



SunStream Features & Benefits:

- SunStream 250 is a high-power LED fixture for cultivating cannabis, flower, vegetable and fruiting crops.
 - Broad Spectrum PPF Efficacy ($\mu\text{mol/J}$) up to 2.30.
 - PPF of 485.
 - Easy to install, lightweight (less than 12 lbs.) and includes hardware, plug-in cord and 2 rope ratchets.
 - Efficient top brand LED driver with auto-sensing multirange input voltage 100-277V.
 - Brightness of 27,800 lumens, 3900K, CRI 95.
 - 90-degree beam angle with secondary optics.
 - Provides 38% energy savings over HPS.
 - Passively cooled (no fans necessary).
 - Wet location listed.
 - Available with dimming driver option.
- Contact your Westinghouse Lighting Sales Representative for more information.

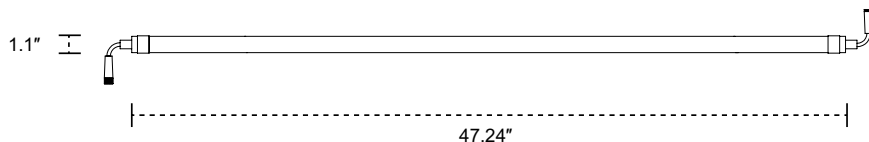
SunTube 18

An energy-efficient replacement for fluorescent grow lighting in vertical farms.

63658

**18W Broad Spectrum
LED Horticultural Fixture**

Includes 18 Watt Integrated LED



SunTube Features & Benefits:

- An energy-efficient replacement for fluorescent grow lights ideal for leafy green crops and vertical farming.
- Broad Spectrum PPF Efficacy ($\mu\text{mol/J}$) of 1.85.
- PPF of 37.
- Up to 10 SunTube 18s can be connected to increase light output and coverage.
- Brightness of 2,520 lumens, 3800K, CRI 87.
- 120-degree beam angle.
- Provides energy savings of 44% over T8 (32W) or 55% over T12 (40W) fluorescent lamps.
- Purchase of plug-in power cable is required to illuminate this fixture. If connecting multiple fixtures, only one power cable is required. **(Item #636586930 sold separately).**
- Optional accessories available for use with SunTube 18.
- Wet location listed.

Accessories



636586930
60" Plug-In Power Cable for
SunTube 18 LED Horticultural Fixture



636586932
40" Mounting Chain for
SunTube 18 LED Horticultural Fixture

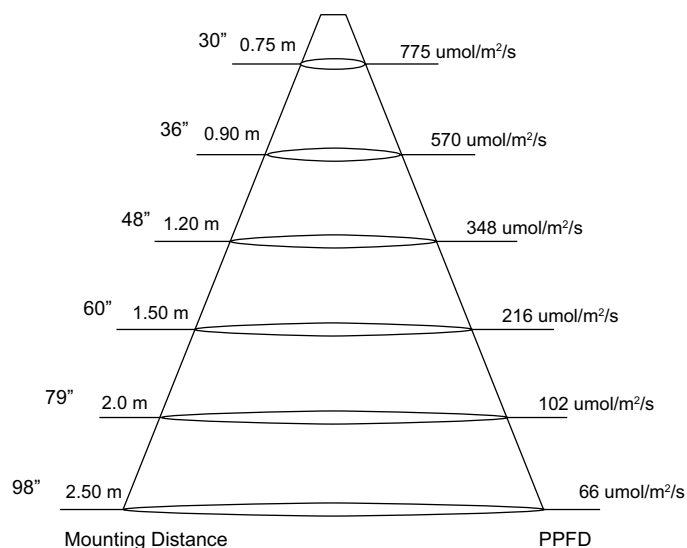


636596933
Mounting Rope Ratchet for
LED Horticultural Fixtures

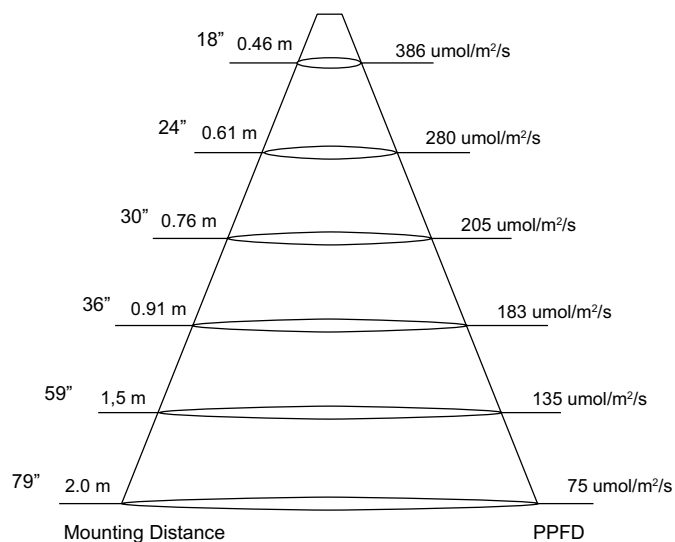
Mounting Rope Ratchet
is compatible with all
LED Horticultural Fixtures.

Photometrics

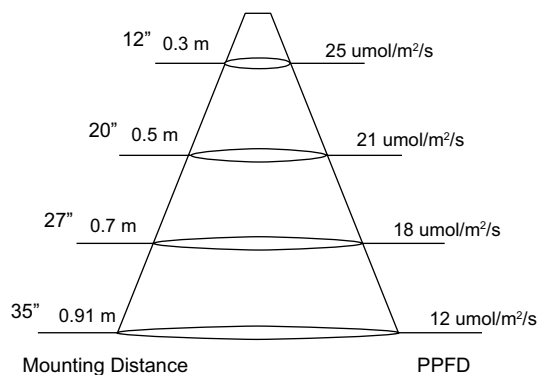
63659 SunForce



63660 SunStream



63658 SunTube





LED HORTICULTURAL LIGHTING SPECIFICATIONS

Item No.	63659	63660	63658
Product Name	SunForce 330	SunStream 250	SunTube 18
Maximum Energy Used (Watts)	330	250	18
Maximum PPF Efficacy (μmol/J)	2.30*	2.30*	1.85
PPF (μmol/s)	687	485	37
Horticultural Listed	DLC	DLC	DLC
Spectrum	Broad Spectrum	Broad Spectrum	Broad Spectrum
Input Voltage	100-277	100-277	100-277
Kelvin	3900	3900	3800
CRI	95	95	87
Initial Lumens	39,327	27,800	2,520
Lifetime Hours	50,000	50,000	50,000
Beam Angle	90°	90°	120°
Approved Location	Wet	Wet	Wet
Equiv. Watts	600W HPS/HID	400W HPS/HID	32W T8 or 40W T12 Linear Fluorescent
Approval	ETL/CETL	ETL/CETL	ETL/CETL
Net Weight Lbs/Unit	15.87	11.66	0.66
Body Material	Aluminum Extrusion	Aluminum Extrusion	Polycarbonate
Warranty	5 Year Limited	5 Year Limited	5 Year Limited

*Spectrum Dependent



All fixtures in this brochure are ETL/CETL Listed.

Call 1-800-999-2226 or visit www.westinghouselighting.com.

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