

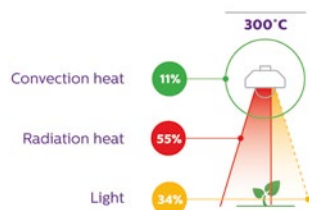


Providing maximum light all year round

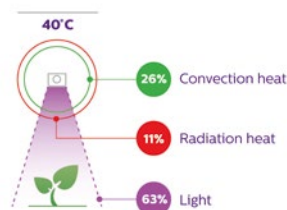
Cutting down on energy costs used to be a grower's most important goal. Now growers are aware that higher light levels can significantly increase yield—and they require a solution that can provide that. The Philips GreenPower LED toplighting force (TLF), the ultimate LED grow light for light-loving crops. It creates summer conditions all year round, but without the heat dissipation of high-pressure sodium lights (HPS). Utilizing an existing plug power of 1040 W, growers can achieve a maximum light output of 3600 $\mu\text{mol/s}$ at an efficiency up to 3.7 $\mu\text{mol/J}$. This allows for 1-to-1 HPS replacement utilizing the same connection, while almost doubling the light level compared to the newest generation HPS lights. In addition, toplighting force achieves 3.9 $\mu\text{mol/J}$ efficiency when dimmed to 50% of its power and functions with minimal light interception.

The result is a powerful asset with which you will get the most out of today's horticultural market, including optimally predictable growth, better crop quality and higher yield.

Energy Balance
HPS



Energy Balance
LED toplighting force



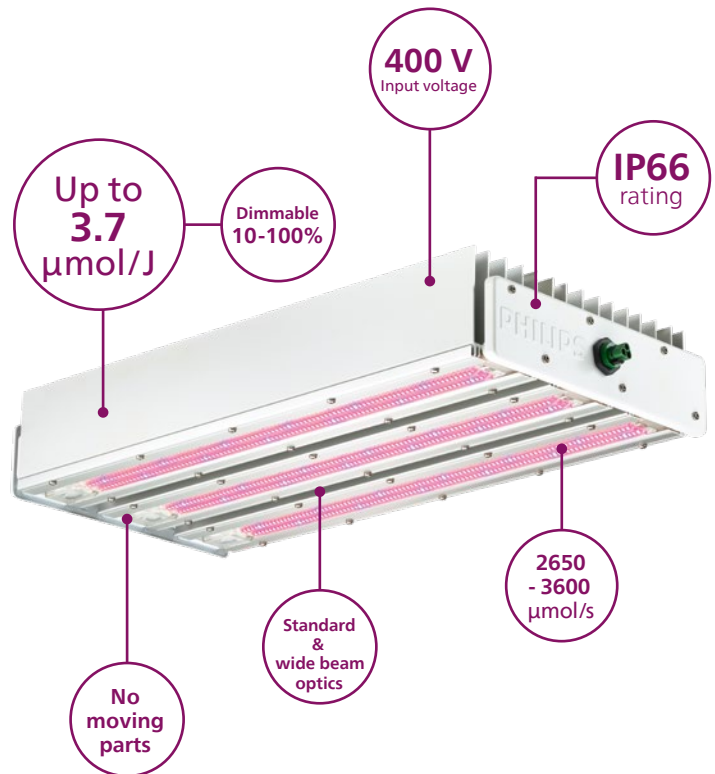
Key benefits

- Replace existing 1040 W HPS light utilizing max. plug power
- Maximum light output of 3600 $\mu\text{mol/s}$ and an efficacy of up to 3.7 $\mu\text{mol/J}$
- Two beam shapes ensure desired optimal uniformity or highest efficacy
- Dim to 50% and increase efficiency up to 3.9 $\mu\text{mol/J}$
- Minimal light interception

Optimizing growth predictability, improving crop quality and increasing yield

When you want to generate the highest light level (photosynthetic photon flux) using the fewest grow lights possible, toplighting force is a smart LED investment, whether you're replacing HPS lights on a 1:1 basis or building an installation from scratch. Philips Greenpower LED toplighting force is available in two beam shapes: a wide beam for optimal uniformity in case of limited height to the crop and a standard beam that offers highest efficacy.

By using the Philips GrowWise control system, growers can dim the lights to as little as 10% of the maximum output, stand-alone as well as integrated with a climate computer or greenhouse management system. Dimming boosts light efficacy, allows sunset-to-sunrise mimicking for a smoother temperature build-up and responds to energy management-related load shifts. Signify plant specialists, application engineers and account managers will work with you to customize light solutions tailor-made for your growing conditions.



Philips Greenpower LED toplighting Force 400V

Beam	Spectral version		Deep Red/Blue types (DRB)		Deep Red/White types (DRW)					Deep Red/White/Far Red types (DRWFR) ¹				
	Spectral code		LB		LB	2_LB	MB			FR_1		FR_RSE	FR_5	
Standard beam	Typical photon flux	μmol/s	3600	2850	3300	2800	3050	3250	2800	3100	2750	3100	3100	2750
	Power consumption (max)	W	1040	780	1000	800	945	1000	820	950	820	950	950	820
	Efficacy	μmol/J	3.5	3.7	3.3	3.5	3.2	3.3	3.4	3.3	3.4	3.3	3.3	3.4
	Efficacy at 50% (dimmed)	μmol/J	3.8	3.9	3.6	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Wide beam	Typical photon flux	μmol/s	3500	2750	3200	2700	3000	3150	2700	3000	2650		3000	2650
	Power consumption (max)	W	1040	780	1000	800	945	1000	820	950	820		950	820
	Efficacy	μmol/J	3.4	3.5	3.2	3.4	3.2	3.2	3.3	3.2	3.2		3.2	3.2
	Efficacy at 50% (dimmed)	μmol/J	3.7	3.7	3.5	3.6	3.6	3.5	3.5	3.5	3.4		3.5	3.6

Light distribution		Standard Beam → beam angle 120° Wide Beam → beam angle 150°
Dimmable ²		10% - 100%
Input voltage (50-60Hz)	VAC	400V
Dimensions	cm	Length: 69 Width: 31 Height: 11,2
Weight	kg	10,5
Power factor		0.98
Total Harmonic Distortion	%	< 15
Rated Average Lifetime ³	hrs	36.000 - L95
Ingress protection rating		IP66/ wet locations
Cooling		Passively cooled
Approval marks		CE, ENEC, RoHS
Connector		Wieland RST20i3 Green

Legend

DR	= Deep Red	MB	= Mid Blue
B	= Blue	FR_1..5	= Far Red recipe 1..5
W	= White	2_LB	= White_2_ Low Blue
FR	= Far Red	RSE	= Rose Module
LB	= Low Blue		

¹ The published value represents the total photon flux from 400 - 800nm.

² In combination with Philips GrowWise control system.

³ Lifetime and maintenance values are given at an ambient temperature of 25 °C / 77 °F. All measured lifetimes are industry standard measurements indicating average length of operation and not a performance claim specific to any individual product.

Note: All TLF generation 1.1 products are prepared to work with GWCS "Coded Mains" protocol. This means that no control wires are needed. The modules will operate in combination with standard and high power GWCS transformers.



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