HORTICULTURE LIGHTING

COMPONENTS - SYSTEMS - SOLUTIONS

Lighting concepts & solutions for professional horticulture

More than light! We evaluate your specific needs to provide the best individual lighting solution for your crops. Just give us a call, we will be glad to become your partner: +49 8094 906 400.

BLV

BLV HORTURION

10 years of experience in horticulture business

HISTORY

BLV Licht- und Vakuumtechnik was founded in Steinhoering, Bavaria, in 1968. As a manufacturer of high quality lamps for both general lighting and niche markets, the company quickly made a name for itself.

REPUTATION

With its HORTURION series, BLV has played a key role in professional horticulture for more than a decade. The company is not only one of the biggest producers of HPS lamps worldwide, but one of the very few players in the market offering complete HPS, MH and LED assimilation systems – luminaires, power supplies and lamps all from one source. Quality, efficiency, high PAR stability as well as convincing colour rendering are the pillars of BLV's worldwide reputation.

SERVICES

Moreover, BLV considers itself much more than just a lighting solution provider. With in-depth knowledge of the market, scientific expertise, comprehensive consulting services – including lighting advice and light planning – and sustained after-sales service, the company is a technology partner for its customers.

CHARACTER

Having retained its character as a mid-sized company, BLV is able to respond to individual customer requests. That's what sets BLV apart from others.

FUTURE

In 2017 a brand new factory was opened in Poland – a strong statement for products of highest quality developed in Germany, produced in Europe and distributed worldwide. BLV will continue to invest in being your innovative partner in lighting solutions of 1st quality.

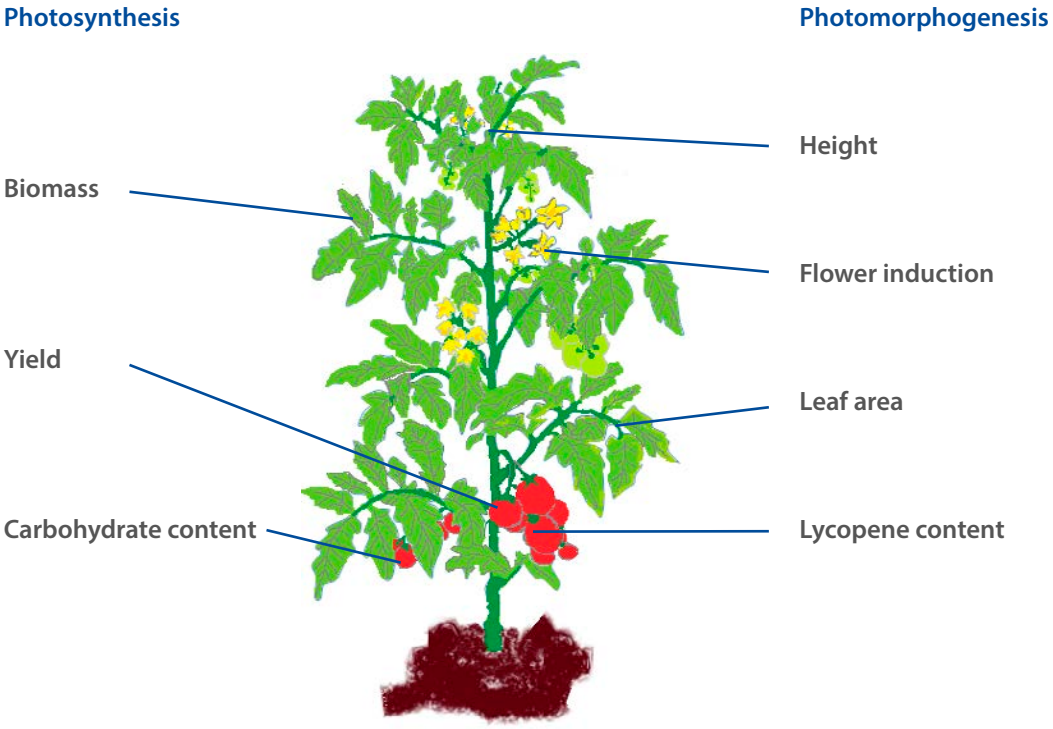
Mission statement
Our promise to you

"We listen to our clients and consult on the best possible lighting solutions for their individual needs.

With our R&D department and laboratory in Germany and all of our production in Europe, we offer outstanding quality and quick response time.

Our business mentality is driven by a true spirit of partnership with our clients."

The science behind plant quality



Light acts in two ways: through photosynthesis and photomorphogenesis. Through photosynthesis it promotes growth and through photomorphogenesis it forms the shape of crops. Higher PAR levels will increase photosynthesis and improve biomass and yield.

Regulating photomorphogenesis through the right combination of wavelengths can improve the leaf area (less shading), promote flowering and increase the colouration of fruits. This is rewarded with high quality crops and fruits.

Fit your lighting to your needs
to obtain the desired results

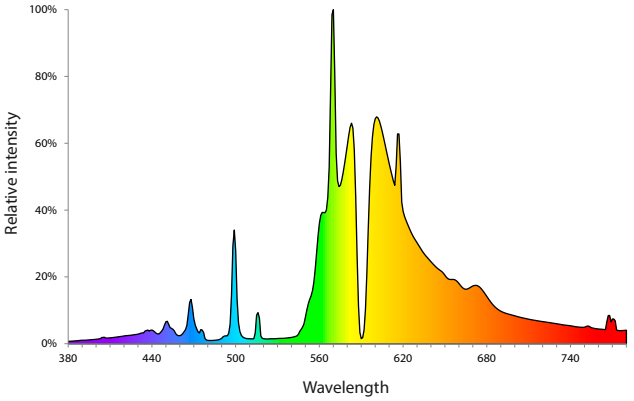
Application	Cultivar	Lighting
Increase yield	• Tomato • Cucumber • Bell pepper • Cut flowers	• HPS • HPS and LED interlighting
Stimulate anthocyanin synthesis	• Lettuce • Micro greens	• MH • Blue LED
Promote compactness	• Flowering plants • Herbs	• MH • Blue, red LED
Accelerate anthesis	• Flowering plants	• HPS • Red/far-red LED
Frequent phenotyping, selection and pest control	• Seeds, seedlings • Young plants	• Formula white LED

For many crops, HPS is still the lighting of choice. Its high photon output drives photosynthesis and growth. However, it is low in blue light. Adding more blue light with MH lamps or LEDs can improve the leaf canopy (reduce shading) or stimulate colouration (lettuce). In turn, far-red light can accelerate flowering. LED solutions offer advantages when it comes to customised spectra, e.g. our formula white spectrum is especially suited for the earliest stages of the production cycle. Choosing the right lighting is not an easy task! BLV will support you in finding the right spectrum with in-house consultancy and on-site trials.

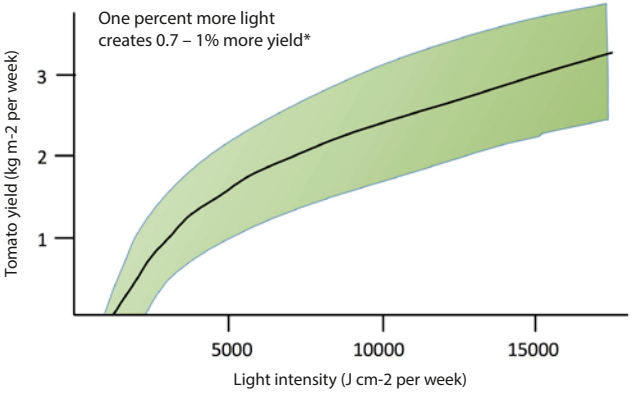
At a glance – HPS light

Stimulates production, yield and earlier harvest

HPS lamps have shown proven benefits in the last 30 years in horticulture. The colour spectrum is rich in red and far-red light that stimulates elongation growth and optimises fructification. Therefore, it is best suited to increase yield. Further, the heat emission of the lamps supports assimilation by slightly increasing the leaf temperature. This is especially an advantage during the colder months when low temperatures normally reduce plant growth. In other words: it helps to shorten the harvest cycle.

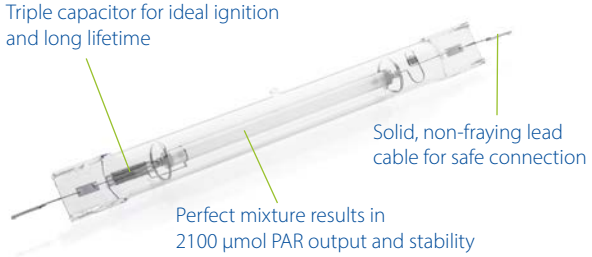


The 1% rule: Scientific findings* show that there is a linear relation between light intensity and yield: 1% more light means 0.7% – 1% more yield. If your main purpose is to increase your yield, you should focus on adding more light to your crops. This can be achieved by efficient HPS lamps.



Average correlation between yield and light intensity (black line). The individual gain can vary. However, the yield gain usually lies within the green area.
*Growers survey, published by Marcellis (2006).

Technical data on pages 20-21



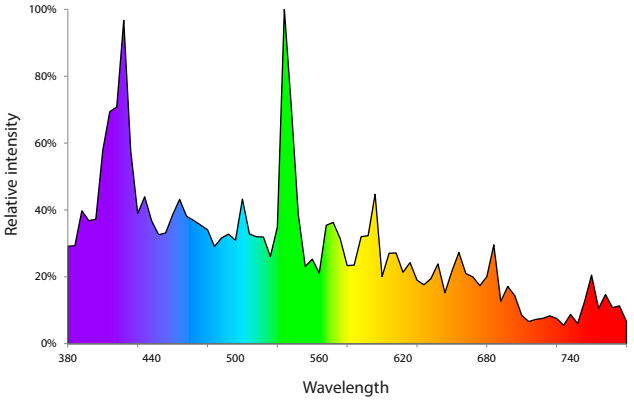
BLV HPS series

- Performance spectrum from 250 W to 1000 W
- Very long maintenance intervals
- 600 W DE, 750 W DE and 1000 W DE:
  - Unique in the market with improved efficiency
  - Compatible with most common DE luminaires
  - Perfect match with BLV luminaire and BLV power supply

At a glance – MH light

Stimulates pigments, secondary metabolites & compact growth

MH light has a high amount of violet and blue light, which suppresses stem elongation, increases beneficial compounds and promotes vegetative growth. It is therefore advantageous for encouraging compact growth in decorative plants, enhancing leaf pigments in coloured vegetables, enriching secondary metabolites in the pharmaceutical and cosmetic industry and making crops more stress resistant. As the spectrum is also much closer to that of sunlight, colour rendering is improved which eases taking inventory and harvesting.

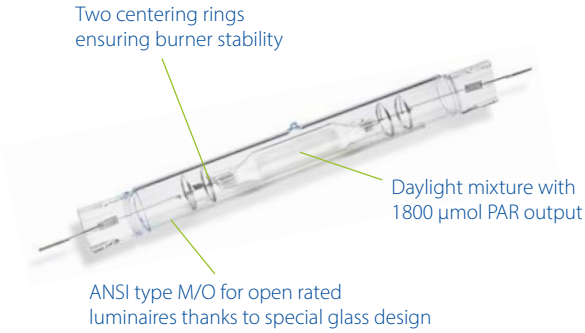


Enhancing leaf pigments

Enriching secondary metabolites

Encouraging compact growth

Technical data on pages 20-21



BLV MH series

- Performance spectrum from 250 W to 1000 W
- High efficiency and high PAR value stability for entire service life
- World's first double-ended, extremely efficient (1.8 µmol/W) MH lamp
  - Ideal spectral distribution for healthy plant growth
  - Easy interchangeability with renowned double-ended open luminaires and BLV power supply

BLV top lighting system

Luminaire, lamp and power supply – all from one source!

BLV HORTURION luminaires

- Highly efficient and reliable luminaires with modern, compact and solid design for double ended HPS and MH lamps
- Providing best-in-class PAR values and spectra for optimum plant growth

BLV HORTURION HPS & MH lamps

- Superior PAR output and stability with highest efficiency at 1000 W
- 600 W and 750 W DE variations are unique in the market
- World's first MH DE lamp with extreme efficiency at 5500 K

GERMAN ENGINEERING

BLV HORTURION electronic power supply

- Reliable and efficient power supply operating all BLV HPS and MH double ended lamps
- EMI compliant and equipped with all necessary safety features, including a wireless read-out system
- Engineered and produced in Germany according to the highest quality standards

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BLV HORTURION luminaires

Open reflector for optimal lamp performance and minimum dirt particle deposit

Self-balancing, custom-made hook

Compact, solid design for minimum daylight interception and durability

Pre-installation possible thanks to separate, UV resistant cable

Reliable, intelligent, high performance power supply >70 logs wireless read-out

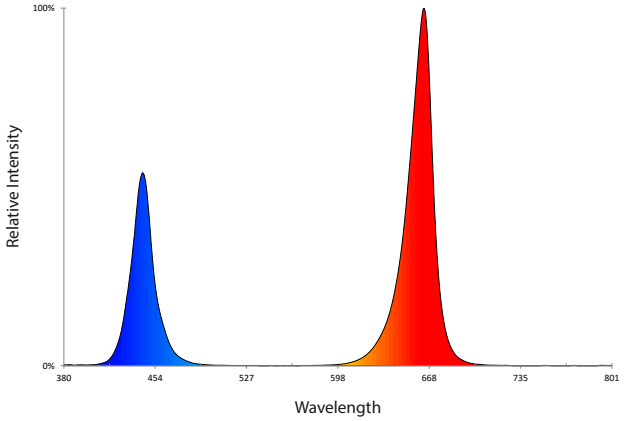
Easy and quick reflector positioning and removal

LED multilayer solution
Innovative approach to LED grow light

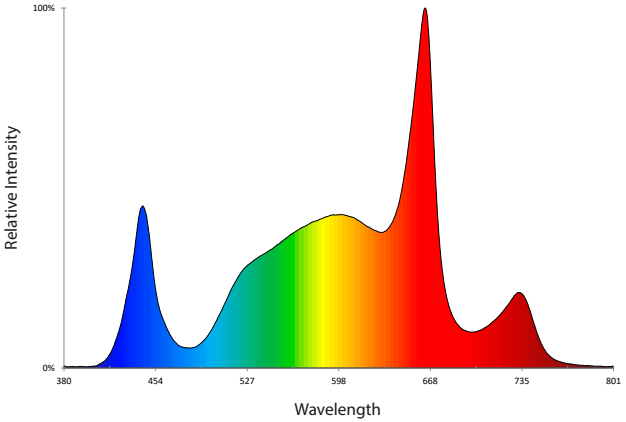
In 2017, BLV introduced its brand new LED multilayer system for professional horticulture lighting. This multilayer system has been optimised for the cultivation of seedlings and cuttings as well as for herbs for the food and pharmaceutical industries.
Currently, there are two different spectra available: LED formula red 2.1 and LED formula white 1.2.

BLV formula red 2.1

Purple light has become the visual synonym of efficient LED assimilation lighting. In combination with sunlight it can increase photosynthesis, biomass and yield. However, purple horticulture LED lighting masks the natural leaf and petal colour. Under purple light it is nearly impossible to select plants according to their morphological traits, identify pests or see signs of malnutrition.



BLV LED formula red 2.1 spectrum



BLV LED formula white 1.2 spectrum

BLV formula white 1.2

BLV has developed a new LED grow light formula which solves this problem. The BLV LED formula white 1.2 has an optimised spectrum combining assimilation lighting with high photosynthesis and excellent colour rendering.
It therefore promotes growth and shows your crops almost in the same colours as they would appear in nature.

Technical data on page 23

BLV LED formula red 2.1 luminaire

BLV LED formula white 1.2 luminaire

LED multilayer luminaires

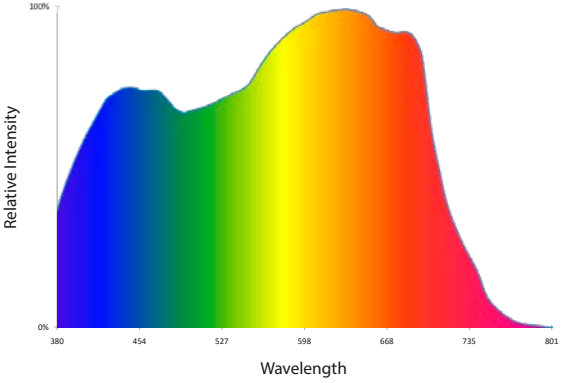
- Slim aluminium profile with an integrated LED driver
- Two different lengths (4 ft and 5 ft), each of them with or without feed-through wiring
- Protection class IP66 and possible use in environments with up to 95% humidity
- Remarkably high service life of 100 000 hrs (L80B10) or 50 000 hrs (L90B10)

BLV LED formula white 1.2
Combining the best of both worlds

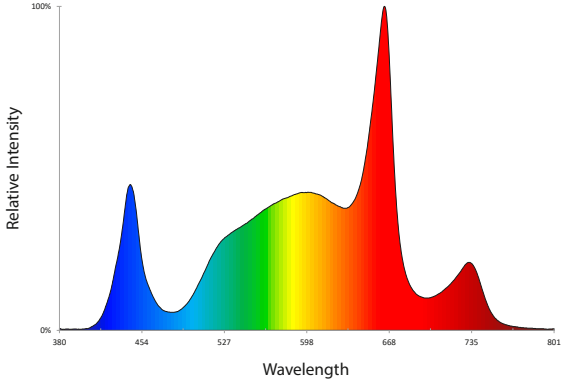
The BLV LED formula white spectrum combines a spectrum for high photosynthesis with an ambient colour temperature of 3500 K and an excellent colour rendering index of 90!

Colour rendering index (CRI) and correlated colour temperature (CCT) determine how you see your crop: either in natural colours or masked.

In other words:
The BLV formula white 1.2 spectrum gives crops all they need for encouraging photosynthesis crucial for healthy growth and, at the same time, allows growers to see the crops almost as they appear in nature.



Photosynthesis action spectrum (McCree 1972)



BLV LED formula white 1.2 spectrum

With this unique combination, BLV sets a new standard in mulitlayer cultivation that brings out even smallest differences between colours.
This is especially beneficial for processes such as phenotyping, selelction, pest control and monitoring where the earliest detection of small irregularities determines about success or failure to the cultivation.

Phenotyping

Selection

Monitoring

Pest control

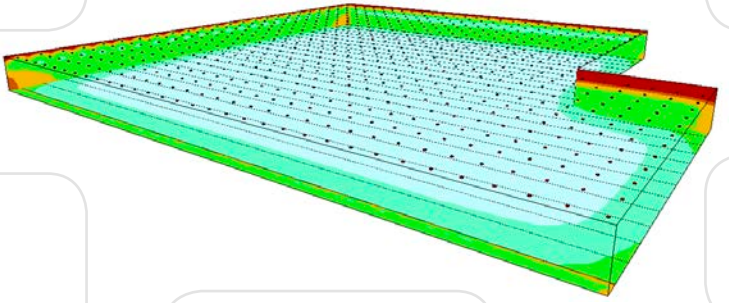
Light and yield planning
Solid planning for sustainable success

What are the key factors for a successful lighting solution? Two things: First, a careful selection of lamps and luminaires best suited for the specific requirements of your crops. Secondly: perfect light planning based on the particular facility and, if requested, yield planning by specialists like tomato consultants, rose consultants etc.

As light planning is such a crucial factor to success, we offer this service to our clients. Our in-house planning team specialises in horticulture premises and works hand-in-hand with the sales force. Our clients appreciate quick response times and excellence in planning.

Careful light planning at an early stage helps you to:

- Ensure maximum return on investment
- Optimise the investment



- Minimise costs
- Identify likely saving spots
- Optimise the planning of your desired lighting solution

BLV HORTURION around the globe

Our milestones:

We started in the horticulture business more than 10 years ago and introduced our first double-ended 1000 W HPS lamp in 2009. Our engineers continuously optimised the individual components, invested intensively in ceramics research and even integrated parts normally used in space sciences. In 2013, we set a benchmark and introduced a 10% more efficient lamp with 2.1 µmol/W. For us, it was a technological quantum leap; for greenhouse owners, this figure means energy savings of up to a seven digit number in 4 years time.*

* Example based on tomato production in a greenhouse with 10.000 lamps and 2.500 buring hrs/yr. compared with previous technology of 1.95 µmol/W at an average energy price of € 0,10

HORTURION product overview

HPS 600 W DE EL
HPS 750 W DE EL
HPS 1000 W DE EL 2.2

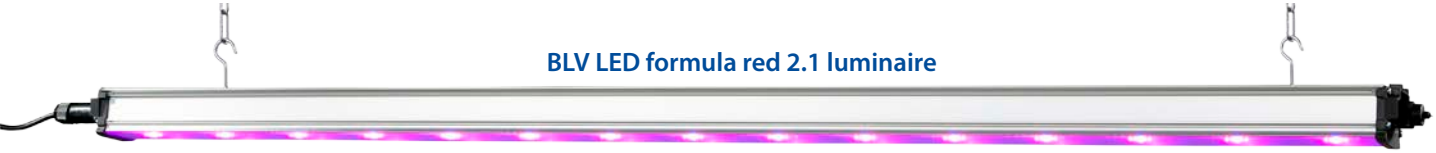
MH 600 W DE EL
MH 750 W DE EL
MH 1000 W DE EL

TL luminaire

Power supply
600 W / 750 W / 1000 W

Range of single-ended HPS and MH lamps

Technical data on pages 20-22



BLV LED formula red 2.1 luminaire

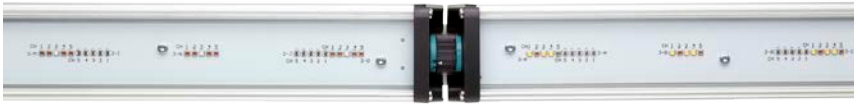
BLV LED formula white 1.2 luminaire

Connecting possibilities

Single

Feedthrough connection

Direct connection



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HORTURION HPS & MH discharge lamps

Article no.	Designation	Base	Ø [mm]	Length [mm]	LCL [mm]	Burning position	Ignition voltage [kV]	Lamp current [A]
HORTURION HPS E40								
212504	HPS 250 W 230 V E40	E40	47.0	257.0	n.a.	u360	2.3	3.0
214004	HPS 400 W 230 V E40	E40	47.0	285.0	n.a.	u360	2.3	4.6
216104	HPS 600 W 230 V E40	E40	46.0	290.0	n.a.	u360	4.0	6.3
216004	HPS 600 W 400 V E40	E40	46.0	290.0	n.a.	u360	4.0	3.8
216203	HPS 600 W 400 V E40 EL	E40	46.0	290.0	n.a.	u360	4.0	3.2
216204	HPS 600 W 400 V E40 EL^{+}	E40	46.0	290.0	n.a.	u360	4.0	3.2
217504	HPS 750 W 400 V E40 EL	E40	52.0	300.0	n.a.	p15	4.0	3.6
HORTURION HPS K12x30S								
216210	HPS 600 W DE EL	K12x30S	30.0	323.0	n.a.	p4	3.2	3.2
217510	HPS 750 W DE EL	K12x30S	30.0	323.0	n.a.	p4	3.2	3.6
216310	HPS 1000 W DE EL 2.2	K12x30S	30.0	323.0	n.a.	p4	3.2	4.8
HORTURION MH E40 – for enclosed luminaires only								
227061	MH 250 W 230 V E40	E40	47.0	225.0	150.0	u360	4.0	3.0
227161	MH 400 W 230 V E40	E40	47.0	275.0	175.0	u360	4.0	4.0
227401	MH 600 W 230 V E40	E40	76.0	340.0	220.0	u360	4.0	5.7
HORTURION MH K12x30S – suitable for open luminaires								
299940	MH 600 W DE EL 3.8K	K12x30S	34.0	323.0	n.a.	p4	3.2	3.4
299950	MH 750 W DE EL 3.8K	K12x30S	34.0	323.0	n.a.	p4	3.2	3.6
299960	MH 1000 W DE EL 3.8K	K12x30S	34.0	323.0	n.a.	p4	3.2	4.8
299970	MH 600 W DE EL 5.5K	K12x30S	34.0	323.0	n.a.	p4	3.2	3.4
299980	MH 750 W DE EL 5.5K	K12x30S	34.0	323.0	n.a.	p4	3.2	3.6
299990	MH 1000 W DE EL 5.5K	K12x30S	34.0	323.0	n.a.	p4	3.2	4.8

	Nominal lamp power [W]	Rated lamp power [W]	PAR [µmol/s]	Mercury content [mg]	Colour temperature [K]	Colour temperature [descr.]	Colour rendering index Ra / Colour rendering level	Nominal service life [h]	Energy efficiency class
250	250.0	410	12.0	n.a.	n.a.	n.a.	12000	A+	
400	400.0	675	40.0	n.a.	n.a.	n.a.	12000	A++	
600	600.0	1000	40.0	n.a.	n.a.	n.a.	12000	A++	
600	600.0	1150	40.0	n.a.	n.a.	n.a.	12000	A++	
600	600.0	1100	40.0	n.a.	n.a.	n.a.	10000	A++	
600	600.0	1150	40.0	n.a.	n.a.	n.a.	12000	A++	
750	750.0	1360	34.0	n.a.	n.a.	n.a.	12000	A+	
600	600.0	1150	32.0	n.a.	n.a.	n.a.	10000	A++	
750	750.0	1450	32.0	n.a.	n.a.	n.a.	10000	A++	
1000	1000.0	2100	32.0	n.a.	n.a.	n.a.	10000	A++	
250	250.0	320	24.5	4200	neutral white	Ra80-89/1B	8000	A	
400	400.0	520	36.0	4200	neutral white	Ra70-79/2A	8000	A+	
600	600.0	710	36.0	4200	neutral white	Ra80-89/1B	8000	A	
600	600.0	1 000	60.0	3 800	neutral white	Ra70-79/2A	6 000	A+	
750	750.0	1 200	60.0	3 800	neutral white	Ra60-69/2B	6 000	A+	
1 000	1 000.0	1 720	100.0	3 800	neutral white	Ra70-79/2A	6 000	A+	
600	600.0	1 040	60.0	5 500	daylight white	Ra80-89/1B	6 000	A+	
750	750.0	1 250	60.0	5 500	daylight white	Ra80-89/1B	6 000	A+	
1 000	1 000.0	1 800	60.0	5 500	daylight white	Ra>90/1A	6 000	A+	

HORTURION TL toplighting luminaires with power supplies & lamps

Article no.	Designation	Supply voltage	Nominal system power [W]	Rated system power [W]	Dimensions L x W x H [mm]"	Weight [kg]	Included lamp type
HORTURION HPS TL - luminaires complete with power supply, reflector, lamp and supply cable; bulk packaging 32 pcs							
10HLF0206001	HORTURION HPS TL 600 W LRC	400 VAC, 50/60 Hz	600	621.0	544 x 232 x 303	4.5	HPS 600W DE EL
10HLF0207501	HORTURION HPS TL 750 W LRC	400 VAC, 50/60 Hz	750	776.0	544 x 232 x 303	4.5	HPS 750W DE EL
10HLF0210001	HORTURION HPS TL 1000 W LRC	400 VAC, 50/60 Hz	1 000	1 035.0	544 x 232 x 303	4.5	HPS 1000W DE EL 2.2

Ingress protection: IP23 for the reflector and IP65 for the power supply compartment.
Single packed versions are available on request.
Complete luminaires with MH lamps are available on request.

Article no.	Designation
HORTURION HPS TL - accessories & replacement kits	
on request	HORTURION suspension hooks for various truss systems
HLA0201	HORTURION connection box for electrical connection of the luminaire
on request	HORTURION PS 1000 W power supply + HPS 1000 W DE EL 2.2 lamp

HORTURION LED ML multilayer luminaires

Article no.	Designation	Spectrum	Nominal system power [W]	PPF [µmol/s]	Photosynthesis efficiency [µmol/Ws] @ Ta 25°C	Colour tempe-rature [K]	Colour rende-ring index CRI	Dimensions L x W x H [mm]	Feed-through wiring
HORTURION LED ML - luminaires									
292111020001	HORTURION ML5F3C-1.2-80	Formula white 1.2	75	122	1.6	3 500	90	1431 x 66 x 55	no
292111020003	HORTURION ML4F3C-1.2-80	Formula white 1.2	60	98	1.6	3 500	90	1150 x 66 x 55	no
292111020101	HORTURION ML5F3C-1.2-80-FTW	Formula white 1.2	75	122	1.6	3 500	90	1431 x 66 x 55	3x1.5mm²
292111020103	HORTURION ML4F3C-1.2-80-FTW	Formula white 1.2	60	98	1.6	3 500	90	1150 x 66 x 55	3x1.5mm²
292112010001	HORTURION ML5F3C-2.1-80	Formula red 2.1	50	135	2.5	n.a.	n.a.	1431 x 66 x 55	no
292112010003	HORTURION ML4F3C-2.1-80	Formula red 2.1	40	108	2.5	n.a.	n.a.	1150 x 66 x 55	no
292112010101	HORTURION ML5F3C-2.1-80-FTW	Formula red 2.1	50	135	2.5	n.a.	n.a.	1431 x 66 x 55	3x1.5mm²
292112010103	HORTURION ML4F3C-2.1-80-FTW	Formula red 2.1	40	108	2.5	n.a.	n.a.	1150 x 66 x 55	3x1.5mm²

Beam angle 80°
Weight max. 3.5 kg
Ingress protection: IP66

Article no.	Designation	
HORTURION LED ML - accessories		
29211001	HORTURION ML S-Cable 3pol	Supply cable 0.5 m for luminaires with feed-through wiring (FTW)
29211003	HORTURION ML FTW-Cable 0,5m	Connecting cable 0.5 m for luminaires with feed-through wiring (FTW)
29211004	HORTURION ML FTW-Cable 1m	Connecting cable 1.0 m for luminaires with feed-through wiring (FTW)
29211006	HORTURION ML HOOK SET 10x	Mounting set for 10 HORTURION LED ML luminaires (20x M4 suspension hooks, 20x M4 nuts)
29211008	HORTURION ML CLAMP SET 10x	Mounting set for 10 HORTURION LED ML luminaires (20x mounting clamps)

Single packed hook sets and clamp sets are available on request.

GERMAN ENGINEERING

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