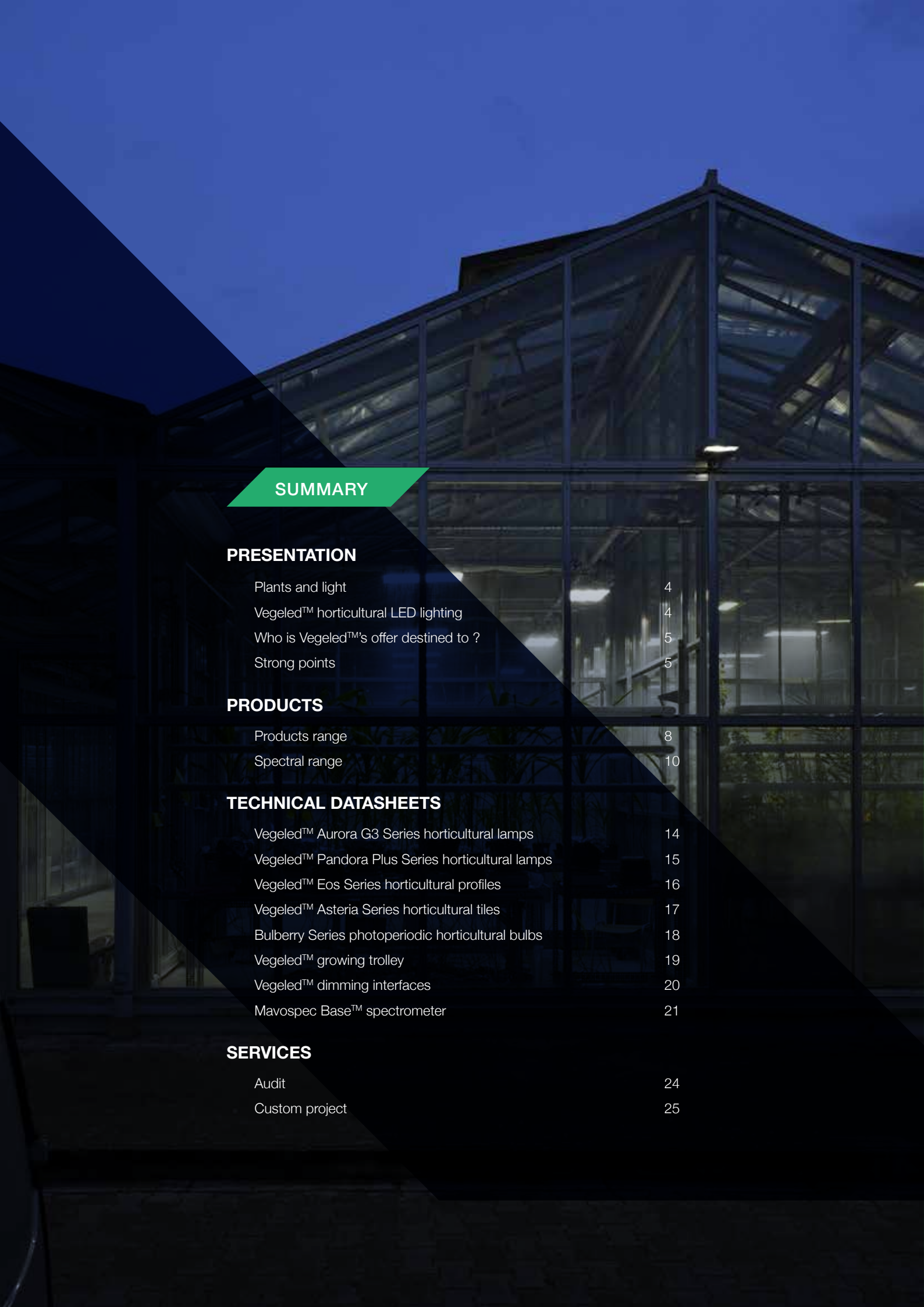

Colasse
vegeled
LED'S
grow



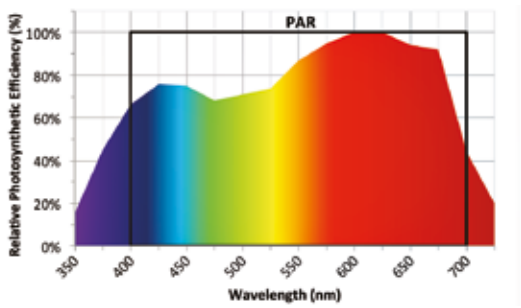
SUMMARY

Presentation

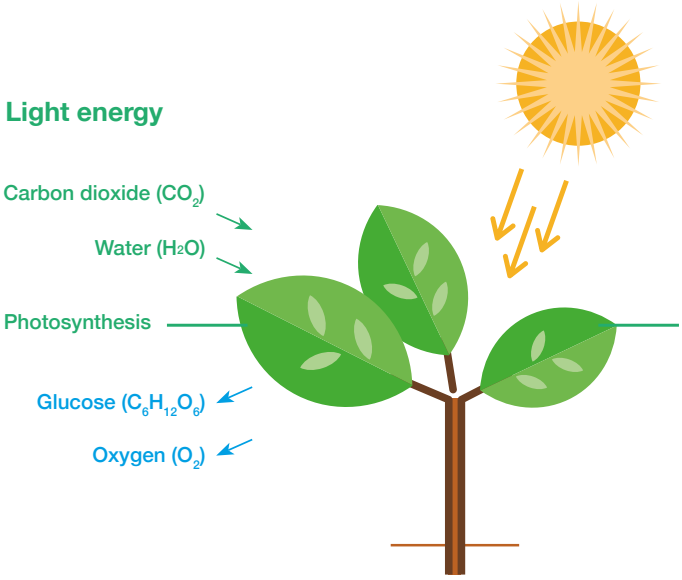
PLANTS AND LIGHT

Light is essential for plant growth through the process of photosynthesis and other regulating processes.

If natural light from the sun is the most abundant and cheapest source, it is difficult to control however in terms of spectral composition, intensity and time of illumination.



Average photosynthetic response of 22 species of plants grown in a growing chamber (taken from numerical data of McCree, 1972)



The use of artificial light has become very common therefore, for increasing plant production. The latest technical and scientific advances allow the delivery of light to the plants to be controlled, allowing you to illuminate with the spectrum and photoperiods, best adapted to the applications.

VEGELED™ HORTICULTURAL LED LIGHTING

With this in mind, **Colasse SA** has developed a range of horticultural lighting products based on LED technology, sold under the **Vegeled™** brand. These products are the result of several years of research for optimising horticultural LED lighting of plants grown in greenhouses and in laboratories.

This research project started in 2009 in collaboration with the **CARAH** ASBL research centre affiliated with the HEPH-Condorcet Higher Education School, thanks to the support of the Walloon region. **Colasse SA** continues its progress and now collaborates with many other centers and producers throughout the world with the goal of delivering efficient, innovative, horticultural LED lighting systems.

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WHO IS VEGELED™ DESTINED TO ?

The **Vegeled™** range is composed of a series of LED lamps, LED profiles and accessories which allow the needs of **all types of customers active in horticulture, to be met efficiently, whether as fruit and vegetable producers or as individuals**.

Wanting to best serve its customers and to develop long-lasting partnerships with them, **Colasse SA** has placed all its savoir-faire at the its disposal in order to provide the most suitable solutions.

Thus, the **Vegeled™** offer goes from the simple supply of LED lighting components to on-site installation in collaboration with certified partners and with the assistance of design offices.

STRONG POINTS

Lighting adaptable to each application

Vegeled™ products can be defined in a very large range of spectral combinations thanks to a total mastery of their manufacturing process. We can produce customised LED matrices and LED tapes and thus reproduce practically any light spectrum homogeneously.

Flux and spectral stability over time

Particular attention is paid to the quality and reliability of the LEDs that we select. We especially, also make sure that they are properly cooled by using heat sinks in the form of aluminium fins. This allows the LEDs to be maintained in the proper operating conditions so as to conserve their service life. This extends from 36,000 to 54,000 hours depending on the ambient temperature.

In addition, the decrease in luminous flux of **Vegeled™ products is very slow**, gradual and **without noticeable change of the spectral combination**. As an example, our bi-phosphor white LEDs used in the manufacture of our **Vegeled™** lighting profiles, only display a loss of flux of 10% after 36,000 hours of operation according to the Energy Star TM-21 projection.

Better luminous efficiency than discharge lamps

Thanks to a higher luminous flux output/watt and the possible optimisation of the spectrum, **Vegeled™ horticultural LED lighting systems have a much higher energy efficiency than discharge lamps**.

Control of the lighting intensity

All **Vegeled™** equipment is available in dimmable versions. **The light intensity of the products can therefore be modulated as necessary and if desired**. The control system is adapted to the situation so as to facilitate its use. The use of digital controls allows the reproduction of chosen lighting conditions to be guaranteed.

We also have our own control system that allows you to play with the spectral composition, light intensity and photoperiod.

Local manufacture for total quality control

Vegeled™ profiles are 100% designed and assembled in Belgium. The lamps are assembled by our partner following specifications drafted by our teams. The raw materials, manufacturing steps and finished products undergo systematic and rigorous quality control **in Belgium**.

Red/blue spectrum vs broad spectrum

Working in a fuchsia colored environment is not pleasant. **Vegeled™ spectra have a wide spectrum and often a high color rendering index (CRI)**, thus making your work easier in a growing zone.

Moreover, research on the lighting needs of plants has evolved greatly over the last few years and tends to dispute the idea that plant growth is only stimulated by two colors.

Complete spectra are produced by a combination of white and monochromatic LEDs and have always been the hallmark of **Vegeled™**.

Growth but even more

Our research has not been limited to the optimisation of plant growth. The choice of spectral combination in fact, can act on the shape and the taste of certain plants.

In collaboration with some of our customers **we have also developed lighting systems to ensure the development of complete ecosystems**.

High IP Codes for difficult environments

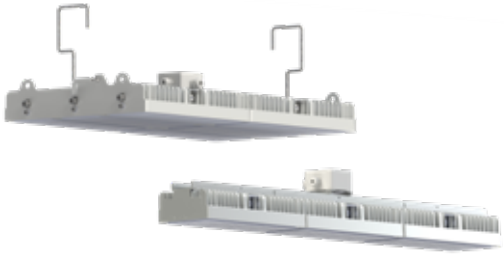
Some applications require the equipment to have a high IP Code. We are able to offer **lamps with IP65 and profiles with IP68 if need be**.

Products

PRODUCTS RANGE

AURORA G3 SERIES

Growth chambers and greenhouses
Dimmable
IP65
Medium to long distance lighting
High light intensity



PANDORA PLUS SERIES

Growth chambers and greenhouses
Dimmable
IP65
Medium to long distance lighting
High light intensity
Compact or linear design
Replacement of HPS 400W, 600W and 1000W lamps

EOS SERIES

Multi-layer growing systems
Dimmable
IP65 / IP68
Short to medium distance lighting
Medium to low light intensity
Multi-spectral

ASTERIA SERIES

Multi-layer growing systems
Dimmable
IP20 / Tropicalisation coating
Short to medium distance lighting
Medium to low light intensity

BULBERRY SERIES

Growth chambers and greenhouses
Non-dimmable
IP44
Photoperiodic lighting
Low light intensity
Replacement of incandescent (100W) and eco-halogen (75W) lamps

GROWING TROLLEY

Complete growing systems
Danish trolley
3 to 4 height adjustable growing shelves
LED profiles from the Eos Series
Ebb & flow irrigation system (in option)
Irrigation and photoperiod management (in option)

DIMMING INTERFACES

Compatible with all series
Manual rotary dimmer - fixed intensity
Digital dimmer - fixed intensity
Programmable dimmer - time-controlled dimming
WAGO controller - customised light management

MAVOSPEC BASE

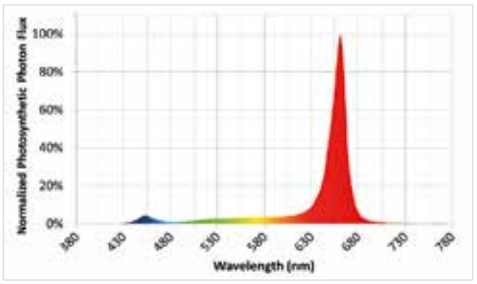
Spectrophotometer
Spectrum in W/m² and µmol/m².s
Wavelength range 380-780 nm
Intensity in µmol/m².s and lux
% of UV, Blue, Green, Red, Far Red ratios

WHITE / RED SPECTRUM

In both research and production, we believe that a single solution does not meet all needs. Therefore, we have created a series of spectra offering great flexibility depending on the type of plant, the objective of cultivation or the location.

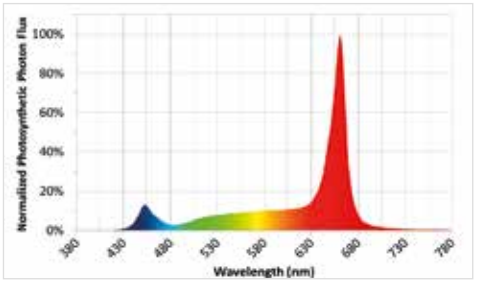
T1 SPECTRUM

PPF ratio	
UV (380-399 nm)	0,05%
BLUE (400-499 nm)	5,07%
GREEN (500-599 nm)	10,75%
RED (600-699 nm)	83,08%
FR (700-780 nm)	1,05%
PAR (400-700nm)	98,90%



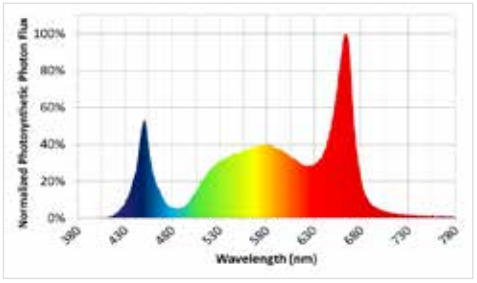
P1 SPECTRUM

PPF ratio	
UV (380-399 nm)	0,04%
BLUE (400-499 nm)	10,21%
GREEN (500-599 nm)	21,73%
RED (600-699 nm)	66,43%
FR (700-780 nm)	1,59%
PAR (400-700nm)	98,37%



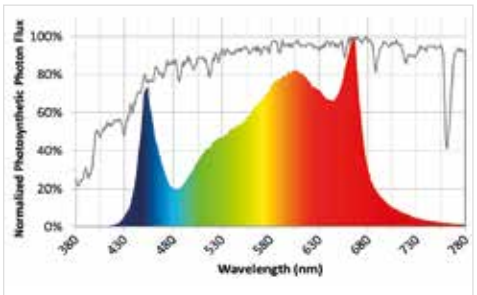
M1 SPECTRUM

PPF ratio	
UV (380-399 nm)	0,05%
BLUE (400-499 nm)	16,16%
GREEN (500-599 nm)	37,30%
RED (600-699 nm)	44,91%
FR (700-780 nm)	1,58%
PAR (400-700nm)	98,37%

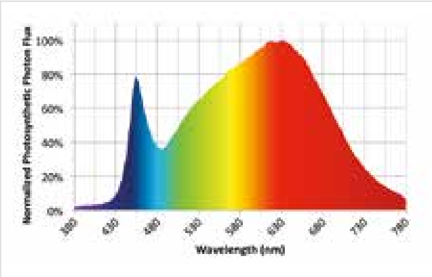


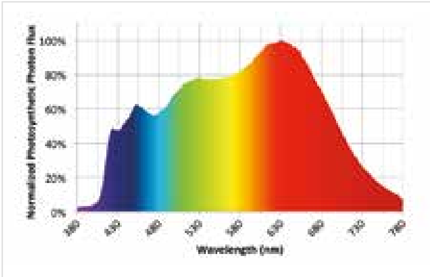
A1 SPECTRUM

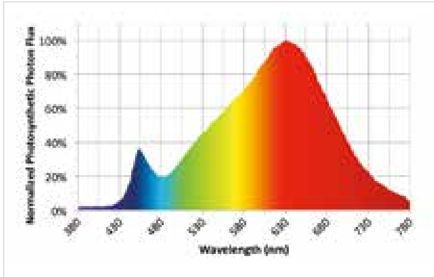
PPF ratio	
UV (380-399 nm)	0,17%
BLUE (400-499 nm)	16,56%
GREEN (500-599 nm)	38,28%
RED (600-699 nm)	41,93%
FR (700-780 nm)	3,06%
PAR (400-700nm)	96,77%



WHITE SPECTRUM







N1 SPECTRUM

PPF ratio	
UV (380-399 nm)	0,26%
BLUE (400-499 nm)	15,73%
GREEN (500-599 nm)	35,82%
RED (600-699 nm)	40,11%
FR (700-780 nm)	8,09%
PAR (400-700nm)	91,65%

S1 SPECTRUM*

PPF ratio	
UV (380-399 nm)	0,27%
BLUE (400-499 nm)	20,93%
GREEN (500-599 nm)	33,64%
RED (600-699 nm)	37,00%
FR (700-780 nm)	8,16%
PAR (400-700nm)	91,57%

W1 SPECTRUM

PPF ratio	
UV (380-399 nm)	0,21%
BLUE (400-499 nm)	9,82%
GREEN (500-599 nm)	32,61%
RED (600-699 nm)	48,18%
FR (700-780 nm)	9,18%
PAR (400-700nm)	90,61%

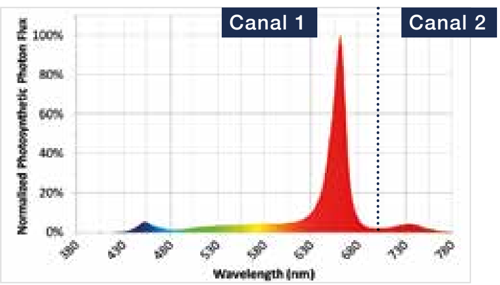
*Avaibility depending on the country

EXTRA FAR RED

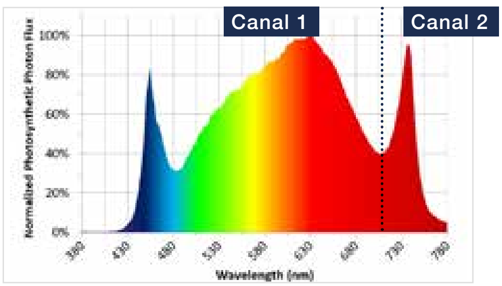
All **Vegeled**™ spectra can be completed by far red of which we are convinced of its interest in many applications. On request, the far red spectrum can be controlled independently using our simple 2-channel solution.

EXAMPLES

T1FR SPECTRUM



N1FR SPECTRUM



MULTI-SPECTRAL SOLUTION

For research applications or for persons wishing to create their own light recipe, we have developed multi-spectral solutions on our platforms.These solutions are accompanied by a complete spectral control system.
Possibilities of control and customization on request.

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Technical datasheets

VEGELED™ HORTICULTURAL LAMPS

AURORA G3 SERIES

The Aurora series is a series of lamps suitable for replacing HPS 400W lamps.
As a one-to-one substitute, it saves around 30% of the power for a light gain of 10 to 20%.
The compact, light format has a single fastening using a suspension hook.

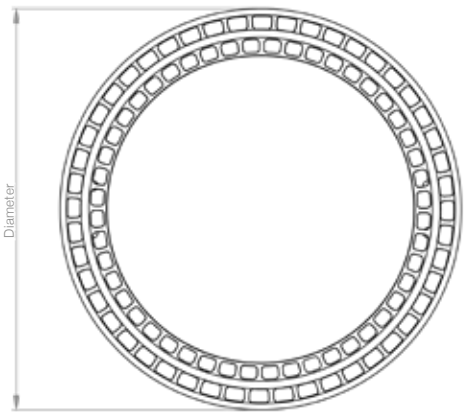
Mounting accessories

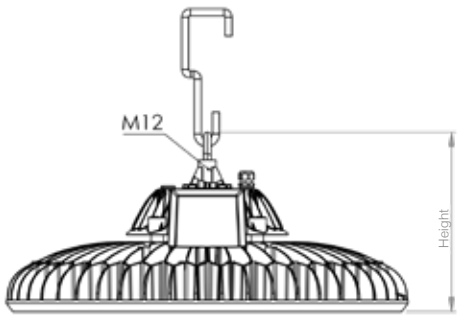
Hanging cable

Hanging hook

PRODUCT TYPE	Vegeled ™ Aurora G3 serie		
MODEL	LA103	LA203	LA303
POWER CONSUMPTION	100-110W	200-220W	300-330W
INPUT VOLTAGE	90-305VAC, 249-528VAC 50/60Hz		
POWER FACTOR	>95		
BEAM ANGLE	120°		
DIMMABLE	Option : 0/1-10V		
WATER AND DUST PROTECTION	IP65		
THERMAL MANAGEMENT	Passive		
DIMENSIONS (L X W X H)	289x289x162	386x386x175	386x386x204
WEIGHT	2.5 kg	4.5 kg	6.9 kg
COLOR CASING	White		
CABLE LENGTH	2m		
LIFE SPAN	50 000h (Q90>36 000h)		
CERTIFICATIONS	CE, RoHS ((c)ETL, (c)UL pending)		
WARRANTY PERIOD	5 years		

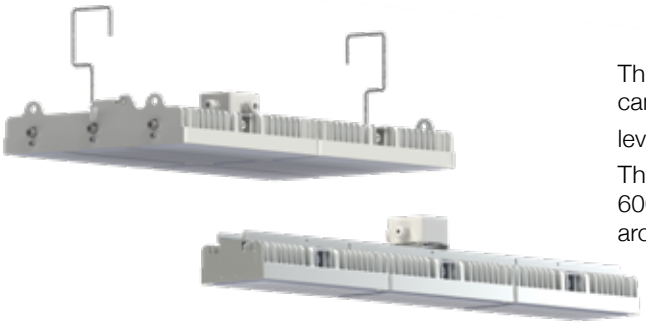
Dimensions





VEGELED™ HORTICULTURAL LAMPS

PANDORA PLUS SERIES



The Pandora Plus series consists of various modules that can be combined with each other to create a variety of power levels and luminaires.

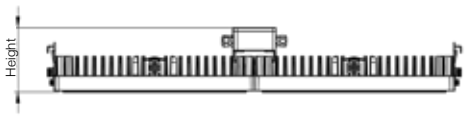
The different models are suitable for replacing HPS 400, 600 and 1000W lamps. As a one-to-one substitute, it saves around 40% of the power for the same amount of light.

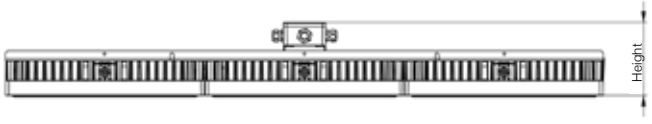
Mounting accessories

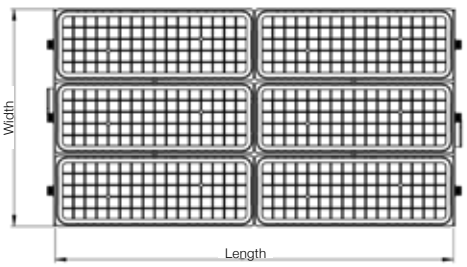
Hanging cables

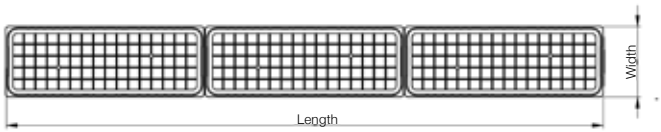
Hanging hooks

PRODUCT TYPE	Vegeled™ Pandora Plus series			
MODEL	LB302	LB402	LB680	LB1K0
CONFIGURATION	3x1	2x2	3x2	3x2
POWER CONSUMPTION	300-325W	400-433W	680-720W	950-1000W
INPUT VOLTAGEE	90-305VAC, 249-528VAC 50/60Hz			
BEAM ANGLE	120°			
DIMMABLE	Option : 0/1-10V			
WATER AND DUST PROTECTION	IP65			
THERMAL MANAGEMENT	Passive			
DIMENSIONS (L X W X H)	900x107x96	634x218x96	626x326x96	626x326x96
WEIGHT	5.1kg(+1.6)	6.8kg(+2.65)	10.15kg(+3.35)	10.15kg(+3.35)
COLOR CASING	White			
CABLE LENGTH	60cm			
LIFE SPAN	50 000h (Q90>36 000h)			
CERTIFICATIONS	CE, RoHS ((c)ETL, (c)UL pending)			
WARRANTY PERIOD	5 years			









VEGELED™ HORTICULTURAL PROFILES

EOS SERIES

The Eos series is ideal for lighting multi-layer growth systems with low to medium light intensity.

The LED profiles are custom manufactured depending on the project.

Their ease of design and their large range of available spectra make our lighting product the most flexible.

Mounting accessories

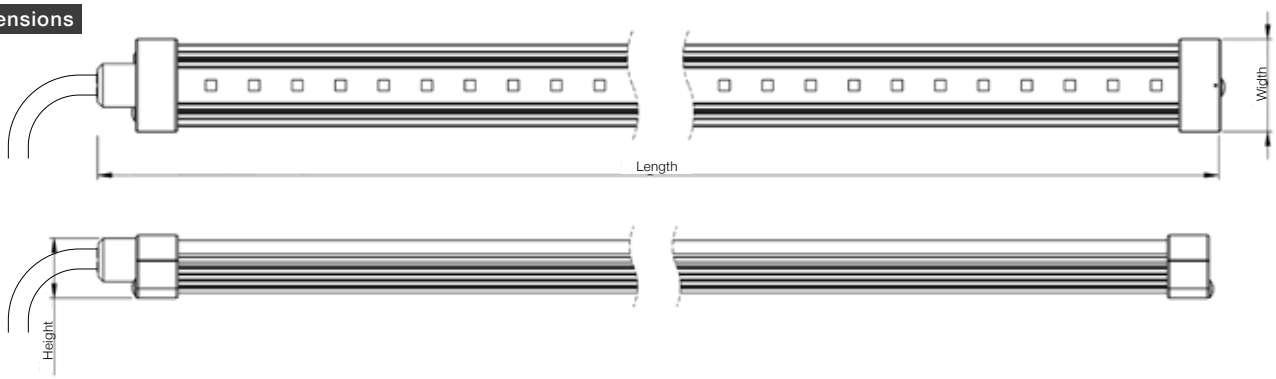
Fixing clips

Power supply kit

PRODUCT TYPE	Vegeled™ Eos series
MODEL	CE023
POWER CONSUMPTION	23-24W/meter
INPUT VOLTAGE	24VDC
BEAM ANGLE	120°
DIMMABLE	Option : 0/1-10V, DALI
WATER AND DUST PROTECTION	IP65 (IP68 on request)
THERMAL MANAGEMENT	Passive
DIMENSIONS (L X W X H)	Lx22x14[1]
WEIGHT	~0.235kg/meter
CABLE LENGTH	1m
LIFE SPAN	Q90>36 000h
CERTIFICATIONS	CE, RoHS
WARRANTY PERIOD	3 years

[1]The LED rails can be manufactured up to 3 meters long

Dimensions



VEGELED™ HORTICULTURAL TILES

ASTERIA SERIES

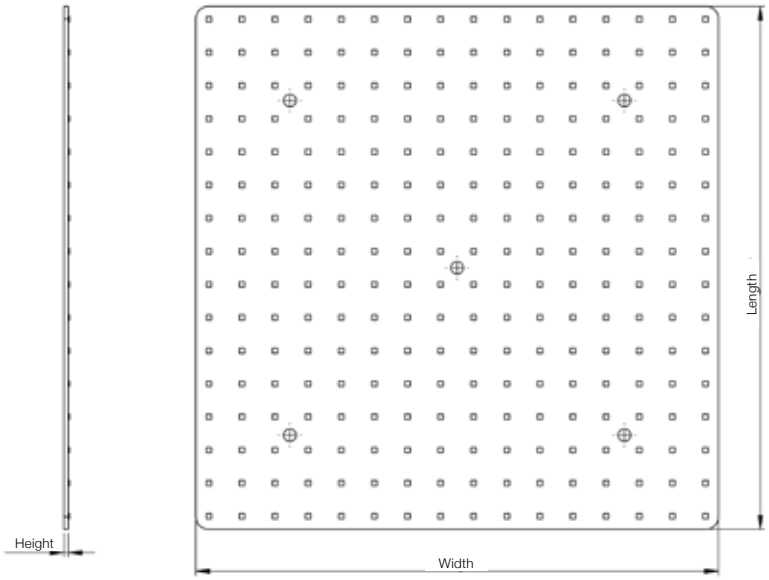
The LED panel series is suitable for lighting projects where very high homogeneity is required at short distances.

The series is designed for low to medium intensity applications and is particularly suitable for multilayer growth systems.

Mounting accessories

Power supply kit

PRODUCT TYPE	Vegeled™ Asteria Series		
MODEL	UA007	UA028	UA052
POWER CONSUMPTION	7W	28W	52W
INPUT VOLTAGE	24VDC (CV)	24VDC (CV)	27VDC (CC 2.2A)
BEAM ANGLE	120°		
DIMMABLE	Option : 0/1-10V, DALI		
WATER AND DUST PROTECTION	IP20, tropical coating		
THERMAL MANAGEMENT	Passive		
DIMENSIONS (L X W X H)	300x300x2		
WEIGHT	0.538kg		
CABLE LENGTH	1m		
LIFE SPAN	Q90>36 000h		
CERTIFICATIONS	CE, RoHS		
WARRANTY PERIOD	3 years		



PHOTOPERIODIC HORTICULTURAL BULBS

BULBERRY SERIES

The photoperiodic, horticultural, grow lighting bulb is suitable for replacing incandescent (100W) and halogen (75W) lamps. As a one-to-one substitute, the bulb allows an energy saving of 80 to 85%.

Its special spectrum is used to break dormancy, to strengthen the growth and to stimulate flowering. The additional white light creates a more pleasant environment for workers.

The compact and lightweight format is easily hung without modification of the existing installation thanks to its E27 fitting.

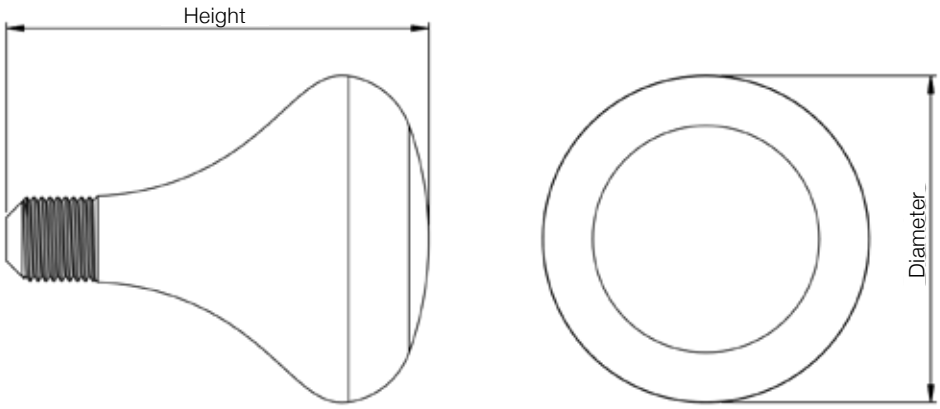
Mounting accessories

Cable

E27 Socket

PRODUCT TYPE	Vegeled™ Bulberry Series
POWER CONSUMPTION	10-12W
INPUT VOLTAGE	220-240VAC; 50Hz
POWER FACTOR	>90
BEAM ANGLE	120°
DIMMABLE	No
WATER AND DUST PROTECTION	IP44
THERMAL MANAGEMENT	Passive
DIMENSIONS (Ø X H)	120x150
WEIGHT	310g
SOCKET	E27
WORKING TEMPERATURE	35 000
LIFE SPAN	Q70>50 000h; Q90>25 000h
CERTIFICATIONS	CE, RoHS
WARRANTY PERIOD	3 years

Dimensions



VEGELED™ GROWING TROLLEY

The **Vegeled™** growing trolley is an easy to use system intended for research or production.

The solution is shown in the standard format of a Danish trolley equipped with a lighting and optional irrigation system.

The trolley can be configured with any existing **Vegeled™** lighting profiles and can be powered from a simple electrical outlet. The solution is delivered as a do-it-yourself assembly kit.

Typical configuration

- Danish trolley with dimensions 134x56x210cm
- 3 to 4 height adjustable growing shelves
- Water retention tables with dimensions 126x56x5cm
- PLUG & PLAY connection system

230V Master control box :

- Watering time management
- Photoperiod management

Slave control box :

- Communication interface between trolleys
- Lighting plug in
- Pump plug in (option)

Options

- Multi-spectral control
- Ebb & Flow irrigation system with water tank and integrated pump
- Possibility of electrically connecting several trolleys together : master/slave system

VEGELED™ DIMMING INTERFACES

MANUAL ROTARY DIMMER

The rotary dimmer is a potentiometer with an IP66 enclosure that allows you to manually adjust the intensity of a light using a variable resistance.

Accuracy is limited to the cursor display: ± 10%.

Application: 1 rotary dimmer/light

DIGITAL DIMMER

The digital dimmer allows you to set the light intensity of a group of lights. The lighting level can be adjusted to the nearest percentage using the buttons on the display panel.

Application: 1 digital potentiometer per group of lamps (up to 22 lamps; maximum 10mA)

PROGRAMMABLE DIMMER

For applications where light intensity needs to vary during the day, the programmable interface allows you to set up to 50 light levels. So, a sunrise along with a corresponding sunset can be simulated.

You can program directly from the interface or via smartphone using NFC communication.

Application: 1 programmable dimmer per group of lamps (up to 22 lamps; maximum 10mA)

WAGO CONTROLLER

The WAGO Controller is a tailor-made solution for research or production applications. This system manages the photoperiod, light intensity, and creates lighting patterns or profiles by modifying the various colours of the spectrum. All the parameters, under your control, at your fingertips.

The user interface can be modified depending on the application.

SPECTROPHOTOMETER

MAVOSPEC BASE

The Mavospec Base is an accurate and reliable spectrometer using Gossen technology. It measures light in the 380-780nm wavelength range.

It's a comprehensive and ideal tool for determining any type of light source in its environment.

Its design makes it practical and easy to transport.

Information provided by the spectrometer :	
Illuminance	10 to 10.000 lux
Colour temperature (CCT)	yes
Colour rendering index (CRI)	yes
Maximum wavelength	yes
Dominant wavelength	yes
Flicker (light flicker)	yes
Spectrum	yes
Display options :	
Spectrum display	W/m² or µmol/m².s
PPFD 400-700nm	µmol/m².s
PPFD_UV 380-400nm	µmol/m².s or %
PPFD_Blue 400-500nm	µmol/m².s or %
PPFD_Green 500-600nm	µmol/m².s or %
PPFD_Red 600-700nm	µmol/m².s or %
PPFD_Far red 700-800nm	µmol/m².s or %
Other technical data :	
Data memory	4GB micro SD card
Data format	CSV file
Interface	USB 2.0
Power supply	100-240V (50/60 Hz) 0,15A
Rechargeable battery	Li-Ion, 3,7V, 1100mAh
Charging time	1.5 hours
Autonomy	> 8 hours continuous operation
Operating temperature	5 to 40°C
Dimensions	139x60x30mm
Weight	150g

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Services

AUDIT

In order to offer our customers the best adapted solution for optimising their artificial lighting, we propose a systematic stepped approach.

Site visit

During this visit, we identify what the needs are in terms of light intensity and spectral quality, depending on the plants envisaged. Using our portable spectrometers, we can take very precise measurements of the light spectra of the existing equipment.

In view of the design of a lighting improvement solution, we also take into account, the technical requirements such as the architecture of the building, the heating and ventilation system, etc. The safety and comfort of personnel who must work in the lighted zones, are also some of our preoccupations.

Report

We develop a proposal for improvement on the basis of customer needs and technical and safety constraints. If this proposal leads to an investment in terms of **Vegeled™** lighting equipment, a costed proposal will also be drafted and presented.

In collaboration with the customer, we can also perform a calculation of profitability in so far as the elements of the calculation are given to us.

CUSTOM PROJECT

Thanks to its high flexibility and capacities in terms of research and innovation, **Colasse SA** is able to design and manufacture complete artificial lighting systems to promote plant growth and vitality.

BIGH • Anderlecht

THESE PROJECTS CAN INCLUDE :

- Lamp replacement or supply of growth shelves
- Re-lamping phytotrons and growth chambers
- Implementation of greenhouse supplementary lighting
- Design of lighting systems for vertical farms
- Co-research

ULG • Gembloux

NOTES

NOTES

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Colasse

Led Lighting Solutions

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