

## Lighting for the greenhouse

*To keep the growth going in the dark.*

Luiten Greenhouses can deliver growing lights for the greenhouse. The lights we deliver are high quality and extensively tested. These lights are specially developed for plant growth. Luiten Greenhouses can deliver different kind of light intensities. The housing of the luminaires if of a very high quality to ensure a long lifespan. On this leaflet you will find all the lights we can deliver.

### ALF 1000

So much light from just one luminaire! This luminaire is used most frequently. Philips extensively tested the ALF1000 on efficiency, yield, thermal regulation, bulb voltage etc. These tests are needed for approval to use a Philips-ballast and Philips-light source in the luminaires. The ALF1000 passed the test and has been 100% approved.



#### Innovatief armatuur

With the ALF1000 lighting luminaire, Agrolux once again proves that it is very capable of innovation. The ALF1000 2.1 is completely new and deviates off the beaten path. The electronic pre-connected lighting luminaires are provided with own or Philips electronics, a semi-open reflector (from Germany) with heat shield and a double-ended 1000watt bulb from Philips.

#### Housing

The ALF1000 housing is made of powder coated white aluminium and is extremely compact in design. With the use of energy efficient electronics, a big cooling fins-surface and a heat shield, it stays remarkably cool. Do not let your decision be based on the position of the electronics but on the information we as a company can provide.



#### Pre-switching

The ALF1000-luminaires are equipped with an electronic pre-switched ballast. Typical of the ALF1000 is the position of the electronic pre-switched ballast. As a standard, the electronic ballast used is supplied with a voltage protector, making damage due to overvoltage a thing of the past. Even in the case of voltage fluctuating, the electronics ensures a constant output. In this model EVSAs or Philips-drivers are used.

#### Low inrush current

All luminaires are supplied with a low inrush current. The inrush current is the peak load that occurs when starting up an installation. By using a low inrush current it is possible to use cheaper switch materials.

### **Semi-closed reflector system**

The ALF1000's reflector system is semi-closed. The system was developed and produced in Germany and ensures that the temperature of the bulb does not rise too high (maximum of ca. 500 degrees). If the temperature of the bulb gets too high (higher than 550 degrees) it can result in early wear and tear.

To ensure that the electronics stay cool, a heat shield is fitted on the reflector. The reflector can be disassembled very easily and can be easily cleaned.

### **Efficient bulbs**

The bulbs used are from the AUVL and Philips brands. The bulbs are delivered in the so-called double-ended design. The output of the AUVL/Philips-bulb improves every year; currently the warranty value is 2100umol at 100 hours. The bulbs have a warranty of four years with a maximum of 10 000 burning hours for these four years. The 1000w-bulb of AUVL and Philips is interchangeable.

### **Installation of the luminaires**

Installation of the luminaires is simple. All our luminaires are equipped with Wieland-plug systems. This dust- and waterproof plug-and-play system, ensures fast and safe installation.

## ALF 750 & 600

The design of the ALF750 is now even more efficient: we now use a double-ended bulb where previously a single-ended bulb was used. This means that even more light is generated with the same energy usage. The ALF750 is a handy variation between the economical ALF600 and the powerful ALF1000. The ALF750 can be used to achieve a high output of light with the least addition of heat to the greenhouse. An ideal luminaire for use in low greenhouses.



The ALF600 is the most complete 600 watt-luminaire with most yield. The ALF600 has been tested by Philips, Philip's electronic ballast and light source has been approved for use in the ALF600. The luminaire was tested on effectivity, yield, thermal management and bulb voltage. The ALF600 was approved on all requirements!

### Housing

The ALF600 and ALF750-luminaires' housing is made of powder coated white aluminium and extremely compact in design. By using energy efficient electronics and cooling fins' on the housing, it stays remarkably cool.

### Pre-switching

The ALF600 and ALF750-luminaires are equipped with an American electronic pre-switched ballast or one of Philips. The electronic ballast used is supplied (as a standard) with a voltage protector and features a low inrush current. Even in the case of fluctuating voltage, the electronics ensures a constant output.

### Low inrush current

The inrush current is the peak load that occurs when starting up an installation. By using a low inrush current it is possible to use cheaper switch materials.

### Bulbs

The bulbs used are either General Electric (GE) or Philips.

### Reflector

The closed midi reflector system is made of a specially treated aluminium alloy type, MIRO 9. The light reflection of the material is extremely high: 95%. By using the hammer blow pattern, the reflector system is perfectly even, radiating deeply into the crop. The reflectors can be disassembled very easily and can be easily cleaned.



### Installation of luminaires

Installation of the luminaires are simple. All our luminaires are provided with Wieland-plug systems. This dust- and waterproof plug-and-play system, ensures faster and safer installation. For installing luminaires to a C-profile or trellis, 3D-wirebrackets are used. The wire brackets are very easy to install and ensures that your luminaires hangs perfectly straight, ensuring equal spread light!

## ALF 315

The ALF 315 offers a special combination of efficient use, long lifespan and a colour temperature of your choice. Thanks to the clear, 'white' light, the ALF 315 is the best luminaire for use in research centres, climate cells and cultivation areas.

### Light temperature of your choice

Do you need luminaires with 'white light'? Up to now you had to rely on luminaires with a traditional Metal Halide light source. That is why the ALF 315 is developed, suitable for Metal Halide light sources. There are two types of light sources with each an own colour temperature: 4200K or 3100K. This allows you to choose the colour spectrum which suits with your ideal illumination recipe.



### Easy to install

The ALF315 luminaire makes use of the conventional input of 230V. This allows it to be installed easily in smaller spaces, where smaller quantities are needed. You will save because complex installations are not necessary, while you still have maximum benefit from the lighting.

### Long lifespan

This luminaire was made in the same chassis as the successful ALF 1000. That makes the ALF 315 just as user friendly and efficient. The ALF 315 is easy to put in use and has a long lifespan through the perfect combination of lamp voltage and thermal management.

### Greatly improved technique

The technique of the ALF 315 is greatly improved compared to luminaires with a traditional Metal Halide light source. To protect a Metal Halide light source, a glass plate and fans were required. Now no longer: the ALF 315 uses a Philips light source which is protected with double glazing. The result is a simpler and safer construction.

### Specifications of the ALF 315

- Simple maintenance: washing the reflector is easy
- Compactness: not a lot of shade in the glasswork
- Simple to install, with several type of clamps
- Lowest temperature of the control gear in the market (long lifespan)
- High  $\mu\text{mol}/\text{m}^2/\text{s}$  output: 550  $\mu\text{mol}$  per luminaire
- Colour selection: 4200K or 3100K
- Low power consumption
- Voltage protection
- 315W/230V
- IP23 aluminium casing
- 50/60 Hz

## **AiF 250**

The AiF 250 is the only luminaire in the world that can be used as interlighting in a 400V variant (instead of 230V). We specially developed this variant to use in combination with the Son-T luminaires. Since both are connected to 400V, they can easily be used in the same installation.

### **Optimum light output without reflector**

Another advantage of the AiF 250: there is no reflector required for this luminaire. The luminaire is hanging free between the crops, aided by a C profile. This yields an optimal light output; the light can be spread 360 degrees around the luminaire. In addition, you will never have to wash the reflector. This luminaire is extremely suitable for vegetable crops with a high density of plantation.

### **Ideal interlighting in the glasshouse**

The AiF 250 is already successfully applied in various projects, including cucumber greenhouses. Growers choose to install a part of the light above the crops and a smaller part between the crops. For that interlighting the AiF 250 is ideally suited. By placing these luminaires between the crops the lighting on the plants can be lighted 'more subdued'.

### **Efficiency is paramount**

You will not need special lamps for the AiF 250: although this luminaire has an input of 400V, the light source is a 230 lamp of General Electric. The installation is also focused on efficiency: the luminaire can easily be mounted with clamps. And when it comes to efficiency, the high light output is of course also important. Because the luminaires do not use much current, they provide much light for the invested power consumption.

### **Specifications of the AiF 250**

- 250W/400V
- Power consumption 285 watt (+/- 3%)
- Power factor >0,98
- No reflector
- Agrolux EVSA
- Light source General Electric LU/psl/250w-230v
- 50/60 Hz
- High  $\mu\text{mol}/\text{m}^2/\text{s}$  output: 28.000 Lux - 367  $\mu\text{mol}$  per luminaire
- Simple to install, with clamps

## Led

Led-lighting is currently growing rapidly and Luiten Greenhouses is trying to keep up with this growing industry and deliver it's costumers the newest technology in led.

Luiten Greenhouse offers led-tubes in almost every desired colour-combination. All led-tubes conform to the IP65-norm and are therefore very suitable in extremely humid (germination) spaces. The tubes are delivered (as a standard) in lengths of 1.20 metre and has a 2 metre connecting cable. The interlight-modules are delivered in lengths of 2.50 metres. There are two possible voltage connections: 230V and 400v.



### **LED and Son-T: the ideal mix**

Luiten Greenhouses are happy to provide you with smart lighting solutions. For example, a combination of led and Son-T. Hereby optimising your crop and cultivation. In many cases the greenhouse will not be lit optimally with only the use of Son-T. This is especially the case in the darkest weeks of the year and results in the crops not reaching their highest efficiency. Besides that, Son-T lighting gives off a lot of warmth, which many crops can't tolerate. Led ensures that the plants receive more light without the added heat. This ensures that the crops can grow optimally during all periods.

### **Which lighting suits your situation the best?**

Every situation, greenhouse and type requires a unique recipe to ensure optimum use of light and warmth. If that recipe is found, there's no need to shift with plant information or the number of light hours per day. We like to think along with you about the optimal solution for your company.