



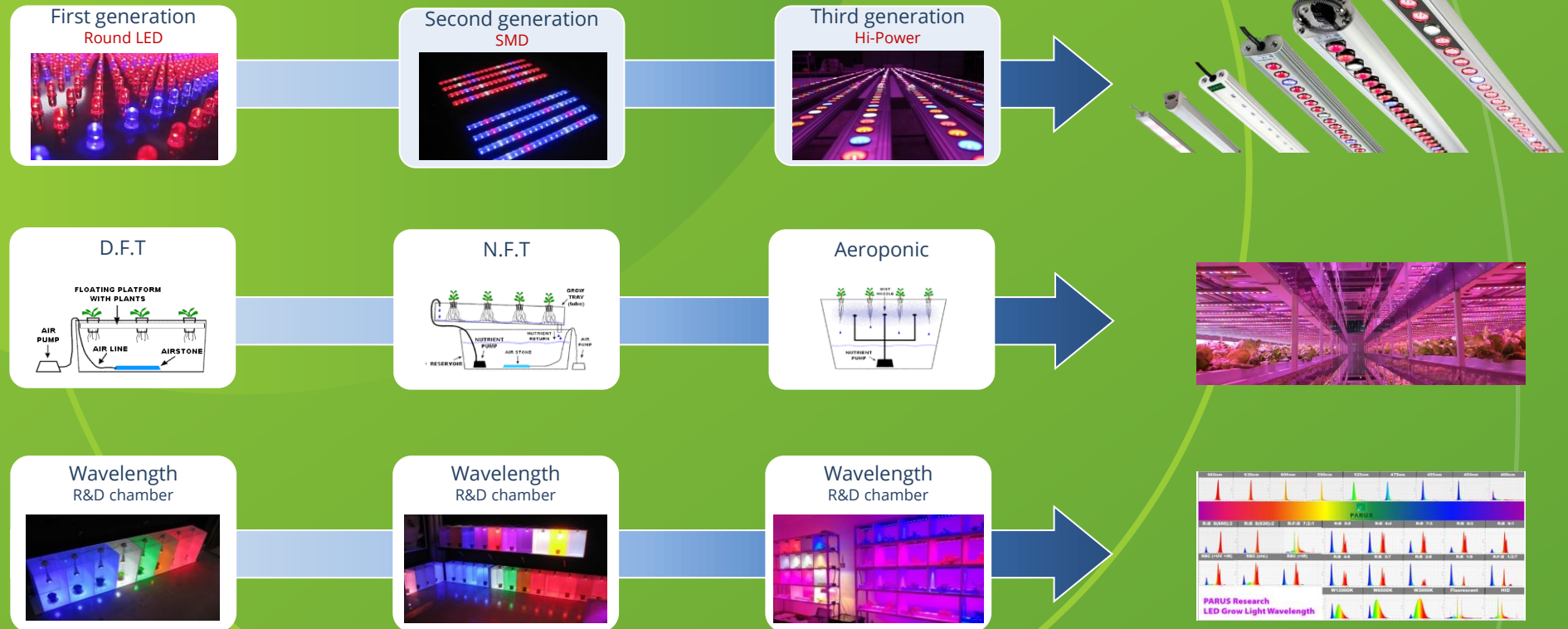
# MAGNUS LIGHT

LINEAR GROW LIGHT

2020

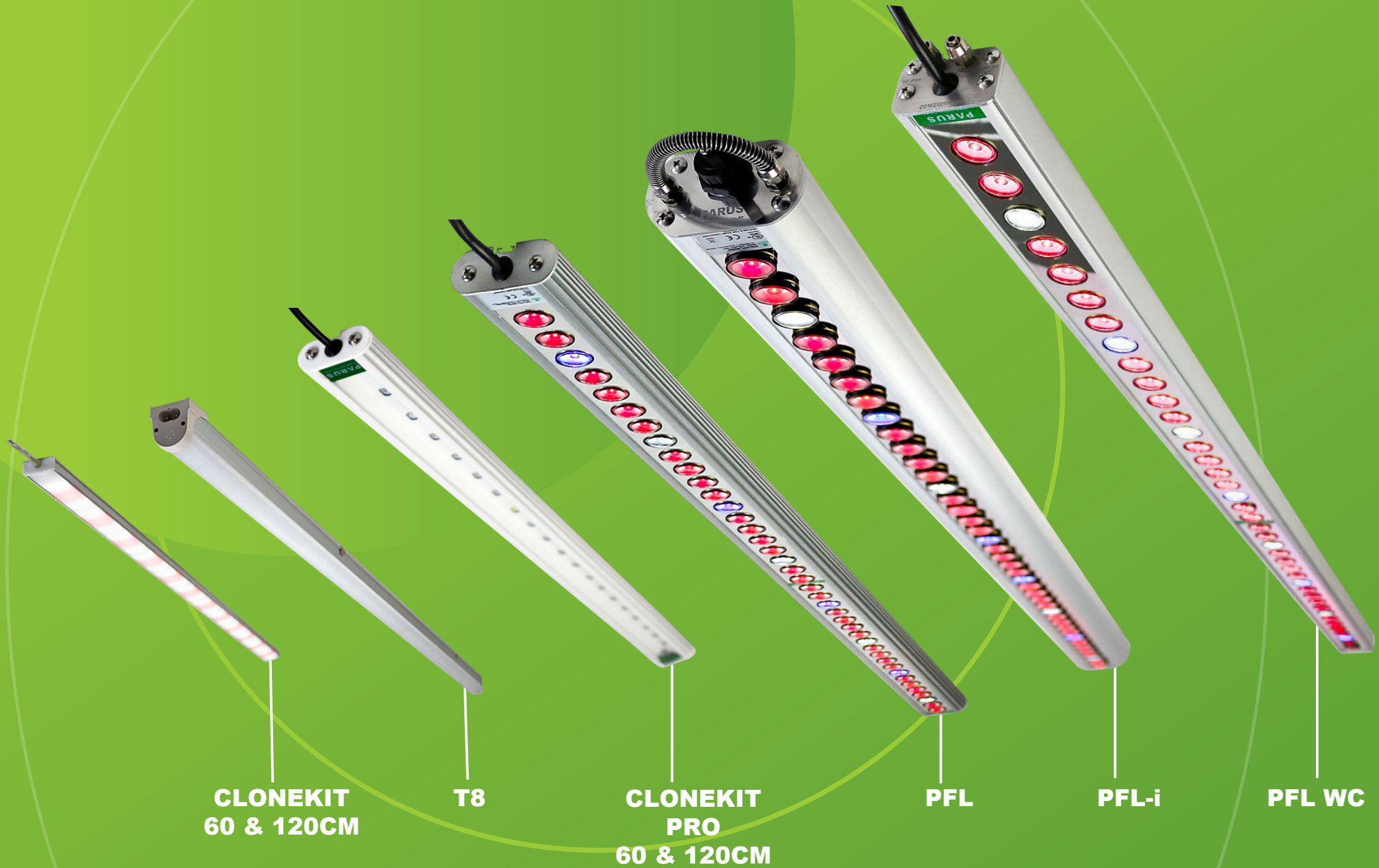
# THE DEVELOPMENT OF THE PFL SERIES

Providing stable products using 18 years of experience, know-how and ongoing development.

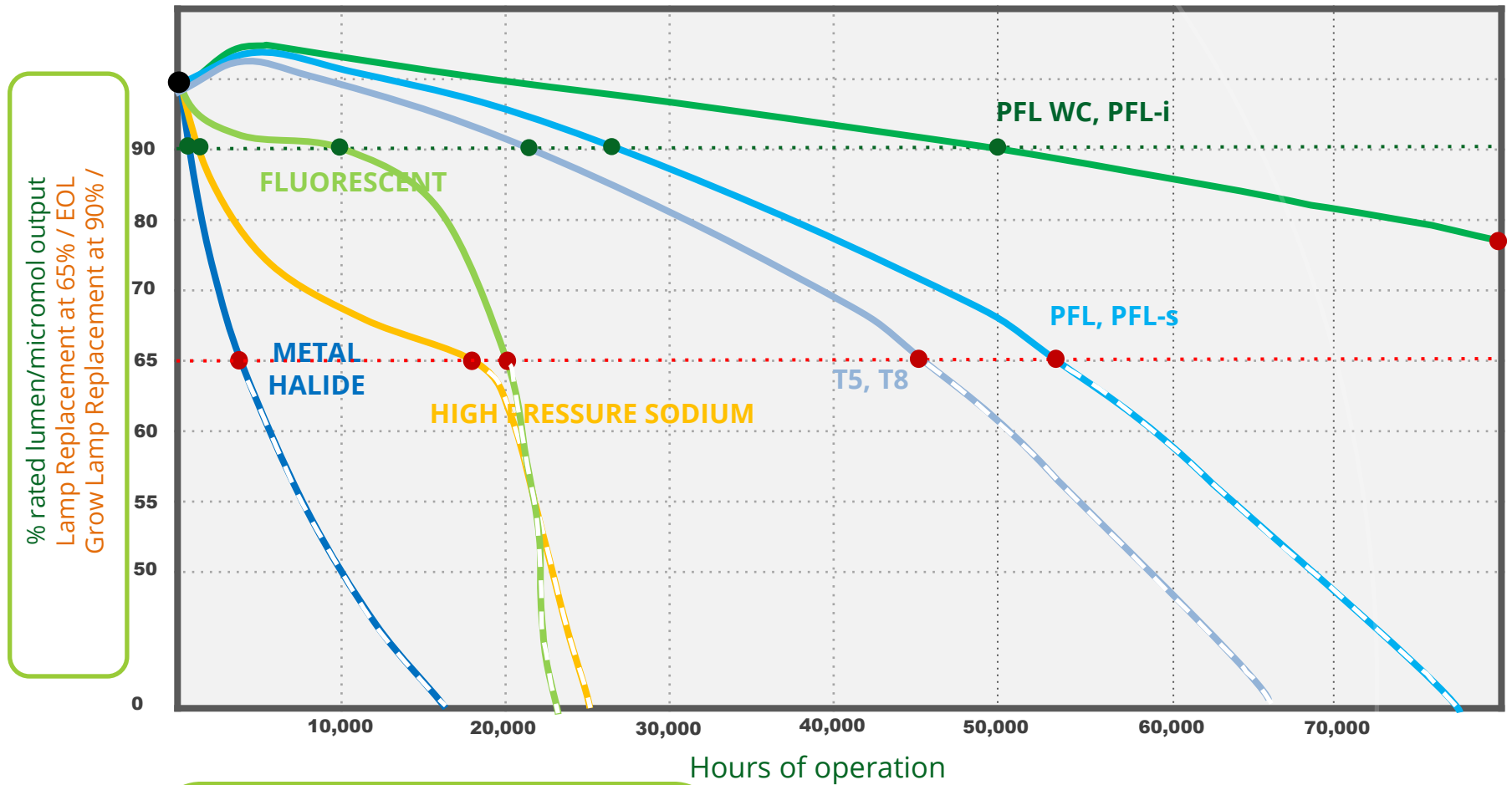




# THE DEVELOPMENT OF THE PFL SERIES



# ESTIMATED LAMP LIFE CYCLE



Efficiency  
**95%**

PPF/W  
**3,6**

Control  
**Wi-Fi**

Angle  
**30°~  
140°**

**5**  
Years  
Warranty

# Selection process of the multi-layer led grow lighting

**Step 1**

**Crops ?**

**Select crops to be applied.**

Check PPFD required for the crop

The effective wavelength selected crops

**Step 2**

**Cultivation ?**

**Select the cultivation method.**

Growing?  
Blooming?  
Germination?  
Seedlings?  
Cuttings?  
Tissue culture?  
N.F.T?  
Aeroponics?

**Step 3**

**Shelf size ?**

**Select the size of the shelf.**

LED spacing of the crop according to the Shelf (height), Installation interval of the LED according to the required light intensity of the crop  
How to choose easy to install LED, depending on the type of Shelf

**Step 4**

**Control & Installations**

**Select the easiest and safest way to install**

The control method of the selected LED  
Wavelength control ?  
Dimming Control ?  
On/Off control ?  
Wi-Fi control?  
  
A single control?  
Multiple and group control ?

# MAGNUS LIGHT SPECTRUM

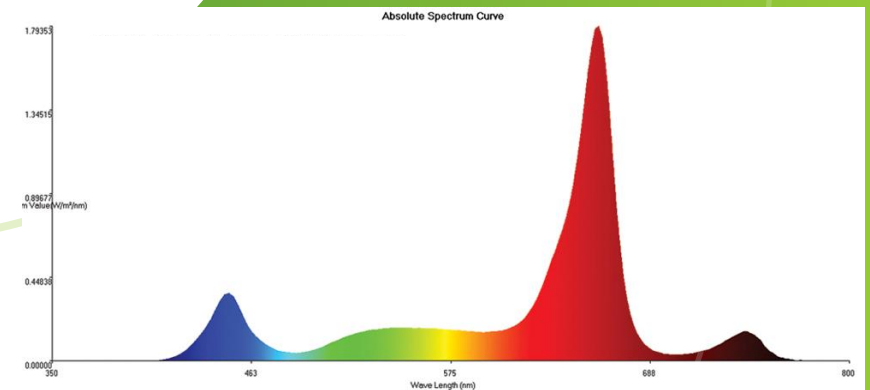
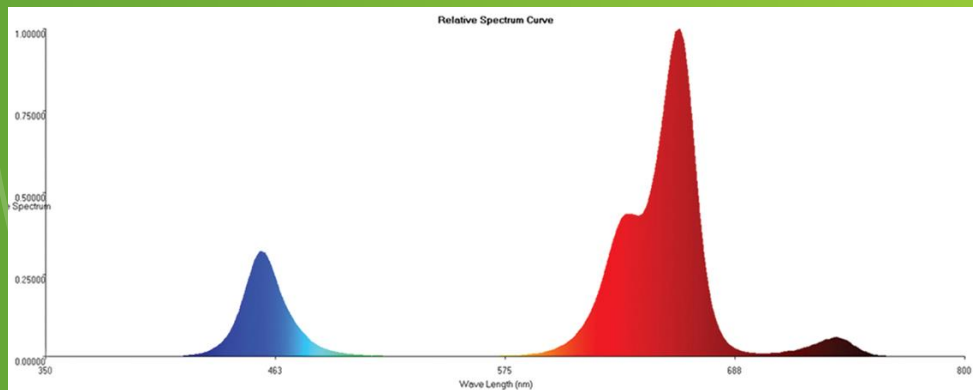
## PRO Spectrum (RBFc)

The PRO version has a better grow efficiency because all the light output is used by the plant. Making it the most efficient LED in the current industry.



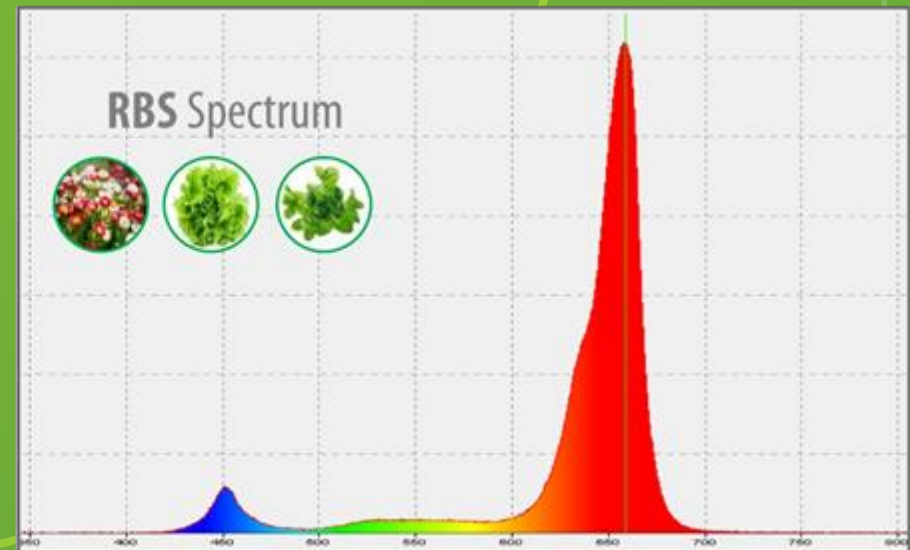
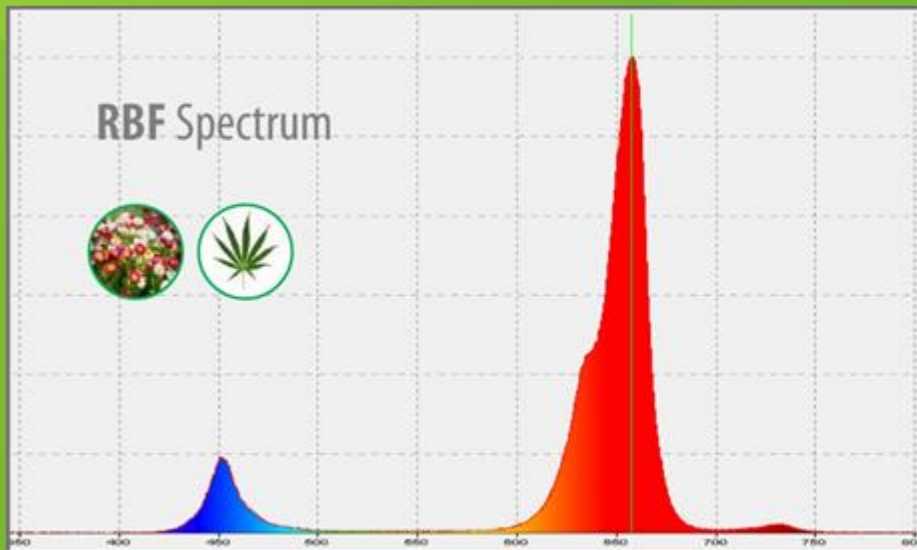
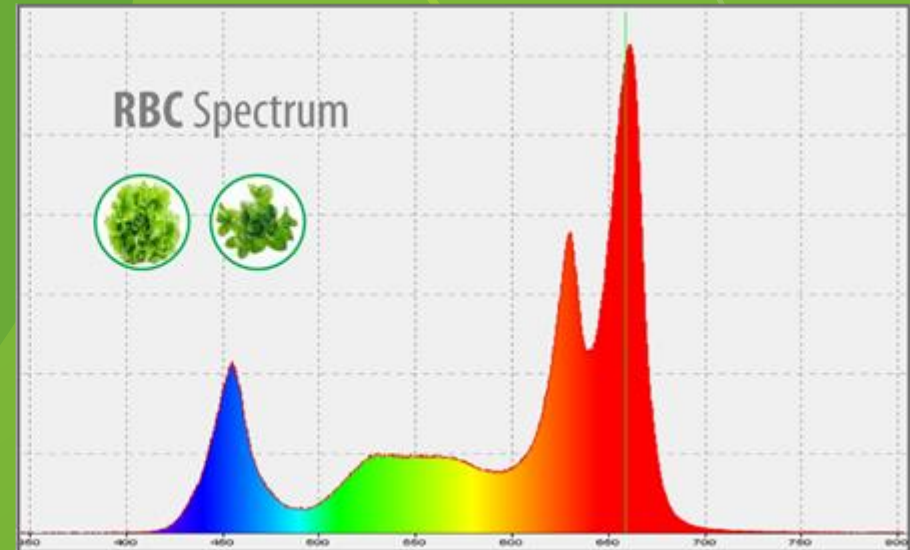
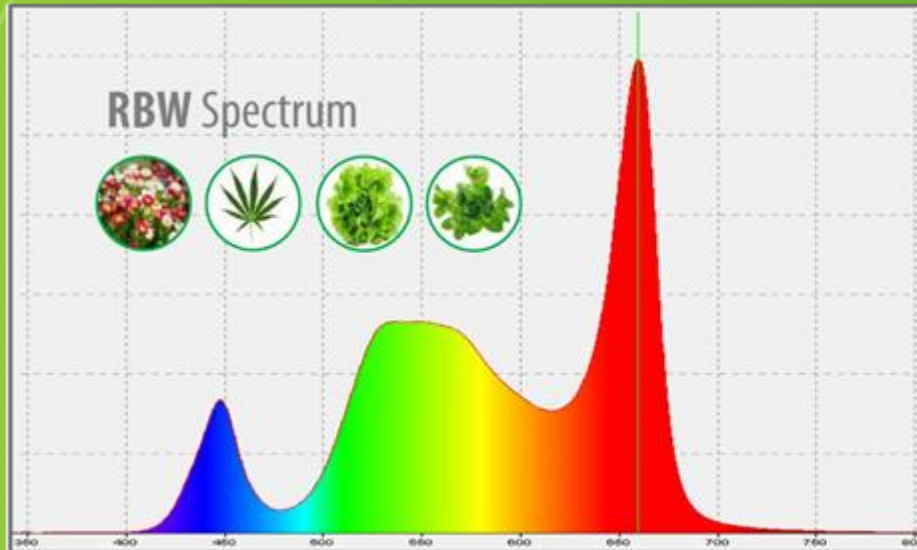
## WHITE Spectrum (RBWFc)

The WHITE version has more green and yellow colors than used by the plant. This makes a white visible light color what some growers prefer but resulting in a little bit less efficient spectrum.



# MAGNUS LIGHT ADDITIONAL SPECTRUM

Magnus Light offers 4 different light spectrums each suitable for different crops.

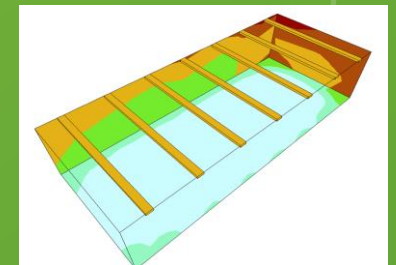
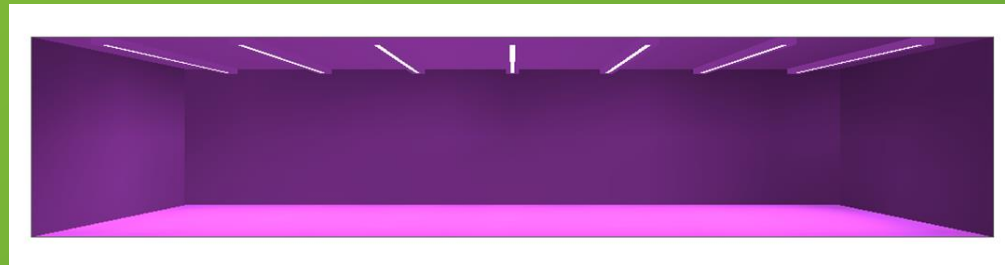
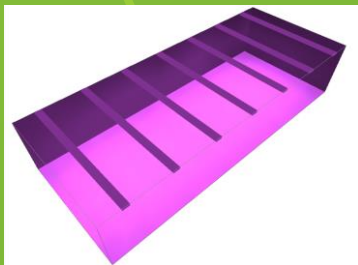
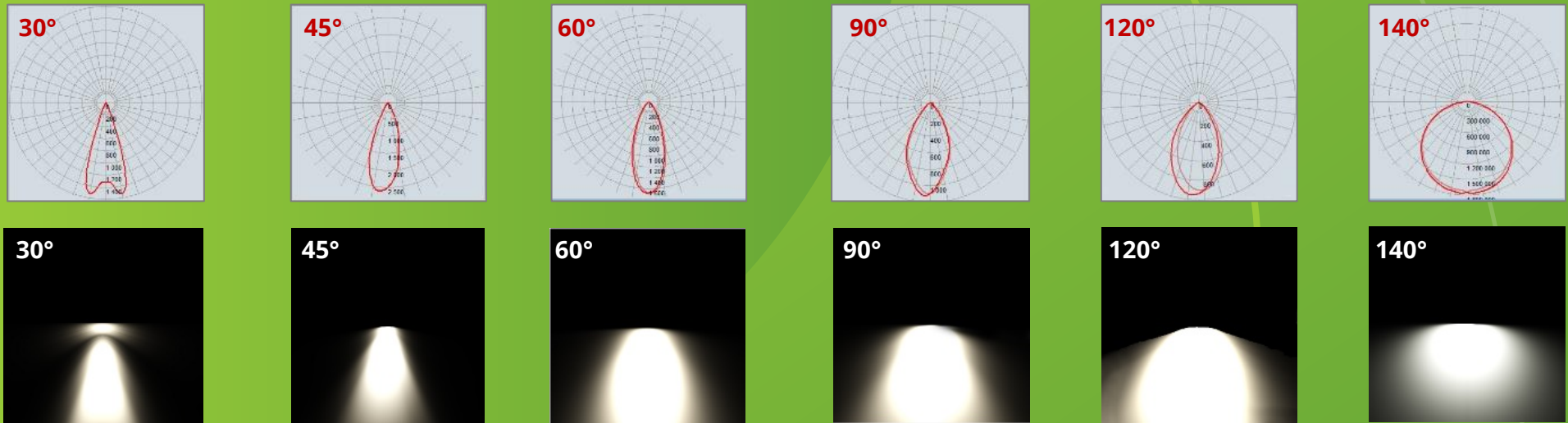




# MAGNUS LIGHT OPTIONAL LENSES

Selection of the LED angle

Standard





# CONTROL & INSTALLATION



- ✓ Single/Group dimming control
- ✓ Red & Blue(white) separated spectrum dimming
- ✓ Local mode & remote mode
- ✓ Easy connection for LED, SMPS, control Line
- ✓ Integrated SMPS model (150Watt ~ 2,000watt)
- ✓ Waterproof IP65
- ✓ Silver aluminum design



Local  
Dimmer

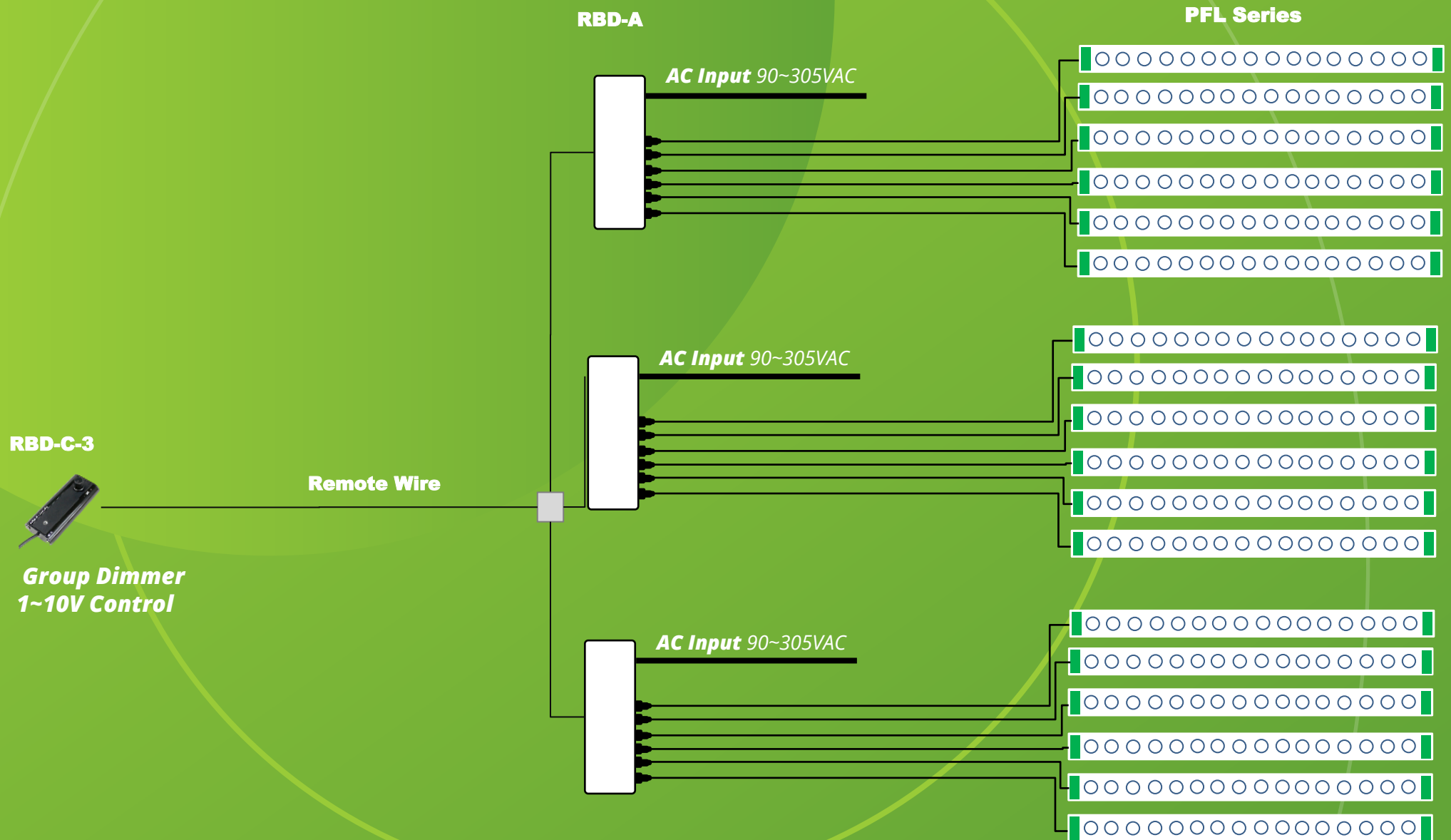
Select  
Switch

LED Line

Remote  
Line

Power Input  
90~308VAC

# CONTROL & INSTALLATION



# CLONEKIT PRO



## High efficiency

Excellent heatsink for LED grow light design

Energy savings of up to 75% compared to fluorescent lamp

PPFD( $\mu\text{mol m}^{-2}\text{s}^{-1}$ ) of up to 15% compared to other LED grow light lamp

Universal AC Standard 85~307VAC, Hi-Voltage 180 ~ 528VAC, 47~63Hz

Efficiency 95%, PFC >0.98

## Safety

Safety Design CE, LVD, EMC, UL, cUL, EAC, IP65, IP67(option)

## Easy Control & Installation

LED spectrum can be selected – RBS, RBF, RBW

Single dimming, Group dimming, Wi-Fi control

Easy control & Installation

## Increased growth

More than 20% of the crop growth

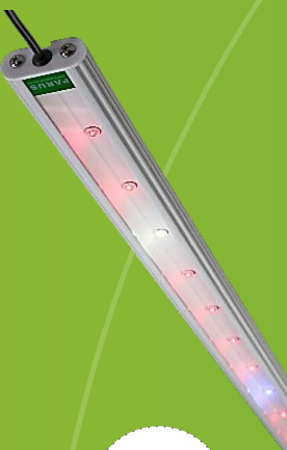
Uniform, produces high-quality plant.

## Long Lifetime

50,000hr life time

3 years warranty

# CLONEKIT PRO



Efficiency  
**95%**

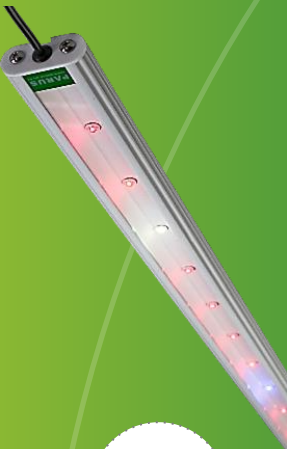
PPF/W  
**3,3**

Angle  
**30°~140°**

UL cUL  
CE EMC  
EAC

	CLONE KIT PRO		600mm	1200mm	1500mm	1800mm
Product	Power consumption			Max. 50 watt		Max. 70 watt
	Dimension(LxWxH)		600mm x 45mm x 19mm	600mm x 45mm x 19mm	600mm x 45mm x 19mm	600mm x 45mm x 19mm
	Weight		0,81Kg	1,61Kg	2,01Kg	2,4Kg
Power	AC input voltage range		Free voltage 90~305VAC, 47~63Hz			
	SMPS mode (PSU)		DC Current Design(C.V, C.C Mode)			
	Protection		Short circuit, Overload, Over voltage			
	Power factor		Efficiency ≥95%, PFC ≥0.98			
	Total harmonic distortion		THD<20%(@load≥50%/115VAC,230VAC; @load≥75%/277VAC)			
	Inrush current		Cold Start 70A(twidth=1010μs measured at 50% Ipeak) at 230VAC; Per NEMA 410			
LEDs	Spectrum ratio (R:B:O)		RBS, RBF, RBW			
	Heat sink type		Cooling by free air convection			
Heat sink	Frame Material	Body	Aluminium			
		PCB	Metal PCB(aluminium)			
		Heat conduction	2.0 w/m.k			
		Thermal resistance	0.20 °C/w			
Heat value	BTU/h		36	72	90	107
Efficiency	PPF (μmol/s) RBS Spectrum Standard		32.8 μmol/s	65.7 μmol/s	82.1 μmol/s	98.5 μmol/s
	PPF/W (μmol/j)		3,3/RBS, 3,0/RBF, 3,3/RBW			
	PPFD (μmol m-2s-1) RBS Spectrum Standard		984 μmol m-2s-1(measure the distance 100mm) 293 μmol m-2s-1(measure the distance 200mm) 166 μmol m-2s-1(measure the distance 300mm) 107 μmol m-2s-1(measure the distance 500mm)			
Control	Dimming control		Single Dimming, Group Dimming, Wi-Fi Control			
	Pulse / Duty rate		400μs / 0~100%			
IP class	IP65		complete protection against contact, Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.			
Ambient temperature	Storage temp.		-30°C ~ 85°C			
	Operation temp.		~35°C			
Lens Angle	Lamp angle		30°, 45°, 60°, 90°, 120°			
Life time			Over 50,000hr			
Safety	Standard		CE, EMC, UL,cUL			
Warranty			5 years			





Efficiency  
**95%**

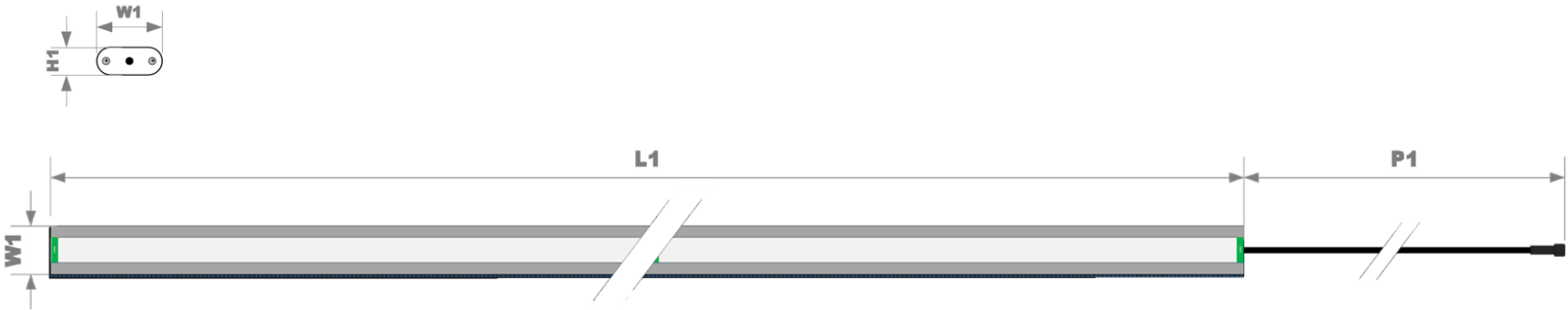
PPF/W  
**3,3**

Angle  
**30°~  
140°**

UL cUL  
CE EMC  
EAC

Clonekit PRO Dimensions

Model	Multi-Layer Led Grow Light	Dimensions(mm/inch)				Weight (gr/lb)
		L1	W1	H1	P1	
Clone kit PRO 600		600/23.62	45/1.77	19/0.74	2000/78.74	465/1.02
Clone kit PRO 1200		1200/47.24	45/1.77	19/0.74	2000/78.74	930/2.05
Clone kit PRO 1500		1500/59.05	45/1.77	19/0.74	2000/78.74	1163/2.56
Clone kit PRO 1800		1800/70.86	45/1.77	19/0.74	2000/78.74	1395/3.07



## PFL-s Mounting Options



### Clip Mount - Standard

Clip mount the default mount of the PFL-s.

Fixtures are supplied with spring clips for surface mount or depending on the angle installations.



x 2



### Optional - Suspend Mount

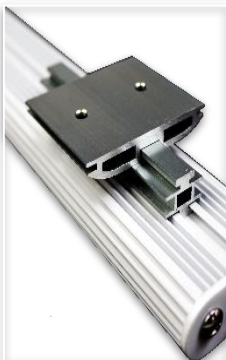
Simple and quick installation.

Using wire, you can adjust the PFL-s installation height.

Remove the screws and install the panels



x 2



### Optional - Slide Mount

Installation by adjustment depending on the size of the shelf.

Installation in accordance with the irradiation direction of the PFL-s.

Vertical installation, Depending on the angle installation



x 2

Efficiency  
**95%**

PPF/W  
**3,3**

Angle  
**30°~  
140°**

UL cUL  
CE EMC  
EAC

# CLONEKIT



## High efficiency

Heatsink for LED grow light design

Energy savings of up to 75% compared to fluorescent lamp

One to one replacement to T5 fluorescent lamp

AC Standard 85~245VAC, 50/60Hz

Efficiency 85%, PFC >0.85

## Safety

Safety Design CE, LVD, EMC

## More growth

More than 10% of the crop growth

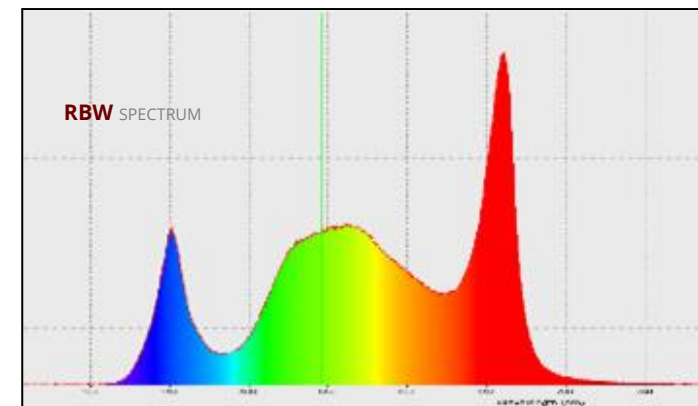
Uniform, produces high-quality plant.

## Long Lifetime

30,000hr life time

3 years warranty

## Applicable spectrum



CLONEKIT



PPF/W  
2.1

Efficiency  
85%

Angle  
140°

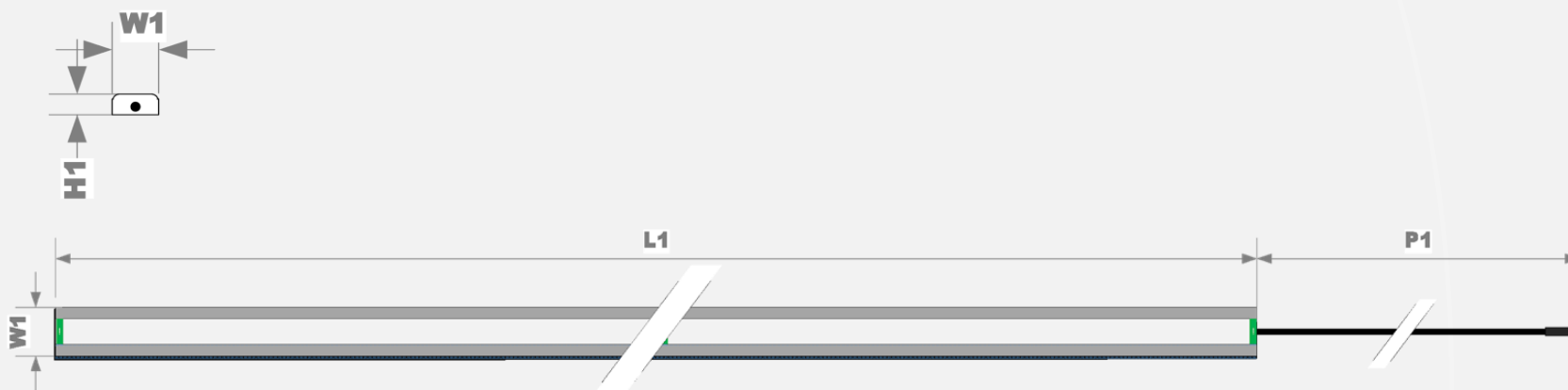
CE  
standard

	MODEL NAME		CLONEKIT 600mm		CLONEKIT 1200mm	
Product	Power consumption		7.5 watt		15 watt	
	Dimension(LxWxH)		600mm x 17mm x 8mm		600mm x 17mm x 8mm	
	Weight		0,114Kg		0,191Kg	
Power	AC input voltage range		Free voltage 90~245VAC, 50~60Hz			
	SMPS mode (PSU)		DC Current Design(C.V, C.C Mode)			
	Protection		Short circuit, Overload, Over voltage			
	Power factor		Over 85%			
LEDs	Spectrum ratio (R:B:O)		RBW (1:0:2)			
Heat sink	Heat sink type		Cooling by free air convention			
	Frame Material	Body	Aluminium			
		PCB	Standard PCB			
		Heat conduction	1.2 w/m.k			
		Thermal resistance	0.12 °C/w			
Heat value	BTU/h		18		36	
Efficiency	PPFD (μmol m-2s-1)		85 μmol m-2 s-1 (Measure the distance 100mm)			
	PPF/W (μmol/j)		15.7 μmol/s		34,4 μmol/s	
IP class	IP65		complete protection against contact, Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.			
Ambient temperature	Storage temp.		-30°C ~ 85°C			
	Operation temp.		~35°C			
Lens Angle	Lamp angle		140°			
Life time			Over 50,000hr			
Safety	Standard		CE, EMC, UL,cUL			
Warranty			3 years			

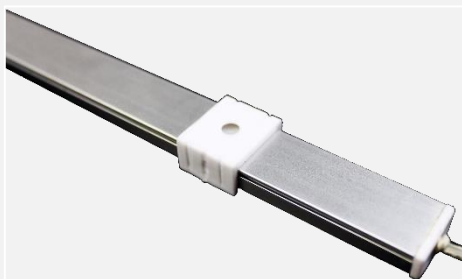


## Clone kit Dimensions

Model	Multi-Layer Led Grow Light	Dimensions(mm/inch)				Weight (gr/lb)
		L1	W1	H1	P1	
Clonekit 600		600/23.62	17/0.66	8.1/0.31	2000/78.74	89/0.19
Clonekit 1200		1200/47.24	17/0.66	8.1/0.31	2000/78.74	174/0.38



## Clonekit Mounting



### Standard Clip Mount

Clip mount the default mount of the T5 Clone kit.

Fixtures are supplied with clips for surface mount or depending on the angle installations.

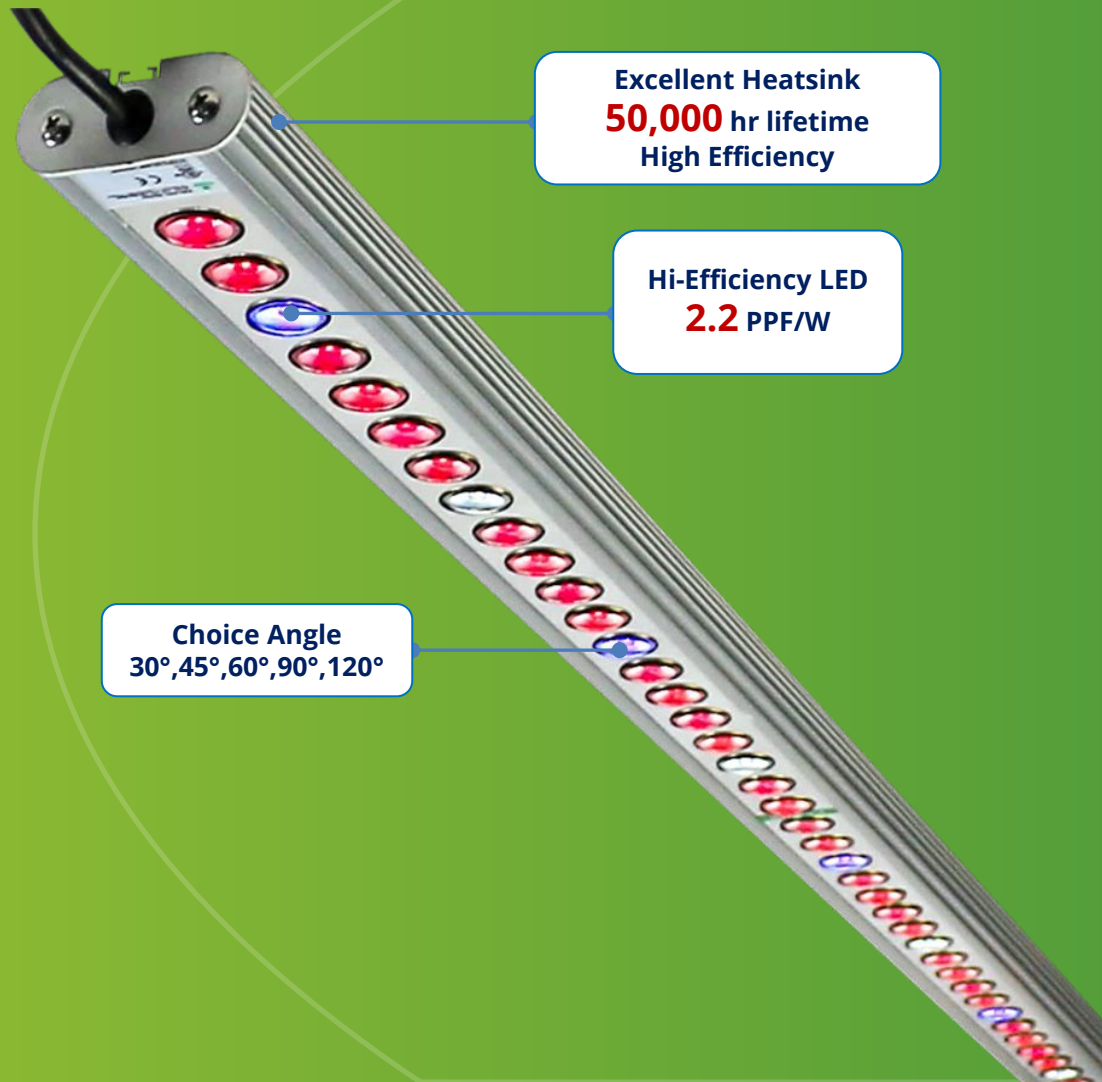
PPF/W  
2.1

Efficiency  
85%

Angle  
140°

CE  
standard

# PFL



Excellent Heatsink  
**50,000** hr lifetime  
High Efficiency

Hi-Efficiency LED  
**2.2** PPF/W

Choice Angle  
30°, 45°, 60°, 90°, 120°

## High efficiency

Excellent heatsink for LED grow light design

Energy savings of up to 75% compared to fluorescent lamp

PPFD( $\mu\text{mol m}^{-2}\text{s}^{-1}$ ) of up to 15% compared to other LED grow light lamp

Universal AC Standard 85~307VAC, Hi-Voltage 180 ~ 528VAC, 47~63Hz

Efficiency 95%, PFC >0.98

## Safety

Safety Design CE, LVD, EMC, UL, cUL, EAC, IP65, IP67(option)

## Easy Control & Installation

Adjustable LED spectrum - RBC

LED spectrum can be selected – RBS, RBF, RBC, RBW

Single dimming, Group dimming

Easy control & Installation

## More growth

More than 20% of the crop growth

Uniform, produces high-quality plant.

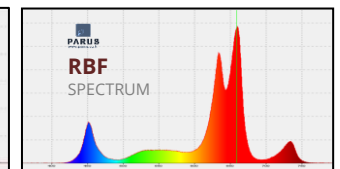
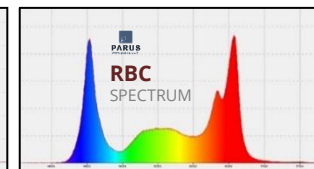
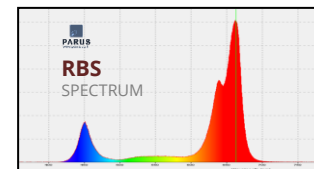
## Long Lifetime

50,000hr lifetime

3 years warranty

## Applicable spectrum

Other spectral orders can be made.



# PFL



Efficiency  
**95%**

PPF/W  
**2.2**

Angle  
**30°~  
120°**

UL cUL  
CE EMC  
EAC

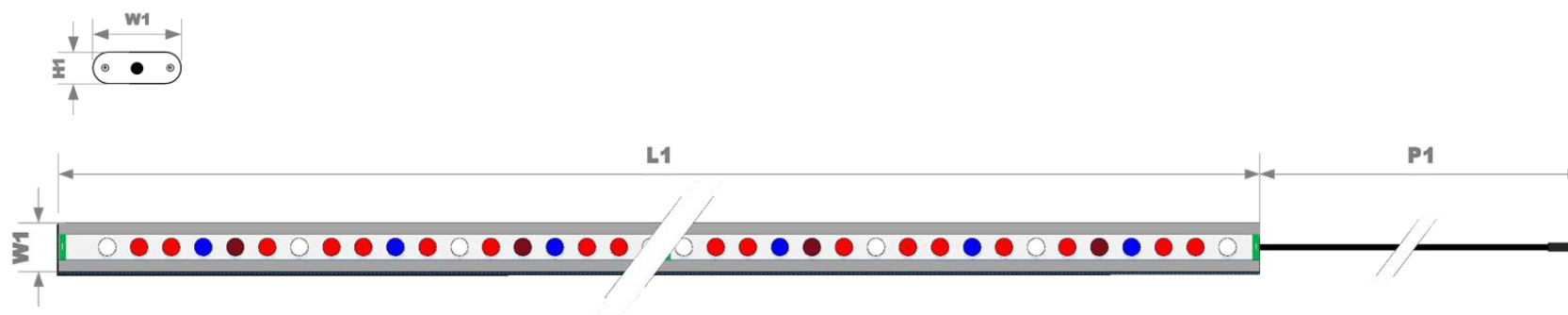
	MODEL NAME		PGL-PFL-600	PGLPFL 1200	PGL-PFL-1200	PGL-PFL-1200	PGL-PFL-1200	PGL-PFL-1200
Product	Power consumption		35 watt	Max. 50 watt	Max 70 watt	Max 85 watt	Max 105 watt	Max. 140 watt
Power	AC input voltage range		Free voltage 90~305VAC, 47~63Hz					
	SMPS mode (PSU)		DC Current Design(C.V, C.C Mode)					
	Protection		Short circuit, Overload, Over voltage					
	Power factor		Efficiency $\geq 95\%$ , PFC $\geq 0.98$					
	Total harmonic distortion		THD<20%(@load $\geq 50\%$ /115VAC,230VAC; @load $\geq 75\%$ /277VAC)					
	Inrush current		Cold Start 70A(twidth=1010 $\mu$ s measured at 50% Ipeak) at 230VAC; Per NEMA 410					
LEDs	Spectrum ratio (R:B:O)		RBS, RBC, RBF, RBW					
Heat sink	Heat sink type		Cooling by free air convection					
	Frame Material	Body	Aluminium					
		PCB	Metal PCB(aluminium)					
		Heat conduction	2.0 w/m.k					
		Thermal resistance	0.20 °C/w					
Heat value	BTU/h		84	119	167	203	251	334
Efficiency	PPF ( $\mu$ mol/s) RBS Spectrum Standard		77 $\mu$ mol/s	110 $\mu$ mol/s	154 $\mu$ mol/s	187 $\mu$ mol/s	231 $\mu$ mol/s	308 $\mu$ mol/s
	PPF/W ( $\mu$ mol/j)		2.2/RBS, 2.1/RBC, 1.68/RBF					
	PPFD ( $\mu$ mol m-2s-1) RBS Spectrum Standard		386 $\mu$ mol m-2s-1(measure the distance 200mm) 232 $\mu$ mol m-2s-1(measure the distance 300mm) 145 $\mu$ mol m-2s-1(measure the distance 500mm) 51 $\mu$ mol m-2s-1(measure the distance 1,000mm) 31 $\mu$ mol m-2s-1(measure the distance 1,500mm)					
Control	Dimming control		Single Dimming, Group Dimming, Wi-Fi Control					
	Pulse / Duty rate		400 $\mu$ s / 0~100%					
IP class	IP65		complete protection against contact, Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.					
Ambient temperature	Storage temp.		-30°C ~ 85°C					
	Operation temp.		~35°C					
Lens Angle	Lamp angle		30°, 45°, 60°, 90°, 120°					
Life time			Over 50,000hr					
Safety	Standard		CE, EMC, UL,cUL					
Warranty			5 years					

# PFL



## PFL Dimensions

Model	Multi-Layer Led Grow Light	Dimensions(mm/inch)				Weight (gr/lb)
		L1	W1	H1	P1	
PGL-PFL 600		600/23.62	60/2.36	22/0.86	2000/78.74	832/1.83
PGL-PFL 900		900/35.43	60/2.36	22/0.86	2000/78.74	1248/2.75
PGL-PFL 1200		1200/47.24	60/2.36	22/0.86	2000/78.74	1664/3.66
PGL-PFL 1500		1500/59.05	60/2.36	22/0.86	2000/78.74	2080/4.58
PGL-PFL 1800		1800/70.86	60/2.36	22/0.86	2000/78.74	2496/5.50
PGL-PFL 2400		2400/94.48	60/2.36	22/0.86	2000/78.74	3328/7.33



Efficiency  
**95%**

PPF/W  
**2.2**

Angle  
**30°~  
120°**

UL cUL  
CE EMC  
EAC



## PFL - Mounting Options



**Clip Mount  
STANDARD**

Clip mount the default mount of the PFL.  
Fixtures are supplied with spring clips for surface mount or depending on the angle installations.



x 2



**Suspend Mount  
OPTION**

Simple and quick installation.  
Using wire, you can adjust the PFL installation height.  
Remove the screws and install the panels



x 2



**Slide Mount  
OPTION**

Installation by adjustment depending on the size of the shelf.  
Installation in accordance with the irradiation direction of the PFL.  
Vertical installation, Depending on the angle installation



x 2



**Slide Suspend  
OPTION**

Easy and quick installation with slide  
Using wire, you can adjust the PFL installation height.  
Remove the screws and install the panels



x 2

Efficiency  
**95%**

PPF/W  
**2.2**

Angle  
**30°~  
120°**

UL cUL  
CE EMC  
EAC

# PFL WC



Water Cool  
**100,000** hr  
lifetime  
High efficiency

Hi-Efficiency  
LED  
**2.42** PPF/W

Multiple Angle  
30°, 45°, 60°, 90°, 120°

## High efficiency

Water cool LED grow light design

Energy savings of up to 85% compared to fluorescent lamp

PPFD of up to 25% compared to other LED grow light lamp

Universal AC Standard 85~307VAC, Hi-Voltage 180 ~ 528VAC, 47~63Hz

Efficiency 95%, PFC >0.98

Easy control & Installation

## Safety

Safety Design CE, LVD, EMC, UL, cUL, EAC, IP65, IP67(option)

## Easy Control

Adjustable LED spectrum - RBC

LED spectrum can be selected – RBS, RBF, RBC, RBW

Single dimming, Group dimming, Wi-Fi control

## More growth

More than 25% of the crop growth

Uniform, produces high-quality plant.

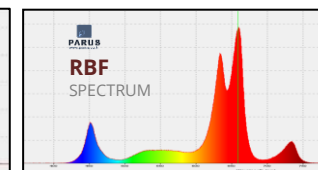
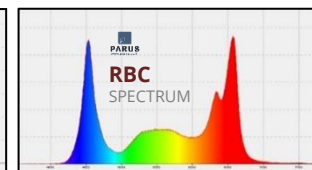
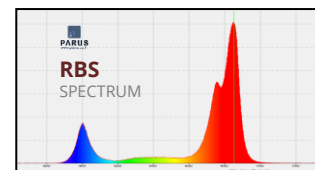
## Long Lifetime

100,000hr life time

3 years warranty

## Applicable spectrum

Other spectral orders can be made.



PPF/W  
2.42

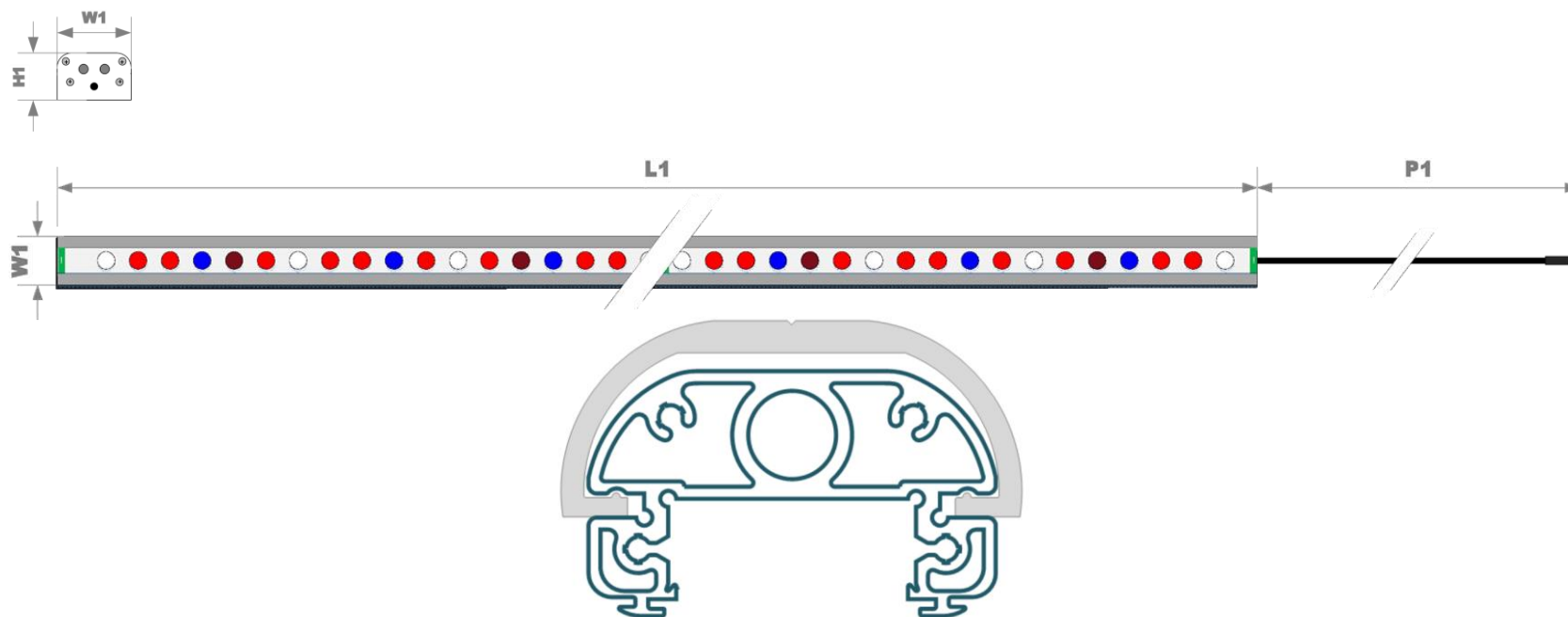
Angle  
**30°~  
120°**

**3**  
Years  
Warranty

	MODEL NAME	PGL-PFL WC 600 b type / c type	PGL-PFL WC 900 b type / c type	PGL-PFL WC 1200 b type / c type	PGL-PFL WC 1500 b type / c type	PGL-PFL WC 1800 b type / c type	PGL-PFL WC 2400 b type / c type
Product	Power consumption	35/80 watt	50/160 watt	70/200 watt	85/200 watt	105/240 watt	140/320 watt
Power	AC input voltage range	Free voltage 90~305VAC, 47~63Hz (option Hi-Voltage 180~528VAC)					
	SMPS mode (PSU)	DC Current Design(C.V, C.C Mode)					
	Protection	Short circuit, Overload, Over voltage					
	Power factor	Efficiency ≥95%, PFC ≥0.98					
	Total harmonic distortion	THD<20%(@load≥50%/115VAC,230VAC; @load≥75%/277VAC)					
	Inrush current	Cold Start 70A(twidth=1010μs measured at 50% Ipeak) at 230VAC; Per NEMA 410					
LEDs	Spectrum ratio (R:B:O)	RBS, RBC, RBF, RBW					
Heat sink	Heat sink type	Water cooling + Cooling by free air convention					
	Frame Material	Body	Aluminium				
		PCB	Metal PCB(aluminium)				
		Heat conduction	2.0 w/m.k				
		Thermal resistance	0.20 °C/w				
Heat value	BTU/h	84/191 8/19	119/287 11/28	167/382 16/38	203/478 20/47	251/573 25/57	334/764 33/76
Efficiency	PPF (μmol/s) RBS Spectrum Standard	84/193	121/290	169/387	205/484	254/580	338/774
	PPF/W (μmol/j)	2.42/RBS, 2.32/RBC, 1.87/RBF					
	PPFD (μmol m-2s-1) RBS Spectrum Standard	613 μmol m-2s-1(measure the distance 500mm) 377 μmol m-2s-1(measure the distance 1,000mm) 221 μmol m-2s-1(measure the distance 1,500mm) 141 μmol m-2s-1(measure the distance 2,000mm)					
Control	Dimming control	Single Dimming, Group Dimming, Wi-Fi Control					
	Pulse / Duty rate	400μs / 0~100%					
IP class	IP65	complete protection against contact, Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.					
Ambient temperature	Storage temp.	-30°C ~ 85°C					
	Operation temp.	~35°C					
Lens Angle	Lamp angle	30°, 45°, 60°, 90°, 120°					
Life time		Over 50,000hr					
Safety	Standard	CE, EMC, UL,cUL					
Warranty		5 years					

### PFL WC Dimensions

Model	Multi-Layer Led Grow Light	Dimensions(mm/inch)				Weight (gr/lb)
		L1	W1	H1	P1	
PGL-PFL WC 600		600/23.62	50.9/2.00	32.6/1.28	2000/78.74	1072/2.36
PGL-PFL WC 900		900/35.43	50.9/2.00	32.6/1.28	2000/78.74	1608/3.54
PGL-PFL WC 1200		1200/47.24	50.9/2.00	32.6/1.28	2000/78.74	2144/4.72
PGL-PFL WC 1500		1500/59.05	50.9/2.00	32.6/1.28	2000/78.74	2680/5.91
PGL-PFL WC 1800		1800/70.86	50.9/2.00	32.6/1.28	2000/78.74	3216/7.09
PGL-PFL WC 2400		2400/94.48	50.9/2.00	32.6/1.28	2000/78.74	4288/9.45



Efficiency  
**95%**

PPF/W  
**2.42**

Angle  
**30°~  
120°**

**3**  
Years  
Warranty



### PFL WC – Mounting Options



#### Standard - Slide Suspend

Slide suspend the default mount of the PFL WC.  
Using wire, you can adjust the PFL WC installation height.  
Remove the screws and install the panels



#### Optional - Slide Mount

Installation by adjustment depending on the size of the shelf.  
Installation in accordance with the irradiation direction of the PFL WC.  
Vertical installation, Depending on the angle installation



#### Optional - Suspend Mount

Simple and quick installation.  
Using wire, you can adjust the PFL WC installation height.  
Remove the screws and install the panels



Efficiency  
**95%**

PPF/W  
**2.42**

Angle  
**30°~  
120°**

**3**  
Years  
Warranty

# MAGNUS LIGHT PARTNERS



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