

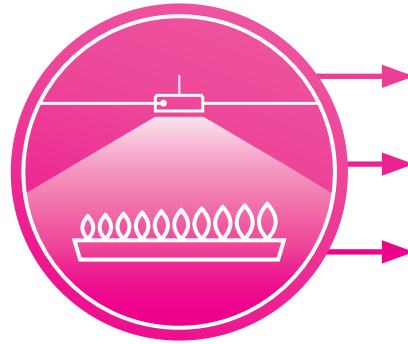
THE DUTCH POWERHOUSE **EMBRACE**

FOR CLOSE TO CROP AND
MULTI-LAYER LIGHTING

EMBRACE

THE WATER COOLED MULTI-LAYER FIXTURE

Oreon is well known for its water cooled LED grow lights. The innovative technology ensures highly efficient LED lighting in greenhouses and a stable cultivation climate. The new multi-layer fixture Embrace is specifically designed to distribute light uniformly, even with a little distance between fixture and crop. The Embrace can be used for close-to-crop applications such as multi-layer systems, growrack systems and under gutter illumination in a greenhouse.



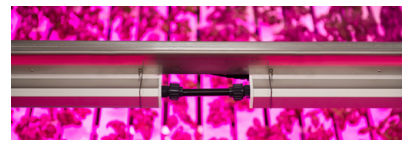
CLIMATE CONTROL
heat removal by water-cooling

ULTRA WIDE OPTICS
high uniformity in every situation

ADJUSTABLE SPECTRUM
dynamical for maximum flexibility

CLIMATE CONTROL

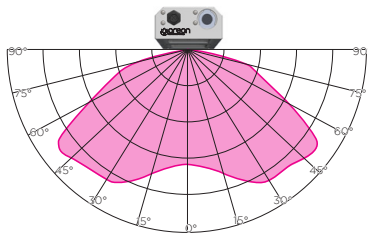
Growers of multi-layer cultivations face several challenges: they want the light close to the crop, but don't want the heat. Excess heat is dissipated by the unique water-cooling, resulting in less temperature fluctuations and stable humidity and CO₂ values.



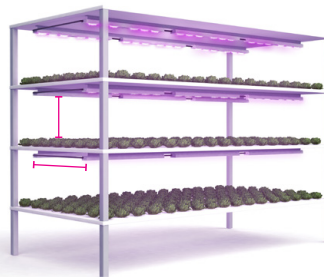
ULTRA WIDE OPTICS

The Embrace covers a large area with fewer fixtures. The wide radiation pattern illuminates a large surface with high light uniformity. The 2:1 light distribution fixture is used when the surface area of the growing space is limited and you want to prevent too much light loss. The 3:1 light distribution fixture is used when the growing surface is very large and light loss at the edges of the setup is negligible. Also, this fixture can illuminate very close to the crop and still illuminate a large area.

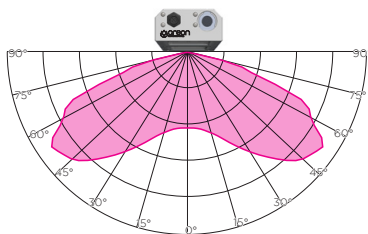
2:1 light distribution



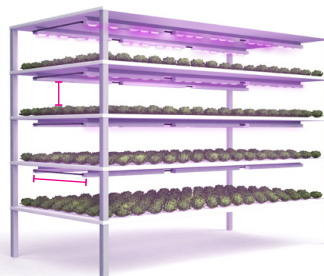
19.7" | 50 cm
37.4" | 100 cm



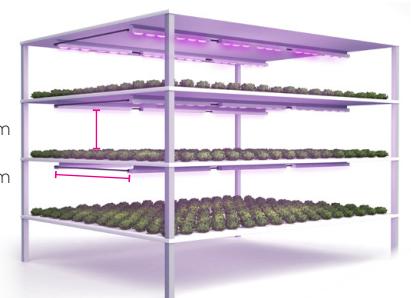
3:1 light distribution



13.7" | 35 cm
37.4" | 100 cm



19.7" | 50 cm
59" | 150 cm



DYNAMICALLY ADJUSTABLE SPECTRUM

A dynamically adjustable spectrum can provide maximum flexibility during the phases of growth and the possibility to customize the spectrum at any time. Oreon offers 4 hardware fixture versions, each with 2 or 3 independent channels. Each channel is adjustable from 0-100% in 0.5% increments.

EMBRACE

THE DUTCH POWERHOUSE

TECHNICAL DATASHEET MULTI-LAYER FIXTURE



Dynamically adjustable spectrum

A dynamically adjustable spectrum can provide maximum flexibility during the phases of growth and the possibility to customize the spectrum at any time. Oreon offers 4 hardware fixture versions, each with 2 or 3 independent channels. Each channel is adjustable from 0-100% in 0.5% increments.

Light output

Light Output		Energy Consumption		
Version	Max Photon Flux (μmol/s)**	Max Consumed Power (W)*	Max Efficiency (μmol/J)	Max Imparted Heat (W)
R/W				
Red	570	169	3.4	
White	120	60	2.0	
Total	690	229	3.0	78
R/B				
Red	570	169	3.4	
Blue	130	60	2.2	
Total	700	229	3.1	78
R/W/FR				
Red	365	108	3.4	
White	180	89	2.0	
Far-red	105	41	2.6	
Total	650	238	2.7	81
R/B/FR				
Red	365	108	3.4	
Blue	195	89	2.2	
Far-red	105	41	2.6	
Total	665	238	2.8	81

All data for 3:1 reflector, 2:1 reflector alternative also available

Additional losses per lamp in the external driver: 10W (based on 2 lamps per driver)

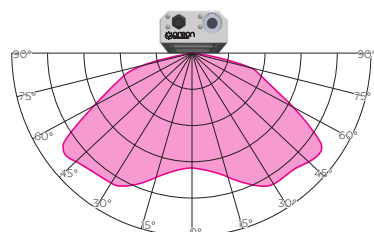
* Without driver losses

** Output is defined as the total photon flux between 400-800nm.

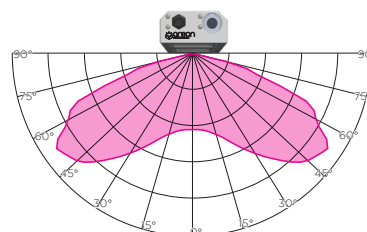
Typical values for stable operation at 77°F | 25°C cooling water temperature

Light distribution

2:1 reflector



3:1 reflector



Specifications

Housing material	Aluminium (IK10). Finishing: anodized / antifouling powder coating (dirt repellent)
LED protection cover	High transmission glass (transmission >98%) (IK07)
Ingress Protection	IP67 (dust- and watertight, hermetically sealed). Fixtures can be cleaned by using pressurized water, the complete electrical circuit is sealed waterproof.
Lifespan / Warranty	L90 B05 - 50,000 hours / 5 year warranty

Technical data

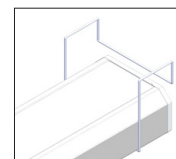
Power factor	> 0.96 @ 400 VAC
Total Harmonic Distortion (THD)	< 11% (THD)
Voltage range driver	230 - 480 VAC
Current range	2.1 - 1 A
Frequency range	50/60 Hz
Inrush current	max. 40A (t < 2.5ms) @ 480 VAC
Leakage current	< 0.75 mA @ 480 VAC
Isolation class	Class I
Operation conditions	32 to 113°F 0 to 45°C / 95% RH
Storage conditions	32 to 140°F 0 to 60°C / 85% RH

Cooling liquid and circuit

Cooling liquid	Water (pH 4-8)
Cooling liquid temperature	From dew point to 113°F 45°C
Water connection	Pipe thread ISO 228-G 3/8" (2x)
Required flow velocity	Flow velocity must be at least 0.2 m/s and should not exceed 1.5m/s.
Flow velocity formula	$v = Q \cdot n / 7200$ (velocity in m/s, channel inner diameter 15 mm) v: minimally required flow velocity of water in the cooling channel of the lamp. (m/s) Q: heat imparted per fixture (Watt), n: number of fixtures in series on a cooling pipe.

Mounting

Mount the LED fixture with suitable brackets. Contact Oreon for info about types of brackets.



Weight and dimensions

Nett weight	10.14 lb 4,6 kg
Product dimensions (L x W x H)	42.09" x 3.74" x 1.77" 1069 mm x 95 mm x 45 mm
Carton dimensions 1 pcs (L x W x H)	43" x 4.5" x 3.0" 1093 mm x 115 mm x 75 mm
Carton dimensions 4 pcs (L x W x H)	43" x 8.9" x 5.7" 1093 mm x 225 mm x 145 mm



Logistic specifications

Quantity per pallet	108 pcs.
Gross weight per pallet	1269 lb 576 kg
Pallet dimensions (EUR)	31.5" x 47.24" x 56.89"
	800 x 1200 x 1445 mm
HS-code	9405 4099 90

Air/Sea/Road freight

Compliance

Pending

V211122

Oreon

Lorentzlaan 6
3401 MX IJsselstein
The Netherlands

T +31 30 760 0660
E info@oreon-led.com
W www.oreon-led.com

