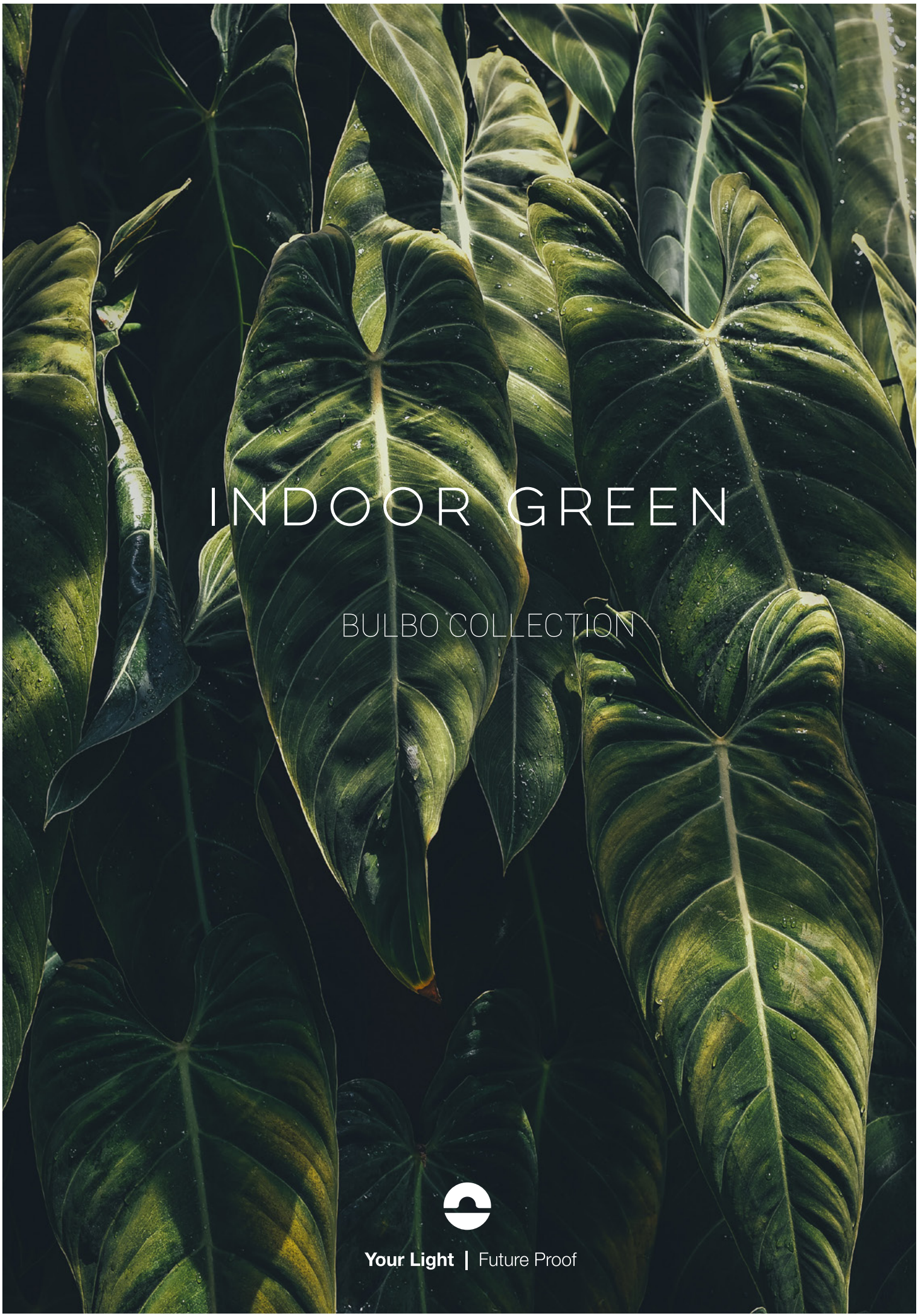

INDOOR GREEN
BULBO COLLECTION
Your Light | Future Proof

Bulbo collection

IT —— Tecnologia al servizio della natura, per la crescita delle piante in luoghi privi di luce solare. Versatili e curate nel design, le lampade della collezione Bulbo sono pensate per regalare la gioia del verde giorno dopo giorno.

EN —— Technology at the service of nature, for the growth of plants in places without sunlight. Versatile and carefully designed, the luminaires in the Bulbo collection are designed to allow the enjoyment of greenery day after day.

FR —— La technologie au service de la nature et de la croissance des plantes dans des lieux privés de la lumière du soleil. Polyvalentes et dotées d'un design soigné, les lampes de la collection Bulbo sont conçues pour offrir la joie de la nature, jour après jour.

DE —— Technologie im Dienst der Natur, um Pflanzen an Orten wachsen zu lassen, an denen es kein Sonnenlicht gibt. Die vielseitigen Leuchten der Kollektion Bulbo mit ansprechendem Design sind dafür gedacht, jeden Tag die Freude grüner Pflanzen zu schenken.

ES —— Tecnología al servicio de la naturaleza, para el crecimiento de plantas en lugares sin la luz del sol. Las lámparas de la colección Bulbo, versátiles y cuidadas, se han pensado para regalar la alegría del verde todos los días.

PY —— Технология на службе у природы для выращивания растений в помещениях, лишенных солнечного света. Универсальные светильники коллекции Bulbo отличаются продуманным дизайном и предназначены для того, чтобы дарить радость день за днем.

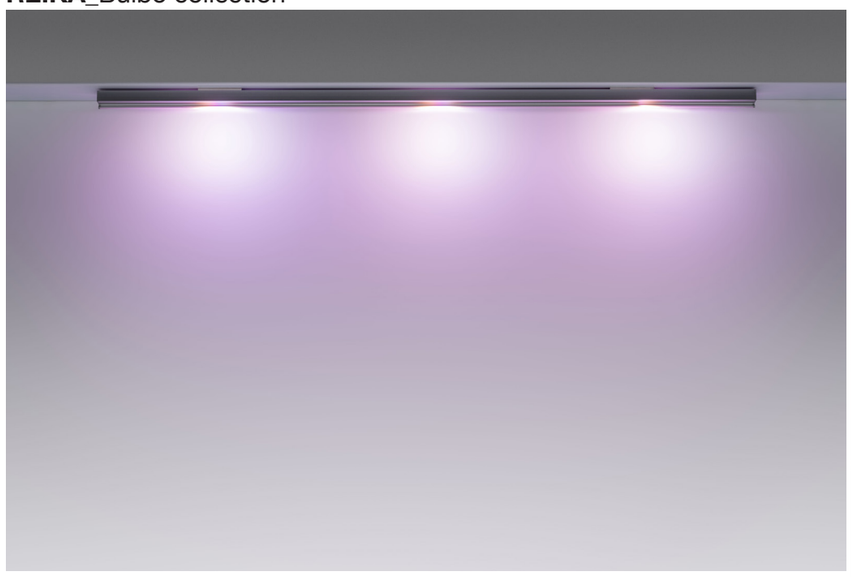
design **Lorenzo Antoniani & linealight**group, 2016

Chlorophyll
pendant luminaires, 2016

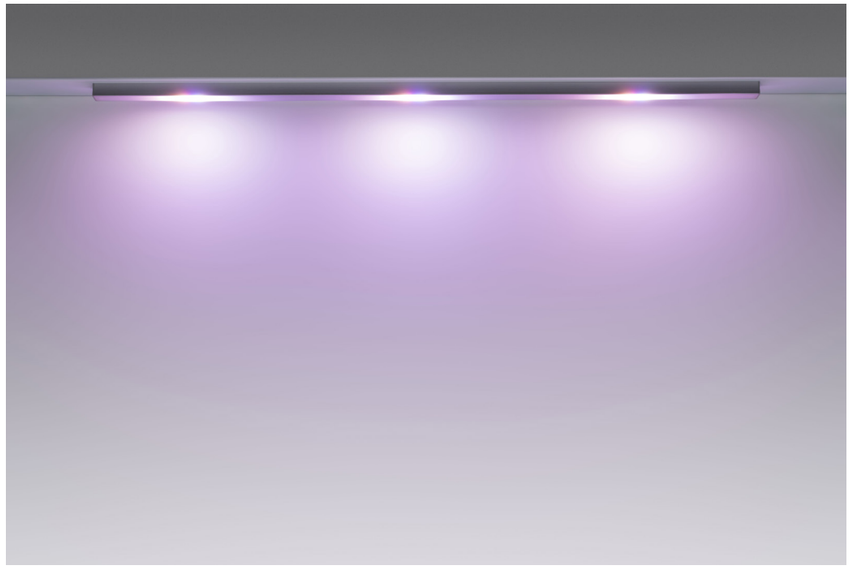
Chlorophyll plant lamp

Your Light Future Proof

REIKA_Bulbo collection



THIN_Bulbo collection



Bulbo collection

IT —— Le lampade Bulbo Collection emettono una luce colorata, frutto della combinazione di frequenze luminose selezionate per attivare il processo di fotosintesi e stimolare la crescita delle piante anche in ambienti poco illuminati o privi di luce. Lo speciale spettro luminoso, studiato presso i laboratori del Dipartimento di Scienze Agrarie dell'Università di Bologna - Alma Mater Studiorum, riproduce ciò che naturalmente le piante assorbono dalla luce del sole.

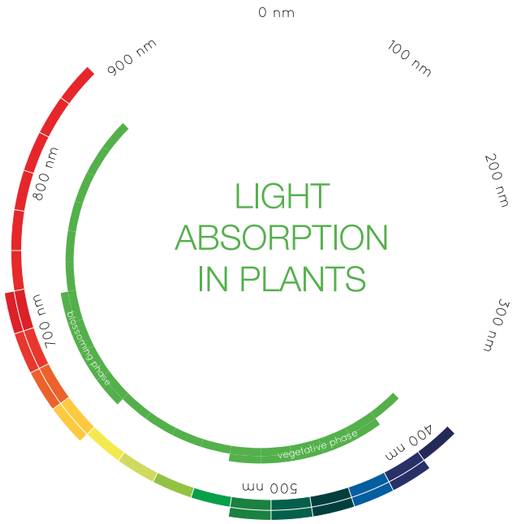
EN —— Thanks to their researched light frequencies, the Bulbo Collection products give plants the ideal light nutrition they need. The unique light spectrum, result of scientific researches in collaboration with the Department of Agricultural Sciences at the University of Bologna, reproduces what plants naturally absorb from the light of the sun and activates photosynthesis also in dark spaces.

FR —— Les lampes de la collection Bulbo émettent une lumière colorée, fruit de la combinaison de fréquences lumineuses sélectionnées pour activer le processus de photosynthèse et stimuler la croissance des plantes, même dans des espaces peu éclairés ou sans lumière. Le spectre lumineux spécial, étudié dans les laboratoires du Département des Sciences Agronomiques de l'Université de Bologne, Alma Mater Studiorum, reproduit ce que les plantes absorbent naturellement de la lumière du soleil.

DE —— Die Leuchten der Kollektion Bulbo strahlen ein farbiges Licht ab, das aus verschiedenen Lichtfrequenzen besteht, die ausgewählt wurden, um die Photosynthese und das Pflanzenwachstum auch in Räumen mit wenig Tageslicht oder ohne Tageslicht anzuregen. Das spezielle Lichtspektrum, das in den Labors der Fakultät für Agrarwissenschaften der Universität Bologna, Alma Mater Studiorum, erforscht wird, entspricht dem von den Pflanzen aufgenommenen Sonnenlicht.

ES —— Las lámparas Bulbo Collection emiten una luz de color, obtenida por la combinación de frecuencias luminosas, seleccionadas para activar el proceso de fotosíntesis y estimular el crecimiento de las plantas también en ambientes con poca iluminación o sin luz. El espectro luminoso especial, estudiado en los laboratorios del Departamento de Agronomía de la Universidad de Bolonia - Alma Mater Studiorum, reproduce lo que, naturalmente, las plantas absorben de la luz solar.

PY —— Светильники Bulbo Collection излучают цветной свет, результат комбинации отобранных световых частот, которые запускают процесс фотосинтеза и стимулируют рост растений, даже в малоосвещенных помещениях и помещениях, лишенных естественного света. Особый световой спектр, изученный в лабораториях Отделения сельскохозяйственных наук университета г. Болонья Alma Mater Studiorum, воспроизводит то, что растения обычно поглощают с солнечным светом.



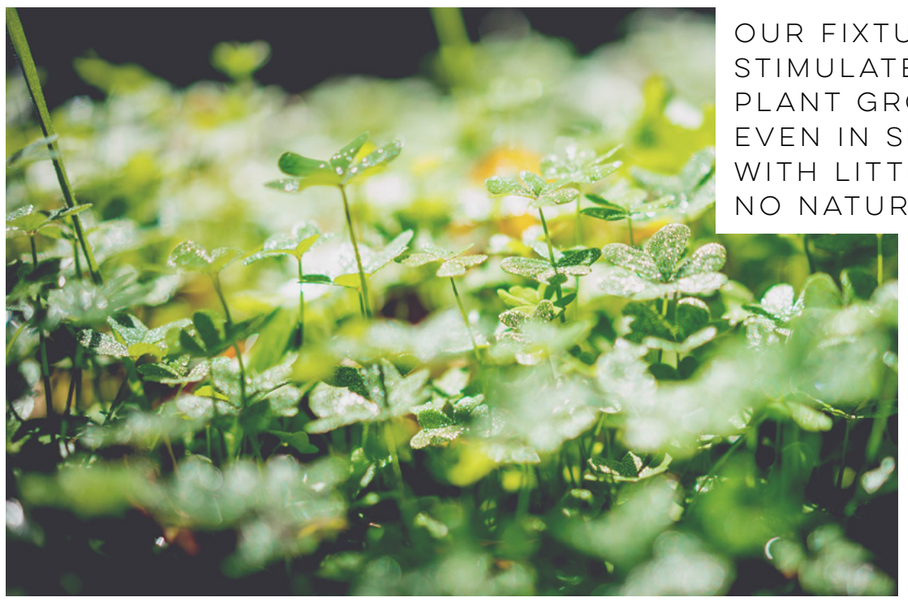
610 - 720 nm
Fase di fioritura della pianta.
Flowering phase of plants.
Phase de floraison de la plante.
Blühphase der Pflanze.
Fase de floración de la planta.
Стадия цветания растения.

380 - 400 nm
Inizio dello spettro visibile.
Beginning of the visible.
Début du spectre visible.
Beginn des sichtbaren Spektrums.
Inicio del espectro visible.
Начало видимого спектра.

400 - 520 nm
Fase vegetativa della pianta.
Vegetative phase of plants.
Phase végétative de la plante.
Vegetative Phase der Pflanze.
Fase vegetativa de la planta.
Вегетативная стадия растения.

GET ACCESS TO ALL THE BEST OF NATURE ANYWHERE, ANYTIME.

LIGHT & PLANTS



OUR FIXTURES STIMULATE PLANT GROWTH EVEN IN SPACES WITH LITTLE OR NO NATURAL LIGHT

Since 2012, in the labs of the Department of Agricultural Sciences at the University of Bologna-Alma Mater Studiorum, the light spectrum has been studied* to reproduce the frequencies that plants naturally absorb from sunlight.

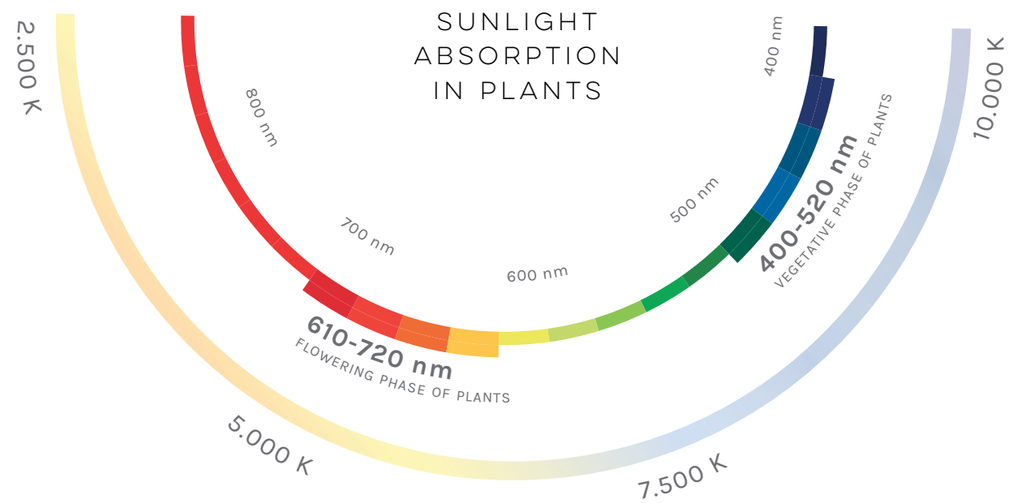
Blue frequencies stimulate the production of leaves in the vegetative stage, whereas red frequencies promote the flowering phase that later leads to fruit development. Years of scientific experimentation have proved that, with a combination of red and blue frequencies, plants grow healthily and have high contents of chlorophyll (for green leaves), water (for strong leaves), essential oils (in aromatic herbs) and polyphenols (beneficial edible substances).

The use of LED technology offers three primary advantages: it allows for the reproduction of the ideal light spectrum in the most accurate manner, it emits a cold light that doesn't damage leaves, and it consumes minimum amounts of power. Lab tests have confirmed that coloured light is not harmful to the eyes, but rather brings the positive effects of colour therapy.

BENEFITS OF LED:

- COLOURED LIGHT
- COLD LIGHT
- LOW CONSUMPTION

* *Optimal red:blue ratio in led lighting for nutraceutical indoor horticulture*, C. Piovene et al., on *Original Research Article Scientia Horticulturae*, Volume 193, 22 September 2015, Pages 202-208



THE BULBO COLLECTION EMITS A COLOURED LIGHT, THE RESULT OF A COMBINATION OF LIGHT FREQUENCIES SPECIFICALLY SELECTED TO ACTIVATE THE PROCESS OF PHOTOSYNTHESIS

FEEDING THE NATURE

Vegetative phase
400-520 nanometers

This range includes blue light in order to prompt the plant's vegetative phase during which chlorophyll absorbs energy from light, stimulating plant growth and leaf production.

Flowering phase
610-720 nanometers

This range includes red light, and is the peak period of light absorption, affecting the process of blooming and flowering, leading to fruit.

FEEDING THE MIND

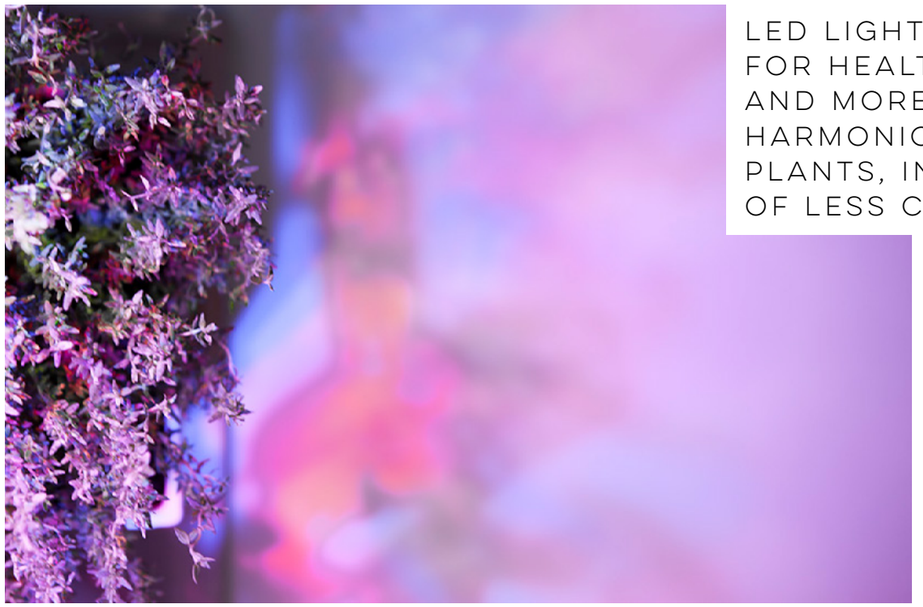
Cold / 5000-3500 Kelvin

Blue and violet ease thought and creativity, by heightening the level of attention and productivity. Increase of photometric values relevant to the fulfilment of strongly operational visual tasks.

Warm / 3500-2800 Kelvin

Warm light, which includes red, is useful for an atmosphere of relax and refreshment, and when particularly challenging visual tasks are not required.

LIGHT SOURCES COMPARISON



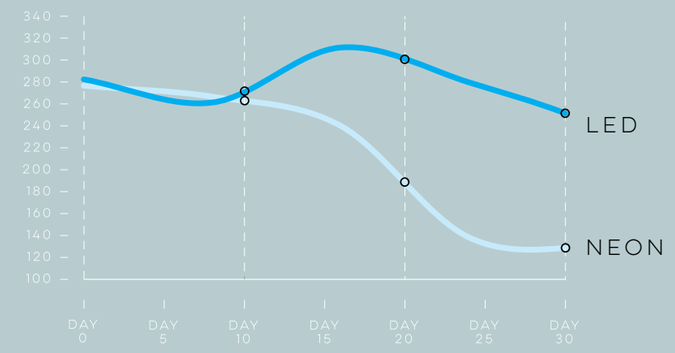
LED LIGHT ALLOWS FOR HEALTHIER AND MORE HARMONIOUS PLANTS, IN NEED OF LESS CARE

The Bulbo collection's have been tested for more than eight months comparing LED's performances with fluorescent lights on vertical gardens.

TESTED CROP
Peace lily,
Spathiphyllum 'Mauna Loa'

LED *Bulbo spectrum, 14W*	NEON *Philips's Neon, 200W*
Omogeneus leaves growth	Leaf production overstimulation
High moisture retainance	2 times more water consumption
Slow substrate consumption	Quick substrate consumption
General better health	Higher need for additional fertilizer
Darl and intense green leaves	Yellowish leaves
High flower production	Little flower production

PLANT HEALTH



Amount of leaf nitrogen at different days after transplanting

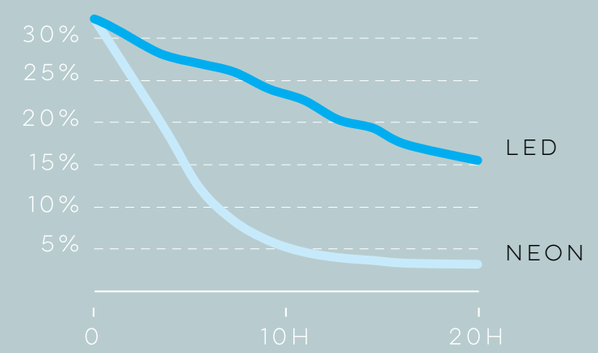
Nitrogen content in leaf is a good indicator of the nutritional status of the plant, which determines the timing and amount of fertilizer. After 30 days from fertilizing, plants grown with LED light present 2 time the amount of nitrogen of NEON-grown plants. This allows for lees frequent fertilizing and mantainance.

AESTHETIC RESULTS

Leaves colour intensity and saturation

Plants grown with LED light source present darker and more intense green colour. While NEON-grown plants present a more pale and yellowish colour, symptom for physiological stress.

WATER MANAGEMENT



Water consumption

After 20 hours from watering, NEON-grown plants have been consumed 6 times more water than plants grown with LED light source. The reduction of water consumption over time allows for easier mantainance.

USES

- Commercial spaces
- Workspaces
- Infrastructure: airports, train stations, subways
- Hall and reception of hotels, restaurants
- Halls, exhibitions, conferences
- Hosting events, openings, stands, fairs, parades, exhibitions
- Supermarkets
- Condominium areas

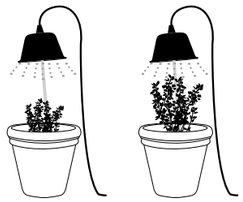
BENEFITS

- Increase the aesthetic value of environment and visual satisfaction given by vegetation
- Upgrading of the environment
- Can be installed in any location and scope
- Air purification gave the increase oxygenation and absorption of polluting elements
- Relieving stress
- Increased biodiversity
- Space saving on equal benefits
- Reduced water requirements compared to traditional cultivation techniques
- Energy saving due to the inherent insulating properties
- Reduction of Noise pollution
- Easy interchangeability that allows infinite arrangements and targeted maintenance without the need for large-scale projects
- Increase in the value of the property
- Increased resale value of property
- Resistance and adaptability to all climates
- It can also be used inside the work environment, with increased efficiency and productivity and decrease absenteeism by workers
- Benefits to marketing
- Sound insulation

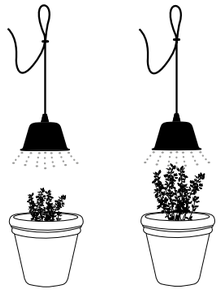
Technical Info

Dimensioni e composizioni
Sizes and compositions
Dimensions et compositions
Abmessungen und Zusammensetzung
Dimensiones y composiciones
Размеры и композиции

Chlorophyll_Bulbo collection



Planted in the soil



Suspended overhead by its cord from an existing support

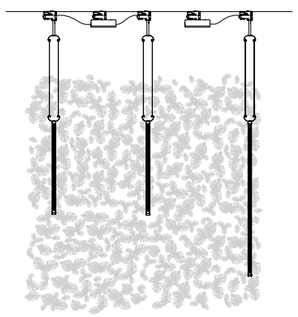
Thin_Reika_Bulbo collection

Under shelves or wall units
Retail/contract/residential applications

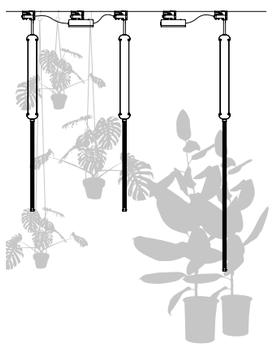
Thin
Diffused emission

Reika
Asymmetric emission

Vertical_Bulbo collection



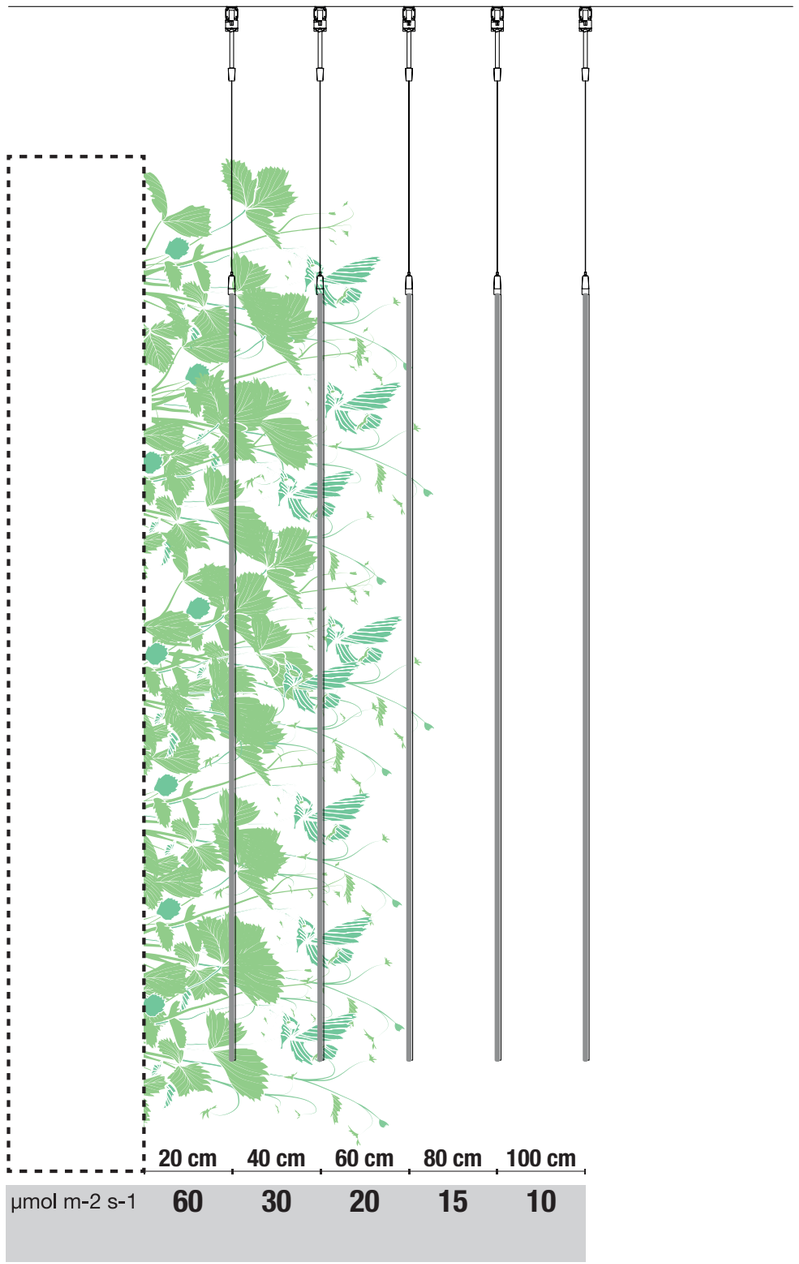
For green wall



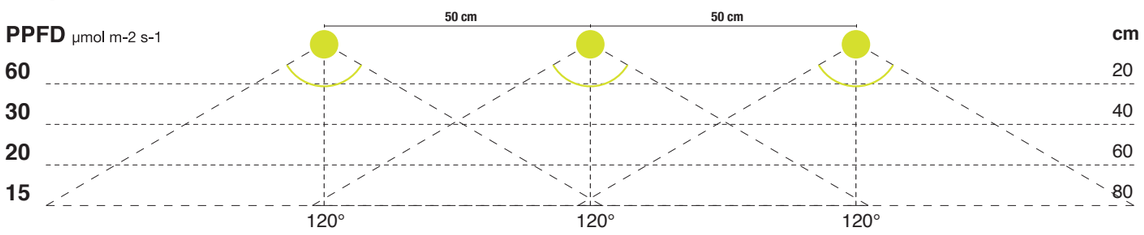
For suspended or large plants

VERTICAL_Bulbo collection
DIMENSION AND SETTING

. Side view



. Top view



Thin_Bulbo collection | Linear profiles | 220-240 V | powerLED 12 W

type	colour	optics
Anod. Al. **8562**	RWB	diffused
Anod. Al. **8563** feat timer		
15 h. **ON** 9 h. **OFF** Anod. Al.		

electronics

KIT0067	**KIT0068**	**KIT0070**	**KIT0071**	**KIT0072**
ON/OFF Driver 1 pc	ON/OFF Driver 1-2 pc	ON/OFF Driver 1-4 pc	ON/OFF Driver 1-10 pc	ON/OFF Driver 10-15 pc

Thin_Bulbo collection | Linear profiles | 220-240 V | powerLED 18 W

type	colour	optics
Anod. Al. **8566**	RWB	diffused
Anod. Al. **8567** feat timer		
15 h. **ON** 9 h. **OFF**		

electronics

KIT0068	**KIT0070**	**KIT0071**	**KIT0072**
ON/OFF Driver 1 pc	ON/OFF Driver 1-2 pc	ON/OFF Driver 1-6 pc	ON/OFF Driver 5-10 pc

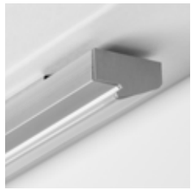
Thin_Bulbo collection | Linear profiles | 220-240 V | powerLED 35 W

type	colour	optics
Anod. Al. **8570**	RWB	diffused
Anod. Al. **8571** feat timer		
15 h. **ON** 9 h. **OFF**		

electronics

KIT0069	**KIT0071**	**KIT0072**
ON/OFF Driver 1 pc	ON/OFF Driver 1-3 pc	ON/OFF Driver 3-5 pc

Reika_Bulbo collection | Linear profiles | 220-240 V | powerLED 12 W



type	colour	optics
Anod. Al. **8574**	RWB	Asym.
Anod. Al. **8575** feat. timer		
15 h. **ON** 9 h. **OFF**		

electronics

KIT0067	**KIT0068**	**KIT0070**	**KIT0071**	**KIT0072**
ON/OFF Driver 1 pc	ON/OFF Driver 1-2 pc	ON/OFF Driver 1-4 pc	ON/OFF Driver 1-10 pc	ON/OFF Driver 10-15 pc

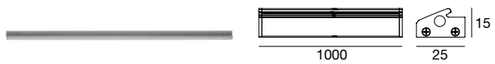
Reika_Bulbo collection | Linear profiles | 220-240 V | powerLED 18 W

type	colour	optics
Anod. Al. **8578**	RWB	Asym.
Anod. Al. **8579** feat timer		
15 h. **ON** 9 h. **OFF**		

electronics

KIT0068	**KIT0070**	**KIT0071**	**KIT0072**
ON/OFF Driver 1 pc	ON/OFF Driver 1-2 pc	ON/OFF Driver 1-6 pc	ON/OFF Driver 5-10 pc

Reika_Bulbo collection | Linear profiles | 220-240 V | topLED 35 W

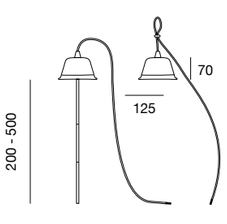


type	colour	optics
Anod. Al. **8582**	RWB	Asym.
Anod. Al. **8583** feat timer		
15 h. **ON** 9 h. **OFF**		

electronics

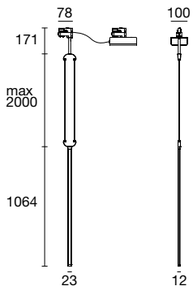
KIT0069	**KIT0071**	**KIT0072**
ON/OFF Driver 1 pc	ON/OFF Driver 1-3 pc	ON/OFF Driver 3-5 pc

Chlorophyll_Bulbo collection | Pot light | 220-240 V | 3 x powerLED 7 W



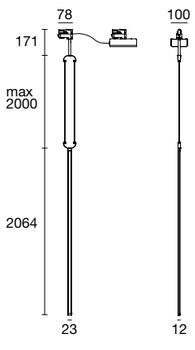
type		colour	optics
Terracotta	**8010**	RWB	120°
Pink	**8011**		
L. Azure	**8012**		

Vertical_P1 - Bulbo collection | Track luminaires | 220-240 V | powerLED 24 W



type		colour	optics
Anod. Al.	**8584**	RWB	diffused
Anod. Bl.	**8585**		
Anod. Al.	**8586**	x2 Vertical_P1 + driver 48 W	
Anod. Bl.	**8587**	x2 Vertical_P1 + driver 48 W	

Vertical_P2 - Bulbo collection | Track luminaires | 220-240 V | powerLED 48 W



type		colour	optics
Anod. Al.	**8588**	RWB	diffused
Anod. Bl.	**8589**		

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