



# POLARIS<sup>®</sup>

THE NEW FRONTIER OF DENTAL ILLUMINATION LED TECHNOLOGY





## POLARIS: BEYOND THE VISION

A correct illumination influences not only a correct visualization, but also biological processes. The quality of a light source emission is a suitable aspect to be considered.

The luminous signal is responsible of two effects:

- visual effect: in the visual brain cortex, imagine is created through complex interactions and processing;
- non visual effect: in specific brain nuclei, luminous signal influences biological rhythms regulation, endocrine secretion, emotion management, alertness level control and muscular tension.

Recent studies have shown that non visual effects of light are influenced by light intensity and colour temperature.



# POLARIS<sup>®</sup>

MADE FOR THE EYES WHO LOOK AT IT BUT  
ESPECIALLY FOR THE EYES WHO WORK WITH IT

## LIGHT INTENSITY

The possibility to adjust light intensity allows :

### **Eyestrain reduction**

An incorrect illumination level forces eye to work hard and determines, consequently, a faster eyestrain. The possibility of light intensity adjustment makes the light adaptable to the level required by the specific application, reducing eyestrain.

### **Mental concentration increase**

The melatonin secretion is reduced by the increase of light intensity. Reducing melatonin, alertness enhances and so the operator concentration, with a decrease in errors' possibility.

## COLOUR TEMPERATURE

Recent studies have shown that maintaining the same light intensity, light with elevate colour temperature (> 5000 K) influences biological rhythms and tends to increase alertness level.

## COLD LIGHT

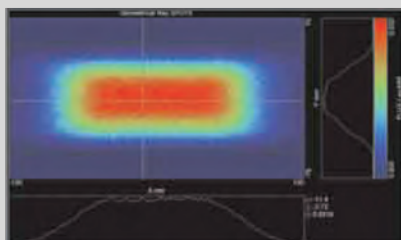
POLARIS' LED emission is without infrared wavelengths. This radiation is responsible of tissues heating. The use of cold light avoids:

- the heating of treatment area with discomfort for patient;
- the possibility of dehydration of biological tissues exposed to the luminous flux.

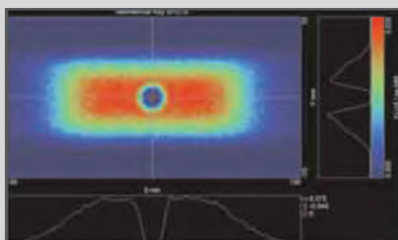
# POLARIS<sup>®</sup>

## LED TECHNOLOGY TO LIGHT YOUR WORK

DISTRIBUTION OF LUMINOUS INTENSITY AT 70 CM



DISTRIBUTION OF LIGHT INTENSITY WITH BARRIER AT 50 MM FROM THE SOURCE



### COLOUR TEMPERATURE: 4.200K - 6.000K

POLARIS, through a regulation system (G.COMM patent) allows to adjust the colour temperature in order to improve the contrast on soft tissues, increasing the visibility and the resolution.

### ILLUMINANCE: 8.000-50.000 lux

High illuminance values of POLARIS allows to improve visual acuity and so the details perception, reducing fatigue and the probability of errors.

It is possible to adjust illuminance as a function of the specific application and to improve the tissues visualization after a visual adaptation due to long time exposure at the same light.

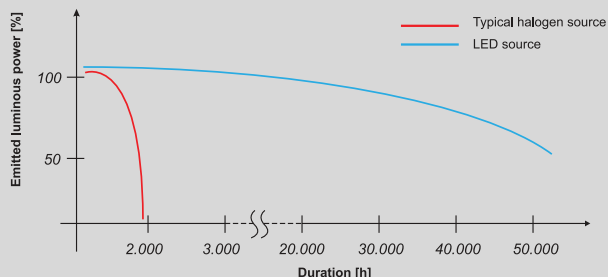
### COLOUR RENDERING INDEX (CRI): > 90

The Colour Rendering Index (CRI) is a quantitative measure of the ability of a light source to reproduce the colors of various objects faithfully in comparison with an ideal or natural light source. High CRI value of POLARIS assures a faithful colour reproduction.

POLARIS can be also used in presence of photopolymerizable elements, thanks to the use of an appropriate anti polymerization filter.

## LOW HEAT PRODUCTION

The low values of current and voltage, required to supply the light source, minimize the heat production, making the fan cooler not necessary.



## HIGH LIFETIME

LED lifetimes are high in comparison with halogen light. Minimum LED lifetime is about 50.000 hours.

## SCIALITIC EFFECT

The clearly geometry of reflectors, in combination with each LED source, allows to realize a luminous flux which is homogeneous, clean and without shadows. The scialitic effect is the result of the superimposition of 100 individual light fields (10 light fields for each reflector) which produces a negligible dimming effect in case of a partial lamp covering.

## LIGHT FIELD

The particular light focusing geometry allows to obtain a rectangular light field (8 x 20 cm size at 70 cm far from the source) and with well defined outlines, in order to avoid risk of patient dazzling. Moreover, if one or more LEDs breakdown, the light field is enough bright so the operator can end the treatment in safety conditions.



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## ERGONOMICS AND ITALIAN DESIGN

The dental lamp POLARIS is realized with an advanced design, characterized by simple and soft lines. Design has been particularly studied in order to realize a dental lamp not only with high performances but also aesthetically considered: a perfect union of functionality and aesthetics. Soft lines and smooth surfaces, the possibility of an easy handles' extraction and sterilization allow to an optimal cleaning and hygiene.

POLARIS is characterized by shells entirely in aluminium, which assure an high robustness. Aluminium shells can be treated with powder painting which assures a colour maintenance on time (in comparison with a lamp produced with plastic materials), a high hardness and durability in terms of detachment and scratching (in comparison with liquid painting).

The powder painting, with no solvents and paint thinners (which are primary sources of environmental pollution), allows to obtain an elevate attention to the respect of environment.



## FREE MOVEMENT

The studied geometry of dental light POLARIS allows to rotate it in any direction with the most various inclinations, thanks to an added 3rd axis movement.

## LOW ENERGY CONSUMPTION

LED technology realizes very high performances with low energy consumption (< 20 W). A reduction on energy consumption introduces a long term advantage, thinking about the number of hours in which lamp will be used.

## NOISE ABSENCE

The fan cooler absence implies the noise absence and the improvement of working condition.



## Ceiling application

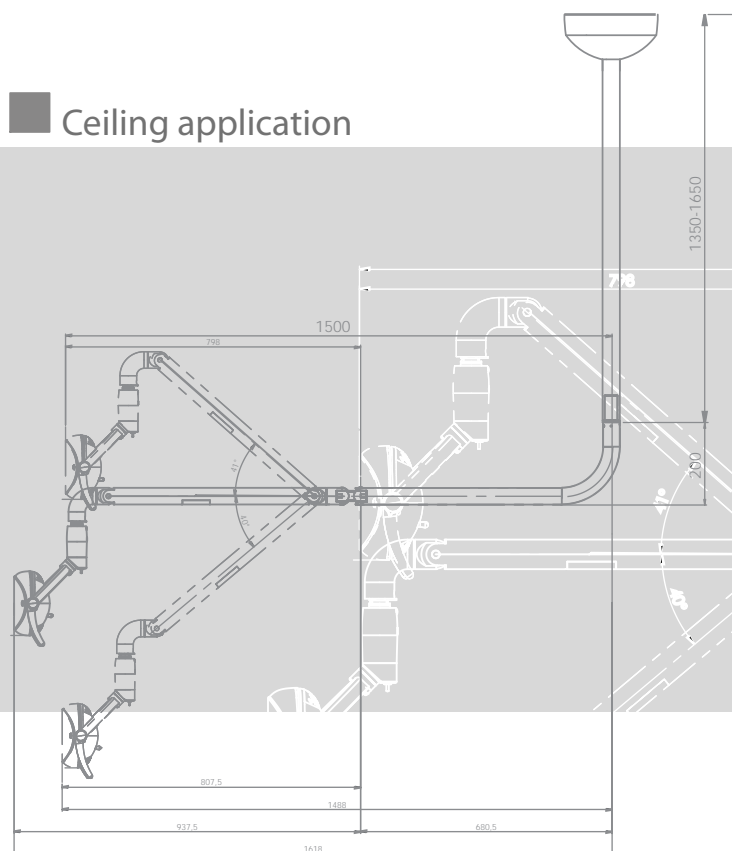
TECHNIC



### TECHNICAL FEATURES

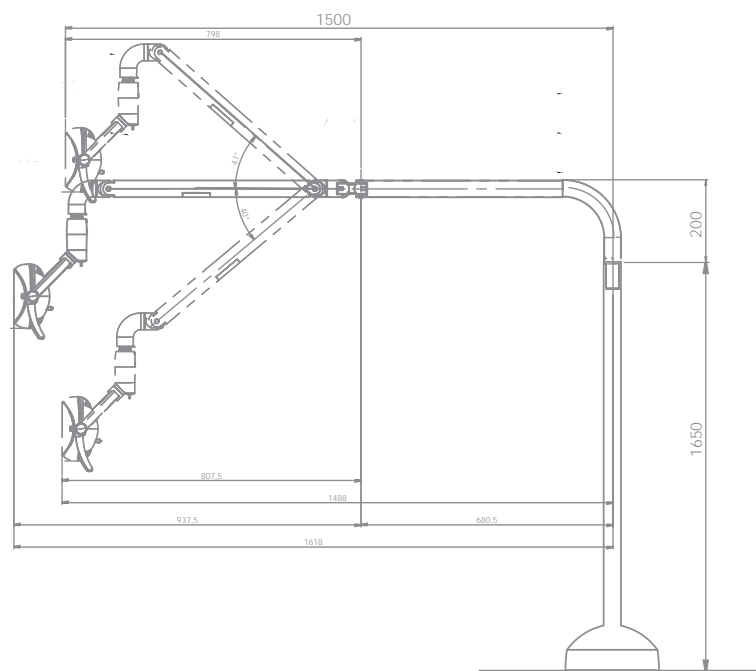
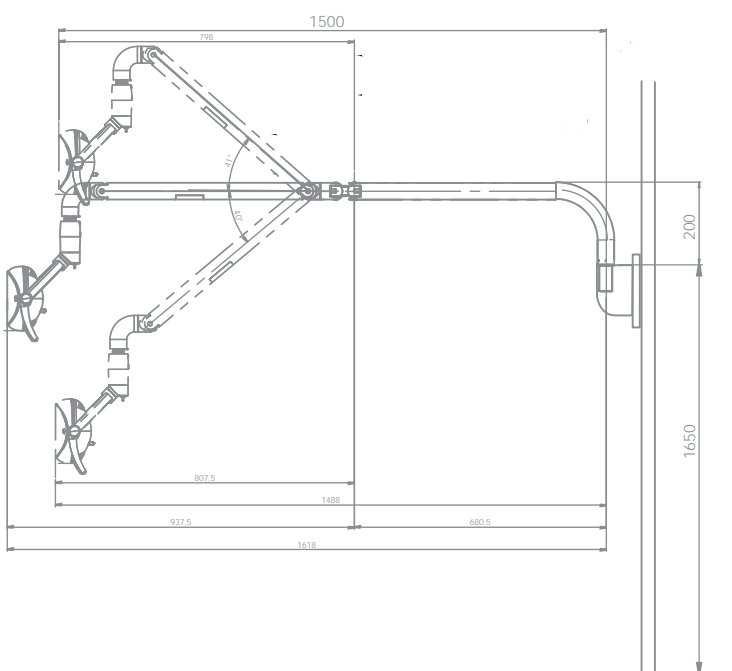
**Weight:** 1,9 Kg (light arm not included)  
**Power supply:** 17-24 Vac  
**Power consumption:** 20 W  
**Dimension of Pattern:** 80x200 mm  
**Light intensity:** 8.000 - 50.000 lux  
**Color temperature:** 4.200 - 6.000 °K  
**Colour rendering index (CRI):** > 90

Technical features have a tolerance of +/- 10%



## Wall application

## Floor application





## MIRROR

The need of a visual communication between operator and patient has lead to the creation of a pull-out MIRROR for POLARIS, allowing the patient to follow the treatment.

## FILTER

The ANTI-POLYMERIZATION FILTER is another example of kind attention towards the patient. This filter is easily interchangeable with the MIRROR through a simple dap joint device. The purpose of this accessory is to reduce spectrum of light emission avoiding activation of the composite, even with the maximum light intensity.





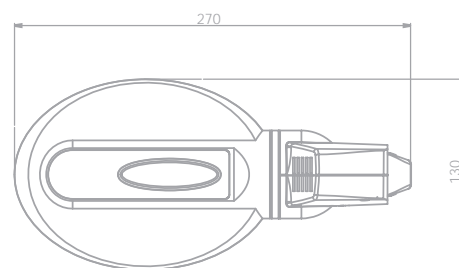
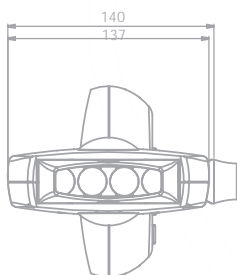


## CORE WHITE

Core white is a bleaching light system easily to be applied directly to POLARIS removing a handle. Through LED technology is possible to get the desired light intensity for different operation purposes. No external supports, make the operation area free of any obstruction.

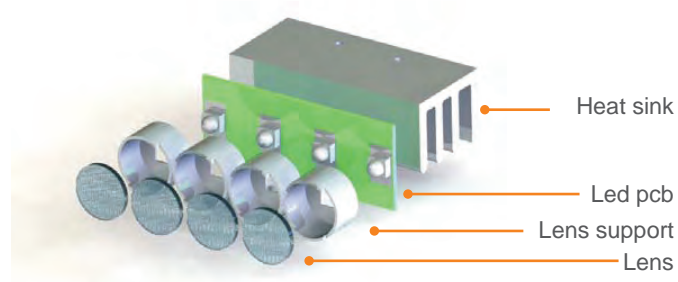
### Technical features:

Weight:	about 800g
Power supply:	17-24 Vac
Maximum power consumption:	30 VA
Current consumption:	1.5 A
Light pattern:	80 x 20 mm
Light source:	4 LEDs (3.5 W each)
Emission spectrum:	420-480 nm
Maximum light power emitted:	2000 mW
Maximum distance from patient:	10 cm



### System led

The optical system of core white is made as shown in the figure. The light beams emitted by each of 4 LED sources are focused with special lenses and concentrated into a rectangular and homogeneous pattern. Special filters are used to eliminate I.R. on luminous pattern.






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We reserve the rights to modify the specifications without prior notice

# POL



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G.COMM srl is certified ISO 13485:2016