

DELIGHTYOU.  
ODONTOIATRIC LIGHTING SYSTEMS



SINCE 1948: EXPERIENCE  
AND INNOVATION



## DELIGHTYOU.



The most important tool for the job of a dentist is his sensitivity in understanding the pathologies and, consequently, being able to find the most effective therapeutic solutions.

Years of study, continuous updates on intervention techniques, the experience of every physician is constantly confronted with the information gleaned on the surgical field. 85% of this information is obtained through sight, and it is extremely important that the lighting conditions of the environment in which he operates are optimal.

A good lighting condition is important for the health of the doctor, as well as bad lighting can affect the work or, otherwise, provide wrong informations on which to work.

Since 1948 we deal with design and manufacture of lighting systems for the operative field that really meet the needs of doctor and patient. The dental lamps we produce are the result of a continuous technological research: a great experience which best expresses the pride of a product entirely made in Italy.



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AND INNOVATION

# REPRODUCING THE **NATURAL LIGHT**



## THE VISUAL WEARINESS

The visual weariness is caused by repeated contraction and dilation of the iris which the ciliary muscle makes to change the structure of the lens in order to focus (the processes of “adaptation” and “accommodation”). Therefore, the distribution of light within the surgical field should allow the dentist eye to adapt to different luminance amounts with minimal effort.

The human body is designed to live in nature, according to rhythms dictated by the sunlight.

Due to the natural production of serotonin (during daylight hours) and melatonin (during hours of darkness), our biorhythm makes us more productive during the day and more inclined to sleep at night. Even the seasons affect our biorhythms: in summer the most amount of light makes us more active, while in winter the lack of light makes us more tired and in need of rest. Working life, however, compels us to take a different rhythm, regulated by the requirements of productivity; the result of this “forced” adaptation is a source of considerable stress to our body. The most effective way to minimize this kind of stress is to make sure that the light received by our eyes in the work environment is as similar as possible (in quantity and in quality) to sunlight.



■ The contraction phase of the iris, due to exposure to strong light



■ The dilation of the iris in the case of exposure to low intensity light





The overloading of the visual system is also harmful to the health of the eye. It manifests as various symptoms such as burning, tearing, dry eye, a feeling of foreign body, eye pain or discomfort, or even blurred vision or ghosting.



These disorders, in the long run, can cause diseases procuring a real lack of concentration, headaches over orbital and temples, redness, burning, or discomfort in the eyes even already in the morning when you wake up.



**A continuous exposure to a wrong light source can lead one to a set of direct or reflected pathologies. On the contrary, a good quality and flexibility of the vision is a prerequisite for your general welfare.**



## THE **COLLATERAL EFFECTS** OF A WRONG LIGHTING

- 1 MODIFICATION OF THE BIORHYTHM**  
Exposure to a source of light which is ineffective induces a sense of fatigue even in the hours usually dedicated to work.
- 2 STRESS, TENSIONS, HEADACHES**  
Too much light or too much direct light causes stress, nervous tensions and headaches.
- 3 EYE DISEASES**  
The visual weariness, as well as generating a risk of serious eye diseases, can have an indirect effect on mood and perception of good health and emotional well-being.
- 4 NEURALGIA**  
The continuous use of a wrong light source may prompt physicians to assume unnatural postures, causing pain and pathologies of the musculoskeletal system.

## AND THE PATIENT?

The operating light is the element that is constantly in front of the eyes of the patient. A wrong light is a source of stress for him, who can be "blinded" at every movement of the lamp.

This stress is inevitably reflected on the perception which he has of the doctor's cabinet he is in. More relaxed is a patient, more willing to receive treatment and, last but not least, to come back in the dental cabinet





## ■ QUALITY OF LIGHT

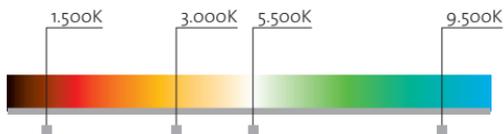
When choosing a dental lamp you must consider some features for the determination of its quality of light. It is essential that artificial light is able to faithfully reproduce the colours of the materials and tissues which may appear different, depending on the colour temperature of the light source and the relative colour rendering. This is of fundamental importance for the success of the job. The colour temperature is measured in Kelvin (K): a lower value corresponds to a warmer colour tone which tends toward red. A higher colour temperature means cooler shades (green and blue). The reference “neutral” value of the colour temperature, “the pure white”, corresponds to the midday sun on a beautiful day and is about 5,000 K.





Even the sunlight affects colour perception: at changing of the seasons or hours of the day we see different colours. Therefore it is important to have a light source that, at any time, is able to give accurate informations to the doctor. All Faro lamps offer intensity adjustment so that the visual function can capture the tiny details of the operative field with minimal effort, constantly keeping the colour temperature at 5,000 K.

## THE COLOUR TEMPERATURE



## ENERGETIC EFFICIENCY

A light bulb emits radiation also outside the visible-light spectrum perceptible by the human eye. The efficiency of a light bulb is as high as this can contain the radiation within the visible spectrum. This value is expressed by the ratio of its brightness (in lumens) and power consumption (in watts):

$$\text{EFFICIENCY} = \text{LUMEN/WATT}$$

**Incandescent bulbs** have efficiency of 13.8 lumens/w, the most **modern halogen lamps** raise the value up to 20 lumens/w, while the **last generation LED lamps** efficiencies achieve about 150 lumens/w.

## THE CRI

The Colour Rendering Index (CRI) shows how a light source is able to reproduce the colour of an illuminated object. The CRI is measured on a scale from 0 to 100 where 100 represents the output of the sunlight. The reference value of a good quality lamp is 85.



In the dental operating lights a high CRI value is very important in determining the real colour of the teeth and of the gingival tissues.

# LIGHT OF QUALITY

# HOW MUCH LIGHT?

The amount of light required to illuminate the operative field depends on several factors. Proper lighting must have characteristics of intensity, distribution and quality appropriate to the visual function of the physician, in order to capture the details of the operative field.

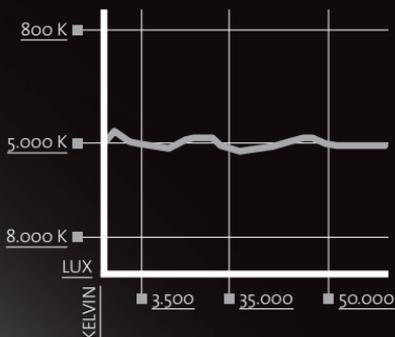
Depending on the age of the physician, for example, it will require a higher or lower quantity of light. In addition, the smaller details will be observed, the greater the intensity of light is required.

A good source of illumination must be adjustable, without losing its characteristics of colour temperature and illumination uniformity.

## MANAGING THE CONTRAST

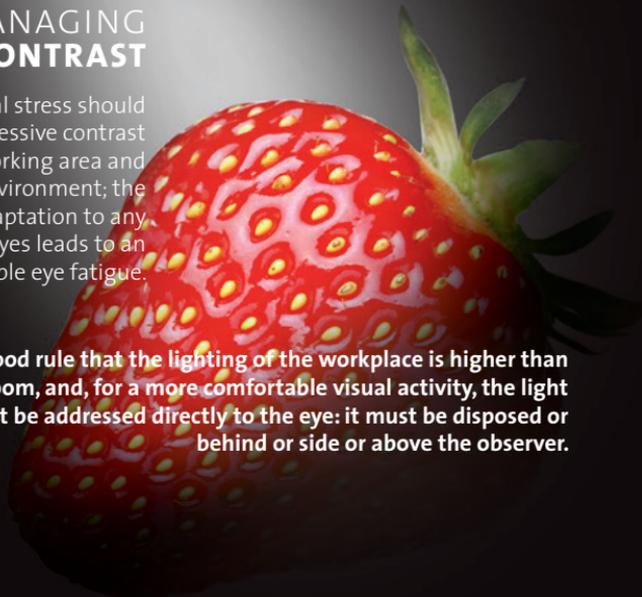
To avoid visual stress should be avoided excessive contrast between the working area and the surrounding environment; the continue need of adaptation to any movement of the eyes leads to an inevitable eye fatigue.

**It is therefore a good rule that the lighting of the workplace is higher than the one in the room, and, for a more comfortable visual activity, the light source should not be addressed directly to the eye; it must be disposed or behind or side or above the observer.**



### L'INTENSITÀ LUMINOSA

Grafico della luminosità delle lampade FARO. Come si può notare, al variare della potenza la temperatura colore rimane pressoché invariata.





## THE GLARE

The glare, not only annoying, is potentially damaging because it can cause serious eye lesions on the retina. These lesions can be determined by a thermal effect (coagulation of proteins in the retina) or by a photochemical effect (chemical reactions, without raising the temperature).

Especially children are exposed to this risk, as they are subject to the development of their natural defenses. The reflected light optical project FARO provides a defined spot and does not produce heat to minimize this phenomenon. In the case of patients with diagnosed eye diseases is also possible to obtain an overall screen through the use of dedicated glasses.



*"Many are those who damage their eyes looking directly at the sun instead of looking at his reflection on the water."*

**Socrates, Plato's Phaedo**

# FARO LIGHTING SYSTEMS

The technicians of the FARO Department of Research and Development has always collaborated with research institutes and universities to develop products that meet the real needs of the physician and patient. The Faro systems are in fact designed to provide an excellent shadow-removing effect, high luminous efficiency and colour rendering (CRI) with a constant colour temperature at any level of dimming of the lamp. The patented design is the perfect synthesis between aesthetics and functionality. The proven halogen system used on EDI, thanks to a sophisticated electronic controlled cooling system and the movement on two or three axes (optional) makes the lamp comfortable in any working condition. With ALYA and MAIA lamps, Faro sets a new reference to the state of the art of LED technology, the future of lighting for medical dental operating light. Due to their nature, in fact, LEDs are extremely robust and durable and provide an extremely superior energy efficiency than incandescent technology. LED lights also do not heat up, making the environment more comfortable for the physician and the patient. A great experience and a clear vision of the technological innovation. Faro illuminates the future.

## LED TECH

LED technology is the present and the future of lighting. The light is obtained by a flow of electrons through a semiconductor material generating very little heat at constant light flow. Because of their simple design, LED lamps have a virtually zero maintenance cost and unmatched durability (over 50,000 hours of operation) than conventional systems. Even the luminous efficiency has considerable value: 150 lumens per watt of power used means big energy savings and great performances.

## ALO TECH

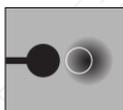
The halogen technology uses the same principle of incandescent tungsten filament bulbs. In the bulb, however, are introduced small amounts of halogen which give rise to a process which brings back the evaporated tungsten on the filament, regenerating it. Halogen lamps have a colour temperature of 3,000 K, with a good luminous efficiency and an excellent colour rendering. EDI lamp, through an exclusive process of PVD coating on the reflector, corrects the colour temperature bringing it to 5,000 K. The halogen gas and an electronically controlled cooling system ensure long bulb life, about 2,000 hours.

**K** COLOR **TEMPERATURE**

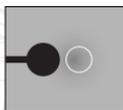
**LUX** **LUMINOUS INTENSITY**

**S-FX** SCIALYTIC **EFFECT**

The natural barriers formed by the lips and cheeks, as well as the tools inserted in the oral cavity, can cast shadows making difficult the detailed view of the operative field. The shadow removing effect of a scialytic lamp defines the quality of the diffusion of its light, avoiding the projection of sharp shadows by splitting the light beam into smaller ones that cross one another. The reference value of a dental scialytic lamp is fixed by international standards EN ISO 9680 and provides that the sharp shadow projected by the instrument placed between the light and the field is equal to a circle of 12 mm in diameter.



Minimum dimension of the sharp shadow required by standards:  $\varnothing$  12mm



The scialytic effect FARO generates an ellipse of only 6x3 mm (or 9x6 mm depending on model)

L=830 / 980



## FARO **PATENTS**

### **OPTICAL SYSTEM**

- double parabolic reflector with 258 facets
- provides a very uniform light field
- reduces the glare of the patient
- significant scialytic effect

### **3-D OPTICAL AXIS ROTATION**

- allows rotation on three axes of the lamp
- provides a perfect balance with the lamp center of gravity positioned on the fulcrum of rotation

### **DESIGN**

- aesthetic value and unique functionality
- italian design, balance and rationality of use

1730





# PRODUCTS AND ACCESSORIES

## ■ ILLUMINATION

LED AND HALOGEN

includes several models of lamp,  
made with LED and HALOGEN  
technology

## ■ APPLICATION SETS

AND COMPLEMENTS

essential for the positioning  
of the lamps and related  
accessories on the dental unit  
and inside the cabinet



Your eyes deserve it **NEW**

## ALYA LED TECH

The state of the art of LED technology ultimate generation. Powerful and reliable, Alya is equipped with the patented triaxial movement FARO and with a sophisticated electronic device for an outstanding control of the lighting spot.



## MAIA LED TECH

The ideal solution for anyone looking for a LED operating light with high performances at an affordable price. FARO patented Optical System and Design.

## EDI ALO TECH

Advanced design and a powerful halogen light source scattered by a double glass dish. EDI has a sophisticated mechanism to facilitate the orientation of the light. Available with two or three axes movement.



## ACCESSORIES FOR LAMPS

### POLIBLOCK

Antipolymerization filter for composites

- Easy to fit
- Changes the light emission spectrum avoiding the activation of the composites
- Reduces the effect of curing over **99,9%** on resins with photoactivator sensitive between **360 and 520 nm**
- Sterilizable at **121°C**



**K** 5.000 K

**LUX** from 3.000 to 50.000 Lux

**S-FX** 6x3 mm ellipse

Medical Device complying to the directive 93/42/EEC FARO SPA Ornago (Italy)

**K** 5.000 K

**LUX** from 3.000 to 35.000 Lux

**S-FX** 9x6 mm ellipse

Medical Device complying to the directive 93/42/EEC FARO SPA Ornago (Italy)

**K** 5.000 K

**LUX** from 8.000 to 30.000 Lux

**S-FX** 12x8 mm ellipse

Medical Device complying to the directive 93/42/EEC FARO SPA Ornago (Italy)



**NEW** The new electronic control of the illuminance, activated by joystick or sensor, adjusts the light from maximum to minimum power without any interruption, keeping the colour temperature constant.



The perfect balance, combined with the unique patented 3-D rotation on the optical axis of the head, provides the best accuracy of the beam orientation, reducing the risk of accidental glare on the patient.



Provided with an advanced electronic device which adjusts the light from maximum to minimum power, assuring a constant colour temperature (equal to 5.000 K) at every level of brightness (from 3.000 to 35.000 lux).



Perfect balancing, combined with the exclusive head rotation system on two axis. Moreover, choosing the third axis rotation option, it's possible to achieve a better positioning of the luminous flux.



The power switch or the proximity sensor provide excellent versatility of use of the lamp.



Perfect balance of the 2-D rotation system on the two axes of the head. As an option a system on the third axis of rotation 3-D which allows to achieve a better positioning is available.

## TECHNICAL DATA

**CRI = 95** (typical value) the best value ever obtained by a LED lamp !!!

GENERAL FEATURES*	
Power Supply with transformer	230 Vac +/- 10% - 50/60 Hz
Power Supply with/without power pack	90-264 Vac - 47-63Hz / 17-24 Vac - 50-60 Hz 22-35 Vdc
Absorbed Power	max 26 VA
Lighting source	2 LEDs
Lux	from 3.000 to 50.000 (from the distance of 700 mm)
Lighting spot	180 x 90 mm
Cooling System	static heat sink (no fan required)
Handles	removable and autoclavable

Medical Device complies with Directive 93/42/EEC and s.m.i. - Medical devices - class I - Applied Standards: EN 60601-1, EN 60601-1-2, EN 60825, EN 62471; Guaranteed 24 months \*(The above specifications are typical values subject to tolerance)

### ELECTRONIC CONTROLS

- Switching control and dimming: micro-joystick on the head
- Switching control and dimming version also from unit, or by foot control
- Electronic lighting adjustment by microprocessor
- Remote control from the unit: allows to repeat all joystick functions
- Automatic memorization of used light intensity, also after switching off the unit's power or after the 'rinse' function
- Sound signal at minimum and maximum light intensity
- Exclusive 'one touch' regulation (composite position) to reach the minimum intensity with a simple 'click'
- **NEW PROXIMITY SENSOR** with shielding devices for high-output radio frequencies **NEW**

## TECHNICAL DATA

GENERAL FEATURES*	
Power Supply with transformer	230 Vac +/- 10% - 50/60 Hz
Power Supply with/without power pack	90-264 Vac - 47-63Hz / 17-24 Vac - 50-60 Hz 22-35 Vdc
Absorbed Power	max 9 VA
Lux	from 3.000 to 35.000 (from the distance of 700 mm)
Lighting source	2 LEDs
Lighting spot	170 x 85 mm
Cooling System	static heat sink (no fan required)
Handles	removable and autoclavable

Medical Device complies with Directive 93/42/EEC and s.m.i. - Medical devices - class I - Applied Standards: EN 60601-1, EN 60601-1-2, EN 60825, EN 62471; Guaranteed 12 months \*(The above specifications are typical values subject to tolerance)

### ELECTRONIC CONTROLS

- Switching on/off from the head
- Switching on/off version also from unit or by foot control
- Electronic lighting regulation from maximum to minimum through a microprocessor

### OPTIONALS

- Remote control from the unit: allows user to repeat all switch functions
- Rotation on Third Axis
- Extended Warranty to 24 months
- Complete RAL colours range

## TECHNICAL DATA

GENERAL FEATURES*	
Power Supply	17 V - 50/60 Hz
Power Supply with power pack	230 V - 50/60 Hz
Absorbed Power	105 VA
Lighting source	1 halogen 17 V - 95 W
Lighting spot	180 x 60 mm
Cooling System	forced with fan
Handles	removable and autoclavable

Medical Device complies with Directive 93/42/EEC and s.m.i. - Medical devices - class I - Applied Standards: EN 60601-1, EN 60601-1-2; Guaranteed 12 months \*(The above specifications are typical values subject to tolerance)

### ELECTRONIC CONTROLS

- Switching control on the head or by proximity sensor
- Microprocessor assisted fan cooling system
- Opened Sterilizable or Fixed and Fork handgrips

### OPTIONALS

- Rotation on Third Axis
- Complete RAL colours range

### PERFLEX

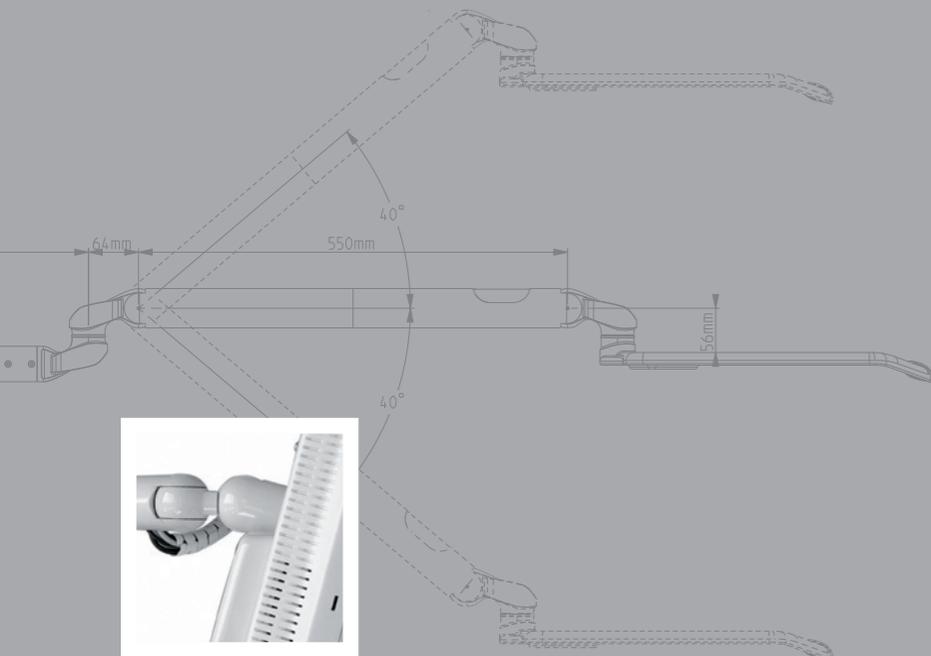
Detergent for dental lamps

- New **sanitizing composition**
- Specific for odonothiatric cabinets
- Reflectors and plastic surfaces cleaner
- Antistatic, not polluting and biodegradable over **90%**



## APPLICATION SETS AND COMPLEMENTS

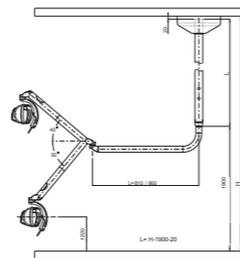
FARO dental lighting systems are easily positionable in any situation of use, thanks to the overlapping coupled arm which the lamps are equipped with. A complete line of application kits allows any type of dental unit or ceiling, or floor or pole or wall mounting. The line of Tray Arms is essential to add the workstation additional shelves. The Camera or Monitor Arms allow you to have a constant eye on electronic monitoring. FARO experience is synonymous with advanced ergonomics.



### APPLICATION SETS

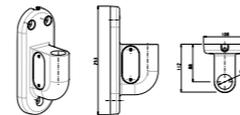
#### CEILING APPLICATION SET

Ceiling mounting (with or without transformer) with cover and column  $\varnothing$  60 mm, pivot  $\varnothing$  35 mm.



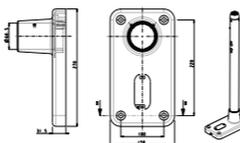
#### WALL APPLICATION SET

For lamps and arms.



#### FLOOR APPLICATION SET

Floor stand with base and column  $\varnothing$  60 mm pivot  $\varnothing$  35 mm.



#### POLE APPLICATION SET

Fixed adapter lamp or arms holder for columns  $\varnothing$  50 and  $\varnothing$  60 mm.

Multi-arm Jaw adapter lamp, arms, camera and Inside holder. This innovative attachment system is adjustable for columns from  $\varnothing$  45 to  $\varnothing$  50 mm without making holes, and it also permits the installation of the adapter in the middle or at the end of the pole.



Fixed adapter detail



Multi-arm Jaw adapter detail

### COMPLEMENTS

#### TRAY HOLDER ARMS NEW

Arms with tray available in different versions. They can be fitted to the dental unit or installed to a floor stand, giving an additional working surface.

- refurbished design and new tray adjustment system
- standard arm load 3kg
- tray dimensions mm. 375 x 291



#### MONITOR/CAMERA ARMS

Fixed arms, horizontal, vertical or articulated for unit or ceiling applications. A solid aluminum frame to ensure no vibration and precise movements. Supplied with VGA / Power / Stereo Audio / Video IN / IN S-VHS video cables integrated.

Camera holder aluminum arms for cameras and video cameras, photo-video equipment adaptable to up to 3 Kg. Supplied with integrated Video and Power Supply cables.

Available in all RAL colours.



### DUO APPLICATION

#### THE MOST VERSATILE SOLUTION

"DUO" is a new ceiling fixing system which meets the diverse needs of the medical cabinet.

Its ergonomic combination makes the most of the work area allowing complete freedom of movement. In particular, the version with dual lamp offers the possibility of enhancing the illumination of the surgical field and increases the scalytic effect of the lamps, giving more comfort to the doctor and his team.

#### ASSEMBLY OPTIONS

The physician, depending on his needs, can choose from multiple combinations of assembly options.



Example of ceiling mounting of a Halogen Dental lamp with a Monitor Arm.



Example of ceiling mounting of a Monitor Arm with a Camera Arm.



**FARO S.p.A.**, founded in 1948 by Osvaldo Favonio, designs and produces equipment for the manufacturer of dental unit, the dental cabinets and dental laboratories.

In more than 5,000 square meters of the production plant in Ornago (MB), both the production and the design and research & development take place.

Over the years, the Company has earned the position as world leader in the specific sector, a role gained thanks to the technology and design research and the ability to understand the real needs of end users.

Total quality, assured by the internal management of the entire production cycle and by a qualified and efficient pre- and post-sales service.

FARO experience best expresses the pride of a total-made-in-Italy product.



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Certified Company



ISO 9001:2008



ISO 13485:2003

INFO LINE:

