

New generation of operating
and examination lamps

plus **LED**



+ KLAROMED

*polish producer
of operating LED lamps*

most modern polish LED lamps

Features of plusLED lamps

To meet the needs posed by modern surgery and each of its disciplines have developed innovative solution which lamps are plusLED.

Lamps provide precise light wherever it is necessary. The homogeneous nature of the light increases surgeon comfort in every place large the operative field.

PlusLED lamps characterized by extremely low emission IR in the direction of the operating field.

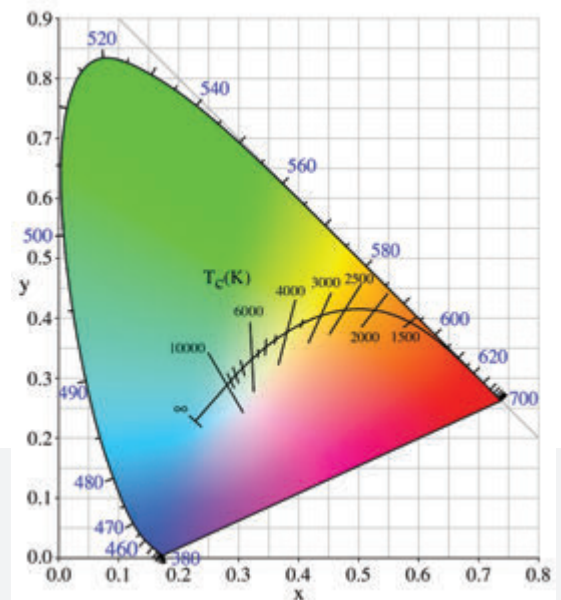


Lamps has previously unreachable ideal colour rendering index Ra with the level of 96 and second important index of red color R9 (red) = 96. You can easily see the tiniest color nuances of the tissue.

Accurate representation color spectrum of operational field and red color is necessary.

Factor R9 (red) ≥ 90 facilitates to surgeons clear visibility of details.

The color spectrum of the operative field is rendered in a natural way. Delicate and precise plusLED lamp light is ideal to the eyes.



Used in the construction of the lamp plusLED white LEDs are the fifth generation with the impressive life 50 000 hours!

PlusLED lamps are the cheapest on the market lamps in this technology.

Multi facet reflectors provide uniform light field and eliminate the interference of the operating field caused by shadow.

So constructed and arranged headlights provide the perfect cover operating field warm white light with a temperature color 4 900 K.



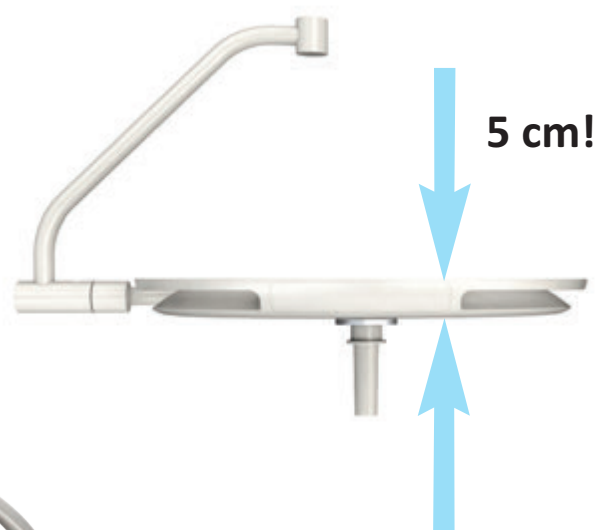
Lamp housing is made of a light alloys aluminum. This is a material which guarantees shock resistance and long life.

The heat is emitted through the upper part of the housing in to the ceiling, so that very small amounts of heat are emitted in the direction of the surgeon's head and his shoulders.

Unique in the world of ultra thin and compact housing design ensures leak-tightness, good cooperation in the supply air laminar and visually according to the latest trends.

Used in the design of the lamp is ESD-safe glass resistant to breakage and scratches.

The compact design of the lamp increases the effectiveness of and ergonomics and allows the use of lamps in a wide range of applications at the same time helps to keep the lamp in a perfectly purity.



The streamlined shape that have plusLED lamp is ideal for operating rooms equipped in laminar air flow.

Clean air flows around compact lamp housing without causing turbulence.



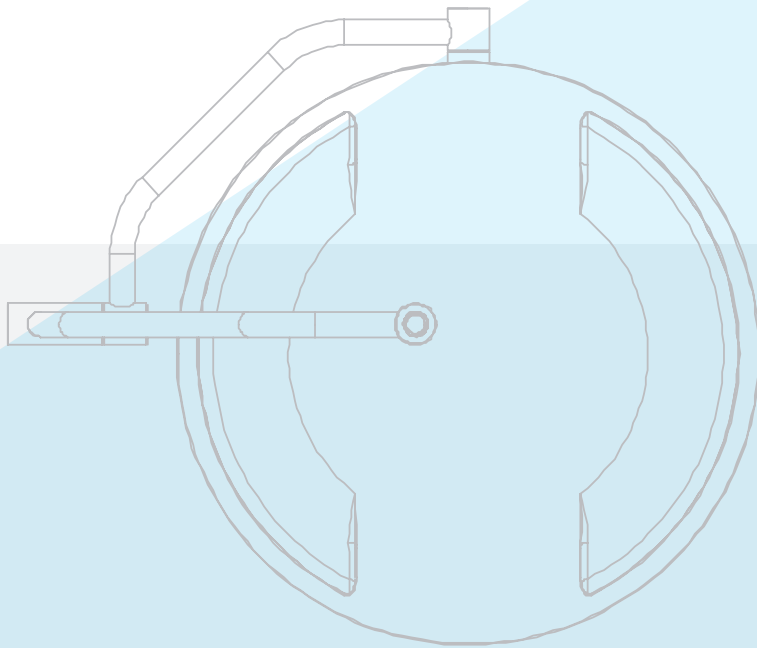
Operating lamp plusLED 96

plusLED 96

A new operating lamp plusLED 96 uses LED technology fifth generation to achieve enormous size of a diameter of the surgical field 30 cm with maximum intensity and minimum temperature increment. Many multi facet spotlight emits a perfect white light of 96 LEDs, which gives a high effect and also gives shadowless high capacity to light penetration into the operating field.

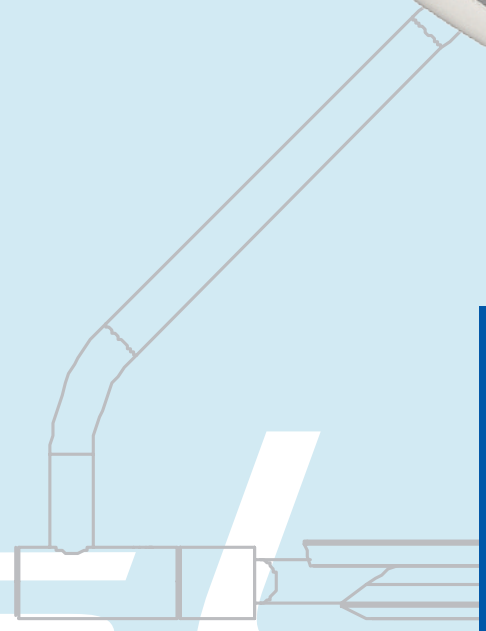
Multi reflector structure further enhances this effect by maintaining constant regardless of the illumination size of operating field.

The lamp is equipped with an innovative handle sterile gives the surgeon full control over the parameters of light the lamp. Do not touch anything except precise sterile handle surgeon can change the size of the operating field and illumination.

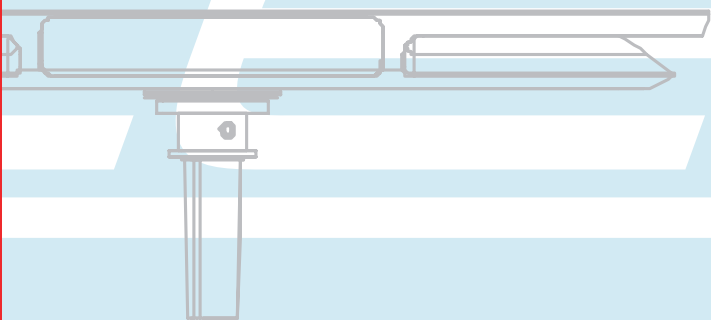
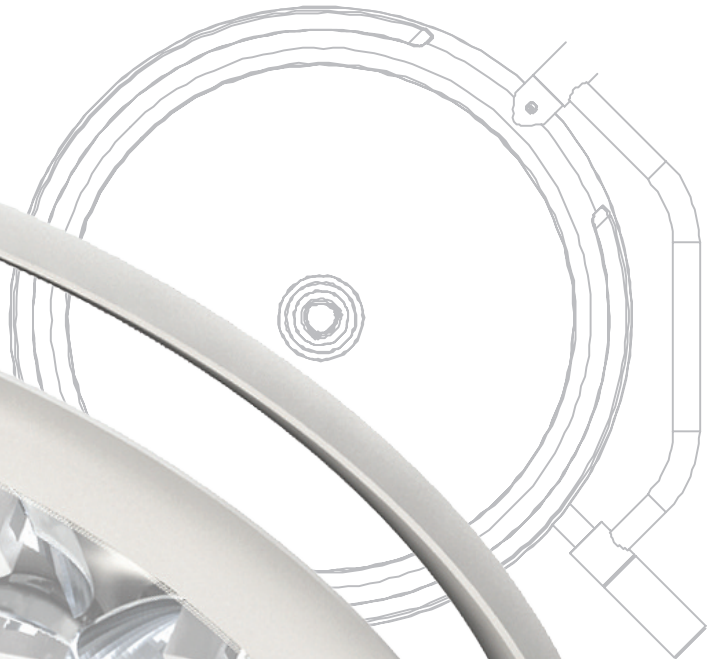


Non-sterile handles around the lamp body are monolithic structure with the body which ensures perfect cleanliness. Smooth transition and slender shape further increase comfort.

Easy maneuverability, easy handling of head lamps and a variety of options such as AMBIENT lighting or innovative two-cameras TV system and the ability to setup any combination with flat monitors and accessories allows to create a optimized product for current operational teams.



US LED 96



LED

Operating lamp plusLED 56

plusLED 56

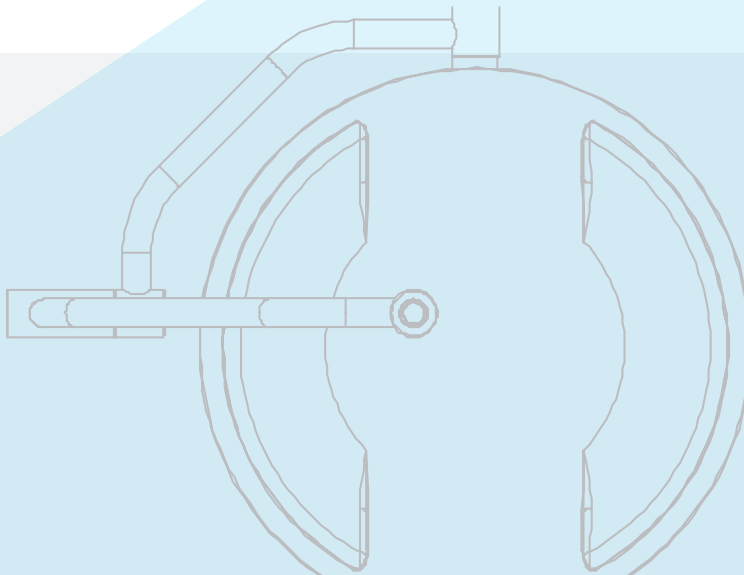
Each individual LED module generates its own light, uniform homogeneous surgical field, which after reflection from multi facet reflector is applied to other fields generated by the neighboring LEDs creating light for the various surgical procedures.

Careful use of 56 high-performance white LEDs is used for the generation of optimal illumination differing the type of tissue. The flat, compact design offers excellent light and provides modern, highly functional and aesthetic appearance of the lamp.

Used in the lamp innovative sterile handles allows the surgeon to precisely control the parameters of light. Adjusting the light intensity of the lamp and the diameter of the surgical field is done from one sterile place.

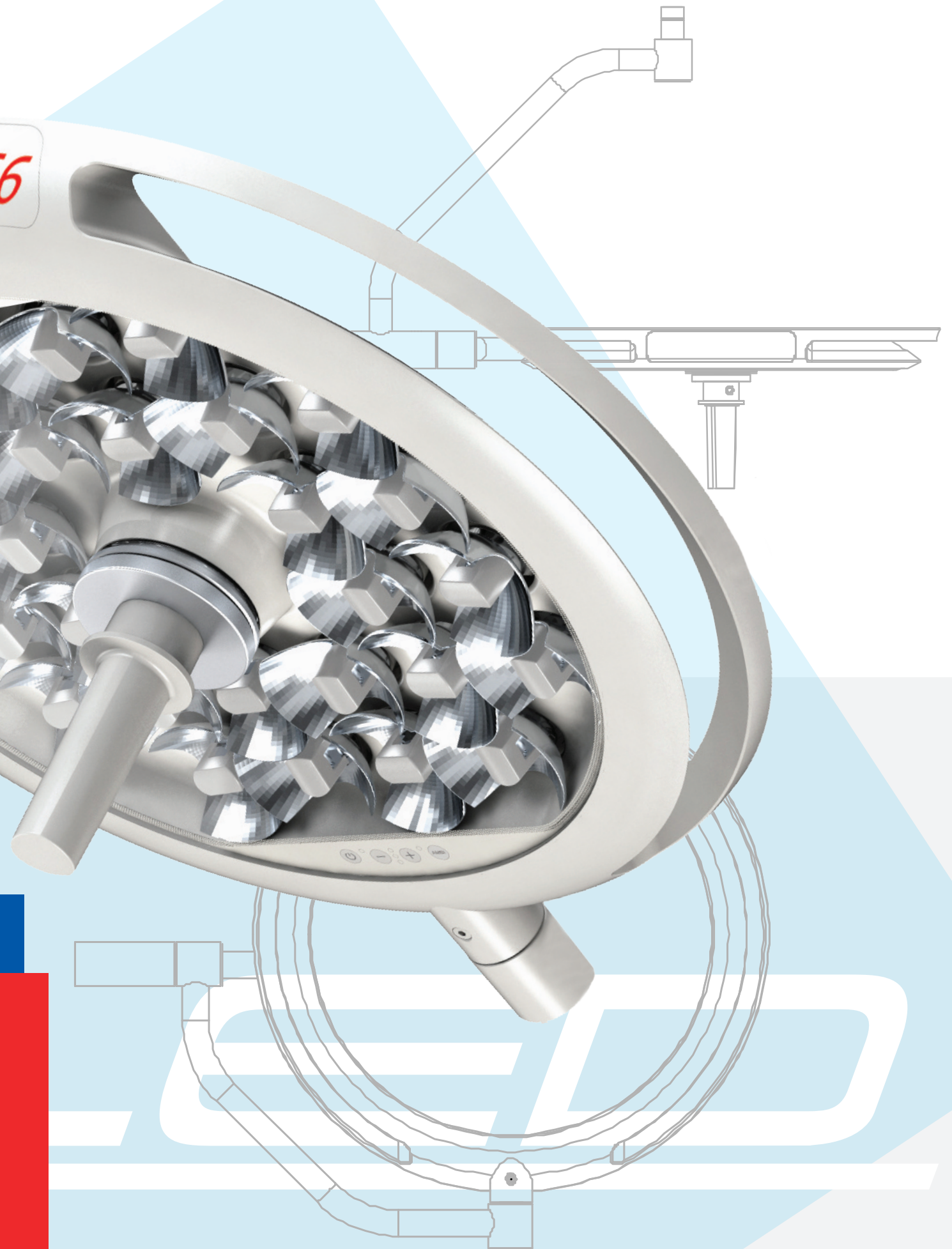
Integrated into the body of the lamp non sterile holders easy to maintain purity of the lamp with the slender shape of the body.

The handle is an integral part of the body which further increases hygienic of the lamp.



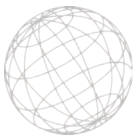
Cool light without infrared eliminates the problem of raising the temperature area of the surgeon head providing a stable work environment unchanged during long surgical procedures. Reduced heating effect by the lamp heads is beneficial integration with laminar air vents.

Reduced heating effect by the heads of the lamp is beneficial integration with laminar air vents.



Lamps plusLED with two-camera video system

Two-Camera operating lamp
plusLED 96 / 96 with INTEGRATOR plus system



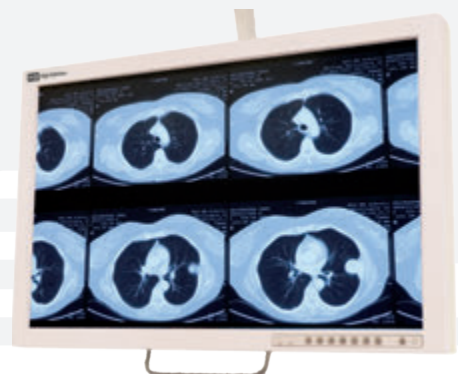
The world's first operating lamp with a two-camera system

Operating lights plusLED is the world's first lamp with two-camera system. The lamp is equipped with two TV cameras in HD and SD quality and installed INTEGRATOR plus system. This allows launch video features like a two-channel recording images from the installed cameras. In addition with installed recording system INTEGRATOR plus operating lamp provides video transmission and connection to local radiological RIS system.

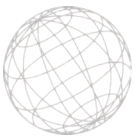
Touching a button on the 24-inch control unit screen allows you to record video. The recorded material can be completed to the standalone CD / DVD media disc to reproduce on other workstations.

The electronic negatoscope uses an additional monitor with DICOM curve together with the control unit suspended on a dedicated third arm of the lamp. Negatoscope allows you to select patient records by give patient ID, name or date of the examination from the local RIS (eg. computed tomography, magnetic resonance, ultrasound).

Video transmission used in lamps breaks down barriers and distance providing access to specialists from other places or countries in order to facilitate consultation.



Two-Camera operating lamp
plusLED 96 / 96 with VIDEO plus system



The world's first operating lamp with a two-camera system

Operating lights plusLED was equipped with two TV cameras in HD and SD quality and installed VIDEO plus system, capable of running video features like a two-channel recording images from used two cameras in lamp and video transmission.

Video recording is performed with a single touch of a button on the 22 inch control unit screen, suspended on the third arm of the lamp. The recorded material may be completed at a later time to a standalone CD / DVD media disc for the play on other workstations.

Lamps used in video transmission breaks the barriers of distance providing the access to specialists from other places or countries in order to facilitate consultation.

It is an ideal solution that supports and facilitates all kinds of training and education. It gives invaluable option when making partnership between multiple centers having the ability consultation.



Sets of operating lamps plusLED

Sets are of operating lamps in combination with monitors in single flat, double or adapted to the needs of the project, as well as the possibility of integrating with other accessories.

Lamps plusLED combined in sets give the light of independent sites operating team improving the performance of the operating field and thus enhance security and protect against failure.



The construction of the lamps based on the doubly protected and checked at the production stage components which directly dedicated into a failure-free individual lamps and lamp sets.

Compatible design of electrical and electronic circuits lamp works perfectly in connection with emergency or power supply systems available in the healthcare sector.



These combinations of operating lights find their application in all disciplines medicine to illuminate the surgical field.

Technical parameters of plusLED lamps

	Parameter	<i>plusLED 96</i>	<i>plusLED 56</i>
General data	Number of LEDs	96	56
	Lifetime of the LEDs	>50 000 h	>50 000 h
Photometric values	Illuminance EC at distance of 1 m	160 000 lx	130 000 lx
	Electronic brightness adjustment	40 to 160 klx	40 to 130 klx
	d10 light field, at 10 % of the max. illuminance at a distance of 1 m	170 to 300 mm	170 to 280 mm
	Colour rendering index Ra	96	96
	Red rendering index R9	96	96
	Illumination depth (L1 + L2) 20%	900 mm	1 000 mm
	Illumination depth (L1 + L2) 60%	510 mm	550 mm
	Colour temperature	4 900 K	4 900 K
Connected loads	Voltage	24 V	24 V
	Voltage range	22 to 32 V	22 to 32 V
	Power consumption, maximum	2,5 A	2,0 A
	Rated power output	50 W	40 W
	IP protection class	42	42

All values in accordance with EN 60601-2-41.

All light specifications $\pm 10\%$.

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EN/09.07.2014
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