Maquet PowerLED II Surgical Light

Driving surgical efficiency to the next level

GETINGE

Consistent illumination

to improve patient safety

The belief that better illumination results in better patient outcomes led to the development of the Maquet PowerLED II Surgical Light.

Maquet PowerLED II ensures the clearest and brightest light for surgeons, without distractions from glare. Built on the proven PowerLED platform that you've trusted for a decade, we've integrated innovative solutions that improve working conditions in your OR.

Maquet PowerLED II provides constant, clear, shadow-free illumination for precise tissue visualization. You can deliver better patient outcomes with our best-in-class lighting technology.

Putting patients first

For more than a century, Getinge and its well-known brands – such as Maquet – have put patients first. It's why we remain committed to close relationships that identify real-world healthcare challenges, and address them with cost-effective, clinically relevant solutions.

As one of the world's largest medical technology companies, we have the resources to help you protect patients, proactively avoid complications, and prevent ergonomic issues that are common in medical settings. Our comprehensive portfolio of medical technologies will support you and your patients throughout the clinical pathway, so you can deliver the best possible patient care.

Maquet PowerLED II

Evolving design, revolutionary features

4K or full HD wired camera*
Document procedures in 4K or full HD quality to share best practices among surgeons, maintain precise records for risk management, and optimize understanding and learning.

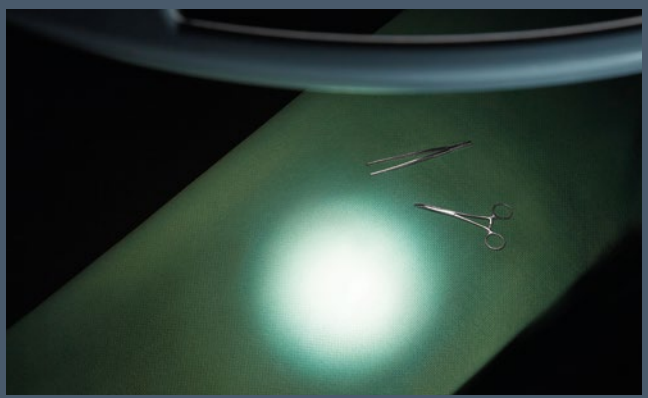
Small light patch
With a minimum size of 13cm (5.1"), Maquet PowerLED II focuses illumination where it's most needed.

Light patch positioning (laser)
A laser guide ensures precise positioning for best lighting condition

Maquet PowerLED II 500

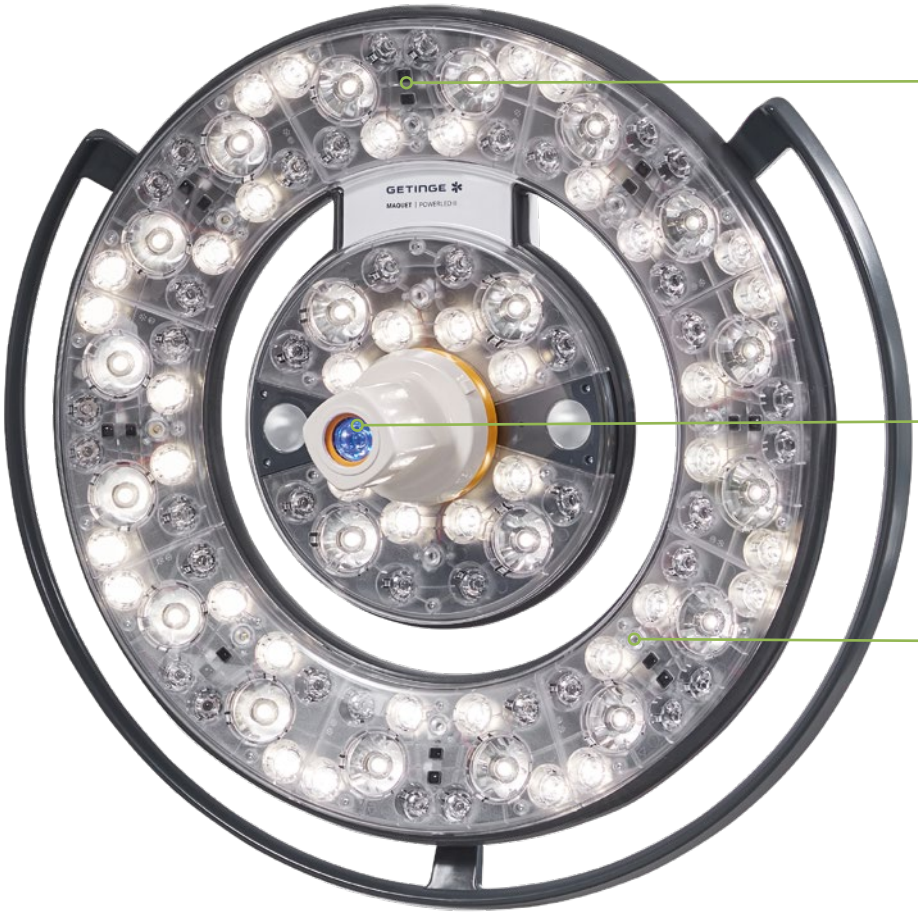
Multiple colors of ambient light

Maquet PowerLED II ambient light gives surgical staff the flexibility to choose their preferred color (from white to yellow), limiting glare on the monitors and improving contrast. This improves clarity and helps set a friendly and peaceful mood for surgical staff.



Adjustment of the light patch diameter

Match the light patch to the wound size, delivering light exactly where it's needed.



Automatic Illumination Management (AIM)
The AIM system automatically compensates for light blocked by the surgeon's head by boosting the remaining zones. This offers total freedom of movement without any reduction in Illumination, enhancing visualization.

Luminance Management Device (LMD)*
LMD automatically regulates the illumination to provide stable illumination without need for readjustment.

Comfort Light*
Comfort Light minimizes luminance contrasts between the center of the light patch and its periphery. This reduces the glare effect to protect against eye fatigue and to help improve patient outcomes.

Maquet PowerLED II 700

**Optional*

Quick Lock System
Maximize the value of your investment. Easily transition cameras or LMD systems as you pool equipment between rooms – no special tools needed.

Antibacterial coating minimizes germ spread
Antibacterial film and paint on keypads and external handles limit the risk of cross-contamination.

Shadow management

Everything has been designed to enable the medical team to focus exclusively on the surgical operation thanks to the perfect shadow dilution. A large number of individual divergent light beams create a complete light patch, ensuring that the light field will remain circular and shadow-free. Maquet PowerLED II provides the best illumination, even when surgeons are blocking the LEDs.

Advanced surgical lighting

to keep patients safer

Patient safety is the most important aspect of healthcare. But in an environment where safety is often equated with new technologies and techniques, sometimes the simplest things can be overlooked.

We believe that positive outcomes rely heavily on surgeons' eyes: the ability to clearly see the problem, assess the situation, and safely treat the patient. In short, good lighting in the OR plays a major role in achieving positive patient outcomes.

Surgical safety – color remains stable over time

Maquet PowerLED II uses only white LEDs to render natural and faithful colors. White LEDs prevent the distracting colored shadows that can appear on the surgical field with the use of colored LEDs[1]. A color rendering index of better than 96 facilitates clear interpretation and diagnosis. And with long-life LEDs, you can expect more than 60,000 hours of reliable service with no shifts of the optical parameters and no risk to patients.

Boost function – prevent surgical complications

Maximum illumination up to 160,000 lux can be achieved by using boost mode during severe bleeding. This gives additional light when needed, but minimizes radiant heat during normal operation to prevent tissue drying – even in the most sensitive patients. You can operate in total confidence, with no additional uncontrolled risk.*

Smart electronics – prevent downtime

All LEDs are independently controlled by smart electronics, ensuring maximum illumination even in the event of an electronic failure.

Improving OR hygiene

Hospital-acquired infections contribute to the high cost of healthcare, and delay patient recoveries. Getinge has taken steps to minimize the risk of complications from nosocomial infections throughout the OR by developing an antibacterial coating on high touch surfaces such as touchscreens, keypads and external handles. This coating helps to reduce the risk of cross-contamination and hospital-acquired infection to keep patients safe.

Open ring design – asepsis compatibility

The open ring design**, smooth surfaces and excellent heat dissipation aim to work with laminar air flows from all ceiling air flow systems.

1 Knulst AJ, et al. Surgical Innovation, 2009
* Total irradiance is stricly below 550 mw/m²
** The open ring design is unique to the Maquet PowerLED II 700

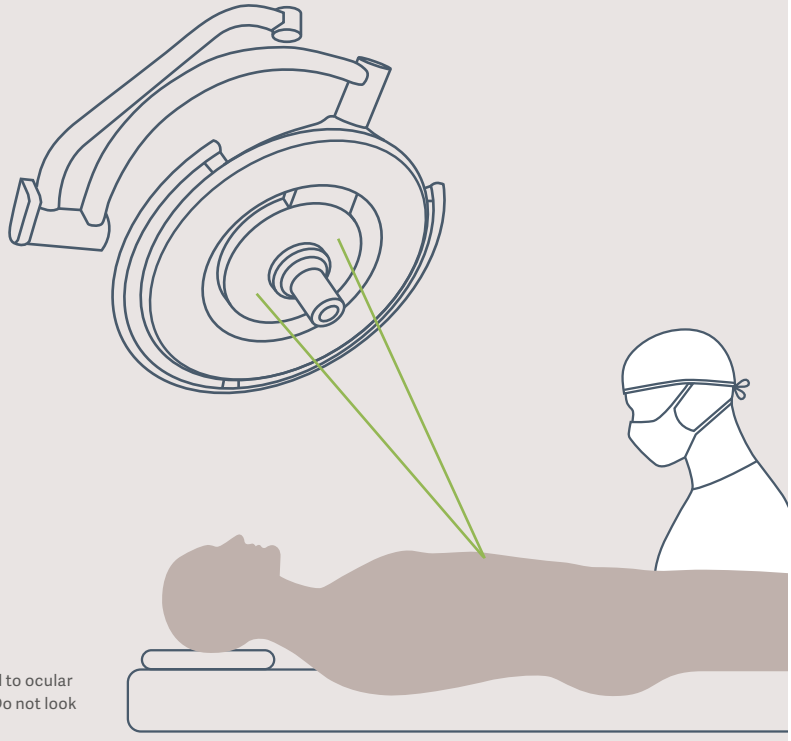
Stable and constant illumination

Enhanced visibility, diagnosis and treatment

Maquet PowerLED II improves conditions before, during and after each procedure. Long hours in the surgical suite require constant concentration, steady hands, and stamina. But surgeons can't devote their full attention to the procedure if they are distracted by shadows or lighting repositioning. The workplace experience can be dramatically improved with best-in-class illumination.

High-quality illumination helps to relieve strain, ensure confident assessment, and minimize distractions to return the surgeon's full attention to the patient. When lights are properly positioned, no time or attention is lost in adjustments. Maquet PowerLED II offers features to ideally position lighting which facilitates surgical procedures.

- **Adjust the light patch to the incision size:** the light patch is electronically adjustable from 13 to 27 cm / 5.11" to 10.6" to meet the incision size, preventing peripheral glare.
- **Laser positioning for optimal lighting parameters:** a laser guide is available to easily position the cupola at the right distance and place for optimum working conditions.
- **Consistent illumination from start to finish:** Flux Stability Program (FSP) applies an automatic compensation, cancelling out the drop in intensity that is inherent to LED technology.

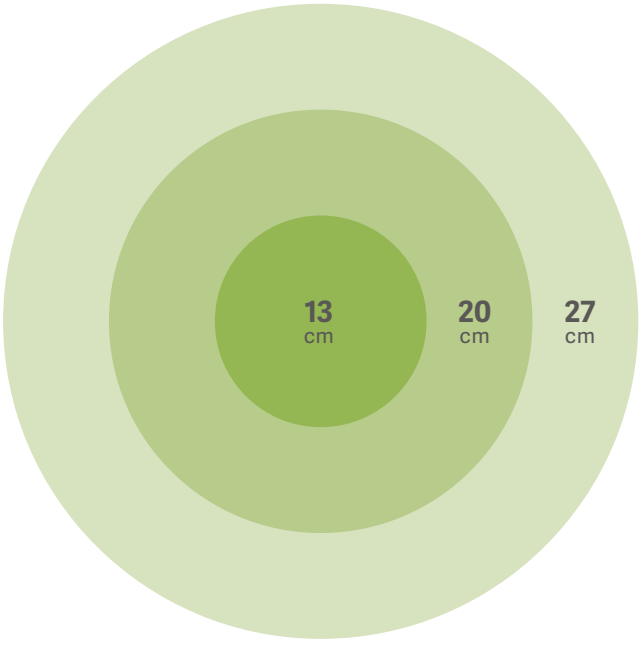


Precise positioning

Laser guide to easily position the light patch at the center of the surgical field

Class II laser: risk of injury. A long eyes exposure to laser can lead to ocular injuries. Do not point a laser beam in unprotected patient eyes. Do not look directly into the laser.

- **No illumination lost:** Automatic Illumination Management (AIM) automatically compensates for LED obstructions to deliver consistent and effective illumination, without readjustment. Indeed, with two surgeons behind the cupola, useful light remains at 100%.
- **Reduce glare effect:** The eye sensitive response (ESR) function, based on Fechner's law, provides an efficient linear light sensation by gradually adjusting brightness to improve perception.
- **Dimming for any type of application:** Customize illumination from 10 to 100% to reduce eye strain. This improves the surgeon's experience across all applications, from prostatectomy to breast re-construction.
- **Maximize useful light:** Minimize eye fatigue caused by shadows with the Luminance Management Device (LMD).



Precise positioning light patch adjustment from 13 up to 27 cm to focus illumination where it's most needed.

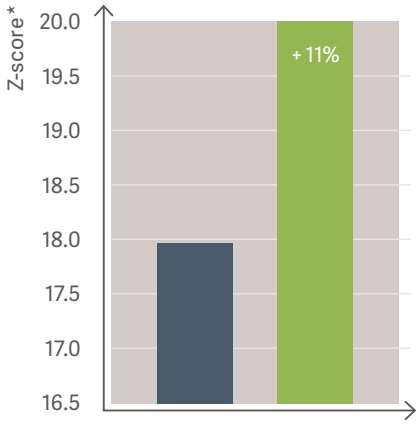
Automatic Illumination Management

Improving workplace comfort

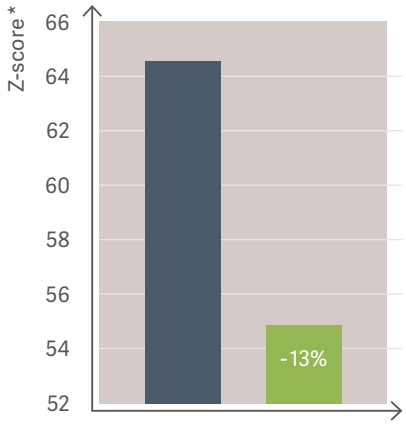
Reducing visual fatigue to minimize errors

Visual fatigue affects work performance. Poor visual conditions can have dire consequences in the OR. However, reducing the contrast between the surgical site and surrounding areas improves comfort and visual performance. Thanks to the Comfort Light feature, Maquet PowerLED II improves visual performance, reduces the sensation of glare and increases the feeling of wakefulness leading to a better working environment for the surgeons. The number of mistakes at the color vision test is reduced by 13%, the sensation of glare by 7% and sleepiness by 15% whereas the visual acuity is improved by 11%.

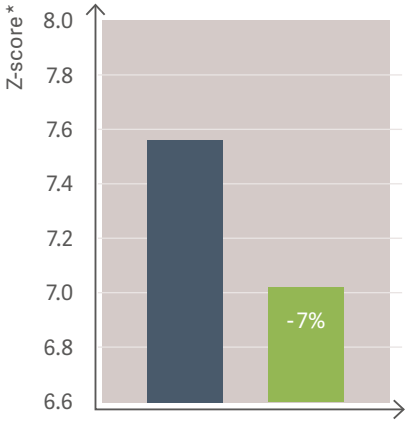
Visual acuitiy



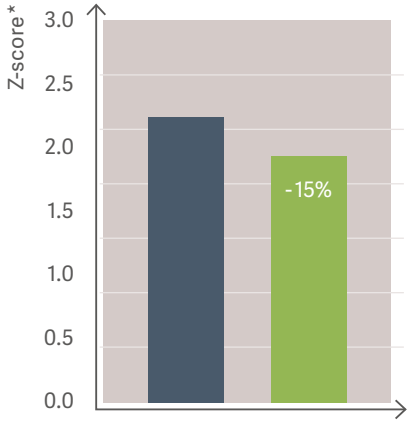
Number of mistakes
at color vision test



Glare



Sleepiness



Surgical light alone
Surgical light with Comfort Light

*A Z-score is frequently used in statistics and is a good way to eliminate inter-individual deviations, as it serves to consider a participant's result according to his/her average result over all of the scenarios tested.
The formula is as follows:
Z-score = (value – average value)/standard deviation.

Share information and educate

Cameras solutions

Ultra-high-resolution images can be used for informing patients, educating trainees, presenting to colleagues, robust patient records, and publishing in papers.

Maquet Orchide 4K camera

With four times the resolution of traditional HD cameras (3,840 x 2,160 pixels) and an optical zoom of 20x, the Maquet Orchide 4K camera allows for clear details. Integrated into the Maquet PowerLED II surgical light, it minimizes repositioning in the OR.

- The positioning assistance system ease the setup of the camera to target area and capture narrow surgical site in detail.
- The picture in picture mode displays precise, close-up views of the procedure in the full screen, with a wide-angle image in the inset image. This allows staff to understand progress and optimize throughput by preparing the next patient.
- Clarity in all parts of the visual field: The e-pan / tilt feature allows you to zoom in to see any part of the visual field in more detail. With UHD 4K resolution, images remain clear – even at 20 x optical zoom.
- Intuitive controls: All parameters (zoom, focus,...) can be controlled from the wall-mounted touchscreen.
- Optimize hand-eye coordination: Virtually zero latency for real-time responsiveness.
- Minimized distraction: Easily highlight an area of the 4K image without moving the camera,
- Market-leading specifications: 3,840 x 2,160 pixels, 20 x zoom, progressive 30 Hz signal.
- Smart OR integration: Compatible with Getinge TEGRIS or other OR integration solutions

Quick lock system

Maximize the value of your investment: Easily transition cameras or LMD systems as you pool equipment between rooms – no special tools needed. It allows accessories such as full HD and 4K cameras* to be quickly and easily connected and disconnected without special tools. This minimizes setup time between procedures, and allows easy pooling of accessories, with cameras shared throughout the surgical suite.

*The configurations must be pre-wired

Full integration

from conventional to hybrid rooms

A dedicated Hybrid OR solution: with more than 1,500 completed Hybrid OR installations, we are experts in the field. We know that the Hybrid OR is the future of surgery. We developed the Maquet PowerLED II light to be future-proof, ready for the Hybrid OR when you are.

Longer suspension arm:
Move the Maquet PowerLED II out of the way to make room for imaging equipment.

X-ray shield:
Seamless integration with the latest Hybrid imaging technologies.

Getinge Flat Screen Holders:
Accommodate larger and heavier flat screens up to 42 inches, with full HD or 4K visualization, without disrupting your surgical light configuration.

The antibacterial touchscreen wall keypad allows the synchronization of the cupola to meet surgeon or specialty preferences, without the risk of cross-contamination. Preventive maintenance, including backup power supply testing, operating parameter storage, self-diagnostics, and remote control and communication can be provided. An RS-232 interface can be linked to various integrated products.

Sharing information in 4K or full HD quality such as best practices among surgeons or to document procedures for risk management.

The quick lock system allows accessories such as 4K or full HD cameras to be quickly and easily connected and disconnected without special tools. This minimizes setup time between procedures, and allows easy pooling of accessories, with cameras shared throughout the surgical suite.

The Maquet Satelite Anchoring System allows equipment to be positioned within reach of the surgeon, concealing wires and cables to improve safety and hygiene. Equipment can be easily added, removed and upgraded to meet future requirements.

Maquet Moduevo: Our easily positioned ceiling supply unit range keeps vital equipment near the patient, without cables and connections to get in the way.

Product range

Multimedia equipment

Single / Double Getinge Flat Screen Holder

Keypads

Touchscreen wall keypad

Capacitive wall keypad

Lighthead keypad

Suspension arms

Maquet SAX Suspension

Maquet Satelite Anchoring System

Maquet SB Suspension

Mobile versions

Maquet Rolite with
Maquet PowerLED II 700

Maquet Rolite with
Maquet PowerLED II 500

Technical data

Optical characteristics	Maquet PowerLED II 700	Maquet PowerLED II 500
Maximum central illumination ($E_{c,MI}$) [1]	160,000 lx	
Maximum central illumination ($E_{c,Ref}$) [2]	150,000 lx	
Dimming range	10–100% with eye sensitivity response	
Light field diameter d_{10}	13 / 20 / 27 cm 5.1"–7.9"–10.6"	13 / 20 cm 5.1"–7.9"
Light distribution d_{50}/d_{10}	0.56	
Depth of illumination above 60%	24 / 43 / 44 cm 9.4"–16.9"–17.3"	38 / 53 cm 14.9"–20.8"
Color temperature (fixed) [3]	3,800 or 4,300	
Color rendering index (Ra)	96	
Maximum irradiance [2] (E_{total})	550 W/m²	
Irradiance at level 8 and below	< 350 W/m²	
LED life time	> 60,000 hours	
Ambient light	< 500 lx 6 different colors	

Shadow dilution	Maquet PowerLED II 700	Maquet PowerLED II 500
Shadow dilution with one offset mask [4]	100%	
Shadow dilution with two masks [4]	100%	75%
Standard features	AIM, FSP, integrated antibacterial coating, laser positioning	
Additional options	LMD, Comfort Light	

Full HD wired camera	
Number of pixels	≈2.48 Megapixels
Optical zoom	x10 (x 60 with digital zoom)

4K wired camera	
Number of pixels	8.3 Megapixels
Optical zoom	x 20 (x 60 with digital zoom)

Maquet PowerLED II lighthead optical data in accordance with the IEC 60601-2-41 standard.
Values measured at a reference distance (D_{REF}) of 1 metre (39.4 inches).
1 Measured at Maximum Illuminance Distance (D_{MI}) of 95 cm / 37.4 inches (± 10%).
2 Limited to 160,000 lx
3 The color temperature can be selected at the time of ordering.
4 With AIM mode

This information is intended for an international audience outside the US.

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