

mindray

HyLED C8/C7/C5

LED Surgical Lights

See widely, Move freely



www.mindray.com

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healthcare within reach



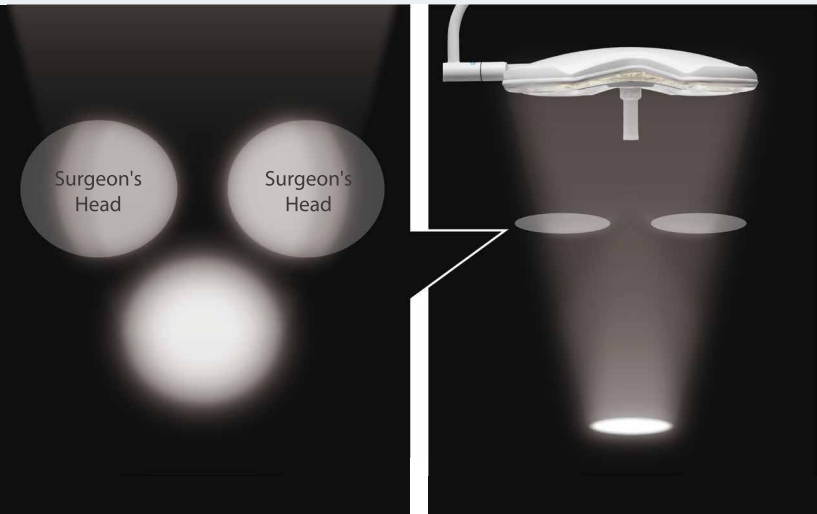
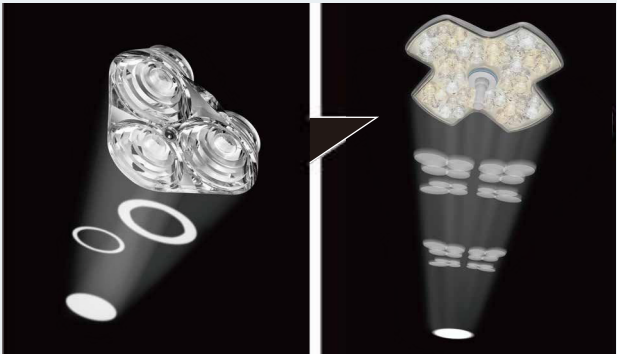
Closest Surgical Partner

With the advancement of medical technology and the increase in clinical needs, minimally invasive, informatization, and intelligence have become the trends in the construction and development of operating rooms. Therefore, more practical requirements are put forward for the surgical light in terms of optical performance, flexibility, upgradeability, stability, and reliability.

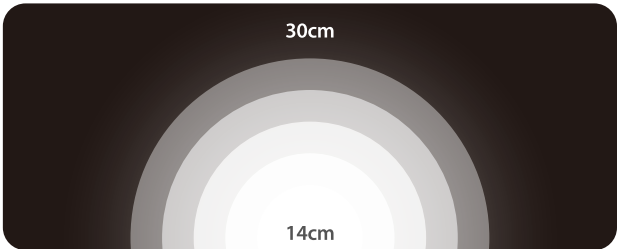
Upgraded Optics for Open Surgery

Multi-Patch Superposition Technology (MPST)

The innovative MPST allows surgeons to have a clear & homogeneous light field. The light field remains uniform in illumination, shape, and color even if it's been obstructed by surgeons' heads¹.

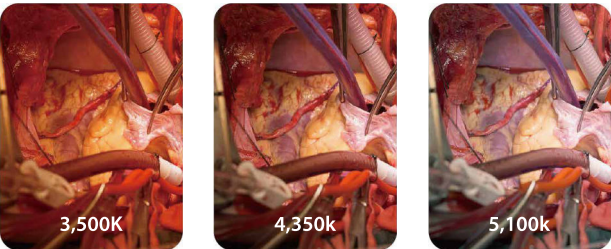


Wide Range Pattern Size More Focus and Less Glare



With an optimized lens design, HyLED C is suitable for surgeries with smaller incisions, such as appendectomy, cholecystectomy or thyroidectomy, which require light to be more focused and less glare.

Variable Color Temperature Distinguish Tissue Difference



Optional adjustable color temperature is variable from 3,500 - 5,100K, which is helpful to distinguish the differences between various tissue types and the perception of true tissue colors.

1. H Zhou, R Ding, J Qin, Y Pan, M Wang. Illuminance uniformity in obstructed LED surgical lighting. Lighting Research & Technology, 2022



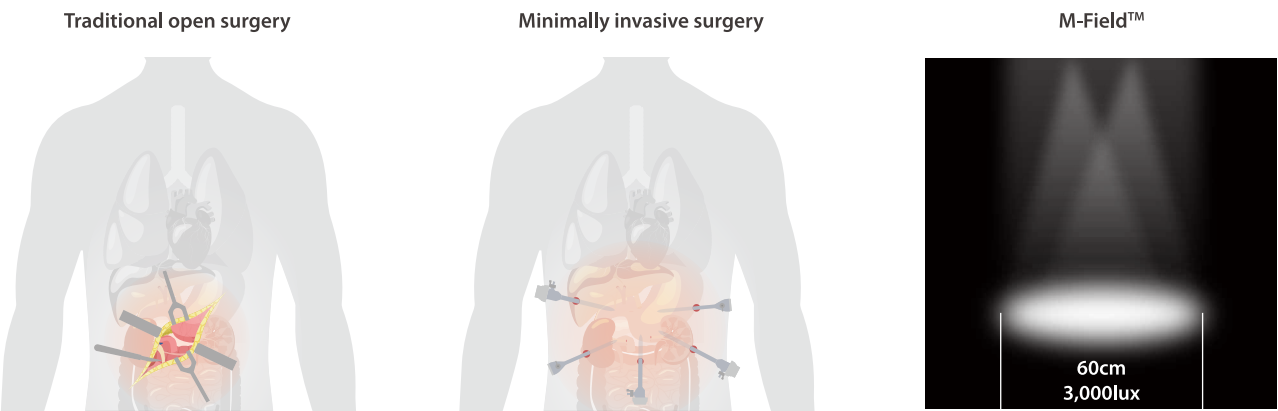
Clinical Solution Pioneer

M-Field™

Continual innovations in minimally invasive surgery (MIS) benefits people with a wide range of conditions. MIS causes less pain, scarring, and damage to healthy tissues, meanwhile, patients have a better chance to have a faster recovery.

As a clinical solution pioneer, Mindray has integrated multiple new functions into the new HyLED C series to meet the various requirements in MIS.

Widen Your Vision for MIS



Different from open surgery, several small incisions might be performed on the body during minimally invasive surgery. The covering area between these incisions is usually large.

Mindray uses the bionic "compound eye structure" lens design to achieve a large light field of 60cm, which is able to cover the whole chest and abdomen without moving the light head constantly during the operation.

“The surrounding operating field lighting should be 3,000lux for medical staff between 25 years and 65 years.”

--- IESNA lighting recommendation¹

”

Endo Mode Comparison

	Traditional ambient light mode	M-Field™
Light field diameter (1m)	About 30cm	60cm cover the whole chest and abdomen
Max. illuminance (Ec) (1m)	>8,000 lux or <500 lux	3,000 lux
Light field uniformity(D50/D10)	<50%	>60%

Traditional ambient light mode causes eye discomfort by excessive illumination and illuminance uniformity, or unclear vision by relatively lower illuminance.

1. The Lighting Handbook, 10th ed. New York: Illuminating Engineering Society,2011



Free Adjustment for Control



Multi-functional Handle

It allows the surgeons to control multiple functions directly with a synchronous notice on the field. A customized combination can be set among intensity, field diameter, color temperature, and M-field mode.

Flexible Control Methods



Touch Screen Control



Touch Keypad Control



Remote Control APP on the Tablet

Ease of Use

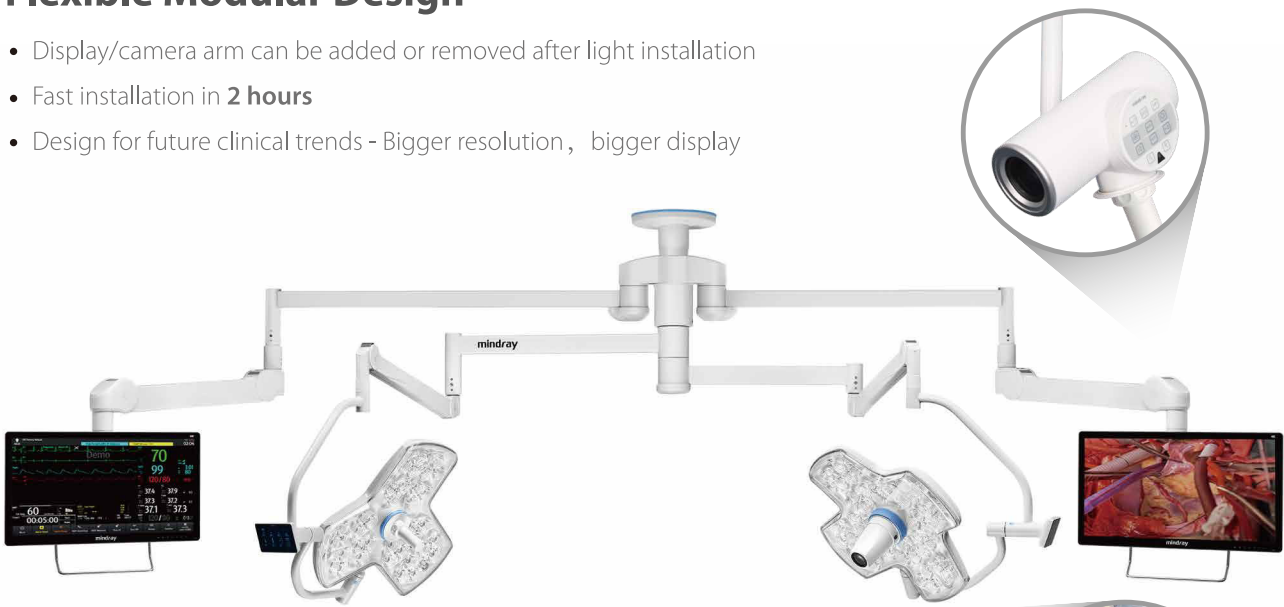
Stopless Rotation

Thanks to the stopless rotation design to all joints, the medical team is able to position the lights toward the exact surgical field easily in any surgeries.

Various Solutions for Flexibility

Flexible Modular Design

- Display/camera arm can be added or removed after light installation
- Fast installation in **2 hours**
- Design for future clinical trends - Bigger resolution, bigger display



Adaptive Display Holder

- Supporting large 4K endoscopic display
- Providing Various video combination solutions for hospital needs
- No additional customization



Quick Lock System

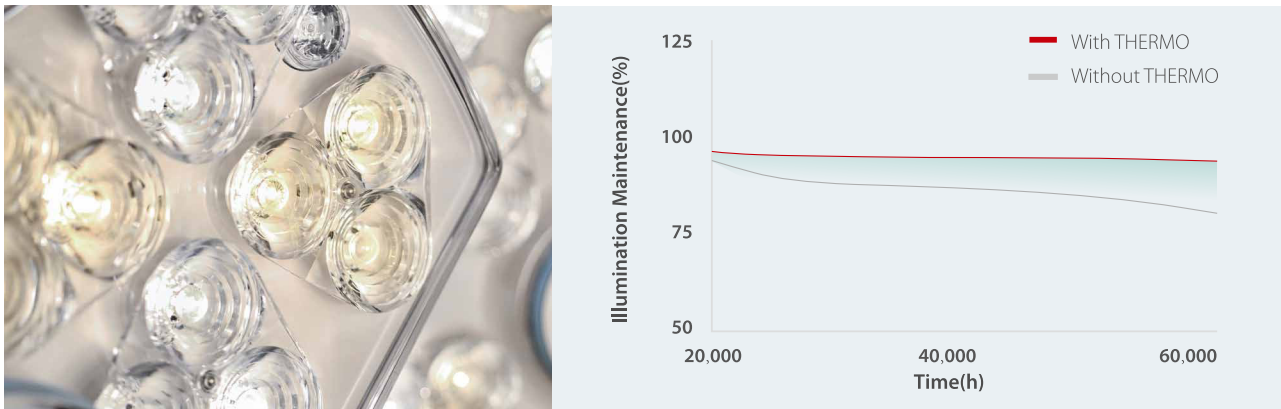
- Easy transfer the camera among different operating rooms
- No special tools needed

Accessories

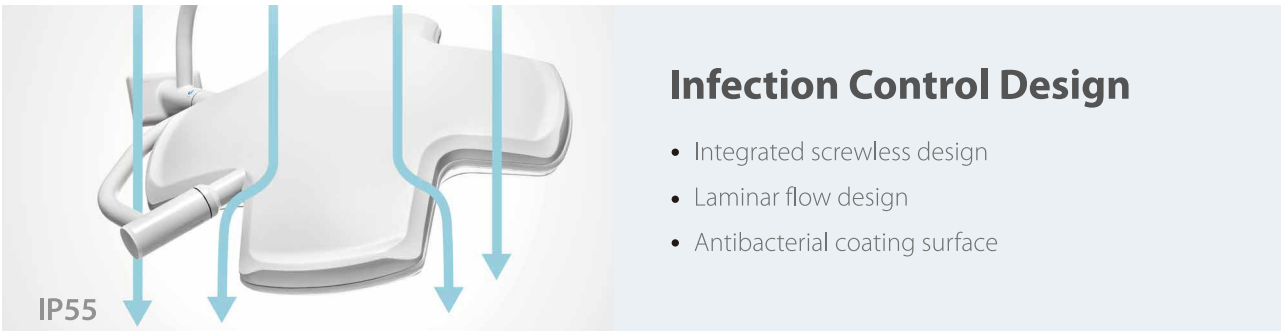


Optimization for Sustainability

Anti-attenuation THERMO technology



Lighting constant THERMO patented technology: Compensation and optimization of attenuation characteristic curve of long-lasting LED light beads ensure stable illumination within ten years of service. The pure aluminum substrate ensures heat dissipation to avoid illumination attenuation during long-term operation.



Infection Control Design

- Integrated screwless design
- Laminar flow design
- Antibacterial coating surface

Energy Saving and Long Battery Life



Digitalization for Integration



Solutions for different departments



Support M-Connect equipment management and digital equipment control. Excellent informatization expansion brings a more efficient and intelligent user experience.

Provide a wealth of solutions for different departments, such as central operating room, obstetrics and gynecology, outpatient and emergency department.

Technical Specifications *



	C8	C7	C5
Max. illuminance (Ec) (1 m)	160,000 lux	160,000 lux	160,000 lux
Light field diameter (1 m)	140-300mm	140-300mm	140-270mm
Light field (D50/D10)**	60%	60%	60%
Depth of illumination (20%)**	1,400 mm	1,400 mm	1,300 mm
Depth of illumination (60%)**	900 mm	800 mm	600 mm
Color Temperature	Standard: 4,350K	Standard: 4,350K	Standard: 4,350K
	Optional: 3,500-5,100K	Optional: 3,500-5,100K	Optional: 3,500-5,100K
Color rendering index(Ra)	99	99	99
Color rendering index(R9)	97	97	97
Shadow dilution with tube	100%	100%	100%
Shadow dilution with one lateral mask	76%	76%	71%
Power supply of all light sources	40w	30w	30w
Protection against harmful ingress of water or particulate matter	IP 55	IP 55	IP 55

* All values measured according to IEC 60601-2-41.

* Due to manufacturing and measuring tolerances, all data relating to lighting systems has a tolerance of +/- 10%.

** Max. patch light field diameter

HyLED C series



Optical Performance	HyLED C8	HyLED C7	HyLED C5
Lightsource type	LED		
Illumination level - maximum lux levels at 1m:	160,000 lux in ten levels	140,000 lux, 160,000 lux (Boost) in ten levels	130,000 lux, 160,000 lux (Boost) in ten levels
M-Field (Only for Touch Screen Control)	3,000 lux, 60 cm		/
MIS lighting (Only for Touch Keypad)	8,000 lux		
Dimming range	20%-100% dimmer by control panel		
Field Size(D10):	140-300 mm in five levels	140-300 mm in five levels	140-270 mm in five levels
Light field(D50/D10)	60%		
Shadow dilution: single mask and one lateral mask	76%		71%
Shadow dilution: one lateral mask and cavity	71%		66%
Shadow dilution: cavity	100%		
Shadow dilution: double masks	56%		
Shadow dilution: single mask	60%		
Shadow dilution: single mask and cavity	55%		
Shadow dilution: double mask and cavity	51%		
Number of bulbs/LEDs	52(with M-Field)/ 48 (without M-Field)/LEDs	39(with M-Field)/ 36(without M-Field) LEDs	24 LEDs
Life(hrs):	60000 hours for LEDs		
Colour Temperature (K):	Standard : 4350k Optional : Five ranks for variable color temperature 3,500/3,700/4,000/4,350/5,100K		
Colour rendering index:	Ra: 99		
Colour rendering index - R9 value:	R9: 97		
Depth of illumination (20%)	1200mm		
Depth of illumination (60%)	600mm		
Depth of illumination (20%) (under large light field)	1400 mm		1300 mm
Depth of illumination (60%) (under large light field)	900 mm	800 mm	700 mm
Optic design:	Multi-Patch Superposition Technology(MPST), which generates a homogeneous light field even blocked by surgeon's head.		
Anti-flicker design:	Yes		

Video Solutions	HyLED C8	HyLED C7	HyLED C5
Video camera:	FHD (integrated/carried arm)/4K (carrier-arm)		
Wireless camera (FHD)	√	√	×
Recommended recording device for camera:	Mindray video recorder		
Location of camera:	in the center of the light head or on a separate arm		
Power Supply Specifications	HyLED C8	HyLED C7	HyLED C5
Power Consumption of Light Sources (at the Minimum Light Field and Highest Illuminance Level)	40W	30W	
Power consumption (W/VA):	HyLED C8: 80W, 170VA HyLED C7: 70W, 170VA HyLED C5: 55W, 170VA HyLED C5/C5: 110W, 312VA HyLED C7/C5: 125W, 312VA HyLED C8/C5: 135W, 312VA	HyLED C7/C7: 140W, 312VA HyLED C8/C7: 150W, 312VA HyLED C8/C8: 160W, 312VA HyLED C5/C5/C5: 165W, 456VA HyLED C7/C5/C5: 180W, 456VA HyLED C8/C5/C5: 190W, 456VA	HyLED C7/C7/C5: 90W, 456VA HyLED C8/C8/C5: 110W, 456VA HyLED C7/C7/C7: 210W, 456VA HyLED C8/C7/C7: 220W, 456VA HyLED C8/C8/C7: 230W, 456VA HyLED C8/C8/C8: 240W, 456VA
Power Supply Specifications	HyLED C8	HyLED C7	HyLED C5
Maximum irradiance at 1m:	530 W/m2		
Heat-to-light ratio, mW/m2.lx:	3.5 mW/(m2.lx)		
Supply Voltage VAC:	100VAC-240VAC, 50/60Hz for power supply 24V for LED bulbs		
Backup Power System	12V DC×2, 15Ah, lead-acid battery,optional		
Backup Power System Runtime	8.5h (at level-6 illuminance)	9.5h (at level-6 illuminance)	
Others	HyLED C8	HyLED C7	HyLED C5
Type(s) of Mounting:	Ceiling mounted and mobile version also available		
Types of Light head and spring arm combinations:	Single, dual or triple lighthead		
Controls On Multi-functional handle	light field size , illuminance adjustment , colour temperature and M-Field or MIS lighting mode		
Sterilizable handle material/ composition:	PPSU,1000 times		
Minimum ceiling height, cm:	Minimum 2500cm for double lights from decorative ceiling to the floor		
Lighthead dimension:	≤650 mm		
Lighthead weight:	14.5kg	13.5kg	13kg
Lighthead protection:	IP55		
Green Features:	All with ROHS required material Antimicrobial coating on the surgical light		
Additional Features:	Ultra small light eld(14cm), more focus to small surgical cite and less glare. Specialist illumination modes, easy mode switch for diherent surgery scenes. Sync, If you adjust the color temperature or illuminance of any lighthead, other lightheads will change synchronously. Note: In the configuration, if C8 lighthead and touch screen are selected, Specialist illumination modes and Sync is standard.		
Rotational range:	refer to the following picture		
Adjustable swivel arms	700mm~1150mm		
the scenario in which 330° OR 360° applies	360°: The configuration with stopless lighthead 330°: The configuration with non-stopless lighthead /display arm / carrier-arm camera		
Vertical adjustment range:	The maximum movement angle of the spring arm is at least up to 45°and down to 50°, and the maximum movement range of the horizontal arm & spring arm is at least 1,610 mm		

Degree of Rotation/Reach

