

**mindray**

## HyLED C8/C7/C5

LED Surgical Lights

See widely, Move freely



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healthcare within reach





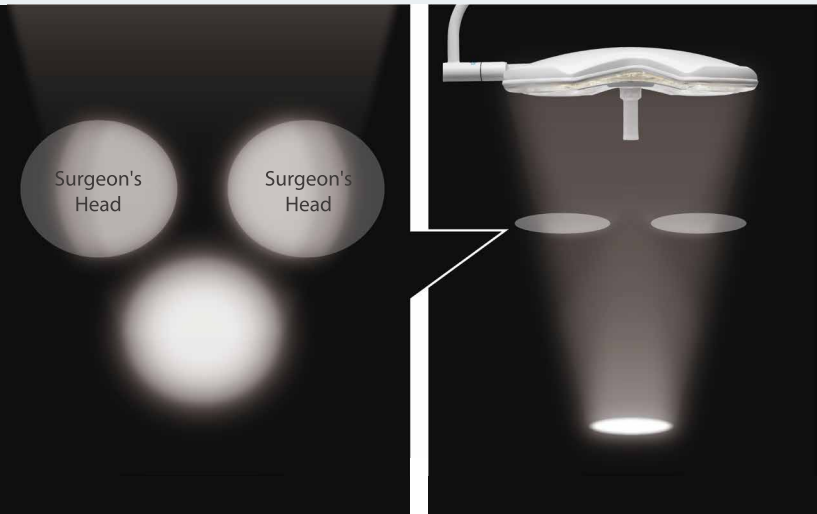
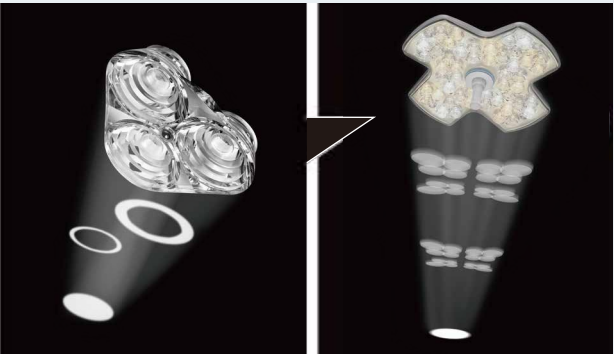
# Closest Surgical Partner

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' heads<sup>1</sup>.



### Wide Range Pattern Size

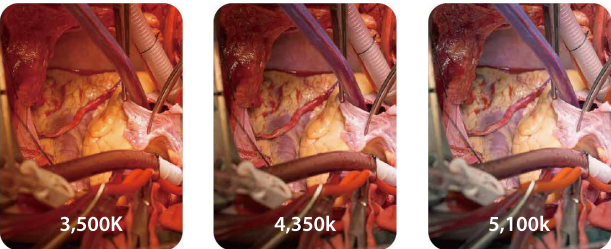
More Focus and Less Glare



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



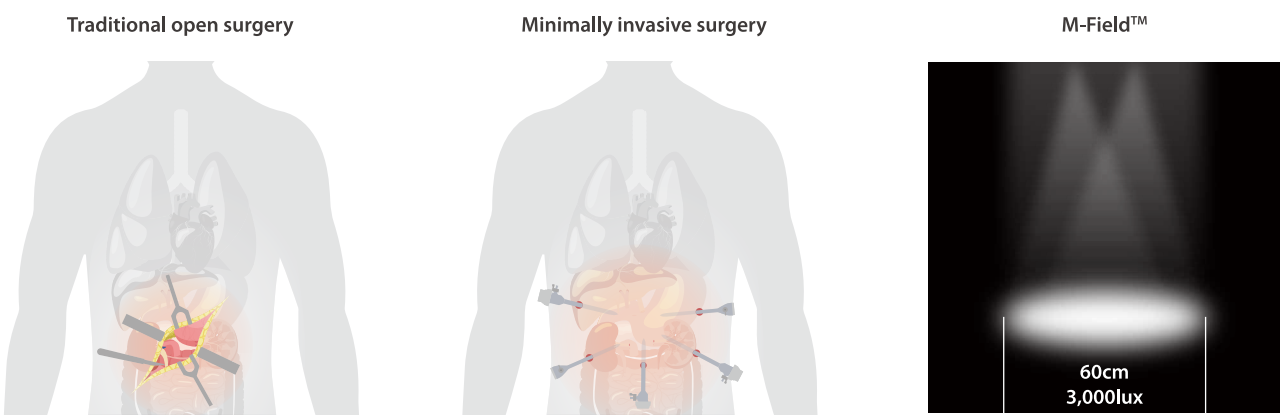


# Clinical Solution Pioneer M-Field™

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 recommendation<sup>1</sup>

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### 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 ↻

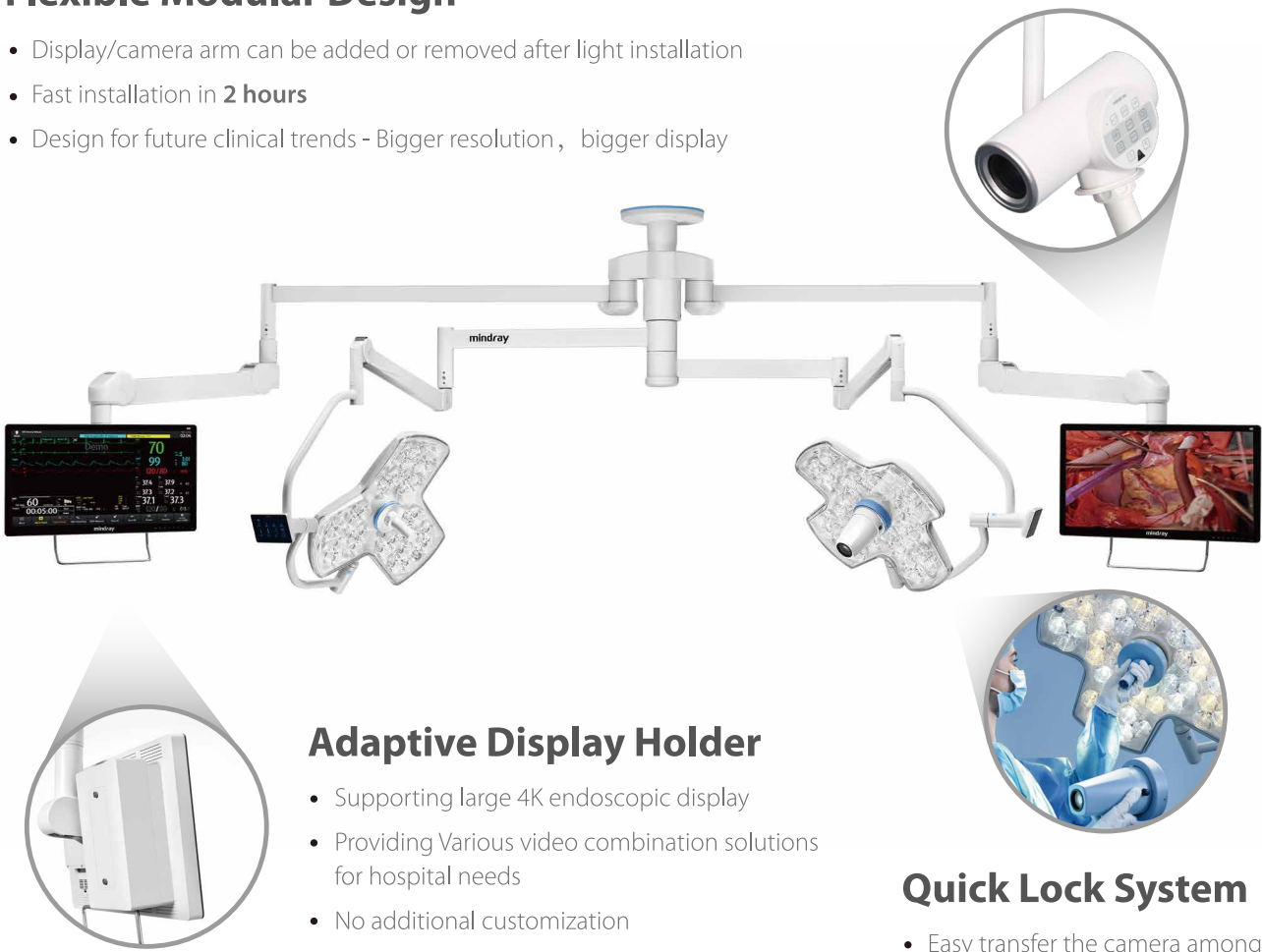
Thanks to the stopless rotation design to all joints, the medical team is able to position the lights toward the exact surgical field easily in any surgeries.



# 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

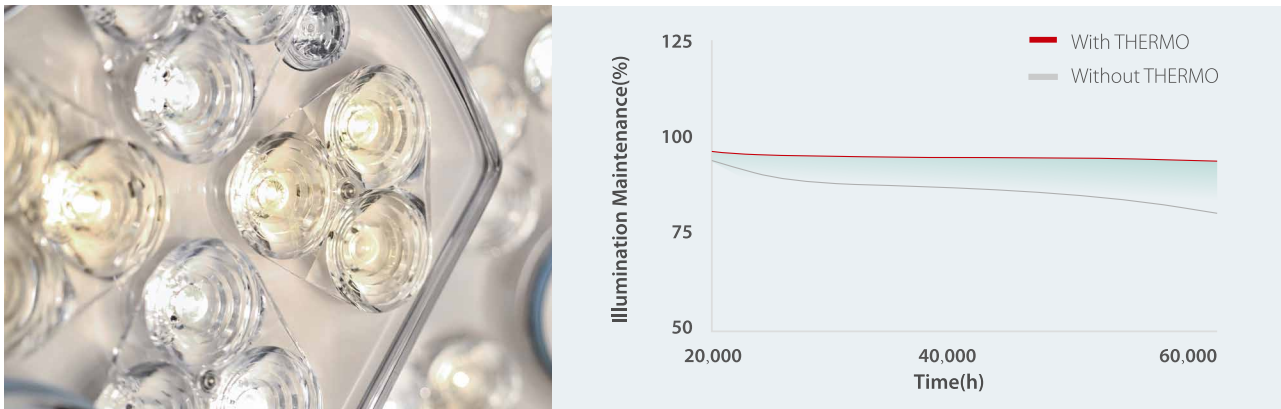


## Accessories

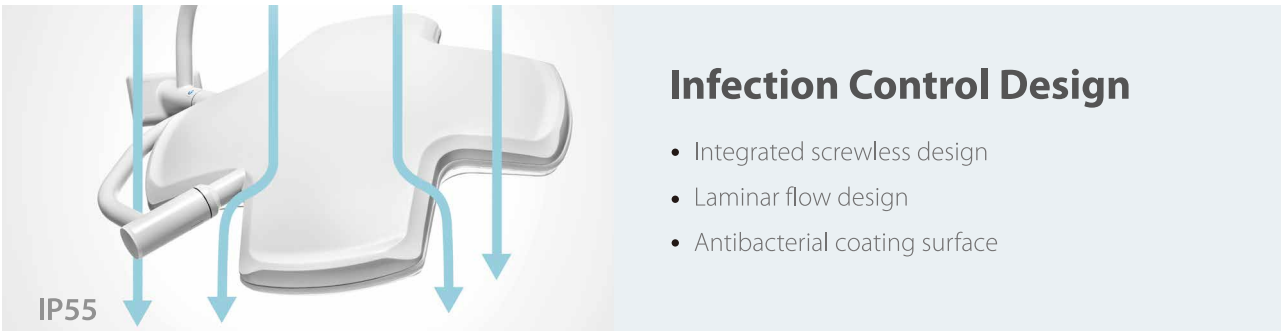


# Optimization for Sustainability

## 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.



## 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	
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