



HyLED 7 Series NEW

LED Surgical Lights

mindray
healthcare within reach

HyLED 7 Series LED Surgical Lights



In September 2010, LED surgical light innovator Mindray launched HyLED 9700/9500 surgical light with integrating premiere AICS (Automatic Illumination Control System) feature into the global high-end market. The series have been successfully introduced to 60 countries and regions including Western Europe, Eastern Europe, Middle East, CIS, Latin America, Asia-Pacific, Southern Asia and Africa. Mindray's multiple exclusive leading technologies, such as AICS feature, electronically-tunable focusing, and special modes for cardiac, orthopedic and endoscopic surgery, have brought revolutionary changes to clinical users. Mindray lights are highly acclaimed by end-users for their soothing light, focusing-free light beams and cross-shaped design conforming to laminar flow decontamination requirements.

In the beginning of 2013, Mindray will launch its cost-effective HyLED 760/730 surgical light series to march on the middle to high end market. The ultra-light, ultra-thin concentrically circular design conforms perfectly to requirements of modern laminar flow surgery rooms.

Key Features

- Verified Certificate Din-1946 Part 4
- Incredibly long service time up to 40,000 hours
- Central illumination is 160,000 lux or 130,000 lux
- Adjustable light field diameter from 195 to 300 mm
- Maximum depth of illuminance up to 1,200 mm
- Ultra-thin design and excellent maneuverability
- Standard touch control panel
- 330° rotatable integrated HD & SD camera
- Perfectly integrated into Laminar Flow
- Low power consumption
- Ergonomic and compact design less than 12 kg

HyLED 7 Series

LED Surgical Lights

How to Choose Your Surgical Light?

Light Beam Diameter Tuning: Light beam diameter tuning for most conventional surgical lights is done by mechanical structures which tune and reflect light sources. Illuminance for the surgical area is also tunable via mechanical structures. For example, illuminance in the surgical area will drop when light beam diameter increases. This is why the surgeons use 3 light heads to offset the illuminance drop in the surgical area caused by beam diffusion in cardiac surgery. Another example is the adoption of conventional mechanical for focusing purposes to get more concentrated, smaller-diameter beams. However, soaring illuminance in the surgical area is extremely deleterious to surgeons' eyes. Therefore, surgical light illuminance has to be returned to distract surgeons' attention.

HyLED 760/730 surgical light series inherit the exclusive advantages of HyLED 9 series. By adopting non-mechanical, fully-electronic beam diameter tuning while ensuring surgeons' vision will not react significantly to illuminance in the surgical region. This technology substantially improves vision protection for surgeons. So from Mindray's perspective, a good surgical light should, first and foremost, minimize the harm of rays to surgeons' vision.



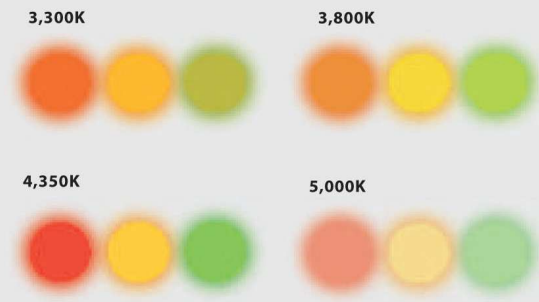
Shadow Dilution:

The initial illuminance of a surgical light is in some measure relevant to the residual illuminance in actual operation. But this is not a linear relation. A typical surgical area accommodates 3-4 surgeons, that is to say, in the case of a two-head light where the heads and shoulders of 2 surgeons obstruct the light source, the real effective light for the surgical area includes only the unobstructed rays.



Color Temperature: We can know and perceive this world because we live within the daytime sun's color temperature range (4,300-4,350K). It is within the same color temperature range 4,300-4,350K that surgeons are able to correctly identify organic tissues. This is why Mindray fixes the color temperature of HyLED760/730 light series at 4,350K. Three types of color temperature charts red (3,500k), yellow (4,350k) and green (5,000K) of a signal lamp are compared.

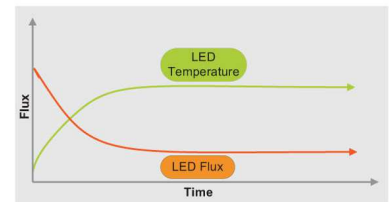
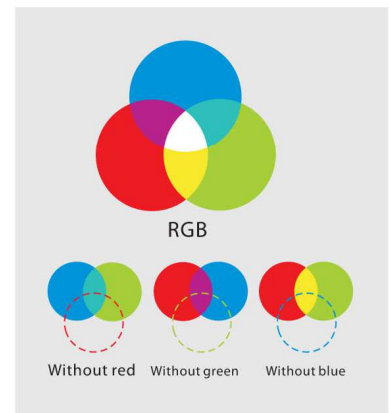
Color display with different color temperature



There are Three Commercial Methods of Color Temperature Regulation:

Primary color mixed

The three primary colors (red, green and blue) are blended. The drawback is that surgeons standing under the light will obstruct the light sources for certain colors when a color temperature is configured, because light color derives from blending light sources from different directions. As color temperature changes with the movement of surgeons' body, light color will change and surgeons' identification of tissues will be impacted. (As it's shown in the right picture, the round disks are used in the upper 3 and dozens of RGB photoelectricity are adopted for instruction, a certain color temperature shows in the case of no obstruction, while the color temperature changes in the case of obstruction by body.)



Choose color temperature by power

Energy output is tuned to change the color temperature of light source. The drawback is that LED luminous efficacy will attenuate as temperature of the internal circuit board rises. Therefore, color temperature rise will cause energy output to increase, which affects heat dissipation from the surgical light. Dynamic unbalance in heat dissipation in turn causes temperature rises, light source instability and service life instability.

Color temperature pre-mixed

Mindray uses a special light source system with a uniform mixed light of cool white light and warm white light; the light colors within the surgical area will not change even when surgeons block some of the light source during surgery. Therefore, the optimal color temperature adjustment mode is only recommended in the extreme conditions such as cardiac surgery. In addition, this adjustment mode is only available in HyLED9700/9500 series.



HyLED 7 Series

LED Surgical Lights

Ergonomic and Compact Design



Three Kinds of Camera Systems for Selection



Centrally-located standard definition camera with 330° rotation



Centrally-located high definition camera with 330° rotation



Carrier-arm high definition camera

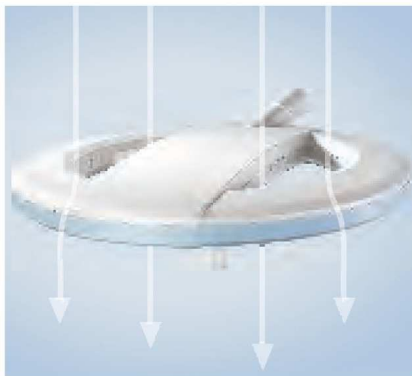


Ambient Mode and Laminar Flow



Ambient lighting mode:

It is a standard configuration that provide a lighting solution for endoscopic operation.



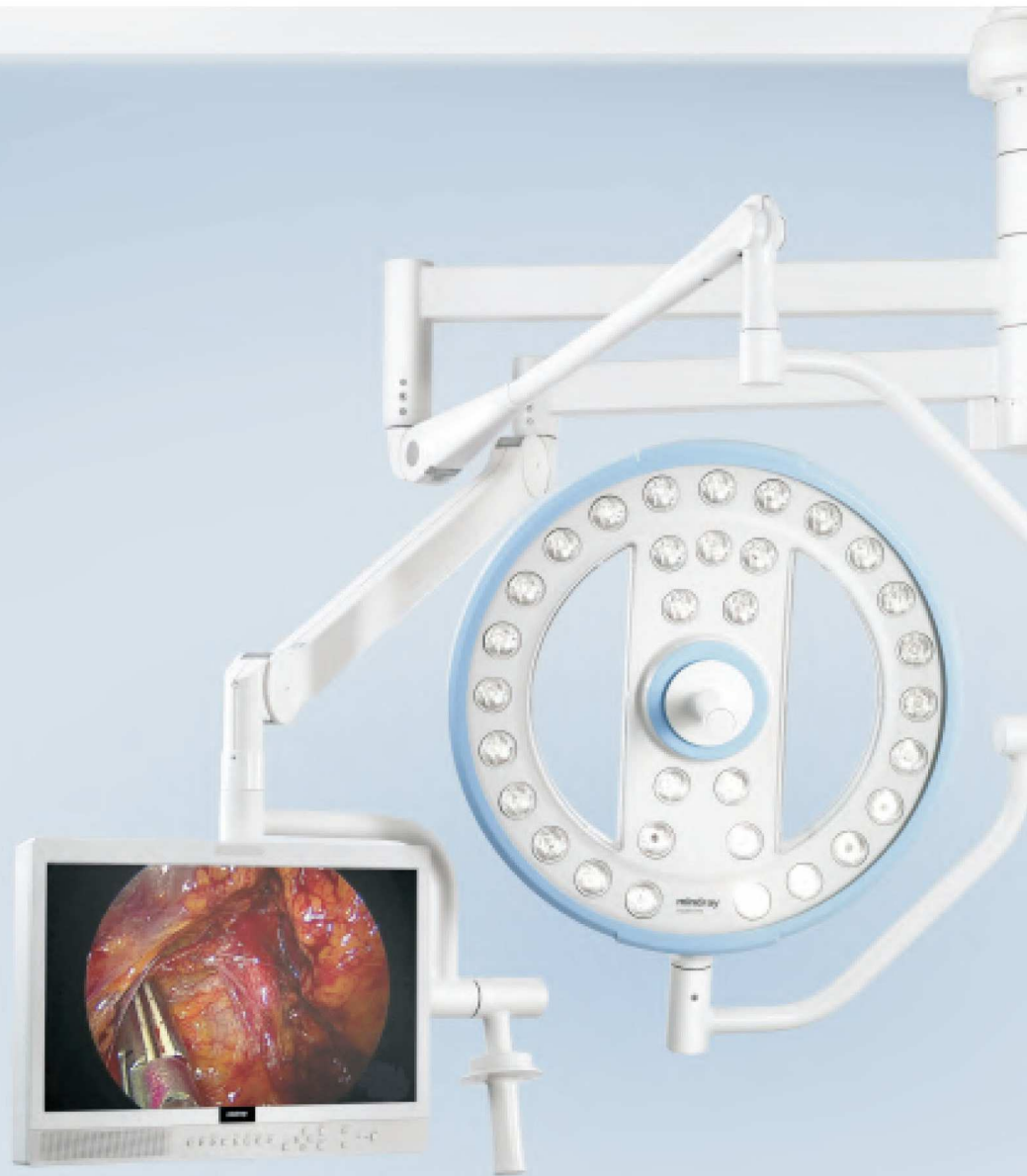
Perfectly Integrated into Laminar flow:

Laminar flow ventilation is used in modern operating theatres to reduce the number of infective organisms present in the air, which may lead to post-operative wound infection.

A continuous flow of highly filtered 'bacteria-free' air is recirculated under positive pressure and air contaminants generated during surgery are removed from the site.

Suspended above the operating table, like an umbrella, surgical light might impede such air circulation into the operating field and thus affect laminar flow system. Thanks to the slim double-hollow design bringing minimum turbulence towards clean air, Mindray HyLED 7 series surgical light makes it totally compatible with laminar flow and conducive to perfectly sterile conditions.

Multiple and Customized Choices for Different Needs



Normal spring arm



Low ceiling spring arm



Dual lights with single screen and camera



Dual lights with double screen and camera



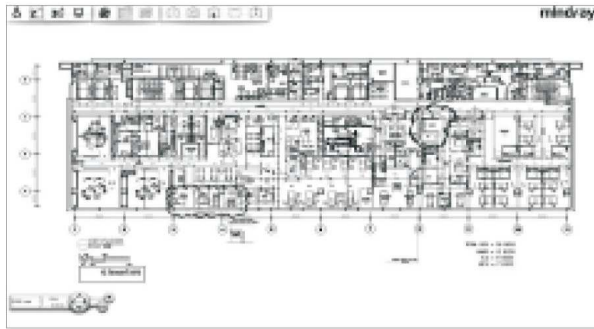
Triple lights with double screen and build-in camera



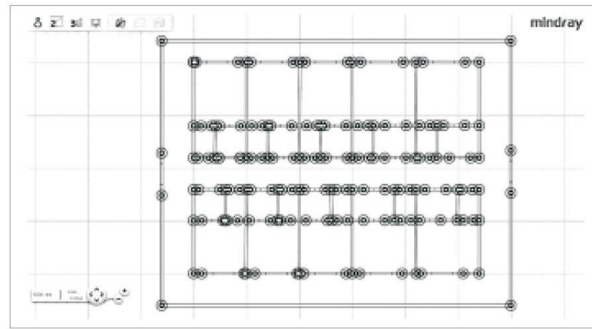
Single light with pendant camera

Mindray 3D Space - Professional 3D Design Tool

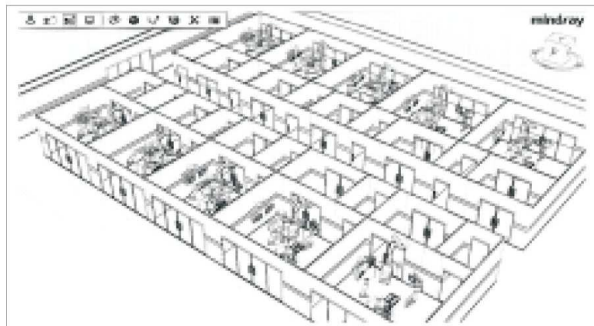
How to design the layout of larger scale medical equipment in the hospital, providing optimum work flow for the important departments such as operating room, ICU, and recovery room, is not a easy job which would take a lot of time and effort on AutoCAD & 3ds Max. At the same time, doctors are confused with those layout drawing or elevation drawing. Here comes the solution--3D Space Configurator from Mindray, with friendly user interface, visualized product 3D image and scene simulation.



The system is compatible with AutoCAD which allows inputting floor layout in a simple and accurate way.



In a few steps the user can get the professional space and work flow design.



The result is a realistic 3D scene that allows you to walk through the facility and explore the set-up from 360 degrees even prior to production and installation.



Relation Between the Digitalized System and Lights Suspension System

The digitalized surgery room has become a new standard since commercially initiated about 10 years ago, and all surgeries are closely related to the digitalized system. However, digitalization is impossible unless with the ultimate assistance of surgical light suspension/pendant systems. Specifically, AV signal lines should be properly embedded before leaving the works. Therefore, Mindray is ready to to enter into an all-embracing partnership with global digitalized system suppliers. Mindray has specialized laminar flow canopy shops, and optic fiber technology is optional, wherein a light arm-embedded optic fiber system transmits audio signals. Professional 3D software is available to locate surgical lights precisely. Conventional lights are installed in the center of the room, the 3D software enables us to install lights in any of the following ways for a maximized laminar flow decontamination effect.

Mindray OR Total Solution— Welcome to Mindray Showroom

All the advanced and reliable facilities from Mindray technology, are perfectly



matched to give you total support !



HyLED 7 Series

LED Surgical Lights

Technical Specifications

	HyLED 760	HyLED 730
Central illuminance(at 1m distance)	160,000 lux	130,000 lux
Light field diameter(at 1m distance)	195~300 mm	195~300 mm
Depth of illumination(L1+L2)	1,200 mm	1,200 mm
Correlated color temperature	4,350 K	4,350 K
Color rendering index	95	95
Shadow dilution with tube	100%	100%
Shadow dilution with one mask	75%	70%
Shadow dilution with tube and one mask	70%	65%
Shadow dilution with two masks	55%	55%
Shadow dilution with tube and two masks	50%	50%
Radiant energy	3.6 mW/(m ² *lux)	3.6 mW/(m ² *lux)
Ambient illumination	8,000 lux	6,500 lux
Service life of bulb	>40,000 h	>40,000 h
Bulb power consumption	85 W	65 W
Power supply	100~240 VAC, 50/60 Hz	100~240 VAC, 50/60 Hz
Number of LED bulbs	32	24
Dimming range	5~100%	5~100%
Light head dimension	600 mm	600 mm
Integrated Camera	Optional	No
Carrier-arm Camera	Optional	Optional

Carrier Arm Camera/Integrated Camera	
Picture Elements	Two Mega Pixels HD Camera
Optical Zoom	10 X (f=5.1-50.1mm, F=1.8-2.1)
Digital Zoom	12 X (120X with optical zoom)
S/N Ratio	>50dB
Electric shutter	1/2-1/10,000s
Video Output	Component

Integrated SD Camera	
Picture Elements	400,000 Pixels
Lens	28zoom=3.5mm(WIDE) to 98.0mm(TELE),F1.35p to F3.7
Digital Zoom	12 X (324 X with optical zoom)
S/N Ratio	50dB
Electric shutter speed	1/4-1/10,000 sec
Video Output	FBAS(Composite Video)

HyLED 7 Series

LED Surgical Lights



The materials and information provided via this brochure are distributed internationally, but not all the products or services found on this brochure are necessarily available in your country or area. Please contact local office or agents to make sure of the availability of the relevant products or services.

Mindray Medical Netherlands B.V.

Drs.W.van Royenstraat 8, 3871 AN Hoevelaken, The Netherlands
Voice: (31-33) 254-4911
Fax: (31-33) 253-4280

Mindray Medical Italy S.r.l.

Via Girardo Patecchio, 4 20141 Milano, Italy
Voice: (39-02) 5737-401
Fax: (39-02) 5523-2018

Mindray Medical España S.L.

Avenida Manoteras 38, Edificio B, Bajo B008. 28050-Madrid Spain
Voice: (34-91) 392-3754
Fax: (34-91) 392-3756

Mindray Medical Germany GmbH

Zwischen den Bächen 4, 64625 Bensheim, Germany
Voice: (49) 6251-17524-0
Fax: (49) 6251-17524-20

Mindray (UK) Limited

3 Percy Road, St Johns Park, Huntingdon, Cambs,
PE29 6SZ United Kingdom
Voice: (44) 1480-416-840
Fax: (44) 1480-436-588

Mindray Medical France SARL

Europarc Creteil 1 allée des cerisiers 94000 CRETEIL, France
Voice: (33-1) 4513-9150
Fax: (33-1) 4513-9151

Mindray Medical Sweden AB

Rissneleden 136, 174 57 Sundbyberg, Sweden
Voice: (46) 8 555 54 121
Fax: (46) 8 555 54 101

Mindray Medical Rus Co.Ltd

2 Zvenigorodskaya Street, 13, bld 41, 123022 Moscow, Russia
Voice: (7-499) 553-6036
Fax: (7-499) 553-6039

Mindray Medical Colombia S.A.S

Room No.702, Torre UNIKA, Carrera 9 No.77-67, Bogota, Colombia
Voice: (57-1) 3130892 / 3210916

Mindray do Brasil – Comércio e Distribuição de Equipamentos Médicos Ltda.

Rua Tavares Bastos, 329, Perdizes, São Paulo - SP, CEP 05012-020
Voice: (55-11) 3124-8026
Fax: (55-11) 3078-8035

Mindray Medical Mexico S. de R.L. de C.V.

Félix Parra # 175 Colonia. San José Insurgentes Sur Delegación Benito Juárez 03900 México, D. F.
Voice: (52-55) 5661-9450 / (52-55) 5662-6620
Fax: (52-55) 5662-6597

PT.Mindray Medical Indonesia

The East 11th Floor, Unit 08 Jl. Dr. Ide Anak Agung Gde Agung Kav.
E 3.2 No.1 Jakarta 12950
Voice: (6221) 2902-7280
Fax: (6221) 2902-7283

Mindray Medical Egypt

Ground Floor -11 El Imam Metwally El Sharawi Street,
Sheraton Heliopolis - El Nozha, Cairo, Egypt
Voice: (2) 02 22691047
Fax: (2) 02 22691046

Mindray Medical India Pvt. Ltd. (Delhi Office)

Unit No. 401/402 & G-31, NDM-1, Netaji Subhash Place,
Wazirpur District Center, New Delhi - 110 034.
Voice: (91-11) 4923-0000
Fax: (91-11) 4923-0030

Mindray Medical India Pvt. Ltd. (Mumbai office)

B-404, City Point, Andheri Kurla Road, Andheri East, Mumbai, 400 059, India
Voice: (91-22) 4020-0000
Fax: (91-22) 4020-0011

Mindray Medikal Teknoloji İstanbul Ltd. Şti. (Customer Service Address)

Turan Güneş Bulvarı Aleksander Dupçek Caddesi NO:18/A Yıldız Çankaya,
ANKARA Zip: 06550 İstanbul, Turkey
Voice: (90-312) 441 96 92
Fax: (90-312) 441 96 93

Mindray Medikal Teknoloji İstanbul Ltd. Şti. (Ankara office)

Turan Güneş Bulvarı Aleksander Dupçek Caddesi NO:18/A Yıldız Çankaya,
ANKARA Zip: 06550
Voice: (90-312) 441 96 92
Fax: (90-312) 441 96 93

Mindray Medical Vietnam Co.,Ltd.

Unit 2, 4th Floor, "B" Building, Broadway Office Park,
102 Nguyen Luong Bang Blvd., Tan Phu Ward, Dist. 7, HCMC, Vietnam
Voice: (84) 8 5413-6970
Fax: (84) 8 5413-6971

Mindray Medical Thailand Limited

1768 Thai summit Tower Room 407, 4th floor, New patchaburee Road, Kwaeng
Bangkapi, Khet Huai Khwang, Bangkok 10320, Thailand
Voice: (66) 2652-788
Fax: (66) 26527-266



• EN ISO 13485
• EN ISO 9001

mindray is a trademark owned by Shenzhen Mindray Bio-medical Electronics Co., LTD.
Specifications subject to changes without prior notice.

© 2012 Shenzhen Mindray Bio-medical Electronics Co., LTD. All rights reserved.
P/N:ENG-HyLED 7 Series-210285-20130122

mindray

Mindray is listed on the NYSE under the symbol "MR"
Mindray Building, Keji 12th Road South, High-tech Industrial Park,
Nanshan, Shenzhen 518057, P.R. China
Tel: +86 755 8188 8998 Fax: +86 755 26582680
E-mail: intl-market@mindray.com Website: www.mindray.com