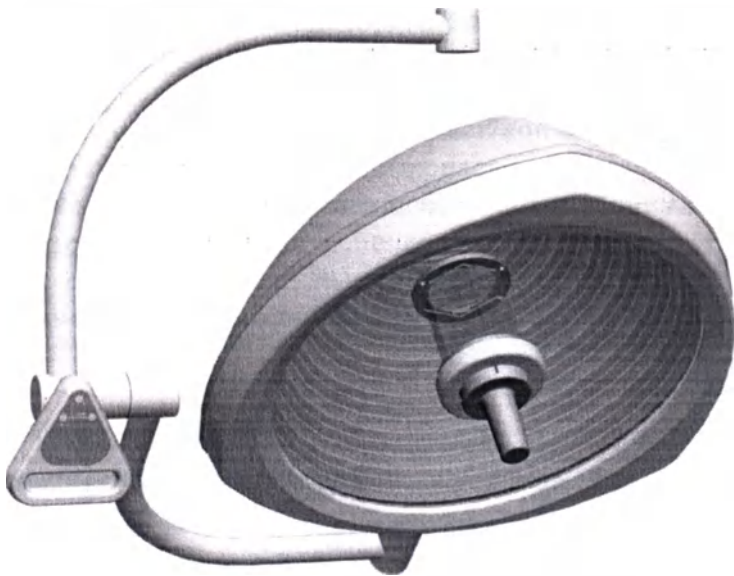


Операционная лампа FAM-LUX LO-10



№ (рис.1)	Описание
1	Кожух
2	Съемная ручка
3	Плечо
4	Панель управления

Генеральный директор
ООО «МЕДЭК-больничное оборудование»



С.Я. Арзамас

FAM-LUX 20-10



OPERATING AND TREATMENT LIGHTS

**ŻYWIECKA
FABRYKA
SPRZĘTU
SZPITALNEGO
FAMED S.A.**



OPTICAL SYSTEM



Shadowlessness

SHADOWLESSNESS

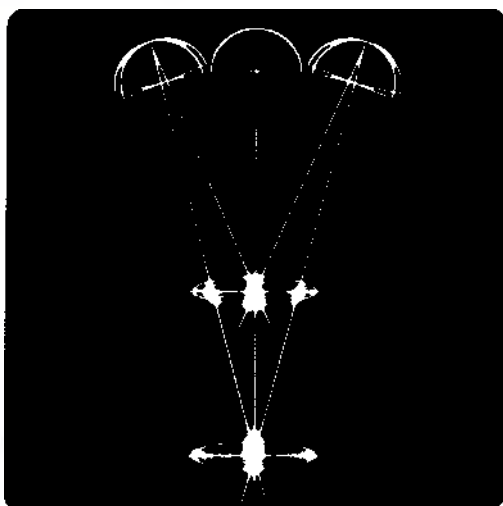
Light optical arrangement ensures high light intensity and high shadowlessness.



Laminar ventilation

LAMINAR VENTILATION

The lights minimize laminar ventilation disruption inside the operating room.



Adjustment of reflectors inclination

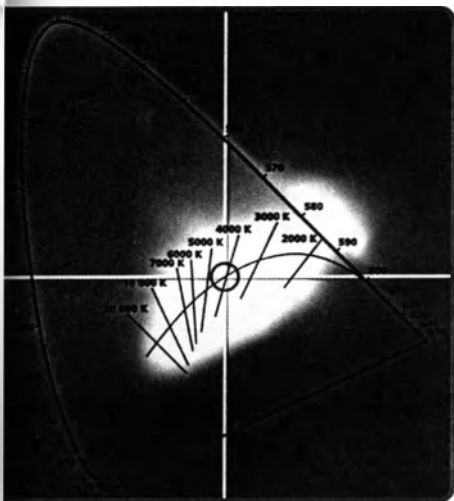
FOCUSING

The lights are equipped with functions of light field dimension adjustment (change of reflectors angular position) and concentration adjustment (regulation of bulb location against reflector). Combination of these two functions enables precise fitting of the light field area to the operating field.



Adjustment of bulb location against reflector

COLOUR RENDERING INDEX (CRI)



Color temperature diagram

COLOUR TEMPERATURE

Fam-Lux operating lights LO-10, LO-03 and LO-05 and Scan-Lux LB-01 emit light with colour temperature $T_c=4200\text{ K}$ (cool-white). This light gives very good conditions for intensive and long-term sight work.

In case of LO-23 lights T_c can be adjusted in range 4000 – 6000 K to fulfill surgeon's preferences.

COLOUR RENDERING INDEX (CRI)

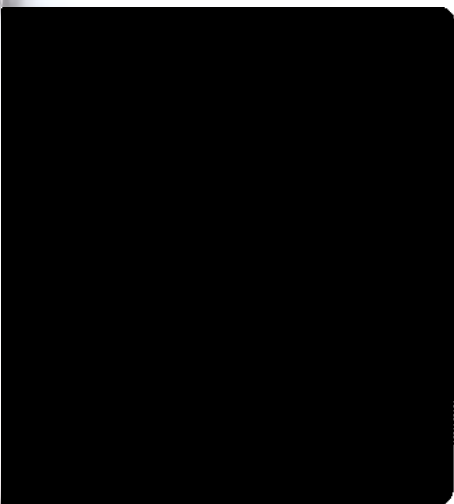
Thanks to very high colour rendering index Fam-Lux lights enables precise differing of tissue shapes and colours.



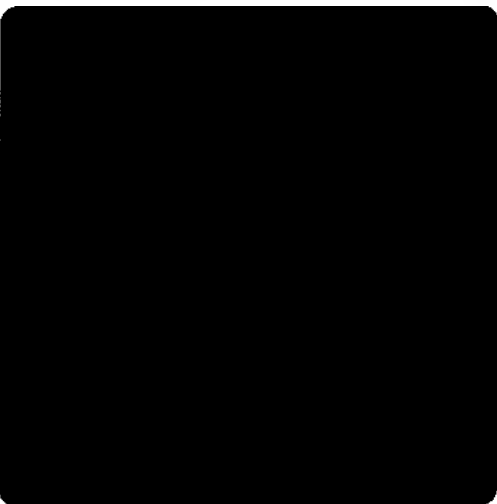
Adjustment of colour temperature



Adjustment of colour temperature



Temperature 4000 K



Temperature 6000 K

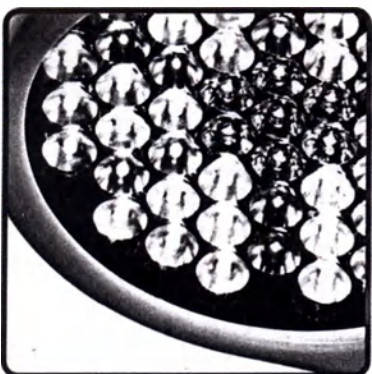
CHARACTERISTICS OF LIGHT SOURCES



Halogen bulb



Discharge metalhalogen lamp



LED diodes

CHARACTERISTICS OF LIGHT SOURCES USED IN LIGHTS

FAM-LUX LO-23, LO-10, LO-03, LO-05 AND SCAN-LUX LB-01

HALOGEN BULB — used in lights Fam-Lux LO-10, LO-03, LO-05 and Scan-Lux LB-01. This light source uses the effect of light beam emission from the incandescent filament. The advantage of halogen bulbs is very good colour rendering index $R_a > 96$.

DISCHARGE METALHALOGEN LAMPS — used in lights Fam-Lux LO-10. This light source uses the effect of light beam emission from electric arc burning between electrodes in the environment of metal vapour. Discharge in these lamps appears in mercury, argon and metal halogens vapor under high pressure.

The advantages of metalhalogen lamps are:

- high light efficiency
- stable, high colour temperature
- high colour rendering index

LED DIODES — used in lights Fam-Lux LO-23. This light source uses electromagnetic radiation from properly polarized semiconductor type p-n.

Advantages of lighting LED diodes:

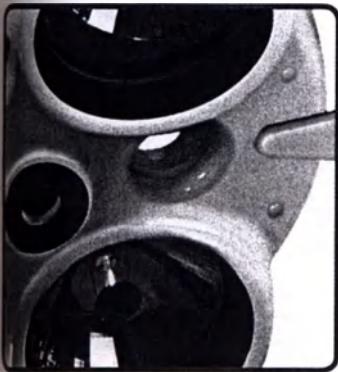
- small power consumption
- small value of supply voltage
- small sizes

Use of LED diodes in operating lights in comparison to traditional technologies based on halogen bulbs and discharge lamps has the following advantages:

- very small emission of heat radiation in light beam
- possibility of color temperature adjustment without change of other light parameters, what enables the surgeon to adjust light parameters to individual needs resulting from the type of performed surgical treatment
- spatial arrangement of lighting elements and use of special lenses enables obtaining homogenous and shadow-free light from the whole lamp
- LED diodes are characterized by very long lifetime approx 20000 h in comparison to traditional light sources, halogen bulbs (1000 h) and discharge lamps (5000 h)

VIDEO CHANNEL

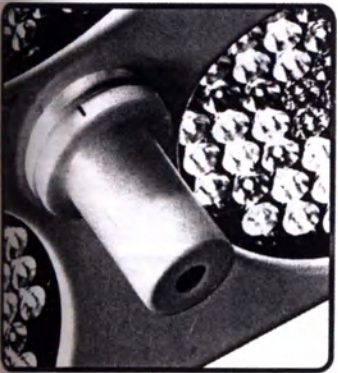
Equipping the light set with a video camera with changeable focus enables monitoring of operating field and recording the operation progress



Camera in LO-03



Camera in LO-10



Camera in LO-23



LCD monitor



Remote controller

VIDEO CHANNEL TECHNICAL DATA:

Lens system 18 optical, 4 x digital
Standard:
72 x Zoom
(18 x optical, 4 x digital)
 $f = 4.1 - 73.8 \text{ mm}$
F1.4-3.0

Remote Control Manual: Zoom, Focus, Bright, Rotate
Auto: Focus, White balance, Automatic Exposure mode (auto Iris, Gain, Bright, Shutter)
On/Off Camera
Still Image

Preset 2 positions

2 x Video output 75 Ohm VBS: 1.0 Vp-p

Image points 752 (H) x 582 (V)

Horizontal resolution > 460 Lines

OPERATING LIGHTS FAM-LUX LO-23



OPERATING LIGHTS FAM-LUX LO-23

Operating lights Fam-Lux LO-23 use LED diodes as a light source. Using of LED technology the LO-23 has parameters which outclass the lights based on halogen bulbs and discharge lamps. The advantages of diode operating lights are small heat radiation in the operating area, constant light parameters and very long lifetime.

Operating lights are designed for illuminating of operating field during surgical treatment. It ensures high light intensity and its uniform distribution over operating field as well as perfect colour rendering. Holders on the lights enable stable positioning and facilitate adjustment of illumination during operation.

Operating lights are equipped with functions of light field diameter, light intensity and colour temperature adjustment. Light field diameter can be adjusted by the regulating holder which can be sterilized in autoclave. Light intensity and colour temperature can be adjusted by the control panel.

The Fam-Lux LO-23 can be offered in three options, ceiling and wall mounted as well as mobile.

ADVANTAGES OF OPERATING LIGHTS FAM-LUX LO-23:

- high light intensity
- easy adjustment of light field diameter using sterilizing regulating holder
- adjustment of colour temperature
- high colour rendering index
- possibility of light intensity adjustment from 50 to 100%
- long lifetime of power source
- ease of mobility and setting in required operating position

TECHNICAL DATA LO-23:

Light intensity E_c	110 000 lx
Colour rendering index R_a	95
Particular colour rendering index R_g	> 90
Operating field diameter	28 to 40 cm
Colour temperature T_c	4000 K to 6000 K
Range of operation without necessity of focusing	70 to 140 cm
Power supply	230 V~, 50/60 Hz
Power supply options	110 V~, 50/60 Hz or 127 V~, 50/60 Hz
Light source	LED diodes
LED diodes lifetime	20 000 h
Light intensity adjustment	50 to 100%

LO-23 control panel



OPERATING LIGHTS FAM-LUX LO-10



OPERATING LIGHTS FAM-LUX LO-10

Operating lights are designed for illuminating of operating field during surgical treatment. It ensures high light intensity and its uniform distribution over operating field, as well as perfect colour rendering. Holders on the lights enable stable positioning and precise adjustment of illumination during operation. Operating lights are equipped with function of light field diameter and light intensity adjustment. Light field diameter can be adjusted using regulating holder which can be sterilized in autoclave. Light intensity can be adjusted by the control panel. The light LO-10 is equipped with the reserve light source, which is activated automatically in case the main light source brakes down. In case of power failure the LO-10 is equipped with the system of automatic switch over to the alternative power source. The operating light can be equipped with a video camera with changeable focal, for the purpose of operating area monitoring and recording of operation progress. The Fam-Lux LO-10 can be offered in three versions, ceiling and wall mounted as well as mobile.

ADVANTAGES OF OPERATING LIGHTS FAM-LUX LO-10:

- high light intensity,
- easy adjustment of light field diameter using sterilizing regulating holder
- high colour temperature 4200 K, high colour rendering index
- possibility of adjustment of light intensity from 50 to 100%
- high durability of metalohalogen bulb, ease of mobility and setting in required operating position

TECHNICAL DATA LO-10:

Light intensity E_c	140 000 lx
Colour rendering index R_a	96
Particular colour rendering index R_9	> 90
Operating field diameter	16 to 28 cm
Colour temperature T_c	4200 K
Range of operation without necessity of focusing	70 to 140 cm
Power supply	230 V~, 50/60 Hz
Power supply options	110 V~, 50/60 Hz or 127 V~, 50/60 Hz
Light source: main — metalohalogen bulb	70 W,
Light source: reserve — halogen bulb	24 V, 150 W
Discharge lifetime	5000 h
Light intensity adjustment	50 to 100%

LO-10 control panel



STANDARD CONFIGURATIONSOFLIGHTS FAM-LUX LO-10

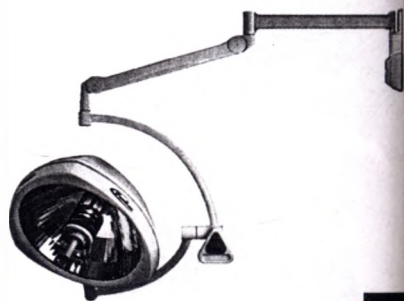
For suitable configuration choose the number according to the below presented pictures and go to the configuration table on page 14 and 15



9

LO-10 ceiling mounted

LO-10



10

LO-10 wall mounted

LO-10w



11

LO-10 mobile

LO-10m



12

LO-10 + LO-10

LO-10.2



13

LO-10 + LO-10 + LO-10

LO-10.3



14

LO-10 ceiling mounted with camera + LCD monitor

LO-10km



15

LO-10 with camera + LO-10 + LCD monitor

LO-10.2k



16

LO-10 with camera + LO-10 + wall mounted LCD monitor

LO-10.2k