



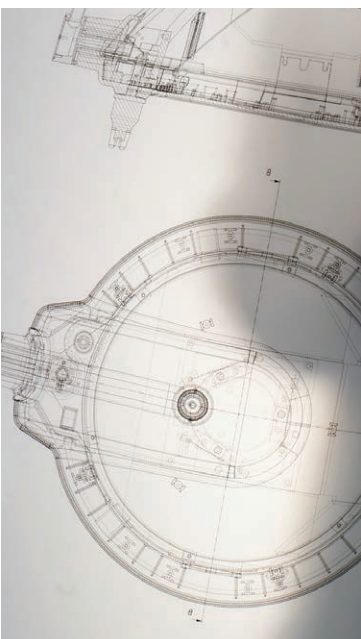
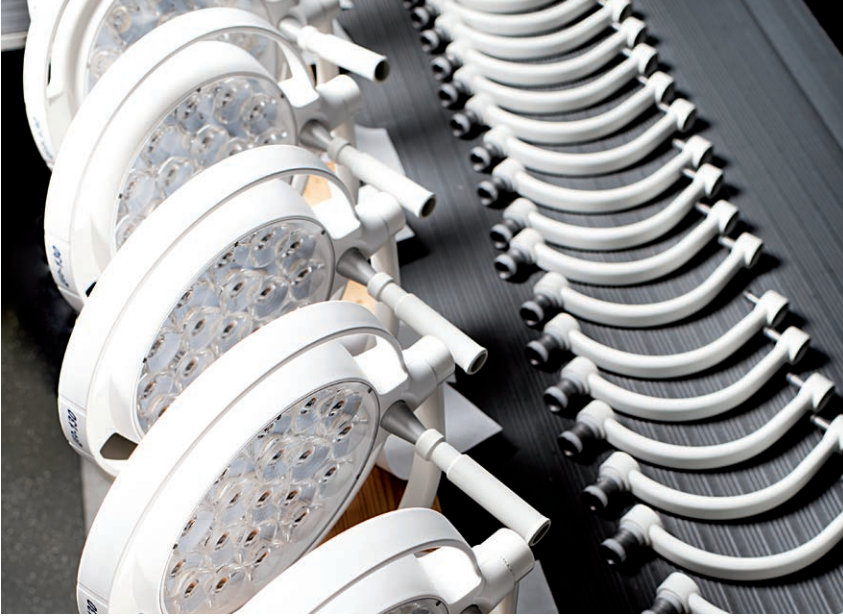
DR.MACH
GERMAN MED-LIGHT SOLUTIONS



**Perfection in the
best possible light.**

Dental lights
from Dr. Mach





FIRST CLASS MEDICAL LIGHTS GO BY THE NAME OF – DR. MACH



Doctors worldwide operate, diagnose and treat patients with the aid of medical lights from Dr. Mach. For a very good reason: No other company offers a detailed portfolio of this kind under one roof. No other company has such a wealth of experience in the production and application of medical lights. And no other company offers doctors such quality and reliability. Dr. Mach was founded 75 years ago and today is still what it always has been: A specialised family business with unique know-how. With ultramodern machinery and a well-trained and skilled workforce from various specialist fields, we develop and manufacture at our headquarters on the outskirts of Munich. All of our lights are designed and produced in Germany and dispatched from our headquarters. This, along with our endeavours to put the best lights at the disposal of doctors, is undoubtedly the reason why our lights are amongst the best in the world. And why they are to be found in operating theatres in Montreal, Berlin, Kuala Lumpur and the Antarctic – right around the world, to be precise.



Quality in numbers

Quality can be expressed in numbers and dates. In 75 years we have created and accomplished a huge amount. We have held hundreds of thousands of talks and equally as many consultations. We have had tens of thousands of meetings in which customer wishes and product improvements were considered. And we have equipped ten thousand doctors, practices and hospitals with modern lights – on all of the earth’s continents, including Antarctica.

154.000

lux is the difference between our first light and our latest OT-light, the Mach LED 8MC – an increase from 6,000 to 160,000 lux.

14.560

days is the lifespan of the longest currently still in use medical light from Dr. Mach – in short: it has been in use for 40 years.

139

components are needed to assemble our LED 8MC surgical light in 25 precise work steps.



-32

degrees is the average temperature in winter at a research station in Antarctica where Dr. Mach OT-lights have been working reliably for years.

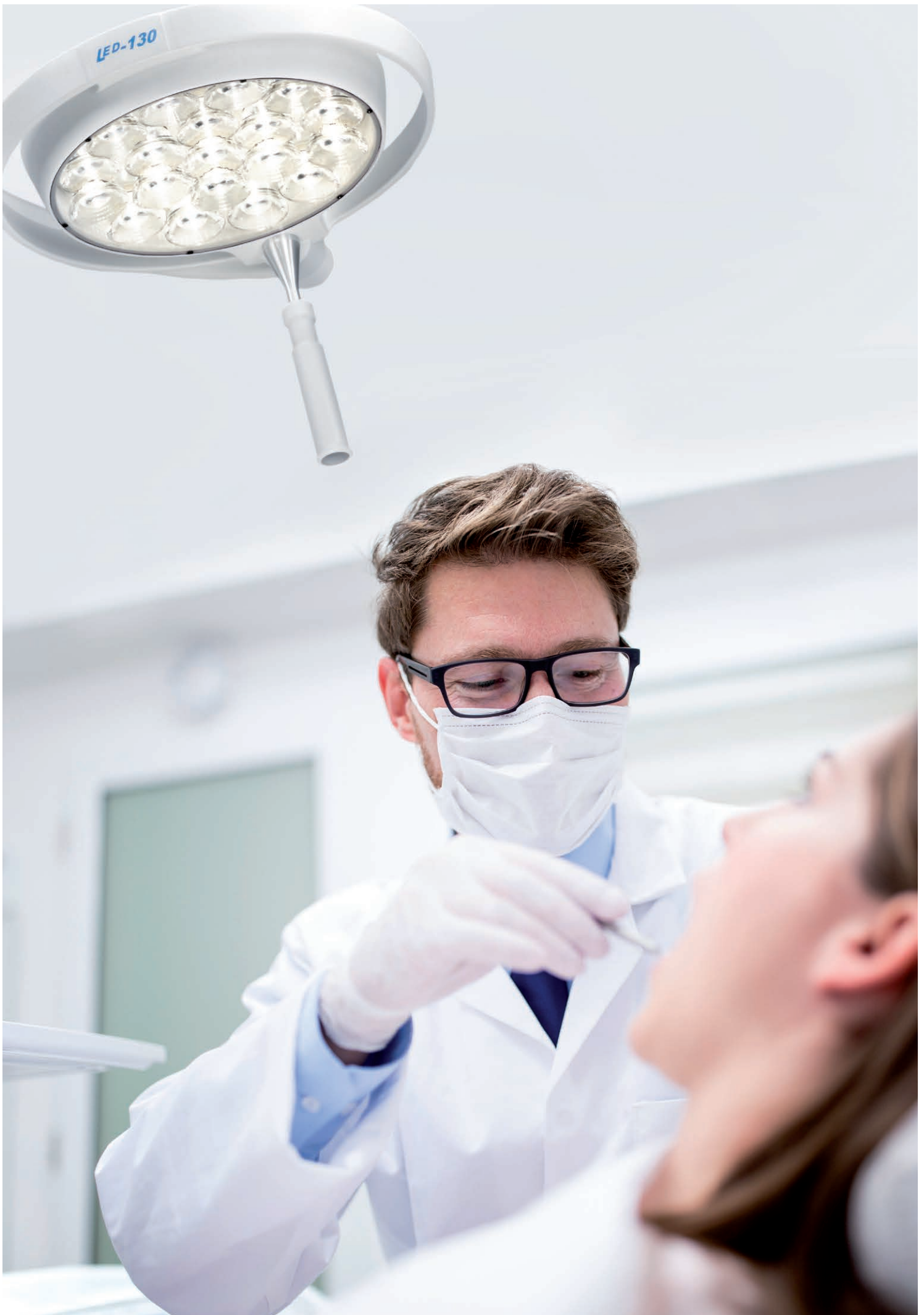
408.000

metres distant from the earth flies the highest Dr. Mach product in service: a monitor holder that works faultlessly even in the zero gravity of outer space.

25

steps is the distance from the CEO's office to the production hall.








Dental medicine is a specialised field with its own challenges: precision down to tenths of a millimetre is called for in a small and sometimes hard to access treatment field. This demands not only total concentration but also very precise light that can be adjusted with pin-point accuracy. No problem at all. We offer lights specifically designed to meet these demands. Accurate and versatile in equal measure. They can be individually adjusted and work with absolute reliability. For over 75 years we have devoted ourselves to providing the perfect light for medical practitioners. Our lights for dental specialists as well as oral and maxillofacial surgeons are amongst the best and hang in the most renowned practices in the world. Our portfolio is equally as expansive as the requirements of demanding dental specialists. Use a light made by Dr. Mach so that you can concentrate entirely on your work.





„As a professional, I don't want to make any compromises. To achieve the best results, I need to have the best equipment. I value the precision, variability and reliability of Dr. Mach lights.“

Dr. Dr. A. Henningsen

Dental specialist, Elbe MKG



1

Cascade system:

Different lens types ensure vertical focusing of the light depth. This means that as the depth of the operating field increases, it is no longer necessary to manually re-adjust the light.

2

Shadow management:

Should the movements of the surgeon create shadows in the surgical area, this is immediately compensated for by an increase in the light intensity of other LEDs – hence there are no shadows. As a result, the light field is always thoroughly illuminated during all movements.

3

Dental mode:

The light field can be adjusted individually according to needs: from circular illumination to an oval light field which illuminates the oral cavity without glare. Also, in composite mode, a premature hardening of composite fillings is avoided.

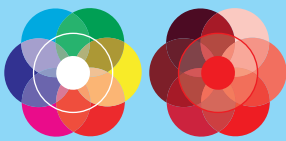
Special light modes – perfect for dental medicine



Dental mode (LED 130 Dental & Dental P)

The light is optimised for dentistry in the standard mode and orientated to the standard DIN EN ISO 9680. The light field can be changed to an oval shape free of glare and adjusted in brightness.

Highlights of the Dr. Mach dental lights



Almost perfect colour rendition:

With our superior colour rendition values, the dentist is able to easily recognise the subtlest colour nuances in tissue. The colour spectrum of the wound is rendered naturally with rich contrast. The light is also noticeably more comfortable for the eye.



Faceted multiple lens system:

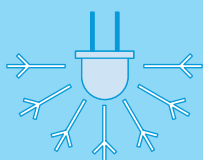
The numerous computer-calculated faceted lenses ensure uniformity and keep the shadow in the light field to a minimum. Separately arranged optical systems, each with one LED module, generate their own light field. This increases the contrast and thereby enhances recognition of detail in the wound area.



Control panel on light housing:

The following light functions can be controlled electronically:

- Switching on/off
- Electronic brightness control
- Colour temperature adjustment (only with Mach LED 150MC)



Cool light:

The LED technology is much more efficient than conventional light sources such as halogen lamps. The heat radiation is reduced to a minimum without using any expensive filter technique. The temperature increase in the surgeon's head area is barely noticeable.



Examination light mode (LED 130 Dental)

In this mode, the central lighting units are turned off resulting in a homogeneous round, white light field. Here too, the brightness can be adjusted.



Composite mode (LED 130 Dental P)

This mode is ideal for composite fillings as it prevents them from hardening prematurely. In this mode the light field is illuminated by orange-coloured, anti-polymerisation light. The light has no UV content and a minimum of blue colour content. The brightness can also be adjusted here.

Dr. Mach dental lights offer an ideal solution for any application or requirement – whether it be for the dental, oral or maxillofacial surgeon. Besides the intuitive handling, various technical features allow perfect execution of the work in a focussed manner. The LED 130 Dental and LED 130 Dental P are equipped with technologies and functionality specifically tailored to the dental sphere.

Focussing (optional, only on LED 150):

The light field can be focused by turning the handle. The focusable light beam allows spot illumination of deepest wound channels with high light intensity and exact matching of the light field diameter to the surgical situation

Handling:

During development of the new LED examination lights, great attention was paid to easy handling and easy of maintenance. Furthermore, the flow-enhancing open-ring shape prevents any build-up of heat in the surgeon's head area and thus creates optimal conditions for laminar flow systems. The light can be positioned exactly to the wound field with the handle.

Long life-span/Low power consumption:

The lifespan of at least 60,000 operating hours reduces many times over the cost of replacing the previously used halogen lights. By using LED technology, the power consumption can sometimes be reduced by more than 50%.



Dental light Mach LED 130



Options

- Ceiling model
- Wall model with wall fixation
- Mobile model on four castor stand

Mach LED 130 Dental	Dental mode	Exam. light mode
Light intensity at 0.7 metre distance	40,000 lux	65,000 lux
Colour temperature	4,500 Kelvin	4,500 Kelvin
Colour rendering index Ra	95	95
Light field diameter	13 x 8 (oval) cm	12 cm
Diameter of lamp head	33 cm	33 cm
Number of LEDs	7	12

Mach LED 130 Dental P	Dental mode	Composite mode
Light intensity at 0.7 metre distance	40,000 lux	65,000 lux
Colour temperature	4,500 Kelvin	N.A.
Colour rendering index Ra	95	N.A.
Light field diameter	13 x 8 (oval) cm	12 cm
Diameter of lamp head	33 cm	33 cm
Number of LEDs	7	12



65,000
lux

Light intensity

Computer-calculated, faceted lenses offer maximum uniformity and high contrast effect of the light – with a brightness of up to 65,000 lux.



Handle

The iconic Dr. Mach handle not only allows optimal handling and perfect positioning of the light field but can also be rotated to adjust the brightness.



Suspension linkage

The suspension and joints are designed specifically for the dental sphere and enable optimal positioning in any application.

Dental light Mach LED 150



Options

- Ceiling model
- Wall model with wall fixation
- Mobile model on four castor stand

Mach LED 150MC

Light intensity at 1 metre distance	110,000 lux
Colour temperature	3,750, 4,000, 4,250, 4,500, 4,750 Kelvin
Colour rendering index Ra	97
Light field diameter	21 cm
Diameter of lamp head	40 cm
Number of LEDs	26

Mach LED 150

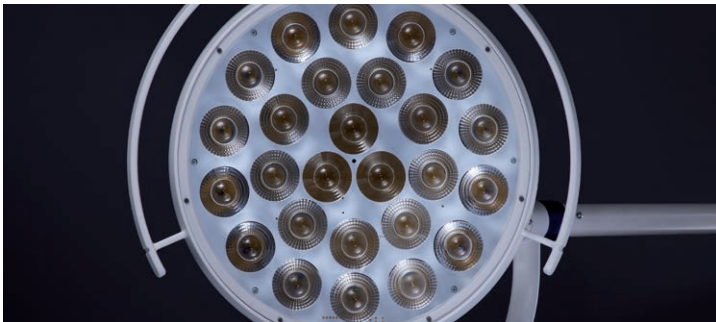
Light intensity at 1 metre distance	110,000 lux
Colour temperature	4,500 Kelvin
Colour rendering index Ra	97
Light field diameter	19 cm
Diameter of lamp head	40 cm
Number of LEDs	26

Mach LED 150F

Light intensity at 1 metre distance	110,000 lux
Colour temperature	4,500 Kelvin
Colour rendering index Ra	97
Light field diameter	16 – 24 cm
Diameter of lamp head	40 cm
Number of LEDs	26

Mach LED 150FP

Light intensity at 1 metre distance	130,000 lux
Colour temperature	4,500 Kelvin
Colour rendering index Ra	97
Light field diameter	16 – 23 cm
Diameter of lamp head	40 cm
Number of LEDs	26



130,000
lux

Light intensity

Computer-calculated faceted lenses offer maximum uniformity and high contrast of the light – with a brightness up to 130,000 lux.



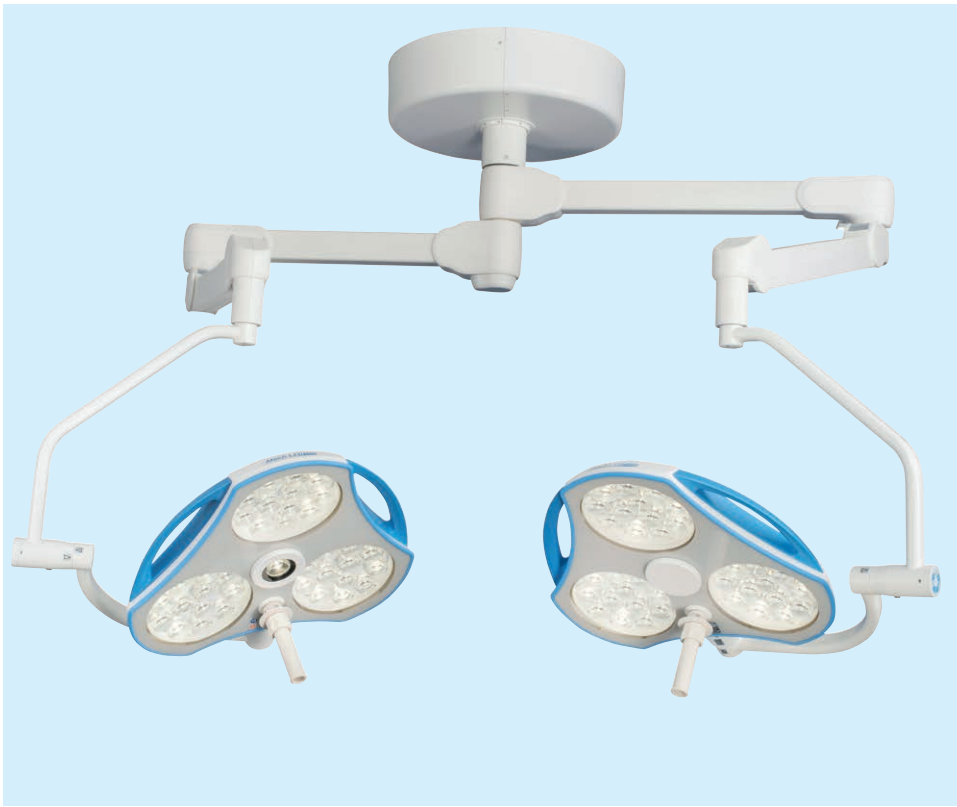
Handle

The iconic Dr. Mach handle not only allows optimal handling and perfect positioning of the light field but can also be rotated to adjust the focus (optional).

K°

Colour temperature

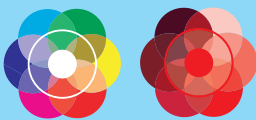
The adjustment of the colour temperature in five steps 3,750, 4,000, 4,250, 4,500 and 4,750 Kelvin allows individual setting of the colour temperatures (only with LED 150MC).



Mach LED 300DF SC with spotlight and Mach LED 300DF SC with camera preparation on heavy central axis

Ceiling suspension OT-lights combination: 2-arm suspension for different Dr. Mach light models. Both arms without stops 360° swivellable. Also available as treble and quadruple axis.

Highlights of the Mach LED 300



Excellent colour rendition

With excellent colour rendition values of $R_a = 97$ and R_9 (red) = 97, you can easily discern the finest colour nuances in tissue. To also recognise the different red tones of the wound area, an exact rendition of the red colour range is essential. Rendering index R_9 (red)=97 means the surgeon recognises details much more easily. The colour spectrum of the wound field appears natural and contrast-rich. The OT-light is also noticeably more comfortable for the eye.



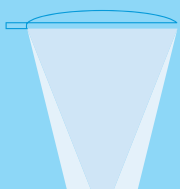
Facetted multi-lens system

A multitude of computer-calculated facetted lenses guarantees homogeneity and lowest shadiness in the light field. Separately arranged optical systems, each with one LED module, generate their own light field and thereby intensify the contrast effect of the OT-light.



Merging of light fields

When the sterilisable handle is turned, the three LED clusters each containing 12 lenses swivel. The separate light fields can be bundled, depending on the working distance, and merged into a single light field.



Focusing

The size of the separate LED clusters can be varied by turning the adjusting ring on the sterilisable handle (LED 300DF SC). This allows spot illumination of deepest wound channels with high light intensity and exact matching of the light field diameter to the surgical situation.

Mach LED 300MC with camera preparation and Mach LED 300MC with integrated HD camera on standard axis

Ceiling suspension OT-lights combination: 2-arm suspension for different Dr. Mach light models. One arm without stops 360° swivellable, other arm swivellable with stop at 330°.



The OT-light LED 300 is one of the most popular on the market thanks to its ease of operation and high functionality. With its mature, well-engineered design and various options, it offers doctors and surgeons worldwide the reliable prerequisites for a successful operative treatment.

Cool light

The use of LED modules reduces the radiated heat to a minimum. There is no build-up of heat under The OT light. The area around the surgeon's head remains cool.

Aerodynamic design

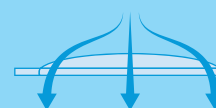
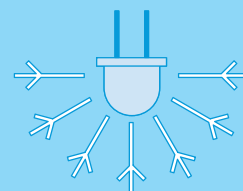
The shapes of the housings are aerodynamic and thus ideally suitable for laminar-flow systems (climatic ceilings).

Easy maintenance

With just a few steps the light housing can be opened to gain access to all of the system components. Due to their modularity all components can be easily exchanged. The housings are easy to clean.

Photobiological safety

The requirements of the photobiological safety standard DIN EN 62471 are met and so there is no risk for the human eye even during very long and intensive use of the OT-light.



OT-lights Mach LED 300



Options

Central spotlight for improved depth illumination
 Integrated HD camera (also can be retrofitted)
 Wireless remote control

Please refer to our separate documentation for details of the optional HD camera

Can also be combined with the OT-light LED 150MC P, for technical details see page 10.

Mach LED 300DF SC Spot

Light intensity at 1 metre distance	160,000 Lux
Colour temperature	4,500 Kelvin
Colour rendering index Ra	96
Colour rendering index R9	96
Light field diameter	17 – 25 cm
Diameter of the lamp head	55 cm
Number of LEDs on the lamp head	37
Lifespan of the LEDs	60,000 h

Mach LED 300DF SC

Light intensity at 1 metre distance	160,000 Lux
Colour temperature	4,500 Kelvin
Colour rendering index Ra	96
Colour rendering index R9	96
Light field diameter	19 – 26 cm
Diameter of the lamp head	55 cm
Number of LEDs on the lamp head	36
Lifespan of the LEDs	60,000 h

Mach LED 300MC

Light intensity at 1 metre distance	160,000 Lux
Colour temperature	3,750, 4,000, 4,250, 4,500, 4,750 Kelvin
Colour rendering index Ra	97
Colour rendering index R9	97
Light field diameter	18 – 26 cm
Diameter of the lamp head	55 cm
Number of LEDs on the lamp head	36
Lifespan of the LEDs	60,000 h



Design

Aesthetics meets ergonomics meets high tech. Our OT-lights are designed to be optimally functional, handle with maximum convenience and radiate minimal heat.



Handle

By virtue of its asymmetric position, the Dr. Mach handle allows the wound field to be illuminated optimally. Rotating the handle focuses the light field. It's sterile area can also be used to adjust the light field diameter mechanically (LED 300 DF SC) or the colour temperature (LED 300 MC).



Video

All of the LED 300 series lights come with camera preparation as standard (except the central spotlight option). Thus an HD camera can be retrofitted at any time.



Mach LED 6MC and LED 6MC on the standard axis

Ceiling suspension OT-lights combination: 2-arm suspension for different Dr. Mach light models. One arm without stops 360° swivellable, other arm swivellable with stop at 330°.

Highlights of the Mach LED 6MC and the LED 8MC



Outstanding depth illumination:

One of the highlights of the new Mach LED 6MC and Mach LED 8MC is the cascade system. Different lens types are used in this system. These lenses have their focus at 70, 100 and 130 cm respectively. As a result, a vertical focusing of the light beam throughout the depth of the wound canal can be achieved. Thus the surgeon no longer needs to manually re-adjust the light as the depth of the operating field increases



Large focusing range:

The size of the light field can be varied by turning the sterilisable handle. The focusable light beam allows spot illumination of deepest wound channels with high light intensity and exact matching of the light field diameter to the surgical situation. The focusing is achieved by means of mechanical (optional) and electronic light field adjustment. The brightness of the light field remains constant.



Automatic shadow management:

A further innovation is the shadow management, which is rendered possible by numerous sensors in the light. Any cluster that has its light disturbed by the surgeon is turned off. At the same time, the other light clusters increase in intensity in order to compensate for the shadow. Even if the surgeon changes position, the light field remains evenly illuminated without the need to move the light manually. The lux remains constant at all times.

Mach LED 8MC and LED 6MC on the heavy central axis

Ceiling suspension OT-lights combination: 2-arm suspension for different Dr. Mach light models. Both arms without stops 360° swivellable. Also available as treble and quadruple axis.



When it comes to complex treatments or operations in the dental or maxillofacial sphere, there are hardly any better lights than the LED 6MC and LED 8MC. Their first-class technical equipment and proverbial reliability affords the perfect working environment. The excellent technical features are equally as persuasive as the intuitive handling – ideal for full concentration on the dental treatment.

Almost perfect colour rendition:

With almost perfect colour rendition values of $R_a = 98$ and $R_9(\text{red}) = 99$, you can easily discern the finest colour nuances in tissue. To also recognise the different red tones of the wound area, an exact rendition of the red colour range is essential. Rendering index $R_9(\text{red}) = 99$ means the surgeon recognises details much more easily. The colour spectrum of the wound area appears natural with rich contrast. The OT-light is also noticeably more comfortable for the eye.

Antibacterial coating:

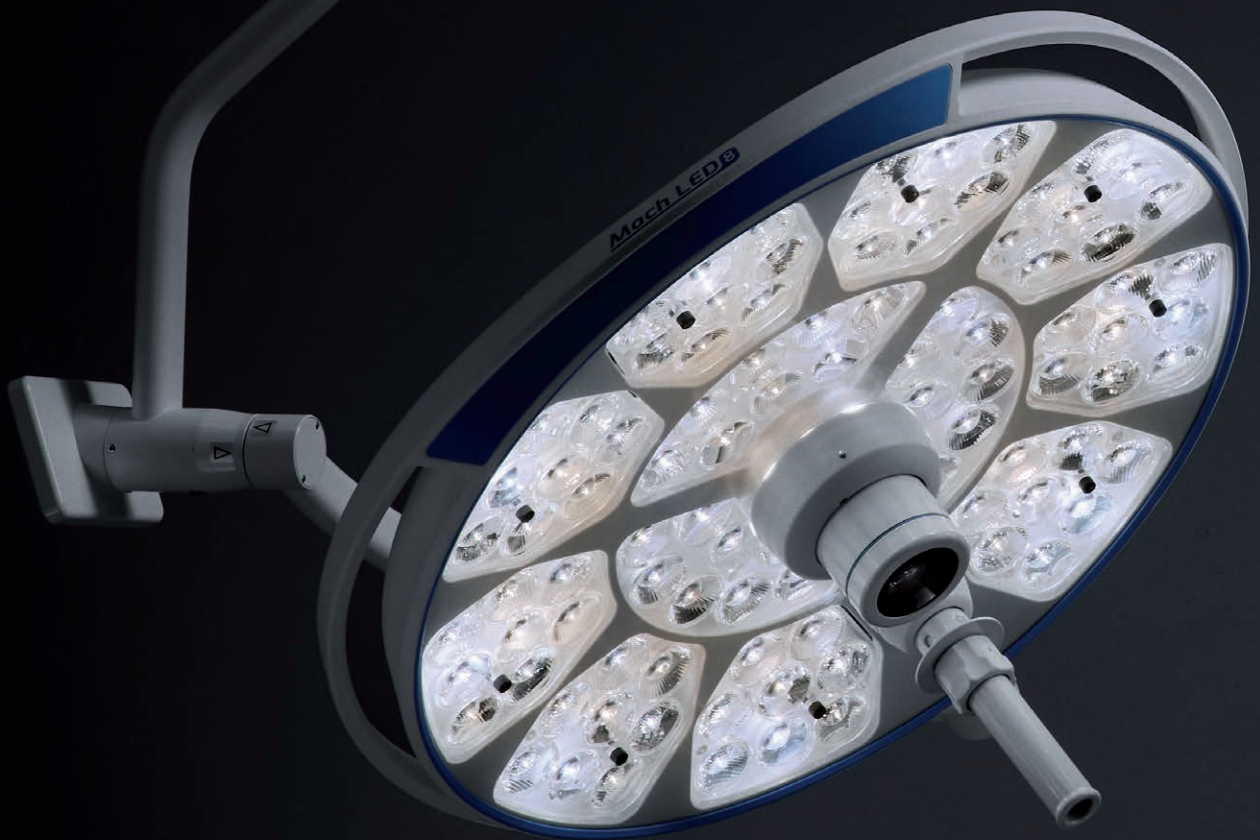
For maximum hygiene in the operating theatre, the new generation of surgical lights have a closed, easy-to-clean surface. In addition, they have an antimicrobial coating that prevents the growth of microorganisms and thus helps to avoid infections.

Video management:

The integrated 4k camera allows operations to be recorded and saved. Razor-sharp recordings are possible at all times thanks to the large depth of field and autofocus. Ideal for training purposes as well as documentation.



OT-lights Mach LED 6MC and LED 8MC



Options

- Shadow management
- Laser pointer
- Communication
- Mechanical adjustment (larger light field diameter)
- Wall-mounted control
- Individual calibration of the colour temperatures and light intensities
- Diverse optional external interfaces and connections (e.g. Storz, Bender etc.)
- Camera preparation for HD or 4K camera
(Please see our separate documentation for details)

Can also be combined with

Mach LED 150MC P

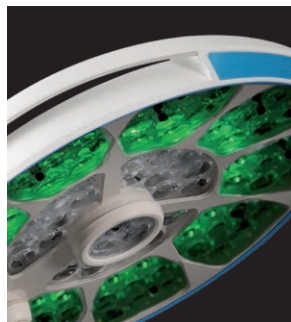
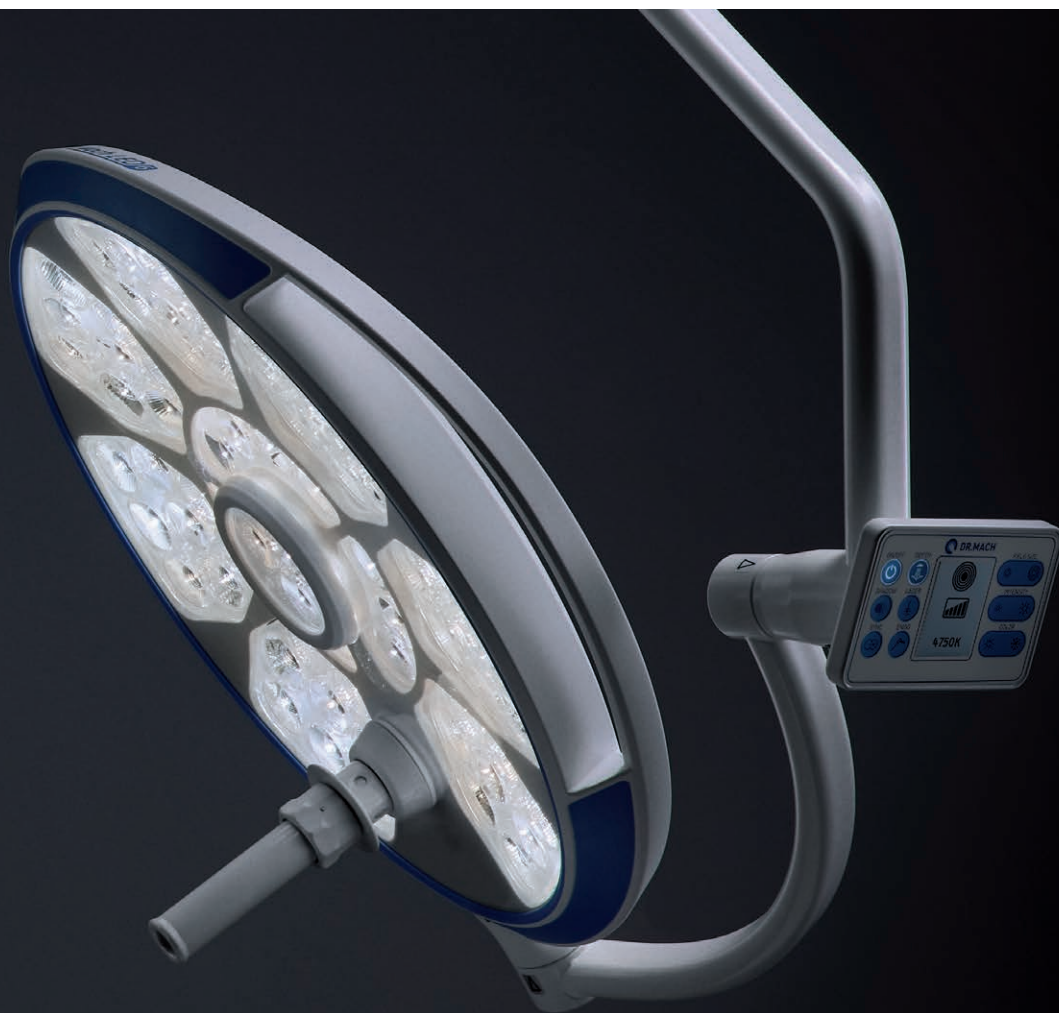
Light intensity at 1 metre distance	130,000 lux
Colour temperature	3,750 – 4,750 Kelvin
Colour rendering index Ra	97
Colour rendering index R9	93
Light field diameter	21 cm
Diameter of lamp head	40 cm
Number of LEDs	26
Life of the lights	60,000 hours

Mach LED 8MC

Light intensity at 1 metre distance	140,000 lux
Colour temperature	3,750 – 4,750 Kelvin
Colour rendering index Ra	98
Colour rendering index R9	99
Light field diameter	18 – 30 cm
Diameter of lamp head	58 cm
Number of LEDs	69
Life of the lights	60,000 hours

Mach LED 6MC

Light intensity at 1 metre distance	160,000 lux
Colour temperature	3,750 – 4,750 Kelvin
Colour rendering index Ra	98
Colour rendering index R9	99
Light field diameter	19 – 30 cm
Diameter of lamp head	66 cm
Number of LEDs	99
Life of the lights	60,000 hours



Video

All of the lights in the LED 6MC and LED 8MC series are equipped with a spotlight as standard. Instead of this, preparation for a camera can be selected when ordering. A camera may then be retrofitted at any time.



Handle

Due to its asymmetric position, the Dr. Mach handle allows optimal illumination of the wound area. Besides the focusing, another setting of choice can be controlled with the sterile area of the handle.



Laser pointer

When activated, the optional laser pointer defines the centre of the light field and thereby aids optimal alignment to the wound area.

Suspensions and configurations

Our dental lights offer various combination and suspension options. Different methods of fixation and support arms allow attachment to almost all ceiling heights and carrier systems.

1 Mach LED 300DF SC
Ceiling fixation

4 Mach LED 8MC
Ceiling fixation

6 Mach LED 150
Ceiling fixation

2 Mach LED 6MC
Stand

5 Mach LED 150
Stand

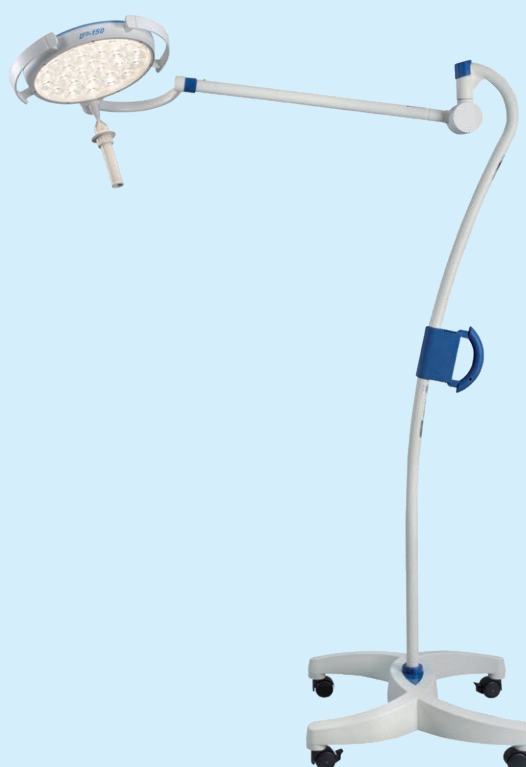
7 Mach LED 6MC
Wall fixation

3 Mach LED 130 Dental
Wall fixation

4



5



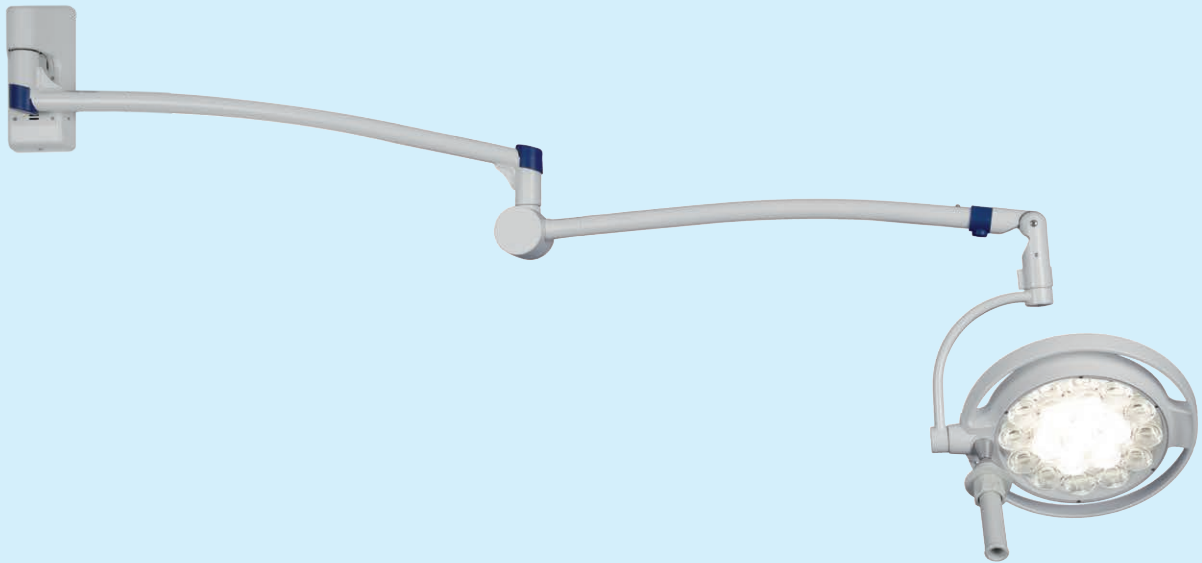
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2



3



6



7





At home all over the world. In over 100 countries and on all continents, Dr. Mach OT-lights are synonymous with exceptional quality, reliability and engineering excellence. Together with our partner distribution networks, we sell and maintain Dr. Mach medical lights for doctors from all spheres. For decades our name has stood for:

Made in Germany – used all over the world.

Your quick link to Dr. Mach. For all queries concerning our medical lights or our company, please contact our **head office: +49 (0)8092 2093 0**

Or send us an **email: info@dr-mach.de**

**This way to your
contact person**



Sustainability for man and the environment. Dr. Mach lights are people-oriented: Light that enables doctors to preserve health and save lives. We absolutely pursue the notion of a people-centric approach: to employees, the environment and commercial responsibility. Our commitment in this regard grows steadily:

The solar-panel system on the roof of our new company headquarters produces just under 100kWh. The waste heat from our manufacturing machinery is used as an energy source and our building insulation meets the strict efficiency standard KFW 55.

We place external preparation and legwork preferentially with establishments in the region that employ people with cognitive and physical limitations. We regularly sponsor local clubs and charitable institutions.

And we continually strive to increase our involvement – for the health of people and the natural world.





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