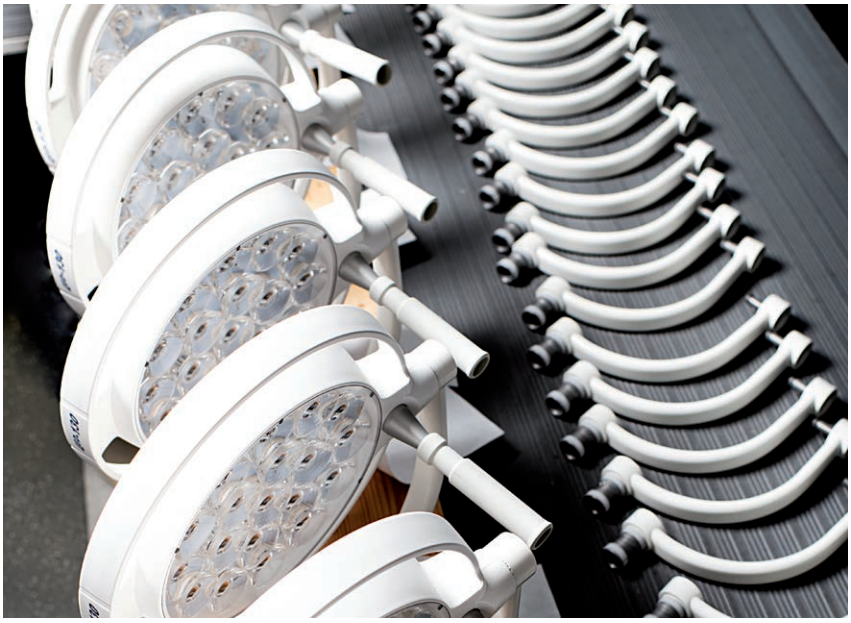
DR.MACH
GERMAN MED-LIGHT SOLUTIONS





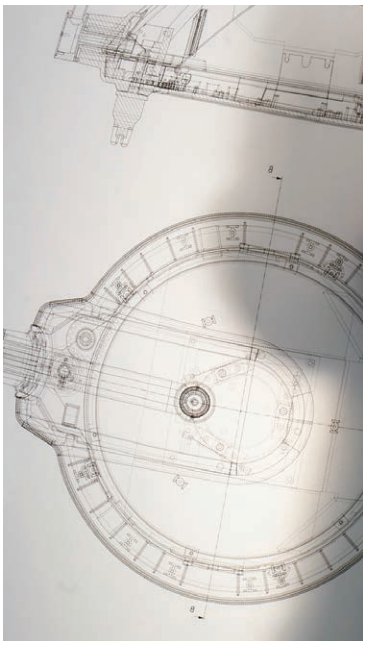


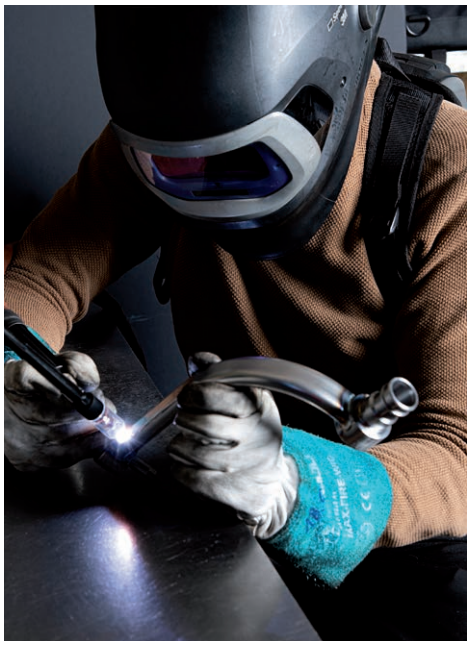














FIRST CLASS MEDICAL LIGHTS GO BY THE NAME OF – DR. MACH

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 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 are to be found in operating theatres in Montreal, Berlin or Kuala Lumpur – and right across the world, to be concise.



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.

-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.

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.

139

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

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.



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.

25

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




Mach LED

It's a matter of concentration, experience, perfection and millimetres. It's all about 100% reliance and not wasting any of one's attention. It's about being able to accurately recognise tissue, structures and colour. It's about having the perfect light during the operation. For the light is good only if it is ideal without the surgeon constantly needing to make adjustments. Medical lights from Dr. Mach are therefore optimally matched to the situation and needs during an operation. Easy to handle, perfect in function, absolutely reliable and long-lasting. As a result, OT-lights from Dr. Mach ensure that surgeons worldwide are able to concentrate on what matters: preserving health and saving lives.





"Besides the illumination, I appreciate features such as shadow management, extraordinary depth illumination and uncomplicated handling. They allow me to concentrate on what I am best at: operate."

Prof. Dr. med. Joachim Müller

ENT surgeon



1 Cascade system:

Various lens types create vertical focusing of the light depth. This means: With increasing depth of the operating field, the light no longer needs to be re-adjusted manually.

2 Shadow management:

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

3 Video management:

An HD or 4K camera which may optionally be integrated enables operations to be filmed. Thanks to high depth definition and autofocus, razor-sharp images are always possible – ideal for training purposes and documentation.

OT-lights Mach LED 6MC and LED 8MC



GERMAN DESIGN AWARD WINNER 2023

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 (for details, please refer to our separate documentation)

Mach LED 8MC

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 the lamp head	66 cm
Number of LEDs on the lamp head	99
Lifespan of the LEDs	60,000 h

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 the lamp head	40 cm
Number of LEDs on the lamp head	26
Lifespan of the LEDs	60,000 h

Mach LED 6MC

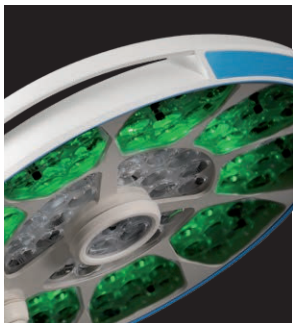
Light intensity at 1 metre distance	140,000 Lux
Colour temperature	3,750 – 4,750 Kelvin
Colour rendering index Ra	98
Colour rendering index R9	99
Light field diameter	18 – 30 cm
Diameter of the lamp head	58 cm
Number of LEDs on the lamp head	69
Lifespan of the LEDs	60,000 h

* Only 4,250 Kelvin for LED 6MC (BASIC)













Design

Aesthetics meets ergonomics meets high tech. Our OT-lights are designed to be optimally functional, handled 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. In addition, beside the focusing a second setting can be controlled with the sterile area of the handle.

Laser pointer

An optional fine laser dot defines the centre of the light field and thereby aids optimal alignment of the light field to the wound area.



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

Ceiling suspension OT-lights combination: 2-arm suspension for various 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 focusing at 70, 100 and 130 cm. 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 when 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 remain constant.

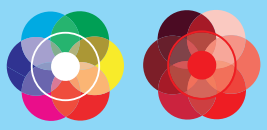
Mach LED 8MC and LED 6MC
on the heavy central axis

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.

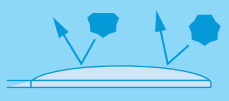


The diverse features of the LED 6MC and LED 8MC puts them amongst the most modern OT-lights on the market. Every characteristic and functionality is aimed at giving surgeons worldwide the best possible prerequisites for a successful operation.

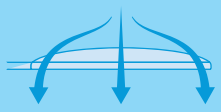
Almost perfect colour rendition
With almost perfect colour rendition values of Ra = 98 and R9 (red) = 99, you can easily discern the finest colour nuances in tissue. To also recognise the different red tones of the wound area, an exact rendition of the red colour range is essential. Rendering index R9 (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 eyes.The colour spectrum of the wound area appears natural with rich contrast. The OT-light is also noticeably more comfortable for the eyes.



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.



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



Suspensions and configurations

Our OT-lights afford various combination- and suspension options.
Different methods of fixation and support arms are available. Here are some examples of possible combinations. As a single light, the Mach LED 6MC is available as wall, ceiling and mobile model, the Mach LED 8MC only as ceiling model.

1 Mach LED 8MC and LED 6MC
with tandem monitor carrier on heavy central axis

Triple combination with 4K camera and dual monitor carrier

2 Mach LED 6MC and LED 150MC P
with storage tray on heavy central axis

Triple combination with 4K camera and storage tray

3 Mach LED 6MC
Ceiling model

Single light with ceiling suspension

4 Mach LED 6MC
Wall model

Single light on wall mount

5 Mach LED 6MC
with central spring arm

Light with only one quarter yoke, recommended for a ceiling height under 2.80 m

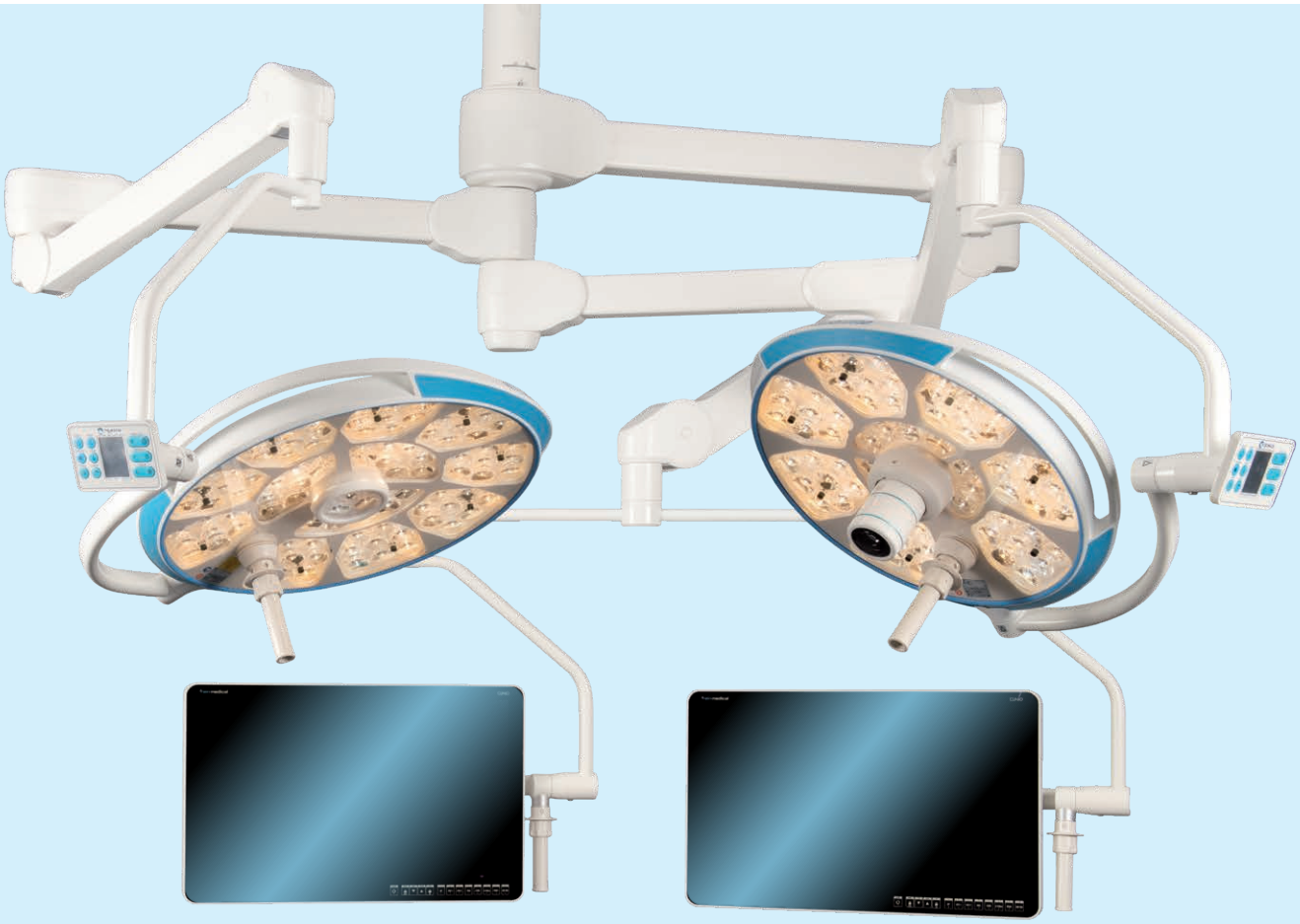
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OT-lights Mach LED 300



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).

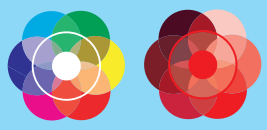
Video
All of the LED 300 series lights come with camera preparation as standard (except the central spotlight option). Thus an HD camera can be retrofitted at any time.



Mach LED 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



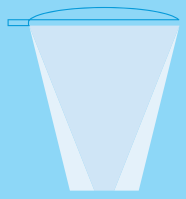
Excellent colour rendition
With excellent colour rendition values of Ra = 97 and R9 (red) = 97, you can easily discern the finest colour nuances in tissue. To also recognise the different red tones of the wound area, an exact rendition of the red colour range is essential. Rendering index R9 (red)=97 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 faceted 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.

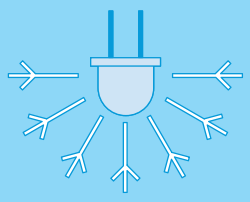
Mach LED 300MC with camera preparation and Mach LED 300MC with integrated HD camera on standard axis

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°.

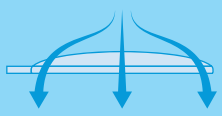


The OT-light LED 300 is one of the most popular on the market thanks to its ease of operation and high functionality. With its mature, well-engineered design and various options, it offers doctors and surgeons worldwide the reliable prerequisites for a successful operative treatment.

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.



Suspensions and configurations

Our OT-lights afford various combination- and suspension options. Different methods of fixation and support arms allow attachment to almost all ceiling heights and carrier systems. Here are some examples of possible combinations. As a single light, the Mach LED 300 is available as wall, ceiling and mobile model.

1 Mach LED 300DF SC with Spot and LED 150FP
on the standard axis

Dual combination

2 Mach LED 300MC and LED 150MC P
on heavy central axis

Dual combination with central spring arm

3 Mach LED 300SC
Ceiling model

Single light with ceiling suspension

4 Mach LED 300SC
Stand model

Single light on four feet stand

5 Mach LED 300MC
with monitor carried on standard axis

Dual combination with monitor carrier

2



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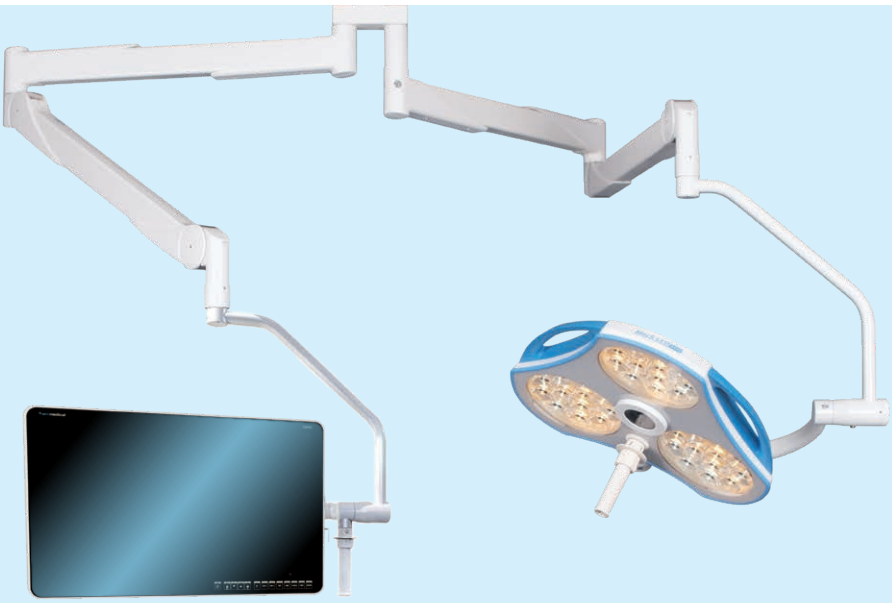
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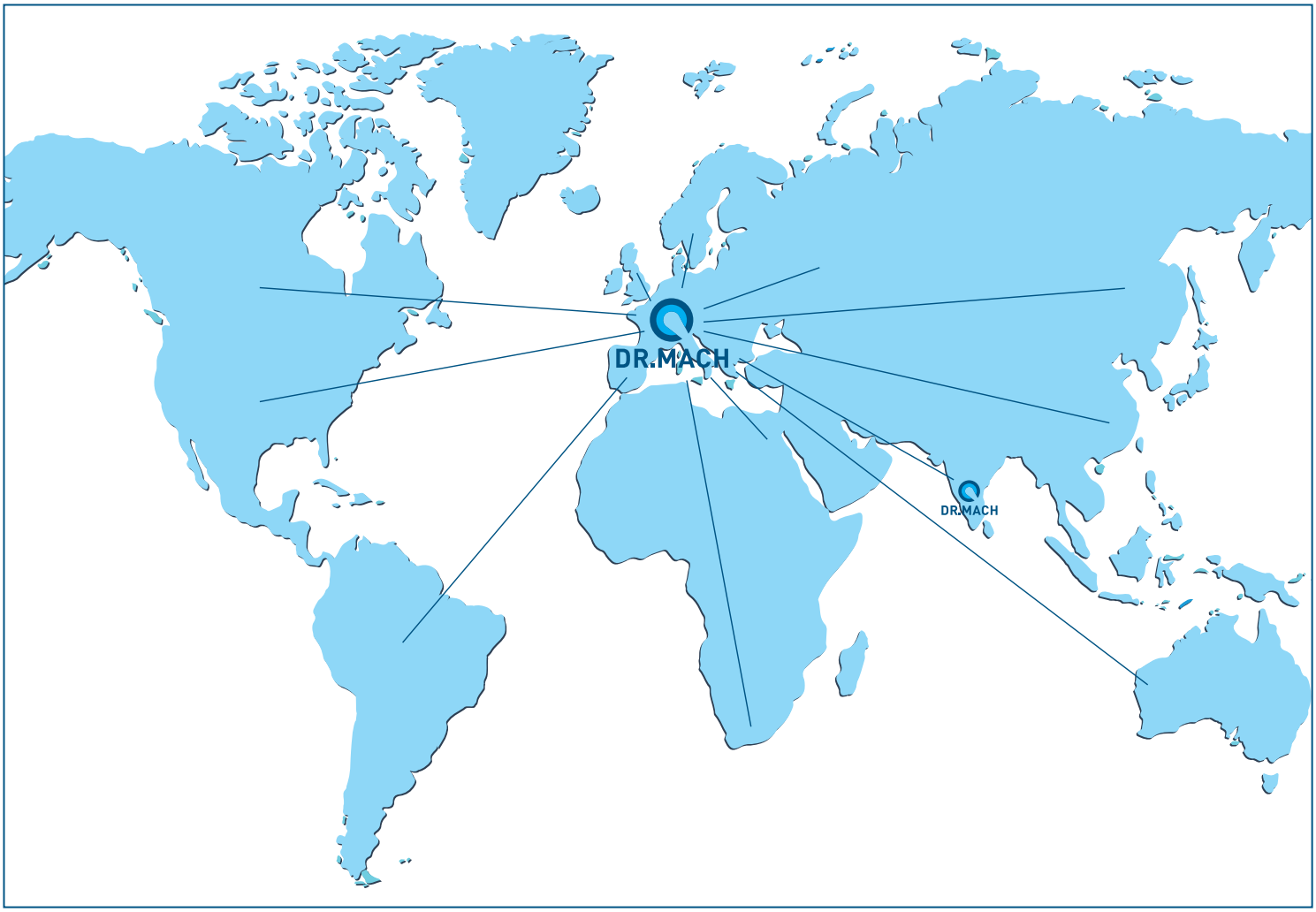


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At home all over the world. In over 100 countries and on all continents, Dr. Mach OT-lights are synonymous with exceptional quality, reliability and engineering excellence. Together with our partner distribution networks, we sell and maintain Dr. Mach 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 to: 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 preservation of nature.



Dr. Mach GmbH & Co. KG I Phone +49 (0)8092 20930 I www.dr-mach.de

Subject to change without notice due to technical modification I 59356002 V3.1