

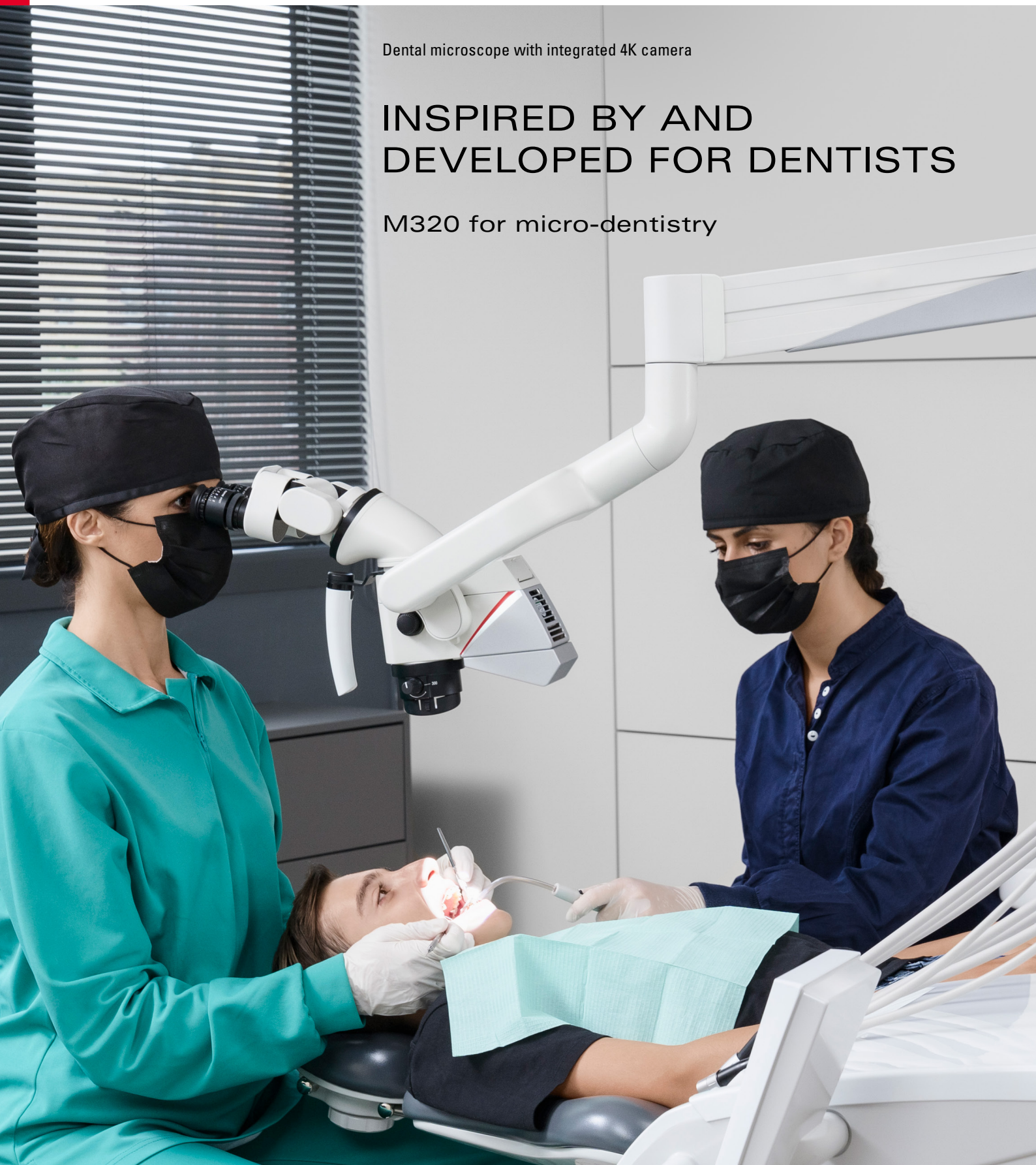
From Eye to Insight

*Leica*  
MICROSYSTEMS

Dental microscope with integrated 4K camera

# INSPIRED BY AND DEVELOPED FOR DENTISTS

M320 for micro-dentistry

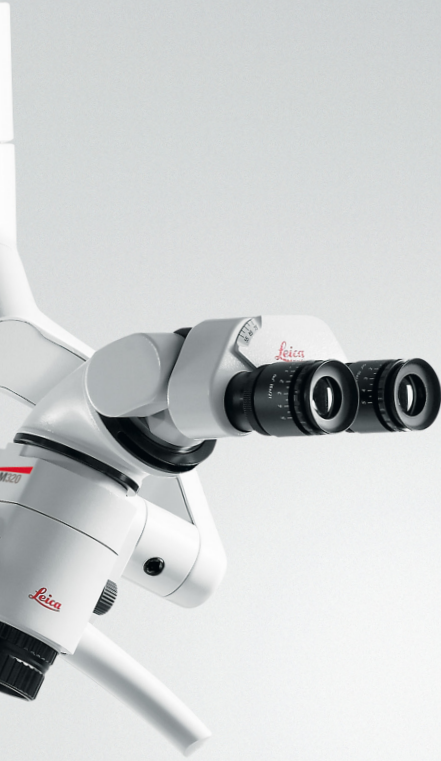




## INSPIRED BY AND DEVELOPED FOR DENTISTS

Enjoy having better visualization during surgical and non-surgical dental procedures, benefit from increased physical comfort, and show your expertise to peers and patients with astounding digital images.

We have been working with dentists for many years to understand their needs in micro-dentistry. This is why the M320 dental microscope now combines world-renowned Leica optics with ergonomic design, as well as 4K image quality and advanced streaming capabilities.



“For successful treatment I need as much information and detail as possible.

I have worked with dental microscopes for 22 years—it really makes a big difference and helps to achieve better treatment results.”

Dr. Katia Greco,  
Endodontist, Maglie, Lecce, Italy



### **Optimize your outcomes**

Achieve better treatment results working with a surgical microscope that is optimized for the challenges in micro-dentistry.

Pages 4–5

### **Enhance your comfort**

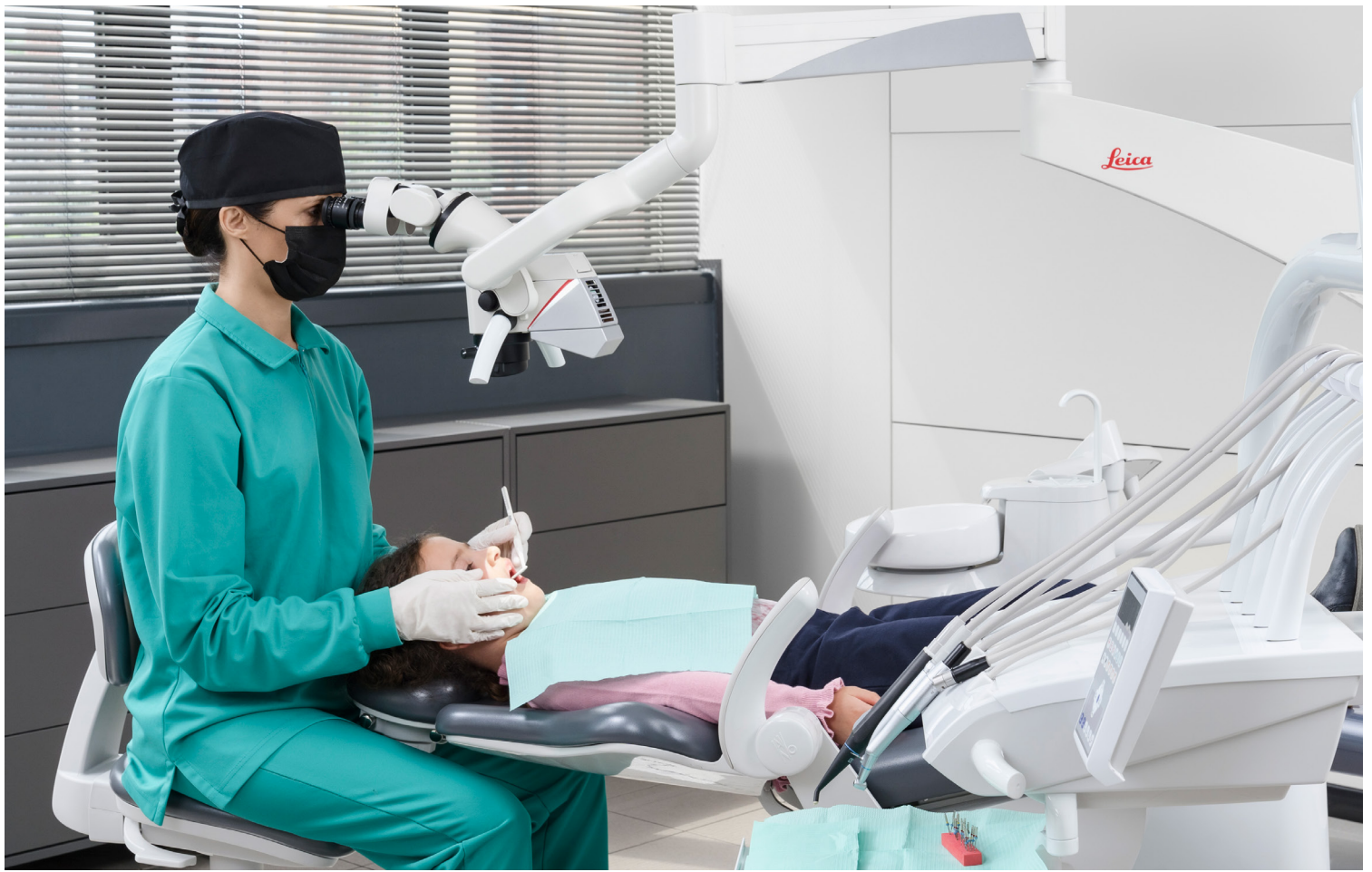
Benefit from the ergonomic microscope design to enhance your physical comfort and thus increase efficiency.

Pages 6–7

### **Share your expertise**

Record your procedures digitally in impressive quality to improve communication with patients and peers.

Pages 8–9



## OPTIMIZE YOUR OUTCOMES

Achieve better treatment results with a microscope designed for a various dental disciplines. The clear visualization of deep and narrow cavities helps you to get the best possible results—a prerequisite for satisfied, loyal patients.



### Crystal clear visualization and imaging

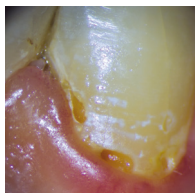
- > High resolution and large depth of field for impressive detail
- > Premium quality apochromatic optics combined with LED lighting for an enhanced visualization of deep cavities
- > Fully integrated 4K medical camera for brilliant images and videos



### Efficient and powerful LED illumination

- > LEDs with high color perception and reproduction for easy differentiation of anatomical details
- > Two light paths deliver homogenous LED light which is particularly suitable for small, deep, and narrow cavities
- > Direct illumination concept with integrated LEDs in the optics carrier contributes to the high light intensity of the M320

## SEE WHAT YOU NEED TO SEE



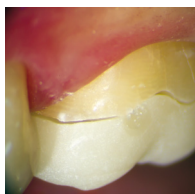
### Restorative dentistry

- > Insert restorative materials precisely and finish accurately
- > Diagnose caries lesions at an earlier stage
- > Differentiate clearly between healthy and carious tissue under gingiva
- > Identify cracks in the dentin, enamel, and even in fillings



### Endodontics

- > Locate additional root canals easily
- > View complex pulp structures accurately
- > Manage obstruction or perforation in root canals precisely
- > Fill roots in a controlled way
- > Use microsurgical mirrors to make even deep cavities in the molar region visible



### Prosthodontics and aesthetic dentistry

- > Prepare teeth for crowns or bridgeworks with high precision
- > Avoid adjoining tissues such as gums or mucous membranes
- > Check impressions thoroughly for accurate preparation of prosthetics
- > Evaluate the fit and bonding of crowns or bridges accurately



### Periodontics and implantology

- > Inspect the surgical site in detail
- > Control flaps easily
- > Manage soft and bone tissues in a controlled manner
- > Suture the soft tissues accurately for low tissue trauma
- > Use micro-suturing techniques for primary wound closure more easily to achieve better clinical outcomes

## FOCUS ON WHAT MATTERS

Without distractions, you can best diagnose and treat your patients. The M320 helps you to focus entirely on your patient, during surgical procedures as well as in non-surgical treatments.

### Smooth workflow

- > Maintain efficiency and concentration by switching focus levels quickly and easily
- > Increase accuracy and precision thanks the powerful visualization capabilities of the M320 surgical optics
- > Document your procedures instantly in ultra-high resolution with just the touch of a button
- > Minimize workflow interruption with the 5-step magnification changer

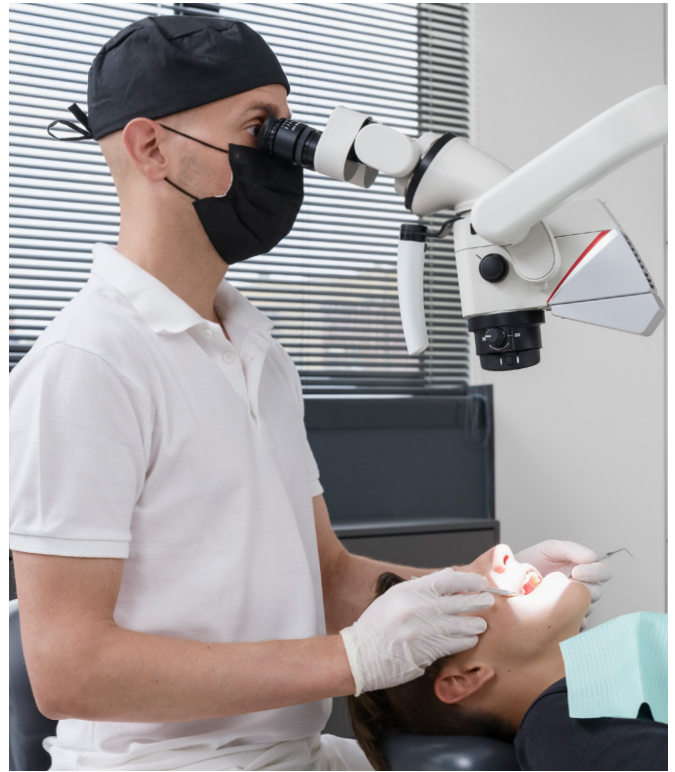


# ENHANCE YOUR COMFORT

Working in a hunched position can cause musculoskeletal pain, as can harsh, repetitive movements. This can seriously impact your well-being, affecting both your professional and personal life. The M320 ergonomic microscope design enables you to work more comfortably.



Hunched working position with surgical loupes



Upright posture achieved using the M320 dental microscope

## PHYSICAL COMFORT INCREASES EFFICIENCY

Ensure you are sitting comfortably so that you can work without interruptions for repositioning yourself. Leica Microsystems offers a choice of objective lenses, binocular tubes, and ergonomic accessories that suit your body frame, specialty, and working preference.



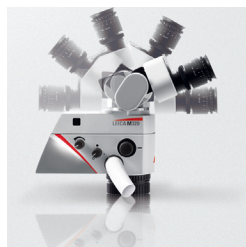
### **Binocular tube with 45° angle**

Work in comfortable standard position with a fixed 45° viewing angle



### **ErgoWedge for the 45° binoculars**

Enjoy working more ergonomically with a tiltable viewing angle of 5–25°



### **Binocular tube for 180° movement**

Enhance comfort and flexibility through an even wider range of viewing angles



### **ErgonOptic Dent accessory**

Extends the reach of the microscope and allows to swivel the optics carrier to any angle



### **Ultra-low binoculars for an upright posture**

Work in a more compact position with your body and arms closer to the operating field



## STAY FOCUSED

The optional MultiFoc objective for the M320 allows you to switch quickly and easily between different focus levels during examinations and treatments. Simply adjust the working distance within a range of 200 mm to 300 mm by micro-movements of the adjustment knob. By limiting the time and effort of refocusing, you maintain efficiency and concentration while retaining an ergonomic posture.

- > Maintain efficiency and concentration, since you can work uninterruptedly
- > Retain a comfortable working position, since you need to move less
- > Position the adjustment knob on the right, left, or centrally

## EASIER TO USE THAN YOU THINK

The M320 is robust, yet extremely light and easy to maneuver, decreasing the potential strain of harsh movements. Quick and accurate positioning and quick stabilization ensure workflow interruptions are kept to a minimum so that you can work efficiently.

- > Integrated cables for maneuverability and long life
- > Robust, yet easily adjustable for accurate positioning
- > Vibration-minimizing bearings for fast stabilization
- > ErgonOptic Dent allows you to smoothly rotate the 180° binoculars into the required position
- > Effortless image acquisition via hard keys, remote control, or mobile App





## SHARE YOUR EXPERTISE

Record your procedures digitally for optimized communication with patients and peers. Benefit from advanced imaging and streaming capabilities of the M320 dental microscope thanks to its integrated 4K camera.

### DOCUMENT IN IMPRESSIVE IMAGE QUALITY



#### All-in-one or modular imaging

- > Record every surgery for thorough documentation using the fully integrated, cable-free 4K camera
- > Upgrade your M320 if you need to add digital imaging to your modular microscope\* or use the c-mount for an external camera



#### Flexible image acquisition and viewing options

- > Start video or image recordings conveniently via remote control or directly on the microscope
- > Share images with your patient on a 4K monitor in order to illustrate the diagnosis and explain possible treatment options



#### Easy image transfer and storage

- > Store images and video in 4K quality conveniently on an SD card for easy transfer to a computer
- > Transfer images directly to your PC via USB connection and save them, e.g., in your patient files for easy revisiting



#### Wireless image streaming and transfer via Leica View App \*\*\*

- > Benefit from wireless image streaming from the M320 microscope to your mobile devices\*\*
- > Record and download images or videos to your mobile devices for image-supported patient communication

\* no retro-fit for previous generations of M320

\*\* streaming resolution to today's generations of mobile devices: 720p/30

\*\*\* only with optionally ordered WiFi-dongle



## STRENGTHEN PATIENT TRUST

Some patients become nervous in the dental chair, especially before a procedure. Let the M320 with integrated 4K camera support you to show them they are in good hands. Use live images or video playbacks to walk them through the steps of a procedure.

With its variety of viewing options, the M320 facilitates patient communication. High resolution images can be easily transferred and archived in the patients' files for recall at any time. Additionally, you can show patients different treatment options and make them part of the decision process.



### Leica View App allows you to:

- > Stream the live microscope view from your M320 dental microscope
- > Capture images and videos directly from a mobile device
- > Access recorded pictures and video of your microscope's SD card gallery
- > Download assets to your mobile devices to always have them conveniently at hand
- > Explain diagnoses and available treatments by reviewing recorded video and pictures together with your patients or peers

## ENHANCE YOUR PROFESSIONAL REPUTATION: SHARE YOUR WORK

Raising your professional profile becomes easier with the M320: You can share your knowledge and enhance your professional reputation with ultra-high resolution dental pictures from the M320 dental microscope. Use these images and videos for impressive presentations, webinars, training events, and publications which can help you grow your network and your reputation. Last, but not least, 4K content looks great on your professional social media profiles.



# ENSURE YOUR EQUIPMENT FITS YOUR PRACTICE

In a surgical environment, a high level of cleanliness is a must. The surfaces and accessories of the M320 surgical microscope for micro-dentistry are designed for easy cleaning to help you meet ever increasing hygiene demands and protocols.

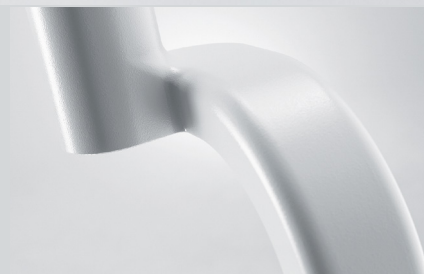


## STRENGTHEN HYGIENE PRECAUTIONS

- > Increase the physical distance between you and the patient to reduce exposure to spraying from the treatment
- > Benefit from additional safety through antimicrobial microscope coating
- > Make cleaning easy thanks to internally routed cables and flat surfaces
- > Ensure longevity even with regular autoclaving or other methods of sterilization as removable parts like handles are made from robust materials



Antimicrobial coating reduces pathogens



Virtually jointless for easy cleaning



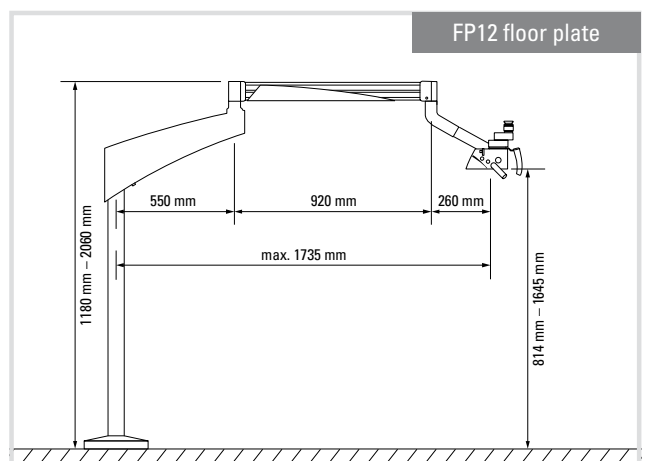
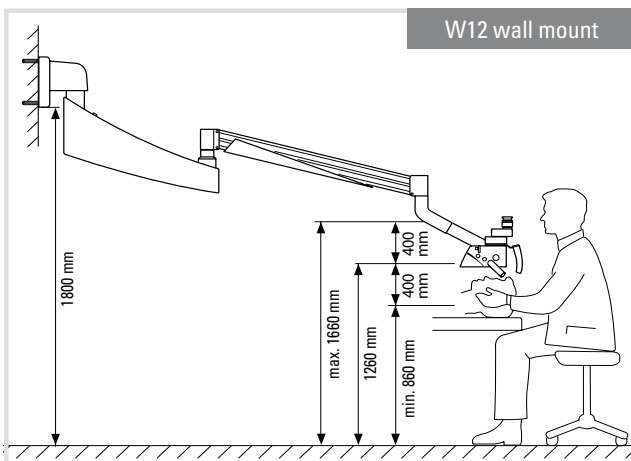
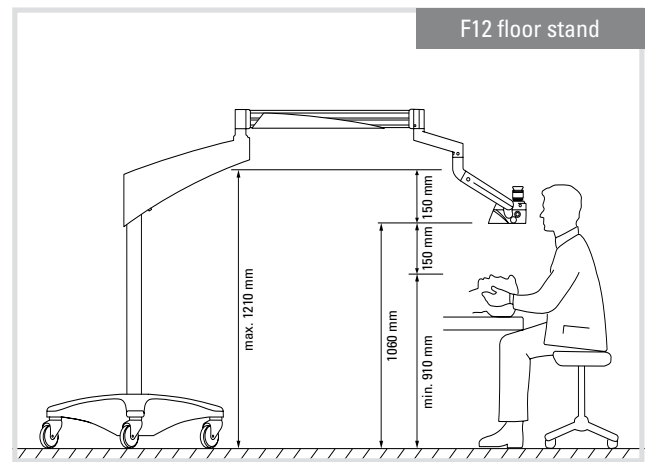
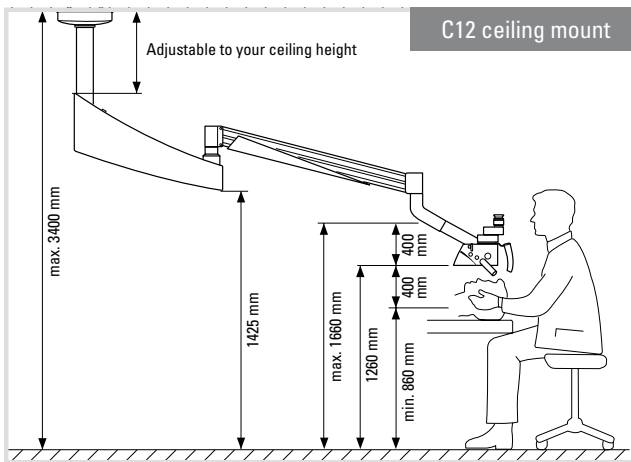
Handles can be removed and sterilized

## CREATE A MODERN LOOK AND FEEL IN YOUR PRACTICE

The timeless, sleek design of the M320 can compliment the high-quality image of your dental practice. This can also help build or strengthen patient trust and set you apart.

## DESIGN YOUR IDEAL WORKSPACE

- > Select the configuration that best fits your practice needs by choosing from a variety of stands, e.g., ceiling, floor, or wall mounts
- > Enjoy working with an adaptable microscope with modern viewing capabilities, which are useful throughout your career
- > Keep cost of ownership low with the LED illumination—avoiding costly replacement of fiber optics and cables



## TECHNICAL SPECIFICATIONS

### Microscope

Magnification	Manual APOchromatic 5-step magnification changer 6.4 / 10 / 16 / 25 / 40×
Stereo base	24 mm
Objectives	Fixed focal lengths from f = 100 mm up to f = 400 mm Fine focusing lenses with f = 200, 250, 300 mm MultiFoc objective lense with variable working distance of 200 mm to 300 mm
Eyepiece	10 × 21B, 12.5 × 17B, 8.33 × 22B, 10 × 21B with reticule
Reset functions	Limit switch for light on/off
Light source	Direct and long-lasting 2-LED illumination integrated into the optics carrier, with an average service life of up to 60,000 h
UV filter	UV and IR-free LED illumination
Built-in orange filter	OG530
Light intensity adjustment	Using a knob on the optics carrier

### Camera

M320 4K video and photo camera	Integrated 4K video camera with 4K video resolution and 12 MP still photo resolution, camera also has playback function for video and photo and thumbnail view, video (MPEG-4) and photo (.jpg/.raw) storage on SD memory card (system comes with a 64 GB SD memory card), or transfer via USB. Video signal available in HDMI (1 video connector), video/photo control through IR remote control and two hard keys on camera body, all camera settings adjustable via onscreen menu.
Remote control	IR remote control for M320 4K video and photo camera
M320 IVA Integrated Video Adapter	Integrated (optional) video adapter for attachment of external c-mount cameras, focal length of optics: f = 55 mm

### Limitations of Use

The M320 surgical microscope may be used in enclosed rooms and on flat surfaces with max. 0.3° unevenness, or at stable walls or ceilings that fulfill Leica Microsystems' specifications (please refer to the installation manual for more information).

## ACKNOWLEDGEMENT

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M320 is a Class I surgical microscope

Not all products or services are approved or offered in every market and approved labeling and instructions may vary between countries. Please contact your local Leica representative for details.

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