Leica M525 OH4

The Premium Surgical Microscope Solution for Precision Neurosurgery

Living up to Life
Leica Design by Christophe Apothéloz
Leica Microsystems stands for excellence in optics. Outstanding contrast, brilliance, sharpness, resolution, color fidelity, and precision are hallmarks of Leica surgical microscopes. The Leica OH4 stand not only complements the Leica M525 optics, but also improves the overall microsurgical experience with superior movement, innovative illumination, and user-friendly features.

Designed and manufactured using superior materials and the highest quality standards, the premium Leica M525 OH4 is built for long service life and outstanding reliability. The Leica M525 OH4 fulfils Leica’s vision of providing the best viewing conditions and the greatest maneuverability to enable successful surgery.
Optical Excellence

By integrating new glass, coatings, and design parameters, Leica’s OptiChrome™ technology delivers the extra working distance, depth of focus, and light intensity needed for precision microsurgery. It forms the basis for the world’s most advanced optical system. Leica M525 optics deliver the following outstanding benefits:

- **Longer** 32% extended working distance to 470 mm
- **Deeper** 30% increased depth of focus at same magnification
- **Brighter** 30% more light intensity
- **Sharper** Higher contrast and crisper, sharper images
- **Smarter** AutoIris™ magnification-controlled illumination
Advanced Illumination

Illumination in an instant, always
The Leica M525 OH4 features two completely independent 300W xenon arc-lamp illumination systems. The second system automatically activates in the event of lamp failure in the primary system, which gives the surgeon confidence to know that surgery will not be jeopardized due to lamp failure.

BrightCare™ – Working-distance-controlled illumination
As a microscope’s working distance decreases, the intensity of the microscope light (without adjustments) increases. This can pose a risk of tissue burns to patients. Leica Microsystems’ BrightCare™ working-distance-controlled light intensity feature addresses this issue to provide more safety for the patient by adjusting light intensity based on the working distance.

AutoIris™ – Magnification-controlled illumination
As magnification increases, the field of view becomes smaller, but the illumination field remains the same. This can potentially cause tissue burns. To provide additional safety for the patient, Leica Microsystems’ AutoIris™ magnification-controlled illumination diameter automatically works with the zoom, providing a field of illumination that is only as wide as the surgeon’s field of view.
Compact, yet provides superior reach and ample overhead room

The Leica M525 OH4 provides the highest overhead clearance and the longest reach of any surgical microscope on the market today. Because of the superior reach, the surgeon has the ultimate flexibility to place the microscope wherever it is most beneficial for the surgery.
Superior Reach and Height

The Leica M525 OH4 allows perfect positioning for surgery and takes up very little space in the operating room. The Leica M525 OH4 provides superior reach, height, and clearance, which allows it to be conveniently located behind the surgeon in the unique overhead position, or positioned anywhere around or across the operating table.
Extraordinary movement
The Leica M525 OH4 offers a greatly expanded range of movement in all dimensions for improved maneuverability. It takes half the force to move the Leica OH4 than other high-end microscopes. The system is vibration-free at all magnification levels. The stand’s patented advanced movement system achieves perfect balance in six axes and at all locations and angles of the microscope.

100° range of lateral movement provides the most difficult-to-maneuver side views.

150° inclination angle range combined with the most compact microscope provides unmatched comfort, even in difficult positions.

Movement precision – The Leica M525 OH4 has robotic functions on two axes (X/Y) to allow a higher degree of precision movement.
Range of Movement
Fast and Precise Balance

**True auto-balance**
Leica Microsystems’ single button auto-balance-feature saves valuable time. The surgeon activates this feature by simply pushing the auto-balance button, which fully balances all six axes for precise positioning.

**Intraoperative re-balance**
A microscope frequently needs re-balancing during surgery due to the surgeon’s and assistant’s need to change positioning. It is easy to re-balance the microscope intraoperatively, even through a sterile drape. Simply push the AC/BC button, conveniently located above the optical head, to quickly and accurately re-balance the microscope in seconds.

**Taking control**
Fast, precise control over all of the stand’s functions, the microscope, and the accessories is vital in the operating room. The Leica M525 OH4 features a touch screen with intuitive graphical user interface.

Leica Microsystems’ graphical user interface allows users to conveniently and intuitively control all microscope functions during surgery. Additionally, there are hard keys for illumination control and auto-balancing for added safety.
Motorized Inclination and Tilt

The Leica M525 OH4 has robotic functions on two axes (X/Y) to further enhance movement precision. The robotic functions can be activated by hand and/or foot controls.

Combined with an IGS computer, the stand’s robotic ability allows the microscope to follow the surgeon’s hand instruments, thus eliminating the need for the surgeon to take his/her hand away from the surgical site to move the microscope.

The handle’s ultra precise joystick allows micrometric movements for tilt and inclination. When preselected, it can also, for example, control the image injection functions.

Combined with an IGS computer, the Leica OH4 stand’s robotic ability allows the microscope to follow the surgical instruments.
Video screen integrated with floor stand
The Leica M525 OH4 features a built-in, movable video screen arm, with three rotation axes and an inclination axis to best position the large video flat screen (optional) into the perfect position for all viewers. Also, all functions of the integrated video recording system are conveniently and directly controlled via the large video screen (using a keyboard, touch pad or touch screen option).

Wireless transfer of high-quality HD videos and still images of surgical cases to the Apple® iPhone, iPod Touch or iPad
Med X Mobile, available at the Apple® App Store, allows a surgeon to wirelessly transfer surgical videos and stills directly from the Med X Change HDMD™ recording unit to the surgeon’s Apple® iPhone, iPod Touch or iPad immediately upon procedure completion. This new technology offers surgeons and staff yet another method to transport, view, and share stunning, high-quality content.
Integrated Digital Video

Ready for future imaging technologies
The selection of video options continually changes as imaging technology evolves. The Leica M525 OH4 is an open architecture system that allows the surgeon to upgrade components as new video innovations become available. The Leica MDRS4 or the Med X Change HDMD® high-definition digital recording systems are integrated with the Leica M525 OH4 floor stand for convenience and easy accessibility.

Wide choice of Leica Video Adapters
All Leica video adapters offer an intra operative fine focus to adjust the video focus. This enables the surgeon to always achieve crisp and clear focus quality in documentation. For a smooth surgical workflow, the surgeon can also choose between manual or remote control. The remote control can be used sterile (with a sterile cover) or unsterile by any person in the OR. Finally, the c-mount interface allows the connection of a 1/2", 1/3", and HD camera.
OpenArchitecture™ for IGS integration

The Leica DI C500 allows the surgeon to input data from any external source such as MRI, CT, IGS, and endoscopes. With an IGS computer the CT or MRI can be fully correlated to the image in either eyepiece. The fully correlated image can be laid over the actual image or a shutter can be used, which displays the actual image in one eyepiece and the fully correlated image in the other eyepiece.

Neuro-endoscopy images

Non-correlated images, such as endoscope images, can be projected with the highest resolution and contrast available. With the Leica DI C500, the surgeon can view the endoscopy image in whichever microscope eyepiece he or she chooses.

Tool tracking

In combination with the tool tracking capabilities of an IGS system, the Leica M525 OH4 microscope can track an instrument in the X,Y, and focus axis. Move the instrument and the microscope follows without the surgeon touching the handle grips.
Integrated Fluorescence

Neurovascular fluorescence
The study of fluorescence microscopy has a long tradition at Leica Microsystems, dating back to the beginning of the 20th century. An indispensable component of biological research, fluorescence science is now integrated with the technology of the surgical microscope to provide state-of-the-art neuro-vascular fluorescence.

Leica FL400*
The Leica FL400 enables fluorescence-guided tumor resection.

Malignant glioma, white light mode
Malignant glioma, blue light mode

Leica FL800*
The Leica FL800 allows surgeons to determine the patency of blood flow through vessels during surgery.

ICG injection after 2 seconds: Arterial view
ICG injection after 5 seconds: Capillary view
ICG injection after 9 seconds: Venous view

* Please check the status of Leica FL400 and Leica FL800 regulatory approval with your local Leica Microsystems representative.
Trusted reliability
Leica Microsystems utilizes superior materials and design technologies, and manufactures to the highest quality standards for long service life and outstanding reliability. The Leica M525 OH4’s full metal construction is designed to withstand intensive use in the operating room, remain precise throughout its life, and maintain its value. Smart engineering and special vibration-dissipating materials further support the stable, extra long swing arm. The Leica OH series has proven to be consistently reliable.

AgProtect™: anti-microbial coating for added safety
Leica Microsystems’ antimicrobial nano silver coating, AgProtect™, provides outstanding protection to microscope users by reducing exposure to surface pathogens. AgProtect™ covers the microscope’s outside surface and protects the operator and other individuals in the work area by penetrating the membranes of microbes to prevent replication. Leica Microsystems develops instruments with added safety for its customers, medical teams, and their patients through AgProtect™.
Technical Specifications

Dimensions in mm
**LEICA M525 MICROSCOPE**

**MAGNIFICATION**
Leica ULT500 180° stereo observer ports with selectable lateral or opposite assistant: Main surgeon and opposite assistant 40% each eyepiece, lateral assistant / video 20% each eyepiece / beam path

**SECOND OBSERVER**
Dual stereo attachment: 50% each eyepiece

**BEAM SPLITTER**
50% / 50%, 70% / 30%

**BINOCULAR TUBE**
Variable angle 0° – 180°

**VIDEOSTACK**
Variable angle 30° – 150°

**IMAGING**
Leica DI C500 high resolution true dual imaging color module for correlated and non-correlated data display, 1024 x 768 pixel resolution, 256 grey scale

**ASEPSIS**
Sterilizable protective glass for the objective; sterilizable components for all drive knobs, commercially available drapes

**LASER**
Various commercially available lasers and laser shutters can be attached

**IGS**
Open architecture for IGS systems

**FLUORESCENCE**
Optional Leica FL800 is available in the USA, EU, and most other countries

Optional Leica FL400 is available in the EU, and some other countries

Please check the status of regulatory approval with your local Leica Microsystems representative.

**ELECTRICAL DATA**

<table>
<thead>
<tr>
<th>Power connection</th>
<th>1600 VA 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety class</td>
<td>Class 1</td>
</tr>
</tbody>
</table>

**LEICA M525 MICROSCOPE**

**MAGNIFICATION**
6.1 zoom, motorized

**FOCUS**
Motorized via multifocal lens, with manual adjustment

**EYEPICES**
Widefield eyepieces for eyeglass wearers 10× and 12.5×, dioptic setting ±5 with adjustable eye cup

**OBJECTIVE**
Multifocal lens, 207 mm to 470 mm variable working distance through motorized lens, continuously adjustable, with manual override

**Illumination**
Continuously adjustable illumination field diameter with Gauss-shaped light distribution; continuously adjustable brightness at a constant color temperature

**Main light source**
High-performance 300 Watt xenon arc-lamp through fiber optic

**Emergency lamp**
300 Watt xenon arc-lamp on a separate electrical system

**AutoIris™**
Built-in, automatic, zoom-synchronized illumination field diameter, with manual override and reset feature

**BrightCare™**
Safety technology for the working distance-synchronized light control

**OPTICAL DATA**

<table>
<thead>
<tr>
<th>Magnification range</th>
<th>1.2× – 12.8× with 10× eyepiece</th>
</tr>
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<tbody>
<tr>
<td>Field of view</td>
<td>16.5 mm to 180 mm with 10× eyepiece</td>
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</tbody>
</table>

**MICROSCOPE CARRIER**

<table>
<thead>
<tr>
<th>Rotation of optics</th>
<th>540°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lateral tilt</td>
<td>50° to left / 50° to right</td>
</tr>
<tr>
<td>Inclination tilt</td>
<td>−30° / +120°</td>
</tr>
<tr>
<td>XY speed</td>
<td>Zoom-correlated XY speed</td>
</tr>
<tr>
<td>Balancing</td>
<td>A, B, C, and D axes are fully automatic, each can be manually balanced</td>
</tr>
<tr>
<td>Intraoperative balancing</td>
<td>AC/BC button for automatic intraoperative re-balancing of the A and C axes, and for re-balancing the B and C axes</td>
</tr>
<tr>
<td>Brakes</td>
<td>1 brake for A/B axis, 1 brake for C axis</td>
</tr>
<tr>
<td>Indicator</td>
<td>LED for fluorescence mode status, LED for video record status</td>
</tr>
</tbody>
</table>
Technical Specifications
Leica M525 OH4

LEICA OH4 FLOOR STAND
Type Floor stand with six electromagnetic brakes
Base 720 mm × 720 mm with four 360° rotatable casters of 130 mm diameter each; one central, single step foot brake
Balancing One button / two pushes for complete, automatic balancing of stand and optics
Intraoperative re-balancing AC / BC button for automatic intraoperative re-balancing of the AC axis and the BC axis
Swing arm Patented advanced movement system for perfect balance in six axes, vibration-dissipating technology
Floor stand control unit New generation touch panel technology. The latest electronics control for continuous control of all motor functions and the light intensity. Data shown by means of LCD. Built-in BrightCare™ technology for working distance synchronized light control. ISUS™ Intelligent Setup System, menu selection based on unique software for user-specific configuration, with built-in electronic auto-diagnosis and user support. Software-independent hard keys for illumination and auto-balancing. Indicator for main / backup illumination and fluorescence modes. Open architecture for future software developments.
Light source Dual xenon arc-lamp illumination system and built-in, quick lamp changer
Controls 10-function pistol grips for zoom, focus, all-free release of six brakes, side button for user-defined brakes, motorized lateral tilt and inclination (XY), Leica DI C500 or fluorescence functions. Except for the all-free button, all functions are freely programmable.
Mouth switch for releasing the user defined brakes
12-function foot control, hand switch
Integration of documentation Prepared for integration of video- and digital recording systems. Open architecture
Connectors Numerous built-in connectors for video, IGS, and control data transfer
Internal power 12 VDC, 19 VDC, and AC connections
Carrier for monitor 700 mm long
Flexible arm with 4 axes for the rotation and inclination required to carry optional video monitor
Materials All solid metal construction
Surface coating Coated with antimicrobial paint (AgProtect™)
Minimal height In parked position 1945 mm
Range cantilever Max. 1925 mm
Load Min. 6.7 kg and max. 12.2 kg of accessories to the microscope
Weight Approx. 320 kg without load

HD IMAGING
For more information, please refer to your local Leica Microsystems Sales Representative.

AMBIENT CONDITIONS
In use +10° C to +40° C (+50° F to +104° F), 30% to 95% rel. humidity, 500 mbar to 1060 mbar atmospheric pressure
Storage –40° C to +70° C (–40° F to +158° F), 10% to 100% rel. humidity, 500 mbar to 1060 mbar atmospheric pressure

LIMITATIONS OF USE
The Leica M525 OH4 surgical microscope may be used only in closed rooms and must be placed on a solid floor.

CONFORMITY
Medical Electrical Equipment, Part 1: General Requirements for Safety IEC 60601-1; EN 60601-1; UL60601-1; CAN/CSA-C22.2 NO. 601.1-M90. Electromagnetic compatibility IEC 60601-1-2; EN 60601-1-2. The Medical Division, within Leica Microsystems (Schweiz) AG, holds the management system certificates for the international standards ISO 9001, ISO 13485, and ISO 14001 relating to quality management, quality assurance and environmental management.

CE
The statement by Ernst Leitz in 1907, “with the user, for the user,” describes the fruitful collaboration with end users and driving force of innovation at Leica Microsystems. We have developed five brand values to live up to this tradition: Pioneering, High-end Quality, Team Spirit, Dedication to Science, and Continuous Improvement. For us, living up to these values means: Living up to Life.

Leica Microsystems operates globally in four divisions, where we rank with the market leaders.

- **Life Science Division**
  The Leica Microsystems Life Science Division supports the imaging needs of the scientific community with advanced innovation and technical expertise for the visualization, measurement, and analysis of microstructures. Our strong focus on understanding scientific applications puts Leica Microsystems’ customers at the leading edge of science.

- **Industry Division**
  The Leica Microsystems Industry Division’s focus is to support customers’ pursuit of the highest quality end result. Leica Microsystems provide the best and most innovative imaging systems to see, measure, and analyze the microstructures in routine and research industrial applications, materials science, quality control, forensic science investigation, and educational applications.

- **Biosystems Division**
  The Leica Microsystems Biosystems Division brings histopathology labs and researchers the highest-quality, most comprehensive product range. From patient to pathologist, the range includes the ideal product for each histology step and high-productivity workflow solutions for the entire lab. With complete histology systems featuring innovative automation and Novocastra™ reagents, Leica Microsystems creates better patient care through rapid turnaround, diagnostic confidence, and close customer collaboration.

- **Medical Division**
  The Leica Microsystems Medical Division’s focus is to partner with and support surgeons and their care of patients with the highest-quality, most innovative surgical microscope technology today and into the future.

The Medical Division, within Leica Microsystems (Schweiz) AG, holds the management system certificates for the international standards ISO 9001, ISO 13485, and ISO 14001 relating to quality management, quality assurance and environmental management.

www.leica-microsystems.com