



# Leica M844 F40

Redefining the premium class in Ophthalmic Surgery

Living up to Life

**Leica**  
MICROSYSTEMS



Leica

A close-up, artistic photograph of a surgical microscope. The top portion shows the dark, ribbed handle of the microscope. Below it, a bright, circular lens or light source is visible, creating a strong diagonal beam of light that illuminates the lower half of the frame. The background is dark, making the illuminated areas stand out.

# M844 F40

**See more of what you need to see.**

Combining a higher level of optical quality than ever before with the best technologies of today's surgical microscopes, the Leica M844 truly redefines the premium class of ophthalmic surgical microscopes.

**The Leica M844 is the microscope you must see!**



Leica Design by Christophe Apothéloz



## Uniquely Leica



### **Crisp and sharp!**

Leica's APO OptiChrome™ M844 Optics provide the highest resolution to see even the smallest anatomical details.



### **Same perfect view, same perfect light!**

Leica's QuadZoom™ gives both the surgeon and assistant 100% of the illumination and the same magnification.



### **Safety for the patient, fatigue-free viewing for the surgeon!**

Leica's exclusive direct illumination system offers the best clarity, contrast and colour at safe low-light levels.

## APO OptiChrome™ Changing microsurgery forever



### **Leica introduces the original APO OptiChrome™**

Providing an extraordinary degree of light transmission for maximum detail recognition is critical for all types of ophthalmic microsurgery. For the posterior segment surgeon, where availability of light is limited, a high degree of light transmission is essential. For refractive and anterior segment surgery, low light is always better for the patient.

### **Expect only the highest standards in optics from the Leica M844**

- Sharper and crisper image
- Higher light transmission
- Natural colour fidelity
- Outstanding depth of focus
- Higher contrast

## QuadZoom™ Uniquely Leica



### **Efficient illumination**

By utilising four separate beam paths through the same common zoom system, the Leica QuadZoom™ delivers 100% APO OptiChrome™ stereovision and 100% illumination for both the main surgeon and the assistant.

### **2 × 2 views always synchronized**

By putting both pairs of beam paths through one common zoom system, as the surgeon changes magnification, the assistant's view is perfectly synchronized with the surgeon's view.

# See more with less light

## OttoFlex™ II See more with less light

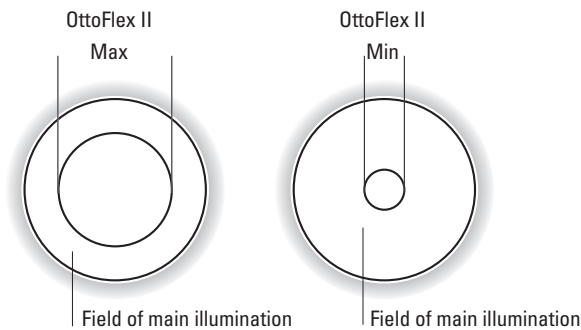


### **Low light ensures fatigue-free viewing and patient safety**

With two bulbs and two prisms, the Leica M844 creates true three-dimensional illumination. Using a focused, direct illumination system instead of fiber optics, the Leica M844 takes a ray of light and projects a crisp, sharp and homogeneous image even at very low light levels. Proven for over 25 years, this combination of direct halogen illumination and highly efficient optical transmission ensures patient safety and fatigue-free viewing for the surgeon.

### **See things in a different light**

OttoFlex™ II, an integrated independent illumination system, gives a brilliant red reflex even in low light conditions and enhances the view's contrast. Difficult anatomical conditions, such as small pupils or very advanced cataracts are more easily visualised through this unique system. Continuously adjustable from 4 mm to 35 mm diameter, OttoFlex™ II places the brightness where the surgeon needs it most.



# Take control

## Intuitive control unit

The touch panel offers intuitive control of all the Leica M844's functions. The control unit's operation is simple and straightforward with many innovative features.

## Everyone is an individual

Customised start settings, such as illumination and magnification levels, are easily programmed into the control unit for up to 30 different users. By having a surgeon's individual settings available at the touch of a button, the microscope is instantly ready for the next procedure and/or surgeon and the workflow of the surgical team is faster and more efficient.

## StepCycle™ for greater efficiency

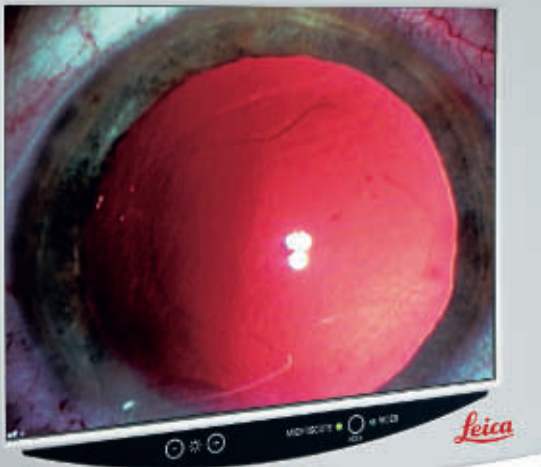
Different levels of light, focus and zoom can optimize each phase of surgery. Making these adjustments today takes surgeons' precious time. The automatic StepCycle™ function enables the surgeon to program predefined settings that are used throughout typical surgical procedures. After simple programming, a touch of a button on the foot pedal will activate the microscope's predefined settings, step by step, during the procedure.

## Real-time video

With one touch of a button the control unit's display becomes a general use, real-time video monitor, which allows an immediate and convenient view of the current surgical procedure for the operating room staff. For general video viewing there is no need for an extra video cart.



Leica Two-in-One display control unit  
mode (above) and video mode (below)





# Easy to use from start to finish



## **Leica F40 space saving stand with extended net reach**

The Leica M844 F40 has the smallest footprint and the longest net reach of any ophthalmic surgical microscope on the market. Due to this design, the microscope is easy to position anywhere around the operating table. Four large, fully pivoting casters and an easy to grasp handlebar make the microscope effortless to transport into and out of position.

## **Auto Reset and it's ready to go**

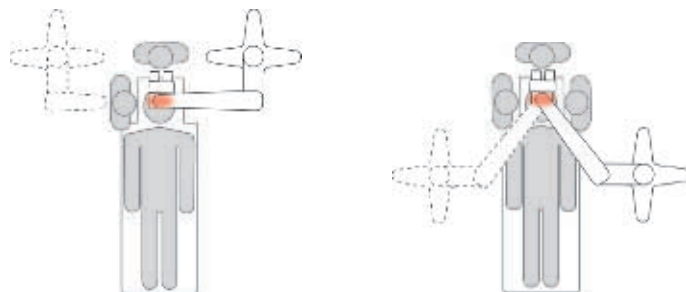
When the surgeon pushes the swingarm up after each procedure, all the microscope functions automatically reset and the microscope is ready for the next case. A real time saver for the operating room staff and peace of mind for the surgeon.

## **Focus Lock – for quick movement in and out of the operative site**

Focus Lock allows the surgeon to move the microscope in and out of position laterally. With the microscope staying on the same focus plane, the surgeon does not have to waste precious time refocusing to continue his procedure.

## **Positioning in the Operating Room**

The extra long reach of the Leica M844 F40 allows flexible positioning, even in small rooms with many pieces of equipment. Whether on the side of the patient or over the surgeon's shoulder, the M844 F40 leaves a lot of space around the operating table.





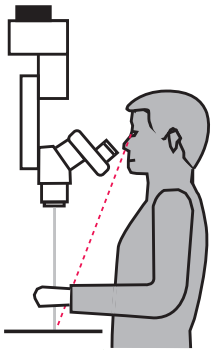
Side-to-side change

**Easy side-to-side quick change for the assistant**

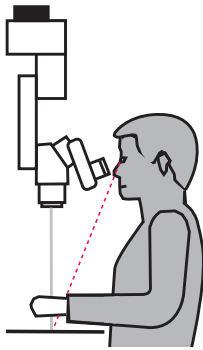
Changing the assistant's position from one side to the other can be done quickly and easily without removing any parts. Simply lift the main surgeon's binoculars and rotate the assistant's bridge. No parts to drop or damage!

**The UltraLow™ III for ideal eyepiece-to-field distance**

The UltraLow™ III binocular eyepiece tubes drop lower than conventional binoculars, which compensates for stacking auxiliary accessories on the optics, such as inverters or laser shutters. The surgeon now works in comfort.



Eyepiece to field distance "XL"



Eyepiece to field distance "S"

**ErgonOptics™ for individual comfort and concentration**

Every surgery requires the highest level of concentration from the surgeon and his or her surgical team. The physical comfort of the surgeon is critical to this concentration. Leica provides a large selection of binoculars and three different objective lens types to meet each individual surgeon's physical requirements. No other microscope system offers this range of surgeon and assistant binoculars and objective lenses.

**see** better  
**work** better  
**feel** better



# Widest range of ergonomics to ensure comfort



Leica RUV800 wide-angle observation system

## Independent choice of wide-angle observation accessories

The Leica M844 is designed to accept the integration of wide-angle observation systems or stereo image inverters. Leica Microsystems' own solution, the Leica RUV800 with integrated inverter, gives the surgeon, assistant, and video camera the same upright view of the retina. In addition, when integrating the Oculus SDI/BIOM system, the surgeon can control its functions through the Leica M844's 16-function foot pedal therefore the system can be fully controlled by a single foot pedal instead of two.



Leica M844 controlling Oculus SDI/BIOM system

## Additional microscope functions at your fingertips

All-brake release and new Focus Lock multi-function are conveniently located on the rotatable handles. If desired, additional functions can be programmed to meet a wide variety of individual surgeon's preferences.

## Wide choice of foot pedals

Leica offers three foot pedal styles to meet the needs of all users. XY, zoom, focus and illumination can be controlled from either the 12-function cross or 12-function long pedals. The 16-function cross pedal gives the user four additional options for individual tasks, such as inverter usage, StepCycle™ or room light function. Additionally, the surgeon can now choose between a wired or wireless foot pedal.



The wide selection of foot switches fulfills any ergonomic need.

## Leica Wireless Footswitch

Using ISM bandwidth technology, it offers maximum mobility for a fast and easy switch between left and right eye procedures.



# Flexibility for individual needs



Leica ToricEyePiece – the perfect aid for placement of premium IOLs

## Leica ToricEyePiece

The Leica ToricEyePiece is a cost-effective, easy-to-use, time-saving aid for Toric IOL placement. The rotatable scale is superimposed over the microscope image to help the surgeon find the correct IOL positioning.



Leica DI C800

## Leica DI C800 for data display

With the Leica DI C800 head-up display, images from digital sources, providing an XGA signal, can be projected directly into the surgeon's eyepiece. This cockpit-style display can show data precisely where the surgeon needs it.



Leica Slit Illuminator

## Leica Slit Illuminator

The Leica surgical slit lamp, provides full slit functions. The slit beam is adjustable in width and length and can be scanned over the cornea  $\pm 23^\circ$  from any position via the foot pedal. A retractable blue filter and integrated quick lamp change add to its functionality.

## Wide choice of Leica Video Adapters

All Leica video adapters offer an intra operative fine focus. This enables the surgeon to always achieve crisp and clear focus quality in documentation. The surgeon can furthermore choose between manual or remote control (with sterile cover or without). Finally, the c-mount interface allows the connection of a 1/2", 1/3", and HD camera.

The **Leica Zoom Video Adapter** (top left) allows focus and magnification adjustments independently of the surgeon's view.

The **Manual and Remote Video Adapters** (bottom and top right) both have fine focus. Also, the remote control allows the Remote Video Adapter to be operated from any position and in any situation in the OR.



# Training for the future



## **QuadZoom™ – The ultimate view for everyone**

Proper surgical training requires everyone to see the same view. The Leica M844 optical system delivers the same magnification and stereo view simultaneously for both the teacher and the student. A focus override knob on the assistant bridge allows individual fine-tuning separately from the main surgeon.

## **Two-in-One control unit and video screen**

The Leica M844 is equipped with a unique control unit that can be switched to a general use, real-time video monitor during surgery. With camera, camera control unit, and monitor all mounted on the Leica F40 floor stand, there is no need for a separate video cart. The entire surgical team can have the benefit of video for every case. If there is a need for extremely high quality documentation, the staff may choose to connect an additional video monitor to the system.



Leica Two-in-One display control unit in video mode

## **Double wing = three stereo observers**

The unique Leica double wing assistant bridge enables the teacher to have two students in full stereo view simultaneously at the same magnification. With the newly integrated video display, all three along with the operating room staff and additional students can observe and learn via the video monitor.

## **Documentation for education**

All the latest documentation options are available with the Leica M844. The Leica MDRS4 digital recording system, as well as many other commercially available digital video systems can be interfaced. Even classic 35 mm photography can still be done with the Leica M844. All this to ensure ideal documentation capabilities for training the surgical teams of tomorrow.




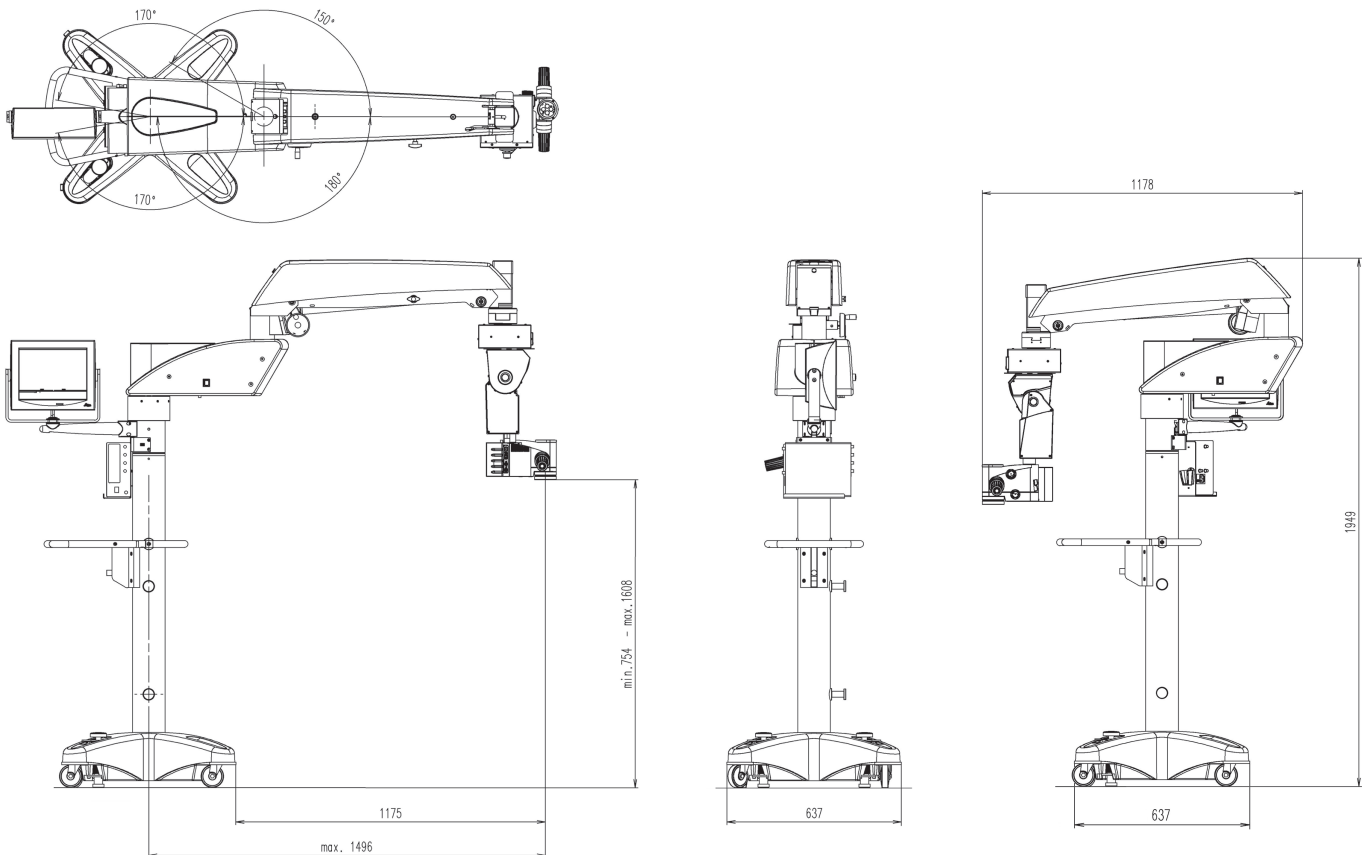
Leica M844 with double wing assistant bridge

<b>Electrical data</b>	
Power supply	90–265 VAC, 50/60 Hz
Power consumption	400 VA
Classification	Class 1
Type	Type B
<b>Microscope</b>	
Magnification changer	APO-Zoom 6:1, motorized, with 4 separate beam paths
Magnification	3.5× – 21× (WD 175 mm, 10× eyepieces)
Optic	APO-chromatic corrected optics
Field diameter	7 mm – 80 mm
Working distance	175 mm, 200 mm and 225 mm
Focus range	54 mm, motorized, with automatic reset
Eyepieces	Wide field eyepieces for eyeglass wearers (8.33×, 10×, 12.5×) Dioptric setting +/-5 with adjustable eye cup
Objectives	Leica OptiChrome™, WD 175 mm, APO Leica OptiChrome™, WD 200 mm, APO Leica OptiChrome™, WD 225 mm, APO, (WD = working distance)
<b>Illumination</b>	
Quick-change lamp mount	With two 12 V / 50 W halogen lamps
Filters	IR-barrier filter, UV-barrier filter, two built-in filter holders for optional filters
<b>Stand</b>	
Type	Floor stand with 4 electromagnetic brakes Alternatives: Ceiling Mount Leica M844 C40 or Telescope Mount Leica M844 CT40
Balancing	Continuously adjustable gas spring
Maximum load	12.2 kg accessories to the microscope
Maximum reach	1492 mm
Vertical range	846 mm
Minimum transport height	1949 mm
Weight without microscope	Approx. 330 kg
XY-unit	Motorized, movement range 50 × 50 mm, with automatic reset
Tilt mechanism	Motorized, +15°/-50°
Hand switch/Foot pedals	16- or 12-function foot pedal with controls arranged longitudinally or transversely, wired or wireless (optional) 12-function hand switch
Control unit	Two-in-one display, control and video display in one. The latest electronic control for the continuous monitoring of all motor functions and the light intensity. Data shown by means of LCD, with adjustable contrast and brightness. Operation by modern touch-panel control. ISUS™ Intelligent SetUp System, menu selection based on unique software for user-specific configuration, with built-in electronic auto-diagnosis and user support. Open architecture for future software developments.
<b>Accessories</b>	
0° assistant attachment	100% Stereopsis at same magnification, including documentation interface, rotatable from side to side (temporal approach), built-in fine focusing, rotatable ring for binocular tube
Double wing	For three observers simultaneously
TV/Photo	Leica 2D video systems, Leica MDRS4 digital recording system, Leica Zoom Video Adapter f = 35–100 mm, Manual Video Adapter f = 55/70 mm, Remote Video Adapter f = 55/70 mm Photo / TV Dual-attachment: f = 60/85/107 mm for TV, f = 250/350 mm for 35 mm camera, Phototube f = 250/350 mm

# Technical Data

## Leica M844 F40

Wide-angle observation	Leica RUV800, BIOM
Inverters	SDI
Laser interface	Interface to fit various commercially available lasers; adapters available from laser suppliers
Slit lamp	Leica, motorized travel $\pm 23^\circ$ , Slit width 0.01 – 15 mm, length 3 – 15 mm, Rotatable $180^\circ$ , quick lamp-changer
IOL placement	Leica ToricEyePiece, the aid for placement of premium IOLs
Imaging	Leica DI C800 high resolution true digital imaging color module for data display, $1024 \times 768$ pixel resolution
Binocular tubes	Binocular tubes with variable angles: $0^\circ$ – $180^\circ$ , $30^\circ$ – $150^\circ$ , $10^\circ$ – $50^\circ$ UltraLow™ III, $10^\circ$ – $50^\circ$ , $5^\circ$ – $25^\circ$ , and inclined angle $45^\circ$
Asepsis	Sterilizable components for all drive knobs, commercially available drapes
<b>Conformity</b> 	<ul style="list-style-type: none"> <li>• Council Directive 93/42/EEC on Medical Devices (MDD) and its amendments. Classification: Class I, in compliance with Annex IX, rule 1 and rule 12 of the directive.</li> <li>• Medical Electrical Equipment, Part 1: General requirements IEC 60601-1 including national differences of EU, CA, US ; EN 60601-1</li> <li>• Electromagnetic Compatibility IEC 60601-1-2; EN 60601-1-2</li> </ul> <p>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.</p>



# “With the user, for the user”

## Leica Microsystems

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 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.**

## Active worldwide

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and representatives in more than 100 countries

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