



# Leica DM1000–3000

Leica DM Digital Microscopes for Research Laboratories

Living up to Life

**Leica**  
MICROSYSTEMS

# In a Class of their Own

## The Leica DM Digital Microscope Series: As Unique As You Are

**As a leading microscope and scientific instruments innovator,** Leica Microsystems is at home in research facilities around the world – including those that pursue groundbreaking work and push the envelope of life science discovery.

**A brief look at the Leica DM Digital Microscope Series** reveals why Leica is a first choice provider of microscopes and scientific instruments. The goals of exceeding customer expectations and anticipating future needs guide Leica's research and development. The Leica DM Series is no exception, combining optical excellence with ergonomic design. With an unparalleled range of features, Leica can uniquely tailor the perfect microscope system to help you achieve high-quality results in your research, and allow you to work efficiently and comfortably. The Leica DM Digital Microscopes are in a class of their own.

**Outstanding image brilliance and clarity** and the ability to use the full range of contrast and light microscope techniques to reveal delicate structures of even the most difficult-to-image specimens – Leica provides high-end optical capabilities at a competitive price in this performance class.

**Leica's digital imaging platform is specifically tailored** for all Leica DM Microscopes having image analysis and management capabilities. A Leica DM Microscope system can incorporate a digital camera, image processing workstation, and sophisticated software for image organization and archiving. As a one-stop vendor, Leica provides the highest quality imaging, as well as durability – an imaging solution specifically designed for the day-to-day challenges of life science research.



Leica Design by Christophe Apothéoz

# Outstanding Possibilities ×5

The Leica DM Digital Microscope Series provides a wealth of application options and contrast methods. The product line comprises five microscopes, differentiated by specific application. All five models can be configured to a user's specific needs, are well-designed for convenience and efficiency, and feature outstanding optical qualities.

## Outstanding Features...

**All five models** are well-suited for microscopic research that depends on sophisticated contrast methods. Each model features Leica's excellent optics, but the range of features is adapted to different application areas.

## ...For Your Unique Application

### **Leica DM3000**

The automated DM3000 (with 30W illumination) promotes work efficiency with a high level of comfort. The DM3000 features:

- motorized objective turret
- automated condenser
- automatic light intensity adjustment to the light requirements of individual objectives

#### Applications:

- brightfield, darkfield
- phase contrast
- polarization contrast
- differential interference contrast (DIC)
- fluorescence microscopy

#### Sophisticated focusing:

- five focusing functions (coarse, medium, fine, focus height stops, adjustable torque)
- alternatively, a conventional 2-gear mechanism
- integrated thermal compensation eliminates focus drift, which prevents the stage from lowering during long-term observation and ensures a consistently sharp image.

**Leica DM2500**

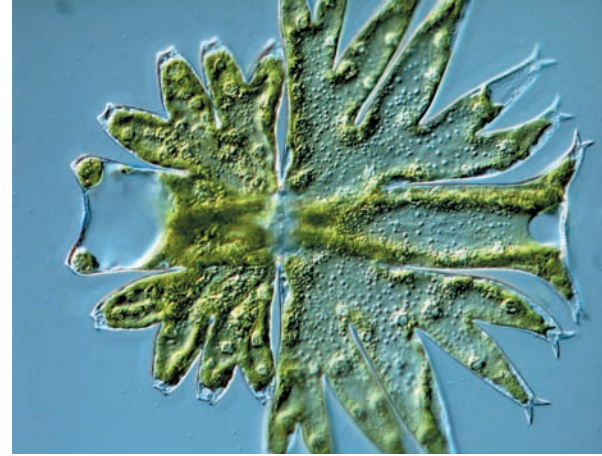
The DM2500 with powerful 100W illumination is ideal for highly light-absorbent specimens and DIC.

**Leica DM2000**

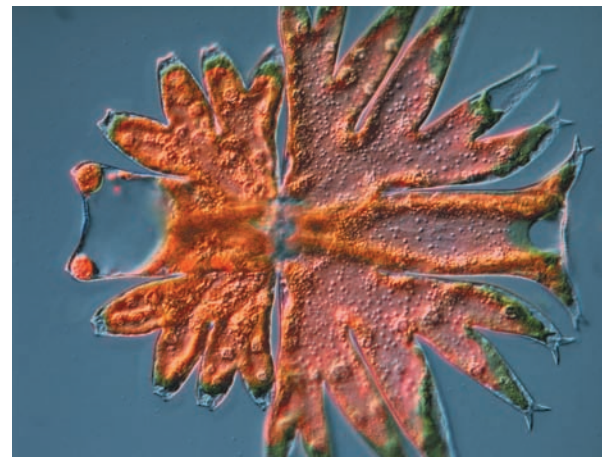
The DM2000 offers the same selection of contrast methods as the DM2500, but features 30W illumination.

**The Leica DM1000** provides the highest possible image brilliance, but without DIC. Optically, it meets the same standards as the DM2500 and can also be used as a fluorescence microscope.

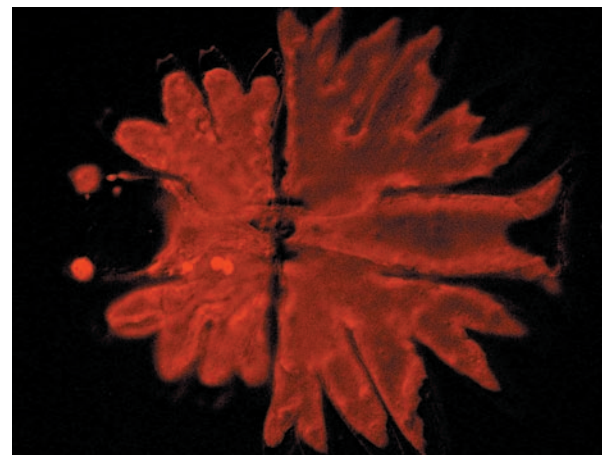
**The new Leica DM1000 LED** offers long-lasting LED illumination, which eliminates bulb replacement. Leica offers an optional, portable power supply with a flexible solar panel and integrated rechargeable battery for eight hours of operation without AC power.



Micrasterias, DIC method



Micrasterias, DIC/fluorescence method



Micrasterias, fluorescence method

# Brilliance Wherever You Look

## **MY**croscopy: The Optical Features You Need

Razor-sharp contrast, precise contours, and brilliant fluorescence that reveals even the finest structures of dimly illuminated specimens; in terms of optical brilliance, the Leica DM Series leaves nothing to be desired. Leica offers a wide range of objectives – from planachromat with the best possible field flattening to apochromat with the highest resolution – and the ability to use sophisticated contrast methods.

### **Outstanding objectives:**

**Leica's new HI PLAN Planachromat objective series** delivers images of astonishing clarity with significantly improved image flattening and chromatic correction.

**Leica's HI PLAN SL planachromat objective series** maintains the brightness level at 4x, 10x, and 40x magnifications and preserves your preferred color impression. Continual adjustment of illumination intensity is a thing of the past with Leica's SL (Synchronized Light) objectives.

**Leica's special HI PLAN CY 10x/0.25 objectives** feature excellent field flattening and color correction, and offer a long working distance of 12mm. These objectives are also available in an SL (Synchronized Light) version.

**A quick overview** can be obtained with all four models using the optional 1.25x screening objective.

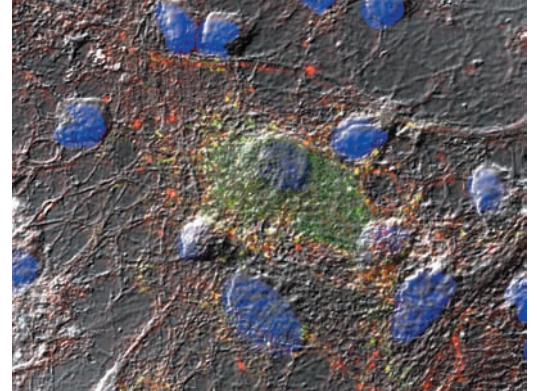
**The choice is yours:** Use objectives from any Leica performance class. The Leica DM3000 features an automated six-position objective turret. The DM2500 and DM2000 offer a choice of six or seven objective positions. The DM1000 can accommodate five objectives.

The Leica DM2000, DM2500, and DM3000 are suitable for all applications requiring differential interference contrast. The only difference is the light source (30W or 100W). In all three cases, interference contrast can be installed as an option.



### Fluorescence without compromise

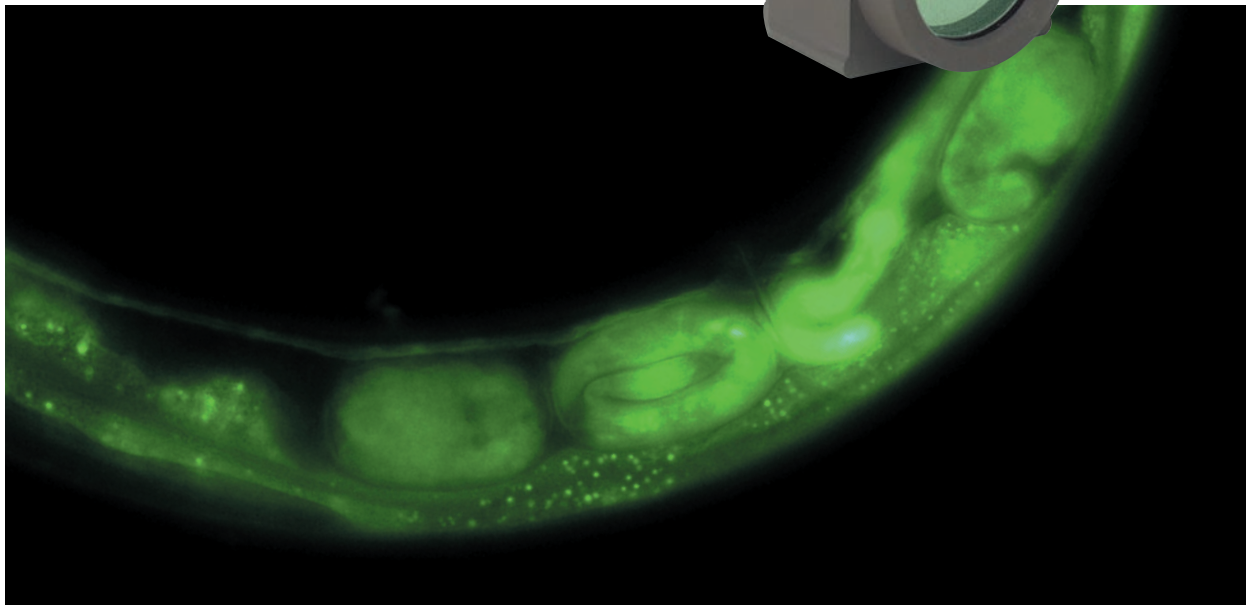
The Leica DM Microscopes are optionally available with a durable, high-quality fluorescence axis. The fluorescence axis for the Leica DM3000, DM2500, and DM2000 features five filter block positions on an easy-to-turn disk. If more filter blocks are required, the convenient quick-release allows replacement blocks to be snapped into place. The integrated neutral filter allows intensity reduction, which protect the specimen. The Leica DM1000 features three filter block positions on a slider. Like the Leica DM2000, DM2500, and DM3000, the slider features zero pixel shift for field numbers up to 25.



Primary hippocampal mouse neurons

### Fluorescence filter blocks

The fluorescence axis of the Leica DM3000, DM2500 and DM2000 is designed to accommodate all filter blocks of Leica's high-end research microscope range. The range of life science applications is covered completely, from routine FITC to GFP markers. The need for additional BG38 filters is now a thing of the past because the new Leica K filter blocks integrate this capability. Leica's broad range of commonly used filter blocks is also available for the DM1000. All contrast methods can be used on each of the Leica DM Microscopes.



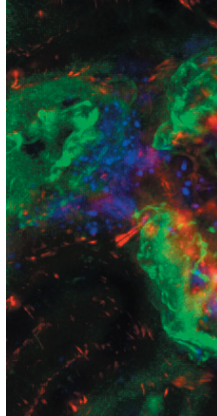
*C. elegans*, GFP expression

# Brilliance Wherever You Look

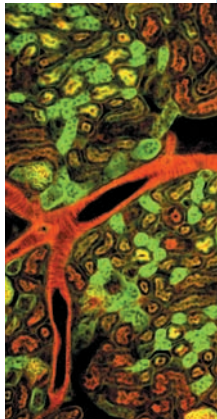
## Intelligent optical components:

All filter blocks feature zero pixel shift to prevent image shift from different filter blocks, which ensures correct image overlay. As a result, images are accurately superimposed, remain razor-sharp, and match perfectly without tedious correction work.

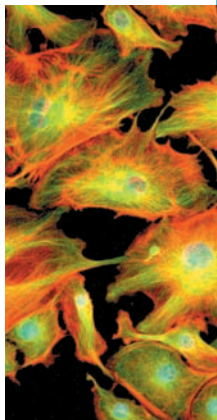
Set the aperture with a single touch: The aperture scale features color markings that match the color code of the objectives. Simply match the colors and the aperture is set.



Mouse kidney section

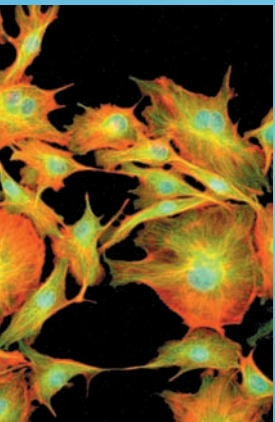
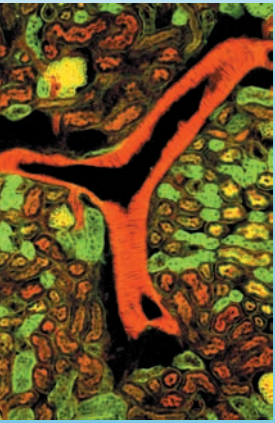
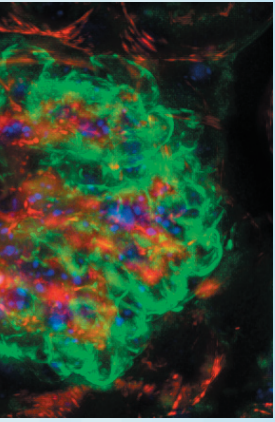


Mouse kidney section



BPAE cells with mouse a  
Photo: Molecular Probes





Anti- $\alpha$ -tubulin



# Faster, Easier, More Efficient

## **MY**croscopy: Uniquely Designed for Efficiency

Frequently, research laboratories operate under time pressure – some specimens require special attention, unforeseen events occur, or findings were due yesterday. Leica's DM Microscopes are up to the challenge with features that ensure speed and efficiency.



**Quickly change specimens** with Leica's new slide holders, designed so that slides can be changed in a single motion with one hand.

**Focus and stage adjustments** can be performed with just one hand. The other hand remains free for other activities such as operating the PC.

**The modern stage design is rounded** with no protruding parts. The entire design is compact and requires minimal space.

**The stage is built to last** with a hard ceramic surface that is durable enough to take years of demanding use.



# ...and Greater Comfort

## **MY**croscopy: Concentration Depends on Comfort

Many laboratory activities promote poor posture, which can result in muscular tension and pain. But when it comes to microscopy, discomfort is history, the Leica DM Series Microscopes adjust perfectly to the physical needs of individual users – quickly, easily, and with minimal effort. They are designed to help prevent poor posture and to enable a user to maintain concentration for long work sessions. Comfortable microscope use also promotes higher productivity in the laboratory.

**Leica's unique right-left handed operation** allows the controls to be switched over from the right- to the left-hand side of the microscope quickly and easily. Only one hand is required for focusing, and a user can decide which hand to leave free for other activities such as note taking.

The user's neck remains relaxed while viewing through the eyepieces. A choice of flexible adjustment or a fixed viewing angle of 15°, various tube lengths, and convenient height adjustment accessories adapt the microscope to the individual user.

**Users automatically adopt a natural, comfortable position,** even after extended periods of work. The symmetrical arrangement of the stage and focus controls helps promote user comfort at the microscope.

**The height of the focus controls** can adjust to match the size of the user's hands for a relaxed hand and arm position – a unique advance in microscope design. The adjustment can be made in seconds, which eliminates the need for wrist supports.

**The user's seated height** can be accommodated with the Leica DM Microscope's optional ErgoLift or ergomodules. Both options represent a small investment for a major gain in comfort.



# Intelligent High-Speed Microscopy

## **MY**croscopy: The automated Leica DM3000

The intelligent, automated Leica DM3000 makes work at the microscope fast, convenient, and efficient – while adapting to a user's physique. With advanced features such as the unique toggle mode and automated condenser, the Leica DM3000 provides the basis for fast, reliable results. Ease of use meets ergonomic design.



**Automatic light adjustment for each objective change:** The Leica DM3000 automatically sets the light intensity to the appropriate level for any given magnification. The most recently used values are stored for each objective. The brightness impression remains constant for the observer and strong intensity changes are avoided for extended working sessions without eyestrain.

**The ideal condenser settings for each objective** A condenser head automatically swings out for objectives with magnification lower than 10x and returns to proper position for higher magnifications. This represents one less manual action for fast, convenient work. The user can also manually adjust the position of the condenser head for special applications.



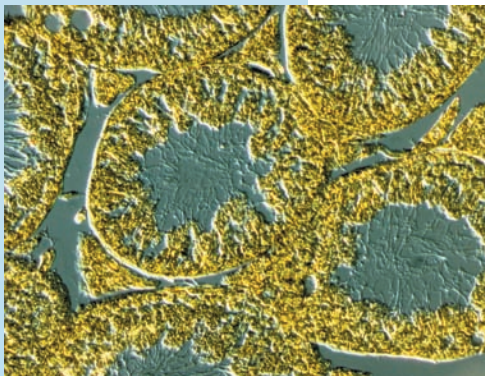
**Leica's Intelligent Automation provides higher efficiency and greater convenience:** The motorized objective, turret changes magnifications in only half a second. Two ergonomically-positioned buttons, located behind the focus knobs, control the turret position. Six more buttons on the base of the microscope can be assigned to the six objectives. Leica's unique toggle mode: any two of the six objectives can be assigned so that the user can toggle back and forth quickly between two objectives. An optional foot pedal is also available to free hands for other activities.



# Digital Photography

## **MY**croscopy: Leica's Premium Digital Cameras Open New Research Possibilities

Digital recording is beneficial for research. Digitized images can be analyzed for data not easily seen by the human eye. Leica Digital Cameras provide razor-sharp, brilliant images of uncompromising color fidelity. They feature a FireWire interface for fast digital processing. Leica offers a wide variety of application-specific cameras to address your imaging requirements.

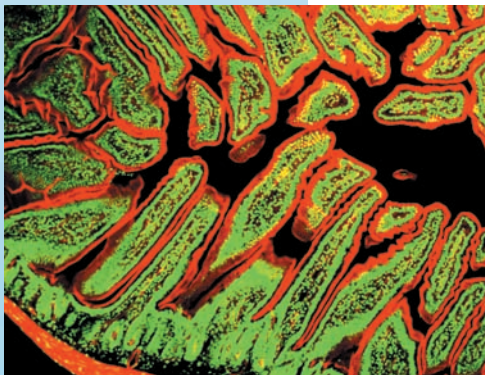


Testis of mouse showing spermatogenesis

**Leica's full line of digital cameras** features ease of use, image clarity, and excellent color fidelity – everything needed for precise image analysis, documentation, and reporting.

**For fluorescence photography**, Leica has developed digital cameras that deliver brilliant images from even very faint fluorescence specimens.

**Leica's high-end digital cameras capture the finest structures** and most subtle color nuances. With 12 million pixels, a color depth of 42 bits RGB, and exposure times of up to 600 seconds, Leica cameras are suitable for all contrast methods, brightfield and darkfield, and even dimly illuminated specimens.



Mouse intestine section  
Photo: Molecular Probes



# Image Analysis and Organization

## **MY**croscopy: Image Management Tailored to Specific Laboratory Requirements

Leica can precisely tailor an image analysis and management system to a laboratory's unique requirements. Leica provides a variety of image analysis options that harmonize perfectly with Leica digital cameras and image management software packages. You can count on smooth-running, reliable image analysis and fast, effective image management.



Leica DM2500

**The Leica AF6000** is a fully integrated fluorescence workstation for image capture and analysis. Its modular design is the foundation for custom-tailored solutions ranging from simple documentation to the most complex time-lapse experiments involving living cells. The very simple LAS AF user interface not only offers a wide range of basic image analysis functions, but also wizards for FRET applications and  $Ca^{++}$  experiments.

**Leica products cover many other applications** from Leica QWin, a general-purpose image analysis application, to specialized workstations for cytogenetics laboratories. All were developed in close cooperation with researchers working in the relevant fields to ensure that they deliver genuine solutions and truly enhance the laboratory work for which they were intended.



Leica DM4000



### **Leica Image Manager: The complete image management solution**

Leica Image Manager software is a quick, easy, and complete package for digital image recording, editing, measurement, output, exchange, and backup. The archival database structure is preset to adapt quickly and easily to laboratory workflow. With Leica Image Manager, a user can simultaneously locate images with ease and quickly monitor processes. Images can be stored in external archives and can be conveniently and directly e-mailed.

### **Leica Image Organizer: Store and quickly locate images**

Images from all applications can be stored under a variety of categories at the same time via the Leica Image Organizer's easy-to-use storage and search functions. The Leica Image Organizer quickly retrieves stored images and provides space to record additional information. A sophisticated search function uses various criteria to easily locate images and data. When used with the Leica DM3000, the position of the objective turret can be read and the calibration adjusted automatically. To verify that a specimen is viewed with the same settings or to capture a control specimen with identical parameters, simply restore the microscope's settings with Store and Recall.



# Leica Microsystems – the brand for outstanding products

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

## ● Life Science Research Division

Leica Microsystems' Life Science Research 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 by providing the best and most innovative imaging systems for their needs to see, measure and analyze the microstructures in routine and research industrial applications, in materials science and quality control, in forensic science investigations, and educational applications.

## ● Biosystems Division

The Biosystems Division of Leica Microsystems 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, the Biosystems Division creates better patient care through rapid turnaround, diagnostic confidence and close customer collaboration.

## ● Surgical Division

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

Leica Microsystems' mission is to be the world's first-choice provider of innovative solutions to our customers' needs for vision, measurement and analysis of micro-structures.

Leica, the leading brand for microscopes and scientific instruments, developed from five brand names, all with a long tradition: Wild, Leitz, Reichert, Jung and Cambridge Instruments. Yet Leica symbolizes innovation as well as tradition.

## Leica Microsystems – an international company with a strong network of customer services

Australia:	North Ryde	Tel. +61 2 8870 3500	Fax +61 2 9878 1055
Austria:	Vienna	Tel. +43 1 486 80 50 0	Fax +43 1 486 80 50 30
Belgium:	Groot Bijgaarden	Tel. +32 2 790 98 50	Fax +32 2 790 98 68
Canada:	Richmond Hill/Ontario	Tel. +1 905 762 2000	Fax +1 905 762 8937
Denmark:	Herlev	Tel. +45 4454 0101	Fax +45 4454 0111
France:	Rueil-Malmaison	Tel. +33 1 47 32 85 85	Fax +33 1 47 32 85 86
Germany:	Wetzlar	Tel. +49 64 41 29 40 00	Fax +49 64 41 29 41 55
Italy:	Milan	Tel. +39 0257 4861	Fax +39 0257 40 3475
Japan:	Tokyo	Tel. +81 3 5421 2800	Fax +81 3 5421 2896
Korea:	Seoul	Tel. +82 2 514 65 43	Fax +82 2 514 65 48
Netherlands:	Rijswijk	Tel. +31 70 4132 100	Fax +31 70 4132 109
People's Rep. of China:	Hong Kong	Tel. +852 2564 6699	Fax +852 2564 4163
Portugal:	Lisbon	Tel. +351 21 388 9112	Fax +351 21 385 4668
Singapore		Tel. +65 6779 7823	Fax +65 6773 0628
Spain:	Barcelona	Tel. +34 93 494 95 30	Fax +34 93 494 95 32
Sweden:	Kista	Tel. +46 8 625 45 45	Fax +46 8 625 45 10
Switzerland:	Heerbrugg	Tel. +41 71 726 34 34	Fax +41 71 726 34 44
United Kingdom:	Milton Keynes	Tel. +44 1908 246 246	Fax +44 1908 609 992
USA:	Bannockburn/Illinois	Tel. +1 847 405 0123	Fax +1 847 405 0164

and representatives of Leica Microsystems  
in more than 100 countries.