



The New DigitalMicroscope Series

Leica DM

for Materials Sciences

Simply Microscopy!
Perfection At Work

Leica
MICROSYSTEMS

Intelligence
Comfort
Brilliance
Integration

This is why you entered Science.

It's what you work for every day.

Now let the new Leica DM DigitalMicroscope help you make that brilliant discovery.

Perfection At Work – Simply Microscopy!

The Exterior: New Technology in a New Design

The first thing you will notice about our new Digital Microscopes is their new design*: clear, attractive contours.

Looking Through the Microscope: Fascinating Insights

Once you have seen a sample through one of these new microscopes, you will never want to use any other. No microscope in this class can offer better image brilliance, field depth and contrast.

Just Rely On Your Intuition

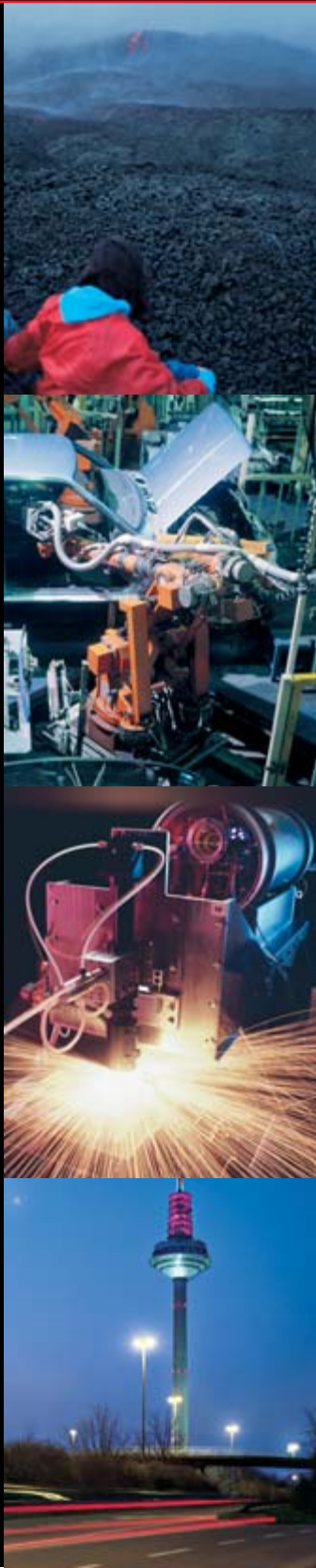
Our new Leica DM Digital Microscope series provides the answers to many of our customers' problems. One of the most frequently voiced requests was to lighten the workload. So we found ways of doing a lot of the work for you. You can operate the microscope intuitively and easily automate complex routines to suit your specific needs.

Experts Call it Ergonomics. We Call it User-Friendly

Ergonomics is a word often used. On our new microscopes you can actually feel it. Cooperating closely with the Fraunhofer Institute** our designers have not only outperformed the latest technological standards but also all the ergonomic specifications.

* registered Design DE 402 04 845; patented DE 101 26 291

** The Fraunhofer Institute IAO (Stuttgart, Germany) investigates ergonomic aspects of various products. In cooperation with their industrial partners they develop industrial designs to suit highest ergonomic demands.





Your Benefits

Intelligence



An impression of clarity wherever you look: Customer-specific illumination and diaphragm adjustments can be made on the front left side of the microscope.



Everything you can see on the display of the Leica DM4000 M is automatically saved. All your results can therefore be reproduced at any time.



Left: The new LeicaScreen on the DM6000 M with touch-sensitive LCD. The clearly designed menu structure uses internationally familiar pictograms* instead of language for intuitive operation. Right: The familiar Leica SmartMove remote control. You can use the remote control unit to control all 3 axes of the microscope (x,y; stage, z; focus). You can also program user-defined microscope functions and assign them to the 4 function buttons.

Automatic Diaphragm Adjustment

Our new DigitalMicroscopes automatically recognize the contrasting technique and objective that are currently in use. There is no need to adjust diaphragms – either in transmitted or in incident light. Unless you choose to.

Automatic Light Adjustment

The light intensity is automatically set to the light-gathering capabilities of the objectives. This means that the brightness of the specimen image remains constant when you switch to a different objective – and there is no danger of glare. Because every task has its own specific requirements, you can adjust the light intensity individually.

New: Transmitted Light Axis With Color-Neutral Brightness Control**

Too dark for viewing – too bright for your digital camera: a white balance used to be necessary every time the lamp voltage was changed. The new transmitted light axis works with a color-neutral brightness control which automatically maintains a constant color temperature. You will no longer need to use neutral density filters to compensate for changes in light intensity.

New Condensers for a New Level of Automation

Our completely automated condensers will fulfill the most demanding requirements. You will never have to worry about the position of the condenser tops, it will automatically swing in and out of the light path for any objective from 1.25x to 100x.

Wherever You Look: An Impression of Clarity

All the settings of the Leica DM4000 M can be reviewed at a glance in the clearly laid out display: the contrasting technique, the objective, the aperture and field diaphragm and the light intensity. Reproducible results are easier than ever before.

The touch-sensitive LeicaScreen of the DM6000 M offers special ease of operation. Not only does it offer all the current settings of your microscope, but this display can be used to control the complete automation of your microscope – and all of that without requiring any programming skills.

* registered Design DE 403 000 51

** Patented DE 101 32 360; pat. pend. for EP 02 100 723; Japan pat. pend. JP 2002 / 195868; US pat. pend. 10/173,101

Comfort

Our Digital Microscopes Adapt to You in Every Way

Our new adaptable tube can be perfectly matched to your body size and posture. You can reach the focus knobs with your hands resting on the table. The new stage allows simultaneous focus and x-y movement control. So no matter what you are examining, you are completely relaxed – even if you sit at the microscope for hours at a time.

New Stages and Specimen Holders for Your Convenience

We have designed the new stages to satisfy the most demanding applications: the entire stage surface is ceramic coated and features telescopic stage drives with individually adjustable torque. The vertical stage position can also be adjusted with a simple hand movement to accommodate sample heights of up to 45 mm. The standard stages are on ball bearings for precise rotation around the optical axis. They are suitable for one to two specimens and are available in a version for left-handed operation. Still higher comfort is offered by the motorized stages of the Leica DM6000 M in conjunction with the Leica SmartMove operating satellite.

Variable Function Keys

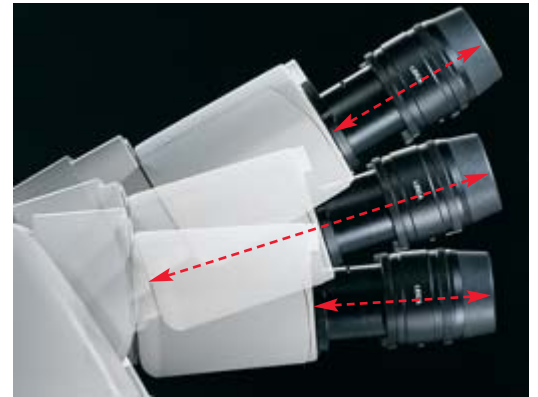
You can assign any function you like to the maximum number of 10 new function keys. Due to the convenient position of 6 keys behind the focus wheels, frequently used functions are always within easy reach. An additional 4 function keys for the Leica DM6000 M are located on the Leica SmartMove remote control. We had your comfort in mind.

Five New Viewing Tubes for Pin-Sharp Images

To match our new DigitalMicroscopes, we have devised a viewing tube series that will meet the highest requirements. Our new documentation tubes (which can be motorized on request) have three switching positions. They are partially equipped with one or two camera outputs. The new adaptable tube can be optimally adjusted to your needs. And of course, you will also find an ergonomic tube with documentation port in our product range.

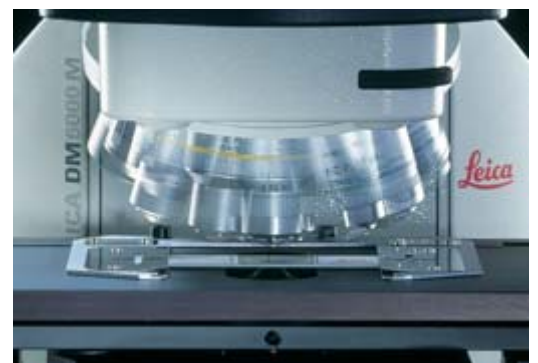
New 1.25x Scanning Objective

The new 1.25x panoramic objective is especially intended for material sciences. Outstanding field depth, brilliant resolution and perfectly homogeneous illumination ensure excellent results for photographs taken at low magnifications.



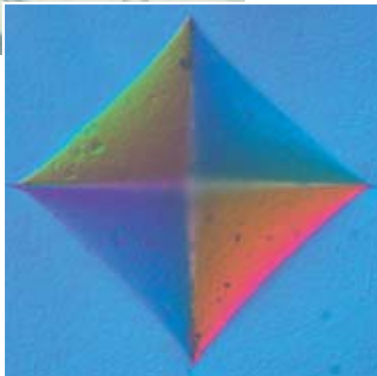
The viewing angle and height of the new AET22 adaptable tube can be individually adjusted to your sitting posture and body size. Plus you can vary the length of the eyepieces to suit the position of your arms.

Brilliance

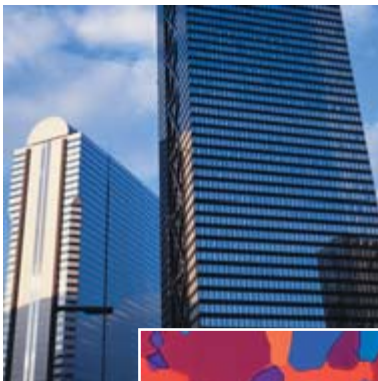


Everything underwent improvements: Our new transmitted-light axis, together with new condensers, allows for Koehler illumination of 1.25x–100x. The illumination manager adjusts a perfect image after every change of objectives.

Your Applications – Our Solutions



Microhardness imprint



Aluminum, Barker etching, polarization

Incident Light

The entire incident light axis is automated and features motorized aperture and field diaphragms that guarantee a hundred percent reproducibility. The 4-position reflector turret is also motorized and accommodates optical components for all incident light contrasting techniques. Two reflector positions have wider openings for the insertion of darkfield or Smith reflectors.

Incident Light Brightfield

It has never been so easy to use a microscope: just put a specimen on the stage and focus. The Leica DM series recognizes the objective you have chosen, accurately opens and closes the aperture and field diaphragms and adapts the light intensity.

Incident Light Darkfield

The darkfield block is affixed on the reflector turret and is moved into the light path by motor control. All diaphragm settings and the lamp voltage are automatically adapted to the change in conditions.

Incident Light Polarization

Incident light polarization contrast is either mechanical or, on request, motorized. In the motorized version, the polarizer and analyzer are in the ICR reflector on the motorized reflector turret.

Incident Light Interference Contrast (ICR)

With the Leica DM4000 you have the choice between semiautomatic or purely manual ICR operation. To avoid incorrect operation, the display shows the correct prism for the selected objective, which can simply be moved into the beam path. In the Leica DM6000M, even the objective prism is mounted on a motorized disk, thereby turning the ICR into a fully automatic process. The field-proven ICR system of Leica Microsystems only needs one prism for many objectives, saving time and money. Depending on your application, you can decide for yourself which is more important – contrast or resolution.



Transmitted Light

Apart from the motorized aperture and field diaphragms, the new transmitted light axis also features color-neutral brightness control that works in the background, maintaining a constant color temperature over a wide brightness range and making additional microscope and camera settings superfluous.

Transmitted Light Brightfield

You already know the aperture, field diaphragm and lamp voltage settings from incident light. In transmitted light, the condenser top for the chosen objective is additionally swung in or out of the light path automatically. And the automated, color-neutral brightness control also filters red and orange components out of the light at low lamp voltage settings.

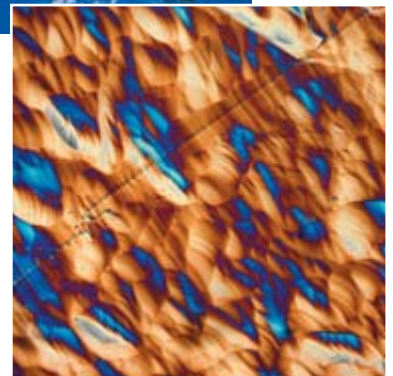
Transmitted Light Contrasting Technique

All other transmitted light contrasting techniques implemented in the Leica DM4000 M and Leica DM6000 M, such as phase contrast, interference contrast and polarization, are automated. Here again, the microscope knows and moves all the necessary components by itself.

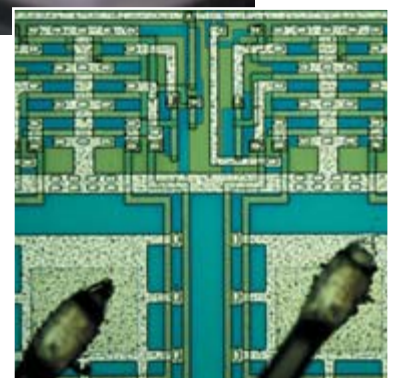
Single Keystroke Contrast Switching – Easier Than Ever Before

The method of changing contrasting techniques is unique. One press of the new function keys and the microscope switches between brightfield, darkfield polarization or interference contrast automatically. We have even assigned all the parameters for switching between incident and transmitted light techniques to one single key: the setting that was used last is restored.

Leica Design by Christophe Apothéloz

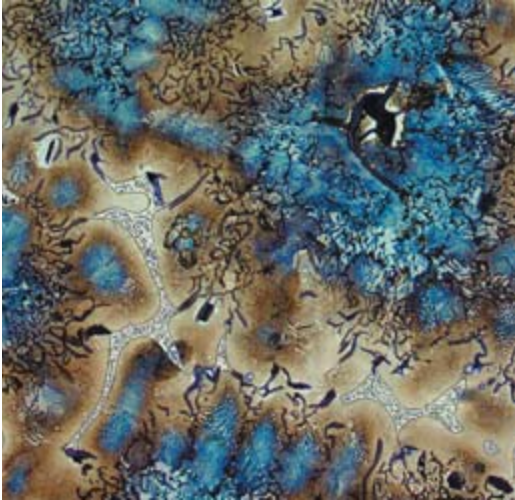


Solar cell, interference contrast



IC chip, incident-light bright field

Your System Solutions



Grey cast iron, GG-18, incident-light brightfield

The Choice Is Yours. Now and Any Time in the Future.

To go with the new Digital Microscopes we offer you a totally new software concept which allows you to upgrade your system at any time. All future software and hardware components of Leica will be controlled from the same interface.

Individual Microscope Configuration and Control

The user interface is extremely easy to use and intuitive. Function keys, contrasting techniques and other microscope parameters are easily configured on the computer in accordance with your preferences or the needs of your working environment. The remote control of the microscope via software is reliable and comfortable – particularly important in the routine environment.

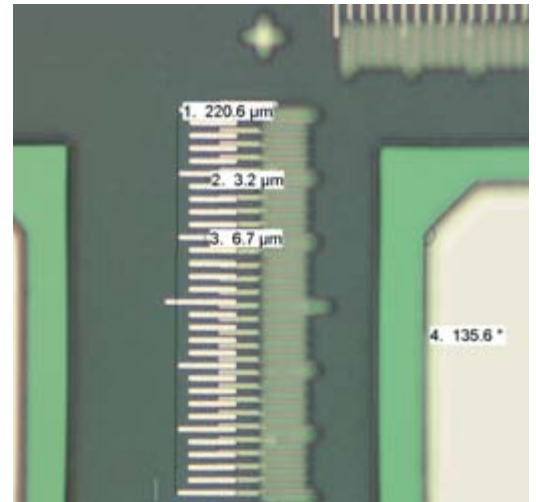


Digital Cameras For Every Requirement

The new digital cameras from Leica offer the right solution for every application. The standard FireWire interface provides a fast means of transferring images to PCs and Macintosh computers. The cameras can be used for color as well as black-and-white photographs of your material samples and feature an easy-to-operate white balance and vignetting correction. All digital cameras have variable resolution with live image mode; the image resolutions range from 1.3 to 12 megapixels at a color depth of up to 14 bits per color channel.

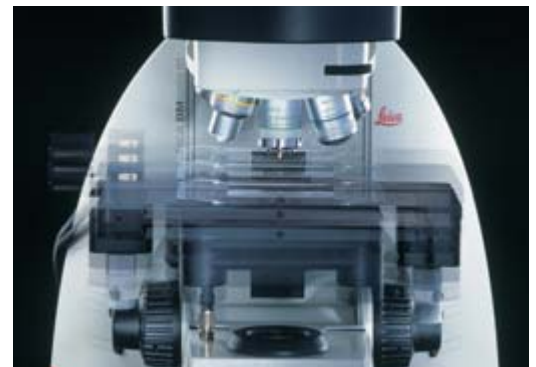
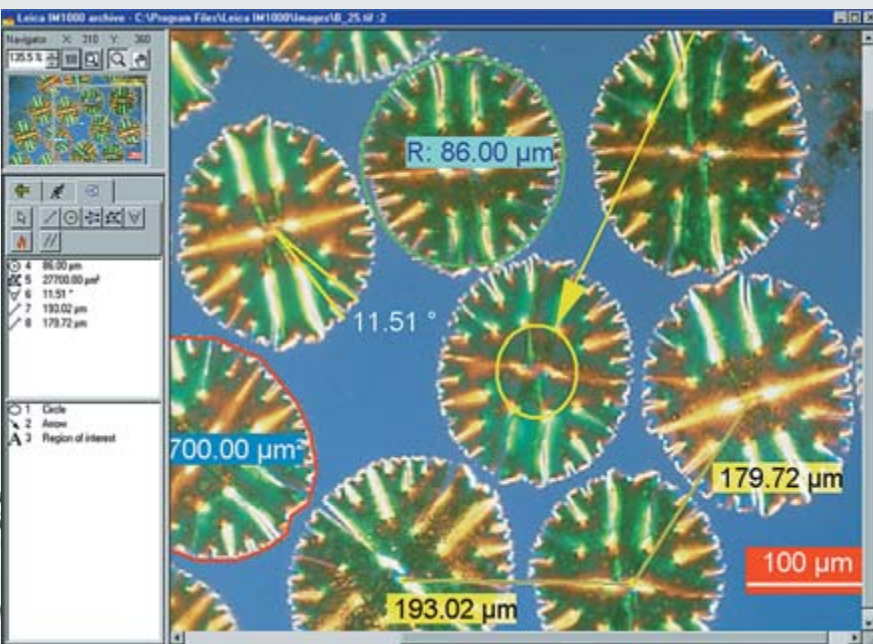
Perfect Image Archiving and Analysis

With the Leica IM image and data management software, you can document, edit and survey your microscopic images. Also, all automated microscope parameters can be stored with the images and reimported to the microscope if required for "reproducible microscopy." The image analysis material workstation Leica MW offers software programs for grain size analysis, determination of the phase component, layer-thickness measurement, steel purity degree analysis and contamination measurement of filters. Or connect the Leica MHT10 to turn your microscope into a fully automatic microhardness tester.



IC chip bond-measurement

Integration



Our motorized stages operate in the Leica DM6000 M as an integral system component and can be controlled using our software programs.

Our Product Line



Leica DM4000 M with incident light and transmitted-light axis.

Leica DM4000 M – The Perfect Entry-Level Microscope for Advanced Routines

Enjoy the convenience of a fully automated microscope for routine users at an attractive price. For the first time, the automation of your routine microscope allows you to repeat your examination at any time with perfect reproducibility. And the time savings will bring a smile.

Like all microscopes of the DM digital series, the Leica DM4000 M is equipped with fully automated illumination and contrast managers. Transmitted-light and incident-light axis operate with fully motorized aperture and field diaphragms. The transmitted-light axis also features a color-neutral brightness control (CCIC) for incrementally adjustable light intensity which makes the use of color filters obsolete.

The modular design of our microscopes provides you with an option for a tailor-made configuration of your microscope. The Leica DM4000 M is equipped with an incident-light axis and can be used with all common incident-light methods (brightfield, dark-field, polarization, interference contrast, fluorescence – all of them automated upon request). The axis features a 4x reflector disc with 2 fixed mounted and 2 changeover positions for instrumentation with reflectors or fluorescence filter cubes that you can choose from our large selection. A transmitted-light axis can be ordered upon request* and works with all known transmitted-light methods (brightfield, darkfield, phase contrast, polarization contrast, interference contrast – all automated). As expected from a routine microscope, the Leica DM4000 M operates with a mechanical Z-drive; and the stage is also operated mechanically. The 6x objective turret with M32 thread is absolute coded so that the objective used is immediately detected. All current setting values can be called up at a glance using the clearly designed status display.

A computer interface allows reading or remote controlling all important settings.

* A subsequent retrofitting of a transmitted-light axis is not possible.

Leica DM6000 M – The Research Microscope that Leaves Nothing To Be Desired

The highlight in our DM DigitalMicroscope family – for the time being. The Leica DM6000 M, the microscope for the upper research class, leaves nothing to be desired and no questions unanswered. Let yourself be inspired by the automation of this microscope whose modules are all motorized. Together with our new digital cameras and software products for image analysis and image archiving specifically tailored to the DM DigitalMicroscope series, you receive a tailor-made system for your work.

Exploit the modular design of our microscopes to build your personal system. The Leica DM6000 M is also equipped with an incident-light axis and can be used with all common incident-light methods (brightfield, darkfield, polarization, interference contrast, fluorescence – all of them fully automated upon request). The axis features a 4x reflector disc with 2 fixed mounted and 2 changeover positions for instrumentation with reflectors or fluorescence filter cubes that you can choose from our large selection. A transmitted-light axis can be ordered upon request* and works with all known transmitted-light methods (bright field, dark field, phase contrast, polarization contrast, interference contrast – all fully automated). The Z-drive of the Leica DM6000 M is motorized – this offers the advantages of parfocality, stored focus planes and the option of automated recording of different Z-levels. In addition, the Leica DM6000 M is equipped with a motorized stage that operates as an integral part of the complete system and responds to magnification changes. Furthermore, the Leica DM6000 M features a motorized objective turret that offers room for 6 objectives. The touch-sensitive LeicaScreen provides special comfort. Not only can all settings be viewed at a glance, but in addition, the clearly-arranged menu structure quickly guides you through the menu pages and allows you to control all motorized modules of the microscope. On top of that, the Leica DM6000 M utilizes the Leica "SmartMove" remote control which features the remote control of the Z-drive and motorized stage in addition to 4 freely programmable keys.

All functions can also be remotely controlled with a PC.

* A subsequent retrofitting of a transmitted-light axis is not possible.

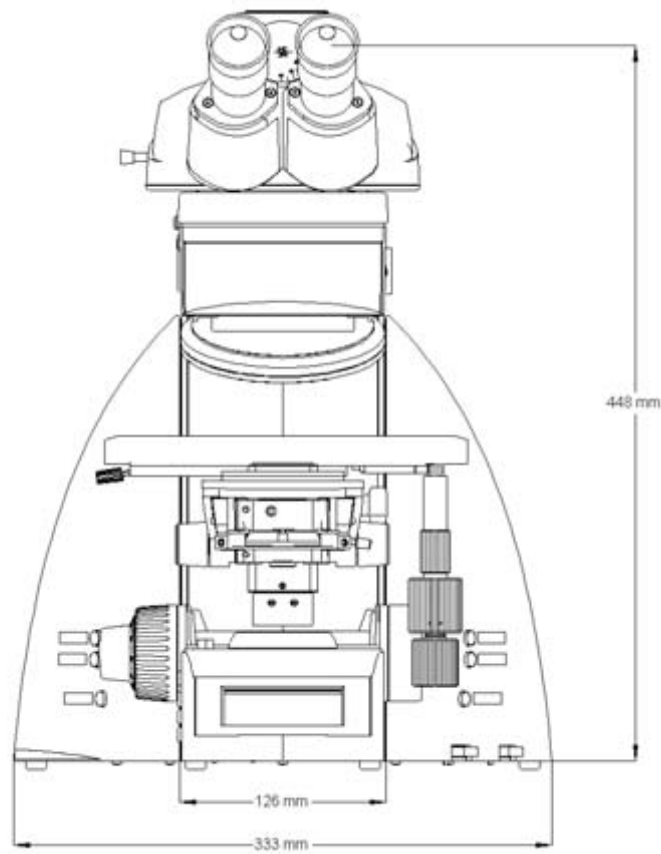
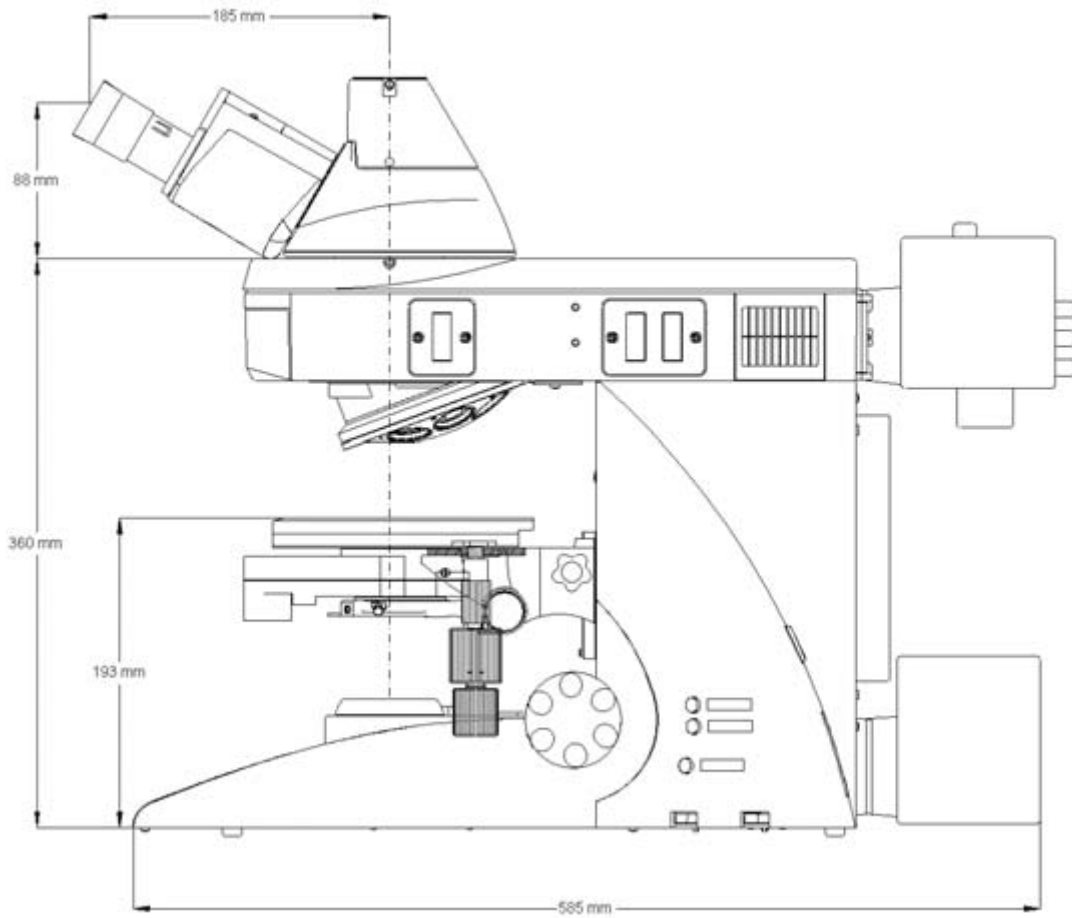
Upon request, all microscopes are also available with coded magnification changer or motorized MBDT documentation tube which complete the large product program.



Leica DM6000 M with motorized MBDT documentation tube and motor stage.

Technical Data

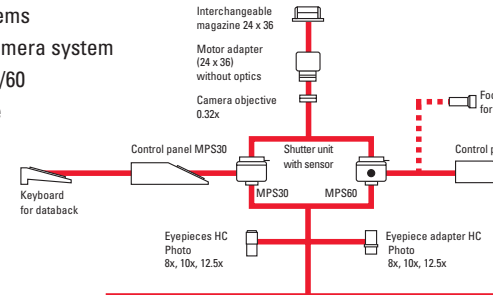
		Leica DM4000 M	Leica DM6000 M
Stand	Power supply	– Integrated in stand	– In CTR6000 electronics box
	Display	– Information display (3.7 x 7.7 cm)	– LeicaScreen (7.3 x 7.3 cm) with information and control panels
	Interfaces	– 1 x RS 232 (USB adapter available)	– 1 x RS 232 (USB adapter available)
Operation	Focus	– mechanical – 2-gear drive	– motorized – 5 electronic transmissions – incl. parfocality function – Switching between coarse and fine mode – Storage of 2 z-positions possible
	Objective turret	– absolute encoded – 6x M32 thread	– absolute encoded and motorized – 6x M32 thread – incl. dry and immersion mode
	Stages		– motorized – with stepping motor – Switching between fast mode and precise mode – storage of up to 6 stage positions possible
		– mechanical – ceramic-coated – y-drive with cable control – telescopic stage drive with adjustable torque – mechanical – 4" x 4" – mechanical – 8" x 4" – mechanical – with reversed stage drive (for high samples)	– mechanical – ceramic-coated – y-drive with cable control – telescopic stage drive with adjustable torque – mechanical – 4" x 4" – mechanical – 8" x 4" – mechanical – with reversed stage drive (for high samples)
Transmitted-light axis	Illumination	– 12 V 100 W halogen lamp	– 12 V 100 W halogen lamp
	Automation	– Automatic illumination manager (adjustment of light intensity) – Automatic contrast manager (adjustment of field and aperture diaphragm) – Constant color intensity control (CCIC)	– Automatic illumination manager (adjustment of light intensity) – Automatic contrast manager (adjustment of field and aperture diaphragm) – Constant color intensity control (CCIC)
	Contrast techniques	– BF, POL, PH, DIC	– BF, POL, PH, DIC
Incident-light axis	Mot. filter turret	– 4x – 2 fixed positions – 2 variable positions	– 4x – 2 fixed positions – 2 variable positions
	Illumination	– 100 W halogen lamp – 100 W Hg lamp – 50 W Hg lamp	– 100 W halogen lamp – 100 W Hg lamp – 50 W Hg lamp
	Automation	– Automatic illumination manager (adjustment of light intensity) – Automatic contrast manager (adjustment of field and aperture diaphragm) – Circular and rectangular field diaphragms for eyepiece or camera observation	– Automatic illumination manager (adjustment of light intensity) – Automatic contrast manager (adjustment of field and aperture diaphragm) – Circular and rectangular field diaphragms for eyepiece or camera observation
	Contrast method	– BF – DF – POL – ICR (partially automated) – Fluorescence	– BF – DF – POL – ICR (automated) – Fluorescence
Condensers	Automation	– Mot. condenser top – Mot. condenser turret 7-position (optional) – Mot. polarizer (optional)	– Mot. condenser top – Mot. condenser turret 7-position (optional) – Mot. polarizer (optional)



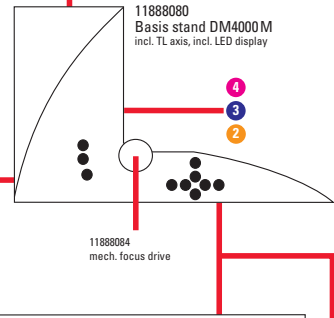
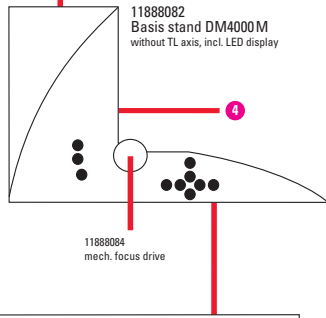
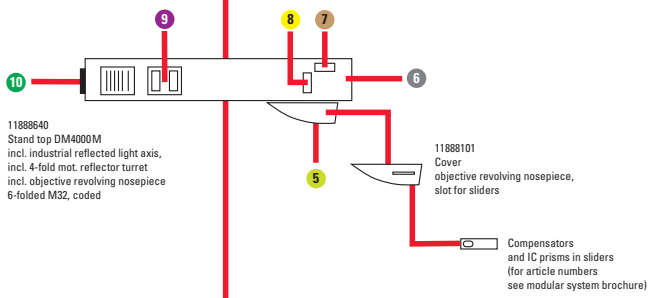
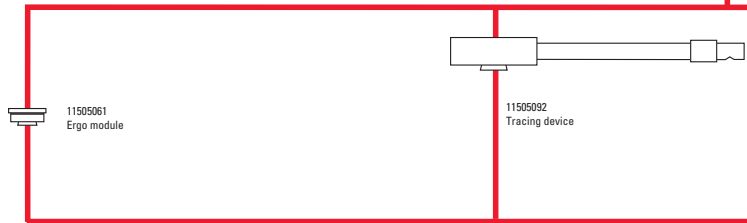
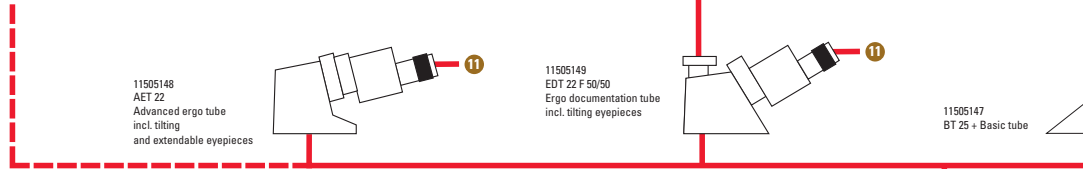
System Overview

Leica DM4000 M/DM6000 M

Camera systems
 Leica SCR camera system
 Leica MPS30/60
 see brochure

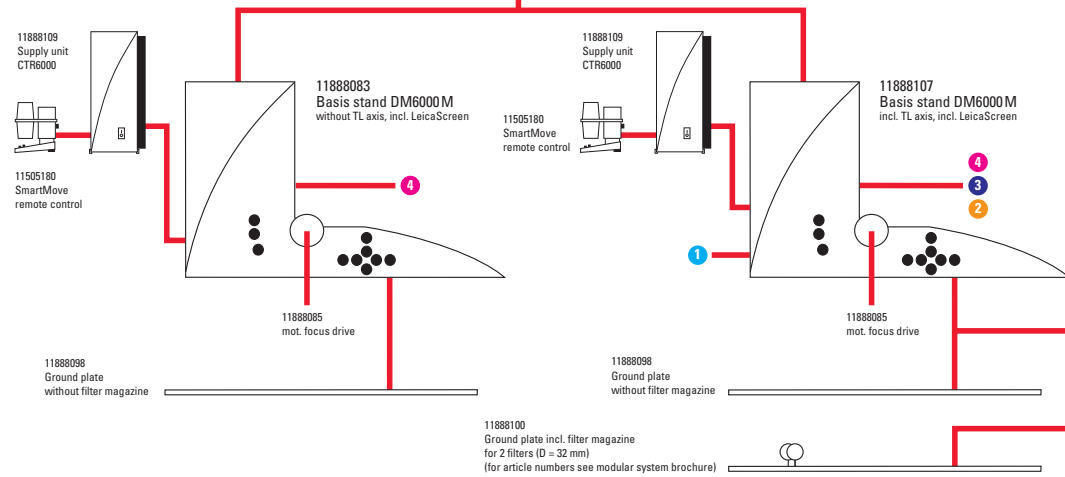
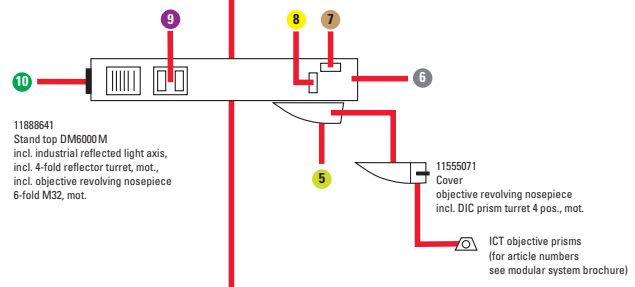
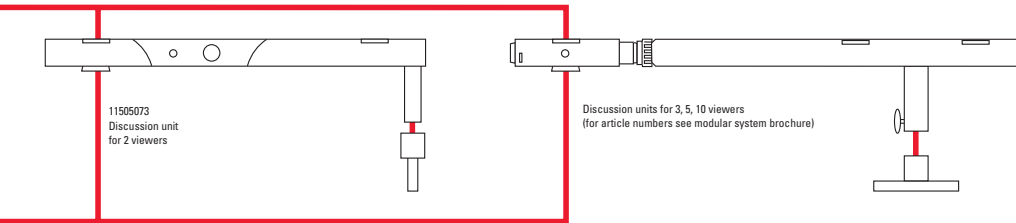
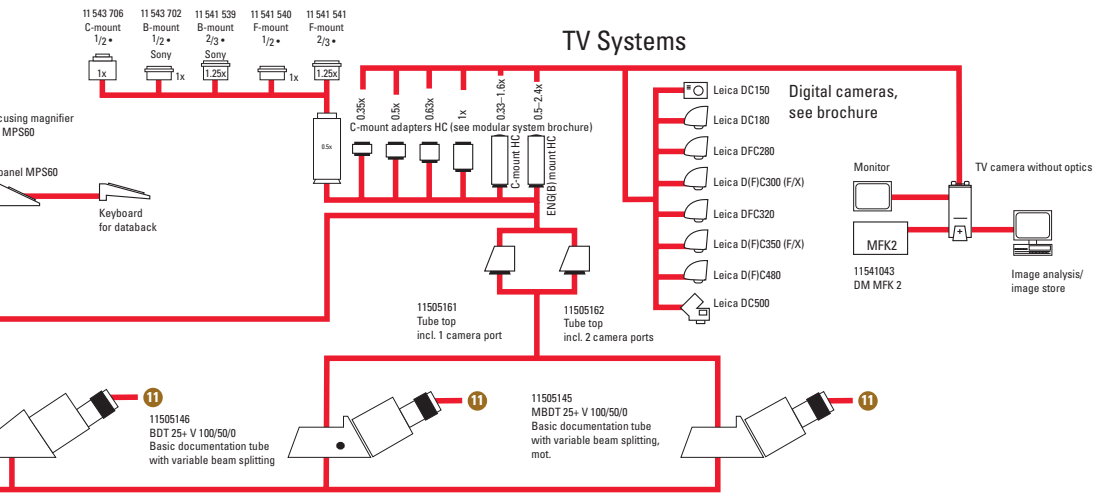


Tube program L

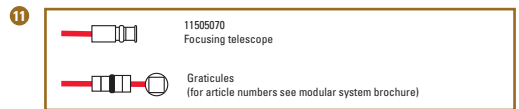
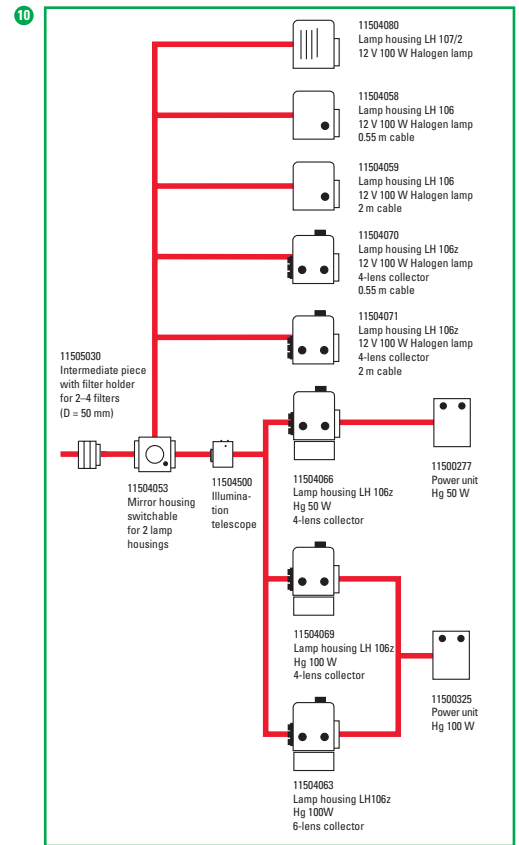
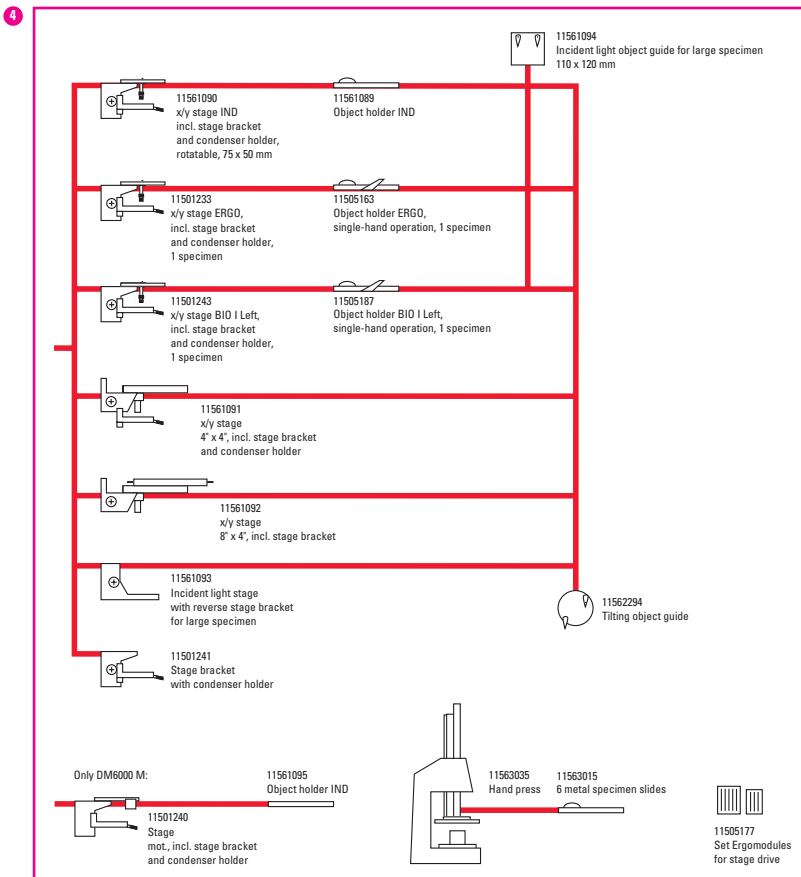
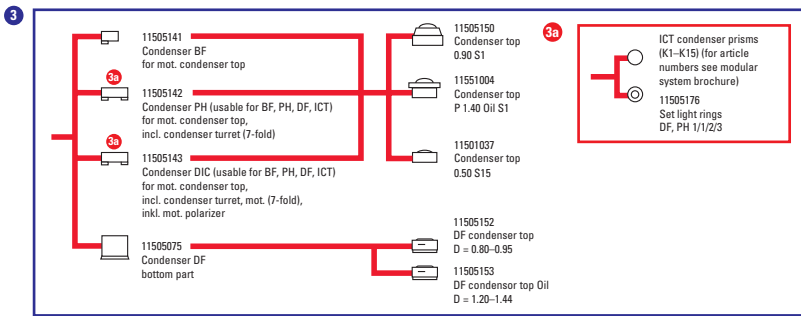
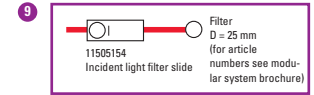
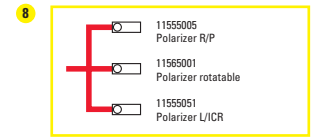
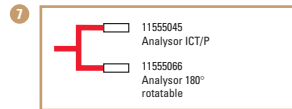
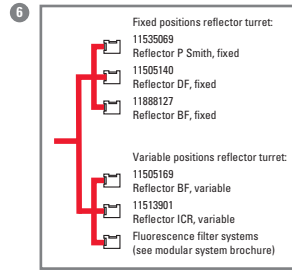
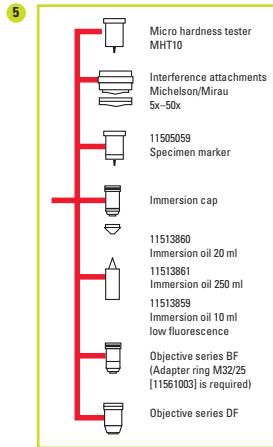
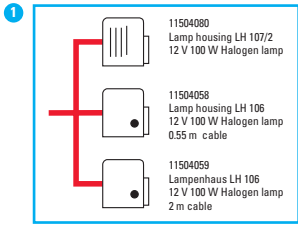


Leica DM4000 M

TV Systems



Leica DM6000 M





"As a material scientist,
I want to concentrate on my
work, not on my tools."

"Leica Microsystems provides me with the best tools imaginable for my research. When choosing a microscope or analysis system, I go for the one that gives me top quality information while offering the best possible operational convenience. My Leica materials workstation and research microscopes automate many manual processes, allowing me to concentrate fully on the images and data I need for structural research of high performance industrial materials.

**Professor Dr. Dr. h.s. Hans Eckart Exner,
Technical University of Darmstadt, Germany**



Leica Microsystems – the brand for outstanding products

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

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.

The companies of the Leica Microsystems Group operate internationally in four business segments, where we rank with the market leaders.

● Microscopy Systems

Our expertise in microscopy is the basis for all our solutions for visualization, measurement and analysis of microstructures in life sciences and industry. With confocal laser technology and image analysis systems, we provide three-dimensional viewing facilities and offer new solutions for cytogenetics, pathology and materials sciences.

● Specimen Preparation

We provide comprehensive systems and services for clinical histo- and cytopathology applications, biomedical research and industrial quality assurance. Our product range includes instruments, systems and consumables for tissue infiltration and embedding, microtomes and cryostats as well as automated stainers and coverslippers.

● Medical Equipment

Innovative technologies in our surgical microscopes offer new therapeutic approaches in microsurgery.

● Semiconductor Equipment

Our automated, leading-edge measurement and inspection systems and our E-beam lithography systems make us the first choice supplier for semiconductor manufacturers all over the world.

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

Australia:	Gladesville	Tel. +61 2 9879 9700	Fax +61 2 9817 8358
Austria:	Vienna	Tel. +43 1 486 80 50 0	Fax +43 1 486 80 50 30
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 1 473 285 85	Fax +33 1 473 285 86
Germany:	Bensheim	Tel. +49 6251 136 0	Fax +49 6251 136 155
Italy:	Milan	Tel. +39 0257 486.1	Fax +39 0257 40 3273
Japan:	Tokyo	Tel. +81 3 5435 9600	Fax +81 3 5435 9615
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:	Sollentuna	Tel. +46 8 625 45 45	Fax +46 8 625 45 10
Switzerland:	Glattbrugg	Tel. +41 1 809 34 34	Fax +41 1 809 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.

 www.simply-microscopy.com


LEICA
MICROSYSTEMS