Living up to Life

Leica
MICROSYSTEMS

Leica DFC450 & DFC450 C

Digital Microscope Cameras for Analysis and Documentation

Fast and Easy Analysis and Documentation

Excellent picture quality is essential for precise image analysis, documentation, and reporting. The Leica DFC450 and DFC450 C digital microscope cameras provide detailed high-resolution pictures with outstanding accuracy and brilliant color reproduction. The exceptional picture quality and ease of use, make these cameras the perfect choice for all analysis and documentation needs.

EXCELLENT PICTURE QUALITY

These cameras digitize the image information from the CCD chip directly in the camera head, which leads to excellent noise suppression and perfect acquisition of the unprocessed CCD signal. Digitization takes place with a resolution of 12 bits and Leica Microsystems' true color calibration takes care of the natural color reproduction, which produces excellent picture quality.

EASY TO USE

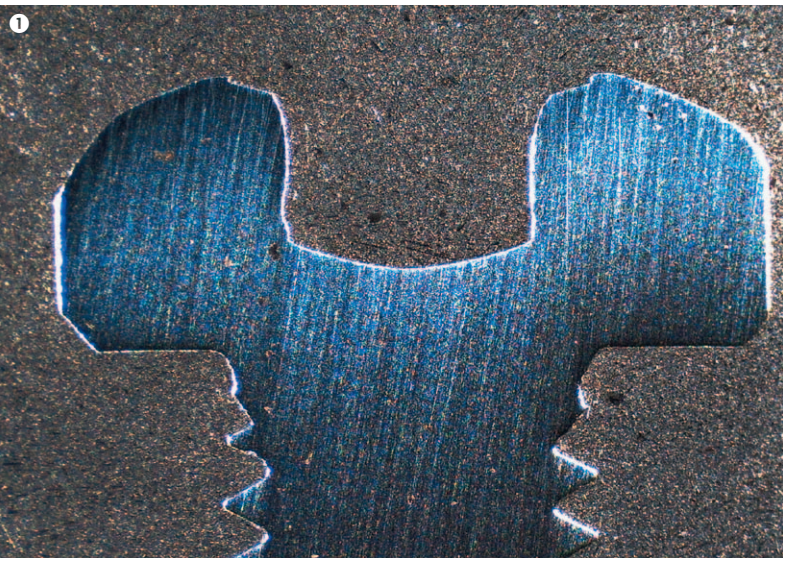
Leica Microsystems' digital technology simplifies all operations, from image capture through image archiving, and allows digital retouching and analysis. In addition, intelligent camera options allow users to conveniently set up the camera parameters. Leica Microsystems' cameras have sophisticated white balance and advanced illumination control and are ready to produce perfect images in seconds.

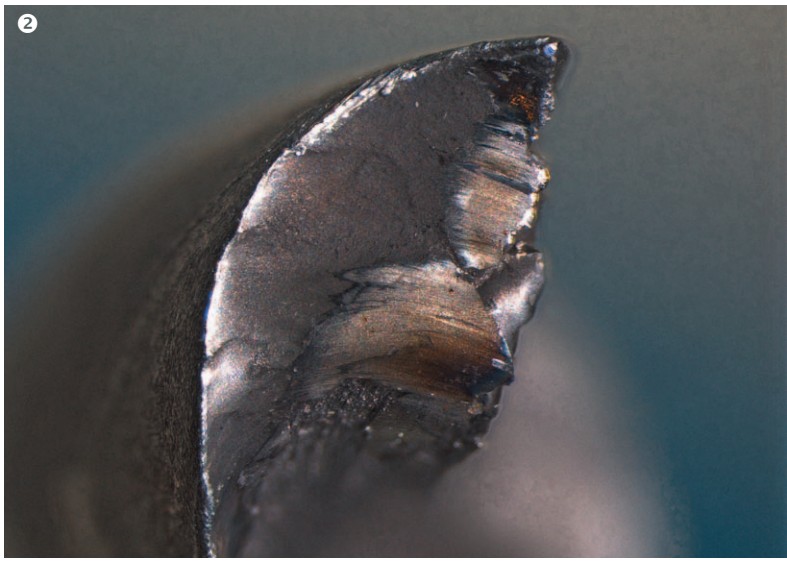
LEICA DFC450 C FOR LOW LIGHT APPLICATIONS

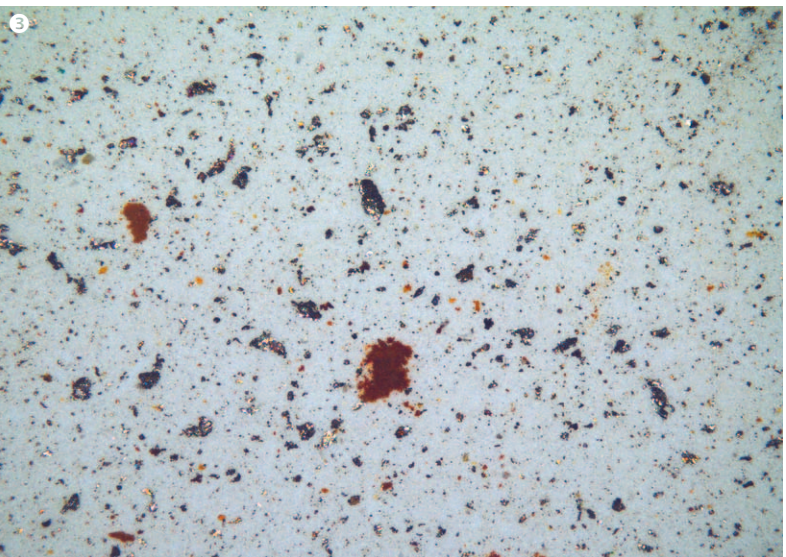
The Leica DFC450 C allows crisp, sharp images to be created with minimum noise in low light situations. Interfering thermal noise is effectively reduced with active cooling by means of a Peltier cooling device. With the innovative, fast readout procedure, even high-resolution low light recording is now possible

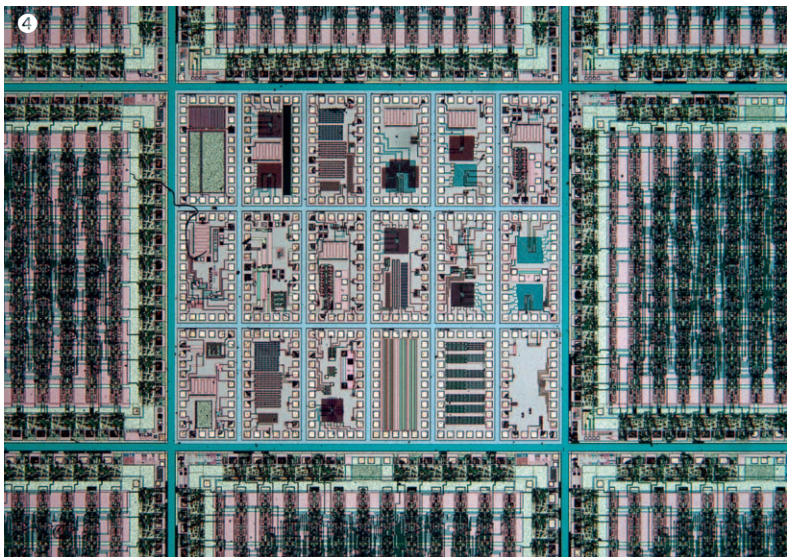
1. Quality control: cross section of a screw head
2. Failure analysis: inspection of a metallic sample
3. Analysis of particles (with LAS Cleanliness Expert)
4. Semiconductor: Wafer Insepction
5. Ant from Leica Science Lab (see: www.leica-microsystems.com/science-lab)

Leica DM8000 M with Leica DFC450 digital microscope camera and PC system with Leica LAS software



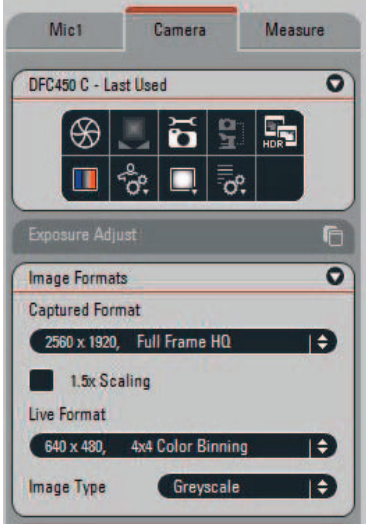


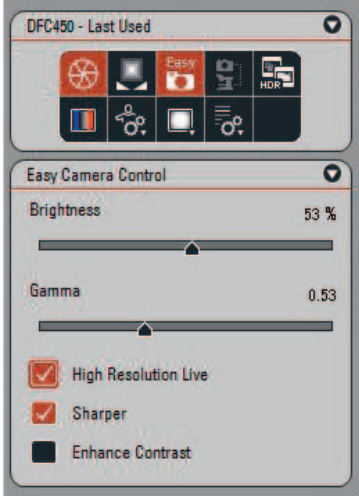


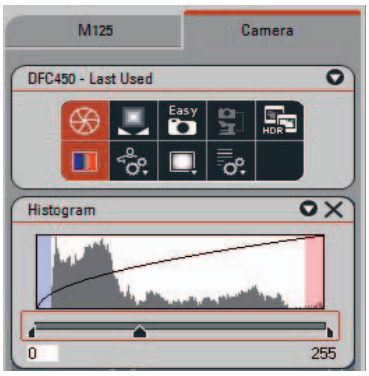


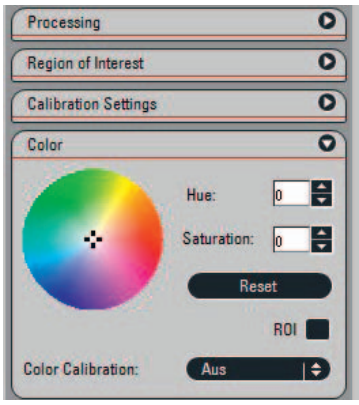
HIGH-PERFORMANCE LEICA LAS SOFTWARE

Leica Application Suite (LAS) integrates Leica microscopes, macroscopes, digital cameras, and software into one common environment to provide an easy-to-use and consistent imaging solution with unrivalled performance. The versatility of LAS makes it suitable for a diverse range of life science and industrial applications such as materials quality control, pathology, pharmaceutical testing, and many more. LAS accelerates the visualization, enhancement, measurement, documentation, and archiving of digital images. This powerful software solution can control all functions of Leica compound microscopes, stereomicroscopes, and macroscopes. By providing all the necessary tools for the installed applications to communicate with each other and with peripheral devices connected to the computer, LAS simplifies routine and research analysis.









LEICA DFC450 & LEICA DFC450 C:

- Fast (18 fps) and large (1260 × 960 pixel) live image for fast focusing and positioning of the specimen.
- High quality 5-megapixel CCD for brilliant captured images.
- Wide range of exposure times to match all types of illuminations and contrast techniques.
- Freely defined region of interest for fastest live image update and precise focus position (ZoomFocus).
- Standard hardware interface for easy and quick connection to all microscopes (C-mount, FireWire-B).
- Powerful software and intuitive user interface for convenient image capture and processing functions.
- Complete camera kit with camera head, Firewire cables and Firewire PCexpress board for easy installation to PC.

LEICA DFC450 C ONLY:

- Active peltier cooling for high dynamic range and minimum noise level in low light situations.
- Additional binning mode for increased brightness and faster frame rate in low light situations.

Technical Details

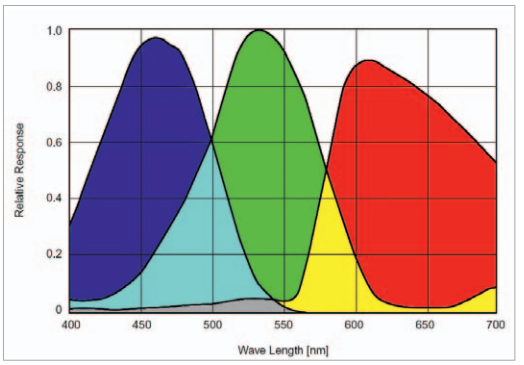
DIGITAL CAMERA	LEICA DFC450 / LEICA DFC450 C
Camera type	Digital camera for microscopy with control software
Sensor	Interline transfer frame readout CCD – ICX282
Sensor size	8.7 × 6.5 mm, diagonal 11 mm (type 2/3")
Color filter	RGB Bayer mosaic
Protective color filter	Removable dust protection, UV/IR filter
Shutter control	Electronic global shutter / 2 frames interlaced readout
Number of pixels / pixel size	5 megapixel, 2560 × 1920 / 3.4 µm × 3.4 µm
Max. scalable resolution (only PC)	7 Megapixel, 3072 × 2304
Color depth	36 bit
A/D converter	12 bit
Dynamic range	> 59 dB / > 900:1 dB
Readout noise	σ < 4.5 LSB (12 Bit) typical
Exposure time	1 msec – 60 sec / 1 msec – 600 sec
Gain control	1× – 10×
Cooling	not available / Δ –20° compared to ambient
Region of interest	Freely adjustable in 2 pixels steps from 2 × 2 up to full resolution

IMAGE FORMATS	PIXELS	SPEED FPS, FAST/HQ
Full Frame	2560 × 1920	9 fps / 4.5 fps
Color Binning	1280 × 960	18 fps / 8.2 fps
Color Binning 4 × 4 (only available for DFC450 C)	640 × 480	30 fps / 15 fps
Grayscale R G B	1280 × 960	18 fps / 9 fps
Modes	Formats in fast (50 Mhz) or high quality (25 Mhz) modes	

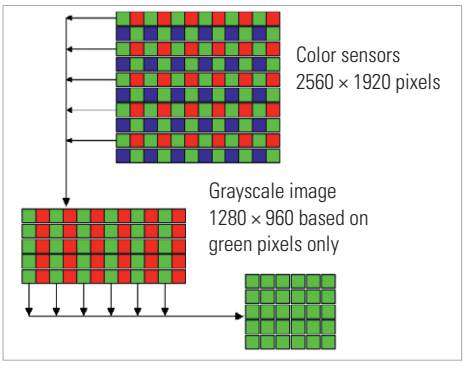
COMPUTER		
Min. Computer configuration	Intel Core 2 Duo 2.4 GHz, or faster 2 GB RAM, high res graphic card with 128 MB or 256 MB RAM, Direct X V9c or V10 FireWire-B port or free PCI-express slot	DFCTwain, Leica LAS Software Windows 7 Prof. or Ultimate, 32 or 64-bit Windows Vista SP2, 32-bit only Windows XP, SP3, 32-bit only

INTERFACES	
Recommended video adapter	C-mount 0.63× or 0.7×
Data	Single Cable FireWire – B-B, 9/9-Pin, screw lock
Digital input connector	Opto-decoupled trigger
Digital output connector	Flash synch or readout active

PHYSICAL AND ENVIRONMENTAL	
Power consumption	~ 4W / ~ 6W
Power supply	via FireWire cable
Housing	Aluminum die cast
Size	112 × 74 × 69 mm / 132 × 74 × 69 mm
Weight	410 g / 490 g
Operating temperature	–5° C to +50° C
Relative Humidity	10% – 80% non-condensing



Quantum efficiency of Leica DFC450 camera (WB applied)



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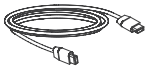
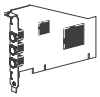
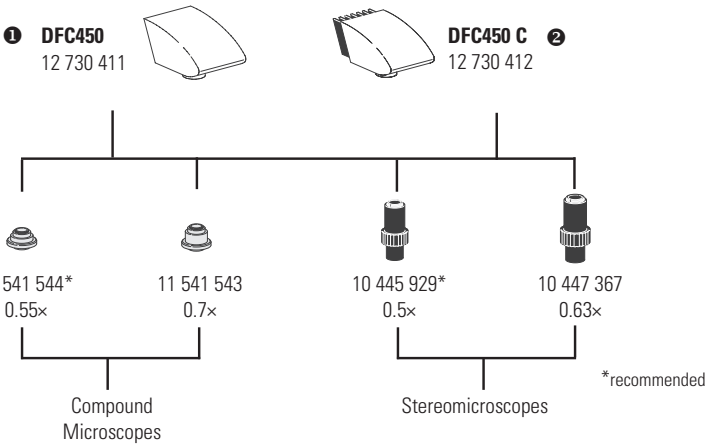
Assembly Diagram

❸ **Cables**
11 600 269 FW-B-B, 2.5 m



❹ **FireWire-Cards**
12 730 446 Notebook Kit FW-B
12 730 447 FW-B, PCI-Express Low Profile





ORDER NUMBERS

12 730 411 ❶	Leica DFC450 camera kit, comprising: Leica DFC450 camera, LAS Software, FireWire cable B-B, PCI-express FireWire-B board
12 730 412 ❷	Leica DFC450 C camera kit, comprising: Leica DFC450 C camera, LAS Software, FireWire cable B-B, PCI-express FireWire-B board

ORDER NUMBERS (OPTIONS/EXTRAS)

12 730 447 ❹	PCI-Express FireWire-B card for PCs without FireWire (2 ports) low profile
12 730 183 ❹	PCI-32 FireWire A+B+USB card for PCs without FireWire (5 ports)
12 447 066 ❹	FireWire-B notebook kit, comprising of PC-Express card (2 ports), power supply 100-240 V, FireWire-A-B adapter
11 600 269 ❸	FireWire B-B cable, 2.5 m, 9/9-Pin

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.

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.

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

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Belgium · Diegem	+32	2 790 98 50	2 790 98 68
Canada · Concord/Ontario	+1	800 248 0123	847 405 0164
Denmark · Ballerup	+45	4454 0101	4454 0111
France · Nanterre Cedex	+33	811 000 664	1 56 05 23 23
Germany · Wetzlar	+49	64 41 29 40 00	64 41 29 41 55
Italy · Milan	+39	02 574 861	02 574 03392
Japan · Tokyo	+81	3 5421 2800	3 5421 2896
Korea · Seoul	+82	2 514 65 43	2 514 65 48
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Singapore	+65	6779 7823	6773 0628
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Sweden · Kista	+46	8 625 45 45	8 625 45 10
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