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# Leica MS5 and MZ6

The most flexible routine  
stereomicroscopes in the world

*Leica*  
MICROSYSTEMS

# For ergonomic and productive workstations

In some types of industrial production, the use of high-performance stereomicroscopes for visual inspection has now become mandatory at all stages, being the only way to ensure quality and to avoid consequential costs arising from deficiencies in quality. The Leica MS5 and MZ6 stereomicroscopes provide a way of performing quality inspection, precision work and training under ideal conditions and at reasonable cost. The Leica M series stereomicroscopes feature two parallel beam paths and a common main objective (Common Main Objective construction) and are parfocally adjusted. This elaborate optics system guarantees viewing without tiring, constant sharpness during magnification change and allows for simple adaptation of all types of accessories.

The Leica MS5 and MZ6 stereomicroscopes are instruments with a favorable price-performance ratio which have proven themselves in technology and natural sciences on a worldwide level as economical and reliable working instruments.

## Investment with a future

Thanks to the extensive accessories, Leica MS5 and MZ6 are the most expandable stereomicroscopes of this class and prove to be an investment which will pay off in the long term. Leica Microsystems carries the largest range of objectives, binocular tubes, ErgoModules®, and accessories for digital imaging, video, photomicrography, dual-station viewing and drawing.

## Patented ESD protection saves on costs

The Leica MS5 and MZ6 optics carrier, 45° binocular tube, ErgoTube®, ErgoWedge® 5°–25°, ESD swing-arm stand and Leica L2 and Leica CLS cold light sources consist of patented ESD-discharging material (surface resistance  $<10^{11}$  Ohm/square, discharge time  $<2$  seconds, 1000V to 100V).

You will find detailed information about the Leica MS5 and MZ6 stereomicroscopes also on our web site at

[www.leica-microsystems.com](http://www.leica-microsystems.com)

ErgoTube® and ErgoModule® are registered at the United States Patent and Trademark Office.



View of a crimp



Examination of Alrosa diamonds

Leica MZ6 with 45° binocular tube and incident-light stand,  
Leica MS5 with 45° binocular tube and Standard swing-arm stand,  
Leica MS5 with Leica DFC320 digital camera,  
HD F photo tube and transmitted-light base

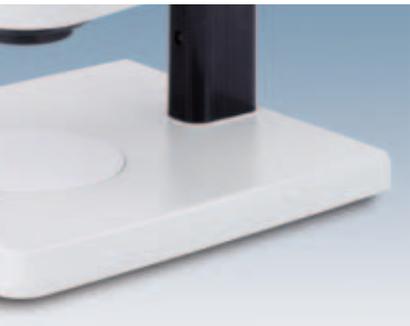
Leica Design  
by Ernest Igl/Christophe Apothéoz



# Work ergonomically, view without tiring



MZ6 zoom magnification changer, and ratchet stops for seven positions



Plenty of room for large specimens: the new Leica incident-light base



Motor focus for repetitive tasks

## Step or zoom magnification

The Leica MS5 stereomicroscope has five precise magnification steps, so investigation, measurement, drawing and photography can be repeated with identical magnification. The Leica MZ6 stereomicroscope, with its 6:1 zoom magnification changer, has engageable ratchets at specific magnifications, but also offers a continuous zoom capability throughout the magnification range. Whether equipped with achromatic, planachromatic or planapochromatic objectives, the Leica MS5 and MZ6 meet the many requirements of all user segments.

## Ergonomics throughout

Users of the Leica MS5 and MZ6 stereomicroscopes can benefit from the largest available range of binocular tubes with various viewing heights, allowing one to work comfortably at the instrument. The Leica ErgoModules<sup>®</sup> also ensure correct posture at the work place: from ErgoWedge<sup>®</sup>  $\pm 15^\circ$  to the ErgoTube<sup>®</sup> with continuously adjustable viewing angle from  $10^\circ$  to  $50^\circ$  provide the functions to be perfectly adjusted for any user.

The compact, attractive design and the modern, warm materials make handling of the Leica M series particularly pleasant. The practically-oriented arrangement of the drive knobs allows for comfortable focusing with propped-up hands. The spacious incident and transmitted-light stands provide space for comfortable specialty stages such as the gliding stage and cup stage and the Leica MATS thermo stage. The **Thermocontrol System Leica MATS** allows observation of temperature-sensitive specimens and living cells in biology, medicine and pharmaceuticals under identical temperature conditions.



Largest selection of objectives, lead-free



Leica MS5 with ErgoTube® and manual cross-stage



Leica MS5 with 45° ErgoTube® and manual cross-stage



Leica MS5 with trinocular tube, Leica DFC480 and manual cross-stage

### Ergo objective

The Ergo objective 0.4× – 0.63× allows ergonomical and fine focusing in the 90mm range (working distance 63.5 – 153.5mm) without changing the viewing height. At the time, magnification and working distance can be changed without time-consuming objective change.

Ergo objective 0.4× – 0.63× for rapid fine-focussing



### Wide range of illuminations

The modular **Leica L2 cold light source** is powerful, compact and suitable for all applications in industry and natural sciences. In addition to oblique illumination with one or two-arm light guides, corresponding accessories are also available for coaxial, vertical and transmitted-light illumination methods. Leica L2 is the only cold light source that can be directly coupled to the stand. This allows the complete equipment to use the least amount of space. The **Leica CLS series** is a high-performance line with cold light source for high light intensity and flicker-free white light with the lowest possible thermal effect on the objects.

The new **Leica LED1000** (Laser Emitting Diode) illumination is available with ring illuminator, spot or transmitted light. LEDs that are not developing any heat are used as illumination sources.

The **Leica L5 FL cold light fluorescence system** is designed for blue or green fluorescence with an excellent price/performance ratio. The Leica L5 FL simplifies the daily routine work in the laboratory and is suitable for training courses, forensic and industrial stereo-fluorescence applications.

ErgoModule® 30mm – 120mm, adjustable



### Equipment as desired

The stereomicroscope can be turned 360° in its carrier for use in lateral working positions. For regular photography or measuring, or when working with polarization techniques, the model **AX microscope carrier** is recommended because it permits both stereoscopic and vertical observation. The vertical mode excludes the risk of parallax-angle measuring errors and also ensures correct polarization colors.

Users choose between the coarse focus, the coarse/fine focus and the **motor focus**. The inclinable **focusing drive** can be fitted to bonders and other machines in the electronic component industry.

OEM drive housing, inclinable



# Unlimited possibilities

## Flexible equipment for your examinations

Stereomicroscopes can be used for the nondestructive observation of unprepared objects such as circuit boards and small components, and smaller animals and plants can be examined in vivo and in their entirety. Using the spatial 3-D image, large fields of view and moderate magnifications can provide an overall view and permit manipulations of the sample or specimen.

The Leica IsoPro™ cross-stages, which were designed specifically for stereomicroscopes, are especially suitable for large specimens. Their precision and low design enhance the efficiency of your day-to-day work.

## Space for your large projects

The three new swing-arm stands, ESD, Standard and Large extend the range of applications for MS5 and MZ6 enormously. Here, you can choose from a number of equipment versions, according to task and budget: The ESD in conjunction with the small base is the right choice for the limited budget, the Standard swing-arm stand makes child's play of continual positioning thanks to its ball-bearing mounting, whereas the large swing-arm stand, with its height of 560 or 800mm, provides sufficient space for very large samples. You can rest assured that the numerous ergonomic details will make your work as non-tiring and easy as possible.



Leica DC150 digital camera



The new manual Leica IsoPro™ stereo-microscopy cross-stage



Leica MS5 with Standard swing-arm stand, central base, two-arm gooseneck light guides and Leica L2 cold light source

### Accessories for image acquisition

The base instrument can always and unproblematically be combined with various accessories. The six video/photo tubes can universally be used for Leica photomicrographic systems, and digital, video, film or SLR cameras.

### Leica digital imaging systems

The Leica DFC camera line allows rational creation, processing, reprocessing and archiving of digitized images in industry, medicine and research. Our product line reaches from standard camera for universal application to high-end camera. The Leica Application Suite (LAS) includes a variety of modules covering everything from digital measurement to image optimization and complex imaging sequences.

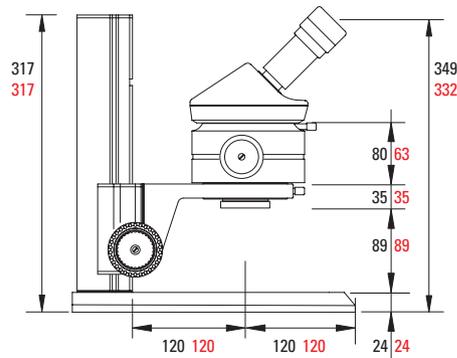
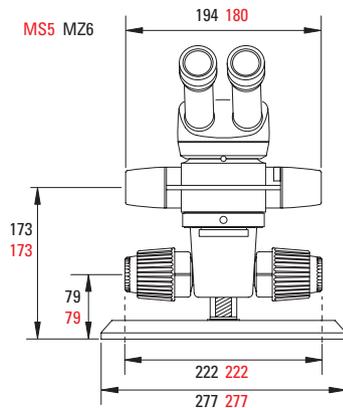
### Leica IC A and IC D compact modular cameras

The Leica IC A (analog video) and IC D (digital still) modular cameras are designed to upgrade workstations ergonomically, without additional adapters or tubes. These cameras open up new opportunities for image analysis in the sciences, for industrial quality control, for live presentations in front of large audiences, and in digital post-processing.

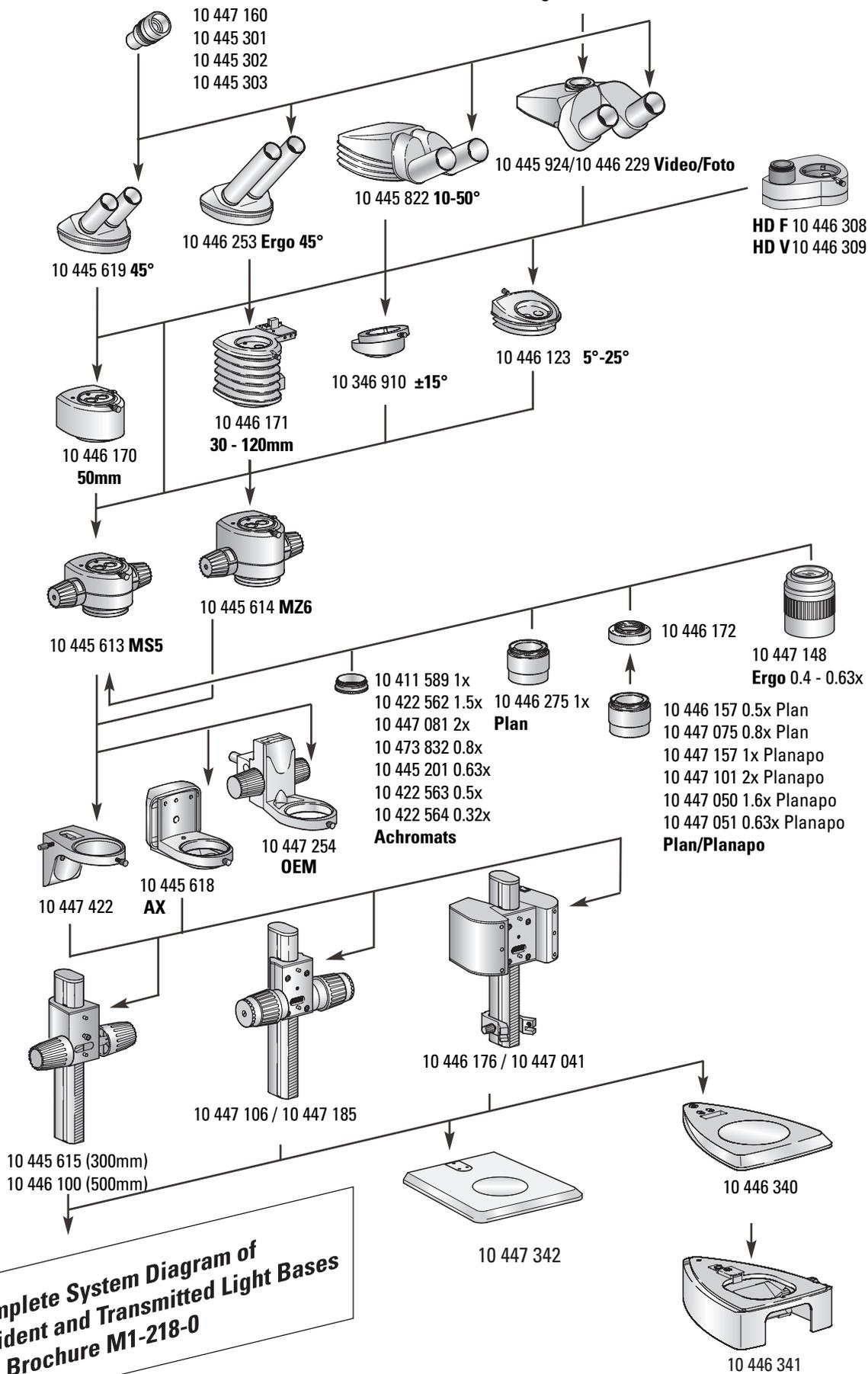
Leica MS5 with trinocular tube and Leica DFC480 digital camera



Leica MS5 with Leica IC A video module



**Digital Cameras**



**Complete System Diagram of Incident and Transmitted Light Bases see Brochure M1-218-0**

# Optical data

Objectives		1× Plan 1× Achromat 0.8× Plan*		1× Planapo*		1.6× Planapo* 2× Achromat		0.63× Planapo* 0.8× Achromat		0.5× Plan* 0.63× Achromat		0.32× Achromat		0.5× Achromat		1.5× Achromat		0.4× – 0.63× Ergo objective			
		Working distance (mm)																			
Eyepieces	Magnification changer position	81 Plano 89 Achromat 112 Plano		55 Planapo		19 Planapo 27 Achromat		97 Planapo 112 Achromat		135 Plano 149 Achromat		297 Achromat		187 Achromat		49 Achromat		63.5 Achromat		153.5 Achromat	
		Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)	Total magnification	Object field Ø (mm)
10×/21B	0.63	6.3	33.3	7.9	26.6	12.6	16.7	5	42	3.9	53.8	2	105	3.2	65.6	9.4	22.3	4	52.5	2.6	80.8
	0.8	8	26.3	10	21	16	13.1	6.4	32.8	5	42	2.5	84	4	52.5	11.9	17.6	5	41.2	3.3	63.6
	1	10	21	12.5	16.8	20	10.5	8	26.3	6.3	33.3	3.1	67.7	5	42	14.9	14.1	6.4	32.8	4	51.2
	1.25	12.5	16.8	15.6	13.5	25	8.4	10	21	7.8	26.9	3.9	53.8	6.3	33.3	18.7	11.2	8	26.3	5	41.2
	1.6	16	13.1	20	10.5	32	6.6	12.8	16.4	10	21	5	42	8	26.3	23.9	8.8	10.2	20.6	6.6	31.8
	2	20	10.5	25	8.4	40	5.3	16	13.1	12.5	16.8	6.3	33.3	10	21	29.9	7	12.7	16.5	8.2	25.6
	2.5	25	8.4	31.3	6.7	50	4.2	20	10.5	15.6	13.5	7.8	26.9	12.5	16.8	37.3	5.6	15.9	13.2	10.3	20.4
	3.2	32	6.6	40	5.3	64	3.3	25.6	8.2	20	10.5	10	21	16	13.1	47.8	4.4	20.4	10.3	13.2	15.9
4	40	5.3	50	4.2	80	2.6	32	6.6	25	8.4	12.5	16.8	20	10.5	59.7	3.5	25.5	8.2	16.5	12.7	
16×/14B	0.63	10.1	22.2	12.6	17.8	20.2	11.1	8.1	27.7	6.3	35.6	3.2	70	5	44.8	15	14.9	6.4	35	4	54.6
	0.8	12.8	17.5	16	14	25.6	8.8	10.2	22	8	28	4	56	6.4	35	19.1	11.7	8.2	27.3	5.3	42.3
	1	16	14	20	11.2	32	7	12.8	17.5	10	22.4	5	44.8	8	28	23.9	9.4	10.2	22	6.6	33.9
	1.25	20	11.2	25	9	40	5.6	16	14	12.5	17.9	6.3	35.6	10	22.4	29.9	7.5	12.7	17.6	8.2	27.3
	1.6	25.6	8.8	32	7	51.2	4.4	20.5	10.9	16	14	8	28	12.8	17.5	38.2	5.9	16.3	13.7	10.5	21.3
	2	32	7	40	5.6	64	3.5	25.6	8.8	20	11.2	10	22.4	16	14	47.8	4.7	20.4	11	13.2	17
	2.5	40	5.6	50	4.5	80	2.8	32	7	25	9	12.5	17.9	20	11.2	59.7	3.8	25.5	8.8	16.5	13.6
	3.2	51.2	4.4	64	3.5	102.4	2.2	41	5.5	32	7	16	14	25.6	8.8	76.4	2.9	32.6	6.9	21	10.6
4	64	3.5	80	2.8	128	1.8	51.2	4.4	40	5.6	20	11.2	32	7	95.5	2.3	40.8	5.5	26.3	8.5	
25×/9.5B	0.63	15.8	15	19.7	12.1	31.5	7.5	12.6	18.8	9.8	24.2	4.9	48.5	7.9	30.1	23.5	10.1	10	23.8	6.5	36.5
	0.8	20	11.9	25	9.5	40	5.9	16	14.8	12.5	19	6.3	37.7	10	23.8	29.9	7.9	12.7	18.7	8.2	29
	1	25	9.5	31.3	7.6	50	4.8	20	11.9	15.6	15.2	7.8	30.4	12.5	19	37.3	6.4	15.9	14.9	10.3	23
	1.25	31.3	7.6	39.1	6.1	62.5	3.8	25	9.5	19.5	12.2	9.8	24.2	15.6	15.2	46.6	5.1	19.9	11.9	12.9	18.4
	1.6	40	5.9	50	4.8	80	3	32	7.4	25	9.5	12.5	19	20	11.9	59.7	4	25.5	9.3	16.5	14.4
	2	50	4.8	62.5	3.8	100	2.4	40	5.9	31.3	7.6	15.6	15.2	25	9.5	74.6	3.2	31.8	7.5	20.6	11.5
	2.5	62.5	3.8	78.1	3	125	1.9	50	4.8	39.1	6.1	19.5	12.2	31.3	7.6	93.3	2.5	39.8	6	25.7	9.2
	3.2	80	3	100	2.4	160	1.5	64	3.7	50	4.8	25	9.5	40	5.9	119.4	2	51	4.7	32.9	7.2
4	100	2.4	125	1.9	200	1.2	80	3	62.5	3.8	31.3	7.6	50	4.8	149.3	1.6	63.7	3.7	41.2	5.8	
40×/6B	0.63	25.2	9.5	31.5	7.6	50.4	4.8	20.2	11.9	15.8	15.2	7.9	30.4	12.6	19	37.6	6.4	16	14.9	10.4	23
	0.8	32	7.5	40	6	64	3.8	25.6	9.4	20	12	10	24	16	15	47.8	5	20.4	11.8	13.2	18.2
	1	40	6	50	4.8	80	3	32	7.5	25	9.6	12.5	19.2	20	12	59.7	4	25.5	9.4	16.5	14.5
	1.25	50	4.8	62.5	3.8	100	2.4	40	6	31.3	7.7	15.6	15.4	25	9.6	74.6	3.2	31.8	7.5	20.6	11.7
	1.6	64	3.8	80	3	128	1.9	51.2	4.7	40	6	20	12	32	7.5	95.5	2.5	40.8	5.9	26.3	9
	2	80	3	100	2.4	160	1.5	64	3.8	50	4.8	25	9.6	40	6	119.4	2	51	4.7	32.9	7.3
	2.5	100	2.4	125	1.9	200	1.2	80	3	62.5	3.8	31.3	7.7	50	4.8	149.3	1.6	63.7	3.8	41.2	5.8
	3.2	128	1.9	160	1.5	256	0.9	102.4	2.3	80	3	40	6	64	3.8	191	1.3	81.5	2.9	52.7	4.6
4	160	1.5	200	1.2	320	0.8	128	1.9	100	2.4	50	4.8	80	3	238.8	1	101.9	2.4	65.8	3.6	

MS5: Positions 0.63, 1, 1.6, 2.5, 4

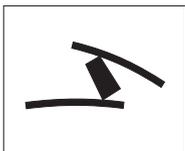
\* When using the planachromatic and planapochromatic objectives MZ125, the magnification is increased by the factor 1.25×.

## MS5 and MZ6 stereomicroscopes

Design principle	Multiple-coated optical system with two parallel beam paths and one main objective (CMO), parfocal, lead-free
Surface resistivity of antistatic material	<10 <sup>11</sup> ohms per square, discharge time <2 seconds, from 1000V to 100V
Max. numeric aperture	0.15 with 2× achromatic objective / 0.075 with 1× achromatic objective
Resolution	450 Lp/mm with 2× achromatic objective / 225 Lp/mm with 1× achromatic objective
Magnification changer	MS5: five-step, 0.63×, 1×, 1.6×, 2.5×, 4× / MZ6: zoom 6:1, 0.63× to 4×
Seven ratchet positions (MZ6)	at 0.8, 1, 1.25, 1.6, 2, 2.5, 3.2
Magnifications	6.3× to 40× (with 1× objective and 10× eyepieces)
Total magnification	2× to 320×
Object field ∅	0.8mm to 105mm
Working distances	from 27 to 297mm
Achromatic objectives	1×, 1.5×, 2×, 0.8×, 0.63×, 0.5×, 0.32×, Ergo objective 0.4× – 0.63× with 90mm adjustment range (63.5 – 153.5mm working distance)
Planachromatic and planapochromatic objectives	1× (plano, planapo), 0.5× (plano), 0.8× (plano), 0.63× (planapo), 1.6× (planapo),
Ergonomic wide field eyepieces	Distortion-free, for eyeglass wearers, 10×/21B, 16×/14B, 25×/9.5B, 40×/6B, economical wide field eyepieces 10×/21, soft eyecups
Dioptic adjustment	+5 to –5
Binocular tubes, ergonomics	Various ErgoModules®, ErgoTube® with variable viewing angle 10°–50°, apochromatic
Interpupillary distance	52mm to 76mm
<b>Stands, illuminators</b>	
Focusing drive	Coarse, fine, manual and motorized, tiltable for OEM adaptations (bonders)
Incident-light stand	Two large stands, 300mm and 500mm side-faced columns, sub base
Microscope carrier	Two basic heights, stereoscopic or axial observation
Swing-arm stand	ESD and Standard version with 470/35mm column, version with 20–50mm table clamp or flange, large stand with short 560/57mm column or longer 800/57mm column
Universal stand	450/50mm or 800/50mm column, magnetic carrier for stages
Transmitted-light stands	Bright field, bright and dark field, high-performance base
Stages	Various, incl. rotating polarization stage, Leica MATS thermocontrol system with thermo stage, Leica IsoPro™ cross-stage
Illuminators	Various, oblique, coaxial, vertical, fiber-optic light guide and cold light sources, ESD-conducting, LED illumination (Laser Emitting Diode), fluorescence
<b>Accessories</b>	
Video, filming	Various configurations, and integrated Leica IC A video module
Leica digital imaging systems, software for archiving and for post-processing	Leica DFC camera line, Leica IC D integrated digital camera Image Manager Leica IM500/IM1000, Leica Application Suite LAS
Equipment for discussion	Ideal for training and double inspection methods
Drawing tube	For left- and right-handed users
Double-iris diaphragm	Increases the depth of field
Measuring graticules	For measuring lengths and for counting
Filter-slide housing	For two gelatin filters
Vertical and oblique observation	45° side view around the object

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