



Observe and Document in the Best Light

Leica's new stereomicroscope stands bring light into sophisticated observation and research

Leica
MICROSYSTEMS

The Quality of Light Used...

...plays a basic role in microscopic analyses. The quality of any optical system is only as good as the light available. With a new family of specialized stereomicroscope stands, Leica continues to offer top performance, consistent modularity, and ergonomics. Leica stereomicroscopes are known worldwide for exceptional optical performance. The Leica MZ16 stereomicroscope with 16× magnification particularly benefits from these new stands. Leica's new TL ST transmitted light stand, TL BDFD bright-

field/darkfield stand, and the high-performance TL RC™ and TL RCI™ stands offer the right solution for every task, space requirement, and budget. Leica's incident light stand sets new design standards for weight-bearing sturdiness, without compromising ergonomics or its vibration-dissipation ability.



Images of a drosophila embryo taken using the Rottermann Contrast™ technique with different illumination methods.

Leica MZ16 A automated stereomicroscope with trinocular tube, Leica DFC320 digital camera, Leica UMC manual control, motorized zoom, TL RCI™ transmitted light stand, and standard stage.



Leica TL ST Transmitted Light Stand



Control the brightness of the light source and the mirror between the two guided end positions.



The halogen lamp can be replaced quickly and easily.

Variable light guide provides full control

Operating the Leica TL ST transmitted light stand is easy. Simply set the brightness with a potentiometer. The mirror, which guides light through the specimen at different angles, can glide across the horizontal plane. The tilt angle of the mirror is then automatically aligned. In this way the user has full control of the transmitted light without having to spend time looking for the best transmitted light angle.

Leica's new halogen lamp is particularly efficient. With a capacity of only 20W, it reaches the light utilization of a 35W lamp. The heating effect is noticeably reduced, and temperature-sensitive specimens especially benefit from the lower wattage.

Daylight filter reproduces natural color-tone

Leica offers a daylight filter accessory for the standard transmitted light stand. The highly-coated glass raises the color temperature and cuts off the infrared and UV spectrum of the halogen lamp. This provides a spectrum similar to daylight.

Change the lamps in a matter of seconds

The new, easy-to-use lamp changing mechanism enables quick replacement of a halogen lamp. After a cooling down phase, the user can access the lamp holder directly by removing two screws on the heat sink.

Work in comfort

The large work surface of the standard transmitted light stand enables comparative analysis of several specimens. While a specimen is analyzed under the stereomicroscope, the other specimens can remain on the stand for quick changeover if need be. A large glass plate protects the stand from any fluids should a spill occur.

Leica MZ12s with ErgoTube®, coarse/fine drive, standard stage, and TL ST transmitted light stand



Leica TL BFDF Transmitted Light Stand

Continuously adjustable changeover between brightfield and darkfield

Leica's direct, transmitted light brightfield is available for studying stained amplitude specimens with sufficient contrast. The new, high-performance TL BFDF transmitted light stand offers versatile options. Light rays can be deflected through the specimen from steep to flat, and a high or low degree of diffusion can be selected. For example, if the light rays are deflected absolutely vertically through the specimen, an exact brightfield with maximum brightness is created. The specimen appears with full contrast, in natural color on a bright, homogeneous background.

If the light is deflected through the specimen at an oblique angle, however, this makes it easier to view semi-transparent specimens such as foraminifera and fish eggs. The flatter the light rays are deflected into the specimens, the darker the background appears. Contours, fine

edges, and structures are brightly and clearly emphasized by diffraction of the light on a dark background.

SlideOn™ design provides easy stage changeover

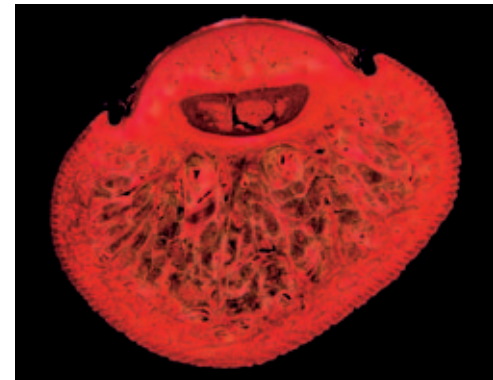
When purchasing a new Leica stereomicroscope stand, if the standard stage is ordered instead of the new XY stage, the standard stage (with Leica's patented SlideOn™ design) can be quickly replaced by the new XY stage (see p. 9).

Effective vibration dissipation

The vibration-dissipating feet featured on the TL BFDF minimize disturbances during delicate work. External vibrations that influence the stand (impact sound, fan for external light sources, etc.), and any direct disturbances on the stand itself are better dampened than with conventional stand feet.



Section of human fingertip, brightfield image



Section of human fingertip, darkfield image



Leica MZ16 with IC D Leica Digital Camera, ErgoTube®, coarse/fine drive, TL BFDF transmitted light stand, standard stage and 4x glass slide

Leica TL RC™/ TL RCI™ Transmitted Light Stand



TL RCI™: Heat sink for the integrated light source and ports for the external control (2×USB, 2×CAN).



Filter-changing unit, individual filter holders (not fitted), rotary buttons for the upper and lower diaphragm of the Rottermann Contrast™, rotary button to position and set the mirror's angle.

Contrast method for clear, transparent specimens

Rottermann Contrast™ is a partial illumination technique that shows changes of the refractive index as differences in brightness. Phase structures then typically appear as spatial, relief-type images – like hills in positive relief contrast and as indentations in inverted relief contrast. The two integrated diaphragms that create the relief effect can be individually positioned from fully open to fully closed. The relief effect can also be regulated from slight to strong by precisely tilting the path-folding mirror with the rotary button on the left side of the stand. This technique offers many variable views for extracting the maximum possible amount of information from every specimen.

Perfect coordination with automated stereomicroscopes

Leica's TL RCI™ transmitted light stand feature two USB ports and two CAN bus interfaces. The brightness of the light source can be controlled via a USB mouse. Combined with motorized Leica stereomicroscopes and macroscopes, motorized focus, and Leica Application Suite (LAS) software, the user has full computer control over the zoom level, focusing, color temperature, brightness, and shutter of the illumination. Many different test series can be extracted from LAS software and automated.

Constant color temperature

Color temperature and brightness are controlled separately with Leica's high-performance stands. Using the CCIC function, the brightness is set completely independently from the color temperature – and the required color impression remains exactly the same when the illumination intensity changes. The potentiometer for the color temperature also has an electronically controlled shutter; if the stand is switched on again after a work break, it automatically returns to the previous settings.

Three available color filter slots

The TL RC™ and TL RCI™ each feature three slots for color filters. These slots can be used for filters that are available as accessories, i.e. neutral gray, fluorescence filter BG38, and UV filter, or fitted with other filters as the user wishes.

Choice of integrated or external light source

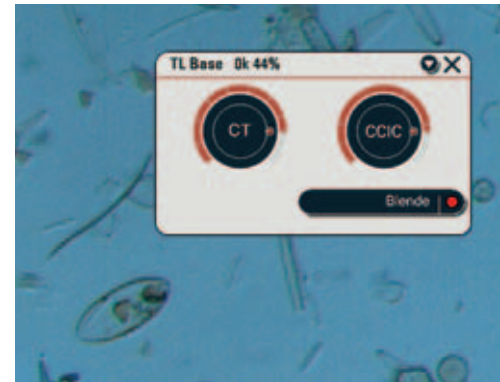
The high-performance stands of the TL series are available in two designs: with integrated halogen illumination or with a connection for external cold light sources. If a user already has a cold light source, it can be used on the new stand. In addition, the new Leica CLS150 LS cold light source enables the internal shutter to be controlled directly via a PC.

Leica MZ16 A with Leica DFC320 digital camera, motorized focus, TL RCI™ transmitted light stand, XY stage and Leica UMC manual control using Leica Application Suite (LAS) software.

Totally Integrated Solutions

Leica Application Suite (LAS) integrates Leica's automated microscopes, digital cameras, and software into one common environment to provide an easy-to-use, consistent solution with unrivaled performance. The flexibility of LAS makes it suitable for a diverse range of life science and industrial applications such as pathology, pharmaceutical testing, materials research, and many others.

LAS solves and accelerates routine and research analysis through rich image processing functions that simplify the visualization, enhancement, measurement, and documentation of digital images. An introductory LAS package is supplied with the latest Leica microscopes and digital cameras which provides the basic software for their configuration and control, and enables the user to immediately begin to acquire, analyze, and process high-quality digital images. These fundamental capabilities can be enhanced with a range of advanced LAS modules and applications to form an integrated microscopy-imaging environment.



Control of the light temperature and brightness using Leica Application Suite (LAS).



Incident Light Stand

Mobility and compact space requirement

Laboratory workstations often provide very little space. Leica's new incident light stands are designed to offer exactly the right amount of surface area. But at the same time, they require a minimum amount of workstation space.

High stability and vibration-dissipation

Leica implemented a honeycomb design structure, which makes the new incident light stands light weight, yet extremely rigid. Despite weighing less than 2kg, the stands are resistant to buckling. The stands also feature specially adapted AntiShock™ vibration-dissipating feet. Compared to conventional pads, the AntiShock feet ensure up to 50% less vibration. The combination of all of these features ensures a steady, excellent quality image during specimen observation and documentation.

Growing for future needs

As science changes, so do the required instruments. When purchasing a microscope system, it is not always possible to know which additional equipment will be needed in the future. Leica's modular design ensures that accessories can be added later, that perfectly adapt to the Leica stereomicroscope system. For example, a variety of focus drives are already available for the new incident light stands.



Leica S6 D stereomicroscope with Leica DFC280 digital camera and Incident Light Stand



Leica's Incident Light Stand with honeycomb design.

Precision Guidance of Incident and Transmitted Light



The axis with the control knobs for X and Y movement of the stage can be mounted either on the left or right of the XY stage.

Precision and speed

With the new Leica XY stage the tedious procedure of manually manipulating the specimen into the correct position under the stereomicroscope is no longer necessary. By means of the two easily moveable, yet extremely precise control wheels, the specimen can quickly be moved after placement until the spot to be investigated is found. By combining the XY stage with the 4× glass slide, up to four preparations can be placed on the work surface and can be observed vertically in a fast, precise, and easy way. Accuracy is less than 10 μm.

Always in focus

Conventional XY stages have the disadvantage of being higher and so do not provide the best level for specimen viewing when transmitted light stands are used. The illuminated area's homogeneity and strength diminish, and light can no longer be well-guided through the specimen. The new Leica XY stage solves this problem. After changing from the standard stage (catalog no. 10447269), the specimen's level remains at exactly the same elevation as before, and the illumination settings remain unchanged.

Leica's SlideOn™ design

Changing over from a standard stage to the XY stage is surprisingly easy. By simply removing several screws, the standard stage can be replaced by the XY stage. If an XY stage is not purchased with a new Leica stereomicroscope stand, the user can easily supplement the instrument at any time in the future.



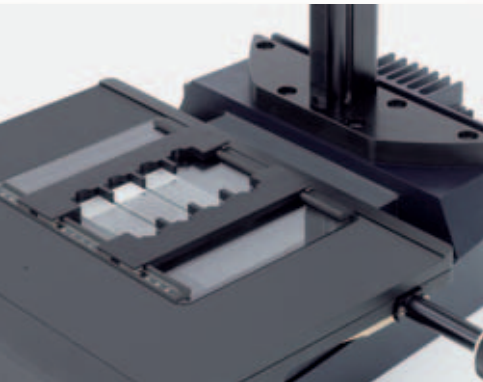
Leica MZ12s with Leica DFC320 digital camera, Incident Light Stand, and XY stage.

Perfect Integration



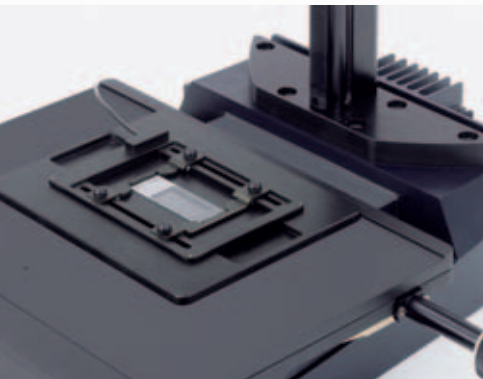
Leica MATS heating stage

The Leica MATS is the most efficient solution for protecting and preserving live cells during microscopic analysis. The low tolerance of 0.2 °C between the stage and the specimen enables experiments to be conducted reliably with specimens that require a constant temperature.



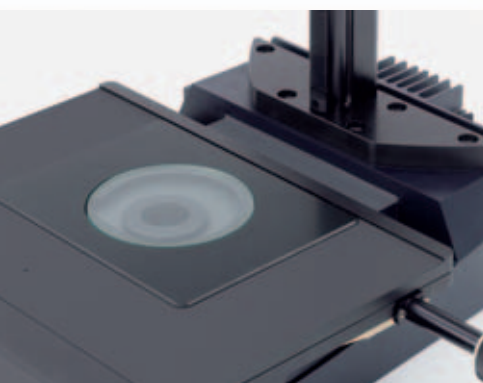
4× glass slide adapter

When combined with the XY stage, this adapter is ideal for comparative analysis of up to four specimens on glass slides.



Live on Stage

Leica's Live on Stage product line (incubation systems, pH-value control, cell cultivation systems, etc.) for Leica's inverted light microscopes enables your stereomicroscope to perform all possible life science tasks, no matter how difficult.



Adapter for 120mm inserts

Leica's adapter for 120mm diameter inserts enables accessories such as a gliding stage, cup stage, and polarization stage to be used (see assembly diagram in the specifications).





Leica ErgoRest™

The Leica ErgoRest™ armrest enables precise, fatigue-free work at the stereomicroscope. The armrest features two resting levels on the stand to support the arms during focusing or working with a Petri dish.



Footswitch

Leica's new footswitch, controlled by a potentiometer, features a CAN-Bus interface. As a result, the two rockers can be used for any microscope function, such as motorized focus, zoom control, and filter changing (i.e. Leica MZ16 FA).



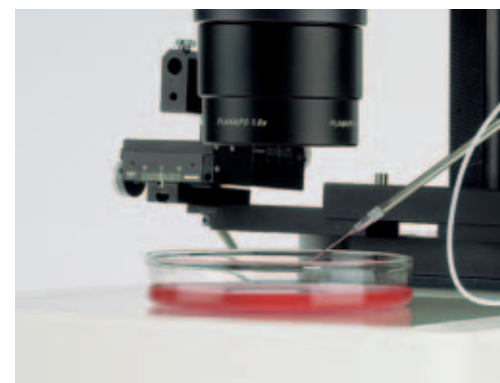
Leica CLS150 LS cold light source

The CLS150 LS has been specifically adapted to automate control of the new TL RCI™ transmitted light stand via LAS. Through a serial port, the brightness, color temperature, and electronic shutter can be controlled directly from a PC or Leica UMC (manual control).



Micromanipulation

Using Leica's adapter for micromanipulation accessories, applications such as ICSI (Intra Cellular Sperm Injection), transgenic, and electrophysiological experiments are possible for stereomicroscopy.





Images of a drosophila using different illumination techniques.

	Leica TL ST	Leica TL BDF	Leica TL RC™	Leica TL RCI™
Light source	Halogen lamp 12V/20W	External via cold light source	External via cold light source	Halogen lamp 12V/20W
Fast change of the illuminant	yes	–	–	yes
Illuminated field	50mm	40mm	35mm	35mm
Illumination modes				
Brightfield	yes	yes	yes	yes
Darkfield	yes*	yes	yes*	yes*
Inclined illumination	no	no	yes	yes
Relief Contrast system (RC™)	no	no	yes	yes
CCIC (Constant Color Intensity Control)	no	no	no	yes
Internal shutter/lamp control	no	yes**	yes**	yes
Integrated filter holder	yes	no	yes	yes
Coated optics for raising the color temperature	yes	no	yes	yes
Adaptation for high num. aperture	no	no	yes***	yes***
Remote control possibilities	no	yes****	yes****	yes
AntiShock™ pads	yes	yes	yes	yes
Size of the stand (W×H×D in mm)	340×430×85	340×390×90	340×390×95	340×440×95
Accessories				
IsoPro™ : XY stage support with optimized image level	no	yes	yes	yes
Integrated heating stage (optional)	yes	yes	yes	yes
Integrated glass slide (optional)	yes	yes	yes	yes
ErgoRest™ (optional)	yes	yes	yes	yes
Incident-light stand				
Size of the stand (W×H×D in mm)	280×300×24			
AntiShock™ pads	yes			
XY stage support	yes			

* one-sided ** with Leica CLS150 LS cold light source *** concave mirror **** with external light source

 www.leica-microsystems.com/bases