

Motic®

MORE THAN MICROSCOPY



GEMMOLOGY MICROSCOPES

EXAMINE, IDENTIFY AND EVALUATE
MINERALS, GEMSTONES AND JEWELLERY



Gemstones Under the Microscope



Watch
the video

Explore and identify gemstones with precision

In the fascinating world of gemmology, every stone, whether rough, cut, or set, tells its own story, revealing unique internal and external characteristics.

Whether natural, synthetic, treated, or even an imitation, proper equipment is essential for observing, identifying, and evaluating a gemstone's specific features. For both seasoned professionals and aspiring gemmologists, mastering the art of observation is key. With the naked eye and proper lighting, you can detect:

Shape

Rough stone, faceted gem, or mounted stone.

Color

Hue, saturation, and tone.

Transparency

Transparent, translucent, or opaque.

Luster

Vitreous, adamantine, metallic, etc.

Optical effects

Asterism, chatoyancy, opalescence, iridescence, and more.

For deeper analysis, our microscopy solutions provide exceptional optical performance, ergonomic design, and specialized features tailored for gemstone examination.



Our gemmology
microscopes let you
analyze every detail
with precision and
accuracy.



Inclusions
Solid, liquid, gaseous.



Surface characteristics
Luster, polish quality,
fractures, scratches.



Treatment marks
Dyeing, heating, filling,
diffusion.



Cut quality
General proportion,
symmetry of the facets,
quality of the edges.



GM171 Series

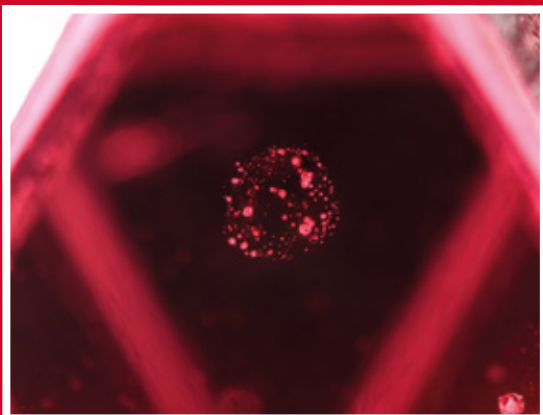
The GM171 is a high-performance microscope designed for professional gem and precious stone examination.

Advanced Gem Scope

The GM171 microscope offers a 6.7:1 zoom range, achieving up to 50X magnification, and can reach an impressive 440 lp/mm resolution with auxiliary objectives. Its 110mm working distance ensures excellent handling freedom, while the expansive 23mm field of view allows for a comprehensive sample overview.

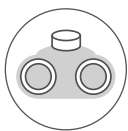
Equipped with advanced illumination options, the GM171 includes a 30W brightfield/darkfield transmitted light system, plus a 7W incident fluorescent light (6400K), delivering accurate color grading and reducing reflections. For added comfort during extended sessions, the microscope's base tilts from 0° to 45°, reducing fatigue.

Enhance its capabilities with optional accessories, such as a polarisation kit for detecting birefringence and an immersion cell for highlighting inclusions. Designed for gemologists and jewelers, the GM171 is ideal for achieving high-quality, detailed gemstone analysis.

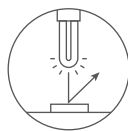


Crystals in a spinel © Laurent Massi

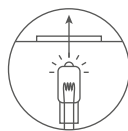




Binocular and trinocular head



Fluorescent incident illumination



Halogen transmitted illumination



Zoom ratio



Zoom magnification



SMZ140 DF

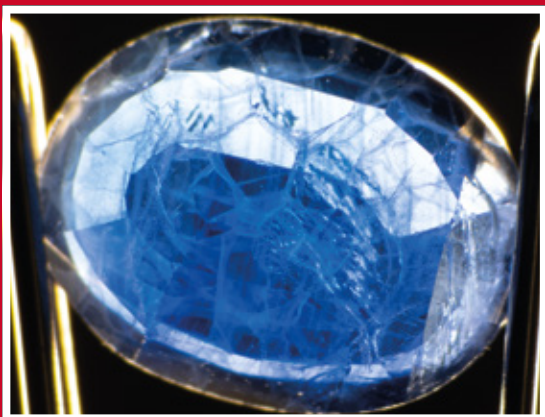
Specialized stereomicroscopes for
Gemmology & Gemstone Analysis

Gemmology stereomicroscopes

The SMZ140 DF Stereomicroscopes configured for gemmology are ideal for daily gemstone analysis, featuring a darkfield insert and iris diaphragm that enhance contrast for clear viewing of transparent specimens.

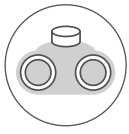
With a 10X to 40X magnification range, 80mm working distance, and adjustable LED illumination, it offers precision and flexibility. Its durable, ergonomic metal body ensures long-lasting performance.

Compatible with a wide range of accessories, including polarization tools and additional lighting options, this microscope adapts to the diverse needs of gemmology professionals.



Inclusions in a synthetic sapphire © Laurent Massi





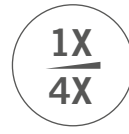
Binocular and trinocular head



LED illumination



Zoom ratio



Zoom magnification



ST-36C DF

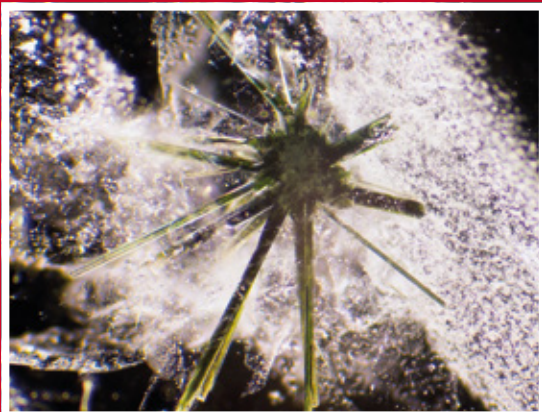
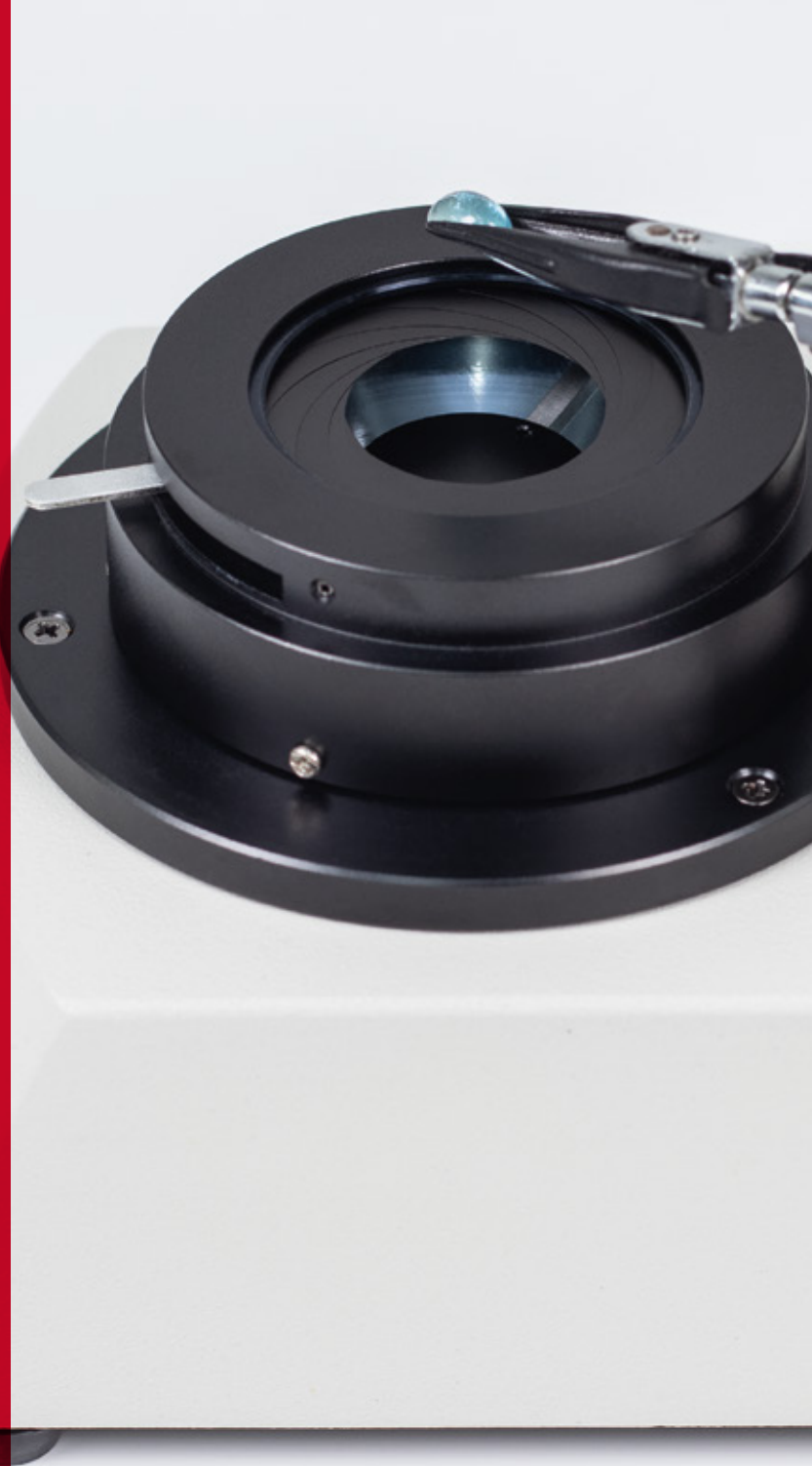
Compact Stereomicroscope for
Detailed Gemstone Inspection

Compact Gem Stereomicroscope

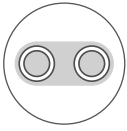
This compact stereomicroscope is configured for gemstone analysis, equipped with a darkfield insert and iris diaphragm to enhance contrast when viewing transparent specimens.

It features 2X and 4X turret magnification options, a 47mm working distance, and cordless LED illumination. This stereomicroscope runs on a rechargeable battery, providing approximately 8 hours of autonomy.

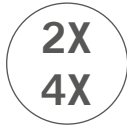
With a small footprint, 360° rotatable head, and sturdy metal construction, it offers both flexibility and durability. Compatible with a range of accessories, including polarization tools, the ST-36C provides an affordable solution for gemmologists.



Quartz with hedenbergite inclusions © Laurent Massi



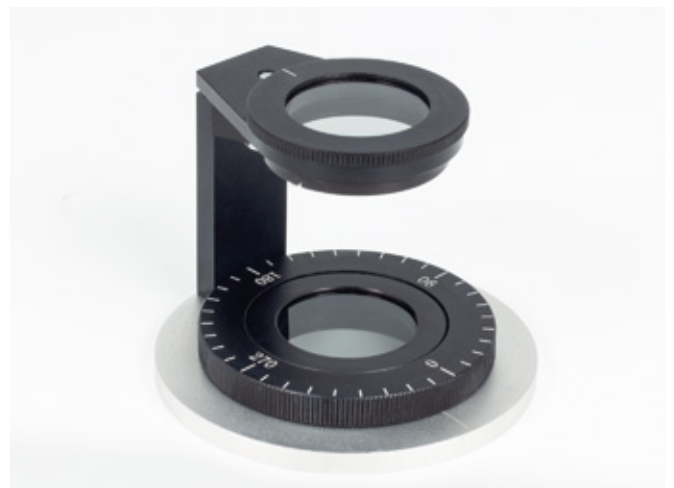
Binocular head



Turret
magnification



Cordless
LED illumination



Digitize Your Gems

Capture the fascinating world of the infinitely small. Get the most out of your gem with Moticam's digital solutions. Display your gems on your computer, tablet, smartphone or even a TV screen or projector and view, capture, edit, measure, create

reports, and share your work effortlessly, all in just a few clicks. Our trinocular microscopes are ready for digitization. Bring your gems to life like never before!

4K

MOTICAM 4000X

An all-round 4K multi-output camera

The Moticam 4000X features built-in software for easy operation with just a mouse and screen, offering real-time measurements and versatile connectivity to view samples across multiple devices and platforms.



Technical Specifications

Comparison Chart



Name	GM171	SMZ140 DF	ST-36C DF
Optical system	Greenough	Greenough	Greenough
Observation tube	Binocular or Trinocular head	Binocular or Trinocular head	Binocular head
Inclination	45° inclined, 360° rotating	45° inclined, 360° rotating	45° inclined, 360° rotating
Trinocular light split	Fixed 50:50	100:0/0:100 on right tube	-
Interpupillary distance	52-75 mm	54-76 mm	51-79 mm
Diopter adjustment	On both eyepieces, +/- 5 diopter	On both tubes, +/- 5 diopter	On left tube, +/- 5 diopter
Eyepieces	Widfield WF10X/23 mm	Widfield WF10X/20 mm	Widfield WF10X/20 mm
Objectives system	Zoom, ratio 6.7:1	Zoom, ratio 4:1	Turret changer
Objectives	0.75X~5X	1X~4X	2X-4X
Working distance	110 mm	80 mm	47 mm
Stand type	360° rotary base	Pole type stand with transmitted illumination	Pole type stand with transmitted illumination
Diaphragm	Iris diaphragm, adjustable aperture Ø41 mm - Ø2 mm	Yes	Yes
Head holder	For Ø76 mm head	For Ø 25 mm column and Ø74 mm head with incident illumination	For Ø13 mm column with incident illumination
Focus mechanism	Coarse focusing system with tension adjustment	Coarse focusing system with tension adjustment	Coarse focusing system with tension adjustment
Focusing stroke	125 mm	45 mm	42 mm
Incident illumination	Fluorescent 7W with Gooseneck adjustable	LED 3W with intensity control	LED 3,1V/180mW
Transmitted illumination	Quartz Halogen 6V/30W, intensity control	LED 3W with intensity control	LED 3,1V/180mW
Illumination features	Brightfield & Darkfield illuminator	Brightfield & Darkfield attachment	Darkfield attachment
Accessories included	Brightfield & Darkfield illuminator, dust cover, jewellery clamp, aluminium carrying case	Dust cover, brightfield & darkfield attachment, jewellery clamp, black/white and frosted stage plates	Dust cover, brightfield & darkfield attachment, jewellery clamp, black/white and frosted stage plates. Charger and batteries
Dimensions LxWxH	391x236x505 mm	237x170x335mm	190x115x285 mm
Base	306x236 mm	237x170mm	190x115 mm
Column/Arm	Height 268 mm, 45° tilting arm	Height 210 mm, Ø25 mm	Height 130 mm
Net weight	8.2 kg	6.3 kg	2.8 kg
CONTRAST TECHNIQUES	Brightfield, darkfield	Brightfield, darkfield	Brightfield, darkfield
Polarisation	Optional add-on	Optional add-on	Optional add-on
Some available accessories:	Eyepieces, micrometer eyepieces, objectives, gem holders and other gemmological tools.	Eyepieces, micrometer eyepieces, reticles, objectives, additional illumination, boom stands and polarising equipment.	Eyepieces, micrometer eyepieces, reticles and polarising equipment.



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