

**Motic®**

MORE THAN MICROSCOPY



IND

# GM171 SERIES

ADVANCED GEM SCOPE



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The GM171 is a sophisticated microscope ready for the demands of jewelers and gem dealers on the examination of gems and precious stones.

The magnification is handled by the optical body of Motic's most recently introduced stereo microscope SMZ171, available in binocular or trinocular version. The standard setup with a zoom range of 1:6.7 delivers 50X maximum visual magnification, with increased resolution power up to 240 line pairs (lp) per mm. Auxiliary objectives help to expand up to 480lp/mm.

The working distance of 110mm guarantees perfect handling freedom. A large field of view (23mm) delivers an impressive sample overview. Manipulation and positioning of gems may need additional specimen holders, ready to suit individual demands. Optional eyepieces keep the standard working distance, at the same time increasing the total magnification.

The microscope stand incorporates a 30W brightfield/darkfield illumination for transmitted light, while including a 7W fluorescent incident light source with gooseneck mount.

The tiltable microscope base (from 0° up to 45°) for individual positioning guarantees fatigue-free working for hours. The adjustable tension of the z-drive allows an individual adjustment for precise and smooth focusing especially under high magnifications.

The GM171 is an advanced solution for jewelry examination, delivering reliable results and adaptable to a wide range of individual requirements.

*Your Motic Europe Team*



# GM171

ADVANCED GEM SCOPE





Motic  
GM-171

# THE MECHANICS

TILTABLE STAND | ROTATABLE BASE

## ERGONOMIC SETUP WITH CLEVER FUNCTIONALITY



The mechanical setup of the GM171 is based on functionality and ergonomics. Elegant and robust, the microscope stand follows the needs of a rugged daily use.

Thanks to a variable viewing angle and an adjustable interpupillary distance, the GM171 guarantees fatigue-free working for hours. The microscope stand is tiltable from 0° (upright) to 45° to suit individual seating positions and rotatable by 360° to share visual insights. The interpupillary distance can be set from 52-75mm, while diopter adjustment on both eyepieces allows a perfect compensation of sight defects and easy use of reticles.



Motic  
SMZ-171



# THE OPTICS

OBJECTIVES | EYEPIECES

## IMPROVED OPTICS FOR BETTER RESULTS

The recently improved optics of the stereo microscope SMZ171 is integrated to give better detail information on any kind of jewel. The basic setup works perfectly fine with the new 10X widefield eyepieces and the zoom body of 0.75X up to 5X magnification. Visual defects of the user may be compensated by a diopter adjustment of +/- 5 dpt on the eyepieces.

Auxiliary objectives up to 2X allow a duplication of magnification with an increased resolution up to 480lp/mm, at the same time reducing the working distance. Additional eyepieces up to 20X may also increase the magnification, but keep the working distance of the basic setup (110mm).



# THE ILLUMINATION

MULTIPLE LIGHT SOURCES | BEST ILLUMINATION



## A CLEVER AND FLEXIBLE ILLUMINATION CONCEPT

Like in any other stereo microscope, the potentials of the optics are only accessible with a clever illumination concept, adapted to the characteristics of the sample. Lucent gems certainly require more than the standard transmitted light. Besides a 30W Halogen brightfield setup, the GM171 incorporates a transmitted light darkfield concept with variable iris diaphragm to visualize perfectly inclusions as well as edges of a gem cut.

The 7W fluorescent incident illumination with 6400K (day light color temperature) is essential for a correct color grading of the gem, at the same time supplying a “soft” light to avoid spot reflexes which may disturb visual observation and digital documentation. The gooseneck mounting of the incident light allows best investigation results by varying the illumination angle.





# THE ACCESSORIES

CONTRAST IMPROVEMENTS | HANDLING TOOLS

## SMALL ITEMS WITH LARGE IMPACT

A perfect gemological microscope has to offer a series of accessories to answer the special characteristics of a gem: weak colors, +/- lucent body, strong reflections on incident light.

A precise positioning of the gem under incident and transmitted light is achieved by a variety of sample holders. The polarization set (polarizer/analyzer) for transmitted light use enables the detection of birefringence, while an optional diffusor plate reduces reflections.

The immersion cell helps to judge the refractive index of the gem, giving some indication on the chemistry of the gem.

The diamond proportion analyzer eyepiece allows the grader to determine the proportions of a given stone: table, pavilion, crown, girdle. A specialized diamond holder helps to position the gem perfectly.





# DOCUMENTATION

STANDARD PHOTOMICROGRAPHY | DIGITAL DOCUMENTATION



## REPRODUCIBLE DOCUMENTATION RESULTS WITH HIGH RELIABILITY

Documentation is a key issue in every aspect of microscopy, with highest economic importance in quality control. The GM171 follows this requirement with different options.

In any case the trinocular version of the GM171 is recommended in order to get the most convenient solution. Traditional photomicrography by analogue or digital SLR (single lens reflex) cameras delivers high resolution images of small fields.

A more convenient approach is provided by Motic's philosophy of easy digitization. All Moticam cameras deliver excellent live images to be shared with colleagues and customers. Easy image storage is enabled for future image analysis and measurements. The necessary camera adapter has to be chosen in relation to the chip size of the digital camera.



# SPECIFICATIONS

## STANDARD CONFIGURATION & OPTIONAL CONFIGURATION

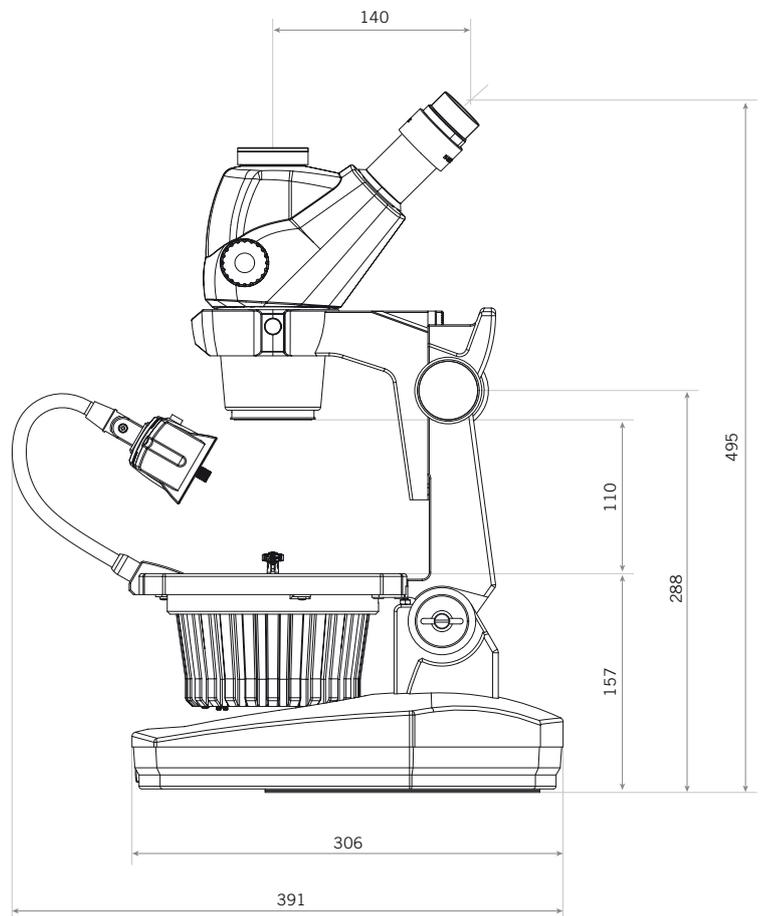
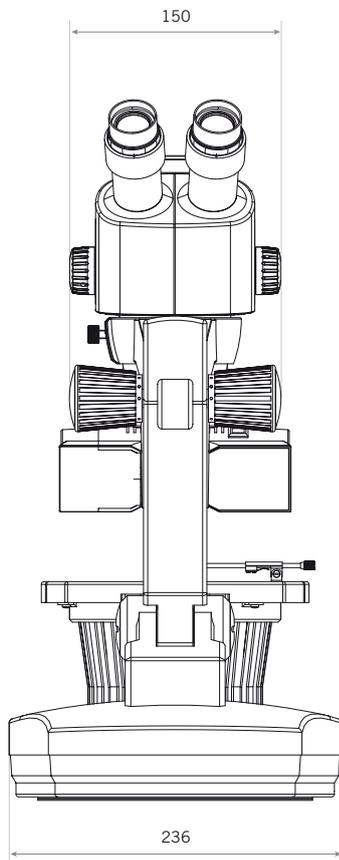
### General Specifications

### Optional Configuration

	General Specifications	Optional Configuration
Optical System	Greenough	
Observation tube	Binocular head 45° / Trinocular head 45°	
Interpupillary distance	52-75mm	
Eyepieces	WF10X/23mm	
Diopter adjustment	+/- 5, on eyepieces	
Optional eyepieces		15X/16; 20X/13 Micrometer eyepiece WF10X/23mm, diamond proportion analyzer
Trinocular light split	50:50 light distribution	
Objective system	Zoom; ratio 1:6,7	
Objectives magnification	0,75X ~ 5X	
Auxiliary objectives		1.5X ESD (WD 56,3mm); 2.0X ESD (WD 38.6mm)
Working distance	110mm standard	
Stand	360° rotary base	
Column / Arm	45° tilting arm, 268mm height	
Head holder	for Ø76mm head	
Focus mechanism	Coarse focusing system with tension adjustment	
Focusing stroke	125mm	
Sample holders		Wire gem holder Rounded edge gem holder Diamond holder
Incident illumination	Gooseneck adjustable 7W fluorescent	MLC-150 cold light source with fiber optics
Transmitted illumination	Quartz halogen 30W with intensity control, for bright field and dark field	
Diaphragm	adjustable aperture Ø41mm - Ø2mm	
Transformer	Internal	
Power supply	100-240V (CE)	
Accessories	Stainless steel wire stone holder and aluminum carrying case	Inclusion pointer, Diffuser plate, Immersion cell, Polarization kit, Rotary table for polarizer, Large gem plate
Dimensions	306x236x505mm	
Weight	8,2kg	

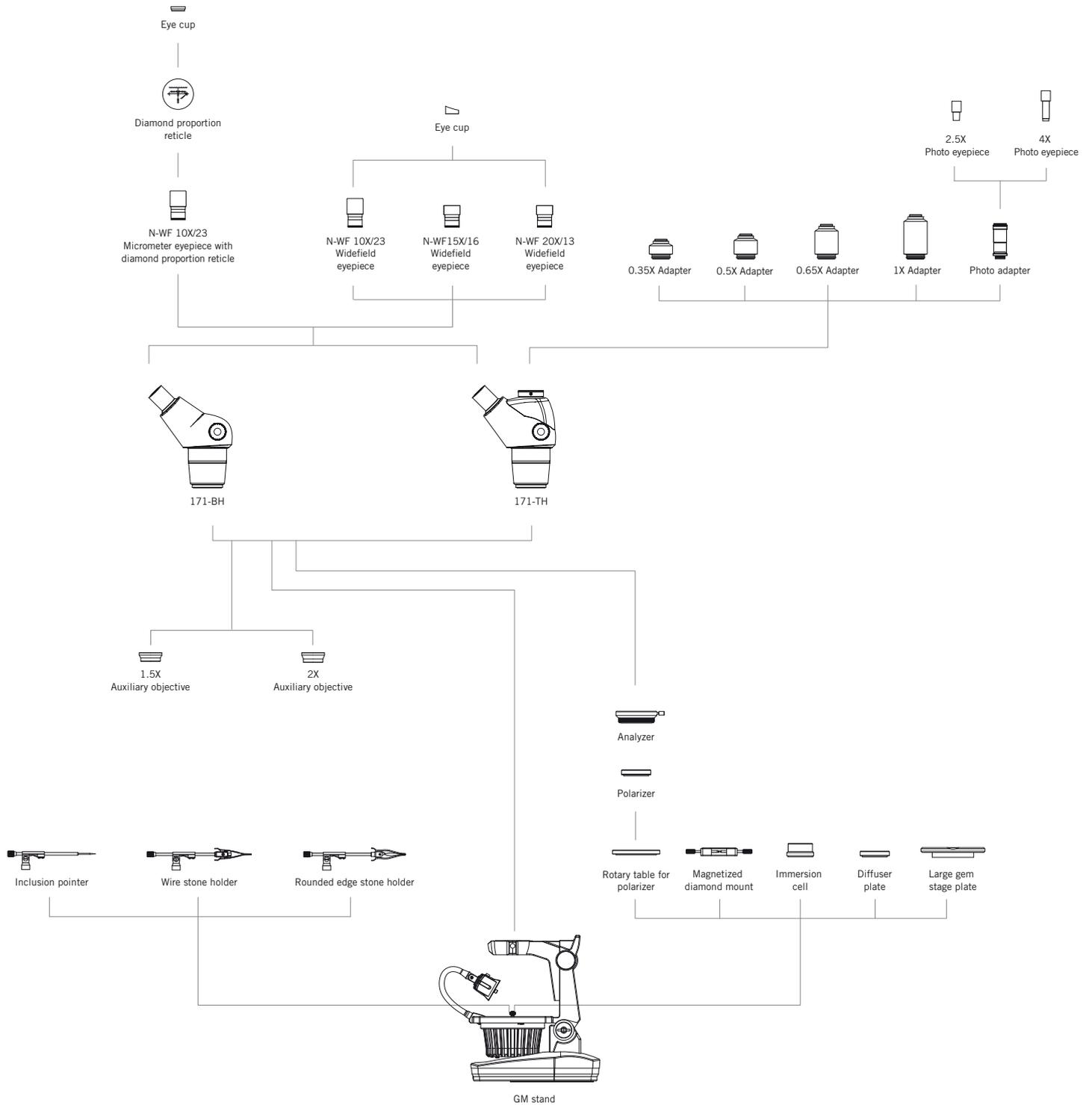
# SPECIFICATIONS

SCHEMATIC DIAGRAMS (units:mm)



# SPECIFICATIONS

## SYSTEM DIAGRAM



# Motic®

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Design Change: The manufacturer reserves the right to make changes in instrument design in accordance with scientific and mechanical progress, without notice and without obligation.

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Official Distributor: