

Motic  
SMZ-

**Motic®**

MORE THAN MICROSCOPY

**Touchboards**

205 Westwood Ave, Long Branch, NJ 07740  
Phone: 866-94 BOARDS (26273) / (732)-222-1511  
Fax: (732)-222-7088 | E-mail: [sales@touchboards.com](mailto:sales@touchboards.com)

**GM-161/GM-171**

**Motic New Generation  
Gemology Microscope**



# GM-161/GM-171

## Motic New Generation Gemology Microscope

The GM-161 / 171 utilizes the optical performance of Motic's SMZ-171 stereomicroscope to enhance distinct three-dimensional details with a zoom function. Rugged and precise, the optics of the GM-171 performs indentifications, analyses, and measurements more accurately and efficiently, thus reducing your workload. At a working distance of 110mm, manipulation of the inspected gem or the addition of a further apparatus is permitted without obstruction.

Available in a trinocular version for photographic or digital capture of the gem, the GM-161 / 171 provides you with an opportunity for extra revenue. Moreover, when teamed with Motic's new generation MotiCampro series, the GM-161 / 171 becomes your instrument of instruction for teaching and training by showcasing the gem in real time via a television, a projector, and computer simultaneously.





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GM-161



GM-171

### Optics

#### GM-161

- Multi-coated lens
- Relax View accessible
- Magnification range: 0.75X-4.5X
- Zoom ratio: 1:6
- Observation angle: 45°
- Working distance: 110mm
- Interpupillary Distance: 50mm-75mm

#### Eyepieces

- N-WF10X (ø20) eyepiece, 10X (ø23) for optional, with eyepiece tube adjustable
- Field of view range: 30.67mm - 1.33mm
- Mount diameter: ø30mm
- Reticules: ø25mm

#### GM-171

- Multi-coated lens
- Relax View accessible
- Magnification range: 0.75X-5X
- Zoom ratio: 1:6.7
- Observation angle: 45°
- Working distance: 110mm
- Interpupillary Distance: 48mm-75mm
- Excellent resolution

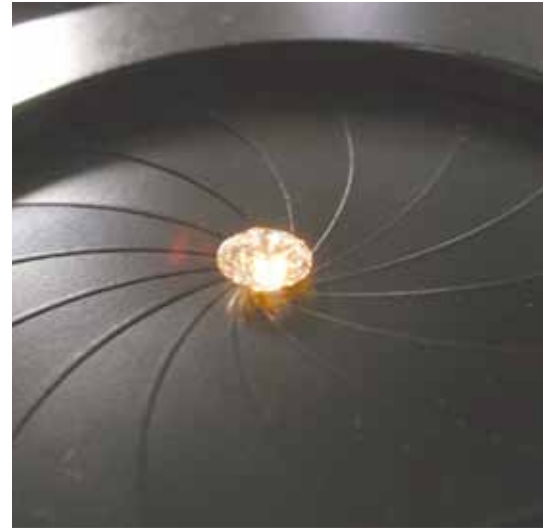
#### Eyepieces

- N-WF eyepiece, high eye-point 10X(ø23), Diopter adjustable, interchangeable with biological eyepieces
- Field of view range: 30.67mm - 1.3mm
- Mount diameter: ø30mm
- Reticules: ø25mm

## Illumination

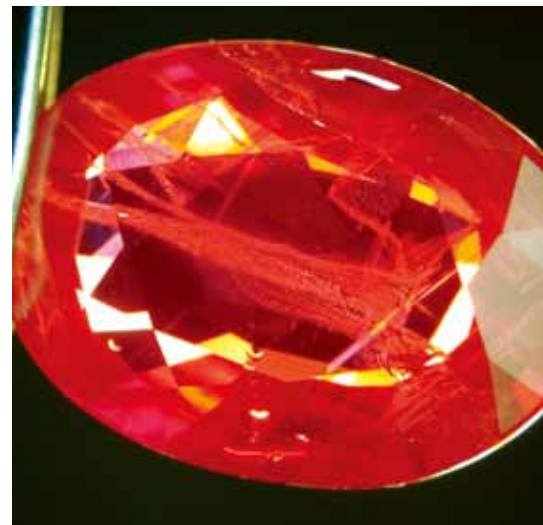
### Bright field Illumination

Integrating a consistent and powerful 30W Quartz Halogen Bright field illumination with a precise, adjustable aperture diaphragm [ø41mm - ø2mm], you are able to measure with a table gauge the proportions and pavilions of a diamond.



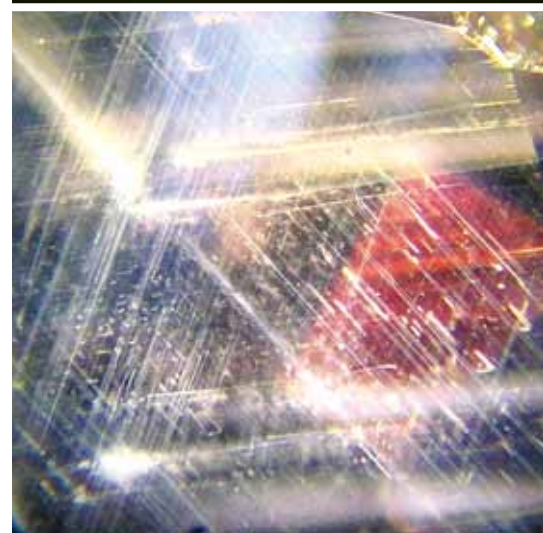
### Dark field Illumination

Dark field is the ideal illumination for observation of inclusions. With Motic's versatile aperture diaphragm [pictured above], you can control the depth of field and contrast while using the dark field illumination for better identification.



### Incident fluorescent illumination - Diamond Light

Designed for use with diamonds, the incident light can be adjusted for a thorough examination of the clarity, colour, and finishing. The bulb has a colour temperature of 6000K to reduce any yellowing effects on the gem.





Rounded Edge Stone holder



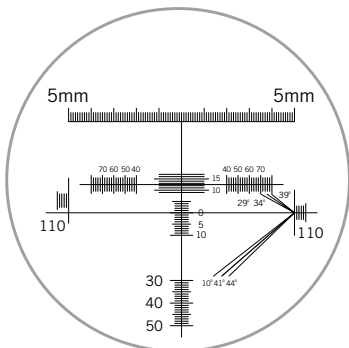
Wire Stone holder



Inclusion pointer

**Large gem stage plate**

Magnetically attachable and covering the stage area of the GM168 base to provide a large surface for rough stones and large gems [i.e. Jade] inspection in conjunction with the incident fluorescent illumination.



GM-161



GM-171

**Diamond Proportion Analyser Kit**

Complete kit for effective and accurate identification and measurement of proportions and pavilions. Includes the magnetised diamond mount, diamond proportion reticule, and micrometer eyepiece [10x].



**Holders, Plates, and Analysers**

**Wire Stone holder**

The ideal holder for diamonds, rubies and sapphires. Comprised of stainless steel for a long working life, the wire stone holder permits the maximum amount of observation.

**Rounded Edge Stone holder**

Perfect for irregular gems and jewellery. Precision crafted of stainless steel to provide an adequate grip without corrupting irregular shaped gem samples.

**Inclusion pointer**

For rapid location of inclusions and fractures on the surface of gem.

## Immersion cell

Capable of rapid and easy detection of treated gems characteristics; such as clarity enhancement, HPHT annealing, irradiation, and surface colouration, the immersion cell is especially useful for rubies.



## Contrasts

### Polariser Kit

Perfect for observing the bireference of crystals and the quality of the finish on certain stones. Mounts conveniently on the zoom body and stage.



## Diffuser Plate

Eliminates excessive bright spots for true inclusion identification. Magnetically mountable on the stage.

## Auxiliary Objectives

Additional magnification with the truest optical clarity and large field of view.

1.5x auxiliary objective	2.0x auxiliary objective
56.3 mm working distance	38.6 mm working distance
GM-161: 67.5x maximum magnification*	GM-161: 90x maximum magnification*
GM-171: 75x maximum magnification*	GM-171: 100x maximum magnification*

\*With standard N-WF10x eyepieces.

## Auxiliary Eyepieces

Convenient additional magnification without the loss of working distance.

15x eyepieces	20x eyepieces
GM-161: 67.5x maximum magnification*	GM-161: 90x maximum magnification*
GM-171: 75x maximum magnification*	GM-171: 100x maximum magnification*
GM-161: 3.56mm minimum field of view *	GM-161: 2.89mm minimum field of view *
GM-171: 3.2mm minimum field of view *	GM-171: 2.6mm minimum field of view *

\*With standard 1.0x objective.



## Stand Features and Benefits

### Rotary Base

360° rotary base allows you to showcase the gem to a customer or to confer with a colleague on proper identification.



### Tilting base

With a tilting range of 0° [upright] to 45°, the GM-168's base is accessible to users of various heights.

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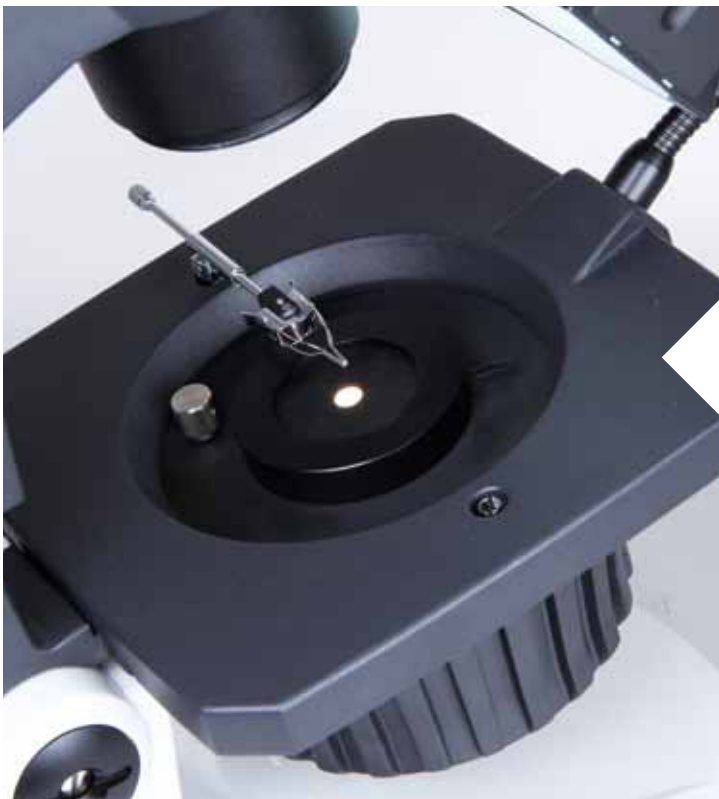
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### **Focus Adjustment**

Allowing for a total travel of 125mm for adaptation to different sizes of gems and stones, no sample is too small or too large.



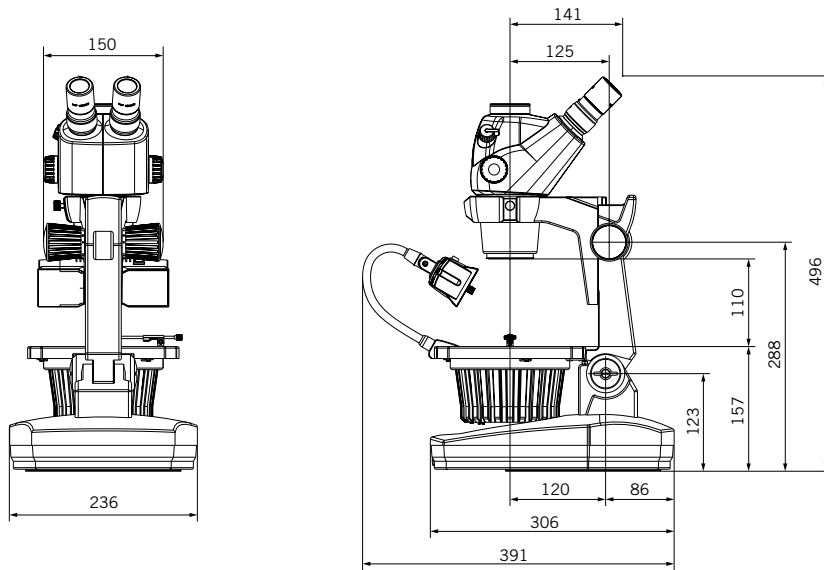
### **Stage**

Able to accommodate both a gem holder and inclusion pointer simultaneously in addition to different contrast methods.

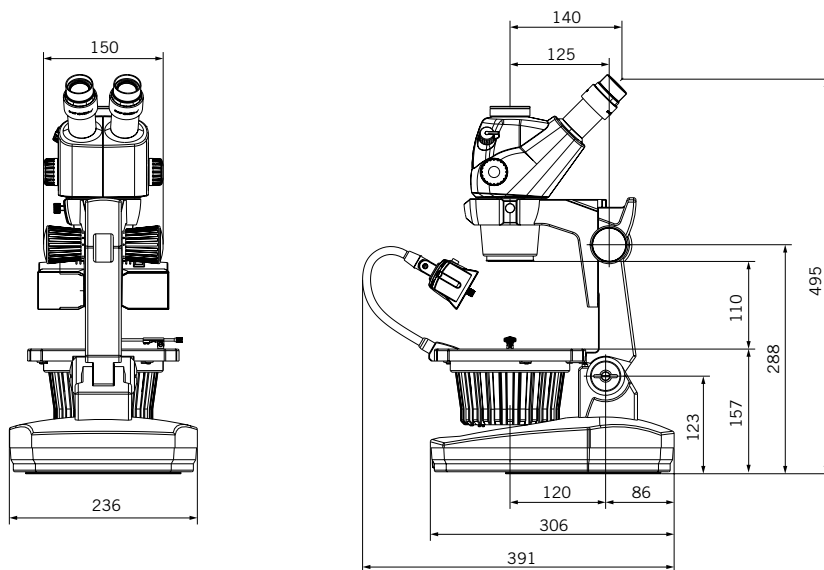
# GM-161/ GM-171 Schematic

**Schematic diagram** Unit: mm

GM-161 Trinocular Gemology Microscope



GM-171 Trinocular Gemology Microscope



## GM-161/ GM-171 Specifications

Model	GM-171B	GM-171T	GM-161B	GM-161T
<b>Optical system</b>	Greenough			
<b>Observation angle</b>	45°/ 60°	45°	45°/ 60°	45°
<b>Magnification range (standard)</b>	0.75X--5X		0.75X--4.5X	
<b>Zoom ratio</b>	1:6.7		1:6	
<b>Eyepiece</b>	N-WF, high eye-point 10X(Ø23), Diopter adjustable interchangeable with biological eyepieces N-WF 12.5X(Ø18), 15X(Ø16), 20X(Ø13) optional		WF10X (Ø20) / eyepiece tube adjustable N-WF 10X (Ø23), N-WF 15X (Ø16), 20X (Ø13) optional	
<b>Interpupillary adjustment</b>	48mm-75mm		50mm-75mm	
<b>Working distance (standard)</b>	110mm		110mm	
<b>C-Mount adapter</b>	/	0.5X, 0.65X, 1X adapters available	/	0.5X, 0.65X, 1X adapters available
<b>Photo adapter</b>	/	Photo adapter 2.5X, 4X photo eyepiece available"	/	Photo adapter 2.5X, 4X photo eyepiece available"
<b>Auxiliary ESD objectives</b>	1.5X [WD = 56.3mm ], 2.0X [WD = 38.6mm]			
<b>Stand option</b>	<b>Incident illumination</b>	7W fluorescent light, colour temperature of 6000K to reduce any yellowing effects on the gem, angle adjustable		
	<b>Transmitted illumination</b>	6V/30W Halogen		
	<b>Focusing adjustment</b>	125mm		
	<b>Stage</b>	Mounting hole for gem holder on both sides Users can choose the position freely		
	<b>Tilting base</b>	With a tilting range of 0°(upright) to 45°, accessible to users of various heights		



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[www.motic.com](http://www.motic.com)

**Motic Instruments Inc. (CANADA)**

130 - 4611 Viking Way, Richmond, BC V6V 2K9 Canada  
Tel: 1-877-977 4717 Fax: 1-604-303 9043

**Motic Deutschland GmbH (GERMANY)**

Christian-Kremp-Strasse 11, D-35578 Wetzlar, Germany  
Tel: 49-6441-210 010 Fax: 49-6441-210 0122

**Motic Incorporation Ltd. (HONG KONG)**

Rm 2907-8, Windsor House, 311 Gloucester Road,  
Causeway Bay, Hong Kong  
Tel: 852-2837 0888 Fax: 852-2882 2792

**Motic Spain, S.L. (SPAIN)**

Poligon Industrial Les Corts, Camí del Mig, 112  
08349 Cabrera de Mar, Barcelona, Spain  
Tel: 34-93-756 6286 Fax: 34-93-756 6287

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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.



Updated: 25.10.2012  
Code: 1300901304291