

QM 1 Short Mount  
Long-Distance  
Microscope  
(#30001)



The QM 1, for which Questar Corporation received an IR-100 award in 1983, was the first of a new series of long-distance microscopes. It has a working range of 22 to 66 inches, a 30 to 1 variability in field of view, and remarkable depth of field, linearity and chromatic correction which make it an indispensable tool for a wide variety of laboratory and industrial applications. The QM 1 includes two selectable ports, and is compatible with standard eyepieces, 35 mm, and video formats.

Type:	Maksutov Cassegrain Catadioptric		
Working Range:	560 mm (22 inches) to 1520 mm (66 inches), subject plane to front element.		
Clear Aperture:	89 mm (3.5 inches).		
Entrance Pupil:	Primary Mirror 96 mm (3.8 inches).		
Relative Aperture/ Numerical Aperture:	Working Distance	N.A.	f/no
	1400 mm (55 inches)	.0288	16.8
	1020 mm (40 inches)	.0385	12.9
	700 mm (27.5 inches)	.0511	10
	560 mm (22 inches)	.0580	8.7
Resolution:	Better than 3 microns at 22 inches		
Magnification:	To 125 times visual, to 12 times at image plane.		
Format:	Diffraction limited field 12 mm, 18 mm nearly diffraction limited.		
Back Focal Distance:	70 mm (2.75 inches) minimum measured from back plate.		

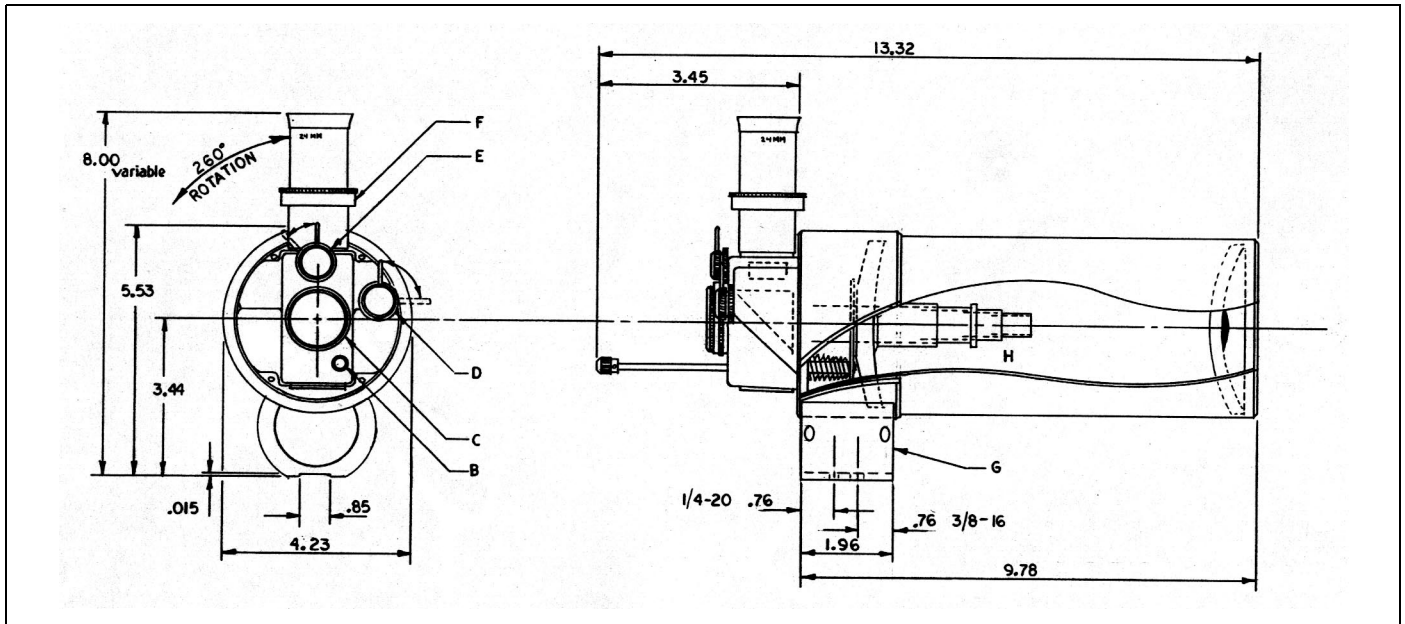
### Optics

Corrector:	BK7, Magnesium Fluoride Coated, 89 mm (3.5 inch) diameter.
Primary Mirror:	Pyrex, Aluminum Coated, SiO overcoated, 96 mm (3.8 inch) diameter.
Secondary Mirror:	Aluminum Coated, R1 surface of corrector, 22 mm (.87 inch) diameter.
Baffling:	Helix in central tube, all interior surfaces black anti-reflection coated.

### Mechanical

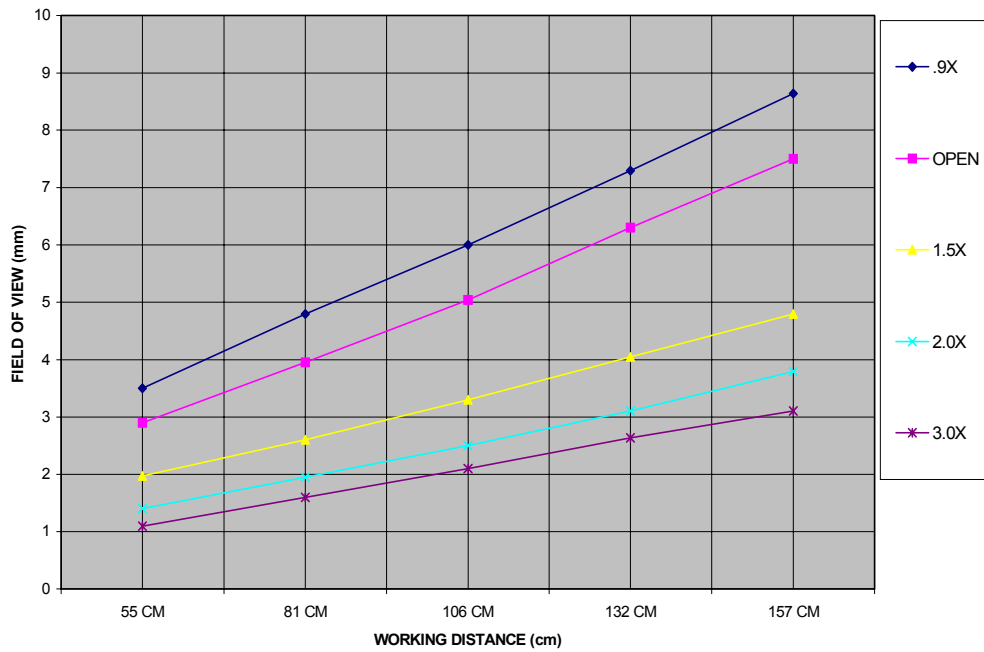
Barrel:	Aluminum Hollow Bar, machined full length, with integrated lens cell, black anodized. Length (with control box) 30.5 cm (12 inches); Outside diameter 10.8 cm (4.25 inches); Weight 3.25 pounds.
Rear Closure Plate:	With stainless steel central tube - precision machining and alignment after assembly.
Focusing Mechanism:	Mirror thimble integral with stainless steel sliding tube. Slides on fixed, stainless steel light baffle tube (centerless ground).
Control Box:	Cast Aluminum, selectable axial or 90° port. Internally mounted 1.5X Barlow selectable for 90° port, flick knob controlled.
Knobs:	Aluminum 24S-T4, corrosion-resistant, hand-turned on turret lathe, stainless steel shafts and levers.

\*Specifications subject to change without notice.



- |     |                                  |     |   |
|-----|----------------------------------|-----|---|
| B - | MAIN SYSTEM FOCUS ROD            | F - | DIOPTRER ADAPTER FINE FOCUS, TOP PORT         |
| C - | AXIAL PHOTOGRAPHIC PORT          | G - | MOUNT BRACKET - STANDARD ROTATING MOUNT       |
| D - | MAIN SYSTEM PRISM ACTUATION KNOB | H - | INTERNAL MAIN SYSTEM OPTICS AND BAFFLE SYSTEM |
| E - | INTERNAL BARLOW ACTUATION KNOB   |     |   |

QM-1 Field of View (2/3" CCD)



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