

# Questar Standard

## 3.5" Telescope

### Specification Sheet

The Questar Standard 3.5 has long been regarded as the finest personal telescope in the world. In addition to the telescope's legendary resolution, flatness of field and contrast, the Standard has integrated features that are unavailable with other telescopes.

The control box has two (2) viewing ports with flick knob selection. It provides three power changes per eyepiece, an internal finder and two telescopic powers. Included also are a star-diagonal prism, solar filter for finder lens, off-axis glass solar filter, and focusable eyepiece diopter. The barrel rotates for viewing height adjustment and is silk-screened with a functional Moon Map. The removable dewcap is a Star Chart. The equatorial fork mount is brushed cast aluminum, aircraft polyurethane painted, with friction drive alt-azimuth controls. It includes an AC powered synchronous clock drive motor and declination clamp. The setting circle for Right Ascension and Declination is fully functional. The RA circle is universal for northern and southern hemispheres.

The Standard stores in a carrying case that has pockets for the included tabletop legs, extra eyepiece, solar filter and AC adapter cord, as well as a pocket for the optional Powerguide Controller.

TYPE:	Maksutov Cassegrain Catadioptric. No coma, astigmatism or spherical aberrations.
CLEAR APERTURE:	3.5 inches, 89mm (Center Obscuration, 27.9mm)
FOCAL LENGTH:	Basic Visual 50.5 inches, f/14.4, 1300mm
FOCAL LENGTH:	Camera close, 56 inches, f/16, 1400 mm
FOCAL LENGTH:	Camera with Ext. Tubes, 64 inches, f/18, 1600mm
FINDER LENS:	4" FL., 4x and 8x, Field 12° and 8°
POWERS:	Powers are eyepiece dependent and can range from 40x to 270x with Questar Brandon eyepieces
POWERS LIMIT:	Resolves 1 sec. Arc at 50feet EFL
FIELD OF VIEW:	Photographic model, 1°30min, visual field of view 1.1° to .16°
LENS:	BK7, MgF <sub>2</sub> coated, passes UV to 3300 A, IR to 1 micron, parfocal
MIRROR:	F2, Pyrex®, Zerodur® or Quartz. AlSiO coated 3.800" dia. (All Questars for UV or IR on special order)
SPECIAL COATINGS:	On special order, broad-band dielectric coating applied to the mirror, which increases its reflectivity. To both sides of front lens, a very low reflection coating is then applied which reduces the light loss at each surface to less than 1/10 of 1%. It transmits all frequencies of the visible spectrum and improves total light grasp by approximately 22%
EYEPIECES:	24 mm Brandon, 45° ap. Field; 16 mm 4 lens Brandon, 45° Ap. Field, optional eyepieces of 8mm, 12mm, 32mm
AMPLIFYING/BARLOW LENS:	Minus 43.9 mm FL
ERECTING SYSTEM:	Star Diagonal type, 90° BK7, MgF <sub>2</sub> coated
BARREL ASSEMBLY:	Barrel: forged aluminum, machined full length
LENS CELL:	Aluminum 24S-T4, black anodized
REAR CLOSURE PLATE:	Stainless steel CENTRAL TUBE - precision machining and alignment after assembly.
DEWCAP:	Internally black-flocked Synthane seamless tube 1/32" thick, to which is bonded a pre-rolled aluminum sheet
FOCUSING MECHANISM:	Mirror thimble, stainless steel sliding tube. Slides on stainless, fixed, light-baffle tube, with front-end insert tube of .010" wall thickness. Conical ss spring-loaded. Focus rod ss 303, ground shaft, 56 T.P.I. precision ground threads
KNOBS:	Aluminum 24S-T4, corrosion-resistant, hand-turned on turret lathe, stainless steel shafts and levers

EQUATORIAL MOUNT: Aluminum sand casting, virgin alloy 356-T6 heat treated. Toolroom hand-turned and polished. Highly corrosion-resistant. Jig-bored and precision threaded for legs. Bottom flange 7" o.d. Fits tripods with \_20 threads

TURNABLE OR LOWER FORK BASE: Sand casting same alloy, toolroom turned, jig-bored and precision-reamed, aircraft polyurethane painted

LEGS: Aluminum 61 S-T3, centerless-ground and threaded, anodized. Center leg adjustable. Butyl rubber tips

SYNCHRONOUS DRIVE MOTOR: \_ R.P.M. 110V. 60 cycles, other cycles, voltages and direction of rotation available. Sealed, lubricated gear train, 2.7 watts

RIGHT ASCENSION GEAR: Bronze, 4" diameter, and 4" diameter teflon-facing bearing surfaces

SIDE ARMS, INNER FORK BRACKETS, CONTROL BOX: Die castings of corrosion-resistant aluminum alloy 13, toolroom turned, milled, jig-bored, tapped and reamed. Special painted aluminum and clear-urethane protected

FINDER MIRROR CAGE: stainless steel, brushed satin finish

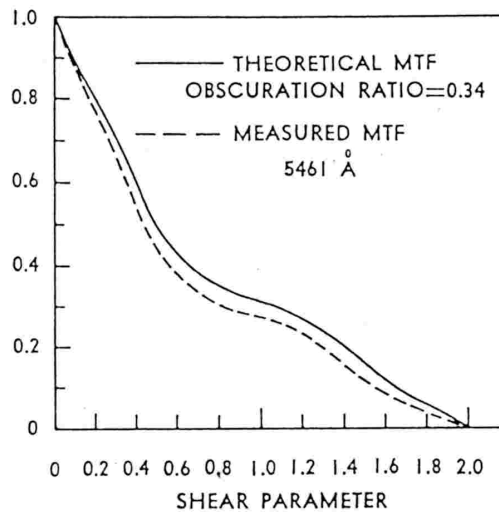
ALTITUDE OR DECLINATION CIRCLE: 3-15/16" diameter, 301 s.s., cemented and riveted to bracket ring assembly, 1° divisions with etched and filled markings

CLAMP: Bakelite padded s.s. stud clamps dec. circle to side arm

AZIMUTH OR R. A. CIRCLE: 6" diameter, anodized aluminum, silk-screened, graduated to 1° and 4 min of time. May be set as celestial clock. Manual slow-motion independent of drive

SLOW MOTIONS: Continuous 360° rotation, safety clutch held. Permits control to a few seconds of arc. Absolutely free of backlash, lag, or play. Ratio 31 to 1

DIMENSIONS: Height, upright, 14". With barrel horizontal, 11" high and long. Weight, 6.7 pounds



TYPICAL MTF FOR  
QUESTAR 3½-INCH

Typical Questar 3½ and Seven Modulation Transfer Function (MTF) as obtained with a shearing interferometer and expressed as a function of the shear parameter, S. To express the MTF as a function of the spatial frequency, R, in lines per millimeter, the following relationship can be used:

$$R = \frac{SD}{2 \lambda f}$$

where S=shear parameter,  $\lambda$  =wavelength, f= focal length, and D= clear aperture.