

# ASTRO-TECH AT6RC

from Astronomy Technologies

Thank you for choosing this **Astro-Tech AT6RC** Ritchey-Chrétien reflector, selected as a *Sky & Telescope* **Hot Product** for 2009.

Your AT6RC is designed primarily as an astrograph for exceptional coma-free imaging using webcams, Deep Sky Imager-type cameras, and DSLRs.

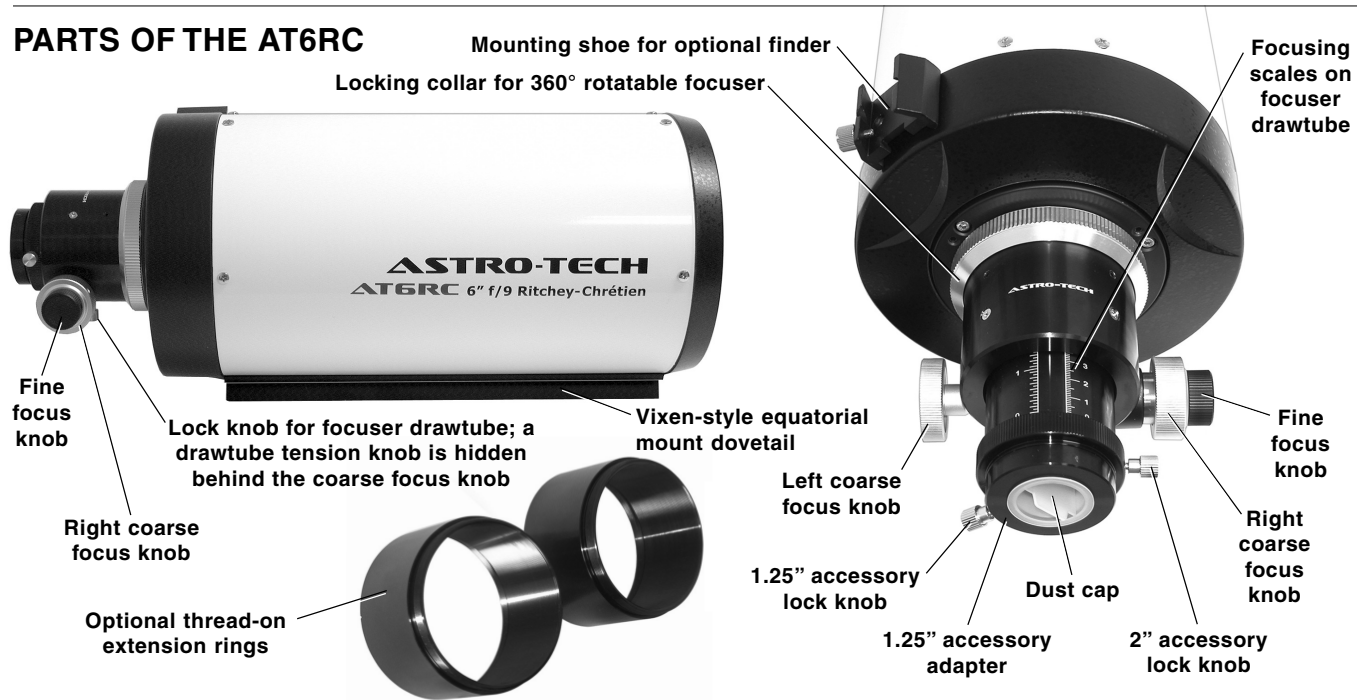
Visual observing is also possible with your AT6RC, however. The scope's 2" Crayford focuser will accept both

1.25" and 2" star diagonals.

This instruction sheet will provide you with information on how to get the most out of your new Ritchey-Chrétien reflector, and how to properly maintain your telescope so it can give you a lifetime of observing and imaging enjoyment.

Please familiarize yourself with your scope's parts and functions before operating it for the first time.

## PARTS OF THE AT6RC



## Astro-Tech AT6RC Ritchey-Chrétien Reflector Specifications

<b>Aperture</b> .....	152mm (6")	<b>Focuser</b> .....	thread-on dual-speed Crayford with 10:1 reduction ratio fine focus; 2" and 1.25" compression ring accessory holders; 360° rotating camera angle adjuster
<b>Focal Length</b> .....	1370mm	<b>Back Focus</b> .....	150mm (from 2" accessory holder, without 1.25" adapter)
<b>Focal Ratio</b> .....	f/9	<b>Tube Diameter</b> .....	7.5" (190mm) o. d.
<b>Optical Type</b> .....	dual hyperbolic mirror true Ritchey-Chrétien reflector	<b>Tube Length</b> .....	19.6" (498mm)
<b>Mirrors</b> .....	BK7 optical glass, coated with enhanced aluminum and overcoated with quartz	<b>Tube Weight</b> .....	12.1 lbs. (5.5 kg)
<b>Secondary Mirror Holder Obstruction</b> .....	76mm (50% by diameter, 25% by area)	<b>Mounting System</b> .....	12.75" long Vixen-style dovetail;
<b>Field Stops</b> .....	eight internal knife-edge baffles	<b>Finder</b> .....	none; mounting shoe provided for optional Astro-Tech multiple reticle finder or similar finder
<b>Focuser Travel</b> .....	1.34" (34mm) with dual inch and millimeter scales on drawtube for repeatable focus		

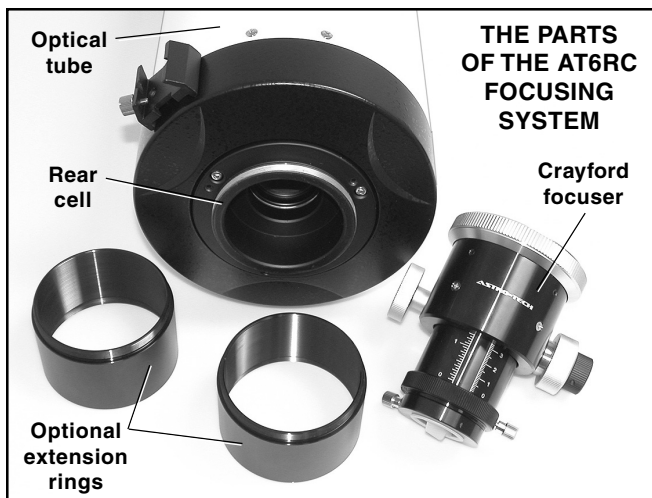
Your **Astro-Tech AT6RC** 6" f/9 true Ritchey-Chrétien reflector is designed primarily for exceptional astronomical imaging. It provides you with the coma-free photographic field astrophotographers crave, but can't get, from conventional reflectors and Schmidt-Cassegrains.

Visual observing is also possible, although with somewhat reduced contrast compared to conventional reflectors. There is a 2" compression ring accessory holder on the focuser drawtube, plus a separate 1.25" compression ring accessory holder, so you can use either 1.25" or 2" star diagonals and eyepieces.

**Back Focus and the Focusing System:** The back focus of the AT6RC is 150mm from the face of the focuser's 2" accessory holder.

Adding the 1.25" adapter reduces the back focus by 10mm. When using the AT6RC visually, you may have to add an optional Astro-Tech 2" compression ring extension tube (available in 35mm, 50mm, and 80mm lengths) between the focuser and 1.25" star diagonal, or in your 2" diagonal eyepiece holder, to reach focus with your eyepieces.

To minimize drawtube flexure under heavy loads during imaging, the drawtube travel of the thread-on focuser is kept short, at 34mm. Depending on your camera and imaging accessories, you will have to add one or more optional thread-on metal extension rings between the focuser and the AT6RC rear cell to move the focuser out from the scope body to hold your camera at the telescope focal plane. These



optional Astro-Tech 3.7" diameter extension rings (available in both 1" and 2" lengths) thread in place securely to provide a very strong and rigid mount that holds the focuser at the proper spacing from the scope body to suit your particular camera's requirements.

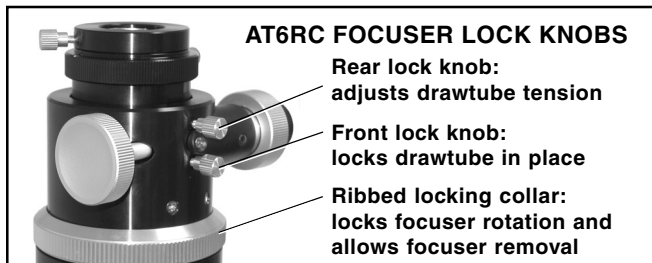
Two 2" #AT2EXT extensions or a combination of one 2" and one or two 1" #AT1EXT extensions will generally be needed for imaging with webcams and DSLRs. Knowing the distance from the front of your camera adapter to the camera's focal plane and a little calculation beforehand will quickly determine what combination of optional extension rings will be needed for your particular imaging setup.

**Be careful not to cross-thread any of the focuser extension rings when and if changing them in the dark.**

**The Crayford Focuser:** The backlash-free focuser has dual-speed focusing. There are two coarse focusing knobs. The right knob also has a smaller concentric knob with a 10:1 reduction gear for microfine focusing. This provides very precise image control during high power visual observing and critical DSLR imaging. The focus knobs have ribbed gripping surfaces so they are easy to adjust, even while wearing gloves or mittens in cold weather.

There are two chrome lock knobs on the underside of the focuser, as shown in the illustration below. The rear knob (closest to the observer) adjusts the tension on the Crayford focuser to accommodate different weight equipment loads without focuser slippage. **The rear tension knob should always be tightened firmly, even with a light equipment load, to avoid drawtube flexure.**

The front knob (closest to the scope) locks the focuser drawtube firmly in place (disengaging the focusing knobs) once the correct photographic focus has been reached.



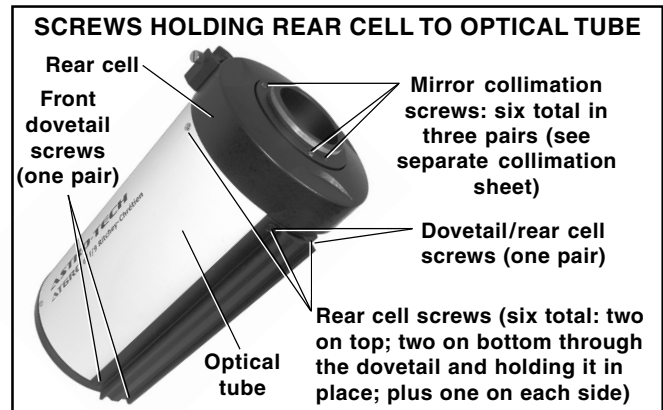
**Rotating the Focuser:** The AT6RC focuser can be rotated a full 360° for the best photographic composition prior to critical focusing, or to put your star diagonal in the most comfortable visual observing position. To rotate the focuser, loosen the ribbed locking collar connecting the focuser to the telescope rear cell or extension ring by turning the collar slightly counterclockwise. Adjust the focuser to the desired angle, and then firmly tighten the collar back in the opposite direction to lock the focuser at the new angle.

**Mounting Your AT6RC:** The underside of the AT6RC has a 12.75" long Vixen-style dovetail bar running from front cell to rear cell. This will let you mount your AT6RC on any equatorial mount using a Vixen-style dovetail. You can also piggyback it on a larger scope using any accessory mounting system (such as those from Losmandy) that has a Vixen-style dovetail. The long length of the dovetail bar makes it easier to balance the AT6RC and varying equipment loads. An optional Vixen-style dovetail #AT6SDP is available for installation on top of the AT6RC. This lets you install a photoguide scope on top of the optical tube when using the AT6RC as your primary scope.

**Finderscope:** No finderscope is provided, due to the primarily photographic nature of the AT6RC. However, a mounting shoe is provided on the rear cell that will hold an optional Astro-Tech #ATF non-magnifying illuminated multireticle finder, or any similar finder or photoguide ring system that uses a Vixen-style mounting shoe.

**Caring for Your Scope Finish:** The AT6RC uses automotive-grade paints and anodized components. These very durable surfaces can become smudged with fingerprints during use, but these will not harm the finish. A little moisture from your breath and a quick wipe with a clean handkerchief is generally enough to remove the fingerprints. Avoid harsh chemical cleaners or organic solvents like benzene, alcohol, etc., as these may ruin the finish.

**Cleaning Your Scope Optics:** Because of the positioning of the mirrors within the optical tube, they will rarely (if ever) need cleaning. Small amounts of dust will not appear in the image or block enough light to be an issue and can be safely ignored. If you absolutely feel you *must* clean the optics, however, it can be done at your own risk. You will have to disassemble the optical tube to do it, so it is not something that should be undertaken lightly.



Referring to the illustration above, with the nose of the scope resting on a flat surface, start by undoing the four screws that hold the dovetail to the optical tube. Remove the dovetail. Set the four screws aside so you don't mix them up with the other rear cell hardware.

Use two small pieces of masking tape to mark the position of the rear cell in relation to one of the optical tube screw holes so you can reassemble the rear cell and tube in its original radial orientation. Remove the remaining four rear cell screws to release the rear cell and lift it straight up and out of the optical tube.

**Any damage to the AT6RC sustained during an attempt to disassemble and clean the optics is not covered by warranty.**

**Collimating Your AT6RC Optics:** Your Astro-Tech AT6RC Ritchey-Chrétien's primary and secondary mirrors were collimated at the factory before being shipped. Nevertheless, rough treatment in transit could potentially cause the secondary mirror to be knocked out of collimation, and rough and bumpy roads during trips to a dark sky observing site might require minor tweaking of the collimation. The optical axis of the primary mirror/baffle tube assembly is less likely to be knocked out of collimation, but is also capable of being collimated if needed. If collimation of your AT6RC is needed, refer to the separate "Collimating an Astro-Tech AT6RC" instruction sheet.

**ASTRO-TECH** [www.astronomytechnologies.com](http://www.astronomytechnologies.com)  
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