

**INTERNATIONAL
MAIL-ORDER
CATALOG
for
ASTRONOMERS**

Vol. 4

**KASAI TRADING CO.
TOKYO, JAPAN**

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TELESCOPES
&
MOUNTINGS

★ JSO ★

SUPERB QUALITY SCHMIDT CAMERAS

The name of JSO sounds something distinguished for Japanese amateur astronomers, bringing up the image of a class apart, excellent quality optics and top-skilled craftsmanship. JSO has long been supplying a number of perfect quality custom-made Photographic Catadioptrics for both advanced amateurs and professionals, and also very well known as the pioneer manufacturer of Schmidt Cameras for amateur use. In the late 1970's, when JSO presented the first 160mm dia. f/2.5 precision Schmidt Camera at affordable cost, those Japanese amateurs having desired high-speed astro cameras would enthusiastically welcome it with great joy. For over a decade, JSO Schmidt Cameras have been used by a lot of serious deep-sky researchers, leaving a number of great results such as discoveries of new comets, etc. The line-up is now expanded from 160mm to 250mm dia. and improvements have been performed on many parts, offering better total performance in any respect. Still now, every JSO Schmidt Camera is very carefully hand-crafted from start to finish by Mr. Yamada, the manager and skilled telescope optician, variously featured according to your special requirements. JSO Schmidt Cameras will surely bring full satisfaction to those who do need the ultimate wide field and high-speed deep-sky cameras with needle-sharp star images from center to very edge.

- GREAT FEATURES OF JSO SCHMIDT CAMERAS -

* Top-Quality Optics to Tested Out within 15-micron Star Images to The Edge

Both the optical elements, corrector plate and primary mirror, are painstakingly polished and figured by Mr. Yamada, the manager and well-known skilled optician. After a series of extremely strict surface tests, only the elements passing all of them are mounted in the tube and careful collimation is performed. The resulting performance is beyond description: every star image from center to edge is within 15-micron, completely free from every evil aberration.

* Lightweight Aluminum Alloy Tubing with Expansion-Free Invar Rod Connection

In most cases, Schmidt Camera is mounted onto another larger telescope or at least mounted simultaneously with another photo guide scope. Heavier tube weight can't help requiring larger, more expensive equatorial mount, which may cause serious financial problem especially for amateurs. The tube of every JSO Schmidt Camera is made of special aluminum alloy, keeping the tube assembly very lightweight. To avoid the focus shift caused by the change of the temperature, both optical elements and the spider of the film holder are all connected with expansion-free invar rods, which reduce the thermal effects on the focus to the absolute minimum.

* Easy Operation with Many Standard/Optional Features

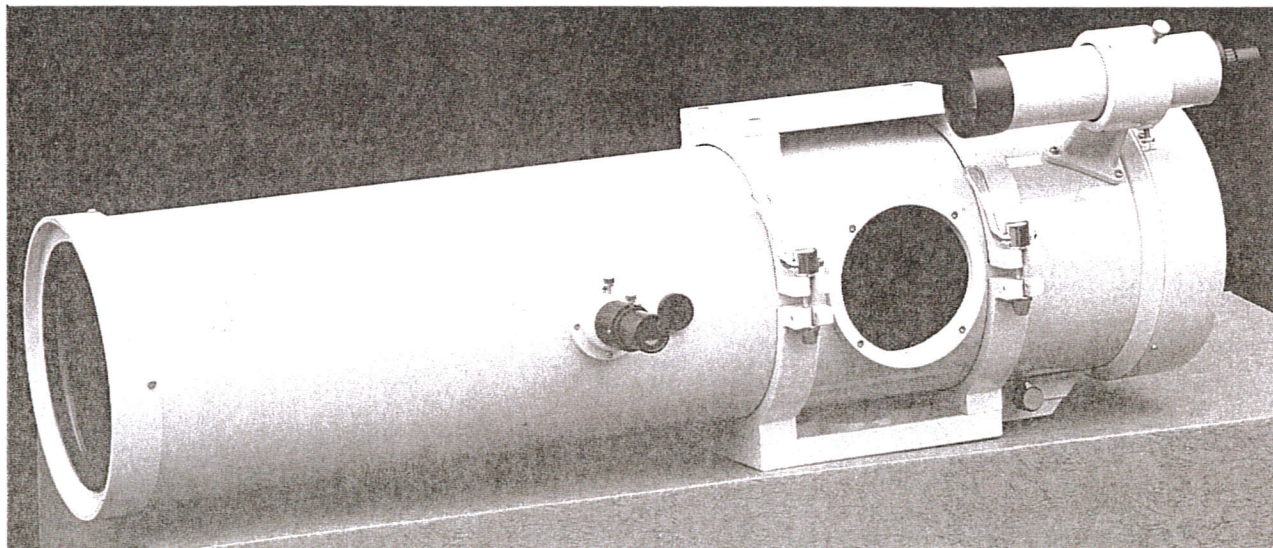
NTP16-B2 is especially designed for amateur use, featuring a lot of useful devices as standard accessories: 7 x 50mm finderscope, tube holder w/accessory plate, built-in diagonal focusing scope, built-in photo shutter, focusing dial viewing window, etc. For the other models, too, these features will be optionally added on request.

<NTP16-B2>

OPTICAL SYSTEM: 160mm Clear Aperture, 400mm f.l., f/2.5, Schmidt Camera Design / PRIMARY MIRROR: 180mm dia. Spherical, Aluminized & Overcoated / CORRECTOR PLATE: 160mm dia. Aspherical Schmidt Corrector Plate, Fully Coated / FIELD: 7.4-degree Dia. / FILM HOLDER BASE: 4-leg Spider, Helical Focusing Unit with Focusing Dial / DISK FILM HOLDER: 52mm dia. Clear Aperture (58mm Filter threads) / FINDERSCOPE: 7 x 50mm achromat with cross-hair reticle / COLOR: White / SIZE: 200mm Dia. x 864mm Long / WEIGHT: 7.7kg / Built-in Diagonal Focusing Scope, Built-in Photo Shutter and Focusing Dial Viewing Window are all equipped in the tube assembly / Tube Holder with Accessory Plate included

* NTP16-B2 TUBE ASSEMBLY SET <#JS-001>

[Tube Assembly w/Finderscope, Tube Holder, 52mm Disk Film Holder]



- ACCESSORIES & OPTIONAL FEATURES -

52mm DISK FILM HOLDER <#JS-002>: Accepts a disk film to fit the film holder base. 58mm filter threads. (lpc included in #JS-001) / FILM CUTTER SET <#JS-003>: To cut out film disks easily. / DEVELOPING FRAME SET <#JS-004>: Protects disk films, making it easy to develop them. / DEW CAP <#JS-005>: Attached in front of the tube to keep out stray lights and prevent dew from forming on the corrector plate.

* VACUUM FILM HOLDER ALTERATION: Adsorbs the film to keep it from curling. Especially necessary for the use of very thin or hypered films.

<NTP22>

OPTICAL SYSTEM: 220mm Clear Aperture, 550mm f.l., f/2.5, Schmidt Camera Design / PRIMARY MIRROR: 226mm dia. Spherical, Aluminized & Overcoated / CORRECTOR PLATE: 220mm dia. Aspherical Schmidt Corrector Plate, Fully Coated / FIELD: 5.4-degree Dia. / FILM HOLDER BASE: 4-leg Spider, Helical Focusing Unit with Focusing Dial / DISK FILM HOLDER: 52mm dia. Clear Aperture (58mm Filter threads) / FINDERSCOPE: 7 x 50mm achromat with cross-hair reticle / COLOR: White / SIZE: 264mm Dia. x 1167mm Long / WEIGHT: 11.9kg / Focusing Dial Viewing Window equipped / Tube Holder with Accessory Plate included

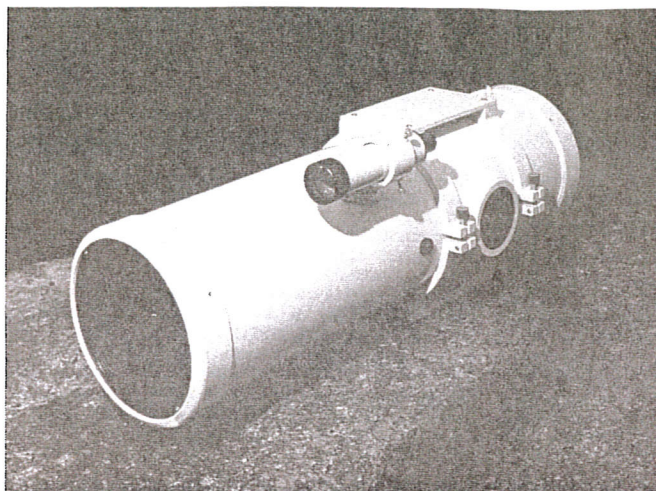
* NTP22 TUBE ASSEMBLY SET <#JS-006>

[Tube Assembly w/Finderscope, Tube Holder, 52mm Disk Film Holder]

- ACCESSORIES & OPTIONAL FEATURES -

52mm DISK FILM HOLDER / FILM CUTTER SET / DEVELOPING FRAME SET / VACUUM FILM HOLDER ALTERATION : Common to those for NTP16-B2.

* BUILT-IN PHOTO SHUTTER / LARGER APERTURE FILM HOLDERS / ANOTHER FOCAL LENGTH / MULTI-COATING : Available. Ask for the detail.

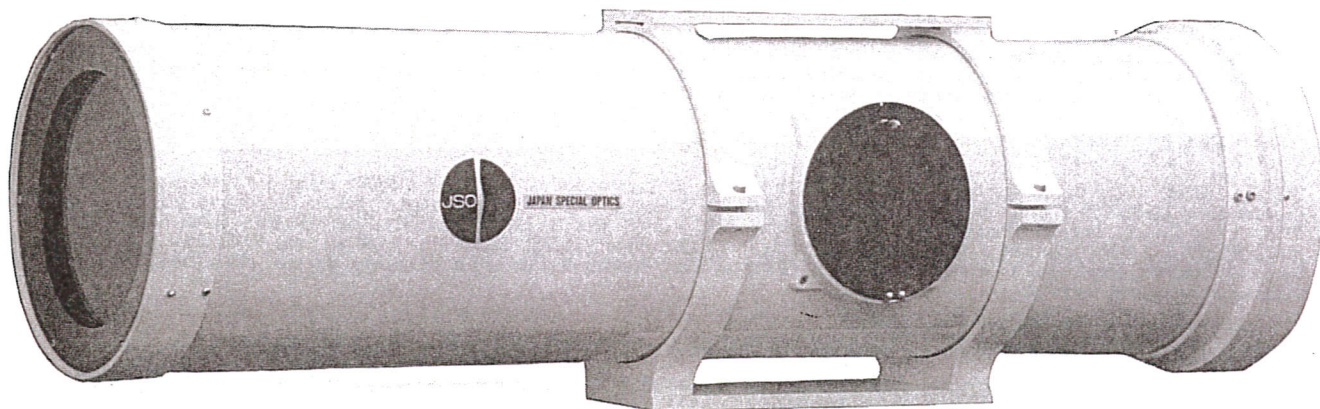


<NTP25>

OPTICAL SYSTEM: 250mm Clear Aperture, 625mm f.l., f/2.5, Schmidt Camera Design / PRIMARY MIRROR: 305mm dia. Spherical, Aluminized & Overcoated / CORRECTOR PLATE: 250mm dia. Aspherical Schmidt Corrector Plate, Fully Coated / FIELD: 8.4-degree Dia. / FILM HOLDER BASE: 4-leg Spider, Helical Focusing Unit with Focusing Dial / DISK FILM HOLDER: 92mm dia. Clear Aperture / COLOR: White / SIZE: 340mm Dia. x 1364mm Long / WEIGHT: 35kg / Focusing Dial Viewing Window equipped / Tube Holder with Accessory Plate included

* NTP25 TUBE ASSEMBLY SET <#JS-007>

[Tube Assembly (w/o Finderscope), Tube Holder, 92mm Disk Film Holder]



- ACCESSORIES & OPTIONAL FEATURES -

92mm DISK FILM HOLDER <#JS-008> (1pc included in #JS-007)

* VACUUM FILM HOLDER ALTERATION / BUILT-IN PHOTO SHUTTER / DIFFERENT APERTURE FILM HOLDERS / ZERO-EXPANSION MIRROR / ANOTHER FOCAL LENGTH / LARGER CORRECTOR PLATE APERTURE (up to 300mm) : Available. Ask for the detail.

<LARGER MODELS>

JSO will supply larger aperture (up to 650mm) perfectly custom-made Schmidt Cameras on request. Every part, including the optical feature, is specially designed and manufactured according to your requirements. Please feel free to ask K. Kasai for the detailed information.



NEW !

BORG 100mm f/6.4 PHOTO-VISUAL ACHROMAT

Oasis has started to offer a new attractive 100mm refractor at very affordable price. The fully coated, doublet f/6.4 photo-visual achromat objective lens yields great sharpness and clarity which can never be expected from any other ordinary short focus achromat lens of this class. The tube body w/focuser, rotary eyepiece holder and eyepiece adapters are all common to other Borg telescopes. Either carbon hybrid or engineering plastic tube is at user's choice. The objective lens unit is also separately offered. 1.5kg lightweight tube assembly fits any type of small mounting or standard photo tripod. Just 620mm short tube length offers great portability. Tube holder and Oasis H-50mm 2" eyepiece are included.

<BORG 100>

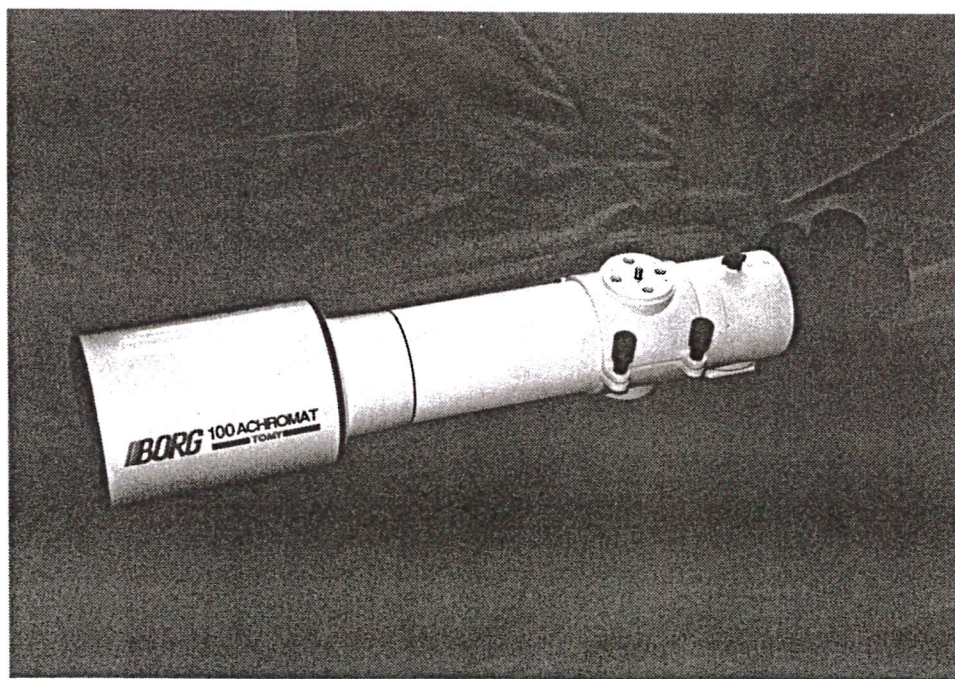
OBJECTIVE: 100mm dia., 640mm f.l., f/6.4, Fully Coated Doublet Photo-Visual Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 1.25" x 4 Right Angle Rotary Eyepiece Holders and 67mm - 2" - 1.25" Straight-Thru Eyepiece Holder / FINDERSCOPE: 13 x 100mm, 3.5-degree Field (with Oasis H-50mm) / COLOR: White / SIZE: 80mm Dia. x 620mm Long (when dew cap drawn-in) / WEIGHT: 1.5kg / Mounts on any standard photo tripod.

* BORG 100 TUBE ASSEMBLY (CARBON HYBRID TUBE) w/Oasis H-50mm 2" Eyepiece & Tube Holder <#OA-01A> ¥55,300 *2897*

* BORG 100 TUBE ASSEMBLY (ENGINEERING PLASTIC TUBE) w/Oasis H-50mm 2" Eyepiece & Tube Holder <#OA-02A> ¥49,500 *2593*

* 100mm f/6.4 OBJECTIVE LENS w/Cell & Dew Cap <#OA-09A> ¥33,300

1744,90



KASAI TRADING CO.
Tokyo, Japan

COMPACT 5" WRIGHT SCHMIDT CAMERA

Wright Schmidt Camera is a kind of modified Schmidt Camera, designed to shorten the tube length, focus at the side of the tube like Newtonian, and yield flat field for the use of ordinary flat film surface. JSO offers a very compact and affordable Wright Schmidt Camera, **LS-12D**. The optical elements are of course very quality ones just like those for JSO Schmidt Cameras. The prime focus star images on axis are within 20-micron, still being kept within 40-micron even at the very corner of 35mm format frame. The Focusing unit is very precision direct threading system with a steady locking screw and a large focusing dial to read 0.025mm, assuring far better focus adjusting performance than rack and pinion or ordinary helical focuser. Any 35mm SLR camera body is easily attached with the use of Widefield Camera Mount, which is designed to have larger internal aperture than T-ring, allowing more light to the edge of the field. In addition, unlike some other similar aperture competitors, push-pull adjuster is equipped at the focusing unit for the film surface to keep exactly at right angles to the axis. Visual Helical Focuser is optionally supplied for rich field visual use, too. This additional focuser has an individual focusing system, therefore it keeps the fixed position of the best focus at the photographic focusing unit during occasional visual uses. 3.9kg lightweight and 505mm short tube assembly fits most equatorial mounts or easily mounts onto a large telescope tube. This high-performance compact telescope is most recommended for amateur deep-sky photographers looking for the best quality photo-visual astrograph at a reasonable price.

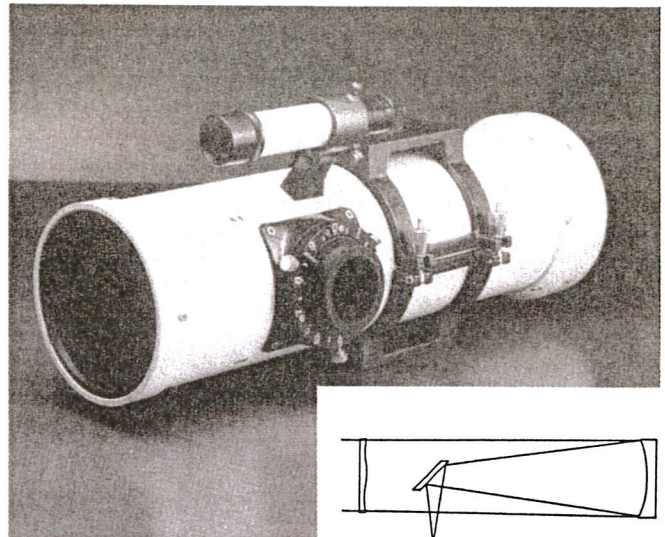
<LS-12D>

OPTICAL SYSTEM: 125mm Clear Aperture, 475mm f.l., f/3.8, Wright Schmidt Camera Design / MIRRORS: 128mm dia. Spherical Primary Mirror and 50mm minor axis Elliptical Flat Secondary Mirror, Aluminized & Overcoated / CORRECTOR PLATE: 125mm dia. Aspherical Schmidt Corrector Plate, Fully Coated / PHOTOGRAPHIC FOCUSING UNIT: Direct Threading System with a Locking Screw & Focusing Dial to read 0.025mm, 52mm female threads to accept Widefield Camera Mount / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 140mm Dia. x 505mm Long / WEIGHT: 3.9kg / Tube Holder with Accessory Plate included

* LS-12D TUBE ASSEMBLY SET <#JS-009>
[Tube Assembly w/Finderscope, Tube Holder]

- ACCESSORIES -

VISUAL HELICAL FOCUSER <#JS-010>: Fits onto the photographic focusing unit to accept 36.4mm threads or 1.25" system for visual use. Precision helical focusing system. / WIDEFIELD CAMERA MOUNT <#JS-011>: To attach any 35mm SLR camera body to LS-12D. Larger internal aperture than ordinary T-rings. *Please specify your camera type.



PREMIUM 4" SCHMIDT CASSEGRAIN

JSO also supplies a "jewelry" of perfect performance 4" Catadioptric telescope. All the very advanced technology and experiences put to best use, this compact unit named **SPACE-10** offers extraordinary image performance that any other mass-market Schmidt Cassegrain can never beat. Every optical element, though small, is painstakingly hand-figured one by one, strict tests performed both individual and matched, and only the sets that tested out clearly a round Airy disk and perfect intra- and extra-focal diffraction pattern are mounted in the tubes and leave the hands of the optician. As a result, this premium telescope yields nearly the same resolution as similar aperture apochromat refractors. Cassini's division in Saturn's rings is of course very easily resolved even at middle powers. All the limited double stars for 4" will also clearly split with ease. The 3-layer full multi-coating and the superior internal baffling system provides sufficient image contrast for recognizing delicate figures on planets or very subtle deep-sky objects. Ultra fine micrometric knob-type focuser system assures very smooth focusing with minimum mirror shift. This 1.55kg feather weight telescope also makes an enjoyable spotting scope with the addition of an erecting prism. It also makes a very sharp 1000mm f/10 telephoto with the use of 49mm Prime Focus Camera Adapter. The tube assembly fits on top of 1/4-20 photo screw. (3 screw holes are equipped for the best balancing.) Beautiful peppermint green finish.

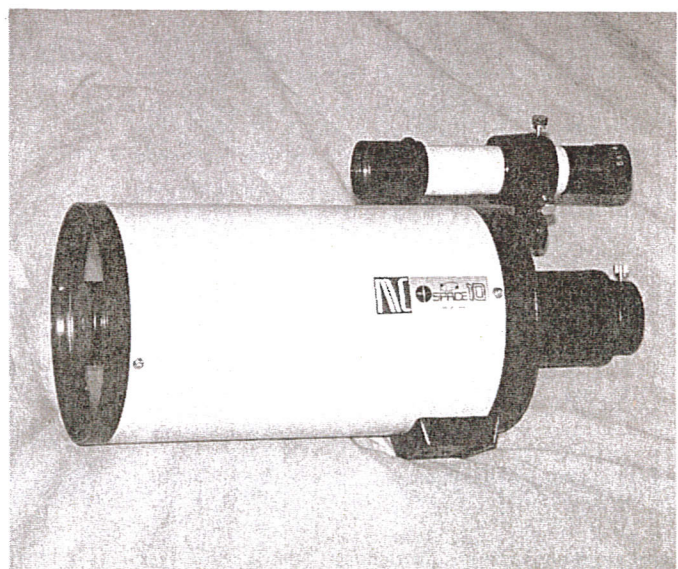
<SPACE-10>

OPTICAL SYSTEM: 100mm Clear Aperture, 1000mm f.l., f/10.0, Schmidt Cassegrain Design / MIRRORS: 100mm dia. Spherical Primary Mirror and 32mm dia. Spherical Secondary Mirror, Aluminized & Overcoated / CORRECTOR PLATE: 100mm dia. Aspherical Schmidt Corrector Plate, Fully Multi-Coated / FOCUSER: Internal Focusing with a Micrometric Knob / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 5 x 25mm achromat with cross-hair reticle / COLOR: Peppermint Green / SIZE: 120mm Dia. x 307mm Long / WEIGHT: 1.55kg / Mounts directly on any standard photo tripod

* SPACE-10 TUBE ASSEMBLY w/Finderscope <#JS-012>

- ACCESSORIES -

LUXURY ALUMINUM CARRYING CASE <#JS-013>: Internal dimension is 330mm x 195mm x 165mm. With Carrying handle & strap. / CARRYING BAG <#JS-014>: Internal dimension is 360mm x 160mm x 150mm. With Carrying handles & strap. / 0.75x FOCAL REDUCER <#JS-015>: Multi-coated large aperture 0.75x photo-visual focal reducer designed to match the optics of SPACE-10. / 49mm PRIME FOCUS CAMERA ADAPTER <#JS-016>: Fits 49mm threads to accept T-ring for prime focus photography. Adjuster ring is equipped to decide the camera angle. 36.4mm threaded inside the rear end, accepting the eyepiece adapter or some other equipment, too.



★NTK★

RESEARCH GRADE STURDY EQUATORIAL MOUNTS

NTK offers 3 types of orthodox German equatorial mounts of extreme stability for loading large instruments. Every model includes a precision 182mm dia. 359-teeth gunmetal worm for RA. (Optionally for Dec., too) Though not equipped with any advanced features like computerized drive or object entering system, each NTK mount of simple and sturdy structure still offers remarkable stability and keeps very smooth tracking even in loading extremely heavy instruments. Every model is very carefully custom-made by skilled telescope craftsmen one by one after receiving your order, therefore your special instructions or ideas can be additionally featured to make the most suitable one for your requirement. Considering this order-made system, the price of each NTK mount is very affordable compared with any other mount of this class. (Every model can be machined to accept digital setting circles, if required.)

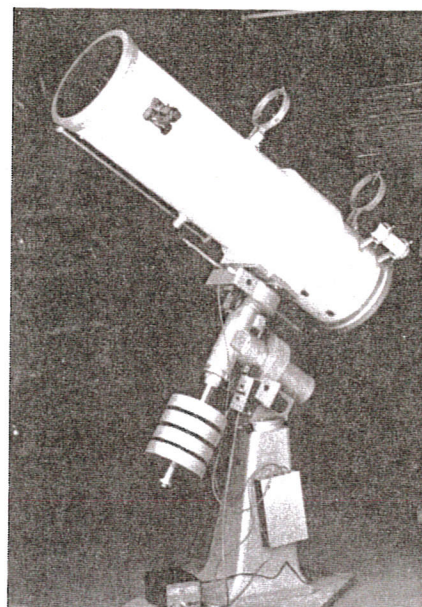
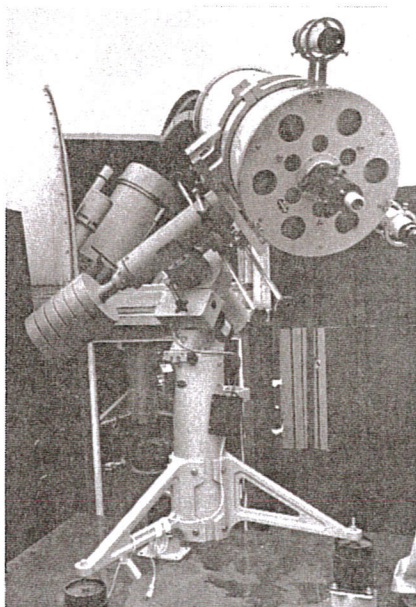
<310 EQUATORIAL MOUNT>

The super heavy-duty model with a sturdy permanent pier. The maximum load is no less than 100kg, enough to accept a 20" reflector with some other additional telescopes simultaneously.

RA CONTROL: 2-Speed Quartz Pulse-Motor Control / RA WORM: 182mm dia. 359-teeth Gunmetal / DEC CONTROL: Manual Slow-Motion Control with Tangent Arm (or Quartz Pulse-Motor Control with a 360-degree Worm) / POWER SOURCE: 12-Volts DC / RA SETTING CIRCLE: 10 min. per division / DEC SETTING CIRCLE: 2-degree per division / PIER: Heavy-Duty Permanent Pier with 450mm by 400mm bottom (Pier-Tripod like 250 Model's is also available) / COLOR: Silver Gray / HEIGHT: 950mm / WEIGHT with pier: 125kg (incl. 4pcs of 15kg Counterweights) / Latitude & Azimuth Fine Adjusting Controls equipped for precision set-up / Manufactured to suit any latitude (specify when ordering)

* 310 EQUATORIAL MOUNT SET with Pier <#NT-001>

* 310 EQUATORIAL MOUNT SET with Pier + Dec Quartz Pulse-Motor Control & 360-degree Dec Worm <#NT-002>



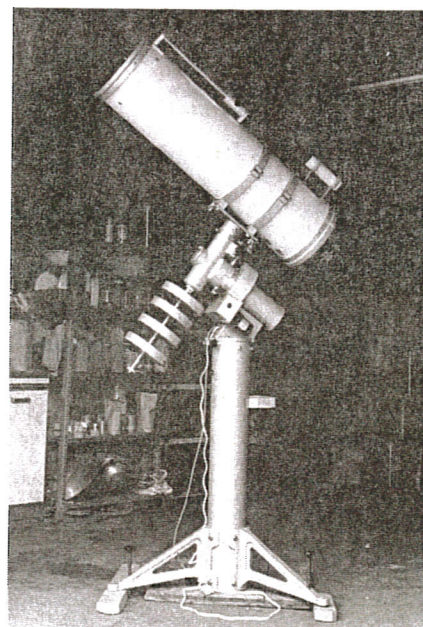
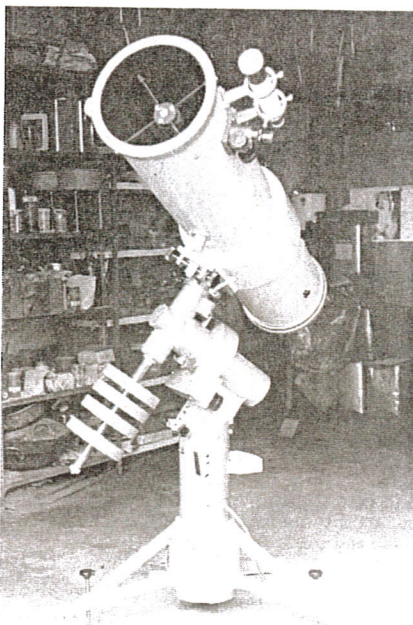
<250 EQUATORIAL MOUNT>

The standard model with a useful pier-tripod with leveling screws and casters. The maximum load is around 70kg, accepting a 16" reflector and still leaving enough room for some other instruments. Most major features of 310's are all inherited. Either of 2 heights can be chosen for the pier-tripod.

RA CONTROL: 2-Speed Quartz Pulse-Motor Control / RA WORM: 182mm dia. 359-teeth Gunmetal / DEC CONTROL: Manual Slow-Motion Control with Tangent Arm (or Quartz Pulse-Motor Control with a 360-degree Worm) / POWER SOURCE: 12-Volts DC / RA SETTING CIRCLE: 10 min. per division / DEC SETTING CIRCLE: 2-degree per division / PIER-TRIPOD: 165mm dia. Sturdy Pier with Tripod Legs, Leveling Screws and Casters equipped / COLOR: Silver Gray / HEIGHT: 950mm or 1350mm (specify when ordering) / WEIGHT with pier-tripod: 80kg (incl. 4pcs of 8.5kg Counterweights) / Latitude & Azimuth Fine Adjusting Controls equipped for precision set-up / Polar Alignment Telescope equipped / Manufactured to suit any latitude (specify when ordering)

* 250 EQUATORIAL MOUNT SET with Pier-Tripod <#NT-003>

* 250 EQUATORIAL MOUNT SET with Pier-Tripod + Dec Quartz Pulse-Motor Control & 360-degree Dec Worm <#NT-004>



<PORTABLE EQUATORIAL MOUNT>

This model is especially designed for transport use in the field, easily disassembled into 3 units and loaded in a small car. Each disassembled unit is not more than 20kg, effortlessly assembled by 1 person in a few minutes. Though weighing only 52kg including counterweights, this sturdy mount accepts up to 35kg load - enough to mount a 12" reflector or a 14" Schmidt-Cassegrain.

RA CONTROL: 2-Speed Quartz Pulse-Motor Control / RA WORM: 182mm dia. 359-teeth Gunmetal / DEC CONTROL: Manual Slow-Motion Control with Tangent Arm (or Quartz Pulse-Motor Control with a 360-degree Worm) / POWER SOURCE: 12-Volts DC / RA SETTING CIRCLE: 10 mm. per division / DEC SETTING CIRCLE: 2-degree per division / PIER-TRIPOD: 120mm dia. Sturdy Pier with Tripod Legs, Leveling Screws and Casters equipped / COLOR: Silver Gray / HEIGHT: 950mm / WEIGHT with pier-tripod: 52kg (incl. 2pcs of 8.5kg Counterweights) / Latitude & Azimuth Fine Adjusting Controls equipped for precision set-up / Polar Alignment Telescope equipped / Manufactured to suit any latitude (specify when ordering)

* PORTABLE EQUATORIAL MOUNT SET with Pier-Tripod <#NT-005>

* PORTABLE EQUATORIAL MOUNT SET with Pier-Tripod + Dec Quartz Pulse-Motor Control & 360-degree Dec Worm <#NT-006>

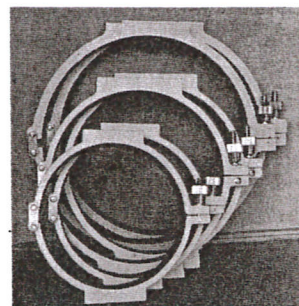


ACCESSORIES

<TUBE HOLDERS>

Beautiful silver-gray rigid tube holders to fit NTK Cassegrains (or Japanoptik HIJIRI refractors). The flat top part accepts a plate to load another instruments. 190/240/300mm models are a pair-ring type. 360/420/470mm models are fixed tube type (rotatable).

Internal Dia.	Mounting Screw Holes (Dia. / Interval)	Item No.
190mm	6mm / 60mm	#NT-007
240mm	8mm / 90mm	#NT-008
300mm	10mm / 90mm	#NT-009
360mm	10mm / 180mm	#NT-010
420mm	10mm / 180mm	#NT-011
470mm	10mm / 180mm	#NT-012



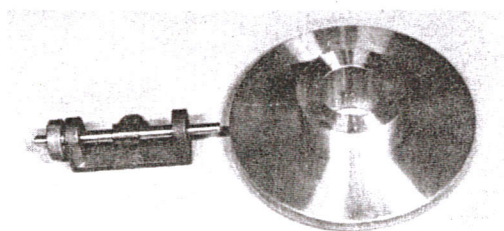
<COUNTERWEIGHTS>

15kg COUNTERWEIGHT for 310 <#NT-013>
230mm dia., 23mm thick., fits 40mm dia. shaft

8.5kg COUNTERWEIGHT for 250 & PORTABLE <#NT-014>
200mm dia., 20mm thick., fits 30mm dia. shaft

<WORM GEAR>

WORM GEAR SET <#NT-015>
182mm dia., 359-teeth, 0.5M, Gunmetal, 45mm inner hole dia.



DIFFRACTION LIMITED CLASSICAL CASSEGRAINS

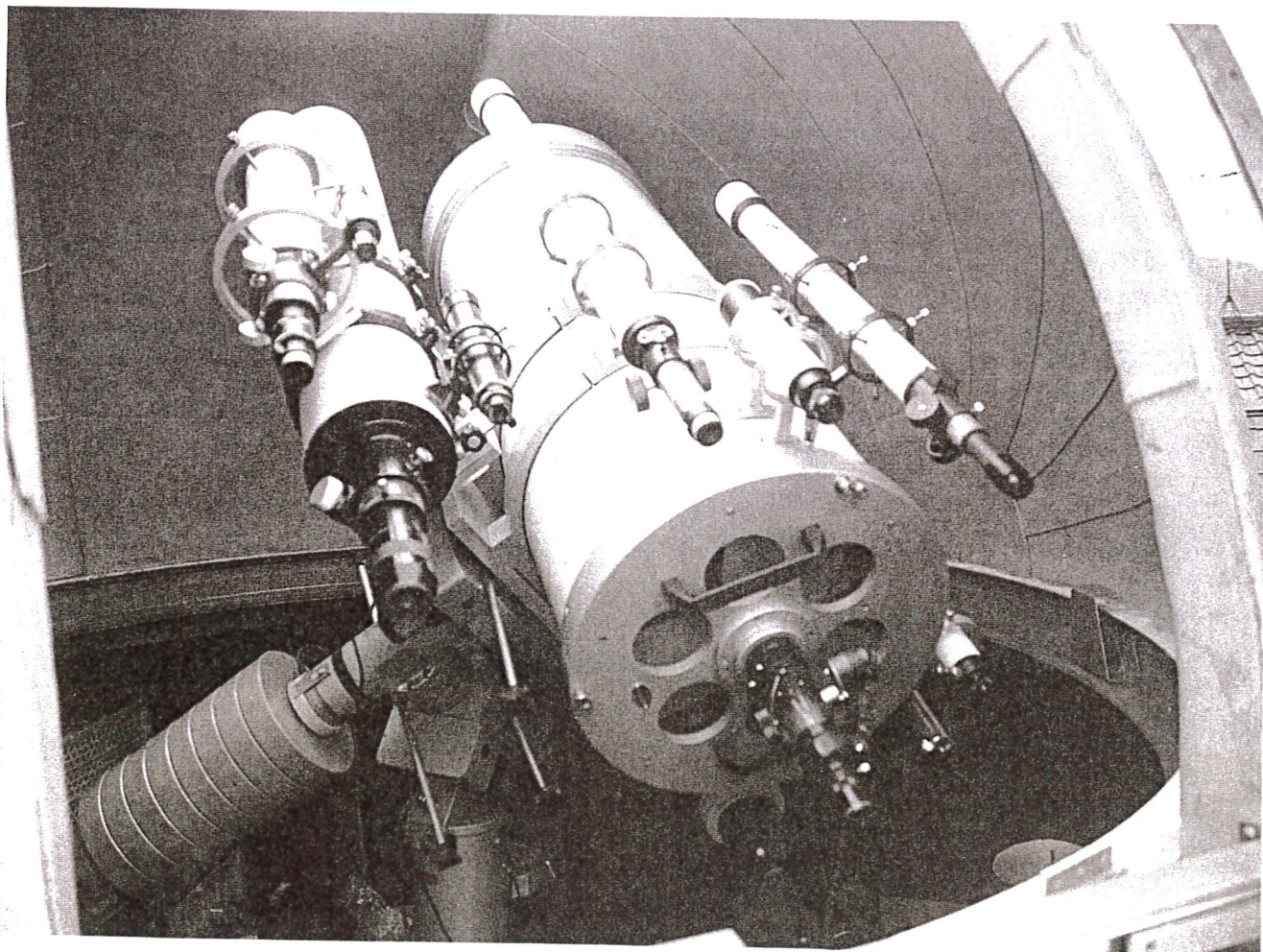
NTK is a group of 3 top-skilled telescope craftsmen, having offered ultimate quality reflectors to advanced amateurs and professionals for many years. Mr. Nakamura, the manager and one of the most experienced telescope opticians in Japan, has manufactured a number of highest quality mirrors through painstaking hand-figuring without any compromise. He is also very well-known as a master of re-figuring. Through his "magic", every poor quality mirror has always turned out to yield 1/16 or 1/32-wave (wavefront) superb performance. There must be no Japanese serious reflector fan but knows his name and his great skill.

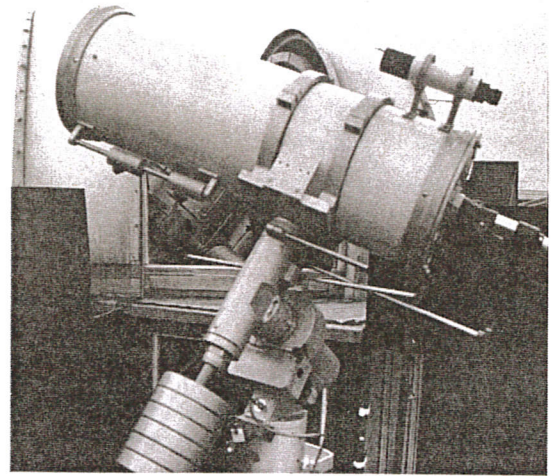
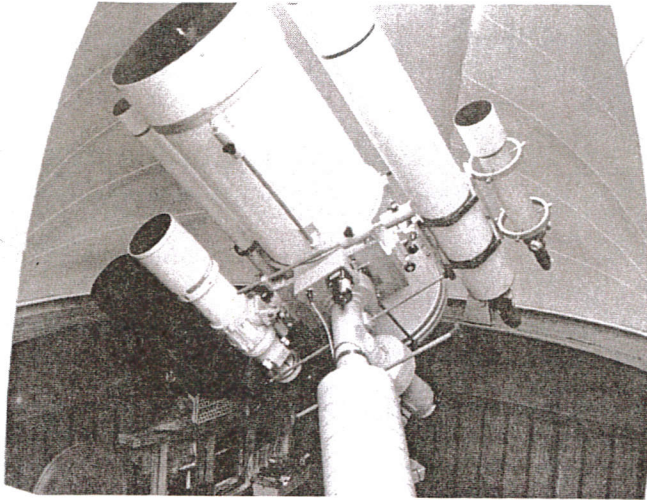
NTK Classical Cassegrains are totally designed by Mr. Nakamura. Every mirror is carefully figured by himself from start to finish, passing through very severe tests both individual and matched, then only the ones tested out better than 1/16-wave (final wavefront when matched) are mounted in the tube assembly of a beautiful ivory-colored aluminum tube with silver-gray rigid front & end rings which offer both great durability and stylish appearance. The primary mirror cell is 9-point flotation system. The end wall has 6 (or 12) holes for rapid thermal acclimation. The vane-shaped secondary spiders minimize evil effect on the image quality. The 2" solid rack and pinion focuser assures very smooth focusing. With the use of Japanoptik 2" Perfect Adapter (included), almost every kind of eyepiece or photographic equipment can be accepted. The tube counterweight is equipped on every model over 250mm as a standard accessory for the best balancing.

With the thorough and really painstaking work of Mr. Nakamura, the resulting performance of NTK Classical Cassegrain is really beyond description. As every model will equal or exceed all theoretical limits of resolution, you can obtain breathtaking, unbelievably sharp images. All the limited double-stars for its aperture will clearly split. The woolly details on the planets can be seen so clearly and beautifully as if they were near at hand. The 8" to 16" large aperture with extremely sharp focus also displays fantastic views of subtle deep-sky objects. In any respect, most Schmidt Cassegrains or ordinary reflectors are apparently far behind. Only very well manufactured, similarly-sized Newtonians or apochromat refractors might rival it. Considering the compactness and the price, however, NTK "Diffraction Limited" Classical Cassegrain is with no doubt standing ahead, which is surely the very best choice as your lifetime treasured instrument.

Each telescope is manufactured after hearing your special instructions. Please specify the effective focal length with the f-ratio of the primary mirror. In ordinary cases, the f-ratio of the primary is between f/4 to f/6.7, then the secondary performs 3x amplification. Of course any different design is possible. Each mirror is made of Pyrex. The use of zero-expansion ceramic material is also available on request (additional cost is needed).

Every model can also be optionally machined to be a Newtonian-Cassegrain type, with NTK's 1/16-wave elliptical flat and another Newtonian-use 2" rack and pinion focuser equipped on the side of the tube. In addition, the Tube-Top Rotary System can be optionally added so that the Newtonian focus will always point the proper direction with ease. Finderscope is optional. Please choose any favorite one from this catalog and specify.





<400mm CLASSICAL CASSEGRAIN>

OPTICAL SYSTEM: 400mm Clear Aperture, Choice of 4800 - 8000mm e.f.l. (f/12 - 20), Classical Cassegrain Design / MIRRORS: 400mm dia. Parabolic Primary (f/4 - 6.7) and 132mm dia. Hyperbolic Secondary (3x Amplification), Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 2" & Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / COLOR: Ivory / TUBE DIA.: 470mm / WEIGHT: Approx. 50kg / Finderscope is optional / 2pcs of 1.4kg Tube Counterweights equipped

- * 400mm CLASSICAL CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-016>
- * 400mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-017>
- * 400mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) + TUBE-TOP ROTARY SYSTEM <#NT-018>

<360mm CLASSICAL CASSEGRAIN>

OPTICAL SYSTEM: 360mm Clear Aperture, Choice of 4320 - 7200mm e.f.l. (f/12 - 20), Classical Cassegrain Design / MIRRORS: 360mm dia. Parabolic Primary (f/4 - 6.7) and 122mm dia. Hyperbolic Secondary (3x Amplification), Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 2" & Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / COLOR: Ivory / TUBE DIA.: 420mm / WEIGHT: Approx. 42kg / Finderscope is optional / 2pcs of 1.4kg Tube Counterweights equipped

- * 360mm CLASSICAL CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-019>
- * 360mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-020>
- * 360mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) + TUBE-TOP ROTARY SYSTEM <#NT-021>

<308mm CLASSICAL CASSEGRAIN>

OPTICAL SYSTEM: 308mm Clear Aperture, Choice of 3700 - 6160mm e.f.l. (f/12 - 20), Classical Cassegrain Design / MIRRORS: 308mm dia. Parabolic Primary (f/4 - 6.7) and 102mm dia. Hyperbolic Secondary (3x Amplification), Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 2" & Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / COLOR: Ivory / TUBE DIA.: 360mm / WEIGHT: Approx. 30kg / Finderscope is optional / 2pcs of 1.4kg Tube Counterweights equipped

- * 308mm CLASSICAL CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-022>
- * 308mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-023>
- * 308mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) + TUBE-TOP ROTARY SYSTEM <#NT-024>

<250mm CLASSICAL CASSEGRAIN>

OPTICAL SYSTEM: 250mm Clear Aperture, Choice of 3000 - 5000mm e.f.l. (f/12 - 20), Classical Cassegrain Design / MIRRORS: 250mm dia. Parabolic Primary (f/4 - 6.7) and 82mm dia. Hyperbolic Secondary (3x Amplification), Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 2" & Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / COLOR: Ivory / TUBE DIA.: 300mm / WEIGHT: Approx. 22kg / Finderscope is optional / 1pc of 1.4kg Tube Counterweight equipped

- * 250mm CLASSICAL CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-025>
- * 250mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-026>
- * 250mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) + TUBE-TOP ROTARY SYSTEM <#NT-027>

<200mm CLASSICAL CASSEGRAIN>

OPTICAL SYSTEM: 200mm Clear Aperture, Choice of 2400 - 4000mm e.f.l. (f/12 - 20), Classical Cassegrain Design / MIRRORS: 200mm dia. Parabolic Primary (f/4 - 6.7) and 62mm dia. Hyperbolic Secondary (3x Amplification), Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 2" & Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / COLOR: Ivory / TUBE DIA.: 240mm / WEIGHT: Approx. 12kg / Finderscope is optional

- * 200mm CLASSICAL CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-028>
- * 200mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) <#NT-029>
- * 200mm NEWTONIAN-CASSEGRAIN TUBE ASSEMBLY (w/o Finderscope) + TUBE-TOP ROTARY SYSTEM <#NT-030>

★ JAPANOPTIK ★

HIJIRI COUDÉ-IN-TUBE REFRACTORS

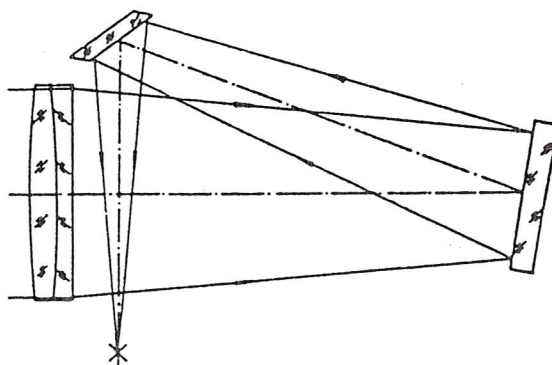
HIJIRI, an old Japanese word which means a Saint of Buddhism, would surely be the most suitable name for this perfect telescope. The basic design was drawn by K. Kasai. The best optics and parts are supplied from Japan's top-ranked manufacturers, and are very carefully assembled by a skilled craftsman at NTK.

NOTICE: Every model is completely made-to-order one by one after receiving your order. Please allow a few months until you get this premium telescope.

- THE OUTSTANDING FEATURES OF JAPANOPTIK HIJIRI -

* Unique Coudé-in-Tube Design

Coudé design is now widely used for large instruments such as the 24" refractor at Pic du Midi Observatory. The main purpose to use Coudé design is to shorten the tube length and to shift the focus into the right point where the observer can operate it comfortably. However, most of those existing models utilize some parts of their mounts as the course of the light path, therefore they need specially designed mounts to suit only the telescopes. This style of Coudé design is never suitable for amateur telescopes and mounts which require good portability as well as versatility. Our Coudé-in-Tube design is completely different. Both 2 mirrors are built in the tube, and the outer appearance is similar to a short focus Newtonian. And, of course, the tilted flat mirrors never obstruct the light path, assuring the clear images with no obstruction. Since the tube is perfectly round, you can mount it onto most ordinary equatorial mounts simply with the use of tube holders.



* Surprising Portability

Generally speaking, refractors of over 6" f/10 or f/12 have never been suitable for transport use. Including the dewcap and the focuser, the total tube length would be around 1.8 meters or over 2 meters; it's of course nearly impossible to load it in an ordinary car. However, by using Coudé-in-Tube design, the tube length of HIJIRI 150 SD is only 0.7 meter, about 2/5 of an ordinary one. Even as to the f/12 model, HIJIRI 150 FA, the tube length is 0.85 meter only.

* Great Performance SD Apochromat Lenses

Every HIJIRI SD-series refractor contains a great performance Hidaka f/10 SD apochromat lens. Hidaka Optical Laboratory, the top-skilled apochromat lens manufacturer in Japan, supplies their choicest SD apochromat lens for this premium telescope. Every aberration being kept to the absolute minimum, the Hidaka SD lens yields very sharp, clear, color-free crisp images. Even at the use of extreme high powers such as 40x per centimeter (10x per inch - e.g. 600x for 6" aperture), the image is still very clear and stable enough. The 4-surface fully multi-coating allows the maximum transmission for clearer field.

* High Performance Fraunhofer Achromat Lenses

For an affordable choice, we arrange some models with f/12 Fraunhofer achromat lenses, HIJIRI FA-series. Except the objective lens, all the other features are the same as HIJIRI SD APO-series. This MgF2 coated, air-spaced doublet achromat lens offers very fine images, well color corrected for the C to F visual range.

* Enhanced Aluminized Large 1/16-wave Flat Mirrors

To change the light path twice, 2 flat mirrors are built-in the tube: one is round and the other is elliptical. The diameter of the first mirror is about 3/4 of the objective lens, while that of the second is over 1/3, both of which are large enough to ensure fully-illuminated field for either visual or prime-focus photographic use. Both mirrors are painstakingly figured by a skilled optician at NTK, assuring 1/16-wave (wavefront) or better performance. The special enhanced aluminizing offers over 96% reflectivity per each mirror, yielding over 90% total reflectivity. This figure is the same or still better than an ordinary diagonal mirror. Compared to the use of such a diagonal mirror with a standard-coated refractor, the light loss of HIJIRI system is almost negligible.

* Large 2" Focuser with Useful Adapter

A solid rack & pinion 2" focuser with Japanoptik 2" Perfect Adapter (see "ACCESSORIES & TELESCOPE COMPONENTS") is equipped on every model, accepting almost every eyepiece or camera adapter of different size. To add the focus travel, a 2" extension tube is also included.

* Comfortable Observation with Smaller Mount

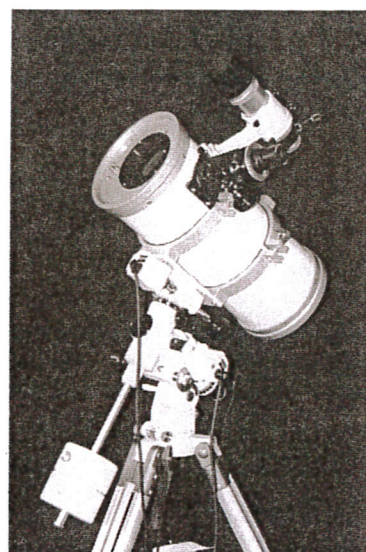
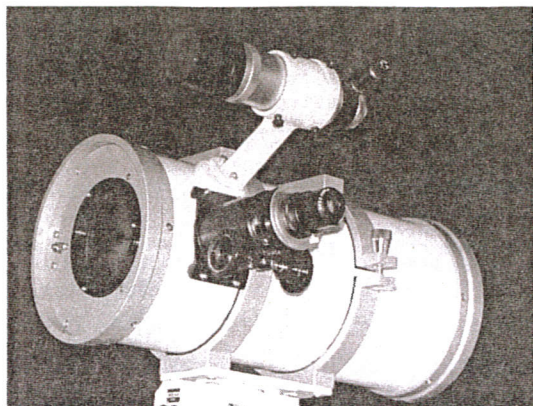
When using ordinary refractors, looking up near the zenith is really tiring. Even if you use a diagonal prism, the focuser is still pointing to the earth and you have to sit down on your heels unless the height of the mount is very tall enough. However, the taller a tripod or a pier is made, the less stable it should become. The confusing reversed image of the diagonal prism is also very irritating. HIJIRI is completely different. Like Newtonian, the focuser is always positioned at a convenient place whichever direction you observe, yielding the same images as straight-through viewing. Besides, its good position of the focuser, as well as its lightweight short tube, needs much smaller mount with much shorter tripod or pier than ordinary refractor of the similar aperture. (Our recommended equatorial mounts are listed in each specification.)

* Easy Collimation

One look of this Coudé-in-Tube system might make you think the collimation would be rather difficult and complicated. But the case is quite different. Since both the mirrors are flat, collimating HIJIRI is much easier than you imagine. Besides, as the tube is very short, you can collimate it by adjusting the mirrors with your both hands at the same time while you look through the focuser to check the alignment.

JAPANOPTIK HIJIRI 100 SD APO

- * Tube Assembly (below)
- * on Photo Tripod (middle)
- * on Mizar AR-3 (right)



<HIJIRI 100 SD APO>

OPTICAL SYSTEM: Coudé-in-Tube design with 1 Objective Lens and 2 Flat Mirrors / OBJECTIVE: 100mm dia., 1000mm f.l., f/10, Fully Multi-Coated Air-Spaced Doublet SD Apochromat / SECONDARY: 82mm dia., Round Flat Mirror, Enhanced Aluminized & Overcoated / TERTIARY: 50mm minor axis Elliptical Flat Mirror, Enhanced Aluminized & Overcoated / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 2" - Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / TUBE COLOR: Ivory / SIZE: 190mm Dia. x 445mm Long / WEIGHT: 5.5kg / Mounts on any standard photo tripod / 2" Extension Tube included / Finderscope is optional / RECOMMENDED MOUNTS: Mizar AR-3, Carton Super Nova, etc.

* HIJIRI 100 SD APO TUBE ASSEMBLY (w/o Finderscope) <#JA-001>

<HIJIRI 125 SD APO>

OPTICAL SYSTEM: Coudé-in-Tube design with 1 Objective Lens and 2 Flat Mirrors / OBJECTIVE: 125mm dia., 1250mm f.l., f/10, Fully Multi-Coated Air-Spaced Doublet SD Apochromat / SECONDARY: 102mm dia., Round Flat Mirror, Enhanced Aluminized & Overcoated / TERTIARY: 50mm minor axis Elliptical Flat Mirror, Enhanced Aluminized & Overcoated / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 2" - Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / TUBE COLOR: Ivory / SIZE: 240mm Dia. x 560mm Long / 2" Extension Tube included / Finderscope is optional / RECOMMENDED MOUNTS: Mizar EX, etc.

* HIJIRI 125 SD APO TUBE ASSEMBLY (w/o Finderscope) <#JA-002>

<HIJIRI 150 SD APO>

OPTICAL SYSTEM: Coudé-in-Tube design with 1 Objective Lens and 2 Flat Mirrors / OBJECTIVE: 150mm dia., 1500mm f.l., f/10, Fully Multi-Coated Air-Spaced Doublet SD Apochromat / SECONDARY: 125mm dia., Round Flat Mirror, Enhanced Aluminized & Overcoated / TERTIARY: 60mm minor axis Elliptical Flat Mirror, Enhanced Aluminized & Overcoated / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 2" - Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / TUBE COLOR: Ivory / SIZE: 240mm Dia. x 700mm Long / 2" Extension Tube included / Finderscope is optional / RECOMMENDED MOUNTS: Mizar EX, NTK Portable, etc.

* HIJIRI 150 SD APO TUBE ASSEMBLY (w/o Finderscope) <#JA-003>

<HIJIRI 125 FA>

OPTICAL SYSTEM: Coudé-in-Tube design with 1 Objective Lens and 2 Flat Mirrors / OBJECTIVE: 125mm dia., 1500mm f.l., f/12, MgF2 Coated Air-Spaced Doublet Fraunhofer achromat / SECONDARY: 102mm dia., Round Flat Mirror, Enhanced Aluminized & Overcoated / TERTIARY: 50mm minor axis Elliptical Flat Mirror, Enhanced Aluminized & Overcoated / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 2" - Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / TUBE COLOR: Ivory / SIZE: 240mm Dia. x 700mm Long / 2" Extension Tube included / Finderscope is optional / RECOMMENDED MOUNTS: Mizar EX, etc.

* HIJIRI 125 FA TUBE ASSEMBLY (w/o Finderscope) <#JA-004>

<HIJIRI 150 FA>

OPTICAL SYSTEM: Coudé-in-Tube design with 1 Objective Lens and 2 Flat Mirrors / OBJECTIVE: 150mm dia., 1800mm f.l., f/12, MgF2 Coated Air-Spaced Doublet Fraunhofer achromat / SECONDARY: 125mm dia., Round Flat Mirror, Enhanced Aluminized & Overcoated / TERTIARY: 60mm minor axis Elliptical Flat Mirror, Enhanced Aluminized & Overcoated / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 2" - Japanoptik 2" Perfect Adapter [1.25" - 36.4mm threads - 42mm (T) threads - 50.8mm (2") threads - 48mm Filter threads] / TUBE COLOR: Ivory / SIZE: 240mm Dia. x 850mm Long / 2" Extension Tube included / Finderscope is optional / RECOMMENDED MOUNTS: Mizar EX, NTK Portable, etc.

* HIJIRI 150 FA TUBE ASSEMBLY (w/o Finderscope) <#JA-005>

<HIJIRI 200 SD APO> <HIJIRI 250 SD APO> <HIJIRI 200 FA> <HIJIRI 250 FA>
..... Please ask K. Kasai for the detailed information.

<Special HIJIRI with Your Own Objective Lens>

We can manufacture special HIJIRI by using your own 100mm to 300mm dia. objective lens, too. How about giving a new life to your optics? Please ask K. Kasai for the detailed information! (The lens cell must be accompanied with the lens.)

★OASIS★

BORG ED & ACHROMAT REFRACTORS

Oasis BORG series have brought a "revolution" among amateur astronomers in Japan since November 1991, when these versatile telescopes were put on sale. Every Japanese astronomical magazine has enthusiastically praised their high performance in the test report, saying "It's a miracle to produce such top quality optics for such low prices", or "A great many new ideas are found in every part, all of which are what we have long wanted mass-market telescopes to have. Now, our dreams have come true."

- 10 GREAT PERFORMANCES OF OASIS BORG -

* Top Quality 100mm & 76mm ED Apochromat Lenses

These newly-designed apochromat lenses utilize choice ED (Extra Low Dispersion) glass for either element, yielding perfectly color-free, sharp and crisp images on and off axis. In visual wavelength range, 98.5% of the light is focused within 8-micron, yielding outstanding performance for planetary observation. When used with the 0.75x Focal Reducer (optional), C to G wavelengths are all focused within 18-micron, nearly the same performance as Schmidt Cameras. Every surface is fully multi-coated.

* High Quality 76mm & 65mm Photo-Visual Achromat Lenses

Utilizing premium flint glass as an element, the lens design is close to semi-apochromat, offering surprisingly high performance for short focus achromat. Chromatic and spherical aberrations in visual wavelength range are kept to the very minimum, yielding great sharpness and clarity. For photographic use, too, these quality lenses yield very good images with or without the 0.75x Focal Reducer (optional). Every surface is fully coated.

* Zero-Expansion Carbon Hybrid Tube / Durable Engineering Plastic Tube

2 types of tubes can be chosen: Carbon Hybrid or Engineering Plastic. Carbon Hybrid tube is very hard and perfectly expansion-free, keeping the thermal focus error to the absolute minimum for long-time exposure prime focus deep-sky photos. Engineering Plastic tube is durable enough for ordinary use, and the affordable price is attractive. The inside of either tube is completely blackened by coating every internal surface with velvety black sheet (new material).

* Large Aperture Focusing Tube

67mm large aperture focusing tube ensures full field clear deep-sky photos. 42mm x 56mm large image circle is obtainable with or without the 0.75x Focal Reducer (optional).

* Rotary Eyepiece Holder with 1/10-wave Diagonal Mirror

For right angle viewing, you can arrange 4 eyepieces (1.25") at your fingertips. The 1/10-wave (wavefront) precision mirror is immediately lifted-up for changing the light path to the straight-thru viewing position. 2" & 1.25" eyepiece holders are equipped for straight-thru viewing.

* Internal Finderscope with Oasis H-50mm 2" Eyepiece

By placing Oasis H-50mm 2" Eyepiece in the straight-thru eyepiece holder, the main tube makes a low power (9x to 13x) large aperture finderscope itself. Irritating finderscope alignment is no longer necessary.

* Compact Body

f/6.4-f/6.9 fast f-ratio makes the tube length very short, assuring good portability. The dew cap of Borg 100ED or Borg 76/76ED can be drawn-in to shorten the tube length when not used.

* Surprisingly Light Weight

0.7kg (Borg 65) to 1.8kg (Borg 100ED) lightweight tube assembly allows the use of smaller mounting than ordinary refractor of the similar aperture. 1/4-20 threaded photo tripod adapter block is equipped on every tube.

* Each Part Changeable

Each part, including the objective lens, can be easily disassembled and changed. As the tube body is commonly used, another lens (or tube) can also fit every model. Just buying another larger (or smaller) lens afterward, you can own one more complete telescope of different aperture. (Each part is separately sold.)

* Very Affordable Price

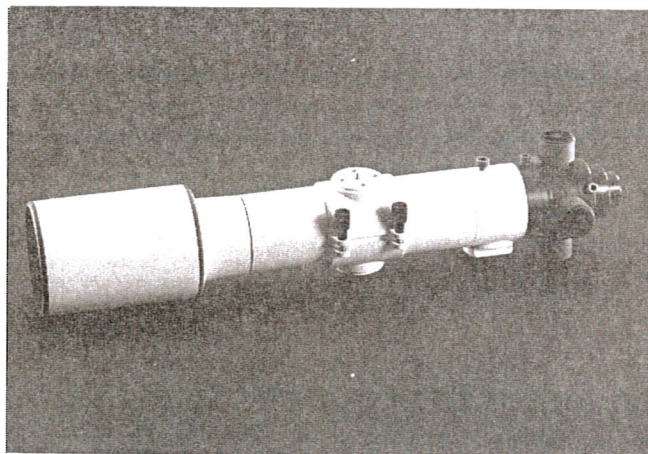
Considering these advanced features, the price for every Borg telescope will surely be very, very affordable!

<BORG 100ED>

OBJECTIVE: 100mm dia., 640mm f.l., f/6.4, Fully Multi-Coated Air-Spaced Doublet ED Apochromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 1.25" x 4 Right Angle Rotary Eyepiece Holders and 67mm - 2" - 1.25" Straight-Thru Eyepiece Holder / FINDERSCOPE: 13 x 100mm, 3.5-degree Field (with Oasis H-50mm) / COLOR: White / SIZE: 80mm Dia. x 620mm Long (when dew cap drawn-in) / WEIGHT: 1.8kg / Mounts on any standard photo tripod.

* BORG 100ED TUBE ASSEMBLY (CARBON HYBRID TUBE) w/Oasis H-50mm 2" Eyepiece & Tube Holder <#OA-001>

* BORG 100ED TUBE ASSEMBLY (ENGINEERING PLASTIC TUBE) w/Oasis H-50mm 2" Eyepiece & Tube Holder <#OA-002>



<BORG 76ED / BORG 76>

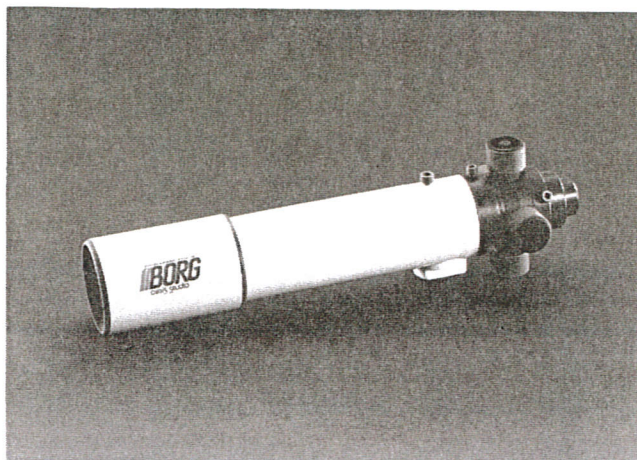
OBJECTIVE: 76mm dia., 500mm f.l., f/6.6, Fully Multi-Coated Air-Spaced Doublet ED Apochromat (76ED) or Fully Coated Doublet Photo-Visual Achromat (76) / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 1.25" x 4 Right Angle Rotary Eyepiece Holders and 67mm - 2" - 1.25" Straight-Thru Eyepiece Holder / FINDERSCOPE: 10 x 76mm, 4.5-degree Field (with Oasis H-50mm) / COLOR: White / SIZE: 80mm Dia. x 470mm Long (when dew cap drawn-in) / WEIGHT: 1.0kg / Mounts on any standard photo tripod.

* BORG 76ED TUBE ASSEMBLY (CARBON HYBRID TUBE)
w/Oasis H-50mm 2" Eyepiece <#OA-003> 4113-

* BORG 76ED TUBE ASSEMBLY (ENGINEERING PLASTIC TUBE)
w/Oasis H-50mm 2" Eyepiece <#OA-004> 3799

* BORG 76 TUBE ASSEMBLY (CARBON HYBRID TUBE)
w/Oasis H-50mm 2" Eyepiece <#OA-005> 1561

* BORG 76 TUBE ASSEMBLY (ENGINEERING PLASTIC TUBE)
w/Oasis H-50mm 2" Eyepiece <#OA-006> 1247

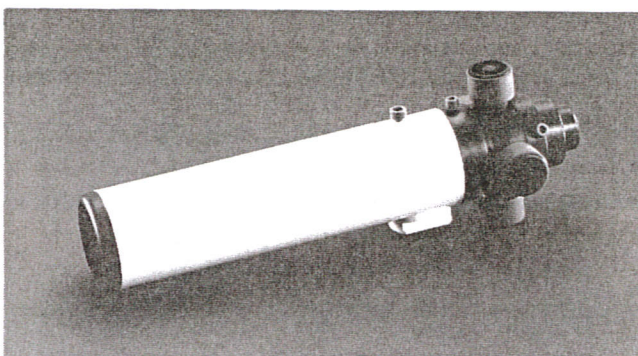


<BORG 65>

OBJECTIVE: 65mm dia., 450mm f.l., f/6.9, Fully Coated Doublet Photo-Visual Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 1.25" x 4 Right Angle Rotary Eyepiece Holders and 67mm - 2" - 1.25" Straight-Thru Eyepiece Holder / FINDERSCOPE: 9 x 65mm, 5-degree Field (with Oasis H-50mm) / COLOR: White / SIZE: 80mm Dia. x 420mm Long / WEIGHT: 0.7kg / Mounts on any standard photo tripod.

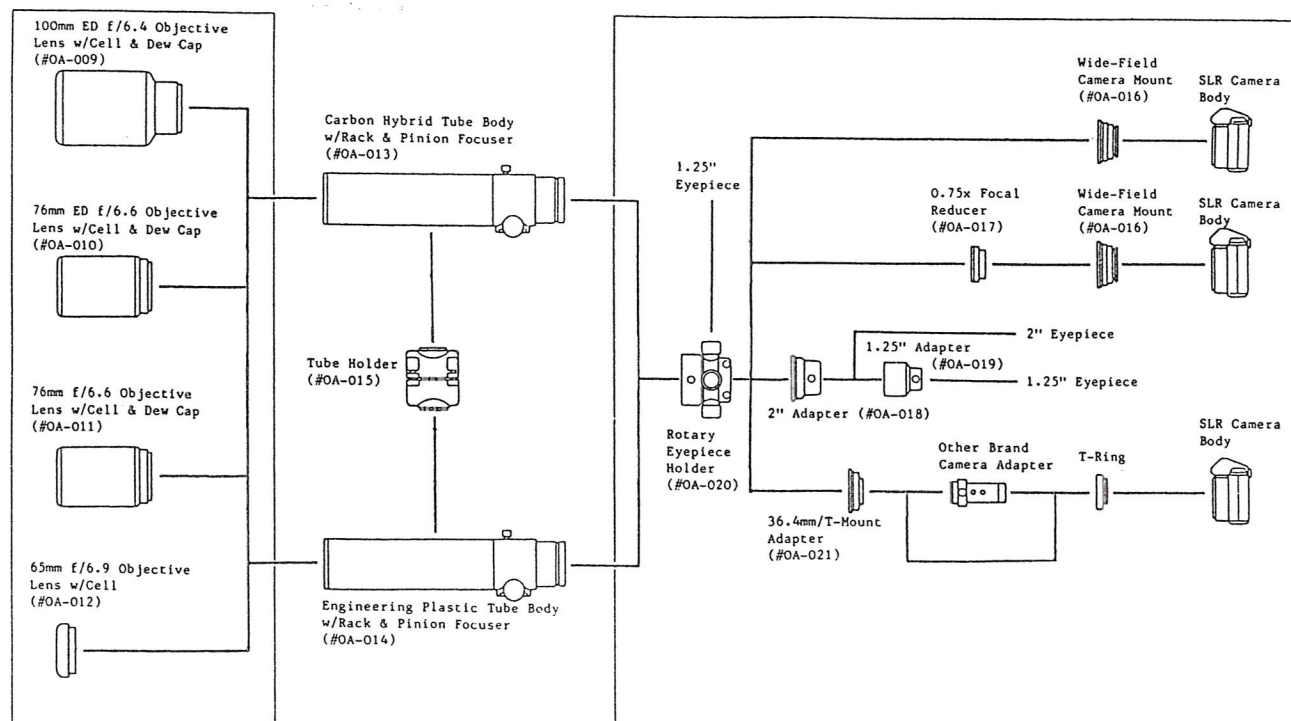
* BORG 65 TUBE ASSEMBLY (CARBON HYBRID TUBE)
w/Oasis H-50mm 2" Eyepiece <#OA-007>

* BORG 65 TUBE ASSEMBLY (ENGINEERING PLASTIC TUBE)
w/Oasis H-50mm 2" Eyepiece <#OA-008>



ACCESSORIES & PARTS

OBJECTIVE LENS <#OA-009 to 012>: Best performance Borg lens with cell (and dew cap). Threads into the tube of 75mm internal dia. (P=1.25mm). / TUBE BODY WITH FOCUSER <#OA-013 & 014>: Either Carbon Hybrid or Engineering Plastic tube body (80mm external dia. x 300mm long) with 67mm dia. (externally 73mm) focuser. / TUBE HOLDER <#OA-015>: Fits most major Japan-made equatorial mount. Also fits directly on any standard photo tripod. A standard photo screw is equipped on its top to mount another instrument. / WIDE-FIELD CAMERA MOUNT <#OA-016>: For prime focus photography use. 46mm large internal dia. (5mm larger than ordinary T-ring system) allows more light to the edge of the photo field. [Please specify your camera type.] / 0.75x FOCAL REDUCER <#OA-017>: Multi-coated reducer to shorten the focal length as well as correct off-axis performance. / 2" & 1.25" ADAPTERS <#OA-018 & 019>: Low-priced eyepiece adapters. / ROTARY EYEPIECE HOLDER <#OA-020>: 1.25" x 4 eyepiece holders and a precision diagonal mirror equipped. Fits any tube of 71mm to 73mm external dia. / 36.4mm & T-MOUNT ADAPTER <#OA-021>: 36.4mm female threads and 42mm (T) male threads are equipped. For the use with ordinary 36.4mm thread format camera adapter or T-mount system.



★ MIZAR ★

MULTI-PURPOSE EQUATORIAL MOUNTS

Mizar offers 3 kinds of attractive equatorial mounts for amateur astronomers. Each model is designed to yield maximum versatility as well as precision tracking, stability and good portability.

EX EQUATORIAL MOUNT. the most advanced model, is a very precision and heavy duty all electric equatorial mount Mizar proudly offers. As each unit is carefully assembled and practically tested one by one in many aspects, this premium mount ensures the highest performance that gives full satisfaction to any advanced amateur astronomers.

AR-3 EQUATORIAL MOUNT is a newly designed standard model with the top performance of this class. This ivory-colored beautiful mount covers most requirements of serious amateurs by the use of various accessories such as Dual-Axis Drives or others.

SP EQUATORIAL MOUNT is a moderately-priced model equipped with most functions basically needed for ordinary observation or astrophoto. Various accessories add to the versatility of its use.

<EX EQUATORIAL MOUNT>

RA CONTROL: Quartz Pulse-Motor & Drive Corrector / RA WORM: 192-teeth Gunmetal / DEC CONTROL: Quartz Pulse-Motor & Drive Corrector / DEC WORM: 144-teeth Gunmetal / RA DRIVE CORRECTOR: Stop, +1x Sidereal, +1.5x, -1.5x, +16x, -16x (Reversed RA slewing is also available for Southern hemisphere use.) / DEC DRIVE CORRECTOR: Stop, +0.5x, -0.5x, +16x, -16x / HAND CONTROLLER: Palm-Sized, North-South-East-West Both Axes Slewing / RA SETTING CIRCLE: 10 min. per division / DEC SETTING CIRCLE: 2-degree per division / COLOR: Ivory / POWER SOURCE: 12-Volts DC / WEIGHT without tripod or pier-tripod: 14kg (incl. 1pc of 4kg Counterweight) / Works between 0-degree and 90-degree area on either hemisphere / Latitude & Azimuth Fine Adjusting Controls equipped for precision set-up / Built-in Illuminated Polar Alignment Telescope designed for the use on either hemisphere (Precession Corrected till 2010) / Built-in Bubble Level at the Dec Unit

* EX EQUATORIAL MOUNT BASIC SET <#MI-001>

[EX Mount Base Unit, EX Counterweight 4kg, Hand Controller, Battery Case, Tools]

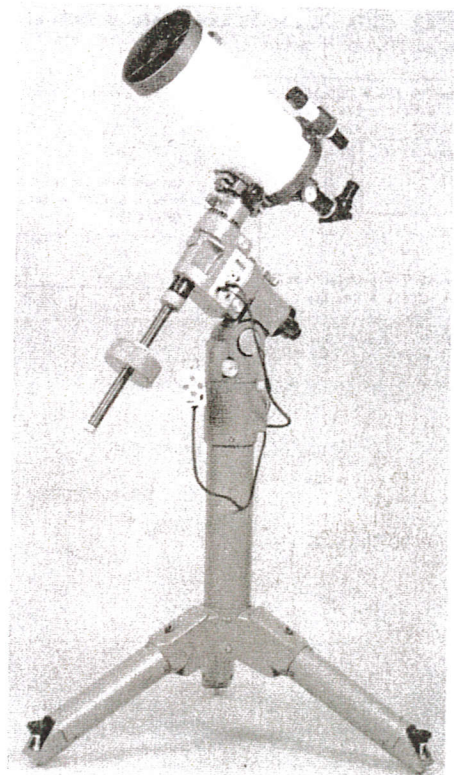
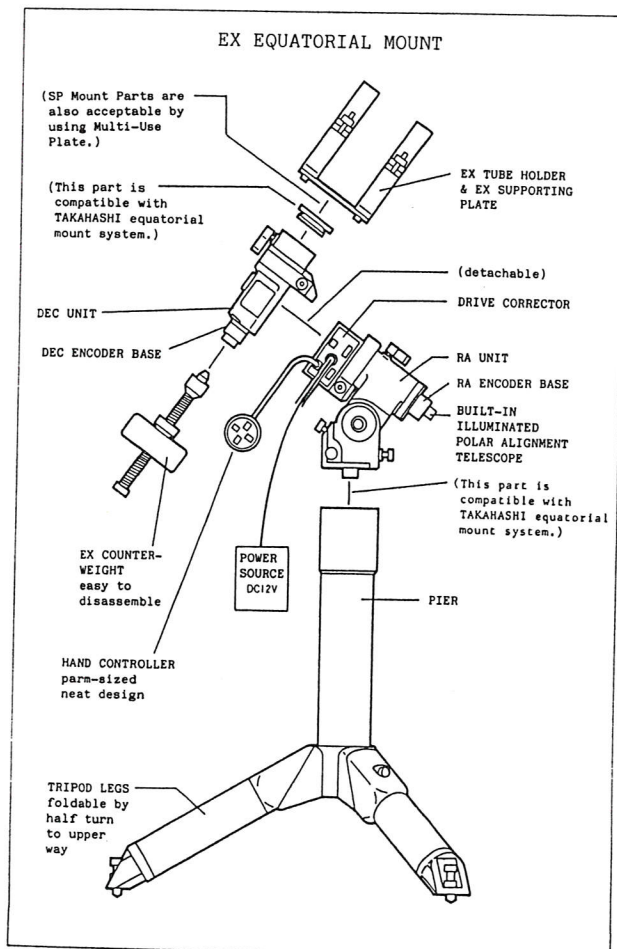
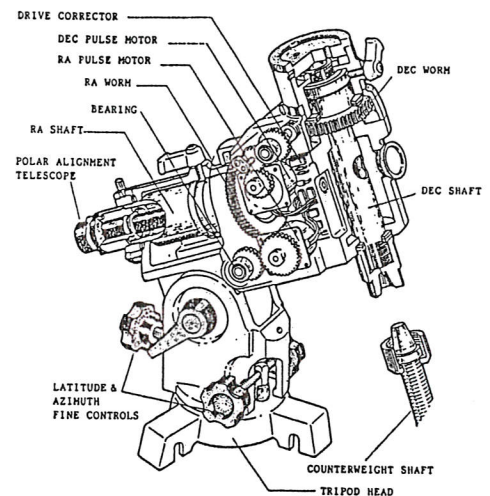
* EX PIER TRIPOD 775mm SHORT <#MI-002> / 1250mm LONG <#MI-003>

Very sturdy pier with foldable tripod legs. Ivory color. Weight: Short - 12kg / Long - 16kg.

* EX WOOD TRIPOD 780mm <#MI-004>

Straight solid wooden tripod with accessory tray. Best suitable for transport observation in the field. Tripod head is included.

* EX COUNTERWEIGHT 4kg <#MI-005>



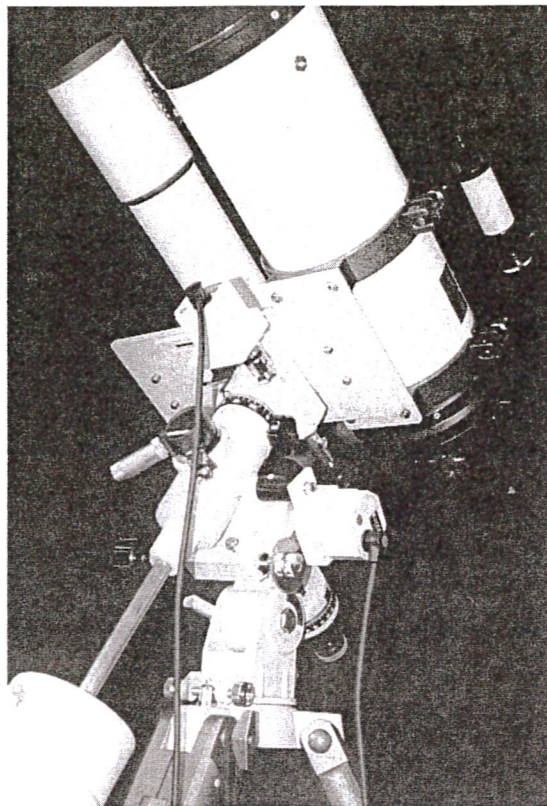
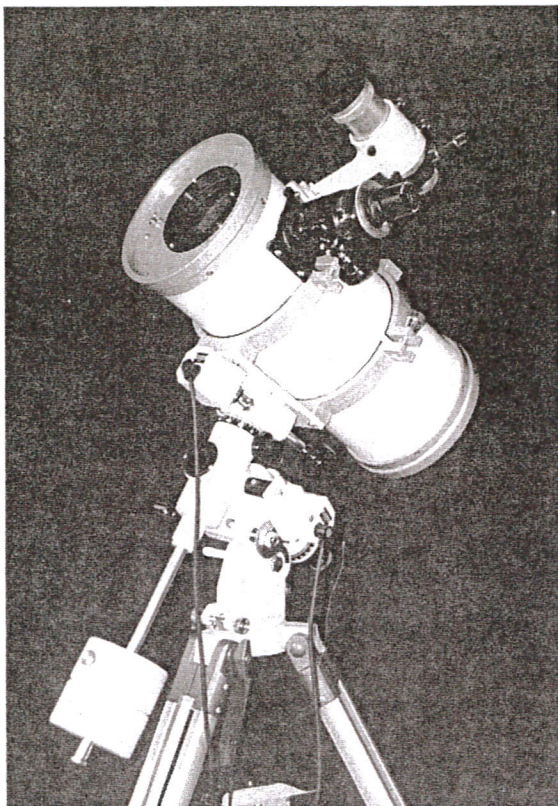
<AR-3 EQUATORIAL MOUNT>

RA CONTROL: Manual Slow-Motion Control (Quartz Pulse-Motor Control is optional) RA WORM: 144-teeth / DEC CONTROL: Manual Slow-Motion Control (Quartz Pulse-Motor Control is optional) / DEC WORM: 120-teeth / RA SETTING CIRCLE: 10 mm. per division / DEC SETTING CIRCLE: 2-degree per division / COLOR: Ivory / WEIGHT without tripod: 6.8kg (incl. 1pc of 3kg Counterweight) / Works between 0-degree and 90-degree area on either hemisphere / Latitude & Azimuth Fine Adjusting Controls equipped for precision set-up

* AR-3 EQUATORIAL MOUNT BASIC SET <#MI-006>

[AR-3 Mount Base Unit, AR-3 Counterweight 3kg, Choice of Manual Slow-Motion Control Cables or Knobs, Tools]

* AR-3 COUNTERWEIGHT 1.2kg <#MI-007> / 3kg <MI#-008>



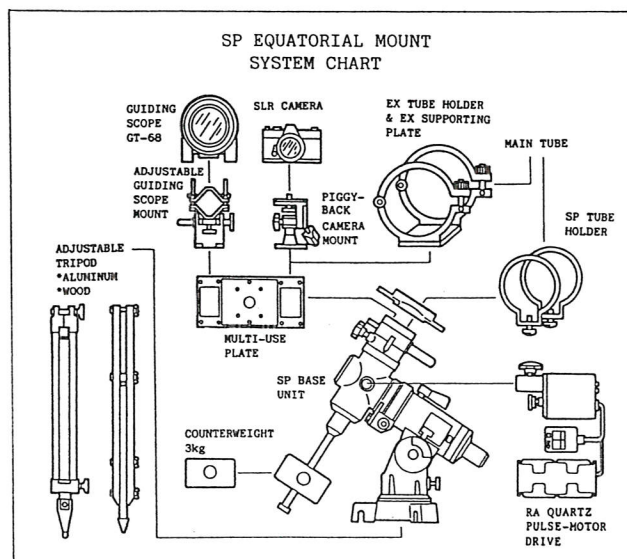
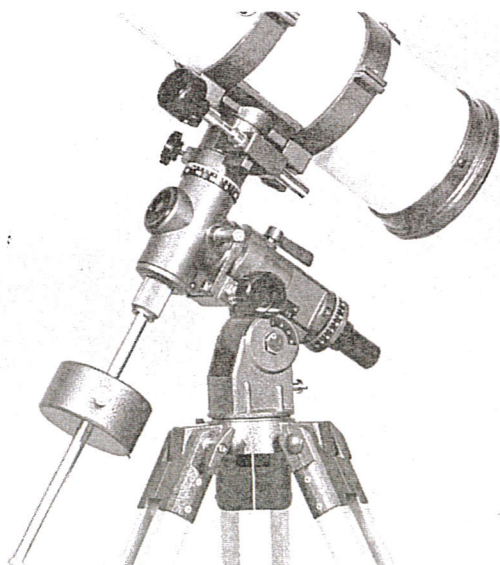
<SP EQUATORIAL MOUNT>

RA CONTROL: Manual Slow-Motion Control (Quartz Pulse-Motor Control is optional) RA WORM: 120-teeth / DEC CONTROL: Manual Slow-Motion Control / DEC GEAR: Tangent Arm / RA SETTING CIRCLE: 10 mm. per division / DEC SETTING CIRCLE: 2-degree per division / COLOR: Black / WEIGHT without tripod: 6kg (incl. 1pc of 3kg Counterweight) / Works between 0-degree and 90-degree area on either hemisphere / Latitude Fine Adjusting Control equipped for precision set-up

* SP EQUATORIAL MOUNT BASIC SET <#MI-009>

[SP Mount Base Unit, SP Counterweight 3kg, Choice of Manual Slow-Motion Control Cables or Knobs, Tools]

* SP COUNTERWEIGHT 1.2kg <#MI-010> / 3kg <MI#-011>



ACCESSORIES

<TRIPODS for AR-3 & SP>

ADJUSTABLE ALUMINUM TRIPOD with accessory tray: LONG <#MI-012> / SHORT <#MI-013>
ADJUSTABLE WOOD TRIPOD with accessory tray: LONG <#MI-014> / SHORT <#MI-015>

<TUBE HOLDERS for EX & AR-3>

68mm dia. <#MI-016> / 72mm dia. <#MI-017> / 90mm dia. <#MI-018> / 115mm dia. <#MI-019> / 142mm dia. <#MI-020> / 154mm dia. <#MI-021> / 184mm dia. <#MI-022> / 242mm dia. <#MI-023> / EX SUPPORTING PLATE <#MI-024> / AR SUPPORTING PLATE <#MI-025>
To mount onto EX or AR-3 mount (or onto multi-use plate), a pair of these tube holders with a supporting plate is needed. *Ask for other unlisted sizes.

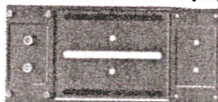
<TUBE HOLDERS for SP>

72mm dia. <#MI-026> / 90mm dia. <#MI-027> / 142mm dia. <#MI-028> / 154mm dia. <#MI-029>
A pair of these tube holders directly suits onto SP mount. *Ask for other unlisted sizes.

<MULTI-USE PLATES>

for EX <#MI-030> / for AR-3 <#MI-031> / for SP <#MI-032>

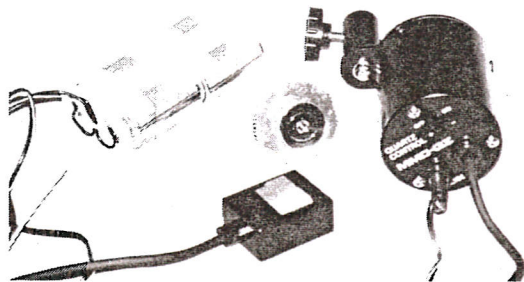
Placed instead of the tube holders to mount the main tube and some other units simultaneously. Sliding function is equipped for good balancing. Accepts: Tube Holders for EX & AR-3 w/Supporting Plate, Guiding Scope Brackets, Adjustable Guiding Scope Mount, Piggy-Back Camera Mount, etc.



<MOTOR DRIVES for AR-3 & SP>

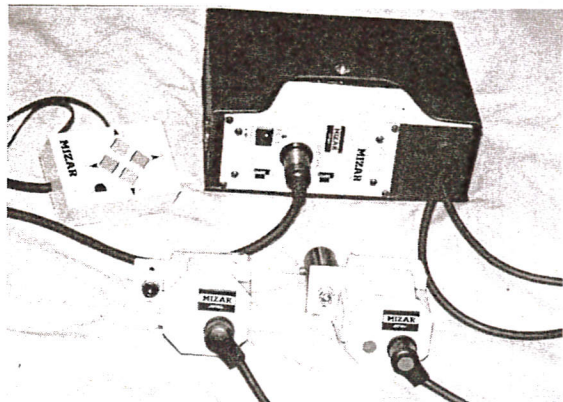
RA QUARTZ PULSE-MOTOR DRIVE SET for AR-3 <#MI-033> / for SP <#MI-034>

Featured with high quality pulse-motor and IC control system, the tracking error is kept within 0.005% of the sidereal rate. The powerful motor (6kg/cm) yields high-power stable tracking. Stop, 1x Sidereal and 2x slewing are switchable with a very small palm-sized controller. Reversed slewing is also available for Southern hemisphere use. Works on 4.5 to 12-volts DC. Battery case and batteries included. *This drive can be machined to suit some other equatorial mounts of different brands. Please ask for the detail.



DUAL AXIS QUARTZ PULSE-MOTOR DRIVE SET for AR-3 <#MI-035>

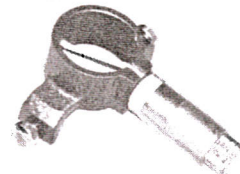
Featured with the same motors and drive system as EX mount, very accurate and powerful tracking is obtainable. RA slewing (+1x Sidereal, -1.5x, +1.5x, -16x, +16x) and DEC slewing (-0.5x, +0.5x, -32x, +32x) are all controlled with a palm-sized hand controller. Reversed slewing is also available for Southern hemisphere use. Works on 12-volts DC. Battery case and batteries included.



<POLAR TELESCOPES for AR-3 & SP>

STANDARD POLAR ALIGNMENT TELESCOPE <#MI-036> / DX POLAR ALIGNMENT TELESCOPE <#MI-037> / POLARIS INDICATOR <#MI-038> / POLAR ALIGNMENT TELESCOPE ILLUMINATOR <#MI-039>

The standard type shows 2' dia. field to help the alignment. The DX type contains a special reticle to work on both hemispheres, assuring very precise setting in a short time. Polaris Indicator, which is included in DX type, shows the correct position of Polaris at any specified time (precession corrected). Polar Alignment Telescope Illuminator contains red LED to illuminate the field of either polar alignment telescope, ideal for setting under very dark sky.



MIZAR

<ACCESSORY MOUNT RINGS>

68mm dia. <#MI-040> / 72mm dia. <#MI-041> / 90mm dia. <#MI-042> / 115mm dia. <#MI-043> / 142mm dia. <#MI-044> / 154mm dia. <#MI-045> / 184mm dia. <#MI-046> / 242mm dia. <#MI-047>



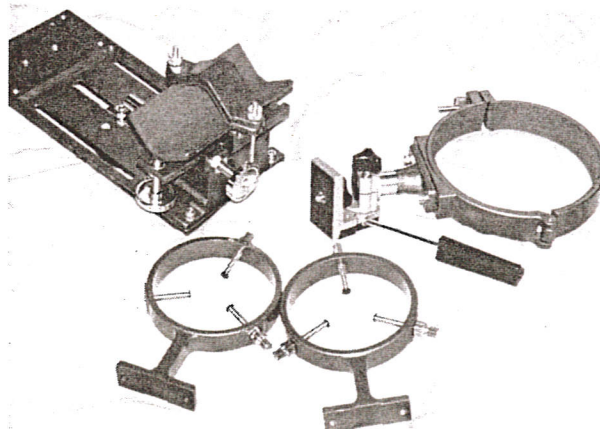
<MANUAL SLOW-MOTION HANDLES>

MANUAL SLOW-MOTION CABLE <#MI-048> / MANUAL SLOW-MOTION KNOB (LONG) <#MI-049> / MANUAL SLOW-MOTION KNOB (SHORT) <#MI-050>

Fit every Mizar equatorial mount or K-altazimuth mount for manual control. (Also fit any other 7.5mm dia. shaft.)

<OTHER ACCESSORIES>

GUIDING SCOPE BRACKETS <#MI-051>: A pair of brackets to mount 40mm - 80mm tube dia. guiding scope onto the main tube. 3-point adjusting screws equipped. Multi-Use Plate or a pair of Accessory Mount Rings needed. / ADJUSTABLE GUIDING SCOPE MOUNT <#MI-052>: This unique guiding scope mount is equipped with altitude and azimuth fine controls to adjust the direction of the guiding scope. (12-degree variable in either way.) Accepts 40mm - 80mm tube dia. guiding scope. Multi-Use Plate or a pair of Accessory Mount Rings needed. / PIGGYBACK CAMERA MOUNT <#MI-053>: Ideal for widefield deep-sky photography by an ordinary camera or mounting a lightweight guide scope. Multi-Use Plate or 1 Accessory Mount Ring needed.



MULTI-PURPOSE ALTAZIMUTH MOUNT

<K-ALTAZIMUTH MOUNT>

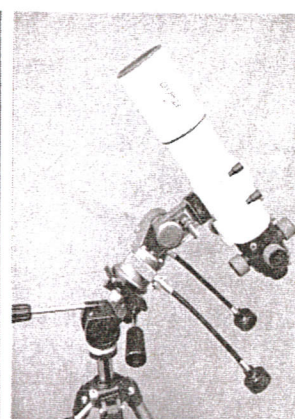
Mizar offers a very useful and sturdy altazimuth mount. This mount contains a precision 360-degree worm gear in either axis, yielding very smooth slow-motion control. Clamp-free rough sighting is of course possible. TYPE-A mounts on top of Mizar Tripod (#MI-012 to 015) and accepts SP Tube Holders (#MI-026 to 029). TYPE-B mounts on top of Mizar Tripod and accepts any instrument with 1/4-20 standard camera screw. TYPE-C mounts on top of 1/4-20 standard camera screw and accepts SP Tube Holders. TYPE-D mounts on top of 1/4-20 standard camera screw hole and also accepts any instrument with 1/4-20 standard camera screw. Each model is equipped with Manual Slow-Motion Knobs. (Cables are also available optionally.) TYPE-C or D can also be used as a simple equatorial mount by placing it onto a tilted pan head of the photo tripod.

* K-ALTAZIMUTH MOUNT (TYPE-A) with Tripod Base & SP Tube Holder Adapter <#MI-054>

* K-ALTAZIMUTH MOUNT (TYPE-B) with Tripod Base & 1/4-20 Mount Screw <#MI-055>

* K-ALTAZIMUTH MOUNT (TYPE-C) with 1/4-20 Screw Base & SP Tube Holder Adapter <#MI-056>

* K-ALTAZIMUTH MOUNT (TYPE-D) with 1/4-20 Screw Base & 1/4-20 Mount Screw <#MI-057>



ST-TYPE CATADIOPTRIC

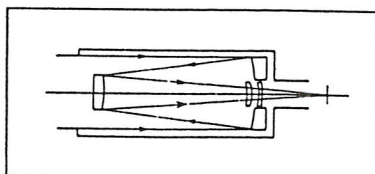
ALTAIR-15. Mizar ST-type catadioptric, must be one of the most unique astronomical telescopes in Japan. The optical system consists of aspherical primary mirror, spherical secondary and 2-element corrector lenses in the baffle tube, which corrects residual coma and spherical aberration as well as yields very flat field. Japanese modern optical technology utilized, this computer-designed telescope apparently excels any mass-market Schmidt-Cassegrain in the image quality. Compared to Newtonian or Cassegrain, the field flatness and off-axis performance are far better than both. (See the computer calculated examples of on and off axis performance below.) The enhanced aluminized mirrors and fully multi-coated corrector lenses yield very clear images from edge to edge. The compact short tube (only 410mm long) is ideal for transport. The mount base, dove-tailed slider and grooved plate, is originally designed to suit Mizar AR-3 or EX equatorial mount. However, it's also possible to machine it to suit Mizar SP or any other mount. (Please ask for the detail.) This top quality telescope guarantees the best performance for both visual and photographic uses.

<ALTAIR-15>

OPTICAL SYSTEM: 150mm Clear Aperture, 1500mm e.f.l., f/10.0, ST-type Catadioptric Design / **MIRRORS:** 150mm dia. Aspherical Primary and 45mm dia. Spherical Secondary, Enhanced Aluminized & Overcoated / **CORRECTOR:** 2-element (No Power), Multi-Coated / **FOCUSER:** Rack & Pinion with a Locking Screw / **EYEPIECE HOLDER:** 42mm (T) threads - 36.4mm threads - 1.25" / **FINDERSCOPE:** 6 x 30mm achromat with cross-hair reticle / **COLOR:** Ivory / **SIZE:** 184mm Dia. x 410mm Long / **WEIGHT:** 5.5kg / 2 Accessory Bases are equipped on the tube to accept some accessories without using the Accessory Mount Rings.

* ALTAIR-15 TUBE ASSEMBLY w/Finderscope <#MI-058>

ST-TYPE CATADIOPTRIC DESIGN



COMPARISON WITH OTHER OPTICAL SYSTEMS

	ALTAIR-15	SCHMIDT CASSEGRAIN	TRUE CASSEGRAIN	NEWTONIAN
OFF AXIS ($\omega = 0.4^\circ$)				
ON AXIS ($\omega = 0^\circ$)				



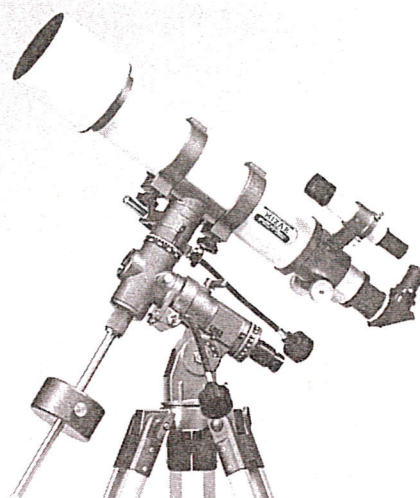
FLUORITE APOCHROMAT REFRACTOR

Fluorite apochromat is well known as an ultimate quality objective lens for astronomical use. Some other Japanese telescope manufacturers offer various line of it, enjoying high reputation for the fine images. Mizar fluorite refractor **FA-80**, in spite of its lowest price among the competitors, yields surprisingly sharp and crisp images that can beat the other higher priced models. The top quality, multi-coated doublet fluorite objective lens eliminates all aberrations to the possible limit, ideal for high-power observation or photography. The fast focal ratio (f/7.5) is also suitable for prime-focus photography of deep-sky objects.

<FA-80>

OBJECTIVE: 80mm dia., 600mm f.l., f/7.5, Multi-Coated Air-Spaced Doublet Fluorite Apochromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 42mm (T) threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 90mm Dia. x 700mm Long / WEIGHT: 2.6kg

* FA-80 TUBE ASSEMBLY w/Finderscope <#MI-059>



1/20-WAVE & 1/8-WAVE NEWTONIANS

A lot of 100mm to 150mm Newtonians are now sold under various brands at very competitive prices, partly because they sell well, and partly because it's easy to make such items anyhow. But most of the primary mirrors of such models are, in fact, poorly made spherical ones, and are therefore much inferior in image quality to ordinary achromat refractors of even smaller aperture. However, Mizar's are different. Either **RS20** series Newtonian contains a true 1/20-wave (peak-to-valley) precision mirror, which you could never expect from any other cheap mass-market Newtonian. Each mirror for RS20 is carefully figured one by one, tested twice before and after aluminizing, then the detailed test report to certify the 1/20-wave accuracy is accompanied with each tube assembly. Tough costing a little more, these premium telescopes will afford great satisfaction to you.

Mizar doesn't forget another economical choice: standard 1/8-wave (peak-to-valley) **SL** series Newtonians. Unlike cheap spherical mirrors, this 1/8-wave accuracy is good enough for most ordinary visual or photographic uses including high power planetary observation. Any other features, well-made mirror cell, solid focuser, etc., are all the same as RS20's.

<150 RS20 & SL>

OPTICAL SYSTEM: 150mm dia., 750mm f.l., f/5.0, 1/20-wave (RS20) or 1/8-wave (SL) Parabolic Primary Mirror & 45mm minor axis Elliptical Flat Secondary Newtonian System, Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 42mm (T) threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / TUBE DIA.: 184mm / WEIGHT: 6.5kg

* 150 RS20 TUBE ASSEMBLY w/Finderscope <#MI-060>

* 150 SL TUBE ASSEMBLY w/Finderscope <#MI-061>

<130 RS20 & SL>

OPTICAL SYSTEM: 130mm dia., 720mm f.l., f/5.5, 1/20-wave (RS20) or 1/8-wave (SL) Parabolic Primary Mirror & 40mm minor axis Elliptical Flat Secondary Newtonian System, Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 42mm (T) threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / TUBE DIA.: 154mm / WEIGHT: 4.8kg

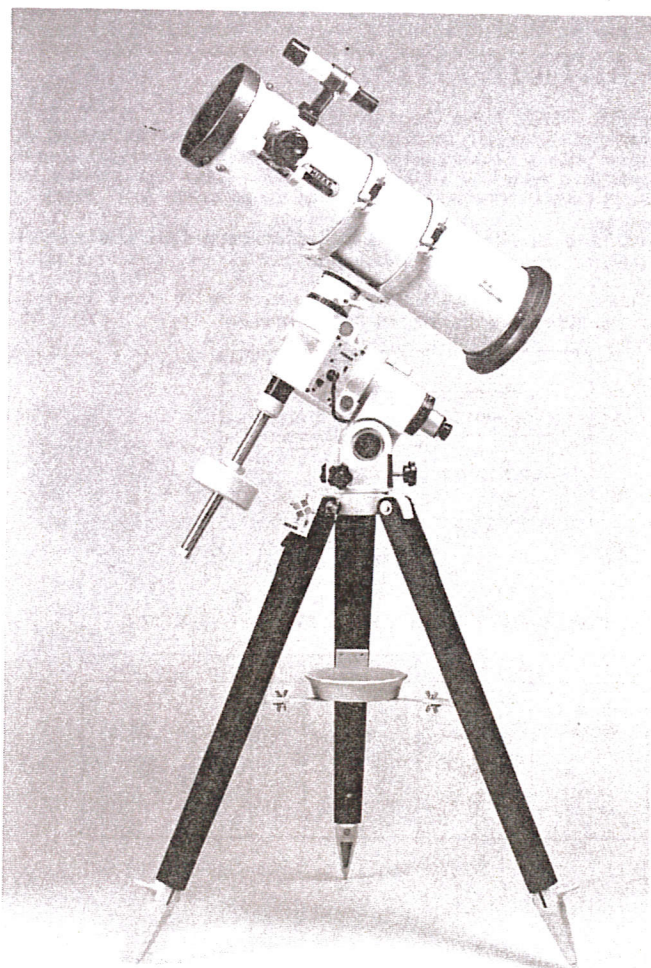
* 130 RS20 TUBE ASSEMBLY w/Finderscope <#MI-062>

* 130 SL TUBE ASSEMBLY w/Finderscope <#MI-063>

<100 SL>

OPTICAL SYSTEM: 100mm dia., 600mm f.l., f/6.0, 1/8-wave Parabolic Primary Mirror & 40mm minor axis Elliptical Flat Secondary Newtonian System, Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 42mm (T) threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / TUBE DIA.: 140mm / WEIGHT: 3.5kg

* 100 SL TUBE ASSEMBLY w/Finderscope <#MI-064>



ACHROMAT REFRACTORS

Mizar offers 68mm and 80mm fine quality refractors. Either model includes coated air-spaced Fraunhofer achromat objective lens. Unlike other cheap models, either lens cell is push-pull adjustable for the best collimation. The focuser is equipped with very smooth rack & pinion with a locking screw. The well placed baffles and careful inside blackening assures good image contrast. Ideal for beginner's first telescope with the use of K-Altazimuth Mount or SP Equatorial Mount.

<80M>

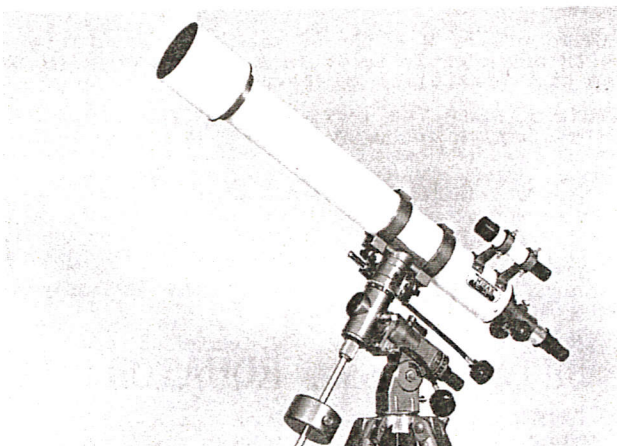
OBJECTIVE: 80mm dia., 900mm f.l., f/11.3, Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / TUBE DIA.: 90mm

* 80M TUBE ASSEMBLY w/Finderscope <#MI-065>

<68M>

OBJECTIVE: 68mm dia., 800mm f.l., f/11.8, Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / TUBE DIA.: 72mm

* 68M TUBE ASSEMBLY w/Finderscope <#MI-066>



68mm GUIDING SCOPES

These 2 types of 68mm refractors are especially supplied for guiding scope use without finderscope. The lens cells and all the other features are the same as 68M refractor. 72mm tube dia. fits most ordinary guiding scope brackets or mounts. The screw holes for finderscope are equipped on the tube, making it easy to mount Mizar 6 x 30mm Finderscope if necessary.

<GT-68M>

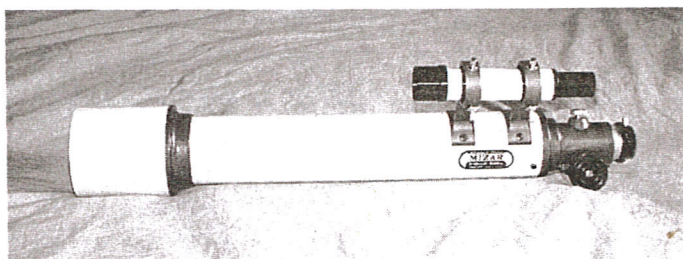
OBJECTIVE: 68mm dia., 800mm f.l., f/11.8, Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / COLOR: White / TUBE DIA.: 72mm

* GT-68M TUBE ASSEMBLY (w/o finderscope) <#MI-067>

<GT-68S>

OBJECTIVE: 68mm dia., 600mm f.l., f/8.8, Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / COLOR: White / TUBE DIA.: 72mm

* GT-68S TUBE ASSEMBLY (w/o finderscope) <#MI-068>



MULTI-PURPOSE REFRACTOR

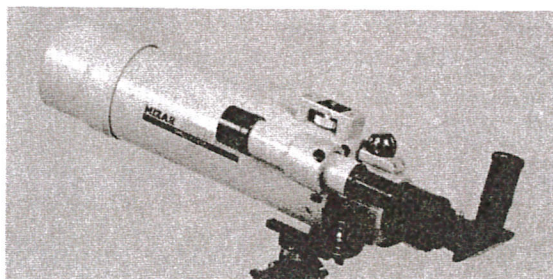
BN-80 is a very compact refractor with fully multi-coated 80mm f/5 achromat objective. By utilizing the choicest optical glass as a material of the objective, this telescope yields incredibly sharp images as f/5 achromat refractor. This cute telescope is suitable for various purposes such as astronomical observation, bird watching, terrestrial viewing, tele-photography (T-threads equipped), etc. Whatever purpose you use it for, you will surely be satisfied with the very high performance.

<BN-80>

OBJECTIVE: 80mm dia., 400mm f.l., f/5.0, Fully Multi-Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 42mm (T) threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle (switchable on either side) / COLOR: Moss Green / WEIGHT: 2.3kg / Mounts on any standard photo tripod / Compass and mounting screw (1/4-20) equipped on the tube / Focus down to 4 meter

* BN-80 TUBE ASSEMBLY w/Finderscope <#MI-069>

17035



★KENKO★

BETA-PLASMA & NES EQUATORIAL MOUNTS

Kenko offers 2 kinds of precision equatorial mounts, BETA-PLASMA and NES. Either model is filled with advanced features in a compact body. A lot of parts and accessories are commonly used, adding to the versatility of the use.

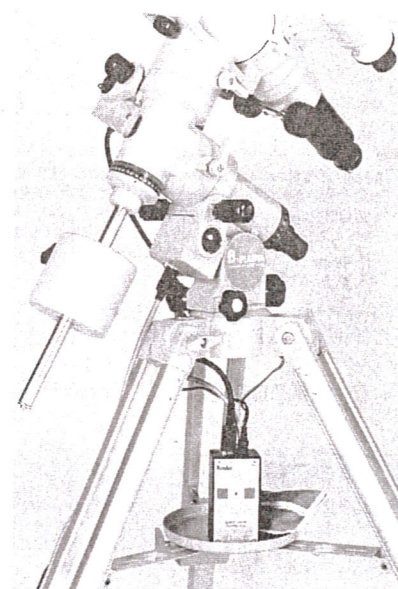
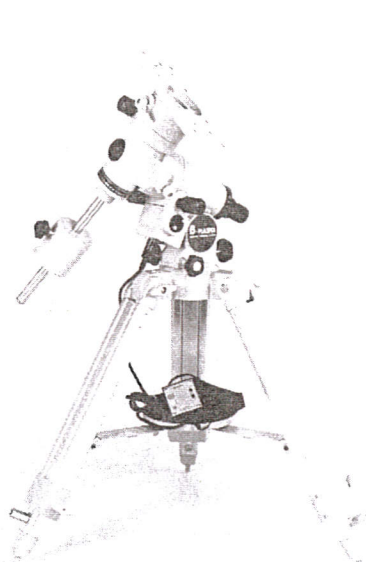
Beta-Plasma, the ivory-colored neat mount, yields highest performance of this class with built-in dual axis quartz motor drives. Very precision gunmetal 144-teeth worm is equipped in either axis, assuring best tracking accuracy with least periodic error. Manual slow-motion control is also possible while the motors are in use. Built-in illuminated polar alignment telescope contains a special reticle pattern to work on either hemisphere (precession corrected). With referring to 3 stars (or 2 stars on Southern hemisphere) indicated in the reticle pattern, very accurate setting (within 5') can be done in a few minutes without the necessity of leveling or any calculation. Latitude (20 to 55-degree) and azimuth fine adjusting controls are of course equipped for easy set-up. As letting the polar axis point the zenith, this mount can also be used as a smooth and stable altazimuth mount. No tools are needed to assemble or disassemble this mount, promising very quick and easy use anywhere.

NES is a basic model without motor drives (optionally available). The other fine features of Beta-Plasma are all inherited, achieving great cost performance.

<BETA-PLASMA EQUATORIAL MOUNT>

RA CONTROL: Quartz Pulse-Motor & Drive
Corrector / RA WORM: 144-teeth
Gunmetal / DEC CONTROL: Quartz
Pulse-Motor & Drive Corrector / DEC
WORM: 144-teeth Gunmetal / RA DRIVE
CORRECTOR: Stop, +1x Sidereal, +2x,
-2x, +8x, -8x (Reversed RA slewing is
also available for Southern hemisphere
use.) / DEC DRIVE CORRECTOR: Stop,
+2x, -2x, +8x, -8x / HAND CONTROLLER:
Palm-Sized, North-South-East-West Both
Axes Slewing / RA SETTING CIRCLE: 20
min. per division / DEC SETTING
CIRCLE: 2.5-degree per division /
COLOR: Ivory / POWER SOURCE: 12-Volts
DC / WEIGHT without tripod: 8.6kg
(incl. 1pc of 3.5kg Counterweight) /
Works between 20-degree and 55-degree
area on either hemisphere / Latitude &
Azimuth Fine Adjusting Controls
equipped for precision set-up /
Built-in Illuminated Polar Alignment
Telescope designed for the use on
either hemisphere (Precession
Corrected)

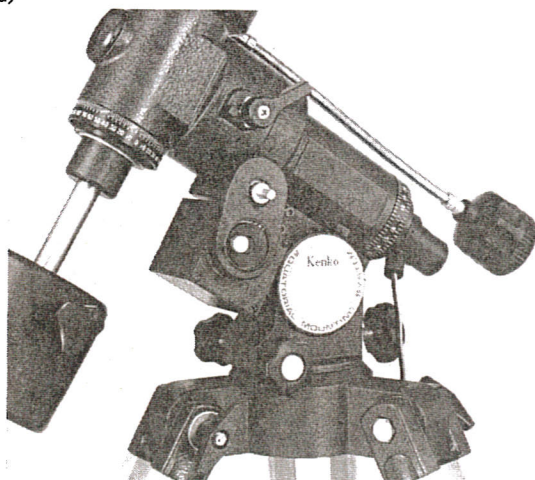
* BETA-PLASMA EQUATORIAL MOUNT
BASIC SET <#KE-001>
[Beta-Plasma Mount Base Unit,
Counterweight 3.5kg, Tube holder Base,
Hand Controller, Battery Case]



<NES EQUATORIAL MOUNT>

RA CONTROL: Manual Slow-Motion Control (Quartz Pulse-Motor Control is optional) / RA
WORM: 144-teeth / DEC CONTROL: Manual Slow-Motion Control (Quartz Pulse-Motor Control
is optional) / DEC WORM: 144-teeth / RA SETTING CIRCLE: 20 min. per division / DEC
SETTING CIRCLE: 2.5-degree per division / COLOR: Black / WEIGHT without tripod: 7.3kg
(incl. 1pc of 3.3kg Counterweight) / Works between 20-degree and 55-degree area on
either hemisphere / Latitude & Azimuth Fine Adjusting Controls equipped for precision
set-up / Built-in Illuminated Polar Alignment Telescope designed for the use on either
hemisphere (Precession Corrected)

* NES EQUATORIAL MOUNT
BASIC SET <#KE-002>
[NES Mount Base Unit,
Counterweight 3.3kg, Tube
holder Base]
(Manual Slow-Motion Cables or
Knobs are optional - choose
from #KE-022 to 024)



ACCESSORIES

<TRIPODS>

ADJUSTABLE TRIPOD with accessory tray: 730mm to 1270mm ALUMINUM <#KE-003> / 550mm to 960mm ALUMINUM (Ivory Parts) <#KE-004> / 830mm to 1460mm WOOD <#KE-005>

<COUNTERWEIGHTS>

0.9kg <#KE-006> / 1.5kg <#KE-007> / 2.2kg <#KE-008> / 3.3kg <#KE-009> / 3.5kg (Ivory) <#KE-010>

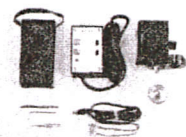
<TUBE HOLDERS>

63mm dia. <#KE-011> / 80mm dia. <#KE-012> / 90mm dia. <#KE-013> / 90mm dia. (Ivory) <#KE-014> / 140mm dia. <#KE-015>

<MOTOR DRIVES for NES>

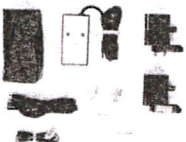
RA QUARTZ PULSE-MOTOR DRIVE SET <#KE-016>

High performance pulse-motor is used for precision tracking. Stop, 1x Sidereal and 2x slewing are switchable with a hand controller. Reversed slewing is also available for Southern hemisphere use. Works on 6-volts DC. Battery case and tools included.



DUAL AXIS QUARTZ PULSE-MOTOR DRIVE SET <#KE-017>

Quality pulse-motors are used for both axes, promising very smooth and accurate tracking. RA slewing (+1x Sidereal, -2x, +2x, -8x, +8x) and DEC slewing (-2x, +2x, -8x, +8x) are all controlled with a hand controller. Reversed slewing is also available for Southern hemisphere use. Works on 12-volts DC. Battery case and tools included.



<ADAPTING PLATES>

1/4-20 HOLDING ADAPTER <#KE-018>

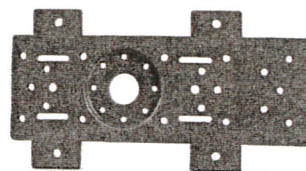
This special adapter accepts any instrument with 1/4-20 standard photo screw hole, placing it onto Kenko equatorial mount. Sliding function is equipped for adjusting the balance.

SYSTEM PLATE <#KE-019>

With the use of a pair of tube holders, this plate can mount the tube assembly onto any standard photo tripod. Can also be used as a piggyback camera mount when placed on top of a pair of tube holders. *63mm Tube Holder can't be used for piggyback use.

MULTI-USE PLATE <#KE-020> / FULLY MULTI-USE PLATE <#KE-021>

Placed instead of the tube holders to mount the main tube and some other units simultaneously. 14 various screw holes are equipped on Multi-Use Plate, while 25 various screw holes and 4 sliding slots on Fully Multi-Use Plate.



<MANUAL SLOW-MOTION HANDLES>

MANUAL SLOW-MOTION CABLE (LONG) <#KE-022> /
MANUAL SLOW-MOTION CABLE (SHORT) <#KE-023> /
MANUAL SLOW-MOTION KNOB <#KE-024>

CAMERA TRACKER

Kenko offers an all electric portable equatorial mount especially designed for deep-sky photography, working perfectly on either hemisphere. Without a guiding scope or any other special equipment, **SKY MEMO NS** can make very accurate sidereal tracking, assuring over 30 min. exposure time with 200mm telephoto lens. The tracking error is kept within 0.005% of the sidereal rate. The powerful (over 2.3kg/cm) quartz pulse-motor is well operated only on 6-Volts DC. Though weighing only 4.5kg, the maximum load is over 6kg. 16 screw holes (1/4-20) are equipped on the base plate, accepting 2 or 3 cameras or telescopes simultaneously. The illuminated polar alignment telescope is common to Beta-Plasma or NES. Very accurate setting (within 5') can be done in a few minutes without the necessity of leveling or any calculation. Just mount **SKY MEMO NS** on your photo tripod, and you will be forever free from the boring work of photo-guiding.

<SKY MEMO NS>

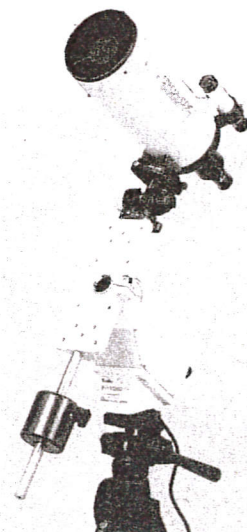
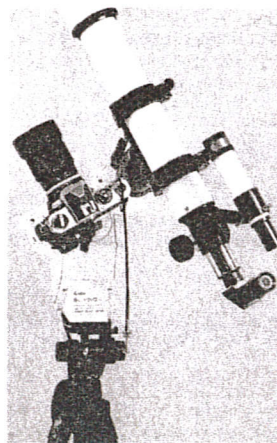
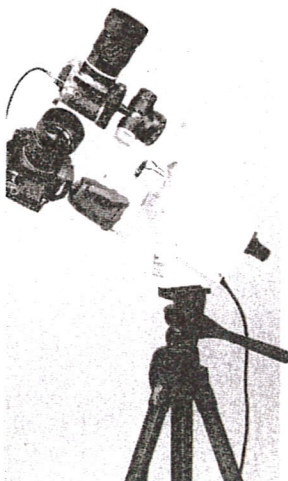
RA CONTROL: P43G Quartz Pulse-Motor & Hand Controller / RA SHAFT: 40mm dia. with 2 Tapered Roller Bearings / RA WORM: 144-teeth Gunmetal / HAND CONTROLLER: Stop, +1x Sidereal, +2x (Reversed slewing is also possible for the Southern hemisphere use.) / POWER SOURCE: 6-Volts DC / COLOR: Ivory / WEIGHT: 4.5kg / DIMENTION: 290mm x 95mm x 200mm / MAXIMUM LOAD: about 6.5kg / Built-in Illuminated Polar Alignment Telescope designed for the use on either hemisphere (Precession Corrected)

* SKY MEMO NS BASIC SET <#KE-025>

[Sky Memo NS Base Unit w/Base Plate, 4pcs of 1/4-20 Screw Bolts, Illuminator Unit, Battery Case, Tools]

- ACCESSORIES -

LUXURY ALUMINUM CARRYING CASE <#KE-026> / 30.5mm PF FILTER <#KE-027> : To protect the objective lens of the polar alignment telescope. / COUNTERWEIGHT SHAFT <#KE-028>: To accept the counterweights (common to Beta-Plasma or NES).

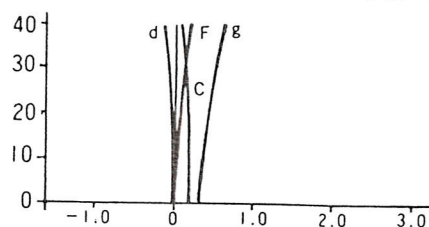


ED APOCHROMAT REFRACTORS

Kenko is one of the largest and most advanced optics manufacturers in Japan. Among the various line of unique and quality instruments, the ED apochromat lens is really a great "masterpiece". Utilizing the advanced technology and long experience as well as the choicest optical glass material, Kenko has made it possible to eliminate every evil effect, such as chromatic aberration, spherical aberration or coma, to the absolute limit. Every air-to-glass surface perfectly multi-coated, these premium lenses yield 99.8% full transmission as well as really sharp and crisp star images with no residual color recognized. Push-pull adjusting screws are of course equipped on the lens cells for the best collimation. The focuser is solid rack and pinion with a large 49mm focusing tube which gives 46mm large prime-focus image circle - sufficient to cover full frame of 35mm SLR camera. With the use of Kenko 0.75x Reducer, the f/8 models make f/6 fast astrographs which yield edge to edge pin-point star images.

EX-80EDs

(80 ϕ f : 640%)



<ED-AP090>

OBJECTIVE: 90mm dia., 1100mm f.l., f/12.2, Fully Multi-Coated Air-Spaced Doublet ED Apochromat / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 7 x 50mm achromat with cross-hair reticle / COLOR: White / SIZE: 90mm Dia. x 1200mm Long / WEIGHT: 4.5kg

* ED-AP090 TUBE ASSEMBLY w/Finderscope <#KE-029>

<ED-AP080L>

OBJECTIVE: 80mm dia., 1000mm f.l., f/12.5, Fully Multi-Coated Air-Spaced Doublet ED Apochromat / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 7 x 50mm achromat with cross-hair reticle / COLOR: White / SIZE: 90mm Dia. x 1050mm Long / WEIGHT: 4.1kg

* ED-AP080L TUBE ASSEMBLY w/Finderscope <#KE-030>

<ED-AP080S>

OBJECTIVE: 80mm dia., 640mm f.l., f/8.0, Fully Multi-Coated Air-Spaced Doublet ED Apochromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 90mm Dia. x 735mm Long / WEIGHT: 2.6kg

* ED-AP080S TUBE ASSEMBLY w/Finderscope <#KE-031>

<ED-AP060>

OBJECTIVE: 60mm dia., 480mm f.l., f/8.0, Fully Multi-Coated Air-Spaced Doublet ED Apochromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 80mm Dia. x 535mm Long / WEIGHT: 1.9kg

* ED-AP060 TUBE ASSEMBLY w/Finderscope <#KE-032>

<EX-80EDs>

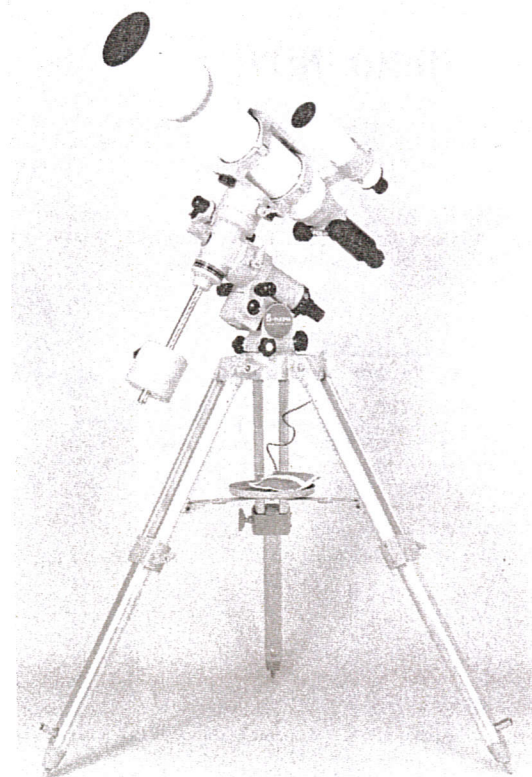
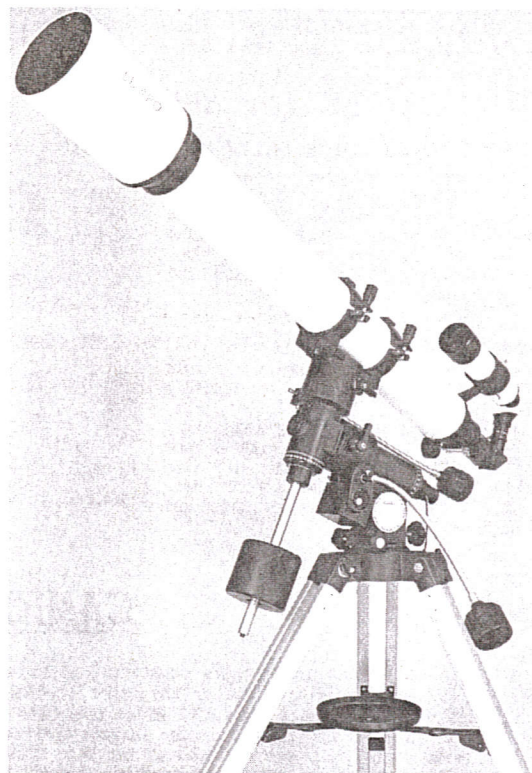
This model is especially supplied to suit Beta-Plasma Equatorial Mount. The color of the focuser and some other parts is exactly the same as Beta-Plasma, offering the best matching. Large 7 x 50mm finderscope is equipped. The complete set is also available, including a luxury all-in-one aluminum carrying case.

OBJECTIVE: 80mm dia., 640mm f.l., f/8.0, Fully Multi-Coated Air-Spaced Doublet ED Apochromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 7 x 50mm achromat with cross-hair reticle / COLOR: White / SIZE: 90mm Dia. x 735mm Long / WEIGHT: 2.7kg

* EX-80EDs TUBE ASSEMBLY w/Finderscope <#KE-033>

* EX-80EDs COMPLETE SET <#KE-034>

[Tube Assembly w/Finderscope, Beta-Plasma Equatorial Mount Set w/Tube Holders, System Plate, 550mm to 960mm Aluminum Adjustable Tripod, 2 eyepieces (1.25" Orthoscopes 6mm & 1.25" Kellner 25mm), 1.25" Star Diagonal Prism, All-in-One Luxury Aluminum Carrying Case]



K-CASSEGRAIN CATADIOPTICS

Kenko offers unique Cassegrain-type f/8 Catadioptric telescopes, K-Cassegrains. The optics consists of a spherical primary, a spherical secondary and 2 or 3 element multi-coated corrector lens placed in the baffle tube. The corrector lens efficiently eliminates the spherical aberration and some other evil effects, yielding surprisingly sharp images with no chromatic aberration. Unlike some other cheap Catadioptrics, the image quality of K-Cassegrain allows the use of even very high magnifications for lunar or planetary observation, still offering great sharpness and clarity. The affordable prices are also very attractive.

125C is especially designed for astronomical use. With the use of smooth rack and pinion focuser, quick and comfortable focusing can be done without any irritating mirror-shift focusing problem. Push-pull adjusting screws are equipped on both primary and secondary mirror cells for the best collimation.

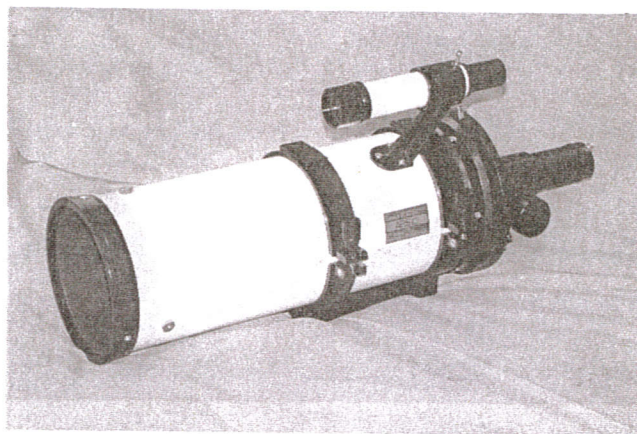
100C is a multi-purpose telescope for both astronomical and terrestrial uses. The internal focusing system allows the use of various additional equipment such as erecting prism, assuring the versatility of this quality telescope. The tube assembly can mount directly onto any 1/4-20 standard photo screw. Just 1.5kg lightweight compact body offers best portability for any transport use.

SPACIA-100C is a modified version of 100C, containing some engineering plastic parts and a simpler finderscope to feature both lighter weight and lower price. The optics are exactly the same as 100C's. (The tube and some other important parts are still made of metal.)

<125C>

OPTICAL SYSTEM: 125mm Clear Aperture, 1000mm e.f.l., f/8.0, K-Cassegrain Catadioptric Design / MIRRORS: 125mm dia. Spherical Primary and 55mm dia. Spherical Secondary, Aluminized & Overcoated / CORRECTOR: 2-element (No Power), Multi-Coated / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 140mm Dia. x 565mm Long / WEIGHT: 2.6kg

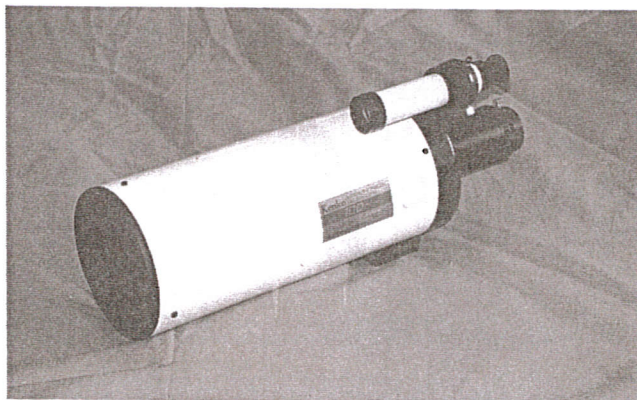
* 125C TUBE ASSEMBLY w/Finderscope <#KE-035>



<100C>

OPTICAL SYSTEM: 100mm Clear Aperture, 800mm e.f.l., f/8.0, K-Cassegrain Catadioptric Design / MIRRORS: 100mm dia. Spherical Primary and 45mm dia. Spherical Secondary, Aluminized & Overcoated / CORRECTOR: 3-element (No Power), Multi-Coated / FOCUSER: Internal Focusing with a Micrometric Knob / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 5 x 24mm achromat with cross-hair reticle / COLOR: White / SIZE: 120mm Dia. x 400mm Long / WEIGHT: 1.5kg / Mounts on any standard photo tripod.

* 100C TUBE ASSEMBLY w/Finderscope <#KE-036>



<SPACIA-100C>

OPTICAL SYSTEM: 100mm Clear Aperture, 800mm e.f.l., f/8.0, K-Cassegrain Catadioptric Design / MIRRORS: 100mm dia. Spherical Primary and 45mm dia. Spherical Secondary, Aluminized & Overcoated / CORRECTOR: 3-element (No Power), Multi-Coated / FOCUSER: Internal Focusing with a Micrometric Knob / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 5 x 24mm single lens objective with cross-hair reticle / COLOR: Yellow / SIZE: 120mm Dia. x 400mm Long / WEIGHT: 1.3kg / Mounts on any standard photo tripod.

* SPACIA-100C TUBE ASSEMBLY w/Finderscope <#KE-037>



DIFFRACTION LIMITED SCHMIDT CASSEGRAINS

Kenko's Schmidt Cassegrains are originally designed and manufactured by JSO (Japan Special Optics), the top-skilled Catadioptric supplier in Japan. Each optics is very carefully manufactured one by one, and severe matching tests are performed till every unit achieves the "diffraction limited" image quality. This painstaking procedure makes these premium telescopes yield the great performance that no other ordinary mass-market Schmidt Cassegrain can beat. Either tube assembly is very compact and mounts directly onto 1/4-20 standard photo screw.

<SC125L>

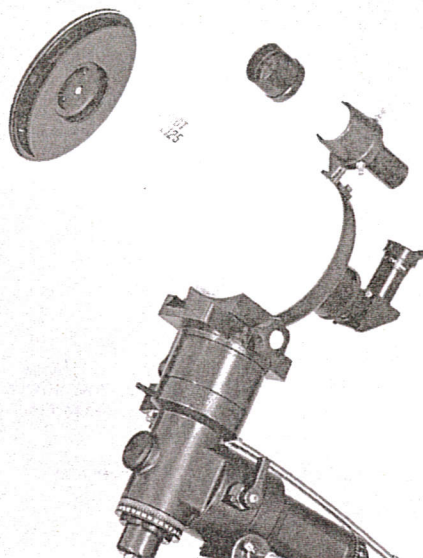
OPTICAL SYSTEM: 125mm Clear Aperture, 1800mm e.f.l., f/14.4, Schmidt Cassegrain Design / MIRRORS: 130mm dia. Spherical Primary and 45mm dia. Spherical Secondary, Aluminized & Overcoated / CORRECTOR PLATE: 125mm dia., Aspherical, Fully-Coated / FOCUSER: Internal Focusing with a Micrometric Knob / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 140mm Dia. x 390mm Long / WEIGHT: 2.6kg / Mounts on any standard photo tripod.

* SC125L TUBE ASSEMBLY w/Finderscope <#KE-038>

<SC125S>

OPTICAL SYSTEM: 125mm Clear Aperture, 1200mm e.f.l., f/9.6, Schmidt Cassegrain Design / MIRRORS: 130mm dia. Spherical Primary and 45mm dia. Spherical Secondary, Aluminized & Overcoated / CORRECTOR PLATE: 125mm dia., Aspherical, Fully-Coated / FOCUSER: Internal Focusing with a Micrometric Knob / EYEPIECE HOLDER: 49mm threads - 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 140mm Dia. x 370mm Long / WEIGHT: 2.5kg / Mounts on any standard photo tripod.

* SC125S TUBE ASSEMBLY w/Finderscope <#KE-039>



ACHROMAT REFRACTORS

Quality 80mm and 90mm Fraunhofer achromat refractors are supplied from Kenko. Either lens is air-spaced and fully coated, yielding best images of this class. The focuser is smooth rack and pinion with standard 36.4mm threads and 1.25" eyepiece holder. The inside blackening is very carefully performed to eliminate the stray light. These well-made refractors will make complete telescopes with the use of NES or Beta-Plasma equatorial mounts, and are also very suitable as high-performance guiding scopes for larger telescopes.

<90mm f/14.4>

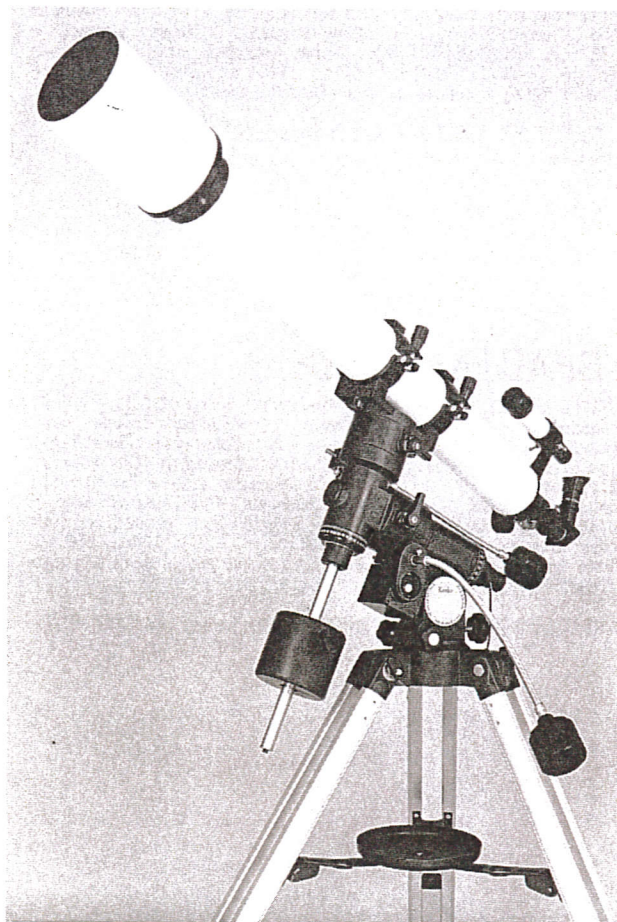
OBJECTIVE: 90mm dia., 1300mm f.l., f/14.4, Fully Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 90mm Dia. x 1400mm Long

* 90mm f/14.4 TUBE ASSEMBLY w/Finderscope <#KE-040>

<80mm f/12.5>

OBJECTIVE: 80mm dia., 1000mm f.l., f/12.5, Fully Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 90mm Dia. x 1040mm Long

* 80mm f/12.5 TUBE ASSEMBLY w/Finderscope <#KE-041>



★UNITRON★

ED SEMI-APOCHROMAT RICH FIELD REFRACTORS

<RF-80>

Great performance 80mm f/6.3 ED semi-apochromat refractor is supplied from Unitron. RF-80 is most becoming to the name of Rich Field Telescope. With the use of Unitron Widescan 32mm (2"), for example, 5.4-degree super rich field is obtainable. Newly-designed doublet ED semi-apochromat objective lens yields incredibly sharp and crisp images even at extremely high power for planetary observation. Careful multi-coating offers highest transmission and image contrast. Solid 2" large focuser with smooth rack and pinion promises comfortable and precise focusing. (It is recommended to use with Japanoptik 2" Perfect Adapter - see "ACCESSORIES & TELESCOPE COMPONENTS".) 1/4-20 photo screw adapter block is equipped, mounting directly onto any standard photo tripod. Beautiful black finish tube assembly makes a good ornament in your room even when not used.

OBJECTIVE: 80mm dia., 500mm f.l., f/6.3, Multi-Coated Air-Spaced Doublet Semi-Apochromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 2" - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: Black / SIZE: 82mm Dia. x 450mm Long / WEIGHT: 1.9kg / Mounts on any standard photo tripod

* RF-80 TUBE ASSEMBLY w/Finderscope <#UN-001>

2541.-



<RF-80 KIT>

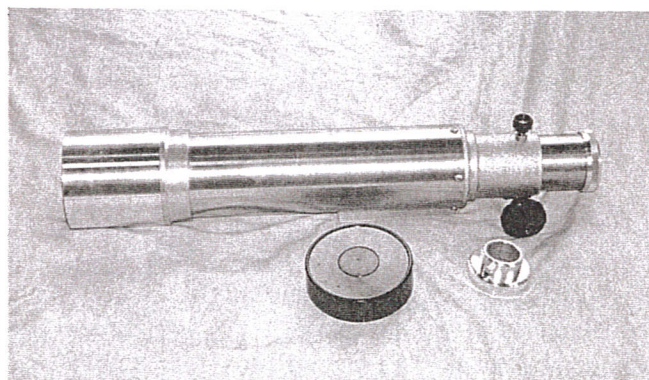
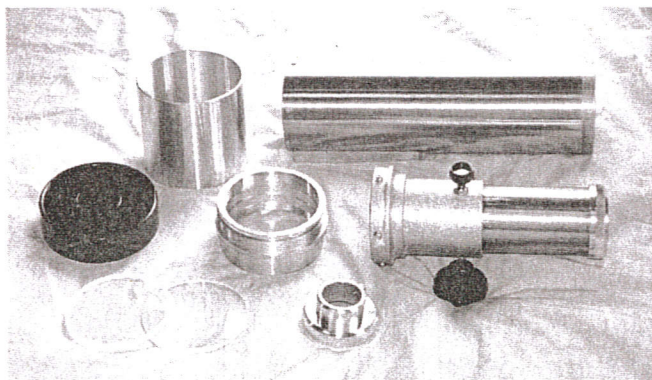
Do-it-yourself kit of RF-80. Silver-colored main tube and brass focusing tube looks outstanding among other telescopes. Very easy assembling with a screwdriver in a few minutes. Except the finderscope, any other optical or mechanical feature is the same as RF-80's. (For advanced ATM's, only the objective lens w/cell is also supplied.)

* RF-80 TUBE ASSEMBLY KIT <#UN-002>

1938

[80mm f/6.3 ED Semi-Apochromat Objective Lens w/Cell, Dew Cap, Dust Cover, Tube w/Photo Screw Adapter Block, 2" Focuser w/1.25" Adapter]

* 80mm f/6.3 ED SEMI-APOCHROMAT OBJECTIVE LENS w/Cell <#UN-02L>



★ CARTON ★

SUPER NOVA EQUATORIAL MOUNT

Carton **SUPER NOVA**, the blue-colored stylish equatorial mount, has been a long seller both in Japan and some other countries (sometimes under different names) for almost a decade. This sturdy mount has many unique and useful features. The RA and Dec units are exactly the same design except the setting circles. Either unit includes a precision 85mm dia. 180-teeth worm, very large of this class. The Dec unit can be taken off the RA unit, and RA unit is also taken off the Wedged Tripod Base, each of which can be used for another use. Either RA or Dec unit accepts the Multi-Plate individually, making a compact camera tracker on top of a standard photo tripod with the use of 1/4-20 Camera Tripod Adapter Plate. Every joint base is designed to be flat, making it easy to mount any other self-built instrument with flat mounting base. The 305mm long counterweight shaft is very useful for balancing with a lighter counterweight. At the end of the shaft is the stopper screw of 1/4-20 threads, which makes it possible to mount a pan head with the use of Photo Screw Adapter. Latitude and azimuth fine controls are equipped on the Wedged Tripod Base. The standard model is designed to suit 25 to 47-degree latitude. For Canadian or European customers, the high-latitude version (approx. 40 to 60-degree) is also available. Every separated component is also available, therefore only the necessary parts can be chosen to fulfill your special needs.

<SUPER NOVA EQUATORIAL MOUNT>

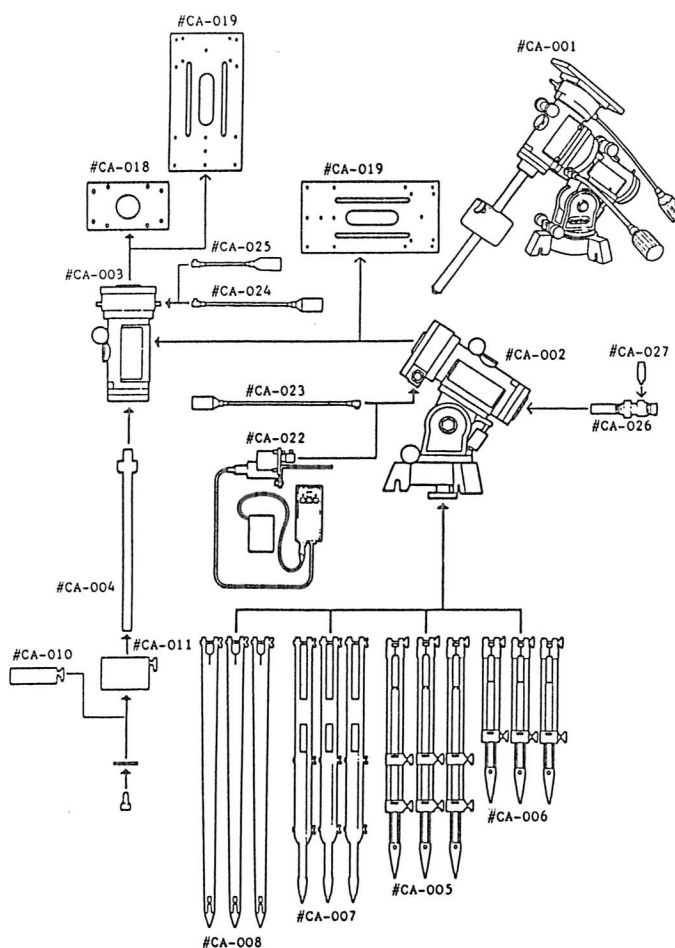
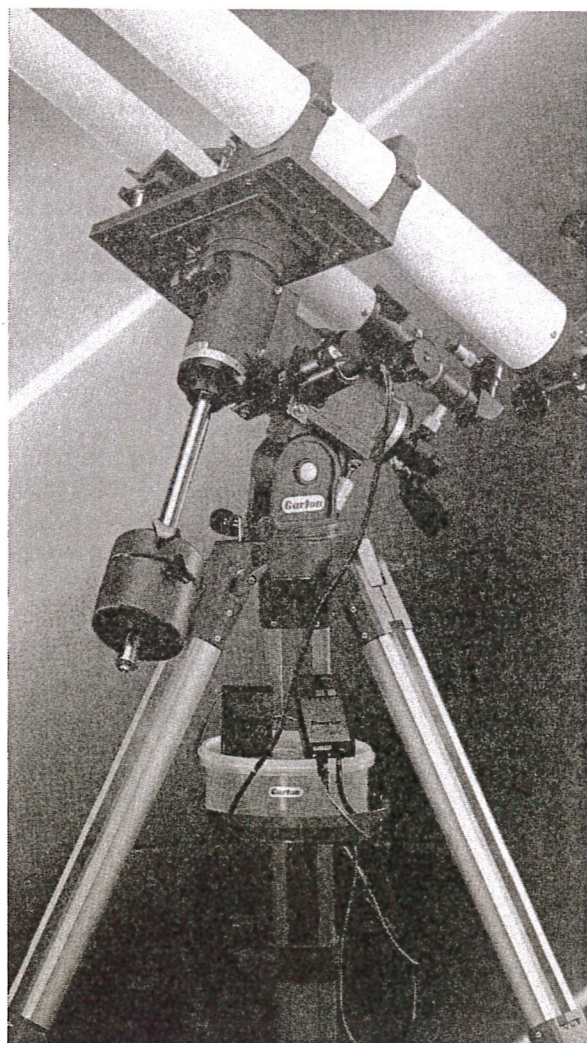
RA CONTROL: Manual Slow-Motion Control (Quartz Pulse-Motor Control is optional) RA WORM: 180-teeth / DEC CONTROL: Manual Slow-Motion Control / DEC WORM: 180-teeth / RA SETTING CIRCLE: 20 min. per division / DEC SETTING CIRCLE: 5-degree per division / COLOR: Blue / WEIGHT without tripod: 11kg (incl. 1pc of 2.9kg Counterweight) / Works between 25-degree and 47-degree area on either hemisphere (High-Latitude Version is also available) / Latitude & Azimuth Fine Adjusting Controls equipped for precision set-up

* SUPER NOVA EQUATORIAL MOUNT BASIC SET <#CA-001>

[RA Unit Set (incl. Wedged Tripod Base), Dec Unit, Counterweight Shaft, 2.9kg Counterweight, Tube Hoder Plate, 450mm Manual Slow-Motion Cable for RA, 350mm Manual Slow-Motion Cable for Dec, Tools]

- COMPONENTS -

RA UNIT SET (incl. WEDGED TRIPOD BASE) <#CA-002> / DEC UNIT <#CA-003> / COUNTERWEIGHT SHAFT <#CA-004>



ACCESSORIES

<TRIPODS>

ADJUSTABLE TRIPOD with accessory tray: 900mm to 1320mm ALUMINUM <#CA-005> / 600mm to 920mm ALUMINUM <#CA-006> / 1000mm to 1290mm WOOD <#CA-007>

SOLID WOOD TRIPOD 1250mm with accessory tray <#CA-008>

<COUNTERWEIGHTS>

1.5kg <#CA-010> / 2.9kg <#CA-011>

<TUBE HOLDERS>

63mm dia. <#CA-012> / 90mm dia. <#CA-013> / 110mm dia. <#CA-014> / 140mm dia. <#CA-015> / TUBE HOLDER PLATE <#CA-018>

Useful square-shaped tube holders (up to 110mm model) accepts pan head for piggy-back photography with the use of 1/4-20 Photo Screw Adapter. Tube Holder Plate is needed to fit onto Super Nova Mount. (Tube Holder Plate also accepts every Mizar EX/AR Tube Holder. Please use Mizar's for some unlisted tube dia.)

<MOTOR DRIVE>

RA QUARTZ PULSE-MOTOR DRIVE SET <#CA-019>

High performance pulse-motor is used for precision tracking. Stop, 1x Sidereal, -1x, +4x and -4x slewing are switchable with a hand controller. Reversed slewing is also available for Southern hemisphere use. Works on 4.5 to 12-volts DC. Battery case and tools included

<ADAPTING PLATES>

MULTI-PLATE <#CA-020>

Placed instead of the tube holder Plate to mount the main tube and some other units simultaneously. 16 various screw holes and 3 sliding slits are equipped. Accepts: Tube Holders, Photo Screw Adapter, etc. There is a common part to Mizar products, also accepting Mizar's Guiding Scope Bracket, Adjustable Guiding Scope Mount or Piggyback Camera Mount.

1/4-20 CAMERA TRIPOD ADAPTER PLATE <#CA-021>

Placed under Tube Holder Plate or RA (or Dec) Unit to fit onto any standard photo tripod.

PHOTO SCREW ADAPTER <#CA-022>

Male 1/4-20 screw is equipped on either side, accepting pan head or any other small instrument with standard photo screw hole. Fits Multi-Plate or the end of Counterweight Shaft.

<MANUAL SLOW-MOTION CABLES>

450mm MANUAL SLOW-MOTION CABLE <#CA-023> / 350mm MANUAL SLOW-MOTION CABLE <#CA-024> / 210mm MANUAL SLOW-MOTION CABLE <#CA-025>

<POLAR TELESCOPE>

POLAR ALIGNMENT TELESCOPE <#CA-026> / LED ILLUMINATOR <#CA-027>

5 x 20mm (8-degree field) achromat with a very usefully designed reticle for quick and easy setting. Under very dark skies, LED Illuminator clearly illuminates the reticle in the black field. *The reticle is designed only for the use on the Northern hemisphere.

ACHROMAT REFRACTORS

Carton offers great performance achromat refractors. 80mm - 100mm Fraunhofer achromat lenses are very carefully manufactured and severely tested to yield the best image quality of the class. Either lens cell is equipped with push-pull adjusting function for precise collimation. The solid focuser with a useful locking screw offers very smooth focusing. Standard 36.4mm threads and 1.25" eyepiece adapter is equipped. The 6 x 30 finderscope contains Kellner 22mm cross-hair eyepieces (.965") which is detachable for the use with the main tube or some other telescope. The finderscope bracket is X-Y adjustable for easier aligning than ordinary 3-point setting screws.

<80KU>

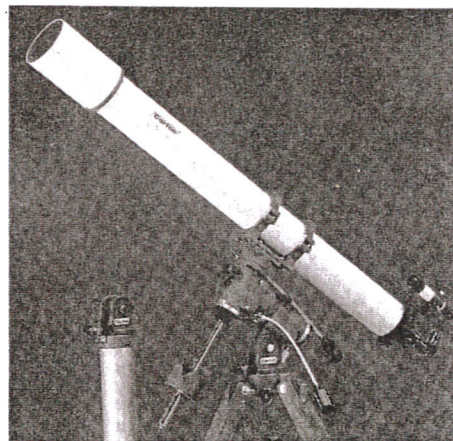
OBJECTIVE: 80mm dia., 1000mm f.l., f/12.5, Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle (X-Y adjustable - eyepiece detachable) / COLOR: White / SIZE: 90mm Dia. x 950mm Long / WEIGHT: 3.3kg

* 80KU TUBE ASSEMBLY w/Finderscope <#CA-028>

<100KX>

OBJECTIVE: 100mm dia., 1300mm f.l., f/13.0, Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle (X-Y Adjustable - Eyepiece detachable) / COLOR: White / SIZE: 110mm Dia. x 1250mm Long / WEIGHT: 4.8kg

* 100KX TUBE ASSEMBLY w/Finderscope <#CA-029>



60mm GUIDING SCOPES

Quality 60mm achromat guiding scopes of various f.l. are available. The basic features of each part are almost the same as the 80mm or 100mm refractor. Finderscope mounting screw holes are equipped on the tube, making it easy to mount Carton 6 x 30mm or 10 x 30mm finderscope if necessary (see "ACCESSORIES & TELESCOPE COMPONENTS").

OBJECTIVE: 60mm dia., Coated Air-Spaced Doublet Achromat / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / COLOR: White / TUBE DIA.: 63mm

U-60 <#CA-030>: 1000mm f.l., f/16.7

T-60 <#CA-031>: 900mm f.l., f/15.0

R-60 <#CA-032>: 700mm f.l., f/11.7

P-60 <#CA-033>: 360mm f.l., f/6.0



★ INTES ★

NOTICE:

- * Every INTES product is manufactured in Moscow, Russia.
- * The price for every INTES product is quoted in US Dollar.
- * Customers in the UNITED STATES, CANADA, GERMANY, AUSTRIA, BELGIUM, FRANCE, SWITZERLAND, should purchase INTES products from the authorized dealers in each area.

SUPER QUALITY 6" MAKSUTOV CASSEGRAINS

"The Maksutov, aperture for aperture, is superior to any other telescope, provided its optics are of high quality. Tolerances are very small; slight imperfections in the mirrors or lens or in the optical alignment become glaring defects. Workmanship must be painstaking, tedious, and near-perfect. Consequently, the Maksutov is an expensive instrument, but in the long run well worth its price." - Neale E. Howard, THE TELESCOPE HANDBOOK AND STAR ATLAS.

At last, the full capabilities of the renowned Maksutov Cassegrain are available in an instrument that the average amateur can afford to purchase. The mechanical, optical, and cosmetic quality of INTES telescopes equals or surpasses that of the best examples of commercially produced catadioptric telescopes available anywhere.

INTES telescopes are fabricated and tested by Russia's finest craftsmen. Each matched, hand-corrected mirror-lens pair must pass a series of stringent tests:

- clearly define a round Airy disc
- produce identical intra- and extra-focal diffraction patterns
- demonstrate perfect radial symmetry and freedom from astigmatism
- display extreme zonal smoothness of figure when examined interferometrically

Only then will the optician sign his name to the certificate of optical quality that accompanies each telescope to meaningfully guarantee that each INTES telescope will equal or exceed all theoretical limits of contrast and resolution. Each mirror-lens set is mounted in a barrel assembly machined with such precision that no collimation or centering adjustments are incorporated!

The resulting performance is breathtaking Bright, needle-sharp star images against a velvety black background. Delicate, low-contrast details on the planets, where definition is paramount. Exquisite views of subtle tonal variations in nebulae and galaxies. When atmospheric conditions are favorable, INTES 6" Maksutov will clearly split the dwarf companion Sirius B from its primary star with dark sky between!

The purchase of an astronomical telescope is a lifetime investment. Those who treasure intricate, handcrafted mechanisms will find that an INTES mounting is made with the care and precision of a fine timepiece, while those who value exquisite optical quality will discover that no effort is spared to place at their command the very finest lenses and mirrors that the hand and eye of man can produce.

INTES craftsmen put perfection above production. There is no substitute for the hours of painstaking labor required to bring an optical surface to the finest figure. No mirror or lens leaves their hands until it passes an exacting series of tests. If you have never seen the planets through an excellent telescope of moderate aperture, observing the planets through one of INTES instruments may startle you intricate belt structure on Jupiter, minor divisions in the rings of Saturn, a wealth of detail on Mars.

To support such a fine telescope adequately, so that observing and photography are a joy rather than an exercise in overcoming a host of frustrations, is expensive. But the dividends returned every time the instrument is turned towards the heavens more than justify the initial investment.

We invite side-by-side performance comparisons with any telescope of comparable aperture regardless of its price! You can order with the complete confidence that every INTES telescope represents the finest instrument in its class capable of satisfying the most demanding user.

<MK-65>

6" f/10 Maksutov Cassegrain tube assembly with the following features:

MENISCAS CORRECTOR LENS: Grade A optical crown. Transmits all wavelengths in the visual spectrum. Anti-reflection three layer multi-coating on both surfaces for transmission exceeding 98%. Closes tube to image-degrading air current and airborne contaminants that damage mirror coatings.

PRIMARY MIRROR: Fine-annealed low expansion borosilicate glass. Vacuum-deposited aluminum coating. Silicon monoxide protective overcoat.

TUBE CONSTRUCTION: Lathe-turned aluminum, wall thickness of 4mm. Assures retention of optical collimation. Provides rapid thermal acclimation.

FOCUSER: Precision threaded and centered helical mechanism. Butter-smooth operation. No annoying image shift.

PRIMARY BAFFLE TUBE: Carefully ray-tracked. Internally threaded to eliminate glancing-angle reflections.

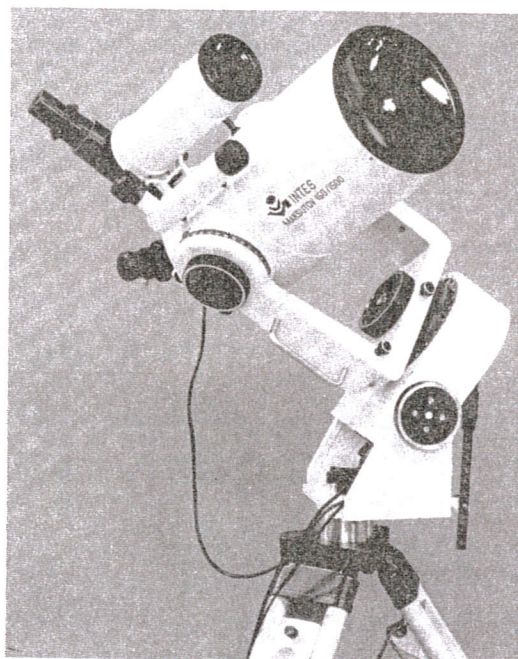
DIAGONAL EYEPiece ADAPTER: Rotates 360-degree for comfortable right-angle viewing. Overcoated, first-surface mirror. Standard 1.25" format eyepieces retained by knurled set-screw.

FINDERSCOPE: 10 x 30mm, 4-degree field of view. Coated, cemented achromat doublet objective lens. Kellner eyepiece with micrometer diopter adjustment and Polaris reticle.

OPTICAL SYSTEM: 150mm Clear Aperture, 1500mm e.f.l., f/10.0, Maksutov Cassegrain Design / **FOCUSER:** Precision Helical Focuser / **EYEPiece HOLDER** (visual use): 1.25" / **REAR CELL:** 56mm threads / **FINDERSCOPE:** 10 x 30mm achromat with cross-hair & Polaris reticle, Right-Angle / **COLOR:** White / **SIZE:** 190mm Dia. x 380mm Long / **WEIGHT:** 3.9kg / Mounts on any photo tripod

* MK-65 SET <#IN-001>

[Tube Assembly w/Finderscope, Prime-Focus Camera Adapter (T-ring needed), Integral Carrying Handle, Luxury Black Leather Carrying Case w/Shoulder Strap]



<MK-63>

Complete set of 6" f/10 Maksutov Cassegrain with fork-type equatorial mount and 60mm f/25.4 Maksutov Cassegrain photo-guide scope w/Reticule Projection Device. The features are:

FORK MOUNT: Thickest base and arms of sand cast aluminum. Eliminates the "jitters" typical of die-cast construction, damps vibration rapidly. Machined to precise perpendicularity to polar axis. Convenient handles for ease of pointing and carrying.

SETTING CIRCLES: Both readable at a glance from the observer's position. Precision engraved on anodized aluminum substrates. Direct-reading RA Porter-type slip-ring.

RA SLOW MOTION: Pinion gear type, radially adjustable. 360-degree rotation independent of drive. Slewing displacement rate: one hour of RA per complete turn of knob.

RA BRAKE: Lever-activated screw with conical tip. Highly wear resistant.

DEC SLOW MOTION: Tangent arm type. Threaded brass carriage advances over stainless steel threaded rod. Dual knobs on each side of fork arm assures that controls are always readily accessible. Fine displacement rate: 15 arc-minutes per complete turn of knob.

DEC BRAKE: Friction type. Large easy-to-clamp knurled knob machined from solid aluminum bar stock. Fully engages or disengages with a twist.

POLAR AXIS ASSEMBLY: Hardened steel axle rides on pre-loaded tapered roller bearings. Permanently lubricated. Assures smooth, stable rotation of fork about RA axis without a hint of wobble or play.

ELECTRIC CLOCK DRIVE: Sidereal-rate system assembled with the precision of a Swiss watch. Large 5.25" diameter 360-teeth worm gear exhibits sinusoidal periodic error of less than 7 arc-seconds from peak to valley. Motor speed continuously monitored by opto-interrupter sensor with feedback control circuit to insure stability of tracking rate. Enclosure provides complete protection from dust, dirt, and moisture.

DRIVE CORRECTOR: Completely hand-held. Temperature-compensated solid-state circuitry. Instantaneous "fast" and "slow" push-button switches. Potentiometer for selection of sidereal, lunar, and planetary tracking rates. Operates on household current (115 Volts AC 60Hz or 220 Volts AC 50Hz - please specify when ordering) or field power source (12 Volts sealed, maintenance-free, rechargeable battery).

WEDGE ASSEMBLY: Includes bubble level and engraved latitude scale. Micrometric turnbuckle latitude angle adjustment for precise polar alignment. Full 360-degree rotation in azimuth for rapid orientation on local meridian. Suitable for use on table top, tripod, or permanent pedestal.

PHOTOGRAPHIC GUIDING TELESCOPE: 60mm aperture, 1500mm f.l., f/25.4 Maksutov Cassegrain design. Excellent "leverage" without differential flexure for error-free long-exposure photographs of deep-sky objects. Easily offset to acquire suitable guide star.

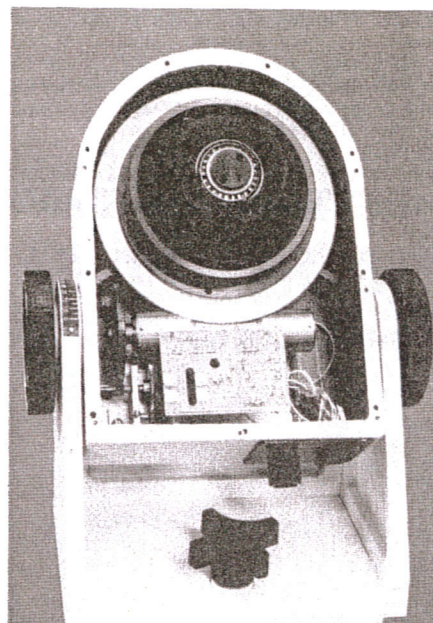
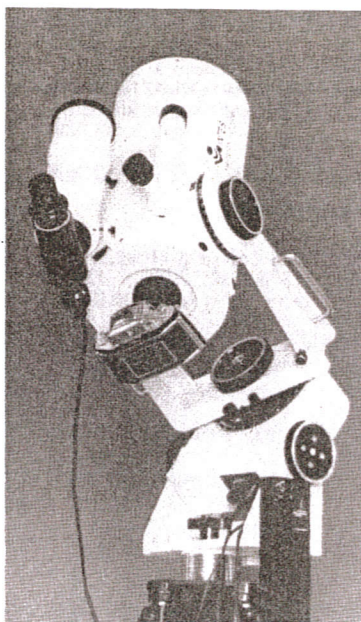
RETICLE PROJECTION DEVICE: Projects red cross-hair reticle onto the field of any eyepiece. Helical focusing mechanism, potentiometer brightness control.

WEIGHT: 16.4kg (incl. tube assembly / less wood cabinet or field tripod)

* MK-63 COMPLETE SET <#IN-002>

[Tube Assembly w/Finderscope, 60mm f/25.4 Maksutov Cassegrain Photo-Guide Telescope w/Reticule Projection Device, Equatorial Fork Mount w/Drive Corrector, Prime-Focus Camera Adapter (T-ring needed), Wood Cabinet, Transformer-rectifier Power Supply (115 Volts AC 60Hz or 220 Volts AC 50Hz - please specify when ordering)]

NOTICE: The 6" f/10 tube assembly of MK-63 is fixed to the fork mount, not detachable for individual use.



ACCESSORIES & PARTS

FIELD TRIPOD <#IN-003>

Extremely stable and rigid field tripod of variable height from 800mm to 1380mm. Wood, fiberglass, and aluminum construction. Includes carrying sling and spiked metal tips for use in soft ground. 6.5kg weight.

PEDESTAL <#IN-004>

Steel column 115mm dia., 1220mm tall. Detachable cast aluminum legs with leveling screws and swivel pads. Black enamel finish.

ADAPTER PLATE for MK65 <#IN-005>

For attaching MK65 to Celestron/Vixen "Super Polaris" or Televue/Carlton "Super Nova (System Mount)" equatorial mount. Please specify when ordering. *Please ask for other special adapter plates for the mounts of unlisted brands.

12-VOLTS DC BATTERY <#IN-006>

For use of the telescope in the field. Rechargeable maintenance-free gel-cell battery, 12 Volts DC, 1.2 Amp-hours. Includes convenient bracket for easily attaching to and detaching from the tripod leg. Operates, stores or charges in any position. Up to 500 or more charge/discharge cycles. Self-discharge only 2% to 3% per month. Protective self-sealing relief valves prevent excessive cell pressure build-up if battery is accidentally over-charged.

60mm MAKUTOV PHOTO-GUIDE TELESCOPE SET (incl. #IN-008) <#IN-007>

60mm aperture, 1500mm f.l., f/25.4, Maksutov Cassegrain design. 240mm tube length and 80mm tube dia. Just 650g lightweight. Comes complete with Reticule Projection Device (#IN-008).

RETICLE PROJECTION DEVICE <#IN-008>

For guiding photographic exposures. Integral star diagonal, helical focuser, brightness control potentiometer. Suitable for use with any 1.25" format eyepiece or barlow lens-eyepiece combination. A modern observing aid which makes obsolete all eyepieces of conventional reticle and filament types. The red cross-line guiding pattern is optically projected onto the telescope's image plane. Fainter guide stars are usable because the field of view is totally dark except for the guiding pattern. Guiding accuracy is improved because the cross-hairs appear sharp and slender. Eyestrain is radically reduced; the stellar image is visible THROUGH the guiding pattern instead of BEHIND it. (included in #IN-002 or #IN-007)

18mm BERTELE EYEPIECE <#IN-009>

Modified Bertele design. Excellent correction of chromatic and spherical aberrations, astigmatism, and field curvature. Multi-coated, 55-degree field. 1.25" size, black anodized finish.

30mm KELLNER EYEPIECE <#IN-010>

Orthodox Kellner design. MgF2 coated, 45-degree field. 1.25" size, black anodized finish.

2.4x BARLOW LENS <#IN-011>

Achromatic Barlow lens, 2.4x amplification factor. MgF2 coated. 1.25" size, black anodized finish. Exquisite performance!

★PENTAX★

SD APOCHROMAT REFRACTORS

Here come the next generation apochromat refractors from Pentax. These SD apochromat refractors are not just improved models of the former Pentax ED's. As the material of the objective lens is newly developed SD (Super Excellent Low Dispersion) glass, which is very similar to fluorite in optical quality but is far more durable and stable, these models achieve ultimate image quality that can never be expected from any other achromat or ED apochromat refractor. Every lens surface is fully Super Multi-Coated (SMC), yielding highest transmission in every wavelength.

PENTAX SDHF series are designed especially for prime focus deep-sky photography. Absolutely color-free sharp image and very flat field can be obtained by SD apochromat objective lens with FIELD FLATTENER mounted at the front end of the focusing tube. The solid focuser is large enough to ensure medium format cameras to take full frame beautiful photography with pinpoint star images from edge to edge. These SDHF refractors are also very suitable for planetary observations too, yielding very sharp images even in high power. A luxury aluminum case is provided for each tube assembly. (except PENTAX 75 SDHF)

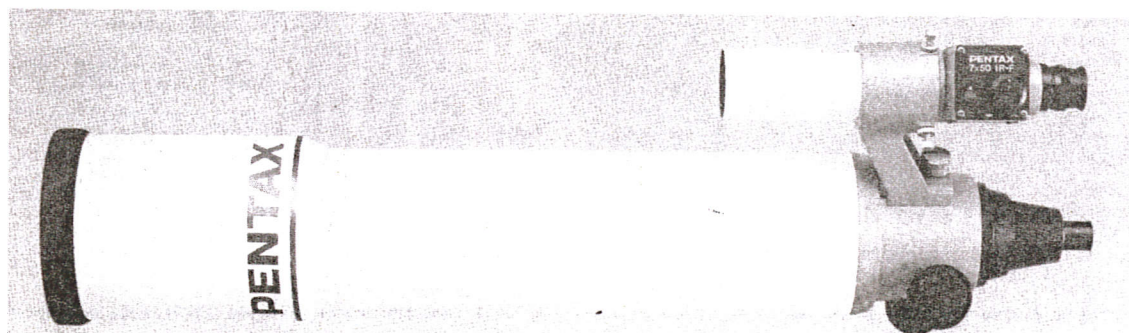
PENTAX 100 SDUF is the ultimate astrograph with very fast f/4 system. The specially designed 4-element SD apochromat lens yields 20-micron star images as well as very flat field. The superb lens design also keeps the light loss around the edge of the field to the very minimum, illuminating full field almost equally. A luxury aluminum case is provided for each tube assembly.

PENTAX 105 SD is really the best choice for those seeking after the best refractor for planetary observation. The superb optics with moderately long f.l. yields surprisingly crisp images with highest image contrast. A luxury aluminum carrying case is provided for each tube assembly.

<PENTAX 125 SDHF>

OBJECTIVE: 125mm dia., 800mm f.l., f/6.4, Super Multi-Coated 3-element SD Apochromat (Field Flatteners included) / FOCUSER: Rack & Pinion with a Rubber-Coated Locking Screw / EYEPIECE HOLDER: 2.37" - 1.5" - .965" (77mm - 58mm - 36mm filters threaded) / COLOR: White [Tube] - Moss Green [Focuser] / SIZE: 140mm Dia. x 897mm Long / WEIGHT: 9.0kg

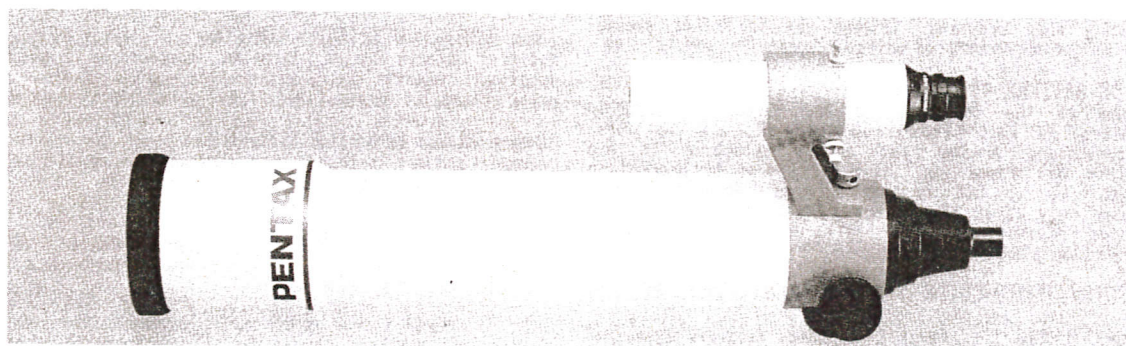
* PENTAX 125 SDHF TUBE ASSEMBLY w/LUXURY ALUMINUM CARRYING CASE (w/o finderscope) <#PE-001>



<PENTAX 105 SDHF>

OBJECTIVE: 105mm dia., 700mm f.l., f/6.7, Super Multi-Coated 3-element SD Apochromat (Field Flatteners included) / FOCUSER: Rack & Pinion with a Rubber-Coated Locking Clamp / EYEPIECE HOLDER: 2.37" - 1.5" - .965" (77mm - 58mm - 36mm filters threaded) / COLOR: White [Tube] - Moss Green [Focuser] / SIZE: 115mm Dia. x 743mm Long / WEIGHT: 5.3kg

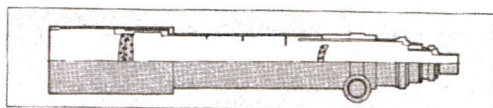
* PENTAX 105 SDHF TUBE ASSEMBLY w/LUXURY ALUMINUM CARRYING CASE (w/o finderscope) <#PE-002>



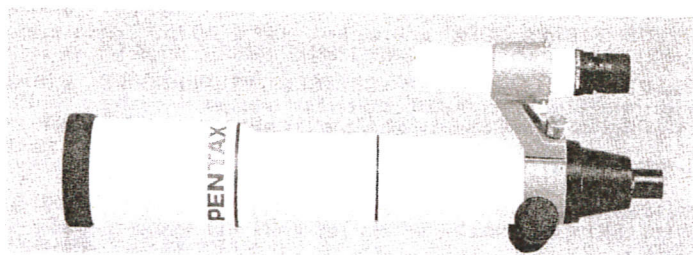
<PENTAX 75 SDHF>

OBJECTIVE: 75mm dia., 500mm f.l., f/6.7, Super Multi-Coated 3-element SD Apochromat (Field Flattenor included) / FOCUSER: Rack & Pinion with a Rubber-Coated Locking Clamp / EYEPIECE HOLDER: 2.37" - 1.5" - .965" (58mm - 36mm filters threaded) / COLOR: White [Tube] - Moss Green [Focuser] / SIZE: 75mm Dia. x 480mm Long (when dew cap drawn-in) / WEIGHT: 2.2kg

* PENTAX 75 SDHF TUBE ASSEMBLY (w/o finderscope) <#PE-003>



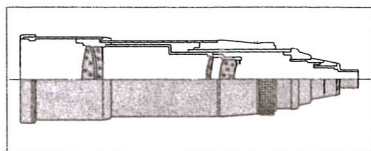
<3-element Lens Design of SDHF>



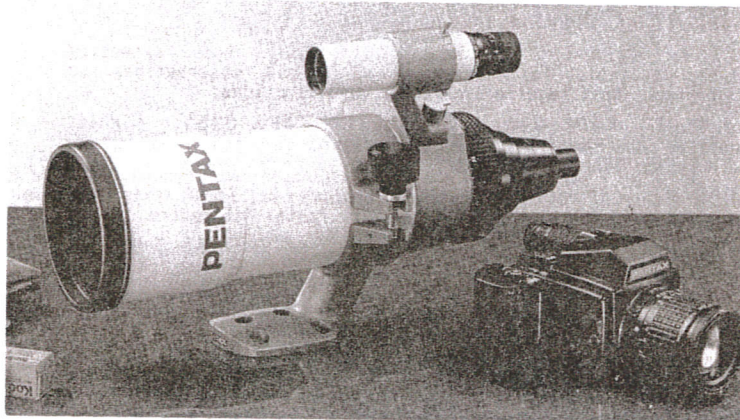
<PENTAX 100 SDUF>

OBJECTIVE: 100mm dia., 400mm f.l., f/4.0, Super Multi-Coated 4-element SD Apochromat (Field Flattenor included) *112mm filter threaded in front of the objective / FOCUSER: Precision Helical Focuser with a Rubber-Coated Locking Clamp (Graduations in 0.02mm's equipped) / EYEPIECE HOLDER: 2.37" - 1.5" - .965" (58mm - 36mm filters threaded) / COLOR: White [Tube] - Moss Green [Rear End Ring] / SIZE: 115mm Dia. x 436mm Long (when dew cap drawn-in) / WEIGHT: 4.0kg

* PENTAX 100 SDUF TUBE ASSEMBLY w/LUXURY ALUMINUM CARRYING CASE (w/o finderscope) <#PE-004>



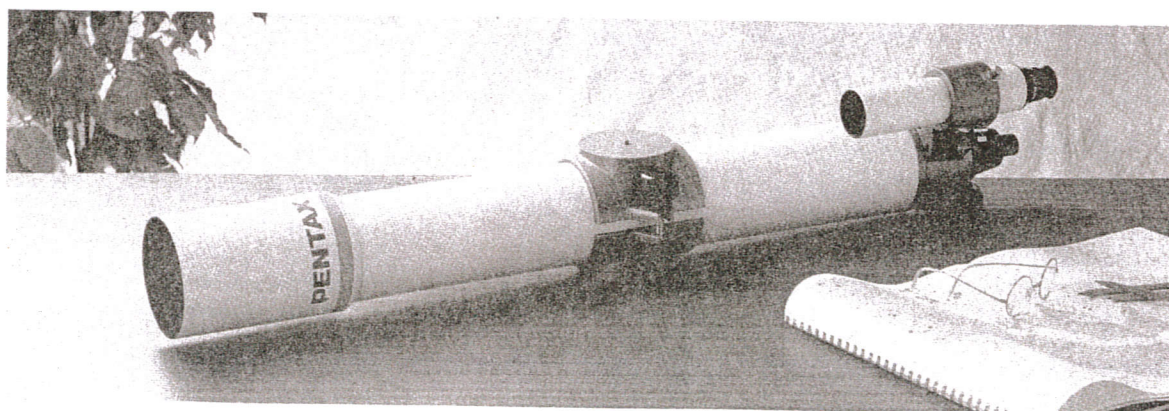
<4-element Lens Design of 100 SDUF>



<PENTAX 105 SD>

OBJECTIVE: 105mm dia., 1000mm f.l., f/9.5, Super Multi-Coated Doublet SD Apochromat / FOCUSER: Rack & Pinion with a Rubber-Coated Locking Clamp / EYEPIECE HOLDER: 2.37" - 1.5" - .965" (58mm - 36mm filters threaded) / COLOR: White [Tube] - Moss Green [Focuser] / SIZE: 115mm Dia. x 1114mm Long / WEIGHT: 4.0kg

* PENTAX 105 SD TUBE ASSEMBLY w/LUXURY ALUMINUM CARRYING CASE (w/o finderscope) <#PE-005>



ACCESSORIES

NOTICE: These accessories are all for Pentax SD Refractors only. Not suitable for any other system.

<FINDERSCOPIES>

7x35CI-F ERECT-IMAGE FINDERSCOPE w/Bracket <#PE-006>: 7x35mm achromat, 5.5-degree field, cross-hair reticle with a bull's eye in the center, erect-image roof prism included, fits 75SDHF-100SDUF (Shown in the pictures of 75SDHF-100SDUF)

7x50F FINDERSCOPE w/Bracket <#PE-007>: 7x50mm achromat, 7.1-degree field, cross-hair reticle with a bull's eye in the center, fits 105SDHF-125SDHF-100SDUF-105SD (Shown in the pictures of 105SDHF-100SD)

7x50IR-F ILLUMINATED RETICLE FINDERSCOPE w/Bracket <#PE-008>: 7x50mm achromat, 5-degree field, wireless LED illuminated cross-hair reticle with a bull's eye in the center (brightness adjustable), fits 105SDHF-125SDHF-100SDUF-105SD (Shown in the picture of 125SDHF)

<TUBE HOLDERS>

BH-75 <#PE-009>: fits 75SDHF / BH-115 <#PE-010>: fits 105SDHF-100SDUF-105SD (Shown in the picture of 105SD) / BH-115N <#PE-011>: a tall-leg model for 100SDUF (Shown in the picture of 100SDUF) / BH-140 <#PE-012>: fits 125SDUF

<EYEPIECE ADAPTERS (Focuser Size - Eyepiece Size)>

1.5" - 36.4mm threads <#PE-013> / 1.5" - 1.25" <#PE-014> / 2.37" - 2" <#PE-015>

<PRIME FOCUS CAMERA ADAPTERS FOR 35mm SLR>

PENTAX K <#PE-016> / PENTAX S <#PE-017> / OTHERS (specify your camera brand) <#PE-018> Large clear aperture type. 58mm filter can thread into every model.

<PRIME FOCUS CAMERA ADAPTERS FOR MEDIUM FORMAT SLR>

PENTAX 645 <#PE-019> / MAMIYA 645 <#PE-020> / PENTAX 67 <#PE-021> Large clear aperture type. 58mm filter can thread into 645 models. 77mm filter can thread into 67 model.

<REAR CONVERTERS>

RC1.4x <#PE-022> / RC2x <#PE-023>: Focal extending lenses suitable for any kind of visual observations or photography that require high power magnifications.

A1.4x-L <#PE-024> / A2x-L <#PE-025>: Highest quality focal extending lenses designed for photographic use with Pentax 35mm SLR cameras.

A645-2x <#PE-026>: Highest quality 2x focal extending lens designed for photographic use with Pentax 645 camera.

67-1.4x <#PE-027> / 67-2x <#PE-028>: Highest quality focal extending lenses designed for photographic use with Pentax 67 camera. (Can't work with 75SDHF-105SD.)

SMC PENTAX RCO.72x35 <#PE-029>: Super multi-coated highest quality focal reducer for photographic use with 35mm SLR cameras (used with Prime Focus Camera Adapter). Faster f-ratio with maximum transmission reduce the required exposure time for deep-sky objects. (Can't work with 75SDHF-100SDUF-105SD.)

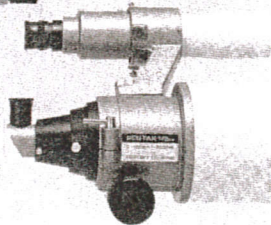
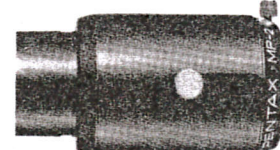
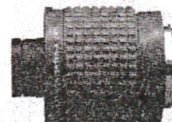
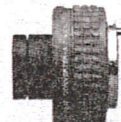
SMC PENTAX RCO.77x67 <#PE-030>: Super multi-coated highest quality focal reducer for photographic use with Pentax 67 camera (used with Prime Focus Camera Adapter). This can also work for visual use, ideal for deep-sky observations. (Can't work with 75SDHF-100SDUF-105SD.)

<TELE-EXTENDERS>

MP-1 & MOUNT HOLDER <#PE-031> / MP-2 <#PE-032>: For lunar or planetary photography, the tele-extender yields higher photographic magnifications sometimes desirable. 36mm filter can thread into either model. MT-1 accepts .965" eyepiece, while MP-2 accepts either .965" or 1.25" (used with #PE-014). MP-2 has a sliding eyepiece holder which can vary photographic magnification. Use with Prime Focus Camera Adapter.

<OTHER ACCESSORIES>

ALUMINUM CARRYING CASE for 75SDHF <#PE-033> / SUN PROJECTING SCREEN SB-5 (for 75SDHF) <#PE-034> / SUN PROJECTING SCREEN SB-4 (for 105SDHF-125SDHF-105SD) <#PE-035> / C-MOUNT ADAPTER <#PE-036>: For any video camera that has C-mount to adapt Pentax SD refractors. Can also be used with Tele-Extender MP-2. / .965" STAR DIAGONAL PRISM <#PE-037>: The holder for Sun Projecting Screen SB-2 is equipped. / SUN PROJECTING SCREEN SB-2 <#PE-038>: Compact right angle model for every Pentax refractor. Use with #PE-037. / .965" SOLAR DIAGONAL PRISM <#PE-039>: Allows only 5% of the light from the sun. Use with sun filter. / .965" STAR DIAGONAL MIRROR <#PE-040>: 62g lightweight diagonal with precision mirror. / 1.5" STAR DIAGONAL MIRROR <#PE-041>: Also Accepts 1.25" eyepiece with #PE-014. (Can't work with 100SDUF.) / .965" ERECTING PRISM <#PE-042>: Compact roof prism model.



★KASAI SELECTIONS★

A great number of telescopes and unique mountings are manufactured and supplied in Japan. Here we select some of them, wishing you can enjoy the same opportunities as Japanese astronomers.

CATADIOPTRICS

<MC-90>

This very compact f/5.6 modified Maksutov Cassegrain telescope is especially designed to yield sufficient performance for both photographic and visual uses. In addition to orthodox Maksutov Cassegrain design, a doublet field-flattener is built in the baffle tube, offering superb edge performance for prime focus photography with proper illumination to the very corner of 35mm format film. Every optical element being fully multi-coated, this telescope yields great clarity with good image contrast. The micrometric knob-type focuser offers very smooth focusing from infinity to very close object. Useful rotary system of the rear cell makes it easy for prime focus or eyepiece-projection photography to find the best camera angle. 104mm by 215mm, 1.2kg compact and lightweight tube assembly can mount directly on top of a standard 1/4-20 photo screw. Unlike some other small Catadioptrics, push-pull adjusting screws are equipped at the primary mirror cell for the best collimation. Supplied with a carrying bag.

OPTICAL SYSTEM: 90mm Clear Aperture, 500mm e.f.l., f/5.6, Modified Maksutov Cassegrain Design / MIRRORS: 90mm dia. Spherical Primary and 40mm dia. Spherical Secondary (central part of the corrector plate), Enhanced Aluminized & Overcoated / CORRECTOR PLATE: 90mm dia. Meniscus, Multi-Coated / FIELD FLATTENER: 2-element in the baffle Tube, Multi-Coated / FOCUSER: Internal Focusing with Micrometric Knob / EYEPIECE HOLDER: 42mm (T) threads - 36.4mm threads - 1.25" / TUBE COLOR: Black / SIZE: 104mm Dia. x 215mm Long / WEIGHT: 1.2kg / Mounts on any standard photo tripod

* MC-90 TUBE ASSEMBLY w/Carrying Bag <#KA-001>



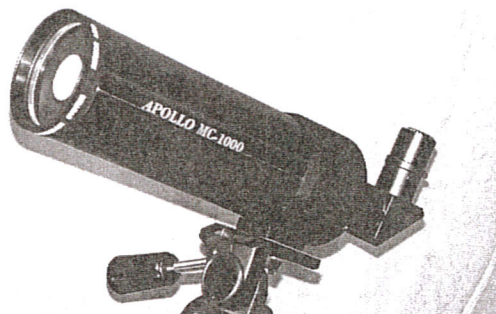
<APOLLO MC-1000>

This stylish, multi-purpose telescope is newly supplied for those who would like a compact catadioptric with sufficiently long focal length. Utilizing orthodox Maksutov Cassegrain design, APOLLO MC-1000 offers 1000mm long f.l. with well corrected image quality for both photographic and visual uses. The smooth micrometric knob-type focuser and the rotary rear cell are inherited from MC-90. The tube assembly can mount on top of a 1/4-20 standard photo screw. Aluminum-framed luxury carrying case is included. Optional 6 x 30mm finderscope is acceptable.

OPTICAL SYSTEM: 80mm Clear Aperture, 1000mm e.f.l., f/12.5, Maksutov Cassegrain Design / MIRRORS: 80mm dia. Spherical Primary and 33.5mm dia. Spherical Secondary (central part of the corrector plate), Aluminized & Overcoated / CORRECTOR PLATE: 80mm dia. Meniscus, Coated / FOCUSER: Internal Focusing with Micrometric Knob / EYEPIECE HOLDER: 42mm (T) threads - 36.4mm threads - 1.25" / TUBE COLOR: Black / SIZE: 91mm Dia. x 350mm Long / WEIGHT: 1.5kg / Mounts on any standard photo tripod

* APOLLO MC-1000 TUBE ASSEMBLY w/Luxury Carrying Case <#KA-002>

* 6 x 30mm Achromat Finderscope w/Bracket <#KA-003>



<MMC-80>

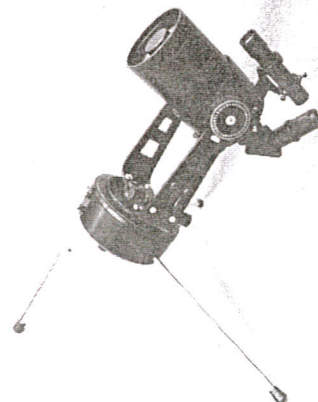
Compact "All-in-One" Catadioptric telescope set with equatorial/altazimuth mount and tabletop tripod legs. Newly-designed 5-element optical system yields clear and sharp images. Just 0.9kg lightweight tube assembly is detachable and mounts directly on any standard photo tripod. The smooth micrometric knob-type focuser offers wide range of the focus from infinity to very close object. The mounting is a typical fork type with 2-way slow-motion controls. It makes a stable altazimuth mount when placed directly on any flat platform like a table or on top of a sturdy photo tripod (a 1/4-20 standard photo screw hole is equipped at the bottom of this mount). It also makes a precision equatorial mount with the use of 3 adjustable tripod legs. Luxury compact aluminum carrying case (155mm x 265mm x 305mm) and many useful accessories are all included. In addition to the original feature, which doesn't accept any eyepiece for straight-thru viewing, we Kasai will machine the rear cell and add an adapter so that it can accept both 1.25" and .965" eyepieces for straight-thru viewing position. This additional feature is ONLY OFFERED FROM KASAI!

OPTICAL SYSTEM: 80mm Clear Aperture, 800mm e.f.l., f/10.0, 5-element Catadioptric Design / MIRRORS: 80mm dia. Spherical Primary and 36mm dia. Flat Secondary, Aluminized & Overcoated / FRONT PLATE: 80mm dia. Plano Optical Flat / CORRECTOR: 2-element in the baffle tube, Fully Coated / FOCUSER: Internal Focusing with Micrometric Knob / EYEPIECE HOLDER: 1.25" - .965" / FINDERSCOPE: 4x20mm single lens with cross-hair reticle / TUBE COLOR: Black / TUBE SIZE: 95mm Dia. x 185mm Long / TUBE WEIGHT: 0.9kg / Mounts on any standard photo tripod

MOUNTING SYSTEM: Tabletop Fork Type Equatorial and Altazimuth Mount / RA (AZIMUTH) CONTROL: Manual Slow-Motion Control with 360-degree Norm / DEC (ALTITUDE) CONTROL: Manual Slow-Motion Control with Tangent Arm / RA SETTING CIRCLE: 5 min. per division / DEC SETTING CIRCLE: 2-degree per division / TRIPOD: Adjustable Tabletop Steel Tripod to work on the area between 40- and 60-degree latitude. (Another tripod for lower latitude area is optionally supplied.) / TOTAL WEIGHT incl. Tube, Mount & Tripod: 4.3kg

* MMC-80 COMPLETE SET <#KA-004>

[Tube Assembly w/Finderscope, Mounting, tripod, Star Diagonal Prism, Erecting Prism, Prime-Focus Camera Adapter (T-mount needed), Sun Filter, Moon Filter, .965" Eyepieces (Kellner 25mm, Kellner 12.5mm & Orthoscopic 6mm), 1.25" to .965" Eyepiece Adapter, Luxury Aluminum Carrying Case]



HAND-HELD CATADIOPTRICS

2 types of very cute hand-held Catadioptric telescopes are newly offered. The optical assembly is a high-performance reflex telephoto lens for SLR cameras. By adding a roof prism, Kellner 20mm eyepiece and a hand grip, it makes a very compact spotting scope for terrestrial viewing. This unique telescope is also suitable for astronomical use, by taking off the prism house and threading a 1.25" or .965" eyepiece adapter (included) instead. The multi-coated 4-group 7-element optics is originally designed for photographic use, therefore it of course makes a perfect telephoto lens with the use of T-ring, offering very sharp images, flat field and sufficient edge illumination. The hand grip is detachable and the optical tube can mount on a 1/4-20 standard photo screw. Considering the fact the main optics is a true reflex telephoto lens, our prices are extremely low - it's because these models are supplied directly from a factory where most Japan-made reflex telephoto lenses are also designed and manufactured.

<BIRDSCOPE 500>

OPTICAL SYSTEM: 63mm Clear Aperture, 500mm e.f.l., f/8.0, 4-group 7-element Reflex Telephoto Catadioptric Design, Fully Multi-Coated / FOCUSER: Precision Helical Focusing / EYEPIECE HOLDER (terrestrial use): .965" / EYEPIECE HOLDER (astronomical use): 36.4mm threads - 1.25" or .965" / REAR CELL (photographic use): 42mm (T) threads / TUBE COLOR: Black / TUBE SIZE: 70mm Dia. x 165mm Long [just 80mm Long without roof prism & eyepiece] / TOTAL WEIGHT: 540g [just 360g without roof prism, eyepiece or hand grip] / Mounts on any standard photo tripod

* BIRDSCOPE 500 COMPLETE SET <#KA-005>

[Optical Tube Assembly, Roof Prism, Kellner 20mm (.965") Eyepiece, Hand Grip, Carrying Bag, Astronomical-Use Eyepiece Adapter (choice of 1.25" or .965" - please specify)]

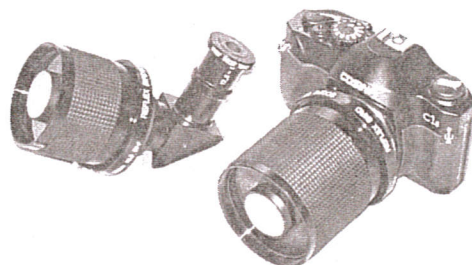


<BIRDSCOPE 300>

OPTICAL SYSTEM: 54mm Clear Aperture, 300mm e.f.l., f/5.6, 4-group 7-element Reflex Telephoto Catadioptric Design, Fully Multi-Coated / FOCUSER: Precision Helical Focusing / EYEPIECE HOLDER (terrestrial use): .965" / EYEPIECE HOLDER (astronomical use): 36.4mm threads - 1.25" or .965" / REAR CELL (photographic use): 42mm (T) threads / TUBE COLOR: Black / TUBE SIZE: 66mm Dia. x 145mm Long [just 61mm Long without roof prism or eyepiece] / TOTAL WEIGHT: 420g [just 240g without roof prism, eyepiece & hand grip] / Mounts on any standard photo tripod

* BIRDSCOPE 300 COMPLETE SET <#KA-006>

[Optical Tube Assembly, Roof Prism, Kellner 20mm (.965") Eyepiece, Hand Grip, Carrying Bag, Astronomical-Use Eyepiece Adapter (choice of 1.25" or .965" - please specify)]



COMPACT ACHROMAT REFRACTORS

2 types of short-focus compact refractors are offered at reasonable prices. GS-60AS has all metal sturdy tubing with solid focuser and 6 x 30mm achromat finderscope. With the addition of the 63mm Tube Holder, it can mount on top of any standard photo tripod. GS-50AS has lightweight plastic tubing with smooth .965" focuser. Photo-tripod adapter block is equipped on the tube. Either model includes a well color-corrected doublet objective lens, yielding very sharp images for f/7 or f/8.4 fast focal ratio.

<GS-60AS>

OBJECTIVE: 60mm dia., 420mm f.l., f/7.0, Doublet Achromat, Coated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" - .965" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / COLOR: White / SIZE: 63mm Dia. x 450mm Long / WEIGHT: 1.05kg

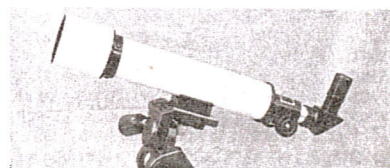
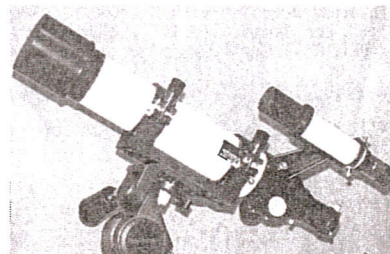
* GS-60AS TUBE ASSEMBLY w/Finderscope <#KA-007>

63mm TUBE HOLDER with a 1/4-20 standard photo screw hole <#KA-008>: To mount GS-60AS or any other 60mm refractor onto a standard photo tripod.

<GS-50AS>

OBJECTIVE: 50mm dia., 420mm f.l., f/8.4, Doublet Achromat, Coated / FOCUSER: Rack & Pinion / EYEPIECE HOLDER: .965" / COLOR: White / SIZE: 54mm Dia. x 385mm Long / WEIGHT: 500g / Mounts on any standard photo tripod.

* GS-50AS TUBE ASSEMBLY <#KA-009>



QUALITY 60mm f/10 PHOTO-GUIDE SCOPE

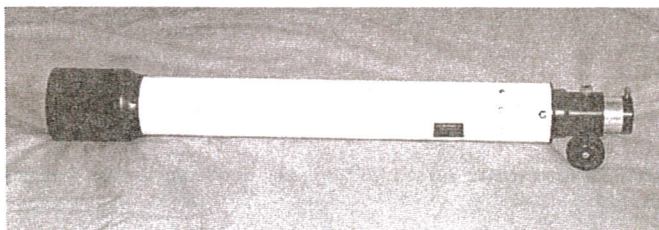
We offer a good quality 60mm f/10 achromat refractor tube assembly for serious astrophotographers. The objective lens is, unlike any other ordinary 60mm refractor's, very high performance air-spaced type with 4-surface fully coated. This fine lens allows the use of extremely high powers sometimes needed for precise photo-guiding, still yielding sufficiently sharp star images. 1.25" Eyepiece adapter is of course equipped. Optional 6 x 30mm finderscope is acceptable.

<K60/600>

OBJECTIVE: 60mm dia., 600mm f.l., f/10.0, Air-Spaced Doublet Achromat, 4-surface fully coated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / COLOR: White / SIZE: 63mm Dia. x 590mm Long / WEIGHT: 930g

* K60/600 TUBE ASSEMBLY <#KA-010>

* 6 x 30mm Achromat Finderscope w/Bracket <#KA-F10>



ADVANCED 4.5" NEWTONIAN

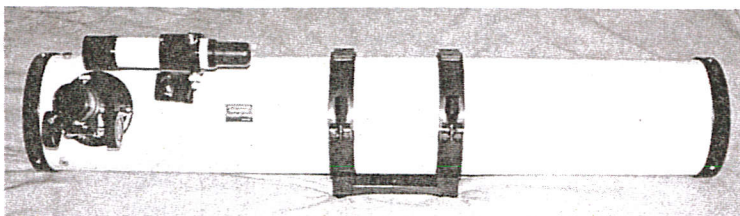
<NT-114>

114mm (4.5") Newtonian is now very widely supplied all over the world, under numerous different brand names. Some are loaded on German equatorial mounts, others on altazimuth mounts. Some are white, some are blue and others are black. It seems that the 4.5" Newtonian offers both sufficient aperture and good cost performance for most amateurs worldwide. Regrettably, however, most of these present models are equipped with very poorly-made .965" small focusers and single-lens toy finderscopes. Though having sufficient aperture, it can't accept any advanced eyepieces or some other useful instruments of 1.25" size. With fuzzy image of toy finderscope, it must be no easy to align telescope to the objects. We have specially ordered a trustworthy manufacturer to supply an advanced 4.5" Newtonian with a larger 1.25" focuser (36.4mm internal dia.) and a 6 x 30mm achromat finderscope. We have also abandoned the unstable small mount and thin tripod usually supplied with. If you need any suitable mount, please choose from several far better models listed in this catalog, such as Mizar SP, Kenko NES, etc. (137-140mm tube holder is suitable.)

OPTICAL SYSTEM: 114mm dia., 900mm f.l., f/7.9, Parabolic Primary Mirror & 25mm minor axis Elliptical Flat Mirror Newtonian Design, Aluminized & Overcoated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE ADAPTER: 36.4mm thread - 1.25" / FINDERSCOPE: 6 x 30mm achromat with cross-hair reticle / SIZE: 138mm Dia. x 810mm Long / WEIGHT: 2.8kg

* NT-114 TUBE ASSEMBLY w/Finderscope <#KA-011>

140mm TUBE HOLDER with a 1/4-20 standard photo screw hole <#KA-012>: To mount NT-114 or any other 138 - 142mm dia. tube onto a standard photo tripod. / 138mm TUBE HOLDER for MIZAR SP Mount <#KA-013> / 138mm TUBE HOLDER for MIZAR EX or AR-3 Mount <#KA-014> / 138mm UNIVERSAL TUBE HOLDER <#KA-015>: Economy tube holder with a 6mm dia. mounting hole.



KASAI'S SPECIAL 80mm ACHROMAT REFRACTORS

For any type of amateur astronomer, a good quality 80mm refractor tube assembly is a very useful instrument, playing various roles such as a photo-guide scope, a great finderscope, the second telescope for casual observation, etc. However, most 80mm refractor tube assemblies in today's market do not always fulfill the whole requirements of serious telescope users. To satisfy such customers, we have ordered an experienced manufacturer to supply some special models which will meet every important need as mentioned below:

- * Various Focal Lengths at User's Choice
- * Air-Spaced Fraunhofer-type Doublet Objective Lens
- * All 4 Lens Surfaces Fully Coated
- * Highest Optical Performance with Well-Corrected Sharp Images
- * Most Mechanical Parts Made of Metal
- * Solid and Smooth Focuser with a Locking Screw
- * 1.25" Eyepiece Adapter in 36.4mm Focusing Tube
- * With or Without 6 x 30mm Achromat Finderscope at User's Choice
- * 1/4-20 Photo Screw Adapter Block Equipped on Tube If User Requires
- * Above All, the Lowest Possible Price!

Now we can proudly offer the following models, which have been designed and manufactured to be equipped with all the 10 features listed above. We believe every model will satisfy any advanced amateur astronomer that needs fine 80mm refractors.

<KASAI 80mm REFRACTORS>

OBJECTIVE: 80mm dia., Air-Spaced Fraunhofer Doublet Achromat, 4-surface Fully Coated / FOCUSER: Rack & Pinion with a Locking Screw / EYEPIECE HOLDER: 36.4mm threads - 1.25" / COLOR: White / TUBE DIA.: 83mm

- * KASAI 80mm f/7 (560mm f.l.) TUBE ASSEMBLY <#KA-016>
- * KASAI 80mm f/8.8 (700mm f.l.) TUBE ASSEMBLY <#KA-017>
- * KASAI 80mm f/11.3 (900mm f.l.) TUBE ASSEMBLY <#KA-018>
- * KASAI 80mm f/12.5 (1000mm f.l.) TUBE ASSEMBLY <#KA-019>
- * KASAI 80mm f/15 (1200mm f.l.) TUBE ASSEMBLY <#KA-020>

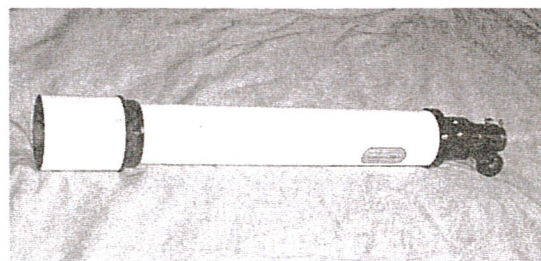
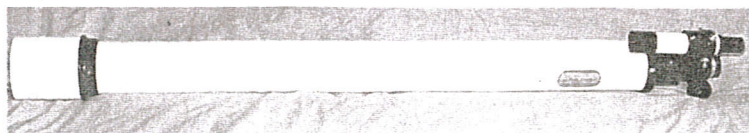
83mm UNIVERSAL TUBE HOLDER <#KA-021>: Economy tube holder with a 6mm dia. mounting hole.



- OPTIONAL FEATURES -

- * 6 x 30mm ACHROMAT FINDERSCOPE w/Bracket <#KA-022>
- * 1/4-20 STANDARD PHOTO SCREW ADAPTER BLOCK on Tube <#KA-023>

Please specify these additional features together with the order for tube assemblies. We will machine these items to fit the tubes, and make shipment in fixed condition.



MOUNTINGS

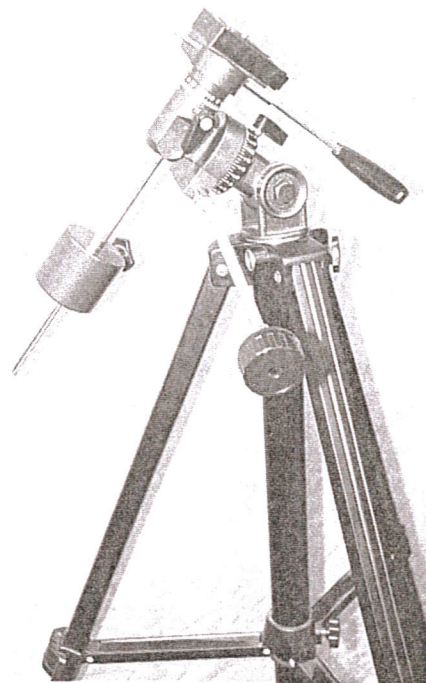
<SP-1 EQUATORIAL MOUNT>

Very compact equatorial mount for small telescopes up to 3kg tube weight. The joint base is equipped with a 1/4-20 standard photo screw to accept many kinds of telescopes such as KENKO 100C & SPACIA-100C, JSO SPACE-10, BORG REFRACTORS, KASAI CATADIOPTRICS, etc. Letting the polar axis point to the zenith, you can use it as a precision altazimuth mount, too. Adjustable metal tripod offers sufficient stability with a center column. Only 4kg total weight offers great portability especially for casual field observation. You can take it anywhere just like an ordinary photo tripod.

RA CONTROL: Manual Slow Motion Control with 360-degree Worm (100-teeth) / DEC CONTROL: Manual Slow Motion Control with Tangent Arm / RA SETTING CIRCLE: 20 min. per division / DEC SETTING CIRCLE: 2.5-degree per division / COUNTERWEIGHT: 1pc of 1kg / TRIPOD: 3-section Adjustable Metal Tripod with Center Column / MAXIMUM LOAD: 2kg / COLOR: Black / HEIGHT: 600mm - 1400mm / WEIGHT incl. Tripod & Counterweight: 4kg / Works between 0- to 90-degree latitude area / Latitude Setting Dial equipped

* SP-1 EQUATORIAL MOUNT SET w/Tripod & Counterweight <#KA-024>

1283-



<TABLETOP ALTAZIMUTH MOUNT>

A number of tabletop mounts are supplied for spotting scopes, some of which also seem suitable for mounting a small astronomical telescope, but most of them have a great problem - the lack of fine controls. As astronomical telescopes are usually used at much higher powers than ordinary spotting scopes, good 2-way slow-motion controls are absolutely needed. Our Tabletop Altazimuth Mount is equipped with a precision tangent-arm slow motion control in either way, assuring smooth aligning and tracking in high-power observation. Rough sighting is also possible by loosening the clamps. The height is adjustable from 250mm to 320mm by lifting the center column. The 1/4-20 standard photo screw accepts various small telescopes. Only 850g weight and just 350mm length (when folded) will fit small bag or luggage. The affordable price is also attractive. The slow-motion head can be detached from the tripod, and mounts on any standard photo tripod, offering very similar features to COMPACT SLOW-MOTION UNIT (B) listed next.

2-WAY CONTROLS: Manual Slow-Motion Controls with Tangent Arm (Clamp-Free Rough Sighting is available) / TRIPOD: 200mm Straight Metal Tripod with a Rubber Tip / HEIGHT: 250mm - 320mm / WEIGHT: 850g

* TABLETOP ALTAZIMUTH MOUNT w/Tripod <#KA-025>

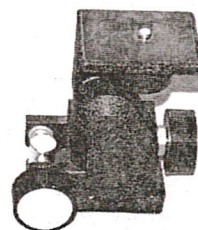
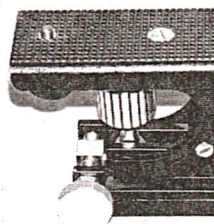


<COMPACT SLOW MOTION UNITS>

By adding this very compact device between your telescope and tripod pan head (or piggy-back camera mount), you will have accurate slow-motion adjustment in altitude and azimuth at your fingertips. Fits on top of any 1/4-20 standard photo mounting screw, accepting a telescope or any other instrument with 1/4-20 standard photo screw hole. (A) is a deluxe model which can load up to 60mm (or OASIS BORG 76) refractor or 100mm Catadioptric. (B) is a standard model for smaller instrument. Either model weighs only 400g.

* COMPACT SLOW MOTION UNIT (A) <#KA-026> [left]

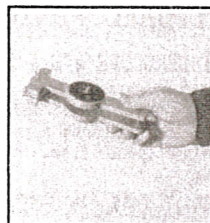
* COMPACT SLOW MOTION UNIT (B) <#KA-027> [right]



<POCKET EQUATORIAL MOUNT>

This 365g lightweight and compact unit might be the smallest equatorial mount in the world. Mounted between a photo tripod and a ball-joint head (or a pan-head), this tiny equipment makes a precision camera tracker for deep-sky photography. Simply control the slow-motion cable at the rate of one turn per minute, and you can make an accurate sidereal tracking. Without using a guiding scope or a clock drive, up to 100mm telephoto lens can be tracked without errors for more than 10 minutes. This unique item is most useful when traveling with your camera and tripod - just take this compact equipment in your luggage (or in your pocket!), and you can photograph the beautiful skies there without carrying any other far heavier equatorial mount.

* POCKET EQUATORIAL MOUNT <#KA-028>



LENSES & MIRRORS

★HIDAKA★

Hidaka Optical Laboratory is located near Tsukuba University and the associated laboratories, the very district where Japan's most advanced technologies have been developed day by day. Hidaka has long been supplied many kinds of special and extremely precision optics for the devices used in such laboratories. Among them are condenser mirrors for synchrotron radiation, diffraction gratings, and many other perfect optics which never allow even 5-angstrom errors. Hidaka has also been appointed very often by the Science and Technology Agent of Japan as a supplier of various optical parts for the scientific instruments of national use. This means Japanese government has given Hidaka a credit for being the most trustworthy Japanese optical manufacturer of the very best skill.

Now, with such great skill and unique experience, Hidaka started to offer ultra performance mirrors and apochromat lenses for astronomical use. Mr. Hidaka, the manager and chief optician, is a serious planetary observer himself. He knows therefore what the really "perfect" optics for astronomical use should be like, and also what splendid images the very best optics will yield. The maximum allowance wavefront error for diffraction limited optics is generally regarded as 1/4-wave, so-called Rayleigh tolerance. However, in practice, this requirement is too loose, especially for planetary observing. Hidaka has been devoting all the advanced technology and experience to manufacture far better quality optics with thorough study and painstaking effort. In the result, they have already succeeded in figuring up to 1/100-wave (wavefront) super quality optics constantly. Maybe unbelievable, but this surprising figure is never exaggeration nor false. Every surface of the optics is thoroughly tested in several different ways (Null, Foucault, Ronchi, Interferometry, etc.), and very many of Hidaka optics have really been tested out to feature the ultra-precision surfaces as such. Even taking it into consideration that figuring optics is a human art and therefore not perfectly repeatable, still each Hidaka optics will NEVER fall short of 1/32-wave (wavefront) at least, even in the most modest expression.

Mr. Hidaka takes great pride in the optics they have manufactured, therefore he offers complete guarantee for every mirror or lens. This means, if any defect or trouble should be found by the user, though there would be the least possibility of it happening, Hidaka is quite willing to re-figure it at no extra cost until the user is fully satisfied with the performance. Hidaka will never flee from the trouble merely by refunding the cost, which is sometimes done by irresponsible manufacturers.

Perfect quality optics is the "rare fruit" of sheer labor and experience. Though costing much, still we do recommend every serious planetary observers to have your own Hidaka apochromat lenses or mirrors to make your dreams come true.

* Every lens or mirror is manufactured after receiving the order, therefore please allow a certain while for the great performance optics to be carefully figured for you.

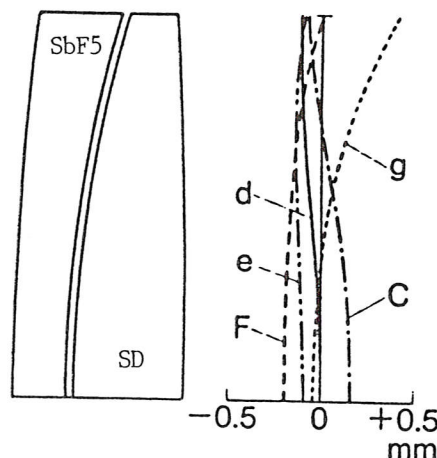
* Please ask for the tube assembly, too, if not available at your side.

SD APOCHROMAT LENSES

SD apochromat is a doublet lens with newly-developed SD glass at the inside and premium SbF5 flint glass in front. SD stands for Super Excellent Low-Dispersion. The SD glass material is similar to fluorite in optical character, but far more uniform in optical quality. Besides, SD glass is very durable and stable under severe temperature condition. With the advanced design and through painstaking figuring by Hidaka, the best corrected, surprisingly clear and crisp images can be obtained from any lens. Under good atmospheric condition, even 40x per centimeter of the aperture (10x per inch - e.g. 600x for 6" aperture) still yields very sharp, stable, and sufficiently high contrast images. For serious planetary observers, Hidaka SD apochromat will surely bring the ultimate satisfaction night by night, especially with f/10 lens. (Every Surface Fully Multi-Coated)

Dia.	Clear Aperture	Element	F. L.	F-Ratio	Item # (w/o Cell)	Item # (w/Cell)
68mm	65mm	2	650mm	10	#HI-001	#HI-002
68mm	65mm	2	520mm	8	#HI-003	#HI-004
79mm	76mm	2	760mm	10	#HI-005	#HI-006
83mm	80mm	2	800mm	10	#HI-007	#HI-008
83mm	80mm	2	640mm	8	#HI-009	#HI-010
104mm	100mm	2	1000mm	10	#HI-011	#HI-012
104mm	100mm	2	800mm	8	#HI-013	#HI-014
129mm	125mm	2	1250mm	10	#HI-015	#HI-016
156mm	150mm	2	1500mm	10	#HI-017	#HI-018
208mm	200mm	2	2000mm	10	#HI-019	#HI-020
260mm	250mm	2	2500mm	10	#HI-021	#HI-022

* Every cell is equipped with push-pull adjusting screws.
* Ask for optional dew-caps.

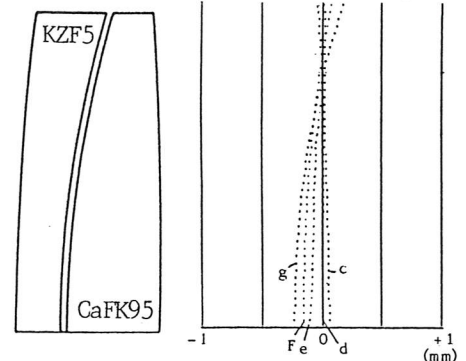


PHOTARON APOCHROMAT LENSES

Photaron apochromat is a doublet or triplet lens by utilizing CaFK95 (Photaron) at the inside or in the middle, and KZF5 or some other quality flint glass in front (and at the inside for triplet). This newly-developed glass material has many advanced features: press molding is possible, optical character is nearly equal to fluorite, the optical quality is uniform, transmission for near infrared is excellent, less sensitive against the temperature and much more stable than fluorite, etc. Through Hidaka's skilled figuring, every Photaron apochromat lens offers by far the best resolution and clarity of all the similar aperture apochromat lenses offered in today's market. (Every Surface Fully Multi-Coated)

Dia.	Clear Aperture	Element	F.L.	F-Ratio	Item # (w/o Cell)	Item # (w/Cell)
104mm	100mm	2	800mm	8	#HI-023	#HI-024
134mm	130mm	3	910mm	7	#HI-025	-----
156mm	150mm	2	1200mm	8	#HI-026	#HI-027

* Every cell is equipped with push-pull adjusting screws.
* Ask for optional dew-caps.



NEWTONIAN PRIMARY & SECONDARY MIRRORS

PRIMARY: Figuring perfect aspherical surfaces like parabolic mirror is one of the most favorite subject for Hidaka. The extremely precision mirrors with ultra-smooth surface will definitely next to none of all the other manufacturers'. The focal length depends on the requirement of the user - please specify when ordering. (Pyrex / Aluminized & SiO Coated / Surface Test Report provided)

SECONDARY: A very precision elliptical flat secondary mirror is essential for the best quality primary mirror like Hidaka's to yields the highest possible performance. Every Hidaka elliptical flat will surely play this important role, leading the sharpest focus to the focuser without giving any evil effect on the image quality. (Pyrex / Aluminized & SiO Coated)

PRIMARY MIRRORS

Dia.	Thickness	F-Ratio	Item #
153mm	20mm	4 - 9	#HI-028
203mm	27mm	4 - 8	#HI-029
255mm	33mm	4 - 8	#HI-030
308mm	40mm	4 - 7	#HI-031
360mm	45mm	4 - 6	#HI-032
410mm	50mm	4 - 6	#HI-033

* Ask for oversized mirrors.

SECONDARY MIRRORS

Min. Dia.	Item #	Min. Dia.	Item #
35mm	#HI-034	80mm	#HI-040
40mm	#HI-035	90mm	#HI-041
45mm	#HI-036	100mm	#HI-042
50mm	#HI-037	110mm	#HI-043
60mm	#HI-038	120mm	#HI-044
70mm	#HI-039		

* Ask for oversized mirrors.

CLASSICAL CASSEGRAIN MIRROR SETS

Classical Cassegrain contains a hyperboloidal secondary which does need a skilled craftsmanship to manufacture. Hidaka offers superb quality ones with the advanced aspherical figuring skill. Either mirror is carefully tested both individually and matched together before leaving Hidaka's hands. You can count on every set to yield great resolution that equals or surpasses the theoretical limit of the aperture. The focal length depends on the requirement of the user - please specify when ordering. (Pyrex / Aluminized & SiO Coated / Surface Test Report provided)

Primary Dia.	Primary Thickness	Primary F-Ratio	Secondary Dia.	Effective F-Ratio	Item #
203mm	27mm	3.5 - 5	65 - 50mm	10-15	#HI-045
255mm	33mm	3.5 - 5	80 - 65mm	10-15	#HI-046
308mm	40mm	3.5 - 5	100 - 75mm	10-15	#HI-047
360mm	45mm	3.5 - 5	120 - 90mm	10-15	#HI-048
410mm	50mm	3.5 - 5	130 - 100mm	10-15	#HI-049

* Ask for oversized mirrors.

DALL-KIRKHAM CASSEGRAIN MIRROR SETS

Dall-Kirkham Cassegrain design consists of an ellipsoidal primary and a spherical secondary. These 4 sets of Dall-Kirkham mirrors are especially offered for those who would like shorter tube telescopes for planetary observation. The figuring procedure is of course as careful and thorough as the Classical Cassegrains or others. Another focal length is also possible on request. (Pyrex / Aluminized & SiO Coated / Surface Test Report provided)

Primary Dia.	Primary Thickness	Primary F-Ratio	Secondary Dia.	Effective F-Ratio	Item #
153mm	20mm	3	40mm	12	#HI-050
203mm	27mm	3	50mm	12	#HI-051
255mm	33mm	3	65mm	12	#HI-052
308mm	40mm	3	80mm	12	#HI-053

* Ask for oversized mirrors.

★KASAI SELECTIONS★

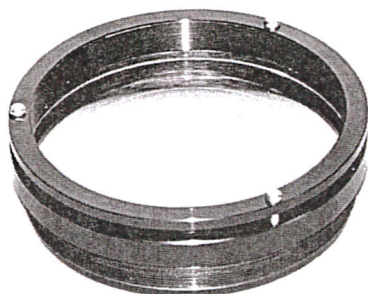
Here we select various lenses and mirrors. Each optics is originally manufactured for a certain famous brand astronomical telescope, finderscope or binocular which is sold in the present market. Therefore, the quality of every lens or mirror is on a high level for astronomical use. Please make good use of these selections in many ways.

ACHROMAT LENSES FOR REFRACTORS

These lenses are all manufactured for astronomical telescopes. Every model yields very well-corrected images to suit any kind of observation. Each 50mm lens is coated, cemented doublet. Any other 60mm - 100mm lens is coated, air-spaced Fraunhofer-type doublet.

- OPTIONAL DEW CAPS -

for 50mm (Cell-A) <#KA-083> /
for 60mm (Cell-A) <#KA-084> /
for 80mm (Cell-A) <#KA-085> /
for 80mm (Cell-B) <#KA-086> /
for 100mm (Cell-B) <#KA-087>



Dia.	Clear Aperture	F. L.	F-Ratio	Item # (w/o Cell)	Item # (w/Cell-A)	Item # (w/Cell-B)
52mm	50mm	300mm	6.0	#KA-029	#KA-030	-----
52mm	50mm	420mm	8.4	#KA-031	#KA-032	-----
52mm	50mm	600mm	12.0	#KA-033	#KA-034	-----
52mm	50mm	800mm	16.0	#KA-035	#KA-036	-----
62mm	60mm	300mm	5.0	#KA-037	#KA-038	-----
62mm	60mm	600mm	10.0	#KA-039	#KA-040	-----
62mm	60mm	700mm	11.7	#KA-041	#KA-042	-----
62mm	60mm	800mm	13.3	#KA-043	#KA-044	-----
62mm	60mm	900mm	15.0	#KA-045	#KA-046	-----
62mm	60mm	1000mm	16.7	#KA-057	#KA-058	-----
83mm	80mm	560mm	7.0	#KA-059	#KA-060	-----
83mm	80mm	700mm	8.8	#KA-061	#KA-062	-----
83mm	80mm	900mm	11.3	#KA-063	#KA-064	#KA-065
83mm	80mm	1000mm	12.5	#KA-066	#KA-067	#KA-068
83mm	80mm	1200mm	15.0	#KA-069	#KA-070	#KA-071
93mm	(90mm)	1000mm	11.1	#KA-072	-----	-----
93mm	(90mm)	1300mm	14.4	#KA-073	-----	-----
105mm	100mm	1000mm	10.0	#KA-074	#KA-075	#KA-076
105mm	100mm	1300mm	13.0	#KA-077	#KA-078	#KA-079
105mm	100mm	1500mm	15.0	#KA-080	#KA-081	#KA-082

* Cell-A: Ordinary Telescope Lens Cell w/o Push-Pull Adjusting Screws
* Cell-B: Advanced Telescope Lens Cell w/ Push-Pull Adjusting Screws

MULTI-COATED SHORT FOCUS ACHROMAT LENSES

The f/3.6 - 3.9 lenses are originally manufactured for large binoculars. Each cemented, very fast doublet achromat is suitable as the objective lens of a giant finderscope, or also ideal as a large-aperture focal reducer. The 80mm f/5 is the same lens as Mizar multi-purpose telescope BN-80's. This air-spaced, high quality doublet lens yields much better images than any ordinary f/5 achromat. (See the last page of MIZAR in "TELESCOPES & MOUNTINGS".) Every lens is multi-coated for good light transmission.

- OPTIONAL DEW CAP -

for 80mm (Cell-A) <#KA-085>

Dia.	Clear Aperture	F. L.	F-Ratio	Item # (w/o Cell)	Item # (w/Cell-A)
83mm	80mm	300mm	3.8	#KA-088	#KA-089
83mm	80mm	310mm	3.9	#KA-090	#KA-091
103mm	100mm	360mm	3.6	#KA-092	#KA-093
83mm	80mm	400mm	5.0	#KA-094	#KA-095

* Cell-A: Ordinary Telescope Lens Cell w/o Push-Pull Adjusting Screws

ECONOMY SHORT FOCUS ACHROMAT LENSES

These lenses are originally manufactured for finderscopes or binoculars. Every lens is coated, cemented doublet. Ideal for self-built finderscopes.

Dia.	Clear Aperture	F. L.	F-Ratio	Item # (w/o Cell)
30.8mm	(30mm)	134mm	4.5	#KA-096
31.0mm	(30mm)	128mm	4.3	#KA-097
36.4mm	(35mm)	122mm	3.5	#KA-098
51.2mm	(50mm)	203mm	4.1	#KA-099

NEWTONIAN PRIMARY & SECONDARY MIRRORS

Most of these mirrors are supplied from MIZAR. Every surface is guaranteed to be figured better than 1/8-wave peak-to-valley (1/4-wave on the wavefront), yielding sufficient images within Rayleigh tolerance. Aluminized and SiO overcoated. Every primary cell is equipped with push-pull adjusting screws.

PRIMARY MIRRORS						SECONDARY MIRRORS	
<u>Dia.</u>	<u>Clear Aperture</u>	<u>F. L.</u>	<u>F-Ratio</u>	<u>Item #</u> (w/o Cell)	<u>Item #</u> (w/Cell)	<u>Min. Dia.</u>	<u>Item #</u>
102mm	100mm	600mm	6.0	#KA-100	#KA-101	25mm	#KA-110
102mm	100mm	800mm	8.0	#KA-102	#KA-103	28mm	#KA-111
114mm	114mm	900mm	7.9	#KA-104	#KA-105	35mm	#KA-112
132mm	130mm	720mm	5.5	#KA-106	#KA-107	42mm	#KA-113
153mm	150mm	750mm	5.0	#KA-108	#KA-109	45mm	#KA-114
						50mm	#KA-115

★ O A S I S ★

ED APOCHROMAT & PHOTO-VISUAL ACHROMAT

Oasis supplies the following quality lenses. As for any detail, please see the pages of OASIS in "TELESCOPES & MOUNTINGS".

- * 100mm ED f/6.4 OBJECTIVE LENS w/Cell & Dew Cap <#OA-009>
- * 76mm ED f/6.6 OBJECTIVE LENS w/Cell & Dew Cap <#OA-010>
- * 76mm f/6.6 OBJECTIVE LENS w/Cell & Dew Cap <#OA-011>
- * 65mm f/6.9 OBJECTIVE LENS w/Cell & Dew Cap <#OA-013>

★ N T K ★

CLASSICAL CASSEGRAIN MIRROR SETS

NTK supplies the following "Diffraction Limited" mirror sets for the Classical Cassegrains. As for the detail, please see the pages of NTK in "TELESCOPES & MOUNTINGS".

- * 400mm f/12 - f/20 CLASSICAL CASSEGRAIN MIRROR SET <#NT-031>
- * 360mm f/12 - f/20 CLASSICAL CASSEGRAIN MIRROR SET <#NT-032>
- * 308mm f/12 - f/20 CLASSICAL CASSEGRAIN MIRROR SET <#NT-033>
- * 250mm f/12 - f/20 CLASSICAL CASSEGRAIN MIRROR SET <#NT-034>
- * 200mm f/12 - f/20 CLASSICAL CASSEGRAIN MIRROR SET <#NT-035>

★ U N I T R O N ★

80mm f/6.3 ED SEMI-APOCHROMAT

Unitron supplies high-quality 80mm f/6.3 ED semi-apochromat lens with cell. Please see the page of UNITRON in "TELESCOPES & MOUNTINGS".

- * 80mm f/6.3 ED SEMI-APOCHROMAT OBJECTIVE LENS w/Cell <#UN-02L>

EYEP IECES
&
BARLOWS

★ JAPANOPTIK ★

WIDEVUE EYEPIECES & TRIPLET BARLOW

Japanoptik WideVue eyepieces are designed and produced by an experienced manufacturer in Japan under K. Kasai's special instructions to fulfill the following 4 requirements of most serious amateur astronomers:

WIDE FIELD: Every eyepiece yields 65-degree wide field with good edge performance.

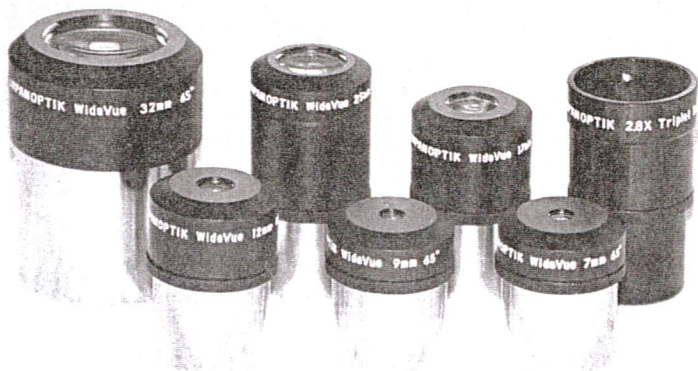
HIGH TRANSMISSION: Every air-to-glass surface is fully multi-coated to yield over 95% transmission.

PARFOCAL: Except 32mm (2"), all the other 1.25" models are perfectly parfocal.

ECONOMY: Unlike other name-brand wide field eyepieces, every WideVue eyepiece is kept within very moderate price range.

2.8x Triplet Barlow consists of computer-designed fully multi-coated 3-element lenses to extend the focal length without giving any evil effect on the image quality, offering superb performance especially for planetary observation. Inside blackening is perfect. The very short barrel can fit any 1.25" focuser with no trouble.

	F. L.	Field	Size	Item #
WideVue-7	7mm	65°	1.25"	#JA-006
WideVue-9	9mm	65°	1.25"	#JA-007
WideVue-12	12mm	65°	1.25"	#JA-008
WideVue-17	17mm	65°	1.25"	#JA-009
WideVue-25	25mm	65°	1.25"	#JA-010
WideVue-32	32mm	65°	2"	#JA-011
2.8x Triplet Barlow			1.25"	#JA-012



★ MASUYAMA ★

WORLD'S #1 MASUYAMA EYEPIECES

Masuyama eyepieces are named after Dr. Masuyama, the most advanced and leading eyepiece designer in Japan. Especially designed by himself, these distinguished eyepieces offer superb performance any other competitor never beats. Every evil aberration is admirably kept to an absolute minimum. All lens edges and the inside are completely blackened to keep out any reflect light. Every surface is completely multi-coated to yield more than 95% transmission. There would be the least doubt that Masuyama's are by far the best quality eyepieces in today's market. These great eyepieces had long been supplied only to Japanese serious astronomers until we started to deal them on international mail-order basis a few years ago. After that, we have received a great many enthusiastic reviews: "We performed a comparing test of Masuyama with Carl Zeiss Jena Orthoscopes, Carl Zeiss Astro-Plans, Clavé Plössl and many other top-quality eyepieces. The result was really exciting! In every respect such as sharpness, clarity, edge performance, etc., Masuyama always stood head and shouldered above the rest." (from Germany) / "I had not known what the very best eyepiece was like before I got Masuyama. Now, I have really understood it." (from Italy) / "I like these great oculars from Masuyama! They must be ROLLS-ROYCE of eyepieces!" (from Sweden) and more!

	F. L.	Field	Size	Item #
MASUYAMA-7.5	7.5mm	52°	1.25"	#MA-001
MASUYAMA-10	10mm	52°	1.25"	#MA-002
MASUYAMA-15	15mm	52°	1.25"	#MA-003
MASUYAMA-20	20mm	52°	1.25"	#MA-004
MASUYAMA-25	25mm	52°	1.25"	#MA-005
MASUYAMA-25W	25mm	65°	*1.25"	#MA-006
MASUYAMA-30	30mm	52°	*1.25"	#MA-007
MASUYAMA-35	35mm	52°	*1.25"	#MA-008
MASUYAMA-45	45mm	50°	2"	#MA-009
MASUYAMA-60	60mm	46°	2"	#MA-010
MASUYAMA-80	80mm	34°	2"	#MA-011

* Masuyama-25W, 30 and 35 are useful hybrid models to fit both 36.4mm threads and 1.25" eyepiece holders.



MASUYAMA 1.25" FILTER BARREL <#MA-012>:
Special barrel for Masuyama-25W, 30 and 35 to accept ordinary-threaded 1.25" eyepieces filter.

★UNITRON★

PANORAMIC-FIELD WIDESCAN EYEPIECES

Unitron, one of the advanced manufacturers of astronomical instruments in Japan, has produced surprisingly wide field eyepieces for amateurs. Japanese astronomical magazine "Gekkan Temmon (English name: Sky Traveler)" reported Unitron Widescan yields the highest total performance compared with the other two competitors. Not only the overwhelming brightness provided from the fully multi-coated optics, but the very sharp star images to the edge of the field was also an important point to rank Widescan as the top. Not like some other competitors, every 1.25" Widescan is comparably compact and lightweight so that it can be well held even in a small-sized focuser.

	<u>F. L.</u>	<u>Field</u>	<u>Size</u>	<u>Item #</u>
WIDESCAN-6	6mm	77°	1.25"	#UN-003
WIDESCAN-8	8mm	77°	1.25"	#UN-004
WIDESCAN-10	10mm	84°	1.25"	#UN-005
WIDESCAN-13	13mm	84°	1.25"	#UN-006
WIDESCAN-16	16mm	84°	1.25"	#UN-007
WIDESCAN-20	20mm	82°	1.25"	#UN-008
WIDESCAN-32	32mm	84°	2"	#UN-009
WIDESCAN-40	40mm	70°	2"	#UN-010

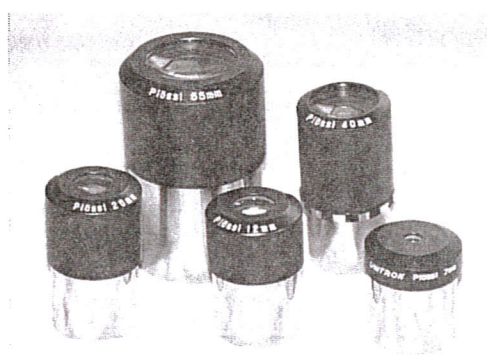
NOTICE: Customers in North America should purchase these eyepieces from the authorized dealer in the U.S.



QUALITY & ECONOMY PLÖSSLS

Unitron offers a series of fully multi-coated Plössls at very competitive prices. 2-group 4-element orthodox design offers clear and sharp images to suit any kind of observation. Unitron PL-12W is a specially-designed 60-degree widefield model.

	<u>F. L.</u>	<u>Field</u>	<u>Size</u>	<u>Item #</u>
UNITRON PL-7	7mm	50°	1.25"	#UN-012
UNITRON PL-12W	12mm	60°	1.25"	#UN-013
UNITRON PL-20	20mm	52°	1.25"	#UN-014
UNITRON PL-40	40mm	40°	1.25"	#UN-015
UNITRON PL-55	55mm	45°	2"	#UN-016



★PENTAX★

ED-GLASS SMC EYEPIECES

SMC eyepieces are designed to match high performance telescopes such as Pentax SD apochromat refractors, yielding the highest possible resolution and image contrast. Special ED glass material is utilized as a lens material. Every air-to-glass surface is Super Multi-Coated. Every model has a rubber eye-cup, and all .965" models are parfocal. The inside and all lens edges are completely blackened to keep out reflect lights. O-series are the finest quality modified ED Orthoscopes, winning very high reputation among serious planetary observers. K-series are unique ED Kellners, ideal for observing subtle deep-sky objects. Every .965" model can be used with Pentax Eyepiece Filters.

	<u>F. L.</u>	<u>Field</u>	<u>Size</u>	<u>Item #</u>
SMC O-5	5mm	42°	.965"	#PE-043
SMC O-6	6mm	42°	.965"	#PE-044
SMC O-7	7mm	42°	.965"	#PE-045
SMC O-9	9mm	42°	.965"	#PE-046
SMC O-12	12mm	42°	.965"	#PE-047
SMC O-18	18mm	42°	.965"	#PE-048
SMC K-25	25mm	45°	.965"	#PE-049
SMC K-40	40mm	45°	*1.5"	#PE-050
SMC K-60	60mm	42°	*2"	#PE-051

* K-40 also fits 36.4mm threads.

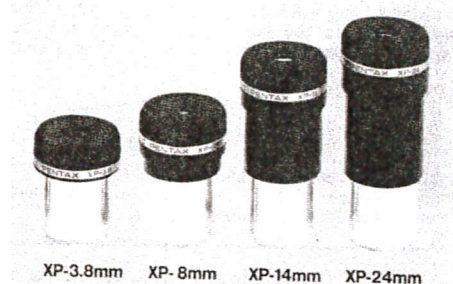
* K-60 also fits 50mm threads.



PHOTOGRAPHIC-USE SMC XP EYEPIECES

SMC XP eyepieces are especially designed for eyepiece-projection photography, keeping such aberrations as field curvature and distortion to absolute minimum, yielding extreme sharpness to the very edge of the field as could never be obtained when using any other ordinary eyepiece. Fully Super Multi-Coating, completely blackened inside and fully-baffled field stop barrel eliminate flares and stray reflections to the limit, improving image contrast and clarity. XP-3.8 is ideal for high magnification photography of small objects such as Mars, XP-8 for Saturn, Jupiter and the moon, while XP-14 and XP-24 for half or whole images of the moon. Every model can be used with Pentax Eyepiece Filters.

	F. L.	Suitable Power	Size	Item #
SMC XP-3.8	3.8mm	27.2x - 36.5x	.965"	#PE-052
SMC XP-8	8mm	11.9x - 16.3x	.965"	#PE-053
SMC XP-14	14mm	5.6x - 8.2x	.965"	#PE-054
SMC XP-24	24mm	2.7x - 4.1x	.965"	#PE-055



FILTERS FOR PENTAX .965" EYEPIECES

SUN (ND10000) <#PE-056> / MOON (ND8) <#PE-057> / PLANET-Y (YELLOW) <#PE-058> / PLANET-O (ORANGE) <#PE-059> / PLANET-R (RED) <#PE-060> / PLANET-B (BLUE) <#PE-061> / PLANET-G (GREEN) <#PE-062>
Thread onto any Pentax .965" eyepiece in place of eye-cup.

★OASIS★

HIGH COST-PERFORMANCE EYEPIECES & BARLOW

Oasis supplies characteristic eyepieces and barlow at incredibly low prices. In spite of the moderate appearance and prices, these models yield surprisingly high performance. WO-13.5 is a modified Orthoscopic with 64-degree wide field, and SWK-22 is a modified Kellner with 70-degree super wide field. With the use of Short Extender, which is a specially designed 2.2x/3x (changeable) barlow, the edge performance of both the eyepieces is much improved. The coating on these eyepieces and barlow is at your choice whether reasonable full standard coating or full multi-coating to yield maximum transmission and clarity. H-50, surely the lowest-priced 2" eyepiece in the world, is a modified Huygenian with 45-degree field, ideal for casual low-power observation with any 2" format telescope. Whether single coating or full standard coating is at your choice. Every eyepiece has a roll-down rubber eye-cup. WO-13.5 and SWK-22 are parfocal.

	F. L.	Field	Coating	Size	Item #
WO-13.5 (F)	13.5mm	64°	Full	1.25"	#OA-022
WO-13.5 (M)	13.5mm	64°	Multi	1.25"	#OA-023
SWK-22 (F)	22mm	70°	Full	1.25"	#OA-024
SWK-22 (M)	22mm	70°	Multi	1.25"	#OA-025
H-50 (S)	50mm	45°	Single	2"	#OA-026
H-50 (F)	50mm	45°	Full	2"	#OA-027
2.2x/3x SHORT EXTENDER (F)			Full	1.25"	#OA-029
2.2x/3x SHORT EXTENDER (M)			Multi	1.25"	#OA-030



★ KASAI ★

Kasai eyepieces are supplied from some factories where most famous brand eyepieces are also designed and manufactured. With no brandname engraved or printed on, every Kasai eyepiece can be offered at incredibly low price though the quality and optical performance is the same as the branded and double-priced one. If you wouldn't like to pay any extra cost just for the brandname, then Kasai eyepieces would surely be the wisest choice for you.

KELLNERS

2-group 3-element orthodox Kellner design. Fully coated on every surface. K-40LS is a special model with larger field lens to fit 36.4mm threads.

	P. L.	Field	Size	Item #
KASAI K-6L	6mm	42'	1.25"	#KA-116
KASAI K-9L	9mm	44'	1.25"	#KA-117
KASAI K-12L	12mm	40'	1.25"	#KA-118
KASAI K-18L	18mm	47'	1.25"	#KA-119
KASAI K-20L	20mm	47'	1.25"	#KA-120
KASAI K-25L	25mm	44'	1.25"	#KA-121
KASAI K-30L	30mm	40'	1.25"	#KA-122
KASAI K-40L	40mm	40'	1.25"	#KA-123
KASAI K-40LS	40mm	46'	36.4mm	#KA-124



ORTHOSCOPICS

Orthodox Abbe-Orthoscopic design with triplet field lens and a plano-convex eye lens. Offers great correction of spherical and chromatic aberrations. Ideal for planetary observation which requires the best resolution and image contrast. Every model is multi-coated.

	P. L.	Field	Size	Item #
KASAI Or-4L	4mm	41'	1.25"	#KA-125
KASAI Or-5L	5mm	43'	1.25"	#KA-126
KASAI Or-6L	6mm	43'	1.25"	#KA-127
KASAI Or-7L	7mm	43'	1.25"	#KA-128
KASAI Or-9L	9mm	43'	1.25"	#KA-129
KASAI Or-12.5L	12.5mm	43'	1.25"	#KA-130
KASAI Or-18L	18mm	45'	1.25"	#KA-131
KASAI Or-25L	25mm	47'	1.25"	#KA-132



ERFLES

3-group 5-element wide field Erfle design. Suitable for deep-sky observation which requires as wide and clear field as possible. Er-32 (2") is a special multi-coated 2" model with great 65-degree field. The other 1.25" models are fully coated.

	P. L.	Field	Size	Item #
KASAI Er-16L	16mm	63'	1.25"	#KA-133
KASAI Er-20L	20mm	65'	1.25"	#KA-134
KASAI Er-25L	25mm	65'	1.25"	#KA-135
KASAI Er-32L	32mm	53'	1.25"	#KA-136
KASAI Er-32 (2")	32mm	65'	2"	#KA-137



PLÖSSL

Orthodox 2-group 4-element Plössl design. All the 4 models are parfocal. Provides comfortable viewing for all kinds of observations. Every model is fully coated.

	P. L.	Field	Size	Item #
KASAI Pl-7.5L	7.5mm	50'	1.25"	#KA-138
KASAI Pl-10L	10mm	50'	1.25"	#KA-139
KASAI Pl-17L	17mm	50'	1.25"	#KA-140
KASAI Pl-25L	25mm	50'	1.25"	#KA-141



QUALITY .965" EYEPIECES

Kasai doesn't forget the presence of .965" format telescope users. All kinds of good quality and moderately-priced small eyepieces are offered as followings:

K (Kellner)

Orthodox Kellner design. Fully coated.

Or (Orthoscopic)

Orthodox Abbe-Orthoscopic design. Multi-Coated.

HM (Mittenzwey Huygenian)

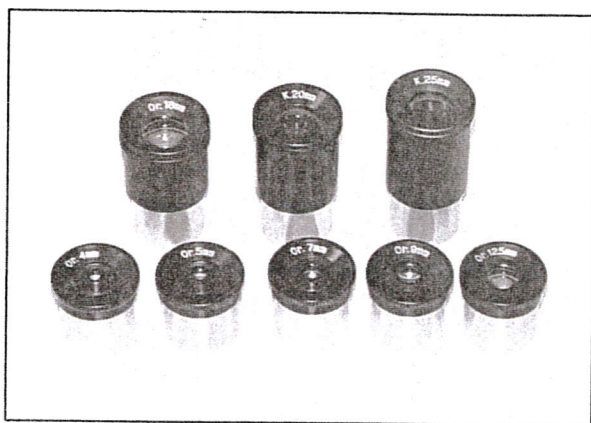
Improved Huygenian design. Fully coated.

SR (Special Ramsden)

Improved Ramsden design. Fully coated.

AH (Achromat Huygenian)

Modified Huygenian design to eliminate false colors. Fully coated.

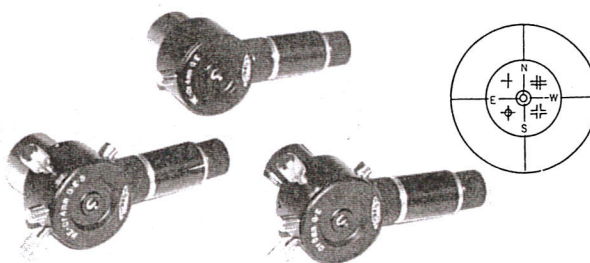


	F. L.	Field	Size	Item #
KASAI K-6	6mm	42'	.965"	#KA-142
KASAI K-9	9mm	44'	.965"	#KA-143
KASAI K-12	12mm	40'	.965"	#KA-144
KASAI K-18	18mm	45'	.965"	#KA-145
KASAI K-20	20mm	45'	.965"	#KA-146
KASAI K-25	25mm	42'	.965"	#KA-147
KASAI K-30	30mm	42'	.965"	#KA-148
KASAI Or-4	4mm	41'	.965"	#KA-149
KASAI Or-5	5mm	43'	.965"	#KA-150
KASAI Or-6	6mm	43'	.965"	#KA-151
KASAI Or-7	7mm	43'	.965"	#KA-152
KASAI Or-9	9mm	43'	.965"	#KA-153
KASAI Or-12.5	12.5mm	44'	.965"	#KA-154
KASAI Or-18	18mm	44'	.965"	#KA-155
KASAI Or-25	25mm	46'	.965"	#KA-156
KASAI HM-6	6mm	41'	.965"	#KA-157
KASAI HM-9	9mm	44'	.965"	#KA-158
KASAI HM-12.5	12.5mm	42'	.965"	#KA-159
KASAI HM-18	18mm	45'	.965"	#KA-160
KASAI HM-20	20mm	46'	.965"	#KA-161
KASAI HM-25	25mm	42'	.965"	#KA-162
KASAI HM-30	30mm	42'	.965"	#KA-163
KASAI SR-4	4mm	32'	.965"	#KA-164
KASAI SR-5	5mm	33'	.965"	#KA-165
KASAI AH-40	40mm	31'	.965"	#KA-166

★ILLUMINATED EYEPIECES★

ASTRO Or-4mm GES (1.25") <#AS-001> / ASTRO Or-4mm GES (.965") <#AS-002> / ASTRO Or-4mm GE PRO (1.25") <#AS-003> / ASTRO Or-4mm GE PRO (.965") <#AS-004> / ASTRO Or-6mm GE (1.25") <#AS-005> / ASTRO Or-6mm GE (.965") <#AS-006>

Very advanced guiding eyepieces with multi-purpose reticle pattern. Red LED illuminator is equipped (brightness adjustable). Or-4mm GES or Or-6mm GE has unique X-Y adjusting reticle positioned everywhere in the field for easy guide-star alignment with 2-way adjusting screws. The reticle of Or-4mm GE PRO is fixed. 4mm or 6mm f.l. Abbe-Orthoscopic design with 43-degree field.

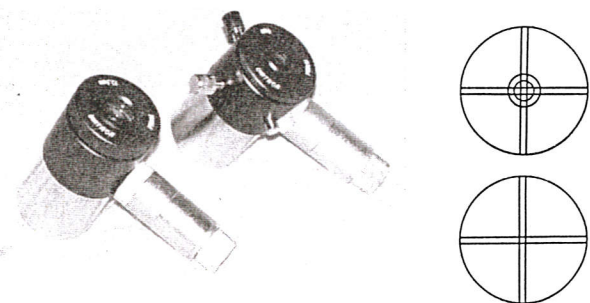


UNITRON ILLUMINATED MOVABLE RETICLE PLOSSL 9mm (1.25") <#UN-017> [right]

Advanced featured illuminated eyepiece with parallel cross-hair with 2 concentric rings reticle pattern movable in the field with 2-way adjusting screws. Red LED illuminator is equipped (brightness adjustable). 9mm f.l. orthodox 2-group 4-element Plössl design with 50-degree field. Multi-coated.

UNITRON ILLUMINATED RETICLE PLOSSL 12.5mm (1.25") <#UN-018> [left]

Standard featured illuminated eyepiece with parallel cross-hair reticle pattern. Red LED illuminator is equipped (brightness adjustable). 12.5mm f.l. orthodox 2-group 4-element Plössl design with 50-degree field. Multi-coated.



PENTAX IR-E 6mm (.965") <#PE-063>

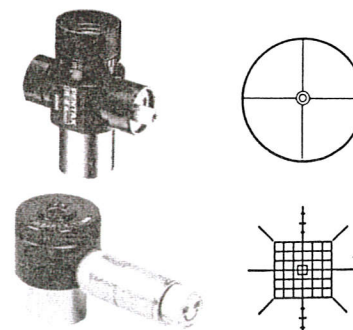
Compact illuminated eyepiece with cross-hair and 2 concentric rings reticle pattern. Built-in red LED illuminator (brightness adjustable). 6mm f.l. modified orthoscopic design with 13mm very long eye-relief for comfortable guiding. 42-degree field. Multi-coated.

MIZAR ILLUMINATED RETICLE EYEPIECE K-12mm (.965") <#MI-070>

Compact illuminated eyepiece with a unique checkerboard-type reticle pattern. Red LED illuminator is equipped (brightness adjustable). 12mm f.l. orthodox Kellner design with 42-degree field.

LED ILLUMINATOR <#KA-167>

Standard red LED illuminator with 8mm threads. Brightness adjustable. Used for illuminated reticle eyepieces or polar alignment telescopes.



★BARLOW LENSES & FOCAL EXTENDERS★

MIZAR 2x FOCAL EXTENDER ETL-2 (36.4mm - 1.25")
 <#MI-071> / (36.4mm - .965") <#MI-072>

Computer designed multi-coated triplet extender lens doubles the focal length without giving any evil effect on the image quality, providing sufficient magnifications for high power observation or photography. Designed to match most telescopes, especially f/4 to f/6 short focus Newtonians, correcting coma and improving field flatness. Fits 36.4mm standard threads. Accepts 36.4mm standard threads and 1.25" or .965" eyepiece.

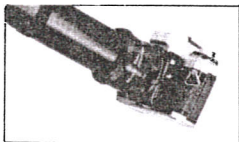


MIZAR 4x BARLOW LENS (.965") <#MI-073>

Fully-coated very high power doublet barlow. Ideal for precise photo guiding with .965" reticle eyepiece.

KENKO 49mm 2x PHOTOGRAPHIC FOCAL EXTENDER <#KE-042>

Large aperture multi-coated focal extender to fit 49mm threads (most Kenko telescopes and JSO SPACE-10). Designed to double the focal length without deteriorating the image quality. Special P-system camera mount is included (specify your camera brand & type).

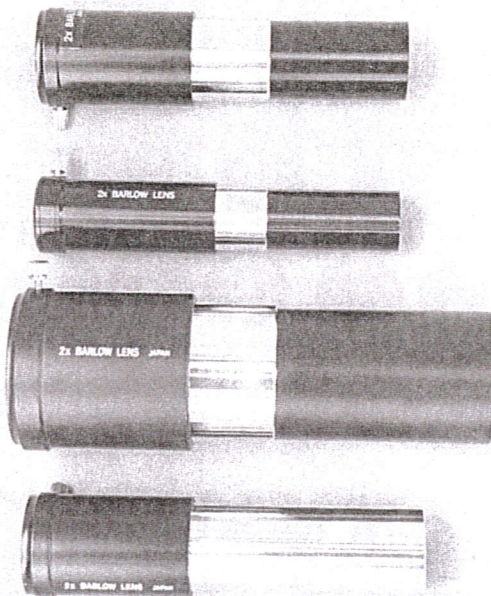


KASAI ECONO-LINE FULLY COATED BARLOW LENS 2x
 (1.25") <#KA-168> / 2x (.965") <#KA-169> / 3x (.965") <#KA-170>

No-branded barlows supplied directly from a manufacturer that also supplies the same items under a number of different brandnames inside and outside Japan. With no brandname engraved or printed on, we can offer EXACTLY the same models at very affordable prices. Every model is fully coated.

KASAI ADVANCED-LINE MULTI-COATED BARLOW LENS 2x
 (2") <#KA-171> / 2x (1.25") <#KA-172>

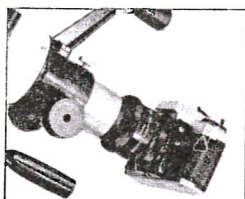
High-performance 2x barlows supplied from a manufacturer that offers many excellent optics for astronomical use. Fully multi-coated optics and completely blackened inside offers very sharp and clear images.



★FOCAL REDUCERS★

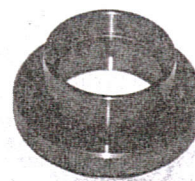
KENKO 49mm 0.75x PHOTOGRAPHIC FOCAL REDUCER <#KE-043>

Large aperture multi-coated focal reducer to fit 49mm threads (most Kenko telescopes and JSO SPACE-10). Not only reducing the focal length by 0.75x, it also corrects residual coma and field curvature effectively. Special P-system camera mount is included (specify your camera brand & type).



UNITRON 0.5x TELE-COMPRESSOR <#UN-019>

Moderately-priced 0.5x reducer for visual use. Fits most US-made Schmidt Cassegrains or 42mm (T) threads format. Multi-coated doublet lens.



ACCESSORIES
&
TELESCOPE
COMPONENTS

★FILTERS★

LIGHT POLLUTION REDUCTION & NEBULA FILTERS

KENKO HF-FILTERS

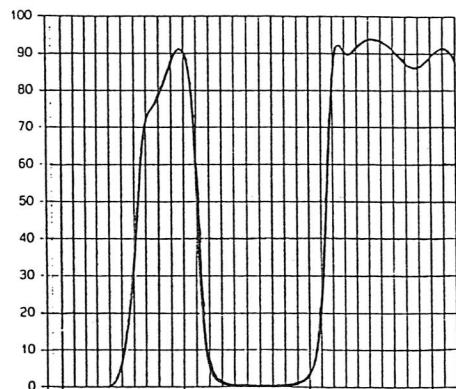
for .965" EYEPiece <#KE-044> / for 1.25" EYEPiece
<#KE-045> / 49mm <#KE-046> / 52mm <#KE-047> / 55mm
<#KE-048> / 58mm <#KE-049> / 62mm <#KE-050> / 67mm
<#KE-051> / 72mm <#KE-052> / 77mm <#KE-053> / 82mm
<#KE-054>

High quality light pollution reduction filters for both visual and photographic uses. Utilizing Kenko's modern multi-layer coating technology to effect separate transmission channels, these fine filters permit remarkably precise discrimination between nebula light and undesirable city lights. (The individual transmission is tested one by one, and the result chart comes with each filter to certify the quality.)



MIZAR MIU FILTERS

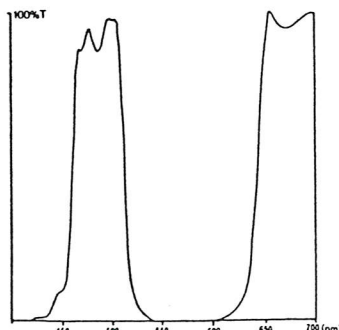
for .965" EYEPiece <#MI-074> / 35.5mm SET incl.
36.4mm & 42mm (T) threads adapter ring <#MI-075> /
52mm SET incl. 49mm, 55mm & 58mm step-rings <#MI-076>
These multi-layer coated photo-visual LPR filters make bright
light polluted skies appear much darker by rejecting
radiation from mercury and both high and low pressure sodium
lights, while allowing maximum transmission of the important
wavelength ranges including H-Alpha, H-Beta and Doubly Ionized
Oxygen. 35.5mm Set includes an adapter ring which has 36.4mm
male threads on one side, and 42mm (T) male threads on the
other. It can fit almost all the focusers with the use of some
other adapters listed in this catalog.



HIGH CONTRAST FILTERS

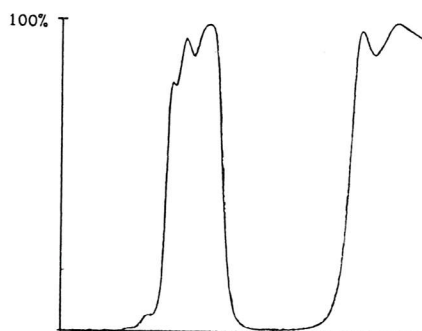
for 1.25" EYEPiece <#KA-171> / 48mm <#KA-172> / 72mm
<#KA-173>

The premium narrow band nebula filters designed to offer full transmission of only the important nebula lights, while thoroughly blocking the whole range of evil city lights. These filters are guaranteed to yield very high visual and photographic contrast on deep-sky objects.



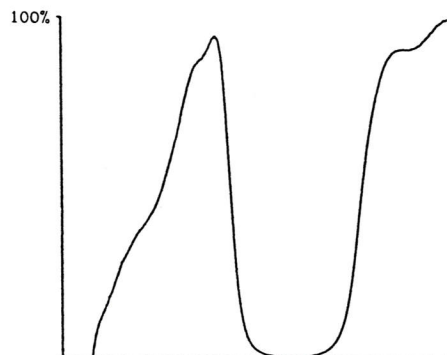
ARF NEBULA FILTER 48mm <#KA-174>

This finest quality nebula filter is especially designed for serious astrophotographers who don't want nebula filters to make any evil effects such as "ghost" or flare on the deep-sky photography. Utilizing a special multi-coating technology, this filter is completely free from stray reflections, yielding incredibly clear images as well as over 90% transmission of essential nebula lights. Also very suitable for visual use with a 2" eyepiece. (The individual transmission is tested one by one, and the result chart comes with each filter to certify the quality.)



AKB NEBULA FILTER 48mm <#KA-175>

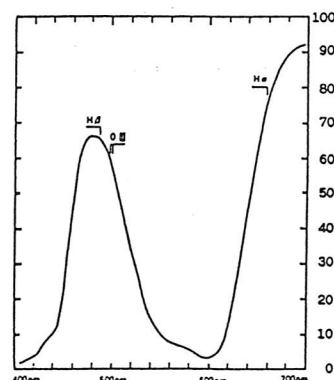
For casual deep-sky observation or photography, this multi-layer nebula filter is very suitable. In spite of the reasonable price, the transmission performance is quite excellent, much the same as those of the double-priced famous brand nebula filters. If you don't care much about the brand names, AKB Nebula Filter will be your better choice.



ACETATE NEBULA FILTERS

75mm x 75mm Square <#KA-176> / 120mm x 165mm Oblong
<#KA-177>

Made of 0.1mm thin acetate sheet, you can cut it into any favorite size with a razor or scissors very easily. The broad band, modest transmission yields most natural color balance of any other multi-layer filter obtainable. Having only one Acetate Nebula Filter, you can make some different sized filters for several instruments.



OTHER FILTERS

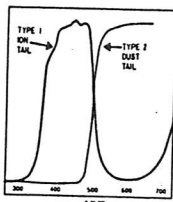
KENKO R64 (H-ALPHA PASS) FILTERS

49mm <#KE-055> / 52mm <#KE-056> / 55mm <#KE-057> / 58mm <#KE-058> / 62mm <#KE-059> / 67mm <#KE-060> / 72mm <#KE-061> / 77mm <#KE-062>

To yield the highest contrast and image sharpness for deep-sky photography. These filters are most suitable for B&W hypered Technical Pan 2415 film or Kodak 103aE film. Ideal for faint red nebulae such as North America Nebula, Pelican Nebula, California Nebula, Veil Nebula and, of course, famous M42, M43 and Horsehead Nebula in Orion. As blocking all visible light pollution, R64 filters work very well near cities. (Not suitable for standard B&W films)

KENKO COMET FILTERS 52mm (Set of Type 1 & Type 2) <#KE-063>

These filters are designed especially for comet photography. Type 1 is a multi-layer narrow band pass filter for ION-TAIL (410-460nm). Type 2 is an optical filter for DUST-TAIL. This set is manufactured based on the information presented by IHW. To fit other sizes, some step-up or step-down rings are supplied. (The individual transmission is tested one by one, and the result chart comes with each filter to certify the quality.)



KENKO MC ND-400 FILTERS

34mm <#KE-064> / 49mm <#KE-065> / 52mm <#KE-066> / 55mm <#KE-067> / 58mm <#KE-068> / 62mm <#KE-069> / 67mm <#KE-070> / 72mm <#KE-071> / 77mm <#KE-072> / 82mm <#KE-073>

These multi-coated, very precision 1/400 (0.25% transmission) neutral density filters are best suitable for solar photography.

KENKO SP TRICOLOR FILTER SETS

49mm Set <#KE-074> / 52mm Set <#KE-075> / 55mm Set <#KE-076> / 58mm Set <#KE-077>

A set of blue, green and red - the three primary colors. Not only for the individual use, this set is also ideal for composite color photography.

BSB MINUS VIOLET FILTER 52mm <#KA-178>

Most refracting photo systems have residual chromatic aberration on violet light, which makes bright star images much bigger and reduces the sharpness. BSB Minus Violet Filter effectively absorbs undesirable violet and ultra-violet lights, yielding pin-point star images on deep-sky photography with telephoto lenses or refractors.

EYEPIECE FILTER SETS

for .965" <#KA-179> / for 1.25" <#KA-180>

A set of Y2 (yellow - for the moon, Jupiter, Saturn & Mars), YAZ (orange - for the moon, Jupiter & Saturn), P01 (green - for Jupiter & Mars), 80A (blue - for Jupiter), C5 (Violet - for Venus & Mars) and ND2 (Gray - for the moon).

KENKO WIDE FIELD SUN & MOON EYEPIECE FILTERS

.965" SUN <#KE-078> / .965" MOON <#KE-079> / 1.25" SUN <#KE-080> / 1.25" MOON <#KE-081>

Unlike some poorly-made models, these large aperture Sun/Moon eyepiece filters never obstruct the field, assuring clear image from edge to edge of the field. Made of precisely finished optical glass, these fine quality filters have superb surface accuracy, ideal for both detailed visual observation and eyepiece projection photography.

★FINDERSCOPIES & BRACKETS★

ASTRO 50mm - 80mm PREMIUM FINDERSCOPIES

Astro offers super performance erect-image finderscopes with all the following advanced features:

ERECT-IMAGE: Specially designed straight-thru roof erecting prism is built in the tube, offering right-side-up correct image.

WIDE FIELD: 56-degree apparent field eyepiece is equipped, yielding almost twice as wide field of view as ordinary models.

QUALITY OPTICS: Very fine quality, luxury air-spaced achromat objective lens is equipped in every model.

MULTI-COATED: Every surface of the objective lens and the eyepiece is fully multi-coated.

ADVANCED RETICLE PATTERN: Cross-hair with a central bull's eye and a polar alignment scale. Diopter adjustable.

ILLUMINATED: Red LED illuminator is included. Brightness adjustable.

HELICAL FOCUSING: 63mm or 80mm model is equipped with a smooth helical focuser.

.965" EYEPIECE ADAPTER: 63mm or 80mm model accepts other .965" eyepiece, still in erect-image.

MADE-TO-ORDER BRACKET: Each bracket is individually machined to fit your special telescope.

1/4-20 THREADED: Each bracket has a 1/4-20 photo screw hole to mount onto any standard photo tripod.

* 7 x 50mm ILLUMINATED ERECT-IMAGE FINDERSCOPE (w/o Bracket) <#AS-007>: 8-degree field, metallic silver tube color.

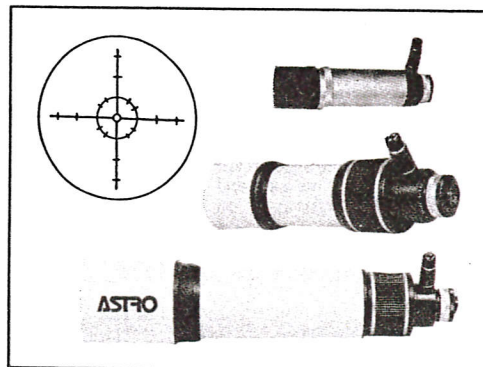
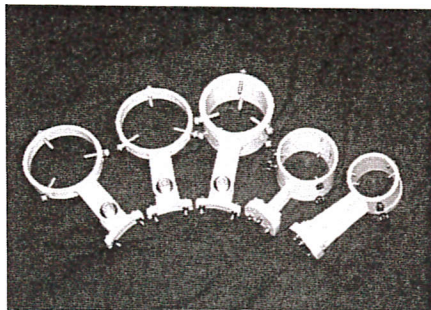
* 9 x 63mm ILLUMINATED ERECT-IMAGE FINDERSCOPE (w/o Bracket) <#AS-008>: 6.1-degree field, white tube color.

* 14 x 80mm ILLUMINATED ERECT-IMAGE FINDERSCOPE (w/o Bracket) <#AS-009>: 4-degree field, white tube color.

BRACKETS

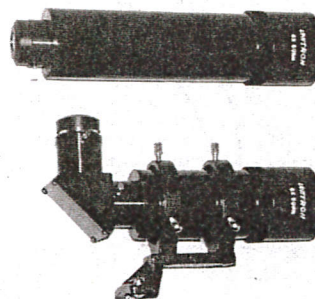
for 50mm <#AS-010> / for 63mm <#AS-011> / for 80mm (Single Leg) <#AS-012> / for 80mm (Pair Legs) <#AS-013>

The foot base is individually machined to fit your telescope. (Please specify the tube dia. when ordering.) These brackets are also very suitable for any other 50mm - 80mm finderscope or guidescope.



UNITRON 50mm & 80mm VERSATILE FINDERSCOPE SYSTEM

Various featured 50mm and 80mm finderscopes are supplied from Unitron. You can choose whether straight-thru or right-angle, star diagonal or erect-image 90-degree amici prism, illuminated or not. Either objective lens is fully coated quality achromat. 80mm model has a 1.25" rack and pinion focuser to accept other eyepiece. Optional low-height brackets are designed especially for the US-made Schmidt Cassegrains. The reticle for the non-illuminated models is a simple cross-hair. For illuminated models, cross-hair and a polar alignment scale reticle with a brightness adjustable red LED illuminator included. Beautiful black finish. 80mm model is equipped with a 1/4-20 photo screw adapter block to mount directly onto any standard photo tripod.



- * 8 x 50mm STRAIGHT-THRU FINDERSCOPE (w/o Bracket) <#UN-020>
- * 8 x 50mm STRAIGHT-THRU ILLUMINATED FINDERSCOPE (w/o Bracket) <#UN-021>
- * 8 x 50mm RIGHT-ANGLE FINDERSCOPE (w/o Bracket) <#UN-022>
- * 8 x 50mm RIGHT-ANGLE ILLUMINATED FINDERSCOPE (w/o Bracket) <#UN-023>
- * 8 x 50mm ERECT-IMAGE 90-DEGREE AMICI PRISM FINDERSCOPE (w/o Bracket) <#UN-024>
- * 8 x 50mm ERECT-IMAGE 90-DEGREE AMICI PRISM ILLUMINATED FINDERSCOPE (w/o Bracket) <#UN-025>
- * 11 x 80mm RIGHT-ANGLE FINDERSCOPE (w/o Bracket) <#UN-026>
- * 11 x 80mm RIGHT-ANGLE ILLUMINATED FINDERSCOPE (w/o Bracket) <#UN-027>
- * 11 x 80mm ERECT-IMAGE 90-DEGREE AMICI PRISM FINDERSCOPE (w/o Bracket) <#UN-028>
- * 11 x 80mm ERECT-IMAGE 90-DEGREE AMICI PRISM ILLUMINATED FINDERSCOPE (w/o Bracket) <#UN-029>

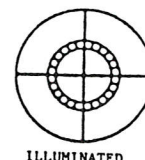
BRACKETS

for 50mm <#UN-030> / for 80mm <#UN-031>

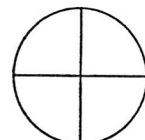
Low-height brackets to fit 8" - 10" Schmidt Cassegrains or similarly-sized tubes.

KELLNER 25mm CROSS-HAIR EYEPIECE (1.25") <#UN-032>

40-degree field. Fully coated. Simple cross-hair reticle. Not illuminated.



ILLUMINATED

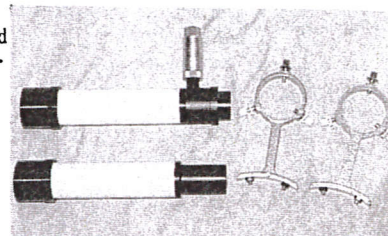
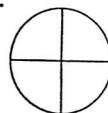


STANDARD

MIZAR 30mm QUALITY FINDERSCOPIES

Mizar offers 2 types of quality 6 x 30mm finderscopes. Either objective lens is coated achromat. 7.5-degree wide field is obtainable. Simple cross-hair reticle. Ivory tube color. The illuminated model is equipped with a brightness adjustable red LED illuminator.

- * 6 x 30mm FINDERSCOPE (w/o Bracket) <#MI-077>
- * 6 x 30mm ILLUMINATED FINDERSCOPE (w/o Bracket) <#MI-078>



BRACKETS

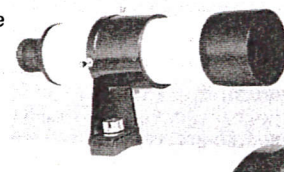
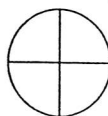
for 60mm - 90mm tube dia. <#MI-079> / for 115mm - 200mm tube dia. <#MI-080>

KENKO 50mm QUALITY FINDERSCOPE

Standard 7 x 50mm finderscope comes from Kenko. The objective lens is coated achromat. 6-degree field of view. Simple cross-hair reticle.

- * 7 x 50mm FINDERSCOPE (w/o Bracket) <#KE-082>

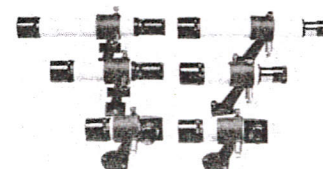
BRACKET <#KE-083>: Fits almost all tubes.



CARTON 30mm X-Y ADJUSTABLE FINDERSCOPIES

Carton offers several useful 30mm finderscopes. Each objective lens is coated achromat. You can choose whether straight-thru or right-angle, 6x or 10x, economy Ramsden eyepiece or wider field Kellner. The reticle pattern is cross-hair and a central bull's eye for Ramsden eyepiece. Diopter adjustable cross-hair for Kellner. Either eyepiece is detachable and usable as a 22mm (.965") cross-hair eyepiece. Unique X-Y adjusting screws of the bracket offer much easier alignment than ordinary 3-point adjusting system. The bracket is blue.

- * 10 x 30mm FINDERSCOPE (K) w/Bracket <#CA-034>: 4-degree field with Kellner eyepiece.
- * 10 x 30mm FINDERSCOPE (R) w/Bracket <#CA-035>: 3.6-degree field with Ramsden eyepiece.
- * 6 x 30mm FINDERSCOPE (K) w/Bracket <#CA-036>: 6.7-degree field with Kellner eyepiece.
- * 6 x 30mm FINDERSCOPE (R) w/Bracket <#CA-037>: 6-degree field with Ramsden eyepiece.
- * 6 x 30mm RIGHT-ANGLE FINDERSCOPE (K) w/Bracket <#CA-038>: 6.7-degree field with Kellner eyepiece.
- * 6 x 30mm RIGHT-ANGLE FINDERSCOPE (R) w/Bracket <#CA-039>: 6-degree field with Ramsden eyepiece.

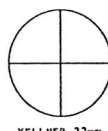


KELLNER 22mm (.965") CROSS-HAIR EYEPIECE <#CA-040>

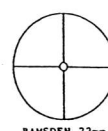
40-degree field. Fully coated. Simple cross-hair reticle. Diopter adjustable.

RAMSDEN 22mm (.965") CROSS-HAIR EYEPIECE <#CA-041>

36-degree field. Fully coated. A bull's eye in the center of the cross-hair.



KELLNER-22mm

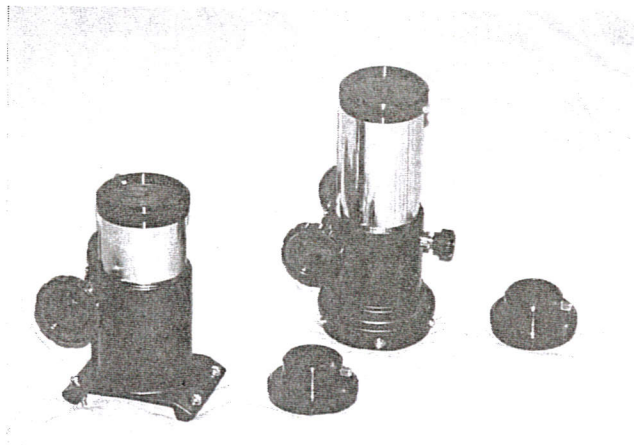


RAMSDEN-22mm

★FOCUSERS★

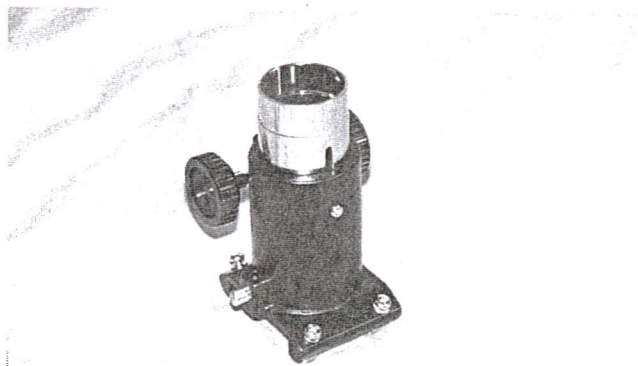
2" RACK AND PINION FOCUSER for Newtonian <#KA-181> / for Refractor <#KA-182>

These 2" focusers offer large clear diameter for larger telescopes. Long focus travel (68mm for Newtonian / 145mm for Refractor) is suitable for both visual and photographic use. Thoroughly blackened inside. Smooth rack and pinion with large knobs assures delicate focusing with ease. The refractor model is equipped with a locking screw. 1.25" adapter is also included in either model. Newtonian model is a universal type to fit almost all tubes. Refractor model fits into 78mm diameter hole.



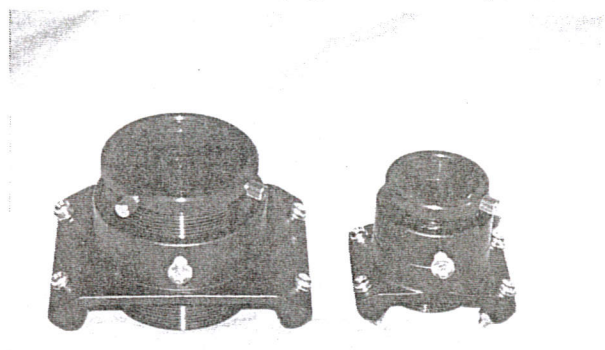
1.25" RACK AND PINION FOCUSER for Newtonian <#KA-183> / for Refractor (S) <#KA-184> / for Refractor (L) <#KA-185>

Small 1.25" focuser with smooth rack and pinion. 55mm focus travel. Universal type to fit almost all tubes.



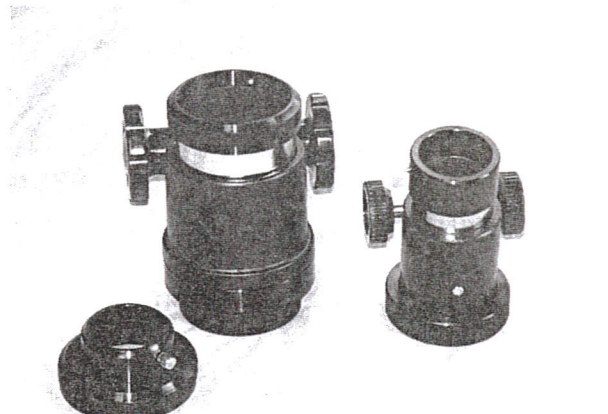
LOW PROFILE NEWTONIAN FOCUSER - 2" <#KA-186> / 1.25" <#KA-187>

Extremely low-height, smooth fine spiral focuser for Newtonians. The focus travel is 47mm for 2" model, while 33mm for 1.25" model. Either model is universal type to fit almost all tubes. Either model is equipped with a locking screw.



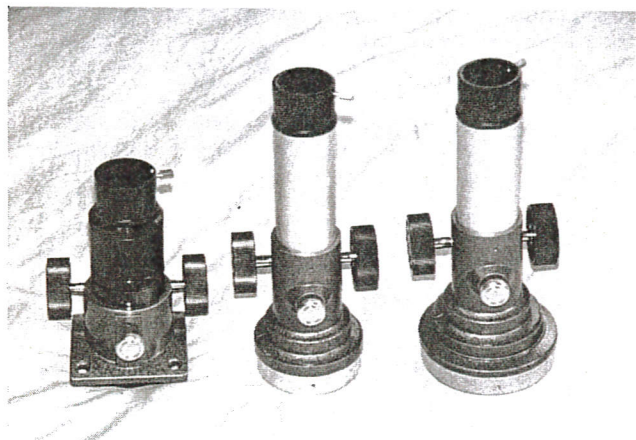
RACK AND PINION FOCUSER FOR SCHMIDT CASSEGRAIN - 2" <#KA-186> / 1.25" <#KA-187>

Unique focusers to fit the 2" threaded rear cell of the US-made Schmidt Cassegrain. Avoiding the evil "mirror-shift", these items assure very smooth fine focusing. 34mm focus travel for 2" model, while 21mm for 1.25" model. 2" model includes 1.25" adapter.



MIZAR RACK AND PINION FOCUSERS for Newtonian <#MI-081> / for Refractor (S) <#MI-082> / for Refractor (L) <#MI-083>

The same focusers as used for Mizar telescopes. Newtonian model accepts 42mm (T) threads, 36.4mm threads and 1.25". With the use of an extension tube (included), totally 80mm focus travel is available. Suitable for 4" to 8" Newtonians. Refractor (S) model fits into 68.5mm diameter hole, while (L) model into 86.6mm. Either models accept 36.4mm threads and 1.25". 116mm focus travel for either. Every model is equipped with a locking screw.



HELICAL FOCUSER FOR SCHMIDT CASSEGRAIN <#KA-188>

Very smooth helical focuser to fit 2" threaded rear cell of the US-made Schmidt Cassegrain, offering the same 2" threads. Every accessory for SC's is acceptable. Ideal for the use of binocular viewer, 2" threads diagonal prism, etc.



★ADAPTERS★

We have very wide range of adapters for both visual and photographic use. Try to join some of the following adapters together, and you will surely be able to obtain any kind of adapter you need.

* Mentioned in "Telescope Side - Eyepiece Side" order.

* Every "threads" or "sleeve" or "barrel" is at the adapter side.

* Every "sleeve" has a set-screw. (except "I-1")

ADAPTER "A" <#KA-189>
2" barrel (48mm filter threads) - 2" male threads. 45mm height. (e.g. 2" threaded accessory for SC to fit into 2" focuser w/48mm filter.)

ADAPTER "B-1" <#KA-190>
2" female threads - 42mm (T) male threads with an adjuster ring & 36.4mm female threads. (e.g. Prime focus camera adapter for US-made SC. Also accepts a 36.4mm threaded adapter or accessory.)

ADAPTER "B-2" <#KA-191>
2" female threads - 42mm (T) male threads (e.g. Prime focus camera adapter for US-made SC.)

ADAPTER "C-1" <#KA-192>
36.4mm male threads - 1.25" sleeve. 15mm low-height.

ADAPTER "C-2" <#KA-193>
36.4mm male threads - 1.25" sleeve. 27mm middle-height.

ADAPTER "C-3" <#KA-194>
36.4mm male threads - 1.25" sleeve. 35mm tall-height.

ADAPTER "D-1" <#KA-195>
36.4mm male threads - .965" sleeve. 15mm low-height.

ADAPTER "D-2" <#KA-196>
36.4mm male threads - .965" sleeve. 20mm middle-height.

ADAPTER "D-3" <#KA-197>
36.4mm male threads - .965" sleeve. 27mm tall-height.

ADAPTER "E-1" <#KA-198>
2" barrel (25mm long) - 1.25" sleeve. 10mm height.

ADAPTER "E-2" <#KA-199>
2" barrel (16mm long w/groove) - 1.25" sleeve. 12mm height.

ADAPTER "F-1" <#KA-200>
1.25" barrel (22mm long) - .965" sleeve. 7mm height.

ADAPTER "F-2" <#KA-201>
1.25" barrel (16mm long w/groove) - .965" sleeve. 6mm height.

ADAPTER "G" <#KA-202>
1.25" barrel - 36.4mm female threads.

ADAPTER "H" <#KA-203>
1.25" barrel - 42mm (T) male threads. (e.g. Prime focus camera adapter for 1.25" format.)

ADAPTER "I-1" <#KA-204>
1.25" barrel - 1.25" sleeve (w/o set-screw). 22mm height. Made of durable engineering plastic.

ADAPTER "I-2" <#KA-205>
1.25" barrel (w/filter threads) - 1.25" sleeve. 60mm height.

ADAPTER "J" <#KA-206>
.965" barrel - 1.25" sleeve. 37mm height.

ADAPTER "K" <#KA-207>
.965" barrel - 36.4mm female threads.

ADAPTER "L" <#KA-208>
.965" barrel - 42mm (T) male threads. (e.g. Prime focus camera adapter for .965" format)

ADAPTER "M-1" <#KA-209>
36.4mm male threads with an adjuster ring - 42mm (T) male threads. (e.g. Prime focus camera adapter for 36.4mm thread format.)

ADAPTER "M-2" <#KA-210>
36.4mm male threads - 42mm (T) male threads.

ADAPTER "N-1" <#KA-211>
36.4mm male threads - 36.4mm female threads. 15mm short height.

ADAPTER "N-2" <#KA-212>
36.4mm male threads - 36.4mm female threads. 43mm tall height.

ADAPTER "O" <#KA-213>
42mm (T) male threads - 36.4mm female threads.

ADAPTER "P" <#KA-214>
42mm (T) female threads - 42mm (T) female threads. 30mm height.

ADAPTER "Q" <#KA-215>
42mm (T) male threads - 42mm (T) male threads.

ADAPTER "R" <#KA-216>
42mm (T) female threads - 2" male threads.

ADAPTER "S" <#KA-217>
42mm (T) female threads - 36.4mm female threads.

ADAPTER "T" <#KA-218>
43mm male threads with an adjuster ring - 42mm (T) male threads. (e.g. Prime focus camera adapter for 43mm thread format.)

ADAPTER "U" <#KA-219>
43mm male threads - 2" sleeve. 34mm height.

ADAPTER "V" <#KA-220>
43mm male threads - 2" male threads.

ADAPTER "W" <#KA-221>
49mm male threads - 2" sleeve. 50mm height.

ADAPTER "X" <#KA-222>
49mm male threads - 42mm (T) male threads with an adjuster ring & 36.4mm female threads. (e.g. Prime focus camera adapter for 49mm thread format. Also accepts a 36.4mm threaded adapter or accessory.)

ADAPTER "Y" <#KA-223>
2" female threads - 2" sleeve. 48mm height. (e.g. 2" eyepiece adapter for US-made SC.)

ADAPTER "Z" <#KA-224>
2" barrel - 36.4mm female threads.

<COMBINATION EXAMPLES>

* A + B = Prime Focus Camera Adapter for 2" format

* A + Y = Extension Tube for 2" format

* H + R + Y = 2" Eyepiece Adapter for 36.4mm thread format

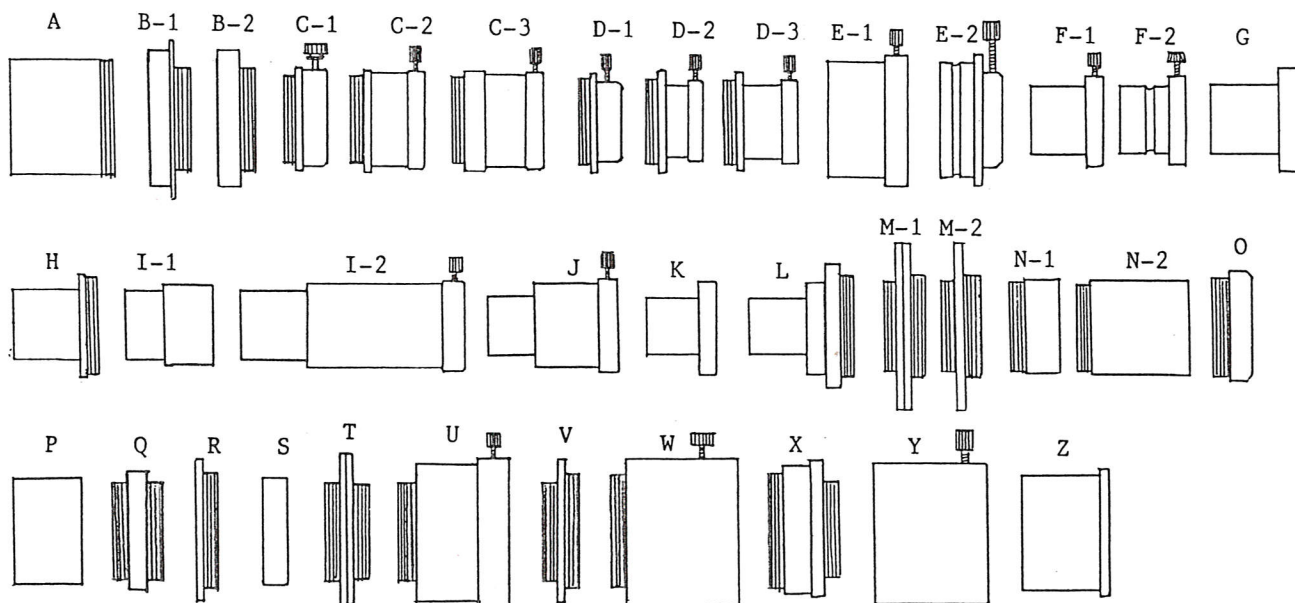
* H + R + Y = 2" Eyepiece Adapter for 1.25" format

* P + Q = Extension Tube (Photo Extender) for 42mm (T) thread format

* R + Y = 2" Eyepiece Adapter for 42mm (T) thread format

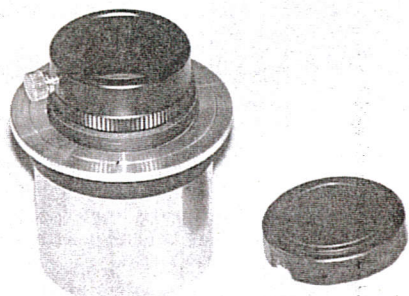
* S + C = 1.25" Eyepiece Adapter for 42mm (T) thread format

* S + D = .965" Eyepiece Adapter for 42mm (T) thread format



JAPANOPTIK 2" PERFECT ADAPTER <#JA-013>

Consists of "A", "B-1" and "C-1" with a useful dust cover. The lower price than buying each. Ideal for every 2" user. Just put it into your 2" focuser instead of normal 1.25" adapter, and this "perfect" adapter can accept: 1.25" eyepiece, 36.4mm threaded accessory, 42mm (T) threaded accessory, 2" threaded accessory (for SC's) and 48mm filter. Each unit also offers various usages individually or combined with some other adapters. We recommend you to purchase this with adapter "Y", and you can take full advantage of your 2" focuser.

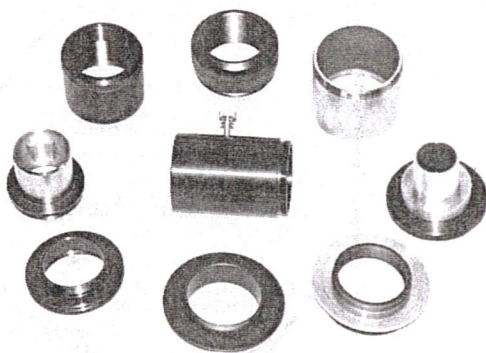


1.25" EYEPIECE PROJECTION CAMERA ADAPTER <#KA-225>

42mm (T) female threads - 42mm (T) male threads. Holds a 1.25" eyepiece for projection photography. To change magnification, use with as many "P + Q" as required.

- TO FIT YOUR TELESCOPE -

2" MALE THREADS (US-MADE SC): Use with "B-1".
2" EYEPIECE HOLDER: Use with "A + B-1".
49mm FEMALE THREADS: Use with "X".
43mm FEMALE THREADS: Use with "T".
36.4mm FEMALE THREADS: Use with "M-1".
1.25" EYEPIECE HOLDER: Use with "H".
.965" EYEPIECE HOLDER: Use with "L".

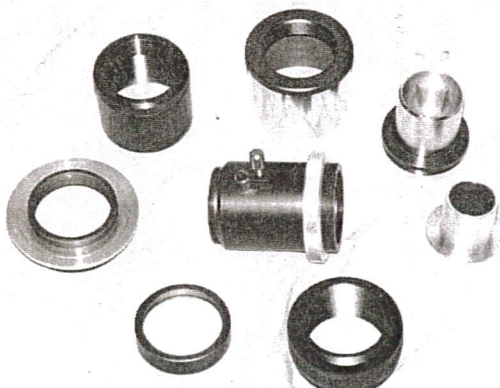


.965" EYEPIECE PROJECTION CAMERA ADAPTER <#KA-226>

36.4mm male threads - 42mm (T) male threads with an adjuster ring. Holds a .965" eyepiece for projection photography. The sliding function makes variable change of the magnification. To get additional magnification, use with as many "P + Q" as required.

- TO FIT YOUR TELESCOPE -

2" MALE THREADS (US-MADE SC): Use with "B-1".
2" EYEPIECE HOLDER: Use with "Z".
49mm FEMALE THREADS: Use with "X".
43mm FEMALE THREADS: Use with "T + S".
36.4mm FEMALE THREADS: Directly fits.
1.25" EYEPIECE HOLDER: Use with "G".
.965" EYEPIECE HOLDER: Use with "K".

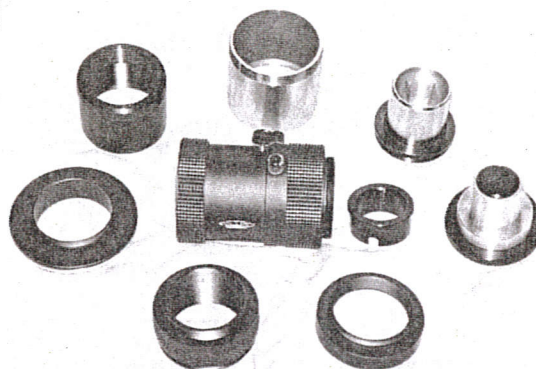


ASTRO UNIVERSAL CAMERA ADAPTER <#AS-014>

42mm (T) female threads with an adjuster ring - 42mm (T) male threads with rotary function. Holds a 1.25" eyepiece for projection photography. Also accepts .965" eyepiece with the .965" adapter (included). Useful rotary function adds to the convenience for rotating the camera into the best angle. The rear part is easily detached by loosening the 2 setscrews, making it easier to center the object by seeing it through the mounted eyepieces before attaching the camera body. To get additional magnification, use with as many "P + Q" as required.

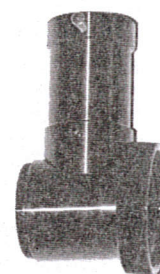
- TO FIT YOUR TELESCOPE -

2" MALE THREADS (US-MADE SC): Use with "B-2".
2" EYEPIECE HOLDER: Use with "A + B-2".
49mm FEMALE THREADS: Use with "X".
43mm FEMALE THREADS: Use with "T".
36.4mm FEMALE THREADS: Use with "M-2".
1.25" EYEPIECE HOLDER: Use with "H".
.965" EYEPIECE HOLDER: Use with "L".



UNITRON OFF-AXIS GUIDER <#UN-033>

2" female threads with an adjuster ring - 42mm (T) male threads. Ideal for prime-focus deep-sky photography with Cassegrain-type Catadioptrics or refractors. Utilizing part of "off-axis" image of the photographic optics as the guiding use, this instrument offers much more precision photo guiding than separately-equipped guiding scopes. A small multi-coated diagonal prism is mounted at the edge of the inside, leading part of the light from the main optics to the guiding eyepiece. When the focus travel for the eyepiece is too long, add "I-1" or "I-2" to add the height.



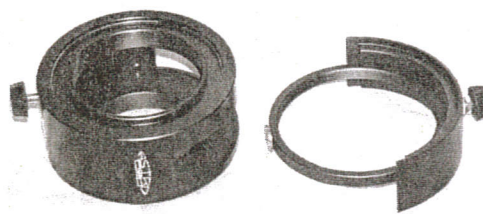
- TO FIT YOUR TELESCOPE -

2" MALE THREADS (US-MADE SC): Directly fits.
2" EYEPIECE HOLDER: Use with "A".
49mm FEMALE THREADS: Use with "X + R".
43mm FEMALE THREADS: Use with "V".
36.4mm FEMALE THREADS: Use with "M-2 + R".
1.25" EYEPIECE HOLDER: Use with "H + R".

ASTRO FILTER SWITCH BOX <#AS-015>

42mm (T) female threads - 42mm (T) male threads with rotary function. 52mm filters can be switched rapidly. The filter holder, accepting 2 filters simultaneously, is fixed magnetically in the box. Very smooth 360-degree rotary function adds to the convenience for rotating the camera into the best angle. 1 filter holder is included.

* SPARE FILTER HOLDER <#AS-016>



T-RING (for 35mm SLR Camera) <#KA-227>

42mm (T) female threads - specified camera mount. Please specify the brand & type of your camera when ordering.

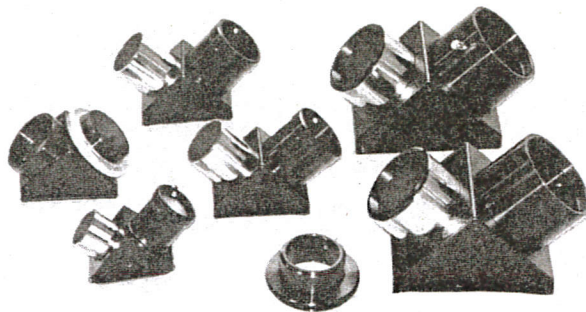
★DIAGONAL PRISMS & MIRRORS★

UNITRON 2" DIAGONAL - PRISM <#UN-034> / MIRROR <#UN-035>

Excellent quality full aperture 2" diagonals are offered from Unitron. Fully coated precision large diagonal prism is utilized for the prism type. Aluminized and SiO coated great performance diagonal mirror for the mirror type. Perfect inside blackening for both. Mirror type is supplied with a 1.25" eyepiece adapter. Either model has 42mm (T) male threads in front, which assures the versatility to fit various format focusers as followings:

- TO FIT YOUR TELESCOPE -

2" MALE THREADS (US-MADE SC): Use with "B-1" or "Y".
 2" EYEPIECE HOLDER: Directly fits.
 49mm FEMALE THREADS: Use with "X".
 43mm FEMALE THREADS: Use with "T".
 36.4mm FEMALE THREADS: Use with "M-1".
 1.25" EYEPIECE HOLDER: Use with "H".



MIZAR 36.4mm DIAGONAL PRISM <#MI-084>

Fully coated large precision diagonal mirror to fit and accept 36.4mm thread format. Adjuster ring is equipped for deciding the best viewing position.

1.25" DIAGONAL PRISM - MULTI-COATED <#KA-228> / FULLY COATED <#KA-229>

We offer 2 types of the best performance 1.25" diagonal prisms at very affordable prices. Either model is directly offered from a manufacturer who also supplies the same model under some famous brand names (sold at much higher price!).

.965" FULLY COATED DIAGONAL PRISM <#KA-230>

Fine quality .965" diagonal offered from a manufacturer who also supplies the same model under some famous brand names (sold at much higher price!).

.965" SOLAR DIAGONAL PRISM <#KA-231>

Allows only 5% of the solar light with a Hershel prism. Ideal for direct observation of the sun. Do use with a sun filter for .965" eyepieces.

ASTRO .965" BARLOW STAR DIAGONAL PRISM - 2x <#AS-017> / 3x <#AS-018>

2x or 3x doublet barlow lens is mounted in the star diagonal prism. Ideal for astrophoto guiding which requires higher power. Not adding the total length of the guiding scope, the evil effect by the wind while guiding can be eliminated. The size and weight are almost the same as ordinary .965" star diagonal.

★ERECTING PRISMS★

UNITRON 2" 45-DEGREE ERRECTING PRISM <#UN-036>

With a large 45-degree Schmidt prism, right-side-up erect image is obtainable. Multi-coated to allow maximum transmission. The front 2" barrel is equipped with 42mm (T) threads, fitting various format focusers, the same as Unitron 2" Diagonals. (See "TO FIT YOUR TELESCOPE" of Unitron 2" Diagonals for the compatibility.)

UNITRON 1.25" 90-DEGREE AMICI ERRECTING PRISM <#UN-037>

For convenient right-angle viewing with correct erect-image. The Amici prism takes just nearly the same focus travel as an ordinary diagonal prism, offering the possibility to get erect-image from the telescope whose focus travel is too short to use with an ordinary erecting prism. Multi-coated to allow maximum transmission. Similarly designed as an ordinary 1.25" diagonal prism.

1.25" 45-DEGREE ERRECTING PRISM <#KA-232>

Utilizing a precision 45-degree Schmidt prism, very comfortable viewing with correct erect-image is offered. In spite of the advanced performance, this model is offered at very affordable price.

KENKO DH ERRECTING PRISM (36.4mm - 1.25") <#KE-084> / (36.4mm - .965") <#KE-085>

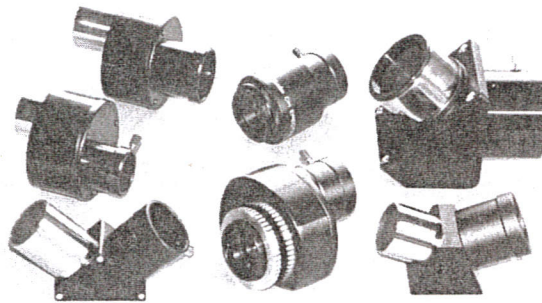
Fine quality fully coated roof prism model for straight-thru viewing. Fits 36.4mm threads and equipped with 36.4mm female threads with a 1.25" or .965" eyepiece adapter.

MIZAR COMPACT ERRECTING PRISM (36.4mm - 1.25") <#MI-085> / (36.4mm - .965") <#MI-086>

Fine quality coated porro prism model for straight-thru viewing. Fits 36.4mm threads and equipped with 36.4mm female threads with a 1.25" or .965" eyepiece adapter. Adjuster ring is equipped for deciding the convenient viewing position. The compact oval design takes shorter focus travel than ordinary porro prism.

FULLY COATED PORRO PRISM - 1.25" <#KA-233> / .965" <#KA-234>

Moderately-priced fully coated erecting porro prisms directly offered from a manufacturer who also supplies the same models under some famous brand names (sold at much higher prices!).



★OTHER UNIQUE ACCESSORIES★

SUPER WIDE-FIELD BINOCULAR SYSTEM <#KA-235>

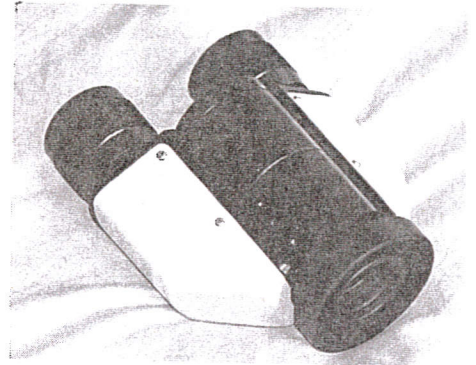
This unique instrument splits the beam from your telescope, making it possible for you to observe with your both eyes. The fully multi-coated, oversized prisms allow the use of very wide field eyepieces such as Unitron Widescans. Even when using 84-degree eyepieces, you can still enjoy full bright images from edge to edge of the field. Accepts 1.25" eyepieces with the collet-type fasteners. A pair of .965" eyepiece adapters are also included. Rotatable 2" female threads and 42mm (T) female threads are equipped to fit the telescope. A fully multi-coated doublet 1.7x extender lens (detachable) is included for some telescopes with shorter focus travels. The interpupillary distance can be easily varied just like an ordinary binocular without changing the focal point, which is very convenient when some people observe one after another. Since we started this item a few years ago, we have received a lot of reviews from the users such as: "With no doubt, this binocular viewer offers by far the best performance of all the present models at any cost. Especially, the very clear wide field with the least light loss is prominent! (from Germany)"

REQUIRED FOCUS TRAVEL: 130mm / 75mm with 1.7x Extender Lens
INTERPUPILLARY DISTANCE: 55mm (min.) - 78mm (max.)
WEIGHT: 680g

- TO FIT YOUR TELESCOPE -

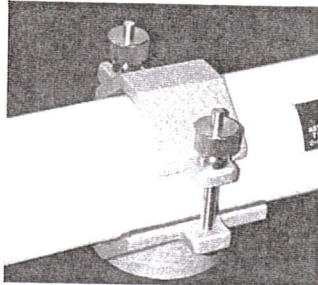
2" MALE THREADS (US-MADE SC): Directly fits.
2" EYEPIECE HOLDER: Use with Adapter "A".
49mm FEMALE THREADS: Use with Adapter "X". *(w/o Extender Lens)
43mm FEMALE THREADS: Use with Adapter "V".
36.4mm FEMALE THREADS: Use with Adapter "M-2". *(w/o Extender Lens)
1.25" EYEPIECE HOLDER: Use with Adapter "H". *(w/o Extender Lens)
.965" EYEPIECE HOLDER: Use with Adapter "L". *(w/o Extender Lens)

* NOTICE: The 1.7x extender lens is mounted in the 2" threaded part, and it can't be used when this part is detached to use the internal 42mm (T) threads instead. If you need to use the 1.7x extender for 49mm / 36.4mm / 1.25" / .965" format focuser, then add Adapter "R" in front of the 2" threads to fit the adapters listed above.



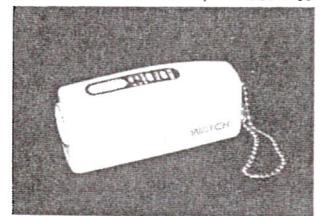
UNIVERSAL TUBE HOLDER FOR REFRACTOR <#KA-236>

This adjustable tube holder accepts any refractor of 40mm to 80mm tube dia. Fits Mizar or Takahashi equatorial mounts. A 1/4-20 photo screw hole is also equipped to fit onto any standard photo tripods.



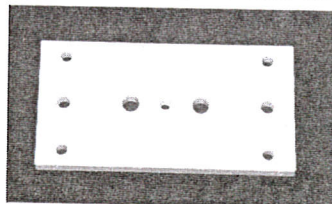
NIGHT WATCH (PROJECTOR CLOCK) <#KA-239>

This palm-sized, flashlight-like instrument projects the correct time on any nearby object such as wall, floor or telescope tube. The red LED illuminates the built-in very small liquid quartz digital timepiece through the convex lens in front. 2-step brightness adjustable. 2-mode displays for the time or the date. Works on 1.5-volts x 2 batteries. Convenient when observing in the field.



UNIVERSAL PLATE <#KA-237>

This plate accepts a pair of Mizar Accessory Rings or Vixen Tube holders to hold a telescope tube assembly, then fits onto Mizar or Takahashi equatorial mount. A 1/4-20 photo screw hole is also equipped, making it possible for almost all kinds of telescope tubes (up to 8" reflector) to mount directly onto any standard photo tripod.



KENKO SCOPE EYEPIECE <#KE-086>

Converts 35mm SLR camera lenses into telescopes. Consists of a small roof prism and 10mm Kellner eyepiece (diopter adjustable). 50-degree apparent field erect-image is obtainable. When used with 200mm lens, for example, it yields 20x with 2.5-degree field of view. It's also usable with ordinary astronomical telescopes by using a T-ring and a proper adapter to fit the focuser. Comes with a case. Please specify the brand & type of your camera when ordering.



2.5-METER LONG CABLE RELEASE <#KA-238>

This extremely long cable release is especially manufactured for deep-sky photography. Except when using the off-axis guider, the photographer is more or less far from the camera body, especially in using a Newtonian-type optics as a main tube. To control the shutter, this kind of long cable release is very useful. A stopper ring is of course equipped for using "B" shutter mode for long-time exposure.



BINOCULARS

★KENKO★

Kenko offers a number of quality binoculars. Among them, we specially introduce the following premium 8x42mm models.

<8x42 DH / 8x42 DH (IR)>

Waterproof, rubber-coated compact roof-prism binoculars with BaK4 prisms. The standard model includes fully multi-coated optics for maximum transmission and best image contrast. This model is very suitable for astronomical use. Special "IR" coating (so-called Ruby Coating) is performed on the objective lenses of IR model. "IR" is a special multi-layer coating, eliminating the harmful infra-red and ultra-violet rays and transmitting only the visible range. This coating protects your eyes when used under strong sunlight such as near the sea or on a skiing yard. It also yields very sharp images under dim light at dawn or twilight. Either model comes completely with neckstraps, lens caps and carrying case.



	Aperture	Power	Field	Size (mm)	Weight (g)	Item #
8x42 DH	42mm	8x	6.2'	155 x 130 x 52	700	#KE-087
8x42 DH (IR)	42mm	8x	6.2'	158 x 130 x 52	700	#KE-088

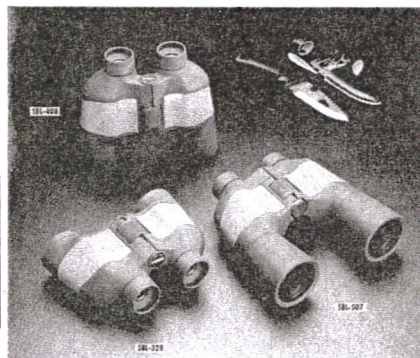
★MIZAR★

Mizar offers some characteristic binoculars with high optical quality. Each of these models is also very suitable for astronomical use, offering great performance in deep-sky observation.

<SBL SERIES>

These moderately-priced multi-purpose binoculars utilizing fully coated lenses and BaK4 prisms to yield high transmission and good image contrast. The eyepieces are designed to offer sufficiently long eye-relief. The ergonomically-designed, streamlined body comfortably fits in your hands. Center focusing. Every model comes completely with neckstraps, lens caps and carrying bag.

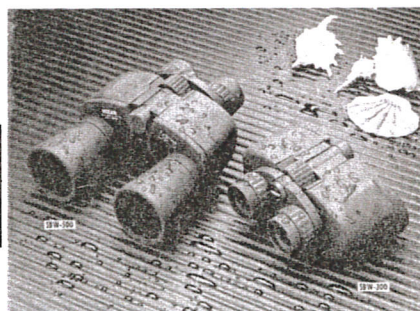
	Aperture	Power	Field	Size (mm)	Weight (g)	Item #
SBL-328	32mm	8x	6.8'	127 x 174 x 65	540	#MI-087
SBL-408	40mm	8x	6.5'	151 x 178 x 65	620	#MI-088
SBL-507	50mm	7x	6.8'	180 x 184 x 65	710	#MI-089



<SBW SERIES>

Fogproof and waterproof models. Hermetically sealed and nitrogen purged. Best suitable for heavy-duty outdoor use. Center focusing. Either model comes completely with neckstraps, lens caps and carrying case.

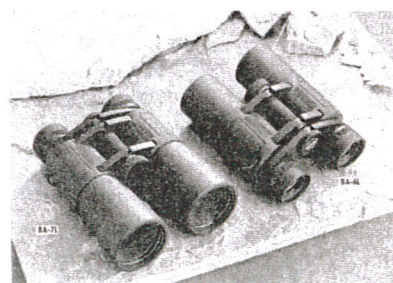
	Aperture	Power	Field	Size (mm)	Weight (g)	Item #
SBW-300	30mm	8x	3.5'	120 x 170 x 70	740	#MI-090
SBW-500	50mm	7x	7.0'	182 x 180 x 70	880	#MI-091



<BA SERIES>

Compact & lightweight roof-prism type with fully coated optics and BaK4 prisms. Very wide field with clear images obtainable. Center focusing. Either model comes completely with neckstraps, lens caps and carrying bag.

	Aperture	Power	Field	Size (mm)	Weight (g)	Item #
BA-6L	32mm	8x	8.5'	105 x 135 x 52	450	#MI-092
BA-7L	42mm	10x	6.5'	110 x 150 x 52	540	#MI-093



<SBK SERIES>

Mizar, originally one of the oldest suppliers of astronomical instruments in Japan, proudly offers these two models especially to serious deep-sky observers. Either model looks similar to some other competitors offered from a number of suppliers, but the inside is completely different. The fully multi-coated optics and premium BaK4 prisms are of course equipped. Besides, unlike other cheap models, thorough blackening is performed all over the inside, the edges of the lenses and the sides of the prisms. The result is prominent - the image contrast is apparently far better than any other competitor, yielding great clarity to observe very subtle deep sky objects. 100mm model is equipped with 22mm filter adapters to accept .965" format nebula filters like "Miu Filter (Mizar)" or "HF-Filter (Kenko)". To mount onto a photo tripod, sturdy tripod adapter (for 80mm model) or tripod adapter plate (for 100mm model) is included. 100mm model can also mount onto Mizar K-Altazimuth Mount to make a complete Rich-Field Binocular Telescope for deep-sky observation. 80mm model is center focusing, while 100mm model is individual focusing. Both yield very long eye-relief for comfortable viewing. 100mm model has already been exported to many deep-sky observers worldwide, enjoying highest reputation anytime and anywhere. (For example, a binocular test performed in August 1992 by Ch. Wolf-Max-Planck-Institute in Heidelberg, Germany, reported Mizar 14x100mm was tested out to be of the top performance among all the quality famous brand binoculars they tested.) Either model comes completely with neckstraps, lens caps and carrying case.



	<u>Aperture</u>	<u>Power</u>	<u>Field</u>	<u>Size (mm)</u>	<u>Weight (g)</u>	<u>Item #</u>
SBK-1180	80mm	11x	4.5'	285 x 245 x 100	2300	#MI-094
SBK-1410	100mm	14x	3.3'	358 x 258 x 120	3200	#MI-095

Dear Amateur Astronomers Worldwide:

I remember, when I was a schoolboy and very beginning amateur astronomer, I was very excited to get my first 2" refractor at last after many months of negotiations with my parents, helping the household jobs. I never forget seeing very tiny but fantastic Saturn at 80x through it for the first time. Though I owned larger telescopes afterward, I believe it was surely the best Saturn I have ever seen. This great impression led me on the way to a serious amateur astronomer. I think you must have had a similar experience to mine. Well, it is really exciting for anybody to own a telescope.

As an amateur astronomer for over 20 years, I have seen many changes in the world of astronomical telescopes for amateurs. Compared to when I started, most amateur astronomers seem to have much better telescopes now. As the telescope market has grown to be larger, we can get far wider line of astronomical equipment at comparatively lower cost than before.

In the international aspect, however, telescope trade is still more backward than those of other optical or mechanical products. There are numerous kinds of astronomy-related products available in Japan, but only a few of them have been exported. (Some of them are sold under different brand names outside Japan, which makes things more confusing.) Who knows, for example, the name of NTK - a very advanced telescope manufacturer? Who knows much about JSO top performance Schmidt Cameras? Who knows what surprisingly sharp images every HIDAKA optics will yield? And, who knows quality eyepieces and filters are available at incredibly low cost here?

For linguistic or some other reasons, it has been very difficult or nearly impossible for foreigners to buy such Japanese astronomical items. As one of the millions of amateur astronomers in the world, I felt like doing something so that many others could enjoy the same opportunities as Japanese amateurs, which was the very motive for my starting this business.

This catalog is a key to break the barrier between you and Japanese telescope market. I do hope you will find in it your long-wanted items to fit your astronomical activities.

Yours very truly,



K. Kasai, General Manager



