タカハシ TAKAHASHI

Astronomical Telescope & Accessories
General Catalog



chapters		series		lineup	
01	Introduction			02	Company Profile
				03	Glossary of Terms
				04	Our Products
06	Refracting Telescopes	06	FCT-65D	07	FCT-65D
		08	FU Reducer Series	08	FS-60CP FC-76DP
		10	FS	11	FS-60CB FS-60Q
		12	FC-76D	13	FC-76DCU
		14	FC-100D	15	FC-100DC FC-100DF FC-100DZ
		18	FSQ	19	FSQ-85EDX
		20	FOA	21	FOA-60 FOA-60Q
		22	TSA	23	TSA-120
		24	TOA	25	TOA-130NS TOA-130NFB TOA-150B
28	Reflecting Telescopes	28	Mewlon	29	Mewlon-180C Mewlon-210
		30	Epsilon	31	Epsilon-130D Epsilon-160ED Epsilon-180ED
34	Product Specifications (Optical Tubes Only)				
36	Accessories	36	Eyepieces		
		37	Mirror/Prism Diagonals		
		37	Finderscopes		
		38	Accessories for Optical Tube		
		41	Tube Holders / Mounting Plates		
		43	Tripods/Piers		
44	Takahashi's Distributor Map				



Mastering the Beauty of the Universe

[Optical Tube] FC-100DZ + FC-35 Reducer 0.66x
[Camera] ZWO ASI6200MM Pro
11 x 180"(SII), 11 x 180"(Hα), 15 x 180"(OIII)



タカハシ

Uniquely Japanese, Expert Craftsmanship.

At Takahashi Seisakusho, we have maintained a stable supply of high-quality products by persistently keeping the production site in Japan for all of the main components, with a few small exceptions of parts. Since the launch of the TS-65, our first achromatic refractor in 1967, Takahashi has been manufacturing telescopes for more than half a century.

Since then, society has changed globally, but our craftsmanship has not. We make all of our products with care and dedication so they can be lifetime partners to our customers. We hope that our customers face the great universe with joy and wonder, experiencing the best of starry nights with Takahashi products.



Glossary of Terms

Spherical Aberration Diagram

The diagram represents the state of focusing for parallel light rays entering a telescope from the front. The vertical axis indicates the incident position (0 = center of the aperture, 1 = edge of the aperture). The horizontal axis indicates the deviation from the reference focal position (objective side on the left, eyepiece side on the right, in millimeters).

Figure 1, we can observe that the blue light generally focuses on the eyepiece side, relative to the reference position. When focused at this reference position, blue light becomes defocused, leading to a “blue halo” effect around stars. Conversely, adjusting the focus to eliminate the blue halo results in defocusing of other wavelengths, resulting in complementary yellow-green halo. The curvature of the line depicting blue light suggests that achieving a perfect focus across the entire aperture is unattainable at this wavelength, indicating the inherent spherical aberration in refracting telescopes. However, a certain degree of spherical aberration is acceptable. Given the human eye’s predominant sensitivity to yellow and green wavelengths, a sharp image can still be realized if the lines corresponding to these wavelengths are relatively straight and closely aligned in the spherical aberration diagram as in Figure 1.

In the case of Figure 2, while the line representing blue light is slightly tilted, it counterbalances the red light and chromatic halo at both the center and edge of the aperture. Furthermore, since the lines representing the yellow and green wavelengths stand nearly vertical at the reference position, we can anticipate a sharp viewing experience with minimal chromatic halo.

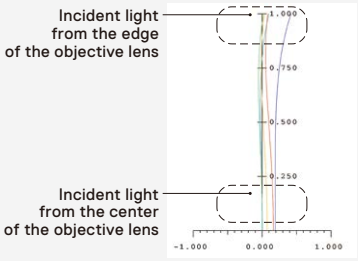


Figure 1

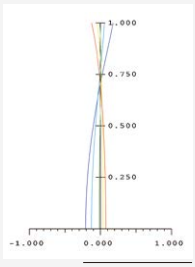


Figure 2

Spot Diagram

In astrophotography, this shows the imaged stars at different positions on the image plane according to design specifications. Unless otherwise noted, the conventions detailed below are adhered to throughout this catalog. The spot diagram usually disclosed by us is as shown in Figure 3. However, for the sake of simplicity, we employ abbreviations as illustrated in Figure 4 throughout this catalog.

—

*1 to *4 indicates the star image at the corresponding positions as shown in the diagram. *1 located at the center of the image plane, *2 is at 8mm from the center, 16mm for *3, and 22mm for *4. In the case of APS-C camera, *3 corresponds roughly to the edge of the image. For full-frame camera, *4 corresponds approximately to the edge of the image.

For all the four boxes showing the star images, each side corresponds to actual 0.1mm (100μm). As they are obtained vertically from the center of image plane as shown in Figure 4, please note that in the diagrams from *2 to *4, the upper side is the outward direction on the image plane, and the lower side is the center direction.

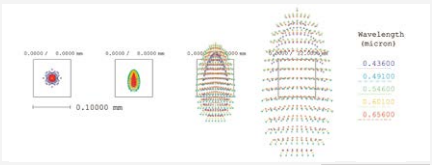


Figure 3

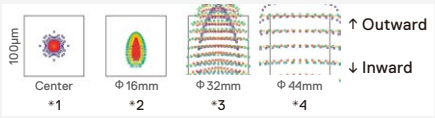


Figure 4

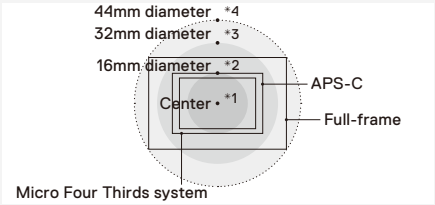


Figure 5

Other Terms

Airy Disk ———— In any ideal telescope, due to the diffraction of light, the image of a star doesn’t converge to a perfect point but rather forms over a certain area. This circular image is called the Airy disk. The Airy disk represents the limiting diameter of the image produced by a telescope, and it is inversely proportional to the effective aperture.

Visual Strehl Ratio —— The ratio of the light intensity within the Airy disk compared to the ideal condition weighted according to the sensitivity of the human eye. The closer it is to 100%, the sharper the star image produced. While it serves as one of the indicators of visual performance, it alone does not provide insight into phenomena like blue halo or spherical aberration.

Data are sampled for 5 or 11 wavelengths of visible light, 436nm–656nm. Data are from the time of the release of each product.

Our Products

Choosing the Right Astronomical Telescope for Different Usage

While a telescope with a larger aperture enables observation of various interesting celestial objects that require high magnification, it also inevitably increases the overall weight, compromising portability. Lightweight and compact telescopes are convenient for spontaneous use but inherently having smaller aperture. Telescopes with smaller f-number are advantageous for astrophotography, whereas for visual observation, refracting telescopes generally offer sharper image with a larger f-number. Although telescopes with a simple doublet design can be manufactured relatively inexpensively, achieving better imaging performance necessitates opting for high-cost materials and more complex designs.

Taking these considerations into account, it's evident that determining the "best" telescope isn't a straightforward task. The "most suitable" option will depend on individual user circumstances, such as where you intend to use it, what you wish to observe, and how frequently you plan to use it. If you find yourself uncertain in choosing a telescope, feel free to refer to this page or seek advice from a retailer for guidance.

When choosing a telescope, it's smart to start by evaluating the trade-off between size, weight, and the expected frequency of use. It's crucial to consider your personal needs: whether it's prioritizing convenience with a compact model suitable for balcony use, selecting a larger model that provides powerful and deeper celestial views (despite its mobility and storage challenges), or setting up an "environment" that facilitates the regular use of a larger instrument, such as an observatory. Takahashi telescopes offer a varied lineup, thoughtfully designed to cater to a wide spectrum of astronomical needs and preferences.

Considering its long-term usability, we encourage you to take a thorough look and select a product that closely aligns with your desires and needs.



Everyday casual stargazing with a compact system



Head under the starry sky for visual observation or photography



Take it on plane or ship for overseas expedition



Build a dome or sliding-roof observatory

*By utilizing various conversion lenses to enhance corner image quality, ensuring high performance in capturing galaxies and nebulae.

Visual*
Sharp Image

Large aperture
Power and Amazing Resolution

FOA

Doublet Fluorite Apochromat

FOA-60 | FOA-60Q

A remarkable piece, packs astonishing ultra-high performance into a compact body.



p.20

Mewlon

Dall-Kirkham Reflecting Telescope

Mewlon-180C | Mewlon-210

Experience the high-powered, sharp imaging of the Moon and planets with large-aperture telescope, which features a practically aberration-free image center.



p.28

TOA

Triplet ED Apochromat

TOA-130NS | TOA-130NFB | TOA-150B

This large-aperture refracting supreme flagship telescope from Takahashi, embodies the world's best visual performance, while harnessing extremely high photographic capability through a range of conversion lenses.



p.24

FC-D

Doublet Fluorite Apochromat

FC-76DCU | FC-76DP
FC-100DC | FC-100DF | FC-100DZ

A bestseller, striking the perfect balance between usability with performance makes this telescope ideal for those eager to begin exploring the starry sky with a sophisticated astronomical instrument.



p.12

FCT-D

Triplet Fluorite Apochromat

FCT-65D

Despite its compact size, it produces sharp images both visually and photographically. With the dedicated reducer, it offers particularly impressive performance.



p.06

TSA

Triplet ED Apochromat

TSA-120

A high-performance portable piece, featuring a sharp, large-diameter objective lens mounted in an easy-to-handle lightweight body weighing only 6.1kg.



p.22

FS

Doublet Fluorite Apochromat

FS-60CB | FS-60Q | FS-60CP

Despite its compact and lightweight design, this high-performance model allows you to enjoy sharp imaging characteristic of Fluorite Apochromats.



p.10

FSQ

Quadruplet ED Apochromat

FSQ-85EDX

A compact 2-ED advanced Petzval quadruplet telescope, its appeal is because of its portable size and wide range of conversion lenses, while ensuring excellent performance for visual observations.



p.18

Epsilon

Hyperbolic Astrograph

E-130D | E-160ED | E-180ED

Optimized for astrophotography, this reflector boasts an exceptionally fast aperture, enabling the capture of faint and extended nebulae with delicate precision.



p.30

Small Aperture
Light and Portable

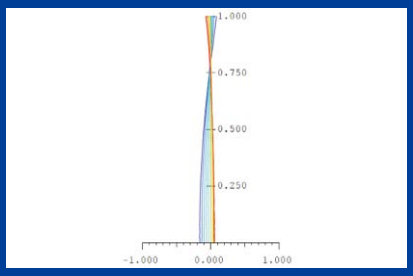
Astro-photography
Wide Field with Uniform Sharpness

series

FCT-65D

Fluorite Compact Triplet for Digital Imaging

A Modern, Compact, Multi-Photovisual Telescope with Outstanding Performance



Spherical aberration diagram (FCT-65D)

This is a triplet fluorite apochromat telescope, combined with the dedicated reducer, realizes a new era of astrophotography performance. It has excellent visual performance as well and is recommended for those who want to enjoy sharp visibility for casual daily stargazing.

Our first triplet fluorite FCT series, released in 1985-1986 when Halley's Comet approached to Earth, was a groundbreaking photo/visual telescope that prioritized the sharpness of the central image despite its short focal length, and was suitable for astrophotography when used in conjunction with the dedicated reducer. While faithfully inheriting the concept of the FCT series, we have developed a new optical design using modern technology to develop a small, high-performance three-elements refracting telescope that is suitable for the usage environment for now and the future.

Despite being a short-focus telescope with an aperture of 65mm F/6.2, it achieves a visual Strehl ratio of 97.5%. Furthermore, unlike today's most compact refracting telescopes specialized for astrophotography, the FCT-65D's back focal length is 199.2mm, so that you can use it with Diagonal Mirror 50.8 as well as Diagonal Prism 31.7MC for visual observation.

There are three types of conversion lenses available for astrophotography. All of them have an image circle of Φ44mm and are designed to be compatible with a full frame camera, but when using the 65D FU Reducer 0.65x in particular, the focal length becomes 260mm f/4.0 with overwhelming sharpness. Unlike the original FCT series, it has new era multi-photo characteristics that allow you to take astrophotographs at three different focal lengths.

This compact, high-performance telescope is recommended for those who want to enjoy visual observation, photography, or both at a high level.



FCT-65D
(With additional Tube Holder 95WB,
Dovetail Adapter Male (220B), and Top Plate 100)

lineup

FCT-65D [TCK06510]

A Modern, Compact, Multi-Photovisual Telescope with Outstanding Performance



Optical design	3 elements in 3 groups Fluorite Apochromat
Model	FCT-65D
External diameter	95mm (Dew shield Φ80mm)
Aperture	65mm
Tube length	403mm
Focal length	400mm
Focal ratio	1:6.2
Recommended finder	6x30
Weight about	1.9kg

This telescope with its accessories alone will not be able to get infinite focus. Please use a diagonal mirror, prism, extension tube, etc.

column

Conversion Lens for Astrophotography

FC/FS Multi Flattener 1.04x

[TKA00582] | Focal length 416mm | f/6.4
Image circle Φ44mm



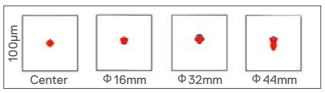


Light intensity is nearly 100% in APS-C, and sharp images are obtained across the entire image circle. The RMS spot radius is less than 2μm at the center, approximately 4μm at the periphery of APS-C, and approximately 5μm at the edge of full frame.

65D Reducer NC 0.85x

[TKA11580N] | Focal length 340mm | f/5.2
Image circle Φ44mm



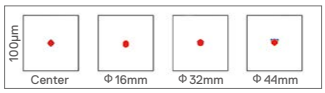


The small reducer consisting of 4 elements in 3 groups, connected with an M55.9 screw. By limiting the reduction rate to 0.85x, an image circle of Φ44mm has been achieved.

65D FU Reducer 0.65x

[TKA11580F] | Focal length 260mm | f/4.0
Image circle Φ44mm





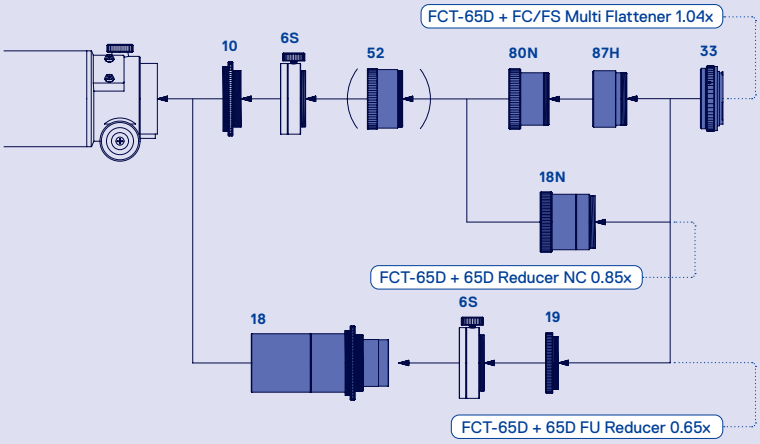
The large reducer has 4 elements in 4 groups, one of which is a fluorite lens. The RMS spot radius is approximately 1.5μm from the center to the edge of APS-C, and approximately 2.5 μm even at the extreme periphery of full size, which, combined with the brightness of F/4.0, achieves overwhelming high performance. Most of it fits inside the drawtube when installed, so there is little change in the front-to-back balance of the telescope.

chart

System Chart for Photography

Parts w/o color are standard accessories.

	No.	Product name	Product code
Included in the set	6S	Camera Angle Adjuster S	TKA21200N
	10	Coupling	TKP35001
Sold separately	18	65D FU Reducer 0.65x	TKA11580F
	19	CA-35 (FURD)	
	18N	65D Reducer NC 0.85x	TKA11580N
	33	Wide T-Mount DX-60W for Canon-EOS	TKA20245
	33	Wide T-Mount DX-60W for Nikon	TKA20246
	52	M55.9 Extension L30	TKA18006
	80N	FC/FS Multi Flattener 1.04x	TKA00582
	87H	Multi CA Ring 65D	TKA11203



* 19 is included with 65D FU Reducer 0.65x.
* 52 is not necessary but can reduce drawtube travel.

series

FU Reducer Series

More Opportunities to Explore the Universe, with Fluorite Reducers

lineup

FS-60CP [TSK06310]

FS Series' Widest Field of View
and Superior Sharpness with FU Reducer



When using the dedicated FU reducer, the focal length becomes 230mm f/3.8, and the RMS spot radius is about 3μm over almost the entire full frame, and about 3.5μm at the very periphery, providing uniform and sharp imaging. The light intensity is at about 80% even at the periphery of the full frame.

This is a new-generation small telescope that maximizes the development potential of the FS series.

Optical design	2 elements in 2 groups Fluorite Apochromat
Model	FS-60CP
External diameter	95mm (Dew shield Φ80mm)
Aperture	60mm

Tube length	361mm
Focal length	355mm
Focal ratio	1:6.2
Recommended finder	6x30
Weight about	1.8kg

FC-76DP [TFK07680]

FC / FC-D Series' Fastest
and Sharpest Photographic Ability with FU Reducer



When using the dedicated FU reducer, the RMS spot radius is about 1.5μm from the center to the periphery of APS-C, and less than 2μm even at the extreme periphery of full frame. Even when combined with a modern 60M pixel ultra-high-resolution CMOS, the imaging performance is such that star images fit within almost one pixel throughout the entire range.

The easy-to-use size and sharp image of the 76mm aperture are attractive, and it is recommended for those who want to tackle both visual and photography without compromise.

Optical design	2 elements in 2 groups Fluorite Apochromat
Model	FC-76DP
External diameter	95mm (Dew shield Φ80mm)
Aperture	76mm

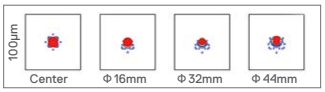
Tube length	592mm
Focal length	570mm
Focal ratio	1:7.5
Recommended finder	6x30
Weight about	2.3kg

column

FU Reducers

60CP FU Reducer 0.65x

[TKA20580F] | Focal length 230mm | f/3.8 | Image circle Φ44mm

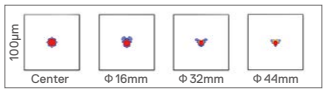




* exclusive to FS-60CP

76DP FU Reducer 0.64x

[TKA18580F] | Focal length 355mm | f/4.8 | Image circle Φ44mm





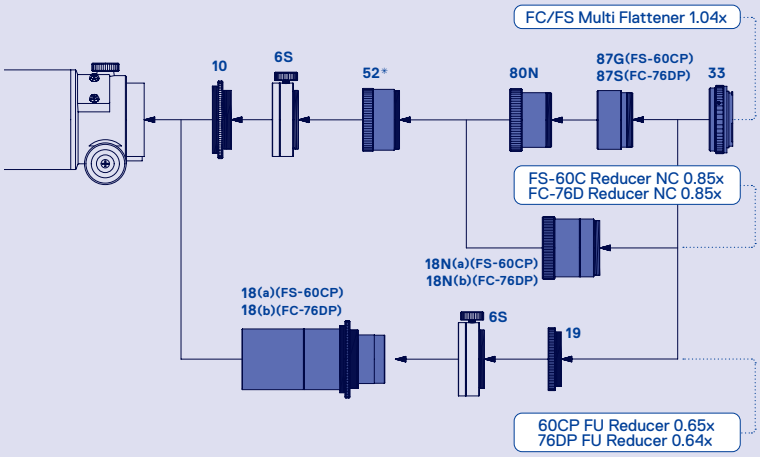
* exclusive to FS-60DP

chart

System Chart for Photography

Parts w/o color are standard accessories.

	No.	Product name	Product code
Included in the set	6S	Camera Angle Adjuster S	TKA21200N
	10	Coupling	TKP35001
Sold separately	18(a)	60CP FU Reducer 0.65x	TKA20580F
	18(b)	76DP FU Reducer 0.64x	TKA18580F
	19	CA-35 (FURD)	
	18N(a)	FS-60C Reducer NC 0.85x	TKA20580N
	18N(b)	FC-76D Reducer NC 0.85x	TKA18580N
	33	Wide T-Mount DX-60W for Canon-EOS	TKA20245
	33	Wide T-Mount DX-60W for Nikon	TKA20246
	52	M55.9 Extension L30	TKA18006
	80N	FC/FS Multi Flattener 1.04x	TKA00582
	87G	Multi CA Ring 60C	TKA20203
	87S	Multi CA Ring 76	TKA18203



* 19 is included with FU Reducer.
* 52 is necessary (FC-76DP) / not necessary but can reduce drawtube travel (FS-60CP).

The FS-60CP and FC-76DP use the same objective lens as the FS-60CB and FC-76DCU respectively, but these models use an M64x0.75 large focuser with a 63mm draw tube stroke, 50.8mm sleeve adapter, and long back focal length so that the Diagonal Mirror 50.8 can be used with. In addition to being able to use the high-performance “FU Reducer” that uses a fluorite lens, they are also compatible with other conversion lenses that fit the FS-60CB and FC-76DCU.

* These telescopes with its accessories alone will not be able to get infinite focus. Please use a diagonal mirror, prism, extension tube, etc.

column

Astrophotography with FU Reducer Series



North America Nebula and surroundings | FS-60CP + 60CP FU Reducer 0.65x + ZWO ASI6200MC Pro | 100 x 60”



M8, M20 region | FC-76DP + 76D FU Reducer 0.64x + ZWO ASI6200MC Pro | 120 x 60”

Diaphragms

These rings narrow the objective lens aperture, reducing vignetting.

Product name	Product code	Compatible telescope
Diaphragm Φ52	TSB11200	FCT-65D, FS-60CP/CB/Q
Diaphragm Φ60	TSB18200	FC-76DP/DCU



Diaphragm Φ52



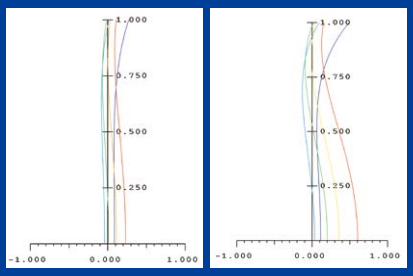
Diaphragm Φ60

series

FS

Fluorite Series

The Ultimate Compact, Expandable Multipurpose Telescope Solution



Spherical aberration diagram
(Left: FS-60CB / Right: FS-60Q)



IC1396 | FS-60CB +
FC/FS Multi Flattener 1.04x +
Canon EOS6D (IR modified) |
15 x 360”

Whether utilized as for visual and Electronically-Assisted Astronomy (EAA), or paired with a flattener or reducer for serious astrophotography, it delivers high performance for various purposes.

The FS-60CB equipped fluorite, an ideal material for doublet refractors, delivering superior visual performance that even outshines longer achromats, all while upholding a lightweight, compact, and short-focal-length design. Additionally, with the incorporation of the Extender CQ1.7x (also known as FS-60Q), it amplifies high-magnification performance and reduces field curvature, boosting clarity across the entire field of view. The FS-60Q notably showcases exceptional visual capabilities.

For astrophotography endeavors with the FS-60CB, quality images are attainable with the aid of a reducer (focal length 300mm) or flattener (focal length 370mm). It shines not only in capturing widely extended objects using full-frame or APS-C sensor cameras but also in imaging extragalactic objects with small sensor devices. Endowed with these features, the FS-60CB emerges as the quintessential compact multipurpose telescope, addressing a wide range of needs and assuring prolonged usability over an extensive period. Although it’s the smallest and lightest in the current lineup, this Takahashi telescope is teeming with remarkable expandability and should not be underestimated.



FS-60Q + EM-11TEMMA3
(With additional 6x30 finderscope,
bracket, and Tube Holder 80QS)

lineup

FS-60CB [TSK06210]

A Versatile Long-Selling Fluorite Apochromat



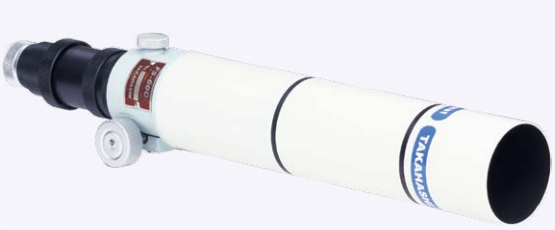
This is the base model of this series, featuring a high-performance objective lens housed within a compact, highly portable body. It excells across a spectrum of applications, from casual visual observation to sophisticated astrophotography.

Optical design	2 elements in 2 groups Fluorite Apochromat
Model	FS-60CB
External diameter	80mm (Dew shield Φ80mm)
Aperture	60mm

Tube length	413mm
Focal length	355mm
Focal ratio	1:5.9
Recommended finder	6x30
Weight about	1.1kg

FS-60Q [TSK06310]

Long-Focal-Length Model with Additional Dedicated Extender



This model features the FS-60CB with an additional dedicated extender, enhancing sharpness during high-magnification visual observations and ensuring uniformly focused imaging throughout the entire field. When the extender is removed, it can be used as the FS-60CB.

Optical design	4 elements in 3 groups Fluorite Apochromat
Model	FS-60Q
External diameter	80mm (Dew shield Φ80mm)
Aperture	60mm

Tube length	550mm
Focal length	600mm
Focal ratio	1:10.0
Recommended finder	6x30
Weight about	1.4kg

column

For Balancing the Optical Tube

FS-60CB Extension Dew Shield (White)

[TKA06210] | Weighted about 420g



It serves as a counterbalance when attaching a heavy camera, simultaneously enhancing resistance to stray light and dew.

Objective Lens Upgrade

FC-76DC Tube With Objective Unit

[TFK07650]



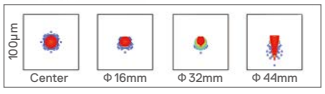
By swapping out the objective lens section, the FS-60CB and FS-60Q can be converted to an FC-76DCU. Attachment is simply screw-on.

Conversion Lenses for FS Series

60C Reducer NC 0.85x

[TKA20580N] | Focal length 300mm f/5.0 | Image circle Φ44mm

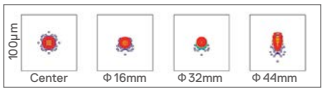




FC/FS Multi Flattener 1.04x

[TKA00582] | Focal length 370mm f/6.2 | Image circle Φ44mm

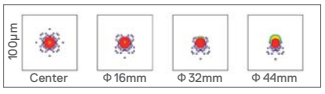




Extender CQ1.7x (FS-60Q)

[TKA20595] | Focal length 600mm | f/10.0 Image circle Φ44mm

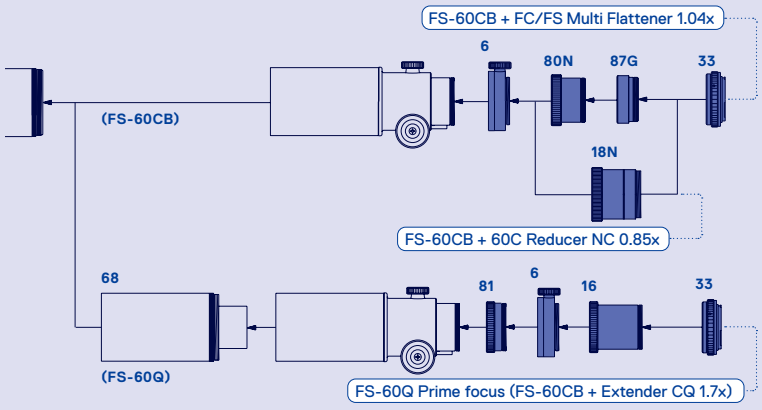




chart

System Chart for Photography

	No.	Product name	Product code
Included in the set	16	Aux. Ring	TKP20001
	81	Coupling (DT)	TKP20006B
Sold separately	6	Camera Angle Adjuster S	TKA21200N
	18N	60C Reducer NC 0.85x	TKA20580N
	33	Wide T-Mount DX-60W for Canon-EOS	TKA20245
	33	Wide T-Mount DX-60W for Nikon	TKA20246
	68	Extender CQ 1.7x	TKA20595
	80N	FC/FS Multi Flattener 1.04x	TKA00582
	87G	Multi CA Ring 60C	TKA20203



series

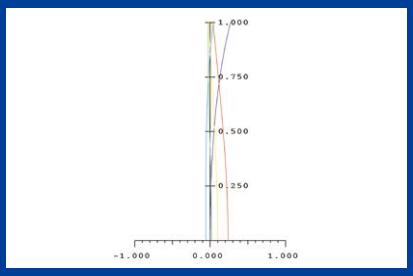
FC-76D

Fluorite Corrected for Digital Imaging

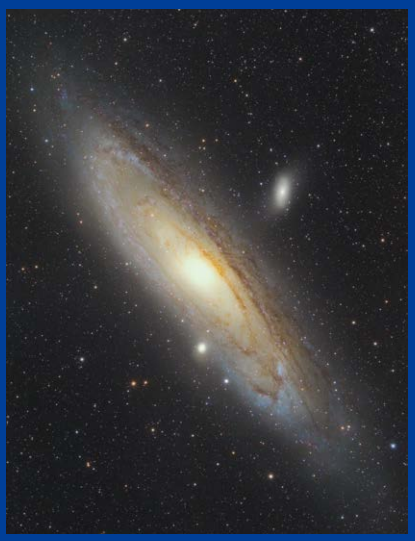
With an aperture that's 16mm larger than the FS-60CB, this model enhances light intake by approximately 60%, offering even more striking visual observation of celestial bodies. This fluorite apochromat refractor is designed to effortlessly cater to a variety of purposes, ensuring instant high performance wherever it's taken.

The inaugural FC Series was launched in 1981, shattering the norms of refractor telescopes that were typically long, around f/12–15. By adopting fluorite (CaF2) lenses, the FC Series managed to marry compactness and high performance at f/8, becoming a bestseller of its time. After a period of hiatus, the FC Series was reborn as the FC-D Series, endowed with capabilities fitting for contemporary needs. With a few adjustments to the design of the original objective lens, it now incorporates higher-performing conversion lenses, ensuring the series can adequately cater to the demands of DSLR and cooled CMOS camera photography.

The FC-76D is a refracting telescope that embeds high performance within a compact, easy-to-handle body. Its charm lies not only in its steady, immersive stargazing capabilities but also in its nimble, ready-to-go functionality to satisfy those spontaneous astral curiosities. It's a top recommendation for those seeking a high-quality astronomical telescope that is always ready, always accessible, and long-lasting.



Spherical aberration diagram (FC-76D)



Andromeda galaxy |
FC-76DCU + FC/FS Multi Flattener 1.04x +
Canon EOS6D (IR modified) |
60 x 240"

A User-Friendly Modern Classic for High Performance in Anytime and Anywhere



FC-76DCU + Starbase80 Mount
(With additional 6x30 finderscope and bracket)

lineup

FC-76DCU [TFK07640]

Charmingly Portable, the Standard Model of the Modern Classic



The tube can be separated into front and back sections via an M78 screw thread. The length of each section is, about 34cm for the front section, about 19cm for the back section from the separated end to the rear end of the focuser, and about 14cm for the entire eyepiece adapter section.



FC-76DCU + Starbase80 Mount (With additional 6x30 finderscope and bracket)

Boasting a lightweight body of approximately 1.9kg, including the finder-scope, this model offers effortless usability, especially when paired with the Starbase80 Mount. Additionally, the ability to separate the tube into front and back sections marks another distinct feature.

Optical design	2 elements in 2 groups Fluorite Apochromat
Model	FC-76DCU
External diameter	80mm (Dew shield: Φ95mm)
Aperture	76mm
Tube length	656mm
Focal length	570mm

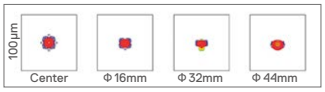
Focal ratio	1:7.5
Recommended finder	6x30
Weight about	1.7kg
Drawtube	External diameter Φ56mm Maximum extension 30mm Eyepiece standard 31.7mm
Other	Includes optical tube section caps (2 pieces)

column

Conversion Lens for Astrophotography

FC/FS Multi Flattener 1.04x

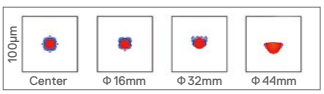
[TKA00582] | Focal length 590mm | f/7.8
Image circle Φ44mm





76D Reducer NC 0.85x

[TKA18580N] | Focal length 486mm | f/6.4
Image circle Φ44mm





Upgrade FS-60CB / FC-76DCU for Further Photographing

By replacing the focuser of the FS-60CB or FC-76DCU with a larger one, these telescopes will be upgraded to the same as the FC-60CP or FC-76DP. Then the ultra-high performance FU Reducer can be used with to enjoy astro-photography even more.

* The Connection Ring (FS-60CP) is only required when converting FS-60CB to FS-60CP.

FU Reducer Focuser Unit

[TSK06221]



Connection Ring (FS-60CP)

[TKP20007]

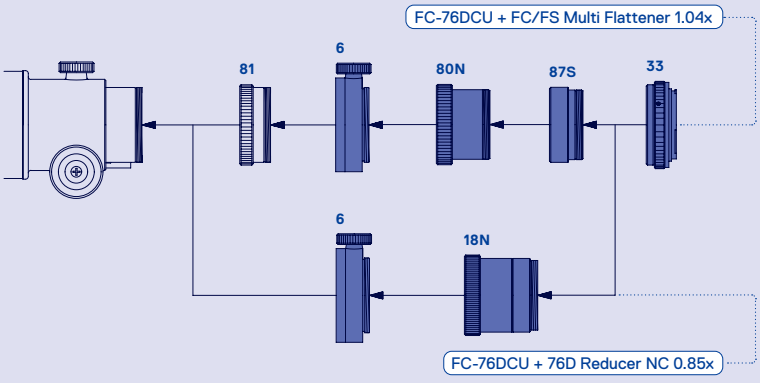


chart

System Chart for Photography

Parts w/o color are standard accessories.

	No.	Product name	Product code
Included in the set	81	Coupling (DT)	TKP20006B
Sold separately	6	Camera Angle Adjuster S	TKA21200N
	18N	76D Reducer NC 0.85x	TKA18580N
	33	Wide T-Mount DX-60W for Canon-EOS	TKA20245
	33	Wide T-Mount DX-60W for Nikon	TKA20246
	80N	FC/FS Multi Flattener 1.04x	TKA00582
	87S	Multi CA Ring 76	TKA18203

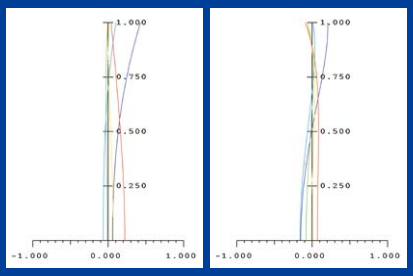


series

FC-100D

Fluorite Corrected for Digital Imaging

The light-gathering capacity improves by around 73% compared to the FC-76D. What makes it enticing is its harmonious blend of superb performance and ease of use, excelling in diverse applications without being confined to a particular location. It's a recommended choice within the 10cm fluorite series for individuals seeking a high-quality, medium-aperture refractor telescope for long-term use.



Spherical aberration diagram
(Left: FC-100DC/DF | Right: FC-100DZ)



M33 | FC-100DZ + FC-35 Reducer 0.66x + Canon EOS6D (IR modified) | 20 x 300" (cropped as APS-C)

The FC-100D stands as the largest aperture model in the current FC-D series, harnessing the power of fluorite—a premium material revered for enabling the pinnacle of imaging performance in a simple doublet refracting telescope. By marrying the natural high contrast of refractor telescopes with imaging prowess that vividly reveals even the Airy disk, it flaunts superior resolution and contrast.
Moreover, the rapid thermal acclimatization, characteristic of doublet refractors, ensures a consistent high performance, making it highly recommended as a reliable astronomical telescope for anytime use.

Featuring a 10cm aperture and an f-ratio of around F8, the FC-100D is notably lightweight for a refractor telescope of its specifications. Despite housing an objective lens one class larger than its predecessors, the FC-76 and FS-78 models, it maintains a nearly identical external size, with an external tube diameter of Φ95mm. The superior visual fidelity offered by the larger aperture is clear, making a marked difference. Within the mid-aperture FC-100D series, enthusiasts can revel in captivating, high-resolution views that are challenging to attain with smaller apertures, all the while enjoying the ease of handling synonymous with smaller aperture refractors.

For Those Wishing to Fully Enjoy the Night Sky Through a Sharp 10cm Fluorite Refractor

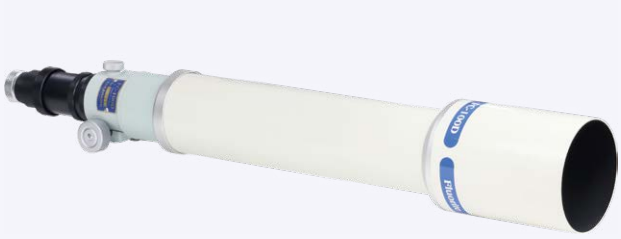


FC-100DF + EM-11TEMMA3
(With additional 6x30 finderscope, bracket, and Tube Holder 95S)

lineup

FC-100DC [TFK10010]

The Lightest Model, Primarily for Visual Observation

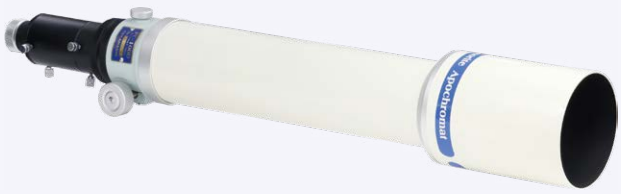


This model emphasizes weight reduction by incorporating a more compact focuser, boasting an impressively lightweight design of just 2.7kg, finderscope excluded. It's the perfect companion for casual outings under the night sky.

Optical design	2 elements in 2 groups Fluorite Apochromat
Model	FC-100DC
External diameter	95mm
Aperture	100mm
Tube length	815mm
Focal length	740mm
Focal ratio	1:7.4
Recommended finder	6x30
Weight about	2.7kg

FC-100DF [TFK10110]

A Model Thoughtfully Designed for both Photographic and Visual Use



While housing the same objective lens as the FC-100DC, this model introduces a 50.8mm sleeve system. When paired with the FC-35 Reducer 0.66x, it achieves an f/4.8, standing out as the fastest imaging tube in the series.

Optical design	2 elements in 2 groups Fluorite Apochromat
Model	FC-100DF
External diameter	95mm (Dew shield: Φ124mm)
Aperture	100mm
Tube length	785mm
Focal length	740mm
Focal ratio	1:7.4
Recommended finder	6x30
Weight about	3.3kg

FC-100DZ [TFK10310]

The Ultimate 10cm Doublet Fluorite Refractor



Employing a distinct objective lens compared to the previous two models, this version attains a visual Strehl ratio of 97.6%, elevating its high-magnification visual performance even further. It reaches the pinnacle of visual performance for a doublet refracting telescope. Additionally, it features a retractable dew shield.

Optical design	2 elements in 2 groups Fluorite Apochromat
Model	FC-100DZ
External diameter	95mm (Dew shield: Φ124mm)
Aperture	100mm
Tube length	770–840mm
Focal length	800mm
Focal ratio	1:8.0
Recommended finder	6x30
Weight about	3.7kg

column

A High-Quality Refractor that Shines in Diverse Settings, from the Balcony of Your Urban Abode to the Star-Studded Skies

Embarking on a journey to a serene, dark spot under the canopy of the night sky to marvel at the glowing silhouettes of galaxies and nebulae through a telescope can be a mesmerizing affair. In such scenarios, having a telescope with a larger aperture, capable of gathering more light, proves to be a boon, especially while observing the moon and planets where increased aperture improves resolution. However, the realm of aperture isn't governed by the notion that "bigger is always better." Larger scopes can be influenced by overhead air currents and often demand more time to adapt to the internal tube temperature, which hinder the telescope from manifesting its full potential. In light of this, a refracting telescope with an aperture around 10cm is often hailed for its commendable balance between performance and stability, all while being easy to handle.

The allure of the FC-100D series is accentuated by its relatively compact and lightweight tube, making it a charm to handle in confined spaces like balconies where space is limited. Furthermore, it possesses a top-tier imaging performance as a doublet refracting telescope. Even amidst slight environmental changes, if your quest is to delve into detailed observations of various celestial entities, indulge in astrophotography, and partake in various activities with a single telescope over a prolonged period, the fluorite lens-equipped FC-100D series comes highly recommended. It stands as a beacon of high-performance astronomical observation across a spectrum of targets and settings.



FC-100DC + Manual Alt-Az Mount: An example of use on a balcony (85cm in depth). Used for daily observation of the moon and planets.



FC-100DZ + EM-11: If you aim to observe or photograph faint celestial objects, a dark location under the night sky is ideal. Photo by Tomo Kunimitsu

column

Enhancing Visual Performance with an Extender

When paired with the FC-76DCU, FC-76DS, FC-100DC, and FC-100DF, the Extender Q1.6x not only extends the focal length but also improves the central image quality compared to using prime focus alone, further enhancing visual performance at high magnifications. With the FC-100DZ, the Extender Q1.6x maintains central performance while facilitating higher magnification with the same eyepiece. Uniquely, only the FC-76DCU and FC-76DP, which can be separated into front and back, can accommodate the Extender CQ1.7x in the middle, reducing blue halo and enabling clearer observation, for instance, of the moon's edge.

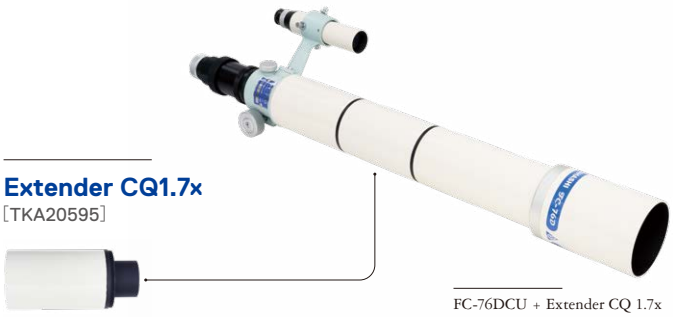
—

Beyond the basic doublet configuration, the ability to boost visual performance by utilizing such extenders also adds to the appeals of the FC-D series.

Extender Q1.6x
[TKA00595]



Extender CQ1.7x
[TKA20595]

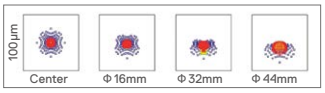


FC-76DCU + Extender CQ 1.7x

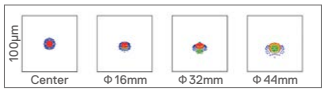
Conversion Lens for Astrophotography

FC/FS Multi Flattener 1.04x [TKA00582]

FC-100DC/DF Focal length 760mm f/7.6 | Image circle Φ44mm



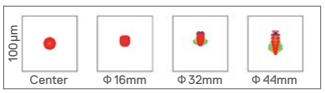
FC-100DZ Focal length820mm | f/8.2 | Image circle Φ44mm



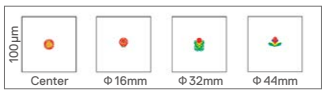


FC-35 Reducer 0.66x [TKA19580]

FC-100DF Focal length 480mm f/4.8 | Image circle Φ44mm



FC-100DZ Focal length 530mm | f/5.3 | Image circle Φ44mm





chart

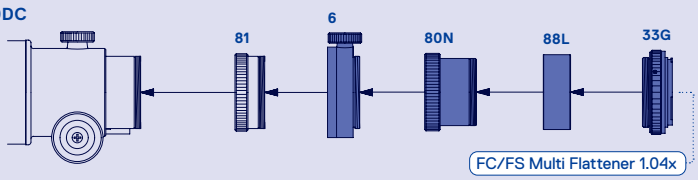
System Chart for Photography

Parts w/o color are standard accessories.

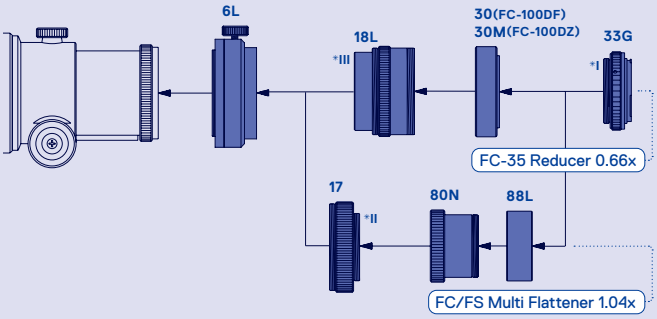
*I A 48mm filter can be attached.
(Only when using the FC-35 reducer 0.66x)
*II A 52mm filter can be attached.
(Only when using the FC/FS Multi Flattener 1.04x)
*III A 62mm filter can be attached.

	No.	Product name	Product code
Included in the set	81	Coupling (DT)	TKP20006B
Sold separately	6	Camera Angle Adjuster S	TKA21200N
	6L	Camera Angle Adjuster M	TKA23200N
	17	M72-M55.9 Coupling	TKA19205
	18L	FC-35 Reducer 0.66x	TKA19580
	30	CA Ring 100D	TKA19202
	30M	CA Ring 102	TKA23202
	33G	Wide T-Mount DX-WR for Canon-EOS	TKA01251
	33G	Wide T-Mount DX-WR for Nikon	TKA01255
	80N	FC/FS Multi Flattener 1.04x	TKA00582
	88L	Multi CA Ring 100	TKA19203

FC-100DC



FC-100DF
FC-100DZ



Takahashi Produced Model

lineup

STARBASE80 [STK08000]

Well-Assembled & Lightweight Standard F/10 Achromat for Beginners



Made in Japan Telescope

Takahashi announces its first beginner telescope, STARBASE80. This telescope is offered by Takahashi and made in Japan in a factory in Hanamaki, Iwate Pref. (not produced in the Takahashi factory) From the lens coating to final assembly, every step is performed carefully by the skilled craftsmen of Hanamaki.

Easy-to-Use Peep Sight Finder

Traditional finder scopes can prove difficult to use for beginners. STARBASE80 includes a peep site finder, instead. Simply peer through the small circles to find the desired celestial object, and the main telescope will be in alignment.

3.7kg Steady Mount

You can grip and move the scope after loosening the azimuth / altitude knobs. Tighten these knobs and then you can move mount slightly by turning the flexible handles.

This mount is "telescope-above" type rather than "side-fork" type, and thanks to that, this mount is light in weight (3.7kg legs included). Also, vibration converges faster so you can use it comfortably even if scope's magnification is high.

Telescope	diameter: 80mm focal length: 800mm f/10 weight: 2.5kg fully-magenta-coated achromatic doublet with peep sight finder
Eyepiece	31.7mm eyepiece adapter, diagonal mirror, Or.14mm(57x), Or.6mm(133x) included
Mount	altazimuth mount with legs weight: 3.7kg

column

Optional Accessories

Nylon Soft Case 106cm
[SBC00100]



Starbase 31.7mm Eyepieces



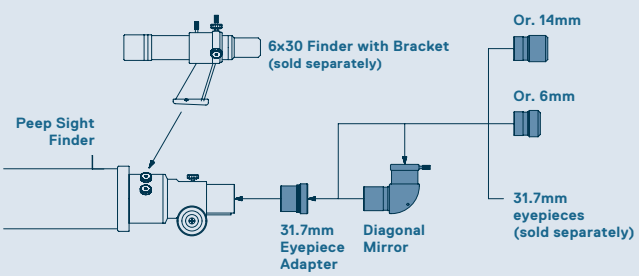
6x30 Finder with Bracket
[SBP08110]



chart

System Chart

Product name	Eye relief	AFOV	Product code
Or 6mm	4mm	45°	SBP08020
Or 9mm	7mm	45°	SBP08030
Or 14mm	12mm	53°	SBP08040
Or 18mm	12mm	45°	SBP08050
Or 20mm	14mm	45°	SBP08060
Ke 20mm	14mm	45°	SBP08070
Ke 25mm	18mm	45°	SBP08080

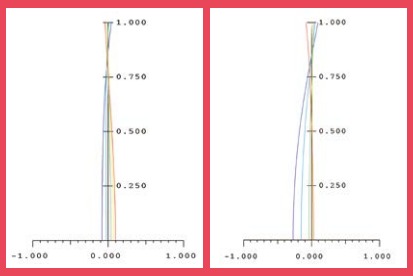


series

FSQ

Flatfield Super Quadruplet

A Quadruplet Photo-Visual Telescope with Clear & Sharp Images Without Color Halos



Spherical aberration diagram
(Left: FSQ-85EDX | Right: FSQ-85EDX + Extender ED1.5x)

The FSQ-85EDX, featuring a 4 elements in 4 groups photo-visual optical tube design, produces well-corrected images from center to edge with standard 1.01x flattener (FL=455mm f/5.4). Furthermore, by attaching a reducer, it can become at FL=330mm f/3.9, or add an extender to capture objects with small apparent size like galaxies (FL=680mm f/8.0). This makes it versatile for a range of astrophotography needs from a single optical tube.

The FSQ-85EDX comes standard with a 1:8 reduction dual speed focuser and a camera angle adjuster. While it is heavily geared towards astrophotography, the visual performance (sharpness of the image center) exceeds the levels required for astrophotographic purposes, letting you enjoy clear, sharp images devoid of color halo even during higher magnification viewing of the moon, planets and double stars. Particularly when used with an extender, it reaches high performance with visual Strehl ratio over 98%, matching up to the standards of the TOA/TSA series.

This telescope excels in astrophotography and visual observation, maintaining the leading role of its class today and tomorrow.



FSQ-85EDX + EM-11TEMMA3
(With Tube Holder 95S and KB Plate S)

lineup

FSQ-85EDX [TQE08541]

A Versatile Compact Instrument with High Portability and Imaging Performance That Excels in Various Applications





M45 Pleiades
FSQ-85EDX + Reducer QB0.73x + ZWO ASI2600MC Pro | 80 x 180", 10 x 1"

Optical design	4 elements in 4 groups ED Apochromat
Model	FSQ-85EDX
External diameter	95mm (Dew shield: Φ114mm)
Aperture	85mm

Tube length	525–613mm
Focal length	450mm
Focal ratio	1:5.3
Recommended finder	6x30
Weight about	3.6kg

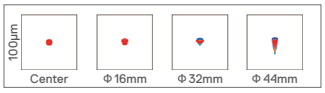
column

Conversion Lenses for FSQ-85EDX

Reducer QB0.73x

[TKA37580] | Focal length 330mm | f/3.9
Image circle Φ44mm





* The reducer CR0.73x and the previous product reducer QE0.73x have different optical performance but can be used in the same way.

Flattener 1.01x

[TKA37582] | Focal length 455mm | f/5.4
Image circle Φ44mm



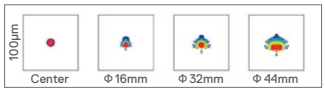


* standard accessory

Extender ED1.5x

[TKA37595] | Focal length 680mm | f/8.0
Image circle Φ44mm



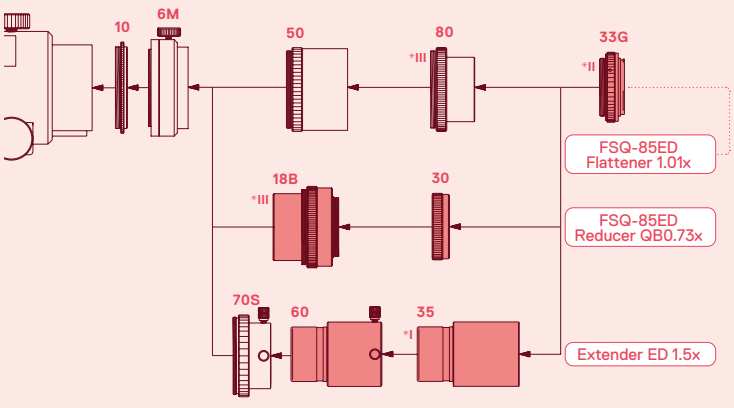


chart

System Chart for Photography

Parts w/o color are standard accessories.

	No.	Product name	Product code
Included in the set	6M	Camera Angle Adjuster M	TKA23200N
	10	Coupling (FSQ-85EDX)	TKP37001
	50	Aux. Ring (FB TSA102mm)	TKA23250
	70S	50.8 Adapter (FSQ-106EDX4/85EDX)	TKP27110S
	80	Flattener 1.01x	TKA37582
Sold separately	18B	Reducer QB0.73x	TKA37580
	30	CA35 (SKY90)	TKA35201
	33G	Wide T-Mount DX-WR for Canon-EOS	TKA01251
	33G	Wide T-Mount DX-WR for Nikon	TKA01255
	35	CA35 (50.8)	TKA31201
	60	Extender ED 1.5x	TKA37595



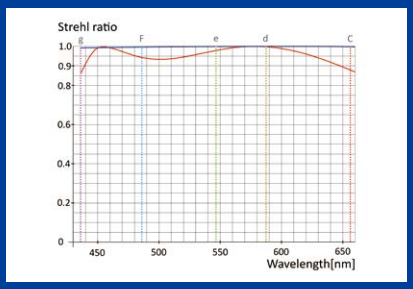
*I A 48mm filter can be attached.
*II A 48mm filter can be attached.
(filter frame thickness limited to 4mm when using flattener)
*III A 58mm filter can be attached.

series

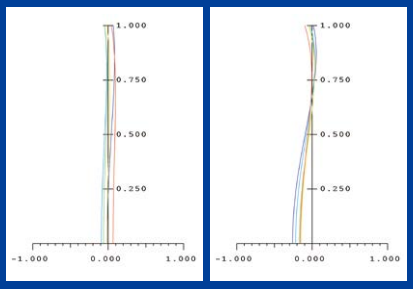
FOA

Fluorite Ortho Apochromat

Delivering an Unparalleled Visual Experience, the Apex of 60mm Refracting Telescopes



Strehl ratio by wavelengths
(Red: FOA-60 | Blue: FOA-60Q)



Spherical aberration diagram
(Left: FOA-60 | Right: FOA-60Q)

This telescope is meticulously crafted with a paramount focus on "visual performance," the most critical aspect of an astronomical telescope. It stands distinctly apart from previous small refracting telescopes, offering exceptional visual quality in a conveniently usable size. It's recommended not only for enthusiasts in pursuit of the ultimate telescope but also for beginners who wish to casually enjoy observing the moon and planets.

The FOA series, while harnessing the ethereal clarity of fluorite in the objective lens akin to the FS and FC-D series and embracing a doublet refracting telescope design, was birthed from a markedly different design philosophy. It's not crafted for photographing galaxies or nebulae using a reducer, but rather to offer the most sublime visual experience when voyaging through the cosmos via an eyepiece.

The FOA-60 serves as the standard model in this series, a doublet fluorite apochromat. It's celebrated for its sharp, almost color-halo-free visual splendor, boasting a visual Strehl ratio of 96.1%. Thanks to the ease of maneuverability inherent in a doublet design, and coupled with a lightweight body of about 1.8kg, it emerges as an ideal companion for casually venturing to various vistas whenever the call for high-performance visual observing beckons.

The FOA-60Q was conceived with the aim of achieving the ultimate objective lens, comprising a total of six elements. It achieves a visual Strehl ratio of 99.8% for visual use, the highest among the illustrious lineage of Takahashi telescopes, and, despite its modest 6cm aperture, it flaunts imaging performance that can withstand nearly 300x magnification. It corrects aberration up to the very edge of full-frame, and with hardly any vignetting, also offers ideal imaging performance as a 900mm telephoto lens. Removing the extender part restores it to the same state as the FOA-60.



FOA-60Q + EM-11TEMMA3
(With additional 6x30 finderscope, bracket, and Tube Holder 68S-GT)

lineup

FOA-60 [TFA06010]

Simple and Unique High Visual Performance Doublet Refractor



Optical design	2 elements in 2 groups Fluorite Apochromat
Model	FOA-60
External diameter	68mm (Dew shield Φ80mm)
Aperture	60mm

Tube length	509–569mm
Focal length	530mm
Focal ratio	1:8.8
Recommended finder	6x30
Weight about	1.8kg

FOA-60Q [TFA06110]

The Pinnacle Model of 6cm Refractors That Achieved Extreme Aberration Correction



Optical design	6 elements in 4 groups Fluorite Apochromat
Model	FOA-60Q
External diameter	68mm (Dew shield Φ80mm)
Aperture	60mm

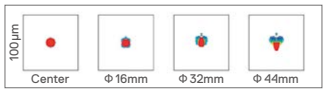
Tube length	647–707mm
Focal length	900mm
Focal ratio	1:15.0
Recommended finder	6x30
Weight about	2.1kg

column

Conversion Lenses for FOA-60

Flattener 0.93x

[TKA28582] | Focal length 495mm | f/8.2 | Image circle Φ44mm





By pairing it with the doublet FOA-60, pinpoint stars can be achieved up to the edges of full-frame. It's suitable not only for capturing bright nebulae and galaxies, but also excels as an ultra-high-performance photographic lens.

Extender 1.7xR

[TKA28595] | Focal length 900mm | f/15.0
Image circle Φ44mm





This is a 2-group, 4-element extender. The imaging performance enhances across the entire field of view, from center to edges, rendering it usable for both visual observation and photography. When attached to the FOA-60, it adopts the same configuration as the FOA-60Q.

Astrophotography with FOA-60Q



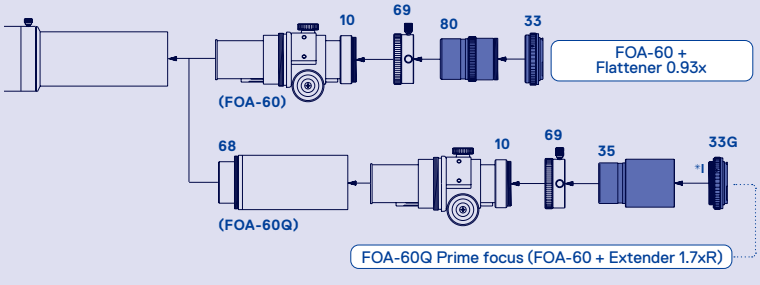
The Moon | FOA-60Q + SONY α7RIV | 1/125"(ISO-50)

chart

System Chart for Photography

Parts w/o color are standard accessories.

	No.	Product name	Product code
Included in the set	10	50.8 AD Ring (FOA-60)	TKP28001
	69	50.8 Adapter	TKP35110
Sold separately	33	Wide T-Mount DX-60W for Canon-EOS	TKA20245
	33	Wide T-Mount DX-60W for Nikon	TKA20246
	33G	Wide T-Mount DX-WR for Canon-EOS	TKA01251
	33G	Wide T-Mount DX-WR for Nikon	TKA01255
	35	CA35 (50.8)	TKA31201
	68	Extender 1.7xR	TKA28595
	80	Flattener 0.93x	TKA28582



*1 A 48mm filter can be attached.

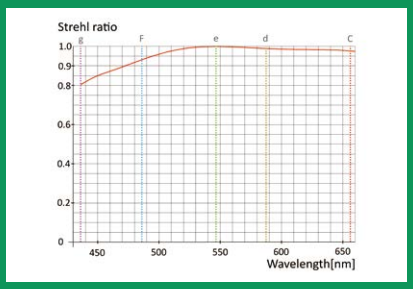
series

TSA

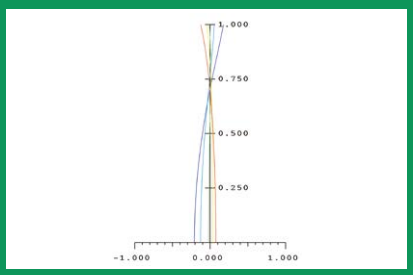
Triplet Super Apochromat

A Triplet ED Apochromat with Balanced Portability and Sharpness

This is a large-aperture refracting telescope designed with a triplet objective lens, almost entirely correcting chromatic aberration. While providing visual performance that nears the TOA series, it is significantly lighter, achieving a high level of both ease of handling and performance.



Strehl ratio by wavelengths (TSA-120)



Spherical aberration diagram (TSA-120)

The TSA-120 stands out as a high-performance telescope, with its 3 elements in 3 groups lens design significantly diminishing the blue halo, thanks to the incorporation of two crown glasses encasing a Super ED (Extra-low Dispersion) glass. While the TSA-120 closely rivals the TOA-130N in terms of aperture and imaging performance, it boasts a substantially lower mass, approximately 60% less, and a slightly shorter tube. This design allows it to be mounted on a smaller mount, contributing to a more compact system overall. This makes the TSA-120 highly appealing for those keen on exploring the benefits of a large-aperture refracting telescope without the bulkiness often associated with such setups.

The TSA-120 is engineered to nearly eliminate the chromatic aberration of the image center, displaying a clear visual character without color fringing even on bright objects like the moon or planets. With a visual Strehl ratio of 98.3%, it delivers almost flawless visual performance. Abundant light and sharp lenses exhibit high performance across various scenarios, from high-magnification viewing of the moon and planets to low-magnification viewing of galaxies, nebulae, and star clusters.

For astrophotography, some of the conversion lenses from the TOA series are compatible, yielding uniform image quality from the center to the edge of the image circle.



TSA-120 + EM-200TEMMA3
(With additional 7.5x50 finderscope, bracket, and Tube holder 125S)

lineup

TSA-120 [TTK12010]

An Exemplary Performer, Ideal for Those Making Their Foray into the World of Large-Aperture Refracting Telescopes



Optical design	3 elements in 3 groups ED Apochromat
Model	TSA-120
External diameter	125mm (Dew shield: Φ160mm)
Aperture	120mm

Tube length	870–990mm
Focal length	900mm
Focal ratio	1:7.5
Recommended finder	7.5x50
Weight about	6.1kg

Example of mounting on the EM-11TEMMA3
(Using a 4.6kg counterweight)



Example of mounting on the EM-200TEMMA3



* Finderscopes are conventional 7x50.

column

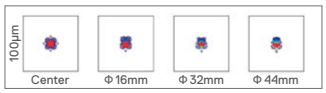
Conversion Lenses of TSA-120

Two of conversion lenses used in the TOA series are compatible.

35 Flattener



[TKA31582] | Focal length 880mm | f/7.3 | Image circle Φ40mm



TOA-35 Reducer 0.7x (for 150)



[TKA32580NS] | Focal length 635mm | f/5.3 | Image circle Φ44mm





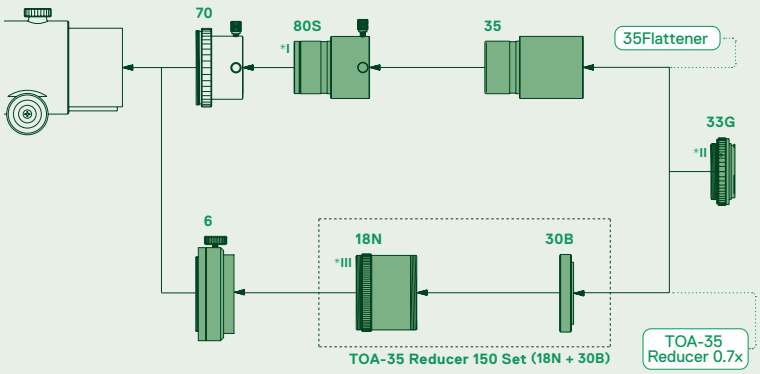
The Rosette Nebula
TSA-120 + TOA-35 Reducer 0.7x + ZWO ASI6200MC Pro | 94 x 120"

chart

System Chart for Photography

Parts w/o color are standard accessories.

*I A 48mm filter can be attached.
*II A 48mm filter can be attached. (Only when using 35 Flattener)
*III A 62mm filter can be attached.



	No.	Product name	Product code
Included in the set	70	50.8 Adapter (Normal Refractors)	TKP27110
Sold separately	6	Camera Angle Adjuster M	TKA23200N
	18N	TOA-35 Reducer 0.7x	TKA32580
	30B	CA Ring 150	TKA32202
	33G	Wide T-Mount DX-WR for Canon-EOS	TKA01251
	33G	Wide T-Mount DX-WR for Nikon	TKA01255
	35	CA35 (50.8)	TKA31201
	80S	35Flattener	TKA31582
		TOA-35 Reducer 150 Set	TKA32580NS

series

TOA

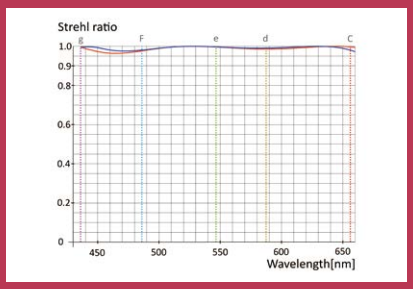
Triplet Ortho Apochromat

A large-aperture, highly air-spaced triplet refracting telescope that offers top-notch imaging performance for both visual observation and photography.

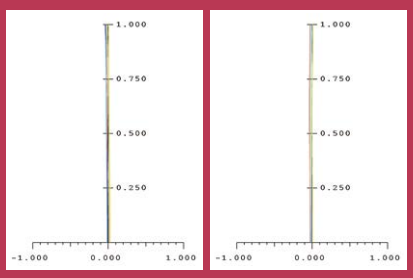
Boasting an unparalleled triplet design, which includes two ED glass in a significantly separated arrangement, this Takahashi telescope achieves an incredibly sharp, clear, and high-contrast image center, establishing itself as a pinnacle in large-diameter refracting telescopes for visual use. It practically nullifies not only chromatic aberration but also spherical aberration across all wavelengths in practical use, ensuring a virtually aberration-free image center. Since there are no issues with contrast reduction due to secondary mirror obstruction, or light streaks in stars caused by diffraction at the spider vanes, which occur in reflecting telescopes, it provides an ideal visual experience in the context of “simply enlarge and observe.” All TOA series telescopes have a visual Strehl ratio of 99.2% — practically perfect.

By pairing with optional conversion lenses, four types of astrophotography become available. Especially when used with the TOA-645 Flattener and TOA-35 Reducer 0.7x, sufficient performance can be achieved even when combined with today’s ultra-high-resolution cameras.

Delivering the highest imaging performance in both observation and photography, the TOA series stands as a pinnacle in modern telescopes and is a flagship model that Takahashi releases with confidence.



Strehl ratio by wavelengths
(Red: TOA-130N | Blue: TOA-150B)



Spherical aberration diagram
(Left: TOA-130N | Right: TOA-150B)



TOA-130NS + EM-200TEMMA3
(With additional 7.5x50 finderscope, bracket, and Tube Holder 156S)

For Those Seeking the Pinnacle of Refracting Telescopes, with Outstanding Imaging Performance

lineup

TOA-130NS [TOK13010]

The Standard Model of TOA-130





Weight Ring 130

This is the standard model featuring the standard focuser. A counter-weight ring is included to balance the optical tube.

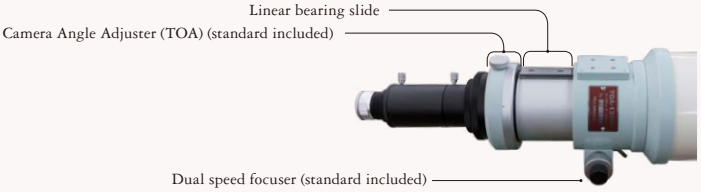
Optical design	3 elements in 3 groups ED Apochromat
Model	TOA-130NS
External diameter	156mm (Dew shield: Φ179mm)
Aperture	130mm
Tube length	1013–1144mm

Focal length	1000mm
Focal ratio	1:7.7
Recommended finder	7.5x50
Weight about	9.9kg
Additional	Weight Ring 130 included (1.6kg) (Total weight: approximately 11.5kg)

TOA-130NFB [TOK13210]

The Premium Model of TOA-130 Featuring a Large Focuser





Linear bearing slide
Camera Angle Adjuster (TOA) (standard included)
Dual speed focuser (standard included)

This model employs the same large rack and pinion focuser with linear bearing slide as the TOA-150B. A large camera angle adjuster comes standard. A 1:8 reduction dual speed focuser is integrated into the right side of the focuser.

Optical design	3 elements in 3 groups ED Apochromat
Model	TOA-130NFB
External diameter	156mm (Dew shield: Φ179mm)
Aperture	130mm
Tube length	1022–1153mm

Focal length	1000mm
Focal ratio	1:7.7
Recommended finder	7.5x50
Weight about	11.7kg
Additional	Built-in dual-speed focuser (right side)

TOA-150B [TOK15110]

The Apex Mass-Produced Refracting Telescope by Takahashi





Setup Example: Sakuragaoka Yokohama Municipal High School

Building upon the impeccable visual performance of the TOA-130N, this model realizes an enlargement in aperture. While the aperture sees a modest increase of 2cm, it brings about a substantial 33% enhancement in light intake, producing astonishingly high-definition images across all celestial objects. This pinnacle of refracting telescopes showcases its prowess universally—from low-magnification observations of nebulae and star clusters to high-magnification viewing of the moon and planets, and extends to astronomical photography when used in tandem with conversion lenses. It comes especially recommended as the main telescope for schools and observatories, catering to diverse purposes and substantial, multi-person, long-term usage.

Optical design	3 elements in 3 groups ED Apochromat
Model	TOA-150B
External diameter	179mm (Dew shield: Φ207mm)
Aperture	150mm
Tube length	1110–1270mm
Focal length	1100mm
Focal ratio	1:7.3

Recommended finder	7.5x50
Weight about	19.3kg (Tube: 14.5kg + Weight Ring 150: 4.8kg)
Included accessories	Weight Ring 150 / TOA Grip
Additional	Built-in dual-speed focuser (right side)

column

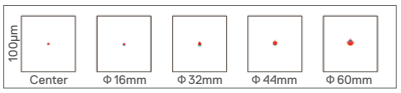
Conversion Lenses for Astrophotography

TOA-645 Flattener

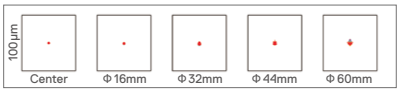


TOA-645 Flattener for 130

TOA-130N Focal length 990mm | f/7.6 | Image circle Φ60mm



TOA-150B Focal length 1085mm | f/7.2 | Image circle Φ60mm

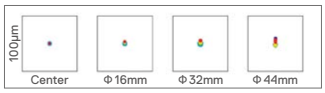


This newly-designed flattener lens is for capture imaging with ultra-high-resolution digital medium format cameras. With a design specialized for astrophotography, it ensures an RMS spot radius of 0.6μm at the center and 1.4 μm at the edge of a full-frame, with a relative illumination of 98%. Even at the extreme edge of the image circle, it maintains a spot radius of 2.4μm and a relative illumination of 72%, combining abundant light intake and a diminutive star image.

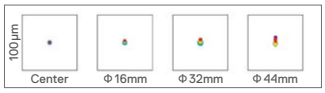
TOA-35 Reducer 0.7x



TOA-130N Focal length 698mm | f/5.4 | Image circle Φ44mm



TOA-150B Focal length 775mm | f/5.2 | Image circle Φ44mm



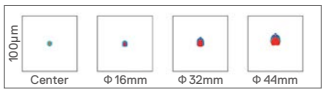
The reducer achieves brightness and realizes exceptionally good imaging performance up to the edges. Even at the utmost edges of the full-frame, it forms a sharp image, with an RMS spot radius of 2.1μm (130N) or 1.3μm (150B), comparable to the Epsilon Series. The reducer is used in combination with adapter rings (CA Ring 130/150) compatible with each optical tube.

35 Flattener

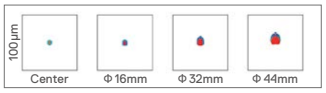
[TKA31582]



TOA-130N Focal length 980mm | f/7.5 | Image circle Φ40mm



TOA-150B Focal length 1080mm | f/7.2 | Image circle Φ40mm



The full-frame size is nearly fully covered, yielding a diffraction-limited sharp image. Even during low-magnification visual observation, the image at the corners show improvement compared to that of prime focus. This 35 Flattener also allow for visual observation using a 50.8mm mirror diagonal, which is a distinctive feature of this accessory.

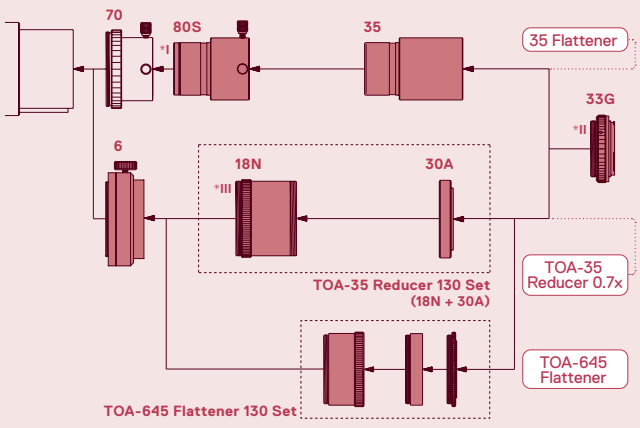
chart

System Chart for Photography

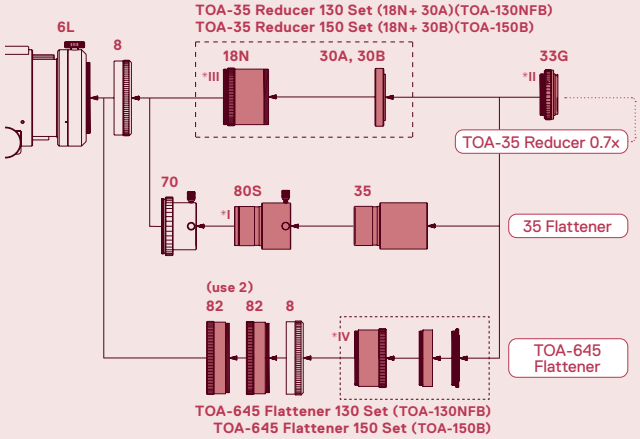
Parts w/o color are standard accessories.

*I A 48mm filter can be attached.
*II A 48mm filter can be attached. (Except when using TOA-35 Reducer)
*III A 62mm filter can be attached.
*IV A 67mm filter can be attached.

TOA-130NS



TOA-130NFB
TOA-150B



	No.	Product name	Product code
Included in the set	6L	Camera Angle Adjuster (TOA)	TKP30200
	8	Coupling (TW)	TKP31003
	70	50.8 Adapter (Normal Refractors)	TKP27110
Sold separately	6	Camera Angle Adjuster M	TKA23200N
	18N	TOA-35 Reducer 0.7x	TKA31580N
	30A	CA Ring 130	TKA31202
	30B	CA Ring 150	TKA32202
	33G	Wide T-Mount DX-WR for Canon-EOS	TKA01251
	33G	Wide T-Mount DX-WR for Nikon	TKA01255
	35	CA35 (50.8)	TKA31201
	80S	35Flattener	TKA31582
	82	Extension Tube (67F)	TKA31584
		TOA-645 Flattener 130 Set	TKA31587S
		TOA-645 Flattener 150 Set	TKA32587S
		TOA-35 Reducer 130 Set	TKA31580NS
		TOA-35 Reducer 150 Set	TKA32580NS

NGC7293 | TOA-150B + TOA-645 Flattener + ZWO ASI6200MM Pro + Astrodon Gen2 Hα and OIII Filter |
Total Exposure 98 hours and 45 minutes (cropped as APS-C) |
Photo by APO_Team: Thierry Demange, Richard Galli and Thomas Petit



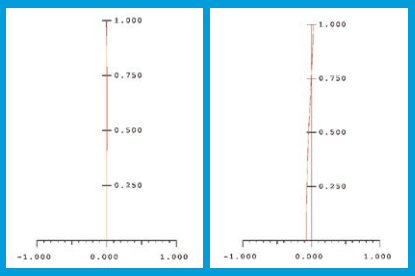
series

Mewlon

Dall-Kirkham Reflector

This long-selling series is well-suited for observing the moon and planets. When paired with modern CMOS cameras, it also delivers high performance for photographing galaxies and nebulae. It's recommended for those seeking a compact reflector telescope that provides clear views and captures high-quality images.

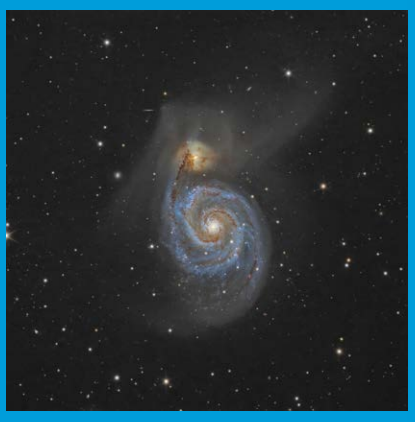
Featuring a User-Friendly Body and Reliable Visual Quality, This Model is Recommended for Observations of the Moon and Planets



Spherical aberration diagram
(Left: M-180C | Right: M-210)



Jupiter | M-180C + Televue Powermate 2.5x + ZWO ADC + ZWO ASI585MC | Photo by Hideyuki Yamauchi



M51 | M-180C + Flattener/Reducer (Mewlon) + ZWO ASI2600MC Pro | 91 x 180" (cropped)

The Mewlon series is the Dall-Kirkham type of reflecting telescope, marrying a concave elliptical primary mirror with a convex spherical secondary mirror. This design renders the image center nearly free of spherical aberration, and being a pure reflecting telescope, it entirely bypasses chromatic aberration. Thanks to rigorous stray light mitigation measures, it delivers a high-contrast, sharp image at the center. The open-tube design, without a corrector plate, allows for quicker acclimatization to ambient temperature, making it a perfect companion for casual sky gazing or high-magnification photography of the moon and planets right from your balcony or backyard. A standout feature is its resilience against dew formation as the optical surface isn't directly exposed to the outdoor elements. Both models come with a 50.8mm eyepiece adapter.

Mirror grinding begins with crafting of high-precision convex spherical secondary mirrors and placing them one-by-one into the inspection machine. Utilizing a "matching-grinding" approach, we grind the paired primary mirrors to attain the best aberration correction for the entire system. This painstaking, in-house grinding approach, in which no effort is spared to achieve the finest mirror surfaces, lays the foundation for the exceptional visual quality that the Mewlon series is known for.

In the Mewlon series, the finderscope is securely attached to the optical tube, doubling as a handle for ease of transportation. If misalignment occurs, a straightforward readjustment is easily achievable.



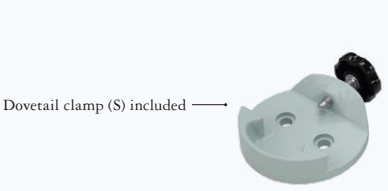
Mewlon-180C + EM-11TEMMA3

lineup

Mewlon-180C [TLK18100]

Highest Popularity for Its Sharpness and Ease of Use





Concentrating the allure of the Mewlon Series into a handy, compact body, this product is lightweight and compact, making it easily mountable on an EM-11 class equatorial mount with room to spare. Ideal for those who want to maximize the mobility of the Mewlon for regular starry sky observation. The focal point can be extended to about 130mm outward from the rear end of the 50.8 Adapter. The included Dovetail clamp (S) features a one-screw design.

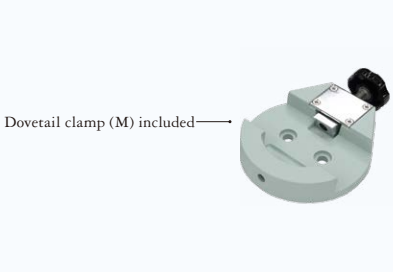
Design	Dall-Kirkham Cassegrain
Model	Mewlon-180C
External diameter	210mm
Aperture	180mm
Tube length	625mm
Focal length	2160mm

Focal ratio	1:12.0
Finderscope	6x30 (built-in)
Weight about	6.2kg (including dovetail clamp)
Additional	Secondary mirror obstruction diameter 60mm / Effective focal ratio1:12.7 / Dovetail clamp (S) included

Mewlon-210 [TLK21000]

For Powerful and Impressive Astronomical Observations with a Large Aperture





With an aperture increased by 3cm from the M-180C, this model lets you indulge in an even more dramatic view of celestial bodies, offering about a 35% increase in light-gathering capacity. It employs a large 7.5x50 finderscope, which, compared to the 6x30, reveals fainter stars and thus aids in deep-sky exploration. The focal point can be extended outward to about 160mm from the rear end of the 50.8 adapter. The included Dovetail clamp (M) features a vise jaw design that prevents indentation marks on the dovetail plate.

Design	Dall-Kirkham Cassegrain
Model	Mewlon-210
External diameter	244mm
Aperture	210mm
Tube length	700mm
Focal length	2415mm

Focal ratio	1:11.5
Finderscope	7.5x50 (built-in)
Weight about	8.1kg (including dovetail clamp)
Additional	Secondary mirror obstruction diameter 70mm / Effective focal ratio 1:12.2

column

Interchangeable Add-on for Mewlon-180C & Mewlon-210

Flattener/Reducer (Mewlon)

[TKA70581]

M-180C Focal length 1760mm | f/9.8 | Image circle Φ30mm

M-210 Focal length 1961mm | f/9.3 | Image circle Φ30mm



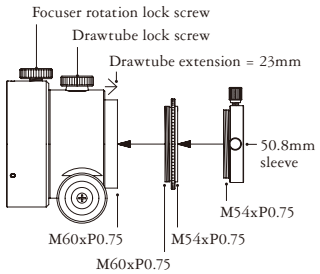
It expands the image circle to APS-C, while shortens the focal length by approximately 0.8x.

R&P Focuser Unit N (50.8)

[TKA00705N]



An optional MEF-3 can be attached. It doesn't focus when used with the combination of M-180C + Flattener/Reducer.

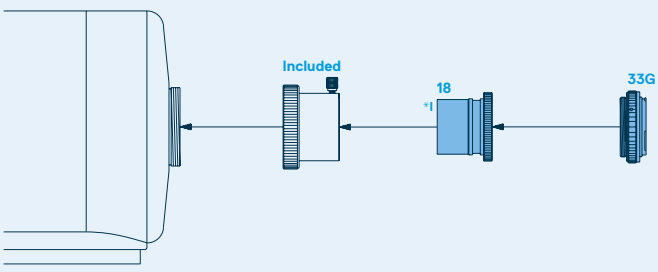


chart

System Chart for Photography

*1 A 48mm filter can be attached.
(Filter frame thickness limited to 4mm for M-180C)

	No.	Product name	Product code
Sold separately	18	Flattener/Reducer (Mewlon)	TKA70581
	33G	Wide T-Mount DX-WR for Canon-EOS	TKA01251
	33G	Wide T-Mount DX-WR for Nikon	TKA01255



series

Epsilon

Hyperboloid Astro Camera

Ultra Fast, Sharp to the Corners—Ideal for Astrophotography

This series is dedicated to astrophotography, standing out with an impressively fast aperture range of f/2.8 to f/3.3, and delivering pin-point sharpness across the field. It enables stunning captures in considerably less time compared to conventional refracting telescopes. This series comes highly recommended for those who aspire to effortlessly photograph numerous celestial bodies, render faint objects, or capture swiftly moving comets with ease.



All three models incorporate a camera angle adjuster in the focuser. The E-130D and E-160ED feature a screw-lock design, as shown in this image, while the E-180ED employs a ring-lock design with spokes.



M78–LDN1622 | E-160ED + Canon EOS6D (IR modified)

The Epsilon-130D is recognized for its user-friendliness within the series, thanks to its compact and lightweight design which significantly minimizes misalignment during transport. It stands as a recommended first telescope for those venturing into serious astrophotography, allowing for effortless enjoyment of the sharp imaging provided by the Epsilon optical system.

On the other hand, the Epsilon-160ED is the newest model in the series, with a focus on enhancing imaging performance over brightness. It boasts diffraction-limited performance with an RMS spot radius within 1.3μm across the entire field of a full-frame, owing to thorough aberration correction. This model presents a uniquely high-performance optical system that fully harnesses the capabilities of ultra-high-resolution digital cameras.

Lastly, the Epsilon-180ED takes the lead in fast photography within the series. With its remarkable Brightness f/2.8, It excels in capturing extremely faint nebulae, photographing fast-moving comets, and conducting sky surveys for celestial discoveries.



Epsilon-130D + EM-11TEMMA3
(With additional 6x30 Finderscope and bracket, Tube Holder 166WS, Flat Plate, MEF-3 and Wide T-Mount DX-WR)

lineup

Epsilon-130D [TEK13010]

Small-Aperture Model, Compact and User-Friendly in Every Aspect



Design	Hyperbolic Astrograph
Model	Epsilon-130D
External diameter	166mm (front end, Φ188mm)
Aperture	130mm
Tube length	460mm
Focal length	430mm
Focal ratio	1:3.3
Weight about	4.9kg
Additional	Secondary mirror obstruction diameter, 64mm / Effective focal ratio, 1:3.8

Epsilon-160ED [TEK16010]

Medium-Aperture Model, Prioritizing Imaging Performance over Brightness



Design	Hyperbolic Astrograph
Model	Epsilon-160ED
External diameter	204mm (front end, Φ223mm)
Aperture	160mm
Tube length	580mm
Focal length	530mm
Focal ratio	1:3.3
Weight about	6.9kg
Additional	Secondary mirror obstruction diameter, 63mm / Effective focal ratio, 1:3.6

Epsilon-180ED [TEK18010]

Large-Aperture Model with Fast f/2.8 Focal Ratio



Design	Hyperbolic Astrograph
Model	Epsilon-180ED
External diameter	232mm (front end, Φ264mm)
Aperture	180mm
Tube length	570mm
Focal length	500mm
Focal ratio	1:2.8
Weight about	10.7kg
Additional	Secondary mirror obstruction diameter, 80mm / Effective focal ratio, 1:3.1

column

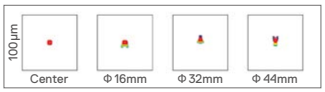
Epsilon Extender 1.5x

This extender is specially designed for extending focal length without compromising the sharpness.



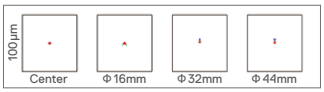
(E-130D | Prime focus)

Focal length 430mm | f/3.3 | Image circle Φ44mm



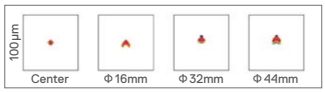
(E-160ED | Prime focus)

Focal length 530mm | f/3.3 | Image circle Φ44mm



(E-180ED | Prime focus)

Focal length 500mm | f/2.8 | Image circle Φ44mm



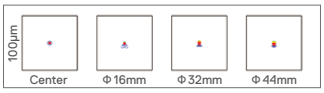
Epsilon Extender 1.5x E-130D

Focal length 650mm | f/5.0(effectively5.7) | Image circle Φ44mm



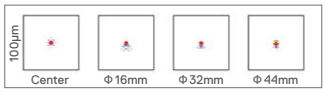
Epsilon Extender 1.5x E-160ED

Focal length 800mm | f/5.0(effectively5.4) | Image circle Φ44mm



Epsilon Extender 1.5x E-180ED

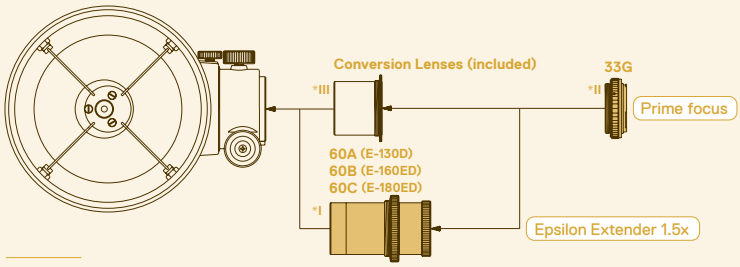
Focal length 780mm | f/4.3(effectively4.8) | Image circle Φ44mm



chart

System Chart for Photography

	No.	Product name	Product code
Sold separately	33G	Wide T-Mount DX-WR for Canon-EOS	TKA01251
	33G	Wide T-Mount DX-WR for Nikon	TKA01255
	60A	Epsilon Extender 1.5x E-130D	TKA69595
	60B	Epsilon Extender 1.5x E-160ED	TKA59595
	60C	Epsilon Extender 1.5x E-180ED	TKA68595



*I A 48mm filter can be attached between the front and rear units.
*II A 48mm filter can be attached (prime focus).
*III A 55mm filter can be attached (E-160ED).
A 58mm filter can be attached (E-180ED).

The Moon | [Optical Tube] Mewlon-180C |
[Camera] ZWO ASI174MM + Astronomik ProPlanet 742 IR-pass filter | 8 panel mosaic |
Photo by Ken Shinjuku





NGC1333 | [Optical Tube] Epsilon-130D |
[Camera] ZWO ASI2600MM Pro + Chroma LRGB filters | Total Exposure 13 hours |
Photo by Juan Lopez

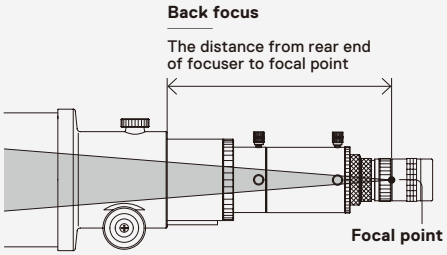
Page No.	Model	Aperture	Optical design	External diameter (dew shieid)	Tube length [*1]	Weight [*1]	Drawtube extension [*2]
07	**FCT-65D**	65mm	3 elements in 3 groups Fluorite Apochromat	95mm (80mm)	403mm	1.9kg	63mm
11	**FS-60CB / FS-60CP**	60mm	2 elements in 2 groups Fluorite Apochromat	CB: 80mm (80mm) CP: 95mm (80mm)	CB: 413mm CP: 361mm	CB: 1.1kg CP: 1.8kg	CB: 30mm CP: 63mm
11	**FS-60Q**	60mm	4 elements in 3 groups Fluorite Apochromat	80mm (80mm)	550mm	1.4kg	30mm
13	**FC-76DCU / FC-76DP**	76mm	2 elements in 2 groups Fluorite Apochromat	DCU: 80mm (95mm) DP: 95mm (95mm)	DCU: 656mm DP: 592mm	DCU: 1.7kg DP: 2.3kg	DCU: 30mm DP: 63mm
15	**FC-100DC / FC-100DF**	100mm	2 elements in 2 groups Fluorite Apochromat	95mm (124mm)	DC: 815mm DF: 785mm	DC: 2.7kg DF: 3.3kg	DC: 30mm DF: 63mm
15	**FC-100DZ**	100mm	2 elements in 2 groups Fluorite Apochromat	95mm (124mm)	770–840mm	3.7kg	63mm
19	**FSQ-85EDX**	85mm	4 elements in 4 groups ED Apochromat	95mm (114mm)	535–613mm	3.6kg	50mm
21	**FOA-60**	60mm	2 elements in 2 groups Fluorite Apochromat	68mm (80mm)	509–569mm	1.8kg	84mm
21	**FOA-60Q**	60mm	6 elements in 4 groups Fluorite Apochromat	68mm (80mm)	647–707mm	2.1kg	84mm
23	**TSA-120**	120mm	3 elements in 3 groups ED Apochromat	125mm (160mm)	870–990mm	6.1kg	86.5mm
25	**TOA-130NS / TOA-130NFB**	130mm	3 elements in 3 groups ED Apochromat	156mm (179mm)	NS: 1013–1144mm NFB: 1022–1153mm	NS: 9.9kg NFB: 11.7kg	NS: 86.5mm NFB: 77mm
25	**TOA-150B**	150mm	3 elements in 3 groups ED Apochromat	179mm (207mm)	1110–1270mm	14.5kg	77mm

Page No.	Model	Aperture	Optical design	External diameter (front end)	Tube length	Weight [*1]	Drawtube extension (E) [*2] Maximum BFL (M) [*3]
29	**Mewlon-180C**	180mm	Dall-Kirkham Cassegrain	210mm (210mm)	625mm	6.2kg	about 130mm
29	**Mewlon-210**	210mm	Dall-Kirkham Cassegrain	244mm (244mm)	700mm	8.1kg	about 160mm
31	**Epsilon-130D**	130mm	Hyperbolic Astrograph	166mm (188mm)	460mm	4.9kg	23mm
31	**Epsilon-160ED**	160mm	Hyperbolic Astrograph	204mm (223mm)	580mm	6.9kg	23mm
31	**Epsilon-180ED**	180mm	Hyperbolic Astrograph	232mm (264mm)	570mm	10.7kg	23mm

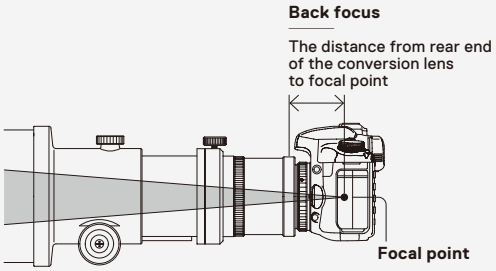
Conversion lenses [*4]	Focal length	F-ratio	Image circle [*5]	Back focus [*6]
	400mm	1:6.2	–	199.2
FC/FS MFL1.04x	416mm	1:6.4	Φ44mm	84.0
65D RD NC0.85x	340mm	1:5.2	Φ44mm	56.0
65D FURD 0.65x	260mm	1:4.0	Φ44mm	56.0 [*A]
	355mm	1:5.9	–	162 / 197.8
FC/FS MFL1.04x	370mm	1:6.2	Φ44mm	87.5
60C RD NC0.85x	300mm	1:5.0	Φ44mm	56.0
60CP FURD 0.65x (CP)	230mm	1:3.8	Φ44mm	56.0 [*A]
EX CQ1.7x (CB)	600mm	1:10.0	Φ44mm	158.4
	600mm	1:10.0	Φ44mm	158.4
	570mm	1:7.5	–	159 / 207.1
FC/FS MFL1.04x	590mm	1:7.8	Φ44mm	75.0
76D RD NC0.85x	486mm	1:6.4	Φ44mm	56.0
76DP FURD 0.64x (DP)	365mm	1:4.8	Φ44mm	56.0 [*A]
	740mm	1:7.4	–	161 / 223
FC/FS MFL1.04x	760mm	1:7.6	Φ44mm	71.2
FC-35RD0.66x (DF)	480mm	1:4.8	Φ44mm	74.1
	800mm	1:8.0	–	225
FC/FS MFL1.04x	820mm	1:8.2	Φ44mm	71.2
FC-35RD0.66x	530mm	1:5.3	Φ44mm	68.8
	450mm	1:5.3	Φ44mm	197.5
FL 1.01x	455mm	1:5.4	Φ44mm	56.2
RD QB0.73x	330mm	1:3.9	Φ44mm	72.2
EX ED1.5x	680mm	1:8.0	Φ44mm	117.5
	530mm	1:8.8	–	175.5
FL 0.93x	495mm	1:8.2	Φ44mm	56.0
EX 1.7xR (FOA-60Q)	900mm	1:15.0	Φ88mm	208.1
	900mm	1:15.0	Φ88mm	208.1
	900mm	1:7.5	–	227.5
TOA-35FL	880mm	1:7.3	Φ40mm	117.5
TOA-35RD0.7x	635mm	1:5.3	Φ44mm	62.5
	1000mm	1:7.7	–	222.5 / 274.5
TOA-35FL	980mm	1:7.5	Φ40mm	117.5
TOA-645FL	990mm	1:7.6	Φ60mm	56.2
TOA-35RD0.7x	698mm	1:5.4	Φ44mm	65.5
	1100mm	1:7.3	–	275
TOA-35FL	1080mm	1:7.2	Φ40mm	117.5
TOA-645FL	1085mm	1:7.2	Φ60mm	56.2
TOA-35RD0.7x	775mm	1:5.2	Φ44mm	62.5

Conversion lenses [*4]	Focal length	F-ratio	Image circle [*5]	Back focus [*6]
	2160mm	1:12.0	–	67.2 [*B]
M-FLRD	1760mm	1:9.8	Φ30mm	56.2
	2415mm	1:11.5	–	67.2 [*B]
M-FLRD	1961mm	1:9.3	Φ30mm	56.2
	430mm	1:3.3	Φ44mm	56.2
Ɛ-EX 130D	650mm	1:5.0	Φ44mm	56.2
	530mm	1:3.3	Φ44mm	56.2
Ɛ-EX 160ED	800mm	1:5.0	Φ44mm	56.2
	500mm	1:2.8	Φ44mm	56.2
Ɛ-EX 180ED	780mm	1:4.3	Φ44mm	56.2

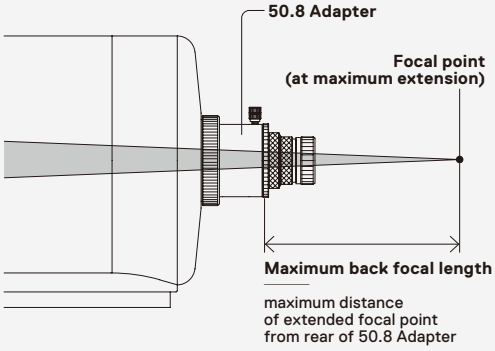
In the case of prime focus



When using conversion lens



In the case of Mewlon



*1 The weight when being used.
(Excluding the front and rear caps of the optical tube, and the counterweight ring of TOA series. Including a finderscope and dew shield if included as standard.)

*2 Maximum extension length of the drawtube.

*3 Maximum extended distance of the focal point, taking the rear end of the 50.8 adapter as a reference.

*4 FL = Flattener, RD = Reducer, EX = Extender.

*5 Defined as “an area where the relative illumination is 60% or more and the imaging performance is above a certain level.”

*6 Distance (in mm) from the rear end of the focuser (prime focus) or from the rear end of the conversion lens (when using a conversion lens) to the focal plane.
*A From the rear end of the adapter.
*B From the rear end of the 50.8 adapter.
*C From the 92-72 adapter.

*All values are based on design specifications.

EYEPIECES

All of Takahashi's eyepieces adhere to a high standard, providing a clear and high-contrast view of the cosmos. You're encouraged to select the one that aligns with your desired magnification and apparent field of view, ensuring a tailored observational experience that meets your astronomical interests and expectations.

TPL Series

The most evolved version of the classic Plossl design



TPL series

As the successor to the Abbe and LE series, this eyepiece elevates the performance standard in its class. Utilizing high-refraction, low-dispersion glass, it significantly mitigates chromatic aberration at the center compared to its predecessors, yielding an even clearer view. The imagery remains exceedingly sharp from the center extending halfway across the field, with only a mild distortion of stars observed at the corners. However, when used with 2x Ortho Barlow, its flatfieldness clearly improves and the combination provides almost perfect imaging performance in entire field of view. The lens architecture follows a 4 elements in 2 groups Plossl type design.

Product name	Product code	AFOV	Eye relief	Weight	Type
TPL-6mm	TKA00619	48°	4.5mm	55g	31.7mm
TPL-9mm	TKA00620	48°	6.5mm	70g	31.7mm
TPL-12.5mm	TKA00621	48°	9mm	90g	31.7mm
TPL-18mm	TKA00622	48°	13mm	110g	31.7mm
TPL-25mm	TKA00623	48°	18mm	140g	31.7mm
TPL-33mm	TKA00624	48°	23mm	160g	31.7mm
TPL-50mm	TKA00625	48°	37mm	520g	50.8mm

TOE Series

The premium eyepiece with ultimate image quality across the entire field of view



TOE series

The rubber eyecup can be folded back in both series.

This eyepiece is tailored for high-magnification observation of the moon, planets, and double stars. It renders an exceptionally sharp image from the center to the very edge of the field of view, without undermining the performance of the objective optical system. The lens configuration showcases a unique 6 elements in 4 groups design by Takahashi, embodying a blend of precision and optical innovation.

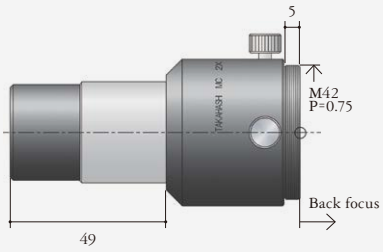
Product name	Product code	AFOV	Eye relief	Weight	Type
TOE-2.5mm	TKA00613	52°	10mm	145g	31.7mm
TOE-3.3mm	TKA00614	52°	10mm	140g	31.7mm
TOE-4.0mm	TKA00615	52°	10mm	140g	31.7mm

Barlow Lens

Upgraded optical design, achieved zero-added aberrations



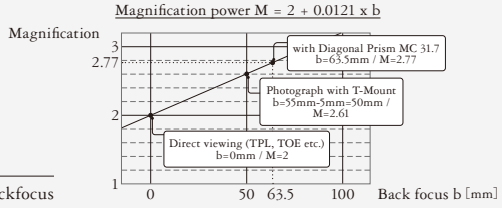
2x Ortho Barlow



Dimentions

The 2x Ortho Barlow is designed with the aim of "ideal image magnification", that is, make the focal length 2x without adding aberration at all when attached to an aberration-free telescope. It also shows high performance even when combined with general high-performance telescopes. For visual use, it has a parfocal design, so no focus shift occurs when an eyepiece is directly inserted. The magnification changes depending on the backfocus as shown in the figure below.

Product name	Product code	Size (ΦxL)	Weight	Type
2x Ortho Barlow	TKA00598	46mmx91mm	130g	31.7mm



Magnification by backfocus

Ortho Extender Series

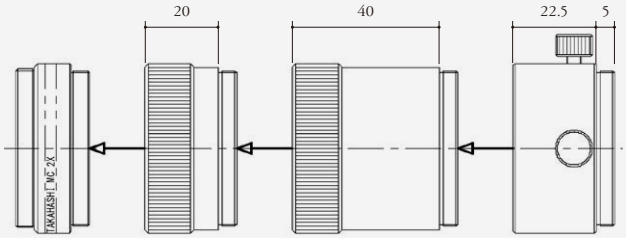
Multi-purpose high-performance extenders



Ortho Extender 2x



Ortho Extender 4x



Lens Unit
Objective Side: M42P0.75
Camera Side: M43P0.75

Vari-tube S
[TKA00587]
20mm Extension

Vari-tube L
[TKA00586]
40mm Extension

M42-31.7AD
Camera Side: M42P0.75
& 31.7mm Sleeve

Dimentions

This series are designed with the aim of “ideal image magnification”, that is, expand the focal length without adding aberration at all when attached to an aberration-free telescope. It also shows high performance even when combined with general high-performance telescopes.

The Ortho Extender 2x is suitable for photographing the moon, the corona during a total solar eclipse, and small galaxies / planetary nebulae, by a small sensor.

The Ortho Extender 4x is suitable for photographing the moon and the planets.

These provide excellent sharpness and contrast for visual use as well.

Two M42 extension (Vari-tube S, L) and M42-31.7AD are included. Even when using with long opcical path length items such as an ADC or a diagonal prism, by appropriately combining the extension tubes, the magnification will be achieved close to 2x or 4x respectively, where the imaging performances are the best.

Product name	Product code	Size (ΦxL)	Attachment to telescope	Weight
Ortho Extender 2x	TKA00830	46mmx103mm	M43 x 0.75 Male	190g
Ortho Extender 4x	TKA00830	46mmx125mm	M43 x 0.75 Male	240g

MIRROR/PRISM DIAGONALS

Mirror/Prism Diagonals



4-Turret Eyepiece Holder (31.7D)



Diagonal Prism MC 31.7



Diagonal Mirror (50.8) w/Adapter (DM)

Product name	Product code	Light path length	Weight
Diagonal Prism MC 31.7	TKA00547	63.5mm	135g
Diagonal Mirror (50.8) *w/Adapter (DM)	TKA00543	106.5mm	460g
Adapter (DM)	TKA00111	11mm	50g
4-Turret Eyepiece Holder (31.7D)	TKA00404	82mm	520g

The values of light path length and weight of Mirror Diagonal 50.8 exclude 31.7AD.

FINDERSCOPES

Finderscopes



6x30 finderscope and its field of view



7.5x50 finderscope and its field of view



GT Mount Adapter

The actual field of view is 8 degrees for the 6x30 and 6 degrees for the 7.5x50. Commercially available reticle illuminators can be attached to the 7.5x50 finderscope. (Screw standard: M8 P=0.75)

The eyepiece part of the 7.5x50 Finderscope can be replaced with the GT Mount Adapter (→GT-50, p.41). In that case, a commercially available eyepiece or a Φ31.7mm cylindrical guiding camera can be attached.

Product name	Product code	Weight
6x30 Finderscope (White)	TKA00551	140g
6x30 Finderscope (Yellow)	TKA00551Y	140g
7.5x50 Finderscope (White)	TKA00555	430g
GT Mount Adapter	TKA00556	40g

Finder Brackets



Finder Bracket
(6x30F) (7x50F / 7.5x50F)



Finder bracket

Product name	Product code	Weight
Finder Bracket (6x30F) (Lightblue)	TKA00562	100g
Finder Bracket (6x30F) (Blueblack)	TKA00562BB	100g
Finder Bracket (7x50F/7.5x50F) (Lightblue)	TKA00563	210g
Finder Bracket (7x50F/7.5x50F) (Blueblack)	TKA00563BB	210g
Finder bracket	TKA00569	210g

Finderscope Quick Releaser



FQR-1W



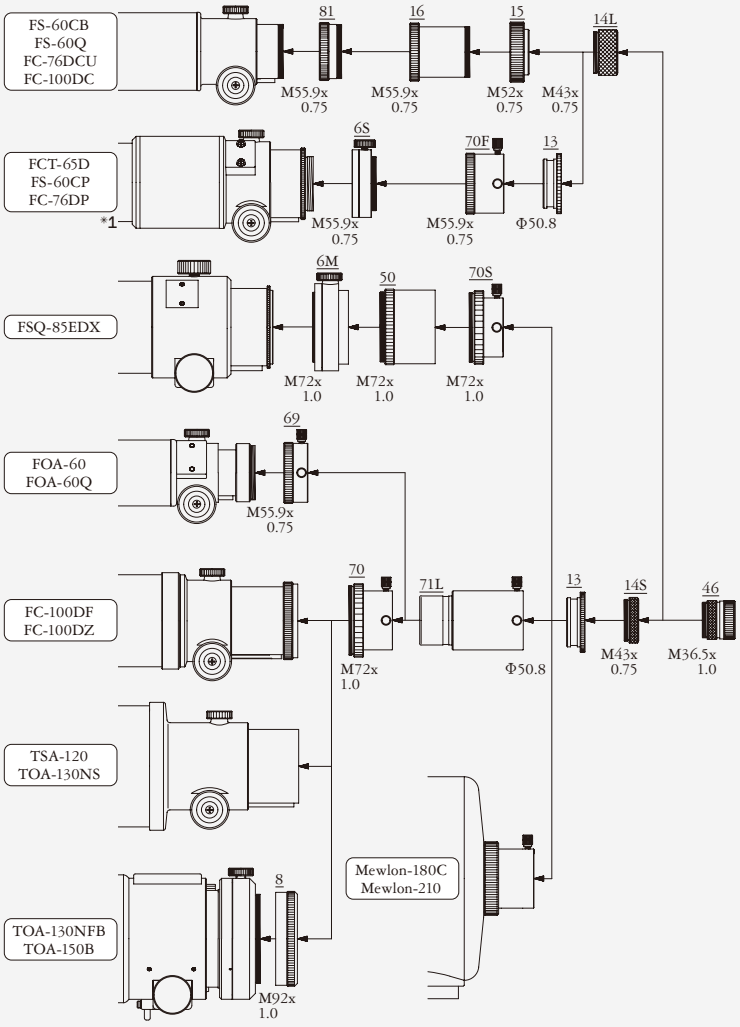
Installation of FQR-1W

The FQR-1W makes it easy to attach and detach the finder bracket and focuser. (Not compatible with FOA-60 and FOA-60Q as it interferes adjacent part.)

Product name	Product code	Weight
FQR-1W	TKA00571W	100g

ACCESSORIES FOR OPTICAL TUBE

Accompanying Adapter Rings



These rings are included to OTAs.
The “M36.5 P=1.0” screw thread is compatible with our previous “M36.4 P=1.0” screw thread.

No.	Product name	Product name	Light path length
6M	Camera Angle Adjuster M	TKA23200N	35mm
6S	Camera Angle Adjuster S	TKA21200N	12.3mm *2
8	Coupling (TW)	TKP31003	22.5mm
8A	Coupling (TW) (CCA-250)	TKP86003	34.2mm
12A	Visual Adapter	TKP86005	17mm
13	50.8 Sleeve	TKP00113	5mm
14S	Coupling (S)	TKP00103	10mm
14L	Coupling (L)	TKP00104	20mm
15	Visual Adapter	TKP20005	10mm
16	Aux. Ring	TKP20001	57mm
46	Eyepiece Adapter (31.7)	TKP00101	29mm
50	Aux. Ring (FB TSA102mm)	TKA23250	52mm
69	50.8 Adapter	TKP35110	25mm
70	50.8 Adapter (Normal Refractors)	TKP27110	40mm
70F	50.8 Adapter (FCT-65D)	TKP11110	39.5mm
70S	50.8 Adapter (FSQ-106EDX4/85EDX)	TKP27110S	30mm
71	Extension Tube (50.8)	TKP27112	62mm
71L	Extension Tube (L) (50.8)	TKP31112	73.5mm
81	Coupling (DT)	TKP20006B	18mm
81S	Aux. Ring (S) (FSQ-130ED)	TKA38205	27.5mm

*1 The telescope accessories alone will not be able to get infinite focus. Please use a diagonal mirror, prism, extension tube (#71 Extension Tube (50.8) recommended), etc.

*2 12.3mm is distance from the tip of the left ring to the base of the male thread on the right side of the CAA. Outer thickness is 20mm.

50.8 Adapters


Adapter (DT)


50.8 Adapter (EX-Q)


50.8 Adapter (SKY90)


50.8 Adapter (FCT-65D)


50.8 Adapter (Normal Refractors)


50.8 Adapter (FSQ-106EDX4/ 85EDX)


Ocular Adapter (50.8)


Adapter (TV)

Product name	Product code	Tube side	Light path length
Adapter (DT)	TKP73110	M54P=0.75male	11mm
50.8 Adapter (EX-Q)	TKA00596	M42P=0.75female	39.5mm
50.8 Adapter (SKY90)	TKP35110	M55.9P=0.75female	25mm
50.8 Adapter (FCT-65D)	TKP11110	M55.9P=0.75female	39.5mm
50.8 Adapter (Normal Refractors)	TKP27110	M72P=1.0male	40mm
50.8 Adapter (FSQ-106EDX4/85EDX)	TKP27110S	M72P=1.0male	30mm
Ocular Adapter (50.8)	TKP82110	M72P=1.0male	14mm
Adapter (TV)	TKA70110	*1	*2

*1 Attach with the included locking ring onto M-180C/M-210.
*2 20mm shorter than 50.8 Adapter included with M-180C and M-210.

31.7 Adapters


Adapter (DM)


Eyepiece Adapter (31.7)

Product name	Product code	Attachment	Light path length
Adapter (DM)	TKA00111	50.8mm sleeve(male)	11mm
Eyepiece Adapter (31.7)	TKP00101	M36.5P=1.0male	29mm

Extension Adapters


50.8 Turret Extension Tube (S)


Extension Tube (50.8)


Extension Tube (L) (50.8)


SD Ring


Vari-Tube (S) (No.61-B)


Vari-Tube (L) (No.61-A)


Extension Tube (S)


Extension Tube (L)


Coupling (DT)


Vari-Ring

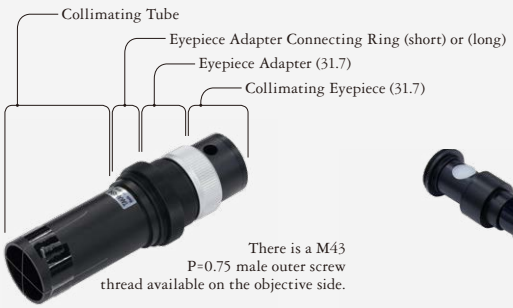

Aux. Ring (FB TSA102mm)


M55.9 Extension Tube L30

Product name	Product code	Attachment	Light path length
Vari-Tube (S) (No.61-B)	TKA00587	M42P=0.75	20mm
Vari-Tube (L) (No.61-A)	TKA00586	M42P=0.75	40mm
Extension Tube (S)	TKP00105	M43P=0.75	26mm
Extension Tube (L)	TKP00106	M43P=0.75	34mm
50.8 Turret Extension Tube (S)	TKA00105	50.8mm sleeve	35.5mm
Extension Tube (50.8)	TKP27112	50.8mm sleeve	62mm
Extension Tube (L) (50.8)	TKP31112	50.8mm sleeve	73.5mm
SD Ring*	TKA20583	M55.9P=0.75	17.5mm
Coupling (DT)	TKP20006B	M55.9P=0.75	18mm
M55.9 Extension Tube L30	TKA18006	M55.9P=0.75	30mm
Vari-Ring	TKA31581	M72P=1.0	17mm
Aux. Ring (FB TSA102mm)	TKA23250	M72P=1.0	52mm

* The SD Ring and the M55.9 Extension Tube L30 cannot be screwed onto the female thread of the Camera Angle Adjuster S.

Collimation Tools



Collimating Tube Installation Example



Collimating Scope


Collimating Eyepiece (31.7)

Attach the included crosshair wire to the notch at the tube end and tape it to use.


Collimating Tube

Product name	Product code	Attachment
Collimating Eyepiece (31.7)	TKA00441	31.7mm Sleeve
Collimating Tube	TKA00442	M36.5P=1.0male
Collimating Scope	TKA00443	M36.5P=1.0male

MEF-3



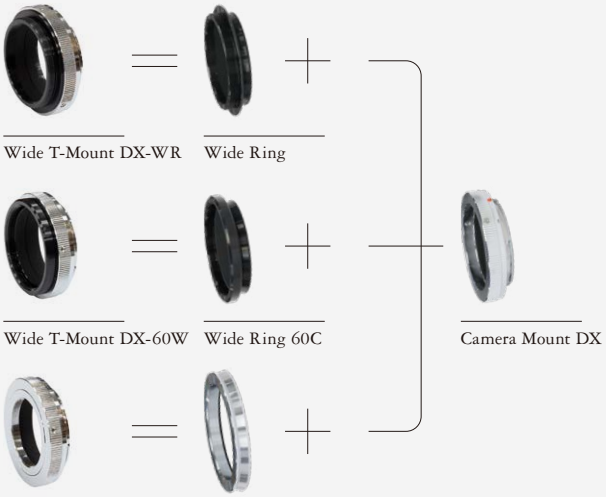
Installation example
(right side)

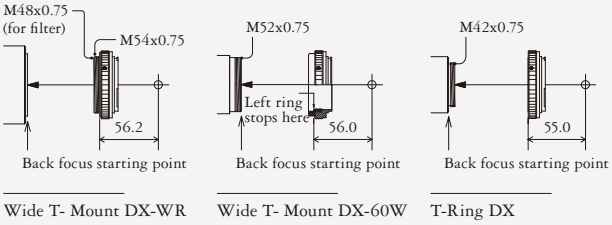


MEF-3 attachable focuser
(The pinion cover is secured by a two-hole screw.
The pinion shaft diameter is 8mm.)

Product name	Product code
Micro Edge Focuser MEF-3	TKA00733

T-Mount DX System





Wide T- Mount DX-WR | Wide T- Mount DX-60W | T-Ring DX

Note that the Wide Rings for Canon EOS and Nikon cameras are not compatible with each other. This is because the diameter of the taper portion of the inner and outer rings is different, being 52mm and 49mm, respectively.

Canon EOS (EF mount)

Product name	Product code	Tube side
Wide T-Mount DX-WR for Canon-EOS	TKA01251	M54P=0.75male
Wide T-Mount DX-60W for Canon-EOS	TKA20245	M52P=0.75female
T-Mount DX-S for Canon-EOS	TKA01250	M42P=0.75female
Camera Mount DX for Canon-EOS	TKA01252	
Wide Ring for Canon-EOS	TKA00242	
Wide Ring 60C for Canon-EOS	TKA20242	
T-Ring DX for Canon-EOS	TKA01253	

Nikon (F mount)

Product name	Product code	Tube side
Wide T-Mount DX-WR for Nikon	TKA01255	M54P=0.75male
Wide T-Mount DX-60W for Nikon	TKA20246	M52P=0.75female
T-Mount DX-S for Nikon	TKA01254	M42P=0.75female
Camera Mount DX for Nikon	TKA01256	
Wide Ring for Nikon	TKA00240	
Wide Ring 60C for Nikon	TKA20240	
T-Ring DX for Nikon	TKA01257	

Camera Adapter Attachment Rings



CA35 (TSA-102) | CA35 (50.8) | CA35 (SKY90) | Prime Focus Ring (50.8) | Camera Attachment (M43-M42)

Product name	Product code	Tube side	Camera side
CA35 (TSA-102)	TKA23201	M72P=1.0male	M54P=0.75female
CA35 (50.8)	TKA31201	50.8mm sleeve(male)	M54P=0.75female
CA35 (SKY90)	TKA35201	M55.9P=0.75female	M54P=0.75female
Prime Focus Ring (50.8)	TKA00207	50.8mm sleeve(male)	M54P=0.75female
Camera Attachment (M43-M42)	TKA00206	M43P=0.75male	M42P=0.75male

Camera Angle Adjusters



Camera Angle Adjuster S | Camera Angle Adjuster M | Camera Angle Adjuster (CCA)

Product name	Product code	Attachment	Light path length
Camera Angle Adjuster S	TKA21200N	M55.9P=0.75	20mm
Camera Angle Adjuster M	TKA23200N	M72P=1.0	35mm
Camera Angle Adjuster (CCA)	TKP86200	M98P=1.0	38.5mm

* Camera Angle Adjuster S is compatible with the old CAA (SKY90).
* Camera Angle Adjuster M is compatible with the old CAA (TSA-102).

Guiding Scopes



GT-40



L Bracket



GT-50

The GT-40, D=40mm / FL=240mm (f/6) , adopts a square optical tube that directly attach to a top plate or the L-Clamp and achieves stable guiding. The back focal length is adjusted from 0 to 21.5mm.

The GT-50 is a combination of objective unit of 7.5x50 Finderscope and GT Mount Adapter. It has a D=50mm / FL=210mm (f/4.2) and is attached in the same way as the 7.5x50 Finderscope. The back focal length is adjustable near 0 and only cylindrical cameras are suitable.

Product name	Product code	Weight
Guiding Scope GT-40	TGT04000	0.6kg
L-Clamp	TGT04010	0.3kg
Guiding Scope GT-50	TGT05000	0.35kg

TCA-4



TCA-4

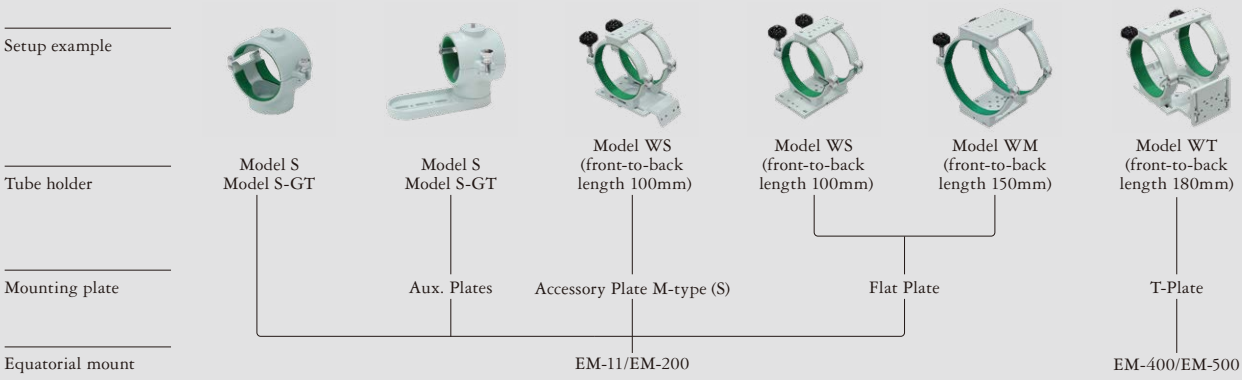


EC Ring
Used to attach the TCA-4
to telescopes with M42 male thread.

Product name	Product code	Tube side	Camera side
Camera Adapter TCA-4 (31.7)	TKA00210	M43P=0.75male	M42P=0.75male, M36.5P=1.0female
EC Ring	TKA00590	M42P=0.75female	M43P=0.75female

TUBE HOLDERS / MOUNTING PLATES

System Chart—Tube Holders / Mounting Plates



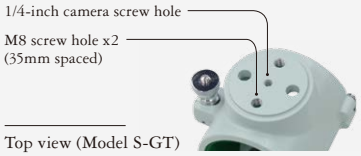
Single Clamp Tube Holders



Top view (Model S)



Tube Holder 125S



Top view (Model S-GT)



Tube Holder 156S

Product name	Product code	Telescope	Weight
Tube Holder 68S-GT	TKA02420G	FOA-60 FOA-60Q	0.5kg
Tube Holder 80S	TKA20420	FS-60CB	0.5kg
Tube Holder 80QS	TKA20420Q	FS-60CB FS-60Q FC-76DCU	0.5kg
Tube Holder 95S	TKA21420	FC-100D FSQ-85EDX	0.8kg
Tube Holder 125S	TKA36420	TSA-120 FSQ-106EDX4*	1.2kg
Tube holder 156S	TKA31420	TOA-130N	2.0kg

* For FSQ-106EDX4, please use the separately sold KB plate M to adjust the front-to-back balance.

Double Clamp Tube Holders



Tube Holder 166WS



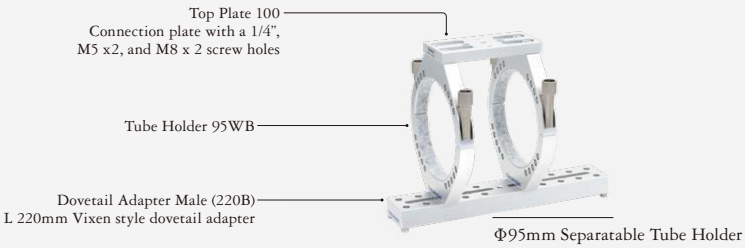
There are screw holes on the bottom, which are secured with cap bolts from the plate side.



Usage Example:
(E-160ED + Tube Holder 204WM + Flat Plate)

Product name	Product code	Telescope	Weight
Tube Holder 125WS	TKA36420W	TSA-120,FSQ-106EDX4	1.2kg
Aux. Plate W (FSQ-106ED)	TKA36421W	*	1.0kg
Tube Holder 125WM	TKA29420M	TSA-120	1.3kg
Tube Holder 156WM	TKA27420M	TOA-130N	1.7kg
Tube Holder 156WT	TKA27420T	TOA-130N	1.8kg
Tube Holder 179WT	TKA32420	TOA-150B	2.6kg
* Use in combination with 125WS			
Tube holder 166WS	TKA69420S	E-130D	1.6kg
Tube Holder 204WM	TKA70420M	E-160ED	1.9kg
Tube Holder 204WM	TKA70420T	E-160ED	2.0kg
Tube Holder 232WS	TKA68420S	E-180ED	2.4kg
Tube Holder 232WM	TKA68420M	E-180ED	2.5kg

Φ95mm Separatable Tube Holder



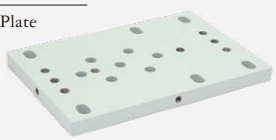
Φ95mm Separatable Tube Holder

Recommended for the FCT-65D, FS-60CP, and FC-76DP which have a short Φ95mm tube. It is also compatible with other Φ95mm telescopes, such as the FC-100D series and FSQ-85EDX.

Product name	Product code	Weight
Top Plate 100	TKA11424	80g
Tube Holder 95WB	TKA11420	360g *hand screw x4 included
Dovetail Adapter Male (220B)	TKA11423	175g

Mounting Plates

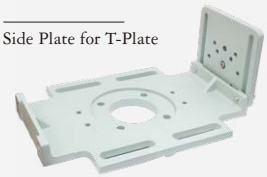
Flat Plate



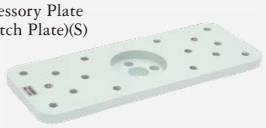
Accessory Plate M-type (S)



Side Plate for T-Plate



Accessory Plate (Match Plate)(S)



Aux. Plate (FSQ-85EDX)



Aux Plate QS



Aux. Plate (FSQ-106ED)



Aux Plate H



Accessory Holder Ring 95mm



Accessory Holder Ring 125mm



Accessory Holder Ring 156mm



TOA Grip



Plates

Product name	Product code	Size	Weight
Flat Plate	TMP02400	180x120x12mm	0.65kg
Accessory Plate M-type (S)	TMP02300	235x128x8mm	0.7kg
Accessory Plate L-type (L)(T- plate)	TMP02100	300x220x10mm	1.7kg
Side Plate for T-Plate	TMP02100S	138x120x11mm	0.4kg
CW Plate	TKA84421	360x150x16mm	2.3kg
Accessory Plate (Match Plate)(S)	TMP01040	230x90x9mm	0.5kg

Aux Plates

Product name	Product code	Offset distance	Weight
Aux. Plate (FSQ-85EDX)	TKA37421	65mm/82.5mm/117.5mm	0.55kg
Aux Plate QS	TKA20421	62.5-80mm/100-117.5mm	0.3kg
Aux. Plate (FSQ-106ED)	TKA36421	65mm	0.4kg
Aux Plate H	TKA36421H	65mm/82.5mm	0.7kg

Dove-Tail Adapaters

Product name	Product code	Weight
Dove-Tail Adapater (Female)(M-180C)	TKP70422	0.2kg
Dove-Tail Adapter (Female)(M-210)	TKP71422	0.35kg

Accessory Holder Rings

Product name	Product code	Weight
Accessory Holder Ring 95mm	TKA21430	0.4kg
Accessory Holder Ring 125mm	TKA36430	0.4kg
Accessory Holder Ring 156mm	TKA27430	0.75kg

TOA Grip

Product name	Product code	Weight
TOA Grip	TKA32412	0.3kg

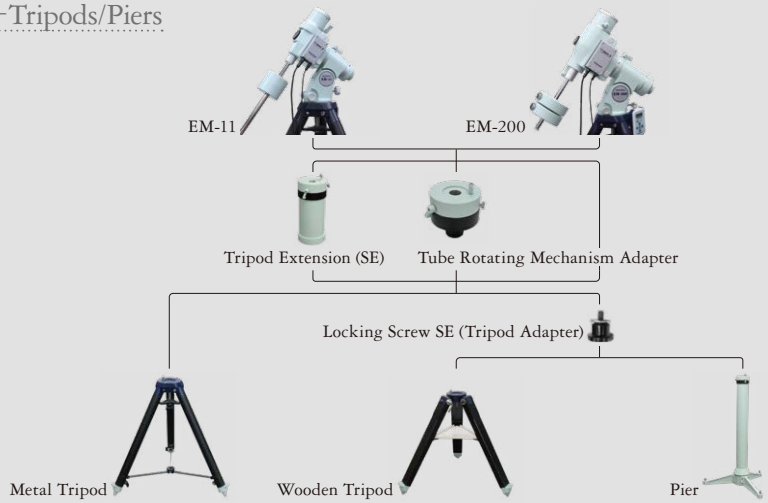
Solar Projection Screen

Product name	Product code	Weight
Solar Projection Screen (FS-152/TOA-130)*	TKA25431	1.6kg

* compatible Accessory Holders are 125mm and 156mm.

TRIPODS/PIERS

System Chart—Tripods/Piers



Metal Tripods

Product name	Product code	Mount	Minimum length / Setup height	Weight
Metal Tripod (SE)	TMT30020	EM-11/200	765mm 640–1010mm	7kg
Metal Tripod (J) for EM-400/JP-Z	TMT70300	EM-400	915mm 783–1193mm	15.2kg
Metal Tripod (JF) for EM-400/JP-Z	TMT90300	EM-400	835mm 705mm	10.1kg
Metal Tripod (J) for EM-500	TMT60300	EM-500	910mm 780–1190mm	15.2kg

Pier-Stands

Product name	Product code	Mount	Setup height	Setup radius	Weight
Pier-Stand SE-S	TMP30010	EM-11/200	700mm	406mm	23kg
Pier-Stand SE-L	TMP30030	EM-11/200	1180mm	406mm	27kg
Pier-Stand SE-LL	TMP30040	EM-11/200	1330mm	406mm	28kg
Pier-Stand SR-S	TMP70010	EM-400	648mm	406mm	37kg
Pier-Stand SR-L	TMP70030	EM-400	1124mm	406mm	53kg
Pier-Stand SR-LL	TMP70040	EM-400	1274mm	406mm	59kg
Pier-Stand SQ-S	TMP50010	EM-500	520mm	460mm	38kg
Pier-Stand SQ-L	TMP50030	EM-500	1020mm	460mm	58kg

Wooden Tripods

Product name	Product code	Mount	Minimum length	Setup height	Weight
Wooden Tripod SE-S	TWT30010	EM-11/200	770mm	660mm	6kg
Wooden Tripod SE-M	TWT30020	EM-11/200	1090mm	940mm	7.5kg
Wooden Tripod SE-L	TWT30030	EM-11/200	1320mm	1140mm	9kg
Wooden Tripod SR-S	TWT50010	EM-400	770mm	645mm	6.5kg
Wooden Tripod SR-M	TWT50020	EM-400	1090mm	915mm	8kg
Wooden Tripod SR-L	TWT50030	EM-400	1320mm	1110mm	9.5kg

Tripod Extension

Product name	Product code	Extension	Weight
Tube Rotating Mechanism Adapter	TTE05110	80mm	2.0kg
Tripod Extension (SE)	TTE05100	300mm	3.5kg

Others

Product name	Product code	Weight
Locking Screw SE (Tripod Adapter)	TSM04100	130g

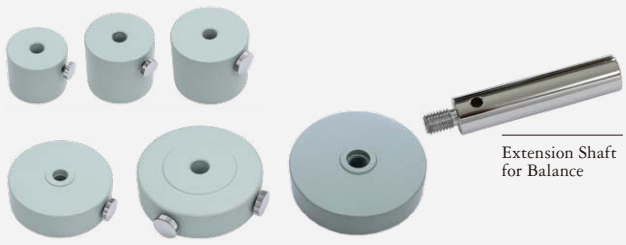
Tripod Adjusters / Flatteners



Tripod Adjuster

Product name	Product code	Weight
Tripod Adjuster (S)	TCW00220	0.5kg
Tripod Flattener (S)	TCW00120	0.2kg
Tripod Adjuster (L)	TCW00210	1.1kg
Tripod Flattener (L)	TCW00110	0.5kg

Extension Shaft and Counterweights



Extension Shaft for Balance

Counterweight, from top-left, 2.1/3.5/4.6/5.0/8.0/10.0kg

Product name	Product code	Center hole	DxH (mm)
Extension Shaft for Balance	TPS25020	18mm	8cm Extension
Counterweight 2.1kg	TCW01600	18mm	78mmx66mm
Counterweight 3.5kg	TCW01800	18mm	88mmx81mm
Counterweight 4.6kg	TCW02000	18mm	98mmx81mm
Counterweight 5.0kg	TCW02300	18mm	138mmx44mm
Counterweight 8.0kg	TCW02500	25mm (EM-400)	168mmx51mm
Counterweight 10kg	TCW02400	screw (for EM-500)	198mmx47mm

Takahashi's Distributor Map

We have distributors all over the world and deliver high quality telescopes to users.
Please contact your local dealer for prices, delivery times, etc.



FRANCE

Optique Unterlinden
5 rue Jacques Daguerre 68000
Colmar France
Tel. (+33) 3 89 24 16 05
https://takahashi-europe.com/
https://www.telescopes-et-accessoires.fr/

U. S. A.

Takahashi America (Land Sea & Sky)
1925A Richmond Ave. Houston,
TX 77098
Tel. (713) 529-3551
https://takahashiamerica.com/



CHINA

Science Discovery Co.,Ltd
Rm.702, No.1, Victory International Plaza,
No.423, Xin Cun Road,
Shanghai, China
Tel. (+86) 21-33010671
http://www.takahashicn.com/

INDIA

C-Sky Scientifics Private Limited
"Yamunabaug",
Badlapur(W) Pin-421503 Dist.
Thane, Maharashtra, India
Tel. (+91) 9422668060
http://www.skywatcher-india.com

KOREA

Union Enterprise.,Co. Ltd
Union Bldg 6F,
274 Bucheon-ro Wonmi-gu
Bucheon-si Kyungi-do 14487 Korea
Tel. (+82) 32-678-7021
http://unionkr.co.kr/

OMAN

Astronomical Solutions
Company L.L.C.
Shop 799, Al-Sibakh house,
Al-Kuleiah Street,
Al Khuwair Al Khuwair OM 116,
Oman
Tel. (+968) 24-396006
WhatsApp (+968) 7151-4492
https://astronomicalsolutions.com/

HONG KONG

Grand Eye Scientific Company
Flat A 11/F Hoi On Commercial Building
8 Mui Fong Street Sai Ying Pun,
Hong Kong, China
Tel. (+852) 9638-3899
http://www.grandeye.com.hk/

JAPAN

Takahashi Seisakusho Ltd.
Yorii Factory

–

Takahashi Seisakusho Ltd.
Head Office
41-7, Ohara-Cho, Itabashi-Ku, Tokyo
Tel. (+81)3-3966-9491

–

Starbase Tokyo
(Directly Managed Shop)

THAILAND

Astro Instruments Co.,Ltd.
833 issaraphap Rd.,Watarun,
Bangkokyai, Bangkok, Thailand 10600
Tel. (+66) 8-1812-9741
https://www.astro.co.th/

REPUBLIC OF CHINA (TAIWAN)

Nick Enterprise Co., Ltd.
12F-3, No. 198, Sec. 2 Roosevelt Rd.,
Taipei, Taiwan 10084
Tel. (+886) 2-2365-5790
https://www.nick.com.tw/

SINGAPORE

Astro Scientific Centre Pte Ltd
21 Jurong Town Hall Road,
Singapore Science Centre,
The Linkway, Singapore 609433
Tel. (+65) 65674163
https://www.astro.com.sg/

AUSTRALIA

Testar Australia Pty Ltd
D7/1 Campbell Parade, Manly Vale,
NSW, Australia
Tel. (+61) 2-8328-1234
https://testar.com.au

INDONESIA

Prominence Scopehouse
STC Senayan LG floor #124-125
Jl Asia Afrika – Jakarta Pusat Indonesia
Tel. (+62) 21-57931720

Back Cover M45 Pleiades | [Optical Tube] TOA-130NFB + TOA-35 Reducer 0.7x | [Camera] ZWO ASI6200MC Pro | 276 x 60”, 30 x 1”



Takahashi Seisakusho Ltd. | Astronomical Telescope & Accessories General Catalog | Published on April 2025
Head Office 41-7 Ohara-cho, Itabashi-ku, Tokyo 174-0061 | Tel 03-3966-9491 (Main) | Web https://takahashijapan.jp/
The published content is current as of April 2025. | Product specifications and appearance are subject to change without prior notice for improvement.