

## Kendrick Solar Filter Selection Guide

Kendrick Astro Instruments has been manufacturing Solar Filters for almost 2 decades and we have a very large selection of filter sizes in 3 different styles. This guide will help you choose the right model for your needs.

**Who uses Kendrick Solar Filters?** 3 more of our filters just arrived onboard the *International Space Station*, and this is our 3<sup>rd</sup> trip into space! The current mission will use Kendrick Solar Filters mounted to conventional telephoto camera lenses. Our filters use Baader Solar Film renowned for its excellent contrast. Of course, thousands of us “terrestrial” dwellers also use Kendrick Solar Filters on our telescopes, binoculars, and camera lenses.

**What size do I need for my 14XLT-HDSF.....?** We don't know. The number of telescope/binoculars/camera lens models in circulation is in the order of hundreds of thousands. Manufacturers rarely publish the tube diameter specification. We would love to have a copy of every telescope/bino/lens in our workshop, but where would we put them? The good news? Since you already have the telescope/binoculars/camera lens, you can find the perfect fit in minutes!

**Have questions?** We love to talk to customers, but before you pick-up the phone, read this guide. Otherwise we will be asking you questions that you won't have the answer to. The best way to get a quick answer is by email ([info@kendrickastro.com](mailto:info@kendrickastro.com)). Be aware that in every application, we need to know the diameter of what the filter will attach to. This guide will help you find the answer to that question.

### Kendrick Solar Filters are made to fit a wide range of optical devices:

- Telescopes
  - Refractors normally use a filter that attaches to the Dew Shield. If your refractor has a removeable dew shield, you can use a smaller filter that attaches to the optical tube directly.
  - Newtonian, SCT, and other “compound” style (scopes that have primary + secondary mirrors), always attach to the optical tube assembly (OTA)
- Camera Lenses
- Binoculars

In ALL applications, our filters need something to grab onto and they do so using 3 nylon thumb-screws that fasten the filter frame to the outside of the optical tube.



This guide has a complete list and specifications for each of our solar filter models. **There are 3 things you need to know before ordering a filter:**

### 1) Classic Style or "SF" Style?

a. "Classic Style" is single piece frame of "spun" aluminum and has a continuous collar that completely wraps around your telescope. This sturdy frame is rigid in all directions.



b. The "SF" filters have a built-in "Solar Finder" that makes pointing your telescope really easy (Solar Finders are also available as an add-on accessory). Made from stamped aluminum, it uses heavy gauge aluminum to ensure a rigid frame.

\* Solar Finders are also available as a standalone and you will find them listed on our website "Sun Finder". They dramatically reduce the time it takes to center the Sun. They are often referred to as a "pinhole camera" that projects an image onto a target. By far, the fastest way to aim your telescope/camera lens.



### 2) Outside diameter of your optical assembly/tube (OTA). **THAT INCLUDES CAMERA LENSES AND BINOCULARS**

The Solar filter will attach to the outside of your optical tube (telescope/camera lens/binoculars) using adjustable nylon thumb screws that are placed on the collar of the filter frame. Refractor telescopes normally use the dew shield for the purpose of attaching the solar filter. 2 of our Classic Filter models have an extra deep collar to accommodate the tapered front of their dew shield.

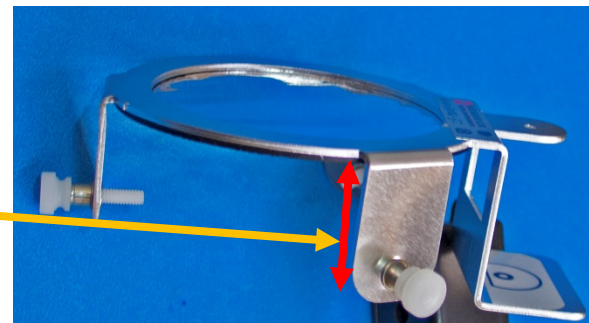
### 3) Collar Clearance

The filter frame has a "collar" that secures the nylon thumb screws to the filter frame. The frame collar will extend past the very front of your OTA. Are there any obstructions that will interfere with the frame collar? Screws/rivets, dovetail bars, focuser? The filter models shown here tell you how far the collar extends past the front of your OTA. If so, perhaps our "SF" Filters are a better choice because the collar is not continuous, but rather, 3 tabs that can be positioned to avoid obstructions.



Classic Style 1

Collar Depth

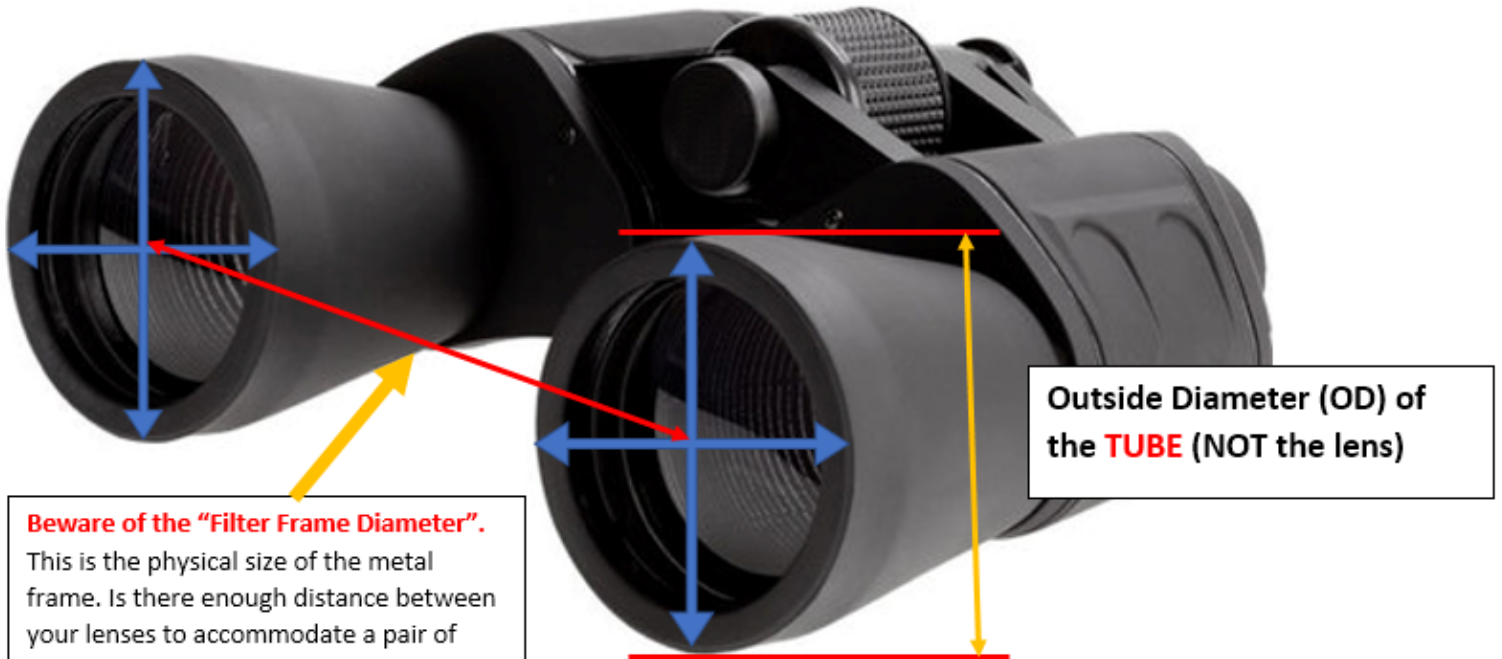


SF Style

## Binoculars

Our solar filters need something to grip and there needs to be enough space between the lenses to accommodate 2 filter frames. Generally, it means conventional mid/large size binoculars.

If you have **compact** or **“image stabilized” binoculars**, chances are there is NOT a ready-made filter that will fit. Consider buying a sheet (500mm X 1000mm / 19.68498” X 39.36996” only) of solar film and use an elastic band to fasten to each lens. You do NOT need to worry about making the film “drum-tight”. In fact, wrinkles actually improve contrast!



### **Beware of the “Filter Frame Diameter”.**

This is the physical size of the metal frame. Is there enough distance between your lenses to accommodate a pair of frames? 2 filters will be side-by-side and can't overlap. For example, a pair of filters that have a Frame Diameter 87.5mm, would need the distance (center-to-centre of the lens) between each lens to be at least 87.5m apart.

**Outside Diameter (OD) of the TUBE (NOT the lens)**

## Camera Lenses

We make filters to fit most DSLR camera lenses.

- Conventional DSLR Camera Lenses are great to photograph the Sun.
- **We do NOT make “thread-on” filters.** Our filters attach to the outside body of the lens.
- We do **NOT** have filters that work with smart-phone cameras or many of the compact “point-and-shoot” cameras.

The critical dimension is.... *What is the outside diameter of the lens body (NOT the glass lens)?*

Shown here is a “telescoping” style Zoom Lens

way



**NOTE ON ZOOM LENSES:** If your lens is the “telescoping” type, the inner tube is what the filter will attach to.

## Fixed (non-telescoping) Lenses

## “Telescoping” Style Lenses



What is this diameter?

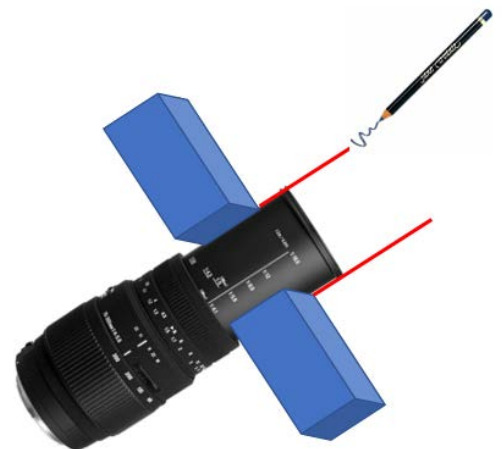


What is this diameter?

## An easy way to measure the diameter

If you don't have calipers that can do the job, another way to get an accurate measurement:

- Lay your scope/binoculars/lens on a sheet of paper
- Then use using anything that has a 90° angle (one on each side of the “tube”), butt it up to the tube on each side.
- Make a mark on the paper
- Measure the distance between those marks





## What if your tube the diameter is in-between 2 filter models?

For example, your measured diameter is 203mm or 204mm

Model 6011-A Visual Solar Filter (152mm filter aperture), **Fits tube ODs 191mm to 201mm**

Model 6012 Visual Solar Filter (170mm filter aperture), **Fits tube ODs 204mm to 214mm**

Solar Filters are not something the average person buys, yet we have almost every possible application covered. Try as we might, there is still some equipment that we can't accommodate. If you find yourself in one of those "in-between zones", sometimes, a bit of "MacGyver" spirit solves most of those "uncovered" situations.

A larger filter can be made to fit a smaller tube diameter, BUT a smaller filter **cannot** be made to fit a larger tube diameter.

Potential Solutions: A trip to the hardware store:

- Longer nylon thumb-screws are a commonly stocked at most hardware retail stores. Most of our filters use #8-32 (diameter and thread-pitch), and some models use #10-32. Consult the chart at the end of this guide for details.
- Adhesive Foam Tape is an easy way to "increase the diameter" of your tube and is available everywhere. Just place a small piece under each thumb-screw.
- If you just need your tube to be 1-3mm larger, a wide elastic band can get the job done. A good reason to buy a bundle of broccoli at the grocery store. OR that really big honkin bundle of flyers that lands on your doorstep.



## Metric Conversion

If you don't have a metric ruler (or calipers), measure in inches and use this formula to convert to millimeters:

$$1" = 25.4\text{mm}$$

## Popular Telescope Model Reference

At the end of this guide you will find a list of the most popular telescopes. **Please use this for reference only.** Some of these have been in production, in various forms, for decades and the "recipe" is known to change over time. Don't take a chance, measure your telescope!

## Does your telescope have obstructions at the front of the telescope? Dove-tail bars(s)? Focuser? Finder Scope?

Filters have a "collar" that wraps around the front of the telescope. Dove-tail bars, focusers, finder scopes, bolts, or "bumps" in general, can interfere with the filter frame. This is especially important for our "Classic Ring Style".

If this sounds like you, consider our "Open Frame" OR "SF" filter models. These models don't have a solid rim which means you can usually rotate the filter to avoid obstructions.



# Solar Filter Selection Guide

† Collar Depth is the distance PAST the front edge of your OTA that the "Collar" will extend when the filter is fully seated. The end of your OTA must have this amount of clearance to accommodate the collar.

†† Metal Frame Diameter is the physical size of the filter assembly. **For binoculars, this is important information.** Is there enough space between the lenses for 2 filter frames to fit side-by-side?

## Classic Style

Collar Depth †	Item No	Metal Frame Diameter††	Nylon Thumbscrew Size Dia / thread / length Inches	Item Description
n/a	6000-SUN	n/a	n/a	Sunfinder, self-adhesive
24.5	6001	77.0	#8-32 X 3/4	Visual Solar Filter (63mm filter aperture), Fits tube ODs 66mm to 76mm
25	6001-PR	87.5	#8-32 X 3/4	Pair of 6001 Solar Filters (fits tube OD's 66mm to 76mm)
25	6001-A	87.0	#8-32 X 3/4	Visual Solar Filter (70mm filter aperture), Fits tube ODs 75mm to 85mm
21	6002	98.0	#8-32 X 3/8	Tv Pronto Solar Filter
24.5	6003	105.0	#8-32 X 3/8	Visual Solar Filter (80mm filter aperture), Fits tube ODs 90mm to 100mm
22	6004	108.0	#8-32 X 3/4	Visual Solar Filter (90mm filter aperture), Fits tube ODs 95mm to 105mm
25	6004-A	111.0	#8-32 X 3/8	Visual Solar Filter (90mm filter aperture), Fits tube ODs 98mm to 108mm
21.5	6004-B	120.3	#8-32 X 3/4	Visual Solar Filter (103mm filter aperture), Fits tube ODs 107mm to 115mm
23	6005	128.0	#8-32 X 1	Visual Solar Filter (90mm filter aperture), Fits tube ODs 115mm to 125mm
21	6006-A	132.5	#8-32 X 3/4	Solar Filter To Fit 117mm To 130mm Od. This product combines our old (and now di
31	6006-BL	126.0	#8-32 X 3/4	Visual Solar Filter for TV NP101, and NP101LS, accommodates longer barrels, 102mm
24	6007	143.0	#8-32 X 3/4	Celestron C102 Solar Filter
22	6008	151.5	#8-32 X 3/4	C5, Etx 125 Solar Filter
21	600#8-B	165.0	#8-32 X 3/4	Solar Filter. Fit Tube Ods 150mm To 160mm
20	6009	170.0	#8-32 X 1	Visual Solar Filter (127mm filter aperture), Fits tube ODs 157mm to 167mm
21	6010	185.0	#8-32 X 1	Visual Solar Filter (130mm filter aperture), Fits tube ODs 169mm to 179mm
22	60#10-A	190.0	#8-32 X 1	Orion 6 Inch Dob
21.5	6011	195.0	#8-32 X 1	Astro Physics 155 Solar Filter
19	6011-A	204.0	#8-32 X 1	6 Inch Solar Filter
22	6012	216.0	#8-32 X 1	Visual Solar Filter (170mm filter aperture), Fits tube ODs 204mm to 214mm
22	6012-A	226.0	#8-32 X 1	Visual Solar Filter (177mm filter aperture), Fits tube ODs 214mm to 224mm
23	6013	237.0	#8-32 X 1	Visual Solar Filter (8"/203mm filter aperture), Fits tube ODs 223mm to 233mm
20	6013-A	246.0	#8-32 X 1	Visual Solar Filter, Fits tube ODs 233mm to 241mm
22.5	6014	253.0	#10-32 X 1	Visual Solar Filter (204mm filter aperture), Fits tube ODs 241mm to 251mm
22	6014-A	264.0	#8-32 X 1	Visual Solar Filter (231mm filter aperture), Fits tube ODs 252mm to 262mm
22	6015	274.0	#10-32 X 1	Visual Solar Filter (235mm filter aperture), Fits tube ODs 262mm to 272mm
23	6015-A	283.0	#10-32 X 1.25	Visual Solar Filter (203mm filter aperture), Fits tube ODs 270mm to 280mm
21	6015-B	294.0	#8-32 X 1	Solar Filter To Fit 280mm To 290mm Od
20.5	6016	302.0	#10-32 X 1.25	Visual Solar Filter (253mm filter aperture), Fits tube ODs 288mm to 298mm
23	6016-A	313.0	#8-32 X 1	Visual Solar Filter (277mm filter aperture), Fits tube ODs 300mm to 310mm
22	6017	324.0	#8-32 X 1	Visual Solar Filter (280mm filter aperture), Fits tube ODs 312mm to 322mm...Full Aperture
25	6017-A	324.0	#10-32 X 1.25	Visual Solar Filter (100mm filter aperture), Fits tube ODs 312mm to 322mm, Off A
22	6017-B	334.0	#10-32 X 1.25	Meade 10 Inch Dob Solar Filter
22	6018	350.0	#10-32 X 1.25	Visual Solar Filter (305mm filter aperture), Fits tube ODs 337mm to 347mm
21	6018-A	350.0	#10-32 X 1.25	Visual Solar Filter (100mm filter aperture), Fits tube ODs 337mm to 347mm...Off Axis
20	6019	386.0	#10-32 X 1.25	Visual Solar Filter, Fits tube ODs 373mm to 381mm...Full aperture
18	6020	402.0	#8-32 X 1	Visual Solar Filter, Fits tube ODs 389mm to 399mm...14" Full Aperture
23	6021	410.0	#8-32 X 1	Visual Solar Filter (355mm filter aperture), Fits tube ODs 395mm to 405mm...Full
23	6021-A	410.0	#10-32 X 1.25	Visual Solar Filter (120mm filter aperture), Fits tube ODs 395mm to 405mm...Off
27	6022	450.0	#8-32 X 1	Visual Solar Filter (140mm filter aperture), Fits tube ODs 435mm to 445mm...Off Axis 140mm filter
16	665N	66.0	#8-32 X 3/4	Solar Filter (50mm filter aperture), fits tube OD 41mm to 64mm
16	665N-PR	66.0 each	#8-32 X 3/4	Pair of Solar Filters (65mm ID)
16	670N-PR	71.0	#8-32 X 3/4	Pair of Solar Filters (70mm ID)

## "SF" Style (Built-in Solar Finder)

Collar Depth †	Item No	Metal Frame Diameter††	Nylon Thumbscrew Size Dia / thread / length Inches	Item Description
32.5	6002-SF	97.0	#8-32 X 3/4	Visual Solar Filter with Solar Finder, (Fits 80mm to 95mm tube)
28	6004-SF	122.0	#8-32 X 1	Visual Solar Filter (Fits 90mm to 120mm tube)
39	6007-SF	154.0	#10-32 X 1.25	Visual Solar Filter with Solar Finder, (Fits 113mm to 143mm tube)
32	6008-SF	183.0	#10-32 X 1.25	Visual Solar Filter with Solar Finder, (Fits 150mm to 180mm tube)
13	6011-SF	198.0	#10-32 X 1.25	Visual Solar Filter with Solar Finder, (Fits 165mm to 195mm tube)
43	6013-SF	254.0	#10-32 X 1.25	Visual Solar Filter with Solar Finder, (Fits 220mm to 250mm tube)
41	6015-SF	278.0	#10-32 X 1.25	Visual Solar Filter with Solar Finder, (Fits 245mm to 275mm tube)
42	6016-SF	308.0	#10-32 X 1.25	Visual Solar Filter with Solar Finder, (Fits 275mm to 305mm tube)
32	6017-SF	338.0	#10-32 X 1.25	Visual Solar Filter with Solar Finder, (Fits 305mm to 335mm tube)
42	6018-SF	353.0	#10-32 X 1.25	Visual Solar Filter with Solar Finder, (Fits 320mm to 350mm tube)

† Collar Depth is the distance PAST the front edge of your OTA that the "Collar" will extend when the filter is fully seated. The end of your OTA must have this amount of clearance to accommodate the collar.

†† Metal Frame Diameter is the physical size of the filter assembly. **For binoculars, this is important information.** Is there enough space between the lenses for 2 filter frames to fit side-by-side?

## Popular Filter Sizes (Classic Style)

Collar Depth †	Item No	Metal Frame Diameter††	Nylon Thumbscrew Size Dia / thread / length Inches	Item Description
31	6006-BL	126.0	#8-32 X 3/4	Visual Solar Filter (102mm filter aperture), For TeleVue NP101, and NP101is, Has longer barrel to accommodate TeleVues beveled dewcaps.
23	6013	237.0	#8-32 X 1	Visual Solar Filter (8"/203mm filter aperture), Fits tube ODs 223mm to 233mm, FOR 8"SCTs
20.5	6016	302.0	#10-32 X 1	Visual Solar Filter (253mm filter aperture), Fits tube ODs 288mm to 298mm, FOR 10"SCTs
22	6018	350.0	#10-32 X 1	Visual Solar Filter (305mm filter aperture), Fits tube ODs 337mm to 347mm...Full Aperture, for 12" SCTs
21	601#8-A	350.0	#10-32 X 1	Visual Solar Filter (100mm filter aperture), Fits tube ODs 337mm to 347mm...Off Axis 100mm filter, for 12" SCTs
23	6021	410.0	#8-32 X 1	Visual Solar Filter (355mm filter aperture), Fits tube ODs 395mm to 405mm...Full Aperture, for Meade and Celestron 14" SCT
23	6021-A	410.0	#10-32 X 1.25	Visual Solar Filter (120mm filter aperture), Fits tube ODs 395mm to 405mm...Off axis 120mm filter, for Meade and Celestron 14" SCT

**Fit is NOT guaranteed! You still need to measure your telescope.** These popular sizes are just a suggestion. Some of these have been in production for decades, but there are minor variations such as the addition of screws and rivets, as well as placement of dovetail bars.