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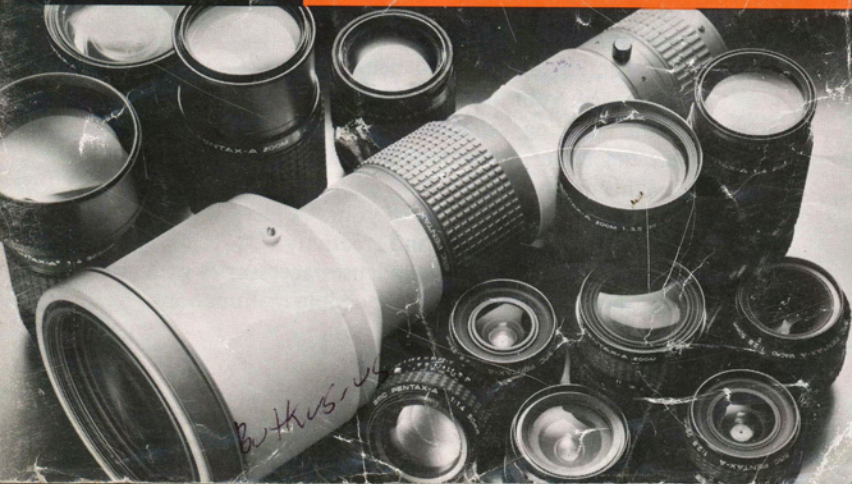
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PENTAX

SMC PENTAX-A LENSES



BUTKUS-44

SMC PENTAX "A" LENSES

The "A" series of SMC Pentax lenses was specially developed to provide full multi-mode exposure control with the new Pentax Super Program, an ultra sophisticated 35mm SLR. "A" series lenses are, of course, compatible with all other Pentax K or Kf mount cameras.

This Instruction Manual will help you make the most efficient use of your lens. Whenever you have a question about the handling, capabilities or care of "A" series lenses, consult the table of contents and turn to the appropriate page of this handy guide.

We hope the advanced design of your "A" lens will enhance your photographic pleasure and creativity.

We suggest you use only Pentax lenses/accessories with your Pentax camera in order to avoid possible malfunctions.

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Front threads of lens
Focusing Ring



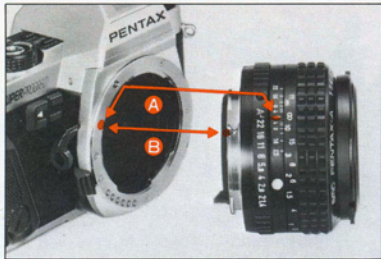
Distance Scale
Aperture Ring
Depth-of-field Scale
Aperture Auto Lock Button

- When your Super Program camera is equipped with an "A" lens, you can use all six of its exposure modes, including Programmed AE, Program flash and Shutter-priority AE.
- Pentax "A" lens can be used on all current Pentax cameras with K or Kf mounts, such as Pentax ME Super, MX, MG, K1000, LX or ME-F. With these cameras, "A" lenses work like conventional SMC lenses. Automatic aperture control is possible only with the Super Program.

Notes:

There are new aperture information contacts on the mount rim of your "A" lens. When mounting/dismounting your lens, handle it with the utmost care in order to avoid scratching or soiling the contacts. If dirt accumulates on the contacts, wipe it away with a clean, dry and soft cloth.



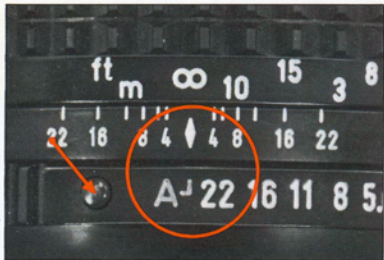


1. To mount or change your lens, align the red dots on the camera body and the lens (See **A**, **B**). Seat the lens in the body mount and turn it clockwise until the lens locks with a click. Since telephoto or zoom lenses are comparatively heavier and bulkier, remember to hold them firmly.



2. To remove the lens, turn it counter-clockwise while pressing the lens lock lever in toward the camera body.

APERTURE CONTROL



To set the aperture ring of your "A" lens to the A (auto) position (for Program AE, Shutter-priority AE or Program flash), align the green line of the A position index with the index on the camera.

To release the ring from the A position, turn it toward the aperture scales while pressing the auto aperture lock button.



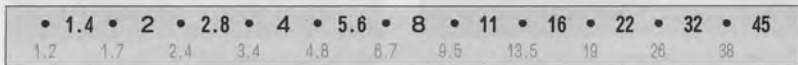
When you use your "A" lens on a camera other than the Super Program, set its aperture ring to ordinary aperture stops, not to the A position.

Aperture values and click stops

The white dot next to the lens' full-open aperture value indicates an aperture which is one full stop slower.

The click stops between adjacent aperture values are equivalent to the in-between values as illustrated.

No click stops are provided at the extreme ends (viz., maximum and minimum f/stop positions) of the aperture scale as the space between adjacent indications is too limited to provide a click stop.



Lens function and aperture setting

Selecting the proper aperture value will improve your pictures since the image reproduction capability of your lens varies in accordance with the *f/stop* in use. Apertures between *f/5.6* and *11* will generally provide the highest resolution and contrast throughout the entire image. For the best performance, use apertures within this range, except when you want less or more depth of field or when available lighting is not sufficient.

Helpful hints on the use of the minimum aperture

The aperture setting range of all the SMC Pentax lenses has now been expanded to a minimum aperture smaller than *f/22*. The use of these smaller *f/values* increases depth-of-field. It can also add a feeling of motion to your photos since smaller apertures require slower shutter speeds.

Except for extreme close-up photography (around 1:1), it is advisable to use an aperture larger than *f/13.5*. Smaller apertures may adversely influence focusing, due to the diffraction effect. Avoid unnecessary utilization of apertures *f/16* or smaller.

Lens hoods are classified into three types — rectangular, round and built-in hoods. Rectangular hoods are for wide-angle lenses, while both rectangular and round types are available for standard lenses. Round hoods are used for telephoto lenses.

Rectangular hoods



49mm ϕ spring type	for both 50mm f/1.4 and 50mm f/1.7
49mm ϕ spring type	for both 28mm f/2.8 and 35mm f/2.8
52mm ϕ spring type	for 24mm f/2.8

1. Like lens caps, rectangular lens hoods are held in place by a spring, and are attached to the front threads of the lens while depressing the knurled tabs on either side of the lens hood.

2. As Pentax 35mm SLRs produce a rectangular picture, rectangular

hoods improve image quality. Attach the hood, as illustrated, so that its top and bottom get parallel to the picture format.

- To avoid the possibility of vignetting when using a rectangular hood, make sure that the hood is not attached in a slanted or off-axis position.



Round hoods



There are two types of round hoods: the screw-on type and the spring-aided clip-on type.

49mm ϕ , screw-on (rubber make)	for both 50mm f/1.4 and 50mm f/1.7
---	--

49mm ϕ , screw-on	for both 50mm f/1.4 and 50mm f/1.7
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60mm ϕ , clip-on (rubber)	for 24–50mm f/4 zoom
-----------------------------------	-------------------------

77mm ϕ , screw-on	for A 300mm f/4
-------------------------	---------------------

* Use of a 77mm ϕ circular polarizing filter on the SMC Pentax A* 300mm f/4 lens will prevent extension of the built-in lens hood. With this filter, use a 77mm ϕ screw-on hood instead.

1. The 49mm ϕ screw-on round hood can be neatly stored by reversing it over the front of the lens, but it may fall off if it hits against something. The lens cap may be attached over the reversed hood. But the lens hoods for use with zoom lenses do not accept lens caps when reversed.



2. As shown in the picture, rubber hoods can be folded down when not in use.



Built-in hoods

Lens hoods are built into many telephoto and ultra telephoto lenses. Simply pull them out when you want to use them. If it is slightly difficult to extend the hood, try rotating it gently while pulling it out.

Note:

When such accessories as a gelatine filter holder, polarizing filter or circular polarizing filter are attached on the front thread of your lens, the built-in lens hood cannot be extended.

Lens hoods are built into the following lenses:

135mm f/2.8	A* 300mm f/4
200mm f/4	A* 600mm f/5.6 ED (IF)
	70–210mm f/4 zoom



Reminders on the use of lens hoods
Either rectangular or round hoods can be used for lenses with similar focal lengths. For your guidance, usable lenses are designated on the hood as the illustration shows.



A lens hood can be used on a lens with a focal length longer than that designated on the hood. However, in this case, the effectiveness of the hood will be reduced. On the other hand, due to possible vignetting of the four corners of the image, it is not advisable to use a hood with a shorter than indicated focal length. For example, a rectangular hood for 28mm and 35mm wide-angle lenses can be effectively used with a standard lens. But a standard lens use hood is not suitable for a wide-angle lens. When combining a Pentax filter and lens hood, first attach the filter, then put the hood over it. (However, hoods cannot be mounted over a polarizing filter).

The following screw-on filters can be threaded on the front rim of your lens.

49mm ϕ	28mm f/2.8, 35mm f/2.8, 50mm f/1.4, 50mm f/1.7, Macro 50mm f/2.8 * A* 600mm f/5.6 ED (IF) (place in the filter pocket)
52mm ϕ	24mm f/2.8, 135mm f/2.8, 200mm f/4
58mm ϕ	24–50mm f/4 and 70– 210mm f/4 zooms
67mm ϕ	35–105mm f/3.5 zoom
77mm ϕ	28–135mm zoom, A* 300mm f/4

* The filter pocket of A* 600mm f/5.6 ED (IF) does not accept a polarizing filter.

SMC filters



Special Super-Multi-Coated filters are among the many types offered by Pentax. SMC filters are available in Skylight, UV, Y2, O2, R2 and Cloudy. Super-Multi-Coating minimizes reflections, thus maintaining the excellent image quality of SMC Pentax lenses.

Hints on using filters

A filter, when attached to your lens, becomes a part of the lens' optical system. Handle it as carefully as you handle the lens. Immediately remove any dust or dirt, and take care not to scratch the filter element.

Although two filters can be used one on top of the other, the result is an unfavorable influence on the image reproduced. Avoid combined filter use, except with the polarizing filter which can be used in combination with other filters.

Vignetting and polarizing filters

Polarizing filters consist of two glass elements, which rotate to produce a characteristic effect on the picture. Thicker than ordinary single-element filters, the polarizing filter may excessively darken the image at the edges of the picture area, especially when this filter is used for such SMC Pentax "A" lenses at 24mm f/2.8 and three zooms — 24–50mm f/4, 28–135mm f/4 and 70–210mm f/4. The same phenomenon takes place with the circular polarizing filter.



The shorter the focal length of a lens, the greater its depth of field, provided that the camera-to-subject distance and the f/value are not changed. The pictures below clearly indicate the difference in depth of field. The one below was taken with a 50mm lens; the other at left bottom on the next page, with a 28mm wide-angle lens, both at a camera-to-subject

50mm f/1.4



distance of 3m. The depth of field of the wide-angle lens is the clearly greater.

Snapshot marks

Convenient fixed-focus marks are provided on SMC Pentax "A" wide-angle lenses. As illustrated, the aperture value $f/8$ and a distance figure are marked in red. These indications

are quite helpful for snapshots. If you align the red figures with the index \blacklozenge mark, you will not have to focus for each picture. Focus will be sharp for all subjects located from about half of the red marked distance all the way out to infinity without any adjustment. This fact can be confirmed by checking the depth-of-field scale.

28mm $f/2.8$



35mm $f/2.8$



Holding Telephoto Lenses

Telephoto lenses are longer and heavier than standard lenses. When using telephotos, take care to prevent camera shake, which may result in blurred pictures. Proper camera/lens holding is the way to avoid camera shake. As shown in the picture at left, hold the focusing ring securely with your left hand, and to support the camera by pressing it to your face.



Minimum shutter speed for unblurred pictures

When you are hand-holding your camera, the surest way to prevent blur is to select a high shutter speed. You can determine a comparatively safe shutter speed simply by checking the focal length of your lens. When you use a 135mm telephoto lens, select a speed faster than 1/135 sec. With a 200mm lens, use 1/200 sec. or faster, etc. As zoom lenses are longer and heavier than single focal length lenses, particular attention should be paid to shutter speed. However, if your hands and your grip are steady, you may be able to take unblurred pictures at slower speeds. When you have to use a relatively slow shutter speed, stabilize your camera/lens combination with a tripod.

Suggestions on the use of telephoto lenses

- **Note on ∞ indication:**

With a powerful telephoto lens, for instance, SMC Pentax A* 300mm f/4 or A* 600mm f/5.6 ED (IF), there may be a focus shift between the distance indicated on the lens and the actual camera-to-subject distance, influenced by temperature conditions such as cold or hot weather. For this reason, the focusing ring of your A* 300mm (or A* 600mm) lens is specially designed to rotate slightly past the ∞ (infinity) indication. So even when you take pictures at infinity, be sure to confirm good focus through the viewfinder.

- **Shooting landscapes with a telephoto lens:**

Telephoto lenses are frequently used

for photographing distant scenery. Climate conditions (such as heat haze or mist) may deteriorate resolution and/or contrast. So it is advisable to photograph landscapes when the weather is clear.

- **Focusing for close-ups and distant scenes**

Some people believe that telephoto lenses focus more precisely on distant objects than on close-up objects. In fact, focusing precision is almost unaffected by differences in camera-to-subject distance although macro lenses are designed especially for close-up photography. Essentially, the size and the sharpness of the subject do not change with distance. As a general rule, get close enough to see the details of your subject clearly. This will help you take finely focused pictures.

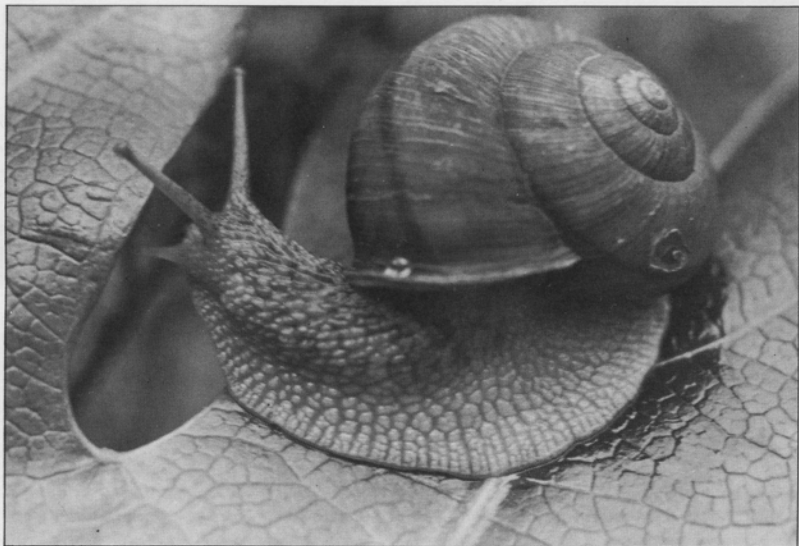


- **Magnification index:**

The Macro 50mm f/2.8 lens permits macrophotography with image reproduction up to 1/2 as large as the real object. When the magnification index reads "4", it means that the image on the film will be 1/4 as large as the actual object. Simply set the desired magnification, then focus by gradually moving the camera back and forth. Macro focusing is even easier if you use an optional accessory — a focusing rail.

- **For life size macrophotography:**

Life size (1:1) magnification can be obtained by combining the necessary Auto Close-up Ring K (No. 3) with the Macro 50mm lens.





Focusing/Zoom Ring

Depth-of-field Scale

Infrared Index

SMC Pentax-A Zoom 70-210mm f/4



Focusing Ring

Zoom Ring

SMC Pentax-A Zoom 24-50mm f/4

Single action zoom

The SMC Pentax A zoom 70–210mm f/4 is a single action zoom lens, which lets you control focusing/zooming with a single ring. For zooming, move the ring back and forth; for focusing rotate it left or right. Depth-of-field scales and a focal compensation index for infrared photography are provided on the lens barrel.

Double action zooms

Double action zoom lenses, such as SMC Pentax A 24–50mm f/4, 35–105mm f/3.5 and 28–135mm f/4, possess two separate rings: the front ring for focus control, and the rear one for zooming.

● Focusing zoom lenses:

Generally speaking, the greater the lens' focal length, the easier it is to focus. First zoom your lens up to its

maximum focal length and focus on the subject. Then zoom back down to obtain the framing you desire. This procedure assures the most accurate focusing.

When you use a zoom lens with a macro device and set it to the macro position, move your camera back and forth to focus.

● Distortion peculiar to zoom lenses:

Distortion is a kind of aberration which, for instance, makes a straight line at the periphery of the image appear as a slightly curved one. Zoom lenses are slightly more prone to distortion than ordinary single focal length lenses because they have more elements and more a complicated mechanism. The degree of distortion varies according to the focal length in use. If you need to take absolutely distortion-free photos, it is not recommended to use a zoom lens.



Macro setting on the 28–135mm f/4 zoom

The macro setting for this lens is located beyond the 28mm focal length. The zoom ring stops at the green-colored 28mm position with a click: but a further stronger push of the zoom ring shifts the lens to the macro position.

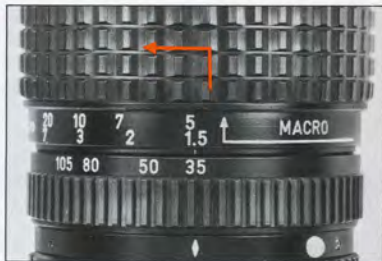
For macrophotography, set the distance ring to the ∞ (infinity) position, and rotate the zoom ring within the green-marked macro range to obtain your desired macro magnification. Focus by moving the camera, not by rotating the distance ring. To release the lens from the macro position, take the opposite procedures. Maximum macro magnification is 1/3x at the extreme end of the macro range, a film-plane to subject distance of up to 0.4m.

- Be sure to always adjust the distance ring to the ∞ position before taking macro photos. If the ring is set for a shorter distance, some vignetting may appear on the image.

Macro setting for the 35–105mm zoom

Shift the distance ring to the green minimum focusing scale, then further rotate the ring to the Macro position while pushing it forward. To shift out of the Macro position, follow the opposite procedure.

Maximum macro magnification is $1/4\times$ with the zoom ring set at 35mm focal length. This magnification is obtained at the extreme end of macro range, a film-plane to subject distance of up to 0.3m.





Macro setting of 70–210mm f/4 zoom

The macro system of the 70–210mm f/4 lens functions when the zoom ring is adjusted to the 70mm focal length (green-coded), with the distance ring shifted to the Macro position. Follow the reverse procedure to release the lens from the Macro position. Maximum macro magnification is 1/4x at the extreme end of macro range, a film-plane to subject distance of up to 0.45m.

Depth-of-field scales and infrared index

There are radial curved lines on both sides of the zoom ring with a distance index line (red) in the center. From these curves, you will easily be able to judge the depth of field when the aperture is stopped down, for instance, to f/8, 16, 32, etc. The red curve on the left side, which depth of field at f/16, also serves as an infrared photography index.

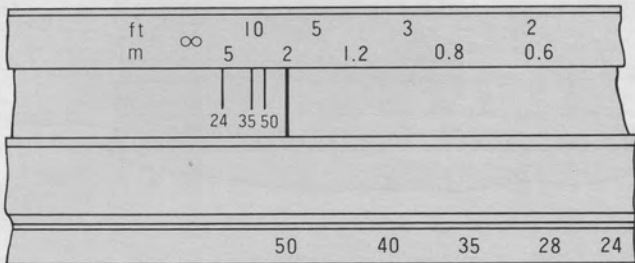


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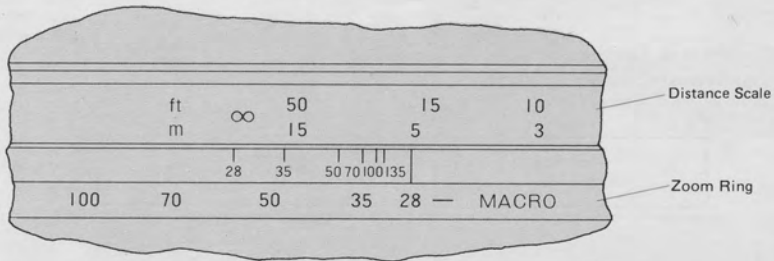


DEPTH-OF-FIELD SCALES AND INFRARED INDEX

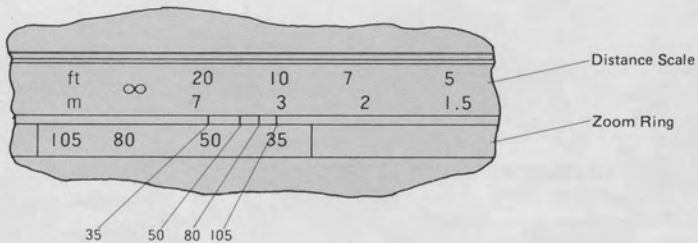
SMC Pentax-A Zoom 24–50mm f/4



SMC Pentax-A Zoom 28-135mm f/4



SMC Pentax-A 35-105mm f/3.5



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LIST OF SMC PENTAX "A" SERIES LENSES

● Type	● Lens	● Minimum Aperture		● Angle of View (Degree)	● Lens Construction (Groups/Elements)		● Diaphragm		● Minimum Focusing Distance		● Maximum Diameter & Length (mm x mm)		● Weight		● Filter Size (mm)
		mm	ft.		mm	ft.	mm	in.	mm	oz.					
WIDE-ANGLE	SMC Pentax-A 24mm f/2.8	22	84	8-9	FA	0.25	0.79	63x41.5	205	7.2	52				
	SMC Pentax-A 28mm f/2.8	22	75	7-7	FA	0.3	1.0	63x36.5	170	6.0	49				
	SMC Pentax-A 35mm f/2.8	22	63	6-6	FA	0.3	1.0	63x36.5	170	6.0	49				
STANDARD	SMC Pentax-A 50mm f/1.4	22	47	6-7	FA	0.45	1.5	63x37	235	8.3	49				
	SMC Pentax-A 50mm f/1.7	22	47	5-6	FA	0.45	1.5	63x31	165	5.8	49				
TELEPHOTO	SMC Pentax-A 135mm f/2.8	32	18	4-4	FA	1.2	4	65x76.5	340	12.6	52				
	SMC Pentax-A 200mm f/4	32	12.5	6-6	FA	1.9	6.2	63.5x111	410	14.5	52				
SUPER TELEPHOTO	SMC Pentax-A* 300mm f/4	32	8.3	7-8	FA	4	13	84.5x132	850	30.0	77				
	SMC Pentax-A* 600mm f/5.6 ED (IF)	45	4.1	6-8	FA	5.5	18	133x386	3280	115.7	49				
ZOOM	SMC Pentax-A Zoom 24-50mm f/4	22	84-47	10-11	FA	0.4	1.4	64x67.5	375	13.2	58				
	SMC Pentax-A Zoom 35-105mm f/3.5	22	63-23.5	13-15	FA	1.5	5	70x97.5	615	21.7	67				
	■ SMC Pentax-A Zoom 28-135mm f/4	22	75-18	15-17	FA	1.7	5.6	80x112	820	28.9	77				
	SMC Pentax-A Zoom 70-210mm f/4	32	34.5-12	10-13	FA	1.2	4	72x149	680	24.0	58				
MACRO	■ SMC Pentax-A Macro 50mm f/2.8	22	47	4-6	FA	0.24	0.79	63x50	220	7.8	49				

■ Soon to be released, FA Fully Automatic
 Note: Lens length does not include mount portion.

● Lens hoods are not available for "A" Zooms 28-135mm f/4 and 35-105mm f/4, due to possible vignetting problems.

● A* (star) 300mm f/4 lens is an ultra-compact unit utilizing special glass elements.

● A* 600mm f/5.6 ED (IF) features a new Extra low Dispersion (ED) optical element and the inner focus (IF) system.

LIST OF SMC PENTAX LENSES (Not equipped with AF function)

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• Type	• Lens	• Minimum Aperture		• Angle of View (Degrees)	• Lens Construction (Groups/Elements)	• Diaphragm	• Minimum Focusing Distance		• Maximum Diameter & Length (mm x mm)		• Filter Size (mm)
		m.	ft.				mm	oz.			
FISH-EYE	SMC Pentax Fish-Eye 17mm f/4	22	180	7-11	FA	0.2	0.66	64.5 x 34	235	8.29	81
ULTRA-WIDE-ANGLE	SMC Pentax 15mm f/3.5	22	111	12-13	FA	0.3	1.0	80 x 81.5	600	21.16	81
	SMC Pentax 18mm f/3.5	22	100	11-12	FA	0.25	0.79	63 x 61.5	295	10.40	81
	• SMC Pentax-M 20mm f/4	22	95	8-8	FA	0.25	0.9	63 x 29.5	150	5.29	49
	SMC Pentax 24mm f/2.8	22	84	8-9	FA	0.25	0.79	63 x 41.5	195	6.88	52
WIDE-ANGLE	• SMC Pentax-M 28mm f/2	22	75	7-8	FA	0.30	1.0	63 x 41.5	215	7.58	49
	• SMC Pentax-M 28mm f/2.8	22	75	7-7	FA	0.30	1.0	63 x 37	170	6.00	49
	SMC Pentax 30mm f/2.8	22	72	7-7	FA	0.30	1.0	63 x 39.5	215	7.58	52
	• SMC Pentax-M 35mm f/2	22	63	7-7	FA	0.30	1.0	63 x 42	205	7.23	49
	• SMC Pentax-M 35mm f/2.8	22	63	6-6	FA	0.30	1.0	63 x 35.5	170	6.00	49
STANDARD	• SMC Pentax-M 40mm f/2.8	22	57	4-5	FA	0.60	2.0	63 x 18	110	3.88	49
	SMC Pentax 50mm f/1.2	22	47	6-7	FA	0.45	1.5	65 x 48.5	385	13.58	52
	• SMC Pentax-M 50mm f/1.4	22	47	6-7	FA	0.45	1.5	63 x 37	235	8.29	49
	• SMC Pentax-M 50mm f/1.7	22	47	5-6	FA	0.45	1.5	63 x 31	185	6.52	49
	• SMC Pentax-M 50mm f/2	22	47	5-5	FA	0.45	1.55	63 x 31	137	4.83	49
TELEPHOTO	• SMC Pentax-M 85mm f/2	22	28.5	4-5	FA	0.85	2.8	62.5 x 46	250	8.82	49
	• SMC Pentax-M 100mm f/2.8	22	24.5	5-5	FA	1.0	3.3	62.5 x 55.7	225	7.94	49
	• SMC Pentax-M 120mm f/2.8	32	20.5	5-5	FA	1.2	4	62.5 x 63	270	9.52	49
	SMC Pentax 135mm f/2.5	32	18	6-6	FA	1.5	5	67.5 x 85.9	480	16.93	58
	• SMC Pentax-M 135mm f/3.5	32	18	5-5	FA	1.5	5	62.5 x 65.7	270	9.52	49
	• SMC Pentax-M 150mm f/3.5	32	16.5	5-5	FA	1.8	6	62.5 x 75	290	10.23	49
	SMC Pentax 200mm f/2.5	32	12.5	6-6	FA	2.0	6.5	89 x 145	950	33.51	77
	• SMC Pentax-M 200mm f/4	32	12.5	5-6	FA	2	6.5	63.5 x 111	400	14.11	52

BI Filters built-in FA Fully automatic M Manual ND Controlled by ND filters • Compact lens

Note: Lens length does not include mount portion.

● Type	● Lens	● Minimum Aperture		● Angle of View (Degrees)	● Lens Construction (Groups/Elements)	● Diaphragm	● Minimum Focusing Distance		● Maximum Diameter & Length (mm x mm)		● Filter Size (mm)
		● m.	● ft.				● in.	● oz.			
SUPER TELEPHOTO	● SMC Pentax-M *300mm f/4	32	8.3	7-8	FA	4	13	84 x 132	825	29.1	77
	SMC Pentax 300mm f/4	32	8.3	5-7	FA	4	13	85 x 188	1,020	35.98	77
	● SMC Pentax-M 400mm f/5.6	45	6.2	5-5	FA	5	17	85 x 276.5	1,220	43.03	77
	SMC Pentax 500mm f/4.5	45	5	4-4	M	10	35	126.5 x 440	3,370	118.86	52
	SMC Pentax 1000mm f/8	45	2.5	5-5	M	30	100	143 x 738	5,290	186.58	52
	SMC Pentax Reflex 1000mm f/11	-	2.5	4-6	ND	8	27	119 x 248	2,300	81.12	81/52
	SMC Pentax Reflex 2000mm f/13.5	-	1.2	4-6	ND	20	66	180 x 530	8,000	282.16	81/52
ZOOM	● SMC Pentax-M Zoom 24mm ~ 35mm f/3.5	22	84-63	9-9	FA	0.5	2	64 x 48	290	10.23	58
	● SMC Pentax-M Zoom 24mm ~ 50mm f/4	22	84-47	10-12	FA	0.4	1.4	64 x 66.5	380	13.40	58
	● SMC Pentax-M Zoom 28mm f/3.5 ~ 50mm f/4.5	22	75-47	10-10	FA	0.6	2.1	65 x 52	310	10.93	52
	● SMC Pentax-M Zoom 35mm f/2.8 ~ 70mm f/3.5	22	63-34.5	7-7	FA	1	3.5	67 x 76	470	16.58	67
	SMC Pentax AF Zoom 35mm ~ 70mm f/2.8	22	63-34.5	7-7	FA	1.2	4	73 x 76.5	580	20.46	58
	● SMC Pentax-M Zoom 40mm f/2.8 ~ 80mm f/4	22	57-30.5	7-7	FA	1.2	4	65.5 x 76	395	13.93	49
	SMC Pentax Zoom 45mm ~ 125mm f/4	22	51-19.5	11-14	FA	1.5	5	69 x 127	615	21.69	67
	● SMC Pentax-M Zoom 75mm ~ 150mm f/4	32	32-16.5	9-12	FA	1.2	4	63.5 x 111	465	16.40	49
	● SMC Pentax-M Zoom 80mm ~ 200mm f/4.5	32	30.5-12.5	9-12	FA	1.2	4	68 x 146	615	21.69	52
	SMC Pentax Zoom 135mm ~ 600mm f/6.7	45	18-4.1	12-15	M	6	20	105 x 582	4,070	143.55	52
	SMC Pentax Reflex Zoom 400mm f/8 ~ 600mm f/12	-	6.2-4.1	7-12	ND	3	9.8	82 x 108	730	25.75	⊕
MACRO	● SMC Pentax-M Macro 50mm f/4	32	47	3-4	FA	0.234	0.77	63 x 42.5	165	5.82	49
	● SMC Pentax-M Macro 100mm f/4	32	24.5	3-5	FA	0.45	1.48	64.6 x 77.5	360	12.70	49
	SMC Pentax Bellows 100mm f/4	32	24.5	3-5	FA/M	-	-	60 x 40	185	6.52	52
SHIFT	SMC Pentax Shift 28mm f/3.5	32	75	11-12	M	0.3	1.0	80 x 92.5	610	21.51	81

● AF stands for Auto Focus; Auto focusing possible only with ME-F.

● 67mm filters can be screwed in the lens front; 40.5mm special filters in the lens rear.



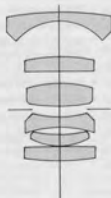
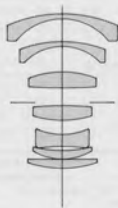
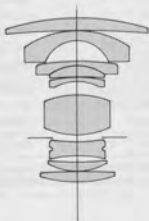
SMC Pentax-A 24mm f/2.8



SMC Pentax-A 28mm f/2.8



SMC Pentax-A 35mm f/2.8





SMC Pentax-A 50mm f/1.4



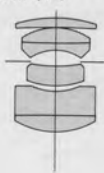
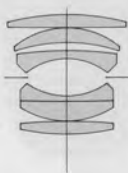
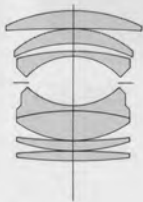
SMC Pentax-A 50mm f/1.7



SMC Pentax-A Macro
50mm f/2.8



SMC Pentax-A 135mm f/2.8





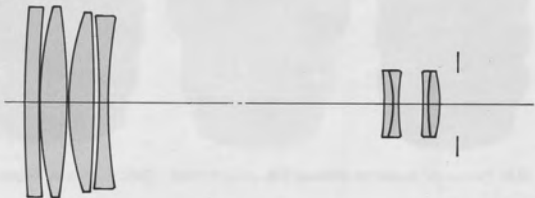
SMC Pentax-A 200mm f/4

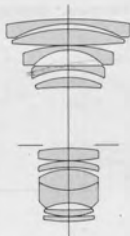


SMC Pentax-A* 300mm f/4

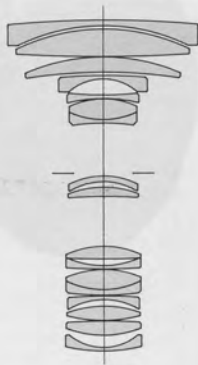


SMC Pentax-A* 600mm f/5.6 ED (IF)

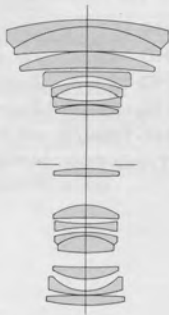




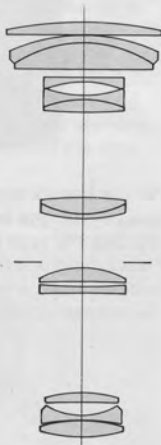
SMC Pentax-A Zoom 24-50mm f/4



SMC Pentax-A Zoom 28-135mm f/4



SMC Pentax-A Zoom 35-105mm f/3.5



SMC Pentax-A Zoom 70-210mm f/4



All the Pentax lens cases have code numbers on the bottom, which indicate the type of case. Please designate the appropriate code number when ordering, by referring to the following list.

HA-90	24mm f/2.8 Macro 50mm f/2.8
HA-90B	28mm f/2.3 35mm f/2.8 50mm f/1.4 50mm f/1.7
HB-120	135mm f/2.8 Zoom 24–50mm f/4
HB-152	200mm f/4
HD-143	Zoom 35–105mm f/3.5
HD-190	Zoom 70–210mm f/4
HE-169	Zoom 28–135mm f/4
HE-189	A* 300mm f/4
Trunk Case	A* 600mm f/5.6 ED (IF)

LENS CARE AND STORAGE

Moisture is not good for optical glass elements — the nucleus of your lens. Since storage in a damp place may cause mildew, keep your lens in as dry a place as possible. If you don't plan to use your lens for a long period, store it with a desiccant in the case. Also the lens should occasionally be taken out of the case and dried.

Dust and dirt should be removed with a blower or lens brush. If the lens becomes dirty, wipe it with a clean cotton cloth or tissue paper dampened with lens cleaning solution. Wipe in a spiral pattern from the center out, changing the cloth or paper a few times.

When you store your lens in a case, put on the lens front cap and lens mount cap, both provided as standard accessories, to protect against dust. When you remove a lens from your camera body, be careful not to let it roll over or fall down, as this may cause malfunctions. If you are standing the lens on a flat surface, put the lens front down.

