ASAHI OPTICAL CO., LTD. C.P.O. 895, Tokyo 100-91, JAPAN
ASAHI OPTICAL EUROPE N.V. Weiveldlaan 3-5, 1930 Zaventem, BELGIUM
ASAHI OPTICAL EUROPE S.A. (Hamburg Office) 2000 Hamburg 54 (Lokstedt), Grandweg 64, WEST GERMANY
ASAHI OPTICAL (AMERICA) INC. 15 East 26th Street, Suite 1710, New York, New York 10010, U.S.A.
ASAHI OPTICAL BRASILEIRA IND. E COM. LTDA. Rua Estados Unidos, 1053, São Paulo, SP, BRASIL

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ASAHI
PENTAX

SMC PENTAX LENSES

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CONTENTS

HANDLING LENSES

All SMC Pentax lenses ①, except for the 1000mm and 135 – 600mm zoom lenses, are supplied with a leather lens case ② and a shoulder strap ③. The shoulder strap offers you the convenience of carrying the lens case over your shoulder. If the lens case is to be kept in a camera bag, it may be more convenient to take off the shoulder strap.
In addition, the SMC Pentax lens is furnished with a lens cap ④ and a rear lens cap ⑤, both of which protect the lens from dust, dirt and moisture; be sure to keep these caps on the lens while not in actual use. It is a good practice to place these caps, whenever removed from the lens, in the leather lens case so that they will not be lost.
The lens case is large enough to hold a lens with a filter (except for a polarizing one) attached; in this case, the focusing ring has to be set at infinity to minimize the length of the lens.
When the lens has been removed from the camera body, place it front-element down as shown in Fig. 1. Don't place the lens on its side because it may roll. Never place the lens rear-element down, for to do so may cause damage to the protruding automatic diaphragm lever or may cause the lens to topple over.
A standard lens, when removed from the camera body, should be kept in a standard lens case for protection. This case is available as an optional accessory.
Be careful never to touch the lens surface with your fingers. Lens stains such as fingerprints are difficult to wipe off.

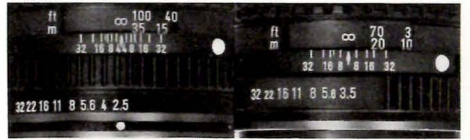
DIAPHRAGM TYPES

2 Automatic Diaphragm Type

3 Manual Diaphragm Type

SMC Pentax lenses with diaphragm automation (Fig. 2)		
SMC Pentax Fish-Eye		17mm f/4
SMC Pentax		15mm f/3.5
"		20mm f/4
"		24mm f/3.5
"		28mm f/3.5
"		35mm f/2
"		35mm f/3.5
"		50mm f/1.2
"		50mm f/1.4
"		55mm f/1.8
"		85mm f/1.8
"		105mm f/2.8
"		120mm f/2.8
"		135mm f/2.5
"		135mm f/3.5
"		150mm f/4
"		200mm f/4
"		300mm f/4
"	Zoom	45 – 125mm f/4
"	"	85 – 210mm f/4.5
"	Macro	50mm f/4
"	"	100mm f/4
SMC Pentax lenses with a manual diaphragm		
SMC Pentax		400mm f/5.6
"		500mm f/4.5
"		1000mm f/8
"	Zoom	135 – 600mm f/6.7

4 **5**



The first half-click-stop of lenses with a non-standard maximum aperture

The click-stop between f/4 and f/2.5 of the SMC Pentax 135mm f/2.5 lens (Fig. 4) represents f/3.4, and the click-stop between f/5.6 and f/3.5 of all lenses with a maximum aperture of f/3.5 (Fig. 5) represents f/4.8.

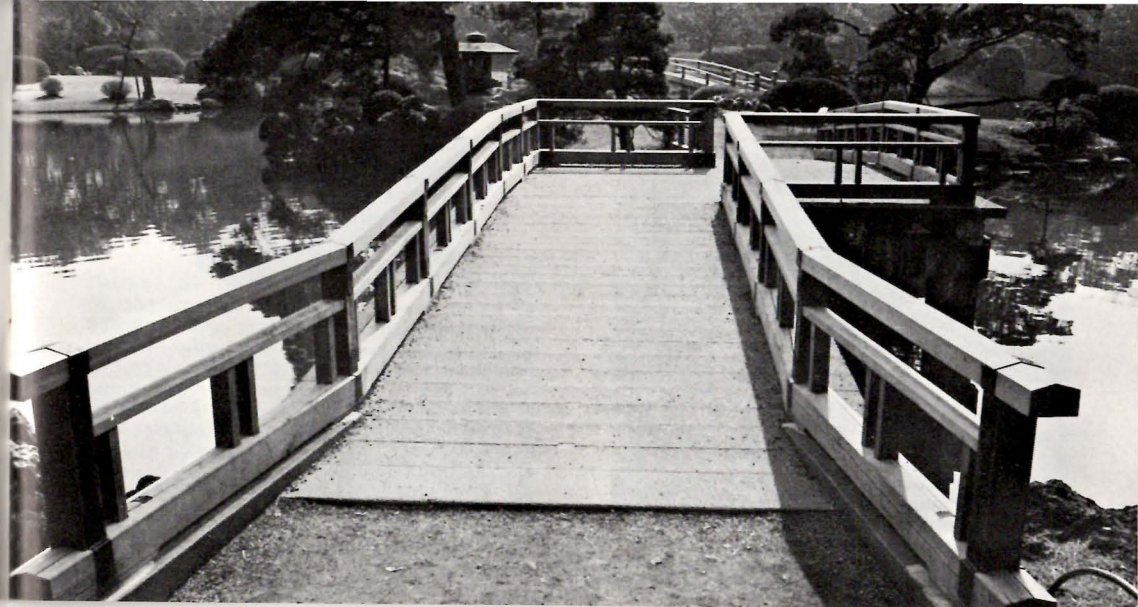
The white dot between 4.5 and 8 on the aperture ring of the SMC Pentax 85 – 210mm zoom lens represents f/5.6.

Choice of apertures

A) The following are examples of when photographers prefer to use their lens at its maximum aperture ("wide-open"):
   1 When photographing in dim light
   2 When desiring to use as short ("high" or "fast") a shutter speed as possible
   3 When desiring minimum depth of field
   4 When desiring to exploit the attractive appearance of out-of-focus high lights

B) SMC Pentax lenses have a minimum aperture of f/22 or smaller.
   The following are some examples of when the minimum aperture is useful:
   1 When using fast film and/or the subject is extremely bright
   2 When desiring to use as long ("low" or "slow") a shutter speed as possible
   3 When desiring maximum depth of field

C) Some uses of the moderate apertures of f/5.6, 8, and 11 follow:
   1 When desiring optimum resolution and contrast
   2 When simultaneously desiring both sufficient depth of field and short enough a shutter speed to match the requirements of most photographic situations



LENS HOODS

6

Lens hoods are classified into three types: (1) rectangular hoods for standard and wide-angle lenses, (2) round hoods for standard and telephoto lenses and (3) built-on hoods for ultra-telephoto lenses.

Rectangular hoods

There are 3 types of rectangular hoods available, one each for the following groups of SMC Pentax lenses:
(1) 20mm f/4 and 24mm f/3.5
(2) 28mm f/3.5, 35mm f/2 and 35mm f/3.5
(3) Standard lenses

Because of the rectangular picture format, rectangular lens hoods are better suited to 35mm cameras than round hoods. However, to avoid the possibility of vignetting, care should be taken to assure that the hood is not off axis, but that the top and bottom of the hood are parallel to the top and bottom of the camera. Like lens caps, rectangular lens hoods are held in place by means of a spring, and are attached to the front threads of the lens by depressing the knobs ⑥ on either side of the lens hood (see Fig. 7).

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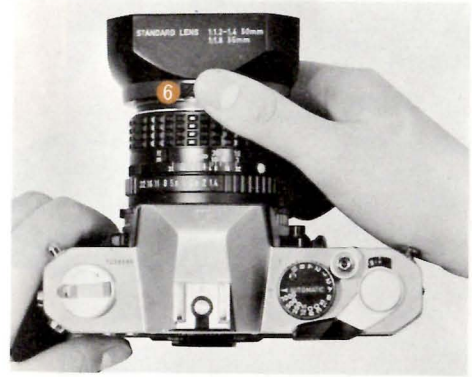


Round hoods

Round lens hoods also have a spring and are attached in the same manner as square ones.

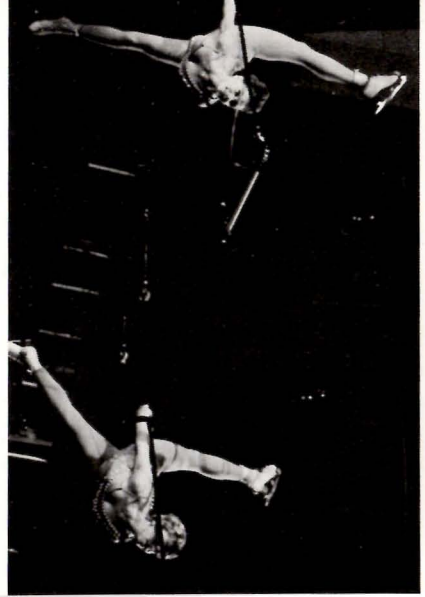
Round hoods

There are 5 types of round hoods available, one each for the following groups of SMC Pentax lenses:

(1) Standard lenses
(2) 85mm f/1.8, Macro 100mm f/4 and 105mm f/2.8
(3) 120mm f/2.8, 135mm f/3.5 and 150mm f/4
(4) Zoom 45 – 125mm f/4
(5) 135mm f/2.5, 200mm f/4, Zoom 85 – 210mm f/4.5

As shown in Fig. 8, a round hood can be conveniently stored by reversing it over the front of a lens to reduce the overall length. However, at this time the lens cap cannot be attached.

8



Built-on Hoods

Built-on hoods are fixed on the following ultra-telephoto lenses:

SMC Pentax 300mm f/4
400mm f/5.6
500mm f/4.5
1000mm f/8
Zoom 135 – 600mm f/6.7

To use this type of hood, simply extend it.

Notes:

A lens hood can be used with a lens which has a focal length longer than that indicated on the hood, though in such a case its effectiveness will be reduced. On the other hand, a hood should never be used with a lens of shorter focal length than that indicated, because this may result in vignetting; this is especially true with wide-angle lenses. For example, a rectangular hood for the 28mm f/3.5, 35mm f/2 and 35mm f/3.5 lenses can be used with a standard lens. However, the hood for a standard lens should not be used with a wide-angle lens.

Any lens hood can also be attached to a filter (except for a polarizing filter). The hood for the SMC Pentax Zoom 45 – 125mm f/4 lens consists of two units.

When both a filter and the lens hood are to be simultaneously used together, a 67mm filter has to be screwed into the lower frame of the hood; then the upper frame is screwed into the filter. The SMC Pentax Macro 50mm f/4 lens has its front lens element so far retracted that it requires no lens hood, except on those occasions filters are used.

Standard Lens Hood

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A 67mm filter ⑦ being screwed into the lower frame of the hood ⑧ for the SMC Pentax 45–125mm Zoom lens.

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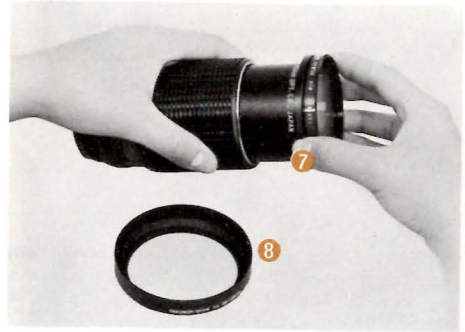

FILTERS

Ordinary filters are attached by screwing them into the front of the lens. However some filters are screwed into the rear of the lens and some are built into the lens.

Screw-in Filters

Filter Size	SMC Pentax lens
52mm	Standard lenses, 28mm f/3.5, 35mm f/2, 35mm f/3.5, Macro 50mm f/4, 85mm f/1.8 Macro 100mm f/4, 105mm f/2.8, 120mm f/2.8, 135mm f/3.5, 150mm f/4, 500mm f/4.5, 1000mm f/8, Zoom 135 – 600mm f/6.7
58mm	20mm f/4, 24mm f/3.5, 135mm f/2.5, 20mm f/4, Zoom 85 – 210mm f/4.5 (Note: There is slight vignetting if 58mm filters are used with the 45 – 125mm Zoom lens when it is focused at 1.5m and set to the 60 – 70mm focal length.)
67mm	Zoom 45 – 125mm f/4
77mm	300mm f/4, 400mm f/5.6

Built-in Filters

Filters are built into the SMC Pentax Fish-Eye 17mm f/4 and SMC Pentax 15mm f/3.5 lenses. In the case of the Fish-Eye, this is because the lens has a wider angle of view than a filter and using a filter would cause vignetting. In the case of the 15mm f/3.5, its front frame diameter is too large to accept an ordinary filter.
The Fish-Eye 17mm lens has four built-in

filters: UV, Skylight, Y2 and O2, which are brought into play by turning the front ring ⑨. In addition, this lens has a non-colored (NON) optical glass flat which should be substituted for the UV filter when color reversal film is used.

For other filters, gelatin types can be used as follows: Remove the filter holder ⑩ from the back of the lens by turning it counter-clockwise as seen in Fig. 12. Next, as seen in Fig. 13, a gelatin filter ⑪ is cut into a circle and inserted under the spring of the holder.

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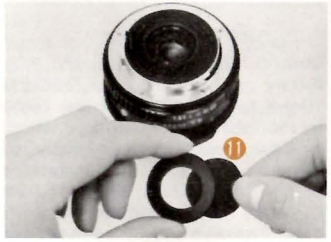
12

13



Filters for Ultra Telephoto Lenses

The 500mm f/4.5, 1000mm f/8 and Zoom 135 – 600mm f/6.7 lenses have threads on the back which accept 52mm filters. If these lenses were to use filters in the front, they would be exceptionally large, in size and weight, and would be more expensive to manufacture.

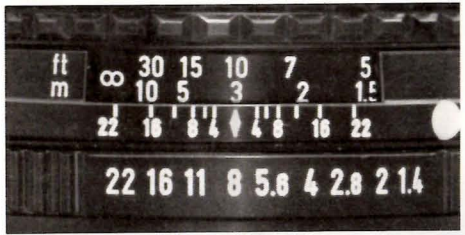
SMC Filters

SMC filters are available in Skylight, UV, Y2, O2, R2 and Cloudy. They are Super-Multi-Coated to minimize reflection and are recommended for use with all Pentax K Series cameras.

Caution: The filter forms part of the optical system of the camera. Handle it with the same care you show the lens itself.

FOCUSING WIDE-ANGLE LENSES

14—1



14—2

When the lens-to-subject distance is constant, the shorter the focal length, the greater the depth of field. Compare the 50mm f/1.4 lens in Fig. 14-1 with the 28mm f/3.5 lens in Fig. 14-2, and you will see how great the depth of field difference is between the two lenses. The smaller the depth of field, the easier it is to bring into focus. Therefore, you will find it more difficult to focus a wide-angle lens by looking through the viewfinder than to focus a standard focal length lens.

However, on the plus side, even when using a 35mm lens (which has the shallowest depth of field of all the wide-angle lenses), everything from 1.5m to 3m is in focus when the lens is set to 2m and f/5.6, for example. Thus, the extensive depth of field of wide-angle lenses often makes it unnecessary to focus the lens while looking through the viewfinder.

Convenient fixed-focus marks for shooting snapshots are provided on the SMC Pentax wide-angle lenses. They're shown as red figures on the diaphragm and distance scales. If you align these figures with the index mark, you do not have to turn the focusing ring every time you want to shoot. The photo (Fig. 15) indicates that the lens diaphragm is set at f/8 and the distance scale at 3 meters. Read the depth of field scale, and you will see that this setting affords sufficient focusing sharpness from 1.5 meters to infinity.

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Holding the camera correctly

Blurry photos are often due to camera movement when the shutter is released. When using a telephoto lens, pay special attention to the way you are holding the camera. Because of the greater length, size and weight and the fact that the center of balance is farther forward, it is even easier for the shutter release to cause camera movement.

As shown in Fig. 16, when using a telephoto lens, the best posture is: left hand extended and supporting both the lens and the camera body, with the thumb and index finger used to rotate the focusing ring. Both elbows should be pressed close to the body, with the upper arms hugging the ribs. If you wear glasses, press them tightly to the frame of the viewfinder window.

Minimum shutter speed for handholding the camera

When using a telephoto lens for handheld camera work, you should select a shorter shutter speed than you might when using a standard lens. The shutter speed which is short enough to prevent camera movement is said to be 1/focal length. For example, when using a 135mm lens, you should use a shutter speed of 1/135 sec., with a 200mm lens, you should use a shutter speed of 1/200 sec., or the nearest equivalent. Of course, with experience you will probably be able to use a longer shutter speed and still obtain sharp pictures without using a tripod.

Mirror lock-up

The Pentax K2 and KX are equipped with mirror lock-up. If the subject is stationary, you can minimize camera movement by releasing the shutter after locking up the reflex mirror.

17

Tripod Collar

As seen in Fig. 17, lenses longer than 400mm are provided with a tripod collar ⑫ at the proper position on their barrels. By simply loosening the lock ring ⑬ on the tripod collar, you can easily turn the camera and lens vertically or horizontally.

Use of a sturdy tripod

The 300mm or longer ultra-telephoto lenses are very heavy. Be sure to select a tripod sturdy enough to support such a heavy telephoto lens and camera body.

Usually, the weight of the tripod should equal or exceed the weight of the camera body + the weight of the lens x 2. Example: When using a 300mm f/4 ultra-telephoto lens (942g) with a Pentax K2 body (680g), you should use a tripod whose weight is: 942g + 680g = approx. 1.6kg x 2 = approx. 3.2kg.

MACRO LENSES

When the magnification index ⑭ indicates '4', it means that the image on the film is 1/4 as large as the real object. For macrophotography, simply set the desired magnification on the index and then focus by moving the entire camera back and forth. When using an SMC Pentax Macro lens no particular exposure determination is required. For exposure, you can depend on the meter built into the Pentax K2, KX and KM cameras. You also need not worry about exposure increase factors for close-up work.

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ZOOM LENSES

19

The SMC Pentax Zoom 85 – 210mm f/4.5 and 135 – 600mm f/6.7 lenses are furnished with an attachment lens for close-ups. When desiring to approach the subject closer than the minimum focusing distance will permit, use this attachment lens. Focusing is now possible within the range indicated by the white calibration ⑮ as shown in Fig. 19.
Once focused, SMC Pentax Zoom lenses maintain the focus setting even while zooming. It is a good practice to focus at the maximum focal length, i.e. with the largest possible image, and then zoom back to the desired focal length. This ensures maximum focusing accuracy.

SMC Pentax Zoom lenses have neither a depth-of-field scale nor an infra-red index. When checking the 45 – 125mm f/4 or 85 – 210mm f/4.5 lens for focusing sharpness or using them for infra-red photography, see pages 32 and 33.

By nature, zoom lenses give rise to slightly greater distortion (alterations in the shape or proportion of objects) than fixed focal length lenses. This distortion varies according to the focal length of the lens. The zoom lens is, therefore, not recommended for situations where proportional accuracy is crucial.

DEPTH OF FIELD TABLE: SMC PENTAX ZOOM 45 – 125mm f/4

Distance scale set at 45mm (d=0.035mm)

Aperture \ Distance	1.5m	2 m	3 m	4 m	5 m	7 m	10m	30m	∞
F 4	1.41 ~1.61	1.82 ~2.23	2.58 ~ 3.61	3.26 ~ 5.24	3.87 ~ 7.19	4.93 ~12.5	6.20 ~ 27.8	10.3 ~ ∞	15.5 ~ ∞
F 5.6	1.37 ~1.66	1.76 ~2.34	2.45 ~ 3.95	3.04 ~ 6.01	3.56 ~ 8.77	4.42 ~18.4	5.4 ~106	8.2 ~ ∞	11. ~ ∞
F 8	1.33 ~1.75	1.68 ~2.53	2.28 ~ 4.60	2.77 ~ 7.76	3.18 ~13.2	3.84 ~68.5	4.55 ~ ∞	6.4 ~ ∞	7.9 ~ ∞
F 11	1.27 ~1.87	1.59 ~2.83	2.10 ~ 5.83	2.50 ~12.4	2.82 ~38.6	3.3 ~ ∞	3.8 ~ ∞	5.0 ~ ∞	5.9 ~ ∞
F 16	1.20 ~2.14	1.46 ~3.59	1.86 ~10.98	2.16 ~ ∞	2.39 ~ ∞	2.7 ~ ∞	3.0 ~ ∞	3.7 ~ ∞	4.1 ~ ∞
F 22	1.12 ~2.60	1:34 ~5.35	1.65 ~ ∞	1.87 ~ ∞	2.03 ~ ∞	2.25 ~ ∞	2.5 ~ ∞	2.85 ~ ∞	3.1 ~ ∞

Distance scale set at 125mm (d=0.035mm)

Aperture \ Distance	1.5m	2 m	3 m	4 m	5 m	7 m	10m	30m	∞
F 4	1.49 ~1.52	1.97 ~2.03	2.93 ~3.07	3.87 ~4.14	4.8 ~5.22	6.6 ~ 7.45	9.2 ~11.	23.6 ~ 41.3	108 ~ ∞
F 5.6	1.48 ~1.52	1.96 ~2.04	2.91 ~3.1	3.83 ~4.19	4.72 ~5.31	6.46 ~ 7.65	8.9 ~11.4	21.7 ~ 48.7	77.5 ~ ∞
F 8	1.46 ~1.54	1.95 ~2.06	2.87 ~3.15	3.76 ~4.28	4.62 ~5.46	6.25 ~ 7.97	8.51 ~12.15	19.4 ~ 66.6	54.3 ~ ∞
F 11	1.45 ~1.56	1.93 ~2.08	2.82 ~3.21	3.67 ~4.40	4.49 ~5.66	6.01 ~ 8.4	8.06 ~13.2	17.2 ~ 123	39.5 ~ ∞
F 16	1.45 ~1.56	1.89 ~2.12	2.75 ~3.31	3.54 ~4.61	4.29 ~6.02	5.65 ~ 9.26	7.41 ~15.5	14.4 ~ ∞	12.1 ~ ∞
F 22	1.43 ~1.59	1.86 ~2.17	2.66 ~3.45	3.40 ~4.89	4.08 ~6.52	5.27 ~10.5	6.77 ~19.7	12.1 ~ ∞	19.9 ~ ∞

DEPTH OF FIELD TABLE: SMC PENTAX ZOOM 85 – 210mm f/4.5

Distance scale set at 85mm (d=0.035mm)

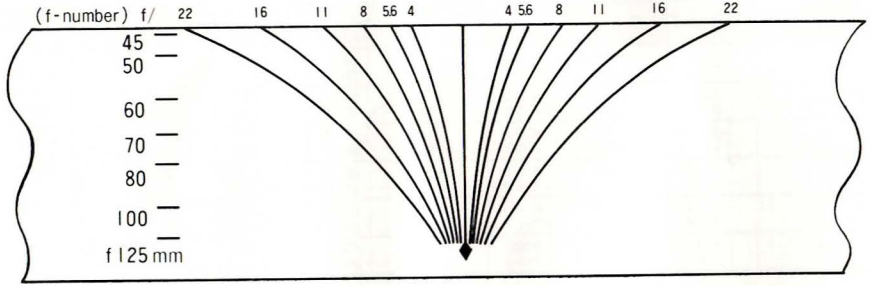
Aperture \ Distance	3.5m	5 m	7 m	10m	15m	20m	35m	80m	∞
F 4.5	3.32 ~3.72	4.60 ~5.50	6.20 ~ 8.08	8.39 ~12.5	11.6 ~21.6	14.3 ~34.2	20.4 ~135	30.1 ~ ∞	47.6 ~ ∞
F 5.6	3.27 ~3.77	4.51 ~5.63	6.03 ~ 8.40	8.08 ~13.3	11.0 ~24.3	13.4 ~41.5	18.5 ~459	26.2 ~ ∞	38.3 ~ ∞
F 8	3.19 ~3.91	4.33 ~5.97	5.70 ~ 9.20	7.47 ~15.5	9.85 ~33.3	11.7 ~78.3	15.5 ~ ∞	20.4 ~ ∞	27. ~ ∞
F 11	3.09 ~4.09	4.13 ~6.45	5.34 ~10.5	6.84 ~19.7	8.76 ~63.2	10.2 ~ ∞	12.9 ~ ∞	16.5 ~ ∞	19.8 ~ ∞
F 16	2.93 ~4.44	3.84 ~7.45	4.84 ~13.7	6.02 ~36.7	7.42 ~ ∞	8.39 ~ ∞	10.1 ~ ∞	11.9 ~ ∞	13.8 ~ ∞
F 22	2.78 ~4.98	3.55 ~7.3	4.37 ~22.2	5.28 ~ ∞	6.29 ~ ∞	6.96 ~ ∞	8.07 ~ ∞	9.16 ~ ∞	10.2 ~ ∞

Distance scale set at 210mm (d=0.035mm)

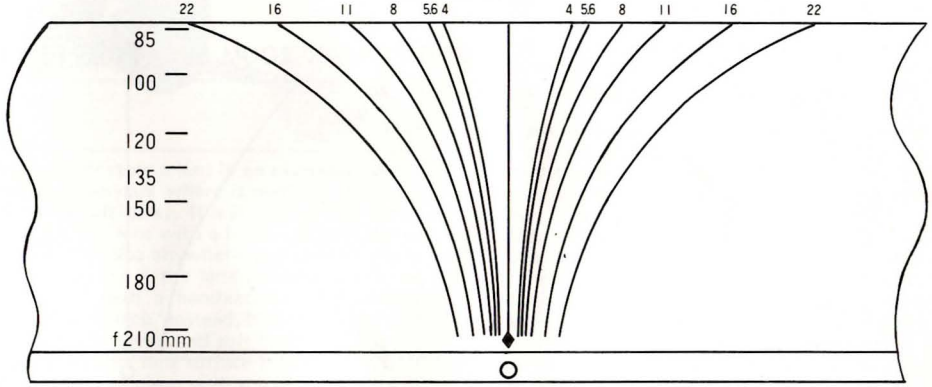
Aperture \ Distance	3.5m	5 m	7 m	10m	15m	20m	35m	80m	∞
F 4.5	3.47 ~3.54	4.92 ~5.08	6.84 ~7.17	9.67 ~10.4	14.3 ~15.9	18.7 ~21.6	31.1 ~40.4	61.8 ~116	262 ~ ∞
F 5.6	3.46 ~3.55	4.91 ~5.10	6.81 ~7.22	9.59 ~10.5	14.1 ~16.1	18.4 ~22.1	30.2 ~42.0	58.5 ~120	211 ~ ∞
F 8	3.44 ~3.57	4.87 ~5.19	6.72 ~7.31	9.42 ~10.7	13.7 ~16.6	17.7 ~23.1	28.5 ~45.8	52.4 ~177	148 ~ ∞
F 11	3.42 ~3.59	4.82 ~5.21	6.63 ~7.43	9.22 ~11.0	13.3 ~17.3	17.0 ~24.4	26.6 ~51.8	46.3 ~321	108 ~ ∞
F 16	3.38 ~3.64	4.74 ~5.53	6.47 ~7.65	8.91 ~11.4	12.6 ~18.6	15.9 ~29.2	24.0 ~66.1	38.8 ~ ∞	74 ~ ∞
F 22	3.34 ~3.69	4.64 ~5.43	6.29 ~7.93	8.56 ~12.1	11.9 ~20.5	14.8 ~31.4	21.5 ~99.	33.6 ~ ∞	54 ~ ∞

DEPTH OF FIELD SCALE

SMC PENTAX ZOOM 45 – 125mm f/4



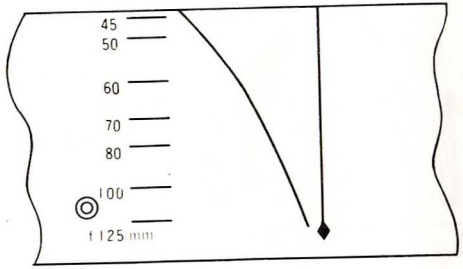
SMC PENTAX ZOOM 85 –210mm f/4.5



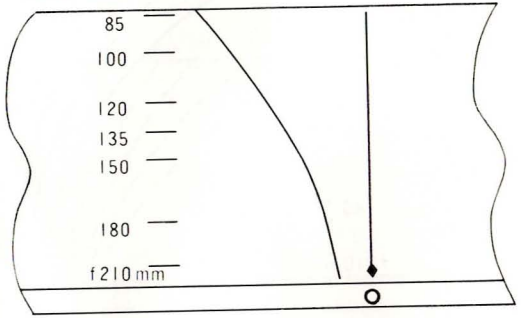
FOCUSING SHIFT FOR INFRA-RED FILM:

Note: The focusing shift must be taken into account only when working with black and white infra-red film, for color infra-red focus as usual.

SMC PENTAX ZOOM 45 – 125mm f/4



SMC PENTAX ZOOM 85 – 210mm f/4.5



LENS CARE

Do not use or store a lens in an extremely damp location, especially where it might be liable to damage by salt spray. It is an excellent practice to protect the lens with a filter, not only at the seashore, but also anywhere that dust or moisture is present. If the lens becomes dirty, do not wipe it with a handkerchief, for it may scratch the surface. Instead, blow away the dirt with a rubber blower and soft brush.

If you touch the lens surface by accident, or if it is too dirty to clean with the blower, use soft tissue paper or very soft cloth, wrapped around something like a matchstick. This can be dampened with lens cleaning solution or alcohol. Wipe in a spiral pattern, from the center out. For larger lenses, wrap the tissue or cloth around the tip of your finger instead of a matchstick. Be sure to shift the cloth or paper frequently, to avoid wiping with a dirty part. A few wipes over any stained part of the lens should remove the stain. However, if the lens stains cannot be removed this way, take the lens to an authorized Pentax Service Center for professional servicing.

Moisture and dust are not the only things which might damage a lens. Heat, shock and scratches can also be harmful. Be very careful not to bump or drop the lens, and never put it in its case without its protective caps. The wisest practice is to put both the front and rear caps on the lens as soon as it is removed from the camera. If the lens is not used for some time, especially during humid weather, it should be removed from its case at regular intervals and checked for mildew. If any dampness is present, thoroughly dry the case. Light mildew can easily be wiped off.

WARRANTY POLICY

All Asahi Pentax lenses purchased through authorized bona fide photographic distribution channels are guaranteed against defects of material or workmanship for a period of twelve months from date of purchase. Service will be rendered and defective parts will be replaced without cost to you within that period, provided the equipment has not been abused, altered, or operated contrary to instruction. Because the tolerances, quality, and design compatibility of lenses other than Pentax lenses are beyond our control, damage caused by use of such lenses will not be covered by this warranty policy. The manufacturer or its authorized representatives shall not be liable for any repair of alterations except those made with its written consent and shall not be liable for damages from delay or loss of use or from other indirect or consequential damages of any kind, whether caused by defective material or workmanship or otherwise; and it is expressly agreed that the liability of the manufacturer or its representatives under all guarantees or warranties, whether expressed or implied, is strictly limited to the replacement of parts as hereinbefore provided.

PROCEDURE DURING 12-MONTH WARRANTY PERIOD

Any Asahi Pentax lens which proves defective during the 12-month warranty period should be returned to the dealer from whom you purchased the equipment or to the manufacturer. If there is no representative of the manufacturer in your country, send the equipment to the manufacturer, with postage prepaid. In this case, it will take a considerable length of time before the equipment can be returned to you owing to the complicated customs procedures required in Japan in importing and re-exporting photographic equipment. If the equipment is covered by warranty, repairs will be made and parts replaced free of charge, and the equipment will be returned to you upon completion of servicing. If the equipment is not covered by warranty, regular charges of the manufacturer or of its representatives will apply. Shipping charges are to be borne by the owner. If your Asahi Pentax lens was purchased outside of the country where you wish to have serviced during the warranty period, regular handling and servicing fees may be charged by the manufacturer's representatives in that country. Notwithstanding this, your Asahi Pentax camera or lens returned to the manufacturer will be serviced free of charge according to this procedure and warranty policy. In any case, however, shipping charges and customs clearance fees are to be borne by the owner. To prove the date of your purchase when required, please keep the receipts or bills covering the purchase of your equipment for at least a year. Before sending your equipment for servicing, please make sure that you are sending it to the manufacturer's authorized representatives or their accredited repair shops, unless you are sending it directly to the manufacturer. Always obtain a quotation of the service charge, and only after you accept the quoted service charge, instruct the service station to proceed with the servicing.

This warranty policy does not apply to Asahi Pentax lenses purchased in the U.S.A. For these lenses, please refer to the separate Warranty Policy Card enclosed here.

SPECIFICATIONS

• Type	• Name of Lens	• Focal length & Maximum Aperture	• Minimum Aperture	• Lens construction (groups-elements)	• Diaphragm	Minimum focusing Distance • m	• ft.	• Angle of View (degrees)	• Maximum Diameter	• g	• Weight • ozs.	• Filter Size (mm)
Fish-eye	● SMC Pentax Fish-Eye	17mm f/4	22	7-11	FA	0.2	0.66	180°	64.5×34	234	8.19	BI
Ultra-wide-angle	● SMC Pentax	15mm f/3.5	22	12-13	FA	0.3	1.0	111°	80 ×81.5	550	19.25	BI
	● SMC Pentax	20mm f/4	22	10-12	FA	0.25	0.8	94°	63 ×57	300	10.5	58
	● SMC Pentax	24mm f/3.5	22	8-9	FA	0.25	0.8	84°	63 ×46.5	248	8.68	58
Wide-angle	● SMC Pentax	28mm f/3.5	22	7-8	FA	0.3	1.0	75°	63 ×47	271	9.14	52
	● SMC Pentax	35mm f/2	22	7-8	FA	0.35	1.2	62°	63 ×56	295	9.9	52
	● SMC Pentax	35mm f/3.5	22	4-5	FA	0.35	1.2	62°	63 ×35.5	165	5.64	52
Standard	● SMC Pentax	50mm f/1.2	22	6-7	FA	0.45	1.5	46°	65 ×48.5	391	13.48	52
	● SMC Pentax	50mm f/1.4	22	6-7	FA	0.45	1.5	46°	63 ×41.5	266	9.28	52
	● SMC Pentax	55mm f/1.8	22	5-6	FA	0.45	1.5	43°	63 ×39	221	7.74	52
Telephoto	● SMC Pentax	85mm f/1.8	22	6-6	FA	0.85	2.75	29°	64 ×56	331	11.59	52
	● SMC Pentax	105mm f/2.8	32	4-5	FA	1.2	4	23°	62.5×63	304	10.29	52
	● SMC Pentax	120mm f/2.8	32	4-5	FA	1.2	4	21°	62.5×74.5	364	12.43	52

• Type	• Name of Lens	• Focal length & Maximum Aperture	• Minimum Aperture	• Lens construction (groups-elements)	• Diaphragm	Minimum focusing Distance • m	• ft.	• Angle of View (degrees)	• Maximum Diameter	• g	• Weight • ozs.	• Filter Size (mm)
Telephoto	● SMC Pentax	135mm f/2.5	32	6-6	FA	1.5	5	18°	67.5×85.9	483	16.45	58
	● SMC Pentax	135mm f/3.5	32	4-4	FA	1.5	5	18°	62.5×87.5	365	11.38	52
	● SMC Pentax	150mm f/4	32	5-5	FA	1.8	6	17°	62.5×96	338	11.83	52
Ultra-telephoto	● SMC Pentax	200mm f/4	32	5-5	FA	2	6.5	12°	65 ×137	532	18.06	58
	● SMC Pentax	300mm f/4	32	5-7	FA	4	13	8°	85 ×188	1,020	32.97	77
	● SMC Pentax	400mm f/5.6	45	5-5	M	8	27	6°	85 ×277	1,269	43.4	77
	● SMC Pentax	500mm f/4.5	45	4-4	M	10	35	5°	126.5×440	3,366	116.6	52
	● SMC Pentax	1000mm f/8	45	5-5	M	30	100	2.5°	143 ×738	5,294	183.8	52
Zoom	● SMC Pentax	45~125mm f/4	22	11-14	FA	1.5	5	50.5~20°	69 ×127	612	21.42	67
	● SMC Pentax	85~210mm f/4.5	32	10-11	FA	3.5	12	29 ~11°	67.5×217.5	739	25.87	58
	● SMC Pentax	135~600mm f/6.7	45	12-15	M	6	20	18 ~ 4°	105 ×582	4,070	142.5	52
Macro	● SMC Pentax Macro	50mm f/4	32	3-4	FA	0.234	0.77	46°	63 ×54	247	8.44	52
	● SMC Pentax Macro	100mm f/4	32	3-5	FA	0.45	1.48	24.5°	65 ×81.5	370	12.95	52

● = Open-aperture metering lenses. ● = Stop-down metering lenses. FA = Fully-automatic. M = Manual. BI = 4 filters built-in.