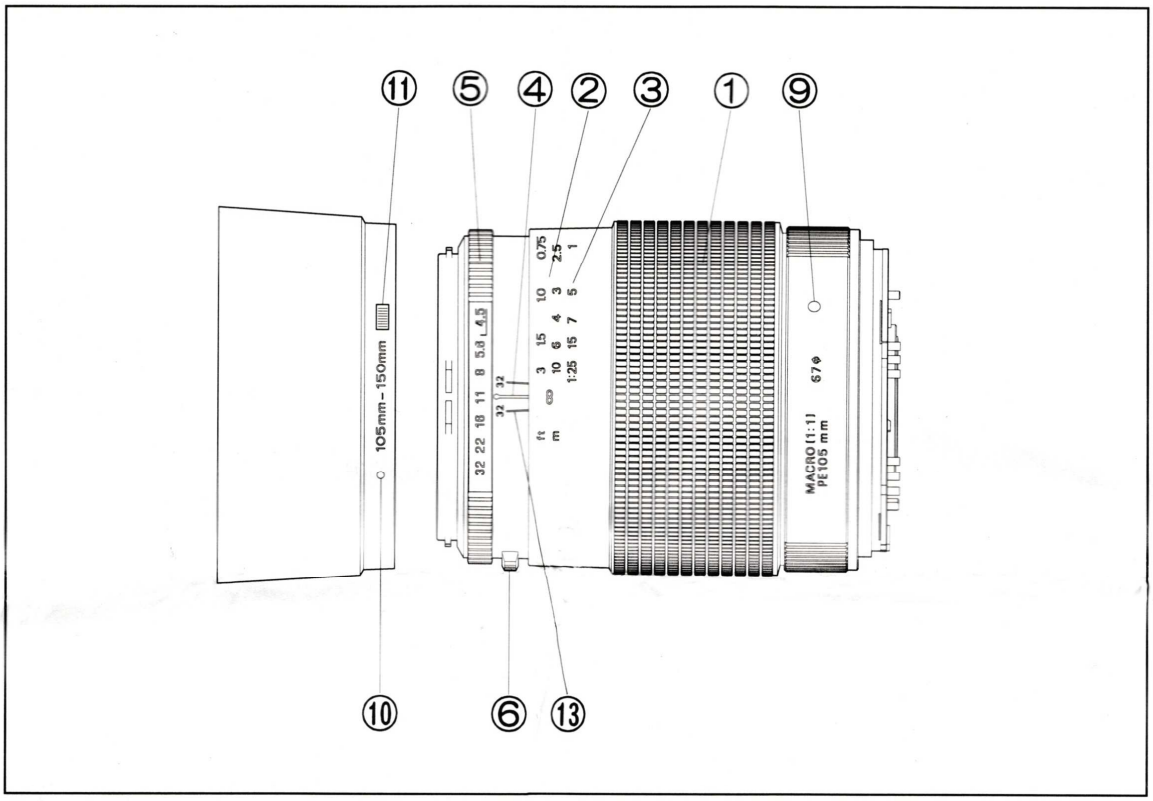
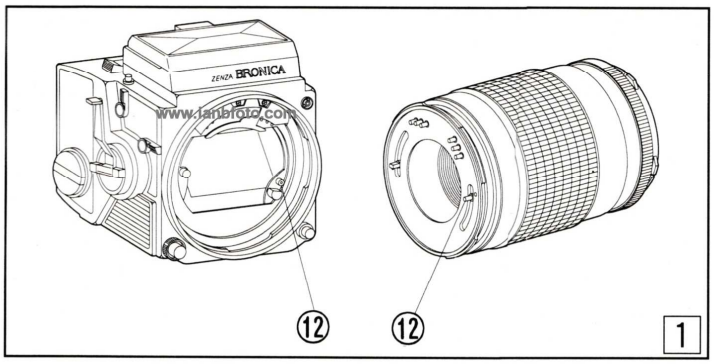
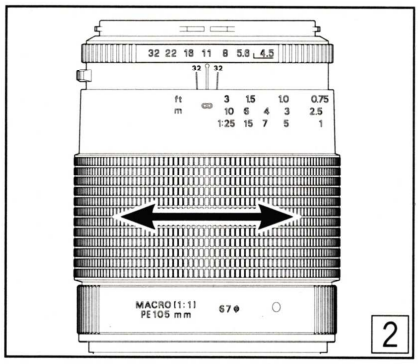
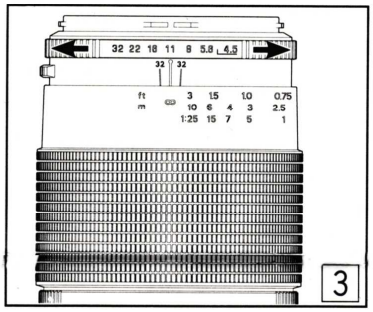
BRONICA
ETRSi

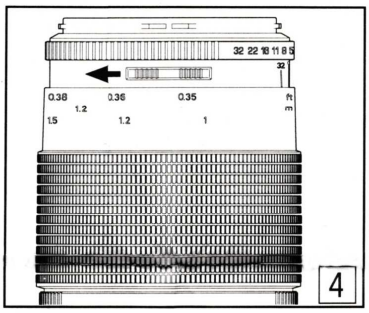
ZENZANON PE105mmF4.5 Macro (1:1)

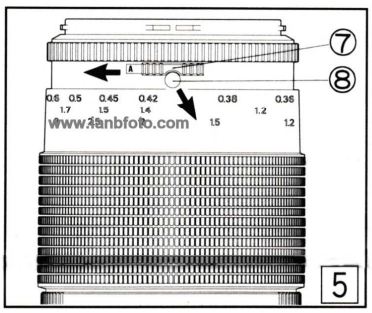


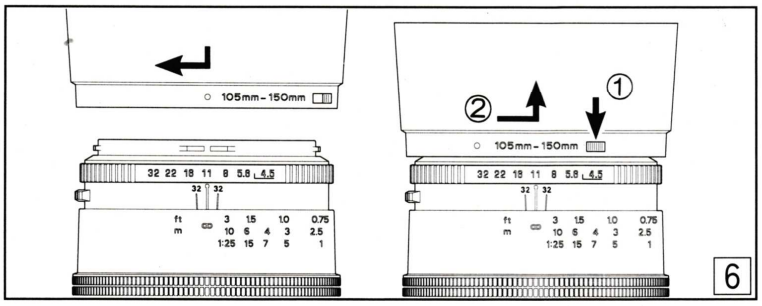


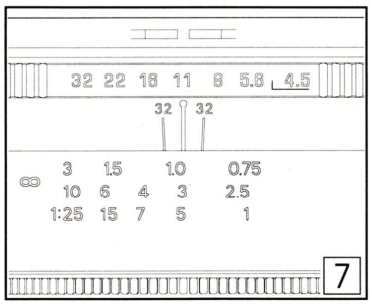












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CE

* The CE Marking is a directive conformity mark of the Curopcan Community (EC).
* Das CE-Zeichen entspricht der EC Norm.
* Le marquage CE est un marquage de conformité à la direcive CEE(CE).
* La marca CE es marca de conformidad segun directiva de la Comunidad Europea(CE).
* Il marchio CE attesta la conformita alla directtiva della Comunità Europea(CEE).
* CE 标志表示符合欧州共同体(EC)指标。

被写界深度表/Depth of field scale/Echelle de profondeur de champs/Schärfentiefenskala/Escala de profundidad de campo/Tabella delle profondità di campo/景深刻度

F/	m ∞	3	1.5	1	0.75	0.6	0.5	0.45	0.42	0.4	0.38	0.36	0.35
4.5	47.4-∞	2.84-3.18	1.47-1.54	0.985-1.01	0.744-0.756	0.597-0.603	0.499-0.501	0.449-0.451	0.419-0.421	0.400-0.400	0.380-0.380	0.360-0.360	0.350-0.350
5.6	39.3-∞	2.81-3.22	1.46-1.54	0.987-1.02	0.743-0.757	0.597-0.604	0.498-0.502	0.449-0.451	0.419-0.421	0.400-0.400	0.380-0.380	0.360-0.360	0.350-0.350
8	27.8-∞	2.74-3.31	1.44-1.56	0.978-1.02	0.740-0.760	0.595-0.605	0.498-0.502	0.449-0.451	0.419-0.421	0.399-0.401	0.380-0.380	0.360-0.360	0.350-0.350
11	19.7-∞	2.65-3.47	1.42-1.59	0.970-1.03	0.736-0.765	0.593-0.607	0.497-0.503	0.448-0.452	0.419-0.421	0.399-0.401	0.379-0.381	0.360-0.360	0.350-0.350
16	14.0-∞	2.53-3.71	1.39-1.63	0.958-1.05	0.731-0.771	0.590-0.610	0.495-0.505	0.447-0.453	0.418-0.422	0.399-0.401	0.379-0.381	0.360-0.360	0.350-0.350
22	9.98-∞	2.38-4.12	1.35-1.70	0.942-1.07	0.723-0.780	0.587-0.615	0.493-0.507	0.446-0.454	0.417-0.423	0.398-0.402	0.379-0.381	0.360-0.360	0.350-0.350
32	7.12-∞	2.20-4.91	1.30-1.80	0.921-1.10	0.713-0.794	0.582-0.621	0.491-0.510	0.444-0.456	0.416-0.424	0.397-0.403	0.379-0.382	0.359-0.361	0.350-0.350

F/	ft ∞	10	6	4	3	2.5	2	1.7	1.5	1.4	1.3	1.2
4.5	155-∞	9.47-10.6	5.82-6.19	3.93-4.07	2.97-3.03	2.48-2.52	1.99-2.01	1.70-1.71	1.50-1.50	1.40-1.40	1.30-1.30	1.20-1.20
5.6	129-∞	9.37-10.7	5.79-6.23	3.92-4.09	2.96-3.04	2.48-2.53	1.99-2.01	1.69-1.71	1.50-1.50	1.40-1.40	1.30-1.30	1.20-1.20
8	91.3-∞	9.13-11.1	5.71-6.33	3.89-4.12	2.94-3.06	2.47-2.54	1.98-2.02	1.69-1.71	1.50-1.51	1.40-1.40	1.30-1.30	1.20-1.20
11	64.8-∞	8.82-11.6	5.59-6.48	3.84-4.18	2.92-3.08	2.45-2.55	1.98-2.03	1.69-1.71	1.49-1.51	1.40-1.41	1.30-1.30	1.20-1.20
16	46.0-∞	8.41-12.4	5.44-6.71	3.78-4.26	2.89-3.12	2.43-2.57	1.97-2.04	1.68-1.72	1.49-1.51	1.39-1.41	1.30-1.30	1.20-1.20
22	32.8-∞	7.91-13.8	5.25-7.06	3.69-4.38	2.85-3.18	2.41-2.60	1.95-2.05	1.68-1.73	1.49-1.52	1.39-1.41	1.30-1.31	1.20-1.20
32	23.4-∞	7.29-16.5	5.00-7.63	3.58-4.56	2.79-3.26	2.37-2.65	1.94-2.07	1.67-1.74	1.48-1.52	1.39-1.41	1.29-1.31	1.20-1.20

撮影倍率 距離環目盛位置 Magnification Scale	撮影倍率 Magnification	撮影範囲 (短辺×長辺) Area Photographed	フィルム面より 被写体までの距離 Object-to-Film Place (Distance)	レンズ枠前面より 被写体までの距離 Object-to-Front Lens (Distance)	露出倍数 Exposure Factor
1:25	0.04×	105.0×137.8 (cm)	281.5 (cm)	263.4 (cm)	1.1×
15	0.07×	63.0×82.7	175.8	157.6	1.1×
10	0.10×	42.0×55.1	124.3	105.9	1.2×
7	0.14×	29.4×38.6	93.0	74.4	1.3×
5	0.20×	21.0×27.6	72.3	53.4	1.4×
4	0.25×	16.8×22.0	62.1	42.9	1.6×
3	0.33×	12.6×16.5	52.1	32.4	1.8×
2.5	0.40×	10.5×13.8	47.2	27.1	2.0×
2	0.50×	8.40×11.0	42.5	21.9	2.3×
1.5	0.67×	6.30×8.27	38.2	16.6	2.9×
1.2	0.83×	5.04×6.61	36.0	13.5	3.5×
1	1.00×	4.20×5.51	34.8	11.3	4.3×

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OWNER'S MANUAL(ENGLISH)

Cautions when using Zenzanon-PE Lenses

For safety, be sure to read this manual and the following cautions before using. After reading them, store them in a place where they can easily be reviewed whenever needed. In this manual, instructions on caution are divided into the following two categories:

⚠ WARNING:
This indicates instructions which if not heeded could lead to death or serious injury.

⚠ CAUTION:
This indicates instructions which if not heeded could lead to bodily injury or physical damage.

⚠ WARNING

- Do not look directly at the sun or strong light sources directly through the lens or with a camera on which the lens is mounted.
  * Doing so could result in blindness.
- Do not leave the lens within the reach of young children.
  * The lens may fall and injure the child, and the strap may get wrapped around the child's neck, resulting in suffocation.

⚠ CAUTION

- Do not set the lens in places exposed to direct sunlight.
  * The light may focus on a nearby object, causing a fire. When mounting the lens on the camera, check that the lens and camera are properly set and securely locked.
  * The lens may get stuck if it is not properly mounted, and if it is not securely locked, it may fall off, damaging the lens or camera or causing injury.
- Do not modify or alter the lens.
  * Doing so may result in damage to the lens or camera. Mount the lens hood when taking photographs in order to eliminate harmful stray light.
  * Remove the hood if it causes shadows at the edges of the image when using a flash.
- Do not place excessive loads on the lens when it is mounted on the camera. Such loads may damage the mount section on the lens and the camera.
  * Large lenses tend to place strong loads on the mount section.
- Always check the lens, take trial photographs, etc., before taking important pictures (weddings, trips, etc.), so as not to miss them.

Congratulations on your choice of the Zenzanon PE 105mm F/4.5 lens! This high- precision lens is exclusively for use with the Bronica ETR series of medium format cameras, and offers the outstanding optical quality and performance for which the Zenzanon PE series is renowned. For dramatic macrophotography, the lens offers a maximum magnification ratio of 1:1, while its focal length makes it a versatile a general purpose lens.
Read this manual carefully before using the lens. Handle and clean properly, and the PE 105mm will provide you with many years of enjoyment.

Names of Parts

① Focusing ring
② Distance scale
③ Magnification scale
④ Distance, Magnification indices and Aperture index
⑤ Aperture ring
⑥ Depth of field preview lever
⑦ Time exposure lever
⑧ Set screw for time exposure lever
⑨ Lens alignment dot
⑩ Hood mount index
⑪ Hood release button
⑫ Shutter cocking pins
⑬ Depth-of-field scale

Specifications

Focal length:	105mm
Maximum aperture:	F/4.5
Lens construction:	8 elements, 9 groups
Angel of view:	36.9°
F/numbers:	F/4.5 to 32
Focusing ring rotation angle:	300°
Minimum focus:	0.35m
Maximum magnification ratio:	1:1
Shutter:	SEIKO #0 (electronically controlled), 8 to 1/500 second plus T (time exposure) and B (bulb)
Filter size:	ø67mm
Size:	104 (length) × 86 (maximum diameter) mm
Weight:	920g
Accessories:	ø67mm front lens cap, rear lens cap E, lens pouch, lens hood (for S105-150)

Mounting and Removing the Lens

This lens can be mounted on Zenza Bronica ETR, ETRC , ETRS and ETRSi cameras.
The lens cannot be attached or detached unless the shutter is cocked.

Example: When using a separate exposure meter and the exposure multiplier for the exposure value found with the meter is 2, open the aperture or reduce the shutter speed by one step; by two steps when the exposure multiplier is 4.

When using an external automatic strobe, open the lens aperture by the number of stops indicted by the exposure multiplier corresponding to the auto aperture value set on the strobe.

Example: If the auto exposure value on the strobe is F/8, the exposure multiplier is 2, so the aperture on the lens should be opened to F/5.6.

Depth of Field Preview Lever

When the depth of field preview lever is pressed downwards, the preselected aperture is set, permitting the photographer to check the depth of field effect and focus on the focusing screen. (Figure 4)
Release the lever to return to the full aperture.

Time Exposure

Time exposures can be made with the time exposure lever on the lens, regardless of the setting on the shutter speed scale.
First cock the shutter with the film winding crank then pull up the time exposure lever.
Next, slide the time exposure lever to expose the "T" (red). The lens is now ready for time exposure. (Figure 5)
Press the shutter release button to open the shutter.
To close the shutter, set the time exposure lever back in its original position (with "A" exposed).

* Also read "12: T (Time) Exposure" on page 21 of the ETRSi main body's manual.

Lens Hood

The lens comes with a lens hood, which effectively cuts unwanted stray light. Therefore, it's recommended that the hood be used whenever possible. The included hood also fits SQ series (6 × 6) 105 to 150mm lenses.

- Mounting
  Align the hood mount index on the hood with the hood mount index on the lens. Press in on the hood, then turn it clockwise to lock it in place. (Figure 6)

To remove the hood, press the release button and turn the hood counterclockwise.

Depth of Field Tables

Use the depth-of-field table to determine the depth-of-field at any given aperture.
Aperture values are given in the vertical column, and shooting distance in the horizontal row. For example, if the aperture is F/8 and the shooting distance is 1m, the depth-of-field value is

cocked.
The shutter is cocked when the cocking pin on the rear of the lens and the cocking pin on the main body are both aligned to their green dots, as shown on figure 1. The cocking pin of the detached lens can be set to the dot by moving it manually. Revolving the film winding crank will set the cocking pin of the main body mount.

* Also read page 39 in the ETRSi main body's manual.

- **Mounting the Lens**

To mount the lens, check that the shutter is cocked, line up the red dot on the lens with the red dot on the body, insert the lens, then turn it fully counterclockwise until it stops with a click.

- **Removing the Lens**

To remove the lens, rotate it clockwise while pressing the lens release button at the bottom of the left side of the main body until it stops, at which point it can be removed.

Focusing

To focus, rotate the focusing ring while checking the effect on the matte surface in the center of the focusing screen (standard type). The distance scale indicates the distance from the film surface to the plane, meters in white, feet in green. (Figure 2)

- **Depth of Field Scale**

There is an apparent zone of sharpness, both in front and back of the focused subject, which is known as the depth of field. The depth of field scale shows the zone apparent sharpness at any lens opening or distance and can be utilized for quickly and simply ascertaining the depth of field. The depth of field scale is next to the distance scales and is made up of identical pairs of apertures on both sides of the green-colored distance index . These identical pairs of apertures indicate the distance that will be in focus at these lens openings.
For examp1e, the 105mm lens is focused at a distance of 3m, it can be seen from the depth of field scale that the zone will extend from about 4.91 to 2.20 meters (16.11 ft. to 7.2 ft.), when a lens opening of F32 is used.(Fig.7)
Please refer to Depth of Field Tables, too.

- **Macrophotography**

The Zenzanon PE 105mm F/4.5 is a macro lens that allows continuous focusing from infinity to the minimum shooting distance of 0.35m (13.8 inches) simply by turning the focusing ring. It provides a maximum magnification ratio of 1:1 at the minimum shooting distance. The approximate magnification ratio is indicated on the magnification scale,

* For the relationship between the shooting distance and magnification ratio, refer to the macrophotography table.
* In macrophotography, the exposure multiplier effect, or "extension factor" (see below), decreases the effective brightness of the lens, which can make it difficult to focus with split image or microprism type focusing screens. If this happens, use a center matte type focusing screen, or, when using a split image or microprism type, focus using the matte area outside the center circle.

Setting the Aperture

Rotate the aperture ring to set the desired f/number opposite the white index dot. The aperture ring click-stops at and between the numbered settings.

* Intermediate settings cannot be used when using finders with built-in exposure meters.

This lens has a fully automatic lens diaphragm. The focusing screen is always viewed at the full aperture, with the brightest possible image. The preselected aperture is only set when the shutter is operated.

* Also read "16: Setting the Aperture" on page 25 of the ETRSi main body's manual.

Exposure Multiplier ("Extension Factor")
In macraphotography, as the lens groups extend forward, the distance to the film plane increases. As a result, less light reaches the film plane. This light loss must be compensated for to obtain correct exposure. The amount of this compensation is called the exposure multiplier.

The exception is when using a viewfinder with a built-in TTL exposure meter, such as the AE-III Prism Viewfinder E, because the TTL exposure meter is able to measure light transmission even during macrophotography.
When using a non-TTL exposure meter or an external automatic strobe, set the aperture by referring to the macrophotography table and apply the exposure multiplier that corresponds to the magnification ratio.

0.973m - 1.02m — the value indicated where F/8 and 1m intersect.

Infrared Photography

When taking infrared photographs, the focal position is slightly different from that for visible-light photography, so compensate the focal position by that amount.
We recommend mounting a red filter for infrared shooting.
The infrared index line for this lens touches the distance index line left side, so it is not displayed. Compensate slightly to the infinite side (left) just the width of the distance index or set the aperture to at least f8 and compensate for the focus deviation according to the depth of the field being photographed.

Precautions in Shooting

* The lens cannot be attached or detached unless the shutter is cocked.
* For macrophotography using the AE-III viewfinder with the AE locked, focus first, then lock the AE. Focusing after locking the AE could result in over- or under- exposure because the exposure multiplier changes depending upon how far forward the lens is extended. In particular, if the magnification is at or near 1:1, the exposure multiplier changes substantially as the lens is extended its farthest for focusing.
* For macrophotography, the larger the magnification, the lower the depth-of- field (focusing depth). So focus accurately and set the aperture as small as possible to increase the depth-of-field.
* Even the slightest camera movement can adversely affect macrophotography because the magnification is high. Also, shutter speeds tend to be slow because of the small aperture and the exposure multiplier. Therefore, the use of a tripod and cable release is recommended. With the ETRSi, a mirror up device can minimize the effects of camera vibration.
* Intermediate aperture settings cannot be used when using finders with built-in exposure meters.
* Do not turn the aperture ring while pressing the depth of field preview lever. Doing so may result in damage.
* Do not press the depth of field preview lever during auto shooting or manual photometry with a finder with built-in exposure meter attached. Doing so will result in improper exposure.
* When not making time exposures, keep the time exposure lever at the position at which "A" is exposed and the time exposure lever's setscrew pressed in.
* Because the lens allows a maximum magnification ratio of 1:1, the use of an auto extension ring, auto bellows attachment or close-up lens is not recommended.

To Ensure Long-Term Satisfaction

- **Cleaning and storing**

* Remove dirt or dust from the lens surface using a blower or photographic brush. Do not touch the lens with your fingers.
* Use lens cleaning paper and lens cleaning solution to remove fingerprints or oil from the lens surface. Note that using silicon cloth may scratch the lens coating.
* Mildew is an enemy of your lens. Be sure to clean the lens after using it in hot or humid places, such as near the ocean or in the mountains. Also, to protect the lens from dust or scratches when it is removed from the camera, always keep its caps on both sides and store the lens in its case. Choose a place with good ventilation and little dirt or dust to store the lens. When storing the lens in the case, put a drying agent in the case and replace it from time to time.
* Be careful not to touch the lens' signal contact. Dust or dirt on the contact may lead to faulty contact, in which case the exposure signal will not be transmitted properly.
* Sudden changes in temperature could cause the formation of water droplets inside the camera or lens, possibly ruining them. To avoid this, temporarily place the camera and lens in a case or plastic bag so that their temperature shifts gradually.
* Do not store with chemicals, other than silica gel.