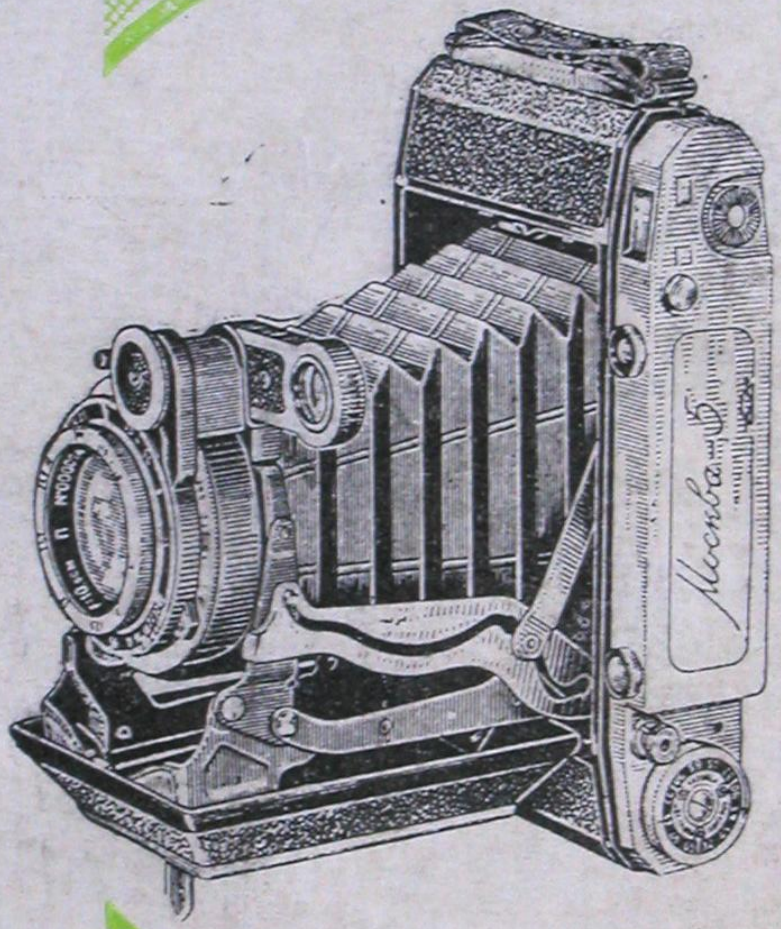
ФОТОАППАРАТ



Москва-5

Moskva - 5

User's Manual

For Your Attention

This brief manual is not a photography guide. It contains basic characteristics and usage rules of Moskva-5 camera. Please read this manual carefully before using the camera.
Remember following things:

1. The camera requires careful handling.
2. Protect the camera shutter from dust, moisture and sudden strikes.
3. Do not disassemble the camera.

I. MAIN FEATURES

The camera "Moskva-5" is handheld folding camera with coated lens. It comes in nice case with shoulder strap. It has built-in coupled viewfinder/rangefinder with 65mm base. Main advantages of the Moskva-5 camera are: precise focusing, central shutter with eight automatic speeds and manual exposure, self timer, flash lamp synchronization, ability to take 8 of 6x9cm or 12 of 6x6cm images, daylight loading, and convenient design.
It is enough just to look at the viewfinder window to see clear image of a scene.
Image focusing is accomplished by matching of two shifted images in the viewfinder/rangefinder.
Design of the scales and controls provides fast and convenient operation.
You can check a picture number through a window at back cover.
Shutter release button is coupled with film advance knob. This is done to prevent a double exposure of a same frame.

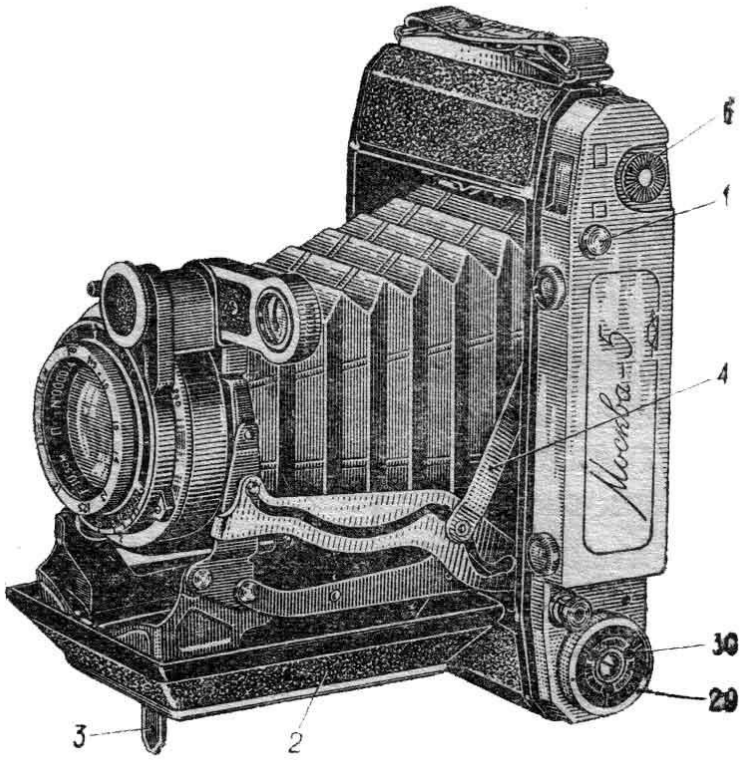
II. SPECIFICATIONS

The "Moskva-5" is folding medium format camera with 6x6cm and 6x9cm frame size. It has built-it rangefinder.
The camera uses 60mm film. It allows to take 8 of 6x9cm pictures, or 12 of 6x6cm pictures.
The shutter "Moment-24S" has self timer and flash synchronization contact. The shutter has eight automatic speeds: 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, and 1/250. It allows also to produce long exposures 'from hand' in "B" mode.
The shutter speeds range allows to use the camera at different light conditions, and to shoot moving objects.
Iris diaphragm has following relative apertures: 1:3.5, 1:4, 1:5.6, 1:8, 1:11, 1:16, 1:22, 1:32.
Mounted lens is 4-elements coated "Industar-24" with F=110mm, f/3.5. View angle for 6x9cm pictures is 52 degrees. Rangefinder base is 65mm. Viewfinder magnification is 0.6x.
Tripod nuts on the body and folding front cover are 3/8". They allow mounting the camera onto a tripod in horizontal or vertical position.
The camera comes in high quality leatherette case. You can use the camera not taking it out of the case.
The camera and case weight is 1180 gram. Dimensions is folded state are 165x95x48mm; in ready state – 165x125x130mm.
Presence of the selftimer and flash synchronization significantly widens field of usability of this camera in comparison with other similar cameras.

III. CONSTRUCTION OF THE CAMERA

The camera body is made by die casting, so it is strong and durable. To set the camera into working state, press the button (1). It is recommended to hold the front camera (2) upon this.
The front cover has a leg (3) that serves as a support for the camera on a flat surface like table top.
To close the cover, it is necessary to push both levers (4) simultaneously and push the cover smoothly until it is locked.

Optical viewfinder (5) is telescopic system with 0.6x magnification factor assembled in the hard housing. Top side of the housing contains indexed head (6) and 2 rectangles designating 6x6cm and 6x9cm frames. To switch the frame size, press the head (6) and turn it to desirable position.
4-element anastigmat lens "I-24" with 1:3.5 relative aperture provides sharp image and good quality of both b/w and color pictures.
Shutter "Moment-24S" is precise clock mechanism that requires careful handling.
Automatic speeds and 'B' can be set by means of the ring (7) with denominators of the shutter speeds (2 and 5 instead of 1/2 and 1/5, for example). Set the required speed against red index.

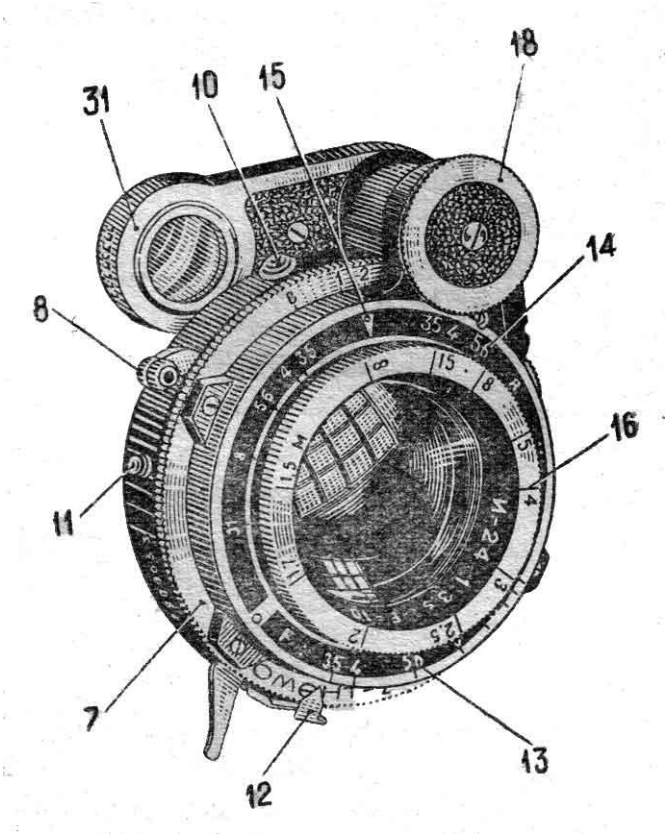


Picture 1

1. Camera opening button
2. Front cover
3. Folding leg
4. Lever
6. Viewfinder head
29. Rewind knob
30. Disk

To take a picture, it is necessary to wind the shutter first by turning the lever (8) clockwise smoothly until stop. Then you can release the shutter by means of the shutter release button (9). This button has a cone threaded hole for cable release.
Self timer allows you to shoot yourself alone or in a group with other people. To wind the self timer, wind the shutter first by means of the lever (8) as described above, pull the button (10) and turn the lever (8) further until stop.
Now the self timer mechanism will allow you 9-15 seconds before releasing the shutter.
Contact (11) allows using both disposable and pulsing flash lamps. Using the flash lamps allows taking pictures at low light or even in complete darkness.
The synchronization mechanism shortens the flash contacts at the moment when iris diaphragm is fully open. Different lamps take different time from moment of switching it on to full light. Pulse lamps are faster than disposable ones. That is why pulse lamps can be used at any shutter speed, but using of disposable lamps is limited to longer speeds only like 1/25, 1/10 or longer.
Diaphragm is situated between the lens elements. You can change the aperture by means of the lever (12) along the scale (13).
It is necessary to close the aperture to increase a sharpness depth, or to limit a light when object is too bright.

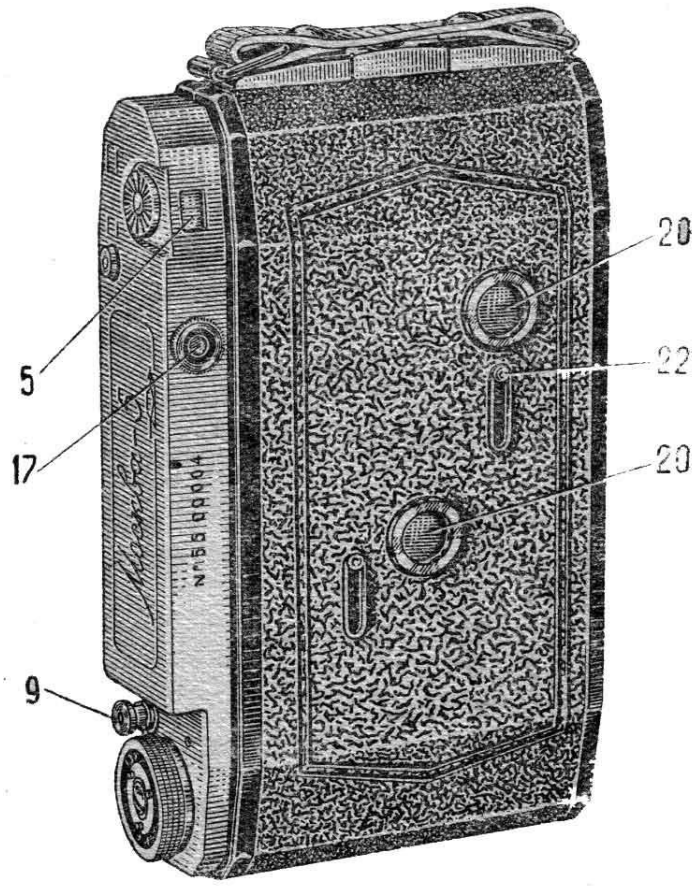
Changing the aperture by one step changes a light amount by 2. This means that you should set 2 times longer shutter speed if you want to change the aperture from 1:4 to 1:5.6. If you want to change to 1:11, it is necessary to increase the speed by 4 times.



Picture 2

7. Shutter speed ring
8. Shutter cock lever
10. Button
11. Sync contact
12. Lever
13. Diaphragm scale
14. Sharpness depth scale
15. Index
16. Distance scale
18. Ring
31. Compensator

Sharpness depth depends on the aperture value (if other parameters remain same).
The sharpness depth is distance range within which objects appears sharp. Smaller aperture size and larger distance to the object increase the sharpness depth.
For example, if the distance scale set to 8 meters, and diaphragm set to 1:11, image of all objects in range from 4m to infinity will be sharp. If you'll change the diaphragm to 1:4, sharpness depth will be reduced to 6-12 meters range.
To determine the sharpness depth, you should look at the scale (14) with markers on both sides from the index (15).



Picture 3

5. Viewfinder
9. Shutter release button
17. Viewfinder window
20. Picture counter window
22. Button

Find the set aperture value on the scale, and check corresponding distance values of the scale (16).
Take note that marked distance is counted from film plane. You can use the table below to determine the sharpness depth.

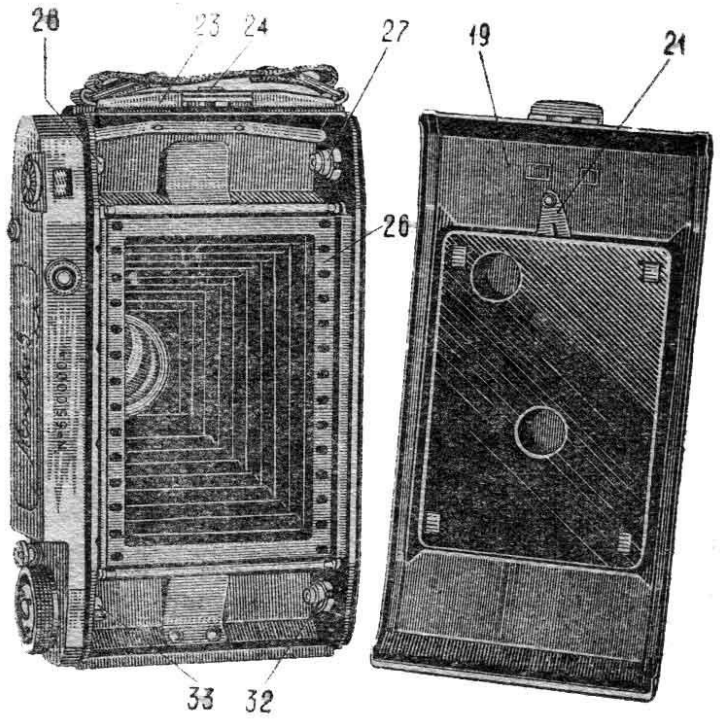
Table of sharpness depth for "Industar-24" lens

Values of distance scale	Diaphragm							
	3.5	4	5.6	8	11	16	22	32
1.5	1.4-1.6	1.4-1.6	1.4-1.6	1.4-1.7	1.3-1.7	1.3-1.8	1.2-2.0	1.1-2.4
1.7	1.6-1.8	1.6-1.8	1.6-1.8	1.5-1.9	1.5-2.4	1.4-2.4	1.3-2.4	1.2-3.0
2.0	1.9-2.2	1.9-2.1	1.8-2.2	1.8-2.3	1.7-2.0	1.6-2.7	1.5-3.1	1.4-4.1
2.5	2.3-2.7	2.3-2.7	2.3-2.8	2.2-3.0	2.1-3.2	1.9-3.7	1.7-4.4	1.5-2.0
3.0	2.8-3.3	2.7-3.4	2.6-3.5	2.5-3.7	2.4-4.1	2.2-4.8	2.0-6.3	1.7-13.3
4.0	3.5-4.5	3.5-4.7	3.4-4.9	3.2-5.4	3.0-6.2	2.7-8.2	2.4-13.9	2.0-inf
5	4.4-5.8	4.2-6.1	4.1-6.4	3.8-7.4	3.5-8.9	3.1-14.1	2.7-46.4	2.2-inf
8	6.6-10.6	6.2-11.3	5.9-12.6	5.3-16.7	4.7-28.3	3.9-inf	3.3-inf	2.7-inf
15	10.9-20.9	9.7-33.0	8.9-47.0	7.6-inf	6.4-inf	5.1-inf	4.1-inf	3.1-inf
Infinity	28.2-inf	27.3-inf	22-inf	15.4-inf	11.2-inf	7.8-inf	5.7-inf	3.9-inf

The table gives a sharpness depth for different aperture values at specified distance set on the lens.

Range finder allows to determine a distance to an object. It work by matching of two images in the range finder window (17). One side of a prism has a beam splitting coating, so the two images appear in different colors (that makes the image matching easier). The range finder wedges a coupled with the lens providing correct focusing upon matching the images. The ring (16) has a distance scale to set or determine distance to the object.

Back cover (19) of the camera is removable. It has two windows (20) to check a picture number.
These windows are covered with metal plates protecting a film from direct light. To open the necessary window, shift the lever (21) on the inner side of the back cover to required position, and shift the protective plate by means of the button (22). The plates are coupled with the lever. If you want to open another window, it is necessary to move the lever (21) into another position. The plates are closed by springs.
The lock (23) of the rear cover has the button (24). To open the cover, shift the button in the arrow direction.
Hold the cover during opening to prevent it from falling down.
To place the cover back onto the camera, catch it's bottom part to the camera body edge, and push it toward the lock until click. Align the cover properly during this.



Picture 4

19. Back cover
21. Lever
23. Lock
24. Lock button
26. Film channel
27, 28. Centers of a feeding spool
32, 33. Centers of a take-up spool

Film mask (25) is included into standard delivery set. It is purposed for taking 6x6cm pictures. To mount it into the camera, it is enough just to place it into film channel (26). Make sure that inner edges of the film mask are not higher than film channel, or they may scratch a film and prevent correct focusing.

IV. USING THE CAMERA

1. Loading The Camera

You can load and unload the camera at daylight (not too bright). You should protect a film reel against direct light.
To load the camera:
1. Remove back cover (19) and (if it is necessary to shoot 6x6cm pictures) insert the film mask as described above. **Don't forget to switch the viewfinder head to corresponding position. Please remember that if you'll shoot 6x6cm pictures without the mask inserted, you'll ruin your film.**
2. Pull the center head (27) until stop and turn it clockwise. Insert a spool onto center (28), align other end of the spool against center (27) and return the center head to its original position.
3. Remove a film label, pull its protective paper, and insert it into the slot of the take-up spool.
4. Pull the paper by 1-1.5 turns of the knob (29). Make sure that the paper moves between the spool flanges without skews.
5. Close the back cover as described above.

6. Pull the picture counter window pulling the button (22). Hold it by your hand and wind the film by means of the knob (29) until you'll see number '1' after warning symbols (doth, hand, or arrows).
7. Close the window. Remember that it is recommended to open the window during advancing the film only, protecting it from direct light.
8. Set the type and sensitivity of the film on the disk (30).

2. Taking Pictures

1. Open the case cover.
2. Press the button (1) to open the camera.
3. Set a necessary aperture value by means of the lever (12) and scale (13).
4. Set the shutter speed by means of the ring (7).
5. Turn the lever (8) clockwise until stop smoothly. Wind the self timer if necessary (shift the button 10 toward the camera and turn the lever 8 further until second stop).

Please remember that it is allowed to change the shutter speed by means of the ring (7) BEFORE winding the shutter ONLY. Attempt to set the shutter speed when it is wound may cause break of the mechanism.

6. Set the range finder compensator (31) into working position, and focus the lens by means of the range finder knob (18) observing an image through the window (17) (you should align two images visible in the window).
7. Keyframe a picture observing it through the viewfinder window (5).
8. Release the shutter by pressing the button (9) until stop smoothly. Try to not jerk or move the camera during pressing the button.
9. Open a picture counter window (20) and turn the knob (29) until number of next picture appear.

The knob (29) and the shutter release button are coupled with blocker that prevents a double exposure. But you should advance the film to next picture using the picture counter window anyway.

You can take pictures using simplified setup. There are red dots at 10m marker and at 1:11 aperture. This combination of distance and aperture gives sharp images for all objects in 4.5-infinity range. Such settings are convenient when you need to shoot a sudden event during a road trip, for example.

If you shooting from tripod, it is better to take the camera out of its case.

3. Unloading the Camera

After taking all pictures, wind rest of the film to the take-up spool until whole film including its paper part will be wound. Now you may open the back cover, take the spool with film out of the camera, and secure the paper end. You can store the film in this state for a while until developing. Move the empty spool from the center (27,28) to the center (32,33).

V. Care Measures

The Moskva-5 camera is complex optical device requiring careful handling. The camera comes from factory after thorough tests, and it should work flawlessly during few years. But you should examine this manual and hold to it. Keep the camera clean and protect it from any strikes, high humidity and fast temperature changes.

Store the camera in its closed case. Keep the shutter and self timer in released state.

Water affects both mechanical parts of the camera and lens coating. Protect the camera from rain and snow using it outdoors.

If you brought the camera from cold to warm room, don't open the case to prevent a moisture condensation. Wait some time to allow the camera to heat up to room temperature.

Remove a dust by means of a brush and soft napkin. Keep the brush and napkins in closed dust-free box.

To maintain a great appearance of the camera, clean it with acid-free vaseline and clean cloth then. Remove any dust carefully first.

To clean a lens, use a very soft brush washed in ether. Then clean the lens with soft cambric cloth wet in ether or spirit a bit.

Don't touch the lens by fingers. If this happen, remove fingerprints by cotton wool wet in ether or spirit a bit. Clean the lens with circular moves starting from center.

Even with damaged outer coating layer, the lens will pass more light and will give sharper image due to coating of the inner elements.

Don't disassemble the camera yourself. Address to specialized workshops for repair.

VI. Using Light Filters

A human eye differentiates objects by brightness and color. Photo sensitive materials reflect different brightness only.

Color-blind materials (positive film, slide film) are sensitive to violet, cyan and blue colors only. That is why you get quite distorted (regarding brightness) image – green, yellow and red colors will bee too dark, but violet, cyan, and blue colors – too bright. You can't use light filters taking pictures on such materials.
Color-sensitive materials see not only violet, cyan, and blue colors. Orthochrom is sensitive to yellow-green colors; isochrom and panchrom are sensitive to almost any color of visible specter. But these material are still more sensitive to violet, cyan, and blue colors. That is why it is recommended to use color filters to compensate this.
Most spread soviet filters are YB-12 (light yellow), YB-17 (yellow), YB-18 (dark yellow), and OB-12 (orange). Manufactured filters have different diameters and mounts. They are marked with glass type, mount diameter, mounting thread, and label of manufacturer.
Light yellow filter YB-12 is used for taking pictures on orthochrom, isochrom and panchrom. It gives an image close to natural regarding brightness of colored objects. It is recommended to use it to shoot portraits outdoors, sky with big clouds, etc.
Yellow filter YB-17 is used for same materials like YB-12. It gives more correct image regarding brightness of colored objects. It also exposes clouds, increases contrast of distant objects, eliminates effect of air haze, increases contrast in shadows, etc.
Dark yellow filter YB-18 is applied in same cases as YB-17 but gives stronger effect. It filters out blue color almost completely, and not suitable for orthochrom. On isochrom and panchrom, it gives contrast image. Light blue sky appears bright, and blue sky looks dark.
Orange filter OB-12 isn't used with orthochrom. It is used to shoot distance objects to eliminate a haze effect. It also increases contrast significantly and highlights fleecy and thin clouds. It can be also used for some types of reproductions (drawings, for example), and in case if it is necessary to distort correct relation of objects brightness.
Since any filter consumes some light, you should increase the shutter speed using filters. Filter factor is relation of the speed necessary to shoot with the filter to speed sufficient to shoot without it. This factor depends not only on filter properties, but also on photo material properties and spectral type of light.
The table below shows filter factors for different photo materials at daylight.
Note. Some difference in color of same type filters don't affect their factor.
Handle the filter carefully, keep them clean, and clean them with soft napkin (dry or moistured in spirit a bit).

Glass type and limit of its spectral range	Orthochrom	Isochrom	Panchrom
YB-12 (450mmk)	3.0	1.5	1.5
YB-17 (490mmk)	4.0	2.0	1.5
YB-18 (510mmk)	6.0	3.0	2.0
OB-12 (550mmk)	unusable	5.0	2.5

VII. Note On Bubbles In Photo Lenses

Glass elements of moderns photo lenses are made of special type of glass. It is hard to avoid a bubbles during melting such glass. You can notice them in almost any complex lens.
These bubbles don't affect image quality. That is why our factory don't consider complaints regarding such bubbles, and don't exchange such lenses.

VIII. Delivery Set

The delivery set of the camera consists of:

1. The camera with 'Moment-24S' shutter and 'Industar-24' lens.
2. The camera case.
3. Empty film spool.
4. Cable release.
5. Film mask 6x6cm.
6. Carton box.
7. Manual.
8. Passport.