Mamiya

英

Printed in Japan

Mamiya RZ67 PROFESSIONAL

APO

Sekor Z Lenses

The latest optical theory is realized in the tradition of Mamiya Apo-Sekor lenses and come to life in the hands and through the eyes of professional photographers.

The Mamiya Apo-Sekor Z Lens Series serves as an exacting all seeing eye for photographers.
The Z lenses incorporate the latest color balance, contrast, and resolving power in a variety of lens sizes. Developed from sophisticated computer software, the resulting optical designs incorporated in the lenses have quickly become the favorites fo many professional and advanced amateur photographers.
The use of ultra low dispersion optical glass and the consequent elimination of chromatic aberrations has led to startling breakthroughs in the new high performance series with lenses significantly improved in both color balance and resolving power.

Sharpness and Attractiveness

APO

Sekor Z Lenses

マミヤAPOセコールZレンズ一覧表

	レンズの種類	構　成	画　角	最小絞り	絞り機構	最短撮影距離	撮影倍率	撮影範囲	35mm換算値	フィルター径	フ　ー　ド	寸法(直径×長さ) 重　量
①	Z210mmF4.5	5群7枚	24°	45	完全自動	1,168mm	0.22倍	256×318mm	102mm	77mm	ねじ込み式	97×114mm 980g
②	Z250mmF4.5	5群7枚	20°	45	完全自動	1,564mm	0.19倍	298×370mm	121mm	77mm	ねじ込み式	97×145mm 1,340g
③	Z350mmF5.6	6群7枚	15°	45	完全自動	3,081mm	0.13倍	420×521mm	170mm	77mm	ねじ込み式	97×192mm 1,455g
④	Z500mmF6	7群7枚	10°	45	完全自動	6,064mm	0.09倍	597×740mm	242mm	105mm	かぶせ式	108×280mm 2,315g

Mamiya Apo-Sekor Z Interchangeable Lenses

	Lens	Optical Construction	Angle of View	Minimum Aperture	Diaphragm	Minimum Focusing Distance	Magnification	Area Coverd	Equivalent focal-length for 35mm	Filter size	Lens Hood	Dimension Weight
①	Z 210mm f/4.5	7 elements, 5 groups	24°	45	Automatic	1168mm	0.22 ×	256 × 318mm	102mm	77mm	Screw-in	97 × 114mm 980g
②	Z 250mm f/4.5	7 elements, 5 groups	20°	45	"	1564mm	0.19 ×	298 × 370mm	121mm	77mm	Screw-in	97 × 145mm 1,340g
③	Z 350mm f/5.6	7 elements, 6 groups	15°	45	"	3081mm	0.13 ×	420 × 571mm	170mm	77mm	Screw-in	97 × 192mm 1,455g
④	Z 500mm f/6	7 elements, 7 groups	10°	45	"	6064mm	0.09 ×	597 × 740mm	242mm	105mm	Slip-on	108 × 280mm 2,315g

日本語　マミヤAPOセコールZレンズ

特　長

RZ用マミヤAPOセコール・レンズZは、新種ガラス(超低分散屈折ガラス)を採用して設計開発した6×7判用長焦点レンズの[色収差]を除去した鮮鋭なレンズ群です。このアポレンズは、長焦点レンズ撮影で生じる可視光線の色分散を補正し、また、光の波長が長い赤外線撮影(肉眼には見えない)での焦点再補正の必要をなくしました。ご案内のAPOレンズには、今後発売予定の商品も含まれます。

English　Mamiya Apo-Sekor Z Interchangeable Lenses

Special Features:

Mamiya Apo-Sekor Lens Series consists of a group of very sensitive lenses designed and developed by using an innovative ultra low dispersion and refraction glass which eliminates the chromatic aberrations in long-focus lenses.
Apo Lenses correct the chromatic dispersion of visible light produced when taking a picture with a long-focus lens. This eliminates the need for focus adjustment in infrared photography.
Since Mamiya is in the process of releasing a full range of Apo Lens Series, the list includes those coming soon.

Deutsch　Mamiya Apo-Sekor Z Objektive

Besondere Eigenschaften:

Die Objektivserie Apo-Sekor von Mamiya besteht aus einer Gruppe von sehr empfindlichen Objektiven, die durch Verwendung einer neuartigen Glasart mit äußerst geringer Dispersion und Refraktion entworfen und entwickelt worden sind, wodurch die chromatischen Abweichungen bei Objektiven langer Brennweite beseitigt werden.
Apo-Objective korrigieren die chromatische Dispersion des sichtbaren Lichtes, die bei Aufnahmen mit Objektiven langer Brennweite verursacht wird. Dies beseitigt die Erfordernis für Brennweiteneinstellungen bei Infrarotaufnahmen.
Da Mamiya gerade damit begonnen hat, einen ganzen Satz Apo-Objektive auf den Markt zu bringen, zeigt die Liste auch Objektive, die erst in Kürze auf den Markt kommen werden.

Français　Les objectifs Mamiya Apo-Sekor Z

Caractéristiques spéciales:

La série d'objectifs Apo-Sekor Mamiya comprend un groupe d'objectifs très sensibles conçus et développés en utilisant un verre de réfraction et dispersion ultra-basse innovateur qui permet d'éliminer les aberrations chromatiques des objectifs de longue mise au point.
Les objectifs Apo corrigent la dispersion chromatique de lumière visible produite lorsque l'on effectue une prise de vues avec un objectif de longue mise au point. Ceci permet d'éliminer toute nécessité de réglage de mise au point en photographie à infrarouges.
Comme Mamiya est sur le point de lancer une gamme complète de série d'objectifs Apo, la liste comprend ceux qui seront bientôt introduits.

① Z 210mm f/4.5

② Z 250mm f/4.5

③ Z 500mm f/6

④ Z 350mm f/5.6

Mamiya Apo-Sekor Z Objektive

	Objektiv	Optischer Aufbau	Bildwinkel	Kleinste Blende	Blende	Kürzeste Einstellentfernung	Vergrößerung	Objektfeld	Entsprechende KB-Brennweite	Filter-durchmesser	Gegen-lichtblende	Abmessungen Gewicht
①	Z 4,5/ 210mm	7 Linsen/ 5 Glieder	24°	45	Springblende	1168mm	0,22 ×	256 × 318mm	102mm	77mm	Schraubfassung	97 × 83mm 980g
②	Z 4,5/ 250mm	7 Linsen/ 5 Glieder	20°	45	"	1564mm	0,19 ×	293 × 370mm	121mm	77mm	"	97 × 145mm 1340g
③	Z 5,6/ 350mm	7 Linsen/ 6 Glieder	15°	45	"	3081mm	0,13 ×	420 × 521mm	170mm	77mm	"	97 × 192mm 1455g
④	Z 6,0/ 500mm	7 Linsen/ 7 Glieder	10°	45	"	6064mm	0,09 ×	597 × 740mm	242mm	105mm	Steckfassung	108 × 280mm 2315g

Les objectifs Mamiya Apo-Sekor Z

	Lens	Construction optique	Angle de champ	Ouverture minimum	Diaphragme	Distance minimum de mise au point	Grandissement	Champ couvert	Conversion en format 35mm	Diamètre filtre	Paresoleil	Dimensions Poids
①	Z 210mm F/4.5	7 éléments, 5 groupes	24°	45	Automatique	1168mm	0.22 ×	256 × 318mm	102mm	77mm	Vissant	97 × 114mm 980g
②	Z 250mm F/4.5	7 éléments, 5 groupes	20°	45	"	1564mm	0.19 ×	293 × 370mm	121mm	77mm	"	97 × 145mm 1340g
③	Z 350mm F/5.6	7 éléments, 6 groupes	15°	45	"	3081mm	0.13 ×	420 × 521mm	170mm	77mm	"	97 × 192mm 1455g
④	Z 500mm F/6	7 éléments, 7 groupes	10°	45	"	6064mm	0.09 ×	597 × 740mm	242mm	105mm	Aemboitement	108 × 280mm 2315g

Mamiya RZ67 PROFESSIONAL

APO

Sekor Z Lenses

An apochromat lens corrects colored light in the red (c), yellow (d) and blue (g) wavelengths while a standard photographic lens corrects chromatic aberrations in the red and blue wavelengths and focuses them on a point.

Ideally a lens must have the following three characteristics when refracting colored wavelengths.

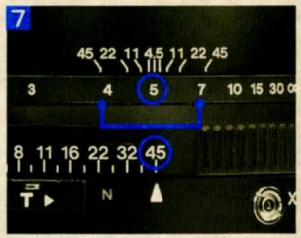
1. Light rays radiated point-symmetrically should form a symmetrical image point.
2. A plane image should form an image on the plane.
3. Lateral magnification should be constant or similar at all points within the field.

These "ideal" characteristics are, however, quite difficult to obtain due to optical aberration caused by factors like variations in wavelength, refraction problems and other optical abnormalities. Axial chromatic aberrations may, for example, occur as wavelengths change and the optical axis focal point may appear distorted. On the other hand, magnification or lateral aberrations may occur as a result of changes in light color and affect image size.

RZ apochromatic lenses are indispensable in correcting the deteriorated images caused by chromatic aberrations found in long-focus lenses.

Mamiya's own in-house optical technology combined with their ultra low dispersion glass have resulted in a new series of advanced apochromatic Apo-Sekor lenses which have had chromatic aberrations all but eliminated. When using infrared, black and white or color film, focal length adjustments are unnecessary after focusing – just make exposures regardless of the film type. All blurring of the image plane from differences in light color, whether it be in the center or the periphery have been eliminated thus ensuring sharp detailed images. An additional striking feature of the negatives produced by the Apo-Sekor lenses is their ability to be precisely overlapped to produce exacting vivid color reproduction.

Mamiya APO sekor Z



USING THE APO LENS

Mounting the lens

1 Set the mirror by depressing the cocking lever (1) as far as it will go toward the front of the camera body.

2 Remove the rear lens cap and make sure that the lens shutter has been cocked.

If it is not cocked, firmly rotate the lens cocking pins (2) as far as they will go toward the red dot or cocking index (3). When releasing the pins, they will return to the green dot and the shutter blades will remain open. Moving the shutter cocking pins only as far as the green dot will result in the shutter being incompletely cocked, so be sure they are set properly.

Whenever a lens is removed from the camera body, it is already cocked.

3 Rotate the bayonet ring until it reaches the white dot (4) on the lens and it is aligned with the white indicator on the lens.

4 Seat the lens on the camera body so that the white indicator on the lens lines up with the red alignment dot on the camera body. Then, firmly rotate the lens bayonet ring clockwise, securing the lens to the camera body.

Removing the lens

Push the cocking lever of the camera body completely down, setting the mirror and cocking the lens shutter.

Rotate the bayonet ring of the lens counterclockwise until the white dot on the bayonet ring aligns with the white indicator on lens and then remove it.

If you try to rotate the bayonet ring counterclockwise without first depressing the cocking lever on the camera body, the movement of the ring will not function, making lens removal impossible.

5 If the lens is not used for a long time, it is advisable to release the shutter.

The shutter on a lens which has been removed from the camera body can be released by rotating the cocking pin (2) clockwise until it stops, while at the same time pressing the shutter cocking pin (6). Never stop the cocking pin halfway.

Depth-of-field

6 Depth-of-field preview

1. Set the aperture ring to the desire f-stop and focus the lens.

2. Depress the depth-of-field preview lever on the lens and you will be able to check depth-of-field directly on the focusing screen.

7 Using the depth-of-field scale

1. Check the camera-to-subject distance on the distance scale.

2. Rotate the lens distance scale knob until the previously noted camera-to-subject distance is aligned with the center index on the depth-of-field scale.

3. Locate the selected aperture on both sides of the depth-of-field scale.

4. The figures on the lens distance scale, appearing above the selected aperture, indicate the nearest and furthermost limits of sharpness for that aperture.

For example, when the 210mm lens is focused at 5m and stopped down to f/4.5, everything from approximately 4m to 7m will be in focus.

Since one side of the lens distance scale is in feet and the other in meters simply rotate 180° to calculate depth-of-field in either value.

Shutter speed

Use the shutter speed dial to set speeds between 1/400 seconds and 8 seconds, or at B (bulb).

T lock button

8 To make a time exposure, slide the T lever in the direction of the arrow while pressing down on the T lock button. Upon releasing the T lock button, the lever will be locked in position and the shutter will remain open upon when the shutter release button is depressed.

To close the shutter, slide the T lever in the opposite direction by pressing down on the T lock button.

Simply repeat the above procedure to make additional time exposures.

During time exposures, do not touch the cocking lever while the shutter is open. Should the lever be moved, the film may be advanced, so be careful.

- When making a time exposure, the shutter speed dial on the camera body may be set at any position. However, when set at a longer time, the lever may not be moved until the time set on the shutter speed dial is passed. It is therefore advisable to set the shutter speed at as short a time as possible. During a time exposure, there is virtually no expenditure of battery power.

Reading the focal length scale and exposure compensation during close-up photography

In the case of the Apo-Sekor Z 350mm and 210mm lenses, use the focal length scale and exposure correction scale on the camera body as follows:

Apo-Sekor Z 350mm f/5.6

Focal length scale	Use scale indication for 360mm
Exposure correction scale	Read correcterd value for 360mm

Apo-Sekor Z 210mm f/4.5

Focal length scale	Use intermediate scale indication between 180mm and 250mm
Exposure correctin scale	Read corrected value for 250mm

Caution:
When an Apo lens is used with Auto Extension Tubes or a Teleconverter, poor peripheral light tansmission or vignetting may occur depending on the extent to which the body bellows are extended. So when used in any of those combinations, it is suggested that a test be carried out with say polaroid film.

- Neither the Auto Extension Tubes nor Teleconverter can not be used with the Apo-Sekor 500mm f/6 lens.

被写界深度表 DEPTH OF FIELD TABLE (m)

APO-Sekor Z 210mm F4.5

絞り Aperture	距 離 Distance (m)									
	∞	30	15	10	7	5	4	3	2.5	2.3
4.5	∞ 142.84	37.81 24.87	16.69 13.62	10.71 9.38	7.33 6.70	5.16 4.85	4.10 3.91	3.05 2.95	2.53 2.47	2.33 2.72
5.6	∞ 114.91	40.36 23.88	17.16 13.33	10.90 9.24	7.42 6.63	5.20 4.81	4.12 3.88	3.06 2.94	2.54 2.46	2.34 2.27
8	∞ 81.30	47.12 22.02	18.25 12.74	11.32 8.96	7.60 6.49	5.29 4.74	4.18 3.84	3.09 2.91	2.56 2.44	2.35 2.25
11	∞ 57.52	61.75 19.84	20.06 11.99	11.97 8.59	7.89 6.30	5.42 4.64	4.25 3.77	3.13 2.88	2.59 2.42	2.37 2.24
16	∞ 40.71	110.22 17.41	23.33 11.07	13.04 8.12	8.32 6.04	5.62 4.51	4.37 3.69	3.19 2.83	2.62 2.39	2.40 2.20
22	∞ 28.83	∞ 14.84	30.33 9.99	14.93 7.53	9.04 5.72	5.92 4.33	4.55 3.57	3.28 2.77	2.68 2.34	2.44 2.17
32	∞ 20.42	∞ 12.29	52.86 8.79	18.80 6.84	10.28 5.32	6.41 4.11	4.82 3.42	3.41 2.68	2.76 2.28	2.51 2.12
45	∞ 14.48	∞ 9.89	∞ 7.51	29.75 6.05	12.74 4.85	7.27 3.83	5.27 3.23	3.62 2.57	2.89 2.21	2.61 2.05

APO-Sekor Z 250mm F4.5

絞り Aperture	距 離 Distance (m)										
	∞	30	15	10	7	6	5	4.5	4	3.5	3
4.5	∞ 192.81	35.40 26.03	16.21 13.96	10.51 9.54	7.24 6.78	6.17 5.84	5.12 4.89	4.59 4.41	4.07 3.93	3.55 3.45	3.04 2.96
5.6	∞ 156.14	36.96 25.25	16.52 13.74	10.64 9.43	7.30 6.73	6.21 5.80	5.14 4.36	4.61 4.39	4.08 3.92	3.57 3.44	3.05 2.96
8	∞ 110.44	40.90 23.70	17.25 13.27	10.93 9.22	7.43 6.62	6.31 5.72	5.21 4.81	4.66 4.35	4.13 3.88	3.59 3.41	3.07 2.94
11	∞ 78.12	48.16 21.80	18.39 12.67	11.37 8.93	7.62 6.47	6.44 5.61	5.30 4.74	4.73 4.29	4.18 3.83	3.63 3.38	3.09 2.91
16	∞ 55.27	64.33 19.59	20.30 11.90	12.05 8.55	7.92 6.28	6.65 5.47	5.43 4.63	4.84 4.21	4.26 3.77	3.69 3.33	3.13 2.88
22	∞ 39.12	122.60 17.13	23.79 10.97	13.17 8.07	8.37 6.02	6.96 5.28	5.63 4.50	5.00 4.10	4.38 3.68	3.78 3.26	3.19 2.83
32	∞ 27.69	∞ 14.56	31.47 9.87	15.18 7.47	9.11 5.69	7.46 5.03	5.94 4.32	5.24 3.95	4.56 3.57	3.91 3.17	3.28 2.76
45	∞ 19.61	∞ 12.01	57.99 8.66	19.36 6.77	10.42 5.28	8.30 4.71	6.45 4.09	5.62 3.76	4.84 3.41	4.11 3.05	3.41 2.68

APO-Sekor Z 350mm F5.6

絞り Aperture	距 離 Distance (m)										
	∞	50	20	15	12	10	8	7	6	5	4.5
5.6	∞ 309.53	59.44 43.15	21.32 18.84	15.72 14.35	12.45 11.58	10.30 9.71	8.19 7.82	7.14 6.86	6.10 5.90	5.07 4.93	4.55 4.45
8	∞ 218.89	64.48 40.83	21.92 18.39	16.04 14.09	12.64 11.42	10.44 9.60	8.27 7.75	7.20 6.81	6.14 5.86	5.10 4.91	4.58 4.43
11	∞ 154.80	73.28 37.95	22.82 17.80	16.51 13.75	12.93 11.20	10.63 9.44	8.39 7.65	7.29 6.73	6.20 5.81	5.14 4.87	4.61 4.40
16	∞ 109.48	90.81 34.51	24.24 17.03	17.23 13.29	13.36 10.89	10.91 9.23	8.56 7.51	7.41 6.63	6.29 5.73	5.19 4.82	4.65 4.36
22	∞ 77.44	137.25 30.59	26.58 16.04	18.35 12.69	14.02 10.49	11.34 8.95	8.81 7.33	7.60 6.49	6.42 5.63	5.28 4.75	4.72 4.30
32	∞ 54.78	496.94 26.36	30.78 14.82	20.23 11.93	15.07 9.97	12.00 8.57	9.20 7.08	7.88 6.30	6.62 5.49	5.41 4.65	4.82 4.22
45	∞ 38.75	∞ 22.05	39.64 13.39	23.66 10.99	16.84 9.32	13.09 8.10	9.81 6.76	8.32 6.05	6.91 5.30	5.59 4.52	4.96 4.12

APO-Sekor 500mm F6

絞り Aperture	距 離 Distance (m)									
	∞	100	50	30	20	17	15	12	11	10
6	∞ 580.53	120.51 85.45	54.59 46.12	31.57 28.58	20.67 19.37	17.48 16.55	15.37 14.65	12.23 11.78	11.19 10.32	10.15 9.85
8	∞ 441.35	128.85 81.70	56.22 45.02	32.10 28.16	20.89 19.18	17.63 16.41	15.48 14.54	12.30 11.71	11.25 10.76	10.20 9.80
11	∞ 312.05	146.33 75.94	59.27 43.23	33.05 27.46	21.28 18.86	17.91 16.18	15.69 14.36	12.43 11.60	11.36 10.66	10.29 9.73
16	∞ 220.63	181.07 69.06	64.21 40.94	34.51 26.53	21.87 18.43	18.31 15.86	16.00 14.12	12.62 11.44	11.51 10.53	10.42 9.62
22	∞ 155.98	272.52 61.21	72.76 38.08	36.80 25.32	22.74 17.85	18.92 15.43	16.46 13.78	12.89 11.22	11.73 10.34	10.60 9.47
32	∞ 110.27	952.98 52.73	89.66 34.65	40.61 23.78	24.11 17.08	19.84 14.87	17.15 13.33	13.30 10.93	12.07 10.10	10.87 9.26
45	∞ 77.94	∞ 44.09	133.46 30.74	47.56 21.90	26.36 16.11	21.32 [illegible]	18.23 [illegible]	13.93 [illegible]	12.58 [illegible]	11.27 [illegible]

DEPTH OF FIELD TABLE (feet)

APO-Sekor Z 210mm F4.5

Aperture	Distance (feet)								
	∞	100′	50′	30′	20′	15′	10′	8′	7.5
4.5	∞ 469′ 0″	127′ 0″ 82′ 8″	55′ 9″ 45′ 4″	31′11″ 28′ 4″	20′10″ 19′ 3″	15′ 5″ 14′ 7″	10′ 2″ 9′10″	8′ 1″ 7′11″	7′ 7″ 7′ 5″
5.6	∞ 377′ 0″	135′ 0″ 79′ 4″	57′ 4″ 44′ 4″	32′ 5″ 27′11″	21′ 0″ 19′ 1″	15′ 7″ 14′ 6″	10′ 3″ 9′ 9″	8′ 1″ 7′10″	7′ 7″ 7′ 4″
8	∞ 267′ 0″	159′ 0″ 73′ 1″	61′ 1″ 42′ 4″	33′ 7″ 27′ 2″	21′ 6″ 18′ 9″	15′ 9″ 14′ 4″	10′ 4″ 9′ 8″	8′ 2″ 7′10″	7′ 8″ 7′ 4″
11	∞ 189′ 0″	209′ 0″ 65′ 9″	67′ 3″ 39′10″	35′ 3″ 26′ 1″	22′ 2″ 18′ 3″	16′ 2″ 14′ 0″	10′ 5″ 9′ 7″	8′ 3″ 7′ 9″	7′ 9″ 7′ 3″
16	∞ 134′ 0″	384′ 0″ 57′ 8″	78′ 6″ 36′ 9″	38′ 1″ 24′ 9″	23′ 2″ 17′ 7″	16′ 8″ 13′ 8″	10′ 8″ 9′ 5″	8′ 4″ 7′ 8″	7′10″ 7′ 2″
22	∞ 94′ 7″	∞ 49′ 1″	103′ 0″ 33′ 2″	42′11″ 23′ 1″	24′10″ 16′ 9″	17′ 5″ 13′ 2″	10′11″ 9′ 2″	8′ 6″ 7′ 6″	7′11″ 7′ 1″
32	∞ 67′ 0″	∞ 40′ 7″	184′ 0″ 29′ 1″	52′ 3″ 21′ 1″	27′ 7″ 15′ 9″	18′ 9″ 12′ 6″	11′ 5″ 8′11″	8′10″ 7′ 4″	8′ 2″ 6′11″
45	∞ 47′ 6″	∞ 32′ 7″	∞ 24′10″	75′ 8″ 18′10″	32′ 9″ 14′ 6″	20′11″ 11′ 9″	12′ 1″ 8′ 6″	9′ 2″ 7′ 1″	8′ 6″ 6′ 8″

APO-Sekor Z 250mm F4.5

Aperture	Distance (feet)							
	∞	100′	50′	30′	20′	15′	12′	10′
4.5	∞ 633′ 0″	118′ 0″ 86′ 7″	54′ 1″ 46′ 6″	31′ 5″ 28′ 9″	20′ 7″ 19′ 5″	15′ 4″ 14′ 8″	12′ 2″ 11′10″	10′ 2″ 9′10″
5.6	∞ 512′ 0″	124′ 0″ 83′11″	55′ 2″ 45′ 9″	31′ 9″ 28′ 5″	20′ 9″ 19′ 4″	15′ 5″ 14′ 8″	12′ 3″ 11′ 9″	10′ 2″ 9′10″
8	∞ 362′ 0″	137′ 0″ 78′ 9″	57′ 8″ 44′ 2″	32′ 6″ 27′10″	21′ 1″ 19′ 1″	15′ 7″ 14′ 6″	12′ 4″ 11′ 8″	10′ 3″ 9′ 9″
11	∞ 256′ 0″	162′ 0″ 72′ 4″	61′ 7″ 42′ 1″	33′ 8″ 27′ 1″	21′ 6″ 18′ 8″	15′10″ 14′ 3″	12′ 6″ 11′ 7″	10′ 4″ 9′ 8″
16	∞ 181′ 0″	219′ 0″ 64′11″	68′ 1″ 39′ 7″	35′ 6″ 26′ 0″	22′ 2″ 18′ 2″	16′ 2″ 14′ 0″	12′ 8″ 11′ 5″	10′ 5″ 9′ 7″
22	∞ 128′ 0″	430′ 0″ 56′ 9″	80′ 1″ 36′ 5″	38′ 5″ 24′ 8″	23′ 3″ 17′ 7″	16′ 8″ 13′ 8″	13′ 0″ 11′ 2″	10′ 8″ 9′ 5″
32	∞ 90′10″	∞ 48′ 1″	107′ 0″ 32′ 9″	43′ 6″ 22′11″	25′ 0″ 16′ 8″	17′ 6″ 13′ 2″	13′ 6″ 10′10″	11′ 0″ 9′ 2″
45	∞ 64′ 4″	∞ 39′ 8″	203′ 0″ 28′ 8″	53′ 6″ 20′11″	27′10″ 15′ 8″	18′10″ 12′ 6″	14′ 3″ 10′ 5″	11′ 5″ 8′11″

APO-Sekor Z 350mm F5.6

Aperture	Distance (feet)									
	∞	150′	70′	50′	40′	30′	25′	20′	17′	15′
5.6	∞ 1016′ 0″	175′ 0″ 131′ 0″	75′ 0″ 65′ 8″	52′ 5″ 47′ 9″	41′ 6″ 38′ 7″	30′10″ 29′ 3″	25′ 7″ 24′ 6″	20′ 4″ 19′ 8″	17′ 3″ 16′ 9″	15′ 2″ 14′10″
8	∞ 718′ 0″	189′ 0″ 124′ 0″	77′ 3″ 64′ 0″	53′ 6″ 46′11″	42′ 2″ 38′ 0″	31′ 2″ 28′11″	25′10″ 24′ 3″	20′ 6″ 19′ 6″	17′ 4″ 16′ 8″	15′ 3″ 14′ 9″
11	∞ 508′ 0″	211′ 0″ 116′ 0″	80′ 8″ 61′10″	55′ 1″ 45′ 9″	43′ 2″ 37′ 3″	31′ 8″ 28′ 6″	26′ 2″ 23′11″	20′ 8″ 19′ 4″	17′ 6″ 16′ 7″	15′ 4″ 14′ 8″
16	∞ 359′ 0″	254′ 0″ 106′ 0″	86′ 1″ 59′ 0″	57′ 7″ 44′ 2″	44′ 7″ 36′ 3″	32′ 5″ 27′11″	26′ 8″ 23′ 7″	21′ 0″ 19′ 1″	17′ 8″ 16′ 4″	15′ 6″ 14′ 6″
22	∞ 254′ 0″	357′ 0″ 95′ 0″	95′ 3″ 55′ 4″	61′ 5″ 42′ 2″	46′10″ 34′11″	33′ 7″ 27′ 1″	27′ 5″ 23′ 0″	21′ 5″ 18′ 9″	18′ 0″ 16′ 1″	15′ 9″ 14′ 4″
32	∞ 180′ 0″	838′ 0″ 82′ 6″	112′ 0″ 51′ 0″	67′10″ 39′ 7″	50′ 5″ 33′ 2″	35′ 4″ 26′ 1″	28′ 6″ 22′ 3″	22′ 1″ 18′ 3″	18′ 5″ 15′ 9″	16′ 1″ 14′ 1″
45	∞ 127′ 0″	∞ 69′ 6″	149′ 0″ 45′10″	79′ 8″ 36′ 6″	56′ 7″ 31′ 0″	38′ 2″ 24′ 9″	30′ 3″ 21′ 4″	23′ 1″ 17′ 8″	19′ 1″ 15′ 4″	16′ 7″ 13′ 8″

APO-Sekor 500mm F6

Aperture	Distance (feet)							
	∞	300′	100′	70′	60′	50′	40′	30′
6	∞ 1905′ 0″	355′ 0″ 260′ 0″	105′ 0″ 95′ 2″	72′ 6″ 67′ 8	61′12″ 53′ 3″	51′ 3″ 48′10″	40′ 9″ 39′ 3″	30′ 5″ 29′ 7″
8	∞ 1448′ 0″	377′ 0″ 249′ 0″	107′ 0″ 93′ 9″	73′ 4″ 66′11	62′ 5″ 57′ 9″	51′ 8″ 48′ 5″	41′ 0″ 39′ 0″	30′ 7″ 29′ 6″
11	∞ 1024′ 0″	422′ 0″ 233′ 0″	110′ 0″ 91′ 5″	74′10″ 65′ 9″	63′ 6″ 56′11″	52′ 4″ 47′10″	41′ 6″ 38′ 8″	30′ 9″ 29′ 3″
16	∞ 724′ 0″	508′ 0″ 213′ 0″	115′ 0″ 88′ 3″	77′ 0″ 64′ 2″	65′ 1″ 55′ 3″	53′ 5″ 47′ 0″	42′ 1″ 38′ 1″	31′ 1″ 28′11″
22	∞ 512′ 0″	711′ 0″ 190′ 0″	123′ 0″ 84′ 2″	80′ 5″ 62′ 0″	67′ 5″ 54′ 1″	54′11″ 45′10″	43′ 0″ 37′ 4″	31′ 7″ 28′ 7″
32	∞ 362′ 0″	1644′ 0″ 165′ 0″	136′ 0″ 79′ 0″	85′ 8″ 59′ 2″	71′ 3″ 51′11″	57′ 4″ 44′ 4″	44′ 5″ 36′ 4″	32′ 4″ 28′ 0″
45	∞ 256′ 0″	∞ 139′ 0″	160′ 0″ 72′ 8″	94′ 4″ 55′ 7″	76′10″ [illegible]	61′ 0″ [illegible]	46′ 7″ [illegible]	33′ 5″ [illegible]

Close-up/Auto Extension Tube Table

Lens	Tube	Magnification	Subject Distance (cm)	Area Covered (cm)	Bellows Extension(mm) / Exposure Factor (STEP)
APO 210mm f/4.5	No. 1	0.21~0.43	118.9~ 69.3	(26.1×32.5)~(12.9×16.1)	40 30 20 10 0 — +1.5 +1
	No. 2	0.40~0.61	74.6~ 55.3	(14.4×17.8)~(9.2×11.4)	+2 — 40 30 20 10 0 — +1.5
	※ No. 1 +No. 2	0.60~0.82	55.7~ 46.3	(9.3×11.5)~(6.8×8.4)	40 30 20 10 0 — +2
APO 250mm f/4.5	No. 1	0.18~0.37	159.3~ 91.9	(30.5×37.8)~(15.1×18.7)	40 30 20 10 0 — +1.5 +1
	No. 2	0.34~0.52	99.2~ 72.9	(16.7×20.8)~(10.7×13.3)	+2 — 40 30 20 10 0 — +1.5
	※ No. 1 +No. 2	0.52~0.71	73.2~ 60.7	(10.8×13.4)~(7.9×9.8)	40 30 20 10 0 — +2
APO 350mm f/5.6	No. 1	0.13~0.26	313.9~180.2	(42.9×53.3)~(21.2×26.4)	+1.5 — 40 30 20 10 0 — +1 — +0.5
	※ No. 2	0.24~0.37	194.5~142.4	(23.6×29.2)~(15.1×18.7)	40 30 20 10 0 — +1.5 +1
	※ No. 1 +No. 2	0.37~0.50	143.1~118.2	(15.2×18.9)~(11.2×13.9)	40 30 20 10 0 — +2 +1.5

1. "Subject Distance" refers to the distance between the subject and the front rim of the lens.

2. Two sets of figures (i.e. 0.21 – 0.43) which appear above, indicate on the left (0.21) a setting at zero bellows extension, while on the right (0.43) a setting at maximum bellows extension or 46mm.

3. For clarity, the exposure factors on the extreme right are shown in 1/2 stop increments (+1, +1.5, +2, +2.5); however, for precise exposure compensation, the division between the two stops should be read as 1/4 stop. Thus the separation between +1 and +1.5 is actually +1¼. Similarly, +1.5 and +2 is +1¾.

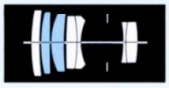
• As in close-up photography using the Auto Extension Tubes or in macro-photography using extended bellows, the quantity of light reaching the film changes as the lens is extended. Consequently, be sure to calculate exposure after focusing.

※ When the Auto Extension Tubes are used in this combination, it is advised to exercise the utmost care since poor peripheral light transmission or vignetting may occur due to the aperture setting or when bellows are used.

Mamiya

210mm f/4.5

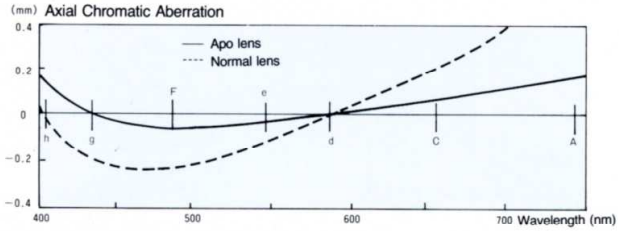
By combining two lenses which use ultra low dispersion glass with one that uses anomalous dispersion glass, the utmost in chromatic aberration correction has been achieved. Since spherical aberration is negligible, halo or aberration flare has been eliminated while coma and astigmatism have also been corrected to a significant extent. Chromatic aberration free, the 210mm assures high contrast image quality over the entire plane at open aperture. Even when stopped down to small apertures, resolving power and contrast remain almost unchanged. At f/11, however, there may be an indication of some deterioration in quality due to diffraction.
The spherical aberrations and fluctuations that result from the curvature of the field in close-up or short distance photography have also been eliminated. Pincushion distortion is less than 1%.

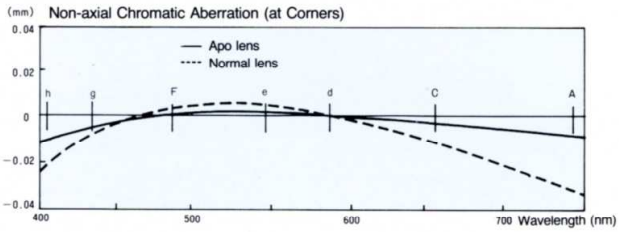


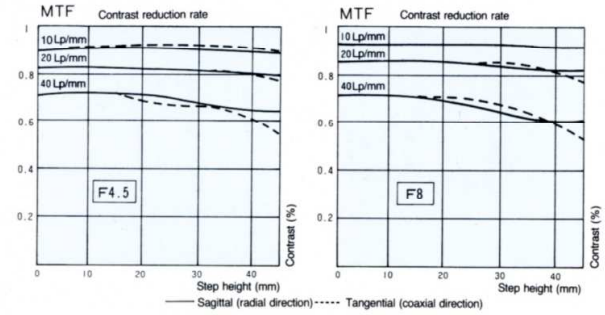
Optical construction: 7 elements in 5 groups
Diaphragm: Automatic
Minimum aperture: 45
Minimum focusing distance: 1,168mm
(from the front of the lens rim)
Area covered: 256 × 318mm
Filter size: 77mm
Lens hood: Attached to lens: 114 (long) ×
97mm (outside diameter)/980g

210mm f/4.5

Focal lenght: 210mm
Angle of view: Diagonal 23°50′ Lateral 18°40′ Vertical 15°10′
Position of entrance pupil
(from the 1st lens vertex): 79.6mm rear side
Position of front principal point
(from the 1st lens vertex): 28.1mm front side
Position of rear principal point
(from the final lens vertex): 82.9mm front side
Lens back: 127.1mm
Telephoto ratio: 1.02

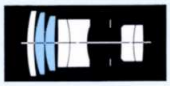






250mm f/4.5

Similar to the 210mm f/4.5, the 250mm f/4.5 combines two lenses which use ultra low dispersion glass with one that uses anomalous dispersion glass, thus producing similar image quality, with less chromatic aberrations.
The 250mm also features high contrast and resolving power. Spherical aberrations and fluctuations fo curvture of the field during short distance photography have been remedied, preventing image deterioration. Pincushion distortion is less than 1%.

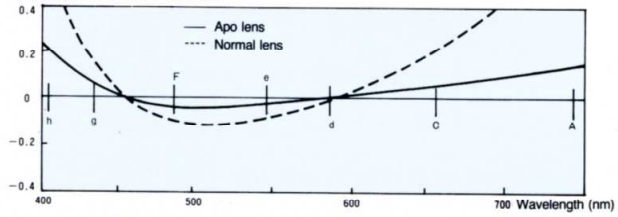


Optical construction: 7 elements in 5 groups
Diaphragm: Automatic
Minimum aperture: 45
Minimum focusing distance: 1,564mm
(from the front of the lens rim)
Area covered: 298 × 370mm
Filter size: 77mm
Lens hood: Attached to lens; screw in
Dimensions/weight: 145 (long) × 97mm
(outside diameter)/1,340g

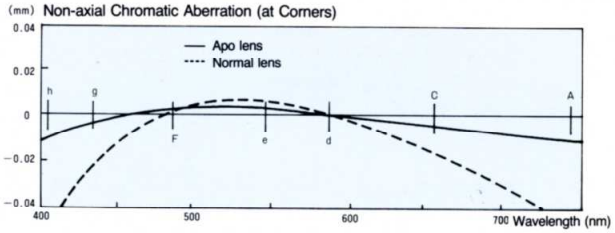
250mm f/4.5

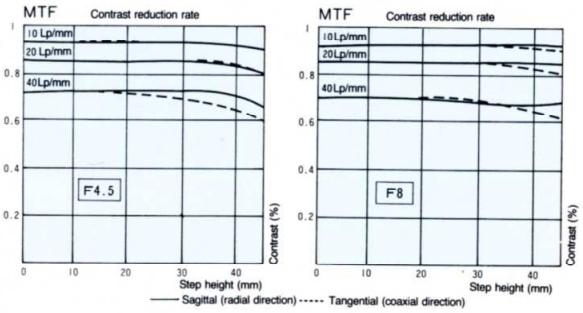
Focal lenght: 250mm
Angle of view: Diagonal 20°30′ Lateral 16°0′ Vertical 13°0′
Position of entrance pupil
(from the 1st lens vertex): 130.6mm rear side
Position of front principal point
(from the 1st lens vertex): 21.5mm front side
Position of rear principal point
(from the final lens vertex): 122.5mm front side
Lens back: 122.4mm
Telephoto ratio: 0.99

(mm) Axial Chromatic Aberration



(mm) Non-axial Chromatic Aberration (at Corners)





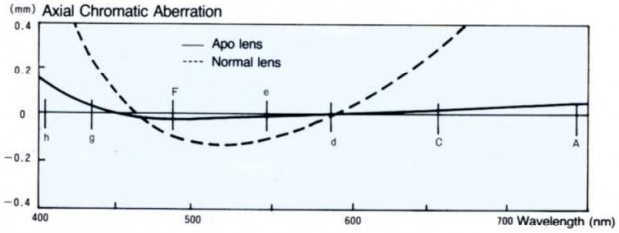
350mm f/5.6

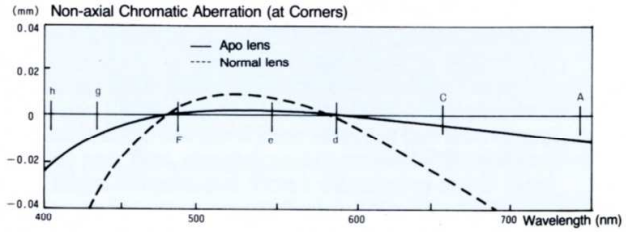
The 350mm f/5.6 combines two lenses that use ultra low dispersion glass with four out of the remaining five lenses using anoma lous dispersion glass, and is corrected for a wide range of chromatic aberrations from 400nm to 1,000nm. All longitudinal distortions, such as spherical aberration, astigmatism and curvature of the field, have been corrected to less than 0.1mm: coma and flare have been eliminated. Due to high contrast and reduced curvature of the field, fluctuations and/or deterioration in picture quality are negligible. Pincushion distoriton is less than 1%.

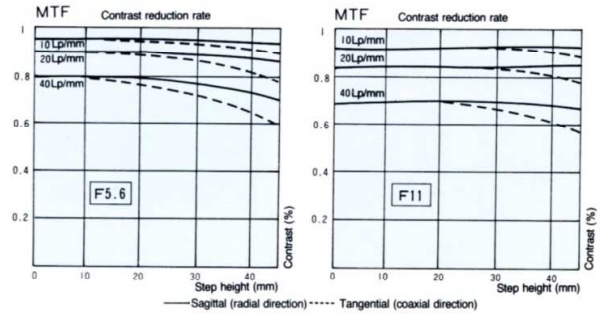
Optical construction: 7 elements in 6 groups
Diaphragm: Automatic
Minimum aperture: 45
Minimum focusing distance: 3,081mm
(from the front of the lens rim)
Area covered: 420 × 521mm
Filter size: 77mm
Lens hood: Attached to lens; screw in
Dimensions/weight: 192 (long) × 97mm
(outside diameter)/1,455g

350mm f/4.5

Focal lenght: 350mm
Angle of view: Diagonal 14°40′ Lateral 11°30′ Vertical 9°20′
Position of entrance pupil
(from the 1st lens vertex): 221.4mm rear side
Position of front principal point
(from the 1st lens vertex): 150.6mm front side
Position of rear principal point
(from the final lens vertex): 217.7mm front side
Lens back: 127.3mm
Telephoto ratio: 0.85







500mm f/6

When the total length of a telephoto lens is shortened, aberrations tend to increase so that it has been considered optically very difficult to produce a compact lens free of aberrations. Mamiya's own optical technology has been able to surmount those design perplexities and the 500mm f/6 is proof of that innovation. It is 19mm shorter than the RZ500mm and like the 350mm, combines two lenses that use ultra low dispersion glass with four that use anomalous dispersion glass: all chromatic aberrations within the 400 to 1,000nm range have been eliminated. In addition, all longitudinal distortions in the form of spherical aberrations, astigmatism and curvature of the field, have been corrected to less than 0.1mm: coma and flare are a thing of the past. Thus, crystal sharp, high contrast, high resolution images are generated. Picture deterioration due to distortion caused by spherical aberration and curvature of the field in short distance photography have been rectified and likewise are a thing of the past. Pincushion distortion is less than 1%.

Optical construction: 7 elements in 7 groups
Diaphragm: Automatic
Minimum aperture: 45
Minimum focusing distance: 6,064mm
(from the front of the lens rim)
Area covered: 597 × 740mm
Filter size: 105mm
Lens hood: Attached to lens; screw in
Dimensions/weight: 280 (long) × 108mm
(outside diameter)/2,315g

500mm f/6

Focal lenght: 500mm
Angle of view: Diagonal 10°20′ Lateral 8°0′ Vertical 6°30′
Position of entrance pupil
(from the 1st lens vertex): 474.4mm rear side
Position of front principal point
(from the 1st lens vertex): 354.9mm front side
Position of rear principal point
(from the final lens vertex): 345.3mm front side
Lens back: 144.7mm
Telephoto ratio: 0.78