CAMERA TECHNIQUE

for Professional Photographers

Lens and Shutter Data

• The following pages contain useful data on Kodak lenses and shutters. Lenses of the same basic design are grouped together.

Lens Diagrams: These drawings are schematic presentations of the basic design for each lens or group of lenses. They show the number and approximate arrangement of the various elements. Cemented pairs of elements can be distinguished by the contrasting pattern of the diagonal lines in the drawings. The arrow indicates the direction in which light normally passes through the lens to the light-sensitive material. The two vertical lines indicate the position of the lens diaphragm.

Depth-of-Field Tables: Where lack of space does not permit the listing of the depth of field for all lens stops, the depth of field for the missing *f*-numbers can be estimated by comparing the depth for the next larger and smaller stops.

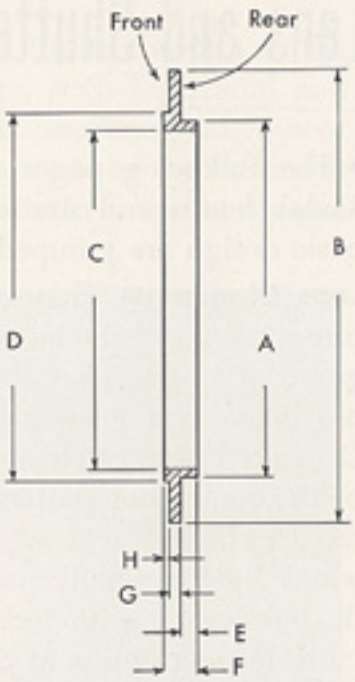
Back Focus: For lenses supplied separately for use in studio, view, press, and reflex cameras, the distance between the rear glass surface of the lens and the focal plane when the lens is focused on infinity, is given. This distance is referred to as the "back focus" of the lens.

Attachment Size: The Series number (VI, VII, etc.) of Kodak Combination Lens Attachments accepted by each lens, as well as the size of the Kodak Adapter Ring required, is listed. Kodak Adapter Rings listed by inches and millimeters are of the slip-on type, and those listed by number are of the screw-in type.

Shutter Data: Shutter speeds and flash synchronization data are given for the shutter in which each lens is supplied. "Class F" and "Class M" refer to photoflash lamps having nominal times-to-peak of 5 and 20 milliseconds, respectively.

ATTACHING LENSES TO VIEW CAMERAS

Removable lens boards, such as those supplied on view, press, or studio cameras, permit lenses for these cameras to be interchanged by the substitution of complete units comprising lens board and lens in shutter or in barrel. A lens is fitted to a lens board by means of a flange similar to that shown in the cross-section drawing at right. A hole is drilled through the center of the lens board, the diameter of the hole corresponding to the outside diameter of the flange shoulder (A in the drawing). The flange shoulder is inserted into this hole and the flange is permanently affixed to the lens board by means of screws through the flange rim. The barrel or shutter in which the lens is mounted is threaded so that it can be screwed into its proper flange. Certain flanges accommodate two or more different lenses. Lenses which fit a common flange may be interchanged by using only one lens board and flange, but it is safer and more convenient to keep each lens in its own lens board.



The table below lists Kodak lenses and gives the dimensions in both inches and millimeters of the proper flange for each lens. Letters in the table correspond to those in the drawing at right.

KODAK LENS (in shutter, unless otherwise indicated)	Flange Dimensions							
	A*	B	C	D	E	F	G	H
Ektar, 101mm *f*/4.5 Wide Field Ektar, 80mm *f*/6.3 Synchro Rapid 800 101mm *f*/4.5 Ektar Lens	1¾ in. 34.80mm	1.850 in. 47.00mm	1.182 in. 30.10mm 40 Thd. NS		0.156 in. 3.96mm	0.196 in. 4.98mm	0.040 in. 1.02mm	
Ektar, 105mm *f*/3.7 Ektar, 127mm *f*/4.7 Ektar, 8-inch *f*/7.7 Wide Field Ektar, 100mm *f*/6.3	1½ in. 38.10mm	1.937 in. 49.10mm	1.375 in. 34.90mm 40 Thd. NS		0.156 in. 3.96mm	0.196 in. 4.98mm	0.040 in. 1.02mm	
Ektar, 152mm *f*/4.5 Wide Field Ektar, 135mm *f*/6.3	1⅞ in. 47.00mm	2.437 in. 62.00mm	1.750 in. 44.40mm 40 Thd. NS		0.090 in. 2.28mm	0.160 in. 4.06mm	0.070 in. 1.78mm	
Commercial Ektar, 8½-inch *f*/6.3 in bbl or shutter	2⅛ in. 53.70mm	2.68 in. 68.00mm	1.99 in. 50.50mm 24 Thd. NS	2.23 in. 56.50mm	0.059 in. 1.50mm	0.217 in. 5.50mm	0.079 in. 2.00mm	0.079 in. 2.00mm
Commercial Ektar, 10-inch *f*/6.3 in bbl or shutter Ektar, 7½-inch *f*/4.5	2⅝ in. 66.60mm	3.15 in. 80.00mm	2.500 in. 63.40mm 30 Thd. NS	2.60 in. 66.00mm	0.049 in. 1.25mm	0.266 in. 6.75mm	0.079 in. 2.00mm	0.139 in. 3.50mm
Commercial Ektar, 12-inch *f*/6.3 in bbl or shutter Wide Field Ektar, 190mm *f*/6.3	2⅞ in. 73.00mm	3.59 in. 91.00mm	2.74 in. 69.69mm 24 Thd. NS	3.04 in. 77.00mm	0.049 in. 1.25mm	0.364 in. 9.25mm	0.079 in. 2.00mm	0.237 in. 6.00mm
Commercial Ektar, 14-inch *f*/6.3 in shutter Wide Field Ektar, 250mm *f*/6.3	3⅜ in. 85.56mm	4.28 in. 108.60mm	3.24 in. 82.10mm 30 Thd. NS	3.43 in. 87.00mm	0.218 in. 5.55mm	0.346 in. 8.80mm	0.089 in. 2.25mm	0.039 in. 1.00mm
Commercial Ektar, 14-inch *f*/6.3 in bbl	3⅜ in. 85.72mm	4.02 in. 102.00mm	3.064 in. 77.78mm 24 Thd. NS	3.41 in. 86.50mm	0.049 in. 1.25mm	0.541 in. 13.75mm	0.079 in. 2.00mm	0.396 in. 10.50mm

*Fits into lens board mounting hole. Fractional inches are given to facilitate selection of standard bit sizes.

CURRENT AND RECENT KODAK LENSES for PRESS, VIEW, and SIMILAR CAMERAS	Adapter Ring Size			Mounting Flange Part Number	
	Series	*Inches*	*Mm*	*Barrel*	*Shutter*
Ektar *f*/4.5, 101mm (Supermatic)	VI	1 $\frac{5}{16}$	33.		80502
Ektar *f*/4.5, 101mm (Synchro 800)	V	Not needed§			80502
Ektar *f*/3.7, 107mm	VI	1½	38.		HE 23804
Ektar *f*/3.7, 105mm	VI	1½	38.		80503
Ektar *f*/4.7, 127mm	VI	1½	38.		80503
Anastigmat *f*/4.5, 5-in.	VI	1 $\frac{5}{16}$	33.	HE 3030	
Anastigmat *f*/4.5, 5½-in.	VI	1 $\frac{5}{16}$	39.5	HE 31896	
Ektar *f*/4.5, 6-in. (152mm)	VII	1¾	44.5		88683
Anastigmat *f*/4.5, 6¾-in.†	VII	1¾	44.5	HE 3312	
Ektar *f*/4.5, 7½-in.	VIII	2⅛	54.	HE 28592	HE 28592
Anastigmat *f*/4.5, 7½-in.†	VII	2	50.5	HE 3125	
Ektar *f*/5.6, 7½-in. (190mm)	VII	1¾	43.5		
Anastigmat *f*/7.7, 8-in.	VI	1 $\frac{5}{16}$	33.	HE 31896	HE 24216
Ektar *f*/7.7, 8-in.	VI	1 $\frac{5}{16}$	33.		80503
Ektar *f*/6.3, 8½-in.†	VII	1¾	44.5	HE 32505	HE 32505
Comm. Ektar *f*/6.3, 8½-in.†	VII	1¾	44.5	HE 32505	HE 32505
Anastigmat *f*/4.5, 8½-in.†	VIII	2⅜	60.	HE 2744	
Ektar *f*/6.3, 10-in.†	VIII	2⅛	54.	HE 28592	HE 28592
Comm. Ektar *f*/6.3, 10-in.†	VIII	2⅛	54.	HE 28592	HE 28592
Anastigmat *f*/4.5, 10-in.†	VIII	2⅜	67.	HE 2458	
Ektar *f*/6.3, 12-in.†	VIII	2½	63.5	HE 28562	
Comm. Ektar *f*/6.3, 12-in.†	VIII	2½	63.5	HE 32442	HE 32442
Ektar *f*/4.5, 12-in.	IX	No. 92 Screw-in		HE 2995	HE 32405
Anastigmat *f*/4.5, 12-in.†	*	—	—	HE 2995	
Eastman Ektar *f*/6.3, 14-in.†	**	—	—	HE 32412	HE 32405
Comm. Ektar *f*/6.3, 14-in.†	IX	No. 91 Screw-in		HE 32412	HE 32405
Wide Field Ektar *f*/6.3, 80mm	VI	No. 27 ‡Screw-in			80502
Wide Field Ektar *f*/6.3, 100mm	VII	Special‡			80503
Wide Field Ektar *f*/6.3, 135mm	VII	Not needed§			88683
Wide Field Ektar *f*/6.3, 190mm	VIII	Not needed§			HE 32442
Wide Field Ektar *f*/6.3, 250mm	IX	Not needed§			HE 32405

*Use 4-in. Kodak Adjustable Filter Holder.
**Use 4-in. Kodak Adjustable Filter Holder.
†In Shutter or Barrel.
‡Kodak Adapter Ring and Kodak Adapter Ring Insert supplied with lens.
§No adapter needed—insert ring supplied with lens.

Kodak Lenses supplied in shutters for use on the Kodak Master View Camera 4x5

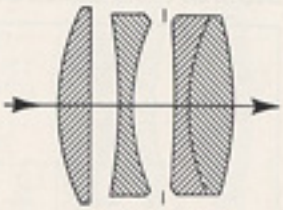
Lens	Shutter	Focal Length		Marked Apertures	Angular Coverage**		Kodak Adapter Ring Size		Kodak Lens Attachment Series	Diameter of Lens Board Mounting Hole	Overall Length of Lens Mount
		in.	*mm*		*Mx. Aper.*	*f/16 or Smaller*	*in.*	*mm*		*in.*	*in.*
Kodak Wide Field Ektar 100mm *f*/6.3	Kodak Flash Supermatic	4	100	*f*/6.3 to *f*/32	75°	85°	screw-in type furnished		VII*	1.500	1.772
Kodak Wide Field Ektar 135mm *f*/6.3	Kodak Flash Supermatic	5 3/16	135	*f*/6.3 to *f*/32	75°	85°	screw-in type furnished		VII*	1.850	1.728
Kodak Wide Field Ektar 190mm *f*/6.3	No. 4 Ilex Acme Synchro	7½	190	*f*/6.3 to *f*/45	75°	85°	screw-in type furnished		VIII*	2.875	2.293
Kodak Wide Field Ektar 250mm *f*/6.3	No. 5 Ilex Univ. Synchro	10	250	*f*/6.3 to *f*/45	75°	85°	screw-in type furnished		...	3.368	2.847
Kodak Ektar 152mm *f*/4.5	Kodak Flash Supermatic	6	152	*f*/4.5 to *f*/45	52°	62°	1¾	44.5	VII	1.850	1.455
Kodak Ektar 8-in. *f*/7.7	Kodak Flash Supermatic	8	203	*f*/7.7 to *f*/45	52°	56°	1 5/16	33	VI	1.500	1.250
Kodak Ektar 8½-in. *f*/6.3	No. 3 Ilex Acme Synchro	8½	216	*f*/6.3 to *f*/45	53°	64°	1¾	44.5	VII	2.188	1.750
Kodak Ektar 10-in. *f*/6.3	No. 4 Ilex Acme Synchro	10	254	*f*/6.3 to *f*/45	53°	64°	2⅛	54	VIII	2.625	2.063
Kodak Ektar 12-in. *f*/6.3	No. 4 Ilex Acme Synchro	12	304	*f*/6.3 to *f*/45	53°	64°	2½	63.5	VIII	2.875	2.500

*Filters only.

**See lens coverage chart on page 30.

Lens and Shutter Data:

KODAK EKTAR LENSES
101mm f/4.5; 127mm f/4.7; 152mm f/4.5; 7½-inch f/4.5; 12-inch f/4.5



These lenses make available to users of small and medium-size press and similar cameras as well as larger view cameras the optical pre-eminence represented by Kodak Ektar Lenses. Their ability to meet most exacting requirements in black-and-white and color photography is well known. All of these lenses are Lumenized.

They produce definition of exceptional quality over the areas they are designed to cover at all apertures and all working distances from infinity to about 3½ feet from the lens. When a shorter lens-to-subject distance is used, it is advisable to stop the lens below maximum aperture, particularly for work demanding critical definition. The 101mm and 127mm lenses are also supplied with metal lens boards for use with the Kodak Flurolite Camera Combination.

Marked Apertures:
101mm lens: *f*/4.5, *f*/5.6, *f*/8, *f*/11, *f*/16, *f*/22, and *f*/32
127mm lens: *f*/4.7, *f*/5.6, *f*/8, *f*/11, *f*/16, *f*/22, and *f*/32
152mm, 7½-in., or 12-in. lens: *f*/4.5, *f*/5.6, *f*/8, *f*/11, *f*/16, *f*/22, *f*/32, and *f*/45

Focal Length, Back Focus, Maximum Recommended Negative Size, and Angle of View (Lens Focused at Infinity):

Focal Length		*Back Focus*	*Maximum Recommended Negative Size*	*Angle of View (Lens Focused at Infinity)*
101mm	4 in.	90 mm	2¼ x 3¼ in.	32° x 45°
127mm	5 in.	113 mm	3¼ x 4¼ in.	36° x 46°
152mm	6 in.	135.2 mm	4 x 5 in.	37° x 45°
7½-inch	7½-in.	169.1 mm	5 x 7 in.	37° x 53°
12-inch	12-in.	271.2 mm	8 x 10 in.	37° x 45°

Infrared Focusing: Lens should be extended from visual focus as follows:
.004 in. (.1 mm) for 101mm lens
.004 in. (.1 mm) for 127mm lens
.03 in. (.76 mm) for 152mm lens
.008 in. (.2mm) for 7½-in. lens
.016 in. (.4mm) for 12-in. lens

Shutters: Kodak Synchro-Rapid 800 (101mm lens): Speeds—1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200, 1/400, 1/800 sec, and B. Built-in synchronization for Class F, M, and X. Kodak Flash Supermatic (127mm and 152mm lenses): Speeds—1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200, 1/400 sec, T, and B. (No 1/400 sec for 152mm lens). Built-in synchronization for Class F, M, and X. Blade arrester. Kodak Supermatic X (127mm lens): Same features as Flash Supermatic Shutter except synchronized for Class X only. The 7½-inch lens is available in a barrel with iris diaphragm, in an Ilex Universal Shutter (non-flash) or in an Ilex Acme Synchro Shutter. The 12-inch lens is available only in an Ilex Universal Synchro Shutter.

Diameter of Lens-Board Mounting Hole:
101mm lens—35 mm, 1⅜ in.
127mm lens—38 mm, 1½ in.
152mm lens—47 mm, 1⅞ in.
7½-inch lens—66.7mm, 2⅝ in.
12-inch lens—85.6mm, 3⅜ in.

Size of Kodak Combination Lens Attachments:
101mm lens—Series V, no Adapter Ring needed
127mm lens—38 mm, 1½ in., Series VI
152mm lens—44.5 mm, 1¾ in., Series VII
7½-inch lens—54 mm, 2⅛ in., Series VIII
12-inch lens—80 mm, 3⅛ in. Use Kodak 4-inch Adjustable Filter Holder.

Hyperfocal Distance: Same as near limit of depth of field at infinity. See next page.

Depth of Field: Kodak Ektar Lens, 101mm *f*/4.5

Distance Focused On—Ft	Approximate Field Size with 2¼ x 3¼" Neg	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the lens focal length, and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
		f/4.5	*f*/5.6	*f*/8	*f*/11	*f*/16	*f*/32
INF	32° x 45°	127 to inf	102 to inf	72 to inf	52 to inf	36 to inf	18 to inf
100	56′ x 82′	56 to inf	51 to inf	42 to inf	34 to inf	26 to inf	15 to inf
50	28′ x 41′	36 to 82	34 to 98	29 to 165	25 to inf	21 to inf	13¼ to inf
25	14′ x 20′	21 to 31	20 to 33	18½ to 38	17 to 48	15 to 83	10½ to inf
15	8½′ x 12½′	13½ to 17	13 to 17½	12½ to 19	11¾ to 21	10½ to 26	8½ to 92
10	5½′ x 8′	9½ to 11½	9¼ to 11	8¾ to 11½	8½ to 12	7⅞ to 14	6½ to 23
8	4½′ x 6½′	7½ to 8	7⅜ to 8⅛	7⅛ to 9	7 to 9	6½ to 10½	5½ to 14½
6	3½′ x 4½′	5⅛ to 6⅛	5⅛ to 6⅛	5 to 6⅛	5⅛ to 6	5 to 6⅝	4½ to 8½
5	2⅝′ x 3⅞′	4⅛ to 5⅛	4⅛ to 5⅛	4⅛ to 5	4⅛ to 5	4 to 5⅜	4 to 6½
4	2′ x 3′	3⅛ to 4	3⅛ to 4⅛	3⅛ to 4	3⅛ to 4	3⅛ to 4	3½ to 5
3½	1⅞′ x 2⅝′	3⅛ to 3⅜	3⅛ to 3⅜	3⅛ to 3⅜	3⅛ to 3⅜	3⅛ to 3⅜	3 to 4⅛

The depth is not given for *f*/22. For this opening depth can be estimated by comparison.

Depth of Field: Kodak Ektar Lens, 127mm *f*/4.7

Distance Focused On—Ft	Approximate Field Size with 3¼ x 4¼" Neg	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the lens focal length, and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
		f/4.7	*f*/5.6	*f*/8	*f*/11	*f*/16	*f*/32
INF	36° x 46°	152 to inf	128 to inf	90 to inf	65 to inf	45 to inf	22 to inf
100	65′ x 85′	60 to 292	56 to inf	47 to inf	39 to inf	31 to inf	18 to inf
50	32′ x 42′	37 to 74	36 to 82	32 to 113	28 to inf	24 to inf	15½ to inf
25	16′ x 21′	22 to 30	21 to 31	19½ to 35	18 to 41	16 to 57	11¾ to inf
15	9½′ x 12¾′	13⅜ to 16½	13½ to 17	12¾ to 18	12¼ to 19½	11½ to 23	9 to 45
10	6½′ x 8½′	9 to 10⅜	9 to 10⅜	9 to 11¼	8⅝ to 11¾	8¼ to 13	7 to 18
8	5′ x 6½′	7 to 8	7 to 8	7⅛ to 8⅜	7 to 9	6½ to 9¾	6 to 12¼
6	3¾′ x 4¾′	5⅛ to 6	5⅛ to 6	5 to 6	5 to 6	5 to 6¼	4¾ to 8
5	3′ x 3¾′	4 to 5	4 to 5	4 to 5	4 to 5	4 to 5	4¼ to 6⅜
4	2½′ x 3′	3⅛ to 4	3⅛ to 4	3⅛ to 4	3⅛ to 4	3⅛ to 4	3⅛ to 4⅛
3½	2′ x 2¾′	3 to 3⅛	3 to 3⅛	3 to 3⅛	3 to 3⅛	3 to 3⅛	3 to 4

The depth is not given for *f*/22. For this opening depth can be estimated by comparison.

Depth of Field: Kodak Ektar Lens, 152mm *f*/4.5

Distance Focused On—Ft	Approximate Field Size with 4 x 5" Neg	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the lens focal length, and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
		f/4.5	*f*/8	*f*/11	*f*/16	*f*/32	*f*/45
INF	37° x 45°	190 to inf	107 to inf	78 to inf	54 to inf	27 to inf	19 to inf
100	66′ x 83′	66 to 209	52 to inf	44 to inf	35 to inf	21 to inf	16 to inf
50	33′ x 41′	40 to 67	34 to 95	30 to 137	26 to inf	18 to inf	13¾ to inf
25	16′ x 20′	22 to 29	20 to 33	19 to 37	17 to 47	13 to inf	10¼ to inf
15	9¾′ x 12½′	14 to 16½	13 to 17½	12½ to 18½	11¾ to 21	9⅝ to 33	9 to 69
10	6½′ x 7¾′	9½ to 10¾	9¼ to 11	8⅝ to 11	8½ to 12½	7¼ to 15⅝	6½ to 21
8	5′ x 6½′	7¾ to 8	7½ to 8⅜	7½ to 8	7 to 9	6½ to 11	5⅝ to 13⅜
6	3¾′ x 4½′	5⅝ to 6	5⅝ to 6	5½ to 6	5⅛ to 7	4⅝ to 7¾	4½ to 8
5	3′ x 3½′	4⅝ to 5	4⅝ to 5	4⅝ to 5	4⅝ to 5	4⅝ to 6	4 to 6⅜
4	2½′ x 2½′	3⅝ to 4	3⅝ to 4	3⅝ to 4	3⅝ to 4	3⅝ to 4⅝	3½ to 5
3½	1⅝′ x 2½′	3½ to 3⅝	3½ to 3⅝	3½ to 3⅝	3½ to 3⅝	3 to 4⅛	3 to 4¼

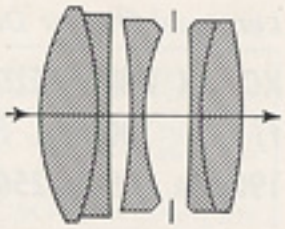
The depth is not given for *f*/5.6 or *f*/22. For these openings depth can be estimated by comparison.

For depth of field information for Kodak Ektar Lens 7½-inch *f*/4.5, use the table on page 60 for the Kodak Wide Field Ektar Lens, 190mm *f*/6.3.

For depth of field information for Kodak Ektar Lens, 12-inch *f*/4.5, use the table on page 63 for the Kodak Commercial Ektar Lens, 12-inch *f*/6.3.

Lens and Shutter Data:

KODAK EKTAR LENS, 105mm *f*/3.7



This lens has been designed for use on small press and view cameras or on the Kodak Flurolite Enlarger A when used as a camera, where excellence of performance and high speed are desired. It has been corrected for all the usual lens aberrations and works equally well at all distance settings from infinity to 3½ feet from the lens. When a shorter lens-to-subject distance is used, it is advisable to stop the lens below maximum aperture, particularly for work demanding critical definition. It is especially suitable for use with Kodak color sheet films. The performance of this lens, like that of other Ektar Lenses, is unsurpassed by any lens of similar type. Like all other Ektar Lenses, this lens is Lumenized. It is supplied in a Kodak Flash Supermatic Shutter.

Marked Apertures: *f*/3.7, *f*/4, *f*/5.6, *f*/8, *f*/11, *f*/16, *f*/22, and *f*/32

Focal Length: 105 mm (4⅛ in.)

Back Focus: 87.5 mm (3⅞ in.)

Maximum Recommended Negative Size: 2¼ x 3¼ in.

Angle of View: With lens focused at infinity, 31° x 43°

Infrared Focusing: Lens should be extended .004 in. (.1 mm) from visual focus.

Shutter: Kodak Flash Supermatic. Speeds—1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200, 1/400 sec, T, and B. Built-in synchronization for Class F, M, and X. Blade arrester. Accepts the Kodak Metal Cable Release No. 5.

Diameter of Lens-Board Mounting Hole: 38 mm, 1½ in.

Size of Kodak Combination Lens Attachments: 38 mm, 1½ in., Series VI

Hyperfocal Distance: Same as near limit of depth of field at infinity. See below.

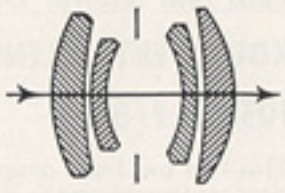
Depth of Field: Kodak Ektar Lens, 105mm *f*/3.7

Distance* Focused On—Ft	Approximate Field Size with 2¼ x 3¼" Neg	DEPTH OF FIELD—IN FEET.** Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the focal length, and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
		f/3.7	*f*/5.6	*f*/8	*f*/11	*f*/16	*f*/32
INF	31° x 43°	160 to inf	105 to inf	74 to inf	54 to inf	37 to inf	18½ to inf
100	54′ x 78′	62 to 266	51 to inf	43 to inf	35 to inf	27 to inf	15½ to inf
50	27′ x 39′	38 to 73	34 to 96	30 to 154	26 to inf	21 to inf	13½ to inf
25	13½′ x 19½′	22 to 30	20 to 33	18⅝ to 38	17 to 46	15 to 77	10½ to inf
15	8′ x 11½′	13⅜ to 16½	13 to 17½	12½ to 18½	11⅝ to 21	10⅜ to 25	8½ to 79
10	5½′ x 7½′	9½ to 10⅝	9⅜ to 11	8⅝ to 11½	8½ to 12⅜	7½ to 13½	6½ to 22
8	4½′ x 6′	7⅝ to 8⅛	7½ to 8⅛	7½ to 9	7 to 9⅝	6¾ to 10¼	5⅝ to 14
6	3½′ x 4½′	5⅝ to 6⅛	5⅝ to 6⅛	5½ to 6½	5½ to 6½	5 to 7	4½ to 8⅜
5	2½′ x 3⅜′	4½ to 5⅛	4⅝ to 5⅛	4⅝ to 5⅝	4½ to 5⅝	4½ to 5½	4 to 6¾
4	2′ x 2½′	4 to 4	3⅞ to 4⅛	3¾ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛	3½ to 5
3½	1¾′ x 2′	3½ to 3½	3½ to 3½	3½ to 3⅝	3½ to 3⅝	3½ to 3⅝	3 to 4½

*All distances measured to front of lens.
**The depth is not given for *f*/4.5 or *f*/22. For these openings depth can be estimated by comparison.

Lens and Shutter Data:

KODAK WIDE FIELD EKTAR LENSES, 80mm f/6.3; 100mm f/6.3; 135mm f/6.3; 190mm f/6.3; 250mm f/6.3



Covering more than twice the area of good definition obtainable with lenses of conventional design, Kodak Wide Field Ektar Lenses, *f*/6.3, are especially useful for press photography, architectural photography, and similar work in which wider-than-normal coverage is desirable. They are not, however, "special-purpose" lenses, since their versatile performance makes them suitable for all types of photography. As a result of careful design and precision manufacture, Kodak Wide Field Ektar Lenses, *f*/6.3, show no distortion; preserve flatness of field, even at 1 to 1 magnification; and have no significant shift in focus with change in aperture. In addition, lateral color has been completely eliminated, making possible the perfect registration of color-separation negatives made with these lenses. Kodak Wide Field Ektar Lenses are Lumenized and are supplied in flash shutters. At very short subject distances, it is advisable to use the lens at reduced openings when the work to be done is of an exacting nature. Best definition is obtained at *f*/11 or smaller diaphragm openings.

Marked Apertures: *f*/6.3, *f*/8, *f*/11, *f*/16, *f*/22, and *f*/32. The 190-mm and 250-mm Wide Field Ektar Lenses also have an *f*/45 aperture.

Maximum Recommended Negative Size and Angle of View:

Focal Length	*Recommended Negative Size without Camera Swings*	*Recommended Negative Size Using Camera Swings*	*Angle of View (Lens Focused at Infinity)**
80mm 3⅛ in.	3¼ x 4¼ in.	2¼ x 3¼ in.	55° x 68°
100mm 4 in.	4 x 5 in.	3¼ x 4¼ in.	54° x 65°
135mm 5 5/16 in.	5 x 7 in.	4 x 5 in.	51° x 67°
190mm 7½ in.	8 x 10 in.	5 x 7 in.	56° x 68°
250mm 10 in.	11 x 14 in.	8 x 10 in.	59° x 71°

*At maximum aperture, for largest recommended negative size, no camera swings.

Shutters: All shutters have built-in flash synchronization.

80 and 100mm lens: Kodak Flash Supermatic. Speeds—1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200, 1/400 sec, T and B. Class F, M, and Synchronization.

135mm lens: Kodak Flash Supermatic. Speeds—1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200 sec, T and B. Class M and Synchronization.

190mm lens: Ilex Acme Synchro. Speeds—1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/150 sec, T and B. Class F, M, and Synchronization.

250mm lens: Ilex Universal Synchro. Speeds—1, 1/2, 1/5, 1/10, 1/25, 1/50 sec, T and B. Class M and Synchronization.

Dimensions and Kodak Combination Lens Attachments:

Kodak Wide Field Ektar Lens, *f*/6.3	Over-All Length		Over-All Shutter Diameter		Lens Board Mounting Hole Diameter		Filter Size Maximum Thickness 5mm (3/16")		Kodak Adapter Ring	Kodak Combination Lens Attachments
	mm	*inches*	*mm*	*inches*	*mm*	*inches*	*mm*	*inches*		
80mm	32	1¼	55	2 3/16	35	1⅜	41.25	1⅝	No. 27*	Series VI
100mm	36	1 7/16	63	2½	38	1½	50.75	2	Special*	Series VII
135mm	43	1 11/16	76	3	48	1⅞	50.75	2	Not needed**	Series VII
190mm	57	2¼	102	4	73	2⅞	63	2 5/16	Not needed**	Series VIII
250mm	74	2 11/16	127	5	86	3⅜	82	3 5/16	Not needed**	†

*Kodak Adapter Ring and Kodak Adapter Ring Insert supplied with lens.
**No adapter needed—insert ring supplied with lens.
†No Series size. Cemented filter available on special order.

Optical Data:

Focal Length Kodak Wide Field Ektar Lens, f/6.3		Back Focus*		Flange Focus**		Infrared Focus Shift (1% Focal Length)†		Diameter of Circle of Good Definition (inches)					
								Object at Infinity		Object at 6 Feet		1:1 (Unit) Magnification	
mm	*inches*	*mm*	*inches*	*mm*	*inches*	*mm*	*inches*	*f*/6.3	*f*/16	*f*/6.3	*f*/16	*f*/6.3	*f*/16
80	3 1/8	72	2 27/32	79.10	3 7/64	0.40	0.02	4 11/16	5 3/16	4 3/4	5 1/8	8 7/8	9 3/4
100	4	90.25	3 9/16	101.25	4	0.40	0.02	6	6 1/4	6 1/16	7	11	12 1/8
135	5 3/8	120.2	4 3/4	132.20	5 7/32	0.68	0.03	8	9	8 11/16	9 3/4	15 3/8	17 1/8
190	7 1/2	167.5	6 5/8	179.4	7 1/16	0.95	0.04	11 3/16	12 1/2	12 1/16	13 13/16	21 1/16	24 3/16
250	10	223.0	8 3/4	248.2	9 3/4	1.25	0.05	15	16 3/4	17	19	29	32

*Back Focus—Distance from rear lens surface to image when focused at infinity.

**Flange Focus—Distance from rear surface of mounting flange (front of lens board) to image when lens is focused at infinity.

†Extend lens from visual focus by distance indicated.

Hyperfocal Distance: Same as near limit of depth of field at infinity. See below and on the next page.

Depth of Field: Kodak Wide Field Ektar Lens, 80mm f/6.3

Distance Focused On—Ft	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the lens focal length and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
	f/6.3	*f*/8	*f*/11	*f*/16	*f*/22	*f*/32
INF	86 to inf	68 to inf	49 to inf	34 to inf	25 to inf	17 to inf
100	42 to inf	36 to inf	29 to inf	22 to inf	17 to inf	12 1/2 to inf
50	29 to 164	26 1/2 to inf	22 1/2 to inf	18 to inf	14 1/2 to inf	10 to inf
25	18 3/4 to 38	17 1/2 to 45	15 1/2 to 65	13 1/2 to 94	11 1/2 to inf	9 to inf
15	12 1/2 to 19	11 1/2 to 20 1/4	11 to 23 1/2	9 3/4 to 32	8 3/4 to 55	8 to inf
10	8 3/4 to 11 1/2	8 1/2 to 12	8 to 13 1/4	7 1/4 to 15 1/2	6 1/2 to 19 1/2	5 1/2 to 40
8	7 1/2 to 9	7 1/2 to 9 1/2	6 3/4 to 10	6 1/2 to 11 1/2	5 1/2 to 13	5 1/2 to 19 3/4
6	5 1/2 to 6 1/2	5 1/2 to 6 1/2	5 1/2 to 7	5 to 7 3/4	4 3/4 to 8 1/2	4 1/2 to 10 1/2
5	4 3/4 to 5 1/4	4 3/4 to 5 1/4	4 3/4 to 5 3/4	4 1/2 to 6	4 to 6 1/2	3 3/4 to 7
4	3 3/4 to 4 1/4	3 3/4 to 4 1/4	3 3/4 to 4	3 1/2 to 4 1/4	3 1/2 to 4 3/4	3 1/2 to 5 1/2
3 1/2	3 1/2 to 3 3/4	3 1/2 to 3 3/4	3 3/4 to 3 3/4	3 1/2 to 4	3 1/2 to 4 1/2	3 1/2 to 4 1/2

Depth of Field: Kodak Wide Field Ektar Lens, 100mm f/6.3

Distance Focused On—Ft	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the lens focal length and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
	f/6.3	*f*/8	*f*/11	*f*/16	*f*/22	*f*/32
INF	90 to inf	71 to inf	51 to inf	35 to inf	26 to inf	18 to inf
100	53 to inf	41 to inf	33 to inf	25 to inf	21 to inf	15 to inf
50	32 to 113	29 to 170	25 to inf	20 to inf	17 to inf	13 1/2 to inf
25	19 1/2 to 35	18 1/2 to 38	17 to 48	15 to 83	12 1/2 to inf	10 1/2 to inf
15	13 to 18	12 1/2 to 19	11 3/4 to 21	10 1/2 to 26	9 1/2 to 36	8 to 93
10	9 to 11 1/4	8 1/2 to 11 1/2	8 1/4 to 12 1/2	7 1/2 to 15	7 1/4 to 16 1/2	6 1/2 to 23
8	7 1/2 to 8 3/4	7 1/2 to 9	7 to 9 1/2	6 1/2 to 10 1/2	6 1/4 to 11 1/2	5 1/2 to 14 1/2
6	5 1/2 to 6 1/2	5 1/2 to 6 1/2	5 1/2 to 6 1/2	5 1/2 to 6 3/4	5 to 7	4 1/2 to 8 1/2
5	4 3/4 to 5 1/4	4 3/4 to 5 1/4	4 3/4 to 5	4 1/2 to 5 1/2	4 1/2 to 6	4 to 6 1/4
4	3 3/4 to 4 1/4	3 3/4 to 4 1/4	3 3/4 to 4 1/4	3 3/4 to 4 1/4	3 3/4 to 4 1/2	3 1/2 to 5
3 1/2	3 1/2 to 3 3/4	3 1/2 to 3 3/4	3 1/2 to 3 3/4	3 3/4 to 3 3/4	3 3/4 to 4	3 to 4 1/2

Depth of Field: Kodak Wide Field Ektar Lens, 135mm f/6.3

Distance Focused On—Ft	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the lens focal length and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
	f/6.3	*f*/8	*f*/11	*f*/16	*f*/22	*f*/32
INF	121 to inf	95 to inf	69 to inf	48 to inf	35 to inf	24 to inf
100	55 to inf	49 to inf	41 to inf	32 to inf	26 to inf	19 to inf
50	35 to 85	33 to 105	29 to 180	25 to inf	21 to inf	16 to inf
25	21 to 32	20 to 34	18 to 39	16 to 52	14 to 87	12 to inf
15	13⅓ to 17	13 to 18	12½ to 19	11⅓ to 22	10½ to 27	9¼ to 40
10	9½ to 11	9 to 11½	8⅝ to 11¾	8¼ to 12½	7⅞ to 14	7 to 17
8	7⅞ to 8⅛	7½ to 8⅜	7⅛ to 9	6⅝ to 9½	6½ to 10½	6¼ to 11⅜
6	5¾ to 6⅛	5⅝ to 6⅛	5⅜ to 6⅛	5⅛ to 6⅜	5¼ to 7⅛	4⅞ to 7⅝
5	4⅝ to 5¼	4½ to 5¼	4⅜ to 5⅛	4⅛ to 5⅜	4⅛ to 5⅝	4⅛ to 6⅛
4	3⅝ to 4⅛	3⅝ to 4⅛	3⅝ to 4⅛	3⅝ to 4⅛	3⅝ to 4⅛	3⅝ to 4⅛
3½	3½ to 3½	3½ to 3½	3½ to 3½	3¾ to 3¾	3¾ to 3¾	3¾ to 4

Depth of Field: Kodak Wide Field Ektar Lens, 190mm (7½-inch) f/6.3

Distance Focused On—Ft	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the lens focal length and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
	f 6.3	*f*/8	*f*/11	*f*/16	*f*/22	*f*/45
INF	170 to inf	134 to inf	98 to inf	67 to inf	49 to inf	24 to inf
400	120 to inf	94 to inf	69 to inf	57 to inf	44 to inf	23 to inf
200	92 to inf	80 to inf	66 to inf	51 to inf	39 to inf	21 to inf
100	63 to 240	58 to inf	50 to inf	41 to inf	33 to inf	19 to inf
50	39 to 70	36 to 80	33 to 103	29 to 192	25 to inf	16 to inf
25	22 to 29	21 to 31	20 to 34	18 to 40	17 to 51	12 to inf
15	13¾ to 16⅛	13⅓ to 17	13 to 18	12⅓ to 19⅓	11 to 22	9 to 40
10	9⅝ to 10⅜	9⅜ to 11	9⅛ to 11⅛	8⅞ to 11⅝	8⅛ to 12⅓	7 to 17
8	7⅞ to 8⅛	7⅝ to 8⅜	7⅜ to 8⅝	7⅛ to 9⅛	6⅞ to 9⅝	6 to 12
6	5⅞ to 6⅛	5¾ to 6⅛	5⅝ to 6⅜	5⅜ to 6⅝	5⅛ to 6⅞	4⅞ to 8
5	4⅞ to 5⅛	4¾ to 5⅛	4⅝ to 5⅜	4⅜ to 5⅝	4⅛ to 5⅞	4⅛ to 6⅜
4	3⅞ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛
3½	3½ to 3½	3½ to 3½	3½ to 3½	3½ to 3¾	3½ to 3¾	3 to 4

The depth is not given for *f*/32. For this opening depth can be estimated by comparison.

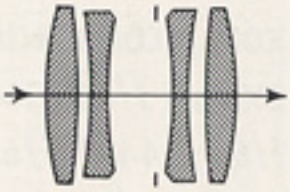
Depth of Field: Kodak Wide Field Ektar Lens, 250mm (10-inch) f/6.3

Distance Focused On—Ft	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc. This equals approximately 1/1720 of the lens focal length and is for critical definition, and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.					
	f/6.3	*f*/8	*f*/11	*f*/16	*f*/22	*f*/45
INF	227 to inf	179 to inf	130 to inf	90 to inf	65 to inf	32 to inf
400	146 to inf	124 to inf	98 to inf	73 to inf	56 to inf	29 to inf
200	107 to inf	95 to inf	79 to inf	62 to inf	49 to inf	27 to inf
100	70 to 178	64 to inf	57 to inf	47 to inf	39 to inf	24 to inf
50	41 to 64	39 to 69	36 to 81	32 to 113	28 to 214	19 to inf
25	22⅓ to 28	22 to 39	21 to 31	20 to 35	18 to 40	14 to 117
15	14 to 16⅛	13⅓ to 16⅔	13⅓ to 17	13 to 18	12 to 20	10 to 28
10	9⅝ to 10⅜	9⅝ to 10⅜	9⅜ to 11	9 to 11⅛	8⅝ to 12	7⅓ to 14
8	7⅞ to 8⅛	7⅞ to 8⅛	7⅞ to 8⅛	7⅛ to 8¼	7⅛ to 9⅛	6⅝ to 10⅜
6	5⅞ to 6⅛	5¾ to 6⅛	5¾ to 6⅛	5⅝ to 6⅜	5⅝ to 6⅝	5⅛ to 7⅛
5	4⅞ to 5⅛	4⅞ to 5⅛	4⅞ to 5⅛	4⅝ to 5⅜	4⅝ to 5⅝	4⅜ to 5⅝
4	3⅞ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛	3⅞ to 4⅛
3½	3½ to 3½	3½ to 3½	3½ to 3½	3½ to 3½	3½ to 3¾	3¼ to 4

The depth is not given for *f*/32. For this opening depth can be estimated by comparison.

Lens and Shutter Data:

KODAK EKTAR LENS, 8-inch *f*/7.7



This lens, primarily intended for the Kodak View Camera, No. 2D, and other 5 x 7 cameras, is of the symmetrical, air-spaced type which retains its corrections to a high degree when used for extreme close-ups. It gives extremely sharp definition over the whole field for all subject distances at maximum lens aperture. This lens is Lumenized and is supplied in a Kodak Flash Supermatic Shutter.

Marked Apertures: *f*/7.7, *f*/11, *f*/16, *f*/22, *f*/32, and *f*/45

Focal Length: 8 inches (203 mm)

Back Focus: 7½ inches (190 mm)

Maximum Recommended Negative Size: 5 x 7 inches

Angle of View: When focused for infinity, 35° x 47°

Infrared Focusing: Lens should be extended .016 inch (.4 mm) from visual focus.

Shutter: Kodak Flash Supermatic. Speeds—1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200, 1/400 sec, T, and B. Built-in flash synchronization for Class F, and Class M. Blade arrester. Accepts the Kodak TBI Metal Cable Release No. 2 or the Kodak Metal Cable Release No. 5.

Diameter of Lens-Board Mounting Hole: 1½ inches (38 mm)

Size of Kodak Combination Lens Attachments: 1 $\frac{5}{16}$ in., 33 mm, Series VI

Hyperfocal Distance: Same as near limit of depth of field. See below.

Depth of Field: Kodak Ektar Lens, 8-inch *f*/7.7

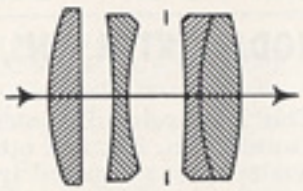
Distance Focused On—Ft	Approximate Field Size with 5 x 7" Neg	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc.*				
		f/7.7	*f*/11	*f*/16	*f*/22	*f*/45
INF	35° x 47°	149 to inf	104 to inf	72 to inf	52 to inf	26 to inf
200	124′ x 174′	86 to inf	68 to inf	53 to inf	41 to inf	23 to inf
100	62′ x 87′	60 to 304	51 to inf	42 to inf	34 to inf	21 to inf
50	31′ x 43′	37 to 75	34 to 96	30 to 165	26 to inf	17 to inf
25	15′ x 21′	21 to 30	20 to 33	18 to 38	17 to 48	13 to inf
15	8½′ x 12½′	14 to 17	13 to 18	12½ to 19	11½ to 21	9½ to 36
10	5½′ x 8½′	9½ to 10½	9¼ to 11¼	8½ to 11¾	8½ to 12½	7½ to 16½
8	4½′ x 6½′	7 to 8	7¼ to 8¾	7¼ to 9	6¾ to 9	6½ to 11½
6	3½′ x 4½′	5 to 6	5¼ to 6½	5¼ to 6¾	5¼ to 6¾	4½ to 8
5	2¾′ x 3½′	4¼ to 5¼	4¾ to 5½	4¾ to 5½	4¾ to 5½	4¼ to 6½
4	2′ x 2½′	3¾ to 4¼	3¾ to 4¼	3¾ to 4¼	3¾ to 4¼	3¾ to 4¾
3½	1¾′ x 2½′	3½ to 3¾	3½ to 3¾	3½ to 3¾	3½ to 3¾	3½ to 4

The depth is not given for *f*/32. For this opening depth can be estimated by comparison.

*This equals about 1/1720 of the focal length and is for very critical definition and when extreme enlargements are to be made from the negatives. For normal work the depth of field is greater.

Lens and Shutter Data:

KODAK COMMERCIAL EKTAR LENSES 8½-inch *f*/6.3; 10-inch *f*/6.3; 12-inch *f*/6.3; 14-inch *f*/6.3



These lenses meet the most critical requirements in color photography and are recommended for making exposures with Kodak color sheet films or for making color-separation negatives. It follows, therefore, that they are also suitable for black-and-white picture taking. They are not recommended for enlarging or projection printing. When the lenses are used at maximum aperture, the image size on the ground glass should not be larger than about one-third the subject size. At small apertures they perform satisfactorily even at lens-to-subject distances giving an image size of about 1 to 1.

The Kodak Commercial Ektar Lenses are exceedingly well corrected for lens aberrations, such as coma, astigmatism, curvature of field, and spherical and chromatic aberration, both lateral and longitudinal. The lenses are Lumenized.

The four *f*/6.3 lenses described here cover at full aperture an angle of 53° and at small stops an angle of 64°. For example, the 14-inch *f*/6.3 lens covers adequately the recommended negative size (8 x 10 inches) at maximum aperture with allowance for full use of the rising and falling front and swing back. At apertures below *f*/16 its 64° covering power permits its use on an 11 x 14-inch camera but without allowance for swing back or rising and falling front.

Kodak Commercial Ektar Lenses are available in shutter or in barrel.

Marked Apertures: *f*/6.3, *f*/8, *f*/11, *f*/16, *f*/22, *f*/32, and *f*/45. In barrel, the diaphragm setting ring has click stops. As each marked *f*-number passes the index mark, a distinct click is heard and felt.

Focal Length, Maximum Recommended Negative Size, and Angle of View:

Focal Length	*Recommended Negative Size*	*Angle of View (Lens Focused at Infinity)*
8½ in. 216 mm	5 x 7 in.	33° x 45°
10 in. 254 mm	6½ x 8½ in.	36° x 46°
12 in. 304 mm	8 x 10 in.	37° x 45°
14 in. 356 mm	8 x 10 in.	32° x 40°

Infrared Focusing: Lens should be extended from visual focus as follows:

.008 in. (.2 mm) for 8½-in. lens
.012 in. (.3 mm) for 10- in. lens
.016 in. (.4 mm) for 12-in. lens
.031 in. (.8 mm) for 14-in. lens

Shutter: Ilex Synchro with built-in flash synchronization. Speeds—

8½-in. lens: 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200 sec, T and B. Class F, Class M, and Synchronization.

10- and 12-in. lenses: 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/150 sec, T and B. Class F, Class M, and Synchronization.

14-in. lens: 1, 1/2, 1/5, 1/10, 1/25, 1/50 sec, T and B. Class M and Synchronization.

Diameter of Lens-Board Mounting Hole:

8½-in. lens—2⅛ in., 54 mm
10- in. lens—2⅝ in., 67 mm
12-in. lens—2⅞ in., 73 mm
14-in. lens—3⅜ in., 86 mm

Size of Kodak Combination Lens Attachments:

8½-in. lens—1¾ in., 44.5 mm, Series VII
10- in. lens—2⅛ in., 54 mm, Series VIII
12- in. lens—2½ in., 63.5 mm, Series VIII
14- in. lens—No. 91 (72mm) Series IX.

Hyperfocal Distance: Same as near limit of depth of field. See next page.

Depth of Field: Kodak Commercial Ektar Lens, 8½-inch f/6.3

Distance Focused On—Ft	Approximate Field Size with 5 x 7" Neg	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc.*				
		f/6.3	f/11	f/16	f/22	f/45
INF	33° x 45°	193 to inf	111 to inf	76 to inf	55 to inf	27 to inf
200	117′ x 163′	98 to inf	71 to inf	55 to inf	43 to inf	24 to inf
100	58′ x 82′	66 to 208	53 to inf	43 to inf	36 to inf	21 to inf
50	29′ x 41′	40 to 68	34 to 91	30 to 146	26 to inf	18 to inf
25	14′ x 20′	22 to 29	20 to 32	19 to 37	17 to 46	13 to inf
15	8½′ x 12′	14 to 16½	13 to 17½	12½ to 19	12 to 21	9½ to 34
10	5⅝′ x 7⅞′	9⅝ to 10⅜	9 to 11	8⅝ to 11⅜	8½ to 12	7⅛ to 16
8	4½′ x 6′	7⅞ to 8⅛	7⅝ to 8⅜	7⅜ to 8⅝	7 to 9½	6 to 11
6	3⅜′ x 4½′	5⅞ to 6⅛	5⅝ to 6⅜	5⅜ to 6⅝	5⅛ to 6⅞	5 to 7⅝
5	2⅞′ x 3⅞′	4⅞ to 5⅛	4⅝ to 5⅜	4⅜ to 5⅝	4⅛ to 5⅞	4⅛ to 6⅝
4	2′ x 2⅝′	3⅞ to 4⅛	3⅝ to 4⅜	3⅝ to 4⅜	3⅝ to 4⅜	3⅝ to 4⅝
3½	1⅝′ x 2⅜′	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝	3 to 4

Depth of Field: Kodak Commercial Ektar Lens, 10-inch f/6.3

Distance Focused On—Ft	Approximate Field Size with 6½ x 8½" Neg	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc.*				
		f/6.3	f/11	f/16	f/22	f/45
INF	36° x 46°	227 to inf	130 to inf	90 to inf	65 to inf	32 to inf
400	259′ x 339′	146 to inf	98 to inf	73 to inf	56 to inf	29 to inf
200	129′ x 169′	107 to inf	79 to inf	62 to inf	49 to inf	27 to inf
100	65′ x 85′	70 to 178	57 to inf	47 to inf	39 to inf	24 to inf
50	32′ x 42′	41 to 64	36 to 81	32 to 113	28 to 214	19 to inf
25	16′ x 21′	22½ to 28	21 to 31	20 to 35	18 to 40	14 to 117
15	9′ x 12′	14 to 16½	13½ to 17	13 to 18	12 to 20	10 to 28
10	6′ x 8′	9⅝ to 10⅜	9⅜ to 11	9 to 11⅛	8⅜ to 12	7⅛ to 14
8	4⅞′ x 6′	7⅞ to 8⅛	7⅝ to 8⅜	7⅜ to 8⅝	7⅛ to 9⅝	6⅝ to 10⅜
6	3⅝′ x 4½′	5⅞ to 6⅛	5⅝ to 6⅜	5⅜ to 6⅝	5⅛ to 6⅞	5⅛ to 7⅝
5	2⅞′ x 3⅝′	4⅞ to 5⅛	4⅝ to 5⅜	4⅜ to 5⅝	4⅛ to 5⅞	4⅛ to 5⅝
4	2′ x 2⅝′	3⅞ to 4⅛	3⅝ to 4⅜	3⅝ to 4⅜	3⅝ to 4⅜	3⅝ to 4⅝
3½	1⅝′ x 2⅜′	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 4

Depth of Field: Kodak Commercial Ektar Lens, 12-inch f/6.3

Distance Focused On—Ft	Approximate Field Size with 8 x 10" Neg	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc.*				
		f/6.3	f/11	f/16	f/22	f/45
INF	37° x 45°	273 to inf	156 to inf	107 to inf	78 to inf	38 to inf
400	266′ x 332′	162 to inf	112 to inf	85 to inf	65 to inf	35 to inf
200	133′ x 166′	115 to inf	88 to inf	70 to inf	56 to inf	32 to inf
100	66′ x 83′	73 to 158	61 to 278	52 to inf	45 to 310	28 to inf
50	33′ x 41′	42 to 61	38 to 74	34 to 94	31 to 139	22 to inf
25	16′ x 20′	23 to 27	21 to 30	20 to 33	19 to 37	15 to 73
15	9¼′ x 12′	14½ to 16	13½ to 17	13 to 17⅝	12½ to 19	11 to 25
10	6′ x 7¾′	9⅝ to 10⅛	9⅜ to 10⅝	9⅛ to 11⅛	8⅝ to 12	8 to 14
8	4⅝′ x 5¾′	7⅞ to 8⅛	7⅝ to 8⅜	7⅜ to 8⅝	7⅛ to 8⅞	6⅝ to 10⅛
6	3⅝′ x 4⅝′	5⅞ to 6⅛	5⅝ to 6⅜	5⅜ to 6⅝	5⅛ to 6⅞	5⅛ to 7
5	2⅞′ x 3⅝′	4⅞ to 5⅛	4⅝ to 5⅜	4⅜ to 5⅝	4⅛ to 5⅞	4⅛ to 5⅝
4	2′ x 2½′	3⅞ to 4⅛	3⅝ to 4⅜	3⅝ to 4⅜	3⅝ to 4⅜	3⅝ to 4⅝
3½	1⅝′ x 2⅛′	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝

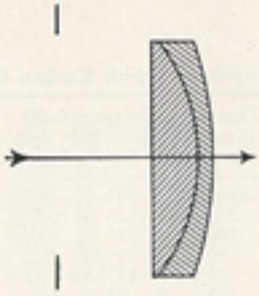
Depth of Field: Kodak Commercial Ektar Lens, 14-inch f/6.3

Distance Focused On—Ft	Approximate Field Size with 8 x 10" Neg	DEPTH OF FIELD—IN FEET. Circle of Confusion, 2 min arc.*				
		f/6.3	f/11	f/16	f/22	f/45
INF	32° x 40°	318 to inf	182 to inf	125 to inf	92 to inf	45 to inf
400	228′ x 285′	177 to inf	125 to inf	95 to inf	74 to inf	41 to inf
200	113′ x 142′	123 to 540	96 to inf	78 to inf	63 to inf	36 to inf
100	56′ x 71′	76 to 146	65 to 220	56 to inf	48 to inf	31 to inf
50	28′ x 35′	44 to 59	39 to 69	36 to 84	32 to 110	24 to 574
25	14′ x 17′	23 to 27	22 to 29	21 to 31	19 to 34	16 to 61
15	8′ x 10′	14½ to 16	14 to 16½	13½ to 17	13 to 18	11½ to 23
10	5′ x 6¼′	9⅝ to 10⅜	9½ to 10⅝	9½ to 11	9 to 11⅛	8 to 13
8	3⅞′ x 4⅞′	7⅞ to 8⅛	7⅝ to 8⅜	7⅜ to 8⅝	7⅛ to 8⅞	6⅝ to 9⅜
6	2⅞′ x 3⅝′	5⅞ to 6⅛	5⅝ to 6⅜	5⅜ to 6⅝	5⅛ to 6⅞	5⅛ to 6⅝
5	2⅛′ x 2⅝′	4⅞ to 5⅛	4⅝ to 5⅜	4⅜ to 5⅝	4⅛ to 5⅞	4⅛ to 5⅝
4	1⅝′ x 2′	3⅞ to 4⅛	3⅝ to 4⅜	3⅝ to 4⅜	3⅝ to 4⅜	3⅝ to 4⅝
3½	1⅜′ x 1⅞′	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝	3⅜ to 3⅝

The depth is not given for f/8 or f/32. For these openings depth can be estimated by comparison.
*This equals about 1/1720 of the focal length, and is for very critical definition and when extreme enlargements are to be made from the negatives. For normal work, the depth of field is greater.

Lens and Shutter Data:

KODAK PORTRAIT LENSES, 12-inch and 16-inch f/4.5



The Kodak Portrait Lenses have identical visual and photographic images. With them, the photographer can see on the ground glass the exact effect he will achieve before releasing the shutter, and he can vary the soft-focus effect by varying the aperture. When the lens is used wide open at *f*/4.5, the soft-focus effect is most pronounced, while at *f*/22, the effect disappears almost completely. The design of the lenses is such that at the larger stops each highlight point in the scene will be surrounded by a soft halo. For best results with this lens, the exposure should never be made at a smaller stop than was used for focusing. The lenses are equally suitable for both black-and-white and color. These lenses are Lumenized to minimize flare and increase color saturation.

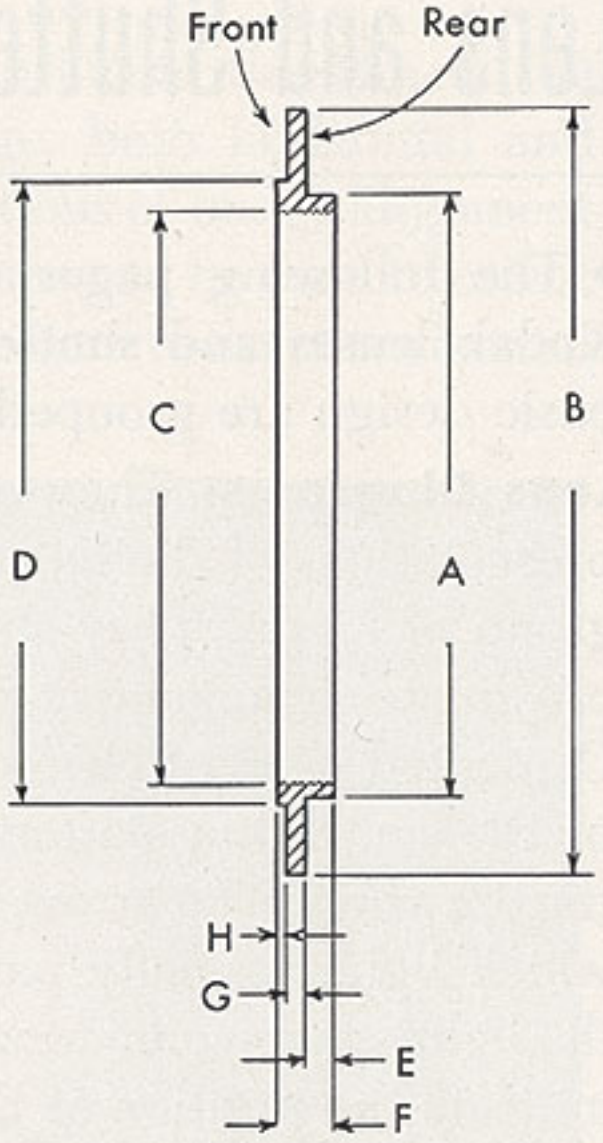
Marked Apertures: *f*/4.5, *f*/6.3, *f*/8, *f*/11, *f*/16, and *f*/22.
Focal Length: 12 in. and 16 in.
Negative Sizes: 5 x 7 in. and 8 x 10 in.
Angle of View: When focused for infinity, 48°
Shutter: 12 in. lens—No. 5 Ilex Universal Synchro Shutter
16 in. lens—supplied in barrel only

Points of Interest

- Visual and photographic foci are the same.
- The photographic focus is not influenced by the color sensitivity of the film.
- Two focal lengths: 12 and 16 inches, covering 5 by 7-inch and 8 by 10-inch films, respectively.
- The lenses are Lumenized to cut down flare and increase color saturation.
- Soft at *f*/4.5, sharp at *f*/22—the maximum and minimum lens apertures.
- Highlights at *f*/4.5 display the desired pearly qualities.
- Fully color corrected for use with any color material.

ATTACHING LENSES TO VIEW CAMERAS

Removable lens boards, such as those supplied on view, press, or studio cameras, permit lenses for these cameras to be interchanged by the substitution of complete units comprising lens board and lens in shutter or in barrel. A lens is fitted to a lens board by means of a flange similar to that shown in the cross-section drawing at right. A hole is drilled through the center of the lens board, the diameter of the hole corresponding to the outside diameter of the flange shoulder (A in the drawing). The flange shoulder is inserted into this hole and the flange is permanently affixed to the lens board by means of screws through the flange rim. The barrel or shutter in which the lens is mounted is threaded so that it can be screwed into its proper flange. Certain flanges accommodate two or more different lenses. Lenses which fit a common flange may be interchanged by using only one lens board and flange, but it is safer and more convenient to keep each lens in its own lens board.



The table below lists Kodak lenses and gives the dimensions in both inches and millimeters of the proper flange for each lens. Letters in the table correspond to those in the drawing at right.

KODAK LENS (in shutter, unless otherwise indicated)	Flange Dimensions							
	A*	B	C	D	E	F	G	H
Ektar, 101mm *f*/4.5 Wide Field Ektar, 80mm *f*/6.3 Synchro Rapid 800 101mm *f*/4.5 Ektar Lens	1⅜ in. 34.80mm	1.850 in. 47.00mm	1.182 in. 30.10mm 40 Thd. NS		0.156 in. 3.96mm	0.196 in. 4.98mm	0.040 in. 1.02mm	
Ektar, 105mm *f*/3.7 Ektar, 127mm *f*/4.7 Ektar, 8-inch *f*/7.7 Wide Field Ektar, 100mm *f*/6.3	1½ in. 38.10mm	1.937 in. 49.10mm	1.375 in. 34.90mm 40 Thd. NS		0.156 in. 3.96mm	0.196 in. 4.98mm	0.040 in. 1.02mm	
Ektar, 152mm *f*/4.5 Wide Field Ektar, 135mm *f*/6.3	1⅞ in. 47.00mm	2.437 in. 62.00mm	1.750 in. 44.40mm 40 Thd. NS		0.090 in. 2.28mm	0.160 in. 4.06mm	0.070 in. 1.78mm	
Commercial Ektar, 8½-inch *f*/6.3 in bbl or shutter	2⅛ in. 53.70mm	2.68 in. 68.00mm	1.99 in. 50.50mm 24 Thd. NS	2.23 in. 56.50mm	0.059 in. 1.50mm	0.217 in. 5.50mm	0.079 in. 2.00mm	0.079 in. 2.00mm
Commercial Ektar, 10-inch *f*/6.3 in bbl or shutter Ektar, 7½-inch *f*/4.5	2⅝ in. 66.60mm	3.15 in. 80.00mm	2.500 in. 63.40mm 30 Thd. NS	2.60 in. 66.00mm	0.049 in. 1.25mm	0.266 in. 6.75mm	0.079 in. 2.00mm	0.139 in. 3.50mm
Commercial Ektar, 12-inch *f*/6.3 in bbl or shutter Wide Field Ektar, 190mm *f*/6.3	2⅞ in. 73.00mm	3.59 in. 91.00mm	2.74 in. 69.69mm 24 Thd. NS	3.04 in. 77.00mm	0.049 in. 1.25mm	0.364 in. 9.25mm	0.079 in. 2.00mm	0.237 in. 6.00mm
Commercial Ektar, 14-inch *f*/6.3 in shutter Wide Field Ektar, 250mm *f*/6.3	3⅜ in. 85.56mm	4.28 in. 108.60mm	3.24 in. 82.10mm 30 Thd. NS	3.43 in. 87.00mm	0.218 in. 5.55mm	0.346 in. 8.80mm	0.089 in. 2.25mm	0.039 in. 1.00mm
Commercial Ektar, 14-inch *f*/6.3 in bbl	3⅜ in. 85.72mm	4.02 in. 102.00mm	3.064 in. 77.78mm 24 Thd. NS	3.41 in. 86.50mm	0.049 in. 1.25mm	0.541 in. 13.75mm	0.079 in. 2.00mm	0.396 in. 10.50mm

*Fits into lens board mounting hole. Fractional inches are given to facilitate selection of standard bit sizes.