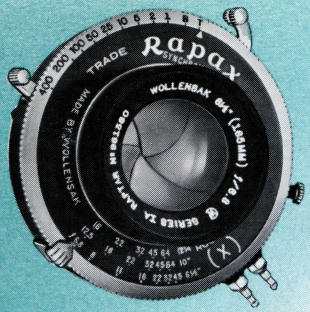
WOLLENSAK

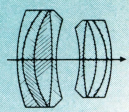
RAPTAR

Lenses and Shutters...

For Commercial Photography

Wollensak Series 1a Triple Convertible





THE 3-IN-ONE LENS • For exceptionally large coverage, extreme adaptability and the versatility of three focal length lenses in one, there is no finer lens than the Raptar Series 1a Triple Convertible. Front and rear elements are complete, corrected lenses. Used together they form a lens of normal focal lengths. Used separately, the focal lengths of either the front or rear elements are longer. For example the 6½″ *f*/6.8 Raptar Convertible has a rear focus of 10″ and a front focus of 12¾″. For each half of the lens there is a separate diaphragm scale on the front plate. Where true perspective, larger images, or telephoto effects are desired, remove front combination and use the rear alone in the rear, or remove the front combination and the rear combination putting the front in place of the rear. These double protar type lenses consist of two 4-element halves, each of which is color corrected.

LENS SPEED

1. Triple Convertible Lens
   a. When used as a complete lens, speed of lens is as marked.
   b. Any lens with combination of focal lengths of 20″ and 25½″ is *f*/16.
   c. All others are *f*/12.5.
2. Bellows Draw Requirement
   For the longer focal lengths lenses the bellows draw requirement is ½″ less than the focal length of the lens.

ALL-PURPOSE ADAPTABILITY • Triple Convertible lenses are recommended for taking landscapes, making industrial shots and architectural studies, and doing illustrative and commercial photography.

These photos were made with the Series Ia Raptar; this photo with the 13″ *f*/6.8 Series Ia Raptar.

This photo was made from the same camera position using the rear element alone which has a focal length of 20″.

For even greater telephoto effect this photo was taken with the front element alone which has a focal length of 25½″.

SPECIFICATIONS

RAPTAR SERIES Ia CONVERTIBLE f/6.8 (WOCOTED)

Equiv. Focus		Front Focus	Rear Focus	f	Film				
Inch	mm	Inch	Inch	Speed	Size	Barrel	Rapax*	Alphax*	For Banquet Cameras—Plates covered with smaller stop
6½	165	12¾	10	6.8	4 x 5	X	X	X	X
8¼	210	15½	12¾	6.8	5 x 8	X	X	X	X
10	254	20	15½	6.8	6½ x 8½	X	X	X	5 x 12
13	330	25½	20	6.8	8 x 10	X		X	7 x 15

*Available in synchromatic and non-synchromatic shutters

Wollensak **RAPTAR** Apochromatic

The Raptar Apochromatic Process lenses are recommended for both critical copy work like line cuts and for less critical copy work such as halftones. Also excellent for enlarging and reducing because of their flat field, even illumination, chromatic correction and over-all covering power. The exceptional chromatic qualities of the Raptar Process lens make it ideal for four-color process work. Over-all sharp-

WOLLENSAK APOCHROMATIC RAPTAR COATED LENSES FOR PROCESS WORK

EFL	% Copy Size	100%			75%			50%			33⅓%		
	Aperture Ratio Nos. f/Nos.	32 f/16	45 f/22	64 f/32	32 f/18	45 f/26	64 f/36	22 f/15	32 f/21	45 f/20	22 f/17	32 f/24	45 f/34
		Max. Plate Sizes Covered (in inches)											
10¾"	Critical Work	9x12	10x12	11x14	8x10	8½x11	10x12	7x9	6½x8½	8x10	6x8	6x8	6½x8½
	Normal Work	11x14	11x14	12x17	10x12	10x12	11x14	8½x11	8½x11	10x12	8x10	8x10	8½x11
13"	Critical Work	11x13	11x13	11x17	10x12	10x12	11x14	8x10	8x10	8½x11	7x9	7x9	7x9
	Normal Work	12x18	12x18	14x17	11x14	11x14	12x17	10x12	10x12	11x14	8½x11	8½x11	10x12
14"	Critical Work	12x17	12x17	12x18	11x14	11x14	12x17	10x12	10x12	11x14	8½x11	8½x11	10x12
	Normal Work	16x20	16x20	18x22	12x18	12x18	14x17	11x14	11x14	12x17	10x12	11x14	11x14
16"	Critical Work	14x17	14x17	16x20	12x17	12x17	12x18	11x14	11x14	12x17	10x12	10x12	11x14
	Normal Work	18x22	18x23	20x24	16x20	16x20	18x22	12x18	14x17	14x17	11x14	12x17	12x18
19"	Critical Work	18x22	18x22	20x24	14x17	14x17	16x20	12x17	12x18	14x17	11x14	11x14	12x17
	Normal Work	20x24	22x28	22x28	18x23	18x23	20x24	16x20	16x20	18x22	14x17	14x17	16x20
25"	Critical Work	20x24	20x24	22x28	16x20	16x20	18x22	14x17	14x17	16x20	12x17	12x18	14x17
	Normal Work	22x28	22x28	22x28	20x24	20x24	22x28	16x20	16x20	16x20	14x17	14x17	16x20

WOLLENSAK APOCHROMATIC RAPTAR COATED LENSES FOR PROCESS WORK

(Color Corrected for Red, Green, and Blue)

EFL (Inches)	EFL (mm)	Max. Angular Field in Degrees		Aperture for max. definition not necessarily max. covering power	Aperture Ratio No. for max. coverage not necessarily max. definition	% COPY SIZE 100%	75%	50%	33⅓%
		Normal Work e.g. Half Tones	Critical Work e.g. Line Cuts			Object and Image Distances in Inches	Object and Image Distances in Inches	Object and Image Distances in Inches	Object and Image Distances in Inches
10¾	260.3	24	20	f/22	f/64	Lens to Film .....21.5 Lens to Copy Board 21.5 Film to Copy Board 43.0	18.81 25.08 43.89	16.12 32.25 48.37	14.33 43.00 57.33
13.0	330.2	24	20	f/22	f/64	Lens to Film .....26 Lens to Copy Board 26 Film to Copy Board 52	22.75 30.30 53.05	19.5 39.0 58.5	17.3 52.0 69.3
14.0	355.6	24	20	f/22	f/64	Lens to Film .....28 Lens to Copy Board 28 Film to Copy Board 56	24½ 32⅔ 57⅙	21 42 63	18⅔ 56 74⅔
16.0	406.4	24	20	f/22	f/64	Lens to Film .....32 Lens to Copy Board 32 Film to Copy Board 64	28 37⅓ 65⅓	24 48 72	21⅓ 64 85⅓
19.0	482.6	24	20	f/22	f/64	Lens to Film .....38 Lens to Copy Board 38 Film to Copy Board 76	33¼ 44⅓ 77 7/12	28½ 57 85½	25⅓ 76 101⅓
25.0	635.0	20	17	f/22	f/64	Lens to Film .....50 Lens to Copy Board 50 Film to Copy Board 100	43¾ 58⅓ 102 1/12	37½ 75 112½	33⅓ 100 133⅓

Process and Prisms...Lenses for Copying

ness with maximum resolution is maintained for all copy ratios.

The front cell is threaded to receive Wollensak high precision prisms. When supplied in barrel mounting, the barrel is slotted to accept waterhouse stops. One plain waterhouse stop is supplied with each lens. Wocoted optics.

SPECIFICATIONS

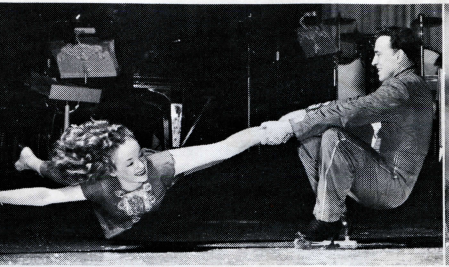
RAPTAR APOCHROMATIC PROCESS (WOCOTED) AND PRISMS

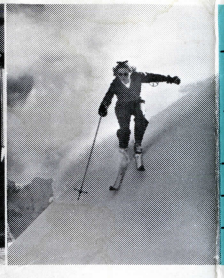
Equiv. Focus		Speed	Critical Definition Plates Covered . . . 33⅓% at f/17	Critical Definition Plates Covered . . . for 1:1 at f/16	Barrel	Rapax*	Alphax*	Size Prisms †Available
Inch	mm							
10¾	260	f/9.5	6 x 8	10 x 12	X	X	X	2
13	330	f/10	7 x 9	11 x 13	X	X	X	2½
14	355	f/10	8½ x 11	12 x 17	X	X	X	2½
16	406	f/10	10 x 12	14 x 17	X		X	3
19	482	f/10	11 x 14	18 x 22	X		X	3½
25	635	f/10	12 x 17	20 x 24	X		X	3½

†Extra charge for fitting prisms to lenses of other makes.
*Available in synchromatic and non-synchromatic shutters

WOLLENSAK

RAPAX... the finest precision-made shutter.





RAPAX SHUTTERS

Size	Maximum Diaphragm Opening		Lens Mount Thread Diam.		Speeds	Flange Diameter	
	Inch	mm	Front Inches	Rear Inches		Inside Inches	Inches Outside
1	25/32	20	31/32	1 1/32	1 to 1/400 plus T & B	1 3/16	1 11/16
2	1	25.4	1 1/4	1 1/4	1 to 1/400 plus T & B	1 21/64	1 7/8
3	1 13/64	31	1 35/64	1 37/64	1 to 1/200 plus T & B	1 43/64	2 19/64

WHY RAPAX? You will want three things in a shutter: 1) accuracy, 2) dependability and 3) ease of operation, for the best lens cannot compensate for an unreliable shutter. A camera shutter must not only be extremely accurate but very rugged to stand the terrifically rapid release of energy in its fine mechanism.

Thousands of Wollensak Rapax shutters have given years of dependable service . . . proof of their top quality, precision manufacture and inspection.

Clearly marked rim settings make for quick, easy diaphragming and exposure settings. Speeds range from 1 second up to 1/400 second, with Bulb and Time settings.

Two operating levers simplify use. Setting lever "cocks" shutter, putting springs under proper tension for desired speed. Depress release lever to make exposure. Cable release socket is also provided.

Press-Focus Lever for fast ground glass focusing. Shutter blades can be opened for focusing without setting to *Time* position. Simply depress press-focus lever to open blades at any speed setting. After focusing lift press-focus lever to close blades. Shutter is still cocked and ready for exposure.

Advantages of Rapax Internal Synchronization over Solenoid Synchronization—1. Maximum efficiency over entire shutter range is made possible by use of two synchronizer delay settings. Black "M" setting covers shutters speeds of 1/100 and faster; Red "M" setting covers 1/50 and slower. Maximum synchronization efficiency is possible at 1/50 second when synchronizing delay indicator is set at Red "M." Synchronization delay can not be changed with solenoid synchronization.

2. Action is consistent and reliable—mechanical synchronizer delay system is independent of condition of batteries in gun, whereas external synchronization varies with condition of batteries, solenoids, associate circuit of cords and sockets, and temperature changes.

3. Internal synchronization conserves batteries—battery current is used only to flash lamps and is not drained by solenoid coil.

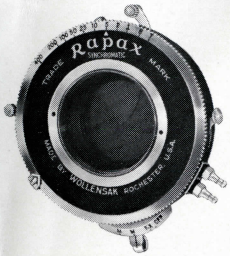
4. Permits "off-the-camera" flash shots—shutter is tripped from gun held away from camera for better lighting effects. With some flash guns, such as the new Graflite, solenoid can act as remote tripper only, letting internal shutter synchronizer provide synchronization.

5. Commercial BC flash circuits can be used with internal synchronization without harm to contacts.

RAPAX *Non-Synchromatic*

Your present flash equipment for solenoid synchronization can be used with this shutter with excellent results. Shutter is identical to Rapax Synchromatic shutter except it has no internal synchronizer.

. . fully *Synchromatic!*

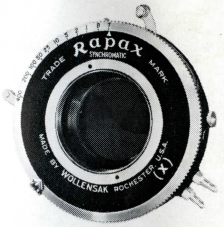


RAPAX *Full Synchromatic*

Here is completely automatic synchronization for X-type electronic high-speed lamps, plus automatic synchronization of Class M (20 millisecond) and Class F (5 millisecond) lamps.

Easy-to-read, easy-to-set scale at bottom of shutter provides selection for proper delay for each class of lamp.

Cocking shutter automatically cocks synchronizer as well. This automatic action greatly simplifies flash photography and avoids fatal neglect to cock synchronizer.



RAPAX *"X" Synchromatic*

This Shutter offers built-in electrical contacts for flashing "X" type electronic high speed lamps, "O" type thyratron trigger-type, at any shutter speed.

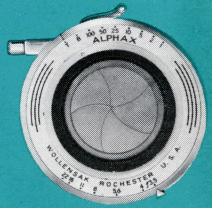
The electronic flash unit is operated by connecting the cord to the bi-post of the Synchromatic "X" shutter.

To synchronize ordinary flash lamps, 20 millisecond type, it is necessary to use a solenoid.

Wollensak **ALPHAX** Shutters for longer focus lenses

Professional photographers welcome the reliability, convenience, and compactness of internal synchronization offered by Nos. 2, 3, 4 and 5 Alphax Synchromatics. Built-in mechanism assures positive automatic synchronization of any popular type flash lamp.

Simple to operate . . . there's no cocking lever to bother with. Depress operating lever by hand or cable release; lamp flashes in automatic synchronization with shutter to take the picture. Alphax non-synchromatic also available.



ALPHAX SHUTTERS

Size	Flange Diameters		Type of Shutter	Speeds	Synchronized Speeds With		
	Inside Inches	Outside Inches			Class M	Class F	Class X
2	1 21/64	1 55/64	Alphax Non-Sync.	1 to 1/100 plus T&B	———	———	———
2	1 21/64	1 55/64	Alphax Sync.	1 to 1/100 plus T&B	1/50 and slower	All speeds	All speeds
3	2	2 21/32	†Alphax Non-Sync.	1 to 1/100 plus T&B	———	———	———
3	2	2 21/32	Alphax Sync.	1 to 1/100 plus T&B	1/50 and slower	All speeds	All speeds
4	2⅝	3 17/32	†Alphax Non-Sync.	1 to 1/50 plus T&B	———	———	———
4	2⅝	3 17/32	†Alphax Sync.	1 to 1/50 plus T&B	All speeds	All speeds	All speeds
5	3⅛	4 5/64	†Alphax Non-Sync.	1/2 to 1/50 plus T&B	———	———	———
5	3⅛	4 5/64	†Alphax Sync.	1/2 to 1/50 plus T&B	All speeds	All speeds	All speeds

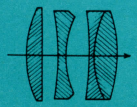
†Available upon request with press-focus lever at additional cost.

Wollensak **RAPTAR** enlarging lenses . . .

Professional and amateur photographers who want the finest in enlarging lenses select Wollensak Enlarging Raptars. These lenses produce crisp, brilliant enlargements over the entire print . . . capture all the tonal qualities and detail of the negative from corner to corner . . . were designed specifically to make enlargements.

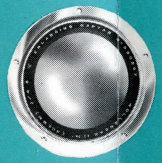
Enlarging Raptars are designed for working from a flat field at a short range . . . projecting from a flat surface to a flat surface. They are exceptionally well corrected and *Wocoted* . . . are available in a complete range of focal lengths from 2″ to 11⅞″.

The above photograph has been enlarged four times yet the smallest detail is accurately and faithfully reproduced from the original negative.



6⅜″ 162mm f/4.5

7½″ 190mm f/4.5



11⅞″ 302mm f/4.5

8¼″ 210mm f/4.5

5 5/16″ 135mm f/4.5

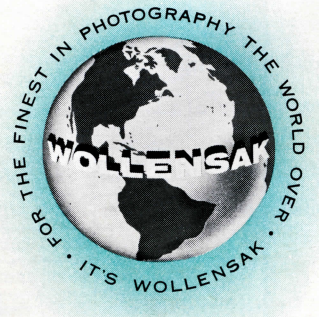
4″ 101mm f/4.5

5″ 127mm f/4.5

SPECIFICATIONS

RAPTAR ENLARGING f/4.5 (WOCOTED)				
Catalog No.	Equiv. Focus		Film Size	Mounting
	Inch	mm		
710	*2	50	1¼x1⅝	In No. 1 Iris Diaph. Barrel
711	*3	75	2¼x2¼	In No. 1 Iris Diaph. Barrel
712	*3½	90	2¼x3¼	In No. 1 Iris Diaph. Barrel
713	*4	101	2¼x3¼	In No. 1 Iris Diaph. Barrel
714	*5	127	3¼x4¼	In No. 2 Iris Diaph. Barrel
715	*5⅜	135	4x5	In No. 3 Iris Diaph. Barrel
716	*6⅜	162	4x5	In No. 4 Iris Diaph. Barrel
717	*7½	190	5x7	In No. 5 Iris Diaph. Barrel
718	8¼	210	5x8	In No. 6 Iris Diaph. Barrel
719	9½	241	6½x8½	In No. 6 Iris Diaph. Barrel
720	11⅞	302	8x10	In No. 7 Iris Diaph. Barrel

*Supplied with click stops.



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