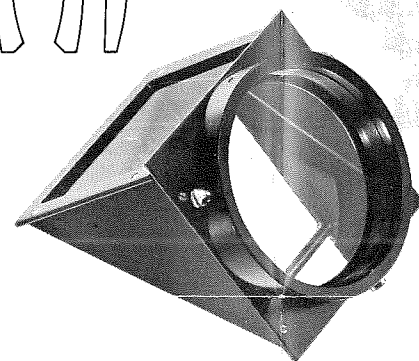
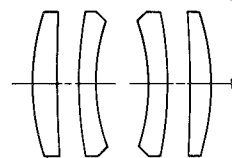
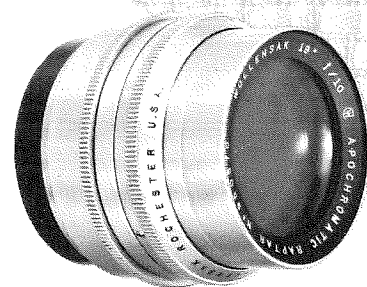


RAPTAR APOCHROMATIC PROCESS f/10 and PRISMS



● Flat field, even illumination, chromatic correction and perfect covering power assure excellent results in copying, enlarging, reducing and for four-color process work.

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.

WOCOTING, Wollensak anti-reflection, hard coating, effectively reduces internal light reflections and flare, greatly increases brilliance and detail.

SPECIFICATIONS							
RAPTAR APOCHROMATIC PROCESS f/10 (WOCOTED) AND PRISMS							
Equiv. Focus		Plates Covered for Reduction Inch	Plates Covered for Full-Size Copy Inch	Barrel	Rapax	Alphax	*Prisms Size
Inch	mm						
10¼	260	6½ x 8½	10 x 12	X	X	X	2
14	355	8 x 10	11 x 14	X	X	X	3
16	406	10 x 12	12 x 15			X	3½
19	482	12 x 15	14 x 17			X	
25	635	16 x 20	20 x 24	X		X	

*Extra charge for fitting prisms to lenses of other makes.



● 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".

WOLLENSAK APOCHROMATIC RAPTAR COATED LENSES FOR PROCESS WORK										
(Color Corrected for Red, Green, and Blue)										
EFL (Inches)	EFL (mm)	Max. Angular Field in Degrees	Normal Work - e.g. Half Tones	Critical Work - e.g. Line Cuts	Aperture for max. Def. Not necessarily max. covering power	Aperture Ratio No. for max. coverage not necessarily max. definition	% COPY SIZE	75%	50%	33%
							Object and Image Distances in Inches	Object and Image Distances in Inches	Object and Image Distances in Inches	Object and Image Distances in Inches
104	260.3	24	20	f/22	f/64	Lens to Film 20.5 Lens to Copy Board 20.5 Film to Copy Board 41	17.94 23.92 41.86	15.38 20.75 46.13	13.87 18.41 54.87	11.90 15.87 47.81
12.0	304.8	24	20	f/22	f/64	Lens to Film 24 Lens to Copy Board 24 Film to Copy Board 48	21 28 49	18 24 41	16 21 37	14 18 31
14.0	355.6	24	20	f/22	f/64	Lens to Film 28 Lens to Copy Board 28 Film to Copy Board 56	24 32 57	21 28 49	18 24 41	16 21 37
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 37 65	24 32 57	21 28 49	18 24 41
19.0	482.6	24	20	f/22	f/64	Lens to Film 38 Lens to Copy Board 38 Film to Copy Board 76	35 44 77	30 39 68	26 34 59	22 29 51
25.0	635	20	17	f/22	f/64	Lens to Film 50 Lens to Copy Board 50 Film to Copy Board 100	43 58 102	37 50 91	32 43 79	27 36 64

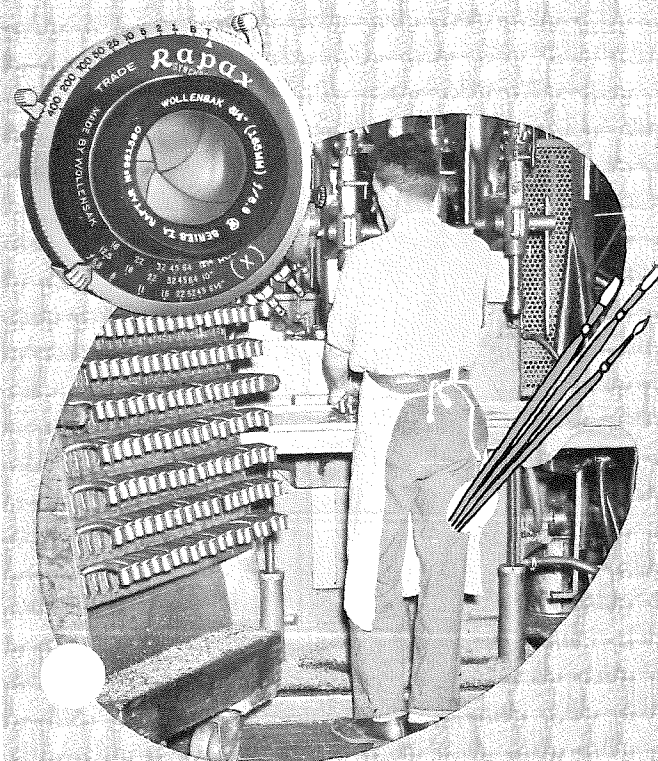
WOLLENSAK APOCHROMATIC RAPTAR COATED LENSES FOR PROCESS WORK										
(Color Corrected for Red, Green, and Blue)										
EFL	% Copy Size	Aperture Ratio No. f/ Stop	Max. Plate Sizes Covered (in inches)							
			100%	75%	50%	33%	25%	20%	16%	12%
104"	Critical Work	10 x 12	10 x 12	11 x 14	8 x 10	8 1/2 x 11	10 x 12	11 x 14	8 1/2 x 11	8 x 10
	Normal Work	11 x 14	11 x 14	12 x 17	10 x 12	10 x 12	11 x 14	8 x 10	8 x 10	8 1/2 x 11
12"	Critical Work	11 x 14	11 x 14	12 x 17	10 x 12	10 x 12	11 x 14	8 x 10	8 x 10	8 1/2 x 11
	Normal Work	12 x 18	12 x 18	14 x 17	11 x 14	11 x 14	12 x 17	10 x 12	10 x 12	11 x 14
14"	Critical Work	12 x 17	12 x 17	14 x 17	11 x 14	11 x 14	12 x 17	10 x 12	10 x 12	11 x 14
	Normal Work	13 x 18	13 x 18	15 x 17	12 x 18	12 x 18	14 x 17	11 x 14	11 x 14	12 x 17
16"	Critical Work	14 x 17	14 x 17	16 x 20	12 x 18	12 x 18	14 x 17	11 x 14	11 x 14	12 x 17
	Normal Work	15 x 20	15 x 20	18 x 24	13 x 18	13 x 18	15 x 17	12 x 18	12 x 18	14 x 17
19"	Critical Work	16 x 20	16 x 20	18 x 24	14 x 17	14 x 17	16 x 20	13 x 18	13 x 18	15 x 17
	Normal Work	17 x 22	17 x 22	20 x 24	15 x 18	15 x 18	17 x 22	14 x 17	14 x 17	16 x 20
25"	Critical Work	20 x 24	20 x 24	22 x 28	18 x 20	18 x 20	20 x 24	16 x 20	16 x 20	18 x 24
	Normal Work	22 x 28	22 x 28	25 x 30	20 x 24	20 x 24	22 x 28	18 x 24	18 x 24	20 x 24

WOLLENSAK
OPTICAL COMPANY
ROCHESTER 21, N. Y.

Form No. 600—2M—7-53—GLP

Printed in U.S.A.

WOLLENSAK



Raptar Lenses
FOR COMMERCIAL PHOTOGRAPHY

WHY WOLLENSAK LENSES ARE YOUR BEST BUY

WHAT MAKES A WOLLENSAK RAPTAR A SUPERIOR LENS?

There are many factors that go to make up Raptar quality. Every one is important.

① **EXPERIENCE**—Over fifty years in producing lenses for photographic purposes.

② **CARE IN DEVELOPMENT AND DESIGN**—All lenses bearing the Wollensak name are designed by Wollensak lens designers, developed and manufactured in Wollensak plants. They undergo rigid inspections at intermediate steps, ending with final resolution and contrast tests.

③ **MATERIALS**—Choice of highest quality materials is extremely important. For example, Wollensak's large stock pile of high quality optical glass (e.g. rare earth) permits a wide selection and choice of this glass to meet the specific requirement as called for in the original design.

④ **CRAFTSMANSHIP**—Quality workmanship is accomplished by highly skilled craftsmen working to a fine lens design. The high quality and standards of Raptar lenses are a direct result of this teamwork.

⑤ **TOOLING**—Because Raptars are made to the most rigid tolerances, unsurpassed in the optical field, many special tools had to be designed and built at Wollensak. Thus the highest standards are always assured.

⑥ **MOUNTING**—Precise, careful mounting of the lens elements in the lens barrels or shutters

is as important as the fine qualities of the lens itself. If the mountings are not exact, lens performance will be impaired or destroyed.

Pressure from poor mounting will distort the lens and destroy image quality. Raptar lens elements are mounted strain-free, to exacting requirements and are controlled by very rigid standards and inspections.

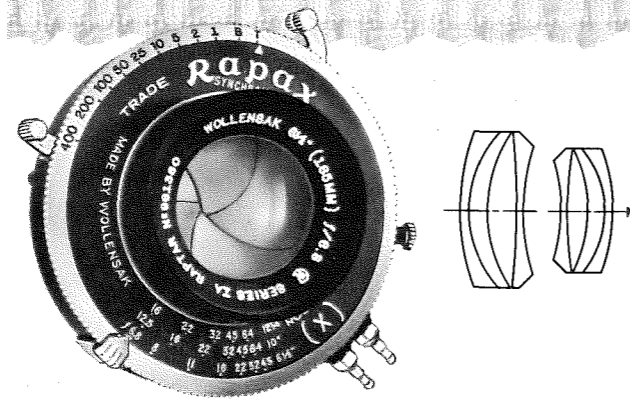
⑦ **HIGHEST RESOLUTION WITHOUT SACRIFICING CONTRAST**—This is one of the most important points in fine lens performance. Two lenses of the same speed and focal length made by two different companies could have the same resolution, yet one will produce sharper pictures. The reason for this is that one lens has higher resolution without sacrificing contrast, while in the manufacture of the other lens, contrast has been sacrificed to obtain high resolution. All Wollensak Raptar lenses have high resolution without the sacrifice of contrast.

⑧ **WOCOTING**—This anti-reflection, hard coating effectively reduces internal light reflections and flare, greatly increases brilliance and contrast. Wollensak coats *all* glass-to-air surfaces, not just the external lens surface, or just the internal lens glass-to-air surface.

⑨ **TESTING**—Before any product leaves our plant it undergoes a series of tests. A lens, for example, must meet the design specifications without compromise.

Perfect star image indicates a well corrected lens with spherical surfaces which are true and aligned. All Raptar lenses must show this form of star image in optical bench tests to be acceptable.

SERIES Ia TRIPLE CONVERTIBLE RAPTAR . . .



THE 3-IN-1 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 Ia 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 and anastigmatic, assuring pin-point definition, flat field and high resolution without the sacrifice of contrast.

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.

SPECIFICATIONS

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

Raptar Lenses FOR COMMERCIAL PHOTOGRAPHY . . . TRIPLE CONVERTIBLE • APOCHROMATIC PROCESS LENSES AND PRISMS

What *Wollensak* Quality Means to You . . .

All Wollensak Cine Raptar lenses have the highest covering power, deliver sharp images to the very edge of the film over the entire focusing range. Tests show that all Raptar lenses are much more critical than the capability of the films to record the image. All lenses are corrected for color and all aberrations and are Wocoted. (Wocoting is Wollensak's anti-reflection hard coating designed to reduce internal light reflections and flare and greatly increase brilliance and detail.) Thus you are able to shoot either color or black and white with finest results.

Most of the lenses in focusing mounts have depth of field scales which tell instantly areas in focus. Positive click stops give quick, precise diaphragming.

An example of Wollensak care in manufacturing is the steps taken to give the lens barrels the finest "lifetime" finish. It takes four operations before the brass barrels are ready for chrome plating. First, the barrels are satin finished. Then they are copper plated, nickel plated, satin finished and finally chrome plated. Only by following these steps will a lens always look its best.

Finally, your assurance of consistency in uniformity of every Wollensak lens is the many critical tests and careful inspections they must undergo. Each lens must meet the highest standards of lens performance before it is engraved Raptar . . . before it leaves the plant. What's in a name? The reputation, honor and integrity of the manufacturer.