

# Wollensak



*Photographic*  
**LENSES**  
*& SHUTTERS*

*Catalog No. 34*

**WOLLENSAK**  
OPTICAL COMPANY  
*Rochester, New York U.S.A.*

# *For Better Photographs*



**W**ITH consistent earnestness and ambition to meet the new day demands in photography, we have developed a line of photographic lenses that is complete for every need. The skillful precision and care that enter into the manufacturing of each lens permits us to offer superior quality. Only high grade artisans, best materials and the finest optical glass procurable enter into the making of Wollensak lenses.

For more than thirty years Wollensak lenses have occupied an enviable position in the field and are in constant use by the better photographers throughout the world who manifest keen delight and complete satisfaction.

As the quality in a lens contributes greatly to the distinctiveness of the finished photograph, intelligent care should be used in selecting a lens that is best suited for the purpose. As specialists in photographic lenses and shutters, we solicit the opportunity of making recommendations and serving your requirements.



## VELOSTIGMAT

*Series Ia f6.3—f7.7*

**T**HREE fine anastigmats in one. Both the long-focus single elements may be used alone, and they, like the doublet, are fully corrected anastigmats. The triple-convertible feature is of infinite value in obtaining telephoto effects, better perspective, or a larger image from a given point of view.

The commercial photographer or advanced amateur who wants the maximum of convenience and versatility, will find the Series Ia a mighty fine investment, for in buying it he obtains three perfect anastigmats for little more than the price of one.

No.	Size	Equiv. Focus Inch	Front Focus Inch	Rear Focus Inch	Speed f.	In Barrel	In Betax
1	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$	4 $\frac{3}{4}$	8 $\frac{1}{4}$	8 $\frac{1}{4}$	6.3	\$43.50	\$45.50
1a	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$	5 $\frac{1}{8}$	10	8 $\frac{1}{4}$	6.8	47.50	49.50
2	4 x 5	5 $\frac{3}{4}$	10	10	6.3	50.00	54.00
2a	4 x 5	5 $\frac{3}{4}$	12 $\frac{3}{4}$	8 $\frac{1}{4}$	7.7	52.50	56.50
2b	4 x 5	6 $\frac{1}{2}$	12 $\frac{3}{4}$	10	6.8	55.00	59.00
3	5 x 7	7	15 $\frac{1}{2}$	10	7.7	63.50	70.50
3a	5 x 7	7 $\frac{1}{4}$	12 $\frac{3}{4}$	12 $\frac{3}{4}$	6.3	61.50	68.50
3b	5 x 8	8 $\frac{1}{4}$	15 $\frac{1}{2}$	12 $\frac{3}{4}$	6.8	72.00	78.00
3c	5 x 8	8 $\frac{3}{4}$	20	12 $\frac{3}{4}$	7.7	77.50	83.50
4	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	9	15 $\frac{1}{2}$	15 $\frac{1}{2}$	6.3	75.00	81.00
4a	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	10	20	15 $\frac{1}{2}$	6.8	95.00	101.00
4b	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	11	25 $\frac{1}{2}$	15 $\frac{1}{2}$	7.7	105.00	111.00
5	8 x 10	11 $\frac{1}{2}$	20	20	6.3	110.00	116.00
5a	8 x 10	13	25 $\frac{1}{2}$	20	6.8	120.00	126.00
6	10 x 12	14	31	20	7.7	145.00	151.00
6a	10 x 12	14 $\frac{3}{4}$	25 $\frac{1}{2}$	25 $\frac{1}{2}$	6.3	160.00	169.00
7	11 x 14	16 $\frac{1}{4}$	31	25 $\frac{1}{2}$	6.8	170.00	179.00
7a	11 x 14	17 $\frac{1}{2}$	31	31	6.8	185.00	194.00

(Continued on page 15)





## VELOSTIGMAT

### *Series II f4.5*

**F**OR general-purpose work in the studio, for use in home portraiture, for speed work with the reflecting type of camera, the Series II is pre-eminent.

Studio workers find that its perfectly flat field helps in photographing standing figures and groups. Home portrait photographers like its compact construction. However, for portrait work, where the best perspective is desired, it would be advisable to select a Series II Velostigmat a size larger than the plate for which it is listed.

The Series II is versatile, and its usefulness is not confined to portrait work alone. It is admirable for copying, enlarging, and view work and is also suitable for commercial work when slightly stopped down.

No.	Size	Equiv. Focus	In Barrel	In Studio	In Betax
0	2¼ x 3¼	3½ in.	\$22.50		\$24.50
1	3¼ x 4¼	5 in.	25.00		29.00
2	4 x 5	6½ in.	40.00		46.00
3	5 x 7	7½ in.	50.00		59.00
3a	5 x 8	8¼ in.	72.50		81.50
4	6½ x 8½	9½ in.	105.00		111.00
5	8 x 10	12 in.	140.00	\$146.50	149.00
6	10 x 12	14 in.	185.00	190.00	
7	11 x 14	16 in.	240.00	245.00	
8	14 x 17	19½ in.	365.00	366.00	

A diffusing device supplied on the five larger sizes at ten dollars each extra.

↔—————↔  
*An exceptionally fast Wide Angle Anastigmat*  
—————



## VELOSTIGMAT

*Series III f9.5*

A WIDE angle lens is an absolute necessity to the studio or photographic organization endeavoring to maintain a complete photographic service. With a lens of this type it is possible to obtain satisfactory photos of buildings in narrow streets, interiors, banquet groups, and all work in confined space with virtually no distortion.

Being a corrected anastigmat it gives excellent definition over the entire plate for which it is listed, covering an angle of 90 degrees. Stopping down is only necessary to increase depth of focus.

The exceptional speed of the Series III Velostigmat is a mighty fine asset for focusing in dimly lighted interiors, for making snapshots out of doors and for flash light work.

Finely corrected and attractively finished, the Series III Velostigmat Wide Angle constitutes a mighty fine investment for the progressive studio or commercial photographer.

No.	Plate Covered at f 9.5	Equivalent Focus	In Barrel	In Betax Shutter
3	5 x 7	4.3 in.	\$43.50	\$47.50
4	6½x 8½	5.4 in.	50.00	54.00
5	8 x 10	6.25 in.	65.00	71.00
7	11 x 14	9 in.	100.00	106.00

Finely-corrected and moderately priced



# VELOSTIGMAT

*Series IV f6.3*

THAT we are able to offer as fine a lens as the Series IV so reasonably is indeed a tribute to modern manufacturing methods.

The Series IV Velostigmat is a perfectly corrected anastigmat, sharply covering the plate for which it is listed at full aperture and working at the high speed of f6.3. It is suitable for commercial, architectural, landscape and view work and home portraiture where the lighting is good. For copying and enlarging the Series IV Velostigmat is a consistent producer of results.

This lens in the smaller sizes can be supplied in cells or in Wollensak shutters for fitting to practically all makes of hand cameras. There is no charge for this fitting.

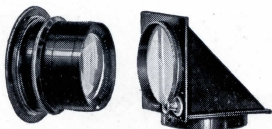
Where speed or convertibility is not required, this lens would make an excellent choice.

No.	Size	Equiv. Focus	In Cells	In Barrel	In Betax
0	2 $\frac{1}{4}$ x 3 $\frac{1}{4}$ 1 $\frac{5}{8}$ x 2 $\frac{1}{2}$	3 $\frac{1}{2}$ in.	\$ 5.50	\$13.50	\$15.50
1	3 $\frac{1}{4}$ x 4 $\frac{1}{4}$ 2 $\frac{1}{2}$ x 4 $\frac{1}{4}$	5 in.	10.50	18.50	20.50
2	4 x 5 2 $\frac{7}{8}$ x 4 $\frac{7}{8}$	5 $\frac{3}{4}$ in.	14.50	22.50	26.50
2A	3 $\frac{1}{4}$ x 5 $\frac{1}{2}$	6 $\frac{1}{2}$ in.	15.00	23.00	27.00
3	5 x 7	7 $\frac{1}{4}$ in.		32.50	39.50
4	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	9 $\frac{1}{2}$ in.		50.00	56.00
5	8 x 10	12 in.		70.00	79.00

↔—————↔

*The lens of precision for photo engraving, copying, etc.*

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## Velostigmat

### *Process and Prisms*

THE exceptional chromatic qualities of the Velostigmat Process make it ideal for four-color process work when used at smaller apertures. The precise anastigmatic corrections adapt it admirably to all line and half-tone work where extreme precision is desired.

Although designed for the photo engraver, this lens should also interest commercial photographers because its flat field, even illumination and perfect covering power answer the need for ideal copying, enlarging, reducing, etc.

The front lens cell is threaded to receive the Wollensak prisms which are supplied in the sizes listed below. These prisms are accurately ground and polished and made of the finest optical glass.

All Process lenses are slotted for waterhouse stops, with revolving rings to cover when not in use.

No.	Equiv- alent Focus	Speed	Plates Covered for Re- duction	Plates Cov'd for full Size Copy	Price	Size of Prism to fit	Price of Prism*
4	10 $\frac{1}{4}$ in.	<i>f</i> 10	6 $\frac{1}{2}$ x8 $\frac{1}{2}$	10x12	\$84.50	2 in.	\$67.50
5	14 in.	<i>f</i> 10	8 x10	11x14	112.50	2 $\frac{1}{2}$ in.	75.00
6	16 in.	<i>f</i> 10	10 x12	12x15	135.00	3 in.	112.50
7	19 in.	<i>f</i> 10	12 x15	14x17	157.50	3 $\frac{1}{2}$ in.	135.00
9	25 in.	<i>f</i> 10	16 x20	20x24	225.00		
10	30 in.	<i>f</i> 16	20 x24	24x30	326.50		

\*Extra charge for fitting Prisms to Lenses of other makes.



—>>> *An ideal inexpensive Wide Angle lens* <<<—



## EXTREME WIDE ANGLE

*Series IIIa f12.5*

THE genuine merits and unlimited possibilities of the Series IIIa Extreme Wide Angle lens has gained for it a host of enthusiastic friends.

Its speed, extreme angle, reserve covering power and moderate price, offer a combination of qualities that should prove of real interest to the commercial photographer. For banquet camera work where space is limited and a short focus lens required, the Series IIIa will make a strong appeal.

The Series IIIa has an angle of view of 90 degrees and gives good definition at full aperture; wiry sharpness available when the diaphragm is stopped down (which is essential for depth of focus). Because of its large circle of illumination this lens can be used on a plate a size larger than listed by stopping down the diaphragm which then affords an angle of approximately 100 degrees.

No.	Size	Larger Plates Smaller Stops	Equiv- alent Focus	In Barrel	In Betax Shutter
3	5 x 7	6½ x 8½	4⅝ in.	\$23.50	\$27.50
4	6½ x 8½	8 x 10	5⅜ in.	30.00	36.00
5	8 x 10	10 x 12	6¼ in.	33.50	39.50
6	10 x 12	11 x 14	7⅞ in.	42.00	48.00
7	11 x 14	14 x 17	9 in.	52.50	58.50
8	14 x 17	17 x 20	11 in.	65.00	74.00
9	17 x 20	20 x 24	13 in.	80.00	89.00

Supreme for portraiture and child photography



# VITAX

*Portrait f3.8*

WHILE the Vitax is not a general-purpose studio lens like the Series II, it is particularly suited to portrait work and child photography.

In making child portraits and baby pictures speed of lens is all-important. The Vitax works at  $f3.8$ —a practical speed for a portrait lens. With this rapidity, snapshot exposures in the studio are entirely practical.

Vitax portraits, particularly large heads and busts, have a rounded, standing-out quality that is life-like and beautiful. This effect is due in part to the improved Petzval formula of the lens. Of value, too, to the portrait photographer is the diffusing device which gives a slight softness when desired.

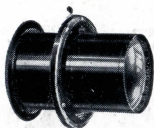
If your light is poor, your negatives under timed; if you desire a nicer quality in your portraits; if you want certain success in photographing the youngsters—consider the Vitax Portrait  $f3.8$ .

No.	Focus	Lens Diam.	Speed	In Barrel	In Studio Shutter
3	10 in.	3 in.	$f\ 3.8$	\$105.00	\$110.00
4	$13\frac{1}{2}$ in.	$3\frac{1}{2}$ in.	$f\ 3.8$	135.00	140.00
5	16 in.	$4\frac{1}{8}$ in.	$f\ 3.8$	185.00	186.00
7	20 in.	$4\frac{1}{8}$ in.	$f\ 5$	200.00	201.00

#### VITAX EXTENSION LENS

to be used with 16" focus, increasing focus to 20", \$57.50

—>>>—————<<<—  
*The most popular and practical soft-focus lens*



# VERITO

*Diffused Focus f4*

THE pioneer of soft focus lenses. The Verito with its speed, convertible feature and soft focus quality makes it an indispensable tool to the artist-photographer and pictorialist.

Any degree of softness or sharpness may be obtained by simply changing the size of the diaphragm aperture. Definition is not destroyed, but pleasingly subdued so that retouching is practically eliminated. The rear element may be used alone. This gives a slightly different quality of diffusion and being longer in focus than the doublet makes it ideal for portraiture. The Verito improves on acquaintance. The longer you use it the more delighted you will be with its infinite possibilities.

When projecting thru the Verito, the harshest and most wiry negatives are made to breathe a softness of exceptional beauty. In enlarging as in making negatives, the softness is controlled by the diaphragm.

No.	Size	Equiv. Focus	Rear Focus	In Barrel	In Studio	In Betax
*A	3¼x 4¼	5 in.	10 in.	\$22.50		\$24.50
*B	4 x 5	6½ in.	14 in.	25.00		29.00
1	3¼x 4¼	6⅞ in.	10 in.	28.50		34.50
2	4 x 5	7¼ in.	11 in.	32.50		41.50
3	5 x 7	8¾ in.	14 in.	42.50		53.00
4	6½x 8½	11½ in.	20 in.	60.00	\$65.00	
5	8 x 10	14½ in.	24 in.	85.00	90.00	
✓ 7	11 x 14	18 in.	30 in.	110.00	111.00	

\*Size A and B, f6—all others f4.

Veritos of special speed 5" focus or shorter in standard Barrel \$25.00.

# 8/25

↔—————↔  
*A better lens will make a better picture*  
—————↔



*A Verito Portrait by Harris & Ewing*

## Verito Extension Lens

**T**HIS is a complete front combination for the 18" focus Verito. It interchanges with the regular front lens and increases the focus to 22 $\frac{1}{4}$ " thus offering a long focus portrait lens at moderate cost. Price complete with mount \$20.00.

## Verito for Auto Focus Enlargers

Enlargers with the auto focus features can be equipped with the Verito and still retain the automatic arrangements. To do this it is necessary to send the anastigmat lens from the enlarger to the plant so the focus of it may be exactly duplicated in the Verito.

Special 10" focus <i>f</i> 4.5 Verito for 8 x 10 Eastman Projection Printer.....	\$52.50
Special 7 $\frac{1}{2}$ " focus <i>f</i> 4.5 Verito for 5 x 7 Eastman Auto-focus Enlarger.....	\$42.50



*Lenses that are inexpensive but good*

## VOLTAS *f*8

WHERE high speed and fine corrections are not essential, the inexpensive Voltas will adequately serve the purpose. It is an all-round lens, particularly adapted to landscape, view and commercial work. While fair detail is rendered at full opening, the Voltas must be stopped down in order to insure sharp definition to the extreme corners of the plate. The Voltas is convertible, the single elements may be used alone with smaller stops.

No.	Size	Equivalent Focus	In Barrel	In Betax Shutter
1	3¼x 4¼	5 in.	\$14.50	\$16.50
2	4 x 5	6½ in.	15.00	19.00
3	5 x 7	8 in.	17.00	21.00
4	6½x 8½	10½ in.	25.00	31.00
5	8 x10	12½ in.	34.50	43.50
6	10 x12	16 in.	58.50	64.50
7	11 x14	18½ in.	64.00	73.00

## WOLLENSAK RAY FILTER

THE Wollensak ray filter requires but three times normal exposure and will produce beautiful results in cloud, landscape and flower studies, as well as in commercial work.

No.	Will Fit Lens Mounts from	Price	No.	Will Fit Lens Mounts from	Price
1	1⅝ in. to 1⅞ in.	\$2.50	6	2⅜ in. to 2⅝ in.	\$4.50
2	1⅞ " " 1⅞ "	2.75	7	2⅞ " " 3 "	5.25
3	1⅞ " " 1⅞ "	3.00	8	3⅞ " " 3½ "	6.75
4	1⅞ " " 2 "	3.50	9	3⅞ " " 4⅞ "	7.50
5	2⅞ " " 2⅞ "	3.75	10	4⅞ " " 4⅞ "	9.00

Prices of indestructible Filters of natural yellow glass upon request.



## BETAX GAMMAX DELTA



**F**OR those who require extreme accuracy in exposures and simple sturdy construction to withstand hard usage, these improved shutters will make a strong appeal.

An outstanding feature in this new line of shutters is our gearless, pumpless retarding mechanism which is simple in construction and positive in action assuring accurate and unvarying speeds.

Metal diaphragm leaves and shutter blades are incorporated in these models which are ideal for enlarging where heat is intense.

The Betax, Gammax and Deltax shutters are automatic in operation and can be released either with the wire release, or bulb and hose, (with the aid of a bulb attachment). Finished in black lacquer with gold engravings.

No.	Light Opening	Lens Opening	Flange Diameter		Betax	Gammax	Deltax
			Outside	Inside			
†0	$\frac{9}{16}$ in.	$\frac{27}{32}$ in.	$1\frac{15}{32}$	$\frac{15}{16}$	\$10.00	\$5.00	\$4.50
*1	$\frac{3}{4}$ in.	$1\frac{1}{16}$ in.	$1\frac{21}{32}$	$1\frac{3}{16}$	10.00	6.00	5.50
*2	1 in.	$1\frac{7}{32}$ in.	$1\frac{27}{32}$	$1\frac{5}{16}$	12.00	7.00	
†3	$1\frac{3}{8}$ in.	$1\frac{23}{32}$ in.	$2\frac{21}{32}$	2"	15.00		
†4	$1\frac{3}{4}$ in.	$2\frac{3}{8}$ in.	$3\frac{17}{32}$	$2\frac{13}{32}$	18.00		
†5	$2\frac{1}{4}$ in.	$2\frac{29}{32}$ in.	$4\frac{3}{32}$	$3\frac{3}{32}$	22.50		

Prices include flange and wire release.

†Betax No. 0 Time Bulb, 1-100, 1-50, 1-25, 1-10, 1-5

\*Betax, Nos. 1 & 2 Time Bulb, 1-100, 1-50, 1-25, 1-10, 1-5, 1-2

†Betax Nos. 3, 4 & 5 Time Bulb, 1-50, 1-25, 1-10, 1-5, 1-2

Gammax, Time Bulb, 1-100, 1-50, 1-25, 1-10

Deltax, Time Bulb, 1-100, 1-50, 1-25

Over 32 years experience in shutter making

## STUDIO SHUTTER

**A** BETWEEN-the-lens type of shutter that is practically noiseless. It has bulb exposure only and is supplied with wire release as standard equipment, or with attachment for bulb and hose at \$2.50 extra.

Exposures of any duration longer than one-fifth second may be had by maintaining pressure on the wire release or bulb.

No.	Light Open'g	Lens Open'g	Price	No.	Light Open'g	Lens Open'g	Price
1	2 $\frac{1}{16}$ in.	2 $\frac{1}{32}$ in.	\$15.00	4	3 $\frac{1}{2}$ in.	3 $\frac{3}{32}$ in.	\$22.50
2	2 $\frac{1}{16}$ in.	2 $\frac{1}{16}$ in.	17.50	*5	4 $\frac{1}{8}$ in.	4 $\frac{1}{2}$ in.	25.00
3	2 $\frac{1}{16}$ in.	3 $\frac{1}{32}$ in.	20.00	*With bulb and tube only			

No flanges supplied on Studio Shutters.

## LENS BARRELS

**E**QUIPPED with iris diaphragms made of metal that will withstand the heat of the enlarging lamp.

No.	Light Aperture	Price	No.	Light Aperture	Price
1	$\frac{3}{4}$ in.	\$8.00	6	1 $\frac{1}{16}$ in.	\$12.00
2	$\frac{7}{8}$ in.	8.00	7	2 $\frac{1}{16}$ in.	13.50
3	1 $\frac{1}{16}$ in.	8.00	8	2 $\frac{1}{8}$ in.	15.00
4	1 $\frac{9}{32}$ in.	9.00	9	3 $\frac{1}{32}$ in.	20.00
5	1 $\frac{1}{2}$ in.	9.00	10	3 $\frac{3}{32}$ in.	24.00

Prices include flanges.

### STANDARD FLANGES

### LENS CAPS

Thread Diam.	Price	Thread Diam.	Price	Inside Diam.	Price
$\frac{1}{8}$ "	\$.50	2 $\frac{1}{32}$ "	\$1.35	1" and under	\$.75
1 $\frac{1}{16}$ "	.60	2 $\frac{3}{32}$ "	1.50	2" " "	1.00
1 $\frac{1}{8}$ "	.65	3 $\frac{1}{32}$ "	1.60	3" " "	1.25
1 $\frac{9}{16}$ "	.80	3 $\frac{5}{8}$ "	1.75	4" " "	1.50
2"	1.00	4 $\frac{1}{32}$ "	2.00	5" " "	1.75
2 $\frac{1}{16}$ "	1.25	4 $\frac{1}{16}$ "	2.50	Over 5"	2.00
		5 $\frac{5}{16}$ "	3.50		

## ACCESSORIES

Wire releases, 12" or shorter, 85c; 20", \$1.75; 36", \$3.75.

Bulb attachments to fit every Wollensak Shutter (State size and type shutter)..... \$2.50

Studio bulb with 4' tubing..... 1.50

Special diaphragm scales, per set..... 1.50

Standard diaphragm scales, per set..... 1.00

Lens cleaning tissue—per book..... .10

(Continued from page 3)

## Series Ia Velostigmat

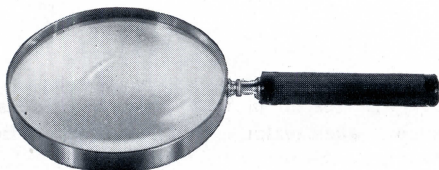
THIS lens is available in a variety of sizes, all of which will cover plates a size larger than listed.

In addition to the advantages of triple convertibility, the doublet is a perfect anastigmat. The flat field, exceptionally large circle of illumination and the fine anastigmatic corrections of the Series Ia Velostigmat lens makes it ideal for banquet cameras.

The following table lists the sizes that are recommended for these cameras:

No.	Size	Equiv. Focus	<i>f</i> Speed	Plates covered with smaller stop
3b	5 x 8	8 $\frac{1}{4}$ "	6.8	7x11
3c	5 x 8	8 $\frac{3}{4}$ "	7.7	7x11
4	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	9"	6.3	5x12
4a	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	10"	6.8	5x12
4b	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	11"	7.7	5x12
5a	8 x 10	13"	6.8	7x17
6	10 x 12	14"	7.7	8x20
6a	10 x 12	14 $\frac{3}{4}$ "	6.3	8x20
7	11 x 14	16 $\frac{1}{4}$ "	6.8	12x20





## Retouching Glasses

**M**ADE of fine clear glass, optically ground and polished, assuring fine vision without objectionable color-fringes, exceptionally high magnifications. Fitted into highly polished Rhodium plated frame with attractive vulcanized fiber handle.

2½" diameter.....\$1.75	3½" diameter...\$2.25
3" diameter..... 2.00	4" diameter... 2.75
5" diameter.....\$4.00	

## Reducing Glasses

**A**BICONCAVE lens used to show how photographs will reduce for reproduction. Supplied in the same style frame and handle as the retouching glasses.

3" diameter.....\$3.00

## Tripod Magnifier

**A**HANDY magnifier for the studio, home and field use. Excellent glass for focusing and examining prints and negatives. Fine lenses give excellent illumination and clear definition. Mounted in stand with screw focusing mount. Magnification 7½X.



Price.....\$ .75

**T**HE distance, in inches, required from lens to subject when making portrait of **average head of 9 inches.**

Focus of Lens Used	Heights of Image on Ground Glass								
	1 in.	2 in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.
2	20	11							
3	30	17	12						
4	40	22	16	14					
5	50	28	20	18	14				
6	60	33	24	21	17	15			
7	70	38	28	25	19	18	16		
8	80	44	32	28	22	20	18	17	
9	90	50	36	32	25	23	21	19	18
10	100	55	40	35	28	25	23	21	20
11	110	61	44	39	31	28	25	23	22
12	120	66	48	42	34	30	28	25	24
13	130	72	52	46	36	33	30	27	26
14	140	77	56	49	39	35	32	29	28
15	150	83	60	52	42	38	36	32	30
16	160	88	64	56	45	40	37	34	32
17	170	94	68	60	48	43	39	36	34
18	180	99	72	63	50	45	41	38	36
19	190	105	76	67	53	48	44	40	38
20	200	110	80	70	56	50	46	42	40

$15 \frac{1}{2}$  |  $8 \frac{1}{2}$  |  $6 \frac{1}{2}$  |  $5 \frac{1}{2}$  |  $4 \frac{1}{2}$  |  $3 \frac{1}{2}$  |  $3 \frac{1}{2}$  |  $3 \frac{1}{2}$  |  $3 \frac{1}{2}$

**T**HE distance, in inches, required from lens to subject when making full length pictures of average standing figure of 68 inches.

Focus of Lens Used	Heights of Image on Ground Glass								
	2 in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.
2	70								
3	105	71							
4	140	95	72						
5	175	118	90	73					
6	210	142	108	88	74				
7	245	166	126	102	86	75			
8	280	189	144	117	99	86	76		
9	315	213	162	131	111	96	86	77	
10	350	237	180	146	123	107	95	86	78
11	385	260	198	171	135	118	105	94	86
12	420	284	216	175	148	129	114	103	94
13	455	308	234	190	160	139	124	111	101
14	490	331	252	204	173	150	133	120	109
15	525	355	270	219	185	161	143	128	117
16	560	379	288	234	197	171	152	136	125
17	595	402	306	248	210	182	162	145	133
18	630	426	324	263	221	194	171	154	140
19	665	450	342	277	234	203	181	163	148
20	700	473	360	292	247	214	199	171	156

27/22/18/16

## *GUARANTEE*

Wollensak lenses are guaranteed to be optically and technically correct. All shutters are warranted to give perfect satisfaction. If any of our products, with proper care, fail to give satisfaction within a year after leaving our factory, we will repair or replace free.

## *TRIAL PRIVILEGE*

Our liberal trial privilege permits a thorough test before buying. Should a customer be undecided between two types or sizes of lenses, we are willing to send both for comparative test without obligation, through a photographic dealer. The customer, however, is expected to pay the transportation charges when a lens is sent on memorandum.

## *TERMS*

Wollensak lenses are sold only through established photographic stock houses or dealers. If the customer has no local dealer, we will gladly put him in touch with someone conveniently located who can take care of his requirements. All prices are f. o. b. Factory.

## *ADVISORY SERVICE*

Our Service Department is ready and willing to give individual attention to all optical and shutter problems. This service involves no obligation.





MAIN OFFICES AND PLANT  
OF THE

WOLLENSAK OPTICAL  
COMPANY



ROCHESTER, N. Y.

OTHER  
**WOLLENSAK**  
PRODUCTS

MOVIE LENSES & ACCESSORIES  
PROJECTION LENSES  
FIELD GLASSES  
MICROSCOPES  
MAGNIFIERS  
TELESCOPES

