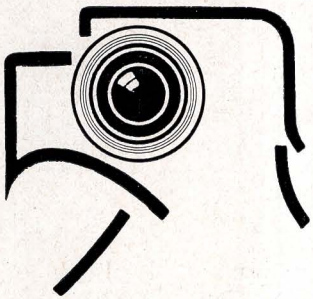


ZEISS
OBJECTIVES

CARL ZEISS
JENA

Ph 324 e.

Contents

The rapid development of every branch of the photographic industry imposes on the manufacturers of photographic lenses a continual demand both for the extension of the scope of existing types and for the production of objectives of entirely new design.

It is therefore with the object of providing a convenient survey of the range of objectives which our factories are able to offer to-day that we have collected together in this booklet, in tabular form, all the objectives which we now manufacture, together with brief descriptive data.

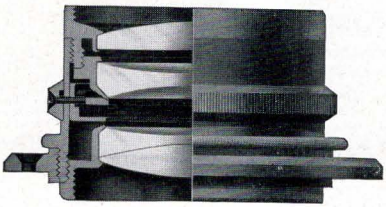
The standard methods of mounting are as follows:

Standard N Mount = fixed mount
B Mount = fixed sunk mount
A Mount = sunk focusing mount
Compur shutter
Compound shutter
Special mounts, more particularly for cine and miniature cameras.

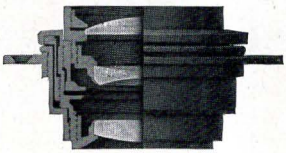
Where no details of the mount are given, reference should be made to our price list of photographic objectives for the requisite information.

CARL ZEISS, JENA

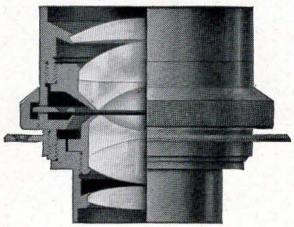
Some Specially Important Types of Zeiss Objectives



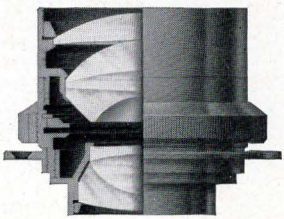
Tessar



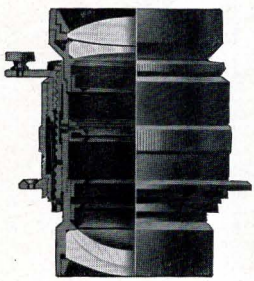
Triotar



Biotar



Sonnar



Tele-Tessar

The Mounts of Zeiss Objectives

Zeiss Objectives are not supplied in the form of unmounted lenses, but are only fitted to a shutter or in a mount, since otherwise it would be impossible to guarantee their performance. — The Zeiss Objective mounts are provided with an iris diaphragm, whilst the Apo-Tessars and Apo-Planars have Waterhouse slide-in stops in addition.

The **Compur Shutter** provides for time and instantaneous exposures, the smallest shutters being speeded to $^1/_{500}$ second. The most popular sizes are fitted with a delayed action movement.

The larger objectives necessitate the use of **Compound shutters** which are speeded up to $^1/_{100}$ sec.

The speed, in the Compur shutter, is controlled by a gear train; in the Compound shutter by an air brake.

The **Focusing "A" Mount** for cameras of fixed extension projects backwards into the body of the camera and has a helical multi-thread screw focusing adjustment whereby the objective may be set by scale to any desired object distance.

The **Sunk "B" Mount** for reflex and press cameras with variable extension likewise projects backwards into the camera but has no focusing adjustment.

The **Standard "N" Mount** is used on field and large stand cameras provided with bellows extension.

Another possibility of focusing apart from the focusing mount A is given by **the adjustability of the front lens** of the objective. This method is employed with objectives equipped with shutters, provided they are used on cameras without variable extension and where importance is attached to a firm connection of the objective with the camera.

Universal Tessar

The well known 4-lens objective, supplied for all sizes and in every type of mount. Those of the shortest focal lengths are new.

Recommended for plate size	Tessar F/2.8			Tessar F/3.5			Tessar F/4.5			Tessar F/6.3		
	Focal length		Diameter of circle covered at small stops	Focal length		Diameter of circle covered at small stops	Focal length		Diameter of circle covered at small stops	Focal length		Diameter of circle covered at small stops
in.	cm.	in.	in.	cm.	in.	in.	cm.	in.	in.	cm.	in.	in.
1 × 3/4 — 1 × 1	3 3/4 4	1 1/2 1 9/16	1 3/8 1 9/16	3 3/4	1 1/2	1 11/16						
1 1/2 × 1	5	2	2 1/16	5	2	2 1/16	4 5	1 9/16 2	1 3/4 2 1/4			
1 9/16 × 1 3/16	5	2	2 1/16	5	2	2 1/16	5	2	2 1/4			
1 9/16 × 1 9/16	6	2 3/8	2 5/16	6	2 3/8	2 3/4	5.5	2 1/4	2 9/16			
2 5/16 × 1 3/4	7.5	3	3 1/16	7.5	3	3 3/8	6.5 7.5	2 1/2 3	3 3 3/8			
2 1/4 × 2 1/4	8	3 1/8	3 1/8	7.5 8	3 3 1/8	3 3/8 3 1/2	7.5 8	3 3 1/8	3 3/8 3 9/16	7.5	3	4 1/8
2 1/2 × 2 1/2				8	3 1/8	3 1/2	8 9	3 1/8 3 1/2	3 9/16 4 1/8			
3 1/2 × 2 1/2				10.5 12	4 1/8 4 3/4	4 3/4 5 1/8	10.5 11.5	4 1/8 4 1/2	5 1/8 5 1/2	10.5	4 1/8	5 1/2
4 3/8 × 2 1/2				12	4 3/4	5 1/8	11.5	4 1/2	5 1/2			
4 1/4 × 3 1/4				13.5	5 1/4	6 1/8	13.5	5 1/4	6 1/4	13.5	5 1/4	7 1/4
4 1/4 × 3 1/4				13.5 15	5 1/4 6	6 1/8 6 3/4	13.5 15	5 1/4 6	6 1/4 7	13.5 15	5 1/4 6	7 1/4 7 7/8
5 1/2 × 3 1/8 / 5 × 4				15 16.5	6 6 1/2	6 3/4 7 1/2	15 16.5	6 6 1/2	7 7 7/8	15 16.5	6 6 1/2	7 7/8 8 3/4
6 × 4				16.5	6 1/2	7 1/2	16.5	6 1/2	7 7/8	16.5	6 1/2	8 3/4
6 1/2 × 4 3/4				21	8 1/4	9 1/2	18	7	8 3/4	18	7	10
7 × 5				21	8 1/4	9 1/2	21	8 1/4	9 1/2	21	8 1/4	11 1/2
8 × 5				25	10	11	25	10	12	25	10	14
8 1/4 × 6 1/4				30	12	13 3/8	30	12	14	25 30	10 12	14 16 1/2
8 1/2 × 6 1/2							30 36 40	12 14 16	14 17 19	30	12	16 1/2
10 × 8							36 40	14 16	17 19	36	14	20
12 × 10							50	20	24	50	20	27
15 × 12										50 60	20 24	27 32

CARL ZEISS JENA

Special Tessars

Tessar F/8 for wide angle work			**Tessar F/3.5** for cine cameras in N, A and special mounts			**Tessar F/2.7** for cine cameras in N, A and special mounts			**Tessar F/5** for portraiture and group work and aerial photography, in N mount		
Focal length		Recommended for plate size	Focal length		Recommended for plate size	Focal length		Recommended for plate size	Focal length		Recommended for plate size
cm.	in.	in.	cm.	in.	in.	cm.	in.	in.	cm.	in.	in.
2.8	$1^1/_8$ (Special mount)	$1^1/_2 \times 1$	2.8	$1^1/_8$	Standard film	1.5	$^5/_8$	Sub-standard film	70	28	15×12
						2	$^3/_4$				
						2.5	1				
5.5	$2^1/_4$ (N mount and Compur)	$2^5/_{16} \times 1^3/_4$	3.5	$1^3/_8$		3.5	$1^3/_8$	Standard film			
			4	$1^9/_{16}$		4	$1^9/_{16}$				
			5	2		5	2				

Apo-Tessar F/9

For process work, in N mount
with iris diaphragm and Waterhouse stops

Focal length		Plate size for critical definition at aperture F/22 to F/32 at a scale of reproduction of		
		1 : 1	1 : 2	1 : 10
cm.	in.	in.	in.	in.
24	$9^1/_2$	12×10	9×7	7×5
30	12	15×12	12×10	$8^1/_2 \times 6^1/_2$
45	18	24×20	16×13	12×10
60	24	32×26	24×18	16×13
75	30	38×32	27×24	21×16
90	36	48×36	36×24	26×20
120	48 (F/11)	60×50	45×36	36×24

Triotar

A 3-lens universal objective which in the longer focal lengths may also be used on miniature cameras as an interchangeable special objective.

Recommended for plate size in.	Maximum relative aperture	Focal length cm.	Focal length in.	Diameter of circle covered at small stops in.	Type of Mount
$1^1/_2 \times 1$	F/3.5	5	2	$2^1/_{16}$	Special Mount
	F/4	8.5	$3^3/_8$	$1^{11}/_{16}$	„
	F/5.6	10.5	$4^1/_8$	$1^{13}/_{16}$	„
$2^1/_4 \times 2^1/_4$	F/3.5	7.5	3	$3^3/_{16}$	Compur
	F/4.5	7.5	3	$3^3/_{16}$	„

Triplet

3-lens objective for aerial photography, portraiture, and special work.

Recommended for plate size in.	Maximum relative aperture	Focal length cm.	Focal length in.	Diameter of circle covered at small stops in.
7×5	F/4.8	50	20	10
$8^1/_2 \times 6^1/_2$	F/5	70	28	$12^1/_2$
12×10	F/7	120	48	16

Biotar

The F/1.4 (or F/1.5) lens is used principally for cinematography; the F/2 lens increasingly for miniature cameras.

Recommended for plate size in.	Maximum relative aperture	Focal length cm.	Focal length in.	Diameter of circle covered at small stops in.	Type of Mount
8 mm. Film	F/1.5	1·25	1/2	3/8	Special mount
Sub-standard Film	F/1.4	2	3/4	9/16	N and A mount
	F/1.4	2.5	1	11/16	"
Standard Film	F/1.4	4	1 9/16	1 1/4	N and A mount
	F/1.4	5	2	1 9/16	"
	F/1.4	7	2 3/4	2 1/16	"
1 × 1	F/2	4	1 9/16	1 7/16	Special mount
1 1/2 × 1	F/2	4 1/4	1 11/16	1 11/16	Special mount
	F/2	4.5	1 3/4	2	in all mounts
	F/2	5.8	2 5/16	2 3/8	Special mount
2 5/16 × 1 3/4	F/2	8	3 1/8	3 3/8	in all mounts

Sonnar

An objective of exceptionally short extension. Computed for miniature cameras and sub-standard cine cameras. Specially mounted for each individual type of camera.

Recommended for plate size in.	Maximum relative aperture	Focal length cm.	Focal length in.	Diameter of circle covered at small stops in.	Number of lenses
8 mm. Film	F/2	1	3/8		4
Sub-standard Film	F/1.4	2.5	1	1/2	5
	F/2.8	5	2	1 1/16	4
	F/4	7.5	3	1 5/16	4
1 × 1	F/2	4	1 9/16	1 1/2	6
	F/4	7.5	3	1 11/16	4
1 1/2 × 1	F/1.5	5	2	1 5/8	7
	F/2	5	2	1 11/16	6
	F/2	8.5	3 3/8	1 3/4	6
	F/4	13.5	5 1/4	1 11/16	4
	F/2.8	18	7	1 11/16	5

Biotessar

A 6-lens objective of aperture F/2.8 for large plate sizes, supplementing the Tessar series.

Recommended for plate size in.	Maximum relative aperture	Focal length cm.	Focal length in.	Diameter of circle covered at small stops in.	Type of Mount
$3^1/_2 \times 2^1/_2$	F/2.8	13.5	$5^1/_4$	$5^1/_8$	In N, B and A mount
$4^1/_4 \times 3^1/_4$	F/2.8	16.5	$6^1/_2$	$6^1/_4$	In N, B and A mount

Quartz Anastigmats F/4.5

For photography by ultra-violet light such as is called for particularly in criminological and scientific investigation. In two types: achromatic (5-lens) and non-achromatic (3-lens). Mounted in Compur or Compound shutter.

Focal length		Diameter of image circle in inches at full aperture for critical work at a scale of reproduction of				for less critical work at a scale of reproduction of			
cm.	in.	1 : ∞	1 : 5	1 : 2	1 : 1	1 : ∞	1 : 5	1 : 2	1 : 1
12	$4^3/_4$	$2^1/_2$	3	$3^3/_4$	$5^1/_8$	$3^3/_8$	$4^3/_8$	$5^1/_8$	$6^3/_4$
25	10	$5^1/_4$	$6^1/_4$	$7^7/_8$	$10^1/_2$	7	$8^5/_8$	$10^1/_2$	14

Dagor

A 6-lens symmetrical double anastigmat. The single component of the Universal Dagor may be used alone as a long focus objective having a focal length about 75 % longer than that of the complete objective.

Recommended for plate size in.	Universal Dagor				Wide Angle Dagor			
	Maximum relative aperture	Focal length cm.	Focal length in.	Diameter of circle covered at small stops in.	Maximum relative aperture	Focal length cm.	Focal length in.	Diameter of circle covered at small stops in.
2 5/16 × 1 3/4					F/9	4.5	1 3/4	3 1/8
3 1/4 × 2 1/4					F/9	6	2 3/8	4 1/8
3 1/2 × 3 1/2					F/9	7.5	3	6 3/4
5 × 4					F/9	10	4	8 3/4
6 1/2 × 4 3/4					F/9	12.5	5	10 1/2
7 × 5	F/6.8	18	7	10 1/2				
8 × 5					F/9	15	6	13
8 1/2 × 6 1/2	F/6.8	21	8 1/4	12 1/2				
9 × 7	F/6.8	24	9 1/2	14	F/9	18	7	15 1/2
10 × 8					F/9	21	8 1/4	18
12 × 10	F/6.8	30	12	18	F/9	24	9 1/2	21
15 × 12	F/7.7	36	14	21				

Double Protar

A convertible objective for large sizes made up of two Protar lenses and of chief value for technical work which calls for a series of lenses of increasing focal length.

Recommended for plate size	Protar Lens F/12.5 4-lens component objective with front stop for landscape and portraiture			Double Protar Universal convertible objective made up from two Protars					
	Focal length		Diameter of circle covered at small stops	Focal length				Maximum relative aperture	Diameter of circle covered at small stops
				Component lenses		Double objective			
in.	cm.	in.	in.	cm.	in.	cm.	in.		in.
3½ × 2½				18/18	7 / 7	10.5	4⅛	F/6.3	6¼
4¼ × 3¼				22/18	8¾/ 7	11.5	4½	F/7	6¾
4¼ × 3¼	18	7	6⅞	29/18	11½/ 7	13	5⅛	F/7.7	7⅞
				22/22	8¾/ 8¾	13	5⅛	F/6.3	7⅞
5 × 4				29/22	11½/ 8¾	14.5	5¾	F/7	8¾
6 × 4	22	8¾	8½	35/22	14 / 8¾	15.5	6⅛	F/7.7	9½
6½ × 4¾				29/29	11½/11½	17	6¾	F/6 3	10¼
7 × 5	29	11½	11½	35/29	14 /11½	18.5	7¼	F/7	11
				41/29	16 /11½	20	7⅞	F/7.7	12
				35/35	14 /14	20.5	8	F/6.3	12½
8 × 5				41/35	16 /14	22	8¾	F/7	13
8½ × 6½				48/35	19 /14	23.5	9¼	F/7.7	14
				41/41	16 /16	24	9½	F/6.3	14
9 × 7	35	14	13½	48/41	19 /16	26	10¼	F/7	16
				59/41	23 /16	28	11	F/7.7	16½
				48/48	19 /19	28	11	F/6.3	16½
				59/48	23 /19	31	12	F/7	18½
10 × 8				69/48	27 /19	33	13	F/7.7	20
				59/59	23 /23	34	13½	F/6.3	20½
12 × 10	41	16	15¾	69/59	27 /23	37	14½	F/7	22
				69/69	27 /27	40	16	F/6.3	24
14 × 11	48	19	18½						
15 × 12	59	23	23						
17 × 14	69	27	27						

Sets of Protars

	Protar set	Single component								Double objective							
		Focal lengths obtainable in															
		cm.				in.				cm.				in.			
5 × 4	Bo	29	22	18		11½	8¾	7		14.5	13	11.5		5¾	5⅛	4½	
7 × 5	C	35	29	22		14	11½	8¾		18.5	15.5	14.5		7¼	6⅛	5¾	
9 × 7	D	48	41	35	29	19	16	14	11½	26	23.5	22	20	18.5	10¼	9¼	8¾ 7⅞ 7¼

Objectives for Miniature Cameras

The possibilities of development of this group of objectives are not yet exhausted. The objectives that can be supplied at the moment are as shown in the list below. In all cases they are manufactured specially mounted to meet the requirements of particular cameras and for the most part are not interchangeable from one camera to another.

Objective	Maximum relative aperture	Focal length cm.	Focal length in.	
a) Size 1 × 1 in.				
Tessar	F/3.5	3 3/4	1 1/2	normal
Tessar	F/2.8	3 3/4	1 1/2	
Tessar	F/2.8	4	1 9/16	
Biotar	F/2	4	1 9/16	
Sonnar	F/2	4	1 9/16	
Sonnar	F/4	7.5	3	for portrait and distance work
b) Size 1 1/2 × 1 in.				
Tessar	F/8	2.8	1 1/8	wide angle
Orthometar	F/4.5	3.5	1 3/8	
Biogon	F/2.8	3.5	1 3/8	
Tessar	F/4.5	4	1 9/16	
Biotar	F/2	4 1/4	1 11/16	
Triotar	F/3.5	5	2	normal
Tessar	F/3.5	5	2	
Tessar	F/2.8	5	2	
Sonnar	F/2	5	2	
Sonnar	F/1.5	5	2	
Biotar	F/2	5.8	2 5/16	
Triotar	F/4	8.5	3 3/8	for portrait and distance work
Sonnar	F/2	8.5	3 3/8	
Triotar	F/5.6	10.5	4 1/8	
Sonnar	F/4	13.5	5 1/4	
Tele-Tessar	F/6.3	18	7	
Sonnar	F/2.8	18	7	
Tele-Tessar	F/8	30	12	
Fern-Objective	F/8	50	20	

Wide Angle Objectives

The wide aperture lenses for miniature cameras are new types.

Objective	Focal length cm.	Focal length in.	Recommended for plate size in.	Diameter of circle covered at small stops in.	Type of Mount
Dagor F/9	4.5	1 3/4	2 5/16 × 1 3/4	3 1/8	N mount and Compur
	6	2 3/8	3 1/4 × 2 1/4	4 1/8	"
	7.5	3	3 1/2 × 3 1/2	6 3/4	"
	10	4	5 × 4	8 3/4	"
	12.5	5	6 1/2 × 4 3/4	10 1/2	"
	15	6	8 × 5	13	"
	18	7	9 × 7	15 1/2	"
	21	8 1/4	10 × 8	18	"
	24	9 1/2	12 × 10	21	"
Tessar F/8	2.8	1 1/8	1 1/2 × 1		Special mount
	5.5	2 1/4	2 5/16 × 1 3/4		N mount and Compur
Orthometar F/4.5 6 lenses	3.5	1 3/8	1 1/2 × 1		Special mount
Biogon F/2.8 6 lenses	3.5	1 3/8	1 1/2 × 1		Special mount

Hypergon F/22

2-lens extreme wide angle objective for exceptional cases.

Focal length cm.	Focal length in.	Recommended for plate sizes from in.	Recommended for plate sizes to in.	Type of Mount
6	2 3/8	4 1/4 × 3 1/4	9 × 7	Special mount with star diaphragm for correcting illumination
7.5	3	6 × 4	12 × 10	
12	4 3/4	9 × 7	18 × 16	

Telephoto Objectives

Special objectives of long focal length but short camera extension. The Triotars have 3-component lenses, the Tele-Tessars 4 and the Sonnars 4 to 6.

Recommended for plate size in.	Objective	Maximum relative aperture	Focal length cm.	Focal length in.	Diameter of circle covered at small stops in.	Type of Mount
Sub-standard Film	**Kino-Tele-Tessar**	F/4	7.5	3	3/4	Focusing mount
		F/4	10	4	1	
	Sonnar	F/4	7.5	3		"
Standard Film	**Kino-Tele-Tessar**	F/4	15	6	1 1/2	"
1 1/2 × 1	**Sonnar**	F/2	8.5	3 3/8	1 3/4	Special mount
		F/4	13.5	5 1/4	1 11/16	
		F/2.8	18	7	1 11/16	"
	Triotar	F/4	8.5	3 3/8	1 11/16	"
		F/5.6	10.5	4 1/8	1 13/16	"
	Fern-Objective	F/8	50	20		"
	Tele-Tessar	F/8	30	12		"
		F/6.3	18	7	3 3/8	"
2 5/16 × 1 3/4	**Tele-Tessar**	F/6.3	12	4 3/4	3	in all mounts
		F/6.3	18	7	3 3/8	"
3 1/2 × 2 1/2	**Tele-Tessar**	F/6.3	18	7		"
		F/6.3	25	10	6	"
4 1/4 × 3 1/4	**Tele-Tessar**	F/6.3	25	10	6	"
		F/8	60	24	8	"
6 × 4	**Tele-Tessar**	F/6.3	32	12 1/2	8	"
		F/8	60	24	8	"
7 × 5	**Tele-Tessar**	F/6.3	40	16	10	"
		F/8	60	24	8	"

Tele Combinations for exceptionally long distance work

For objectives of focal length cm.	in.	For cameras with fixed extension. Objective in focusing mount. Tele-Supplement tube / negative cm.	in.	For cameras with variable extension. Objective in shutter or non-focusing mount. Tele-Supplement tube / negative cm.	in.
10.5 u. 12	4 1/8 and 4 3/4	I / 4.5	1 3/4	II / 4.5	1 3/4
13.5 u. 15	5 1/4 and 6	I / 6	2 3/8	II / 6	2 3/8
16.5 u. 18	6 1/2 and 7	Ia / 6	2 3/8	II / 6	2 3/8
18 u. 21	7 and 8 1/4	Ia / 7.5	3	III / 7.5	3

So that it may be possible to employ a Tele Supplement it is essential that the camera objective together with its mount or shutter shall be easily removable from the camera. For further details see special list.

Objectives for Cinematography

Objective	Maximum relative aperture	8 mm. Film Focal length of the objective in cm.	in.	9½ and 16 mm. Sub-standard film Focal length of the objective in cm.	in.	Standard film Focal length of the objective in cm.	in.
R-Biotar for X-Ray photography	F/0.85			4.5	1 3/4	5.5	2 1/4
Biotar	F/1.5 F/1.4	1.25	1/2	2 2.5	3/4 1	4 5 7	1 9/16 2 2 3/4
Tessar	F/2.7			1.5 2 2.5	5/8 3/4 1	3 5 4 5	1 3/8 1 9/16 2
Tessar	F/3.5					2.8 3.5 4 5 7.5	1 1/8 1 3/8 1 9/16 2 3
Sonnar	F/2 F/1.4 F/2.8 F/4	1	3/8	 2.5 5 7.5	 1 2 3		
Kino-Tele-Tessar	F/4			7.5 10	3 4	15	6

Objectives for Cine-Projection

In plain tube mount. Aperture F/1.9 for all focal lengths.

Objective	Focal length in cm.	in.	Diameter of mount
Kipro-Anastigmat 4 lenses	8 8.5 9 9.5 10 10.5 11	3 1/8 3 5/16 3 1/2 3 11/16 3 7/8 4 1/8 4 1/4	62.5 mm.
Kipronar 4 lenses	12 12.5 13 13.5 14 15 16.5 18 20	4 3/4 4 15/16 5 1/8 5 5/16 5 1/2 6 6 1/2 7 7 7/8	80 mm. 100 mm.

Longer focal lengths manufactured to special order.

Optical Equipment for Process Work

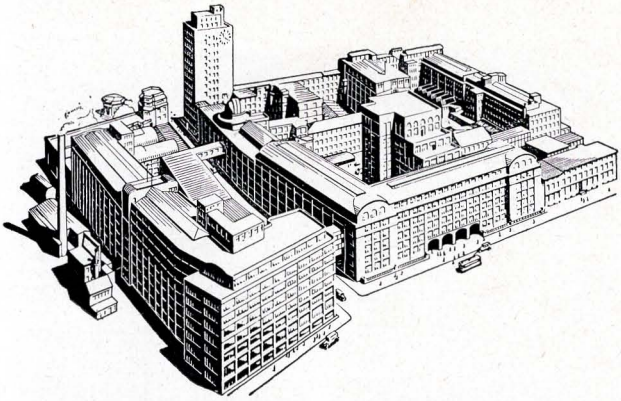
Objective				Accessories				
				Reversing system with revolving collar				Cell
Maximum relative aperture	Focal length cm.	Focal length in.	when used without reversing system at full scale reproduction covers plate size in.	**Mirror** conjugate diameters cm. × cm.	**Revolving collar** diameter mm.	**Prism** length of cathetus cm.	**Revolving collar** diameter mm.	**R-Filter** Slip-over diameter mm.
Apo-Tessar (4 lens)								
F/9	24	9½	12 × 10	7.5×12	130	5.5	77	55
F/9	30	12	15 × 12	7.5×12	130	5.5	77	55
F/9	45	18	24 × 20	7.5×12	130	7	95	74.5
F/9	60	24	32 × 26	10×15.5	175	10	125	93.5
F/9	75	30	38 × 32	12×18.5	200	12.5	175	114
F/9	90	36	48 × 36	14×21.5	Revolving collar on housing	12.5	175	145
F/11	120	48	60 × 50	20×28.5		—	—	180
Apo-Planar (6 lens)								
F/7.5	41	16	20 × 16	7.5×12	130	7	95	74.5
F/9	59	23	24 × 20	10×15.5	175	10	125	93.5
F/10	80	32	32 × 26	12×18.5	200	12.5	175	114
F/10	105	42	36 × 32	14×21.5	Revolving collar on housing	12.5	175	145
F/12.5	130	52	40 × 34	14×21.5		12.5	175	145
F/12.5	170	68	58 × 48	20×28.5		—	—	180

S-Tessar F/6.3 f = 12 cm. (4¾ in.)
Apo-Planar F/9 f = 10.5 cm. (4⅛ in.)

for making enlarged separation negatives for colour films 1½ × 1 in.

Focusing magnifiers		Focusing microscope		
Magnifier with focusing ring and clamping collar Magnification	Magnifier with sleeve adjustment; can also be used in tripod or with handle Magnification	Magnification with eyepiece	approx.	Approximate diameter of field of view mm.
6 ×	6 ×	4	14 ×	7.5
10 ×	8 ×	5	17 ×	6.5
	10 ×	7	24 ×	5.5
		10	34 ×	4
		15	50 ×	2.5

Established 1846



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