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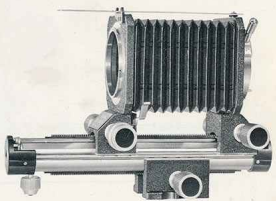
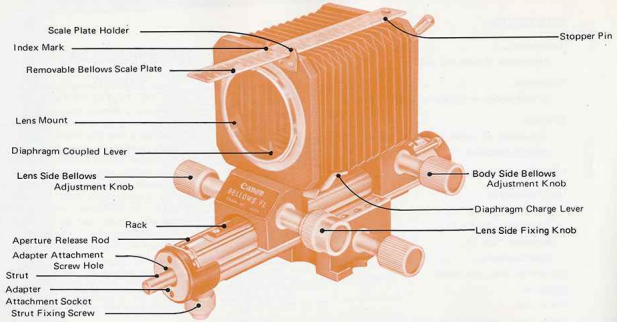
BELLOWS FL



INSTRUCTIONS

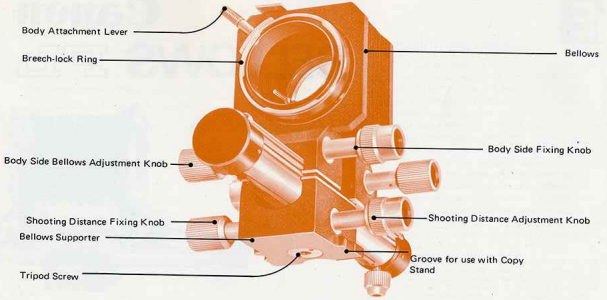


CONTENTS

CANON BELLOWS FL

The Canon Bellows FL can be attached to Canon single-lens reflex cameras, Canon F-1, EF, FTb, TX, TLb, FT, Pellix QL, FX and FP for extreme close-up photography. It is a high performance bellows adjustment apparatus that has a shooting distance precision adjustment mechanism and can couple to the diaphragm of the FD lens. In conjunction with various new exclusive accessories it has expanded the range of macrophotography. The Canon Macro Lens FD 50mm f/3.5 S.S.C., in particular, with its ultra high resolving power, can be most effective in macrophotography. Together with the Bellows FL, we can confidently recommend its use.

■ Canon Bellows FL can be attached to the CANON 7 and 7S using Mirror Box 2. It can also be attached to the CANONFLEX RM, RP, R 2000 and R, but the automatic diaphragm mechanism cannot be coupled.



ATTACHMENT

1 Attaching Bellows to the Camera Body

Turn the body attachment lever of the bellows up so that the red dot on the breech-lock ring is at the top. Align the key located under this red dot with the key groove of the camera, and attach the bellows to the camera. Then fix the bellows into position by turning the body attachment lever of the bellows down as far as it will go.

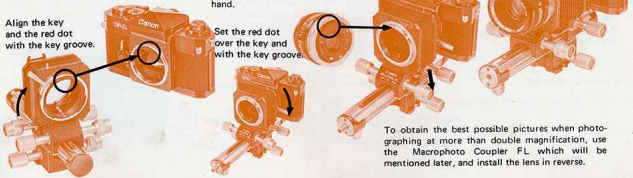
2 Attaching Lens to the Bellows

First, keep the diaphragm charge lever turned down. Next, in the same manner as you would use in attaching a lens to the camera, attach the lens to the bellows. After aligning the key and the key groove, fix it into position with the bayonet ring.

Please bear in mind that the diaphragm will not be properly coupled if the diaphragm charge lever is not set beforehand.

3 Attaching Bellows Scale Plate

Insert the stopper pin into the hole in the scale plate and drop the front end of the scale plate into the scale plate holder.



To obtain the best possible pictures when photographing at more than double magnification, use the Macrophoto Coupler FL which will be mentioned later, and install the lens in reverse.

ADJUSTMENT

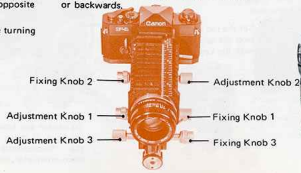
1 Adjusting the Bellows

Adjust the focus by turning the adjustment knob and extending the camera body and lens.

- In order to extend the portion of the bellows closest to the lens, turn adjustment knob 1.
- In order to extend the portion of the bellows closest to the camera, turn adjustment knob 2.
- In order to fix the adjusted bellows, turn the fixing knobs (found opposite the adjustment knobs) clockwise.
- Loosen the fixing knobs before turning the adjustment knobs.

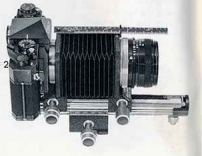
2 Adjusting the Shooting Distance

When the adjustment knob 3 on the bellows supporter is turned after the bellows is mounted on a tripod, the entire bellows moves, including the rail. This allows adjustment of shooting distance. The bellows is fixed into position with the fixing knobs found on the opposite side. Precision adjustment of the shooting distance can be performed by moving the camera body forwards or backwards.



3 Focusing and Positioning the Bellows

When aiming without extending the bellows (within 10cm), make focal adjustment after moving the entire apparatus to the center of the rack. Please bear in mind that if the camera is positioned at the far rear end of the bellows, the front end of the bellows will be blocked by the subject and focusing will become impossible.



4 Focusing

Refer to the chart on page 11. Magnifications, shooting distances, bellows scale, etc. corresponding to the various lenses are found in this chart. First, decide the magnification with which you wish to photograph. Next, set the camera position according to the shooting distance* required for that magnification. Then extend the lens according to the bellows scale position indicated in the chart. Finally, focus on your subject.

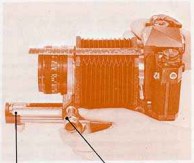
* The shooting distance is measured from the film plane indicator on the camera.

5 Diaphragm Charge Lever

The diaphragm charge lever has an automatic diaphragm coupling mechanism for FD and FL lenses.

When the charge lever is lowered the lens aperture opens. When the shutter is released or the light measuring lever of the camera body (F-1, EF, FTb, TLb, TX, FT, PX) is moved, the diaphragm closes down to the preset aperture stop. Therefore, as in general photography, the shutter can be released after focusing with the aperture set to its maximum opening. The aperture may be closed with the release rod situated on the rail.

Be careful not to touch the release rod during shooting.



6 Bellows Scale

The bellows scale can also be used for exposure calculations because it indicates both bellows extension lengths and magnifications. The figures at the top of the chart are the magnifications when an FD or FL 50mm lens is attached to the bellows in the normal direction. The figures at the bottom of the chart are the magnifications when an FD or FL 50mm lens is attached in a reversed direction to the Macrophoto Coupler FL.

The minimum and maximum bellows extension lengths are 35mm and 150mm.

The readings are obtained with the index mark shown in the chart.

Since the data differs according to the type of lens and the direction of attachment, please refer to the chart.

Magnification when a 50mm focal length lens is attached in the normal direction.

Lens protrusion length.

7 Strut

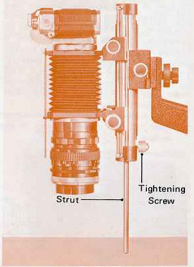
The built-in strut is used for fixing the position of the bellows and to prevent photographic blur.

When the strut fixing screw on the bottom of the tip is loosened, the strut will extend, pushed by a spring. Adjust the strut to the necessary length and fix into position.

When setting the position of the bellows when using them with a tripod or copying equipment, it is important that the tip of the strut be fixed into position with light pressure.

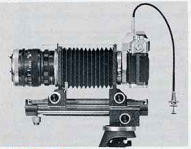
The strut will not hinder the movement of the bellows even though the shooting distance is decided after loosening the fixing screws. Therefore, set the position first and then move the front plate to focus.

Magnification when a 50mm focal length lens is attached in a reversed direction to the macrophoto coupler.



8 Attaching the Tripod

There are two sizes of attachment screw to accommodate tripods and copying equipment. They should always be used with the bellows.



EXPOSURE

1 Effective Aperture

The focusing range in both close-up photography and macrophotography is very small. Therefore, if possible use an aperture opening smaller than f/5.6.

2 Calculation of Exposure Factor

When the lens protrudes in close-up photography and macrophotography, the lens speed is slower than the speed figure indicated on the aperture ring. Therefore, the aperture stop obtained with the exposure meter cannot be used. The exposure must be increased according to the length of attached tubes or the protruding length of Bellows.

Exposure factor $B = (1+\frac{x'}{f})^2$ or

$B = (1+\text{magnification})^2$

x' : denotes lens protrusion length.

f : denotes focal length of lens.

Example: If the bellows is extended 50mm when using a 50mm lens.

$$M = \frac{x'}{f} = \frac{50}{50} = 1$$

$$B = (1+1)^2 = 4$$

Thus, the figure obtained with the exposure meter is multiplied by 4. In other words, the aperture is opened two stops or the exposure time is increased four times.

When making this calculation, the protrusion of the lens can be read from the bellows scale. When an extension tube is also used, the length of the tube is added to the extension length of the bellows.

3 How to Use the Instruction Chart and the Exposure Conversion Chart

When the photographic magnification has been decided, the exposure factor for any lens is the same. Therefore, please refer to the instruction chart on page 11 and the exposure conversion chart on page 47 for deciding the exposure.

Read the photographic magnification or exposure factor from the chart, and with the aid of the exposure conversion chart on page 47, the aperture correction volume can be obtained from the photographic magnification and exposure factor. With the 50mm lens, the photographic magnification is read from the bellows scale and the conversion chart can be used immediately. With the F-1, EF, FTb, TX and TLb, the TTL metering system is used to make compensation unnecessary.

4 Actual Compensation

In macrophotography and close-up photography, small apertures give better photographs. Therefore, in exposure compensation, make adjustment with the shutter speed instead of with aperture opening. The shutter speed needing compensation can be corrected by multiplying it with the exposure factor.

For example, if you should obtain the figures f/8, 1/8 sec. with the exposure meter when shooting the subject at life-size, you would multiply 1/8 sec. x4 = 1/2 sec. because the exposure factor is 4. Therefore, the correct exposure in this case would be f/8, 1/2 sec.

Both the aperture stops and shutter speeds are graduated so that one difference in either will allow twice the light to reach the film. Therefore, the same result as opening the aperture one stop can be obtained by slowing down the shutter speed one graduation.

5 Measuring Light with Canon TTL Cameras

Consideration of the exposure factor is absolutely unnecessary when using the F-1, EF, FTb, TX, TLb, FT and Pellix QL because they are TTL light measuring cameras.

However, when the subject is to be shot under dim lighting or when the subject is black, set the aperture at the maximum opening and make adjustments with the shutter dial. After that, convert the necessary aperture stop and shutter speed from the shutter speed already set and make the proper adjustment.

Exposure Ratio of Aperture Stops
(f/2 is the standard)

Aperture Stops	1.2	1.4	1.8	2	2.8	3.5
Exposure Ratio	0.3	0.5	0.8	1	2	3
Aperture Stops	4	5.6	8	11	16	22
Exposure Ratio	4	8	16	32	64	128

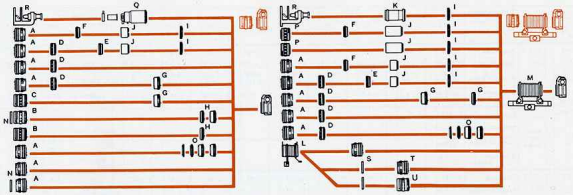
6 Simple Directions for Photography

1 Refer to the chart, and to the column containing the lens to be used.
- Decide the photographic magnification.
- Decide the camera position and shooting distance.
- Read the bellows scale and extend the lens.
- Perform precision focusing. (With a 50mm lens, first set the focus and then immediately read the magnification from the bellows scale.)

2. Measure the exposure with the exposure meter.
3. Read the exposure factor and necessary adjustment from the exposure conversion chart.
- Adjust the aperture stop or the shutter speed.

Macrophotography may appear complicated, but with a little practice the procedure becomes very easy.

Combinations and Uses of Close-up Accessories



A: FD Lens
B: FL Lens
C: Macro Lens
D: Macrophoto Coupler
D: Lens Mount Converter B
F: Macrophoto Coupler
G: Life-size Adapter
H: Extension Tube FL
I: Mount Converter A
J: Extension Tube
K: Microphoto Hood
L: Slide Duplicator
M: Bellows FL
N: Close-up Lens
O: Extension Tube M
P: Screw-in Mount Lens (Rangefinder Type)
Q: Photomicro Unit F
R: Microscope
S: Attachment Ring
T: FD 50mm f/1.4 S.S.C., FD 50mm f/1.8 S.C.
U: FL 50mm f/1.8

Instruction Chart 1 **With FD lenses attached in standard direction to Bellows FL**

(mm)

Lens		Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD35mm f/2.5.C.	∞	Distance	166	166	170	175	182	190	198	207	216	225	234	246
		Magnification	0.96	1.11	1.39	1.67	1.95	2.23	2.51	2.79	3.06	3.34	3.62	3.97
		Field of View	25.0 x37.5	21.5 x32.3	17.2 x25.9	14.4 x21.5	12.3 x18.5	10.8 x16.2	9.6 x14.4	8.6 x12.9	7.8 x11.8	7.2 x10.8	6.6 x9.9	6.1 x9.1
		Exposure Factor	3.8	4.5	5.7	7.1	8.7	10.4	12.3	14.3	16.5	18.9	21.4	24.7
	Min. distance	Distance	166											252
		Magnification	1.14											4.15
		Field of View	21.1 x31.6											5.8 x8.7
		Exposure Factor	4.6											26.5
FD35mm f/3.5S.C.	∞	Distance	157	157	161	167	174	182	190	199	207	216	226	237
		Magnification	0.97	1.12	1.41	1.7	1.97	2.25	2.53	2.81	3.1	3.38	3.66	4.01
		Field of View	24.7 x37.1	21.3 x32	17.1 x25.6	14.2 x21.3	12.2 x18.3	10.7 x16.0	9.5 x14.2	8.5 x12.8	7.8 x11.7	7.1 x10.7	6.6 x9.8	6.0 x9.0
		Exposure Factor	2.7	3.1	3.8	4.6	5.4	6.3	7.3	8.4	9.5	10.7	12	13.6
	Min. distance	Distance	157											241
		Magnification	1.09											4.12
		Field of View	22.1 x33.2											5.8 x8.7
		Exposure Factor	3.0											14.2

(in.)

Lens		Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD35mm f/2.5.C.	∞	Distance	6-1/2	6-9/16	6-11/16	6-15/16	7-3/16	7-1/2	7-13/16	8-1/8	8-1/2	8-7/8	9-3/16	9-11/16
		Magnification	0.96	1.11	1.39	1.67	1.95	2.23	2.51	2.79	3.06	3.34	3.62	3.97
		Field of View	1 x1-1/2	7/8 x1-1/4	11/16 x1	9/16 x7/8	1/2 x3/4	7/16 x5/8	3/8 x9/16	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x3/8	1/4 x3/8
		Exposure Factor	3.8	4.5	5.7	7.1	8.7	10.4	12.3	14.3	16.5	18.9	21.4	24.7
	Min. distance	Distance	6-9/16											9-7/8
		Magnification	1.14											4.15
		Field of View	13/16 x1-1/4											1/4 x5/16
		Exposure Factor	4.6											26.5
FD35mm f/3.5S.C.	∞	Distance	6-3/16	6-3/16	6-5/16	6-9/16	6-7/8	7-3/16	7-1/2	7-13/16	8-1/8	8-1/2	8-7/8	9-5/16
		Magnification	0.97	1.12	1.41	1.7	1.97	2.25	2.53	2.81	3.10	3.38	3.66	4.01
		Field of View	1 x1-7/16	13/16 x1-1/4	11/16 x1	5/16 x13/16	1/2 x3/4	7/16 x5/8	3/8 x5/16	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8
		Exposure Factor	2.7	3.1	3.8	4.6	5.4	6.3	7.3	8.4	9.5	10.7	12	13.6
	Min. distance	Distance	6-3/16											9-1/2
		Magnification	1.09											4.12
		Field of View	7/8 x5/16											1/4 x5/16
		Exposure Factor	3.0											14.2

(mm)

Lens		Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD50mm f/1.4S.S.C.	∞	Distance	198	193	189	190	194	199	206	213	220	228	236	247
		Magnification	0.67	0.78	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.33	2.52	2.76
		Field of View	35.9 x53.9	31.0 x46.5	24.8 x37.2	20.6 x31.0	17.7 x26.6	15.5 x23.2	13.8 x20.6	12.4 x18.6	11.3 x16.9	10.3 x15.5	9.5 x14.3	8.7 x13.0
		Exposure Factor	2.8	3.2	3.9	4.7	5.6	6.5	7.5	8.6	9.8	11.1	12.4	14.1
	Min. distance	Distance	191											254
		Magnification	0.81											2.91
		Field of View	29.5 x44.3											8.3 x12.4
		Exposure Factor	3.3											15.3
FD50mm f/1.8S.C.	∞	Distance	206	201	197	198	202	207	214	221	228	236	244	255
		Magnification	0.67	0.78	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.32	2.52	2.76
		Field of View	35.9 x53.9	31.0 x46.5	24.8 x37.2	20.7 x31.0	17.7 x26.6	15.5 x23.2	13.8 x20.7	12.4 x18.6	11.3 x16.9	10.3 x15.5	9.5 x14.3	8.7 x13.1
		Exposure Factor	2.8	3.1	3.9	4.7	5.5	6.5	7.5	8.6	9.8	11.1	12.4	14.1
	Min. distance	Distance	201											260
		Magnification	0.77											2.86
		Field of View	46.8 x 31.2											12.6 x 8.4
		Exposure Factor	3.1											14.9

(in.)

Lens		Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD50mm f/1.4S.S.C.	∞	Distance	7-13/16	7-9/16	7-7/16	7-1/2	7-5/8	7-7/8	8-1/16	8-3/8	8-11/16	9	9-5/16	9-3/4
		Magnification	0.67	0.78	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.33	2.52	2.26
		Field of View	1-7/16 x2-1/8	1-1/4 x1-13/16	1 x1-7/16	13/18 x1-1/4	11/16 x1-1/16	5/8 x15/16	9/16 x13/16	1/2 x3/4	7/16 x11/16	7/16 x5/8	3/8 x9/16	5/16 x1/2
		Exposure Factor	2.8	3.2	3.9	4.7	5.6	6.5	7.5	8.6	9.8	11.1	12.4	14.1
	Min. distance	Distance	7-9/16											10
		Magnification	0.81											2.91
		Field of View	1-3/16 x1-3/4											5/16 x1/2
		Exposure Factor	3.3											15.3
FD50mm f/1.8S.C.	∞	Distance	8-1/8	7-15/16	7-3/4	7-13/16	7-15/16	8-1/8	8-7/16	8-11/16	8-15/16	9-5/16	9-5/8	10-1/16
		Magnification	0.67	0.78	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.32	2.52	2.76
		Field of View	1-7/16 x2-1/8	1-1/4 x1-13/16	1 x1-7/16	13/16 x1-1/4	11/16 x1-1/16	5/8 x15/16	9/16 x13/16	1/2 x3/4	7/16 x11/16	7/16 x5/8	3/8 x9/16	5/16 x1/2
		Exposure Factor	2.8	3.1	3.9	4.7	5.5	6.5	7.5	8.6	9.8	11.1	12.4	14.1
	Min. distance	Distance	15/16											10-1/4
		Magnification	0.77											2.86
		Field of View	1-13/16 x1/4											1/2 x5/16
		Exposure Factor	3.1											14.9

(mm)

Lens		Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD50mm f/3.5 S.S.C.	∞	Distance	214	209	206	207	211	216	222	229	237	245	253	264
		Magnification	0.67	0.77	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.32	2.52	2.76
		Field of View	36.0 x53.9	31.0 x46.5	24.8 x37.2	20.1 x31.0	17.7 x26.6	15.1 x23.3	13.8 x20.7	12.4 x18.6	11.3 x17.0	10.3 x15.5	9.5 x14.3	8.7 x13.0
		Exposure Factor	2.8	3.1	3.9	4.7	5.5	6.5	7.5	8.6	9.8	11.0	12.4	14.1
	Min. distance	Distance	207											286
		Magnification	1.16											3.25
		Field of View	20.6 x31.0											7.4 x11.1
		Exposure Factor	4.7											18.1
FD55mm f/1.2 S.S.C.	∞	Distance	213	206	201	201	204	209	214	221	228	236	244	255
		Magnification	0.63	0.73	0.91	1.09	1.27	1.46	1.64	1.82	2.00	2.18	2.37	2.59
		Field of View	38.2 x57.4	33.0 x49.5	26.4 x39.6	22.0 x33.0	18.9 x28.3	16.5 x24.7	14.7 x22.0	13.2 x19.8	12.0 x18.0	11.0 x16.5	10.2 x15.2	9.3 x13.9
		Exposure Factor	2.6	3.0	3.6	4.4	5.2	6.0	7.0	7.9	9.0	10.1	11.3	12.9
	Min. distance	Distance	207											259
		Magnification	0.72											2.69
		Field of View	33.2 x49.8											8.9 x13.4
		Exposure Factor	3.0											13.6

(in.)

Lens		Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (13-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD50mm f/3.5S.S.C.	∞	Distance	8-7/16	8-3/16	8-1/4	8-1/8	8-5/16	8-1/2	8-3/4	9-1/16	9-5/16	9-3/8	10	10-7/16
		Magnification	0.67	0.77	0.97	1.16	1.35	1.55	1.74	1.94	2.13	2.32	2.52	2.76
		Field of View	1-7/16 x2-1/8	1-1/4 x1-13/16	1 x1-1/2	13/16 x1-1/4	11/16 x1-1/16	5/8 x15/16	9/16 x13/16	1/2 x3/4	7/16 x11/16	3/8 x5/8	3/8 x9/16	5/16 x1/2
		Exposure Factor	2.8	3.1	3.9	4.7	5.5	6.5	7.5	8.6	9.8	11.0	12.4	14.1
	Min. distance	Distance	8-3/16											11-1/4
		Magnification	1.16											3.25
		Field of View	13/16 x1-1/4											5/16 x7/16
		Exposure Factor	4.7											18.1
FD55mm f/1.2S.S.C.	∞	Distance	8-3/8	8-1/8	7-15/16	7-15/16	8	8-3/16	8-7/16	8-11/16	9	9-5/16	9-5/8	10
		Magnification	0.63	0.73	0.91	1.09	1.27	1.46	1.64	1.82	2.00	2.18	2.37	2.59
		Field of View	1-1/2 x2-1/4	1-5/16 x1-15/16	1-1/16 x1-9/16	7/8 x1-5/16	3/4 x1-1/8	5/8 x1	9/16 x7/8	1/2 x3/4	1/2 x11/16	7/16 x5/8	3/8 x5/8	3/8 x9/16
		Exposure Factor	2.6	3.0	3.6	4.4	5.2	6.0	7.0	7.9	9.0	10.1	11.3	12.9
	Min. distance	Distance	8-1/8											10-3/16
		Magnification	0.72											2.69
		Field of View	1-5/16 x1-15/16											3/8 x1/2
		Exposure Factor	3.0											13.6

(mm)

Lens		Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD85mm f/1.8S.S.C.	∞	Distance	395	372	347	334	327	324	324	327	330	335	340	348
		Magnification	0.41	0.48	0.60	0.71	0.83	0.95	1.07	1.19	1.31	1.43	1.55	1.70
		Field of View	58.4 x87.6	50.4 x75.6	40.3 x60.5	33.6 x50.4	28.8 x43.2	25.2 x37.8	22.4 x33.6	20.2 x30.2	18.3 x27.5	16.8 x25.2	15.5 x23.3	14.2 x21.2
		Exposure Factor	2.0	2.2	2.5	2.9	3.4	3.8	4.3	4.8	5.3	5.9	6.5	7.3
	Min. distance	Distance	360											354
		Magnification	0.52											1.81
		Field of View	69.2 x46.2											19.9 x13.3
		Exposure Factor	2.31											7.9
FD100mm f/2.8S.S.C.	∞	Distance	521	486	446	423	409	401	397	396	396	399	402	408
		Magnification	0.34	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.42
		Field of View	69.1 x104.6	60.2 x90.0	48.0 x72.2	40.1 x60.2	34.4 x51.6	30.1 x45.1	26.7 x40.1	24.1 x36.1	21.9 x32.8	20.1 x30.1	18.5 x27.8	16.9 x25.3
		Exposure Factor	2.2	2.5	2.9	3.4	4.0	4.6	5.2	5.9	6.6	7.3	8.1	9.2
	Min. distance	Distance	456											415
		Magnification	0.47											1.55
		Field of View	51 x76.5											15.5 x23.3
		Exposure Factor	2.8											10.3

(ft. in.)

Lens		Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD85mm f/1.8S.S.C.	∞	Distance	1'3-9/16	1'2-5/8	1'1-11/16	1'1-1/8	1'7/8	1'3/4	1'3/4	1'7/8	1'1	1'1-3/16	1'1-3/8	1'1-11/16
		Magnification	0.41	0.48	0.60	0.71	0.83	0.95	1.07	1.19	1.31	1.43	1.55	1.70
		Field of View	2-5/16 x3-7/16	2x3	1-9/16 x2-3/8	1-5/16 x2	1-1/8 x1-11/16	1 x1-1/2	7/8 x1-5/16	13/16 x1-3/16	3/4 x1-1/16	11/16 x1	5/8 x15/16	9/16 x13/16
		Exposure Factor	2.0	2.2	2.5	2.9	3.4	3.8	4.3	4.8	5.3	5.9	6.5	7.3
	Min. distance	Distance	1'2-3/16											1'1-15/16
		Magnification	0.52											1.81
		Field of View	2-3/4 x1-13/16											13/16 x1/2
		Exposure Factor	2.31											7.9
FD100mm f/2.8S.S.C.	∞	Distance	1'8-1/2	1'7-1/8	1'5-9/16	1'4-5/8	1'4-1/8	1'3-13/16	1'3-5/8	1'3-9/16	1'3-9/16	1'3-11/16	1'3-13/16	1'4-1/16
		Magnification	0.34	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.42
		Field of View	2-3/4 x4-1/8	2-3/8 x3-9/16	1-7/8 x2-13/16	1-9/16 x2-3/8	1-3/8 x2-1/16	1-3/16 x1-3/4	1-1/16 x1-9/16	15/16 x1-7/16	7/8 x1-5/16	13/16 x1-3/16	3/4 x1-1/8	11/16 x1
		Exposure Factor	2.2	2.5	2.9	3.4	4.0	4.6	5.2	5.9	6.6	7.3	9.1	9.2
	Min. distance	Distance	1'5-15/16											1'4-5/16
		Magnification	0.47											1.55
		Field of View	2 x3											5/8 x15/16
		Exposure Factor	2.8											10.3

(mm)

Lens		Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD100mm f/4S.C.	∞	Distance	526	491	451	427	413	405	401	400	401	403	407	412
		Magnification	0.34	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.42
		Field of View	69.8 x104.7	60.2 x90.3	48.2 x72.3	40.1 x60.2	34.4 x51.6	30.1 x45.2	26.8 x40.1	24.1 x36.1	21.9 x32.8	20.1 x30.1	18.5 x27.8	16.9 x25.4
		Exposure Factor	1.9	2.1	2.4	2.8	3.1	3.5	4.0	4.4	4.9	5.4	5.9	6.6
	Min. distance	Distance	403											444
		Magnification	0.84											1.92
		Field of View	28.4 x42.7											12.5 x18.8
		Exposure Factor	3.7											9.8
FD135mm f/2.5S.C.	∞	Distance	805	738	657	607	573	551	536	526	519	515	517	514
		Magnification	0.26	0.30	0.37	0.45	0.52	0.59	0.67	0.74	0.82	0.89	0.97	1.06
		Field of View	93.7 x140.6	80.8 x121.2	64.7 x97.0	53.9 x80.8	46.2 x69.3	40.4 x60.6	35.9 x53.9	32.3 x48.5	29.4 x44.1	26.9 x40.4	24.9 x37.3	22.7 x34.0
		Exposure Factor	1.6	1.7	1.9	2.1	2.3	2.5	2.8	3.0	3.3	3.6	3.9	4.2
	Min. distance	Distance	664											517
		Magnification	0.36											1.17
		Field of View	66.0 x99.0											20.6 x30.9
		Exposure Factor	1.9											4.7

(ft. in.)

Lens		Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD100mm f/4S.C.	∞	Distance	1'8-11/16	1'7-5/16	1'5-3/4	1'4-13/16	1'4-1/4	1'3-15/16	1'3-13/16	1'3-3/4	1'3-13/16	1'3-7/8	1'4	1'4-1/4
		Magnification	0.34	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.42
		Field of View	2-3/4 x4-1/8	2-3/8 x3-9/16	1-7/8 x2-7/8	1-9/16 x2-3/8	1-3/8 x2-1/16	1-3/16 x1-3/4	1-1/16 x1-9/16	15/16 x1-7/16	7/8 x1-5/16	13/16 x1-3/16	3/4 x1-1/8	11/16 x1
		Exposure Factor	1.9	2.1	2.4	2.8	3.1	3.5	4.0	4.4	4.9	5.4	5.9	6.6
	Min. distance	Distance	1'3-7/8											1'5-1/2
		Magnification	0.84											1.92
		Field of View	1-1/8 x1-11/16											1/2 x3/4
		Exposure Factor	3.7											9.8
FD135mm f/2.5S.C.	∞	Distance	2'7-11/16	2'5-1/16	2'1-7/8	1'11-7/8	1'10-9/16	1'9-11/16	1'9-1/16	1'8-11/16	1'8-7/16	1'8-5/16	1'8-1/4	1'8-1/4
		Magnification	0.26	0.30	0.37	0.45	0.52	0.59	0.67	0.74	0.82	0.89	0.97	1.06
		Field of View	3-11/16 x5-9/16	3-3/16 x4-3/4	2-9/16 x3-13/16	2-1/8 x3-1/16	1-13/16 x2-3/4	1-9/16 x2-3/8	1-7/16 x2-1/8	1-1/4 x1-15/16	1-3/16 x1-3/4	1-1/16 x1-9/16	1 x1-7/16	7/8 x1-5/16
		Exposure Factor	1.6	1.7	1.9	2.1	2.3	2.5	2.8	3.0	3.3	3.6	3.9	4.2
	Min. distance	Distance	2'2-1/8											1'8-5/16
		Magnification	0.36											1.17
		Field of View	2-5/8 x3-7/8											13/16 x1-3/16
		Exposure Factor	1.9											4.7

(mm)

Lens		Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD135mm f/3.5S.C.	∞	Distance	828	761	681	631	598	576	560	550	544	540	539	539
		Magnification	0.26	0.3	0.37	0.45	0.52	0.6	0.67	0.74	0.82	0.89	0.97	1.06
		Field of View	53.5 x140.1	80.7 x121	64.5 x96.8	53.8 x80.7	46.1 x69.1	40.3 x60.5	35.9 x53.8	32.3 x48.4	29.3 x44	26.9 x40.3	24.8 x37.2	22.6 x34
		Exposure Factor	2.1	2.3	2.7	3.1	3.5	4.0	4.6	5.1	5.7	6.3	7.0	7.8
	Min. distance	Distance	685											542
		Magnification	0.37											1.17
		Field of View	65.4 x98.0											20.5 x30.7
		Exposure Factor	2.6											8.9
FD200mm f/2.8S.S.C.	∞	Distance	1608	1462	1282	1166	1085	1028	985	953	928	909	895	882
		Magnification	0.18	0.21	0.26	0.31	0.36	0.41	0.46	0.51	0.56	0.62	0.67	0.73
		Field of View	135.8 x203.3	116.9 x175.4	93.5 x140.3	78.0 x116.9	66.8 x100.2	58.5 x87.7	52.0 x78.0	46.8 x70.2	42.5 x63.8	39.0 x58.5	36.0 x54.0	32.8 x49.2
		Exposure Factor	1.4	1.5	1.6	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	3.0
	Min. distance	Distance	1133											866
		Magnification	0.33											0.88
		Field of View	109.1 x72.7											40.9 x27.3
		Exposure Factor	1.8											3.5

(ft. in.)

Lens		Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD135mm f/3.5S.C.	∞	Distance	2'8-5/8	2'6	2'2-13/16	2'1-3/16	1'11-9/16	1'10-11/16	1'10-1/16	1'9-5/16	1'8-11/16	1'8-1/4	1'9-3/16	1'9-3/16
		Magnification	0.26	0.3	0.37	0.45	0.52	0.6	0.67	0.74	0.82	0.89	0.97	1.06
		Field of View	2-1/16 x5-1/2	2-3/16 x4-3/4	2-9/16 x3-13/16	2-1/8 x3-3/16	1-13/16 x2-3/4	1-9/16 x2-3/8	1-7/16 x2-1/8	1-1/4 x1-7/8	1-1/8 x1-3/4	1-1/16 x1-9/16	1 x1-7/16	7/8 x1-5/16
		Exposure Factor	2.1	2.3	2.7	3.1	3.5	4.0	4.6	5.1	5.7	6.3	7.0	7.8
	Min. distance	Distance	2'3											1'9-5/16
		Magnification	0.37											1.17
		Field of View	2-9/16 x3-7/8											13/16 x1-3/16
		Exposure Factor	2.6											8.9
FD200mm f/2.8S.S.C.	∞	Distance	5'3-5/16	4'9-9/16	4'2-1/2	3'9-7/8	3'6-11/16	3'4-1/2	3'2-3/4	3'1-1/2	3'1/2	3'11-13/16	3'11-1/4	3'10-3/4
		Magnification	0.18	0.21	0.26	0.31	0.36	0.41	0.46	0.51	0.56	0.62	0.67	0.73
		Field of View	5-5/16 x8	4-5/8 x6-7/8	3-11/16 x5-1/2	3-1/16 x4-5/8	2-5/8 x3-15/16	2-5/16 x3-7/16	2-1/16 x3-1/16	1-13/16 x2-3/4	1-11/16 x2-1/2	1-9/16 x2-5/16	1-7/16 x2-1/8	1-5/16 x1-15/16
		Exposure Factor	1.4	1.5	1.6	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	3.0
	Min. distance	Distance	3'8-5/8											2'10-1/8
		Magnification	0.33											0.88
		Field of View	4-5/16 x2-7/8											1-5/8 x1-1/16
		Exposure Factor	1.8											3.5

(mm)

Lens		Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD200mm f/4S.S.C.	∞	Distance	1644	1493	1306	1185	1101	1041	997	963	937	917	902	888
		Magnification	0.17	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.56	0.61	0.66	0.72
		Field of View	138.0 x207.0	119.0 x178.5	95.2 x142.8	79.3 x119.0	68.0 x102.0	59.5 x89.3	52.9 x79.3	47.4 x71.4	43.3 x64.9	39.7 x59.5	36.6 x54.9	33.4 x50.1
		Exposure Factor	1.4	1.4	1.6	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	3.0
	Min. distance	Distance	1252											874
		Magnification	0.27											0.82
		Field of View	88.2 x132.3											29.4 x44.2
		Exposure Factor	1.6											3.3

(ft, in)

Lens		Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD200mm f/4S.S.C.	∞	Distance	5'4-3/4	4'10-3/4	4'3-7/16	3'10-11/16	3'7-3/8	3'5	3'3-5/16	3'1-7/8	3'7/8	3'1/8	2'11-1/2	2'10-15/16
		Magnification	0.17	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.56	0.61	0.66	0.72
		Field of View	5-7/16 x8-1/8	4-11/16 x7	3-3/4 x5-5/8	3-1/8 x4-11/16	2-11/16 x4	2-5/16 x3-1/2	2-1/16 x3-1/8	1-7/8 x2-13/16	1-11/16 x2-9/16	1-9/16 x2-5/16	1-7/16 x2-3/16	1-5/16 x2
		Exposure Factor	1.4	1.4	1.6	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	3.0
	Min. distance	Distance	4-15/16											2'10-7/16
		Magnification	0.27											0.82
		Field of View	3-1/2 x5-5/16											1-3/16 x1-3/4
		Exposure Factor	1.6											3.3

Insturection Chart 2 **With FL lenses attached in standard direction to Bellows FL**

(mm)

Lens	Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FL35mm f/3.5	Distance	158	159	162	168	175	183	191	200	209	218	227	239
	Magnification	0.97	1.12	1.41	1.69	1.97	2.25	2.53	2.81	3.09	3.37	3.65	4.01
	Field of View	24.7 x37.1	21.3 x32.0	17.1 x25.6	14.2 x21.3	12.2 x18.3	10.7 x16.0	9.5 x14.2	8.5 x12.8	7.8 x11.6	7.1 x10.7	6.6 x9.9	6.0 x9.0
	Exposure Factor	3.9	4.5	5.8	7.2	8.8	10.6	12.5	14.5	16.7	19.1	21.6	25.1
FL35mm f/2.5	Distance	160	160	164	170	177	185	193	201	210	219	229	240
	Magnification	0.97	1.13	1.41	1.69	1.97	2.25	2.54	2.82	3.10	3.38	3.66	4.01
	Field of View	24.7 x37.0	21.3 x32.0	17.0 x25.6	14.2 x21.3	12.2 x18.3	10.7 x16.0	9.5 x14.2	8.5 x12.8	7.8 x11.6	7.1 x10.7	6.6 x9.8	6.0 x9.0
	Exposure Factor	3.9	4.5	5.8	7.2	8.8	10.6	12.5	14.6	16.8	19.2	21.7	25.1
FL50mm f/3.5	Distance	216	211	208	209	213	218	224	231	239	247	255	266
	Magnification	0.67	0.78	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.32	2.52	2.76
	Field of View	35.9 x53.8	31.0 x46.6	24.8 x37.2	20.6 x31.0	17.7 x26.5	15.5 x23.2	13.8 x20.6	12.4 x18.6	11.3 x16.9	10.3 x15.5	9.5 x14.3	8.7 x13.0
	Exposure Factor	2.8	3.2	3.9	4.7	5.6	6.5	7.5	8.6	9.8	11.1	12.4	14.1
FL50mm f/1.8	Distance	206	201	197	198	202	207	214	221	228	236	244	255
	Magnification	0.67	0.77	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.32	2.52	2.76
	Field of View	35.9 x53.9	31.0 x46.5	24.8 x37.2	20.7 x31.0	17.7 x26.6	15.5 x23.2	13.8 x20.7	12.4 x18.6	11.3 x16.9	10.3 x15.5	9.5 x14.3	8.7 x13.0
	Exposure Factor	2.8	3.2	3.9	4.7	5.6	6.5	7.5	8.6	9.8	11.1	12.4	14.1

(in.)

Lens	Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FL35mm f/3.5	Distance	6-1/4	6-1/4	6-3/8	6-5/8	6-7/8	7-3/16	7-1/2	7-7/8	8-1/4	8-9/16	8-15/16	9-7/16
	Magnification	0.97	1.12	1.41	1.69	1.97	2.25	2.53	2.81	3.09	3.37	3.65	4.01
	Field of View	15/16 x1-7/16	13/16 x1-1/4	11/16 x1	9/16 x13/16	1/2 x3/4	7/16 x5/8	3/8 x9/16	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8
	Exposure Factor	3.9	4.5	5.8	7.2	8.8	10.6	12.1	14.5	16.7	19.1	21.6	25.1
FL35mm f/2.5	Distance	6-5/16	6-5/16	6-7/16	6-11/16	6-15/16	7-5/16	7-5/8	7-15/16	13/16	8-5/8	9-1/16	9-7/16
	Magnification	0.97	1.13	1.41	1.69	1.97	2.25	2.54	2.82	3.10	3.38	3.66	4.01
	Field of View	15/16 x1-7/16	13/16 x1-1/4	11/16 x1	9/16 x13/16	1/2 x3/4	7/16 x5/8	3/8 x9/16	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8
	Exposure Factor	3.9	4.5	5.8	7.2	8.8	10.6	12.5	14.6	16.8	19.2	21.7	25.1
FL50mm f/3.5	Distance	8-1/2	8-5/16	8-3/16	8-1/4	8-4/8	8-9/16	8-13/16	9-1/8	9-7/16	9-3/4	10-1/16	10-1/2
	Magnification	0.67	0.78	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.32	2.52	2.76
	Field of View	15/16 x2-1/8	1-1/4 x1-13/16	15/16 x1-7/16	13/16 x1-1/4	11/16 x1-1/16	5/8 x15/16	9/16 x13 16	1/2 x3/4	7/16 x11/16	3/8 x5/8	3/8 x9/16	5/16 x1/2
	Exposure Factor	2.8	3.2	3.9	4.7	5.6	6.5	7.5	8.6	9.8	11.1	12.4	14.1
FL50mm f/1.8	Distance	8-1/8	7-15/16	7-3/4	7-13/16	7-15/16	8-1/8	8-7/16	8-11/16	8-15/16	9-5/16	9-5/8	10-1/16
	Magnification	0.67	0.77	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.32	2.52	2.76
	Field of View	1-7/16 x2-1/8	1-1/4 x1-13/16	3/4 x1-7/16	13/16 x1-1/4	11/16 x1-1/16	5/8 x5/16	9/16 x13/16	1/2 x3/4	7/16 x11/16	3/8 x5/8	3/8 x9/16	5/16 x1/2
	Exposure Factor	2.8	3.2	3.9	4.7	5.6	6.5	7.5	8.6	9.8	11.1	12.4	14.1

(mm)

Lens	Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FL50mm f/1.4	Distance	198	193	189	190	194	199	206	213	220	228	236	247
	Magnification	0.67	0.78	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.33	2.52	2.76
	Field of View	35.9 x53.8	31.0 x46.4	24.8 x37.2	20.6 x31.0	17.7 x26.5	15.5 x23.2	13.8 x20.6	12.4 x18.6	11.3 x16.9	10.3 x15.5	9.5 x14.3	8.7 x13.0
	Exposure Factor	2.8	3.2	3.9	4.7	5.6	6.5	7.5	8.6	9.8	11.1	12.4	14.1
FL55mm f/1.2	Distance	213	206	201	201	204	209	214	221	228	236	244	254
	Magnification	0.63	0.73	0.91	1.09	1.27	1.46	1.64	1.82	2.00	2.18	2.36	2.59
	Field of View	38.2 x57.4	33.0 x49.5	26.4 x39.6	22.0 x33.0	18.8 x28.3	16.5 x24.7	14.7 x22.0	13.2 x19.8	12.0 x18.0	11.0 x16.5	10.1 x15.2	9.3 x13.9
	Exposure Factor	2.7	3.0	3.7	4.4	5.2	6.1	7.0	8.0	9.0	10.1	11.3	12.9
FL58mm f/1.2	Distance	231	223	216	215	217	221	226	232	239	247	255	265
	Magnification	0.59	0.69	0.86	1.03	1.21	1.38	1.55	1.72	1.90	2.07	2.24	2.46
	Field of View	40.4 x60.5	34.8 x52.2	27.8 x41.8	23.2 x34.8	19.9 x29.8	17.4 x26.1	15.5 x23.2	13.9 x20.9	12.7 x19.0	11.6 x17.4	10.7 x16.1	9.8 x14.7
	Exposure Factor	2.5	2.9	3.5	4.1	4.9	5.7	6.5	7.4	8.4	9.4	10.5	12.0
FL85mm f/1.8	Distance	398	375	350	336	330	327	327	329	333	338	343	351
	Magnification	0.41	0.48	0.60	0.71	0.83	0.95	1.07	1.19	1.31	1.43	1.55	1.70
	Field of View	58.4 x87.7	50.4 x75.6	40.3 x60.5	33.6 x50.4	28.8 x43.2	25.2 x37.8	22.4 x33.6	20.2 x30.2	18.4 x27.5	16.8 x25.2	15.5 x23.3	14.1 x21.2
	Exposure Factor	2.0	2.2	2.6	3.0	3.4	3.8	4.3	4.8	5.3	5.9	6.5	7.3

(ft. in.)

Lens	Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FL50mm f/1.4	Distance	7-13/16	7-5/8	7-7/16	7-1/2	7-5/8	7-7/8	8-1/8	8-3/8	8-11/16	8-15/16	8-5/16	8-3/4
	Magnification	0.67	0.78	0.97	1.16	1.36	1.55	1.74	1.94	2.13	2.33	2.52	2.76
	Field of View	1-7/16 x2-1/4	1-1/4 x1-15/16	3/4 x1-7/16	13/16 x1-1/4	11/16 x1-1/16	5/8 x15/16	9/16 x7/8	1/2 x3/4	7/16 x11/16	3/8 x5/8	3/8 x9/16	5/16 x1/2
	Exposure Factor	2.8	3.2	3.9	4.7	5.6	6.5	7.5	8.6	9.8	11.1	12.4	14.1
FL55mm f/1.2	Distance	8-3/8	8-1/8	7-15/16	7-15/16	8-1/16	8-1/4	8-7/16	8-11/16	8-15/16	9-5/16	9-5/8	10
	Magnification	0.63	0.73	0.91	1.09	1.27	1.46	1.64	1.82	2.0	2.18	2.36	2.59
	Field of View	1-1/2 x2-1/4	1-5/16 x1-15/16	1-1/16 x1-9/16	7/8 x1-5/16	3/4 x1-1/8	5/8 x15/16	9/16 x7/8	1/2 x3/4	1/2 x11/16	7/16 x5/8	3/8 x5/8	3/8 x9/16
	Exposure Factor	2.7	3.0	3.7	4.4	5.2	6.1	7.0	8.0	9.0	10.1	11.3	12.9
FL58mm f/1.2	Distance	9-1/8	8-3/4	8-1/2	8-7/16	8-9/16	7-15/16	8-7/8	9-1/8	9-7/16	9-3/4	10-1/16	10-7/16
	Magnification	0.59	0.69	0.86	1.03	1.21	1.38	1.55	1.72	1.90	2.07	2.24	2.46
	Field of View	1-9/16 x2-3/8	1-3/8 x2-1/16	1-1/8 x1-5/8	15/16 x1-3/8	13/16 x1-3/16	11/16 x1-1/16	5/8 x7/8	5/8 x13/16	1/2 x3/4	7/16 x11/16	7/16 x5/8	7/8 x9/16
	Exposure Factor	2.5	2.9	3.5	4.1	4.9	5.7	6.5	7.4	8.4	9.4	10.5	12.0
FL85mm f/1.8	Distance	1'3-11/16	1'2-3/4	1'1-3/4	1'1-1/4	1' 5/16	1' 7/8	1'7/8	1'7/8	1'1-1/8	1'1-5/16	1'1-1/2	1'1-13/16
	Magnification	0.41	0.48	0.60	0.71	0.83	0.95	1.07	1.19	1.31	1.43	1.55	1.70
	Field of View	2-5/16 x3-7/16	1-15/16 x2-15/16	1-9/16 x2-3/8	1-5/16 x1-15/16	1-1/8 x1-11/16	15/16 x1-1/2	7/8 x15/16	13/16 x1-3/16	3/4 x1-1/16	11/16 x15/16	5/8 x15/16	9/16 x13/16
	Exposure Factor	2.0	2.2	2.6	3.0	3.4	3.8	4.3	4.8	5.4	5.9	6.5	7.3

Lens \ Bellows Scale (mm)		34.5	40	50	60	70	80	90	100	110	120	130	142.5
FL100mm f/3.5	Distance	524	490	450	427	413	405	401	400	401	404	407	413
	Magnification	0.35	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.43
	Field of View	69.4 x104.0	59.9 x89.8	47.9 x71.9	39.9 x59.9	34.2 x51.3	29.9 x44.9	26.7 x39.9	24.0 x36.0	21.8 x32.7	20.0 x30.0	18.4 x27.6	16.8 x25.2
	Exposure Factor	1.8	2.0	2.3	2.6	2.9	3.2	3.6	4.0	4.4	4.8	5.3	5.9
FL125mm f/3.5	Distance	847	781	700	650	617	595	580	570	564	560	559	559
	Magnification	0.26	0.30	0.37	0.45	0.52	0.60	0.67	0.74	0.82	0.81	0.97	1.06
	Field of View	93.4 x140.0	80.6 x121.0	64.6 x96.7	53.7 x80.6	46.0 x69.1	40.3 x60.4	35.8 x53.7	32.2 x48.3	29.3 x43.9	26.9 x40.3	24.8 x37.2	22.6 x33.9
	Exposure Factor	1.6	1.7	1.9	2.1	2.3	2.6	2.8	3.0	3.3	3.6	3.9	4.2
FL125mm f/2.5	Distance	801	738	661	614	583	562	548	538	533	529	528	529
	Magnification	0.26	0.30	0.38	0.46	0.53	0.61	0.68	0.76	0.84	0.91	0.99	1.08
	Field of View	91.5 x137	78.9 x118	63.1 x94.7	52.6 x78.9	45.1 x67.7	39.5 x59.2	35.1 x52.6	31.6 x47.4	28.7 x43.1	26.3 x39.5	24.3 x36.4	22.2 x33.2
	Exposure Factor	1.6	1.7	1.9	2.1	2.3	2.6	2.8	3.1	3.4	3.7	4.0	4.3
FL200mm f/3.5	Distance	1555	1406	1222	1103	1021	962	918	885	859	840	825	811
	Magnification	0.18	0.20	0.25	0.30	0.36	0.41	0.46	0.51	0.56	0.61	0.66	0.72
	Field of View	137.0 x205.0	118.0 x177.0	94.5 x142.0	78.8 x118.0	67.5 x101.0	59.1 x88.6	52.5 x78.8	47.3 x70.9	43.0 x64.4	39.4 x59.1	36.3 x54.5	33.2 x49.8
	Exposure Factor	1.4	1.4	1.6	1.7	1.9	2.0	2.1	2.3	2.4	2.6	2.8	3.0

(ft. in.)

Lens \ Bellows Scale (mm) (in.)		34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FL100mm f/3.5	Distance	1'8-5/8	1'7-5/16	1'5-11/16	1'4-13/16	1'4-1/4	1'3-15/16	1'3-13/16	1'3-3/4	1'3-13/16	1'3-7/8	1'4-1/16	1'4-1/4
	Magnification	0.35	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.43
	Field of View	2-3/4 x4-1/8	2-3/8 x3-9/16	1-7/8 x2-13/16	1-9/16 x2-3/8	1-3/8 x2-1/16	1-3/16 x1-3/4	1-1/16 x1-9/16	15/16 x1-7/16	7/8 x1-5/16	13/16 x1-3/16	3/4 x1-1/16	11/16 x15/16
	Exposure Factor	1.8	2.0	2.3	2.6	2.9	3.2	3.6	4.0	4.4	4.8	5.3	5.9
FL125mm f/3.5	Distance	2'9-3/8	2'6-3/4	2'3-9/16	2'1-9/16	2'5/16	1'11-7/16	1'10-13/16	1'10-3/16	1'10-3/16	1'10-1/16	1'10	1'10
	Magnification	0.26	0.30	0.37	0.45	0.52	0.60	0.67	0.74	0.82	0.81	0.97	1.06
	Field of View	3-1/16 x5-1/2	3-3/16 x4-3/4	2-9/16 x3-13/16	2-1/8 x3-3/16	1-13/16 x2-3/4	1-9/16 x2-3/8	1-7/16 x2-1/8	1-1/4 x1-7/8	1-1/8 x1-3/4	1-1/16 x1-9/16	15/16 x1-7/16	7/8 x1-5/16
	Exposure Factor	1.6	1.7	1.9	2.1	2.3	2.6	2.8	3.0	3.3	3.6	3.9	4.2
FL125mm f/2.5	Distance	2'7-9/16	2'5-1/16	2'2-1/16	2'3/16	1'10-15/16	1'10-1/8	1'9-9/16	1'9-3/16	1'8-15/16	1'8-13/16	1'8-13/16	1'8-3/16
	Magnification	0.26	0.30	0.38	0.46	0.53	0.61	0.68	0.76	0.84	0.91	0.99	1.08
	Field of View	3-5/8 x5-3/8	3-1/16 x4-5/8	2-1/2 x3-3/4	2-1/16 x3-1/16	1-3/4 x2-11/16	1-9/16 x2-5/16	1-3/8 x2-1/16	1-1/4 x1-7/8	1-1/8 x1-11/16	1-1/16 x1-9/16	15/16 x1-7/16	7/8 x1-5/16
	Exposure Factor	1.6	1.7	1.9	2.1	2.3	2.6	2.8	3.1	3.4	3.7	4.0	4.3
FL200mm f/3.5	Distance	5'1-1/4	4'7-3/8	4'1/8	3'7-7/16	3'4-3/16	3'1-7/8	2'11/8	2'10-13/16	2'9-13/16	2'9-1/16	2'8-1/2	2'7-15/16
	Magnification	0.18	0.20	0.25	0.30	0.36	0.41	0.46	0.51	0.56	0.61	0.66	0.72
	Field of View	4-5/16 x8-1/16	3-11/16 x5-15/16	2-15/16 x4-5/8	2-5/16 x3-13/16	2-1/16 x3-5/16	1-13/16 x2-3/4	1-5/8 x2-1/16	1-7/16 x1-13/16	1-5/16 x2-9/16	1-3/16 x2-5/16	1-1/16 x2-1/8	1-1/16 x1-15/16
	Exposure Factor	1.4	1.4	1.6	1.7	1.9	2.0	2.1	2.3	2.4	2.6	2.8	3.0

Instruction Chart 3

With lenses attached to Bellows FL in reversed direction using Macrophoto Coupler FL (helicoid of Macrophoto Coupler not extended)

(mm)

Lens \ Bellows Scale (mm)		34.5	40	50	60	70	80	100	110	120	130	142.5
FD35mm f/2S.S.C.	Distance	211	216	225	234	243	253	262	272	281	291	300	313
	Magnification	2.91	3.07	3.34	3.62	3.90	4.18	4.45	4.74	5.01	5.29	5.57	5.92
	Field of View	8.2 x12.4	7.8 x11.8	7.2 x10.8	6.6 x9.9	6.2 x9.2	5.7 x8.6	5.4 x8.1	5.1 x7.6	4.8 x7.2	4.5 x6.8	4.3 x6.5	4.1 x6.1
	Exposure Factor	15.3	16.5	18.9	21.4	24.0	26.8	29.8	32.9	36.2	39.6	43.2	47.9
FD35mm f/3.5S.C.	Distance	200	205	214	223	232	242	251	261	270	280	289	302
	Magnification	2.86	3.02	3.3	3.58	3.86	4.14	4.42	4.7	4.99	5.27	5.55	5.9
	Field of View	8.4 x12.6	8.0 x12	7.3 x11	6.7 x10.1	6.2 x9.3	5.8 x8.7	5.4 x8.1	5.1 x7.7	4.8 x7.2	4.6 x6.8	4.3 x6.5	4.1 x6.1
	Exposure Factor	12.5	13.6	15.7	18.1	20.5	23.2	26.0	28.9	32.0	35.3	38.7	43.2
FD50mm f/1.4S.S.C.	Distance	214	218	226	234	242	251	260	269	278	287	297	308
	Magnification	1.97	2.07	2.27	2.46	2.66	2.85	3.04	3.24	3.43	3.62	3.82	4.06
	Field of View	12.2 x18.3	11.6 x17.4	10.6 x15.9	9.8 x14.6	9.0 x13.6	8.4 x12.6	7.9 x11.8	7.4 x11.1	7.0 x10.5	6.6 x9.9	6.3 x9.4	5.9 x8.9
	Exposure Factor	8.8	9.4	10.7	12.0	13.4	14.8	16.3	17.9	19.6	21.4	23.2	25.6

(ft. in.)

Lens \ Bellows Scale (in.)		34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD35mm f/2S.S.C.	Distance	8-5/16	8-1/2	8-7/8	9-3/16	9-9/16	9-15/16	10-5/16	10-11/16	11-1/16	11-7/16	11-13/16	1'5/16
	Magnification	2.91	3.07	3.34	3.62	3.90	4.18	4.45	4.74	5.01	5.29	5.57	5.92
	Field of View	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x3/8	1/4 x3/8	1/4 x5/16	3/16 x5/16	3/16 x5/16	3/16 x5/16	3/16 x1/4	3/16 x1/4	3/16 x1/4
	Exposure Factor	15.3	16.5	18.9	21.4	24.3	26.8	29.8	32.9	36.2	39.6	42.3	47.9
FD35mm f/3.5S.C.	Distance	7-7/8	8-1/16	8-7/16	8-3/4	9-1/8	9-1/2	9-7/8	10-1/4	10-5/8	11	11-3/8	11-7/8
	Magnification	2.86	3.02	3.3	3.58	3.86	4.14	4.42	4.7	4.99	5.27	5.55	5.9
	Field of View	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x3/8	1/4 x3/8	1/4 x5/16	3/16 x5/16	3/16 x5/16	3/16 x5/16	3/16 x1/4	3/16 x1/4	3/16 x1/4
	Exposure Factor	12.5	13.6	15.7	18.1	20.5	23.2	26.0	28.9	32.0	35.3	38.7	43.2
FD50mm f/1.4S.S.C.	Distance	8-7/16	8-9/16	8-7/8	9-3/16	9-9/16	9-7/8	10-1/4	10-9/16	10-15/16	11-5/16	11-11/16	1'1/8
	Magnification	1.97	2.07	2.27	2.46	2.66	2.85	3.04	3.24	3.43	3.62	3.82	4.06
	Field of View	1/2 x3/4	7/16 x11/16	7/16 x5/8	3/8 x9/16	3/8 x9/16	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	1/4 x3/8
	Exposure Factor	8.8	9.4	10.7	12.0	13.4	14.8	16.3	17.9	19.6	21.4	23.2	25.6

(mm)

Lens \ Bellows Scale (mm)		34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD50mm f/1.8S.C.	Distance	213	217	224	232	240	248	257	266	275	284	293	305
	Magnification	1.73	1.83	2.03	2.22	2.41	2.60	2.80	2.99	3.19	3.38	3.58	3.82
	Field of View	13.9 x20.9	13.1 x19.7	11.9 x17.8	10.8 x16.2	10.0 x15.0	9.2 x13.8	8.6 x12.9	8.0 x12.0	7.5 x11.3	7.1 x10.7	6.7 x10.1	6.3 x9.4
	Exposure Factor	7.4	8.0	9.2	10.4	11.6	13.0	14.4	15.9	17.5	19.2	20.9	23.2
FD55mm f/1.2S.S.C.	Distance	221	225	233	241	249	257	266	275	284	293	302	314
	Magnification	1.82	1.92	2.11	2.29	2.47	2.65	2.83	3.02	3.20	3.38	3.58	3.79
	Field of View	13.2 x19.8	12.5 x18.7	11.4 x17.1	10.5 x15.7	9.7 x14.6	9.1 x13.6	8.5 x12.7	8.0 x11.9	7.5 x11.3	7.1 x10.7	6.7 x10.1	6.3 x9.5
	Exposure Factor	8.0	8.5	9.6	10.8	12.0	13.3	14.7	16.1	17.6	19.2	20.8	22.9

(ft. in.)

Lens \ Bellows Scale (mm) (in.)		34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-5/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD50mm f/1.8S.C.	Distance	8-3/8	8-9/16	8-13/16	9-1/8	9-7/16	9-3/4	10-1/8	10-1/2	10-13/16	11-3/16	11-1/2	1'
	Magnification	1.73	1.83	2.03	2.22	2.41	2.60	2.80	2.99	3.19	3.38	3.58	3.82
	Field of View	9/16 x13/16	1/2 x3/4	7/16 x11/16	7/8 x5/8	3/8 x5/16	3/8 x5/16	5/16 x1/2	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8
	Exposure Factor	7.4	8.0	9.2	10.4	11.6	13.0	14.4	15.9	17.5	19.2	20.9	23.2
FD55mm f/1.2S.S.C.	Distance	8-11/16	8-7/8	9-3/16	9-1/2	9-13/16	10-1/8	10-7/16	10-13/16	11-3/16	11-1/2	11-7/8	1'3/8
	Magnification	1.82	1.92	2.11	2.29	2.47	2.65	2.83	3.02	3.27	3.38	3.56	3.79
	Field of View	1/2 x3/4	1/2 x3/4	7/16 x11/16	7/16 x5/8	3/8 x5/16	3/8 x5/16	5/16 x1/2	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8
	Exposure Factor	8.0	8.5	9.6	10.8	12.0	13.3	14.7	16.1	17.6	19.2	20.8	22.9

(mm)

Lens \ Bellows Scale (mm)		34.5	40	50	60	70	80	90	100	110	120	130	142.5
FL35mm f/3.5	Distance	199	204	213	222	231	240	250	259	269	278	288	300
	Magnification	2.78	2.93	3.21	3.50	3.78	4.06	4.34	4.62	4.90	5.18	5.46	5.81
	Field of View	8.6 x13.0	8.2 x12.3	7.5 x11.2	6.9 x10.3	6.4 x9.5	5.9 x8.9	5.5 x8.3	5.2 x7.8	4.9 x7.3	4.6 x6.9	4.4 x6.6	4.1 x6.2
	Exposure Factor	14.7	15.9	18.2	20.7	23.4	26.2	29.1	32.2	35.5	38.9	42.5	47.2
FL35mm f/2.8	Distance	206	210	220	229	238	247	257	266	276	286	295	307
	Magnification	2.95	3.10	3.39	3.67	3.95	4.23	4.51	4.79	5.08	5.36	5.64	5.99
	Field of View	8.1 x12.2	7.7 x11.6	7.1 x10.6	6.6 x9.8	6.1 x9.1	5.7 x8.5	5.3 x8.0	5.0 x7.5	4.7 x7.1	4.5 x6.7	4.3 x6.4	4.0 x6.0
	Exposure Factor	15.6	16.9	19.3	21.8	24.5	27.4	30.4	33.6	37.0	40.5	44.1	48.9
FL50mm f/3.5	Distance	224	228	235	243	251	260	268	277	286	295	304	316
	Magnification	1.74	1.85	2.04	2.24	2.43	2.63	2.82	3.01	3.21	3.40	3.59	3.84
	Field of View	13.8 x20.7	11.7 x19.5	11.7 x17.6	10.7 x16.1	9.9 x14.8	9.1 x13.7	8.5 x12.8	8.0 x12.0	7.5 x11.2	7.1 x10.6	6.7 x10.0	6.3 x9.4
	Exposure Factor	7.5	8.1	9.3	10.5	11.8	13.1	14.6	16.1	17.7	19.4	21.1	23.4
FL50mm f/1.8	Distance	214	218	226	233	242	250	259	268	277	286	295	306
	Magnification	1.77	1.87	2.07	2.26	2.45	2.65	2.84	3.03	3.23	3.42	3.62	3.86
	Field of View	13.6 x20.4	12.8 x19.2	11.6 x17.4	10.6 x15.9	9.8 x14.7	9.1 x13.6	8.4 x12.7	7.9 x11.9	7.4 x11.2	7.0 x10.5	6.6 x10.0	6.2 x9.3
	Exposure Factor	7.6	8.2	9.4	10.6	11.9	13.3	14.7	16.3	17.9	19.5	21.3	23.6

(ft. in.)

Lens \ Bellows Scale (mm) (in.)		34.5 (1-3/8)	40 (1-5/16)	50 (2-1/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (5-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
L35mm f/3.5	Distance	7-13/16	8-1/16	8-3/8	8-3/4	9-1/8	9-7/16	9-13/16	10-3/16	10-9/16	10-15/16	11-5/16	11-13/16
	Magnification	2.78	2.93	3.21	3.50	3.78	4.06	4.34	4.62	4.90	5.18	5.46	5.81
	Field of View	5/16 x1/2	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	3/16 x5/16	3/16 x5/16	3/16 x5/16	3/16 x1/4	3/16 x1/4	3/16 x1/4
	Exposure Factor	14.7	15.9	18.2	20.7	23.4	26.2	29.1	32.2	35.5	38.9	42.5	47.2
L35mm f/2.5	Distance	8-1/8	8-1/4	8-11/16	9-1/16	9-3/8	9-3/4	10-1/8	10-1/2	10-7/8	11-1/4	11-5/8	1'-1/16
	Magnification	2.95	3.10	3.39	3.67	3.95	4.23	4.51	4.79	5.08	5.36	5.64	5.99
	Field of View	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	1/4 x5/16	3/16 x5/16	3/16 x5/16	3/16 x1/4	3/16 x1/4	3/16 x1/4	3/16 x1/4
	Exposure Factor	15.6	16.9	19.3	21.8	24.5	27.4	30.4	33.6	37.0	40.5	44.1	48.9
L50mm f/3.5	Distance	8-13/16	8-15/16	9-1/4	9-9/16	9-7/8	10-1/4	10-5/16	10-7/8	11-1/4	11-5/8	1'	1'-7/16
	Magnification	1.74	1.85	2.04	2.24	2.43	2.63	2.82	3.01	3.21	3.40	3.59	3.84
	Field of View	5/16 x13/16	7/16 x3/4	7/16 x11/16	7/16 x5/8	3/8 x5/8	3/8 x5/16	5/16 x1/2	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8
	Exposure Factor	7.5	8.1	9.3	10.5	11.8	13.1	14.6	16.1	17.7	19.4	21.1	23.4
	Distance	9-7/16	9-9/16	9-7/8	9-3/16	9-1/2	9-13/16	10-3/16	10-5/16	10-7/8	11-1/4	11-5/8	1'-1/16
	Magnification	1.77	1.87	2.07	2.26	2.45	2.65	2.84	3.03	3.23	3.42	3.62	3.86
	Field of View	9/16 x13/16	1/2 x3/4	7/16 x11/16	7/16 x5/8	3/8 x9/16	3/8 x5/16	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8
	Exposure Factor	7.6	8.2	9.4	10.6	11.9	13.3	14.7	16.3	17.9	19.5	21.3	23.6

(mm)

Lens	Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FL50mm f/1.4	Distance	215	219	227	236	244	253	262	271	280	289	298	310
	Magnification	2.01	2.11	2.31	2.50	2.69	2.89	3.03	3.28	3.47	3.66	3.86	4.10
	Field of View	12.0 x17.9	11.4 x17.0	10.4 x15.6	9.6 x14.4	8.9 x13.4	8.3 x12.5	7.8 x11.7	7.3 x11.0	6.9 x10.4	6.6 x9.8	6.2 x9.3	5.9 x8.8
	Exposure Factor	9.1	9.8	11.0	12.3	13.7	15.2	16.8	18.4	20.1	21.9	23.7	26.1
FL55mm f/1.2	Distance	221	225	233	241	249	257	266	275	284	293	302	314
	Magnification	1.82	1.92	2.11	2.29	2.47	2.65	2.83	3.01	3.20	3.38	3.56	3.79
	Field of View	13.1 x19.7	12.5 x18.7	11.4 x17.1	10.5 x15.7	9.7 x14.6	9.1 x13.6	8.5 x12.7	8.0 x11.9	7.5 x11.3	7.1 x10.7	6.7 x10.1	6.3 x9.5
	Exposure Factor	8.0	8.5	9.6	10.8	12.0	13.3	14.7	16.1	17.6	19.2	20.8	22.9
FL58mm f/1.2	Distance	227	231	238	245	253	261	269	278	287	295	304	316
	Magnification	1.59	1.69	1.86	2.03	2.20	2.38	2.55	2.72	2.89	3.07	3.24	3.45
	Field of View	15.1 x22.6	14.2 x21.2	12.9 x19.4	11.8 x17.7	10.9 x16.3	10.1 x15.2	9.4 x14.1	8.8 x13.2	8.3 x12.4	7.8 x11.7	7.4 x11.1	7.0 x10.4
	Exposure Factor	6.7	7.2	8.2	9.2	10.3	11.4	12.6	13.8	15.2	16.5	18.0	19.8
FL85mm f/1.8	Distance	304	373	348	336	329	327	327	330	333	338	343	351
	Magnification	0.42	0.49	0.60	0.72	0.84	0.96	1.08	1.20	1.32	1.44	1.56	1.70
	Field of View	57.1 x85.7	49.5 x74.2	39.7 x59.6	33.2 x49.8	28.5 x42.7	25.0 x37.4	22.2 x33.3	20.0 x30.0	18.2 x27.3	16.7 x25.0	15.4 x23.1	14.1 x21.1
	Exposure Factor	2.0	2.2	2.6	3.0	3.4	3.8	4.3	4.8	5.4	5.9	6.5	7.3

(ft. in.)

Lens	Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FL50mm f/1.4	Distance	8-7/16	8-5/8	8-15/16	9-5/16	9-5/8	9-15/16	10-5/16	10-11/16	11	11-3/8	11-3/4	1'3/16
	Magnification	2.01	2.11	2.31	2.50	2.69	2.89	3.03	3.28	3.47	3.66	3.86	4.10
	Field of View	1/2 x11/16	7/16 x1/16	7/16 x5/8	3/8 x9/16	3/8 x1/2	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	1/4 x3/8
	Exposure Factor	9.1	9.8	11.0	12.3	13.7	15.2	16.8	18.4	20.1	21.9	23.7	26.1
FL55mm f/1.2	Distance	8-11/16	8-7/8	9-3/16	9-1/2	9-13/16	10-1/8	10-1/2	10-13/16	11-3/16	11-9/16	11-7/8	1'3/8
	Magnification	1.82	1.92	2.11	2.29	2.47	2.65	2.83	3.01	3.20	3.38	3.56	3.79
	Field of View	1/2 x3/4	1/2 x3/4	7/16 x11/16	7/16 x5/8	3/8 x5/8	3/8 x9/16	5/16 x1/2	5/16 x7/16	1/4 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8
	Exposure Factor	8.0	8.5	9.6	10.8	12.0	13.3	14.7	16.1	17.6	19.2	20.8	22.9
FL58mm f/1.2	Distance	8-15/16	9-1/8	9-3/8	9-5/8	9-15/16	10-1/4	10-9/16	10-15/16	11-5/16	11-5/8	11-15/16	1'7/16
	Magnification	1.59	1.69	1.86	2.03	2.20	2.38	2.55	2.72	2.89	3.07	3.24	3.45
	Field of View	5/8 x7/8	5/16 x13/16	1/2 x2-3/8	7/16 x11/16	3/8 x5/8	3/8 x5/8	3/8 x9/16	3/8 x1/2	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x7/16
	Exposure Factor	6.7	7.2	8.2	9.2	10.3	11.4	12.6	13.8	15.2	16.5	18.0	19.8
FL85mm f/1.8	Distance	1'3-1/2	1'2-11/16	1'1-11/16	1'1-1/4	1'15/16	1'7/8	1'7/8	1'	1'-1/8	1'-1/16	1'-1/16	1'-1/2
	Magnification	0.42	0.49	0.60	0.72	0.84	0.96	1.08	1.2	1.32	1.44	1.56	1.70
	Field of View	2-1/4 x3-3/8	1-15/16 x2-15/16	1-9/16 x2-3/8	1-5/16 x1-15/16	1-1/8 x1-11/16	16/16 x1-1/2	7/8 x1-5/16	13/16 x1-3/16	11/16 x1-1/16	11/16 x15/16	5/8 x15/16	9/16 x13/16
	Exposure Factor	2.0	2.2	2.6	3.0	3.4	3.8	4.3	4.8	5.4	5.9	6.5	7.3

Data when lenses are attached onto Bellows FL using Macrophoto Coupler FL both Extended

(mm)

Lens	Bellows Scale (mm)	34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD35mm f/2S.S.C.	Distance	222	227	237	246	255	265	274	284	294	303	313	325
	Magnification	3.27	3.43	3.71	3.98	4.26	4.54	4.82	5.10	5.38	5.66	5.93	6.28
	Field of View	7.3 x11.0	7.0 x10.5	x9.5	6.0 x9.0	5.6 x8.5	5.3 x7.9	5.0 x7.5	4.7 x7.1	4.5 x6.7	4.2 x6.4	4.0 x6.1	3.8 x5.7
	Exposure Factor	18.3	19.6	22.1	24.8	27.7	30.7	33.9	37.2	40.7	44.3	48.1	53.0
FD35mm f/3.5S.C.	Distance	212	217	226	235	244	254	273	273	283	292	302	314
	Magnification	3.23	3.38	3.66	3.94	4.23	4.51	4.79	5.07	5.35	5.6	5.91	6.27
	Field of View	7.4 x11.2	7.1 x10.7	6.6 x9.8	6.1 x9.1	5.7 x8.5	5.3 x8.0	5.0 x7.5	4.7 x7.1	4.5 x6.7	4.3 x6.4	4.1 x6.1	3.8 x5.8
	Exposure Factor	15.2	16.4	18.8	21.3	24.0	26.8	29.8	33.0	36.3	39.7	43.4	48.1
FD50mm f/1.4S.S.C.	Distance	224	228	236	245	254	263	272	281	290	299	309	320
	Magnification	2.22	2.33	2.52	2.71	2.91	3.10	3.29	3.49	3.68	3.88	4.07	4.31
	Field of View	10.8 x16.2	10.3 x15.5	9.5 x14.3	8.9 x13.3	8.3 x12.4	7.7 x11.6	7.3 x10.9	6.9 x10.3	6.5 x9.8	6.2 x9.3	5.9 x8.9	5.6 x8.4
	Exposure Factor	10.4	11.1	12.4	13.8	15.3	16.8	18.4	20.1	21.9	23.8	25.7	28.2

(ft. m.)

Lens	Bellows Scale (mm) (in.)	34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD35mm f/2S.S.C.	Distance	8-3/4	8-15/16	9-5/16	9-11/16	10-1/16	10-7/16	10-13/16	11-3/16	11-9/16	11-15/16	1'5/16	1'13/16
	Magnification	3.27	3.43	3.71	3.98	4.26	4.54	4.82	5.10	5.38	5.66	5.93	6.28
	Field of View	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	1/4 x5/16	3/16 x5/16	3/16 x5/16	3/16 x1/4	3/16 x1/4	3/16 x1/4	3/16 x1/4	1/8 x1/4
	Exposure Factor	18.3	19.6	22.1	24.8	27.7	30.7	33.9	37.2	40.7	44.3	48.1	53.0
FD35mm f/3.5S.C.	Distance	8-3/8	8-9/16	8-7/8	9-1/4	9-5/8	10	10-3/4	10-3/4	11-1/8	11-1/2	11-7/8	1'3/8
	Magnification	3.23	3.38	3.66	3.94	4.23	4.51	4.79	5.07	5.35	5.6	5.91	6.27
	Field of View	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	1/4 x5/16	3/16 x5/16	3/16 x5/16	3/16 x1/4	3/16 x1/4	3/16 x1/4	3/16 x1/4	1/8 x1/4
	Exposure Factor	15.2	16.4	18.8	21.3	24.0	26.8	29.8	33.0	36.3	39.7	43.4	48.1
FD50mm f/1.4S.S.C.	Distance	8-13/16	9	9-5/16	9-5/8	10	10-5/16	10-11/16	11-1/16	11-7/16	11-13/16	1'3/16	1'5/8
	Magnification	2.22	2.33	2.52	2.71	2.91	3.10	3.29	3.49	3.68	3.88	4.07	4.31
	Field of View	7/16 x5/8	7/16 x5/8	3/8 x9/16	3/8 x1/2	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	1/4 x3/8	1/4 x5/16
	Exposure Factor	10.4	11.1	12.4	13.8	15.3	16.8	18.4	20.1	21.9	23.8	25.7	28.2

(mm)

Lens \ Bellows Scale (mm)		34.5	40	50	60	70	80	90	100	110	120	130	142.5
FD50mm f/1.8S.C.	Distance	222	226	234	242	251	260	268	277	287	296	305	317
	Magnification	1.98	2.08	2.28	2.47	2.67	2.86	3.05	3.25	3.44	3.63	3.83	4.07
	Field of View	12.1 x18.2	11.5 x17.3	10.5 x15.8	9.7 x14.6	9.0 x13.5	8.4 x12.6	7.9 x11.8	7.4 x11.1	7.0 x10.5	6.6 x9.9	6.3 x9.4	5.9 x8.9
	Exposure Factor	8.9	9.5	10.7	12.0	13.4	14.9	16.4	18.0	19.7	21.5	23.3	25.7
FD55mm f/1.2S.S.C.	Distance	231	235	243	251	260	269	277	286	296	305	314	326
	Magnification	2.06	2.16	2.34	2.52	2.71	2.89	3.07	3.25	3.43	3.62	3.80	4.02
	Field of View	11.7 x17.5	11.1 x16.7	10.3 x15.4	9.5 x14.3	8.9 x13.3	8.3 x12.5	7.8 x11.7	7.4 x11.1	7.0 x10.5	6.6 x10.0	6.3 x9.5	6.0 x9.0
	Exposure Factor	9.4	10.0	11.2	12.4	13.7	15.1	16.6	18.1	19.7	21.3	23.0	25.2

(ft. in.)

Lens \ Bellows Scale (mm) (in.)		34.5 (1-3/8)	40 (1-9/16)	50 (1-15/16)	60 (2-3/8)	70 (2-3/4)	80 (3-1/8)	90 (3-9/16)	100 (3-15/16)	110 (4-5/16)	120 (4-3/4)	130 (5-1/8)	142.5 (5-5/8)
FD50mm f/1.8S.C.	Distance	8-3/4	8-7/8	9-3/16	9-1/2	9-7/8	10-1/4	10-9/16	10-7/8	11-5/16	11-5/8	1'	1'1/2
	Magnification	1.98	2.08	2.28	2.47	2.67	2.86	3.05	3.25	3.44	3.63	3.83	4.07
	Field of View	1/2 x3/4	7/16 x11/16	7/16 x5/8	3/8 x9/16	3/8 x9/16	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	1/4 x3/8
	Exposure Factor	8.9	9.5	10.7	12.0	13.4	14.9	16.4	18.0	19.7	21.5	23.3	25.7
FD55mm f/1.2S.S.C.	Distance	9-1/16	9-1/4	9-9/16	9-7/8	10-1/4	10-9/16	10-15/16	11-1/4	11-5/8	1'	1'3/8	1'13/16
	Magnification	2.06	2.16	2.34	2.52	2.71	2.89	3.07	3.25	3.43	3.62	3.80	4.02
	Field of View	7/16 x11/16	7/16 x5/8	3/8 x5/8	3/8 x9/16	3/8 x1/2	5/16 x1/2	5/16 x7/16	5/16 x7/16	1/4 x7/16	1/4 x3/8	1/4 x3/8	1/4 x3/8
	Exposure Factor	9.4	10.0	11.2	12.4	13.7	15.1	16.6	18.1	19.7	21.3	23.0	25.2

Data when lenses are attached onto Bellows FL using Macrophoto Coupler FL both Extended

(mm)

Lens	Adapter Used	Bellows FL and Macrophoto Coupler both extended
FL35mm f/3.5	Distance Magnification Field of View Exposure Factor	313 6.18 3.9 x5.8 51.6
FL35mm f/2.5	Distance Magnification Field of View Exposure Factor	320 6.36 3.8 x5.7 54.2
FL50mm f/3.5	Distance Magnification Field of View Exposure Factor	328 4.09 5.9 x8.8 25.9
FL50mm f/1.8	Distance Magnification Field of View Exposure Factor	319 4.11 5.8 x8.8 26.1

Lens	Adapter Used	Bellows FL and Macrophoto Coupler both extended
FL50m f/1.4	Distance Magnification Field of View Exposure Factor	322 4.35 5.5 x8.3 28.6
FL55mm f/1.2	Distance Magnification Field of View Exposure Factor	326 4.02 6.0 x8.9 25.2
FL58mm f/1.2	Distance Magnification Field of View Exposure Factor	328 3.68 6.5 x9.8 21.9
FL85mm f/1.8	Distance Magnification Field of View Exposure Factor	360 1.86 12.9 x19.4 8.2

Lens	Adapter Used	Bellows FL and Macrophoto Coupler both extended
FL100mm f/3.5	Distance Magnification Field of View Exposure Factor	405 1.25 19.3 x29 5.1
FL135mm f/3.5	Distance Magnification Field of View Exposure Factor	665 0.42 56.9 x85.4 3.0
FL135mm f/2.5	Distance Magnification Field of View Exposure Factor	541 0.73 32.7 x49.1 2.0
FL200mm f/4.5	Distance Magnification Field of View Exposure Factor	2753 0.08 288.0 x432.0 1.2

(ft. in.)

Lens	Adapter Used	Bellows FL and Macrophoto Coupler both extended
FL35mm f/3.5	Distance Magnification Field of View Exposure Factor	1'5/16 6.18 1/8 x1/4 51.6
FL35mm f/2.5	Distance Magnification Field of View Exposure Factor	1'5/8 6.36 1/8 x1/4 54.2
FL50mm f/3.5	Distance Magnification Field of View Exposure Factor	1'15/16 4.09 1/4 x3/8 25.9
FL50mm f/1.8	Distance Magnification Field of View Exposure Factor	1'9/16 4.11 1/4 x3/8 26.1

Lens	Adapter Used	Bellows FL and Macrophoto Coupler both extended
FL50mm f/1.4	Distance Magnification Field of View Exposure Factor	1'11/16 4.35 3/16 x5/16 28.6
FL55mm f/1.2	Distance Magnification Field of View Exposure Factor	1'13/16 4.02 1/4 x3/8 25.2
FL58mm f/1.2	Distance Magnification Field of View Exposure Factor	1'15/16 3.68 1/4 x3/8 21.9
FL85mm f/1.8	Distance Magnification Field of View Exposure Factor	1'2-3/16 1.86 1/2 x3/4 8.2

Lens	Adapter Used	Bellows FL and Macrophoto Coupler both extended
FL100mm f/2.5	Distance Magnification Field of View Exposure Factor	1'3-15/16 1.25 3/4 x1-1/8 5.1
FL135mm f/3.5	Distance Magnification Field of View Exposure Factor	2'2-3/16 0.42 2-1/4 x3-3/8 3.0
FL135mm f/2.5	Distance Magnification Field of View Exposure Factor	1'9-5/16 0.73 1-5/16 x1-15/16 2.0
FL200mm f/4.5	Distance Magnification Field of View Exposure Factor	9'3/8 0.08 11-5/16 x1'5 1.2

Data when lenses are attached onto Macrophoto Coupler FL in reversed direction

(mm)

Lens	Adapter Used	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, min. length	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, max. length
FD35mm f/2.5S.C.	Distance	182	193
	Magnification	1.95	2.31
	Field of View	12.3	10.4
	Exposure Factor	x18.5	x15.6
		8.7	11.0
FD35mm f/3.5S.C.	Distance	172	182
	Magnification	1.89	2.26
	Field of View	12.7	10.6
	Exposure Factor	x19.1	x16.0
		6.6	8.6
FD50mm f/1.4S.S.C.	Distance	193	199
	Magnification	1.30	2.31
	Field of View	18.5	10.4
	Exposure Factor	x27.7	x23.2
		5.3	6.5
FD50mm f/1.8S.C.	Distance	197	201
	Magnification	1.06	1.31
	Field of View	22.7	18.3
	Exposure Factor	x34.1	x27.5
		3.8	4.9
FD55mm f/1.2S.S.C.	Distance	202	208
	Magnification	1.20	1.43
	Field of View	20.1	16.8
	Exposure Factor	x30.1	x25.1
		4.8	5.9

(in.)

Lens	Adapter Used	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, min. length	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, max. length
FD50mm f/1.8S.C.	Distance	7-3/4	7-15/16
	Magnification	1.06	1.31
	Field of View	7/8	3/4
	Exposure Factor	x1-5/16	x1-1/16
		3.8	4.9
FD55mm f/1.2S.S.C.	Distance	7-15/16	8-3/16
	Magnification	1.20	1.43
	Field of View	13/16	11/16
	Exposure Factor	x1-3/16	x1
		4.8	5.9
FD35mm f/2.5S.C.	Distance	7-3/16	7-9/16
	Magnification	1.95	2.31
	Field of View	1/2	7/16
	Exposure Factor	x3/4	x5/8
		8.7	11.0
FD35mm f/3.5S.C.	Distance	6-3/4	7-3/16
	Magnification	1.89	2.26
	Field of View	1/2	7/16
	Exposure Factor	x3/4	x5/8
		6.6	8.6
FD50mm f/1.4S.S.C.	Distance	7-9/16	7-7/8
	Magnification	1.3	1.55
	Field of View	3/4	7/16
	Exposure Factor	x1-1/16	x15/16
		5.3	6.5

(mm)

Lens	Adapter Used	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, min. length	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, max. length
FL35mm f/3.5	Distance	171	181
	Magnification	1.81	2.17
	Field of View	13.3 x19.9	11.0 x16.6
	Exposure Factor	7.9	10.0
FL35mm f/2.5	Distance	177	187
	Magnification	1.98	2.34
	Field of View	12.1 x18.2	10.2 x15.4
	Exposure Factor	8.9	11.2
FL50mm f/3.5	Distance	208	212
	Magnification	1.07	1.33
	Field of View	22.3 x33.5	18.1 x27.1
	Exposure Factor	4.3	5.5
FL50mm f/1.8	Distance	198	202
	Magnification	1.10	1.35
	Field of View	21.9 x32.8	17.8 x26.7
	Exposure Factor	4.4	5.5

Lens	Adapter Used	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, min. length	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, max. length
FL50mm f/1.4	Distance	194	200
	Magnification	1.34	1.59
	Field of View	17.9 x26.9	15.1 x22.7
	Exposure Factor	5.5	6.7
FL55mm f/1.2	Distance	202	208
	Magnification	1.20	1.43
	Field of View	20.1 x30.1	16.8 x25.1
	Exposure Factor	4.8	5.9
FL58mm f/1.2	Distance	215	217
	Magnification	1.00	1.22
	Field of View	24.1 x36.1	19.7 x29.6
	Exposure Factor	4.0	4.9
FL85mm f/1.8	Distance		685
	Magnification		0.16
	Field of View		146.4 x219.7
	Exposure Factor		1.3

Lens	Adapter Used	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, min. length	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, max. length
FL35mm f/3.5	Distance	6-3/4	7-1/8
	Magnification	1.81	2.17
	Field of View	1/2 x13/16	7/16 x5/8
	Exposure Factor	7.9	10.0
FL35mm f/2.5	Distance	6-15/16	7-3/8
	Magnification	1.98	2.34
	Field of View	1/2 x3/4	3/8 x5/8
	Exposure Factor	8.9	11.2
FL50mm f/3.5	Distance	8-3/16	8-3/8
	Magnification	1.07	1.33
	Field of View	7/8 x1-5/16	11/16 x1-1/16
	Exposure Factor	4.3	5.5
FL50mm f/1.8	Distance	7-13/16	7-15/16
	Magnification	1.1	1.35
	Field of View	7/8 x1-5/16	11/16 x1-1/16
	Exposure Factor	4.4	5.5

(ft. in.)

Lens	Adapter Used	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, min. length	Macrophoto Coupler FL + reversed FL lens: Macrophoto Coupler, max. length
FL50mm f/1.4	Distance	7-5/8	7-7/8
	Magnification	1.34	1.59
	Field of View	11/16 x1-1/6	5/8 x7/8
	Exposure Factor	5.5	6.7
FL55mm f/1.2	Distance	7-15/16	8-3/16
	Magnification	1.20	1.43
	Field of View	13/16 x1-3/16	11/16 x1
	Exposure Factor	4.8	5.9
FL58mm f/1.2	Distance	8-7/16	8-9/16
	Magnification	1.00	1.22
	Field of View	1-3/16 x7/16	3/4 x1-3/16
	Exposure Factor	4.0	4.9
FL85mm f/1.8	Distance		2'2-15/16
	Magnification		0.16
	Field of View		5-3/4 x8-5/8
	Exposure Factor		1.3

Exposure calculation chart: Exposure factor and aperture conversion figures corresponding to photographic magnification (M)

M	Exposure factor	Aperture adjustment		M	Exposure factor	Aperture adjustment		M	Exposure factor	Aperture adjustment	
0.1	1.21	0.28	1/4	3.2	17.64	4.14	4-1/4	6.8	60.84	5.93	6
0.2	1.44	0.53	1/2	3.4	19.36	4.28	4-1/4	7.0	64.00	6.00	6
0.3	1.69	0.76	3/4	3.5	20.25	4.34	4-1/4	7.2	67.24	6.07	6
0.4	1.96	0.97	1	3.6	21.16	4.40	4-1/2	7.4	70.56	6.14	6-1/4
0.5	2.25	1.17	1-1/4	3.8	23.04	4.53	4-1/2	7.5	72.25	6.18	6-1/4
0.6	2.56	1.36	1-1/4	4.0	25.00	4.64	4-3/4	7.6	73.96	6.21	6-1/4
0.7	2.89	1.53	1-1/2	4.2	27.04	4.76	4-3/4	7.8	77.44	6.28	6-1/4
0.8	3.24	1.70	1-3/4	4.4	29.16	4.87	4-3/4	8.0	81.00	6.34	6-1/4
0.9	3.61	1.85	1-3/4	4.5	30.25	4.92	5	8.2	84.64	6.40	6-1/2
1.0	4.00	2.00	2	4.6	31.36	4.97	5	8.4	88.36	6.47	6-1/2
1.2	4.84	2.27	2-1/4	4.8	33.64	5.07	5	8.5	90.25	6.50	6-1/2
1.4	5.76	2.53	2-1/2	5.0	36.00	5.17	5-1/4	8.6	92.16	6.53	6-1/2
1.5	6.25	2.64	2-3/4	5.2	38.44	5.27	5-1/4	8.8	96.04	6.59	6-1/2
1.6	6.76	2.76	2-3/4	5.4	40.96	5.37	5-1/4	9.0	100.00	6.64	6-3/4
1.8	7.84	2.97	3	5.5	42.25	5.40	5-1/2	9.2	104.04	6.70	6-3/4
2.0	9.00	3.17	3-1/4	5.6	43.56	5.45	5-1/2	9.4	108.16	6.76	6-3/4
2.2	10.24	3.36	3-1/4	5.8	46.24	5.53	5-1/2	9.5	110.25	6.78	6-3/4
2.4	11.56	3.53	3-1/2	6.0	49.00	5.62	5-1/2	9.6	112.36	6.81	6-3/4
2.5	12.25	3.61	3-1/2	6.2	51.84	5.70	5-3/4	9.8	116.64	6.87	6-3/4
2.6	12.96	3.70	3-3/4	6.4	54.76	5.78	5-3/4	10.0	121.00	6.92	7
2.8	14.44	3.85	3-3/4	6.5	56.25	5.81	5-3/4				
3.0	16.00	4.00	4	6.6	57.76	5.85	5-3/4				

Figures obtained with the exposure meter can be compensated with the above chart.
The compensated shutter speed can be obtained by multiplying the shutter speed with the exposure factor.
M denotes magnification.

CANON EXTENSION TUBE M

The Canon Extension Tube M is a simple intermediate tube that can be connected between a Canon SLR camera and FL or R lenses for close-up photography using a manually operated diaphragm. M tubes are available in three different widths, 5mm, 10mm and 20mm. One set of M tubes is composed of four M tubes which include one each of 5mm and 10mm tubes and two 20mm tubes.

With various combinations the lengths can be changed every 5mm from 5mm up to 55mm. By connecting these extension tubes to standard FL or R lenses (focal lengths of 50mm and 58mm respectively) close-up photography up to life-size is possible. Furthermore, photographic magnification may also be changed with various combinations with a close-up lens.

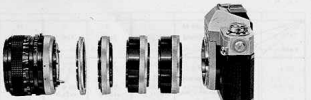
M tubes can also be connected to the Bellows FL and Lens Mount Converters as an auxiliary in even larger magnification macrophotography.

CONNECTION

Can be connected to adapter with FL and R mounts, just as with the FL tube.

Bellows FL and R, Extension Tubes FL and M, Lens Mount Converter A and B, Macrophoto Coupler, and Life-Size Adapter.

When an FL tube is used in combination, tube M 5 is attached directly to the lens.



When using the F-1 with the Motor Drive Unit or Motor Drive MF, the Bellows FL cannot be installed directly. To use the Bellows FL in such cases, use the Extension Tube 20 or the M10 plus the M5 as an in-between attachment. When this is done, only magnification photography is possible.

(mm)

Lens	Extension Tube M (mm)		5	10	15	20	25	30	35	40	45	50	55
FD50mm f/1.4S.S.C.	∞	Distance	624	362	279	239	218	205	197	193	190	189	189
		Magnification	0.10	0.19	0.29	0.39	0.48	0.58	0.68	0.78	0.87	0.97	1.07
		Field of View	247.7 x311.6	123.9 x185.8	82.6 x123.9	61.9 x92.9	49.5 x74.3	41.3 x61.9	35.4 x53.1	31.0 x46.5	27.5 x41.3	24.8 x37.2	22.5 x33.8
		Exposure Factor	1.2	1.4	1.7	1.9	2.2	2.5	2.8	3.2	3.5	3.9	4.3
	Min. distance	Distance	313	256	227	211	201	195	191	190	190	190	191
		Magnification	0.24	0.34	0.44	0.53	0.63	0.73	0.82	0.92	1.02	1.11	1.21
		Field of View	99.7 x149.5	71.1 x106.6	55.7 x82.9	45.2 x67.8	38.2 x57.3	33.1 x49.6	29.2 x43.8	26.1 x39.2	23.6 x35.4	21.5 x32.4	19.8 x29.8
		Exposure Factor	1.5	1.8	2.1	2.3	2.7	3.0	3.3	3.7	4.1	4.5	4.9
FD56mm f/1.8S.C.	∞	Distance	632	370	287	247	243	215	201	208	197	197	197
		Magnification	0.1	0.19	0.29	0.39	0.39	0.58	0.68	0.78	0.87	0.97	1.07
		Field of View	247.8 x371.7	123.9 x185.9	82.6 x123.9	62 x92.9	49.6 x74.0	41.3 x62.0	35.4 x46.5	31 x46.5	27.5 x41.3	24.8 x37.2	22.5 x33.8
		Exposure Factor	1.2	1.4	1.6	1.8	2.1	2.3	2.6	2.9	3.2	3.5	3.8
	Min. distance	Distance	362	283	244	225	212	205	200	198	197	197	198
		Magnification	0.2	0.3	0.38	0.5	0.59	0.68	0.78	0.88	0.98	1.07	1.17
		Field of View	120.6 x180.9	80.9 x121.3	61.0 x91.6	48.7 x73.4	41.0 x61.5	35.1 x52.6	30.7 x46.1	27.3 x41.0	24.6 x37.0	22.4 x33.6	20.5 x30.8
		Exposure Factor	1.4	1.6	1.8	2.1	2.3	2.6	2.9	3.2	3.5	3.8	4.2

(ft. in.)

Lens	Extension Tube M (mm) (in.)		5 (3/16)	10 (3/8)	15 (9/16)	20 (3/4)	25 (1)	30 (1-3/16)	35 (1-3/8)	40 (1-9/16)	45 (1-3/4)	50 (2)	55 (2-3/16)
FD50mm f/1.4S.S.C.	∞	Distance	2'6/16	1'2-1/4	11	9-7/16	8-5/16	8-1/16	7-3/4	7-9/16	7-1/2	7-7/16	7-7/16
		Magnification	0.10	0.19	0.29	0.39	0.48	0.58	0.68	0.78	0.87	0.97	1.07
		Field of View	9-3/4 x1'2-5/8	4-7/8 x7-5/16	3-1/4 x4-7/8	2-7/16 x3-11/16	1-15/16 x2-15/16	1-5/8 x2-7/16	1-3/8 x2-1/16	1-1/4 x1-13/16	1-1/16 x1-5/8	1 x1-7/16	7/8 x1-5/16
		Exposure Factor	1.2	1.4	1.7	1.9	2.2	2.5	2.8	3.2	3.5	3.9	4.3
	Min. distance	Distance	1'5/16	10-1/16	8-15/16	8-5/16	7-7/8	7-11/16	7-1/2	7-7/16	7-7/16	7-1/2	7-1/2
		Magnification	0.24	0.34	0.44	0.53	0.63	0.73	0.82	0.92	1.02	1.11	1.21
		Field of View	3-15/16 x5-7/8	2-13/16 x4-3/16	2-3/16 x3-1/4	1-3/4 x2-11/16	1-1/2 x2-1/4	1-5/16 x1-15/16	1-1/8 x1-3/4	1 x1-9/16	15/16 x1-3/8	7/8 x1-1/4	3/4 x1-3/16
		Exposure Factor	1.5	1.8	2.1	2.3	2.7	3.0	3.3	3.7	4.1	4.5	4.9
FD56mm f/1.8S.C.	∞	Distance	2'7/8	1'2-9/16	11-5/16	9-3/4	9-7/8	8-1/8	8-1/16	7-7/8	7-13/16	7-3/4	7-3/4
		Magnification	0.1	0.19	0.29	0.39	0.38	0.58	0.68	0.78	0.87	0.97	1.07
		Field of View	9-3/4 x1'2-5/8	4-7/8 x7-5/16	3-1/4 x4-7/8	2-7/16 x3-11/16	1-15/16 x2-15/16	1-5/8 x2-7/16	1-3/8 x2-1/16	1-1/4 x1-13/16	1-1/16 x1-5/8	1 x1-7/16	7/8 x1-5/16
		Exposure Factor	1.2	1.4	1.6	1.8	2.1	2.3	2.6	2.9	3.2	3.5	3.8
	Min. distance	Distance	1'2-1/4	11-1/8	9-11/16	8-7/8	8-3/8	8-1/16	7-7/8	7-13/16	7-3/4	7-3/4	7-13/16
		Magnification	0.2	0.3	0.38	0.5	0.59	0.68	0.78	0.88	0.98	1.07	1.17
		Field of View	4-3/4 x7-1/16	3-5/16 x4-3/4	2-3/8 x3-9/16	1-15/16 x2-7/8	1-5/8 x2-7/16	1-3/8 x2-1/16	1-3/16 x1-13/16	1-1/16 x1-5/8	15/16 x1-7/16	7/8 x1-5/16	13/16 x1-3/16
		Exposure Factor	1.4	1.6	1.8	2.1	2.3	2.6	2.9	3.2	3.5	3.8	4.2

(mm)

Lens		Extension Tube M (mm)	5	10	15	20	25	30	35	40	45	50	55
FDS5mm f/1.2S.S.C.	∞	Distance	700	403	307	262	237	222	212	206	203	201	201
		Magnification	0.09	0.18	0.27	0.36	0.46	0.55	0.64	0.73	0.82	0.91	1.00
		Field of View	263.9 x395.8	131.9 x197.9	88.0 x131.9	66.0 x99.0	52.8 x79.2	44.0 x65.9	37.7 x56.5	33.0 x49.5	29.3 x44.0	26.4 x39.6	24.0 x36.0
		Exposure Factor	1.2	1.4	1.6	1.9	2.1	2.4	2.7	3.0	3.3	3.6	4.0
	Min. distance	Distance	396	304	260	236	221	212	206	203	201	201	201
		Magnification	0.19	0.28	0.37	0.46	0.55	0.64	0.73	0.82	0.91	1.01	1.10
		Field of View	128.9 x153.4	86.6 x129.9	65.2 x97.8	52.3 x78.4	43.6 x65.5	37.4 x56.2	32.8 x49.2	29.2 x43.8	26.3 x39.4	23.9 x35.8	21.9 x32.9
		Exposure Factor	1.4	1.6	1.9	2.1	2.4	2.7	3.0	3.3	3.7	4.0	4.4

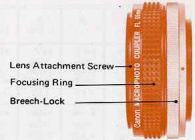
(ft.+in.)

Lens		Extension Tube M (mm) (in.)	5 (3/16)	10 (3/8)	15 (9/16)	20 (3/4)	25 (1)*	30 (1-3/16)	35 (1-3/8)	40 (1-9/16)	45 (1-3/4)	50 (2)	55 (2-3/16)
FDS5mm f/1.2S.S.C.	∞	Distance	2'3-9/16	1'3-7/8	1'1/8	10-5/16	9-5/16	8-3/4	8-3/8	8-1/8	8	7-15/16	7-7/8
		Magnification	0.90	0.18	0.27	0.36	0.46	0.55	0.64	0.73	0.82	0.91	1.00
		Field of View	10-3/8 x1'-3-9/16	5-3/16 x7-13/16	3-7/16 x5-3/16	2-5/8 x3-7/8	2-1/16 x3-1/8	1-3/4 x3-5/8	1-1/2 x2-1/4	1-5/16 x1-15/16	1-1/8 x1-3/4	1-1/16 x1-9/16	15/16 x1-7/16
		Exposure Factor	1.2	1.4	1.6	1.9	2.1	2.4	2.7	3.0	3.3	3.6	4.0
	Min. distance	Distance	1'3-5/8	1'	10-1/4	9-5/16	8-11/16	8-5/16	8-1/8	8	7-15/16	7-7/8	7-15/16
		Magnification	0.19	0.28	0.37	0.46	0.55	0.64	0.73	0.82	0.91	1.01	1.10
		Field of View	5-1/16 x7-5/8	3-7/16 x5-1/8	2-9/16 x3-7/8	2-1/16 x3-1/16	1-11/16 x2-9/16	1-1/2 x2-3/16	1-5/16 x1-15/16	1-1/8 x1-3/4	1-1/16 x1-9/16	15/16 x1-7/16	7/8 x1-5/16
		Exposure Factor	1.4	1.6	1.9	2.1	2.4	2.7	3.0	3.3	3.6	4.0	4.4

MACROPHOTO COUPLER FL 48mm
MACROPHOTO COUPLER FL 55mm
MACROPHOTO COUPLER FL 58mm

The macrophoto couplers are used to attach lenses in a reversed direction for larger than life-size macrophotography. The couplers also permit excellent lens performance during extreme close-up photography.
These couplers have the same breech-lock rings as the FD, FL lenses and can be mounted the same FD, FL mounts as the Bellows FL; F-1, EF, FTb, TX, TLb, FT, PXQL, FX and FP.

- The Macrophoto Coupler FL 48mm is used in conjunction with lenses having a 48mm screw diameter, such as the FL 50mm f/1.8 lens.
- The Macrophoto Coupler FL 55mm is used in conjunction with lenses having a 55mm screw diameter, such as the FD 50mm f/1.4 S.S.C., and macro lens FD 50mm f/3.5 S.S.C.
- The Macrophoto Coupler FL 58mm is used in conjunction with lenses having a 58mm screw diameter, such as the FD 55mm f/1.2 S.S.C.



- When attaching the couplers to a lens, screw them to the front of the lens.
- When attaching the couplers to the camera, they attach with a breech-lock ring in the same manner as lenses.
- Attachments used in conjunction with the couplers include: Bellows FL, Life-Size Adapter, Lens Mount Converter B, Extension Tube FL. These attachments are used in large magnification photography.
- Focal adjustment is performed with a revolving helicoid having an extension length of 13mm.
- The aperture is set manually because the lens is attached in a reversed direction.
- Please refer to the magnification and conversion charts.
- The lens extension length, used for calculating the photographic magnification, is found by adding the focal point adjustment extension volume to the length. (Refer to page 55.)
- When using FD lens in reversed direction, attach the Macrohood to release the mount lock mechanism.

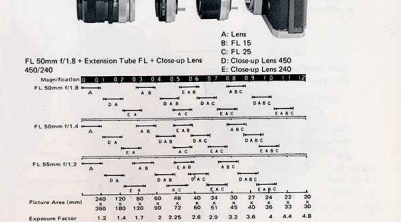
CANON EXTENSION TUBE FL 15
CANON EXTENSION TUBE FL 25

Canon Extension Tubes FL 15 and FL 25 are intermediate tubes which are coupled to the automatic diaphragm of FL lenses for close-up photography. They have widths of 15mm and 25mm. By attaching them to Canon FT QL, Canon Pellix QL, Canon FX cameras, close-up photography with the automatic diaphragm can be performed just as in ordinary photography.
When a combination of these two types of extension tubes and a close-up lens are attached to an FL standard lens, it allows continuous close-up photography up to life size.
The FL tubes can also be connected to bellows or other types of tubes used as an auxiliaries for large-magnification macrophotography.

- When using the FD lenses, set the aperture ring at manual.

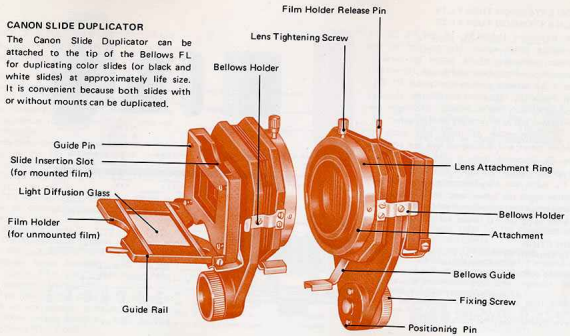
CONNECTION
Can be coupled: Bellows FL, Extension Tubes FL, Life-size Adapter
Cannot be coupled: Bellows R, Extension Tube M, Lens Mount Converter A, B, Macrophoto Coupler FL

- More than three combination uses of FL 15 and FL 25 can be used with the metering lever pushed down for manual setting.

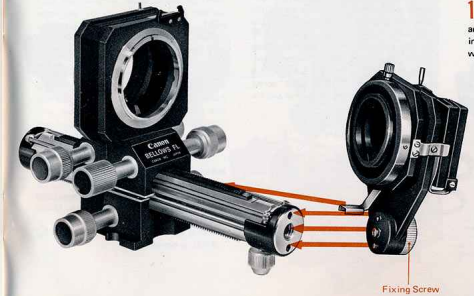


CANON SLIDE DUPLICATOR

The Canon Slide Duplicator can be attached to the tip of the Bellows FL for duplicating color slides (or black and white slides) at approximately life size. It is convenient because both slides with or without mounts can be duplicated.



PREPARATION FOR SHOOTING



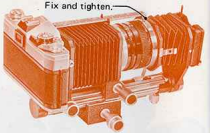
ATTACHING

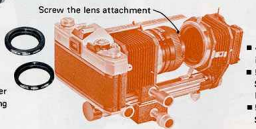
1 Push the strut, at the tip of Bellows FL, deeper than the screw thread and tighten. Then align the parts shown in the diagram and fix them securely with the fixing screw.

2 Attach the camera body and standard lens to the Bellows FL.

3 Remove the attachment in order to loosen the lens tightening screw.

4 Remove the bellows holder of the duplicator, stretch the bellows, attach the ring to the tip of the lens and fix into position with the tightening screw (for FL 50mm f/1.4, FL 50mm f/3.5). With the FL 50mm f/1.8, screw the 48mm attachment. With the FD 50mm f/1.4 S.S.C., f/1.8 S.C., and FD 50mm f/3.5 S.S.C., screw the 55mm attachment to the tip and fix it to the ring.





- 48mm Attachment for FL 50mm f/1.8 is available
- 55mm Attachment for FD 50mm f/1.4 S.S.C., f/1.8 S.C. and Canon Macro Lens FD 50mm f/3.5 S.S.C. is available.
- 58mm Attachment for FD 55mm f/1.2 S.S.C. is available.

Upright image

ADJUSTING THE BELLOWS

Find the shooting distance on the chart according to the magnification desired and set the position of the body. Then extend the lens by setting it to the magnification on the bellows scale.

INSERTING THE FILM

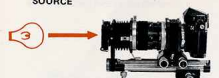
With mounted film, insert the film into the slide insertion slot with the emulsion side facing the light diffusion glass and the image upright. Then look through the viewfinder and check to see whether the film has been correctly inserted. Focus.

* If the slide has been inserted too far it can be pushed up from the bottom. Horizontal adjustment can also be made for approximately 2mm by inserting the forefinger and the thumb into the grooves on the top and bottom of the mount.

With unmounted film, open the film holder, set the film along the four guide pins, and close the holder. The direction of the film is exactly the same as the mounted film.

*The function of the film holder is to allow uniform illumination. Therefore, be sure to close it when photographing. Always keep it clean in order to prevent unevenness in the picture.

ILLUMINATION AND LIGHT SOURCE



Illuminate by placing the light source behind the diffusion glass. When duplicating black and white film, use flood lamp, fluorescent lamp or natural daylight. When duplicating color film, use the same film as the original and select the best light source for that film in order to get natural color reproduction.

Light Source / Film Type	Flood Lamp	Natural Daylight Against Frosted Glass	Ordinary Light Bulb
Daylight Type	CCB (12)	◎	X
Tungsten Type	◎	CCA (12)	CCB

◎ Can be used as light source.
CCA Color conversion filter A (Equivalent to 12)
CCB Color conversion filter B (Equivalent to 12)
x Cannot be used.

■ The combination of tungsten type and flood lamp, or of daylight type and indoor light are best for good color reproduction.

■ Color temperature conversion of tungsten type film is difficult, so the use of daylight type film is recommended.

■ When using a color temperature conversion filter, make the exposure compensation according to the filter factor in addition to compensation with photographic magnification.

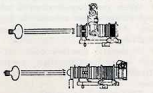
■ Unevenness arises on the slide according to the temperature of the light source. Therefore, always keep the aperture smaller than f/5.6.

■ When using unmounted film, be careful that strong light does not enter the slide insertion slot.

EXPOSURE

In slide duplication, the light passing through the film is photographed. Therefore, when measuring the exposure by the ordinary method, the figure obtained sometimes cannot be used as it is due to the density of the film. When using the Canon Slide Duplicator, the light measured with the F-1, EF, FTb, TX, FT and Pellix QL is accurate.
With the FX or FP, the film surface is measured with an exclusive exposure meter and then compensated with the exposure factor. In this way an accurate exposure is obtained.
1. Measuring the film surface.
Disconnect the duplicator and the lens, contract the bellows of the duplicator, and set. When measuring, place the light receiving section of the FX or FP exposure meter as close as possible to the film surface, compensate the obtained figure with the exposure factor. Using this method, the correct exposure corresponding to the density of the film can be obtained.
2. Ordinary measuring method.
The exposure is measured in front of the light diffusion glass, when using a light infiltration exposure meter. The light is measured by facing the meter toward the light source. This figure is compensated with the exposure factor.

When using a reflecting exposure meter, the reflecting light of the standard reflector plate is measured at the same position. The aperture is then increased by 0.8–1 stop. This figure is compensated with the exposure factor. In either case, experience is necessary to assure an accurate judgement regarding the density of the film.
3. Exposure factor compensation.
Please use the following chart.



Classification	Lens \ Bellows FL	50	60	70	80	90
Shooting Distance (mm)	FD 50mm f/3.5 S.S.C.	208	209	213	218	224
	FD 50mm f/1.8 S.C.	197	198	202	207	214
	FD 50mm f/1.4 S.S.C.	189	190			
	(FD 55mm f/1.2 S.S.C.)	(201)	(201)	(204)		
Magnification		0.97 (0.91)	1.16 (1.09)	1.36 (1.27)	1.55	1.74
Exposure Factor		3.9 (3.6)	4.6 (4.4)	5.5 (5.2)	6.5	7.5
Aperture Adjustment		2 stops	2-1/4 (2)	2-1/2 (2-1/4)	2-3/4 (2-1/2)	3 (2-3/4)

Figures inside parentheses are for use with 55mm f/1.2 lens.
Keep the distance scale of the lens set at infinity.

PRECAUTIONS when using Bellows FL

- When the magnification is large, the slightest movement will blur the duplicated film. Always use a cable release when shooting.
- Automatic aperture does not couple with lenses for Canonflex. In this case, attach after pushing down the charge lever.
- The camera cannot be changed to a vertical position because the Canon Slide Duplicator has a coupled diaphragm mechanism.
- In macrophotography, set the distance ring of the lens at infinity.
- In macrophotography, the corners of the slide may not appear in the viewfinder but this will not affect the photographed image.
- In close-up photography and macrophotography the use of an incident ray exposure meter is recommended.

CHART FOR CALCULATING PHOTOGRAPHIC MAGNIFICATION

Lens Protrusion Lengths for Various Attachments			Lengths of protrusion when the FL lens is reversed
Bellows FL		34.5 – 142.5mm	FD 50mm f/1.8 S.C. 34.56mm
Bellows M		33 – 145mm	FD 50mm f/1.4 S.S.C. 47.00mm
Extension Tube FL 15		15mm	FD 50mm f/1.2 S.S.C. 45.72mm
Extension Tube FL 25		25mm	FD 50mm f/3.5 S.S.C. 35.45mm
Extension Tube M 5		5mm	FL 50mm f/1.8 36.62mm
M 10		10mm	FL 50mm f/1.4 49.02mm
M 20		20mm	FL 55mm f/1.2 45.76mm
Macrophoto Coupler FL	48mm	24mm + 13mm	FL 58mm f/1.2 37.85mm
Macrophoto Coupler FL	55mm	20mm + 13mm	
Macrophoto Coupler FL	58mm	20mm + 13mm	
Lens Mount Coverter A		2.8mm	
Lens Mount Converter B		13.2mm	
Extension Tube	6mm	6mm	
	9mm	9mm	
	12mm	12mm	
	25mm	25mm	
	50mm	50mm	
	75mm	75mm	
	100mm	100mm	
	150mm	150mm	
	170mm	170mm	
	200mm	200mm	

Macro Lens FD 50mm f/3.5 S.S.C.
Picture Size : 24 x 36mm
Lens Construction : 6 elements in 4 groups
Coating : Super Spectra Coating
Angle of View : Horizontal 40°, Vertical 27°, Diagonal; 46°
Focusing Adjustment : Helicoid focusing
Distance Scale : When used independently; 23.2cm-3m (9.1"-10'), ∞
When used with the Extension Tube FD 25; 20.5-23.2cm (8.1"-9.1")
Magnification Ratio Scales : When used independently; 1/2 to 1/10 times
When used with the Extension Tube FD 25; 1 to 1/2 times.
Mount : FD mount with lock, five signal couplings.
Aperture : Fully automatic aperture, manual lock possible.
Aperture Scale : 3.5 to 22 and "A" mark, EE lock available
Depth-of-Field Scales and Infrared Index Mark: Available.
Filter Diameter : 55mm
Size and Weight : Maximum diameter 59.5mm, Length 65.8mm, Weight 310g

FD 50mm f/3.5 S.S.C.

FD 100mm f/4 S.C.

Macro Lens FD 100mm f/4 S.C.
Picture Size : 24 x 36mm
Lens Construction : 5 elements in 3 groups
Coating : Spectra Coating
Angle of View : Horizontal; 20°, Vertical; 14°, Diagonal; 24°
Focusing Adjustment : Helicoid focusing
Distance Scale : When used independently; 0.45-7m (1.48'-15'), ∞
When used with the Extension Tube FD 50; 40-45cm (1.31'-1.48')
Magnification Ratio Scales : When used independently; 1/2 to 1/10 times
When used with the Extension Tube FD 50; 1 to 1/2 times.
Mount : FD mount with lock, five signal couplings.
Aperture : Fully automatic aperture, manual lock possible.
Aperture Scale : 4 to 32 and "A" mark, EE lock available
Depth-of-Field Scales and Infrared Index Mark: Available
Filter Diameter : 55mm
Size and Weight : Maximum diameter 66.8mm, Length 112mm, Weight 530g