CANON MACROPHOTO LENSES

Canon Macrophoto Lenses 20mm f/3.5 and 35mm f/2.8 are designed exclusively for high-magnification macrophotography and are used jointly with a bellows.
When these lenses are used together with a bellows, magnifications of from two to 10 times the actual subject can be obtained in continuous alterations.
Ordinary lenses are designed for reductions in sizes. Therefore, they are not suited for magnification larger than life size. Canon Macrophoto Lenses do not have this shortcoming. In fact, they have improved quality for macrophotography. At the same time, by utilizing the characteristics of high-magnification photography, these lenses can be used for producing slides from 16mm and 8mm films.

Features

1. High-magnification macrophotography can be easily performed with Canon Macrophoto Lenses when they are jointly used with a bellows.
2. Unlike ordinary lenses, Canon Macrophoto Lenses are compactly designed.
3. The lens barrels are designed short and the front part is gently tapered for easy entrance of illumination.
4. High magnification is obtained with slight lens extension because the Canon Macrophoto Lenses have short focal lengths.
5. Depth of field effects can be utilized because the aperture of these lenses can be stopped down to f/22.
6. Sharp images can be obtained with Canon Macrophoto Lenses because the coma is held to a minimum.

Technical Data

Focal length:	20 mm	35 mm
Maximum aperture:	f/3.5	f/2.8
Picture size:	24 mm × 36 mm	24 mm × 36 mm
Lens construction:	3 components, 4 elements	4 components, 6 elements
Coating:	Spectra coating (SC)	Spectra coating (SC)
Aperture scale:	3.5 to 22, click-stop type	2.8 to 22, click-stop type
Aperture mechanism:	Manual type with operating lever	Manual type with operating lever
Flange focal distance:	5.0 mm	15.0 mm
Focusing mechanism:	None, done by bellows	None, done by bellows
Front diameter:	22.5 mm, with name ring	22.5 with name ring
Mounting thread:	20.32, same as attaching screw of object lens of microscope	20.32, same as attaching screw of object lens of microscope
Magnification range:	4 to 10 times	1.8 to 5 times
Magnification when used with Auto Bellows:	3.93 to 10.72 times	1.96 to 5.84 times
Film-to-subject distance:	123.5 mm to 256.3 mm	149.1 mm to 273.2 mm
Lens front tip-to-subject distance:	19.9 mm to 16.65 mm	43.0 mm to 31.1 mm
Magnification when used with Bellows M:	3.73 to 9.07 times	1.84 to 4.9 times
Film-to-subject distance:	119.8 mm to 223.6 mm	146.2 mm to 241.4 mm
Lens front tip-to-subject distance:	20.2 mm to 17.0 mm	44.1 mm to 32.3 mm
Enlarging and duplicating of movie films:	Use Duplicator 8	Use Duplicator 16
Size:	20 mm (overall length) × 32 mm (max. dia.)	22.5 mm (overall length) × 40 mm (max. dia.)
Weight:	35 g	60 g
Related products:	Macrophoto Lens Adapter, Plastic case	

Specifications subject to change without notice.

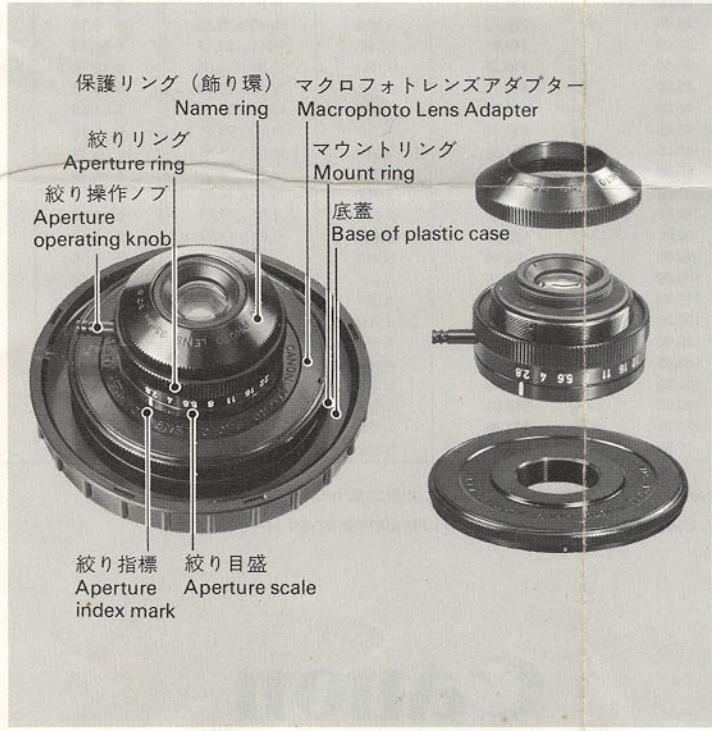
Removing Lens from Plastic Case

1. The Canon Macrophoto Lens is packed in a plastic case. Unscrew and remove the plastic case cover.
2. The Macrophoto Lens, attached with a Macrophoto Lens Adapter, is mounted on the base of the plastic case. Turn the outer mount ring counterclockwise for removing the Macrophoto Lens from the base of the plastic case.
3. The lens can be screwed off the adapter.

Attaching Onto Mount

Keep the Macrophoto Lens Adapter attached when attaching the Macrophoto Lens onto the bayonet mounts of the bellows, extension tube, camera body and the base of the plastic case.
As in the case of ordinary FD lenses, a Macrophoto Lens is attached after first aligning the red dot on the mount ring with the positioning pin at the bottom of the ring.

Plastic case



キヤノン
キヤノン
F2.8は，
ズ併用レ
実物の2
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すから，
その欠点
高倍撮影
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1．ベロ
でき
2．通常
設計
3．鏡筒
れ易
4．短焦
す．
5．F22
す．
6．コマ
れま

Photographing Procedures with Reference to the Instruction Chart

1. Decide the magnification at which photography is to be performed.
2. Decide the positions of the camera according to the shooting distance. The shooting distance should be actually measured from the film plane mark engraved on the camera.
3. Read the bellows scale and move the lens forward.
4. Peer into the finder and focus with the lens set at full aperture opening.
5. Perform stopped-down metering.
6. Press the shutter release button.

Photography

Use an f/stop of approximately f/8 when photographing a flat subject. If the subject is three-dimensional, close down the aperture further to deepen the depth of field. Then check the image in the finder with the aperture in a stopped-down condition.

* Due to high magnification photography, there is a mirror cut-off effect on the upper part of the viewfinder. However, the entire picture will be exposed on the film.
* Tubes (FL, M, FD) can be interposed between the Macrophoto Lens and bellows.
* The slightest movement of the camera causes blurring in high-magnification photography. Therefore, attach the camera to a large size tripod, copy stand or macro stage and use a cable release.
* Even the slightest vibration unnoticed by the photographer affects the picture quality when slow shutter speeds are used. Therefore, choose places with no vibration.
* Proper metering sometimes cannot be obtained with closed-down small apertures. In these cases, perform metering at full aperture opening and then make exposure conversions. For example, if the aperture is closed down one step further than the proper value, then slow down the shutter speed by one step.
* Use as powerful an illumination as possible to avoid using slow shutter speeds.
* Color corrections become necessary when slow shutter speeds are used. Therefore, follow the instructions outlined in the film instruction sheet.
* For the use of bellows, refer to its instruction booklet.

Instruction Charts

使用表

20mm *f*/3.5

Lens attached in ordinary direction

レンズ正向き.

Length of intermediate tubes and bellows scale (mm) チューブ長およびベローズ目盛	Shooting Distance (mm) 撮影距離	Reproduction ratio 撮影倍率	Field of View (mm) 画 界	Shooting Distance (in)	Field of View (in)
5.00	93.37	2.228	10.77×16.15	3-11/16	7/16×10/16
10.00	97.46	2.478	9.68×14.53	3-13/16	6/16× 9/16
15.00	101.72	2.728	8.80×13.20	4- 0/16	6/16× 8/16
20.00	106.11	2.978	8.06×12.09	4- 3/16	5/16× 8/16
25.00	110.59	3.228	7.44×11.15	4- 6/16	5/16× 7/16
30.00	115.14	3.478	6.90×10.35	4- 9/16	4/16× 7/16
35.00	119.76	3.728	6.44× 9.66	4-11/16	4/16× 6/16
39.00	123.48	3.927	6.11× 9.17	4-14/16	4/16× 6/16
40.00	124.42	3.977	6.03× 9.05	4-14/16	4/16× 6/16
45.00	129.12	4.227	5.68× 8.52	5- 1/16	4/16× 5/16
50.00	133.86	4.477	5.36× 8.04	5- 4/16	3/16× 5/16
55.00	138.62	4.727	5.08× 7.62	5- 7/16	3/16× 5/16
60.00	143.41	4.977	4.82× 7.23	5-10/16	3/16× 5/16
70.00	153.04	5.476	4.38× 6.57	6- 0/16	3/16× 4/16
80.00	162.74	5.976	4.02× 6.02	6- 7/16	3/16× 4/16
90.00	172.48	6.476	3.71× 5.56	6-13/16	2/16× 4/16
100.00	182.26	6.975	3.44× 5.16	7- 3/16	2/16× 3/16
110.00	192.06	7.475	3.21× 4.82	7- 9/16	2/16× 3/16
120.00	201.90	7.975	3.01× 4.51	7-15/16	2/16× 3/16
130.00	211.75	8.474	2.83× 4.25	8- 5/16	2/16× 3/16
142.00	223.59	9.074	2.64× 3.97	8-13/16	2/16× 2/16
150.00	231.50	9.474	2.53× 3.80	9- 2/16	2/16× 2/16
160.00	241.39	9.973	2.41× 3.61	9- 8/16	2/16× 2/16
170.00	251.30	10.473	2.29× 3.41	9-14/16	1/16× 2/16
175.00	256.25	10.723	2.24× 3.36	10- 1/16	1/16× 2/16

35mm *f*/2.8

Length of intermediate tubes and bellows scale (mm) チューブ長およびベローズ目盛
5.00
10.00
15.00
20.00
25.00
30.00
35.00
39.00
40.00
45.00
50.00
55.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00
130.00
142.00
150.00
160.00
170.00
175.00

1. Charts show particulars as to the shooting distance, reproduction ratios and picture field size when the lens is moved forward w
2. When an independent meter is used, exposure compensation according to reproduction ratio becomes necessary. Please refer t

1.表は，エクステンションチューブまたはベローズを繰出した場合の撮影距離，撮影倍率，画界をまとめたものです.

2.単独露出計を使用した場合は，撮影倍率に応じて露出補正が必要になります．補正表を添付しましたのでご参照ください.

おこしますが，フィルムには写し込まれます．

35mm f/2.8

Lens attached in ordinary direction
レンズ正向き．

Length of intermediate tubes and bellows scale (mm) チューブ長および ベローズ目盛	Shooting Distance (mm) 撮影距離	Reproduction ratio 撮影倍率	Field of View (mm) 画 界	Shooting Distance (in)	Field of View (in)
5.00	132.70	0.987	24.30×36.46	5- 4/16	15/16×1-7/16
10.00	133.22	1.130	21.24×31.85	5- 4/16	13/16×1-4/16
15.00	134.74	1.273	18.86×28.28	5- 5/16	12/16×1-2/16
20.00	136.97	1.415	16.96×25.43	5- 6/16	11/16×1-1/16
25.00	139.70	1.558	15.40×23.10	5- 8/16	10/16×15/16
30.00	142.81	1.701	14.11×21.17	5-10/16	9/16×13/16
35.00	146.22	1.844	13.02×19.53	5-12/16	8/16×12/16
39.00	149.11	1.958	12.26×18.39	5-14/16	8/16×12/16
40.00	149.85	1.986	12.08×18.13	5-14/16	8/16×11/16
45.00	153.67	2.129	11.27×16.91	6- 1/16	7/16×11/16
50.00	157.64	2.272	10.57×15.85	6- 3/16	7/16×10/16
55.00	161.72	2.414	9.94×14.91	6- 6/16	6/16× 9/16
60.00	165.91	2.557	9.39×14.08	6- 9/16	6/16× 9/16
70.00	174.54	2.842	8.44×12.67	6-14/16	5/16× 8/16
80.00	183.41	3.128	7.67×11.51	7- 4/16	5/16× 7/16
90.00	192.48	3.413	7.03×10.55	7- 9/16	4/16× 7/16
100.00	201.68	3.698	6.49× 9.73	7-15/16	4/16× 6/16
110.00	211.00	3.984	6.02× 9.04	8- 5/16	4/16× 6/16
120.00	220.42	4.269	5.62× 8.43	8-11/16	4/16× 5/16
130.00	229.90	4.554	5.27× 7.90	9- 1/16	3/16× 5/16
142.00	241.36	4.897	4.90× 7.35	9- 8/16	3/16× 5/16
150.00	249.05	5.125	4.68× 7.02	9-13/16	3/16× 4/16
160.00	258.69	5.410	4.44× 6.65	10- 3/16	3/16× 4/16
170.00	268.36	5.696	4.21× 6.32	10- 9/16	3/16× 4/16
175.00	273.21	5.838	4.11× 6.17	10-12/16	3/16× 4/16

e lens is moved forward with the use of extension tubes or bellows.
s necessary. Please refer to the exposure calculation chart above right.
す．
照ください．

撮影倍率に対する絞りの換算値（目安）
Exposure calculation chart: Reproduction ratio and corresponding exposure correction (f/stops) figures (these figures are approximations)

Reproduction ratio 撮影倍率	Exposure correction (f/stops) 絞りを開く量	Reproduction ratio 撮影倍率	Exposure correction (f/stops) 絞りを開く量
1.0	2	5.6	5 1/2
1.2	2 1/4	5.8	5 1/2
1.4	2 1/2	6.0	5 1/2
1.5	2 3/4	6.2	5 3/4
1.6	2 3/4	6.4	5 3/4
1.8	3	6.5	5 3/4
2.0	3 1/4	6.6	5 3/4
2.2	3 1/4	6.8	6
2.4	3 1/2	7.0	6
2.5	3 1/2	7.2	6
2.6	3 3/4	7.4	6 1/4
2.8	3 3/4	7.5	6 1/4
3.0	4	7.6	6 1/4
3.2	4 1/4	7.8	6 1/4
3.4	4 1/4	8.0	6 1/4
3.5	4 1/4	8.2	6 1/2
3.6	4 1/2	8.4	6 1/2
3.8	4 1/2	8.5	6 1/2
4.0	4 3/4	8.6	6 1/2
4.2	4 3/4	8.8	6 1/2
4.4	4 3/4	9.0	6 3/4
4.5	5	9.2	6 3/4
4.6	5	9.4	6 3/4
4.8	5	9.5	6 3/4
5.0	5 1/4	9.6	6 3/4
5.2	5 1/4	9.8	6 3/4
5.4	5 1/4	10.0	7
5.5	5 1/2		

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