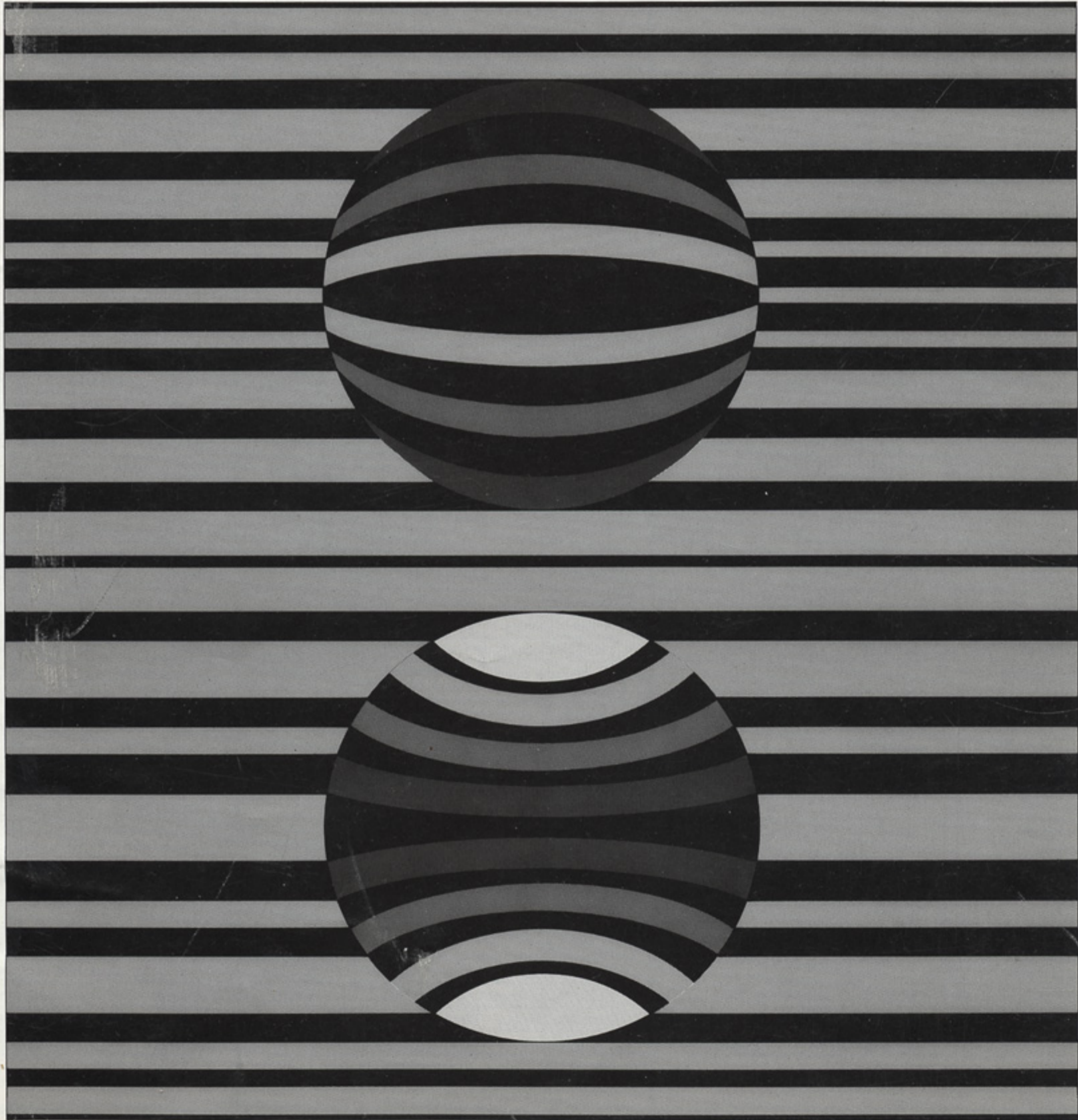


FUJINON PROFESSIONAL LENSES





FUJINON PROFESSIONAL LENSES

**A New Dimension
in Versatility
and Quality!**

Professional photographers long faced the expensive proposition of needing a whole array of lenses to cover the wide scope of their work. Determined to find a remedy, Fuji Film analyzed and studied this predicament. And the result is a lens group that covers the widest range of photographic situations with the fewest lenses.

Each of these optical gems embodies the same superb characteristics because each step of the manufacturing process — from raw optical glass to finished product — is done only by Fuji Film. This is the Fujinon Professional Lens Series!



Perfect Image Rendition

Exhaustive computer studies were utilized to perfect this series of completely colorless lenses to provide ideal spectral absorption and transmission over the entire spectrum from ultra-violet to infrared. Entirely free of bluish and yellowish cast, these lenses deliver the ultimate in clear, sharp images.

The high standards of modern photography also require that the texture of the subject itself be faithfully reproduced. And Fujinon Professional Lenses are unsurpassed from this viewpoint because the superb resolution plus

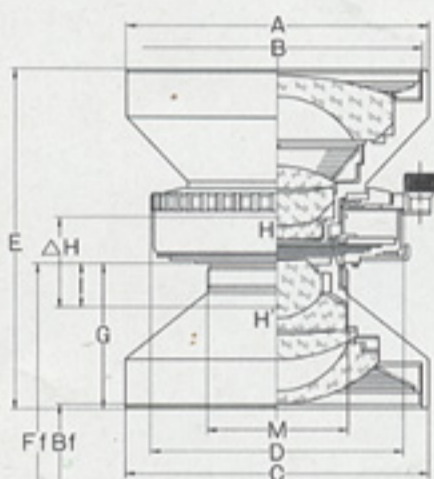
freedom from objective aberration and internal flare means distortion-free definition right down to the tiniest detail! Perfect light distribution from edge-to-edge also guarantees absolute uniformity throughout the picture area.

EBC Coating

Fuji Film's exclusive Electron Beam Coating (EBC) is applied on the most widely used standard lenses of the Fujinon Professional Lens Series, as well as on those of large-aperture and ultra wide-angle types. This multi-coating process virtually eliminates internal reflection so there is almost no ghost or flare.

EBC FUJINON·SWD

A deluxe super-wideangle lens. Even with the large diameter and ultra-wideangle, image quality is superb. And Fuji's exclusive EBC (Electron Beam Coating) process virtually eliminates glare, flare and ghost while assuring exceptional color balance.



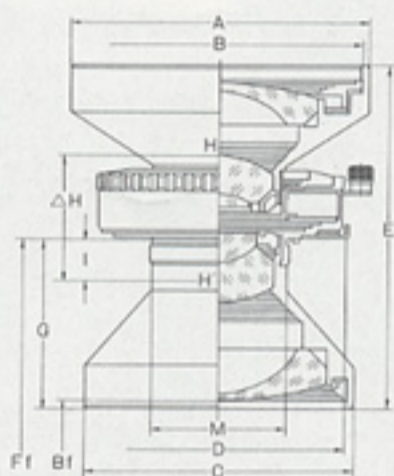
		EBC FUJINON-SWD		
Focal length		New SWDS 65	75	90
Maximum aperture		5.6		
Lens configuration (comp — elem)		6—8		
Angle of coverage (f/22)		105°		
Image circle (f/22)		169φ	196φ	236φ
Recommended film size (f/22)		4"x5"	4 ³ / ₄ "x6 ¹ / ₂ "	5"x7"
Shutter type		Seiko # 0		
Shutter speeds		B, 1 ~ 1/500		
Minimum aperture		45	64	
Press focus lever		Available		
Synch terminals		X		
Designed focal length		65.0	75.0	90.0
Front barrel outer diameter (A)		70φ		85φ
Filter size (B)		67φ P = 0.75		82φ P = 0.75
Rear barrel outer diameter (C)		65φ	70φ	80φ
Maximum diameter of shutter (D)		58.5φ		
Flange mount thread size (M)		32.5φ P = 0.5		
Overall length (E)		68	75	90.5
Principal interval (ΔH)		21.3	24.5	29.4
Distance from flange to second principal point (I)		8.4	10.0	12.6
Distance from flange to rear end of barrel (G)		29.0	32.5	39.5
Flange focal length (Ff)		73.4	85.0	102.6
Back focal length (Bf)		46.2	53.5	64.0
Weight (g)		315	400	605

Length unit: mm

* Charts shown in green indicate EBC coated lenses.

FUJINON·SWS

All five of these lenses cover a wide 100° angle at $f/22$ and produce images that are sharp corner-to-corner. The outstanding features include virtually perfect correction of aberration, compact design, elimination of color fringe diffusion, natural color reproduction and exceptional color balance.

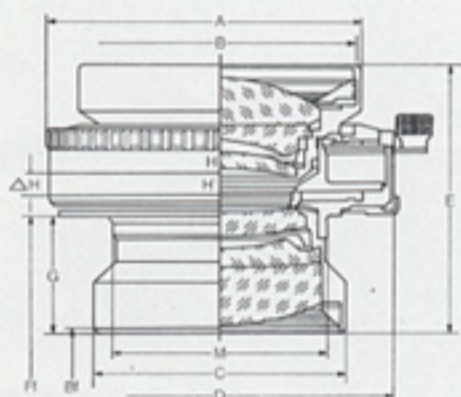


	FUJINON·SWS			
Focal length	65	75	90	105
Maximum aperture	8			
Lens configuration (comp — elem)	4—6		6—6	4—6
Angle of coverage (f/22)	100°			
Image circle (f/22)	155φ	181φ	216φ	250φ
Recommended film size (f/22)	4"x5"		5"x7"	6½"x8½"
Shutter type	Seiko # 0		Copal # 0	Seiko # 0
Shutter speeds	B,1 ~ 1/500		T,B,1 ~ 1/500	B,1 ~ 1/500
Minimum aperture	45	64		
Press focus lever	Available			
Synch terminals	X			
Designed focal length	64.9	75.0	90.0	105.2
Front barrel outer diameter (A)	54φ	60φ	70φ	
Filter size (B)	52φ P = 0.75	58φ P = 0.75	67φ P = 0.75	
Rear barrel outer diameter (C)	48φ	54φ	65φ	70φ
Maximum diameter of shutter (D)	58.5φ		61φ	58.5φ
Flange mount thread size (M)	32.5φ P = 0.5			
Overall length (E)	59.4	66.5	83.0	88.5
Principal interval (ΔH)	21.3	24.2	28.1	34.4
Distance from flange to second principal point (I)	6.7	8.3	8.7	11.7
Distance from flange to rear end of barrel (G)	29.6	33.5	40.2	50.5
Flange focal length (Ff)	71.6	83.3	98.7	116.9
Back focal length (Bf)	44.1	51.3	60.8	71.5
Weight (g)	220	290	425	405

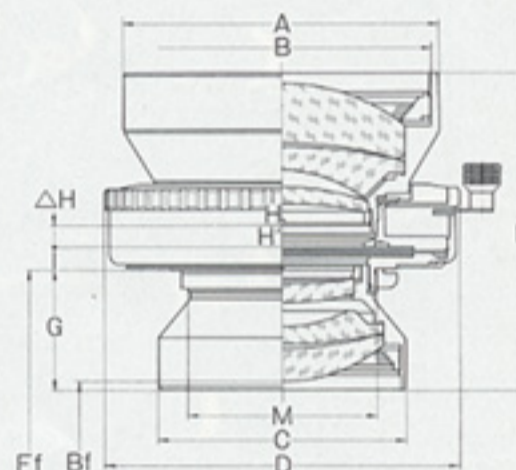
Length unit: mm

EBC FUJINON·WS / EBC FUJINON·NWS

Included in this series are 3 lenses with focal lengths of 150 mm, 300 mm and 360 mm. The 80° angle of coverage is 10° greater than with similar lenses from other manufacturers and is suitable for both short and long-distance work. Aberration and glare are close to zero. And high resolution plus rich gradation combine to faithfully reproduce both colors and textures. This fine series of all-professional lenses is suitable for both hard and soft work. Fujinon·WS 300 mm and 360 mm lenses are coated by EBC (Electron Beam Coating) process.



The Fujinon·NWS Series features Fuji Film's exclusive EBC (Electron Beam Coating). Color balance has the same amazing uniformity for which Fujinon Lenses are famous, yet sharpness is better than ever before. This is because EBC greatly reduces reflection, which in turn enables better contrast and correction of aberration using more complex configurations of elements.



	FUJINON·WS	EBC FUJINON·WS	
Focal length	.150	300	360
Maximum aperture	6.3	5.6	6.3
Lens configuration (comp — elem)	3—4	4—6	
Angle of coverage (f/22)	67°	80°	
Image circle (f/22)	198φ	420φ	485φ
Recommended film size (f/22)	4 3/4" x 6 1/2"	(10" x 12")	11" x 14"
Shutter type	Seiko # 0	Copal # 3	
Shutter speeds	B, 1 ~ 1/500	T, B, 1 ~ 1/125	
Minimum aperture	64	90	
Press focus lever		Available	
Synch terminals		X	
Designed focal length	150.5	299.1	359.2
Front barrel outer diameter (A)	42φ	80φ	90φ
Filter size (B)	40.5φ P = 0.5	77φ P = 0.75	86φ P = 1.0
Rear barrel outer diameter (C)	31φ	70φ	80φ
Maximum diameter of shutter (D)	58.5φ	102.4φ	
Flange mount thread size (M)	32.5φ P = 0.5	61φ P = 0.75	
Overall length (E)	33.3	95.0	113.5
Principal interval (ΔH)	1.9	8.0	9.6
Distance from flange to second principal point (I)	7.0	6.2	6.5
Distance from flange to rear end of barrel (G)	9.1	43.8	53.8
Flange focal length (Ff)	143.5	292.9	352.7
Back focal length (Bf)	137.3	250.5	300.8
Weight (g)	180	1228	1533

Length unit: mm

* Charts shown in green indicate EBC coated lenses.

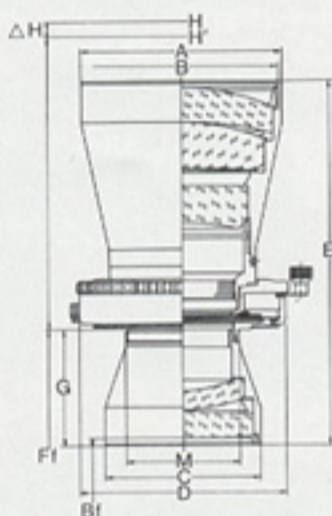
	EBC FUJINON·NWS							
Focal length	105	125	135	150	180	210	250	
Maximum aperture	5.6							6.3
Lens configuration (comp — elem)	6—6					5—6	4—6	
Angle of coverage (f/22)	76°					71°	64°	
Image circle (f/22)	162φ	198φ	206φ	224φ	280φ	300φ	312φ	
Recommended film size (f/22)	4" x 5"	4 3/4" x 6 1/2"	(5" x 7")	5" x 7"	(6 1/2" x 8 1/2")	(8" x 10")	8" x 10"	
Shutter type	Copal # 0				Copal # 1			
Shutter speeds	T, B, 1 ~ 1/500				T, B, 1 ~ 1/400			
Minimum aperture	45	64						
Press focus lever	Available							
Synch terminals	X							
Designed focal length	104.5	124.9	134.9	150.0	180.0	209.3	249.9	
Front barrel outer diameter (A)	48φ	57φ	54φ	57φ	65φ	70φ		
Filter size (B)	46φ P = 0.75	55φ P = 0.75	52φ P = 0.75	55φ P = 0.75	62φ P = 0.75	67φ P = 0.75		
Rear barrel outer diameter (C)	37φ	42φ		45φ	51φ			
Maximum diameter of shutter (D)	61φ					73φ		
Flange mount thread size (M)	32.5φ P = 0.5				39φ P = 0.75			
Overall length (E)	43.5	50.5	51.0	57.0	64.5	70.0	83.0	
Principal interval (ΔH)	-2.9	-3.4	-2.7	-3.0	-1.8	-0.2	2.0	
Distance from flange to second principal point (I)	4.7	4.9	7.3	7.0	0.4	4.9	21.4	
Distance from flange to rear end of barrel (G)	15.2	18.7		21.7	24.6	27.6	29.6	
Flange focal length (Ff)	99.8	120.0	127.6	143.0	179.6	204.4	228.5	
Back focal length (Bf)	87.2	103.8	110.7	123.2	156.1	178.3	200.2	
Weight (g)	185	123	200	235	400	465	590	

Length unit: mm

* Charts shown in green indicate EBC coated lenses.

EBC FUJINON·TS

EBC Fujinon·TS is especially designed for press cameras with long focal-length telephoto lenses. EBC Fujinon·TS ensures excellent sharpness and color balance.



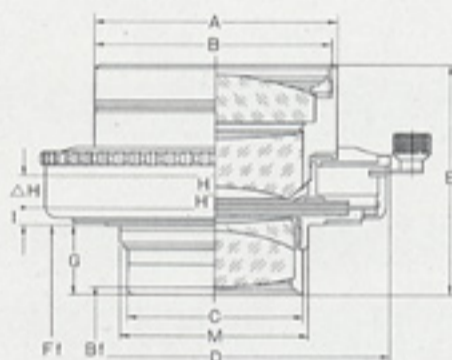
		EBC FUJINON·TS	
Focal length		400	600
Maximum aperture		8	12
Lens configuration (comp — elem)		5—5	
Angle of coverage	(f/22)	31°	24°
Image circle	(f/22)	220φ	260φ
Recommended film size	(f/22)	5"x7"	6½"x8½"
Shutter type		Copal # 1	
Shutter speeds		T,B,1 ~ 1/400	
Minimum aperture		64	90
Press focus lever		Available	
Synch terminals		X	
Designed focal length		399.1	589.6
Front barrel outer diameter	(A)	70φ	
Filter size	(B)	67φ P = 0.75	
Rear barrel outer diameter	(C)	54φ	57φ
Maximum diameter of shutter	(D)	73φ	
Flange mount thread size	(M)	39φ P = 0.75	
Overall length	(E)	130.5	179.0
Principal interval	(ΔH)	38.7	66.4
Distance from flange to second principal point	(l)	139.9	205.7
Distance from flange to rear end of barrel	(G)	43.6	63.5
Flange focal length	(Ff)	259.2	383.9
Back focal length	(Bf)	220.7	324.4
Weight	(g)	700	980

Length unit: mm

* Charts shown in green indicate EBC coated lenses.

FUJINON·LS

The three lenses in this series come in focal lengths of 210 mm, 300mm and 420 mm. All are compact, economical and, despite the long focal lengths, have a wide coverage approaching that of a normal lens. Unlike conventional Tessar type lenses, these have unusually high resolution. With rich gradation, fine detail definition and excellent color balance, this series is ideal for color portrait work.

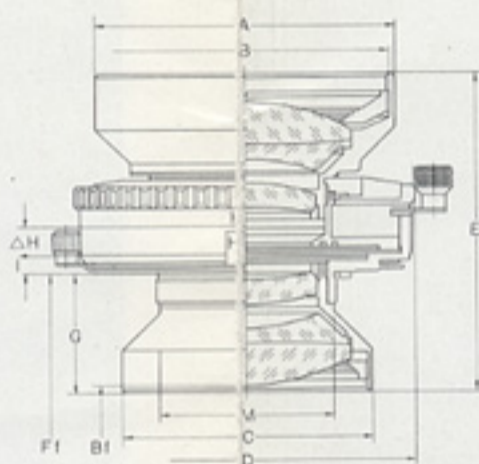


		FUJINON·LS		
Focal length		210	300	420
Maximum aperture		5.6		8
Lens configuration (comp — elem)		3—4		
Angle of coverage	(f/22)	59°		53°
Image circle	(f/22)	240φ	343φ	480φ
Recommended film size	(f/22)	5"x7"	8"x10"	10"x12"
Shutter type		Copal # 1	Copal # 3	
Shutter speeds		T,B,1 ~ 1/400	T,B,1 ~ 1/125	
Minimum aperture		64		
Press focus lever		Available		
Synch terminals		X		
Designed focal length		206.5	301.0	420.9
Front barrel outer diameter	(A)	51φ	70φ	
Filter size	(B)	49φ P = 0.75	67φ P = 0.75	
Rear barrel outer diameter	(C)	37φ	60φ	
Maximum diameter of shutter	(D)	73φ	102.4φ	
Flange mount thread size	(M)	39φ P = 0.75	61φ P = 0.75	
Overall length	(E)	49.0	74.0	88.2
Principal interval	(ΔH)	7.9	11.5	10.4
Distance from flange to second principal point	(l)	13.6	20.3	23.3
Distance from flange to rear end of barrel	(G)	14.7	22.8	30.0
Flange focal length	(Ff)	192.9	280.7	397.6
Back focal length	(Bf)	179.6	261.8	371.3
Weight	(g)	320	800	900

Length unit: mm

EBC FUJINON·AS

These four models can truly be designated "super-apochromatic lenses." Special optical glass and design goes into each of these 6-element lenses. Residual color aberration has been corrected close to perfection. As a result, there is no color diffusion, despite the long focal lengths. Compact enough to be easily used for location work, each lens delivers the fine performance required for long-distance work as well as the outstanding gradation, detail definition and texture rendition so essential for close-ups and small subjects.



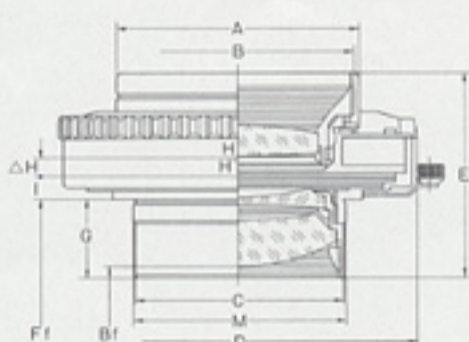
	EBC FUJINON·AS			FUJINON·AS
	180	240	300	360
Focal length	180	240	300	360
Maximum aperture	9			10
Lens configuration (comp — elem)	4—6			
Angle of coverage (f/22)	70°			
Image circle (f/22)	252φ	336φ	420φ	504φ
Recommended film size (f/22)	6½"×8½"	8"×10"	10"×12"	11"×14"
Shutter type	Copal # 0		Copal # 1	
Shutter speeds	T,B,1 ~ 1/500		T,B,1 ~ 1/400	
Minimum aperture	90			
Press focus lever	Available			
Synch terminals	X			
Designed focal length	180.3	240.4	300.2	359.7
Front barrel outer diameter (A)	48φ	54φ	57φ	60φ
Filter size (B)	46φ P = 0.75	52φ P = 0.75	55φ P = 0.75	58φ P = 0.75
Rear barrel outer diameter (C)	37φ	45φ	54φ	
Maximum diameter of shutter (D)	61φ		73φ	
Flange mount thread size (M)	32.5φ P = 0.5		39φ P = 0.75	
Overall length (E)	45.0	55.0	63.5	76.5
Principal interval (ΔH)	2.3	3.1	4.0	4.7
Distance from flange to second principal point (l)	2.1	2.5	0.8	0.7
Distance from flange to rear end of barrel (G)	16.7	21.7	28.1	34.5
Flange focal length (Ff)	178.2	237.9	299.4	359.1
Back focal length (Bf)	163.3	217.6	272.0	325.6
Weight (g)	170	225	410	465

Length unit: mm

* Charts shown in green indicate EBC coated lenses.

FUJINON·SFS

Ideal for portraiture, Fujinon·SFS Lenses save time and labor because retouching is ordinarily completely unnecessary. Both are 3-component, 3-element lenses — an unusual configuration for soft-focus lenses. Provision for “softness control” offers greater freedom of expression, including such techniques as intentional halo and vignette. Tones are natural and highlights are outstanding.

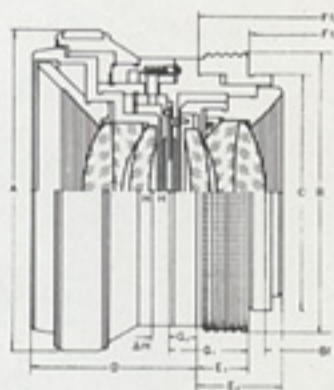


		FUJINON·SFS	
Focal length		180	250
Maximum aperture		5.6	
Lens configuration (comp — elem)		3—3	
Angle of coverage (f/22)		58°	
Image circle (f/22)		200φ	300φ
Recommended film size (f/22)		4 ³ / ₄ "x6 ¹ / ₂ "	8"x10"
Shutter type		Copal # 1	Copal # 3
Shutter speeds		T,B,1 ~ 1/400	T,B,1 ~ 1/125
Minimum aperture		22	
Press focus lever		Available	
Synch terminals		X	
Designed focal length		180.2	250.9
Front barrel outer diameter (A)		48φ	70φ
Filter size (B)		46φ P = 0.75	67φ P = 0.75
Rear barrel outer diameter (C)		42φ	60φ
Maximum diameter of shutter (D)		73φ	102.4φ
Flange mount thread size (M)		39φ P = 0.75	61φ P = 0.75
Overall length (E)		42.5	61.0
Principal interval (ΔH)		2.7	4.3
Distance from flange to second principal point (I)		3.9	6.9
Distance from flange to rear end of barrel (G)		17.6	22.8
Flange focal length (Ff)		176.3	257.8
Back focal length (Bf)		159.9	237.7
Weight (g)		240	550

Length unit: mm

Enlarger Lenses FUJINON·EP

Fujinon·EP lenses boast an elaborate 4-component, 6-element symmetrical design, and offer faithful corner-to-corner reproduction of negatives. Color aberration is fully corrected to the near-ultraviolet range; their sharpness and detail definition are truly excellent — with room to spare at full aperture. They are fine enlarger lenses for such work as photomurals, microfilm blow-ups and map-making.

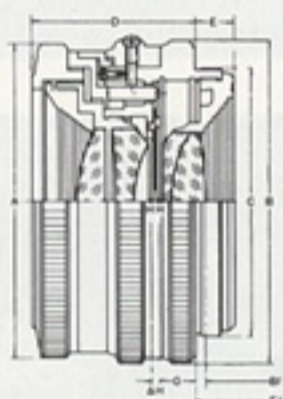


	FUJINON·EP					
Focal length	38	50	75	90	105	135
Maximum aperture	4.5	3.5	5.6			
Lens configuration (comp — elem)	4—6					
Angle of coverage	56°					
Recommended negative size (open)	24x24	24x36	56x56	56x84	65x90	100x125
Minimum aperture	22					45
Designed magnification	10		7		5	
Useful magnification range	3—35	2—20	1.5—15		1.5—10	
Achromatized wavelength range (nm)	380—700					
Distortion at basic magnification (%)	0	0.03	-0.06	-0.05	-0.06	-0.02
Designed focal length	38.0	51.6	76.3	90.0	104.7	135.5
Barrel outer diameter (A)	53φ					60φ
(B)	46φ					53φ
Flange mount thread size (C)	39φP = 1					
(D)	20	27				38.5
Overall length (E ₁)	10	7		9.5		6.5
(E ₂)	18.3	12	12.3	15.3	16.5	—
Flange focal length (Ef ₁)	32.9	37	67	78.6	92.1	117.8
(Ef ₂)	42.9	44	74	88.1	101.6	—
Back focal length (Bf)	26.2	34.2	64.1	75.7	88.0	112.6
Distance from flange to second principal point (G ₁)	5.1	14.6	9.3	11.4	12.6	17.7
(G ₂)	4.9	7.6	2.3	1.9	3.1	—
Principal interval (ΔH)	-5.7	-7.8	0.6	0.7	0.8	3.3
Weight (g)	181	134	122	126	132	205

Length unit: mm

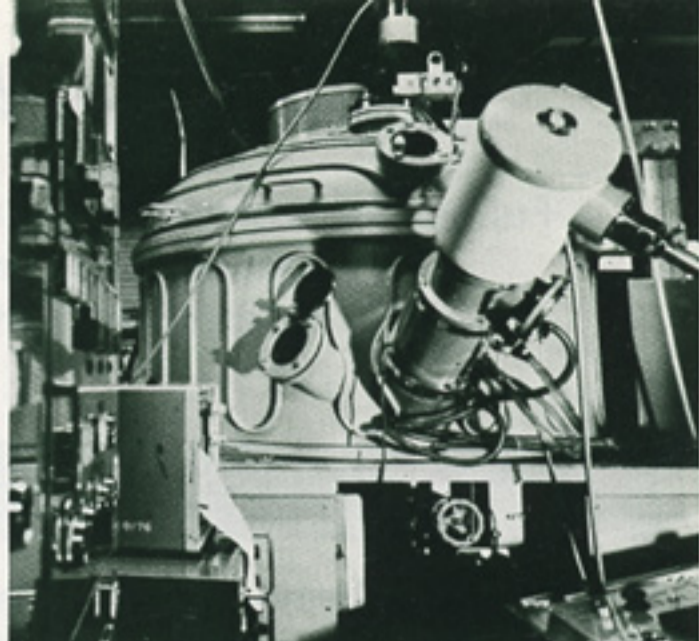
Enlarger Lenses FUJINON·ES

The five enlarger lenses in the Fujinon·ES series may be called economy-type lenses, both in price and simplicity of use. They have been the best-selling enlarger lenses in Japan for the past 30 years. Fully corrected for color aberration, they reproduce negatives in sharp, clear details.



	FUJINON·ES				
Focal length	50	75	90	105	135
Maximum aperture	4	4.5			
Lens configuration (comp — elem)	3—4				
Angle of coverage	47°	55°	53°	51°	61°
Recommended negative size	24x36	56x56	56x72	56x84	100x125
Minimum aperture	22				
Designed magnification	10	7		5	
Useful magnification range	2—20	1.5—15		1.5—10	
Achromatized wavelength range (nm)	380—700				
Distortion at basic magnification (%)	0.09				
Designed focal length	49.9	76.1	89.8	104.8	135.3
Barrel outer diameter (A)	52φ				59φ
(B)	46φ				54φ
Flange mount thread size (C)	39φP = 1				
Overall length (D)	28.5				30
(E)	5.8				
Flange focal length (Ef)	41.7	66.8	78.6	92.1	120.8
Back focal length (Bf)	41.47	65.3	77.42	88.3	115.9
Distance from flange to second principal point (G)	8.3	9.4	11.2	12.7	14.6
Principal interval (ΔH)	1.6	2.3	2.7	-0.2	4.3
Weight (g)	100				160

Length unit: mm



Electron Beam Coating (EBC)

A unique, patented Fuji process

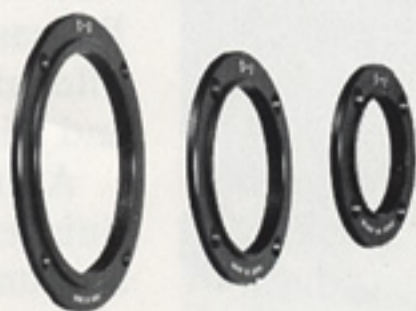
Most quality lenses are coated, but EBC is significantly different in three respects: (1) the number of coats, (2) the thinness of the coatings and (3) the materials used for coating. EBC lenses receive up to 11 coatings on key lens elements, coatings that are exceptionally uniform and thin. Using an electron beam, virtually all ideal coating substances can be melted (including, for example, zirconium oxide — a substance which cannot be used for lens coating with conventional methods).

The final result is up to 99.8% light transmittance, sharper pictures, and virtual elimination of flare and ghost.



Fujinon Adapter Ring C-1

An optional accessory for mounting Fujinon Professional Lenses with Copal No. 1 Shutter on cameras which take a small lens panel such as the Horseman Press camera.



Lens Mounting Adapter

Zagane SO: For Seiko #0 and Copal #0 shutter

Zagane C1: For Copal #1 shutter

Zagane C3 (SC): For Copal #3 shutter

Some Facts About The Manufacturing Process

Fujinon Professional Lenses are produced by Fuji Film, one of the world's largest manufacturers of photographic products. Each step, from raw material to finished product, is performed only at Fuji's highly integrated and computerized facilities.

Complete Quality Control

In order to always be sure of getting only the best, Fuji Film manufactures its own optical glass. This means that complete quality control can be exercised from the very first step. There need be no compromise with quality because melting, pouring, cooling and cracking can be performed precisely with the exact end product in mind. And even a minor imperfection in a batch of optical glass is cause for rejection because Fuji knows that it can adversely affect the quality of the finished lens.



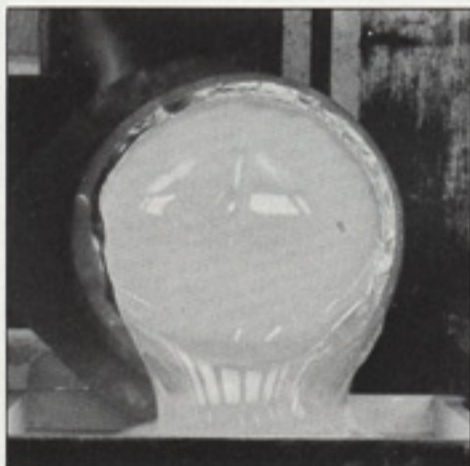
Automatic lens polishers. Hundreds of these units, large and small, are employed at Fuji's Omiya Factory.



The Odawara turns out raw lens blocks . . .



. . . and the Omiya Factory turns them into finished products



The Fabulous Platinum Crucible

One of the extremes to which Fuji Film goes to insure that the optical glass is of the finest quality is the use of platinum crucibles. Although hundreds of times more expensive, these prevent particles getting into the glass as invariably happens when conventional clay crucibles are used. This is one indicator of how seriously Fuji Film takes the question of quality.

A Vast Industrial Background



Some of the optical glass items that come out of Fuji Film's ultra-modern factories.

With nearly forty years of experience, Fuji Film is one of the leading optical glass manufacturers in Japan. Besides the Fujinon Professional Lenses, the 200 varieties of optical glass go into Fujica Single-8 movie cameras, still cameras, Fujicascope projectors, enlargers and projectors. In the professional field, Fuji Film also produces microfilm and photofinishing equipment, X-ray cameras and wide range of other products.

A final indication is the fact that Fuji Film supplies basic lens materials and finished products to many Japanese manufacturers of cameras, survey instruments, microscopes, binoculars and many other products.