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The long-awaited “dream lens” for digital product shots

Apo-Sironar digital 70 mm f/5.6

When used with one of the current professional digital backs the new Rodenstock Apo-Sironar digital 70 mm f/5.6 has a standard focal length (for a sensor size of 37x49 mm) or a somewhat longer focal length (for sensor sizes of 24x36 mm to 32x43 mm). This makes the lens an allrounder as well as an ideal performer for product shots with natural perspective. Its wide image angle provides a 100 mm image circle diameter at infinity that affords generous reserves for camera movements (parallel shifts for perspective correction or swing and tilt) even with the largest current area sensor sizes.

The optical design with 8 elements in 7 groups has been calculated uncompromisingly for excellent sharpness and contrast, invisible color fringes even at largest magnifications and lowest distortion. For best results even the optical properties of the sensor's cover glass have been taken into consideration in the optical calculation in order to eliminate the aberrations created by the glass. Therefore, when highest demands are made on the sharpness and contrast of photos taken on conventional film or in technical applications with sensors without a cover glass, an optionally available clear glass in a 43 mm filter frame has to be fixed at the rear filter thread of the lens to simulate the missing cover glass.

In order to maintain the extraordinary image performance of the optical design, production and assembly must be carried out with the highest precision. This is the reason why the barrel of the rear lens group has been realized as a “barrel inside a barrel”: The inner barrel is centered and aligned with the front lens group for perfect rotational symmetry with a laser centering device and is then fixed in this position inside the outer barrel. This procedure eliminates even the smallest tolerances caused by the individual shutter which were not known before the assembly with the shutter.

It is furthermore worth mentioning that the entrance pupil increases with the entrance angle with the optical axis for higher brightness at the margin. This results in a curve of the relative light fall-off that runs very closely below the curve of the natural light fall-off according to the cosine⁴ law with open aperture and even above this curve at apertures of f/8 or smaller.

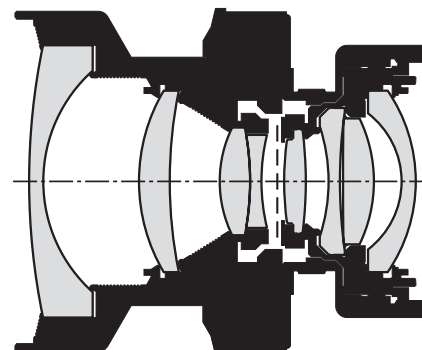
The Apo-Sironar digital 70 mm f/5.6 is also available in the Focus-Mount helical device (only with Copal 0 shutter).



Data sheets

► [Formats, dimensions, shutter data, image circles, movement ranges](#)

► [Performance data 70 mm f/5.6 mm](#)



With the Apo-Sironar digital 70 mm f/5.6, the dream of a perfect allround lens with medium to longer focal length comes true for all professional digital photographers

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Apo-Sironar digital / Apo-Macro-Sironar digital

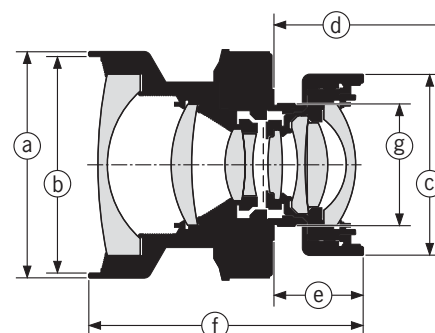
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Formats, shutter sizes, dimensions, weight

Lens (M = Macro)	Maximum recomm. format	Shutter size	Push-on mount Ø (a)	Filter thread (b)	Rear barrel Ø (c)	Flange foc. length ¹⁾ (d)	Flange to lens end (e)	Overall length (f)	Weight with Copal
35 mm f/4.5	46×56 mm	0	70 mm	M 67×0.75	60.0 mm	43.2 mm	24.7 mm	58.8 mm	220 g
45 mm f/4.5	72×96 mm	0	70 mm	M 67×0.75	60.0 mm	55.5 mm	30.0 mm	70.5 mm	350 g
55 mm f/4.5	72×96 mm	0	70 mm	M 67×0.75	60.0 mm	67.6 mm	32.0 mm	73.8 mm	400 g
New: 70 mm f/5.6	46×56 mm	0	60 mm	M 58×0.75	48.0 mm	72.7 mm	23.6 mm	72.8 mm	340 g
90 mm f/5.6	72×96 mm	0	70 mm	M 67×0.75	60.0 mm	93.1 mm	33.2 mm	82.0 mm	460 g
105 mm f/5.6	72×96 mm	0	51 mm	M 49×0.75	31.5 mm	99.9 mm	13.8 mm	48.6 mm	170 g
135 mm f/5.6	72×96 mm	0	51 mm	M 49×0.75	48.0 mm	131.4 mm	19.0 mm	53.6 mm	240 g
150 mm f/5.6	72×96 mm	0	51 mm	M 49×0.75	51.0 mm	146.9 mm	22.0 mm	57.4 mm	250 g
180 mm f/5.6	72×96 mm	1	70 mm	M 67×0.75	60.0 mm	177.0 mm	25.5 mm	65.2 mm	410 g
120 mm f/5.6 M	72×96 mm	0	51 mm	M 49×0.75	40.5 mm	236.0 mm	16.1 mm	49.8 mm	220 g

¹⁾ Flange focal length with Copal shutter for scale 1:∞,
for Apo-Sironar digital 70 mm f/5.6 including the 2 mm sensor cover glass,
for Apo-Macro-Sironar digital 120 mm f/5.6 for scale 1:1

All lenses of the Apo-Sironar digital series are available not only with the shutters given in the following table but also with a normal mount with 39 mm Leica thread or alternatively (only in combination with Copal 0 shutter) with the "Focus-Mount" helical focuser. For focusing range and flange focal length with Focus-Mount, please see next page.



Verschlussdaten

Shutter type and size	Shutter speeds range	Manual cocking	Self cocking	Mechanical	Electronic	X-synchronized	Smallest f-stop increments	Screw thread (g)	Lens board opening	Lens board thickness	Accessories required
Copal 0	B, T, 1/500 s ... 1 s	•	•	•	•	•		M 32.5×0.5	34.8 mm	1.5 ... 4 mm	
Copal 1	B, T, 1/400 s ... 1 s	•	•	•	•	•		M 39×0.75	41.8 mm	1.5 ... 3 mm	
Copal Press 0	B, 1/125 s ... 1 s		•	•	•	•		M 32.5×0.5	34.8 mm	1.5 ... 3 mm	
Copal Press 1	B, 1/125 s ... 1 s		•	•	•	•		M 39×0.75	41.8 mm	1.5 ... 2 mm	
Rollei Electron. 0	B, 1/500 s ... 30 s				•	•	1/10	M 39×0.75	41.8 mm	1.5 ... 3 mm	Control Unit
Rollei Electron. 1	B, 1/300 s ... 30 s				•	•	1/10	M 39×0.75	41.8 mm	1.5 ... 3 mm	Control Unit
Horseman ISS 0	B, 1/125 s ... 32 s				•	•	1/10	M 62×0.75	65.3 mm	1.5 ... 5 mm	Control Unit
Horseman ISS 1	B, 1/125 s ... 32 s				•	•	1/10	M 62×0.75	65.3 mm	1.5 ... 5 mm	Control Unit

The optical design with included sensor glass thickness and the final centering of the rear "barrel in the barrel" allowed a further improvement of the lens performance

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Working apertures, image angles, image circles and movement ranges

Lens	Ref. image scale	Recomm. working f-stop	Image angle	Image circle diameter	Movement range [mm] ²⁾ vertical/horizontal (landscape format)					
					24×36 mm	37×37 mm	32×43 mm	37×49 mm	Scanner 72×88 mm	Scanner 72×96 mm
35 mm f/4.5	1:∞	8-11	111°	105 mm	37 / 33	31 / 31	32 / 28	29 / 25		
45 mm f/4.5	1:∞	8-11	107°	125 mm	48 / 43	41 / 41	43 / 39	40 / 36	8 / 7	4 / 3
55 mm f/4.5	1:∞	8-11	95°	125 mm	48 / 43	41 / 41	43 / 39	40 / 36	8 / 7	4 / 3
New: 70 mm f/5.6	1:∞	5.6-11	70°	100 mm	35 / 30	28 / 28	29 / 26	25 / 22		
90 mm f/5.6	1:∞	8-11	70°	125 mm	48 / 43	41 / 41	43 / 39	40 / 36	8 / 7	4 / 3
105 mm f/5.6	1:∞	8-11	62°	125 mm	48 / 43	41 / 41	43 / 39	40 / 36	8 / 7	4 / 3
135 mm f/5.6	1:∞	8-11	58°	150 mm	61 / 56	54 / 54	56 / 52	53 / 49	25 / 22	21 / 18
150 mm f/5.6	1:∞	8-11	53°	150 mm	61 / 56	54 / 54	56 / 52	53 / 49	25 / 22	21 / 18
180 mm f/5.6	1:∞	8-11	45°	150 mm	61 / 56	54 / 54	56 / 52	53 / 49	25 / 22	21 / 18
120 mm f/5.6	1:5 - 2:1	8-11	55° - 24°	150 mm	61 / 56	54 / 54	56 / 52	53 / 49	25 / 22	21 / 18

²⁾ These values apply to the recommended working aperture at the given scale; with increasing scale image circle and movement ranges increase

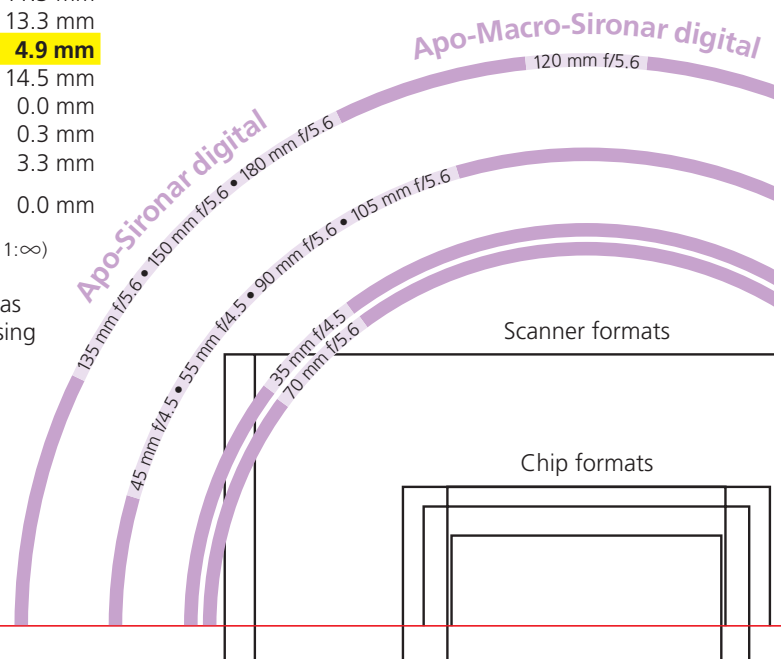
Focusing range and flange focal length with Focus-Mount

Lens	Focusing range	Flange foc. range (d)	Max. flange to lens end (e)	For (d) and (e) please see drawing on the previous page
35 mm f/4.5	∞ - 0.4 m / 1.3 ft	24.5 mm	6.0 mm	
45 mm f/4.5	∞ - 0.6 m / 2.0 ft	36.8 mm	11.3 mm	
55 mm f/4.5	∞ - 0.9 m / 3.0 ft	48.9 mm	13.3 mm	
New: 70 mm f/5.6	∞ - 0.8 m / 2.6 ft	54.0 mm	4.9 mm	
90 mm f/5.6	∞ - 1.3 m / 5.0 ft	74.4 mm	14.5 mm	
105 mm f/5.6	∞ - 1.8 m / 6.0 ft	81.2 mm	0.0 mm	
135 mm f/5.6	∞ - 3.0 m / 10.0 ft	112.7 mm	0.3 mm	
150 mm f/5.6	∞ - 3.5 m / 11.5 ft	128.2 mm	3.3 mm	
120 mm f/5.6 M	∞ - 4.0 m / 13.0 ft	217.3 mm ³⁾	0.0 mm	

³⁾ Apo-Macro-Sironar digital 120 mm f/5.6 for scale 1:1 (others for 1:∞)

Using digital lenses on cameras without bellows such as shift or panoramic cameras requires the use of a focusing facility. For this purpose the "Focus-Mount" can be combined with all Rodenstock lenses in Copal shutter size 0. Existing lenses can be installed at a later date by the manufacturer.

Image circles (original size) ►

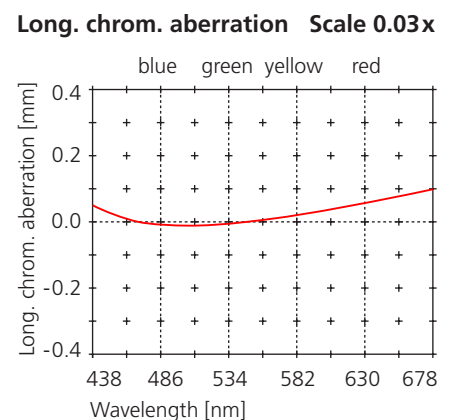
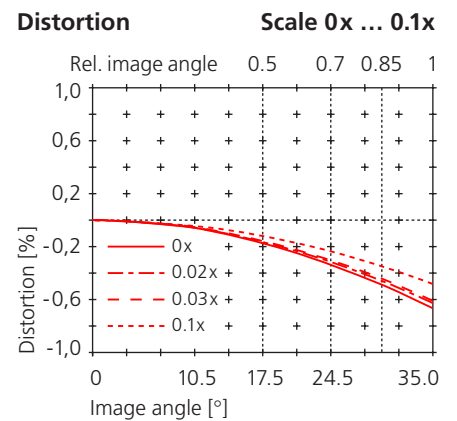
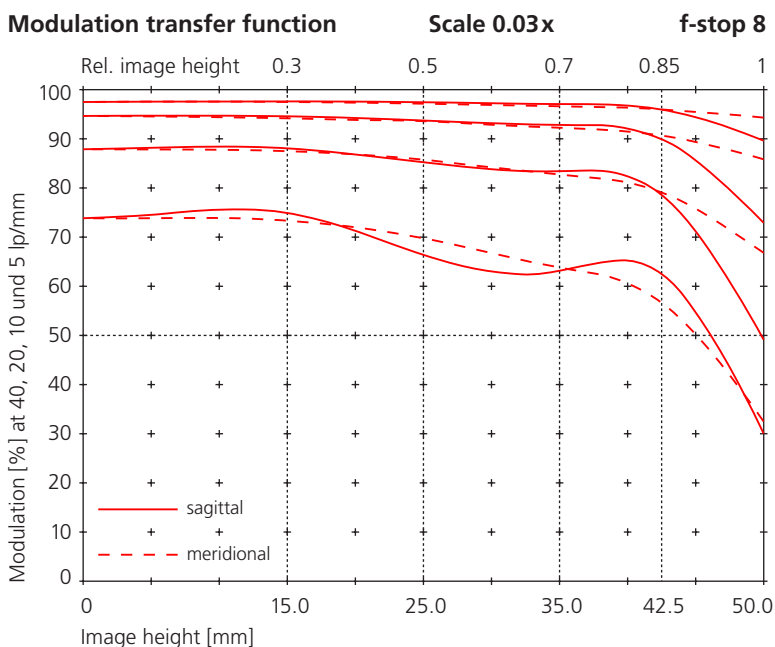
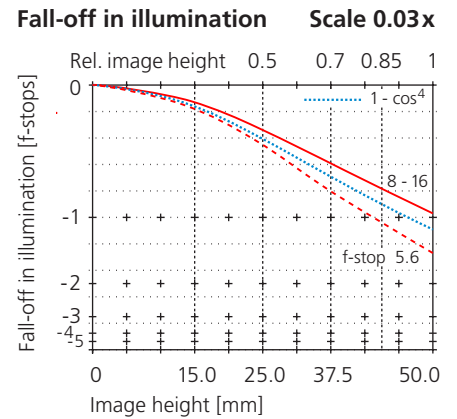
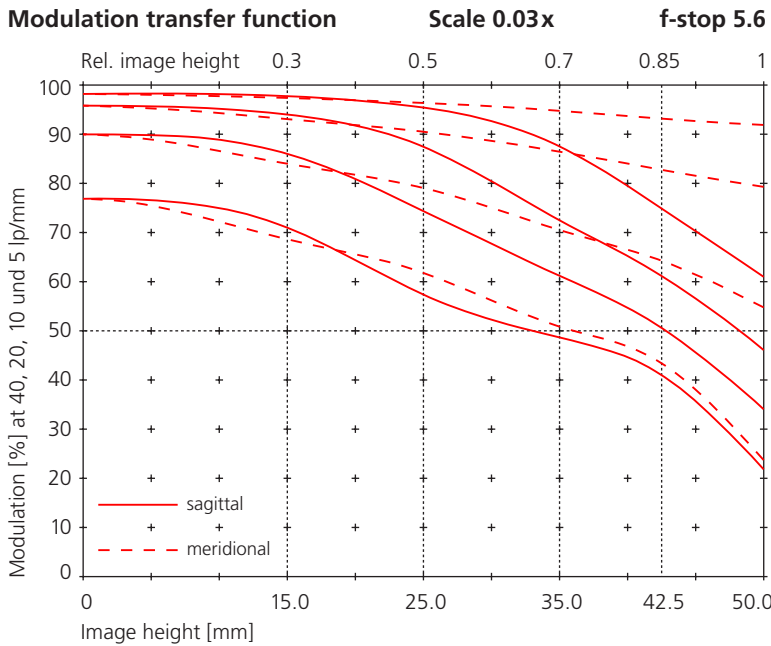


The Apo-Sironar digital 70 mm f/5.6 has an ideal focal length for digital product shots and sets really new quality standards with its outstanding sharpness

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All spatial frequencies [line pairs/mm],
image heights [mm] and scales
are related to the film or sensor side