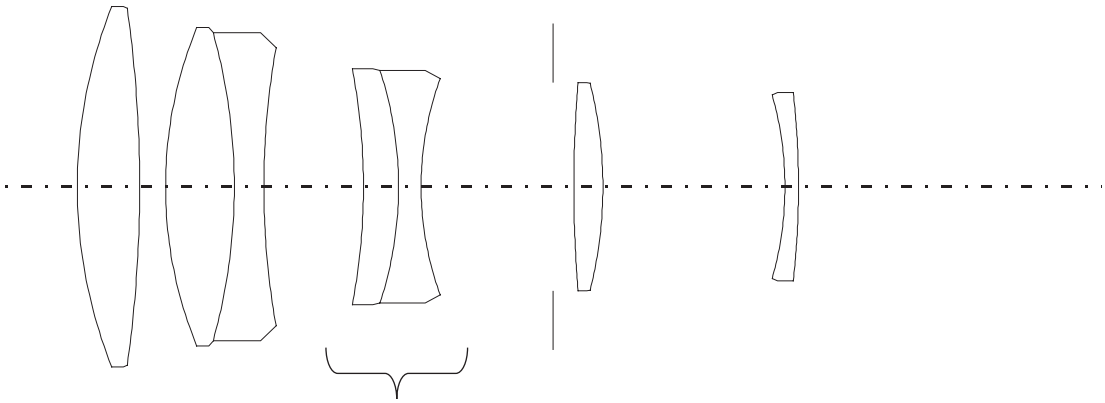
The overall optical performance of this apochromatically corrected 180 mm lens can certainly be compared to that of the faster LEICA APO-SUMMICRON-R 180 mm f/2 lens. Even at full aperture, it is remarkable for its outstanding image quality. Coma as well as astigmatism and curvature of field can barely be detected. The rubber-armored lens hood effectively protects the lens against damage from impacts. As a lightweight and compact lens with this focal length, it is very well suited for portraiture, fashion, sports and landscape photography – even when it is not used on a tripod. Ingenious mechanical design and pleasing ergonomics make focusing especially easy.

Lens shape

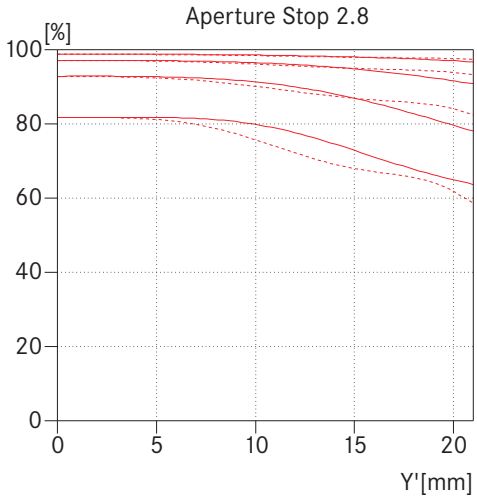


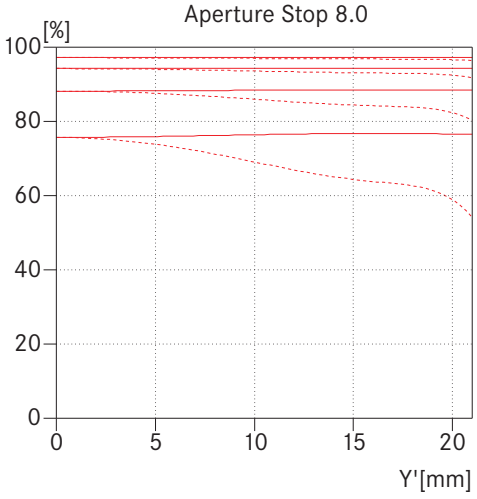
Internal focussing

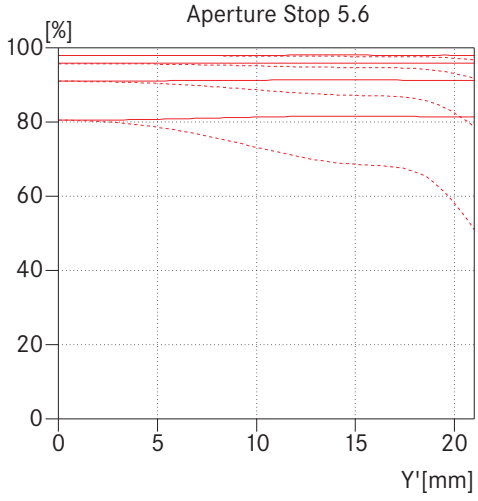
Engineering drawing

Technical Data	
Angle of view (diagonal, horizontal, vertical)	13.7°, 11.4°, 7.6°
Optical design	**Number of elements / groups:** 7 / 5 **Focal length:** 179 mm **Entrance pupil:** 294 mm (related to the first lens surface in light direction) **Focusing range:** 1.5 m to Infinity
Distance setting	**Scale:** Combined meter/feet-increments **Smallest object field:** 168 x 252 mm **Highest reproduction ratio:** 1:7
Diaphragm	**Setting / Type:** Preset diaphragm with clickstops (including half values), Fully automatic diaphragm **Smallest aperture:** f/22
Bayonet	LEICA R quick-change bayonet for LEICA R3 to LEICA R9 with mechanical, and, for LEICA R8/R9, additional electronic exposure control
Filter (type)	Internal thread for screw-in type filters E 67
Lens hood	Built-in, telescopic, rubber-armored
Dimensions and weight	**Length:** 132 mm **Largest diameter:** 76 mm **Weight:** approx. 970 g

MTF graphs





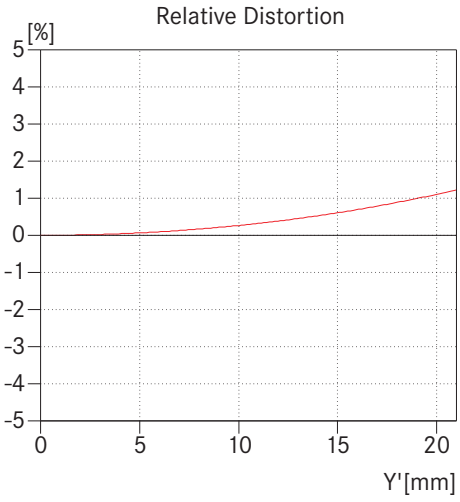


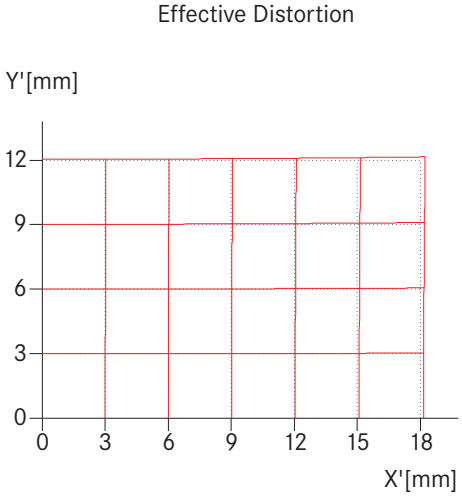
The MTF is indicated both at full aperture and at f/5.6 at long taking distances (infinity). Shown is the contrast in percentage for 5, 10, 20 and 40 lp/mm accross the height of the 35 mm film format, for tangential (dotted line) and sagittal (solid line) structures, in white light. The 5 and 10 lp/mm will give an indication regarding the contrast ratio for large object structures.The 20 and 40 lp/mm records the resolution of finer and finest object structures.

sagittal structures

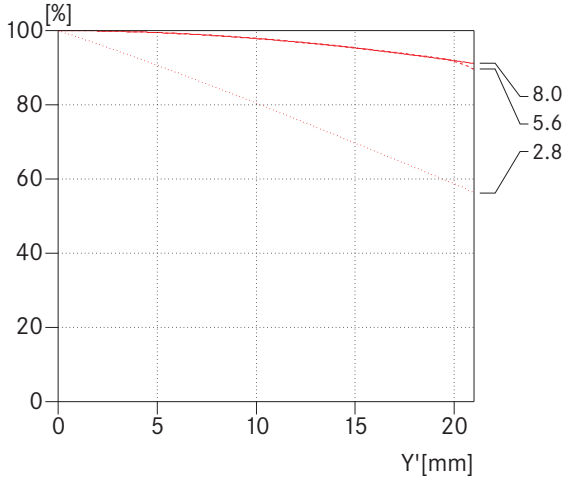
tangential structures

Distortion





Vignetting



Distortion is the deviation of the real image height (in the picture) from the ideal image height. The relative distortion is the percentage deviation. The ideal image height results from the object height and the magnification. The image height of 21.6mm is the radial distance between the edge and the middle of the image field for the format 24mm x 36mm. The graph of the effective distortion illustrates the appearance of straight horizontal and vertical lines in the picture.

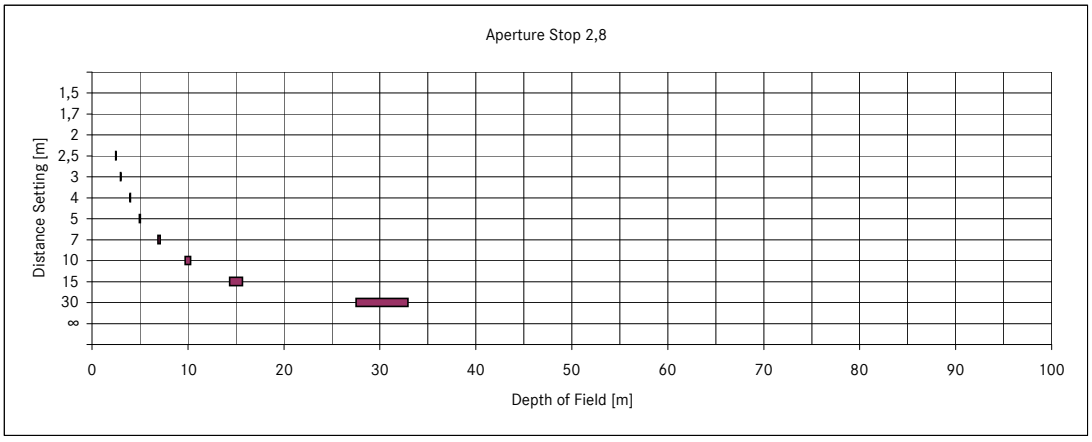
Vignetting is a continous decrease of the illumination to the edges of the image field. The graph shows the percentage lost of illumination over the image height. 100% means no vignetting.

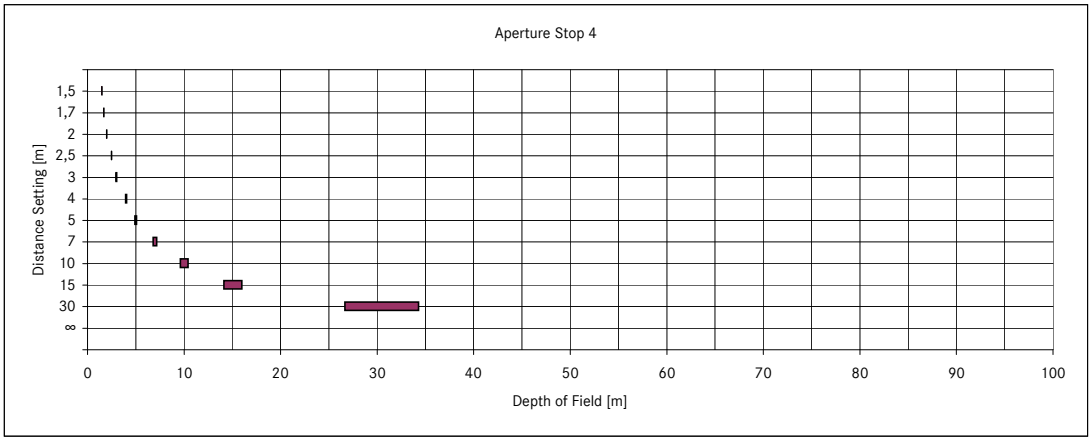
sagittal structures

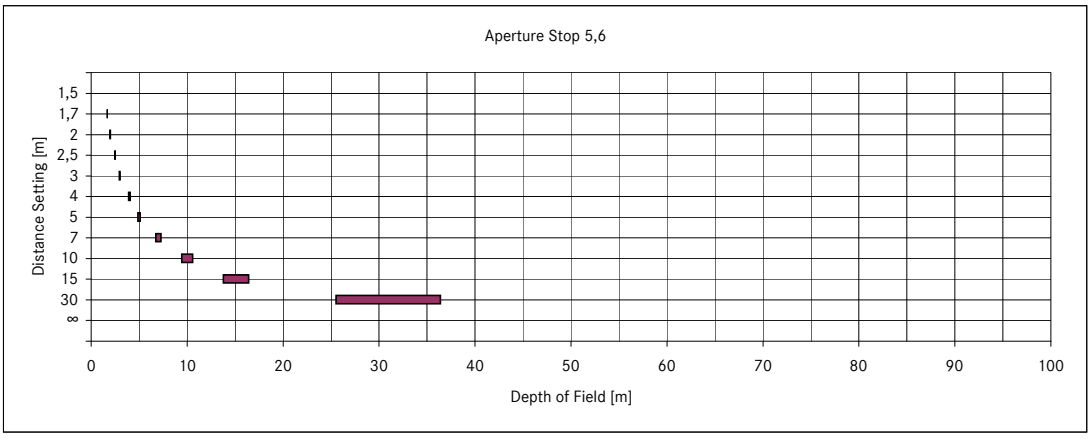
tangential structures

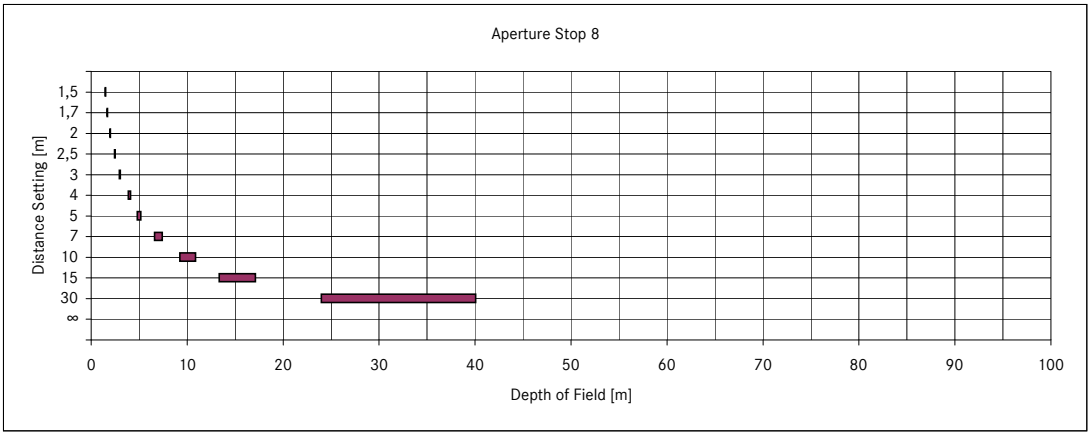
Depth of field table

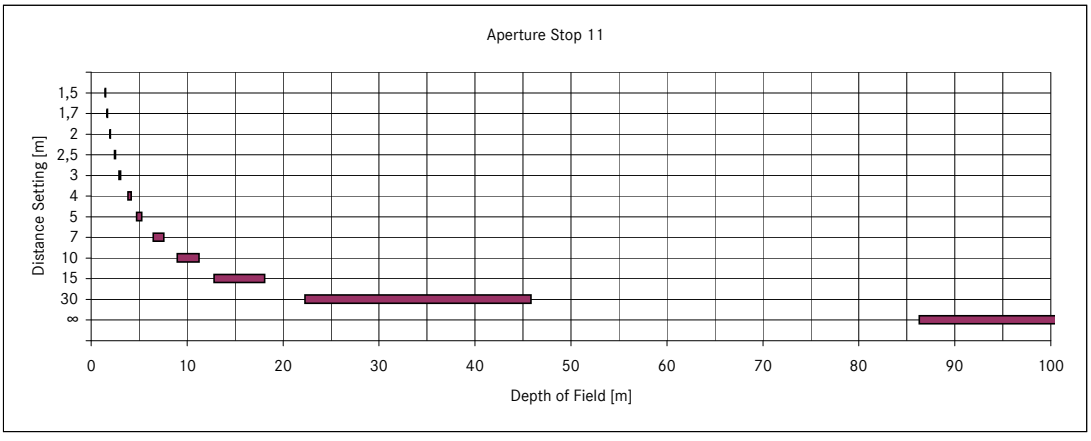
Distance Setting [m]	Aperture Stop 2,8	4	5,6	8	11	16	22	Magnification
1,5	1,493 - 1,507	1,491 - 1,509	1,488 - 1,512	1,483 - 1,518	1,476 - 1,524	1,466 - 1,536	1,454 - 1,550	1/6,96
1,7	1,691 - 1,709	1,689 - 1,711	1,684 - 1,716	1,678 - 1,723	1,670 - 1,732	1,656 - 1,746	1,640 - 1,764	1/8,09
2	1,988 - 2,012	1,984 - 2,016	1,978 - 2,022	1,969 - 2,032	1,958 - 2,044	1,939 - 2,065	1,917 - 2,090	1/9,78
2,5	2,481 - 2,519	2,475 - 2,525	2,466 - 2,535	2,451 - 2,551	2,433 - 2,570	2,404 - 2,604	2,370 - 2,645	1/12,6
3	2,973 - 3,027	2,964 - 3,037	2,950 - 3,051	2,930 - 3,074	2,904 - 3,103	2,862 - 3,152	2,814 - 3,213	1/15,4
4	3,953 - 4,048	3,936 - 4,066	3,911 - 4,093	3,874 - 4,134	3,829 - 4,187	3,756 - 4,278	3,672 - 4,392	1/21,1
5	4,926 - 5,076	4,900 - 5,104	4,861 - 5,147	4,804 - 5,213	4,734 - 5,298	4,623 - 5,445	4,495 - 5,633	1/26,7
7	6,856 - 7,150	6,804 - 7,208	6,728 - 7,295	6,618 - 7,428	6,486 - 7,603	6,276 - 7,913	6,042 - 8,320	1/38,0
10	9,709 - 10,31	9,602 - 10,43	9,451 - 10,62	9,234 - 10,90	8,977 - 11,29	8,578 - 11,99	8,143 - 12,96	1/55,0
15	14,35 - 15,71	14,12 - 16,00	13,79 - 16,44	13,33 - 17,14	12,80 - 18,12	12,00 - 20,01	11,16 - 22,87	1/83,3
30	27,52 - 32,97	26,65 - 34,32	25,51 - 36,41	23,97 - 40,08	22,29 - 45,87	19,96 - 60,40	17,74 - 97,45	1/168
∞	332,4 - ∞	237,2 - ∞	169,5 - ∞	118,6 - ∞	86,28 - ∞	59,33 - ∞	43,15 - ∞	1/∞

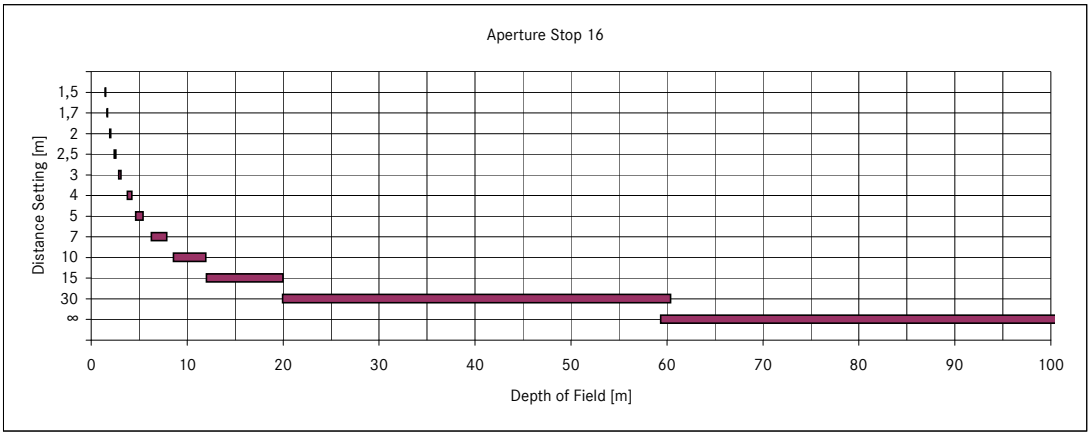


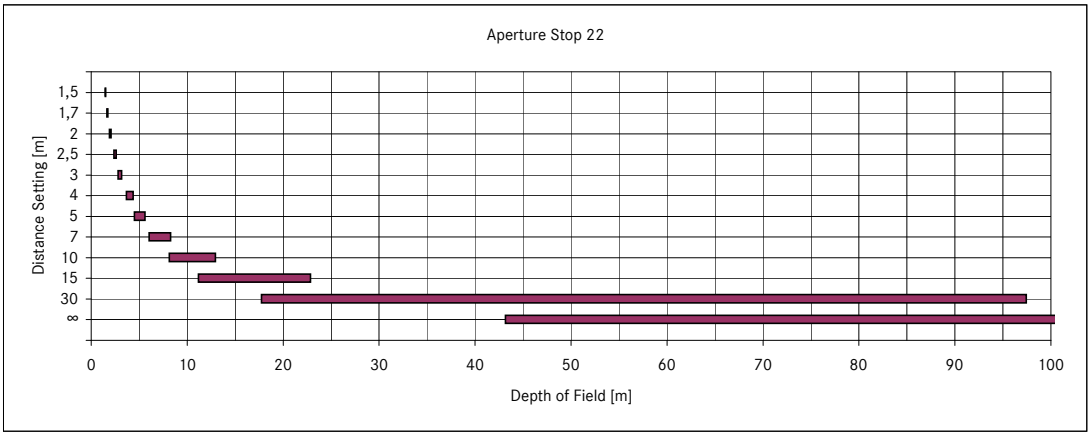



Aperture Stop 5,6
Distance Setting [m]
1,5
1,7
2
2,5
3
4
5
7
10
15
30
∞
0
10
20
30
40
50
60
70
80
90
100
Depth of Field [m]


Aperture Stop 8
Distance Setting [m]
1,5
1,7
2
2,5
3
4
5
7
10
15
30
∞
0
10
20
30
40
50
60
70
80
90
100
Depth of Field [m]


Aperture Stop 11
Distance Setting [m]
1,5
1,7
2
2,5
3
4
5
7
10
15
30
∞
0
10
20
30
40
50
60
70
80
90
100
Depth of Field [m]





Leica Camera AG / Oskar-Barnack-Straße 11 / D-35606 Solms / Telefon +49 (0) 6442-208-0 / Telefax +49 (0) 6442-208-333
www.leica-camera.com / info@leica-camera.com