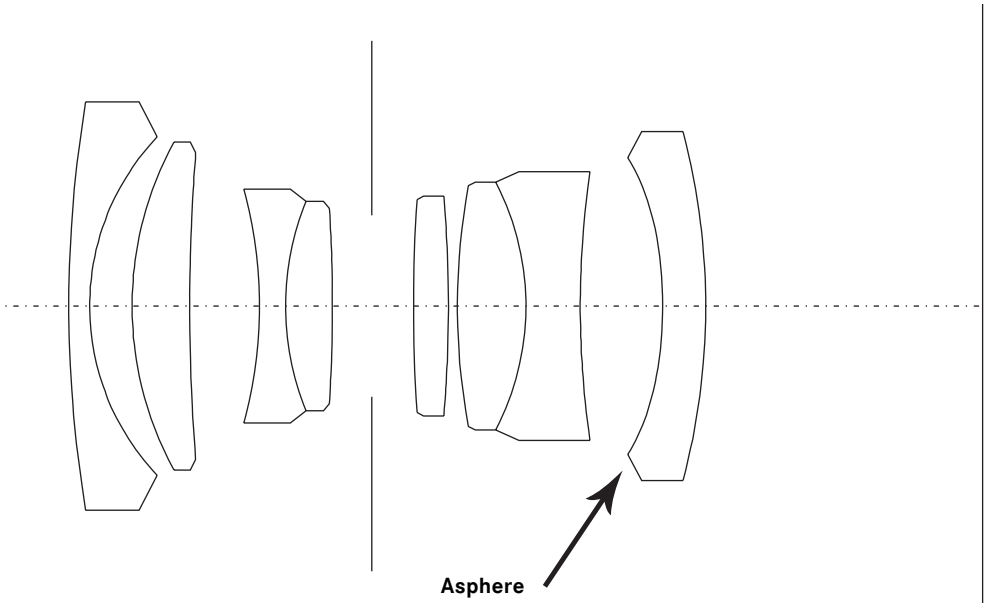
This new high-speed lens is the most compact of Leica M lenses. By using an aspherical element it was possible to attain top imaging performance with a weight of only 180 grams. This lens is practically distortion-free in the whole focus range from 0.7 m to infinity and only extends slightly into the viewfinder field of M cameras. Used on the digital M8, it produces the effect of a 35mm lens which makes it ideal for reportage. Due to its attractive price it can be particularly recommended as an introduction to the high-quality range of Leica M lenses.

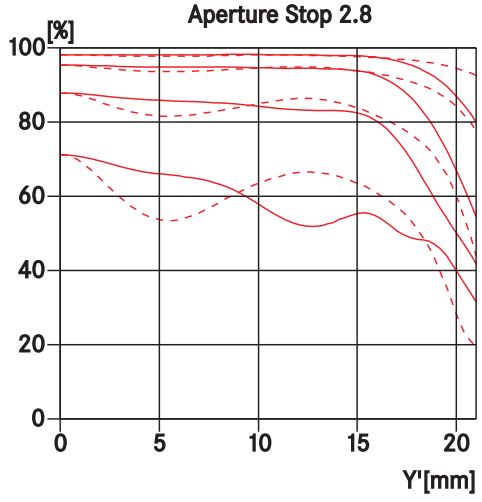
Lens shape

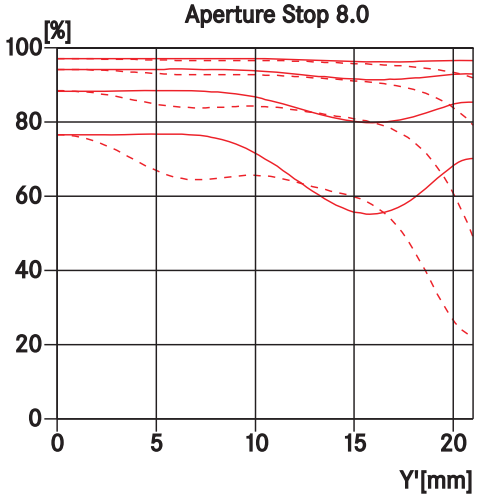


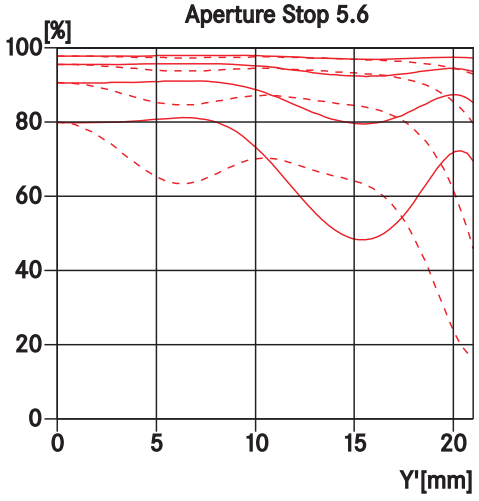
Engineering drawing

Technical Data	
Angle of view (diagonal, horizontal, vertical)	for 35 mm (24 x 36 mm): 75°, 65°, 46° for digital (18 x 27 mm): 60°, 51°, 36°, corresponds to a focal length of approx. 37mm with 35mm-format
Optical design	**Number of elements / groups:** 8 / 6 **Focal length:** 28,4 mm **Entrance pupil:** 12,8 mm (related to the first lens surface in light direction) **Focusing range:** 0.7 m to Infinity
Distance setting	**Scale:** combined meter/feet-increments **Smallest object field:** for 35 mm: 533 x 800mm, for digital: 400 x 600 mm **Highest reproduction ratio:** 1:22
Diaphragm	**Setting / Type:** Preset, with click-stops, half values available **Smallest aperture:** f/22
Bayonet	Leica M quick-change bayonet with 6 bit identification bar code for digital M models
Filter (type)	Internal thread for screw-on filters size E39
Lens hood	Snap-on type (supplied)
Dimensions and weight	**Length:** approx. 30/46 mm (with/without lens hood) **Largest diameter:** approx. 52 mm **Weight:** approx. 180g

MTF graphs





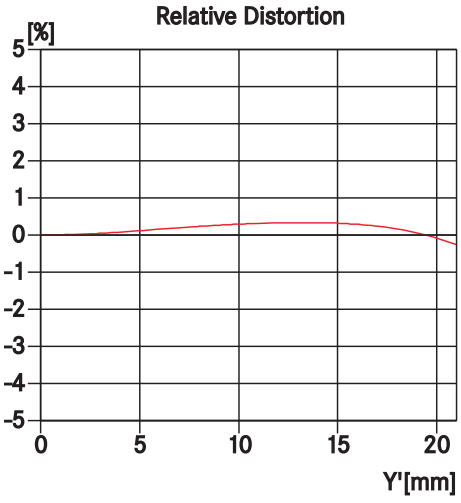


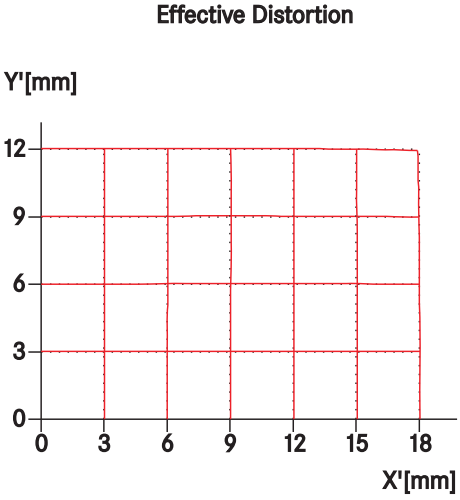
The MTF is indicated at full aperture and at f/5.6 and f/8.0 at long taking distances (infinity). Shown is the contrast in percentage for 5, 10, 20 and 40 lp/mm accross the height of the 35 mm film format, for tangential (dotted line) and sagittal (solid line) structures, in white light. The 5 and 10 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

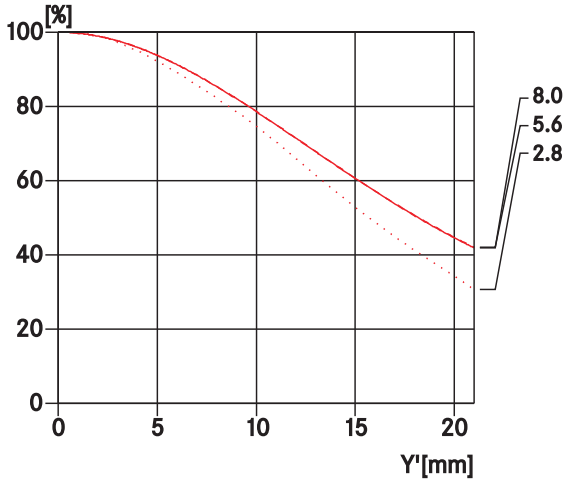
tangential structures

Distortion





Vignetting

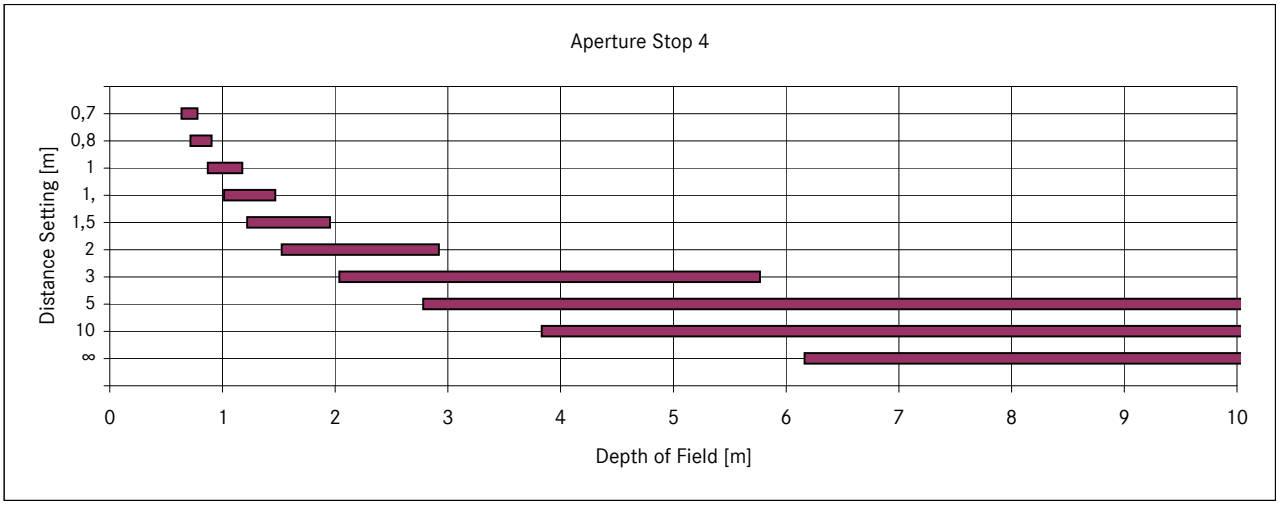


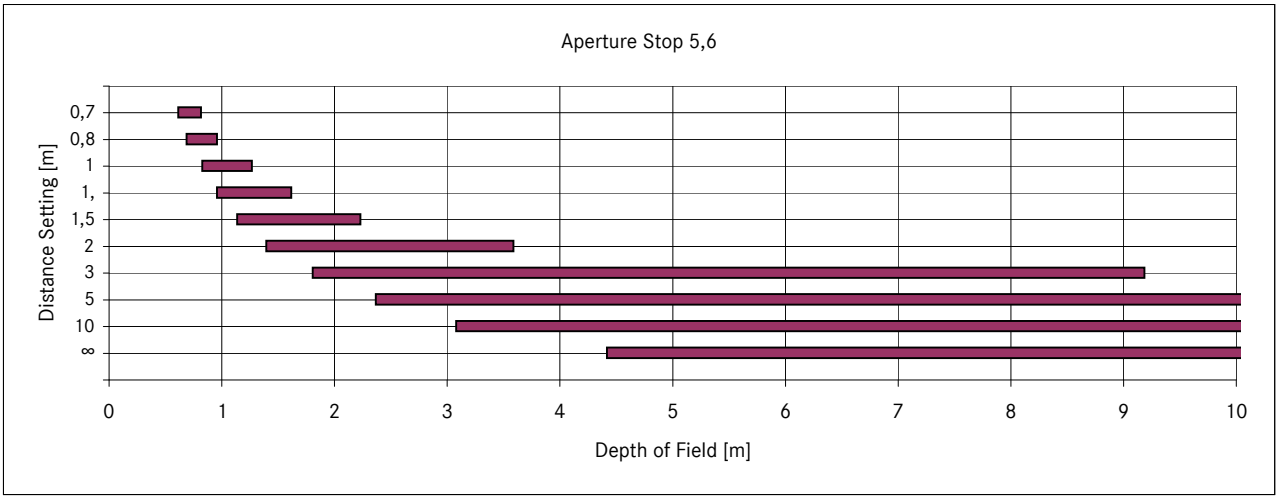
Distortion is the deviation of the real image height (in the picture) from the ideal image height. The relative distortion is the percentage deviation. The ideal image height results from the object height and the magnification. The image height of 21.6mm is the radial distance between the edge and the 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.

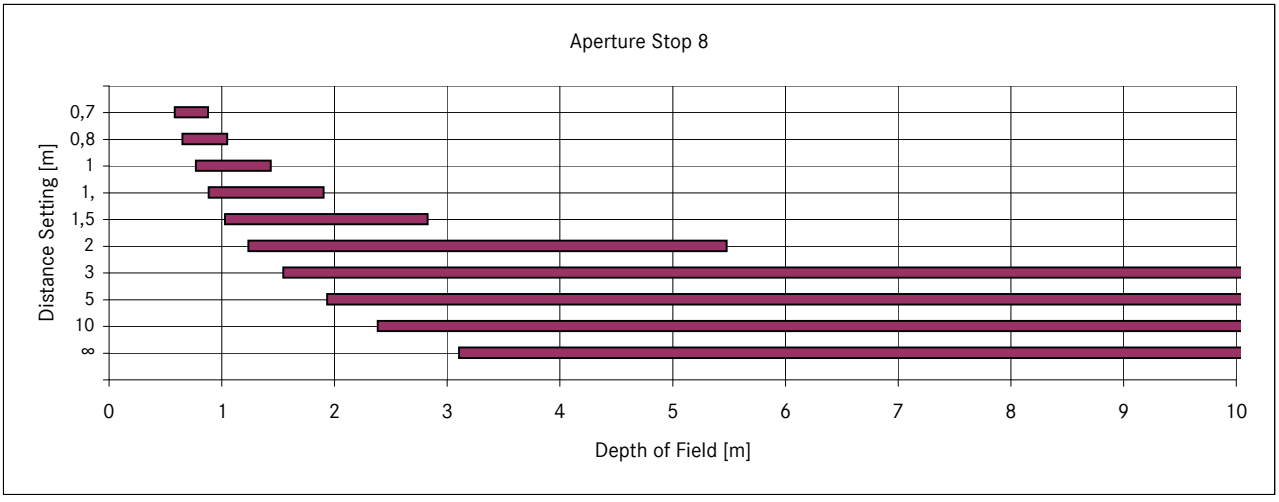
Vignetting is a continous decrease of the illumination to the edges of the image field. The graph shows the percentage loss of illumination over the image height. 100% means no vignetting.

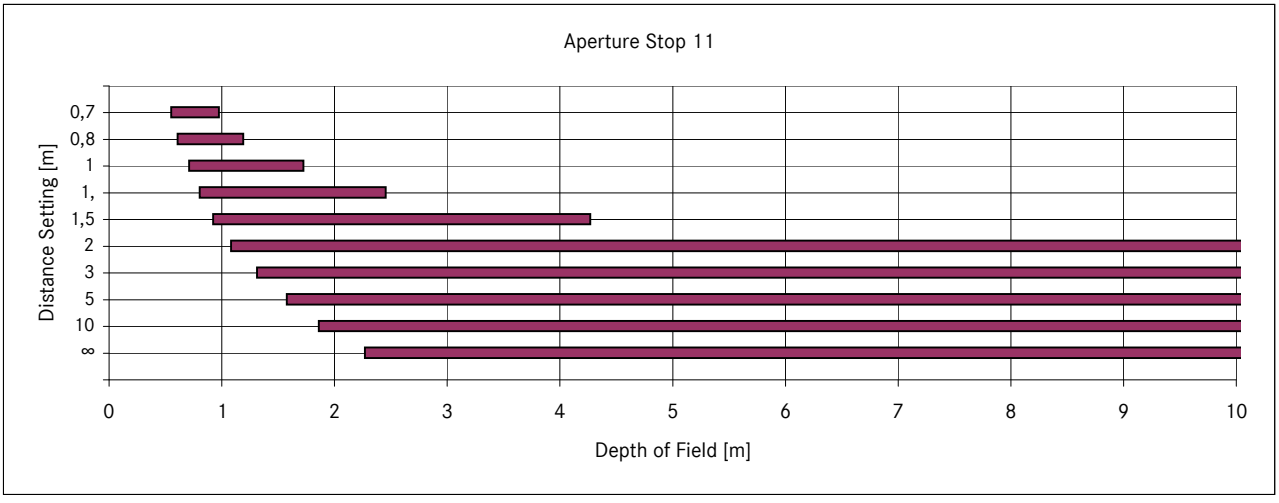
Depth of field table

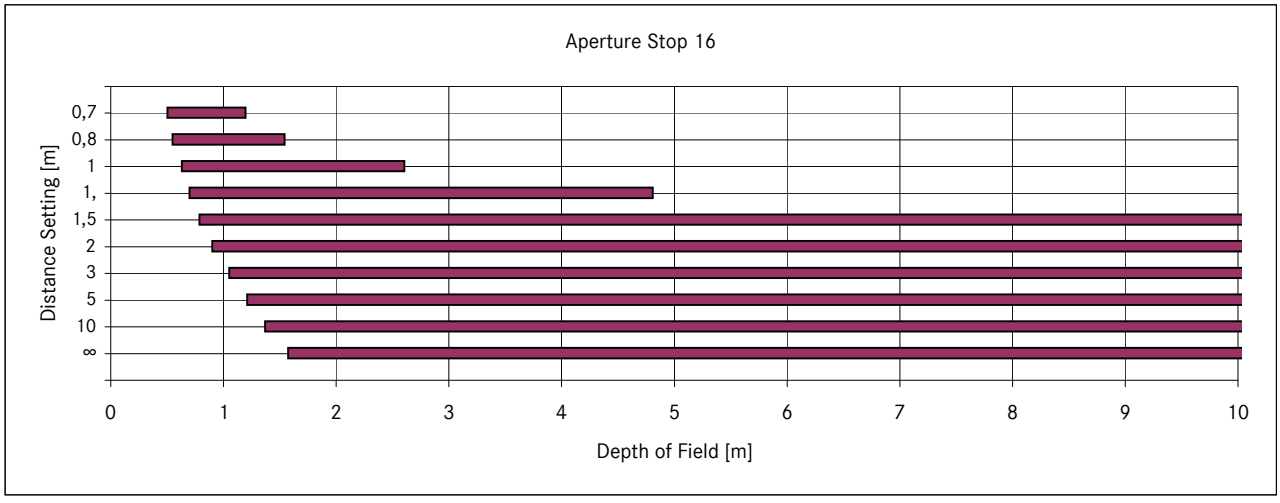
Distance Setting [m]	Aperture Stop 2,8	4	5,6	8	11	16	22	Magnification
0,7	0,654 - 0,754	0,636 - 0,780	0,614 - 0,817	0,583 - 0,881	0,550 - 0,977	0,502 - 1,198	0,455 - 1,654	1/22,2
0,8	0,739 - 0,872	0,716 - 0,907	0,688 - 0,959	0,649 - 1,050	0,607 - 1,192	0,548 - 1,546	0,492 - 2,424	1/25,7
1	0,905 - 1,118	0,870 - 1,178	0,827 - 1,269	0,771 - 1,438	0,711 - 1,726	0,631 - 2,608	0,556 - 6,945	1/32,8
1,2	1,064 - 1,377	1,015 - 1,471	0,957 - 1,618	0,882 - 1,906	0,803 - 2,458	0,700 - 4,810	0,609 - ∞	1/39,8
1,5	1,291 - 1,793	1,219 - 1,957	1,135 - 2,231	1,029 - 2,829	0,922 - 4,272	0,788 - 30,92	0,672 - ∞	1/50,3
2	1,641 - 2,566	1,525 - 2,923	1,394 - 3,590	1,235 - 5,480	1,083 - 16,30	0,900 - ∞	0,750 - ∞	1/67,9
3	2,251 - 4,515	2,035 - 5,770	1,806 - 9,188	1,545 - 87,40	1,311 - ∞	1,050 - ∞	0,849 - ∞	1/103
5	3,204 - 11,51	2,780 - 26,15	2,365 - ∞	1,934 - ∞	1,577 - ∞	1,210 - ∞	0,950 - ∞	1/173
10	4,695 - ∞	3,832 - ∞	3,080 - ∞	2,383 - ∞	1,861 - ∞	1,368 - ∞	1,042 - ∞	1/349
∞	8,782 - ∞	6,163 - ∞	4,416 - ∞	3,104 - ∞	2,268 - ∞	1,572 - ∞	1,154 - ∞	1/∞

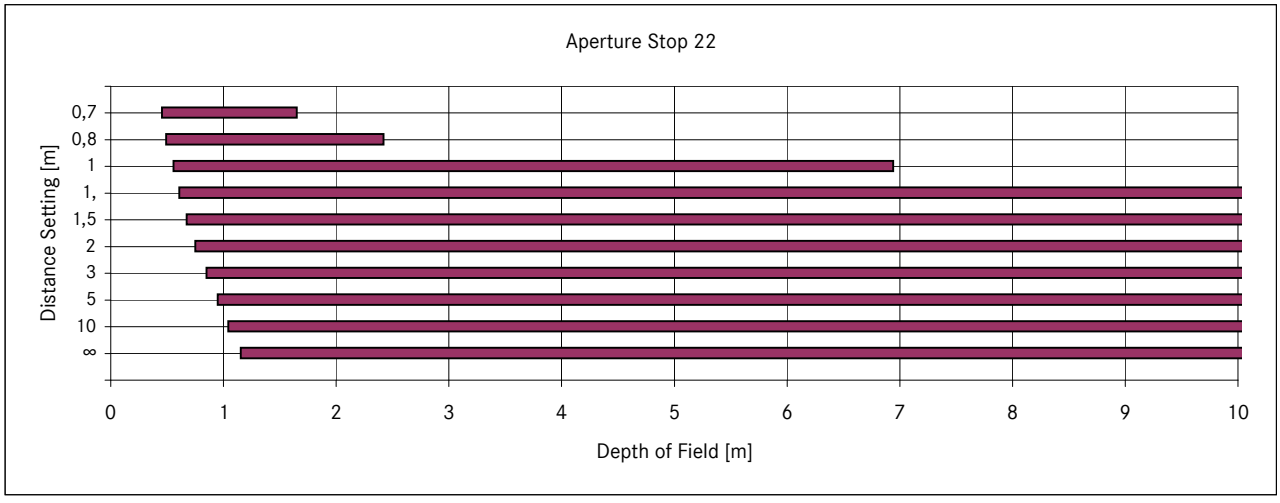



Aperture Stop 5,6
Distance Setting [m]
0,7
0,8
1
1,
1,5
2
3
5
10
∞
0
1
2
3
4
5
6
7
8
9
10
Depth of Field [m]


Aperture Stop 8
Distance Setting [m]
0,7
0,8
1
1,
1,5
2
3
5
10
∞
0
1
2
3
4
5
6
7
8
9
10
Depth of Field [m]


Aperture Stop 11
Distance Setting [m]
0,7
0,8
1
1,
1,5
2
3
5
10
∞
0
1
2
3
4
5
6
7
8
9
10
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