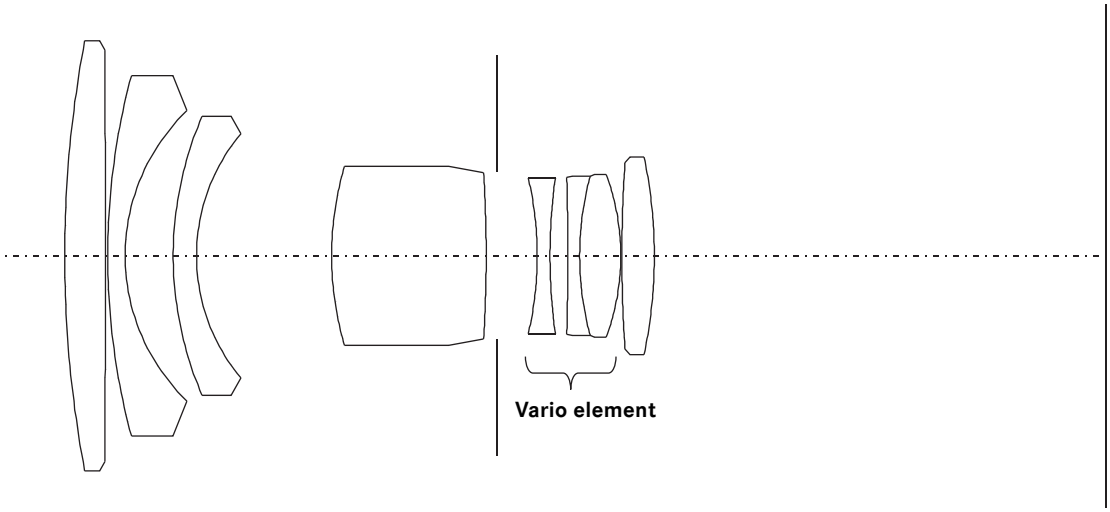
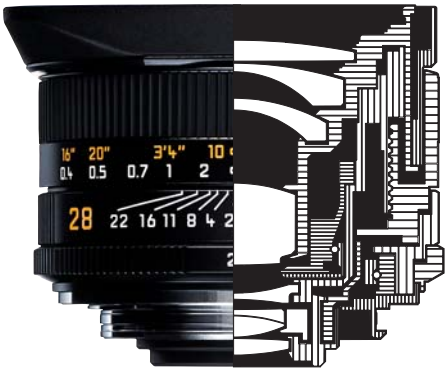
A classic wide-angle lens that embodies typical Leica qualities in every respect. Sharpness and contrast are already exemplary all the way to the edges of the image at f/2.8, plus they can be enhanced by stopping down the aperture. A floating element maintains the high per-formance throughout the focusing range, down to 30 cm (12 in). Compact size, high speed and harmonious wide-angle characteristics make this lens a valuable companion for universal applications.

__ Lens shape

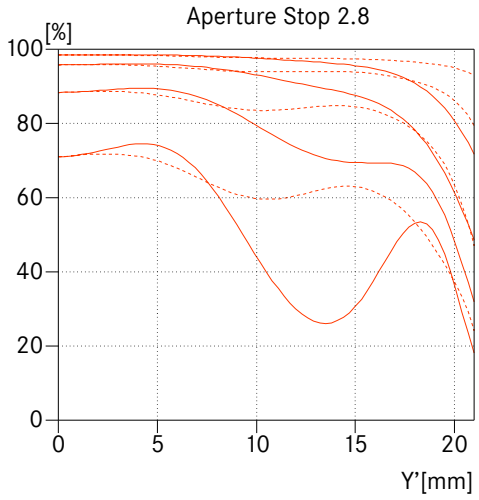


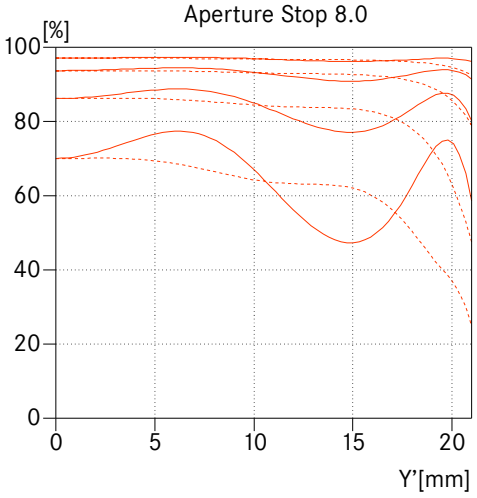


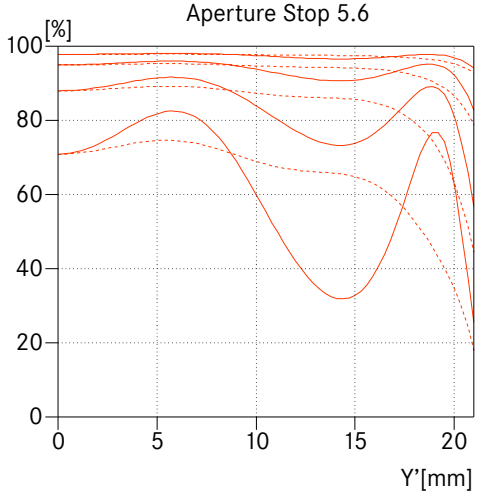
Engineering drawing

Technical Data	
Angle of view (diagonal, horizontal, vertical)	75°, 65°, 46°
Optical design	**Number of elements / groups:** 8 / 7 **Focal length:** 28.5 mm **Entrance pupil:** 20.3 mm (related to the first lens surface in light direction) **Focusing range:** 0.3 m to Infinity
Distance setting	**Scale:** Combined meter/feet-increments **Smallest object field:** 192 mm x 288 mm **Highest reproduction ratio:** 1:8
Diaphragm	**Setting / Type:** Preset diaphragm with clickstops (including half values), Fully automatic diaphragm **Smallest aperture:** 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 55
Lens hood	Built-in, rectangular, telescopic
Dimensions and weight	**Length:** 48 mm **Largest diameter:** 67.5 mm **Weight:** approx. 435 g

MTF graphs





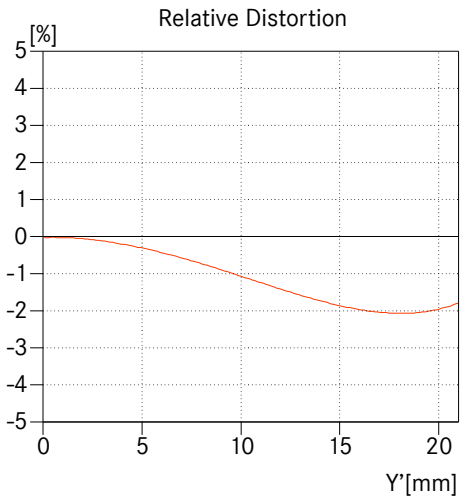


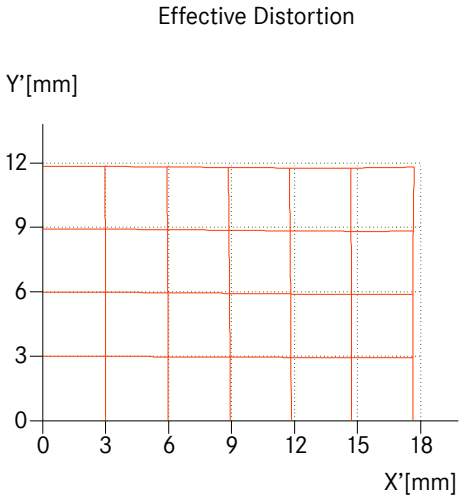
The MTF is indicated both at full aperture and at f/5.6 at long taking distances (infinity). Shown is the contrast in percentage for 5, 10, 20 and 40 lp/mm accross the height of the 35 mm film format, for tangential (dotted line) and sagittal (solid line) structures, in white light. The 5 and 10 lp/mm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

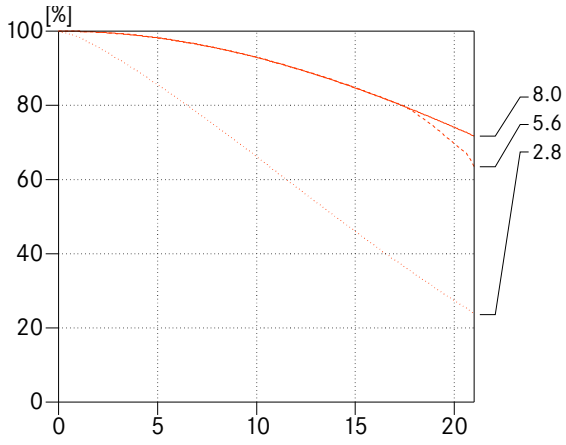
tangential structures

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.

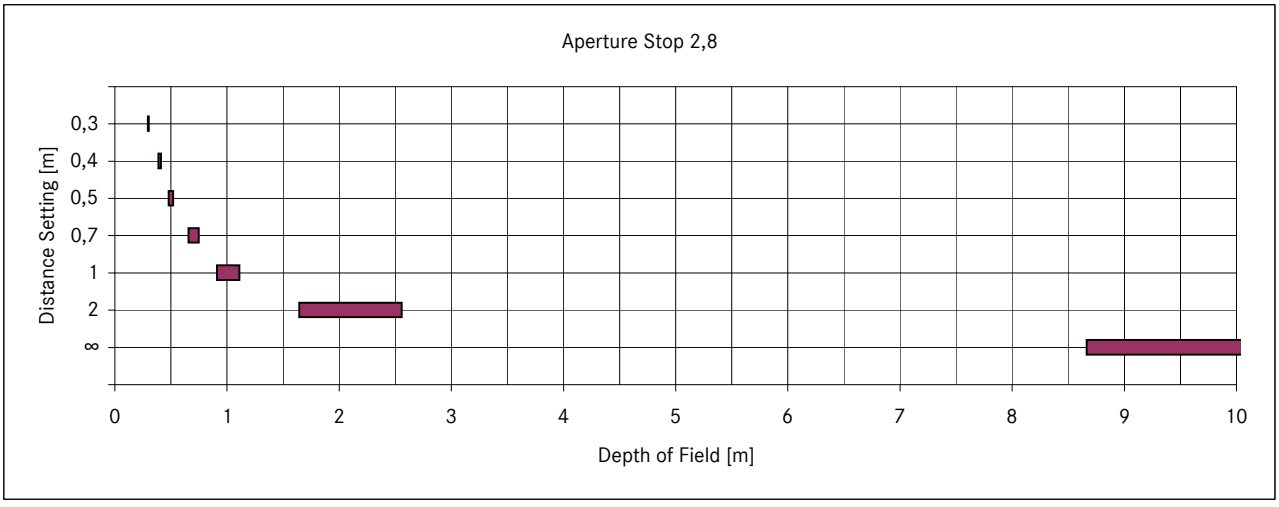
Vignetting is a continous decrease of the illumination to the edges of the image field. The graph shows the percentage lost of illumination over the image height. 100% means no vignetting.

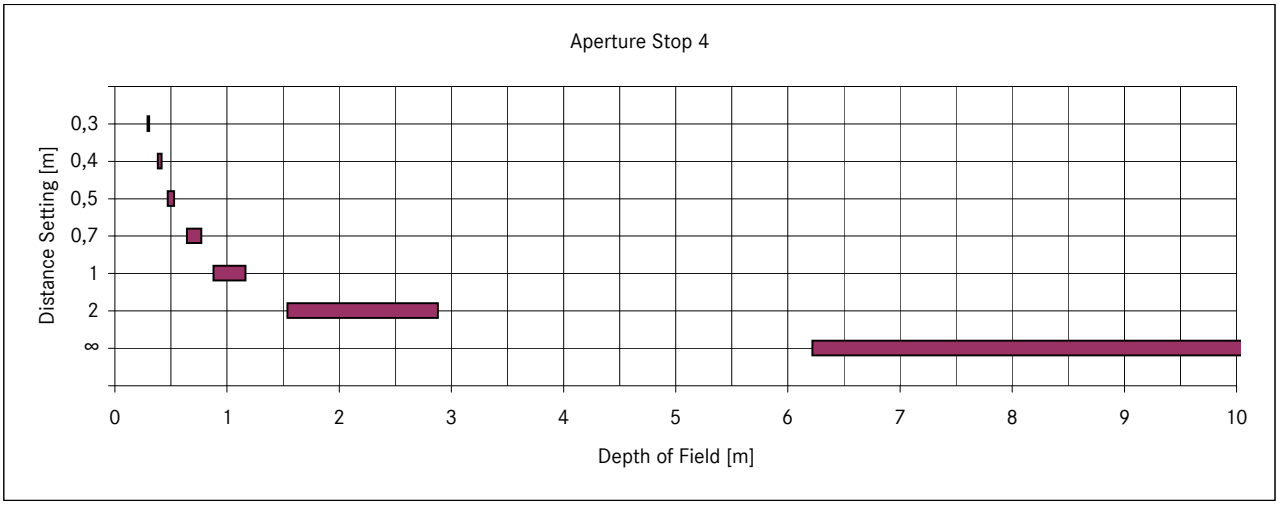
sagittal structures

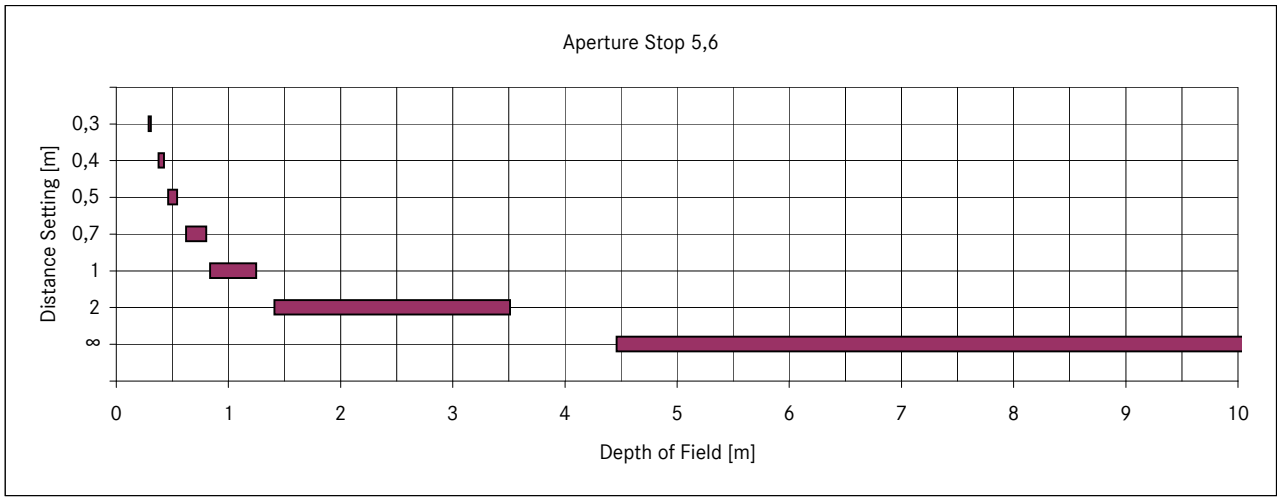
tangential structures

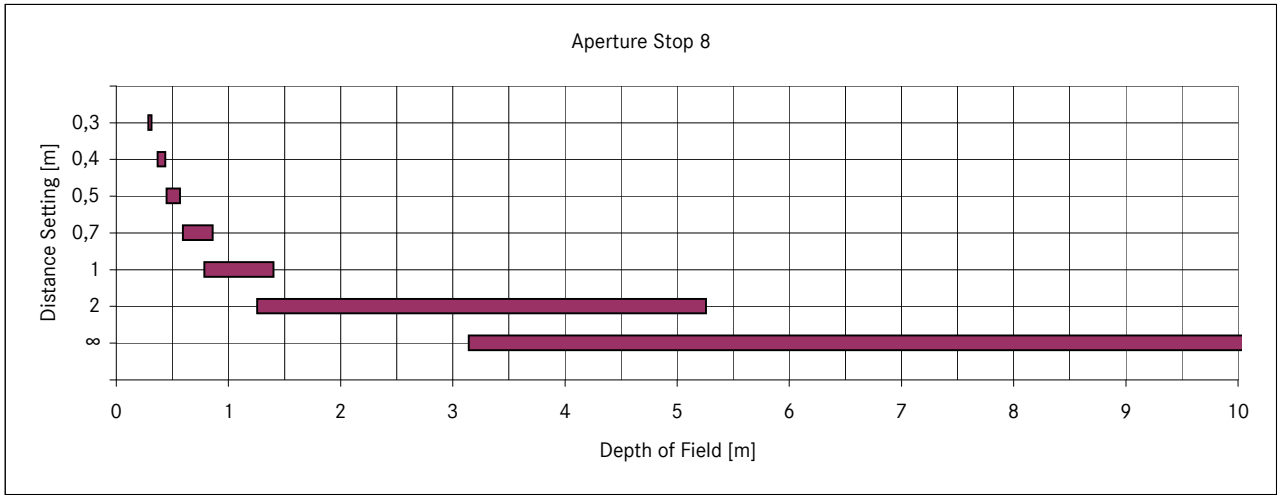
Depth of field table

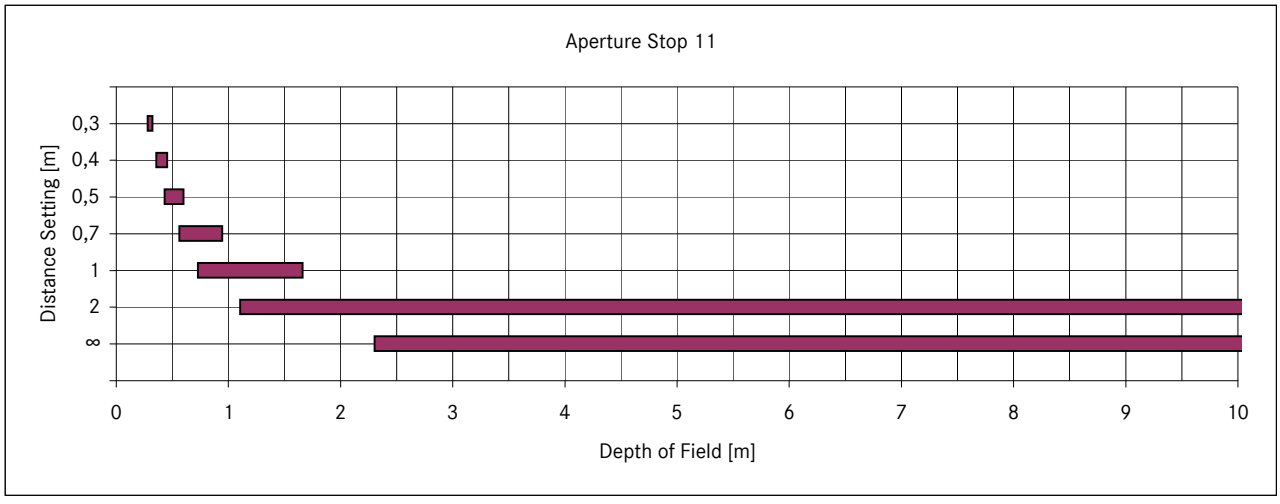
Distance Setting [m]	Aperture Stop 2,8	4	5,6	8	11	16	22	Magnification
0,3	0,294 - 0,306	0,292 - 0,309	0,289 - 0,312	0,284 - 0,318	0,279 - 0,326	0,271 - 0,339	0,262 - 0,358	1/7,44
0,4	0,388 - 0,413	0,383 - 0,419	0,377 - 0,427	0,368 - 0,439	0,358 - 0,456	0,342 - 0,489	0,325 - 0,536	1/11,0
0,5	0,479 - 0,523	0,472 - 0,532	0,462 - 0,546	0,447 - 0,570	0,431 - 0,602	0,406 - 0,666	0,381 - 0,767	1/14,5
0,7	0,657 - 0,750	0,642 - 0,772	0,621 - 0,805	0,593 - 0,862	0,562 - 0,947	0,517 - 1,137	0,473 - 1,512	1/21,6
1	0,909 - 1,113	0,878 - 1,166	0,837 - 1,250	0,784 - 1,403	0,727 - 1,663	0,649 - 2,425	0,578 - 5,609	1/32,1
2	1,645 - 2,561	1,539 - 2,883	1,411 - 3,514	1,255 - 5,260	1,105 - 14,23	0,925 - ∞	0,777 - ∞	1/67,2
∞	8,664 - ∞	6,220 - ∞	4,461 - ∞	3,143 - ∞	2,304 - ∞	1,606 - ∞	1,187 - ∞	1/∞

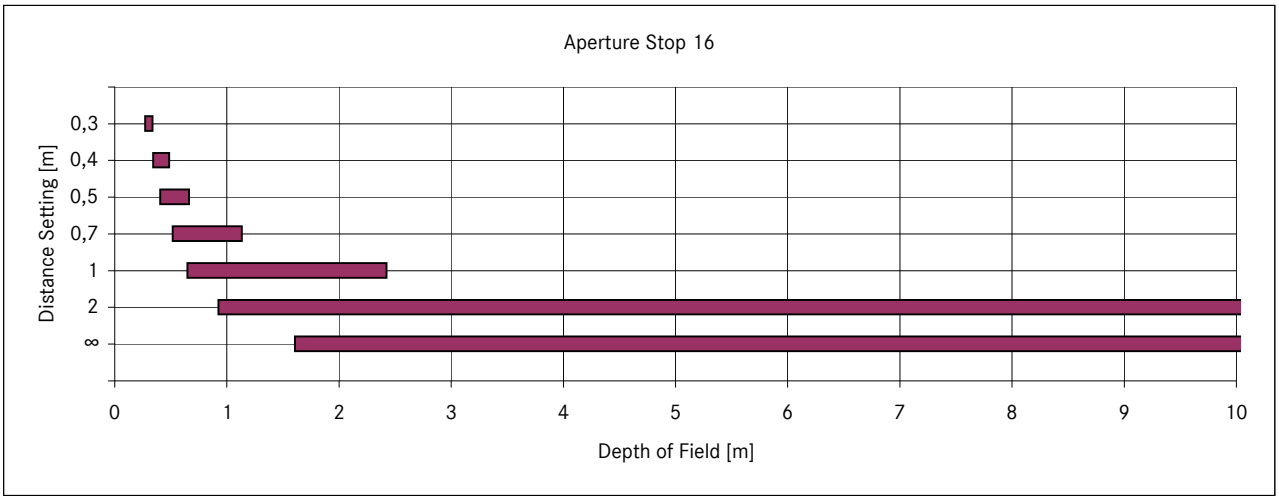


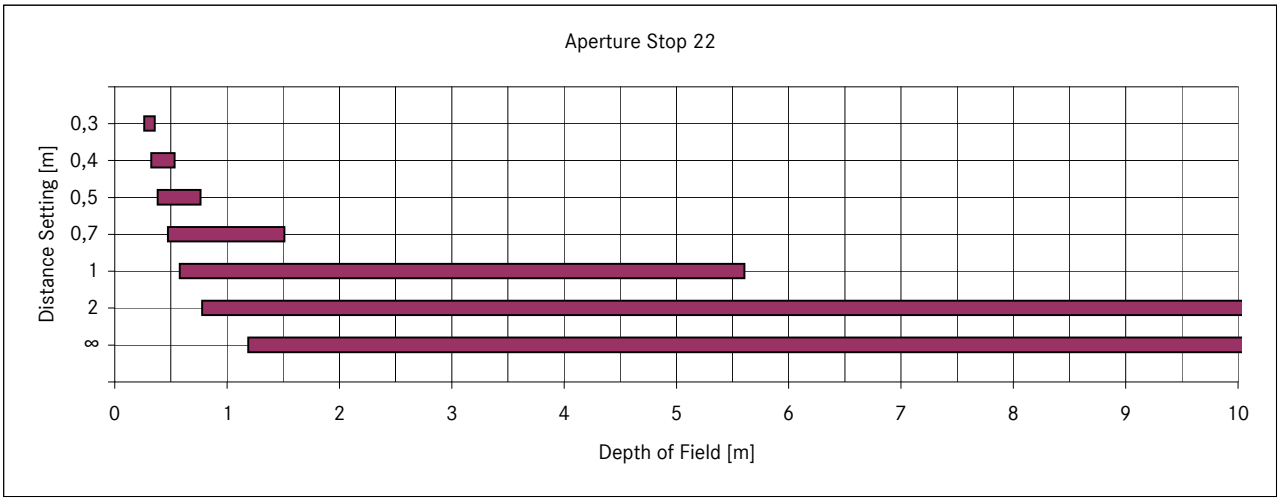



Aperture Stop 5,6
Distance Setting [m]
0,3
0,4
0,5
0,7
1
2
∞
0
1
2
3
4
5
6
7
8
9
10
Depth of Field [m]


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


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