

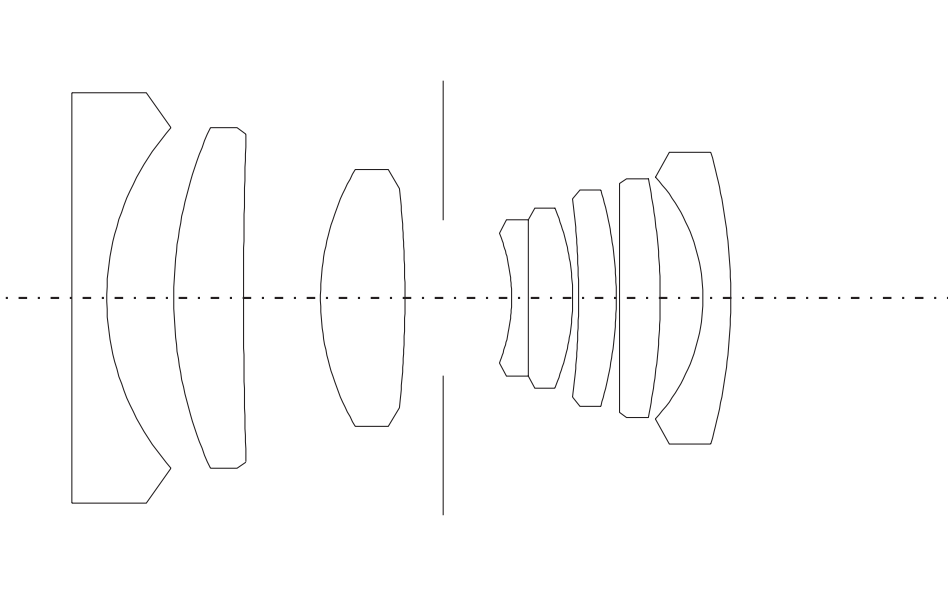


LEICA ELMARIT-M 28 mm f/2.8



This is a classic standard wide-angle lens: It delivers very good imaging performance at full aperture. Its barrel distortion is very small and unobtrusive. In cases where light sources are included in the picture area, unwanted reflections and flare are very rare. Therefore this lens is the right one for situations that do not require an extremely wide angle of view, but where regular 35 mm lenses do not provide sufficient wide-angle characteristics. This lens is particularly popular among professional photographers.

— Lens shape



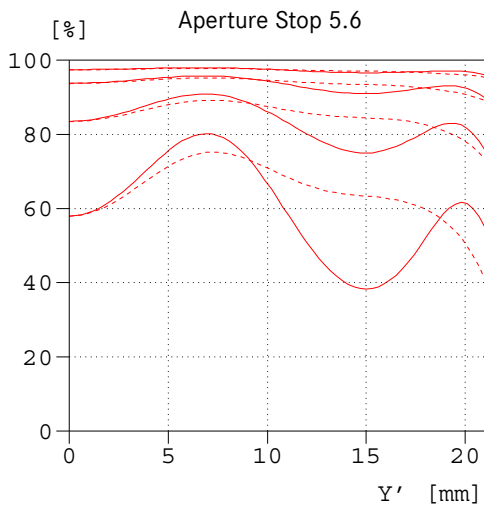
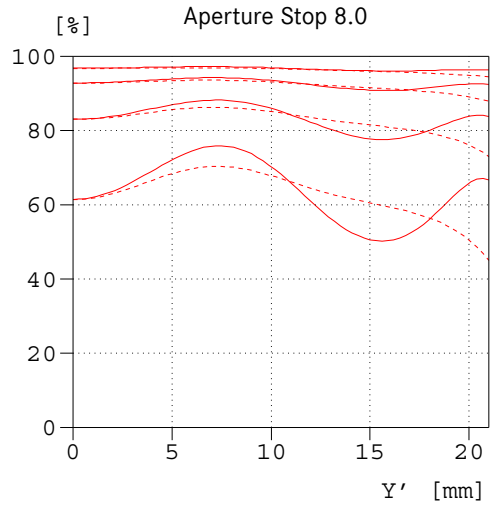
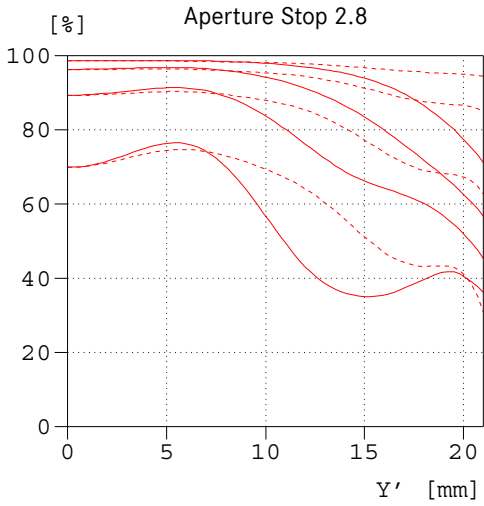


— Engineering drawing

Technical Data

Angle of view (diagonal, horizontal, vertical)	75°, 65°, 46°
Optical design	Number of elements / groups: 8 / 7 Focal length: 28.2 mm Entrance pupil: 15.2 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: 533 mm x 800 mm Highest reproduction ratio: 1:22.2
Diaphragm	Setting / Type: with clickstops (including half values), manual diaphragm Smallest aperture: f/22
Bayonet	Leica M quick-change bayonet
Filter (type)	internal thread for screw-in type filters E 46
Lens hood	separate, clip-on type, lockable
Dimensions and weight	Length: 41.4 mm Largest diameter: 53 mm Weight: approx. 260 g

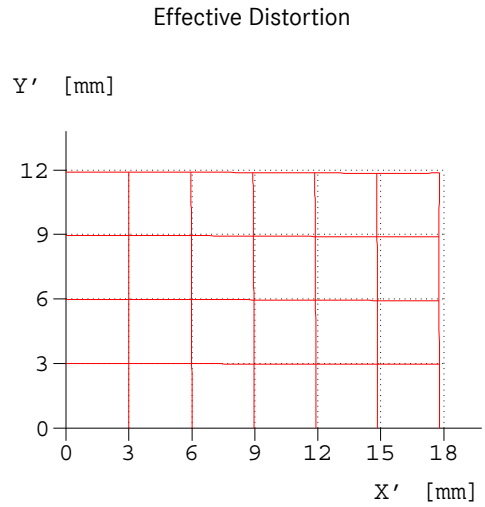
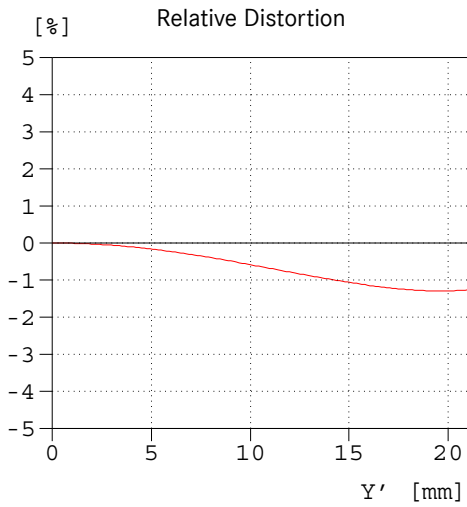
— MTF graphs



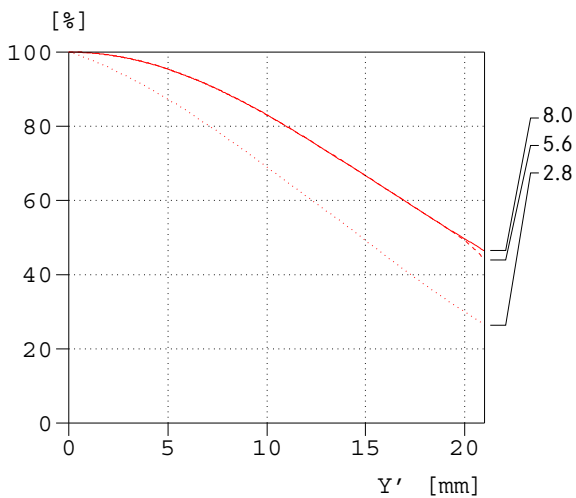
The MTF is indicated both at full aperture and at f/5.6 at long taking distances (infinity). Shown is the contrast in percentage for 5, 10, 20 and 40 lp/mm across the height of the 35 mm film format, for tangential (dotted line) and sagittal (solid line) structures, in white light. The 5 and 10 lp/mm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

	Aperture Stop							Magnification
	2,8	4	5,6	8	11	16	22	
0,7	0,654 - 0,754	0,637 - 0,779	0,615 - 0,816	0,584 - 0,879	0,551 - 0,975	0,504 - 1,194	0,458 - 1,650	1/22,1
0,8	0,739 - 0,873	0,717 - 0,907	0,689 - 0,959	0,650 - 1,049	0,608 - 1,191	0,550 - 1,545	0,495 - 2,432	1/25,7
1	0,904 - 1,120	0,870 - 1,178	0,828 - 1,270	0,772 - 1,438	0,712 - 1,729	0,632 - 2,626	0,558 - 7,233	1/32,8
1,2	1,063 - 1,380	1,015 - 1,472	0,957 - 1,620	0,882 - 1,911	0,804 - 2,473	0,701 - 4,922	0,610 - ∞	1/39,9
1,5	1,289 - 1,798	1,218 - 1,960	1,134 - 2,238	1,028 - 2,847	0,922 - 4,343	0,788 - 39,19	0,673 - ∞	1/50,5
2	1,637 - 2,578	1,523 - 2,934	1,392 - 3,617	1,233 - 5,582	1,081 - 17,81	0,899 - ∞	0,750 - ∞	1/68,3
3	2,242 - 4,559	2,030 - 5,830	1,800 - 9,427	1,540 - 141,1	1,306 - ∞	1,046 - ∞	0,848 - ∞	1/104
5	3,183 - 11,82	2,767 - 27,73	2,352 - ∞	1,922 - ∞	1,568 - ∞	1,204 - ∞	0,946 - ∞	1/175
∞	8,600 - ∞	6,079 - ∞	4,355 - ∞	3,063 - ∞	2,241 - ∞	1,555 - ∞	1,144 - ∞	1/∞

