

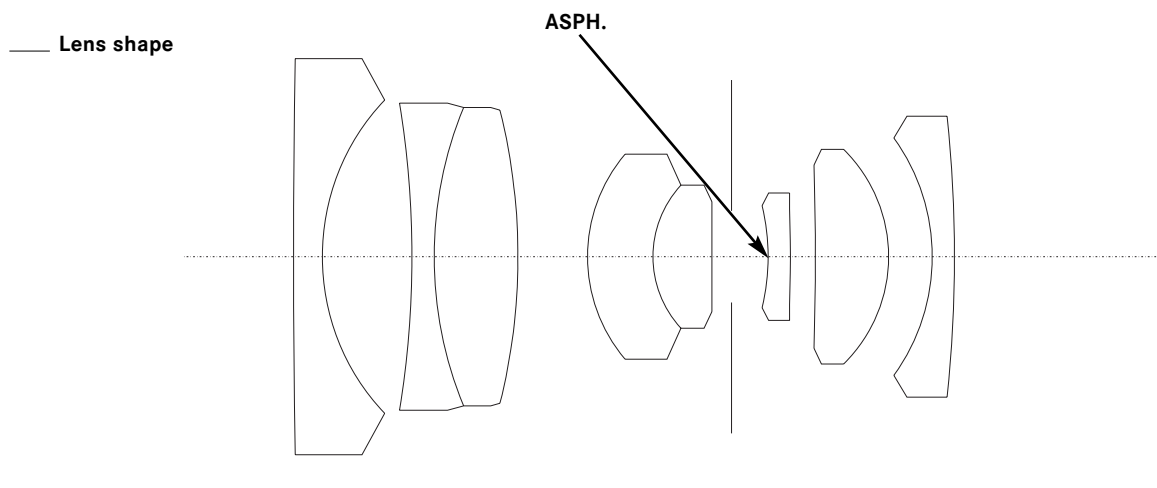


LEICA ELMAR-M 24 mm f/3.8 ASPH.



The LEICA ELMAR-M 24mm f/3.8 ASPH. is an extremely compact lens, especially for such a wide angle, which also offers outstanding imaging performance. Even with at full stop, it delivers uniformly excellent reproduction quality over the entire image field, only deteriorating slightly towards the edges in the close-up range. This performance can only be improved slightly by stopping down, which means that you can take photographs with at full stop without concerns, unless your compositional ideas call for a greater depth of field that can only be achieved with smaller apertures. The vignetting characteristic of every optical system is naturally more pronounced on a super wide angle lens than on normal and long focal length lenses. With the diaphragm completely open, it is a maximum - i.e. in the corners of the image - of around 1.9 stops for the 35mm format, or around 1.1 stops on Leica M8 models with their slightly smaller format. Stopping down to 5.6 visibly reduces this light falloff at the image edges - to 1.4 and 0.8 stops respectively. Stopping down further does not bring about any notable reduction since essentially only the natural vignetting remains. The lens' maximum distortion is around 1% and therefore hardly perceptible. The retrofocus-like construction is made up of a total of eight lens elements and the use of an aspherical surface and glass types with anomalous color dispersion (partial dispersion) make a crucial contribution towards restricting aberrations to an absolute minimum.

Summary: The LEICA ELMAR-M 24mm f/3.8 ASPH. not only offers optimum imaging performance but also - for its focal length - compact dimensions and also provides all Leica M users with an affordable introduction to the world of super wide angle photography.





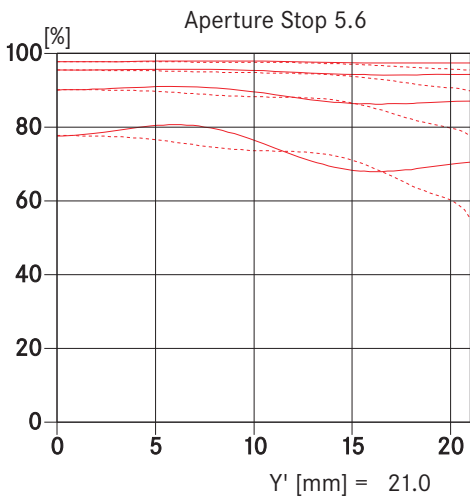
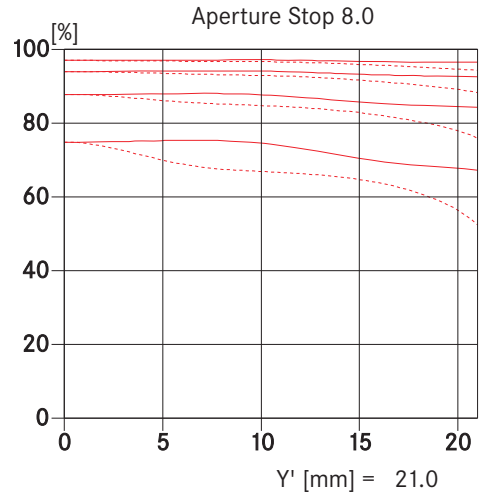
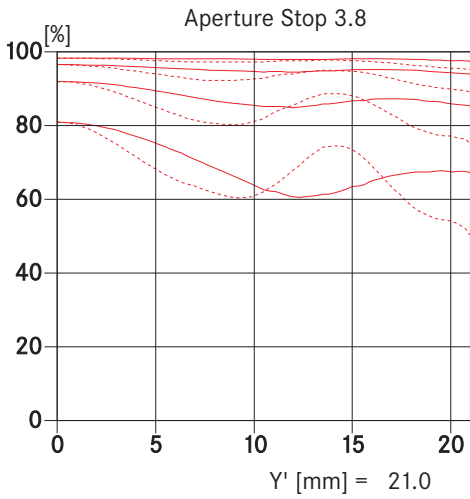
— Engineering drawing

Technical Data

Angle of view (diagonal, horizontal, vertical)	84° / 74° / 53°
Optical design	Number of lenses/groups: 8 / 6 Focal length: 24.5 mm Position of entrance pupil: 18.7 mm (related to the first lens surface in light direction) Focusing range: 0.7 m to infinity
Distance setting	Scales: Combined meter/feet graduation Smallest object field: 615 x 922 mm Largest reproduction ratio: 1:25.6
Aperture	Setting/Function: With click-stops, half values available, manual diaphragm Lowest value: 16
Bayonet	Leica M quick-change bayonet with 6 bit lens identification bar code for digital M models
Filter mount/Lens hood	Non-rotating, female thread for filters E46, male thread for lens hood, screw-on type lens hood (included in delivery)
Dimension and weight	Length: 40.6 / 56.6 mm (without / with lens hood) Largest diameter: approx. 53 mm Weight: approx. 260 g



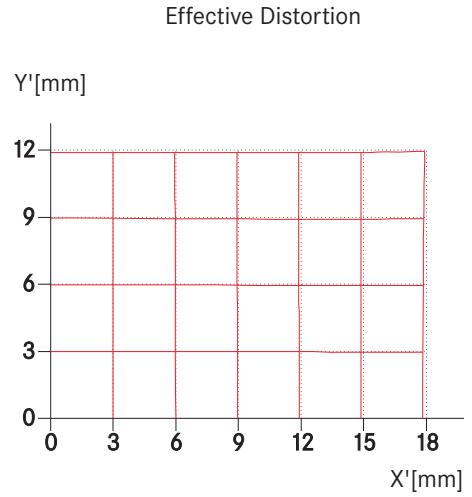
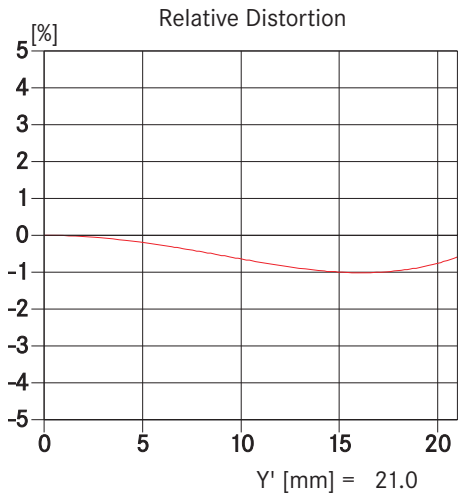
— MTF graphs



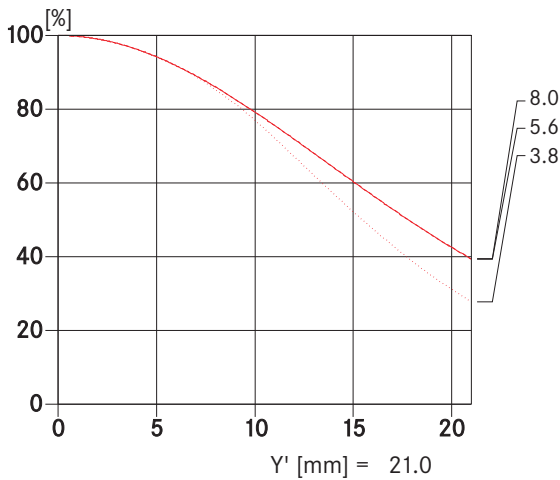
The MTF is indicated both at full aperture and at f/5.6 at long taking distances (infinity). Shown is the contrast in percentage for 5, 10, 20 and 40 lp/mm across the height of the 35 mm film format, for tangential (dotted line) and sagittal (solid line) structures, in white light. The 5 and 10 lp/mm 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 loss of illumination over the image height. 100% means no vignetting.



Depth of field table

Distance Setting [m]	Aperture Stop					Magnification
	3,8	5,6	8	11	16	
0,7	0,623 - 0,802	0,592 - 0,862	0,556 - 0,959	0,517 - 1,118	0,465 - 1,560	1/25,6
0,8	0,699 - 0,939	0,660 - 1,024	0,615 - 1,167	0,567 - 1,419	0,503 - 2,242	1/29,7
1	0,843 - 1,234	0,786 - 1,391	0,721 - 1,679	0,654 - 2,277	0,569 - 5,781	1/37,9
1,2	0,978 - 1,563	0,900 - 1,829	0,814 - 2,37	0,729 - 3,815	0,623 - ∞	1/46
1,5	1,163 - 2,129	1,053 - 2,667	0,936 - 4,047	0,823 - 11,77	0,688 - ∞	1/58,3
2	1,436 - 3,338	1,269 - 4,926	1,100 - 13,73	0,946 - ∞	0,769 - ∞	1/78,7
3	1,876 - 7,731	1,596 - 32,20	1,335 - ∞	1,110 - ∞	0,872 - ∞	1/120
5	2,484 - ∞	2,012 - ∞	1,608 - ∞	1,290 - ∞	0,975 - ∞	1/201
∞	4,838 - ∞	3,298 - ∞	2,324 - ∞	1,704 - ∞	1,188 - ∞	1/∞

