



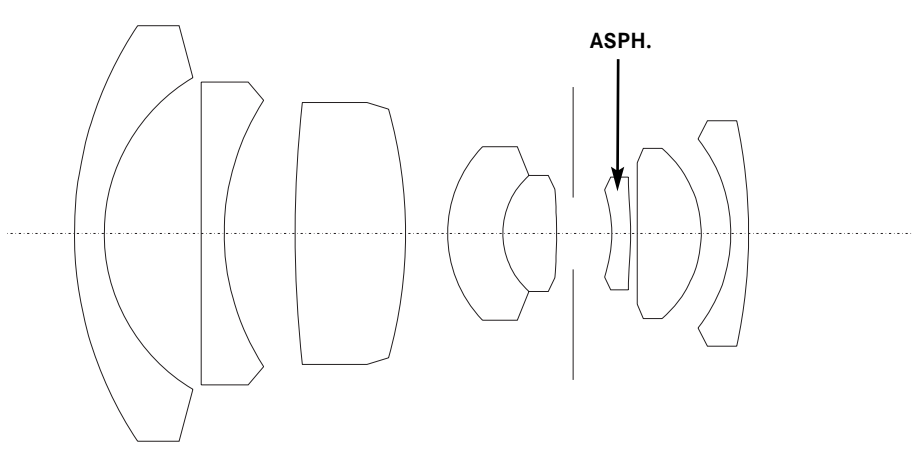
# LEICA SUPER-ELMAR-M 18 mm f/3.8 ASPH.



The LEICA SUPER-ELMAR-M 18 mm f/3.8 ASPH. features a lens element with two aspherical surfaces, ensuring outstanding optical performance across the image plane and at all f-stops. With the lens set to maximum aperture and mounted on a traditional Leica M or digital LEICA M8 model, vignetting – an effect which is inherently more prevalent with super wide angle lenses – amounts to a nominal 2.3 stops or 1.7 stops on an M8. Stopping down to f/5.6 reduces the vignetting to a value of 1.3 or 1 respectively. Maximum distortion, in turn, measures only 1.8 percent and is virtually undetectable to the human eye.

Summary: The LEICA ELMAR-M 18mm f/3.8 ASPH. not only offers optimum image performance, it has compact dimensions - for its focal length - and provides all Leica M users with an economical introduction to super wide-angle photography.

— Lens shape





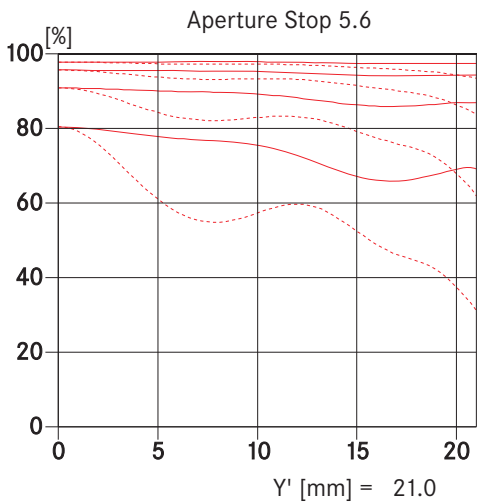
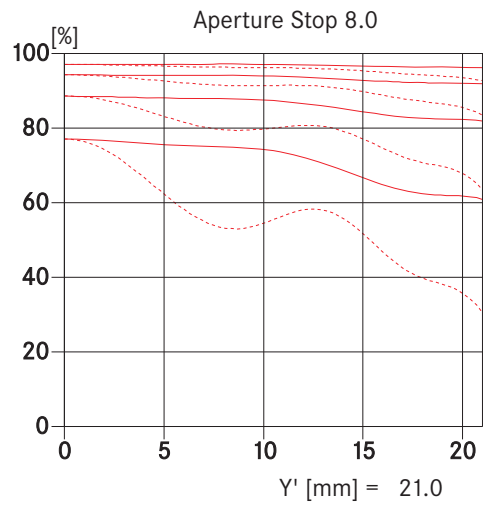
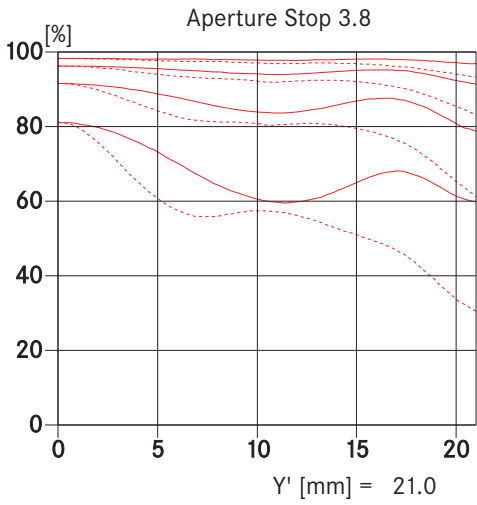
— Engineering drawing

**Technical Data**

<b>Angle of view (diagonal, horizontal, vertical)</b>	For 35 mm: 100°, 90°, 67° / For LEICA M8 models (18 x 27 mm): 84°, 74°, 53°
<b>Optical design</b>	<p><b>Number of lenses/groups:</b> 8 / 7</p> <p><b>Focal length:</b> 18.3 mm</p> <p><b>Position of entrance pupil:</b> 19.8 mm (related to the first lens surface in light direction)</p> <p><b>Focusing range:</b> 0.7 m to infinity</p>
<b>Distance setting</b>	<p><b>Scales:</b> Combined meter/feet graduation</p> <p><b>Smallest object field:</b> 827 mm x 1241 mm (35 mm), 620 x 931 mm (LEICA M8 models)</p> <p><b>Largest reproduction ratio:</b> 1:34.6</p>
<b>Aperture</b>	<p><b>Setting/Function:</b> With click-stops, half values available, manual diaphragm</p> <p><b>Lowest value:</b> 16 / <b>Number of blades:</b> 9</p>
<b>Bayonet</b>	Leica M quick-change bayonet with 6 bit lens identification bar code for digital M models
<b>Filter mount/Lens hood</b>	<p>Male thread, non-rotating and with stop for filter holder or lens hood.</p> <p>Accessory filter holder for E77 filters available / Separate, screw-on type, included in delivery</p>
<b>Dimension and weight</b>	<p><b>Length:</b> 58 mm (2.28 in)</p> <p><b>Largest diameter:</b> 61 mm (2.4 in)</p> <p><b>Weight:</b> approx. 310 g (10.93 oz.)</p>



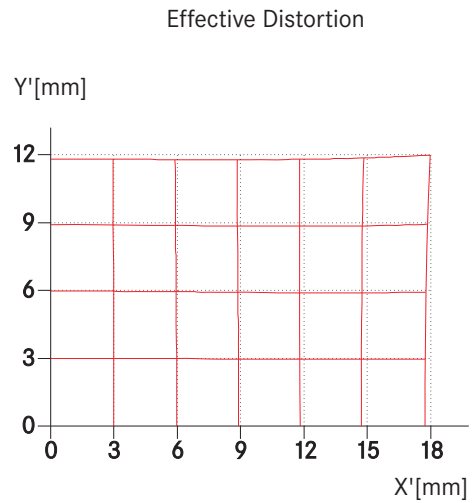
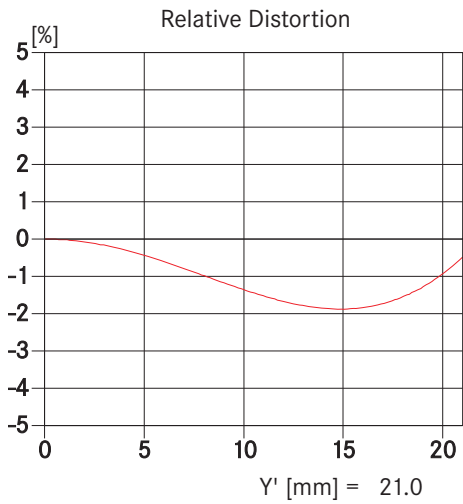
— MTF graphs



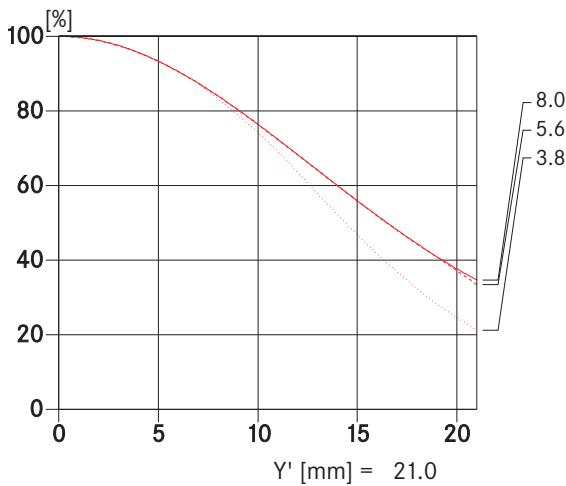
The MTF is indicated both at full aperture and at f/5.6 at long taking distances (infinity). Shown is the contrast in percentage for 5, 10, 20 and 40 lp/mm across the height of the 35 mm film format, for tangential (dotted line) and sagittal (solid line) structures, in white light. The 5 and 10 lp/mm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

	Aperture Stop					Magnification	
	3,8	5,6	8	11	16		
Distance Setting [m]	0,7	0,575 - 0,904	0,532 - 1,054	0,484 - 1,361	0,436 - 2,178	0,377 - ∞	1/34,5
	0,8	0,638 - 1,087	0,584 - 1,317	0,526 - 1,851	0,469 - 3,879	0,399 - ∞	1/39,9
	1	0,754 - 1,516	0,677 - 2,026	0,598 - 3,741	0,523 - ∞	0,436 - ∞	1/50,9
	1,2	0,857 - 2,058	0,758 - 3,160	0,658 - 11,73	0,568 - ∞	0,465 - ∞	1/61,8
	1,5	0,993 - 3,204	0,860 - 7,187	0,732 - ∞	0,620 - ∞	0,498 - ∞	1/78,2
	2	1,181 - 7,235	0,994 - ∞	0,824 - ∞	0,682 - ∞	0,535 - ∞	1/106
	3	1,455 - ∞	1,177 - ∞	0,943 - ∞	0,759 - ∞	0,579 - ∞	1/160
	5	1,788 - ∞	1,381 - ∞	1,065 - ∞	0,834 - ∞	0,619 - ∞	1/270
	∞	2,721 - ∞	1,866 - ∞	1,324 - ∞	0,979 - ∞	0,691 - ∞	1/∞

