



LEICA **APO-MACRO-ELMARIT-TL** 60 mm f/2.8 ASPH.

Technical Data.



Illustrations 1:1

Lens	Leica APO-Macro-Elmarit-TL 60 mm f/2.8 ASPH.
Order number	Black anodized: 11 086 Silver anodized: 11 087
Compatible cameras	All Leica cameras with Leica L bayonet
Angle of view (diagonal, horizontal, vertical)	For 35 mm (24 x 36 mm): 27°/22°/15°; equivalent focal length of approx. 90 mm
Optical design	Number of lenses/groups: 10/9 Aspherical surfaces: 4 Position of entrance pupil in front of the bayonet: 64.4 mm
Distance setting	Setting/Function: Electronically controlled Mode selectable using camera menu: Automatic (AF) or manual (M), in AF mode manual override possible at any times with setting dial Focusing range: 0.16 m to ∞ Smallest object field/largest reproduction ratio: 24x16 mm/1:1
Aperture	Setting/Function: Electronically controlled, adjustment using dial on camera, third values also available Smallest aperture: f/32
Bayonet	Leica L bayonet
Filter thread/ Lens hood	Internal thread for E60 filters, filter mount does not rotate, external bayonet mount for lens hood (supplied)
Finish	Black/silver anodized
Dimensions and weight (without/with lens hood)	Length: approx. 89/134 mm Largest diameter: approx. 68/81 mm Weight: approx. 320/387g



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ENGINEERING DRAWING

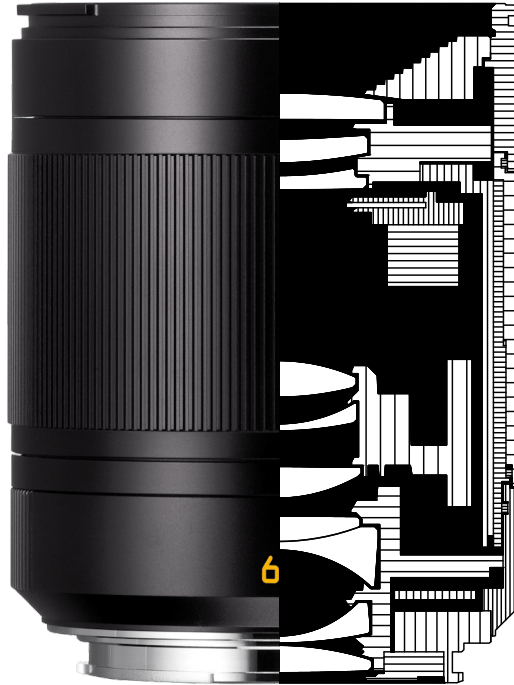
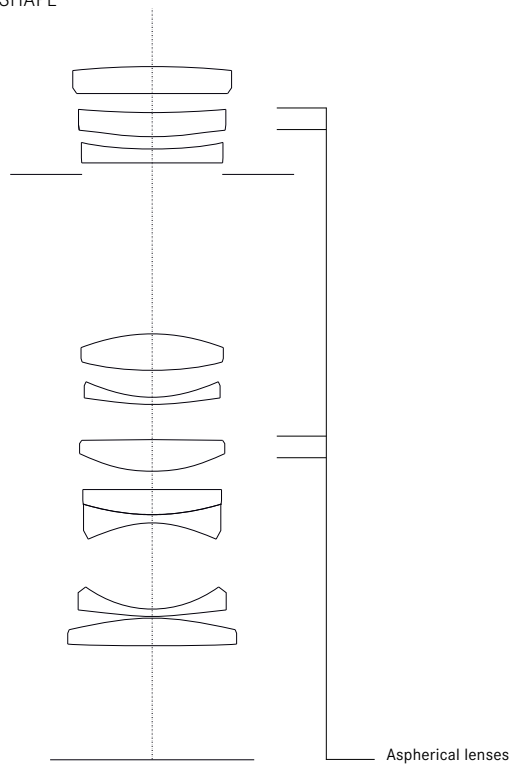


Illustration 1:1

LENS SHAPE





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MTF DIAGRAMS

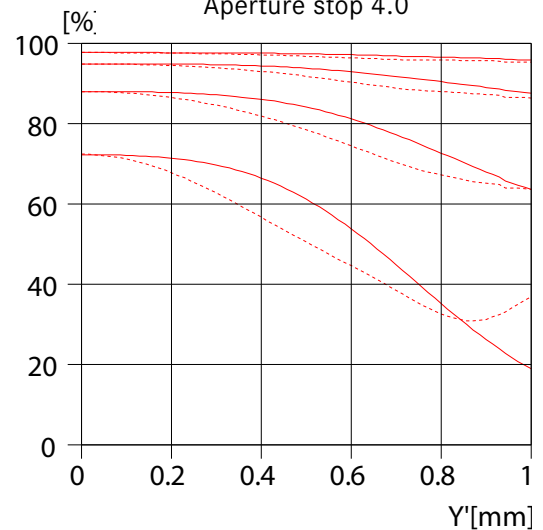
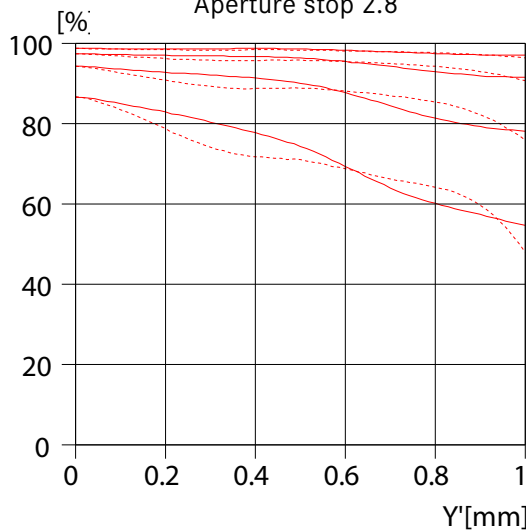
Focal length 60 mm

Infinity

Close focus distance 1:1

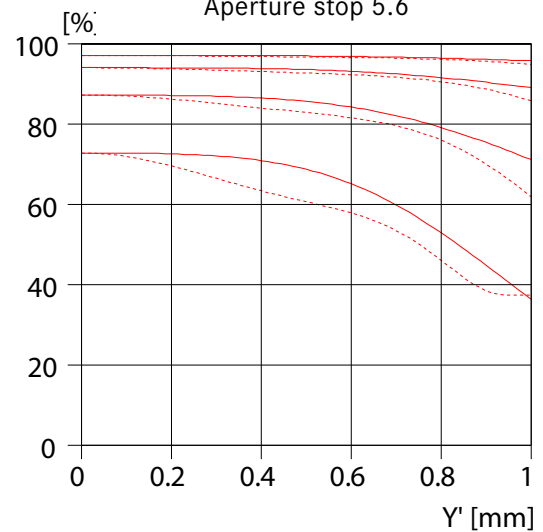
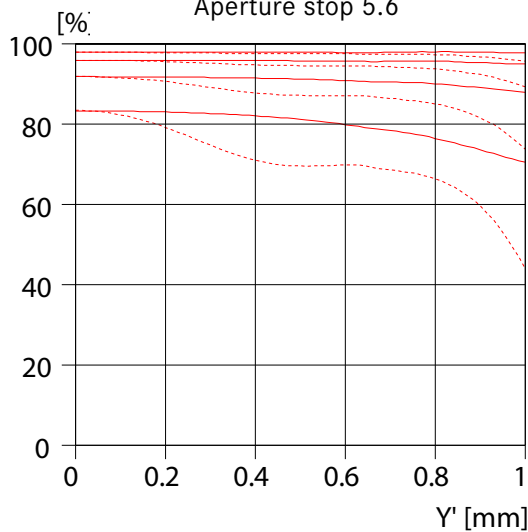
Aperture stop 2.8

Aperture stop 4.0



Aperture stop 5.6

Aperture stop 5.6



— Sagittal structures
- - - Tangential structures

MTF GRAPHS

The MTF is indicated both at full aperture and at f/5.6 for long distances (infinity) and close focussing distance. 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.