



LEICA **APO-VARIO-ELMAR-TL** 55-135 mm f/3.5-4.5 ASPH.

Technical data.



Illustration 1:1

Lens	Leica APO-Vario-Elmar-TL 55-135 mm f/3.5-4.5 ASPH.
Order no.	11 083
Compatible cameras	All Leica cameras with Leica L bayonet.
Field angle (diagonal, horizontal, vertical)	At 55 mm: approx. 28°, 24°, 16°, at 200 mm: approx. 12°, 10°, 7°, corresponding to around approx. 80 - 200 mm focal length in 35 mm format.
Optical design	Number of lenses/groups: 12/10. Aspherical surfaces: 1. Position of entrance pupil at infinity: at 55 mm: -54.4 mm, at 200 mm: -27.3 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: 1 m to ∞. Smallest object field/largest scale: at 55 mm: approx. 403 x 268 mm/f/17.1, at 135 mm: approx. 188 x 125 mm/f/8.0.
Aperture	Setting/Function: Electronically controlled, adjustment using dial on camera, third values also available. Lowest value: 16.
Bayonet fitting	Leica L bayonet.
Filter mount/ Lens hood	External bayonet fitting for lens hood (included), internal thread for E60 filters, filter mount does not rotate.
Finish	Black anodized.
Dimensions and Weight	Length to bayonet mount: approx. 110/165 mm (without/with lens hood). Largest diameter: approx. 68/81 mm (without/with lens hood). Weight: approx. 500/547 g (without/with lens hood).



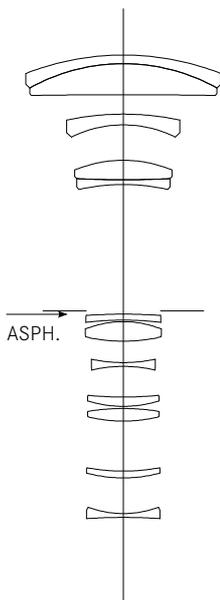
LEICA **APO-VARIO-ELMAR-TL** 55-135 mm f/3.5-4.5 ASPH.

ENGINEERING DRAWING

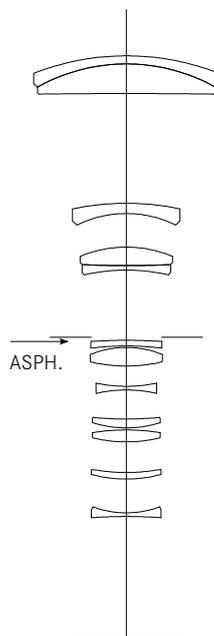


Illustration 1:1

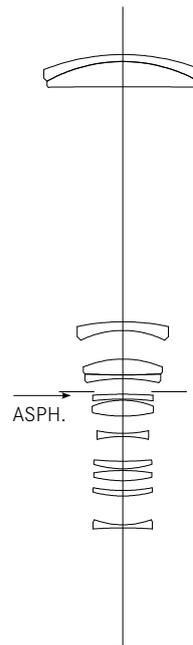
LENS SHAPE
Focal length 55 mm



LENS SHAPE
Focal length 85 mm



LENS SHAPE
Focal length 135 mm

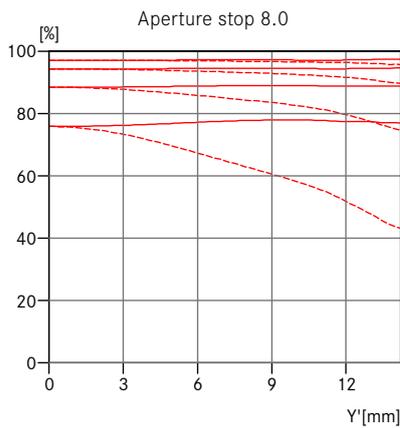
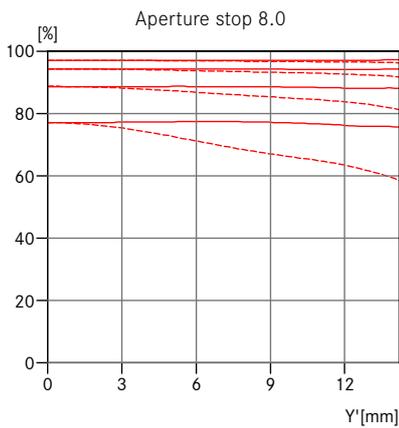
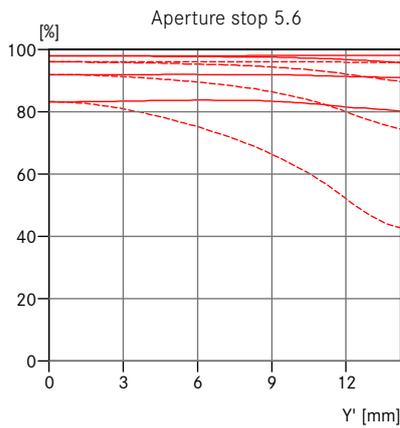
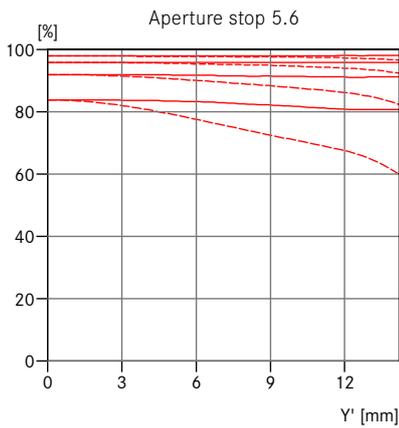
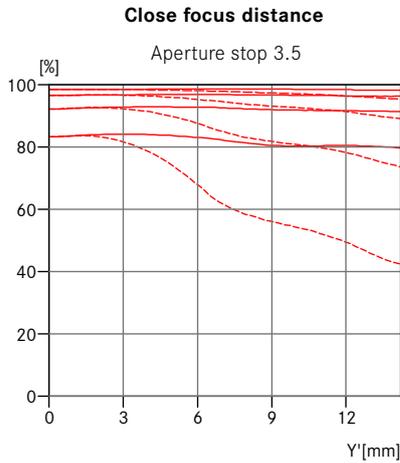
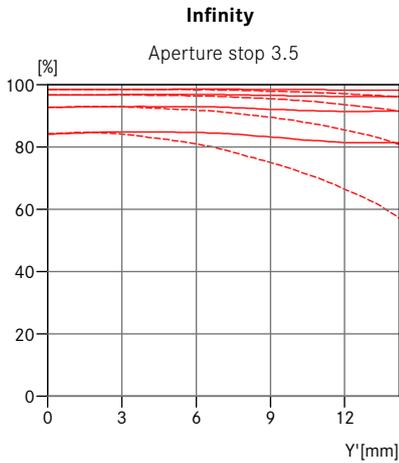




LEICA APO-VARIO-ELMAR-TL 55-135 mm f/3.5-4.5 ASPH.

MTF DIAGRAMS

Focal length 55 mm



— Sagittal structures
- - - Tangential structures

MTF GRAPHS

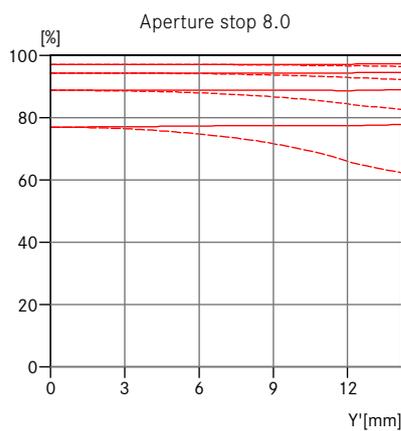
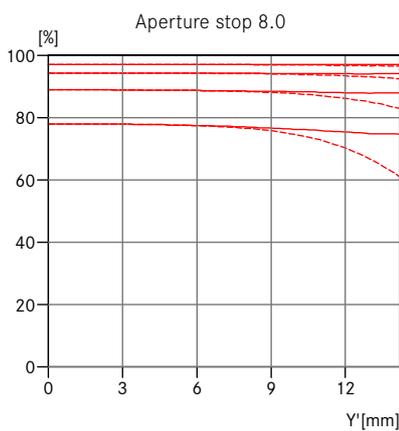
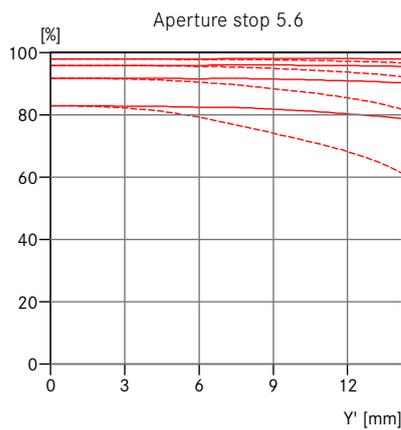
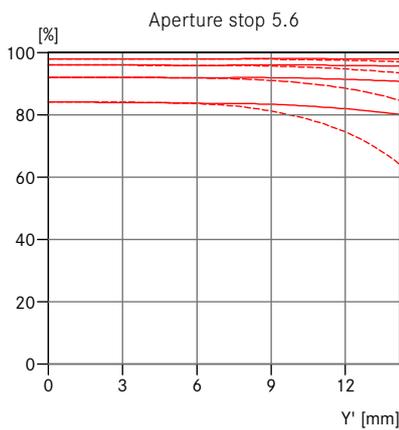
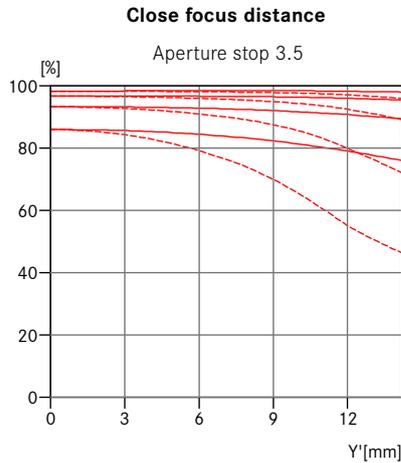
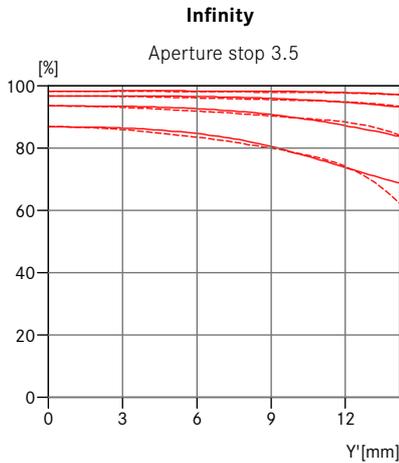
The MTF is indicated both at full aperture and at f/5.6 and f/8.0 for long distances (infinity) and close focussing distance. Shown is the contrast in percentage for 5, 10, 20 and 40 lp/mm across the height of the 35 mm film format, for tangential (dotted line) and sagittal (solid line) structures, in 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.



LEICA APO-VARIO-ELMAR-TL 55-135 mm f/3.5-4.5 ASPH.

MTF DIAGRAMS

Focal length 85 mm



— Sagittal structures
- - - Tangential structures

MTF GRAPHS

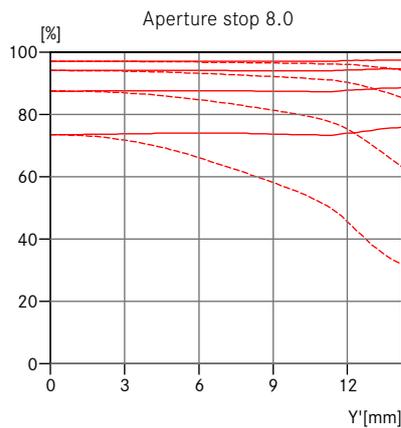
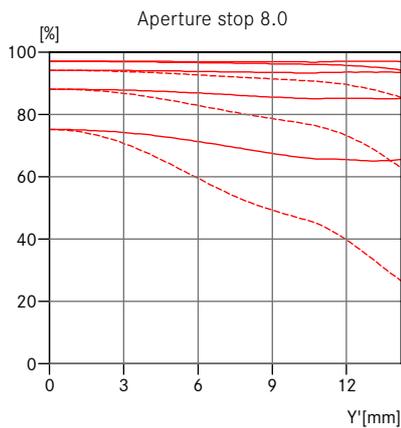
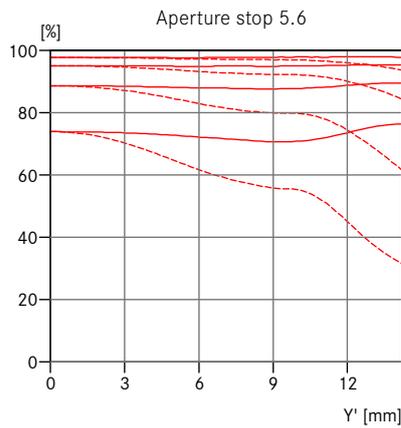
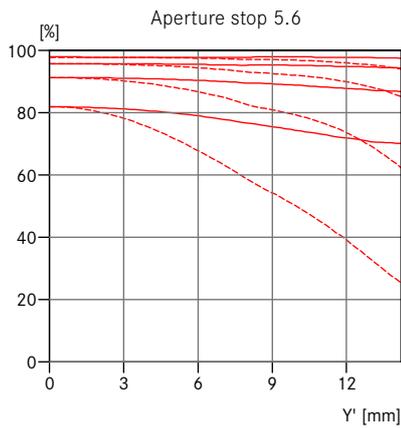
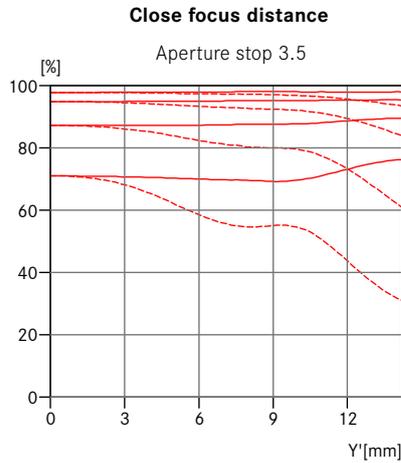
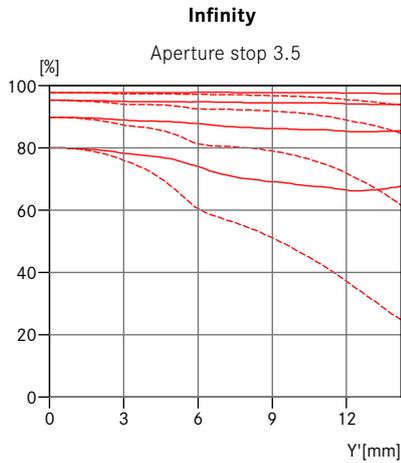
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LEICA APO-VARIO-ELMAR-TL 55-135 mm f/3.5-4.5 ASPH.

MTF DIAGRAMS

Focal length 135 mm



— Sagittal structures
- - - Tangential structures

MTF GRAPHS

The MTF is indicated both at full aperture and at f/5.6 and f/8.0 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.