LEICA **APO-VARIO-ELMARIT-SL** 90–280 mm f/2.8–4

Technical Data.

Illustration 1:2

Lens	**Leica APO-Vario-Elmarit-SL 90–280 mm f/2.8–4**
Order no.	11 175
Angle of view (diagonal, horizontal, vertical)	Focal length 90 mm: 26.4°/22.1°/14.8°; Focal length 280 mm: 9.1°/7.5°/5.0°
Optical design	Number of elements/groups: 23/17 Position of entrance pupil: Focal length 90 mm: 130.2 mm; Focal length 280 mm: -21.1 mm Working range: Focal length 90 mm: 0.6 m to infinity; Focal length 280 mm: 1.4 m to infinity
Focussing	Smallest object field: Focal length 90 mm: 114 x 171 mm; Focal length 280 mm: 120 x 180mm Largest reproduction ratio: Focal length 90 mm: 1:4.8; Focal length 280 mm: 1:5.0
Aperture	Setting/function: Electronically controlled iris, setting with the camera clickwheel control, third-stop and half-stop settings Aperture setting range: Focal length 90 mm: 2.8-22; Focal length 280 mm: 4-22 Smallest value: 22 O.I.S. Performance as per CIPA: 3.5 stops
Bayonet/sensor format	Leica L bayonet, full-frame 35 mm format
Filter thread	E82
Dimensions and weight	Length to bayonet flange: 238 mm (without lens hood) Largest diameter: 88 mm Weight: 1.710 g

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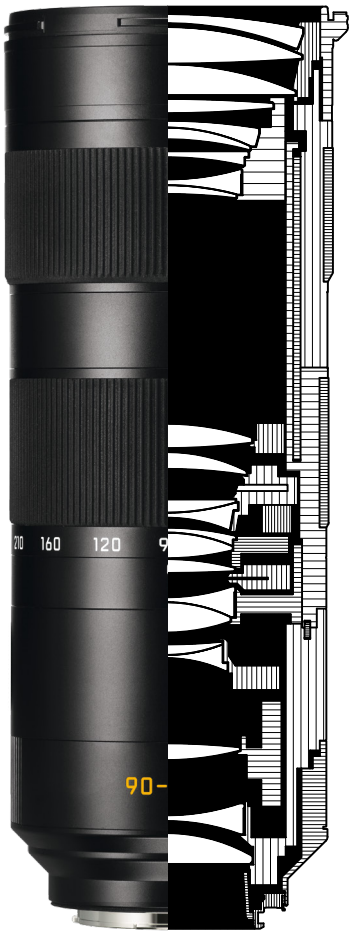
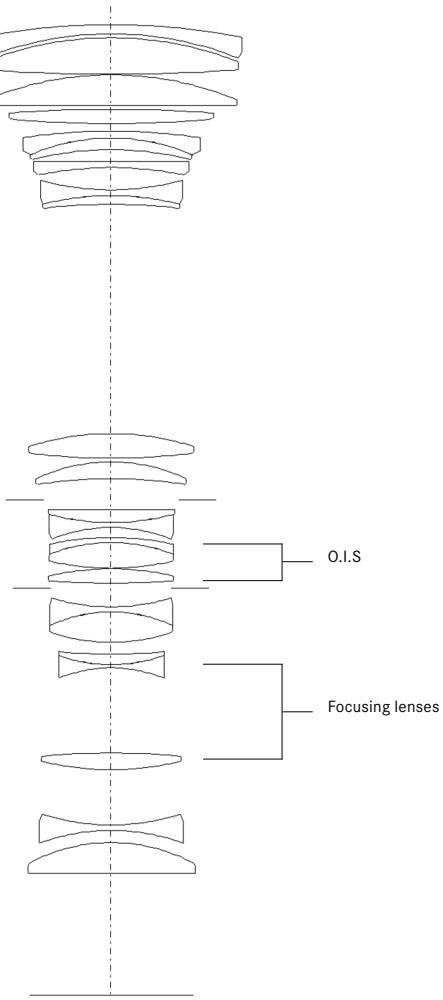
ENGINEERING DRAWING



Illustrations 1:2

LENS SHAPE



The zoom range of the fast Leica APO-Vario-Elmarit-SL 90–280 mm f/2.8–4 follows on directly from that of the Leica Vario-Elmarit-SL 24–90 mm f/2.8–4 ASPH. Together, these two lenses cover a range of focal lengths extending from 24 to 280 mm. This completely new telephoto lens construction features double internal focusing, in which two lens elements move towards each other. This guarantees extremely fast and almost-silent autofocus and consistently high imaging performance from infinity to its closest focusing distance.
This zoom lens with apochromatic correction resolves the finest structures without color fringing and with very high contrast rendition at all settings. Of the 23 elements in seven moving groups, seven are made from glasses with anomalous partial dispersion for the minimization of chromatic aberrations. A special feature of this is that the overall length of the lens does not change when either focusing or zooming. The lens hood supplied with the lens suppresses undesirable reflections and stray light and prevents flare. The lens also has a removable tripod plate for attaching it to a tripod.

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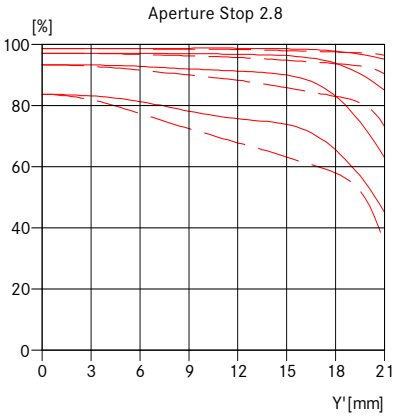
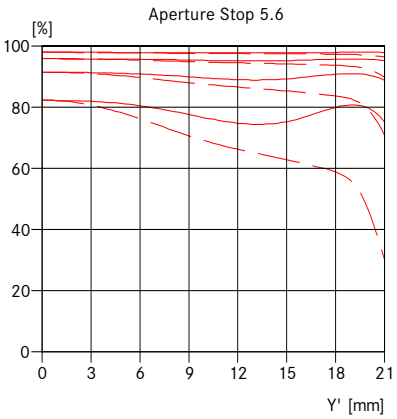
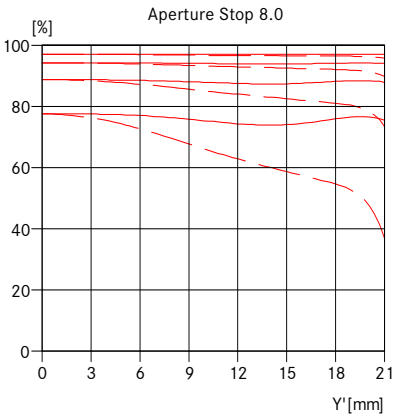
MTF DIAGRAMS

Infinity (∞)

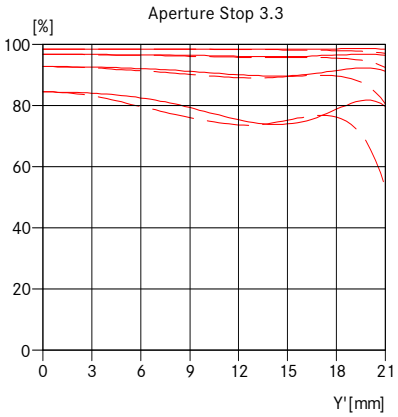
Focal length 90 mm

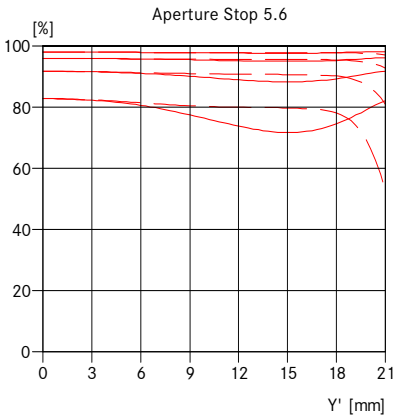


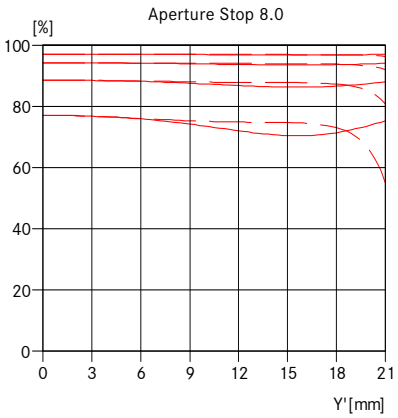




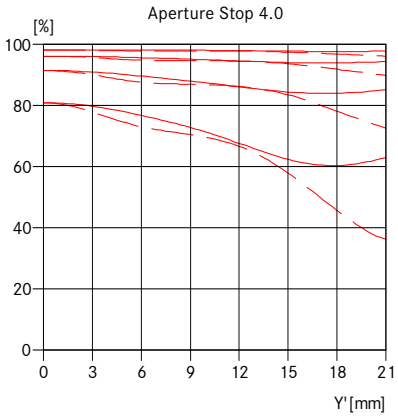
Focal length 160 mm

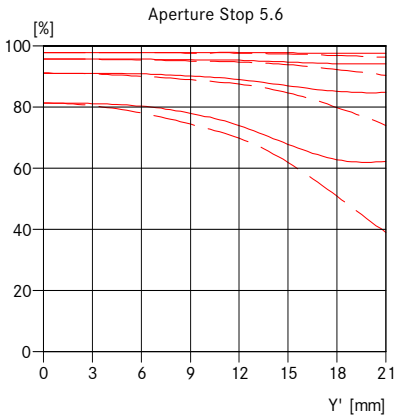


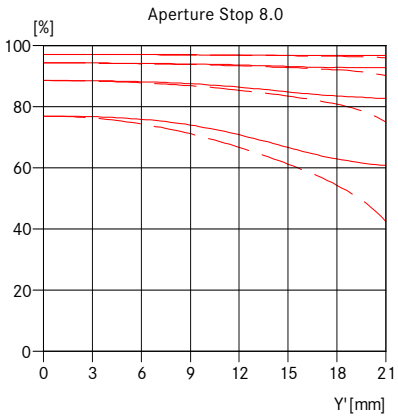


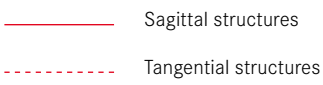


Focal length 280 mm









MTF GRAPHS The MTF is shown in each case for the maximum aperture and the aperture values 5.6 and 8.0 for long focusing distances (infinity). The contrast is plotted for 5, 10, 20, 40 lines/mm for the height of the format for tangential (dashed line) and sagittal structures (continuous line) for white light. The plots for 5 and 10 lines/mm provide an impression of the contrast performance for coarser object structures and the 20 and 40 lines/mm plots document the resolving power for fine and finest object structures.

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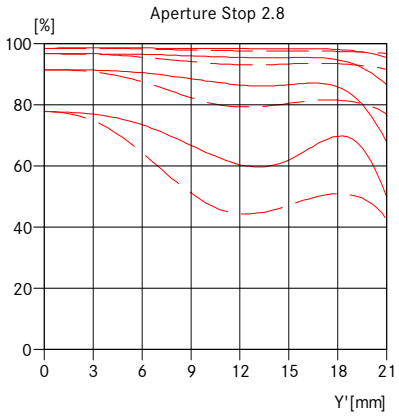
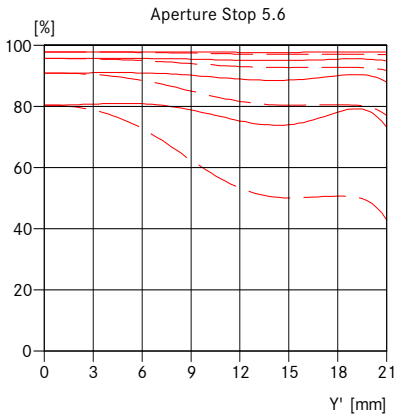
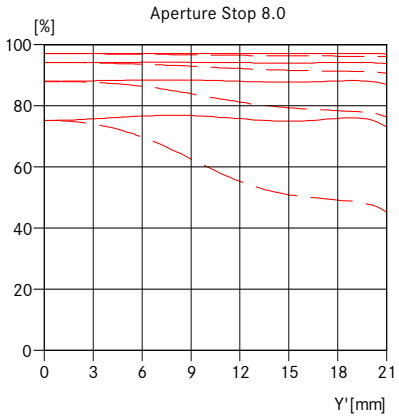
MTF DIAGRAMS

Close distance (1.4 m)

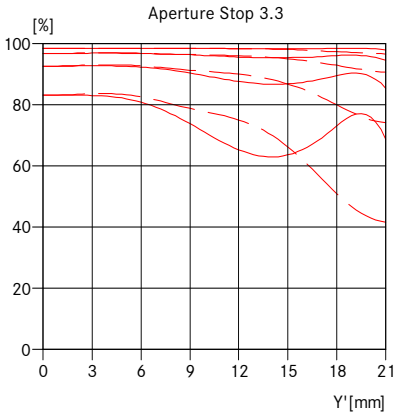
Focal length 90 mm

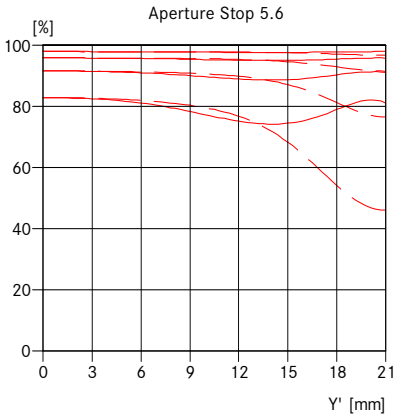


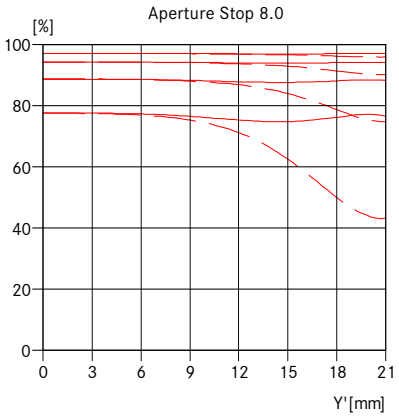




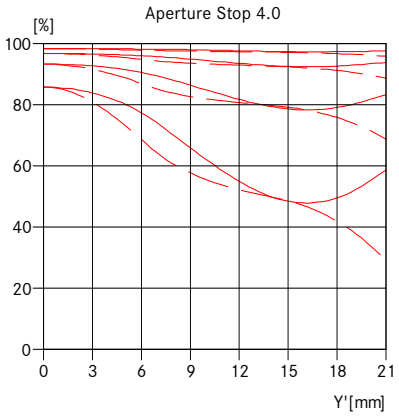
Focal length 160 mm

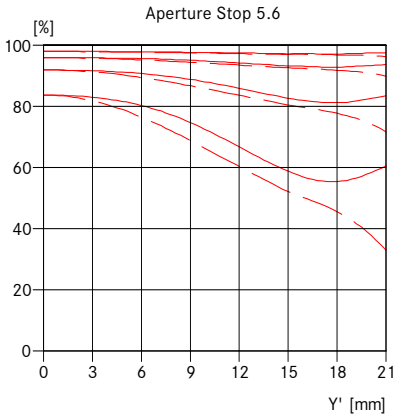


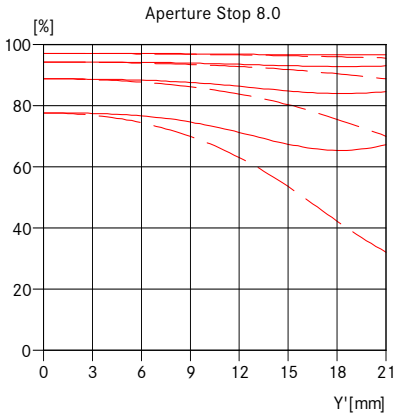




Focal length 280 mm







Sagittal structures

Tangential structures

MTF GRAPHS The MTF is shown in each case for the maximum aperture and the aperture values 5.6 and 8.0 for the close distance setting. The contrast is plotted for 5, 10, 20, 40 lines/mm for the height of the format for tangential (dashed line) and sagittal structures (continuous line) for white light. The plots for 5 and 10 lines/mm provide an impression of the contrast performance for coarser object structures and the 20 and 40 lines/mm plots document the resolving power for fine and finest object structures.

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