



LEICA TS-APO-ELMAR-S 120 MM F/5.6 ASPH.

Technical Data.



Illustration 1:2

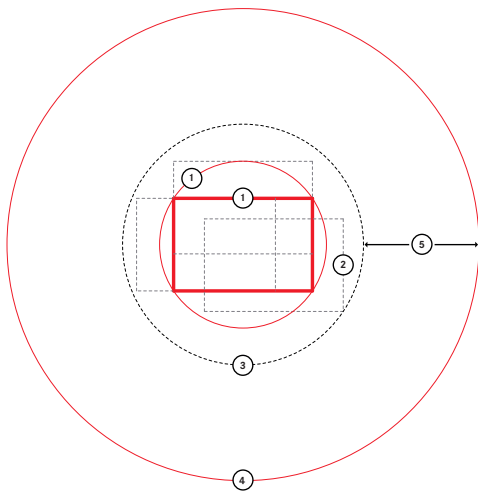
TECHNICAL DATA

Order no.	11079
Image angle (diagonal, horizontal, vertical)	23.6° / 20.0° / 13.6°, corresponds to approx. 96 mm focal length in 35 mm format
Optical design	
Number of lenses/groups	6 / 4
Position of entrance pupil (from apex of 1st lens element)	65.6 mm
Focusing range	0.95 m to ∞
Distance setting	
Scales	Combined meter/feet graduation
Smallest object field	159 mm × 239 mm
Largest reproduction ratio	1:5.3
Aperture	
Setting/Function	Electronically controlled diaphragm, set using setting / selection dial on camera, including half values
Lowest value	32
Bayonet	Leica S bayonet
Filter mount	Internal thread for E95 filter, filter mount does not rotate
Dimensions and weight	
Length to bayonet mount	approx. 144 mm
Largest diameter	approx. 108
Weight	approx. 1110 g



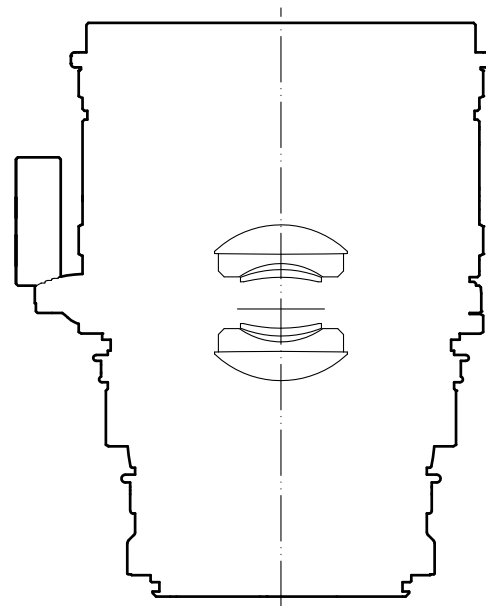
LEICA TS-APO-ELMAR-S 120 MM F/5.6 ASPH.

THE IMAGE CIRCLE FOR TILT AND SHIFT



- | | |
|--|---|
| 1 Leica S-Format/image circle | 4 Lens image circle |
| 2 Maximum shift 12 mm (horizontal/vertical/diagonal) | 5 Image circle coverage reserves for additional tilting in all directions |
| 3 Maximum image circle coverage required for 12 mm shift in all directions | |

LENS SHAPE



Thanks to a wide range of adjustment options similar to those of a field camera, the S-System now has a tilt-and-shift lens that offers fascinating creative potential – the TS-Apo-Elmar-S 120 mm f/5.6 ASPH. By tilting the lens away from its optical axis, the plane of sharpest focus moves in accordance with the Scheimpflug principle, which allows the sharp resolution of distant objects despite a large aperture and permits intentional reduction of depth of focus. Shifting the optical axis off centre allows correction of perspectives, for instance to correct or emphasise converging or diverging verticals. On the one hand, these capabilities open up very attractive options for exploring unusual visual effects, while on the other hand they allow complete correction of perspective distortion at the time of exposure.

As a consequence of its construction, the TS-Apo-Elmar-S 120 mm f/5.6 ASPH. must be manually focused and has one mechanical aperture ring for presetting the aperture and a further ring for stopping down for the actual exposure. The considerably enlarged image circle of the lens permits a maximum shift of 12 mm and a maximum tilt of 8° in each direction. The direction and degree of both tilt and shift can be set precisely by means of two separate rings.

The optical design comprises six elements in four groups, and one aspherical surface ensures consistently excellent imaging performance even when the extremes of tilt and shift capabilities are exploited to the full. Its moderate telephoto characteristic – the focal length corresponds to 100 mm in 35 mm format – and a close-focusing limit of only 84 cm make the TS-Apo-Elmar-S 120 mm f/5.6 ASPH. an excellent lens for use in studio settings and for outdoor photography.



LEICA **TS-APO-ELMAR-S** 120 MM F/5.6 ASPH.



Illustration 1:1

SCOPE OF DELIVERY

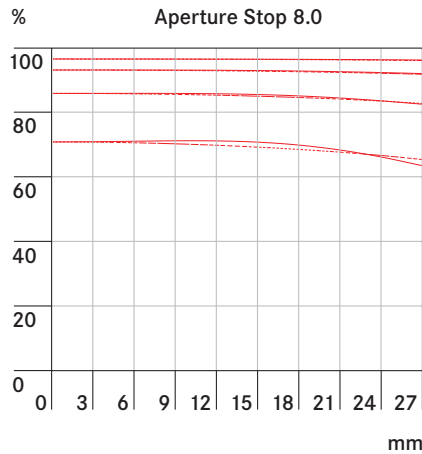
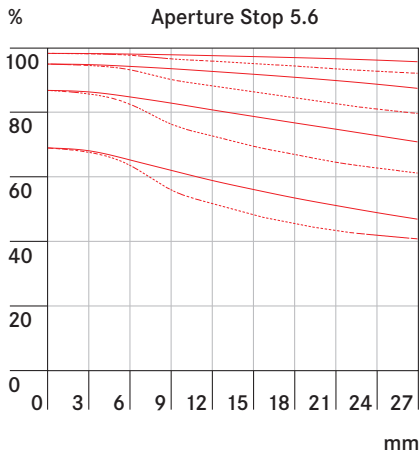
Rear lens cover (Order no. 16020), Lens cover S (Order no. 16027 / E95),
Lens pouch (Order no. 439-606.110-000)



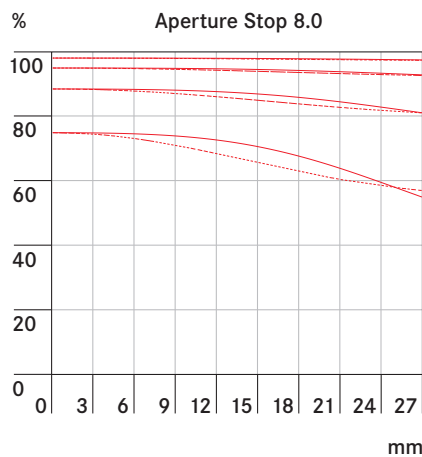
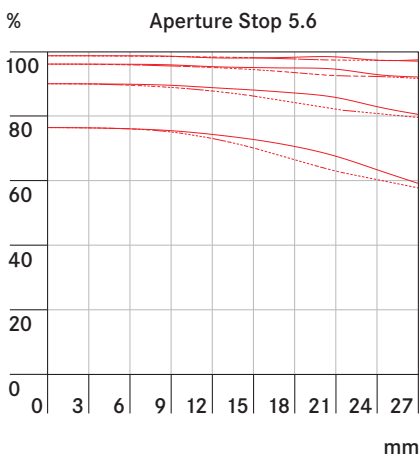
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MTF DIAGRAMS

Focusing distance



Infinity (∞)



— Sagittal structures
..... Tangential structures


MTF GRAPHS

The MTF is indicated both at full aperture and at f/5.6 and f/8 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.



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DEPTH OF FIELD TABLE

 ∞ feet ∞ m	Aperture Stop						Magnification
	5.6	8	11	16	22	32	
0.84	0.837 - 0.843	0.836 - 0.844	0.834 - 0.846	0.831 - 0.849	0.828 - 0.852	0.823 - 0.858	1/5.3
1	0.995 - 1.005	0.992 - 1.008	0.990 - 1.011	0.985 - 1.016	0.980 - 1.022	0.971 - 1.032	1/7.3
1.2	1.191 - 1.121	1.187 - 1.213	1.183 - 1.218	1.175 - 1.227	1.166 - 1.237	1.151 - 1.255	1/8.9
1.5	1.484 - 1.517	1.477 - 1.524	1.469 - 1.533	1.455 - 1.549	1.439 - 1.568	1.413 - 1.602	1/11.3
1.7	1.678 - 1.723	1.669 - 1.733	1.657 - 1.746	1.638 - 1.768	1.617 - 1.795	1.582 - 1.842	1/12.9
2	1.967 - 2.034	1.953 - 2.049	1.936 - 2.069	1.909 - 2.102	1.877 - 2.143	1.827 - 2.216	1/15.3
3	2.917 - 3.088	2.882 - 3.129	2.841 - 3.180	2.775 - 3.270	2.699 - 3.386	2.584 - 3.599	1/23.4
4	3.844 - 4.170	3.781 - 4.248	3.706 - 4.349	3.587 - 4.531	3.455 - 4.771	3.256 - 5.238	1/31.5
5	4.751 - 5.279	4.651 - 5.409	4.534 - 5.581	4.351 - 5.895	4.151 - 6.325	3.858 - 7.208	1/39.6
10	8.988 - 11.28	8.615 - 11.94	8.193 - 12.88	7.576 - 14.83	6.952 - 18.17	6.119 - 29.21	1/80.1
∞	82.90 - ∞	58.12 - ∞	42.35 - ∞	29.21 - ∞	21.32 - ∞	14.74 - ∞	1/∞



Set distance [m]