LEICA **VARIO-ELMAR-S** 30–90 MM F/3.5–5.6 ASPH.

Technical Data.

Illustration 1:2

TECHNICAL DATA

Order no.	11058
Image angle (diagonal, horizontal, vertical)	at 30 mm: 81.5° / 71° / 51°; at 90 mm: 34° / 28.5° / 19.5°, corresponds to approx. WA: 24 mm, Tele: 72 mm focal length in 35 mm format
Optical design	
Number of lenses/groups	14 / 11
Position of entrance pupil (from apex of 1st lens element)	WA: 72.8 mm / Tele: 65.9 mm
Focusing range	0.65 m to ∞
Distance setting	
Scales	Combined meter/feet graduation
Smallest object field	at 30 mm: 514 mm × 771 mm, at 90 mm: 194 mm × 291 mm
Largest reproduction ratio	1 : 6.5
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/Lens hood	External bayonet for lens hood (included), internal thread for E95 filter, filter mount does not rotate
Dimensions and weight	
Length to bayonet mount	approx. 113.5 / 144.3 mm (without / with lens hood)
Largest diameter	approx. 101 / 150 mm (without / with lens hood)
Weight	approx. 1275 / 1345 g

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ENGINEERING DRAWING

Illustration 1:2

The Leica Vario-Elmar-S 30–90 mm f/3.5–5.6 ASPH. combines the versatility of a zoom lens with the imaging performance of equivalent primes. From the angles of view it translates to a 24 to 72 mm zoom in 35 mm format – the versatility offered by this universal range of focal lengths, from an extreme wide-angle to a little longer than a standard lens, makes it ideal for all manner of photographic needs. A particular advantage of this zoom is that photographers have no need to fear a loss of quality in comparison with corresponding primes and must only accept that the initial aperture is not quite as fast.

Its sophisticated optical design comprises 14 elements in four groups. Altogether nine elements are manufactured from glasses with anomalous partial dispersion, and three of these are fluoride lenses with the particularly low dispersion characteristics needed for the correction of chromatic aberrations. Monochromatic aberrations are effectively minimised by the integration of three aspherical lens surfaces.

These constructional measures ensure that the Vario-Elmar-S 30–90 mm f/3.5–5.6 ASPH. can be used without any reservations throughout the entire zoom range at all focusing distances and at maximum aperture, as stopping down only minimally improves its already extraordinarily high imaging performance. At all focal lengths distortion is extremely well controlled and vignetting effects imperceptible. The Vario-Elmar-S 30–90 mm f/3.5–5.6 ASPH. delivers consistently dependable high performance and offers extreme flexibility and creative potential for a multitude of photographic challenges.

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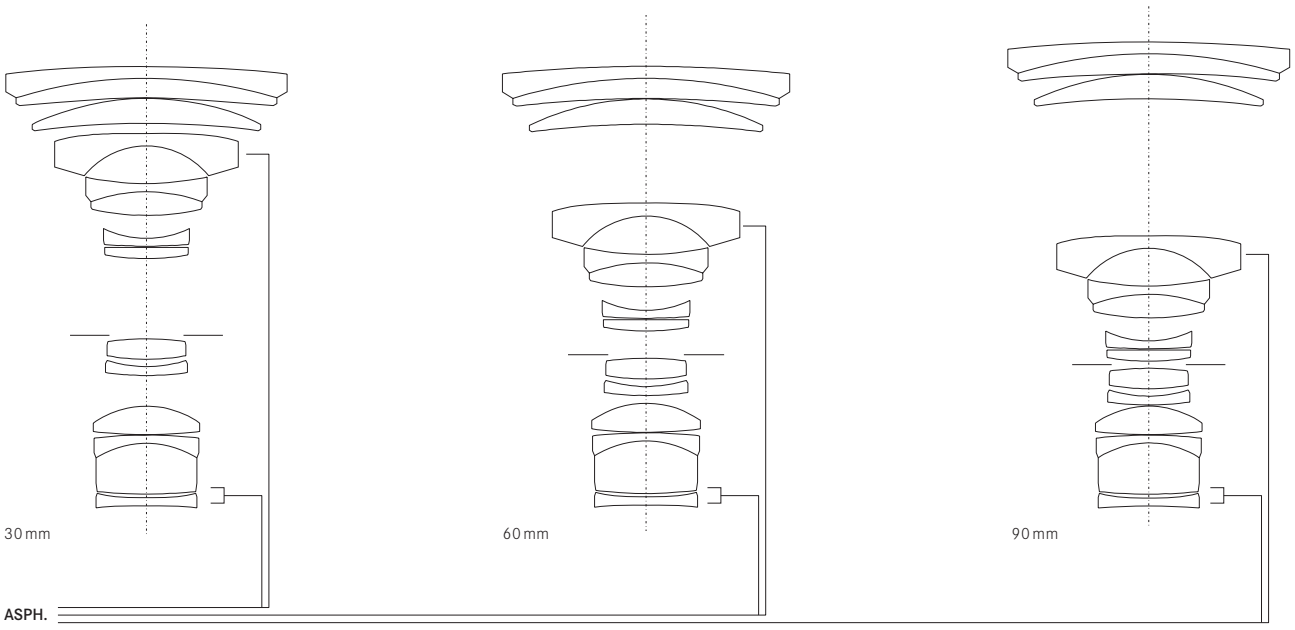
LENS SHAPES



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Lens with lens hood, illustration 1:2

Lens hood in transport position, illustration 1:2

SCOPE OF DELIVERY

	Rear lens cover (Order no. 16020), Lens cover S (Order no. 16027), Lens pouch (Order no. 439-606.105-000), Lens hood (Order no. 12404)

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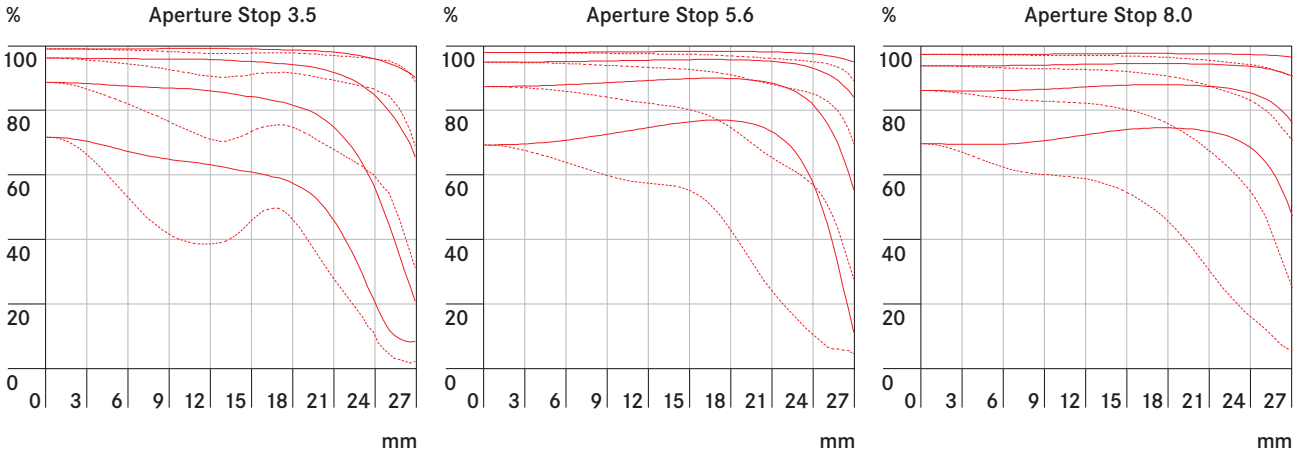
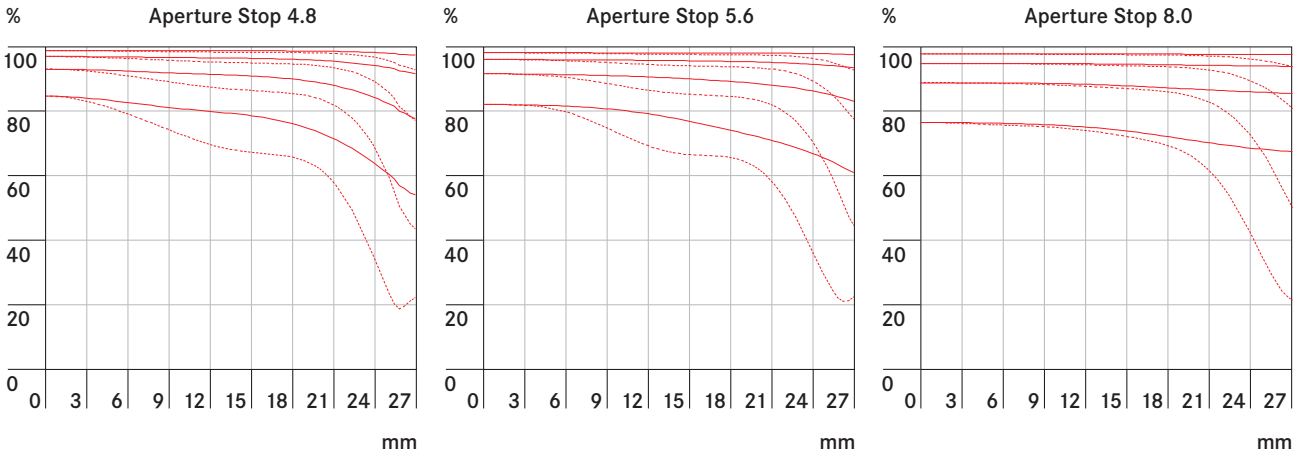
MTF DIAGRAMS

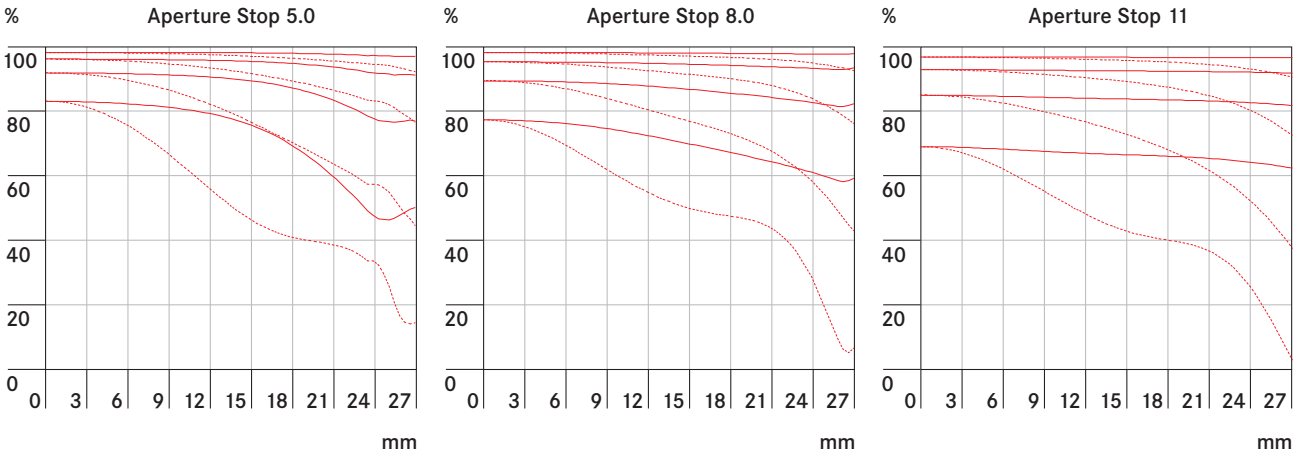
30 mm



60 mm



90 mm



Sagittal structures

Tangential structures

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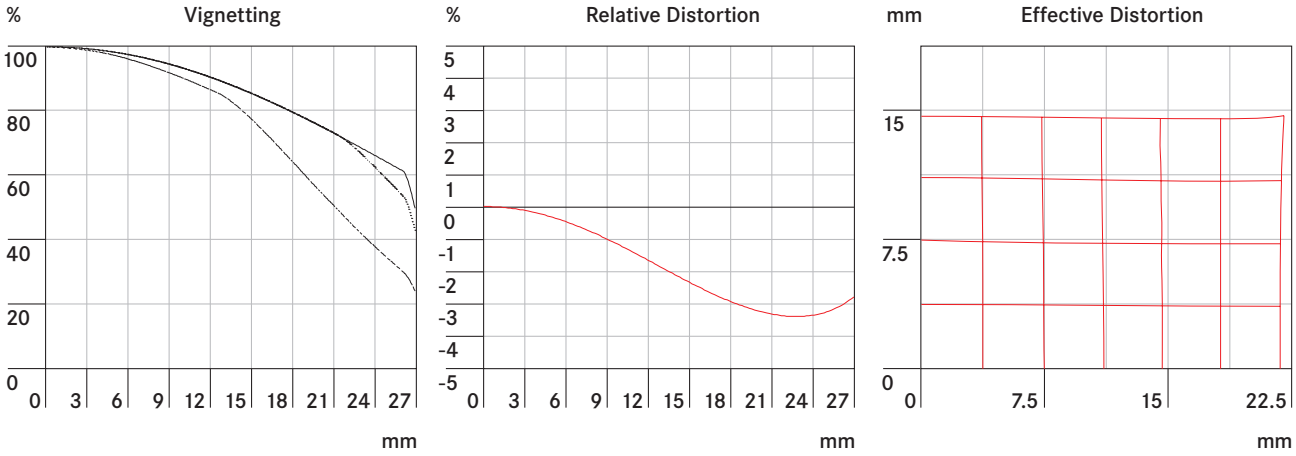
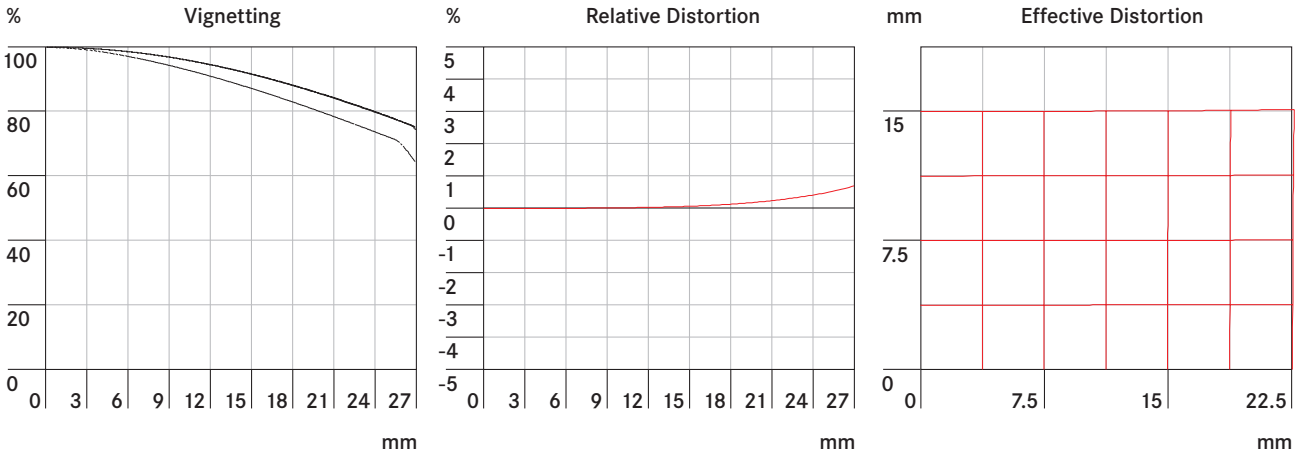
VIGNETTING-/DISTORTION DIAGRAM

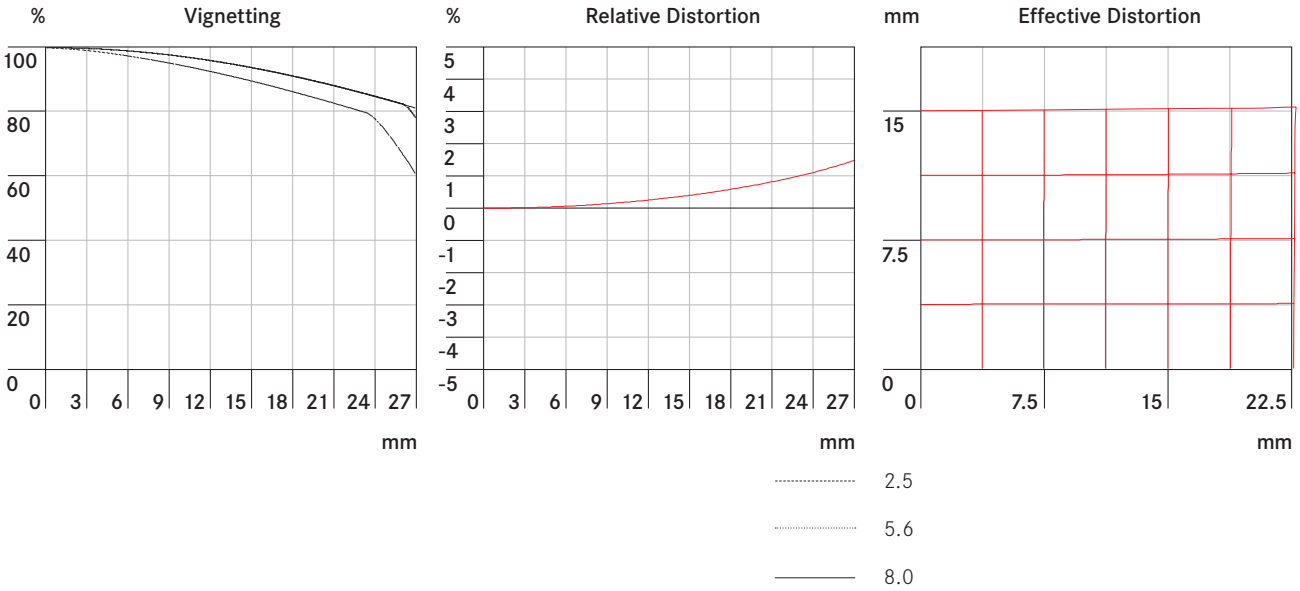
30 mm



60 mm



90 mm



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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.
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 27.04 mm is the radial distance between the edge and the middle of the image field for the format 30 mm x 45 mm. The graph of the effective distortion illustrates the appearance of straight horizontal and vertical lines in the picture. Vignetting is a continous 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.

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LEICA **VARIO-ELMAR-S** 30–90 MM F/3.5–5.6 ASPH.

DEPTH OF FIELD TABLE

30 mm

∞ feet ∞ m	Aperture Stop								Magnification
	3.5	4	5.6	8	11	16	22	32	
0.65	0.617 – 0.688	0.613 – 0.693	0.599 – 0.713	0.581 – 0.745	0.559 – 0.790	0.528 – 0.881	0.495 – 1.031	0.452 – 1.481	1/17.2
0.8	0.747 – 0.863	0.741 – 0.872	0.720 – 0.905	0.691 – 0.961	0.659 – 1.044	0.612 – 1.225	0.567 – 1.566	0.507 – 3.110	1/22
1	0.914 – 1.107	0.904 – 1.123	0.871 – 1.182	0.827 – 1.286	0.779 – 1.449	0.712 – 1.852	0.647 – 2.847	0.567 – 72.23	1/28.4
1.5	1.303 – 1.777	1.281 – 1.822	1.212 – 1.998	1.122 – 2.342	1.029 – 3.003	0.907 – 5.853	0.798 – ∞	0.672 – ∞	1/44.3
2	1.654 – 2.549	1.618 – 2.646	1.505 – 3.050	1.365 – 3.975	1.225 – 6.489	1.051 – ∞	0.904 – ∞	0.741 – ∞	1/60.2
3	2.265 – 4.507	2.195 – 4.832	1.986 – 6.447	1.742 – 13.14	1.514 – ∞	1.250 – ∞	1.041 – ∞	0.825 – ∞	1/91.9
5	3.213 – 11.70	3.071 – 14.26	2.668 – 59.27	2.235 – ∞	1.865 – ∞	1.472 – ∞	1.185 – ∞	0.907 – ∞	1/155.4
∞	8.645 – ∞	7.653 – ∞	5.500 – ∞	3.888 – ∞	2.862 – ∞	2.007 – ∞	1.494 – ∞	1.067 – ∞	1/∞

60 mm

∞ feet ∞ m	Aperture Stop							Magnification
	4.8	5.6	8	11	16	22	32	
0.65	0.636 – 0.665	0.634 – 0.668	0.627 – 0.675	0.619 – 0.686	0.606 – 0.703	0.591 – 0.726	0.568 – 0.769	1/9.3
0.8	0.778 – 0.824	0.774 – 0.828	0.764 – 0.841	0.751 – 0.858	0.731 – 0.887	0.708 – 0.926	0.674 – 1.000	1/11.8
1	0.964 – 1.040	0.958 – 1.046	0.941 – 1.068	0.921 – 1.096	0.890 – 1.147	0.855 – 1.216	0.804 – 1.354	1/15.2
1.5	1.416 – 1.596	1.403 – 1.613	1.365 – 1.668	1.321 – 1.742	1.254 – 1.883	1.183 – 2.087	1.083 – 2.559	1/23.5
2	1.849 – 2.180	1.827 – 2.213	1.762 – 2.319	1.687 – 2.469	1.577 – 2.770	1.464 – 3.251	1.310 – 4.611	1/31.9
3	2.666 – 3.436	2.618 – 3.520	2.484 – 3.806	2.335 – 4.238	2.124 – 5.239	1.919 – 7.347	1.657 – 23.19	1/48.5
5	4.122 – 6.373	4.007 – 6.677	3.694 – 7.810	3.369 – 9.930	2.940 – 18.26	2.555 – ∞	2.104 – ∞	1/81.9
∞	22.81 – ∞	19.60 – ∞	13.76 – ∞	10.04 – ∞	6.940 – ∞	5.081 – ∞	3.532 – ∞	1/∞

90 mm

∞ feet ∞ m	Aperture Stop						Magnification
	5.6	8	11	16	22	32	
0.65	0.641 – 0.659	0.638 – 0.663	0.633 – 0.668	0.626 – 0.676	0.618 – 0.687	0.605 – 0.705	1/6.5
0.8	0.786 – 0.814	0.781 – 0.820	0.774 – 0.828	0.763 – 0.841	0.750 – 0.858	0.730 – 0.888	1/8.2
1	0.978 – 1.023	0.970 – 1.033	0.959 – 1.045	0.942 – 1.068	0.922 – 1.096	0.890 – 1.146	1/10.5
1.5	1.450 – 1.554	1.431 – 1.577	1.407 – 1.608	1.368 – 1.663	1.325 – 1.735	1.259 – 1.870	1/16.2
2	1.911 – 2.099	1.877 – 2.141	1.835 – 2.200	1.769 – 2.306	1.697 – 2.448	1.589 – 2.730	1/21.9
3	2.801 – 3.231	2.728 – 3.335	2.639 – 3.481	2.504 – 3.757	2.359 – 4.155	2.153 – 5.055	1/33.3
5	4.466 – 5.684	4.283 – 6.016	4.065 – 6.516	3.749 – 7.567	3.431 – 9.396	3.009 – 15.83	1/56
∞	41.24 – ∞	29.43 – ∞	21.44 – ∞	14.78 – ∞	10.78 – ∞	7.450 – ∞	1/∞

∞ feet ∞ m Set distance [m]

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