



# LEICA **SUMMARIT-M** 90 mm f/2.4

Technical Data.



Illustration 1:1

<b>Lens</b>	<b>Leica Summarit-M 90 mm f/2.4</b>
Order number	Black anodized: 11 684 Silver anodized: 11 685
Angle of view (diagonal, horizontal, vertical)	For 35 mm (24 x 36 mm): 27°/23°/15°; for M8 (18 x 27 mm): 20°/17°/11°, equivalent focal length of approx. 120 mm
Optical design	Number of elements/groups: 5/4 Position of entrance pupil in front of the bayonet: 8.22 mm Focusing range: 0.9 m to infinity
Distance setting	Scala: combined meter/feet-increments Smallest object field: for 35 mm: 187 x 280 mm, for M8: 140 x 210 mm Largest reproduction ratio: 1:7.8
Aperture	Setting/type: click stops, half steps Smallest aperture: f/16 Number of aperture blades: 11
Bayonet	Leica M quick-change bayonet
Filter thread	E46
Lens hood	Screw-on
Dimensions and weight	Length: approx. 67 mm (without lens hood) Diameter: approx. 55 mm/59 mm (without/with lens hood) Weight: approx. 346 g/371 g (without/with lens hood)



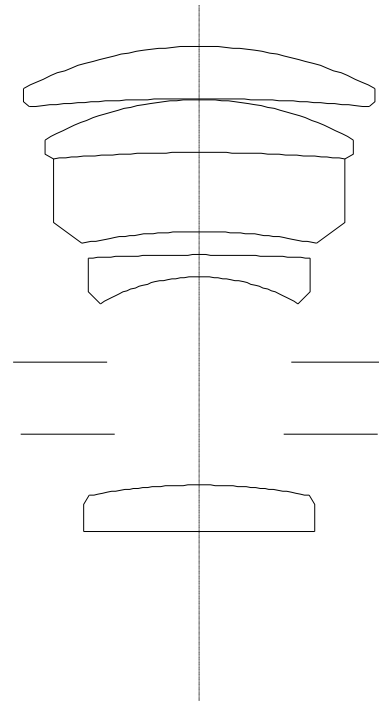
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ENGINEERING DRAWING



Illustrations 1:1

LENS SHAPE



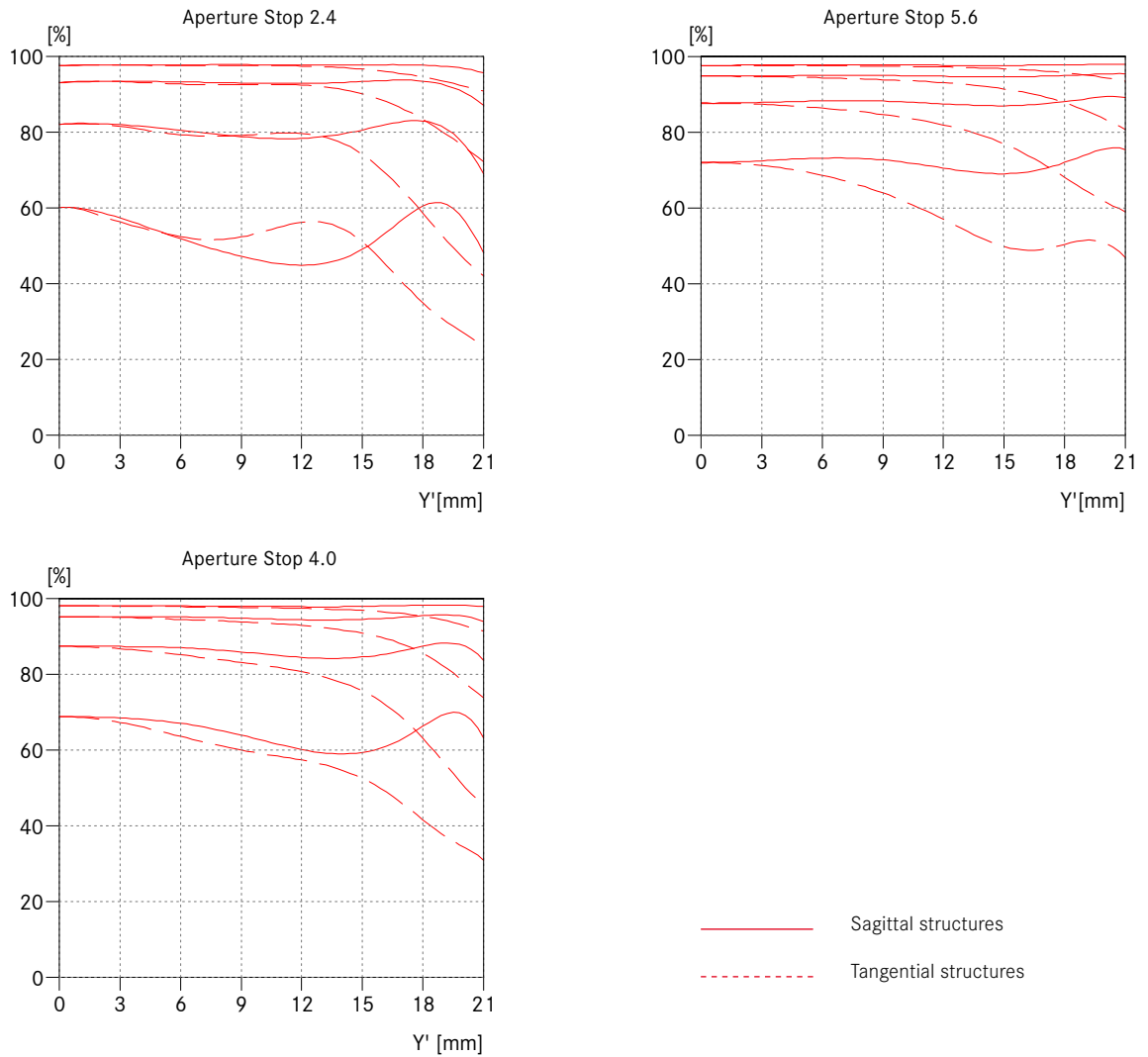
The Leica Summarit-M 90 mm f/2.4 is a versatile telephoto lens that rounds off the new lens speed class of Summarit-M lenses. Despite being much more handy and lighter than the comparable 90 mm Summicron lens, it offers outstanding optical and mechanical quality.

With its combination of long focal length and wide maximum aperture, it embodies the tradition of classical spherical design and adds state-of-the-art technology and superb performance. Its compact construction keeps viewfinder obstruction to a bare minimum, while the choice of glass types employed guarantees outstanding colour fidelity.



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## MTF DIAGRAMS



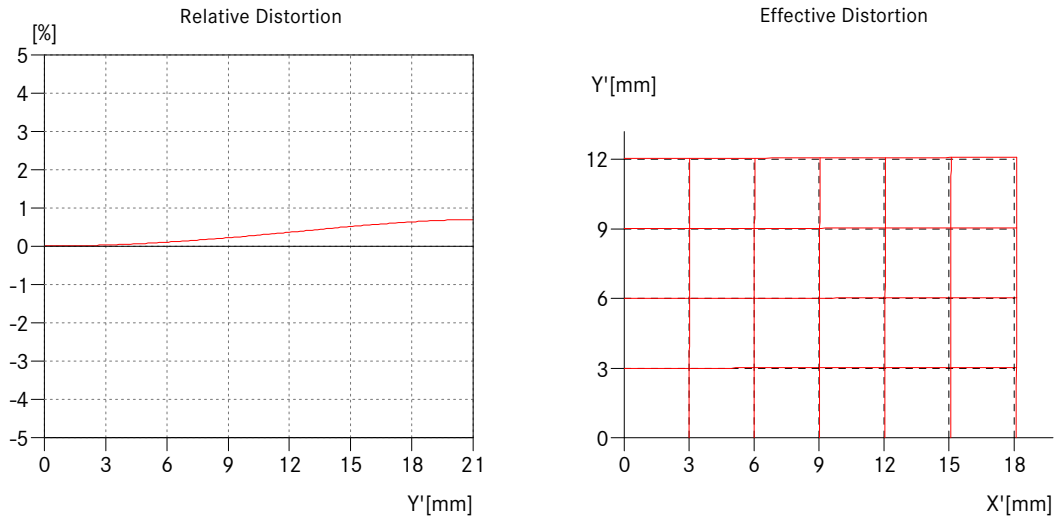
## MTF GRAPHS

The MTF is shown in each case for the maximum aperture and the aperture value 4.0 and 5.6 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.

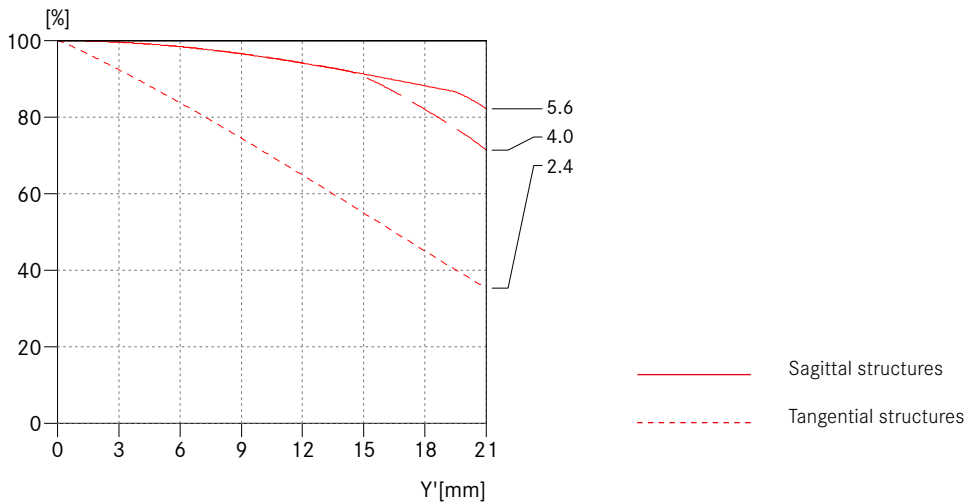


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## DISTORTION



## VIGNETTING



## DISTORTION

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 21.6 mm is the radial distance between the edge and the middle of the image field for the format 24 mm x 36 mm. The graph of the effective distortion illustrates the appearance of straight horizontal and vertical lines in the picture.

## VIGNETTING

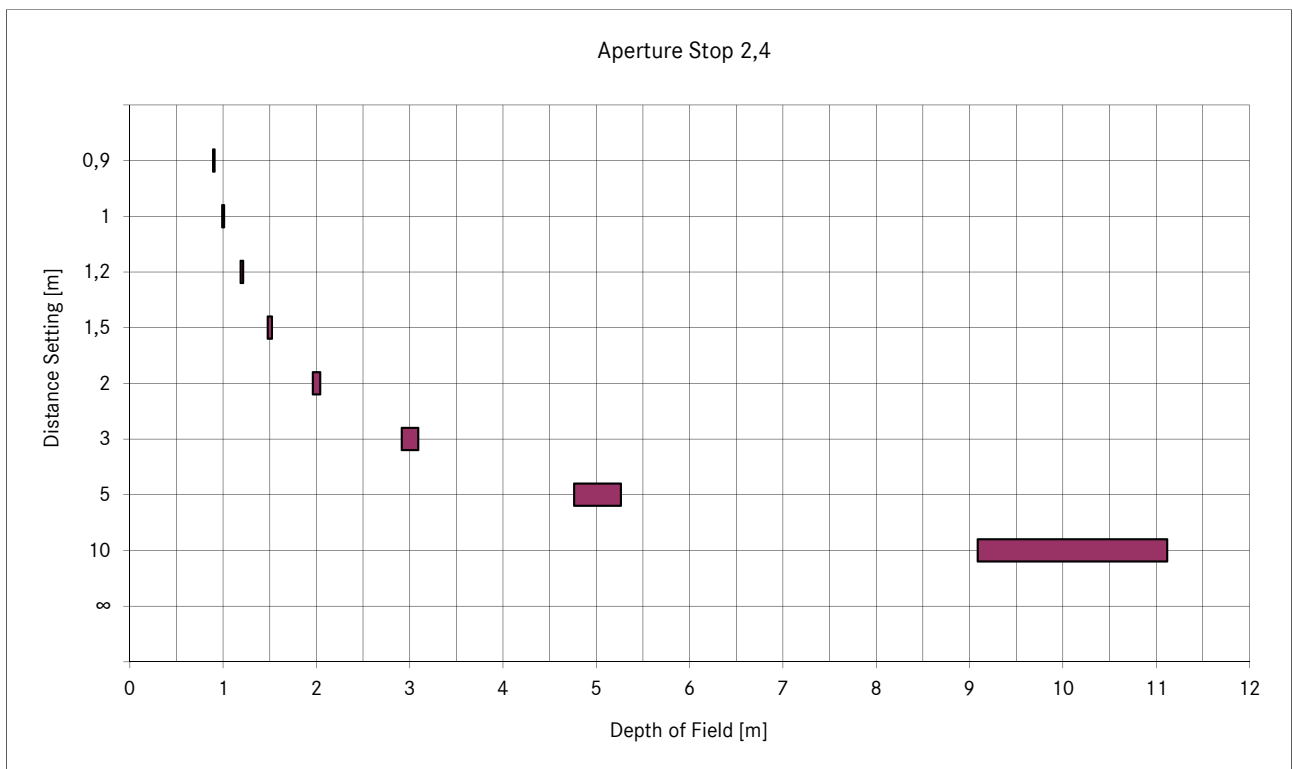
Vignetting is a continuous decrease of the illumination to the edges of the image field. The graph shows the percentage loss of illumination over the image height. 100% means no vignetting.



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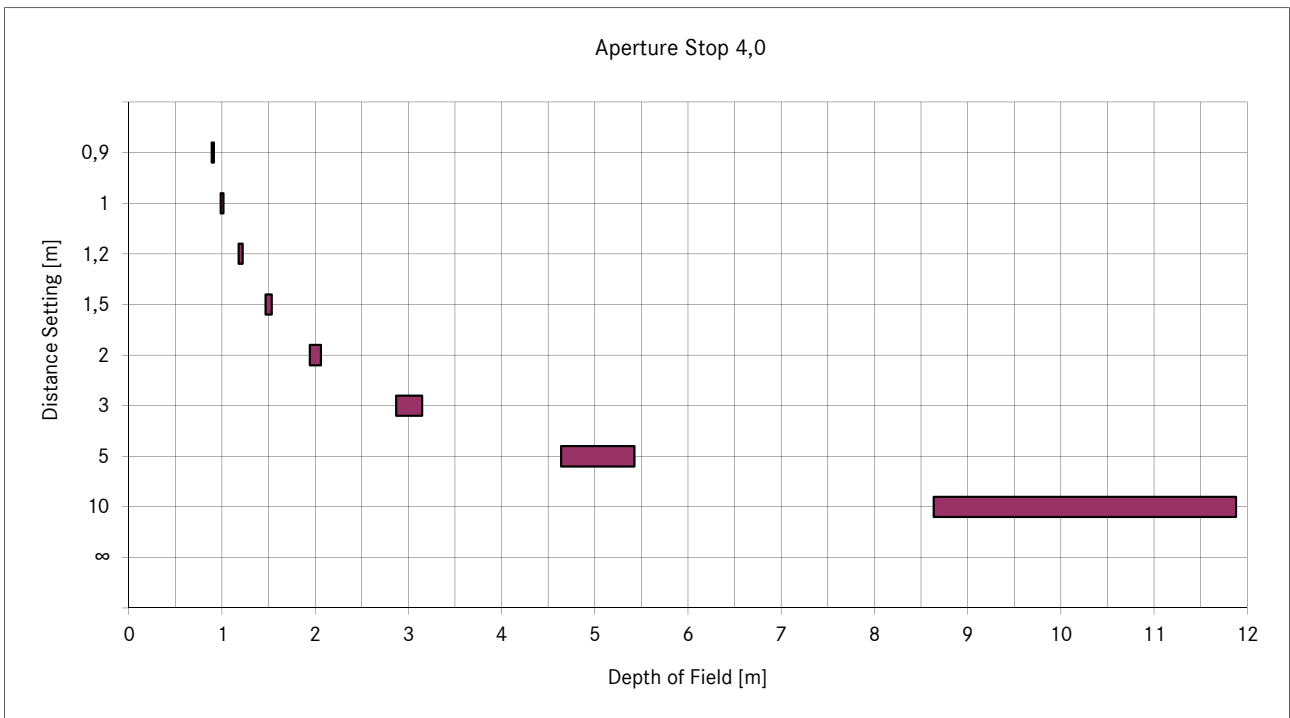
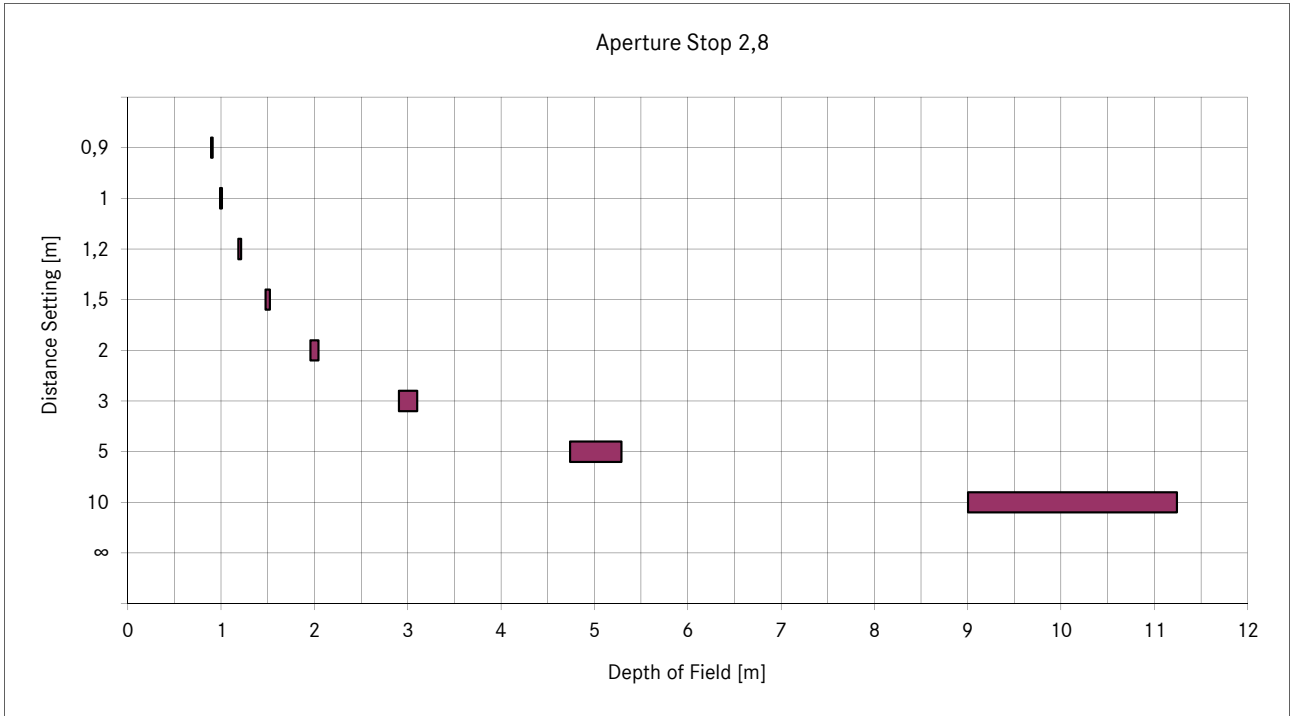
DEPTH OF FIELD TABLE

		Aperture Stop							Magnification
		2.4	2.8	4.0	5.6	8.0	11.0	16.0	
Distance Setting [m]	0.9	0.893 - 0.908	0.892 - 0.908	0.889 - 0.912	0.884 - 0.917	0.878 - 0.924	0.869 - 0.933	0.856 - 0.949	1/7.8
	1	0.991 - 1.01	0.990 - 1.01	0.986 - 1.01	0.980 - 1.02	0.972 - 1.03	0.962 - 1.04	0.946 - 1.06	1/8.9
	1.2	1.19 - 1.21	1.19 - 1.22	1.18 - 1.22	1.17 - 1.23	1.16 - 1.24	1.14 - 1.26	1.12 - 1.29	1/11.1
	1.5	1.48 - 1.52	1.48 - 1.52	1.47 - 1.53	1.45 - 1.55	1.44 - 1.57	1.41 - 1.60	1.38 - 1.65	1/14.4
	2	1.96 - 2.04	1.96 - 2.04	1.94 - 2.06	1.92 - 2.09	1.89 - 2.13	1.85 - 2.18	1.78 - 2.28	1/20
	3	2.91 - 3.09	2.91 - 3.10	2.87 - 3.15	2.82 - 3.21	2.74 - 3.31	2.66 - 3.44	2.53 - 3.69	1/31
	5	4.76 - 5.26	4.74 - 5.29	4.64 - 5.43	4.51 - 5.62	4.32 - 5.93	4.11 - 6.38	3.81 - 7.29	1/53
	10	9.09 - 11.1	9.00 - 11.2	8.64 - 11.9	8.19 - 12.85	7.60 - 14.6	6.97 - 17.7	6.13 - 27.3	1/107.9
	∞	98.8 - ∞	89.8 - ∞	62.8 - ∞	44.9 - ∞	31.4 - ∞	22.9 - ∞	15.7 - ∞	1/∞



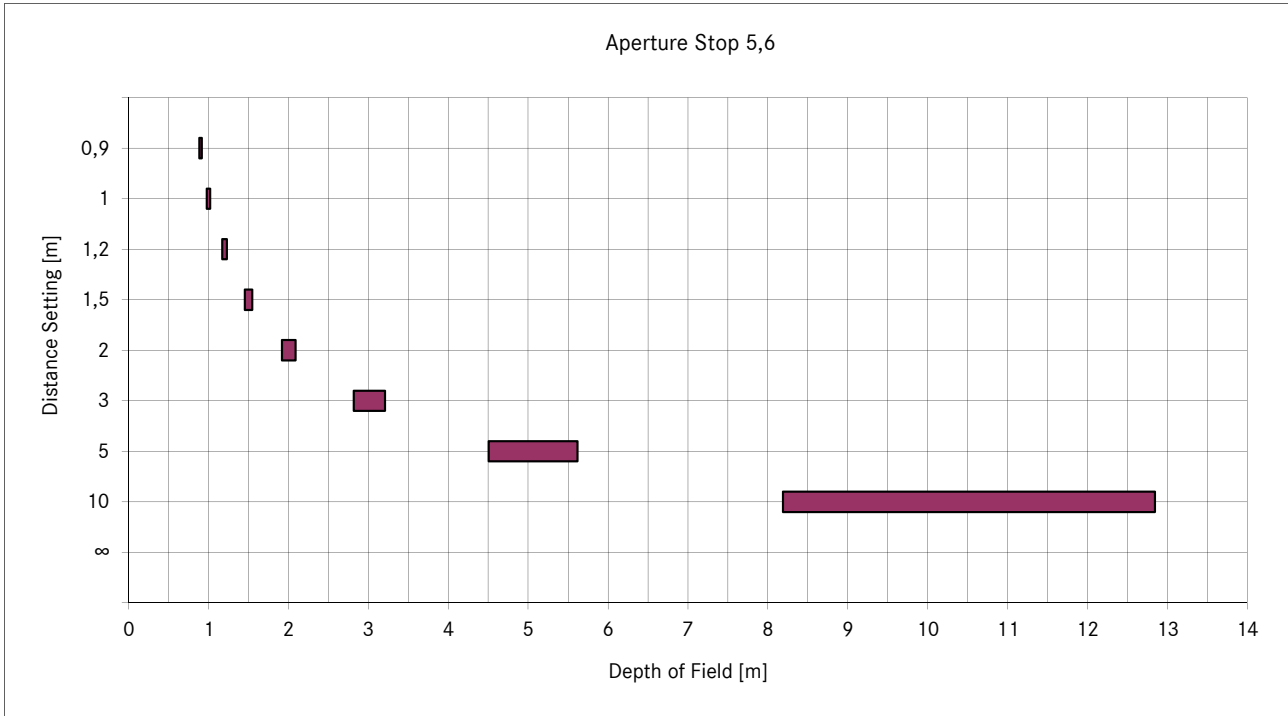


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