

# MC12K150X-R | DATASHEET

## Macro lens for 12k line scan cameras, magnification 1.500x, M72x0.75 FD 6.56 mount



### SPECIFICATIONS

#### Optical specifications

Magnification	(x)	1.500
Magnification Range	(x)	1.484 - 1.517
Image circle	(mm)	62.4
Max sensor size		12k, 3,6"
Working distance <sup>1</sup>	(mm)	110.0
Focal length	(mm)	90
$f/N$		6.2
$wf/N^2$		15
Distortion typical (max) <sup>3</sup>	(%)	< 0.01 (0.02)
Field depth <sup>4</sup>	(mm)	0.7
Resolution (max) <sup>5</sup>	( $\mu$ m)	6.0

#### Mechanical specifications

Mount <sup>6</sup>		M72x0.75 FD 6.56
Phase adjustments <sup>7</sup>		Yes
Length <sup>8</sup>	(mm)	238.5
Outer diameter	(mm)	76.0
Mass	(g)	1218

<sup>1</sup> Working distance: distance between the front end of the mechanics and the object. Set this distance within  $\pm 3\%$  of the nominal value for maximum resolution and minimum distortion.

<sup>2</sup> working  $f/N$ : the real  $f/N$  of a lens in operating conditions.

<sup>3</sup> Percent deviation of the real image compared to an ideal, undistorted image. Typical (average production) values and maximum (guaranteed) values are listed.

### KEY ADVANTAGES

#### Exceptional low distortion

Perform measurement tasks with a high degree of accuracy and reliability.

#### Optimized for high resolution line scan cameras

MC12K feature a large image circle ensuring wide compatibility with line scan sensors (up to 62.4 mm).

#### Color correction

MC12K can distinguish the finest tonal gradations and are the ideal solution for demanding applications where color consistency is required.

#### Industrial design for factory automation

MC12K feature precise manual focusing mechanism to achieve the best possible image sharpness.

**MC12K series** are macro lenses specifically optimized to work with high resolution line scan cameras with sensor size up to 62 mm.

### FIELD OF VIEW

Sensors	(mm)
Line - 16k x 3.5 $\mu$ m (57.3 mm)	38.20
Line - 8k x 7.5 $\mu$ m (61.40 mm)	40.93
Line - 12k x 5.2 $\mu$ m (62.40 mm)	41.60

<sup>4</sup> At the borders of the field depth the image can be still used for measurement but, to get a very sharp image, only half of the nominal field depth should be considered. Pixel size used for calculation is 7  $\mu$ m.

<sup>5</sup> Object side, calculated with the Rayleigh criterion with  $\lambda = 520$  nm

<sup>6</sup> FD stands for Flange Distance (in mm), defined as the distance from the mounting flange to the camera detector plane.

<sup>7</sup> Indicates the availability of an integrated camera phase adjustment feature.

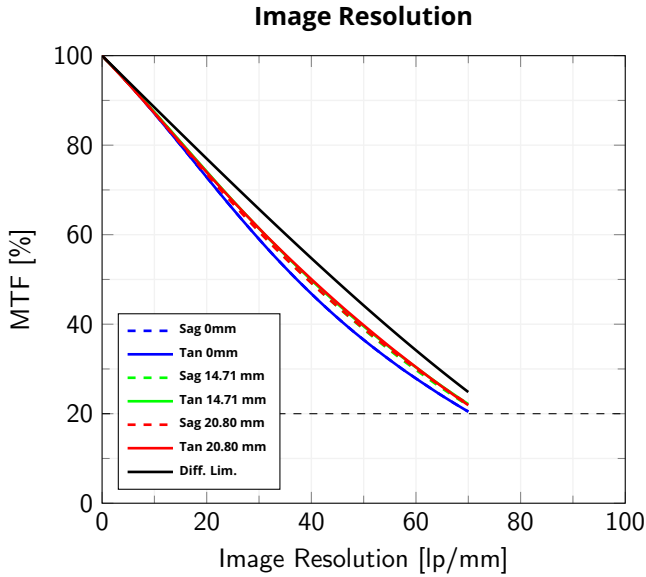
<sup>8</sup> Measured from the front end of the mechanics to the camera flange.

### COMPATIBLE PRODUCTS

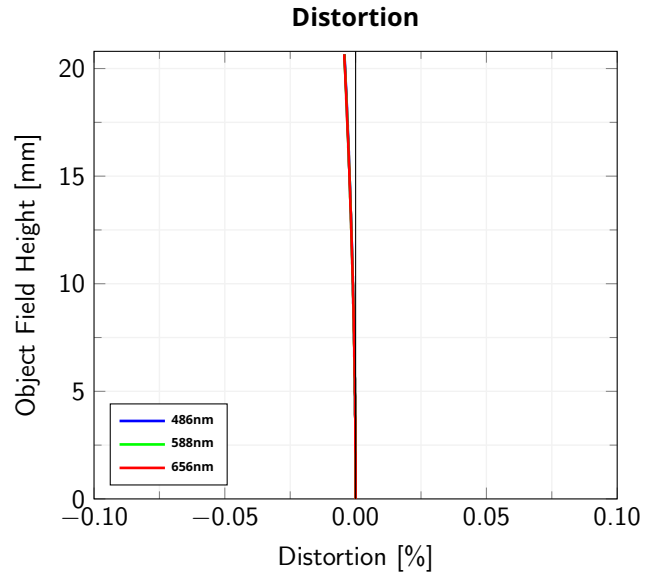
Full list of compatible products available [here](#).



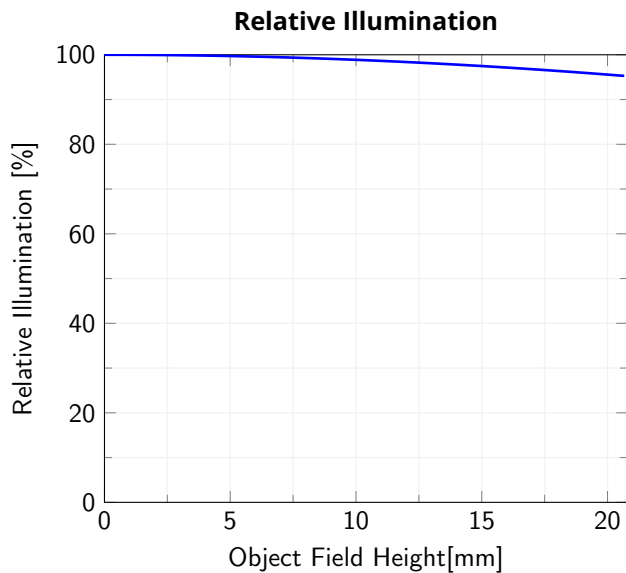
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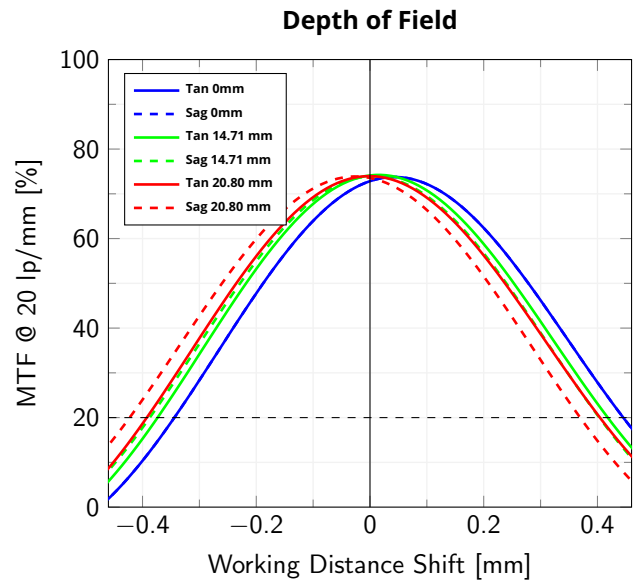
Modulation Transfer Function (MTF) vs. Image Resolution, wavelength range 486 nm - 656 nm. Fields in legend are represented as distance from the optical axis to the corner of the field of view



Object Field Height vs. Distortion, from the optical axis to the corner of the field of view



Relative illumination vs. Object Field Height, from the optical axis to the corner of the field of view



Modulation Transfer Function (MTF) @ 20 lp/mm vs. Working Distance Shift from the best focus Working Distance, wavelength range 486 nm - 656 nm. Fields in legend are represented as distance from the optical axis to the corner of the field of view

All product specifications and data are subject to change without notice to improve reliability, functionality, design or other. Photos and pictures are for illustration purposes only. Data are reported by design, actual lens performance may vary due to manufacturing tolerances.