

# MC033X | DATASHEET

## Macro lens for 2/3" detectors, magnification 0.333x, C mount



### SPECIFICATIONS

#### Optical specifications

Magnification	(x)	0.333
Image circle	(mm)	11.0
Max sensor size		2/3"
Working distance <sup>1</sup>	(mm)	103.0
Focal length	(mm)	28
$f/N$		5.3
$wf/N^2$		7
Distortion <sup>3</sup>	(%)	< 0.05
Field depth <sup>4</sup>	(mm)	3.3
Resolution (max) <sup>5</sup>	( $\mu$ m)	13.0

#### Mechanical specifications

Mount		C
Length <sup>6</sup>	(mm)	31.1
Outer diameter	(mm)	30.0
Mass	(g)	28

<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.

<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 3.45  $\mu$ m.

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

<sup>6</sup> Measured from the front end of the mechanics to the camera flange.

### KEY ADVANTAGES

#### Nearly zero distortion

Suitable for any measurement application where telecentricity is not required

#### High resolution

MC Series has been specifically designed to work in "macro" configuration

#### Compactness

MC Series small outer diameter (15 mm) fits those applications where only little room for optical components is available

**MC series macro lenses** are designed to capture images of small objects when both very good resolution and nearly zero distortion are needed.

### FIELD OF VIEW

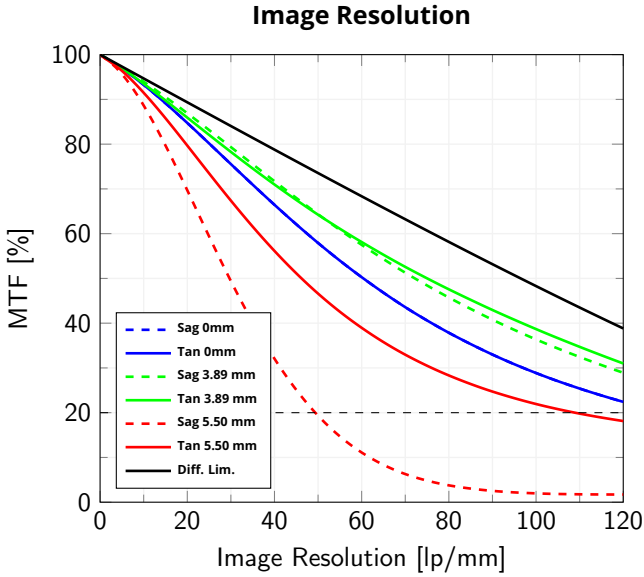
Sensors	(mm x mm)
1/3" (4.80 x 3.60 mm x mm)	14.41 x 10.81
1/2.5" (5.70 x 4.28 mm x mm)	17.12 x 12.85
1/2" (6.40 x 4.80 mm x mm)	19.22 x 14.41
1/1.8" (7.13 x 5.33 mm x mm)	21.41 x 16.01
2/3" (8.50 x 7.09 mm x mm)	25.53 x 21.29

### COMPATIBLE PRODUCTS

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



A wide selection of innovative machine vision components.



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 image

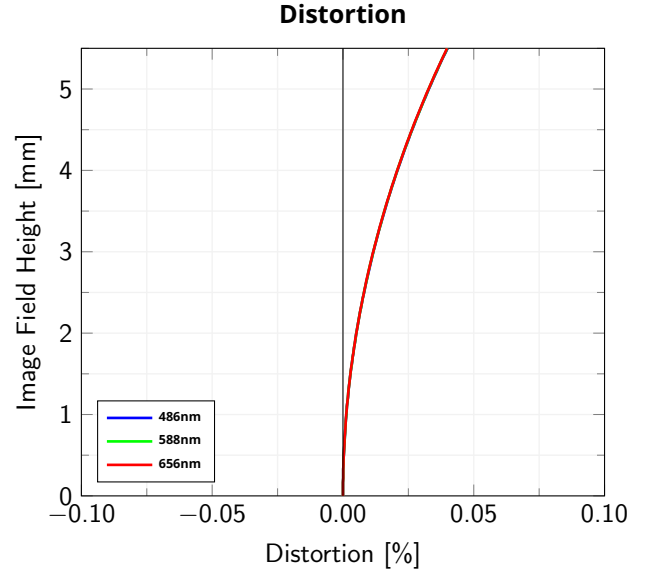
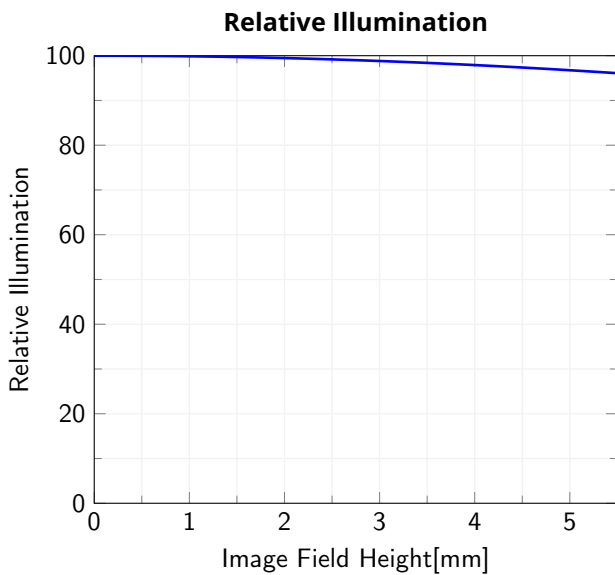
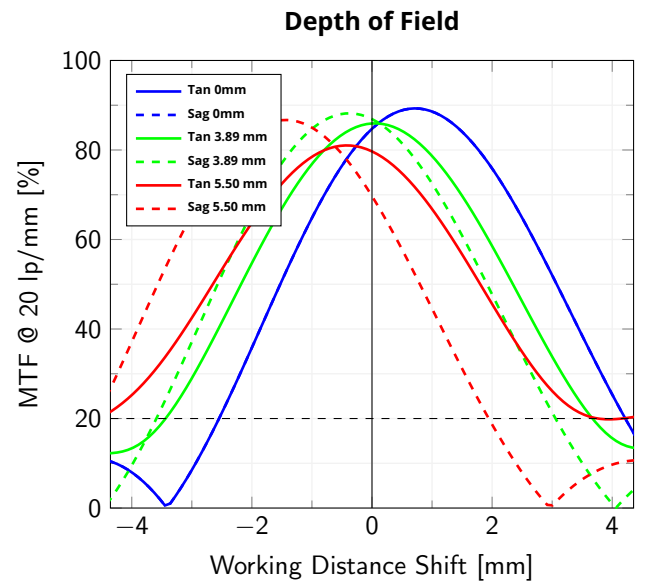


Image Field Height vs. Distortion, from the optical axis to the corner of the image



Relative illumination vs. Image Field Height, from the optical axis to the corner of the created image



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 center of the image.

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.