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TC23048 | DATASHEET

OPTO ENGINEERING

Bi-telecentric lens for 2/3" detectors, magnification 0.184x, C mount



KEY ADVANTAGES

High telecentricity for thick object imaging.

Nearly zero distortion for accurate measurements.

Excellent resolution for high resolution cameras.

Simple and robust design for industrial environments.

Easy filter insertion.

Detailed **test report** with **measured** optical parameters.

TC series bi-telecentric lenses represent the key component of any measurement system powered by machine vision: these lenses can truly take advantage of high-resolution sensors such as 2/3", acquiring images with exceptional fidelity and precision.

SPECIFICATIONS

Optical specifications		
Magnification		0.184
Image circle	(mm)	11.0
Max sensor size		2/3"
Working distance[2]	(mm)	132.9
wf/N[3]		8
Telecentricity typical (max)[4]	(°)	< 0.08 (0.10)
Distortion typical (max)[5]	(%)	< 0.05 (0.10)
Field depth[6]	(mm)	12.2
Resolution (max)[7]	(µm)	28

Mechanical specifications		
Mount		C
Phase adjustment[8]		No
Length[9]	(mm)	201.0
Front diameter	(mm)	75.0
Mass	(g)	698

FIELD OF VIEW

Sensors[1]	(mm x mm)
1/3" (4.80 x 3.60 mm x mm)	26.09 x 19.57
1/2.5" (5.70 x 4.28 mm x mm)	30.98 x 23.26
1/2" (6.40 x 4.80 mm x mm)	34.78 x 26.09
1/1.8" (7.13 x 5.33 mm x mm)	38.75 x 28.97
2/3" (8.50 x 7.09 mm x mm)	46.20 x 38.53

[1] Object field of view. For the fields with the indication "⌀=", the image of a circular object of such diameter is fully inscribed into the detector.
[2] Working distance: distance between the front end of the mechanics and the object. Set this distance within ±3% of the nominal value for maximum resolution and minimum distortion.
[3] Working f/N: the real f/N of a lens in operating conditions.
[4] Maximum angle between chief rays and optical axis on the object side. Typical (average production) values and maximum (guaranteed) values are listed.
[5] Percent deviation of the real image compared to an ideal, undistorted image. Typical (average production) values and maximum (guaranteed) values are listed.
[6] 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 µm.
[7] Object side, calculated with the Rayleigh criterion with λ= 520 nm
[8] If not available, phase adjustment can be supplied upon request (except for TC23004, TC23007,TC23009, TC23012).
[9] Measured from the front end of the mechanics to the camera flange.

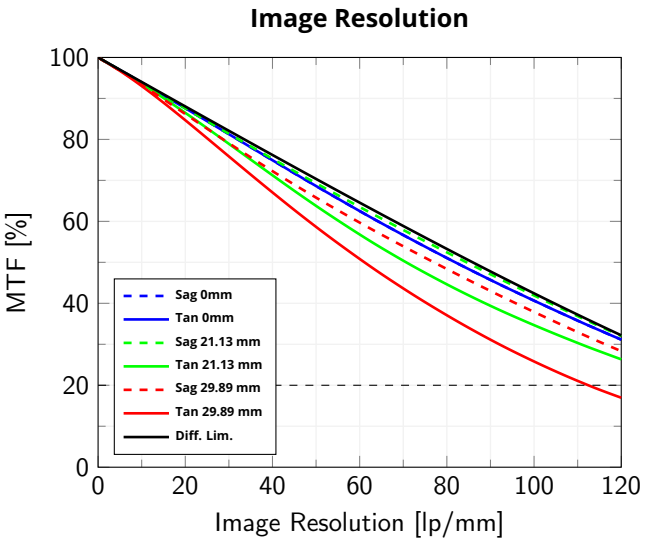
COMPATIBLE PRODUCTS

Full list of compatible products available *here*.

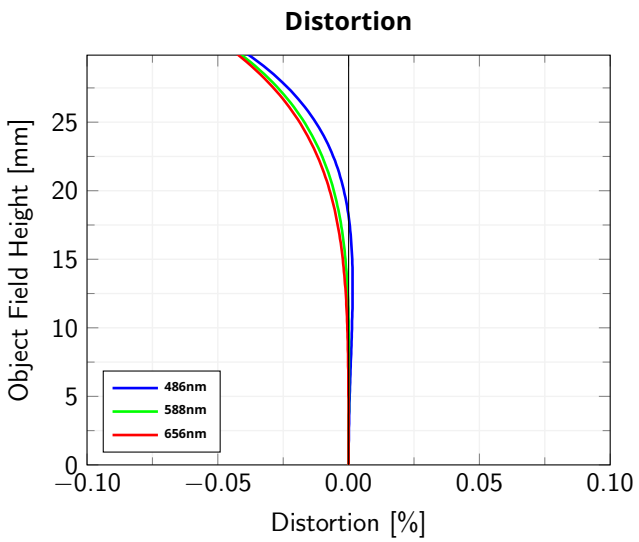


A wide selection of innovative machine vision components.

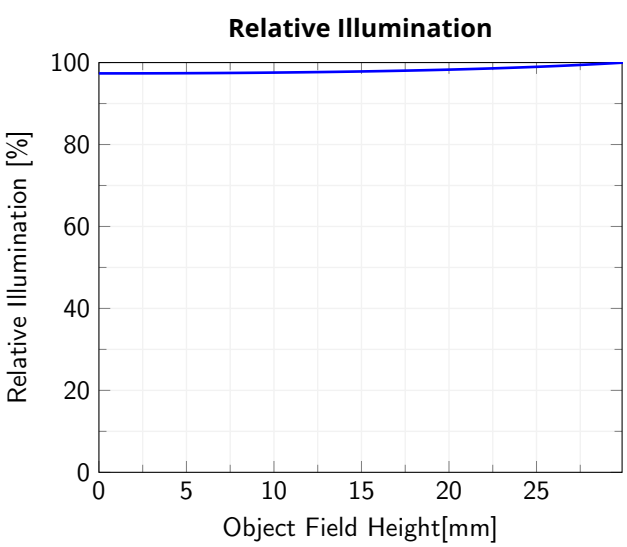
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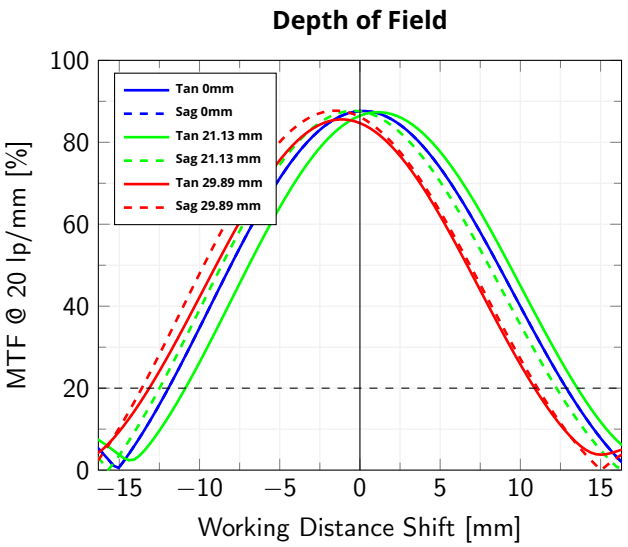
Modulation Transfer Function (MTF) vs. Image Resolution, wavelength range 486 nm - 656 nm



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

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