

TC12K144 | DATASHEET

Telecentric lens for 12k/16k line scan cameras, magnification 0.439x, M72x0.75 FD 6.56 mount



SPECIFICATIONS

Optical specifications

| | | |
|---|------|---------------|
| Magnification | | 0.439 |
| Image circle | (mm) | 62.4 |
| Max sensor size | | 12k/16k |
| Working distance ¹ | (mm) | 237.9 |
| wf/N^2 | | 16 |
| Telecentricity typical (max) ³ | (°) | < 0.06 (0.08) |
| Distortion typical (max) ⁴ | (%) | < 0.07 (0.10) |
| Field depth ⁵ | (mm) | 8.7 |
| Resolution (max) ⁶ | (μm) | 23 |

Mechanical specifications

| | | |
|-------------------------------|------|------------------|
| Mount ⁷ | | M72x0.75 FD 6.56 |
| Phase adjustment ⁸ | | Yes |
| Length ⁹ | (mm) | 743.3 |
| Front diameter | (mm) | 200.0 |
| Mass | (g) | 7013 |

KEY ADVANTAGES

Wide image circle suitable for sensors up to 62.4mm.

Excellent resolution and low distortion.

Simple and robust design for industrial environments.

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

TC12K series telecentric lenses are designed to fit very large line detector cameras. An image circle diameter larger than 62 mm combined with very high resolution makes the TC12K series ideal for 12k and 16k resolution cameras.

FIELD OF VIEW

| Sensors | (mm x mm) |
|---------------------------------------|-----------|
| 8k detectors 8k x 7 μm (57.30 mm) | 130.52 |
| 16k detectors 16k x 3.5 μm (57.30 mm) | 130.52 |
| 12k detectors 12k x 5 μm (61.4 mm) | 139.86 |
| 12k detectors 12k x 5.2 μm (62.40 mm) | 142.14 |

¹ 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.

² working f/N : the real f/N of a lens in operating conditions.

³ Maximum angle between chief rays and optical axis on the object side. Typical (average production) values and maximum (guaranteed) values are listed.

⁴ Percent deviation of the real image compared to an ideal, undistorted image. Typical (average production) values and maximum (guaranteed) values are listed.

⁵ 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 μm.

⁶ Object side, calculated with the Rayleigh criterion with $\lambda = 520$ nm

⁷ FD stands for Flange distance (in mm), defined as the distance from the mounting flange to the camera detector plane.

⁸ Indicates the availability of an integrated camera phase adjustment feature.

⁹ Measured from the front end of the mechanics to the camera flange.

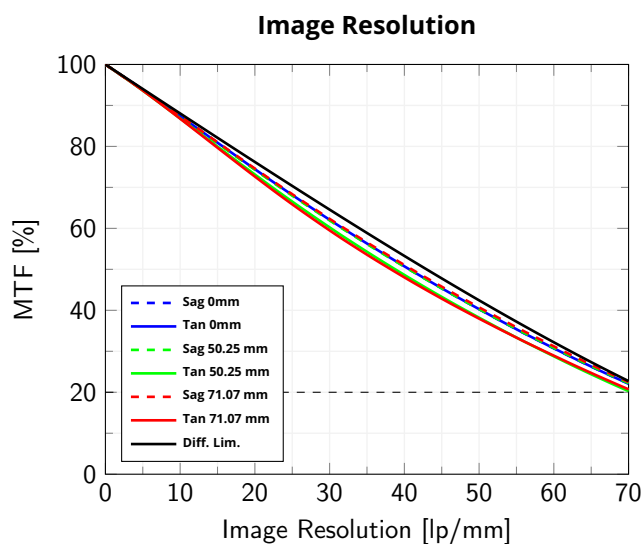
COMPATIBLE PRODUCTS

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

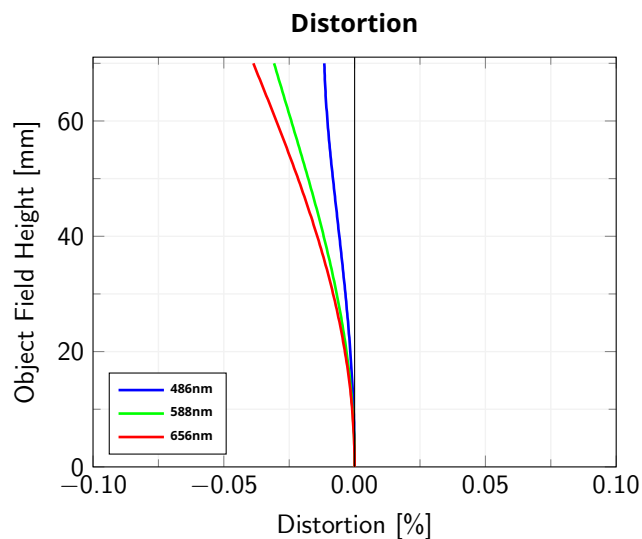


A wide selection of innovative machine vision components.

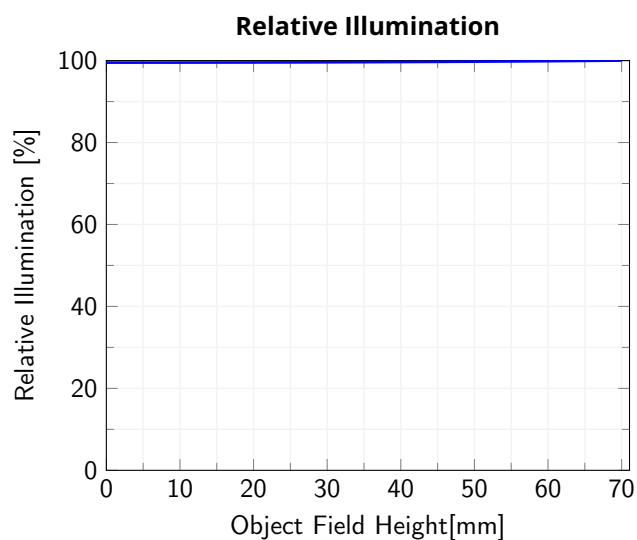
All product specifications and data are subject to change without notice to improve reliability, functionality, design or other. Photos and pictures are for illustration purposes only. Data are reported by design, actual lens performance may vary due to manufacturing tolerances.



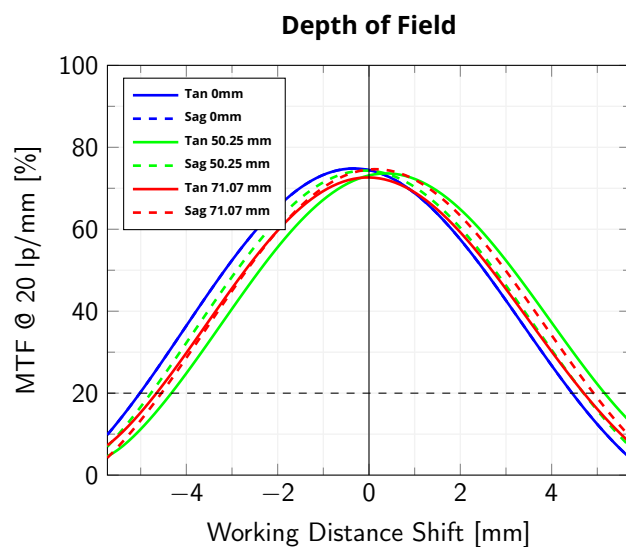
Modulation Transfer Function (MTF) vs. Image Resolution, wavelength range 486 nm - 656 nm



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