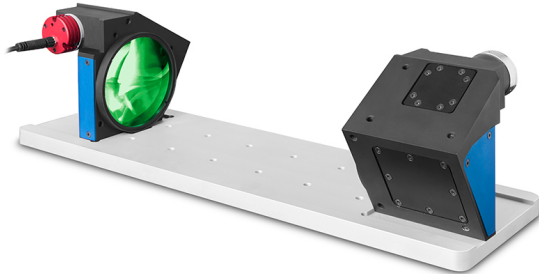


## Telecentric CORE optical bench, magnification 0.093x



### SPECIFICATIONS

#### Optical specifications

|                                           |                         |                            |
|-------------------------------------------|-------------------------|----------------------------|
| Magnification                             |                         | 0.093                      |
| Image shape <sup>1</sup>                  | ( $\varnothing$ , x=mm) | $\varnothing=11.4$ , x=9.4 |
| Max sensor size                           |                         | 2/3"                       |
| Working distance <sup>2</sup>             | (mm)                    | 278.6                      |
| $wf/N$ <sup>3</sup>                       |                         | 8                          |
| Telecentricity typical (max) <sup>4</sup> | (°)                     | < 0.06 (0.08)              |
| Distortion typical (max) <sup>5</sup>     | (%)                     | < 0.04 (0.10)              |
| Field depth <sup>6</sup>                  | (mm)                    | 47.9                       |
| Resolution (max) <sup>7</sup>             | ( $\mu$ m)              | 55                         |

#### Electrical specifications

|                                           |      |               |
|-------------------------------------------|------|---------------|
| Light color, peak wavelength              |      | green, 520 nm |
| Supply voltage                            | (V)  | 12-24         |
| Max power consumption                     | (W)  | 2.5           |
| LED forward voltage typ(max) <sup>8</sup> | (V)  | 3.3 (4.0)     |
| Max LED forward current <sup>9</sup>      | (mA) | 350           |
| Max LED pulse current <sup>10</sup>       | (mA) | 2000          |

#### Mechanical specifications

|                      |      |       |
|----------------------|------|-------|
| Mount                |      | C     |
| Phase adjustment     |      | Yes   |
| Length <sup>11</sup> | (mm) | 696.0 |
| Width                | (mm) | 218.0 |
| Height               | (mm) | 189.0 |
| Mass                 | (g)  | 15810 |

### KEY ADVANTAGES

#### Multi-level cost cutting

Saves money on manufacturing and transportation costs.

#### Downsized vision system

Allows to reduce the length of your measurement system.

#### Pre-assembled set-up

Just add a camera and a measurement software and you're ready to go.

#### Best optical performances in a super tight space

A complete optical system designed for hassle free development of demanding precision measurement applications.

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

**TCCRBENCH CORE series** are complete optical systems offering superior performances needed for highly demanding measurement applications in a super compact assembly.

#### Environment

|                             |      |                       |
|-----------------------------|------|-----------------------|
| Operating temperature       | (°C) | 0-40                  |
| Storage temperature         | (°C) | 0-50                  |
| Operating relative humidity | (%)  | 20-85, non condensing |
| Installation                |      | Indoor use only       |

#### Eye safety

|                                |        |
|--------------------------------|--------|
| Risk group (CEI EN 62471:2010) | Exempt |
|--------------------------------|--------|

<sup>1</sup> Indicates the dimensions and shape of image, where " $\varnothing$ " stands for diameter and "x=" indicates the nominal image height and width

<sup>2</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>3</sup> working  $f/N$ : the real  $f/N$  of a lens in operating conditions.

<sup>4</sup> Maximum angle between chief rays and optical axis on the object side calculated at 588nm

<sup>5</sup> Percent deviation of the real image compared to an ideal, undistorted image: typical (average production) values and maximum (guaranteed) values are listed.

<sup>6</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>7</sup> Object side, calculated with the Rayleigh criterion with  $\lambda = 520$  nm

<sup>8</sup> Used in continuous (not pulsed) mode.

<sup>9</sup> At max forward current. Tolerance is  $\pm 0.06$ V on forward voltage measurements.

<sup>10</sup> At pulse width  $\leq 10$  ms, duty cycle  $\leq 10\%$  condition. Built-in electronics board must be bypassed (see tech info).

<sup>11</sup> Measured from the camera flange of the objective lens to the electronic end of the illuminator. Cable, connector and mount thread excluded

## FIELD OF VIEW

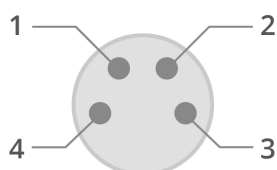
| Sensors                      | (mm x mm)     |
|------------------------------|---------------|
| 1/3" (4.8 x 3.6 mm x mm)     | 51.61 x 38.71 |
| 1/2.5" (5.70 x 4.28 mm x mm) | 61.29 x 46.02 |
| 1/2" (6.4 x 4.8 mm x mm)     | 68.82 x 51.61 |
| 1/1.8" (7.13 x 5.33 mm x mm) | 76.67 x 57.31 |
| 2/3" (8.50 x 7.09 mm x mm)   | 91.40 x 76.24 |

## INCLUDED IN TCBENCH CORE

Each kit contains:

- 1 TC CORE bi-telecentric lens for 2/3" detectors
- 1 LTCLHP CORE telecentric illuminator (green)
- 1 CMPTCR base-plate

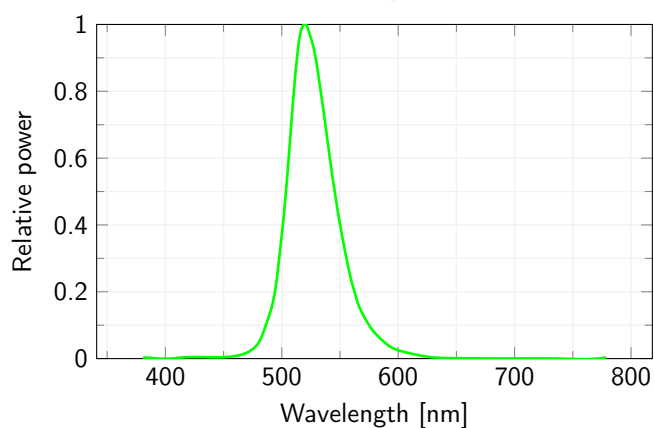
## CONNECTOR PINOUT



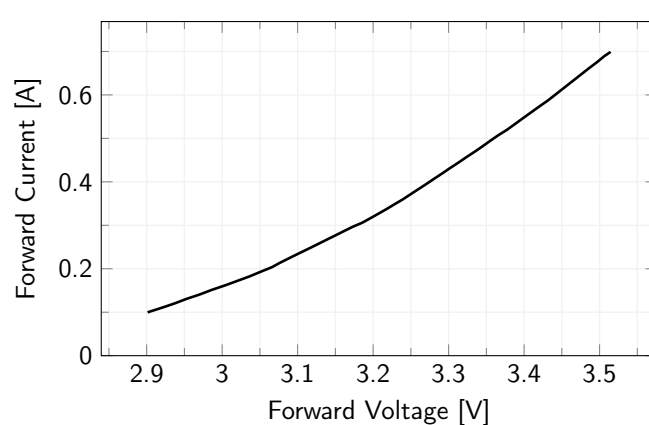
Device side

## ADDITIONAL INFORMATION

LED color spectrum



Forward Current Characteristics



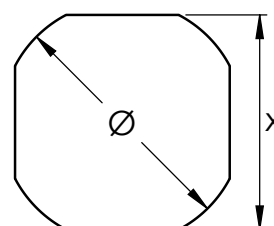
## COMPATIBLE PRODUCTS

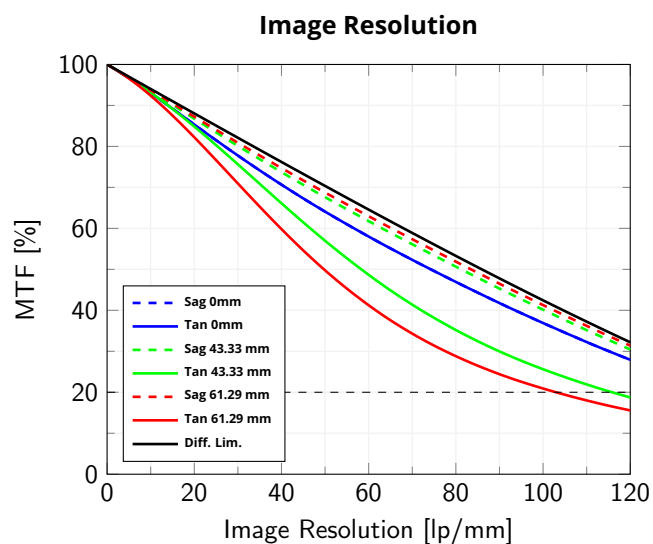
Full list of compatible products available [here](#).



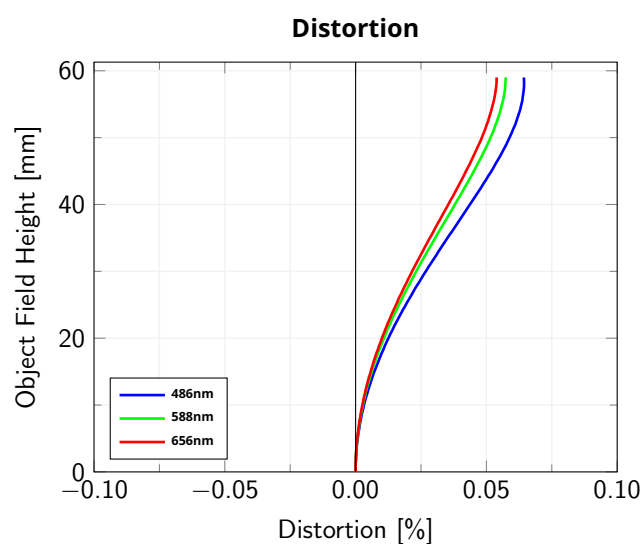
A wide selection of innovative machine vision components.

## IMAGE SHAPE DIMENSION

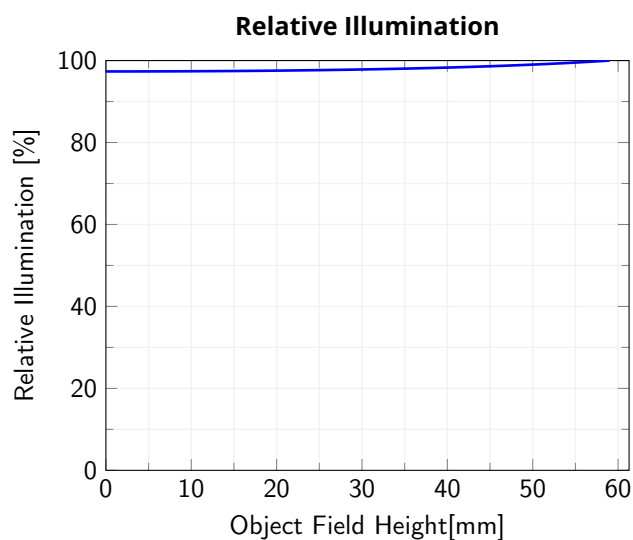




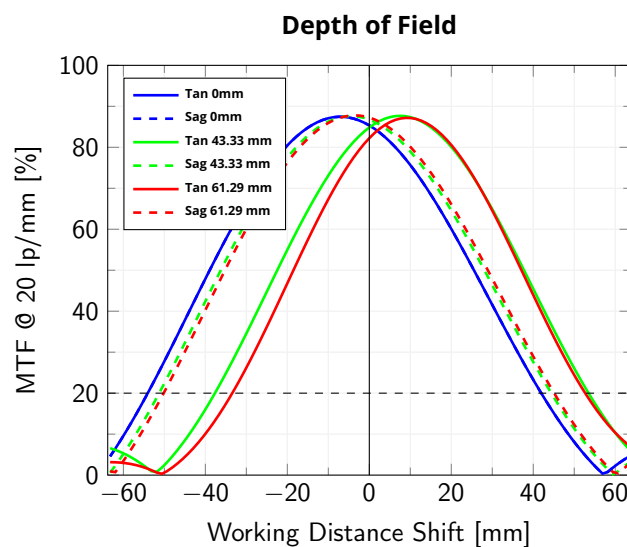
Modulation Transfer Function (MTF) vs. Image Resolution, wavelength range 486 nm - 656 nm



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