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## vicotar® Telecentric Lens - TOM21.6/21.6-70-F16-X-N-SL

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|---------------------------|--------------------------------------------------------------------------------------------------|
| <b>Short description:</b> | Telecentric microscope lens 1x C-Mount,<br>Sensor max. Ø21.6 mm, coax. NIR smart light<br>illum. |
| <b>Order number:</b>      | 2-06-033                                                                                         |
| <b>Replaces:</b>          | MK190-EBL-IR (2-05-133) + microscope lens 1x<br>(2-05-113)                                       |

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### Characteristics

- telecentric microscope lens with object-sided telecentric beam path
  - for precise measurement of small objects
  - high resolution, low-distortion, low telecentric error
  - color corrected for the visible spectral range and near infrared
  - robust industrial design
  - fixed aperture
  - C-mount threaded connection
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## Technical data

|                                                  |                            |
|--------------------------------------------------|----------------------------|
| Image scale                                      | 1                          |
| Spectral range                                   | 450 nm - 900 nm            |
| Working distance                                 | 70 mm                      |
| Camera distance (object-camera flange)           | 311.5 mm                   |
| Object field diagonal (max)                      | 21.6 mm                    |
| Sensor format (max)                              | Type 4/3                   |
| Image field diagonal (max)                       | 21.6 mm                    |
| Suitable for camera resolution                   | 18.9 MPixel                |
| Recommended pixel size                           | 3.45 µm                    |
| Aperture                                         | fixed (F16)                |
| Depth of focus                                   | 670 µm                     |
| Lens mount                                       | C-Mount                    |
| Filter thread, object-side                       | M30.5x0.5 (filter adapter) |
| Weight                                           | 1055 g                     |
| Usable object field with:                        |                            |
| • Sensor type 4/3 (17.3 x 13.0 mm <sup>2</sup> ) | 17.3 mm x 13 mm            |
| • 1" sensor (12.8 x 9.6 mm <sup>2</sup> )        | 12.8 mm x 9.6 mm           |
| • 2/3" sensor (8.8 x 6.6 mm <sup>2</sup> )       | 8.8 mm x 6.6 mm            |

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## Can be combined with

| Order number                     | Title               | Description                                                                |
|----------------------------------|---------------------|----------------------------------------------------------------------------|
| <b><i>TZB28-P-SL series</i></b>  |                     |                                                                            |
| 1-33-230                         | TZB28-B450-P-SL     | telecentric light, blue, If diameter: 28 mm, smart light                   |
| 1-33-231                         | TZB28-IR850-P-SL    | telecentric light, IR850, If diameter: 28 mm, smart light                  |
| <b><i>TZB28-P-24V series</i></b> |                     |                                                                            |
| 1-33-240                         | TZB28-B450-P-24V    | telecentric light, blue, If diameter: 28 mm, 24V, switchable               |
| 1-33-284                         | TZB28-B450-HP-24V   | telecentric light, blue, If diameter: 28 mm, 24V, switchable, high power   |
| 1-33-241                         | TZB28-IR850-P-24V   | telecentric light, IR850, If diameter: 28 mm, 24V, switchable              |
| 1-33-285                         | TZB28-IR850-HP-24V  | telecentric light, IR850, If diameter: 28 mm, 24V, switchable, high power  |
| <b><i>R-CLR-69-SL series</i></b> |                     |                                                                            |
| 1-33-007                         | R-CLR-69x41-B470-SL | ring light, blue, coaxial, If diameter: 41/69 mm, smart light technology   |
| <b><i>RK2036-24V series</i></b>  |                     |                                                                            |
| 1-29-602                         | RK2036-B470-24V/C   | ring light, blue, coaxial, If diameter: 41/69 mm, controlled, pot.: 0-10V, |

## Accessories for Telecentric Lenses - TOM21.6/21.6-70-F16-X-N-SL

| Order number                       | Title              | Description                                                             |
|------------------------------------|--------------------|-------------------------------------------------------------------------|
| <b><i>Adjustment Aids</i></b>      |                    |                                                                         |
| 5-10-110                           | Adjustment aid 2.7 | for easy adjustment to 2.7 mm depth of field, for image scale 1.2 - 0.7 |
| <b><i>Lens mount</i></b>           |                    |                                                                         |
| 2-90-123                           | Lens Holder d34    | Holder for telecentric lenses and lightings with d = 34 mm              |
| <b><i>Lens adapter c-mount</i></b> |                    |                                                                         |

| Order number                                   | Title                        | Description                                                                           |
|------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|
| 2-90-414                                       | CS to C-mount adapter 5.0 mm | for connecting C-mount lenses with CS-mount cameras, length: 5 mm                     |
| <b>Neutral density filter</b>                  |                              |                                                                                       |
| 2-91-257                                       | ND filter 3.0 M30.5x0.5      | optical density 3.0 - 0.1% transmission, f-stop reduction 10, filter thread M30.5x0.5 |
| 2-91-247                                       | ND filter 1.2 M30.5x0.5      | optical density 1.2 - 6.3% transmission, f-stop reduction 4, filter thread M30.5x0.5  |
| 2-91-237                                       | ND filter 0.6 M30.5x0.5      | optical density 0.6 - 25% transmission, f-stop reduction 2, filter thread M30.5x0.5   |
| <b>Daylight blocking filter</b>                |                              |                                                                                       |
| 2-91-217                                       | IR filter M30.5x0.5          | long-pass filter from 830 nm, daylight absorbing filter, filter thread M30.5x0.5      |
| <b>Polarising filters</b>                      |                              |                                                                                       |
| 2-91-227                                       | Pole filter M30.5x0.5        | linear polarizing filter, range 420 nm - 780 nm, filter thread M30.5x0.5              |
| <b>UV Cut-Off Filter</b>                       |                              |                                                                                       |
| 2-91-207                                       | UV blocking filter M30.5x0.5 | long-pass filter from 350 nm, usable as protective glass, filter thread M30.5x0.5     |
| <b>Filter adapter</b>                          |                              |                                                                                       |
| 2-91-187                                       | Filter adapter d34-M30.5     | slip-on adapter for use of a M30.5x0.5 filter on lenses with 34 mm clamping diameter  |
| <b>Deflection mirror 90° series</b>            |                              |                                                                                       |
| 2-25-110                                       | Deflection mirror 90-34      | 90° deflection, attachment for telecentric lenses and lightings with d = 34 mm        |
| <b>Adapters for attaching lights to lenses</b> |                              |                                                                                       |
| 1-29-671                                       | Adapter ring d41 - M30.5x0.5 | for R-CLR-69x41 and RK2036, for attachment to lenses with filter thread M30.5x0.5     |
| <b>Beam splitter STE30x30</b>                  |                              |                                                                                       |
| 1-18-050                                       | STE30x30-VIS                 | Beam splitter unit for coaxial light system, optimized for 450-700 nm                 |
| 1-18-023                                       | Adapter STE30x30 - TZ034     | Attachment of the STE30x30 to telecentric lenses and lightings with d = 34 mm         |

## Drawings



Dimensional drawing in mm