# TOURMALINE 2.8/50 C

This high resolution 1.3" C-Mount lens is compact and robust and therefore ideal for demanding imaging applications even in harsh environment. The optical design prevents shading with CRA sensitive sensors and the special broadband AR coating enables the use either in the visible 400 to 700 nm or in the NIR 700 to 1000 nm range.

## Key features

- Compact and robust design
- Image circle 24 mm
- Distortion < 0.5 %
- Low chief ray angle

## Applications

- Machine Vision
- AOI (Automated Optical Inspection)
- 3D and 2D measurement
- Traffic and surveillance

## Technical specifications

| | |
|---|---|
| Type [standard] | C |
| ID [standard] | 1001976 |
| Interface | C-Mount |
| Focal length [mm] | 50 |
| F/# range | F/2.8 ... F/32 |
| Numerical aperture [object \| image] | - \| 0.17 |
| Max. sensor size [mm] | 24 |
| Max. angle of view [°] | 27 |
| Rec. magnification range | -0.5 ... 0 |
| Rec. working distance range [mm] | 131 ... ∞ |
| Min. working distance without extension tubes [mm] | 366 |
| Filter thread [mm] | M30.5 x 0.5 |
| Storage temperature [°C] | -25 … +70 |
| Net. weight [standard] [g] | 135 |
| Additional info | - |
| f'eff [mm] | 50.15 |
| SF [mm] | -33.61 |
| S'F' [mm] | 31.68 |
| HH' [mm] | -3.07 |
| ß'P | 0.94 |
| SEP [mm] | 19.56 |
| S'AP [mm] | -15.61 |
| Σd [mm] | 31.93 |

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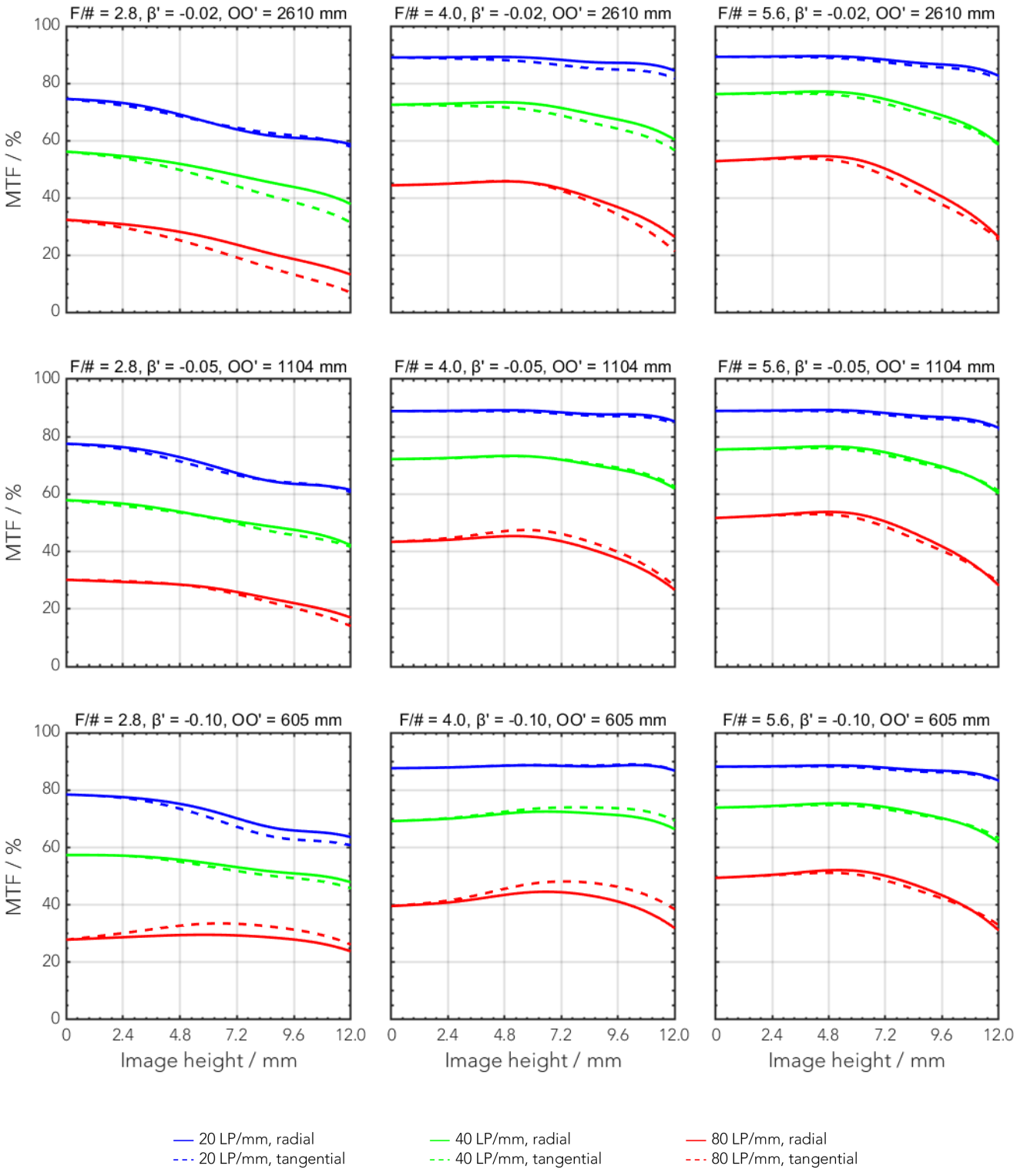
## MTF charts

| Spectrum name | VIS | | | | | |
|---|---|---|---|---|---|---|
| Wavelengths [nm] | 425 | 475 | 525 | 575 | 625 | 675 |
| Rel. weights [%] | 8 | 16 | 23 | 22 | 19 | 13 |

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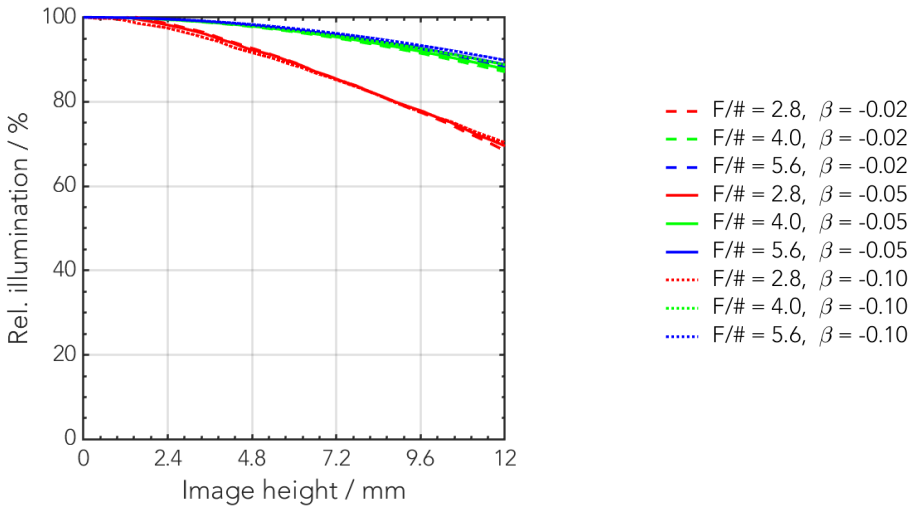
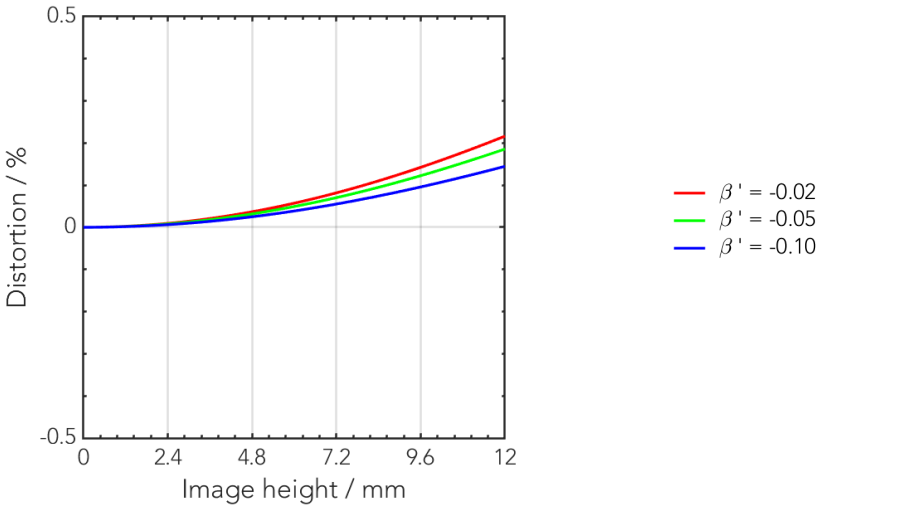
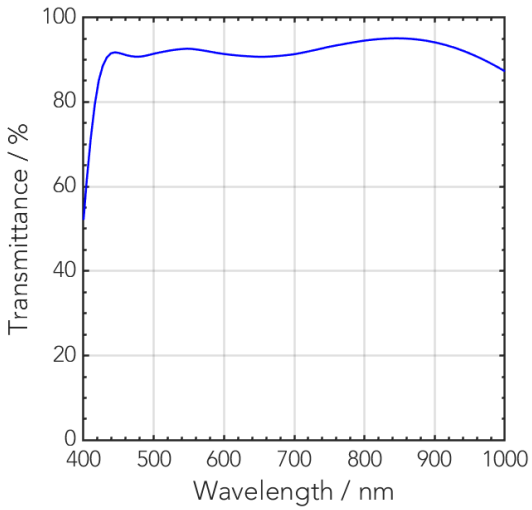
## Rel. illumination vs. image height




## Distortion vs. image height




## Transmittance vs. wavelength

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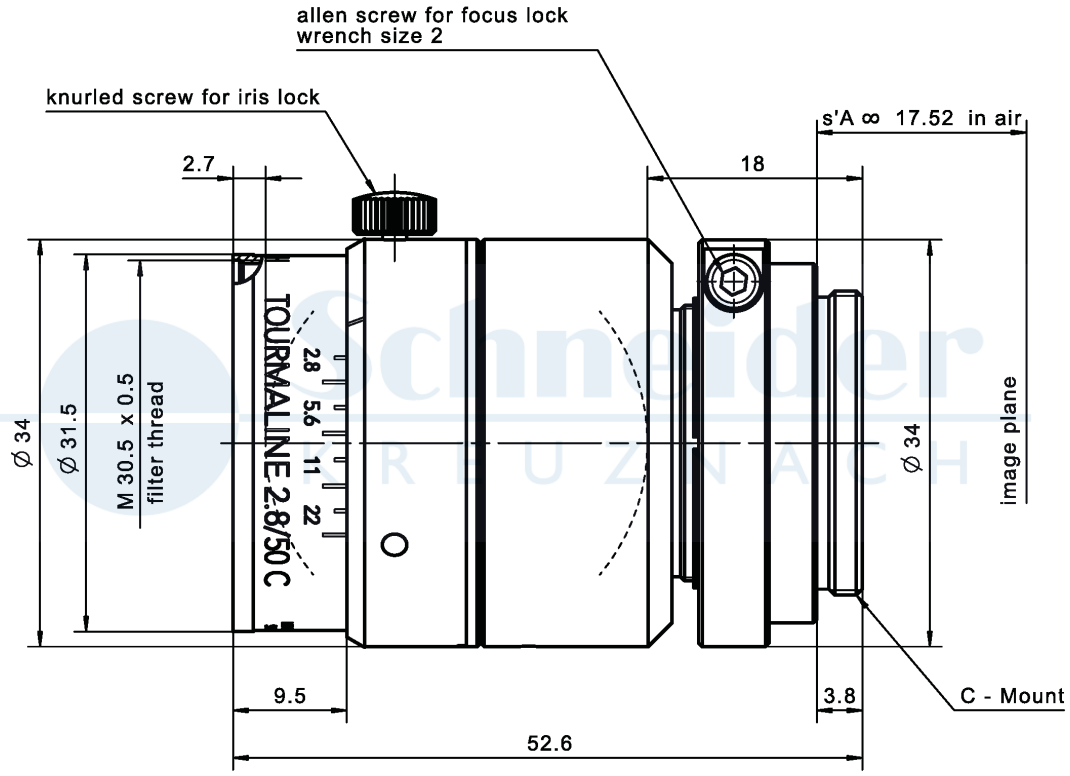
## Technical drawings

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# TOURMALINE 2.8/50 C

| Accessories | Mount | Eff. length | ID |
|---|---|---|---|
| Adapter | CS-Mount | 5 mm | 25081 |
| | C-Mount / M42 x 1 | 5.5 mm | 1075817 |
| Extension tube | C-Mount / C-Mount | 5 mm | 39316 |
| | C-Mount / C-Mount | 8 mm | 39315 |
| | C-Mount / C-Mount | 10 mm | 39312 |

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| Annotation | |
|---|---|
| Focal length | Nominal focal length |
| F/# range | Image space F-number range for infinity focus position |
| Numerical aperture | Maximum real numerical aperture (depending on recommended magnification range either for infinity or respective fixed magnification) |
| Max. sensor size | Image circle diameter |
| Max. angle of view | Angle of view associated with maximum sensor size (depending on recommended magnification range either for infinity or respective fixed magnification) |
| Rec. magnification range | Magnification range as recommended by Schneider-Kreuznach |
| Rec. working distance range | Working distance, i.e. distance between object and first mechanical element, associated with recommended magnification range |
| Max. mechanical focus travel | Maximum possible movement of the lens from infinity position (depending on recommended magnification range either for infinity or respective fixed magnification) |
| Net weight | weight of unpacked lens without lens cap |
| f'eff | Effective focal length |
| SF | Distance between vertex of first lens surface and object space focal point |
| S'F' | Distance between vertex of last lens surface and image space focal point (back focal distance at infinity) |
| HH' | Distance between principal planes |
| ß'P | Pupil magnification (= exit pupil diameter / entrance pupil diameter) |
| SEP | Distance between vertex of first lens surface and entrance pupil |
| S'AP | Distance between vertex of last lens surface and exit pupil |
| Σ d | Distance between vertices of first and last lens surface |
| s'A | Flange focal distance (in air) for infinite object distance (depending on recommended magnification range either for infinity or respective fixed magnification) |
| ß' | Magnification (= image size / object size), negative value because image is inverted |
| OO' | Distance between object and image |

Unless otherwise stated all dimensions in this data sheet are in mm.

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