

This high magnification lens is optimized for 12k / 5 μ m (62.5 mm) line scan sensors but also can be used in many applications with 16k / 3.5 μ m (57.3 mm) line scan sensors and area sensors up to 67mm diagonal. Optimized for a specific magnification of 5.2x the lens provides high performance in a compact and robust package. The V70-Mount interface makes it easy to install numerous mounts and allows the rotation of the lens into the best azimuth.

Key features

- Designed for 12k / 5 μ m line scan sensors
- Optimized for 5.2x magnification
- Diffraction limited design
- Best azimuth marking

Applications

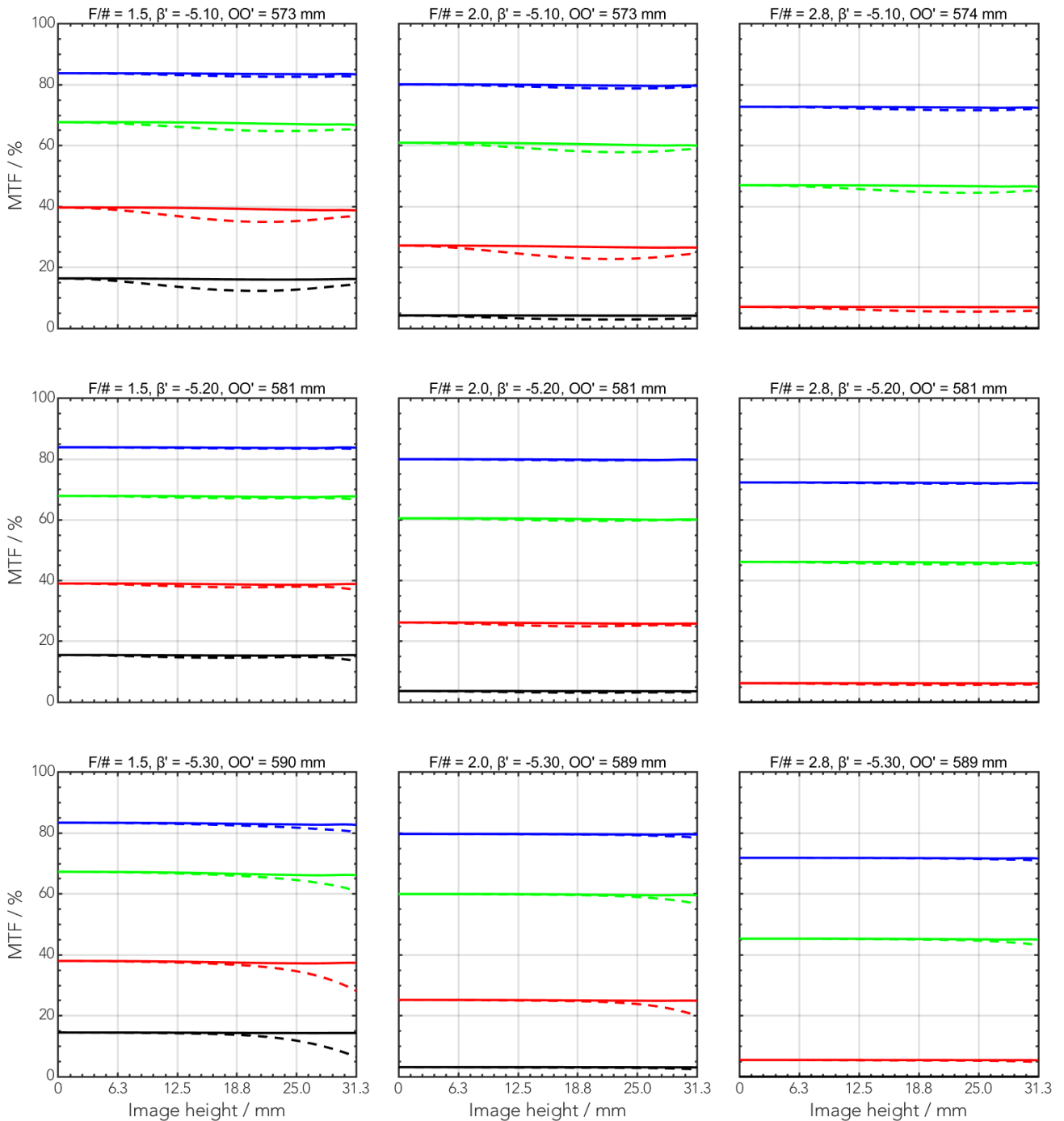
- FPD inspection
- PCB inspection
- Micro defect detection
- AOI (Automated Optical Inspection)

Technical specifications

| | |
|-------------------------------------|----------------------|
| Type [standard] | V70 |
| ID [standard] | 1079320 |
| Interface | V70-Mount |
| Focal length [mm] | 82 |
| F/# range | F/1.5 ... F/11 |
| Numerical aperture [object image] | 0.22 0.04 |
| Max. sensor size [mm] | 67 |
| Max. angle of view [°] | 5 |
| Rec. magnification range | -5.2 (-5.3 ... -5.1) |
| Rec. working distance range [mm] | 55 ... 56 |
| Max. mechanical focus travel [mm] | 27.4 |
| Filter thread [mm] | M58x0,75 |
| Storage temperature [°C] | 0 ... +50 |
| Net. weight [g] | 1030 |
| Additional info | - |
| f'eff [mm] | 82.87 |
| SF [mm] | -40.31 |
| S'F' [mm] | -41.19 |
| HH' [mm] | -31.28 |
| β 'P | 0.79 |
| SEP [mm] | 64.18 |
| S'AP [mm] | -106.92 |
| Σ d [mm] | 135.35 |

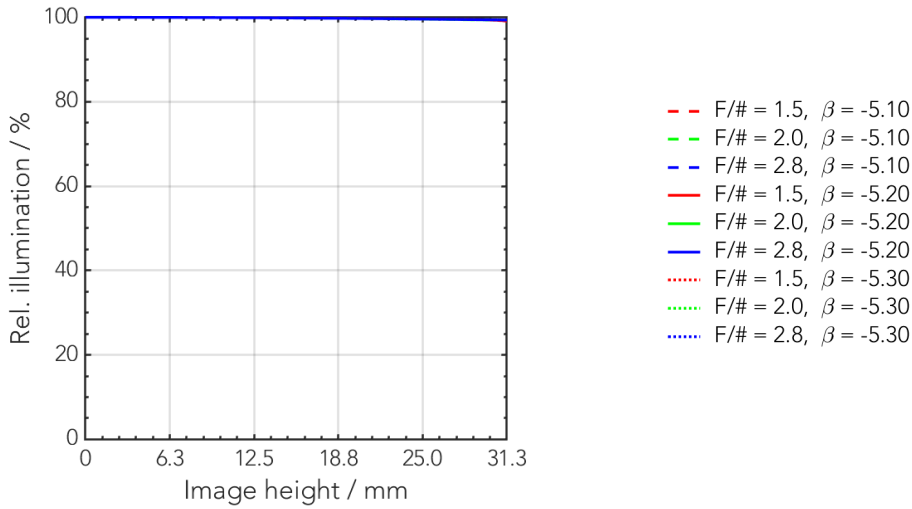
MTF charts

| Spectrum name | VIS LED | | | | | |
|------------------|---------|------|------|------|------|-----|
| Wavelengths [nm] | 425 | 475 | 525 | 575 | 625 | 675 |
| Rel. weights [%] | 1.5 | 13.6 | 26.5 | 27.8 | 24.2 | 6.4 |

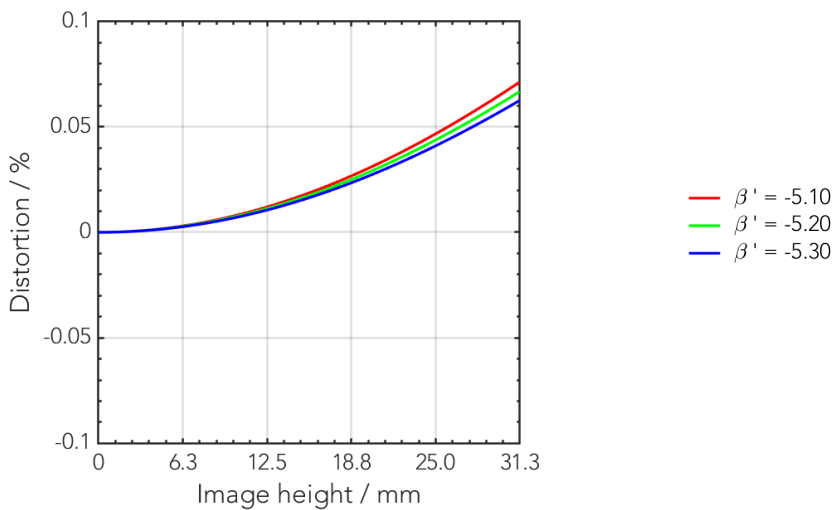


— 18 LP/mm, radial
 — 36 LP/mm, radial
 — 72 LP/mm, radial
 — 108 LP/mm, radial
- - - 18 LP/mm, tangential
 - - - 36 LP/mm, tangential
 - - - 72 LP/mm, tangential
 - - - 108 LP/mm, tangential

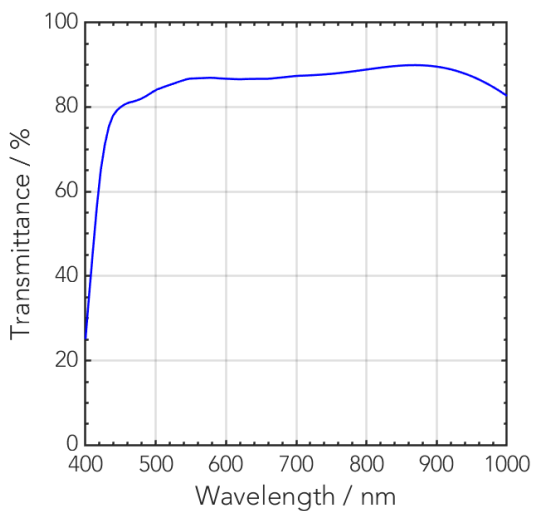
Rel. illumination vs. image height



Distortion vs. image height

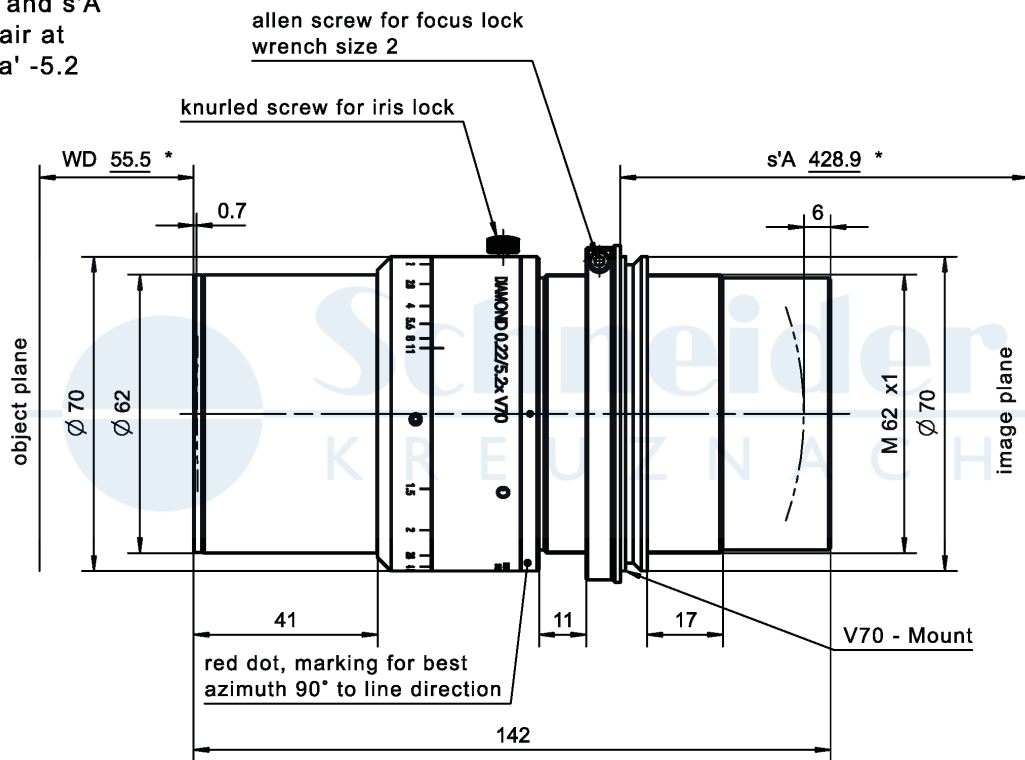


Transmittance vs. wavelength



Technical drawings

* WD and s'A
in air at
beta' -5.2



| Accessories | Mount | Eff. length | ID |
|----------------|-------------------------|-------------|---------|
| Adapter | V70 / M72 x 0.75 | 10 mm | 1072419 |
| | M72 x 0.75 / M42 x 1 | 6 mm | 1079515 |
| | M72 x 0.75 / M58 x 0.75 | 6 mm | 1075556 |
| | M72 x 0.75 / M90 x 1 | 4 mm | 1084879 |
| | M72 x 0.75 / M95 x 1 | 4 mm | 1077013 |
| Extension tube | M72 x 0.75 / M72 x 0.75 | 5 mm | 1072420 |
| | M72 x 0.75 / M72 x 0.75 | 10 mm | 1072421 |
| | M72 x 0.75 / M72 x 0.75 | 25 mm | 26406 |
| | M72 x 0.75 / M72 x 0.75 | 50 mm | 1054733 |
| | M72 x 0.75 / M72 x 0.75 | 100 mm | 1079483 |
| | M90 x 1 / M90 x 1 | 10 mm | 1084875 |
| | M90 x 1 / M90 x 1 | 25 mm | 1084876 |
| | M90 x 1 / M90 x 1 | 50 mm | 1084877 |
| | M90 x 1 / M90 x 1 | 100 mm | 1084878 |
| | M95 x 1 / M95 x 1 | 10 mm | 1077290 |
| | M95 x 1 / M95 x 1 | 25 mm | 1062892 |
| | M95 x 1 / M95 x 1 | 50 mm | 1062893 |
| | M95 x 1 / M95 x 1 | 100 mm | 1062894 |
| | M95 x 1 / M95 x 1 | 200 mm | 1077291 |

| 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 |
| $\beta'P$ | 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 |
| Σd | 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) |
| β' | 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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