

This vibration insensitive lens is designed to be used with large line scan and area sensors under harsh industrial conditions. It is optimized for a specific magnification in order to achieve the best results at close-up applications. Very low chromatic aberrations plus low geometric errors provide a very high image quality. The V38-Mount fits to the modular Unifoc system with its large variety of accessories, including focusing mounts, extension tubes and camera adapters.

Key features

- Modular system
- Low distortion
- Low chromatic aberrations
- Large image circle

Applications

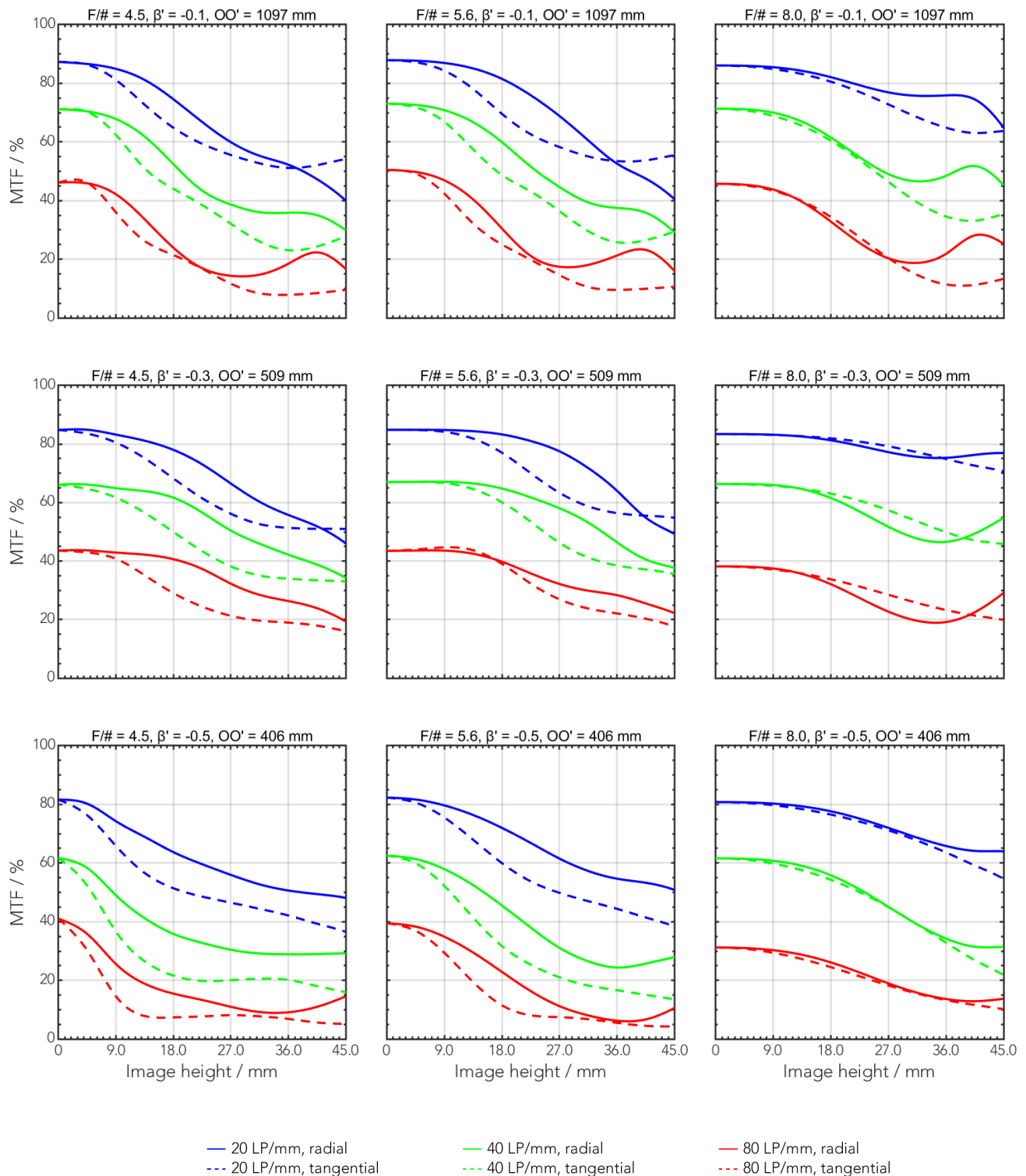
- Machine Vision
- AOI (Automated Optical Inspection)
- FPD/PCB inspection
- Logistics

Technical specifications

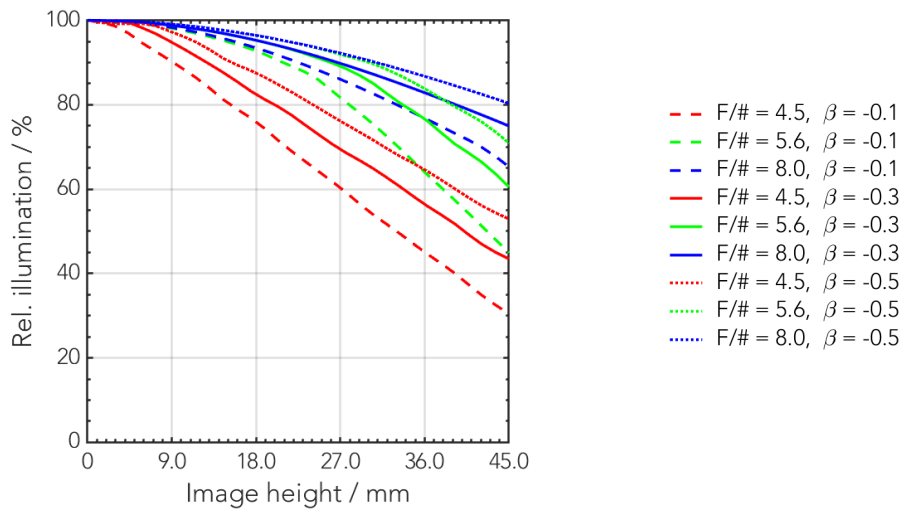
| | |
|-------------------------------------|----------------------|
| Type [standard] | V38 |
| ID [standard] | 1097784 |
| Interface | V38-Mount |
| Focal length [mm] | 90 |
| F/# range | F/4.5 ... F/64 |
| Numerical aperture [object image] | 0.03 0.10 |
| Max. sensor size [mm] | 90 |
| Max. angle of view [°] | 42 |
| Rec. magnification range | -0.3 (-0.5 ... -0.1) |
| Rec. working distance range [mm] | 240 ... 967 |
| Max. mechanical focus travel [mm] | - |
| Filter thread [mm] | M40.5 x 0.5 |
| Storage temperature [°C] | -25 ... +70 |
| Net. weight [standard] [g] | 129 |
| Additional info | - |
| f'eff [mm] | 90.80 |
| SF [mm] | -66.66 |
| S'F' [mm] | 67.92 |
| HH' [mm] | -3.56 |
| β'P | 1.02 |
| SEP [mm] | 22.56 |
| S'AP [mm] | -24.49 |
| Σd [mm] | 43.47 |

MTF charts

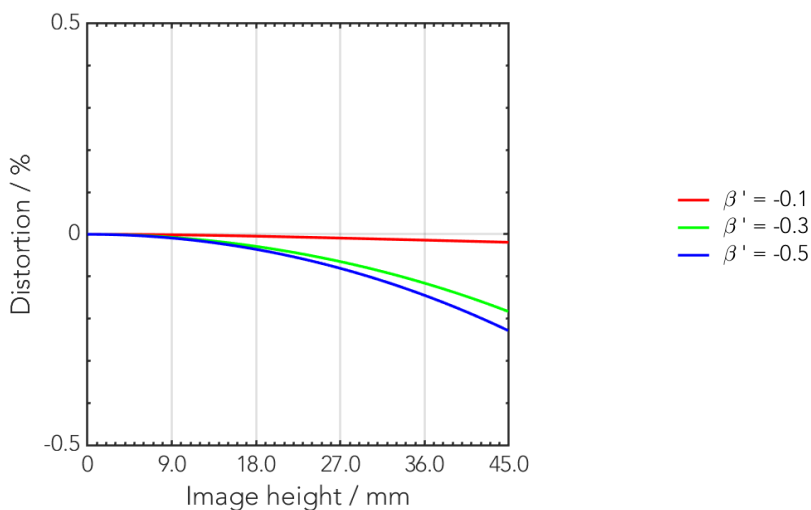
| Spectrum name | VIS | | | | | |
|------------------|-----|-----|-----|-----|-----|-----|
| Wavelengths [nm] | 425 | 475 | 525 | 575 | 625 | 675 |
| Rel. weights [%] | 8 | 16 | 23 | 22 | 19 | 13 |



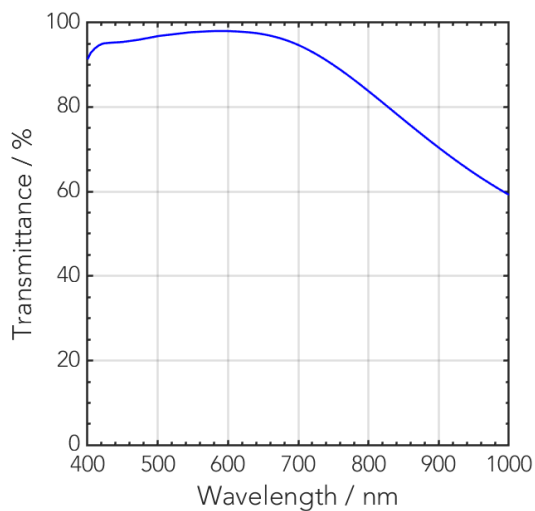
Rel. illumination vs. image height



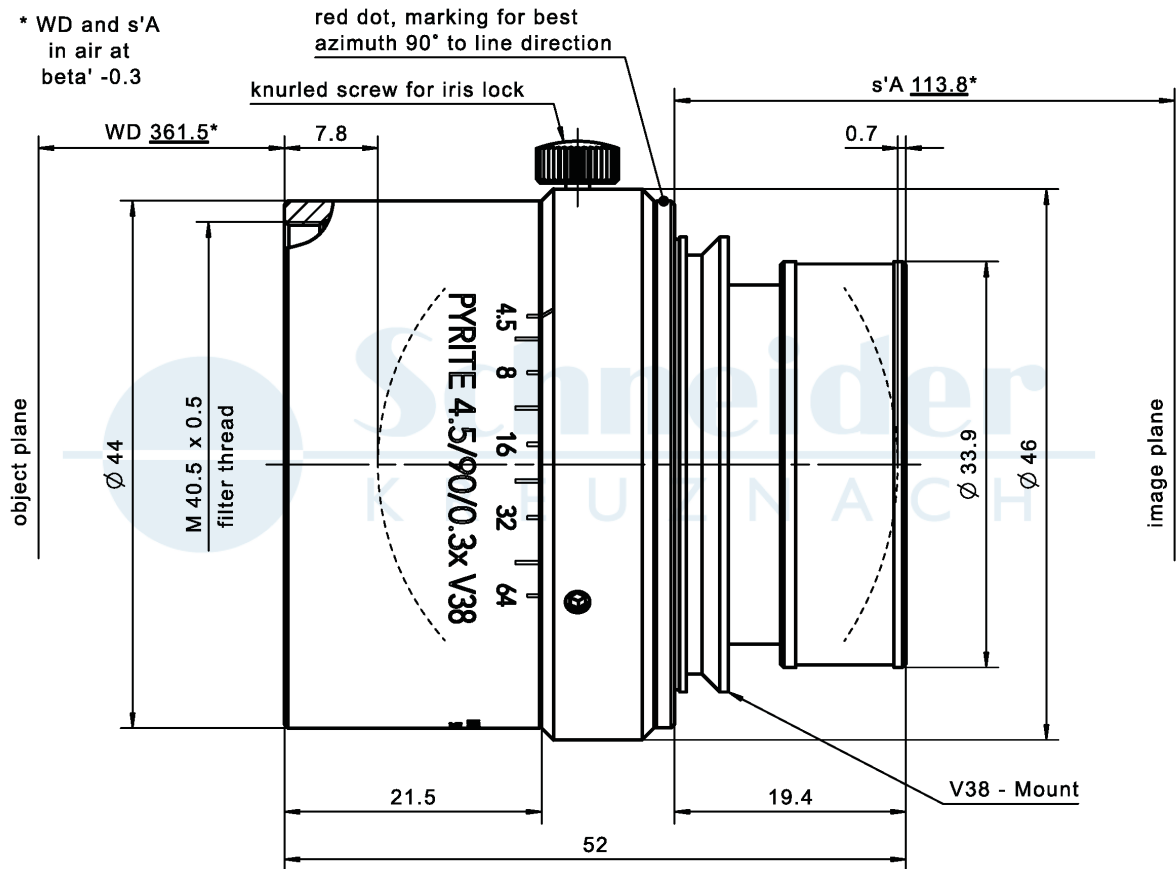
Distortion vs. image height



Transmittance vs. wavelength



Technical drawings



| Accessories | Mount | Eff. length | ID |
|----------------|------------------|----------------|---------|
| UNIFOC 12 | V38 / V38 | 17.4 – 29.4 mm | 11726 |
| UNIFOC 7 | V38 / V38 | 20 – 27 mm | 1001041 |
| UNIFOC 7 | V38 / M58 x 0.75 | 20 – 27 mm | 1054532 |
| UNIFOC 5 | V38 / C-Mount | 19.2 – 24.2 mm | 1011634 |
| Adapter | V38 / C-Mount | 6.5 mm | 20052 |
| | V38 / TFL-Mount | 6.5 mm | 1098491 |
| | V38 / Leica | 6.5 mm | 20054 |
| | V38 / M42 x 0.75 | 6.5 mm | 20053 |
| | V38 / M42 x 1 | 6.5 mm | 20059 |
| | V38 / M42 x 1 | 35 mm | 1001692 |
| | V38 / M58 x 0.75 | 10 mm | 1018385 |
| | V38 / F-Mount | 9.3 mm | 21610 |
| Extension tube | V38 / V38 | 6 mm | 20176 |
| | V38 / V38 | 8 mm | 20177 |
| | V38 / V38 | 10 mm | 20178 |
| | V38 / V38 | 25 mm | 20179 |
| | V38 / V38 | 50 mm | 20154 |
| | V38 / V38 | 75 mm | 20155 |

| 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 |
| β'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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