# Xenon-Diamond 2.3/116 | -3.5x | BS

This lens with beam splitter for axial illumination is optimized for 12k / 5µm (62.5 mm) line scan sensors. The lens provides high performance at >72 LP/mm with low color shift and detects the smallest targets to solve the most challenging applications. The V-Mount interface makes it easy to install mounts and to rotate the lens into the highest performance.

## Key features

- Broadband AR 400-700nm
- Low chromatic focal shift
- Resolves 3.5µm
- Axial In-line Illumination

## Applications

- PCB inspection
- Flat Panel inspection
- LCD inspection
- Alignment tasks

## Technical specifications

| | |
|---|---|
| Type | -0003 |
| ID | 1079718 |
| Interface | V90-Mount |
| Focal length [mm] | 116 |
| F/# range | F/2.3 ... F/11.3 |
| Numerical aperture | 0.16 |
| Max. sensor size [mm] | 62.5 |
| Max. angle of view [°] | 7 |
| Rec. magnification range | -3.5 (-3.65 ... -3.35) |
| Rec. working distance range [mm] | 52 ... 55 |
| Max. mechanical focus travel [mm] | 38.4 |
| Filter thread [mm] | - |
| Storage temperature [°C] | 0 … +50 |
| Net. weight [g] | 2260 |
| Additional info | Max. chief ray angle in object space = 3.3° |
| f'eff [mm] | 116.21 |
| SF [mm] | -21.60 |
| S'F' [mm] | 33.29 |
| HH' [mm] | -0.62 |
| ß'P | 0.97 |
| SEP [mm] | 98.22 |
| S'AP [mm] | -79.42 |
| Σd [mm] | 176.90 |

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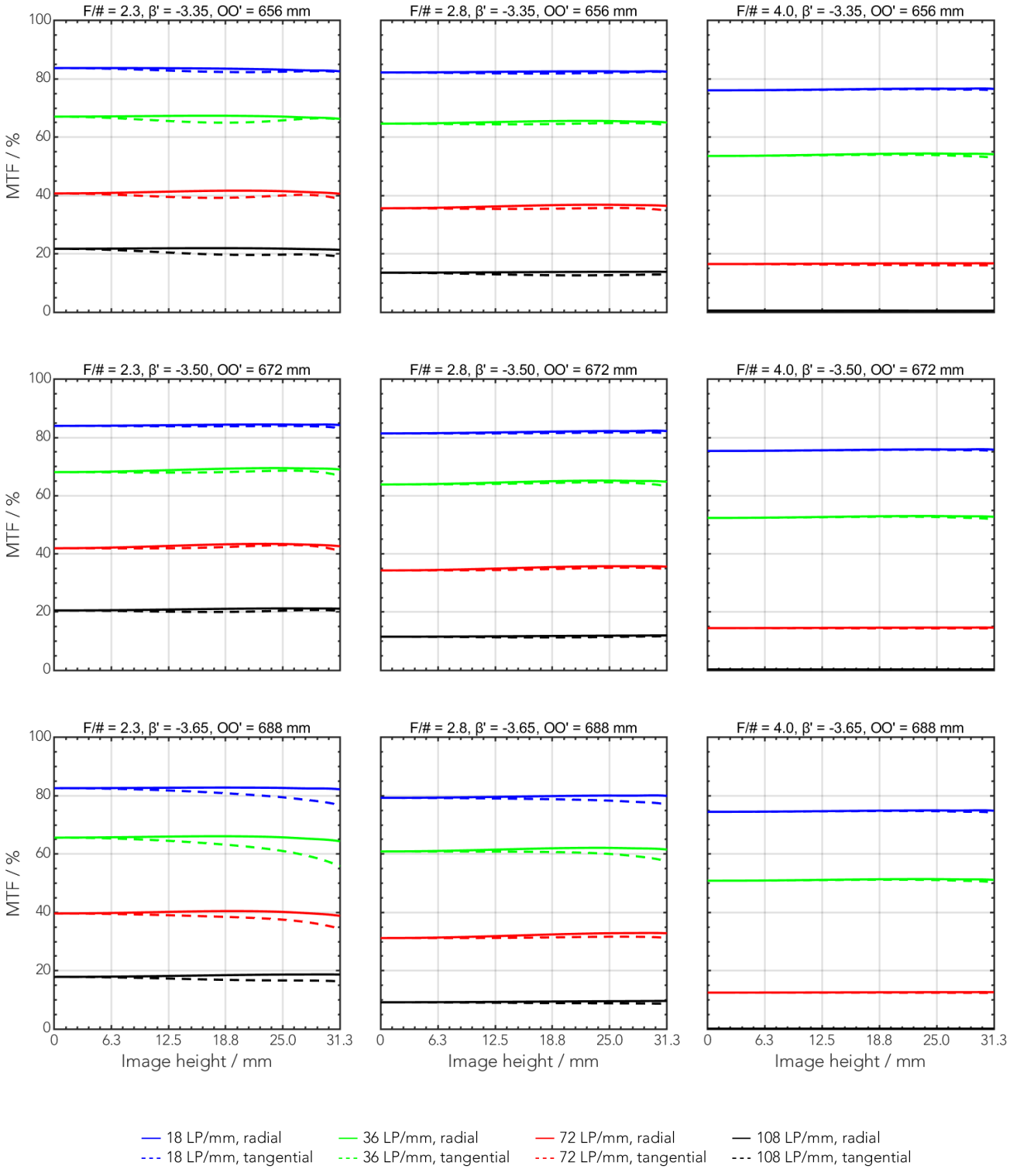
## MTF charts

| 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 |

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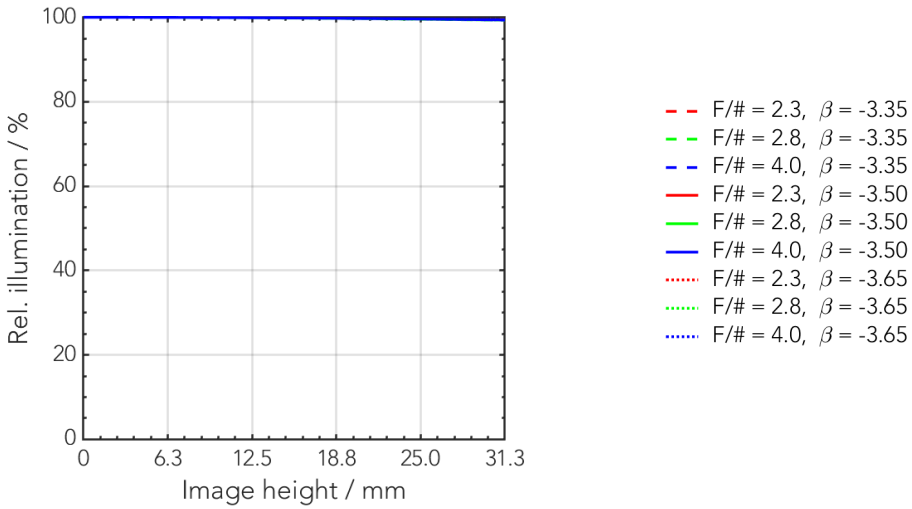
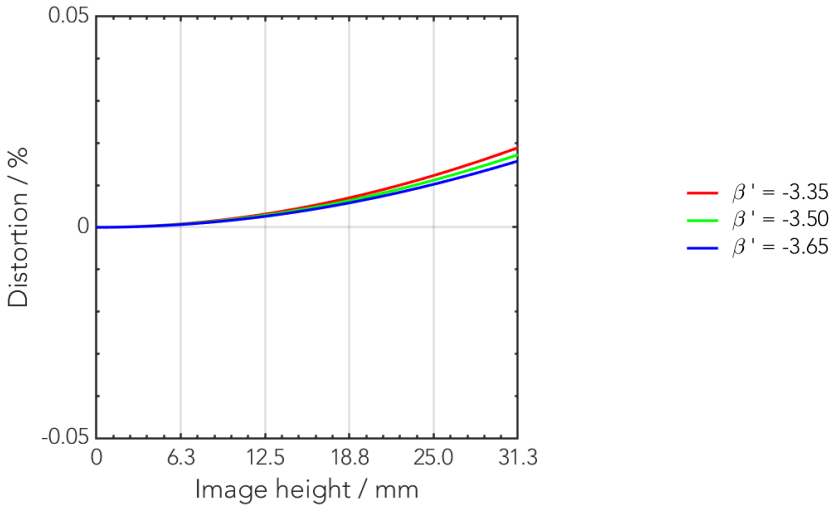
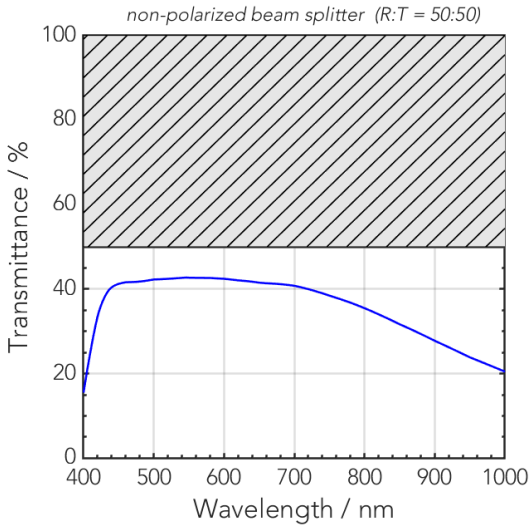
## Rel. illumination vs. image height




## Distortion vs. image height




## Transmittance vs. wavelength

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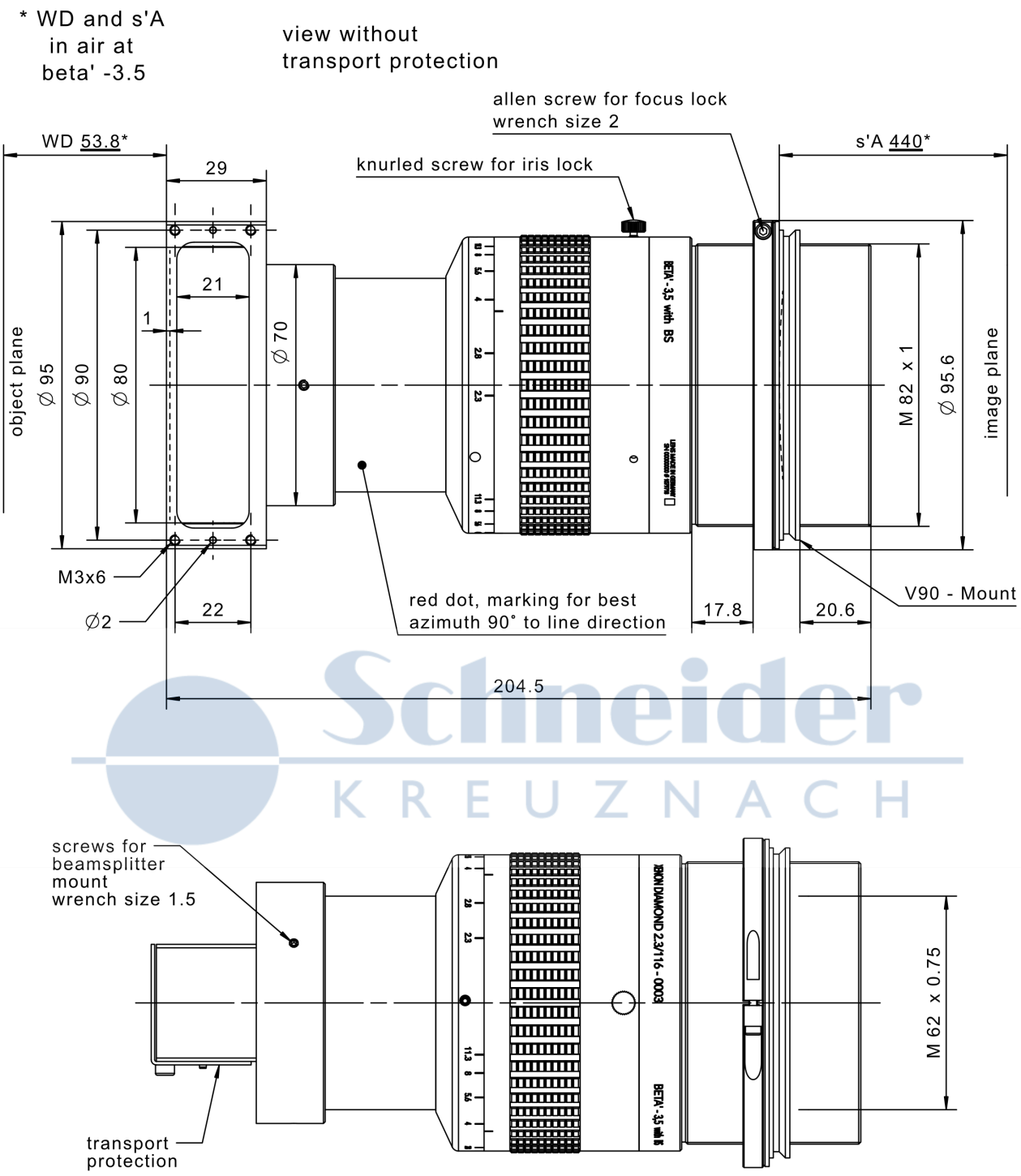
## Technical drawings




standard

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| Accessories | Mount | Eff. length | ID |
|---|---|---|---|
| Adapter | V90 / M95 x 1 | 10 mm | 1077293 |
| Extension tube | 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 |

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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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