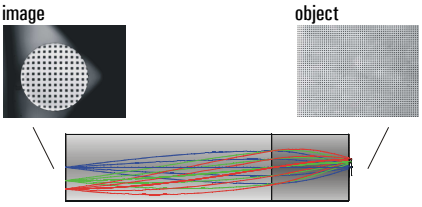
In Vivo Medical Confocal Imaging and Optical Coherence Tomography

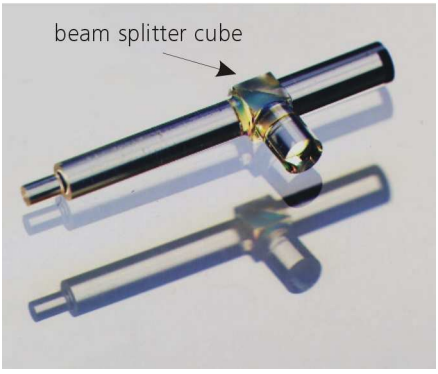
- GRIN Imaging systems
- Diameter: (0.35) / 0.5 mm / 1.0 mm / 1.8 mm / (2.0) mm
- Prisms to change the direction of view can be assembled
- Combination with optical fibers and imaging fiber bundles on request
- Optical design for customized solutions
- AR- and splitter (dichroic, polarizing, non-polarizing) coatings on request
- Mounted in stainless steel tubes on request

In Vivo Microendoscopy

Examples:

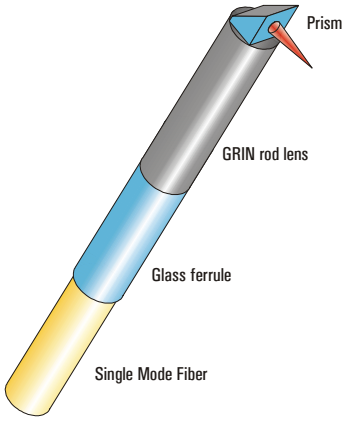


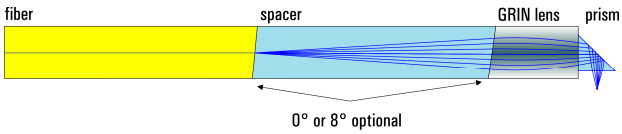
- Diameters: (0.35), 0.5, 1.0, 1.8, (2.0) mm
- Magnifications: 1:4.9 and 1:2.6
- Object NA: 0.5
- Resolution limit $> 0.7 \mu m$
- For standard configurations please see the datasheet "GRIN Needle Endomicroscopes"



Example: Micro-optic GRIN imaging system of a miniaturized fluorescence microscope:
Excitation light is coupled in through the side-port GRIN and gets deflected by a dichroic beam splitter to the sample plane (left). The fluorescence image signal passes from the sample to the exit-port GRIN lens (right).
The image is generated by scanning a MEMS mirror in the excitation path or an image sensor in the fluorescence detection path (both not shown).
GRIN lens diameters: 1.0, 1.8 and 2.0 mm.
J. Neurosci. 26(41):10380-6.

In Vivo OCT Endoscopy





- Diameters: 0.5, 1.0, 1.8 mm
- working distance, spot size and divergence can be designed to customized specifications
- Diffraction-limited Gaussian spots
- Generation of internal reference signal within probe possible
- Example: typical amplitude modulation of back reflected interference signal in the fiber about 80 % (moving mirror as reflector)

Tolerances GRIN lens:
lens length z_l: ± 5% due to variations of the gradient constant
diameter d: + 0 / - 0.01 mm
working distance s: ± 0.01 mm

Surface quality:
5 / 3 x 0.025; L 3 x 0.005; E 0 (defined by DIN ISO 10110-7:2000-02).
The surface quality is defined within 90 % of the lens diameter. Outside of this area defects are allowed.

Variations due to modifications of the production process are possible.
It is the user´s responsibility to determine suitability for the user´s purpose.

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