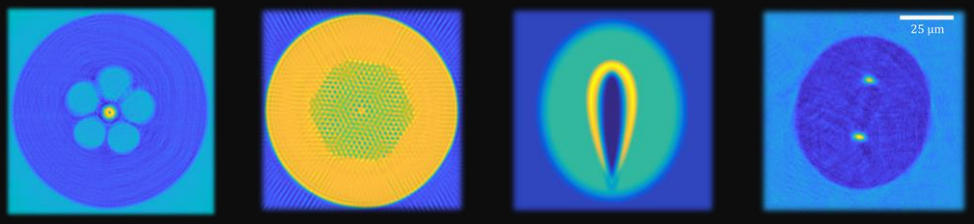
The Ripper™

The non-invasive Phase-Refractive Index Profiler

Specially tailored for the convenient measurement of refractive index (RI) profiles of fibers, laser written waveguides and other complex photonic structures.

- Real-time phase imaging
- End-face and top view imaging
- Sub-micron spatial resolution
- Large field of view
- Tomographic RI reconstruction for asymmetric fibers
- Proprietary algorithm for RI reconstruction of waveguides

Unlimited possibilities in life sciences



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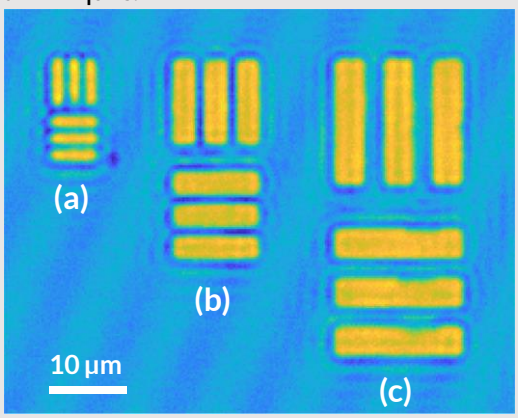
Real-time, low noise quantitative phase imaging

The Ripper provides real-time quantitative phase imaging capabilities from which the refractive index (RI) profile of various photonic structures ranging from simple optical fibers to more complex structures such as couplers , laser written waveguides or bio samples can be reconstructed. Our method is based on phase imaging for non-invasive measurements along the length of the fiber or waveguide, unlike other techniques.



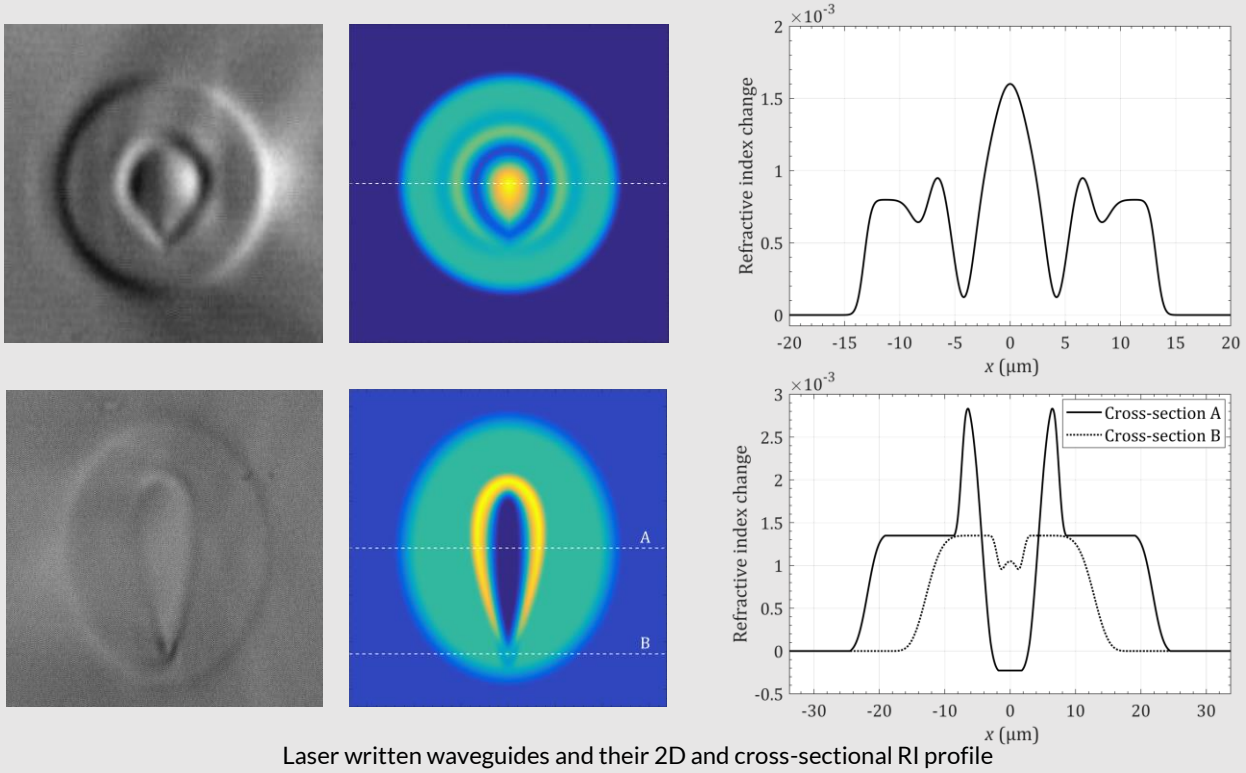
Resolution targets: (a) 1 µm (b) 2 µm (c) 3 µm.

- Sub-micron resolution
- Low noise (σ = 10 mrad)
- Large field of view (330 µm by 270 µm)*
- Up to 30 fps

* Larger FOV available upon request.

Profiling of photonic structures directly inscribed in glass

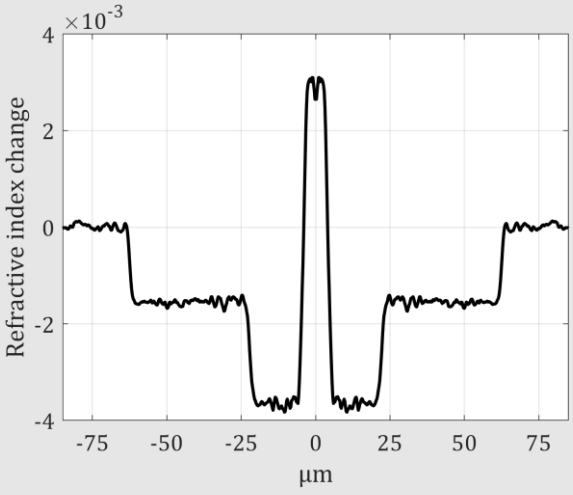
The Ripper is the only instrument that allows for the measurement of the RI profile of photonic structures directly inscribed in glass. Since complete tomography is not generally possible with these samples, the measurement is made possible by the use of our specially developed genetic algorithm. Also available is an optional partial tomographic imaging of glass samples for a more robust measurement on some types of structures. Feel free to discuss your particular needs with one of our experts.

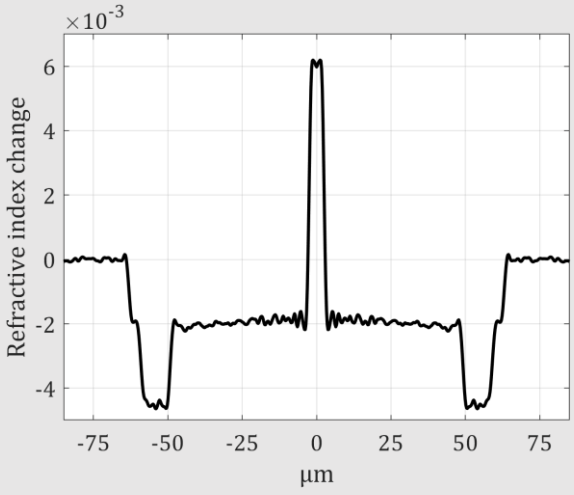


Laser written waveguides and their 2D and cross-sectional RI profile

Simple, axially symmetric optical fibers

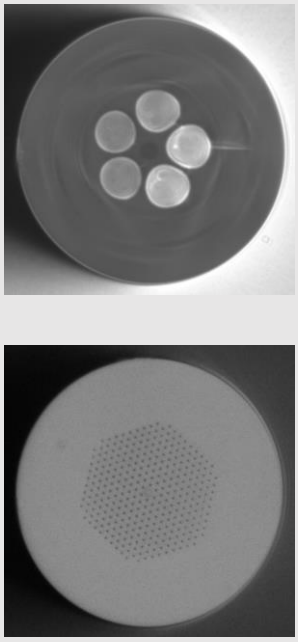
The measurement of axially symmetric fibers can be made in mere seconds. Below are examples of the radial profiles of two double-clad fibers measured using the Ripper.



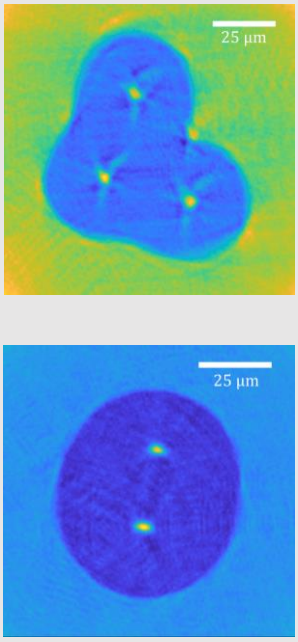


Tomographic imaging of asymmetric optical fibers

The Ripper also features tomographic capabilities for the reconstruction of RI profiles of axially asymmetric optical fibers and structures such as photonic crystal fibers and couplers.



Photonic crystal fibers



Fibered couplers

Specifications

Field of view[1]	660 µm x 540 µm
Spatial resolution[2]	0.8 µm
Phase noise	10 mrad
Maximum sample size[3]	X: 50 mm, Y: 50 mm, Z: 5 mm
Maximum displacement[3]	X: 50 mm, Y: 25 mm, Z: 6.5 mm
Working distance[5]	1.2 mm
Light source[4]	635 ± 1 nm
Maximum image rate	30 fps
Image size	1280 px by 1024 px
Dimensions (L x W x H)	446 x 88 x 323 mm
Weight	15 kg

[1] FoV can be increased up to 1.3 mm by 1 mm upon request.

[2] Spatial resolution may vary depending on the chosen light source (included).

[3] Sample size may affect maximum displacement.

[4] Other wavelengths may be used upon request.

5 Working distance will change depending on the chosen FoV

Other products from PhotoNova inc.

BraggTune™

FiberVice™

DelayTune™

AllStrip™

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