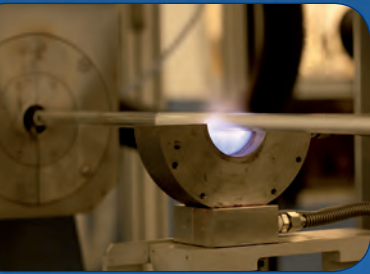


Refractive Index Measurement on Optical Fiber

AMS Technologies' Measurement Services with Interferometric Measurement Technique

- Multiwavelength
- Sub- μm spatial resolution
- Applicable to any fiber type
- Measure splices, tapers, couplers



**OPTICAL
TECHNOLOGIES**

Measurement Services with Interferometric Measurement Technique

■ Refractive index measurement on optical fiber

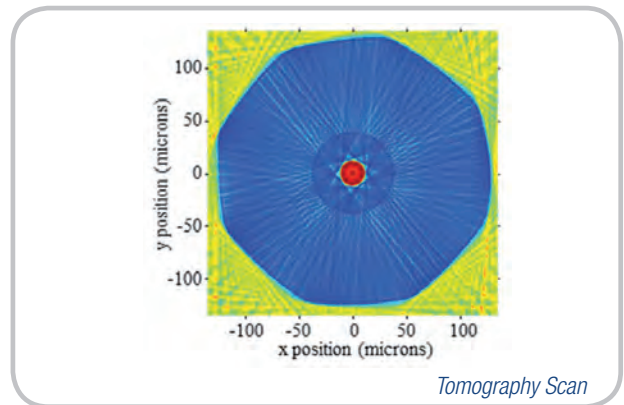
With the IFA-100 Multiwavelength Refractive index Profiler AMS Technologies can offer measurement services for product development, good income monitoring and forensic analysis on optical fibers. At our testing facility in Munich we can secure quick sample turnaround and traceable confidentiality of measurement result.

Added information derived from Refractive index profile

The refractive index profile allows determination of key transmission parameters like Chromatic dispersion, Mode Field diameter, Bandwidth, Birefringence and Polarisation Mode Dispersion (PMD).

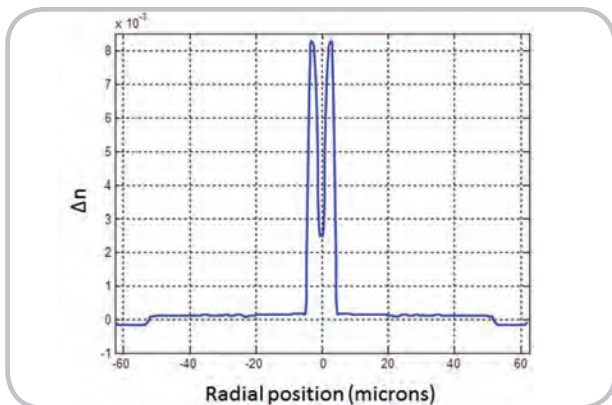
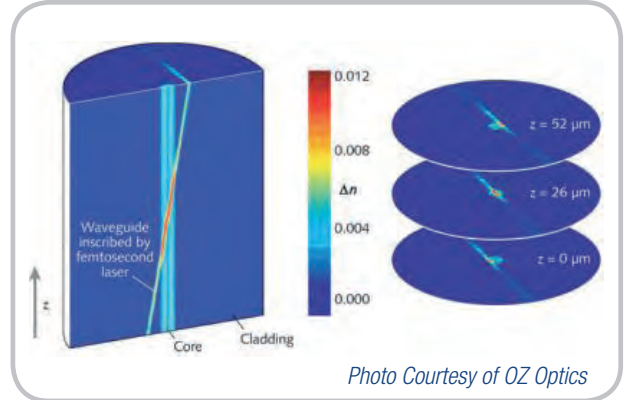
Line plots and Tomography scans

The measurements can be taken in one dimension giving a line plot of the refractive index at any given cross section of the fiber. This measurement assumes the fiber to be symmetrical and symmetrical geometry is assumed for the computation of the refractive index profile. For the two dimensional measurements several lower dimensional projections are combined to form a full surface profile of the refractive index. This computer tomography based approach does not take assumptions for the fibers being symmetric.

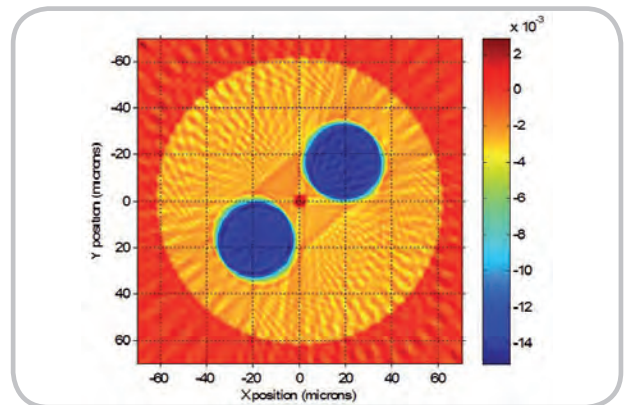


Refractive index along fiber axis for component manufacturing

The refractive index can be measured along userdefined positions along the fiber axis. This allows for example to verify the design of a mode adapter when splicing different type of fibers or to measure the average refractive index of the irradiated core in a grating region and compare it to unprocessed fiber. Moreover special waveguide structure written into an optical fiber can be verified.



Line Plot



Tomography Scan



■ Measurement services are categorized in four groups:

One-Dimensional refractive index measurement

Fibers having a diameter between 80µm to 400µm, axisymmetric (not PM or star shaped, all interna structures axisymmetric), single wavelength

Two-Dimensional refractive index measurement

Fibers having a diameter between 80µm to 400µm, non axisymmetric (PM or star shaped), single wavelength

One-Dimensional stress measurement

Axial refractive index birefringence for axisymmetric fibers having a diameter between 80 to 400µm

Three-Dimensional refractive index measurement

Measurement at user defined position along the fiber axis, axis- or non axisymmetric, single- or multiwavelength

■ Measurements can be done with following specification:

Fiber diameters:	40µm to 400µm
Measurement wavelength:	450nm to 980nm
Fiber material:	Silica glass, non-silica glass, plastic
Accuracy of index of refraction:	+/- 0.0001
Spatial resolution:	~ λ/2 (i.e. 250 nm for 500 nm wavelength)
Accuracy of stress measurement:	+/- 5 MPa



Cover image shows a large RIC preform to be drawn into an optical fiber of 125 µm diameter for the production of optical fibers for the telecommunications industry.

Photo Courtesy of obs/Heraeus Quarzglas



WHAT CAN WE DO FOR YOU?

Please contact us for further information

Germany

AMS Technologies AG
(Headquarters)
Fraunhoferstr. 22
82152 Martinsried
Germany
Phone +49 (0)89 895 77 0
Fax +49 (0)89 895 77 199
info@amstechnologies.com

United Kingdom

AMS Technologies Ltd.
Unit 11, St Johns Business Park
Lutterworth
Leicestershire LE17 4HB
United Kingdom
Phone: +44 (0)1455 556360
Fax: +44 (0)1455 552974
info@amstechnologies.com

France

AMS Technologies S.A.R.L.
1, avenue de l'Atlantique
Courtaboeuf
91976 Les Ulis - Courtaboeuf Cedex
France
Phone: +33 (0)1 64 86 46 00
Fax: +33 (0)1 69 07 87 19
info@amstechnologies.com

Italy

AMS Technologies S.r.l.
Via San Bernardino, 49
20025 Legnano (MI)
Italy
Phone +39 0331 596 693
Fax +39 0331 590 732
info@amstechnologies.com

Spain

AMS Technologies S.L.
C/Muntaner, 200 Atico, 4a
08036 Barcelona
Spain
Phone: +34 93 380 84 20
Fax: +34 93 380 84 21
info@amstechnologies.com

Nordic

AMS Technologies Nordic
Azpect Photonics AB
Aminogatan 34
43153 Mölndal
Sweden
Phone +46 (0)8 55 44 24 80
Fax +46 (0)8 55 44 24 99
info@amstechnologies.com



- Optical Technologies
- Power Technologies
- Thermal Management