NuXLMA™

Extra Large Mode Area
Triple Clad Fibers

The New Frontier In Fibers for Lasers

Nufern is expanding its broad range of triple clad fibers with Extra Large Mode Area (XLMA) fibers using Heraeus' proprietary process for making large core doped glass. The XLMA ytterbium doped fibers provide end users with high absorption and large core areas for multi-kW, multimode lasers and high pulse energy amplifiers. These fibers are also extremely well suited for making amplified spontaneous emission (ASE) sources with low spatial and temporal coherence which makes them ideal sources for full-field imaging and ranging applications. The fibers are offered with a triple clad geometry enabling multi-kW average powers and multi-MW peak powers. This new class of XLMA fibers is expected to expand the frontiers of fiber lasers, amplifiers and ASE sources in materials processing, imaging and ranging applications.

OPTICAL FIBERS — FIBER GYRO COILS — DEFENSE TECHNOLOGY — FIBER LASERS & AMPLIFIERS

NUFERN®

www.nufern.com

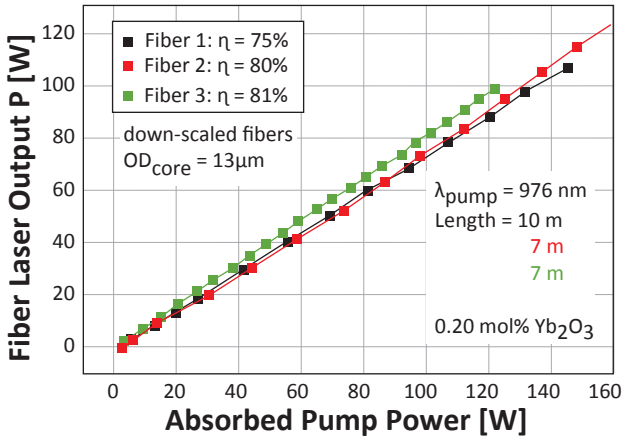
NuXLMA™

Extra Large Mode Area Triple Clad Fibers

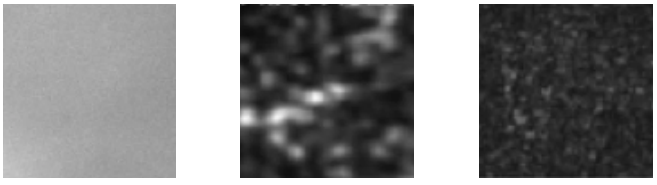
Optical Attributes

- Extra large mode areas – 60 to 200 µm
- High absorption – reduced effective lengths, low non-linearities
- High damage threshold for high pulse energies & peak powers
- Low spatial coherence – ASE sources for speckle free imaging
- Low temporal coherence & high bandwidth for ranging applications
- High brightness for high speed and long distance imaging

Slope Efficiency of Heraeus Yb doped Glass

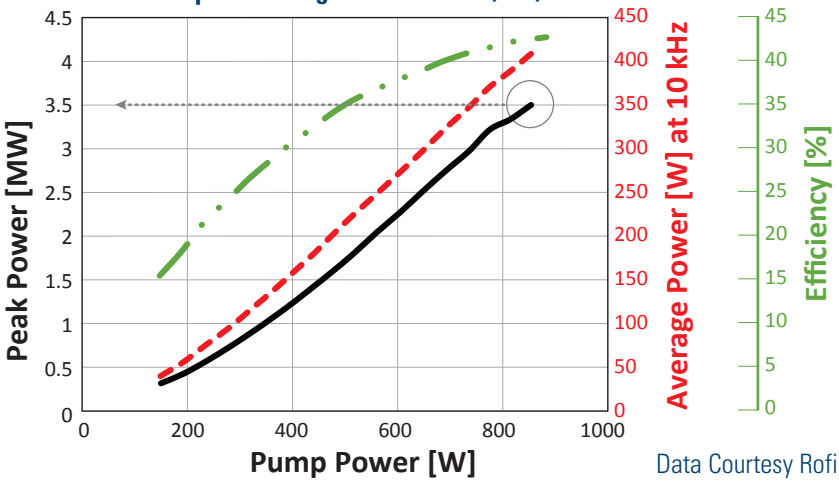


Comparison of Speckle Contrast



XLMA ASE Source | LMA ASE Source | Multimode SLD

40 mJ Amplifier Using XLMA-YTF-300/400/480

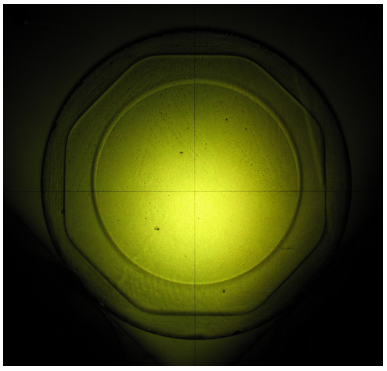


Data Courtesy Rofin Hamburg

Mechanical Attributes

- Excellent dimensional control for splicing into all fiber devices
- Triple clad geometry allows for enhanced power handling
- High proof strength for long term mechanical reliability
- Excellent damp heat resistance

XLMA-YTF-300/400/480 Fiber Cross-Section



Features & Benefits

- High absorption & very large mode areas — Enables short fiber lengths & low non-linear effects
- High damage threshold — For high pulse energies and peak powers
- Highly multimoded fiber — Ideal candidate for speckle free sources
- High power per mode with low coherence — For ranging applications
- NuCOAT$_{FA}$ fluoroacrylate coating — Excellent damp & dry heat performance for extended life

Applications

- Multi-kW multimode lasers
- High pulse energy amplifiers
- ASE sources for spectroscopy and fiber sensors
- ASE source for full-field imaging
- Sources for optical coherence tomography and frequency resolved LIDAR's

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Capabilities and typical design parameters are described above. Various standard and OEM designs are available.

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