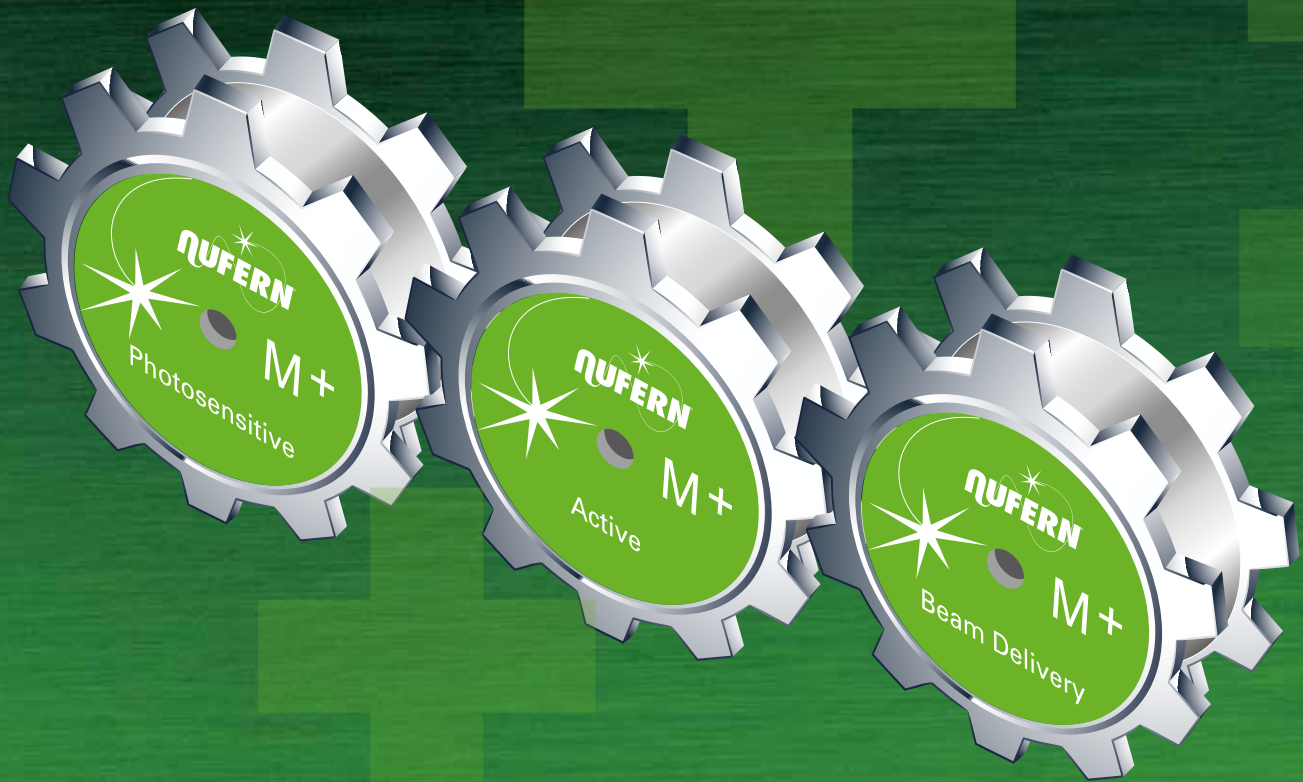


# NUFERN<sup>TM</sup> M+



最適なファイバ融着を実現する寸法精度の高い

## Matched Fiber (-M) と Ultra Matched Fiber (-M+)

の販売を開始しました。

### Uncompromising Performance

Nuferm has developed a new line of matched fibers called M+ that are specifically designed to provide the best beam quality at the highest output powers needed for today's industrial applications. These fibers offer the tightest tolerance geometry specifications enabling the lowest possible splice loss between active and passive fibers, resulting in lower thermal load. In addition, the attenuation and the NA tolerance have been improved allowing the lowest overall fiber path loss. These improved features increase splice repeatability reducing laser build cost. Use Nuferm NuMatch M+ fibers to improve laser performance by reducing overall loss and minimizing thermal load.



[www.nuferm.com](http://www.nuferm.com)



光技術をサポートする  
株式会社オプトサイエンス

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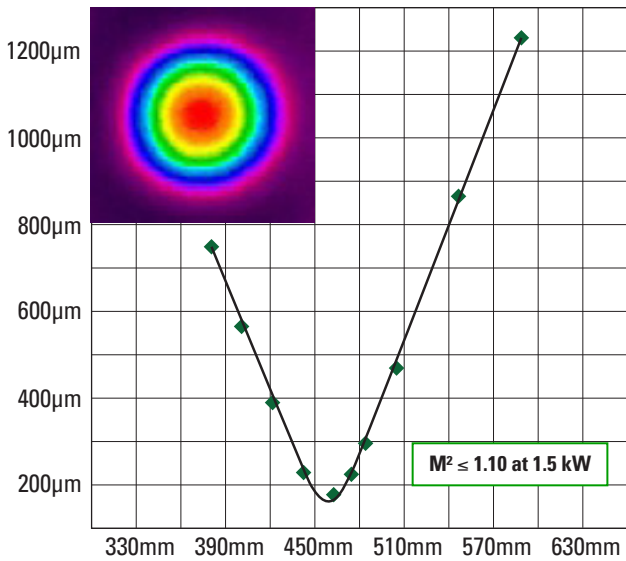
E-mail: [info@optoscience.com](mailto:info@optoscience.com)



### Tighter Tolerances

Introducing M+ line of matched active and passive fibers for the most demanding fiber laser applications requiring the highest performance and greatest beam quality M+ fibers offer >25% tighter tolerances than any other fibers including Nufern's M class of matched fibers.

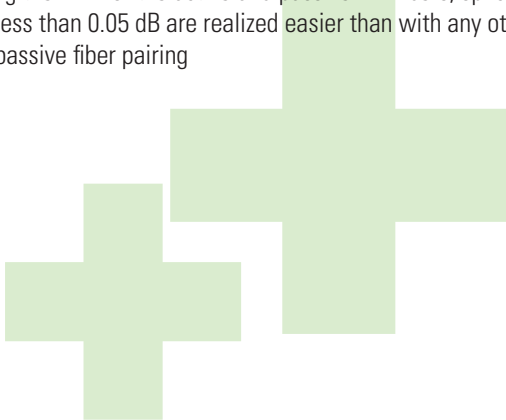
- Delivering best available splice loss
- Improved thermal load management
- Improved beam quality



Beam quality,  $M^2$ , achieved with a 0.06 NA, 25/400  $\mu\text{m}$ , Yb-fiber with M+ specifications operating at an output power of 1500 watts.

### Ultra Matched M+ Fibers with Improved MFD Tolerance

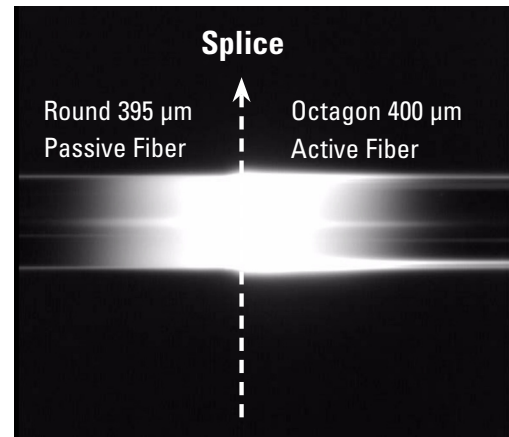
Nufern M+ fibers are the first active fibers in the industry that specify the mode-field diameter. By optimizing and precisely matching the MFD of the active and passive M+ fibers, splice losses less than 0.05 dB are realized easier than with any other active/passive fiber pairing



### Benefits

Nufern continues to offer the largest range of matched fibers for industrial production of fiber lasers for the widest range of applications including marking, micro-machining, cutting, welding, drilling and engraving.

- Tighter tolerance – Reduces the time and variability when splicing
- Repeatable splices – Reduces test and rework with lower splice loss
- High power – Reduces stray light and thermal load
- Performance – Improves beam quality and laser efficiency



By optimizing the core sizes and NA, and specifying the MFD, M+ fibers have better matched MFD's for improved splice performance.

### Calculated Splice Loss vs MFD Specification

