

# **NU**MATCH™



## Connecting High Performance Fiber Laser & Amplifier Components

### Optimize manufacturing of high performance fiber lasers & amplifiers

High precision, repeatable splicing of fiber components made with various specialty fibers is key to manufacturing high performance fiber lasers. NuMATCH fiber sets have carefully chosen specifications with tight geometric and optical tolerances that facilitate repeatable splicing in volume manufacturing environments. OEMs and high end users can easily specify that components for their laser product are made from Nufern's NuMATCH fibers, thus ensuring that all fibers and components going into the production line are spliced easily yielding the highest performance products. Nufern's Yb, Er/Yb, Tm, Ho and passive fibers are available in complimentary and precision matched sets for ease of manufacturing for your most demanding applications.



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



### Precision Matched LMA Double Clad Fiber Family

- Maximize splice performance between fibers for high yield manufacturing of fiber lasers
- Precision matched sets available for LMA fibers spanning 10-25  $\mu\text{m}$  core and 130-400  $\mu\text{m}$  clad diameters
- NuGEN9 Yb-fibers are precision matched as standard

#### Example of Precision Matched Fiber Set

Nufern 20/400 Precision Matched Fiber Set					
	Photosensitive	Active	Passive	PM Active	PM Passive
	PS-GDF-20/400-M	LMA-YDF-20/400-M	LMA-GDF-20/400-M	PLMA-YDF-20/400-M	PLMA-GDF-20/400-M
Core Diameter ( $\mu\text{m}$ )	20+/-1.5	20+/-1.5	20+/-1.5	20+/-1.5	20+/-1.5
Clad Diameter ( $\mu\text{m}$ )	400+/-5	400+/-10	395+/-5	405+/-10	395+/-10
Core NA	0.065+/-0.005	0.065+/-0.005	0.065+/-0.005	0.065+/-0.005	0.065+/-0.005
Clad NA	>0.46	>0.46	>0.46	>0.46	>0.46
Coating Diameter ( $\mu\text{m}$ )	550+/-15	550+/-15	550+/-15	550+/-15	550+/-15
Birefringence				0.0004	0.0004
Proof test (kpsi)	>100	>100	>100	>100	>100

### Complimentary Matched Fiber Family

- Complimentary fibers have core structure, size and composition that allow light to propagate efficiently from one type of fiber to the other after splicing
- Available in more than 40 different products covering Yb, Er:Yb, Tm and Ho doped fibers as well as passive fibers

#### Example of Complimentary Fiber Set

Nufern 20/130 Complimentary Fiber Set				
	Active	Passive	PM Active	PM Passive
	LMA-YDF-20/130-VIII	LMA-GDF-20/130	PLMA-YDF-20/130-VIII	PLMA-GDF-20/130
Core Diameter ( $\mu\text{m}$ )	20+/-2	20+/-2	20+/-2	20+/-2
Clad Diameter ( $\mu\text{m}$ )	130+/-2	130+/-1	130+/-1	130+/-1
Core NA	0.080+/-0.005	0.080+/-0.005	0.080+/-0.005	0.080+/-0.005
Clad NA	>0.46	>0.46	>0.46	>0.46
Coating Diameter ( $\mu\text{m}$ )	245+/-10	245+/-10	245+/-10	245+/-10
Birefringence			0.0002	0.0002
Proof test (kpsi)	>100	>100	>100	>100

### Features & Benefits

- Matched fiber series — Ensures splice compatibility
- NuCOAT<sub>FA</sub> fluoroacrylate coating — Greater fiber durability in extreme environmental operating & storage conditions
- Available with NuPOWER active fibers — Useful for generating high powers in the most demanding applications
- Precision matched set of fibers — Offer the most stringent specification and best performance in the industry
- All fiber proof tested to > 100 kpsi — Critical for ensuring long term reliability when coiling

### Typical Applications

- Monolithic high power fiber lasers and amplifiers
- LMA fiber couplers, pump combiners and Bragg gratings
- High power pump and signal delivery pigtailed
- Military, industrial and medical