



Advantages of Fiber Lasers vs. YAG Lasers

	Fiber Laser	Nd:YAG Laser
Maintenance	No Maintenance No Consumables No Cleaning or Aligning of Mirrors and/or Beam Path No Filters (Chiller)	Optical Path requires often adjustments to optimize power output Periodic replacement of flash lamps, diode packs, and solid state crystals Extremely temperamental diode packs often require factory-trained technicians – takes several hours in many cases Cleaning, replacement and aligning of laser mirrors
Power Efficiency	40% (20x Improvement)	2-3% (0.2% with 3x Nd:YAG)
Beam Quality	Round, Concentric Near M2=1 (<1.05)	Not symmetric on both axes M2 not as good
Optical Path/Beam Path	Flexible Cable (up to 50m)	Mirrors, Optical Path Loss of beam quality and significant power drop-off with fiber delivery scan head system
Reliability	100,000 Hrs MTBF Air Cooled	500-1,000 Hrs MTBF (Lamp-pumped) 10,000-20,000 Hrs MTBF (Diode-pumped) Liquid Cooled
Size	19" Rack Mount Unit	Large Footprint
Cooling	Air Cooled	De-ionized (DI) Water
Chiller	No Chiller necessary up to 200 Watt Q-switched (pulsed) or CW	30x Watt to laser output power
Spot Size	Due to the excellent M2, spot size is 50% smaller than Nd:YAG. Requires less power for the same result in comparison with Nd:YAG system	Significantly bigger than the Fiber Laser. Requires more lasing power to achieve the same result