

ACE FIBER LASERS

Thulium Fiber Laser Series for Demanding Industrial Applications

The ACE series of industrial fiber lasers sets a new benchmark for performance, precision, and reliability across a wide range of challenging industrial applications, including the specialized demands for clear polymer material processing. Engineered with our latest advanced components for fiber laser technology, these lasers deliver a highly stable output with excellent beam quality, and best-in-class efficiency, ideally suited for applications which require superior process control and repeatability.

One of the key applications for the ACE series fiber lasers lies in clear-to-clear polymer welding, a critical process for assembling transparent medical devices such as catheters, housings, diagnostic containers, and microfluidic chips. Traditionally a complex and limiting process, clear-to-clear welding benefits significantly from the laser's specific wavelength and other adjustable parameters.

Operating in the 2 μm wavelength range, well-absorbed by many common medical-grade polymers, enables localized heating in even transparent materials without any need for additives. This not only simplifies component design but also preserves the optical clarity of the final assembly, which can be essential for diagnostic use or regulatory compliance.



FEATURES

- Output power: 300 W
- High beam quality and efficiency
- Maintenance-free operation
- Optimal cost of ownership
- Particle-free joining minimizes contamination risk in sterile settings
- Non-contact, localized heating, minimized thermal damage and preserved mechanical properties
- Strong, hermetic seals suit fluidic and pressure-sensitive uses
- Additive-free process enables biocompatible, regulation-friendly devices

APPLICATIONS

- Polymer Material Processing
- Solid State Laser Pumping

Specifications		ACE FL300
Nominal Power (W)		300
Wavelength (nm)		1940 ±10
Operation Mode		CW/Modulated
Power Stability (%)		±1.5
Power Range (%)		10 to 100
Pulse Frequency Range (kHz)		CW – 5 (full depth modulation)
Rise time (µs)		<50
Laser Beam Quality - BPP (mm x mrad), at end of process fiber		<0.8 @ 25 µm <4.3 @ 100 µm
Electrical Ratings		
Supply Voltage (VAC)		230 ± 10% VAC, 50/60 Hz, Single Phase
Power Consumption (kW)		<1.7
Recommended Cooling Capacity (kW)		1.4
Cooling		
Medium		Water
Water Cooling Temperature (°C)		20 ±2
Water Flow (l/min.)		>7
Recommended Cooling Capacity (kW)		1.4
Beam Delivery System		
Standard Connector Interface		QBH
Standard Cable Dimensions ¹		Up to 10 m
Dimensions and Weight		
Dimensions (L x W x H) (mm)		547 x 482.6 x 130
Weight (kg)		<40
Environmental Conditions		
Ambient Temperature (°C)		15 → 40
Humidity		35 → 95%, non-condensing

Notes:

1. Other fiber lengths available upon request.