

4000W-9000W Variable Beam Profile High-brightness Fiber Lasers

Everfoton's VBP (Variable Beam Profile) fiber lasers provide output power of up to 9kW and adjust the output beam mode parameters automatically. Using fibers and combiners by Everfoton, VBP lasers achieve Gaussian beam, ring beam, mixed beam, etc. The lasers realize the adjust the output beam mode independently, and can realize the combination of high-energy and high-brightness small center beam and larger ring beam according to the processing requirements to meet customers' wider material thickness range. The lasers have better piercing and cutting speed and quality, optimized welding performance, and improved processing quality and efficiency.



Applications

- Power battery package
- Hair-pin
- Car manufacturer



Characteristics

- High-brightness output and high beam quality
- Instant adjustable beam profiles
- Independently tunable power levels in the central and ring regions
- Customized core and ring dimensions are available
- Intelligent process optimization tools
- Cost-effective solution for variety of metal process applications

Specifications

Optical Parameters

| Product Code | FFSC-2000SM/2000-VBP | FFSC-2000SM/4000-VBP | FFSC-3000SM/6000-VBP |
|-----------------------------------|----------------------|----------------------|----------------------|
| Operating Mode | CW / Modulated | | |
| Output Power (W) | 4000 | 6000 | 9000 |
| Core Output Power (W) | 2000 | 2000 | 3000 |
| Ring Output Power (W) | 2000 | 4000 | 6000 |
| Output Power Tunability (%) | 10 - 100 | | |
| Core Beam Quality M ² | < 1.2 | | < 1.3 |
| Ring Beam Quality BPP (mm x mrad) | < 4.0 | | < 5.0 |
| Output Power Instability 25°C (%) | < 2 (2 hours) | | |
| Emission Wavelength (nm) | 1080 ± 5 | | |
| Spectrum Width FWHM (nm) | < 6 | | |
| Modulation Frequency (kHz) | 5 | | |
| Red Laser Power (μW) | > 200 | | |

Fiber Delivery Cable Parameters

| Output Type | QBH | | |
|-----------------------------|-----|--|-----|
| Length (m) | 5 | | 10 |
| Central Core Diameter (μm) | 14 | | 20 |
| Ring Core Diameter (μm) | 100 | | 120 |
| Minimum Bending Radius (mm) | 200 | | |

Electrical Characteristics

| | | | |
|----------------------------|---------------------------|----|----|
| Operating Voltage (VAC) | 340 - 420, 3P5W 50 / 60Hz | | |
| Max Power Consumption (kW) | 12 | 18 | 27 |
| Control Mode | AD | | |

Other Characteristics

| | | | |
|--------------------------------|--|---|--------------------------------|
| Operating Temperature(°C) | 10 - 40 | | |
| Humidity (%) | 10 - 80 | | |
| Cooling Method | Water Cooled | | |
| Water-cooling Temperature (°C) | 25 ± 1 | | |
| Water-cooling Flow (L/min) | > 50 (Laser), 1.5 - 2.5 (QBH) | > 70 (Laser), 1.5 - 2.5 (QBH) | > 100 (Laser), 1.5 - 2.5 (QBH) |
| Water-cooling Pressure (Bar) | 3 - 5 | | |
| Joint Diameter (mm) | 25 | | |
| Min Cooled Capacity (kW) | 7 | | 10 |
| Dimension (mm) | W600 x D750 x H650 (Not Include Lights) | W735 x D750 x H650 (Not Include Lights) | |
| Weight (kg) | 180 ± 10 | 230 ± 10 | 250 ± 10 |