

● Topics

Fiber laser is a new type of laser source that can output a laser beam with superior beam quality at low energy consumption. The superior beam quality improves not only the machining resolution in materials processing but also the machining speed, which enables the processing of high melting temperature materials. The low energy consumption contributes to reduction in the running cost in materials processing. Due to these features, high power fiber lasers are expected to be used widely for metal cutting and welding as an alternative to YAG lasers and CO₂ lasers in the field of materials processing. Because of the circumstances mentioned above, we have developed a fiber laser that output a laser beam of 100 watt. The applications of this fiber laser lie in the field of laser microfabrication, cutting and welding of metal materials. The appearance of the apparatus is shown in Fig.1. It can emit the near diffraction limited beam of $M^2 < 1.1$ since its light amplifying circuit consists of only single mode fibers. The energy conversion efficiency from electricity to light exceeds 20 %. This implies energy saving is realized in comparison with YAG lasers and CO₂ lasers. We will continue to improve the output power and energy efficiency in order to realize practical use of high-power fiber lasers.

100W-CW Fiber Laser



Fig. 1. Appearance.

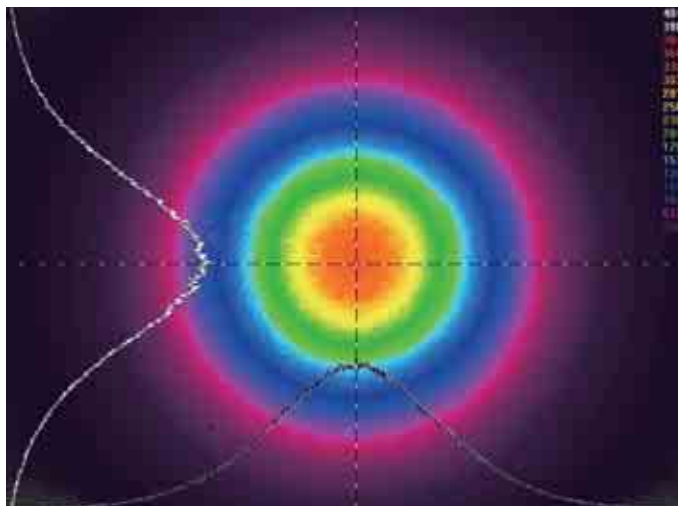


Fig. 2. Outgoing beam profile.

[Information]

Applied Optics Products Division

Tel : +81 43 484 0986 Fax : +81 43 484 0987

E-mail : opt-device@fujikura.co.jp