July 22, 2010

NEWS RELEASE

AMADA CO., LTD.
Department in charge: Publicity & IR Department
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AMADA has succeeded in developing a world-first fiber laser oscillator (4 kW)

Laser mounted on linear drive cutting and processing equipment introduced to world market

AMADA (President and CEO: Mitsuo Okamoto) has succeeded in developing a fiber laser oscillator that has been under development around the world as a next-generation laser. This is an epoch-making oscillator that uses a modularized optical engine as a light source and that can be expanded after delivery while keeping size and weight to a minimum. The developed fiber laser oscillator (called AFL) with 4 kW output is mounted on a laser beam machine (FOL) that has the world's fastest machining speed, and will be exhibited at EUROBLECH, a sheet metal machining equipment fair to be held in Germany in October 2010, as a fiber laser beam machine (tentatively called "FOL-Fiber").In May 2011, AMADA will launch this FOL-Fiber on the domestic market as the first of the next generation of laser beam machines. Following that, AMADA has decided to release the product simultaneously in countries worldwide in June 2011. The target number of units to be sold in the initial year is 50. The selling price has not yet been fixed.

The flexibility of the developed FOL-Fiber has been significantly improved in terms of machining conditions thanks to the incorporation of the fiber laser beam machine mounted on the FOL and the fusion of innovative application technologies. The most significant feature of FOL-Fiber is its ability to all the requirements (such as readiness for handling materials that are difficult to machine, energy-saving

performance and introduction of intelligent functions) of the next generation of laser beam machines.

As a result, it is now possible for this machine to process copper, brass, titanium and non-metal materials, etc., that would have been impossible using CO_2 laser beams. Furthermore, optimal processing conditions can be automatically set up using software that supports new material processing technologies. Moreover, high-quality laser beams with a 1 μm band wavelength and a deep focal depth enable ultra-micro machining in a width of 100 μm. In addition, it enables very high-speed processing (at 60 m per minute) of thin stainless steel sheet materials (thickness of 1 mm).The use of these laser beams has helped to realize machining process that have the features of fiber laser beams, which is illustrated by the fact that the cutting speed when machining stainless steel and aluminum has significantly improved (2.5 to 3 times of the speed of CO_2 laser beams). In addition, regarding high-quality machining of thick sheet metal (16 mm), fiber laser beams have achieved surface roughness comparable with that of CO_2 laser beams, which underlines the reliable machining capabilities of the product.

While this technology can help expand customers' scope of work by providing support for machining materials that CO_2 laser beam machines cannot process, we will make proposals focused on improving the working environment to reduce energy and maintenance by utilizing the superior energy conversion efficiency features of the device.

As the main unit of the machine is designed with a simple oscillation structure that does not require warming up, a significant reduction of standby power as well as reduction of floating dust is possible, both of which will contribute to a healthier surrounding environment. In addition, thanks to the facts that no laser gas is needed and that its mechanism requires only a few external optical devices, the device exhibits superior economical efficiency that enables running costs to be cut by 70% or more, compared to a model mounted with a CO_2 laser-beam oscillator. In terms of environmental impact, thanks to the feature that enables CO_2 emission to be significantly reduced, this new product can contribute to the achievement by Japan of a 25% reduction in greenhouse gas emissions.

In 2005, AMADA began evaluation of machining technologies based on commercial fiber laser oscillators. As a result of these efforts, it has been decided that a basic component would be supplied from JDSU (*1) in the USA. AMADA has

developed proprietary technology for the peripheral technology (*2) for connecting the basic component and a laser beam machine, and we have just succeeded in developing this fiber laser oscillator. The outcome - the AMADA Fiber Laser (AFL) oscillator - is unique in that it is an optical engine in which fibers directly oscillate LD (laser diode) light. Amplified light is seamlessly connected to fibers for light guidance purposes. The output of one module unit containing the oscillator is 600 W. We can combine these module units to achieve a desired total output. Seven units of this module could be used to build an oscillator with an output of 4 kW.

By combining a modularized optical engine as the light source, it is possible to expand the product line-up with different outputs suited to various uses ranging from sheet metal machining (requiring high output) to micro cutting-type processing (requiring low output), as well as finely tuning responses to users' needs. With this product, AMADA aims to identify companies that may be considering introducing laser beam machines into their businesses, and expands into new markets.

In domestic and overseas fiber laser markets, manufacturers of laser beam machines are considered separate from manufacturers of laser beam oscillators. For this reason, there has been no integrated manufacturer. Having succeeded in developing the oscillator, AMADA will be the first integrated manufacturer of laser beam machine and oscillators in the world.

While AMADA has already invested 1.5 billion yen to develop the oscillator, production will be carried out at a plant containing state-of-the-art machining technologies (with an earmarked investment of two billion yen) to be constructed at Fujinomiya Operations.

*1 JDSU: JDS Uniphase Corporation
Established in 1999 in the USA, Uniphase Corporation has a laboratory in San Jose, and manufactures and sells optical communications components and measurement instruments, displays, office automation equipment, multi-layer coating components using optical thin-films, optical components, high-output semiconductor laser beam equipment and industrial laser beam equipment.

*2 Peripheral technologies: Technologies related to chassis, power sources and NC interfaces.