

May 18, 2011

# NEWS RELEASE



AMADA CO., LTD.  
Publicity & IR Department  
URL: <http://www.amada.co.jp>  
200, Ishida, Isehara-shi, Kanagawa,  
259-1196, Japan

## **AMADA for Engineering Commercializes Fiber Laser Welder Realizing High-Quality Automatic Welding Operation**

AMADA (President and CEO, Mitsuo Okamoto) has commercialized a fiber laser welder "FLW-4000" that utilizes a 6-axis multi-joint robot. This new product, equipped with an AMADA original machining head, can reduce the workload required during the setup process that used to be very difficult for workers to carry out. Also, by employing the fiber laser oscillator, airtight and smooth welding and welding of nonferrous metals is now possible, tasks that were not able to be carried out with the YAG laser. This machine reduces finishing work substantially and can reduce running costs by between 10 to 25%.

AMADA began to sell the machine in May. This machine is priced at 100 million yen. AMADA expects to sell 20 units of this machine in the first year. Four types of models are available depending on the way they are combined with peripheral devices.

FLW-4000 is equipped with the original machining head that incorporates a lightweight 6-axis multi-joint robot that has a 50 kg weight-bearing capacity. Since this original machining head can freely carry out beam forming of laser light, the machine can be used for various types of welding tasks from strength-oriented deep fillet welding to welding of exterior aesthetic parts. Although considerable time has been taken so far to remove burn and fishing after welding, this machine can reduce the post-process workload and enable more efficient welding operations.

In order to prevent misalignment of welding lines, a crucial aspect of welding, images from the CCD camera built into the original machining head are analyzed by the newly developed TAS (teaching assist system) for the fiber laser to automatically adjust misalignment to the intended welding track. Traditionally, workers used to set the workpiece on the machining

jig and modify the program from the teaching box prior to welding. On the other hand, on this machine, welding is carried out with a series of automated robot actions after the workpiece is set through the offline setup process, enabling a remarkable improvement in work efficiency.

One of the noteworthy features of the new product is "FLW CAM", which generates the welding program based on 3D CAD data. This can integrate the data from the blank process to the welding process and remarkably enhance work efficiency in the entire sheet-metal process.

In order to respond to a variety of customers' needs, the AMADA original (\*1) beam weaving function and (\*2) the filler advancing unit are employed as standard equipment, providing a substantial processing latitude when handling the gap between welding lines that has been a problem of laser welding.

This product will be appreciated in the market for its ability to conduct airtight welding, which has been difficult for the pulse oscillation-based YAG laser to carry out. It is also expected that this fiber laser welder, equipped with both continuous and pulse oscillation functions, will be welcomed by workers in the food, physical and chemical science industries who find adhesion of bacteria to the weld zone to be problematic.

Commercialization of the fiber laser welder will enhance AMADA's capability to provide total solutions in the area of sheet-metal processing ranging from blank welding to bending and welding.

#### Major specifications of FLW-4000

Method : 6-axis multi-joint robot  
Operating range : J1 axis  $\pm 180^\circ$ , J2 axis  $+135^\circ$  to  $-90^\circ$ , J3 axis  $+280^\circ$  to  $-160^\circ$   
J4 axis  $\pm 360^\circ$ , J5 axis  $\pm 125^\circ$ , J6 axis  $\pm 360^\circ$   
Repetitive positioning accuracy :  $\pm 0.07$  mm  
Oscillator : 4 kW, Made by IPG  
Maximum machining plate thickness (penetration weld) :  
Steel 6 mm, Stainless 6 mm, Aluminum 6 mm

- \*1 Beam weaving ----- A method of ensuring greater deposition by advancing the welding arc while swinging it horizontally against the welding line.
- \*2 Filler advancing unit --- When there is a large gap in the weld zone, welding is carried out not only by penetrating the base material but also by dissolving a substance made of the same material as the base material (filler). This unit is used to advance the filler.