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Nippon Avionics Co., Ltd.

<http://www.avio.co.jp/english/>

## Compatible with High-speed Welding by Fiber Laser New Galvano Scanner System AGS-F302

Fine, deep and widely-stable laser welding has been achieved.



**Galvano Scanner System**  
AGS-F302

**Fiber Laser Welder**  
LW-F300

(The stand and the work-stage are not included in this system.)

Nippon Avionics Co., Ltd. (Head office: Shinagawa-ku, Tokyo, Japan; hereinafter referred to as “Avio”), a subsidiary of NEC Corporation, is proud to announce today's release of **Galvano Scanner System AGS-F302**, which is used as an emission head of our LW-F300, air-cooled single-mode fiber laser welder.

The fiber laser welders feature small beam diameter and high power density, and are in great demand in recent years as they are the types of laser welders capable to weld micro-objects and highly reflective material such as aluminum and copper.

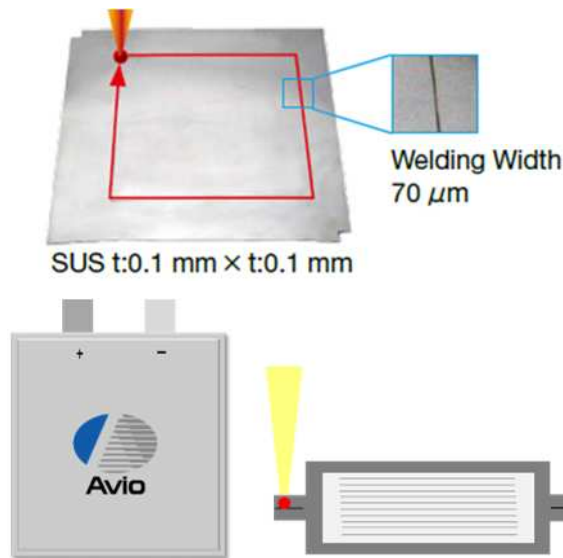
This new product is designed to provide maximum performance of the fiber laser welder in combination with our air-cooled single-mode fiber laser welder LW-F300. It also contributes to enhance productivity and quality in welding of a variety of applications such as electronics, automotive, medical and energy.

\* The Galvano Scanner is a device which scans the laser widely with high-speed by using two motors and reflection mirrors.

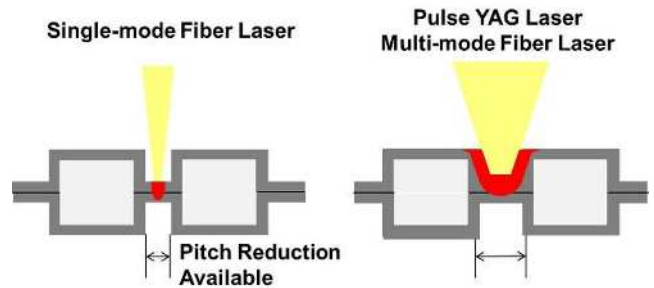
## <Benefits of Welding Applications by Using Avio's New Galvano Scanner System >

### Welding of thin plates

- Secondary battery laminate  
(stainless steel foil)



- Fuel cell metal separator



#### [Benefits]

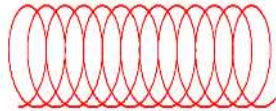
- Downsizing and saving space by narrow weld widths for fine welding.
- Corresponds to fuel cell design which requires high density.

### Welding of aluminum and copper



Spiral Welding

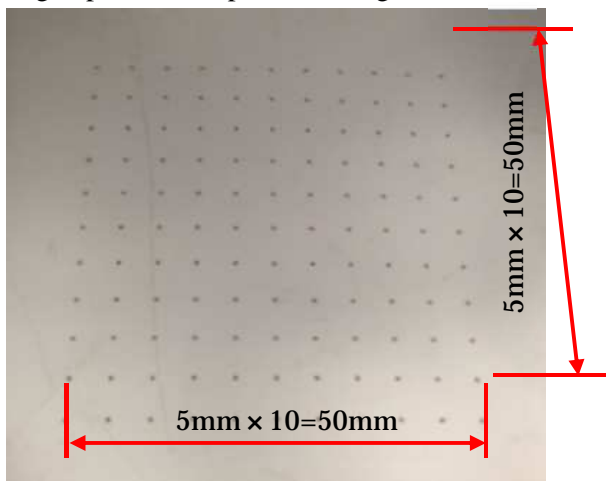
Circular Welding



#### [Benefits]

- Fine and deep penetration of a single mode fiber laser and wide weld bead have improved the strength of the welded point.
- Various welding processes such as Spot welding, Butt welding and Sealing are available.

### High-speed, multi-point welding



#### [Benefits]

- Multiple welding points in wide range can be welded at high speed.  
\*Welding time: Approx. 1.3 sec  
(50 x 50 mm 121 shots)
- Consistent welding performance.

### <Application Examples>

Information devices (Smartphone, tablet PC), Electronic components, Electric components for automobile, Medical electronic components, Secondary batteries

## <New Product Features>

### **1. High Productivity**

By scanning the laser beam, which is continuously emitted from the single mode fiber laser welder (CW), at high speed by using this system, the multi-point welding can be performed in a short time. Maximum of 300W continuous output can be accommodated.

### **2. High Quality**

By scanning the welding point at high speed, welding can be performed with little thermal strain. In addition, it can reduce thermal damage to neighboring parts.

By combining thin and deep penetration of a single mode fiber laser with horizontal operations of Galvano Scanner, such as Spiral or Circular (moving horizontally while drawing), wide bead welding becomes available and the strength of the welded point increases.

### **3. High Precision**

By adopting a digital control which prevents drift (displacement) caused by changes in the temperature, positioning with high productivity and stable welding can be achieved.

### **4. Welding Various Types of Works**

As the single-mode fiber laser welder generates a beam (laser) that possesses a high degree of parallelism, a small diameter can be kept even if the irradiation distance is long. Therefore, a long work-distance (374mm) and wide welding area (150mm square) can be secured to weld various types of works.

As high speed scan is available while controlling the waveforms of a high quality laser beam emitted from LW-F300, it is also suitable for seal welding such as seam welding.

Software dedicated to welding is attached to make optimum welding available for various types of works.

### <Specifications>

Feature	Avio Model AGS-F302 Specification
System Configuration (*1)	Scan Head (*2), Control Box, Control PC, PC Monitor, Dedicated Software
Scan Area	150 x 150 mm
Max Scan Speed	2000 mm/sec
Work Distance	374 mm
Control Method	Digital Control
Welding Mode	Spot Welding Mode, CW Welding Mode, Seam Welding Mode
Applicable Laser Model	Single Mode Fiber Laser Welder LW-F300 Design Wavelength: 1070 nm Permission Laser Power: Max CW 300 W
Cooling Method	Air
Power Source	AC100 - 240 V $\pm$ 10%, 50/60 Hz
Operating Range of Temperature and Humidity	Temperature: 0 - 40 °C Humidity: 80% or Less (No Condensation) (*3)
Max Power Consumption	180 W or Less (*3)
Dimension / Weight	Scan Head: W138 x D200 x H240 mm 7.3 kg (Not Including Cables)
	Control Box : W300 x D310 x H123 mm 7 kg (*3)

\*1: The stand and the work-stage are not included in this system.

\*2: Including f $\theta$  lens

\*3: Not including control PC and PC monitor

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### <Sample Welding>

Avio offers sample welding service performed by experienced, precision weld engineers so the customer can verify the performance of this system applied to their own sample. Please feel free to apply for this service.

For Questions Regarding the Above or the Request a Free Sample Weld Service, Please Contact:

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