

Aim to be earth friendly and trusted company.

TAMAGAWA NEWS

2017.3

Vol. 18

New products

FG beads for Click chemistry

Azide beads/Alkyne beads

Small Tri-Axis Inertial Measurement Unit

TAG264 Series

TAMAGAWA
Topics

Topics

① **The Contemporary Master Craftsman award interview**

~Thought on 40 years coil winding~

② **Treasure found!**

Many drawings during the Pacific War were discovered

Information

Election of officers, Announcement of change of president of group companies

Tamagawa

CONTENTS

Taste of Hometown Boiled Carp "Syoeian Imamiyahanbei"
Iida Town Traditional Cuisine

Introduction Introduction of Group Company
Tamagawa Seiki Electronics Co., Ltd.
Tour of Iida City and its neighborhood No.18 Komagatake Ropeway

New products **New Release**
FG beads for Click chemistry **Azide beads/Alkyne beads**
Small Tri-Axis Inertial Measurement Unit **TAG264 Series**

TAMAGAWA Topics

- ① **The Contemporary Master Craftsman award interview**
~Thought on 40 years coil winding~
- ② **Treasure found!** Many drawings during the Pacific War were discovered

Information Information of Exhibitions
Election of officers, Announcement of change of president of group companies, Workshop

Event & Exhibitions: FG beads workshop information
Information of Exhibitions:

- 01 **Soil Improvement Technology Expo 2016**
- 02 **Japan International Aerospace Exhibition 2016**
- 03 **Special Equipment Exhibition & Conference for Anti-Terrorism (SEECAT)'16**

Introduction of our sales office
Tamagawa Trading Representative Office in USA (Torrance, California)

1

2

3

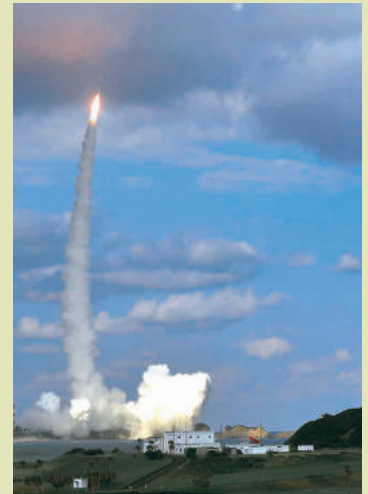
5

8

9

10

The cover of this edition



H-IIA rocket launched from Tanegashima Space Center

Launch scenery on November 2, 2016 (By courtesy of Minami-Nippon Shinbun)

Our products are mounted on various satellites and are active in the space as well.

Taste of Hometown

Iida Town Traditional Cuisine

"Koi-no-Umani (Boiled Carp)" Syoeian Imamiyahanbei

"Koi-no-Umani (Boiled Carp)", which is served indispensably for New Year and for formal and auspicious occasion, is the traditional cuisine in Iida area transmitted from long ago. The "Imamiyahanbei" is a long-established restaurant which



continues five generations. A large carp with a few kilograms is treated with the water of the clearstream

of Iida-Shimo-Ina area for several weeks to vomit mud and eliminate the bad smell. It is a masterpiece boiled fluffily with original mixture ratio of soy sauce and sugar for nearly one hour. The body of the carp is a pink color with red and white mixed, and it is a light and simple taste, while the inner one has a sweet and thick umami, and not a few people like this portion.

Imamiyahanbei will also deliver this "Koi-no-Umani" nationwide, so you can taste the taste of the freshly made carp. (You can order from the website)



● **Contact** **Syoeian Imamiyahanbei**

4-5610-2 Imamiya-cho, Iida, Nagano Pref. 395-0071 TEL : 0265-22-4627 Regular Holiday: Irregular holiday
Website URL: <http://www.imamiyahanbei.com>

Tamagawa Seiki Electronics Co., Ltd.

Our company was established as a direct subsidiary of the Tamagawa Seiki Co. Ltd. in Yasuoka Village, Shimoina district in Nagano Prefecture on November 21, 2001. About 30 km south of Ohyasumi Iida city, Yasuoka Village is located at the east side of the Tenryu River, and is a small village surrounded by rich nature, where forests account for 86% of the total area of 64.59 km² of the village. This Yasuoka village is the birthplace of the founder of the Tamagawa Seiki, and we are pursuing every day with the corporate philosophy of "fostering people and technology and contributing to society in this area" which is the founder's thought. Our company has expanded its scale as the main factory of Tamagawa Seiki for delivering customers with drivers such as drivers for production equipment, drivers for railroads, drivers for amusement machines, etc. All employees will work together to ensure that we can provide better service to our customers based on the Quality Policy as motto that "we will devote ourselves to making good products and provide customer satisfaction".



■ Appearance

● Information

Location

3136-1 Yasuoka Village, Shimoina-gun, Nagano Prefecture

Establishment

November 2001

Capital

16 million yen

Employee

42 persons

Business

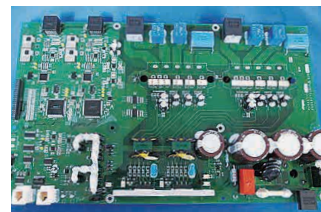
Design and manufacture of servomotor driver, production equipment driver, railway related driver, amusement machine driver



■ View from our company The headquarters of Tamagawa Seiki also can be seen at the foot of Mt. Fuetsuzan, the front mountain of the Central Alps.



New Year's cards greeted by group photo



Driver



Assembly plant

Tour of Iida City and Its Neighborhood No. 18

There is "Central Alps Komagatake Ropeway" in Komagane-shi, located in the center of Ina Valley, south of Nagano Prefecture. It operates between "Shirabidaira Station", to which it takes about 30 minutes by taking a dedicated bus from the Suganodai Bus Center at the foot of the Central Alps, and "Senjojiki Station" located just under the treasure corner. From the ropeway you can see not only the foot of Mt. Komagatake, but also the mountains of the 3,000 m class of the Southern Alps (Akaishi Mountains) when you move your eyes to the east. The Senjojiki cirque is a cirque (semi-circle basin) formed some



20,000 years ago by a slowly receding glacier that eroded away the land. It was named because it covers an area equal to approximately 1,000 tatami mats.

In the summer, there are "sea of clouds" which can not be seen in the world below, pretty alpine plants blooming under the perfectly clear blue sky. In fall, beautiful autumn leaves descending from the summit to the foot of the mountain. In the severe winter season, the world of the silent silver world. The seasonal colorful scenery overwhelms the viewers.

The Senjojiki cirque also has a maintained hiking trail and you can enjoy hiking for about 40 minutes. There is "Hotel Senjojiki" at the summit station and it is popular as the hotel with the highest altitude in Japan, the hotel closest to the sky in Japan.

From April you can do mountain spring ski for a limited time only. The solver white cirque that absorbs all noise around it makes you feel like European Alps, its entire area becomes a backcountry sliding area, boasting tremendous



popularity among young people. Please enjoy the magnificent nature of the large panorama at Komagatake Ropeway which arrives at altitude 2,612 m in just 7 minutes 30 seconds.

Information

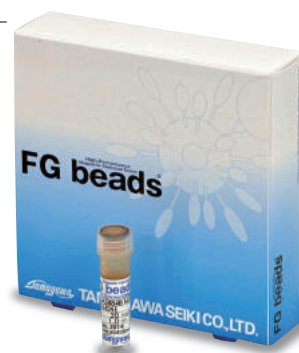
◆Komagatake Ropeway TEL:0265-83-3107
759-489 Akaho, Komagane City, Nagano Prefecture, 399-4117

◆Hotel Senjojiki TEL:0265-83-3844
1 Akaho, Komagane City, Nagano Prefecture, 399-4117
Reception time: 8:30~17:00

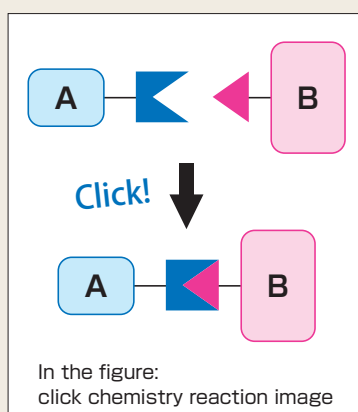
<https://www.chuo-alps.com/>

FG beads for Click chemistry

Azide beads/Alkyne beads



"Azide" and "alkyne" refer to functional groups of organic compounds, which react with each other and bind. This reaction is called "click chemistry reaction" comparing how automobile seatbelt creates a quick and reliable join so that a click sounds "click" to be locked.



Click chemistry reactions are widely used in the field of biochemistry in recent years for the purpose of site-specific ligation of proteins and organic compounds, or between proteins and labeling of proteins. "Azide beads" and "alkyne beads" are beads in which this azide and alkyne are introduced into conventional FG beads. Ligands with azide structure (drugs, proteins, antibodies, DNA etc) or ligands with alkyne structure can be immobilized on beads in the presence of catalyst.

Features

- Immobilizable site-specifically, high immobilization efficiency
- Ligand immobilization reaction is possible not only in organic solvent but also in water and protein solution
- Masking operation after ligand immobilization is unnecessary

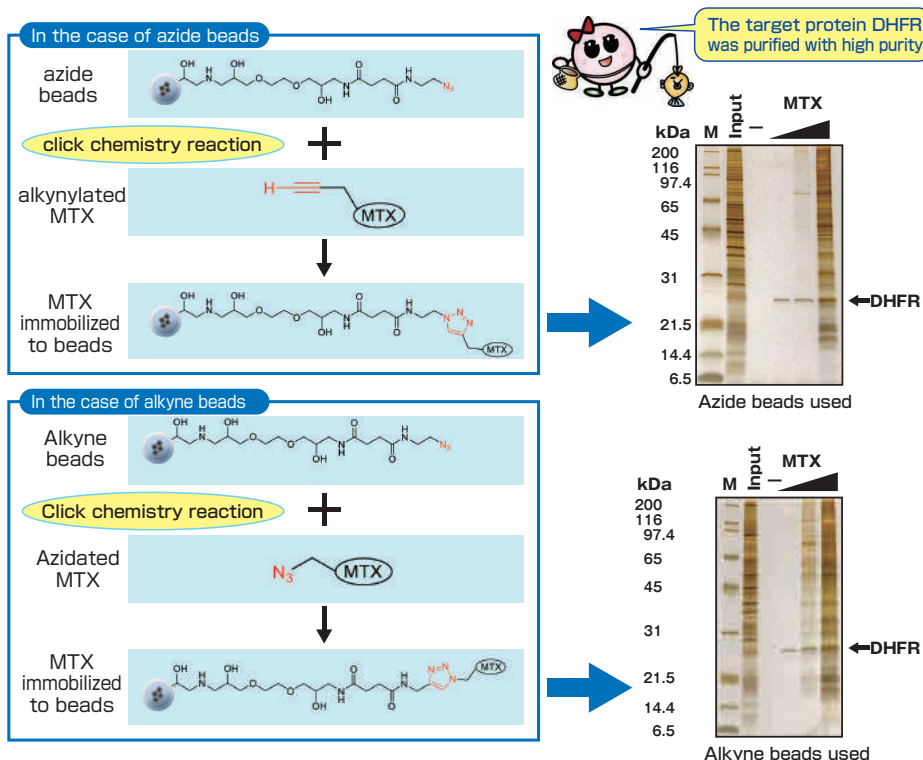
Specification

| Product name | form | surface functional group amount | content amount |
|--------------|--------------|---------------------------------|----------------|
| Azide beads | TAS8848N1160 | 約100nmol/mg | 5/10/20mg |
| Alkyne beads | TAS8848N1161 | 約100nmol/mg | |

Example of using chemical biology

- Purification of the target protein of MTX (Methotrexate) as an anticancer agent

The anticancer drug MTX is alkynylated (or azidated), immobilized on azide beads (or alkyne beads), and affinity purified DHFR (Dihydrofolate reductase) as a target protein from HeLa cell lysate.



Applications

- Chemical Biology
- Immunoprecipitation
- Analysis of protein-protein interaction, etc.

TAG 264 series equipped with the latest GPS (GNSS), with advanced arithmetic algorithms

Based on the conventional AU7595 Series high precision small size three axis inertial sensor unit (IMU) equipped with GPS, we are releasing the "TAG 264 series" equipped with advanced arithmetic algorithms and latest GPS (GNSS). It has two inertia calculation modes, "Leveling mode" and "Hybrid navigation mode", and it can measure the movement, position and attitude of a moving object such as an automobile with high accuracy.

The website of "MEMS Gyro / IMU" has been renewed. We also posted information on "TAG 264 series", so please take a look.



<http://mems.tamagawa-seiki.com/en/>



Features

- We will introduce advanced arithmetic algorithms (Kalman filter) to calculate highly accurate and stable position/speed/azimuth angle.
- The latest GPS (GNSS) module is installed and supports multiple satellites.
- Because MEMS gyroscope is used, small size, low power consumption and low cost are realized.
- The following two inertia arithmetic modes are implemented.

(1) Leveling mode

Combine the signals of inertial data (angular velocity and acceleration), and output a stable posture angle (roll angle, pitch angle) and azimuth angle. Also, by inputting the GPS signal and the vehicle speed signal, it is possible to reduce the error of the attitude angle which increases when acceleration with long time constant is applied.

(2) Hybrid navigation mode

The GPS (GNSS) signal and the vehicle speed signal are added to the inertial data, the error such as the inertial data is estimated by the arithmetic algorithm (Kalman filter), and more accurate speed, position and attitude are outputted. Even underground and tunnels where GPS (GNSS) signal is cut off, position data can be interpolated by inertial data and vehicle speed signal.

Main specifications

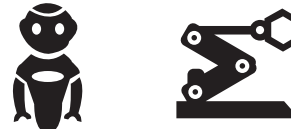
| Item | content |
|----------------------------------|-------------------------------------|
| external dimensions | W112×L82×H36mm |
| power supply/voltage | selectable from +5V/+12V/+24V/+48V |
| acceleration detection range | selectable from ±2G / ±6G |
| angular velocity detection range | ±200deg/sec |
| output signal | RS232C, CAN |
| option | SD card, barometric pressure sensor |

Main applications

Four-wheeled and two-wheeled vehicles, Next-generation mobility



Next Generation Robot



Railway



Unmanned aerial vehicles, small aircraft



Industrial vehicles (construction machines, agricultural machines, etc.)



Ship / marine equipment



Defense equipment



The Contemporary Master Craftsman award interview

Awardee:Yuko Miyachi

(Tamagawa Seiki, Production Department, Production Group)

Interviewer: Akira Imai (Writer)

What is 'The Contemporary Master Craftsman' ?

"Outstanding technician (contemporary master craftsman) award" is a commendation by the Ministry of Health, Labor and Welfare for active technicians who are recognized as leading experts on that path. It aims at improving the status of craftsmen and aims to give dreams and goals to next generation carriers and young people.

A system began in 1967, and more than 6000 people have been honored so far. In fiscal year 2016, which is the 50th time, 160 people were awarded nationwide, and four people including her were selected from Nagano prefecture. Of the 20 types of acceptance categories, the "Electrical machinery and equipment assembly / repair and electric work related occupation" category was accepted this time. The awards ceremony was held at the Meiji Memorial Hall, Motoakasaka Minato-ku, Tokyo on November 21, 2016.



Winding technology supporting aerospace equipment

Ms. Miyachi, a coil winding specialist, has pursued careers with special motor windings, especially for aerospace equipment. She has been involved since the beginning of entering this field by Tamagawa Seiki, and products that we have worked on are loaded on the International Space Station and the lunar orbiting satellite "Kaguya" and so on. Not only the fine and precise work but also the world in which wisdom and ingenuity are required, we have responded to the severe demands of the design side with tenacity of possession. In recognition of these achievements, Nagano Prefecture "Shinshu's masterpiece" was awarded in 2015. And this year, she was also chosen as the 'The Contemporary Master Craftsman' for the first time in the Tamagawa group. "When I heard the news of the reception, I was completely amazed. I was happy that my colleagues at the workplace were very pleased. I am thankful for thinking that this was also thanks to seniors, people at work, thanks to this." It seems that she has come to realize greater responsibility than ever since receiving it.



Overcoming a left handed handicap

Miyachi graduated from high school in Iida city and joined the company in 1977. For the 40 years since then she has been on the path of winding wire. The diameter of the copper wire to be used is about 0.04 ~ 1 mm, it is required how dense it can be wound with uniform force. There



are also many copper wires and slots, and if you do not concentrate you can mistake the procedure or break the wire. Of course efficiency and productivity are also important. In addition, she had a big handicap "left-handed". "I was also serious, but I think that seniors who taught me was serious, too. As the model did not work very easily, I was worried whether I am suited for this work. "Even one piece of scissors that cuts a copper wire, it is hard to find a good one which has good compatibility with her own hand grip and which surely blades the intended part, if it is a left-handed scissors. She replaced as many scissors as she could meet satisfying things.

~Thought on 40 years coil winding~

Struggle against "space" where failure is not allowed

Miyachi first engaged in the aerospace field in 1990. The first thing she was given was the AC servomotor which spreads the solar panel of the experiment observation satellite. Working under the pressure of absolutely not being able to make a fault. It was such continuous tense that her stomach hurt.

In this way, the design of the motor which she has never seen before came around one after another to her who became solely responsible for aerospace motor. Step motor for shutter of satellite mounted camera, reaction wheel used for controlling attitude of satellite, actuator for docking etc. Both of them require the maximum torque and reliability within the limited dimensions, so the required winding density is also the very limit. How can put the coil as designed? While getting advice from her colleagues, she got over many walls. She got the soldering qualification for space equipments, and she also got involved in work while looking at the microscope.

Even in a single project, she has to make a number of products from in-house prototypes to improved products after. When it is finally reported that the finished product worked safely at the delivery site, it is said that not only joy but also energy for the next job will come up. "Thanks to the companies and colleagues at work and families I have been able to continue for such a long time. I can not thank them enough." She has strength in her words to say so.



Instructions will create the future of skill passing

Frequently we receive repeat order of products that we have done in the past many years later. In order to maintain high quality even if the person in charge is replaced, "instructions" showing the procedures and tips of the work in photographs and sentences are indispensable. "I also tried to record on a video, but paper is the best to quickly see where I want to know. The trouble of making an easy-to-understand instructions, no matter who reads it, may be harder than the windings," she says. The instructions are "Bible" that everyone in the workplace brings information together and completes the checks.

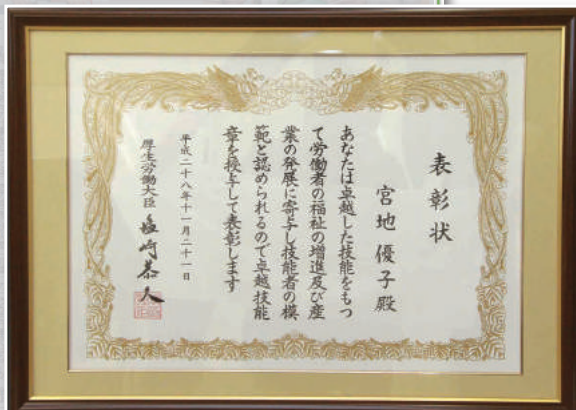
Customers' demands are diversified, miniaturized, and complicated each day. "I think the sales and design people who are corresponding to it are amazing. I hope that young juniors of windings members will not lose." Currently, there are ten members in the workplace, mainly young women in their 20s and 30s. Ms. Miyachi said, "Even if something new is required, the hint to respond to it is in what we have been done constantly." Having the responsibility of transferring skills to juniors, humble figure was impressive to the last, "Because there are many things I do not know yet, I'm reliant on guidance from you."



Ms. Miyachi who talks about surprise and pleasure of acceptance



Newspaper article reporting receipt



Award and shield given to Ms. Miyachi



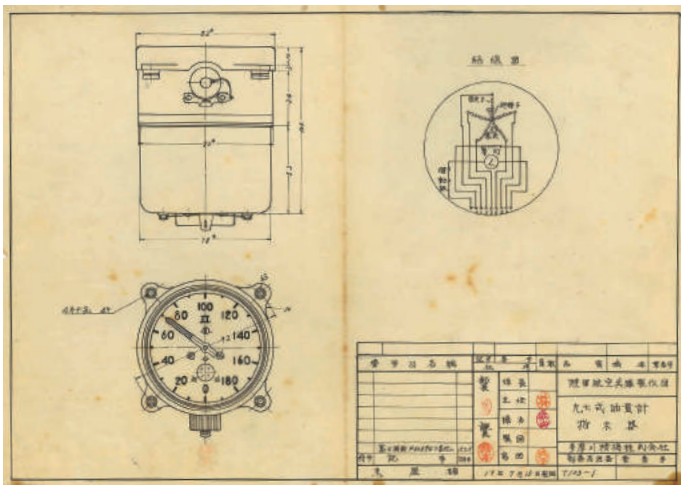
Emblem given to the recipient

Treasure found! Many drawings during the Pacific War were discovered

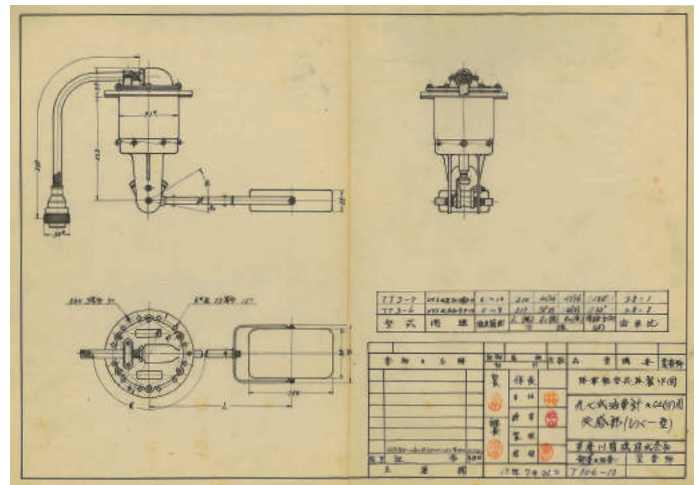
Last year, 70 to 80 parts drawings of the former Japanese Army's fighter aircraft produced during the Pacific War were found from our old company house. In the drawing, there are many "Type 97 oil level gauges" drawn in 1943 to 1945 (Showa 18 - 20), and it was turned out that those were the installation item for fighter's "Hayabusa", "Syoki", "Hien" "Hayate" and heavy bomber "Hiryu". Also included was a drawing for duplicating the gyroscope built into the Norden bombsight installed on the US bomber B29 and so on. We will introduce these drawings over the next few times.



97 Type Oil Gauge
From the left, the indicator, the sensory part (lever type), the sensory part (selector switch)



(Drawing 1) 97 Type Oil Gauge Instrument



(Drawing 2) 97 Type Oil Gauge sensory part (lever type)

Type 97 Oil Gauge consists mainly of the indicator of Drawing 1 and the sensory part of Drawing 2. The mechanism is that the wood floating of the sensory part installed in the fuel tank goes up and down by the increase and decrease of the fuel. It converts the mechanical movement into electric rotation and displays it to the indicator installed in the cockpit of the fighter aircraft. This mechanism can be said to be the origin of position control technology such as resolver, rotary encoder, motor, etc. which is our main product of present day.

By the way, on the lower right of drawing 2 it is drawn as "For Ki 54 (Ko)." This indicates the former Japanese Army's trainer aircraft called Army Type 1 Advanced Trainer. Because the performance and practicality of this aircraft were highly appreciated, in addition to the type A (Ko) for the navigation trainer, it was manufactured by remodeling and diversion as the type B (Otsu) for communication, bombing, shooting trainer, as type C (Hei) for transport, or as type D (Tei) for patrol.

As an existing aircraft, one is on display at Misawa Aviation & Science Museum, Aomori. In 1943 (Showa 18), the aircraft had been ditched and submerged in Towada lake on the way from Noshiro Airport, Akita prefecture to Hachinohe Airport, Aomori prefecture, and it was lifted from the bottom of the

lake in 2012 (Heisei 24). Although it had been submerged in the bottom of the lake for about 70 years, it was fortunate that it was fresh water, and the condition at that time is kept relatively well. However, because this aircraft was submerged before 1944 (Showa 19) when this drawing was drawn, it is considered that our oil level gauge is not installed.

Source: The Japan Aeronautic Association Website



Misawa Aviation & Science Museum, Army Type 1 Advanced Trainer (Ki 54 (Ko)) exhibition

Next time

Next time, we will introduce drawings such as selector switch of oil level gauge, and the "Army Ki 61 - II (Kai)" aircraft which is called Japanese Messer.

Announcement concerning executives officer assignments

We decided on the change of officers at the shareholders' meeting held on February 11th, 2017, so we inform you as follows,



Akifumi Arai

Tamagawa Trading Co., Ltd,
President

And

Tamagawa Seiki Co., Ltd,
Director,
Director of Commercial
Aircraft Division

(Old Position)

Tamagawa Trading Co., Ltd,
President



Hiroshi Hagimoto

Tamagawa Seiki Co., Ltd,
Executive Director,
Tokyo Office Director

And

Director of Hachinohe Plant

(Old Position)

Tamagawa Seiki Co., Ltd,
Executive Director,
Tokyo Office Director

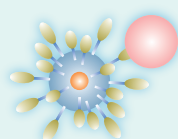
Group Company Officers

Akifumi Arai : Tamagawa Aero Systems Co., Ltd, Chairman
Tamagawa Sky Precision Co., Ltd, Chairman

Hideo Kumagai : Tamagawa Technocreation, President

Mitsuyoshi Matsuzawa : Tamagawa Parts Manufacturing Co., Ltd, President

Hirofumi Fujimoto : Tamagawa Hightech Corporation, President

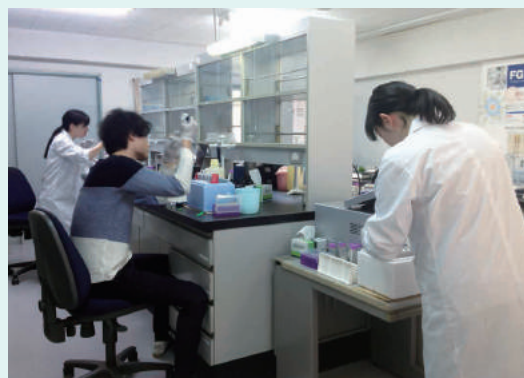


FG beads® workshop information

It was held in Tamagawa Seiki Tokyo office on February 23rd and 24th.

It is a workshop for customers who purchased FG beads®, you can confirm the standard skills to master FG beads® by immobilizing the model compound (Methotrexate: MTX) to FG beads® and affinity purification. This FG beads® workshop will be a two-day short-term intensive training for researchers who perform affinity purification for the first time. This seminar, which has been held several times a year since 2011, is participated by multiple company staff every time and end successfully.

Next time we are planning two days of May 26th and 27th, so please contact us as soon as possible if you are interested.



講習会風景

Tamagawa seiki Co., Ltd. Biontronics Laboratory
1879 Ohyasumi, Iida city, Nagano Prefecture 395-8515

TEL:0265-21-0501 FAX:0265-21-1896
<http://www.magneticnanoparticle.jp>

01 Soil Improvement Technology Expo 2016

Date: Sep. 28th (Wed) - Sep. 30th (Fri)
Venue: Tokyo Big Sight

We introduced "TUG-NAVI" to many visitors.

The Ground Improvement Technology Exhibition is an exhibition that gathered ground improvement technologies such as liquefaction countermeasures and seismic retrofitting held every other year since 2014, due to the massive damage caused by liquefaction in residential areas and other areas during the Great East Japan Earthquake.

We exhibited a hole bending measurement system "TUG-NAVI" which is widely adopted for construction management of ground improvement works, and TUG-NAVI series products "Korokoro" which measures the displacement of road surface so on. A new type of TUG-NAVI was also introduced that realized shortening of measurement time.



Exhibition booth



New type TUG-NAVI

※Details of "TUG-NAVI" can be checked here. <http://tug-navi.tamagawa-seiki.com/>

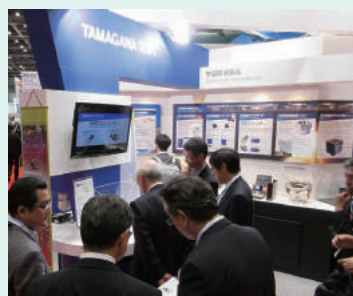
02 Japan International Aerospace Exhibition 2016

Date: October 12th (Wed) ~15th (Sat)
Venue: Tokyo Big Sight

Aircraft related and space related products were exhibited.

We participated in this exhibition which is held once every four years and domestic and overseas companies and organizations engaged in aerospace-related industries exhibit. We had about 400 visitors throughout the 4 days and introduced our importance to many people along with our wide product lineup that supports the aviation and space industry.

In the aircraft related field, we exhibited fuel pumps, landing gears actuators, various sensors, and so on. In the space related field, we exhibited the high-precision angle detector which won the JAXA Chairman's Prize at the Space Development Utilization Grand Prize in FY2015, Step Motor mounted on Venus probe "AKATSUKI", Reaction Wheel for Ultra Small Satellite and so on.



View of Booth ①



View of Booth ②

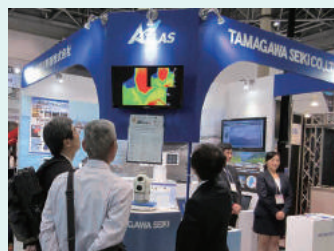
03 Special Equipment Exhibition & Conference for Anti-Terrorism (SEECAT)'16

Date: October 19th (Wed) ~21st (Fri)
Venue: Tokyo Big Sight

We exhibited "ATLAS" series of high sensitivity surveillance camera system suitable for monitoring natural disasters, sea, various kinds of infrastructure and so on.

Under the theme of countermeasures against terrorism the state-of-the-art equipment, systems, and services are gathered together, and our company exhibited a medium-sized type "ATLAS-SALDN" equipped with a near infrared illuminator (a light projector that irradiates light that human can not see) and "ATLAS-μ" of the ultra-small 2-axis gimbal which is suitable for mounting on ships and helicopters.

Remotely operated "ATLAS-SLDN" installed at our 3rd plant (Matsukawa Town, Nagano Prefecture), we also demonstrated the live image and attracted attention from visitors.



View of Booth



equipped with a near infrared illuminator
[ATLAS-SALDN]

※You can see live images shot by "ATLAS" series details and "ATLAS-SLDN" of the 3rd plant (Matsukawa Town, Nagano Prefecture) here.
<http://atl.tamagawa-seiki.com/>

Information of Exhibitions

We will exhibit at following exhibitions and awaiting for your visit

● **TECHNO-FRONTIER 2017 The 35th Motor Technology Exhibition**
Date: April 19th (Wed) ~ 21st (Fri) / Venue: Makuhari Messe

Tamagawa Trading Representative Office in USA (Torrance, California)

In November 2015, we launched Tamagawa "Trading Representative Office in USA", a sales base of USA, in Torrance, California, USA.

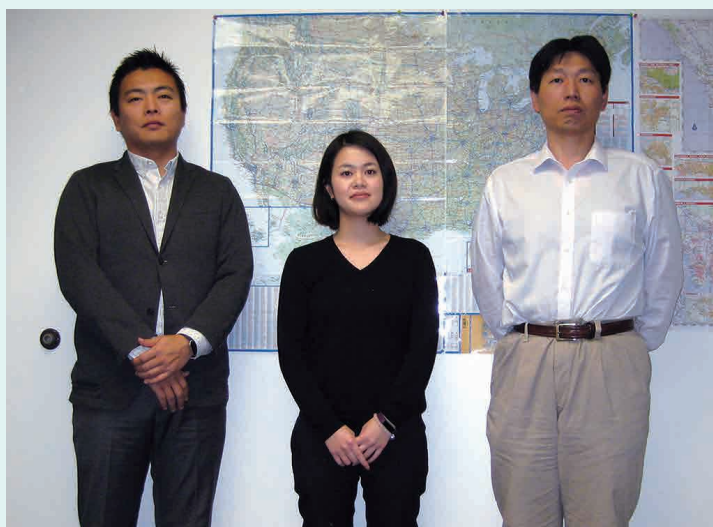
We have trading with US customers since 1980, but unfortunately we have been sluggish for many years. Recently, there are some parts that can be expected to grow in the automobile and aircraft related fields, and there are various other huge markets such as FA, agriculture, medical biotechnology, etc. in other industries in the United States.

In response to this, we are hoping that this representative office will become the detonator for more aggressive sales expansion.

By setting up a sales office in the United States, we can support customers and agencies, that have been from Japan so far, from locations where there is no time difference (to be precise, there is a time difference in the US) and we can make it timely and delicate. Although it is three staff members, by a small number of elite we are able to respond to the demand of local sales support, such as customer response related to the aircraft which is growing rapidly recently. In addition, by increasing the number of visits, it is now possible to listen to customers' voices as soon as possible, to communicate correctly to the factory, to respond with fineness and

speed.

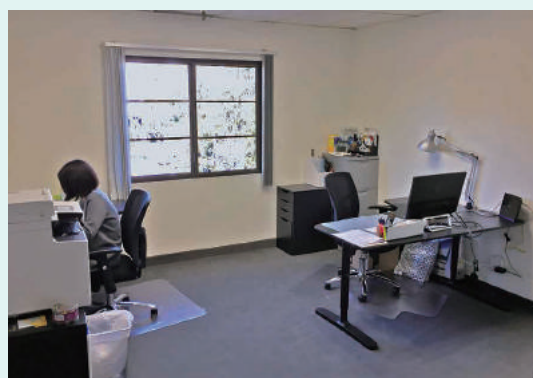
This country should be the most familiar foreign country for Japan, but because it is too big, we can not grasp the market yet. Furthermore, it becomes the administration of the Trump new President, there is a possibility that the flow of the domestic regression of production by the new policy will occur. To prevent us from missing that trend, we can analyze the market, discover needs, and share the information inside agencies and in-house through activities unique to the local area and visits of exhibitions, we would like to contribute to the development of new customer and products.



From left: Yamamoto, Kiryu, Okajima Office Manager



Office appearance



Office

TAMAGAWA SEIKI CO., LTD.

Headquarters & First Plant:

1879 Ohyasumi, Iida, Nagano Pref. 395-8515 Japan

PHONE: +81-265-21-1800

FAX: +81-265-21-1861

Tokyo Office:

3-19-9 Shinkamata, Ohta-ku, Tokyo 144-0054 Japan

PHONE: +81-3-3738-3133

FAX: +81-3-3738-3134

TAMAGAWA TRADING CO., LTD.

Headquarters:

1-3-1 Haba-cho, Iida, Nagano Pref. 395-0063 Japan

PHONE: +81-265-56-5423

FAX: +81-265-56-5427