azbil

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azbil Group PR magazine

azbil FIELD **Aqua Planet Jeju**

azbil MIND **Launching a new business in fields related to healthcare to provide superior customer value**

Feature

Sonic Landscape in Japan

Fireworks

Fireworks 花火 doong

A Japanese summer tradition

【doong】～ドーン

Fireworks displays are held throughout Japan between July and August. Many of them are held along river banks, along the shore, and over baseball fields. If we count only the displays that feature thousands of rounds, there are over 200 displays yearly throughout the country. Many of these events have in their name the word **nōryō**, *which refers to avoiding the heat and staying cool. The intent is for people to feel the cool evening breeze, watch the splendid fireworks, and forget about the consistently oppressive heat of the summer days. The explosive sound made by large fireworks when they burst in the sky is expressed in Japanese with an onomatopoeic word:* **doong**. *With this sound, brilliant fireworks light up the summer night sky.*

Unique Japanese fireworks that developed on a large scale in Japan during the Edo period

Japanese fireworks developed during the Edo period. During the years of war before the Edo period, gunpowder was mass-produced, but once Japan entered this era of peace, the demand for gunpowder for use in guns fell off. In response, some business that sold gunpowder began to specialize in fireworks. The oldest fireworks maker in Japan is thought to be *Kagiya*, located in Edo (modern-day Tokyo). In 1659, *Kagiya* began to sell small novelty fireworks, but later conducted research into larger fireworks, and eventually made the forerunners of the aerial fireworks we see today. In 1733 there were countless deaths throughout the country due to famine and a cholera epidemic. In order to commemorate the dead and pacify evil spirits, the *shogun* at the time had a religious festival to the god of water held on the Sumida River (a river that runs through what was the center of Edo and empties into Tokyo Bay). During this festival, *Kagiya*'s aerial fireworks were displayed, and this is said to be the origin of the Sumida River Fireworks Festival, a festival which continues to this day and is one of the best-known fireworks displays in the country.

Tamaya was another fireworks maker that split off as a franchise of *Kagiya* and established a name for itself. Together, *Tamaya* and *Kagiya* became almost synonymous with large fireworks. Even today, when fireworks burst in the sky with a loud *doong*, one will sometimes hear people in the crowd yelling "*Tamaya*!" or "*Kagiya*!" This originates from the custom of cheering on the fireworks makers and praising their stunning products.

Beautiful spheres that appear round from any angle are considered ideal

The most representative type of traditional Japanese firework is the "chrysanthemum." Its distinguishing feature is that no matter what angle it is viewed from, it appears round when it bursts. In other words, it explodes in a sphere. In addition, the "flower petals" each change colors as they spread out, and, just like the center of a flower, they form two or three concentric circles.

While fireworks shells in most foreign countries are generally cylindrical in shape, Japanese shells are spherical. With shells made overseas, after they are launched into the air, the cover on one side of the cylinder comes off, and many balls of gunpowder, called "stars," fly out and ignite. With Japanese fireworks, the "stars" fly out and ignite in all directions evenly, creating a nice spherical burst that that looks round from all angles. Fireworks developed overseas as a form of entertainment for royalty and members of the aristocracy, so the focus was on how they looked from one direction. In contrast, in Japan the emphasis was on ordinary townspeople being able to see them from broad areas, so it is said that they developed with the sphere, round from all angles, as the ideal shape.

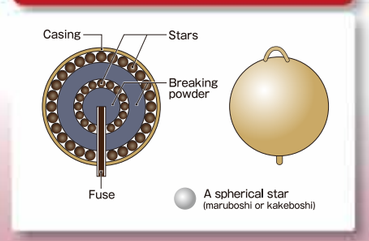
Another difference is that with foreign-made fireworks, each star is made by pressing a single type of gunpowder. Japanese fireworks, on the other hand, contain stars that are made by rolling multiple layers of different types of powder concentrically into a ball, which results in the stars changing colors as they burn. It is hard not to look on in wonder as the petals of a chrysanthemum changes rapidly to yellow, red, or blue. *Hanabi*, the Japanese word for fireworks, literally means "flower fire." The Japanese people likened fireworks to flowers blooming in the night sky and took joy not just in their unique beauty but also in their fleeting nature.

Throughout much of the world, fireworks displays are winter events, but in Japan nearly all fireworks displays are held over a short period in the summer, and in fact have become a symbol of summer. Many women dress in *yukata*, which are casual summer *kimono*, to go see fireworks, and it is common to see them with a fan in one hand gazing up at the sky. Giant fireworks "flowers" bloom in the dark night sky with a *doong* sound that resonates in the very core of the body. Fireworks are one of the great joys of a Japanese summer.

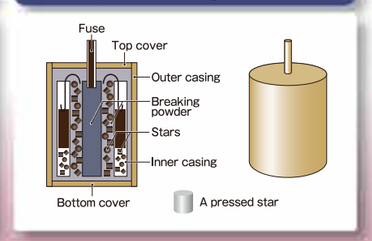
Differences between Japanese fireworks and fireworks foreign-made

The stars in Japanese fireworks are arranged spherically in the shells so that when they explode, the stars fly off in all directions. The shape of a completed shell is also a sphere. Fireworks is foreign countries are cylindrical, and the stars pressed inside fly out in one direction.

An example of a Japanese firework shell



An example of a foreign firework shell



Three-layered Core Changing Chrysanthemum

A type of chrysanthemum, this firework effect features a three-layered core and produces four concentric spheres overall. This effect is said to require the most skill out of all types of Japanese fireworks.

Brocade *Kamuro* Chrysanthemum

This effect is distinguished by gold stars that trail and fall slowly in a pattern reminiscent of a willow tree. There is often a charge that makes a bright flash when the stars burn out.

Starmine

This refers to the practice of sending up combinations of different types of fireworks in rapid-fire succession to orchestrate a single theme.

Types of firework effects

Aqua Planet Jeju

Aqua Planet Jeju, which opened in July 2012 in Jeju Island, Korea, is the largest aquarium in Asia in terms of size and the number of aquatic animals on display. To keep a stable water temperature in the exhibit tanks, the aquarium introduced a life support system (LSS), which is maintaining an optimal environment to sustain the health of its aquatic inhabitants that are vulnerable to temperature change.

The importance of precise control of water temperature appropriate for the aquatic species

Jeju Island is located in the southernmost part of Korea. Owing to the warm Tsushima current that flows along its coast, Jeju Island is blessed with the mild climate in Korea where winters are bitterly cold, so the island is called as the "Hawaii of Korea" and is well-known as a resort destination visited by tourists from Japan as well as many domestic travelers.

Opened July 2012 on the east side of Jeju island, Aqua Planet Jeju is one of the largest aquarium in Asia. There are 11,000 tons of water exhibit tanks built in two stories and one story below ground, and approximate 58,000 aquatic animals and over 500 different kinds of species mainly come from the ocean around Jeju Island. The aquarium is operated and managed by Hanwha Hotels & Resorts Co., Ltd., a company of the Hanwha Group in Korea. The Hanwha Group is globally engaged in three major sectors: manufacturing / construction, finance, and services / leisure; and Hanwha Hotels & Resorts is positioned at the core of the services / leisure sector.

Mr. Park said: "Controlling the water temperature in the exhibit tanks is the most critical point for operating an aquarium. Particullary, fish living in cold waters with an average temperature of 10 to 15 degrees C are extremely sensitive, and even a slight change in water temperature will cause tremendous stress. If the water temperature is not controlled precisely, the fish will become sick, and in some cases might even die."

High evaluation of Azbil's proven track record in automated control of aquariums

An important topic in constructing Aqua Planet Jeju was how to build the life support system (LSS)*1 , consisted of the heat source equipment and monitoring and control system for maintaining the appropriate water temperature in the display tanks continuously. Hanwha Hotels & Resorts selected Azbil Korea, an overseas affiliate of Azbil Corporation, as a partner for building the LSS.

Hanwha Hotels & Resorts is building and operates many aquariums throughout Korea. One of them is 63 Sea World in the 63 City building, a landmark of Yeouido, Seoul. The LSS for this aquarium was equipped with Azbil products, which were chosen for their high performance.

The monitor terminal of the savic-net FX installed in the central monitoring room. Enables centralized monitoring of water temperature, etc. in the exhibit tanks.

Digital indicating controller. Controls water temperature according to measurements by temperature sensors, etc.

Mr. Ju said: "I am sincerely looking forward for Azbil Korea, a company with advanced technical capabilities and know-how, to playing an important partner for our aquarium business, which is a strategic priority for our company."

Mr. Ju said: "Previously, 63 Sea World used Azbil analog controllers for water temperature control. In 2008, when we decided to replace the analog controllers with digital controllers, we chose Azbil for, which are maintaining a stable water temperature in the exhibit tanks. So, in building the LSS for Aqua Planet Jeju, we highly evaluated the strength of Azbil products. Furthermore, we had much confidence in the azbil brand, which has a proven track record in the automated control of aquariums."

Additionally, in order to introduce best practices of aquariums to key members of Hanwha Hotels & Resorts, Azbil Korea planned site visit to major aquarium in Japan. Getting confidence through the performance of total Azbil solutions, services, and support, Azbil Korea has been chosen as a partner of Hanwha Hotels & Resorts aquariums construction.

Expectations for Azbil as a partner to support future business expansion

In July 2010, immediately after Azbil Korea was chose as a partner to build the LSS for the aquarium, construction of Aqua Planet Jeju was started and completed in May 2012. Since the aquarium's opening in July 2012 until today, the LSS keeps steady operation all the time.

Measuring the sea water temperature at the outlet of tank, the LSS controls the water temperature in the tank by adjusting the heat exchange amount of the seawater circulating into the tank. This control sequence is programmed in digital indicating controllers, and the savic-net™FX building management system continuously monitors the environment in the exhibit tanks. Introduction of the savic-net FX has made possible the centralized facility management, furthermore eliminated surveillance works several times a day to adjust and manage the water temperature of multiple water tanks, and significantly reduced the burden on the operators.

Mr. Kim said: "Now the aquarium's water temperature control is completely automated, we can maintain the optimal environment for all the aquatic animals in the water tanks, without worrying about the delay in responding to troubles."

Mr. Oh said: "In the event of an abnormality of the water temperature in the tanks, the savic-net FX alerts operators by sending a short message to their mobile phones. Even if the operator is not constantly watching the monitor screen, the operator can respond quickly to the alarm."

In order to meet the growing popularity of aquariums in Korea, Hanwha Hotels & Resorts is actively planning new aquariums in other areas, and considering Azbil as its first choice for partner in constructing the LSS. In fact, Azbil Korea provided the monitoring and control of the LSS for Aqua Planet Yeosu aquarium, which opened on May 12, 2012, slightly earlier than the opening of Aqua Planet Jeju. Furthermore, Azbil Korea was selected to build the LSS for Aqua Planet Ilsan, another aquarium now under construction.

Mr. Park said: "We are very satisfied with not only the superiority of Azbil products and systems but also the total service and response of Azbil employees, from installation through to operation support and maintenance."

Aqua Planet Jeju

Location
127-1 Goseong-ri, Seongsan-eup, Seogwipo-si, Jeju-do, Korea

Opening date
July 14, 2012

Hanwha Hotels & Resorts Co., Ltd.

Location
1 Janggyo-dong, Jung-gu, Seoul, Korea

Established
March 1979

Business scope
Operation and management of condominiums, golf courses, various theme parks, membership resorts, and other facilities

Ju Bok Taek
Chief Manager
Culture Business Development Team
Culture Business Department
Hanwha Hotels & Resorts Co., Ltd.

Park Jin Hee
Deputy Senior Manager
Aqua Planet Jeju

Oh Jae Deuk
LSS Manager / AQ Aquarist
Aqua Planet Jeju

Kim Yong Bae
Aquarist / AQ Team
Aqua Planet Jeju

glossary

*1 ▶ *LSS (Life Support System)*
A system for maintaining an appropriate environment for raising and displaying aquatic creatures in an aquarium.

azbil MIND vol.11

Launching a new business in fields related to healthcare to provide superior customer value

Azbil Corporation has launched a "Life Science Engineering (LSE) business" to provide new solutions to markets that contribute to people's health, such as the pharmaceutical, laboratory, and medical sectors. As part of this business expansion, Azbil has acquired Telstar, S.A. of Spain, a global company in the pharmaceutical, research, and medical fields, and made it an azbil Group company. By providing products and services created through the synergy of the two companies, Azbil aims to deliver superior customer value.

Azbil President Hirozumi Sone (left), and Telstar President Ton Capella (right), at the signing ceremony.

A new business for providing higher value to the pharmaceutical, laboratory, and medical fields

The azbil Group established the Life Automation (LA) business in 2006 with the aim of contributing to "people's active lives" through automation technologies. Since then, the group has been actively promoting the LA business together with its two other core businesses, the Building Automation (BA) business for the building market and the Advanced Automation (AA) business for industrial fields. The LA business presently provides various products and services related to housing, nursing care/home nursing services, and metering equipment for lifeline utilities such as gas and water, thus responding to the needs of customers.

Hirohiko Kazato
General Manager of
Life Science Engineering Department,
Azbil Corporation

To further cultivate and expand business in the LA business field, Azbil Corporation established the Life Science Engineering (LSE) business with the aim of providing "next-generation solutions that integrate manufacturing equipment with environmental systems, inspired by automation technologies" to markets that contribute to people's health, such as the pharmaceutical, laboratory, and medical sectors.

Azbil has been supplying products, services, and solutions to numerous customers in the pharmaceutical, laboratory, and medical sectors through current BA and AA businesses. The LSE business will provide solutions that integrate manufacturing equipment and environmental systems to deliver more advanced value to customers, while leveraging the know-how and expertise cultivated through the existing businesses.

Ton Capella
Telstar President

Manufacturing process knowledge and global business capability as the key factor for deciding on collaboration

For the quick launch of the LSE business, in January 2013, Azbil acquired an 80% stake in Telstar S.A. of Spain, which provides added value and global solutions in the pharmaceutical, laboratory, and medical markets. As a result of this capital participation, Telstar will become an azbil Group company.

Telstar is a manufacturer and solution provides, whose core is in the technologies and know-how of manufacturing processes primarily for pharmaceutical products. The company provides freeze drying systems, sterilization systems, pharmaceutical water treatment equipment, steam generators, clean room equipment, and other products used in pharmaceutical formulation plants, laboratories, and hospitals. In addition to supplying equipment and systems, Telstar provides not only consulting and engineering services but also services related to the construction of pharmaceutical and laboratory facilities.

Telstar, specializing in those business fields, was an ideal partner for Azbil to launch its LSE business. Azbil plans to provide solutions that will contribute to manufacturers in the pharmaceutical, laboratory, and medical fields to realize higher safety and improved productivity by integrating Telstar's rich manufacturing process knowledge with Azbil's automation technologies in a mutually complementary relationship.

Telstar has a worldwide presence, with business operations established in 17 countries in Western Europe (including Spain), Eastern Europe, Latin America, and North America. It has 15 offices, 5 manufacturing plants, and 9 technical centers. These Telstar's overseas business operations were also a major factor in Azbil's decision to collaborate with Telstar. Since Azbil's vision for its LSE business is developed on the premise of global development, Telstar's worldwide sales network and business experience in global markets are also very attractive points for Azbil.

High-value solutions that contribute to the markets related to personalized medicine and regenerative medicine

For Telstar, making a new start as a member of the azbil Group also brings significant benefits. By integrating the automation technologies provided by Azbil with its own technologies, Telstar can strengthen its products and services and expand future possibilities.

In addition, Telstar will be able to strengthen its business presence in Asian markets since Telstar can share existing Azbil's operating business bases in Japan and other Asian countries. Telstar had rapidly expanded its business operations through several M&A. Forming a robust partnership with Azbil, including sharing of management resources, which has a solid management foundation and overseas business operations mainly in Japan and other countries in Asia, was a very reasonable management decision.

Azbil established the Life Science Engineering Department in January 2013 to explore future business possibilities. This department will take an initiative to cooperate with the BA business and AA business in the pharmaceutical, laboratory, and medical fields, and also develop the LSE business based on the synergy created through the collaboration with Telstar.

Azbil plans to introduce products, services, and solutions for future growth fields, such as biopharmaceutical, life science research, personalized medicine for customization of medication and treatment based on treatment plans optimized for individual patients according to the conditions of their ailments, regenerative medicine represented by today's highlighted iPS cell (induced pluripotent stem cell), and expand to the global market in the near future. By sharing customers' problems, Azbil will create and deliver superior value by maximizing its instrumentation and control technologies accumulated in the automation field and Telstar's knowledge and technologies.

Sapphire capacitance diaphragm gauges for monitoring and control in semiconductor manufacturing

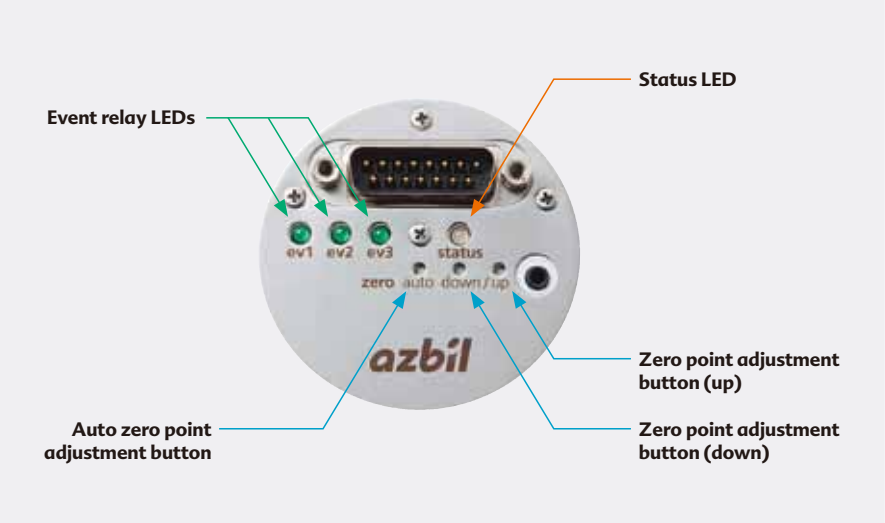
Diaphragm vacuum gauges are used in semiconductor manufacturing and other industries that require a high degree of accuracy, reliability, and corrosion resistance.

In semiconductor manufacturing, precise measurement and control of pressure are necessary in some processes. Also in those processes, a variety of corrosive gases are used. Diaphragm gauges operate under these harsh conditions, and accordingly their measurement performance affects the quality of the semiconductors. Our sapphire capacitance diaphragm gauges were developed to meet these demanding requirements. Sapphire is used as the sensing material in order to achieve high accuracy, reliability, and corrosion resistance.

In addition to semiconductor manufacturing, diaphragm gauges are used for fine chemical, food, and medicinal manufacturing equipment that requires vacuum pressure measurement. For these applications, diaphragm gauges are essential, but since they must endure severe process conditions and operate with high precision, only a few manufacturers in the world provide them.

Features:

- **High repeatability even at high temperatures**
  Single-crystal sapphire is used as the sensing material. Excellent resistance to corrosion and high temperatures with high repeatability even when used at 125–200 °C.
- **Highly accurate measurement**
  Advanced signal processing technology contributes to dramatic reduction of error in temperature characteristics, linearity of measurement, etc.
- **Compact and lightweight**
  Compact size and light weight for easy handling and installation.
- **Combined display and operating panel for easy use**



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http://www.azbil.com/

Yamatake Corporation changed its name to Azbil Corporation on April 1, 2012.

Japan

- Azbil Corporation • Azbil Trading Co., Ltd.
- Azbil Yamatake Friendly Co., Ltd.
- Azbil Care & Support Co., Ltd. • Azbil SecurityFriday Co., Ltd.
- Azbil Kimmon Co., Ltd.
- Azbil Kyoto Co., Ltd. • Azbil TA Co., Ltd.
- Azbil Taishin Co., Ltd. • Tem-Tech Lab.

Overseas

- Azbil Korea Co., Ltd. • Azbil Taiwan Co., Ltd.
- Azbil Kimmon Technology Corporation
- Azbil Vietnam Co., Ltd. • Azbil India Pvt. Ltd.
- Azbil (Thailand) Co., Ltd. • Azbil Production (Thailand) Co., Ltd.
- Azbil Philippines Corporation • Azbil Malaysia Sdn. Bhd.
- Azbil Singapore Pte. Ltd. • PT. Azbil Berca Indonesia
- Azbil Saudi Arabia Limited
- Azbil Control Instruments (Dalian) Co., Ltd.
- Azbil Information Technology Center (Dalian) Co., Ltd.
- Yamatake Environmental Control Technology (Beijing) Co., Ltd.
- Beijing YTYH Intelli-Technology Co., Ltd.
- Azbil Control Solutions (Shanghai) Co., Ltd.
- Shanghai Azbil Automation Co., Ltd. • Azbil Hong Kong Limited
- Yamatake Automation Products (Shanghai) Co., Ltd.
- CECEP Building Energy Management Co., Ltd.
- Azbil North America, Inc. • Azbil VorTek, LLC • Azbil BioVigilant, Inc.
- Azbil Brazil Limited • Azbil Europe NV • Telstar, S.A.

〈Company/Branch office〉

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