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azbil FIELD **SK energy Co., Ltd.**

azbil MIND **Providing High-Quality Services Globally to Support Production Safety for Customers**

special

Sonic Landscape in Japan

SAKURA

～Cherry blossoms～

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SAKURA
～Cherry blossoms～

桜

Somei Yoshino
This cherry tree is a decorative variety that began to be cultivated in the late Edo period. Planting Somei Yoshino quickly became widely popular after the Meiji Restoration in the latter half of the 19th century, and it has now become the most well-known variety in Japan.

The graceful and ephemeral beauty of *cherry blossoms,* blooming suddenly then falling like a fleeting rain

【*hira hira*】～ひらひら

In Japan, the sound and appearance of light and thin things fluttering in the wind are described with the following onomatopoeia: "hira, hira, hira, hira…." In spring, cherry blossoms bloom throughout Japan, after which they soon fall from the trees. People feel a symbolic connection between the countless falling petals gently fluttering ("hira hira") to the ground and the fleeting nature all things. It also reminds people that summer is near.

The blooming of the cherry blossoms brightens the hearts of the Japanese people

Cherry trees are loved throughout the world. While many cherry trees are grown for the edible cherries they produce, one can see the blossoms of decorative cherry trees planted by the hundreds in cities throughout the world, such as New York, Washington D.C., London, Brussels, Berlin and Seoul. Japan is filled with places where cherry trees line the streets or grow in parks in large clusters. Cherry trees and their blossoms are very endearing to the Japanese people. They are celebrated in the Manyoshu, the oldest known collection of Japanese poetry, and by the time the later waka style of poetry became popular, the word for flower (hana) itself even came to be implicitly understood to refer to cherry blossoms.

New York City is also a haven for cherry blossom viewing. The Brooklyn Botanical Garden has become particularly well known for its Sakura Matsuri (Japanese for "Cherry Blossom Festival"). The festival features various popular events associated with Japanese culture.

Cherry blossoms are distinct in that they bloom just before the leaves appear on the tree, which tells people that spring has come. Cherry blossoms have been used since ancient times as an indicator of when to transplant rice seedlings, plant seeds, and other kinds of farm work. The Japan Meteorological Agency forecasts when and where the cherry trees will blossom and be in full bloom, which is reported on in great detail in the weather forecast segments of the news on TV. The imaginary line that follows the blossoming from south to north across the Japanese islands is known as the "cherry blossom front". The tree variety most often used in these predictions is the Somei-Yoshino. It is a decorative cultivar that became popular in the mid-19th century,

Yamazakura
This is the best-known wild variety of cherry tree in Japan. Before the popularity of Somei Yoshino, Yamazakura was more or less synonymous with cherry trees.

and can be found in and around parks, temples, shrines, schools, roads, and many other places.

The academic year for most Japanese schools starts in April, and cherry trees have been planted to coincide with and create a befitting atmosphere for orientation and the associated ceremonies. Due to the season, "the cherry blossoms have bloomed" is a widely understood metaphor for passing a school's entrance exam, and conversely "the cherry blossoms have fallen" means that someone has failed an exam. Furthermore, because April marks the start of the Japanese fiscal year for government agencies and private companies—which means that most post transfers and such occur early April—cherry blossoms have taken on symbolic significance marking new milestones in people's lives.

Cherry blossoms are appreciated precisely because of their fleeting grace

One of the reasons cherry blossoms are so loved by the Japanese people is that they are not overly assertive aesthetically. Depending upon their exposure to sunlight, the pale hues of their petals range from the fairly dull to the bright and livid. People project their own emotions, and indeed the human emotional spectrum, onto the flowers. Even more importantly, the fact that cherry blossoms reach full bloom in a few days and then soon fall from their branches all at once resonates with the spiritual core of Japanese attitudes, particularly the tendency to find beauty in what is ephemeral, and to empathize with all things transient. The people of Japan also see beauty in the fading and falling flowers after their peak. Gracefully falling cherry blossoms have over the centuries become a tangible symbol of the self-sacrificing spirit of bushidō, or the "way of the warrior". The cherry blossom is a frequently used motif on the emblems of flags, badges and patches used by the police and Self-Defense Forces. In fact, visible designations of hierarchical rank that are most commonly represented by stars in other countries are often indicated in Japan by cherry blossoms.

Yaezakura
The prefix yae literally means "eightfold", but in the context of cherry trees it refers to any variety whose flower produces five or more petals.

Relying on the cherry blossom forecasts to find out the best days for "viewing" the flowers, which only last for about a week, people flock to parks and such in a custom known as hanami, or cherry blossom viewing. Hanami is a picnic-like festive affair where people bring food and drink to enjoy with their family, friends and colleagues under beautiful cherry trees. It is an annual custom in the spring season where people admire the flowers blooming above, yet at the same time tend to become a little sentimental as falling petals flutter by. Alcoholic beverages are said to taste best when drunk at hanami.

❶ **Castle cherry blossoms**
Hirosaki Castle(Hirosaki City, Aomori Prefecture)
About 2,600 individual cherry trees of about 50 varieties blossom around the tower keep in the castle grounds.

❷ **A rare tree**
Miharu Taki-zakura(Fukushima Prefecture)
This giant tree, at 12 meters tall with branches extending out 25 meters, is of the "weeping cherry" variety. As its Japanese name (the "waterfall cherry") suggests, its branches and flowers seem to flow down just like a waterfall.

❸ **Mountain cherry blossoms**
Mt. Yoshino (Nara Prefecture)
The sacred spots and paths for pilgrims at Mt. Yoshino have collectively been listed as a World Heritage site. The site features about 200 varieties and an overwhelming 30,000 individual blossoming cherry trees.

❹ **Cherry blossoms at night**
Heian Shrine(Kyoto Prefecture)
Red weeping cherry blossoms decorate the beautiful vermillion-hued shrine, and appear almost mystical when illuminated at night.

SK energy Co., Ltd.

SK energy Co., Ltd. is the largest general petroleum and petrochemical company in South Korea. It has recently integrated the monitoring and control processes for the production of petrochemical products with the aim of improving operational efficiency and optimizing the allocation of human resources at the production facilities. As a result, the monitoring and control range for each operator has expanded significantly. Thus, the objective of the project for operating the facilities with fewer operators was successfully attained.

Promoting the integration of monitoring and control processes to improve operational efficiency on the production floor

SK energy, which originated as Korea Oil Corp., a government-run company established in 1962, is now the largest petroleum and petrochemical company in South Korea. In addition to general petroleum products such as gasoline, kerosene and liquefied petroleum gas (LPG), SK energy supplies diverse petrochemical products to global markets, such as synthetic resins, styrene monomers and ethylene. In recent years, the company has actively been expanding business in the clean energy field by marketing solar cells and lithium ion batteries in response to rapidly growing needs for the reduction of CO_2 emissions for global warming prevention. The lithium ion batteries supplied by SK energy are used in hybrid vehicles produced by a Japanese commercial vehicle manufacturer. As such, SK energy offers high-quality products to meet various market needs.

The Advanced-PS APS5000 system is circularly arranged in the instrument panel room. All monitors are visible from the center of the room to allow easy confirmation of equipment operating status by the supervisor.

For the past several years, SK energy has been making companywide efforts for the integration of production monitoring and control processes.

"The main purpose of our efforts is to enhance operational efficiency on the production floor and achieve optimum allocation of human resources," says Mr. Kang. "It is essential for our company to maintain and strengthen competitiveness in global markets."

Around 2008, aging DCS* needed to be updated. As part of the integration efforts, SK energy decided to use DCS of a single vendor for the three production facilities which had previously been monitored and controlled by DCS of multiple vendors, thus unifying the operator interfaces. Specifically, the company chose to integrate the monitoring and control processes for the production of three petrochemical product groups — namely heptane, benzene/toluene/xylene and paraxylene.

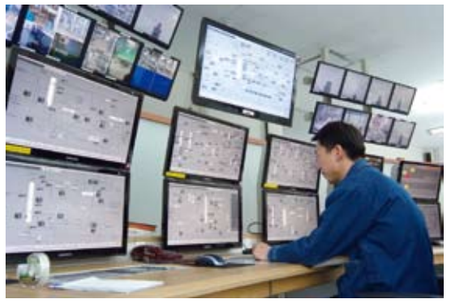
Reliability backed by the past track record and flexible expandability for the future as decisive factors

When the project was initiated, SK energy requested proposals from the vendors that provided DCS products for the aforementioned three production facilities. Upon careful examination of the proposals submitted by the vendors, SK energy chose Azbil Korea Co., Ltd. (AKR), an overseas subsidiary of Yamatake Corporation, as a business partner for the project.

"The monitoring and control screens with a gray background are easy to see and also gentle on the eyes of senior operators. They are received well by the operators on site." (Mr. Seo Hyun Joo, General Manager, No.1 Aromatic Production Team)

"Our company has been using Yamatake products, including DCS, for more than 30 years in various production facilities. Based on their excellent track record, we believe that Yamatake products are robust and do not break easily," says Mr. Park. "We also highly evaluated the workmanship (work quality) of each member of Yamatake and AKR we encountered. Furthermore, AKR has an office in Ulsan where our plant is located. That was one of the key factors for selecting AKR as our partner, since the close proximity of the office means a speedy response from AKR at all times."

"In evaluating candidate companies, we gave high scores to AKR because its proposed plan would enable the utilization of our existing assets such as currently used controllers and operators' skills, and, above all, because the proposed system offers expandability that will allow further integration of the production processes we aim to achieve in the future and AKR presented a concrete roadmap for that future integration," says Mr. Noh.



For the monitoring and control screens, the IOUS 500 Windows-based human-machine interface is used. The well-designed display layout, including a large LCD display and sets of two display panels arranged vertically, has expanded the monitoring and control range for each operator and increased dramatically the amount of displayed information.

Delivering proposals and support into the future as a solution provider

Construction of the system started immediately after AKR was selected as a system supplier in October 2009. The aging DCS was replaced by the Advanced-PS™ APS5000, a new-generation plant automation system. The new system integrated the monitoring and control functions that had previously been performed independently for each of the three facilities, and began operation in November 2009.

The IOUS™ 500 adopted as a unified operator interface for the new system increased the amount of displayed information three to four-fold as compared to the previous system. Furthermore, the physical layout of devices was carefully designed, such as sets of two monitors arranged vertically, in order to facilitate on-screen monitoring.

"The use of the gray background for monitoring and control screens based on AKR's proposal produced remarkable benefits and improved the visibility much better than we had expected," says Mr. Noh. "The statuses and conditions of equipment and manufacturing processes can be easily checked not only by the operators in charge, but also by the supervisor sitting at the center of the instrument panel room."

"As a result of implementing these measures, the monitoring and control range for each operator and the number of loops increased dramatically, thus enabling the operation of the facilities with fewer operators," says Mr. Park. "The new system contributed largely to the improvement of operational efficiency on the production floor and optimized allocation of human resources, which were our main aims in initiating the project."

In future, SK energy plans to evolve the system for further integration of manufacturing processes based on the newly constructed system.

SK energy Co., Ltd.

Location
110, Kosa-dong, Nam-gu, Ulsan 680-130, Korea

Establishment
October 1962

Business scope
Production, sales and distribution of petroleum products and petrochemical products

Mr. Min Ku Kang
Team Leader,
Instrument Team 1

Mr. Jeong Won Park
General Manager,
Chemical Maintenance
Technology Management Team

Mr. Dong Joo Noh
Engineer, Instrument Team 1

"To that end, we intend to actively utilize operational support packages such as the Knowledge Power™ plant operation support system and Alarm & Event analysis software," says Mr. Kang. "We look forward to AKR's powerful support, not just as a system supplier but as a solution provider, while remaining true to its policy that 'a job is not complete until the customer is fully satisfied.'"

glossary

** ▶ DCS (Distributed Control System)*
DCS refers to a system designed exclusively for the monitoring and control of production equipment in a factory. Since DCS distributes functions to individual components of the system connected by a network, it reduces system load and offers excellent reliability and maintainability.

azbil MIND vol.2

Providing High-Quality Services Globally to Support Production Safety for Customers

Kawara Technology Center, which is Yamatake's service base for the azbil Group, is situated amid the rich natural environment of Chikuho, Japan. This Center is committed to providing high-quality services globally to support the production activities of customers, ranging from system engineering to maintenance of control valves and calibration of measuring instruments.

Spacious staging area for witnessed tests of large-scale systems

Kawara Town is located at the northeastern edge of the Chikuho region in Fukuoka Prefecture, Japan. This town is renowned for bolstering Japan's industry centering on the coal mining and cement industries for many years through both the prewar and postwar periods. In the rich natural environment of Kawara, where mountain forests account for more than 60% of the town area, Yamatake's Kawara Technology Center began operation on April 1, 1993 as a core facility of the azbil Group.

Building No. 1 (total floor area: 2,076m^2) and Building No. 2 (total floor area: 763m^2) on the premises measuring 27,283m^2 house three departments that support Yamatake's Advanced Automation (AA) business for factories and plants and Building Automation (BA) business for buildings. The Japan West Region Engineering System Department of the Advanced Automation Company (AAC) in charge of engineering services for the western Japan area and the Service Engineering Headquarters' Service Planning Department responsible for providing reliable services are in Building No. 1, and the West Japan Service Headquarters' Kyushu Service Department is in Building No. 2.

The Kawara Technology Center dispatches specialists to Azbil Thailand's Rayong CV maintenance center to provide technical guidance.

The Japan West Region Engineering System Dept. performs tasks such as design, development, inspection, supply, instrumentation work, trial operation and adjustment of system products handled by AAC according to the specific requirements of customers.

There is a staging area on the first floor of Building No. 1, where systems are assembled and set up before they are delivered to customers. Here, customers can inspect the hardware transported from the Isehara Factory and installed with applications designed and produced in accordance with customers' specifications. This spacious area enables staging of a large-scale system. The Kawara Technology Center is the second largest facility operated by Yamatake next to the Isehara Factory that manufactures system products. The staging area is used to conduct witnessed inspections of systems over a certain size for all customers west of Hiroshima Prefecture.

Ensuring accuracy of measuring instruments used in field services

The Service Planning Dept. is responsible for managing measuring instruments used inside and outside the company. "Management of measuring instruments" refers to the tasks of maintaining the quality of measuring instruments, such as calibration and adjustment of individual instruments at appropriate intervals, in order to ensure the accuracy of various devices used to measure electricity, pressure, temperature, humidity, torque and other physical quantities. To perform these tasks, there is a metrology management room on the first floor of Building No. 1. The temperature and humidity in this room are strictly controlled.

In the AA business, Yamatake offers a field service for the inspection and adjustment of instruments installed in customers' facilities, such as sensors and control valves, to ensure their accuracy. To provide this important and critical service, the measuring instruments used by the service engineers must be guaranteed for accuracy. This department is in charge of calibrating instruments necessary for maintenance work.

1 The valve maintenance center in Building No. 2 conducts overhaul, cleaning, operation check and coating of control valves removed from customers' facilities for periodic inspection and repair*.

2 Employees of Azbil Thailand come to the Kawara Technology Center to receive training on overhaul inspection and cleaning of control valves.

3 Valves sent by customers are serviced one after another.

*Major scheduled inspection and repair of equipment used in plants.

The Service Planning Dept. performs calibration for some 3,500 measuring instruments used for maintenance every year. In addition, it is entrusted to calibrate about 500 instruments annually that are removed from customers' facilities and sent to the department. As the service departments for the BA business and AA business were integrated in 2008, the Service Planning Dept. has also been calibrating measuring instruments used by the maintenance service teams in the BA business since April 2010. The number of instruments that the department calibrates for the service teams is expected to reach about 1,500 units per year.

Continuously strengthening quality and environmental management

The Kyushu Service Dept. in Building No. 2 conducts maintenance and servicing of various control valves that are used in plants to regulate the flow rates and pressure levels of water, air, steam and so forth. Upon receiving customers' requests, this department conducts various tests on valves, disassembles and cleans valves, and also performs machining and replaces parts based on test results.

The series of these operations not only demands advanced technologies and quality control capability, but also requires extensive measures to ensure safety of workers and to protect the surrounding environment. The Kawara Technology Center obtained ISO 9001 certification ahead of others in July 1995, and also acquired ISO 14001 certification in September 2002. As such, the Center has strengthened its quality management and environmental management.

Thorough measures have also been taken to ensure safety of workers. For example, since organic solvents used in the painting process contain chemical substances that are hazardous to humans, such as toluene and xylene, those chemicals are separated and processed by local ventilation systems. In recognition of proactive safety measures, the Kawara Technology Center received the Director-General's Award and the Best Award from the Fukuoka Labour Bureau in October 2002.

The services provided by the Kyushu Service Dept. extend beyond the maintenance and servicing of customers' control valves. It has begun offering "CV (Control Valve) Doctor Service." In this service, service engineers visit customers' facilities and diagnose valve operations and propose modification plans for achieving cost reduction and efficiency improvement. The Kyushu Service Dept. strives to provide high-value-added services from the customer's standpoint.

Yamatake's overseas subsidiaries in Taiwan, Thailand, China, Indonesia, Singapore and Malaysia also operate maintenance centers for the maintenance and servicing of customers' valves. The Kawara Technology Center serves as a training center for developing foreign engineers for these overseas bases. The Center has accepted many trainees from overseas and also dispatched specialists to overseas bases since it opened. For example, Azbil Thailand's CV maintenance center established in Thailand's Rayong district (Thailand's largest petroleum and chemical complexes) provides high-quality maintenance and repair services for Yamatake products and other companies' products under the guidance of the Kawara Technology Center. Today, this maintenance center handles maintenance and repair for over 3,000 valves per year. Yamatake's overseas subsidiaries in other countries also provide high-value-added services such as periodic shutdown maintenance and emergency maintenance services, thus contributing to safe and stable plant operation. The Kawara Technology Center will continue to play its important role in globally disseminating Yamatake's high-quality service techniques and know-how in order to support customers' production activities, including helping overseas subsidiaries provide high-quality services.

The Kawara Technology Center is located amid the rich environment of Chikuho. Customers who visit the Center to attend inspections can observe control valve inspection work and witness Yamatake's high-quality maintenance service work.

"A Dozen Flowmeters" Expand Variety of Flow Measurement Applications

"A Dozen Flowmeters" expand the variety of flow measurement applications, thereby enabling azbil to respond to customers' flowmeter needs in a wider application range. Flowmeters comply with global specifications. Sales of electromagnetic, Coriolis, STEAMcube and other flowmeters incorporating the latest technologies will begin sequentially. azbil has enhanced its line-up to a dozen flowmeters and will provide the optimum product for a broad range of applications for gas, steam and liquid.

ACTIVAL high-performance air-conditioning control valve

ACTIVAL™ control valves, manufactured by Yamatake Corporation, have been selected for use in numerous buildings because of their high controllability and reliability. The compact body incorporates a valve and an actuator, and the optimal valve for the application can be chosen from a variety of available differential pressures, pipe sizes, materials, etc.

Without high-performance control valves, energy efficiency and lower cost air-conditioning, heat supply, and sanitation facilities in a building are not easy to achieve. Yamatake has provided automatic control for more than 100 years, and looks forward to making further contributions to the energy efficiency of buildings worldwide through its sales of ACTIVAL, the product of a wealth of experience and know-how about building equipment.

Features:

- Compact and lightweight body incorporating a valve and actuator
- High durability and long service life
- Low power consumption

※ ACTIVAL is a trademark of Yamatake Corporation.

URL http://www.azbil.com/products/bi/ba/valve/index.html

azbil Group Leaping Ahead from Yamatake's 100 Years
Human-centered Automation

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- Yamatake Corporation • Yamatake & Co., Ltd.
- Yamatake Control Products Co., Ltd.
- Yamatake Friendly Co., Ltd. • Yamatake Care-Net Co., Ltd.
- Safety Service Center Co., Ltd.
- SecurityFriday Co., Ltd • Hara Engineering Co., Ltd.
- Kimmon Manufacturing Co., Ltd.
- Yamatake Mizuho Co., Ltd. • Royal Controls Co., Ltd.
- Taishin Co., Ltd. • Tem-tech Lab.

Overseas

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- Yamatake Environmental Control Technology (Beijing) Co., Ltd.
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- Shanghai Azbil Automation Co., Ltd.
- Azbil Hong Kong Limited
- Yamatake Automation Products (Shanghai) Co.,Ltd.
- Azbil North America, Inc. • BioVigilant Systems, Inc.
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〈Branch/Office〉

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19F Tokyo Building 2-7-3 Marunouchi, Chiyoda-ku Tokyo 100-6419 Japan TEL:81-3-6810-1006 FAX:81-3-5220-7274 http://www.azbil.com/

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