# azbil

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azbil FIELD **Amarin Plaza**

azbil MIND **Newly Established Production Base in Thailand Takes on Challenge of Smooth Supply to Global Markets**

Special Feature From Japan to the World

## Imabari Towel Vying for the Highest Quality in the World

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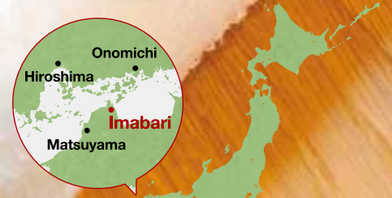
# Imabari Towel Vying for the Highest Quality in the World

*Towels are a constant presence throughout our lives. They are used to wrap new born babies. They are essential items in bathrooms, and also used as the material for bedding and clothing. While there is a diversity of towel products on the market and their quality varies greatly, Imabari Towel has been gaining recognition in recent years. Imabari is the name of the city in Ehime Prefecture, where a large cluster of towel manufacturers is located. Towels produced here are attracting attention from all over the world as they offer excellent quality reflecting Japan's high levels of manufacturing technology.*

**Hallmark of *Imabari Towel* quality**

Only towels that have passed the stringent quality standards established originally by the Shikoku Towel Industrial Association can be labeled "Certified Imabari Towel Products." The logo mark features a design that symbolizes the sea and the sun.




## Superior water absorbency backed by original quality standards

Imabari City is blessed with a mild climate, and cotton has been grown steadily in the area since the 17th century. The history of Imabari towels began in 1894, when towel manufacturing technology was introduced from Osaka. Presently, Imabari City boasts the largest towel production volume in Japan. Many people also claim that Imabari towels boasts the highest quality in the world. There are a variety of towels on the market. Some are thin and coarsely textured, while some are thick and dense like those used in luxury hotels. In Imabari, a wide range of towels are manufactured by varying the material, weaving technique, and dyeing method, but only those certified by the Shikoku Towel Industrial Association are allowed to carry the *Imabari Towel* brand.

To be branded as an Imabari towel, the product must satisfy 12 quality standards, such as water absorbency, thread loss rate, pile loss rate (piles are looped fibers that make up the towel surface), light and sweat resistance, tear resistance against laundry and friction, and amounts of hazardous materials. The most recognizable feature of the Imabari towel in actual use is its high water absorbency. In the water absorption test, a sample towel piece measuring 1 cm by 1 cm is placed on top of water in a container. The test sample must start sinking within in five seconds to pass the test. Furthermore, the sample must pass the same test after it is washed three times. There is a good reason why the Imabari towel is highly acclaimed for its excellent water absorbency.

## Strategy aimed at overcoming negative impacts caused by declining domestic consumption and increased imports

On the global front, China, India, Bangladesh, and other countries are emerging rapidly as major towel producing countries. Towel manufacturers in those countries place the highest priority on production speed to boost productivity. If Japanese towel manufacturers increased their production speed to the level of the manufacturers in those countries, they would not be able to compete squarely with them because the cost of manufacturing, including labor cost, is comparatively high in Japan. Thus, the towel manufacturers in Imabari adopted the strategy to improve quality, not production speed.

The Imabari towel production volume peaked at 50,000 tons in 1991, and then began declining continuously due to sluggish domestic consumption and growing infiltration of inexpensive imported products. During a span of 18 years, the production volume fell below the 10,000-ton mark. To overcome this unfavorable situation, in 2006 the "Imabari Towel Project" was initiated jointly by industrial associations and Imabari City as a JAPAN Brand Project subsidized by the Ministry of Economy, Trade, and Industry. Mr. Kashiwa Sato, who was then lauded for his artwork for the Uniqlo clothing store in New York, was chosen as the creative director for the project. Then, branding activities for the Imabari towel, including the creation of a logo mark, commenced.

Imabari City is located in the northern part of Ehime Prefecture. Situated almost at the center of the Seto Inland Sea, the area has long flourished as an important point for marine traffic. It is also the end point of the Shimanami Kaido Expressway linking to Onomichi City in Hiroshima Prefecture; thus, many tourists visit the area for sightseeing. The population of Imabari City is about 160,000. The main industries of the area are towel manufacturing and shipbuilding.

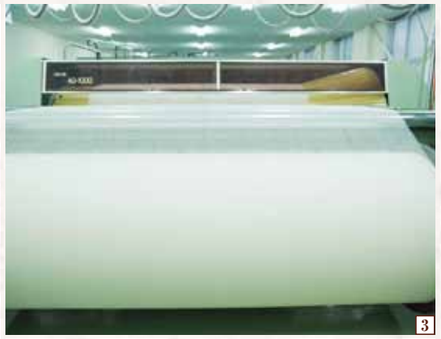
Mr. Sato insisted on putting pure-white towels at the forefront since he strongly felt pure-white towels symbolize the safe, comfortable, and high-quality Imabari towel. However, people in the towel industry had a tendency to regard undyed white towels without any design patterns as "low-value products" and considered them as "materials," not "finished products." Thus, it was necessary to change this way of thinking in the towel industry.

The establishment of original quality standards and development of product models in white was actively promoted together with the improvement of personnel training. One of the unique initiatives was the introduction of the qualification system for "towel sommeliers" who serve as towel selection advisors. The primary mission of towel sommeliers is to accurately provide information, such as detailed facts about towels, to consumers worldwide so as to enhance the reputation of Imabari towels. The qualification test has been held nine times thus far, and 1,893 people have become towel sommeliers.

## Creating high-value-added products to explore markets around the world

In the Imabari Towel Main Store located in the Texport Imabari, a base for disseminating the information of the Imabari towel, as well as the store established in Minami Aoyama, Tokyo, white towels are neatly arranged on the main product shelves. As the logo mark and the stores were introduced and featured by media, demand for Imabari towels started to grow steadily. In 2010, the production volume began increasing for the first time in 18 years. Mr. Sato continued to focus on branding activities based on the belief that promotional activities should be geared toward consumers, not toward wholesalers or retailers, and that once consumers understand the quality of products, sales will swing upward. Assiduous efforts for meticulous manufacturing and relentless activities for promoting the apparently-difficult-to-see high value of products bore fruition.

Presently, there are 116 towel manufacturing companies in Imabari, and their technologies and knowhow for product development are on par with those of other noted towel producers around the globe. Products with high added value are being developed in order to stimulate domestic demand and explore overseas markets. Imabari towels have been drawing the attention of wealthy people in China and Taiwan in recent years, and sales are growing in North America. For Europe, which is home to high-quality towels, however, there are a number of obstacles, such as two-and-a-half to three times higher retail prices due to transportation costs and taxes. In addition, white towels change their color to gray after repeated washing because water in Europe is harder than water in Japan. By reverse thinking, thick wool-like gray towels were produced and displayed in an exhibition, and they were received well. Vintage-style towels made with old looms for achieving an intentional irregular texture also attracted the attention of visitors to the exhibition. Imabari towels have taught us that even daily commodities everyone uses unconsciously have room for advancement and provide business opportunities.



1 Yarns purchased from a cotton spinning company are rewound, dyed, and then placed on a machine called a creel.
2 The warping machine pulls out the necessary number of yarns from the creel.
3 The machine called a drum winds warp yarns into a huge cylindrical form.
4 The warp yarns are set on the loom. It takes a skilled worker to handle yarns without breaking them.
5 Weft yarns are woven through the warp yarns to produce a woven cloth. The photo shows the newest type of loom.

The Imabari Towel Main Store (Imabari City, Ehime) carries a wide range of certified Imabari Towel brand products. It is a towel specialty store with the largest store space in Japan. (URL: http://www.imabaritoweljapan.jp/en/)

# Amarin Plaza

**Amarin Plaza is a large building complex located in the Ratchaprasong district in Thailand's capital, Bangkok. In a bid to further improve the originally implemented energy-saving measures, a decision was made to incorporate energy-saving technology from Japan, which is known as a leader in energy efficiency. Amarin Plaza successfully achieved energy-saving results far exceeding its targets by implementing an ESCO project to optimize the operation of its HVAC equipment while minimizing its investment.**

## *Japanese energy-saving technology presented in a seminar makes an impression*

With its record of maintaining a high economic growth rate for many years, Thailand is typical of industrial nations in Southeast Asia. Ratchaprasong Intersection in the heart of Bangkok is crowded with shopping malls and luxury hotels, and is in one of the busiest commercial districts in the country. The extensive 22-story Amarin Plaza building complex was completed in 1984. The first five stories are occupied by a shopping mall hosting some 300 business establishments, including clothing stores, variety shops, grocery stores, electric appliance stores, restaurants, and a food court. The sixth and higher floors are used as the offices of about 30 companies. Amarin Plaza is busy with 15,000 to 20,000 people visiting every day.

Rapid economic development in Thailand has resulted in a sharp rise in energy demand. Thus, energy conservation is a major issue throughout the country. Against this backdrop, Amarin Plaza has initiated various measures to tackle environmental problems and reduce energy costs for operating the building. It has already switched to LED lighting, improved the efficiency of its chillers, and is recycling water, for example. As Mr. Wisit Suthatheerarat, Assistant Vice President of Amarin Ratchaprasong Co., Ltd., recalls, "We had long been seeking effective energy-saving measures. One day, I attended a seminar held in Bangkok by the Global Environment Centre Foundation on energy-saving measures implemented for buildings in Bangkok. I was very impressed with the energy-saving technologies introduced in this seminar. I was particularly interested in the BEMS*1 system, which was not commonly used in Thailand at that time. So, I contacted Azbil Corporation, the company that was explaining energy-efficiency improvements in the seminar, to learn more."

## *High evaluation for expected energy-saving effectiveness and ESCO contract guaranteed energy savings*

After sharing information on energy-efficient technologies and methods from Azbil and confirming their capability, Amarin Plaza requested Azbil to submit a proposal for further energy-saving. Azbil conducted a field survey at Amarin Plaza, selected the energy-saving items that would be most suitable for Amarin Plaza, and suggested executing the job as an ESCO project.*2

"Considering the plan's significant effectiveness in reducing energy consumption, its guarantee of energy savings with an ESCO contract, and the merits of making the investment, we decided to accept Azbil's proposal for achieving further reduction of energy consumption at Amarin Plaza," explains Mr. Suthatheerarat.

The project involved the installation of the savic-net™ FX Integrated Building Management System as the BEMS. In addition to making Amarin Plaza's energy consumption trends visible and easily understandable, Azbil also installed VFD (variable frequency drive units) at chilled and condenser water pumps of heat source equipment used for air conditioning in order to enable variable flow control. The new system has optimized the operation and control of heat source equipment and reduced the amount of electricity used by the pumps.

## *Exceeding energy reduction targets and contributing to reduce operator workload*

Installation of the new energy-efficiency system at Amarin Plaza took place from October 2013 to March 2014, and the ESCO contract went into effect when the installation work was complete. The new system with its energy-saving functions started to operate and is steadily producing results.


The top-level screen of the central monitoring system for Amarin Plaza shows the current amount of reduction in $CO_2$ emissions.


The heat source system diagram enables at-a-glance checking of the operating conditions of multiple pumps for chilled and condenser water including their rotation speed and current power consumption.

"In the ESCO contract signed between Amarin Plaza and Azbil (Thailand) Co., Ltd., we set a goal of 40 % reduction in the power consumption of the pumps targeted by the project. In actual operation, we were able to achieve a reduction of 50–60 %. Throughout the entire Amarin Plaza complex, we anticipate an energy consumption reduction of approximately 4 % per year," says Mr. Suthatheerarat.

Mr. Pisan Chinnawong, Senior Technician Supervisor at Amarin Ratchaprasong, describes the improved case of managing equipment operation. "Installation of the BEMS has enabled us to monitor and control the equipment from the central monitoring system. That is a great benefit. Previously, our operators had to manually start and shut down the air conditioning system at each equipment unit. Now, we can operate them from the savic-net™ FX screen, so the operator workload has decreased significantly."

Also, the introduction of the BEMS with its ability to visualize equipment operating conditions has produced an unexpected benefit. One day, a decline in energy efficiency was noticed. An analysis of the data recorded by the BEMS indicated deterioration of the cooling tower's capacity. As a result of this BEMS fault detection, Amarin Plaza was able to maintain its original efficiency level by cleaning the cooling tower.

The AT9000 Advanced Transmitter (Model GTX) mounted at the top of the chilled water header for the heat source equipment detects the differential pressure and adjusts the flow rate of the pumps based on the amount of chilled water demand, thus helping to reduce energy consumption.

Azbil Corporation's savic-net™ FX in the central monitoring room serves as the BEMS.

The energy savings achieved by the project are attracting great attention in the community of shopping-mall owners and hotel owners in Ratchaprasong. "Amarin Plaza planned and held a seminar jointly with Azbil to explain the energy-efficiency improvements implemented at Amarin Plaza to business owners in the area. Some business owners expressed their interests in those measures and consulted Azbil about their buildings," says Mr. Suthatheerarat.

Amarin Plaza plans to continue addressing energy conservation in the future.

"Presently, the BEMS visualizes the energy consumption trends of the heat source equipment for air conditioning only. We want to expand its application to the entire building so that we can visualize the energy consumption trends from a broader perspective," says Mr. Chinnawong.

"Azbil provides high quality service, for which Japanese companies are renowned. We are counting on Azbil for continued support," declares Mr. Suthatheerarat.

### Amarin Ratchaprasong Co., Ltd

**Location**
Amarin Plaza 7th Fl., 496-502 Ploenchit Rd., Lumpini, Pathumwan, Bangkok 10330, Thailand

**Establishment**
1984

**Business**
Operation and management of shopping malls and office buildings

**Wisit Suthatheerarat**
Assistant Vice President
Property Management

**Pisan Chinnawong**
Senior Technician Supervisor
Property Management

### glossary

***1▶ *BEMS (Building Energy Management System)***
A system designed to minimize the energy consumption for an entire building or plant by automating the monitoring and control of energy consumed by energy-using facilities and equipment.

***2▶ *ESCO (Energy Service COmpany) business***
A project in which an energy service company guarantees a certain level of energy savings through the provision of comprehensive services for reducing energy consumption in a factory or building. There are two types of contract. In a guaranteed savings contract, the facility owner bears the project cost and the energy service company guarantees the energy savings. In a shared savings contract, the energy service company bears the project costs and the customer pays a fee for the results of energy-saving measures.

azbil MIND vol.19

# Newly Established Production Base in Thailand Takes on Challenge of Smooth Supply to Global Markets

**Global expansion is one of the key initiatives of the azbil Group's management strategy. Accordingly, in February of 2013 Azbil Corporation founded a manufacturing subsidiary in Thailand called Azbil Production (Thailand) Co., Ltd. Construction on the subsidiary's new factory was completed in November 2014, and the factory began to manufacture temperature controllers, air conditioning controllers, and other control products to meet the demand of global markets.**


Azbil Production (Thailand)'s new factory is located in the Amata Nakorn Industrial Estate in Chonburi, in central Thailand.

### *Meeting increased demand for products in rapidly growing Asian markets*

Guided by its philosophy of "human-centered automation," the azbil Group formulated its current medium-term plan (for fiscal years 2013 to 2016), which aims to achieve sustainable business growth both inside and outside of Japan, under the theme of "delivering value in a new dimension globally."

**Nobuyuki Nemoto**
Managing Director
Azbil Production (Thailand) Co., Ltd.

With the global market expanding in recent years, the azbil Group sees an urgent need to construct or reorganize its production, procurement, and logistics systems on a global scale to ensure the smooth and reliable supply of products. To achieve this objective, Azbil Corporation established its Azbil Production (Thailand) Co., Ltd. manufacturing subsidiary in Thailand in February 2013.

The azbil Group has been manufacturing many of its control products, sensors, switches, etc., in Japan and China. From now on, with the addition of Thailand, three countries—Japan, China, and Thailand—will share the responsibility for production, allowing both an expanded range of items produced and the establishment of a structure for supplying products tailored to the characteristics of each region. Also, from the perspective of business continuity planning (BCP), by operating multiple production facilities the azbil Group aims to spread the risk in the event of future natural disasters, etc.

### *Advanced energy-efficient factory uses Azbil's technology*

Azbil Production (Thailand)'s new factory is located conveniently in the Amata Nakorn Industrial Estate in Chonburi, in central Thailand, about one hour by car from the capital city of Bangkok and about 30 minutes by car from Suvarnabhumi International Airport. Some 660 companies in the automotive, steel, electronic, chemical, and other fields operate in this industrial park, and more than 60 % of them are Japanese companies.


Set up in the entrance hall of Azbil Production (Thailand)'s factory, ENEOPTpers visualizes the amount of energy consumed on the site. In this way, visitors can see a working application of ENEOPTpers, and employees are reminded of the importance of energy conservation.

It was in this same Amata Nakorn Industrial Estate, in July 2013, that Azbil Production (Thailand) rented a factory building and started to manufacture temperature controllers, which previously had been made at Isehara Factory in Japan and at Shenzhen Factory in China. Seven months later, on a site measuring about 20,000 m$^2$, Azbil Production (Thailand) began constructing its own factory with a total floor area of about 7,800 m$^2$. Completed in November 2014, the factory acquired ISO 9000 certification for its quality management system and commenced manufacturing in November.

One of the main features of this factory is its extensive energy-saving measures. As one of its energy-management solutions, the factory has installed ENEOPT™pers, a package for the optimization of electrical power supply and demand. ENEOPTpers "visualizes" the amount of energy consumed at the factory in order to raise awareness of energy conservation among the employees, as part of the environmental measures implemented by the azbil Group. The system is also shown to customers as an example, thus contributing to marketing and sales.

### *Manufacturing and sales work hand-in-hand to promote solutions that meet local needs*

Azbil Production (Thailand) plans to expand the range of items it produces to include proximity sensors and photoelectric sensors, in addition to the currently manufactured temperature controllers and air conditioning controllers. Furthermore, it is looking to increase the number of printed circuit boards and the types of controllers it manufactures in an effort to contribute greatly to the reliable supply of products to global markets, including the rapidly growing markets in Asia.

Another subsidiary in Thailand, Azbil (Thailand) Co., Ltd., is engaged in the sale, engineering, installation, and maintenance of industrial and building automation products in Thailand. Through the cooperation between Azbil (Thailand) and Azbil Production (Thailand), manufacturing and sales personnel will work hand-in-hand to promote products, services, and solutions that meet the local need for energy conservation, which is an azbil Group area of expertise. Likewise, Azbil Production (Thailand) will collaborate with other Group companies in Asia and around the world to respond to the diverse needs of customers on a global scale.

Assembly line for temperature controller.

Inspection of assembled temperature controllers.


Assembly line for Infilex air conditioner controllers.

ENEOPT is a trademark of Azbil Corporation.

Keywords A to Z Vol.5

Keyword

# Measurement and Industrial Metrology

**Measurement refers to taking the measure of substances or objects based on a predetermined standard. Industrial metrology involves gaining a comprehensive understanding of the target amount for some particular purpose.**

## *Ensuring fair transactions by using measurement and metrology to safeguard the quality and safety of products and services*

Measurement and industrial metrology. Are you aware of the difference between these two terms?

Measurement is the technique or method of taking the measure of a specific substance or object based on a predetermined standard. Industrial metrology, on the other hand, includes measurement, but in addition implies a technique or method of comprehensively understanding the target amount for some particular purpose. Measurement and industrial metrology are used in every kind of situation in the industrial world. This is because accurate measurement and metrology are indispensable for securing the consistent quality of products and services, and for providing safety and peace of mind to customers and others at all times.

In recent years, there has been an increasing need for measurement and metrology in order to supply a comprehensive understanding and evaluation of the amount of energy consumption of an entire building. Many kinds of equipment and devices operate in factories and buildings, and the work environment of the staff at such places is of course not the same everywhere. Accordingly, in such environments where there are a large number of variables, there is a need for methods and techniques that accurately measure and meter the amount of energy consumed. This is useful for purposes such as compliance with laws and regulations and for business continuity.

## *Aiming at further evolution to achieve global cooperation and expanded applicability*

As a basis for the continuing accuracy of measurement and metrology, standards are required. In order to establish these standards, prototypes or master standards for measures such as the meter or the kilogram are used. For a master standard to exhibit the correct values, it must be made of a material whose properties do not change easily. However, it is impossible to prevent minute errors from occurring as time passes. Therefore, recently, rather than establishing master standards based on particular manmade objects, universal physical constants are used to define standards. For example the length measurement in meters is defined as the path length travelled by light in a vacuum during a time interval of 1/299,792,458 of a second in 1983.

To facilitate international commerce and partnerships, there is widespread support for adoption of the International System of Units (SI).*1 The base units of the International System of Units include the meter (m) as the unit of length, the kilogram (kg) as the unit of mass, and the second (s) as the unit of time.

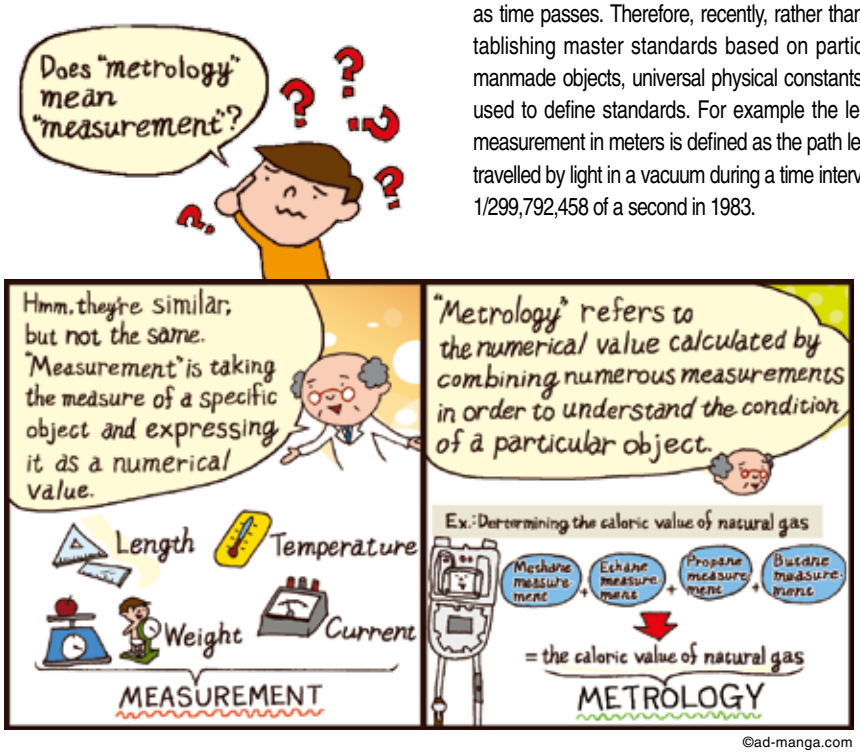
With the advancement of globalization and expansion of free trade by means such as FTAs,*2 measurement and metrology are playing increasingly important roles. Through the use of correct standards, variability of the amounts in transactions can be prevented. Accordingly, there is a need for mutual authentication between the concerned countries, not only by adopting international standards and SI units, but also with regard to various standards established in the business world. Without mutual authentication between countries, international partnerships and the free circulation of products and services cannot easily come into existence. With the advancement of globalization, the advancement of measurement and industrial metrology are also required.

*1. International System of Units

A system adopted by the General Conference on Weights and Measures in 1960 in order to provide standard international units to replace the varying units used in different countries and different subject areas. SI is the abbreviation of the system's name in French, Système International d'Unités.

*2. FTA (free trade agreement)

An agreement for promoting free trade that removes trade barriers such as tariffs on goods and other obstacles to commerce such as regulations that restrict trade in goods or services.

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GasCVD is a small and lightweight calorimeter used for natural gas. It measures the caloric value of natural gas, which has different ratios of components in different countries and regions, with a high degree of accuracy. GasCVD conforms to the standards set by international measurement laws and contributes to ensuring fairness in natural gas transactions.

GasCVD is a trademark of Azbil Corporation.

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http://www.azbil.com/

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

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